



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 ..... : 220309107SZN-001  
Date of issue ..... : April 28, 2022  
Total number of pages ..... : Refer to page 4 for details

Name of Testing Laboratory ..... : Intertek Testing Services Shenzhen Ltd. Longhua Branch  
preparing the Report ..... :

Applicant's name ..... : GlobTek, Inc.  
Address ..... : 186 Veterans Dr. Northvale, NJ 07647, United States of America.

#### Test specification:

Standard ..... : IEC 62368-1:2014  
Test procedure ..... : CB Scheme  
Non-standard test method ..... : N/A

TRF template used ..... : IECEE OD-2020-F1:2021, Ed.1.4

Test Report Form No. .... : IEC62368\_1D

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

Master TRF ..... : Dated 2022-04-14

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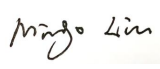

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

**This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.**

#### General disclaimer:

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

This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

<b>Test Item description</b> .....	ICT/ITE POWER SUPPLY	
<b>Trade Mark(s)</b> .....		
<b>Manufacturer</b> .....	Same as applicant	
<b>Model/Type reference</b> .....	<p>GT*961600P****, GT*961800P****          (The 1st "*" part can be 'M' or '-' or 'H' for market identification and not related to safety.          The 2nd "*" can be "01" to "180", denotes the rated output wattage designation from 1W to 180W, with interval of 1W.          The 3rd "*" can be "12" to "54" or "12.0" to "54.0", denote the standard rated output voltage designation from 12VDC to 54VDC, with interval of 0.1V.          The 4th "*" =-T2 means desktop class II with C8 AC inlet                            =-T2A means desktop class II with C18 AC inlet                            =-T3 means desktop class I with C14 AC inlet                            =-T3A means desktop class I with C6 AC inlet                            =-TW means desktop with input wires without plug (Certificated plugs will be fitted before use by skilled person)                            =-TP means desktop with power cord and US Plug          The last * denote any six character can be 0-9 or A-Z or () [] or – or blank for marketing purposes.)</p>	
<b>Ratings</b> .....	Input: 100-240V~, 50-60Hz or 50/60Hz, 2.2A; Class I or Class II equipment Output: 12-54VDC, Max.13.33A, Max. 180W	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/> <b>CB Testing Laboratory:</b>	Intertek Testing Services Shenzhen Ltd. Longhua Branch	
<b>Testing location/ address</b> .....	101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China.	
<b>Tested by (name, function, signature)</b> .....	Mingo Liu / Engineer	
<b>Approved by (name, function, signature)</b> .....	Jacky Chen / Project Engineer	
<b>Testing procedure: CTF Stage 1:</b>		
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		
<b>Approved by (name, function, signature)</b> .....		
<b>Testing procedure: CTF Stage 2:</b>		
<b>Testing location/ address</b> .....		
<b>Tested by (name, function, signature)</b> .....		
<b>Witnessed by (name, function, signature)</b> .....		

<b>Approved by (name, function, signature) .....</b>			
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 3 :</b>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 4:</b>		
<b>Testing location/ address .....</b>			
<b>Tested by (name, function, signature) .....</b>			
<b>Witnessed by (name, function, signature).....</b>			
<b>Approved by (name, function, signature) .....</b>			
<b>Supervised by (name, function, signature) .....</b>			

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

- Pages 1 to 76 for IEC 62368-1 TRF (main report)
- Appendix 1 (9 pages): European group differences and national differences of EN 62368-1:2014 + A11:2017
- Appendix 2 (5 pages): National differences of United States of America and Canada
- Appendix 3 (4 pages): National differences of JAPAN
- Appendix 4 (10 pages): National differences of Australia and New Zealand
- Appendix 5 (19 pages): National Requirements of SINGAPORE
- Appendix 6 (12 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 content of this test report

**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 (List of countries addressed):**

Group and national differences of all CENELEC members have been considered.

National differences of United States of America and Canada, Japan, Australia and New Zealand, National Requirements of SINGAPORE were checked.

☒ **The product fulfils the requirements of:** IEC 62368-1:2014/ EN 62368-1:2014 + A11:2017

**Use of uncertainty of measurement for decisions on conformity (decision rule):**

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other: (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

**Information on uncertainty of measurement:**

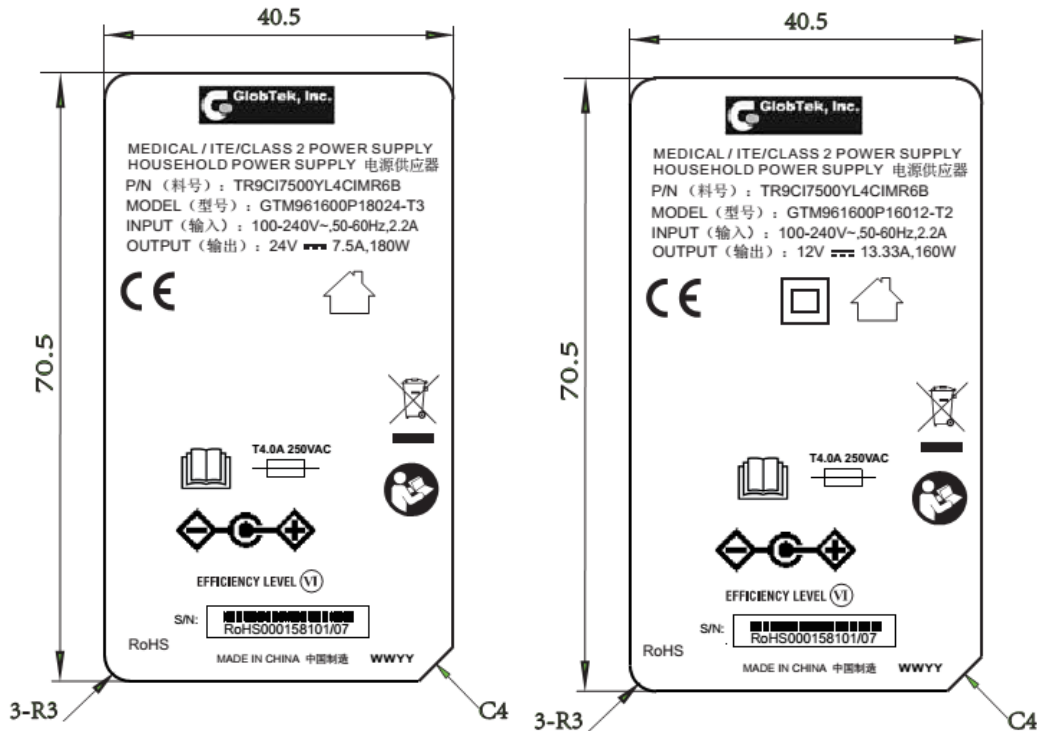
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

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

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

**Copy of marking plate:**

The 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.

**Remark:**

- 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.
- Other models are with similar label as corresponding above models except different model name and output ratings.
- When the equipment is vended to EU, the name and address of the importer or authorized representative within the EEA shall be added on the equipment.
- The CE marking and WEEE symbol (if any) should be at least 5,0 mm and 7,0 mm respectively in height.
- The model no. in above marking plate can be replaced by other ones listed in the report.

TEST ITEM PARTICULARS:	
Classification of use by .....	<input checked="" type="checkbox"/> Ordinary person (For all models whose 4th “*” is not “TW”) <input type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person (For models whose 4th “*” is “TW”) <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 checked="" type="checkbox"/> non-detachable supply cord (For models whose 4th “*” is TW or TP) <input checked="" type="checkbox"/> appliance coupler (For models whose 4th “*” is neither TW nor TP) <input 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 .....	16A; (20A for United States of America and Canada) Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility .....	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input 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 checked="" type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Class II with functional earthing <input type="checkbox"/> Not classified (See page 9 model differences for detail)
Access location .....	<input type="checkbox"/> restricted access area <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.....	__40__ °C
IP protection class .....	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP____
Power Systems .....	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V <sub>L-L</sub> ; <input type="checkbox"/> dc mains <input type="checkbox"/> N/A
Altitude during operation (m) .....	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> __5000__ m

<b>Altitude of test laboratory (m)</b> .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
<b>Mass of equipment (kg)</b> .....	<input checked="" type="checkbox"/> ____ 0.81 max. ____ kg

**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 .....** March 09, 2022

**Date (s) of performance of tests .....** March 09, 2022 – April 28, 2022

**General remarks:**

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

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

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

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**Remark:**

All test results have been taken from report 180401366SHA-001 dated on August 15, 2019, Clause 5, B.3 added re-consider and complied.

**Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-1:**

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

- ☒ **Yes**  
☐ **Not applicable**

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

**Name and address of factory (ies) .....**

Factory 1:  
 GlobTek (Suzhou) Co., Ltd  
 Building 4, No. 76 JinLing East Road, Suzhou  
 Industrial Park, Suzhou, JiangSu, 215021, China  
 Factory 2:  
 GlobTek, Inc.  
 186 Veterans Dr. Northvale, NJ 07647, United  
 States of America.

**General product information and other remarks:****Product Description –**

Product covered by this report is ICT/ITE POWER SUPPLY. GT\*961600P\*\*\*\*or GT\*961800P\*\*\*\* series For Power Source application.

Detachable power supply cord or permanent connected power supply cord power suppliers are provided with suitable external enclosure. The top and bottom parts of the enclosure are secured by screws.



The products were tested to be suitable for connection to  $\leq 16$  A (IEC) and  $\leq 20$  A (USA) branch circuit in series. The unit is approved for TN mains star connections. The unit provides internally one fuse F1 and one optional fuse F2.

The power supplies are rated Class I or Class II. Class II equipment is same with Class I equipment except remove of protective conductor and change of inlet type.

Transformers used in all models are with same construction. The turns of secondary winding may be added or reduced due to different output voltage.

All models have same PCB, but some non-critical components may be adjusted due to different output voltage. The parameters of these components depend on output voltage.

All the types are designed for continuous operation.

The products are not intended to be used in maximum ambient temperature exceed of 40 °C

The products are not intended to use in environment which altitude exceed 5000m.

Through the report, models GTM961600P16012-T2\*, GTM961600P17015-T3\*, GTM961600P18019-T3\*, GTM961600P18054-T2\*, GTM961600P18054-TW\*, GTM961600P18054-TP\* were tested as typical models for all tests.

#### Model Differences –

Model list see below:

Model	Input	Output voltage (Vdc)	Max. output current (A)	Max. output power (W)
GT*961600P**** GT*961800P****	100-240V~, 50-60Hz or 50/60Hz, 2.2A	12-14.9Vdc	13.33A	160W
GT*961600P**** GT*961800P****		15-18.9Vdc	11.33A	170W
GT*961600P**** GT*961800P****		19-54Vdc	9.47A	180W

Model description:

GT\*961600P\*\*\*\*, GT\*961800P\*\*\*\*

(The 1st “\*” part can be ‘M’ or ‘-’ or ‘H’ for market identification and not related to safety.

The 2nd “\*” can be “01” to “180”, denotes the rated output wattage designation from 1W to 180W, with interval of 1W.

The 3rd “\*” can be “12” to “54” or “12.0” to “54.0”, denote the standard rated output voltage designation from 12VDC to 54VDC, with interval of 0.1V.

The 4th “\*” =-T2 means desktop class II with C8 AC inlet

=-T2A means desktop class II with C18 AC inlet

=-T3 means desktop class I with C14 AC inlet

=-T3A means desktop class I with C6 AC inlet

=-TW means desktop with input wires without plug (Certificated plugs will be fitted before use by skilled person)

=-TP means desktop with power cord and US Plug

The last \* denote any six character can be 0-9 or A-Z or () [] or – or blank for marketing purposes.)

The models whose 4th “\*” is TP means desktop with power cord and US Plug, Class I or Class II equipment. Plug type of Class I equipment shall be NEMA-5-15P, Plug type of Class II equipment shall be NEMA-1-15P.

#### Additional application considerations – (Considerations used to test a component or sub-assembly)

-

<b>ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:</b>	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)	
(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
<b>Electrically-caused injury (Clause 5):</b>	
(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)	
Example: +5 V dc input	ES1
Source of electrical energy	Corresponding classification (ES)
Primary circuit	ES3
Output circuit	ES1
<b>Electrically-caused fire (Clause 6):</b>	
(Note: List sub-assembly or circuit designation and corresponding energy source classification)	
Example: Battery pack (maximum 85 watts):	PS2
Source of power or PIS	Corresponding classification (PS)
Primary circuit	PS3
Output circuit	PS3
<b>Injury caused by hazardous substances (Clause 7)</b>	
(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)	
Example: Liquid in filled component	Glycol
Source of hazardous substances	Corresponding chemical
N/A	N/A
<b>Mechanically-caused injury (Clause 8)</b>	
(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)	
Example: Wall mount unit	MS2
Source of kinetic/mechanical energy	Corresponding classification (MS)
Edges and corners of enclosure	MS1
Mass of the unit	MS1
<b>Thermal burn injury (Clause 9)</b>	
(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)	
Example: Hand-held scanner – thermoplastic enclosure	TS1
Source of thermal energy	Corresponding classification (TS)
External surfaces for accessible part	TS1
<b>Radiation (Clause 10)</b>	
(Note: List the types of radiation present in the product and the corresponding energy source classification.)	
Example: DVD – Class 1 Laser Product	RS1
Type of radiation	Corresponding classification (RS)
N/A	N/A

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: primary circuit	Equipment safeguard	Equipment safeguard (Earthing for Class I equipment)	1. Plastic enclosure approved Y-cap. and optocoupler used 3. clearances and creepage distances 4. Verified the test of prospective touch voltage and touch current 5. Isolated transformer.
Ordinary	ES1: Output circuit	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
Combustible materials within equipment	PS3: Primary circuit inside the enclosure	Normal temperature below ignition temperature	Fire enclosure; fire barrier; Suitable component and material used	N/A
Output connector and all parts outside Fire enclosure	PS3: Output circuit	Normal temperature below ignition temperature	Suitable component and material used	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Edges and corners	N/A	N/A	N/A

Ordinary	MS1: Mass of the unit	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Plastic enclosure	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components	(See appended table 4.1.2)	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions .....	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests .....	(See Annex T.4, T.5)	P
4.4.4.3	Drop tests .....	(See Annex T.7)	P
4.4.4.4	Impact tests .....	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests .....	(See Annex T.3)	N/A
4.4.4.6	Glass Impact tests .....	(See Annex T.9, Annex U)	N/A
4.4.4.7	Thermoplastic material tests .....	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard .....	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion		P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to .....	Internal components	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard .....		N/A
4.7.3	Torque (Nm) .....		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery .....		—
4.8.4	Battery Compartment Mechanical Tests .....	(See Table 4.8.4)	N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object .....	No likelihood of conductive object entry into enclosure.	P

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
5.2.1	Electrical energy source classifications .....	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current .....	See appended table 5.2)	P
5.2.2.3	Capacitance limits .....	(See appended table 5.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.4	Single pulse limits..... :	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses ..... :	(See appended table 5.2)	N/A
5.2.2.6	Ringing signals ..... :	(See Annex H)	N/A
5.2.2.7	Audio signals ..... :	(See Clause E.1)	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
5.3.2.2	Contact requirements		P
	a) Test with test probe from Annex V ..... :	No openings	P
	b) Electric strength test potential (V) ..... :		N/A
	c) Air gap (mm) ..... :		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning..... :	(See sub-clause 5.4.8)	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 ..... :	PD2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat softening temperature ..... :	(See appended table 5.4.1.10.2)	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 ..... :	2500V <sub>peak</sub>	—
	b) d.c. mains transient voltage ..... :		—
	c) external circuit transient voltage ..... :		—
	d) transient voltage determined by measurement ... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....	1.48	P
5.4.3	Creepage distances .....	(See appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group .....	IIIa & 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		P
5.4.4.4	Solid insulation in semiconductor devices		P
5.4.4.5	Cemented joints		N/A
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		P
	Number of layers (pcs) .....	2 layers	-
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....	(See appended Table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz.....	(See appended Table 5.4.4.9 or 5.4.9)	P
5.4.5	Antenna terminal insulation		P
5.4.5.1	General		P
5.4.5.2	Voltage surge test		P
	Insulation resistance (MΩ) .....	>4 MΩ	—
5.4.6	Insulation of internal wire as part of supplementary safeguard .....	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%) .....	93	—
	Temperature (°C) .....	40	—
	Duration (h) .....	120	—
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		P
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test.....:	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test.....:	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry.....:	(See appended table 5.4.9)	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage $U_{op}$ (V).....:		—
	Nominal voltage $U_{peak}$ (V).....:		—
	Max increase due to variation $U_{sp}$ .....:		—
	Max increase due to ageing $\Delta U_{sa}$ .....:		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....:		—
5.5	Components as safeguards		P
5.5.1	General		P
5.5.2	Capacitors and RC units	Approved Y capacitor (CY1, CY2) used.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See sub-clause 5.4 or Annex G.12)	P
5.5.5	Relays	(See Annex G.2)	N/A
5.5.6	Resistors	(See Annex G.10)	N/A
5.5.7	SPD's	VDR used between L and N	P
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	(See Annex G.10.3)	N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors	For all models of Class I	P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm <sup>2</sup> ).....:	Rated current 2.2A, cross-sectional area min. 18AWG	—
5.6.4	Requirement for protective bonding conductors		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm <sup>2</sup> ). .... :		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm <sup>2</sup> ), nominal thread diameter (mm)..... :		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method Resistance ( $\Omega$ )..... :	(See appended table 5.6.6.2)	P
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		P
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)..... :		—
	Multiple connections to mains (one connection at a time/simultaneous connections) ..... :		—
5.7.4	Earthed conductive accessible parts ..... :	(See appended Table 5.7.4) For all models of Class I	P
5.7.5	Protective conductor current		N/A
	Supply Voltage (V) ..... :		—
	Measured current (mA) ..... :		—
	Instructional Safeguard..... :	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA) ..... :		-
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA) ..... :		-

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Clause	Requirement + Test	Result - Remark	Verdict
<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		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)	N/A
6.2.2.5	PS2 ..... :	(See appended table 6.2.2)	N/A
6.2.2.6	PS3 ..... :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS ..... :	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (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 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method of control fire spread used.	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 ..... :	(See appended table 6.4.3)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards ..... :		N/A
6.4.6	Control of fire spread in PS3 circuit		P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General ..... :	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8	Fire enclosures and fire barriers	V-0 material Fire enclosure used.	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings.	P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....:		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) .....:		N/A
	Flammability tests for the bottom of a fire enclosure .....:		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....:		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating .....:	V-0 material Fire enclosure used.	P
6.5	Internal and external wiring		P
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....:	(See appended tables 4.1.2)	—
6.5.3	Requirements for interconnection to building wiring .....:		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
8.1	General		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	MS1	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard .....		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....	(See Annex F.4 and Annex K)	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard .....		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N).....		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....	(See appended table 8.5.5.2)	N/A
8.6	Stability	MS1	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard .....		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force .....		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force) .....		N/A
	Position of feet or movable parts .....		—
8.7	Equipment mounted to wall or ceiling		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....		N/A
8.7.2	Direction and applied force .....		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force .....		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force .....		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard .....		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force .....		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N) .....		—
8.10.6	Thermoplastic temperature stability (°C) .....		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i> .....		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas .....	(See Annex T)	N/A
	Button/Ball diameter (mm) .....		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
9.2	Thermal energy source classifications		P
9.3	Safeguard against thermal energy sources	TS1	P
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....		N/A

<b>10</b>	<b>RADIATION</b>		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

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Clause	Requirement + Test	Result - Remark	Verdict
	Laser radiation that exists in the equipment:		—
	Normal, abnormal, single-fault..... :	(See attached laser test report)	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 ..... :	(See appended table B.3 & B.4)	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:	(See appended table B.3 & B.4)	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards ..... :		N/A
	Instructional safeguard for skilled person ..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation ..... :		—
	Abnormal and single-fault condition..... :	(See appended table B.3 & B.4)	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

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Clause	Requirement + Test	Result - Remark	Verdict
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>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		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.....:	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		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		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector.....:		N/A
B.3.5	Maximum load at output terminals.....:	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.2	Temperature controlling device open or short-circuited..... :	(See appended table B.4)	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :	(See Clause G.5)	N/A
B.4.4	Short circuit of functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions.... :	(See Annex M)	N/A
<b>C</b>	<b>UV RADIATION</b>		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
<b>D</b>	<b>TEST GENERATORS</b>		P
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		P
D.3	Electronic pulse generator		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V)..... :		—
	Rated load impedance ( $\Omega$ ) ..... :		—
E.2	Audio amplifier abnormal operating conditions		N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
F.1	General requirements		P



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Clause	Requirement + Test	Result - Remark	Verdict
	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	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification .....	See copy of marking plate.	—
F.3.2.2	Model identification .....	See copy of marking plate.	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage .....	See copy of marking plate.	—
F.3.3.4	Rated voltage .....	See copy of marking plate.	—
F.3.3.5	Rated frequency .....	See copy of marking plate.	—
F.3.3.6	Rated current or rated power .....	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings .....		N/A
F.3.5.2	Switch position identification marking .....		N/A
F.3.5.3	Replacement fuse identification and rating markings .....	The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse is marked with F1: T4A 250V	P
F.3.5.4	Replacement battery identification marking .....		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment	For all models of Class I	P
F.3.6.1.1	Protective earthing conductor terminal		P
F.3.6.1.2	Neutral conductor terminal	No terminal of intended exclusively for connection of the mains neutral conductor	N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)	For all models of Class II	P
F.3.6.2.1	Class II equipment with or without functional earth		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking ..... :	IPX0	—
F.3.8	External power supply output marking	See copy of marking plate.	P
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		P
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard	For all models of Class I	P
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch		P
	j) Replaceable components or modules providing safeguard function		P
F.5	Instructional safeguards		N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
<b>G.2</b>	<b>Relays</b>		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
<b>G.3</b>	<b>Protection Devices</b>		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		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 ( $\Omega$ ) . :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	Certified fuse used according to IEC 60127.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions ..... :	(See appended Table B.4)	N/A
<b>G.4</b>	<b>Connectors</b>		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration ..... :		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
<b>G.5</b>	<b>Wound Components</b>		P
G.5.1	Wire insulation in wound components .....	Approved Insulated wire used as Reinforced insulation for secondary winding of T1.	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Separated by tube or tape, See photo document for details.	P
G.5.1.2 b)	Construction subject to routine testing	The routine tests are to be considered for the production based on the relevant approval	N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)..... :		—
	Temperature (°C) ..... :		—
G.5.2.3	Wound Components supplied by mains		N/A
<b>G.5.3</b>	<b>Transformers</b>		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....	The transformer meets the requirements given in G.5.3.2 and G.5.3.3.	P
	Position ..... :	T1	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Method of protection .....	See G.5.3.3.	—
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation (The core is considered as primary part as it is not isolated from Primary)	P
	Protection from displacement of windings .....	The end-turn of each winding is fixed by insulating tape	—
G.5.3.3	Overload test .....	(See appended table B.3 & B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment as an SMPS.	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3&B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
<b>G.5.4</b>	<b>Motors</b>		N/A
G.5.4.1	General requirements		N/A
	Position .....		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V) .....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V) .....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....		N/A
	Electric strength test (V) .....		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V) .....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>G.6</b>	<b>Wire Insulation</b>		P
G.6.1	General	Triple insulated winding in T1 secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J. See Appended table 4.1.2. No other wires used in the EUT.	P
G.6.2	Solvent-based enamel wiring insulation	Insulation does not rely on solvent-based enamel.	P
<b>G.7</b>	<b>Mains supply cords</b>		P
G.7.1	General requirements		P
	Type .....	(See append table 4.1.2)	—
	Rated current (A) .....	2.2A	—
	Cross-sectional area (mm <sup>2</sup> ), (AWG) .....	Min. 18AWG	—
G.7.2	Compliance and test method		P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N) .....	30	—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ...		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry .....		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) .....		—
	Diameter (m) .....		—
	Temperature (°C) .....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
<b>G.8</b>	<b>Varistors</b>		P
G.8.1	General requirements		P
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		P
G.8.3.2	Varistor overload test .....	Clause 6.4.1 is not applicable.	N/A
G.8.3.3	Temporary overvoltage .....	(See appended table B.3)	N/A
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA ..... :		—
G.9.1 d)	IC limiter output current (max. 5A) ..... :		—
G.9.1 e)	Manufacturers' defined drift ..... :		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General requirements		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
<b>G.11</b>	<b>Capacitor and RC units</b>		P
G.11.1	General requirements	(See appended table 4.1.2) Y1-capacitor or Y2-capacitor used as Reinforced safeguard which complies with IEC/EN 60384-14.	P
G.11.2	Conditioning of capacitors and RC units	Y1 capacitor or Y2 capacitor complied as environmental category at least 25/100/21 (21 days humidity) or 30/125/56 (56 days humidity) and in any case at 40°C	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12. Y1 capacitor or r Y2-capacitor bridging Reinforced insulation with rated voltage at least 250V tested with impulse 8kV peak and 4kV rms	P
<b>G.12</b>	<b>Optocouplers</b>		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) ..... :	(See appended table 4.1.2)	P
	Type test voltage Vini ..... :	(See appended table 4.1.2)	—
	Routine test voltage, Vini,b ..... :	(See appended table 4.1.2)	—
<b>G.13</b>	<b>Printed boards</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction) ..... :		—
G.13.5	Insulation between conductors on different surfaces		P
	Distance through insulation ..... :	(See appended table 5.4.4.5)	P
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements ..... :	(See G.13)	N/A
<b>G.15</b>	<b>Liquid filled components</b>		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		NA
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
a)	Humidity treatment in accordance with sc 5.4.8 – 120 hours		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

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Clause	Requirement + Test	Result - Remark	Verdict
D2)	Capacitance .....		—
D3)	Resistance .....		—
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....		—
H.3.1.2	Voltage (V) .....		—
H.3.1.3	Cadence; time (s) and voltage (V) .....		—
H.3.1.4	Single fault current (mA): .....		—
H.3.2	Tripping device and monitoring voltage.....		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....		—
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		P
	General requirements	Triple insulated winding wiring used as reinforced safeguard in the isolating transformer that has been evaluated to Annex J as follows: Requirements of Annex U of IEC 60950-1/A2 are identical to Annex J of this standard (for wires providing Reinforced insulation). See Table 4.1.2.	P
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism .....	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method .....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test ..... :	(See appended table 5.4.9)	N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		P
L.1	General requirements		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		P
L.8	Multiple power sources		N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method).... :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		NA
	- 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 ..... :	(See appended Tables and Annex M.3 and M.4)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature..... :	(See Annex M.4)	—
M.4.2.2 b)	Single faults in charging circuitry ..... :	(See Annex B.4)	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....		N/A
M.6.2	Leakage current (mA) .....		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume $V_z$ (m <sup>3</sup> /s) .....		—
M.8.2.3	Correction factors .....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....		N/A
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Metal(s) used .....		—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		P
	Figures O.1 to O.20 of this Annex applied .....	Considered.	—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS</b>		N/A
P.1	General requirements	No openings.	N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) .....		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts .....		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) .....		N/A
P.3	Safeguards against spillage of internal liquids		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		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) .....		—
	Tr (°C) .....		—
	Ta (°C) .....		—
P.4.2 b)	Abrasion testing .....	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing .....	(See Annex T)	N/A
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		NA
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) .....		—
	Current limiting method .....		—
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
R.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosure materials of equipment with a steady-state power exceeding 4000 W		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (test condition), (°C) .....		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		P
T.1	General requirements		P
T.2	Steady force test, 10 N .....	(See appended table T.2)	P
T.3	Steady force test, 30 N .....	(See appended table T.3)	N/A
T.4	Steady force test, 100 N .....	(See appended table T.4)	P
T.5	Steady force test, 250 N .....	(See appended table T.5)	N/A
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test .....	(See appended table T.7)	P
T.8	Stress relief test .....	(See appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J) .....		—
	Height (m).....		—
T.10	Glass fragmentation test.....	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) .....		—
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		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.....	(See Annex T)	N/A
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		P
V.1	Accessible parts of equipment		P
V.2	Accessible part criterion		P

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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 <sup>1</sup>
Enclosure (all parts)	SABIC INNOVATIVE PLASTICS B V	C2950	PC/ABS, Min. V-0, Min. thickness: 2.0mm, 105°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E45329
Alternative	SABIC INNOVATIVE PLASTICS B V	CX7211	PC/ABS, Min. V-0, Min. thickness: 2.0mm, 90°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E45329
Alternative	SABIC INNOVATIVE PLASTICS B V	945	PC, Min. V-0, Min. thickness: 2.0mm, 120°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E45329
Alternative	SABIC INNOVATIVE PLASTICS B V	HF500R	PC, V-0, Min. thickness: 2.0mm, 125°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E45329
Alternative	SABIC JAPAN L L C	C2950	PC/ABS, Min. V-0, Min. thickness: 2.0mm, 105°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E207780
Alternative	SABIC JAPAN L L C	CX7211	PC/ABS, Min. V-0, Min. thickness: 2.0mm, 90°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E207780
Alternative	SABIC JAPAN L L C	945	PC, Min. V-0, Min. thickness: 2.0mm, 120°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E207780
Alternative	SABIC JAPAN L L C	HF500R	PC, V-0, Min. thickness: 2.0mm, 125°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E207780
Alternative	TEIJIN CHEMICALS LTD	LN-1250G	PC, Min. V-0, Min. thickness: 2.0mm, 115°C	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E50075
Output Cord	SUZHOU DIOUDE ELECTRONICS CO LTD	1185, 2464, 2468, SPT-1, SVT	14 to 22 AWG, 2 to 6 wires, 300V, Min. 80°C, VW-1 supplied with a stripped and tinned connection, or any style DC output connector.	IEC/EN 62368-1 UL758	Tested with equipment UL E336191 UL E336192

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	1185, 2464, 2468, SPT-1, SVT	14 to 22 AWG, 2 to 6 wires, 300V, Min. 80°C, VW-1 supplied with a stripped and tinned connection, or any style DC output connector.	IEC/EN 62368-1 UL758	Tested with equipment UL E333601 UL E333536
Alternative	SUZHOU JIAHUI SHU ELECTRONIC CO LTD	1185, 2464, 2468	14 to 22 AWG, 2 to 6 wires, 300V, Min. 80°C, VW-1 supplied with a stripped and tinned connection, or any style DC output connector.	IEC/EN 62368-1 UL758	Tested with equipment UL E353532
Alternative	GLOBTEK INC	1185, 2464, 2468, SPT-1, SVT	14 to 22 AWG, 2 to 6 wires, 300V, Min. 80°C, VW-1 supplied with a stripped and tinned connection, or any style DC output connector.	IEC/EN 62368-1 UL758	Tested with equipment UL E464257 UL E245414
Alternative	Interchangeable	Interchangeable	14 to 22 AWG, 2 to 6 wires, 300V, Min. 80°C, VW-1 supplied with a stripped and tinned connection, or any style DC output connector.	IEC/EN 62368-1 UL758	Tested with equipment UL Approved
Mylar Insulating Sheet	TORAY INDUSTRIES INC	Lumirror H10	VTM-2, min. 0.4 mm thickness, 105°C	IEC/EN 62368-1 UL94	Tested with equipment UL E86511
Alternative	SKC CO LTD	SH71S	VTM-2, min. 0.4 mm thickness, 105°C	IEC/EN 62368-1 UL94	Tested with equipment UL E74359
Alternative	FORMEX, DIV OF IL TOOL WORKS INC, FRMRLY FASTEX, DIV OF IL TOOL WORKS INC	FORMEX GK series	V-0, min. 0.4 mm thickness, 115°C	IEC/EN 62368-1 UL94	Tested with equipment UL E121855
Alternative	SABIC INNOVATIVE PLASTICS US LLC	FR60 series	V-0, min. 0.4 mm thickness, 130°C	IEC/EN 62368-1 UL94	Tested with equipment UL E121562

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	SABIC INNOVATIVE PLASTICS US L L C	FR63 series	V-0, min. 0.4 mm thickness, 130°C	IEC/EN 62368-1 UL94	Tested with equipment UL E121562
Alternative	SABIC INNOVATIVE PLASTICS US L L C	FR65 series	V-0, min. 0.4 mm thickness, 130°C	IEC/EN 62368-1 UL94	Tested with equipment UL E121562
Alternative	SABIC INNOVATIVE PLASTICS US L L C	FR7 series	V-0, min. 0.4 mm thickness, 130°C	IEC/EN 62368-1 UL94	Tested with equipment UL E121562
Alternative	SABIC INNOVATIVE PLASTICS US L L C	FR700 series	V-0, min. 0.4 mm thickness, 130°C	IEC/EN 62368-1 UL94	Tested with equipment UL E121562
Alternative	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX PP WT-10 series	VTM-0, min. 0.4 mm thickness, 110°C	IEC/EN 62368-1 UL94	Tested with equipment UL E315185
Alternative	SICHUAN LONGHUA FILM CO LTD	PP-(i)(j)	V-0, min. 0.4 mm thickness, 105°C	IEC/EN 62368-1 UL94	Tested with equipment UL E254551
Appliance Inlet (CON1 Class I units) (C6 type)	Zhejiang LECI Electronics	DB-6	250 Vac; 2,5A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40032465 UL E302229
Alternative	Tecx-Unions Technology Corp	TU-333	250 Vac; 2,5A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	ENEC-00633 UL E220004
Alternative	Rich Bay Co Ltd	R-30790	250 Vac; 2,5A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40030381 UL E184638
Alternative	Sun Fair Electric Wire & Cable (HK) Co Ltd	S-02	250 Vac; 2,5A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40034448
Alternative	Inalways Corp.	0724	250 Vac; 2,5A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	ENEC/FI 2010080
Alternative	Zhe Jiang BeiErjia	ST-A04-002	250 Vac; 2,5A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40016045 UL E225980
Alternative	Rong Feng IndustrialCo., Ltd.	RF-190	2,5A, 250Vac, 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40030379 UL E102641



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Appliance inlet CON1 Class I units (C14 type)	Zhejiang LECI Electronics	DB-14	250 Vac; 10A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40032137 UL E302229
Alternative	Tecx-Unions Technology Corp	TU-301-S TU-301-SP	250 Vac; 10A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	ENEC00647 UL E220004
Alternative	Rich Bay Co Ltd	R-301SN	250 Vac; 10A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40030228 UL E184638
Alternative	Sun Fair Electric Wire & Cable (HK) Co Ltd	S-03	250 Vac; 10A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40034447 UL E226643
Alternative	Inalways Corp.	0711	250 Vac; 10A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	ENEC20100 84
Alternative	Zhe Jiang BeiErjia	ST-A01-003J	250 Vac; 10A; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40013388 UL E225980
Alternative	Rong Feng IndustrialCo., Ltd.	SS-120	2,5A, 250Vac; 3 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40028101 UL E102641
Appliance inlet CON1 Class II units (C8 type)	Zhejiang LECI Electronics	DB-8	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40032028 UL E302229
Alternative	Delikang Electronics Technology Co Ltd	CDJ-8	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40025531, UL E217394
Alternative	Rich Bay Co Ltd	R201SN90	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40030384 UL E184638
Alternative	Sun Fair Electric Wire & Cable (HK) Co Ltd	S-01	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40034449 UL E226643
Alternative	Tecx-unions Technology Corp	SO-222 series	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40020337 UL E220004
Alternative	Inalways Corp.	0721	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	ENEC/FI 2010087
Alternative	Zhe Jiang BeiErjia	ST-A03-005	250 Vac; 2,5A; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40014833 UL E225980

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Rong Feng Industrial Co., Ltd.	RF-180	2,5A, 250Vac; 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40030168 UL E102641
Appliance inlet CON1 Class II units (C18 type)	Rong Feng Industrial Co., Ltd	SS-120A	10A, 250Vac, 2 pins, 75° C	IEC/EN 60320-1 UL 498	VDE 40030168 UL E102641
Alternative	HCR ELECTRONICS CO., LTD.	SK05	10A, 250Vac, 2 pins, 75°C	IEC/EN 60320-1	ENEC
Power Supply cord (Optional)	YUNG LI CO LTD	SVT	Min.18AWG, 105°C, VW-1, with or without Hospital Grade USA Plug or Regular Use USA Plug, NEMA 5-15P or 1-15P	IEC 60227 EN 50525-2-11 UL817	Tested with equipment UL E152635
Alternative	JHI WEI ELECTRIC WIRE & CABLE CO LTD	SVT	Min.18AWG, 105°C, VW-1, with or without Hospital Grade USA Plug or Regular Use USA Plug, NEMA 5-15P or 1-15P	IEC 60227 EN 50525-2-11 UL817	VDE 40004775 UL E222747
Alternative	I SHENG ELECTRONICS (KUNSHAN) CO LTD	SVT	Min.18AWG, 105°C, VW-1, with or without Hospital Grade USA Plug or Regular Use USA Plug, NEMA 5-15P or 1-15P	IEC 60227 EN 50525-2-11 UL817	Tested with equipment UL E314513
Plug (Optional)	YUNG LI CO LTD	YP-18 YP-12	For North American Min.125V, Min.10A	UL817	Tested with equipment UL E152635
Alternative	JHI WEI ELECTRIC WIRE & CABLE CO LTD	JW-02 JW-03	For North American Min.125V, Min.10A For EU, Rated voltage: AC 250 V Rated current: 2,5 A	IEC 60227 VDE 0620-1 UL817	VDE 40005490 VDE 40005764 UL E222747
Alternative	SELF-MAN INDUSTRIAL CO	SM-045	For North American Min.125V, 12A	UL817	Tested with equipment UL E119543
PCB	WALEX ELECTRONIC (WUXI) CO LTD	T2 T2A T2B T4	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E154355

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	YUANMAN PRINTED CIRCUIT CO LTD	1V0	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E74757
Alternative	KUNSHAN CITY QIANDENG WUQIAO ELECTRICAL APPLIANCE FACTORY	WQ-A, WQ-B, WQ-C	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E492425
Alternative	Jiangxi ZHONG XIN HUA Electronics Industry Co Ltd	ZXH-2	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E331298
Alternative	Shenzhen Jia Li Chuang Technology Development Co LTD	JLC-2	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E479892
Alternative	DONGGUAN HE TONG ELECTRONICS CO LTD	CEM1 2V0 FR4	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E243157
Alternative	CHEERFUL ELECTRONIC (HK) LTD	02 03 03A	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E199724
Alternative	JIANGSU DIFEIDA ELECTRONICS CO LTD	DFD-1	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E213009
Alternative	DONGGUAN DAYSUN ELECTRONIC CO LTD	DS2	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E251754
Alternative	SUZHOU CITY YILIHUA ELECTRONICS CO LTD	YLH-1	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E251781
Alternative	DAFENG AREX ELECTRONICS TECHNOLOGY CO LTD	02V0 03V0 04V0	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E186016
Alternative	BRITE PLUS ELECTRONICS (SUZHOU) CO LTD	DKV0-3A DGV0-3A	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E177671

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	KUOTIANG ENT LTD	C-2 C-2A	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E227299
Alternative	SHENZHEN TONGCHUANGXI N ELECTRONICS CO LTD	TCX	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E250336
Alternative	PACIFIC WIN INDUSTRIAL LTD	PW-02 PW-03	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E228070
Alternative	SHANGHAI H-FAST ELECTRONICS CO LTD	211001 411001	Min. 1.6 mm thickness, min. V-0, 130°C	IEC/EN 62368-1 UL 796	Tested with equipment UL E337862
Fuse (F1, F2) (F2 optional)	Conquer Electronics Co., Ltd.	MST series	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40017118 UL E82636
Alternative	Ever Island Electric Co., Ltd. And Walter Electric	2010	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40018781 UL E220181
Alternative	Zhongshan Lanbao Electrical Appliances Co., Ltd.	RTI-10 Serie(s)	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40017009 UL E213695
Alternative	Bel Fuse Ltd.	RST-Serie(s)	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40011144 UL E20624
Alternative	Cooper Bussmann LLC	SS-5	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40015513 UL E19180
Alternative	Dongguan Better	932	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40033369 UL E300003
Alternative	Shenzhen Lanson Electronics Co. Ltd.	SMT	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40012592 UL E221465

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Conquer Electronics Co., Ltd.	MET series	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40017157 UL E82636
Alternative	Suzhou Walter Electronic Co. Ltd.	2000	T4A, 250V	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40018787 UL E56092
X capacitor (CX1)	Cheng Tung Industrial Co., Ltd.	CTX	Max 0.47 $\mu$ F, Min.300V,105°C X1 or X2	IEC/EN 60384-14 UL 1414	VDE 40022642 UL E193049
Alternative	Tenta Electric Industrial Co. Ltd.	MEX	Max 0.47 $\mu$ F, Min.250V,100°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 119119 UL E222911
Alternative	JOEY ELECTRONICS (DONG GUAN) CO LTD	MPX	Max 0.47 $\mu$ F, Min.300V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40032481 UL E216807
Alternative	Ultra Tech Xiphi Enterprise Co. Ltd.	HQX	Max 0.47 $\mu$ F, Min.250V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40015608 UL E183780
Alternative	Yuon Yu Electronics Co. Ltd.	MPX	Max 0.47 $\mu$ F, Min.250V,100°C X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40032392 UL E200119
Alternative	Sinhua Electronics (Huzhou) Co., Ltd.	MPX	Max 0.47 $\mu$ F, Min.300V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40014686 UL E237560
Alternative	Jiangsu Xinghua Huayu Electronics Co., Ltd.	MPX	Max 0.47 $\mu$ F, Min.250V,100°C X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40022417 UL E311166
Alternative	Dain Electronics Co., Ltd.	MEX	Max 0.47 $\mu$ F, Min.250V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018798 UL E147776
Alternative	Dain Electronics Co., Ltd.	MPX	Max 0.47 $\mu$ F, Min.250V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018798 UL E147776
Alternative	Dain Electronics Co., Ltd.	NPX	Max 0.47 $\mu$ F, Min.250V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018798 UL E147776
Alternative	Shenzhen Jinghao Capacitor Co., Ltd.	CBB62B	Max 0.47 $\mu$ F, Min.250V,110°C X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018690 UL E252286

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Xiangtai Electronic (Shenzhen) Co., Ltd.	MKP	Max 0.47μF, Min.250V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40036065 UL E357475
Alternative	Xiangtai Electronic (Shenzhen) Co., Ltd.	MPX	Max 0.47μF, Min.250V,110°C X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40036065 UL E357475
Alternative	Carli Electronics Co., Ltd.	MPX	Max 0.47μF, Min.250V,100°C X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40008520 UL E120045
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	Max 0.47μF, Min.250V,100°C X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40034679 UL E208107
Alternative	HUA JUNG COMPONENTS CO LTD	MKP	Max 0.47μF, Min.250V,100°C X2	IEC/EN 60384-14 UL 60384-14 UL 1414	ENEC 2001341 UL E149075
Y capacitor (CY1, CY2) (CY2 optional)	TDK Corporation	CD	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 25/125/21/B	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40029780 UL E37861
Alternative	Success Electronics Co., Ltd.	SE	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40037211 VDE 40020002 UL E114280
Alternative	Success Electronics Co., Ltd.	SB	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40037221 VDE 40020001 UL E114280
Alternative	Murata Mfg. Co., Ltd.	KX	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 25/125/21/B	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40002831 UL E37921

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Walsin Technology Corp.	AH	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 25/125/21/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40001804 UL E146544
Alternative	Haohua Electronic Co.	CT7	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40003902 UL E233106
Alternative	Xiangtai Electronic (Shenzhen) Co., Ltd.	YO-series	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40036880 UL E319473
Alternative	JYA-NAY Co., Ltd.	JN	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40001831 UL E201384
Alternative	Jyh Chung Electronic Co., Ltd.	JD	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 137027 UL E187963
Alternative	WELSON INDUSTRIAL CO LTD	WD	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14	VDE 40016157 UL E104572
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD-series	Y1, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14	VDE 40025754 UL E208107
Y capacitor (CY2 optional)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CE-series	Y2, AC250V, max. 2200pF (for class I models), max. 1500pF (for class II models), 30/125/56/C	IEC/EN 60384-14	VDE 40025748 UL E208107

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Transformer (T1)	GlobTek / BOAM / HAOPUWEI	TF081(12.0-14.9V) TF082(13.4-14.9V) TF083(15-18.9V) TF084(17.0-18.9V) TF085(19.0-23.9V) TF086(21.5-23.9V) TF087(24.0-31.9V) TF088(27.6-31.9V) TF089(32.0-41.9V) TF090(36.5-41.9V) TF091(42.0-47.9V) TF092(48.0-54.0V)	Class B, with critical component listed below	IEC/EN 62368-1	Tested with equipment
- Insulation system used in T1	GlobTek	GTX-130-TM	Class 130 (B)	IEC/EN 62368-1	Tested with equipment
Alternative	Haopuwei	GTX-130-TM	Class 130 (B)	IEC/EN 62368-1	Tested with equipment
Alternative	Haopuwei	ZT-130	Class 130 (B)	IEC/EN 62368-1	Tested with equipment
Alternative	BOAM	BOAM-01	Class 130 (B)	IEC/EN 62368-1	Tested with equipment
Alternative	BOAM	B1	Class 130 (B)	IEC/EN 62368-1	Tested with equipment
- Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U (UL E201757)	MW28-C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	2UEW-F (UL E229423)	MW 79-C, 155°C	IEC/EN 62368-1	Tested with equipment



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWS/U (UL E201757)	MW75-C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	JUNG SHING WIRE CO LTD	UEW-4 (UL E174837)	MW75C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	JUNG SHING WIRE CO LTD	UEY-2 (UL E174837)	MW28-C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD	2UEW/130 (UL E335065)	MW75-C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	CHANGZHOU DAYANG WIRE & CABLE CO LTD	2UEW/130 (UL E158909)	MW75-C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	WUXI JUFENG COMPOUND LINE CO LTD	2UEWB (UL E206882)	MW75#, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	JIANGSU DARTONG M & E CO LTD	UEW (UL E237377)	MW 75-C, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	SHANDONG SAINT ELECTRIC CO LTD	UEW/130 (UL E194410)	MW75#, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD	UEW (UL E222214)	MW 79#, 130°C	IEC/EN 62368-1	Tested with equipment
Alternative	NINGBO JINTIAN NEW MATERIAL CO LTD	2UEW (UL E227047)	MW 75-C, 130°C	IEC/EN 62368-1	Tested with equipment
-Triple-insulated wire (Secondary)	Great Leoflon Industrial Co., Ltd.	TRW (B) Serie(s)	Class B, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 136581 UL E211989
Alternative	COSMOLINK CO. Ltd.	TIW-M Serie(s)	Class B, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 138053 UL E213764

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Furukawa Electric Co., Ltd. Electronics & Automotive Systems Company Global Business Development Division	TEX-E	Class B, reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 006735 UL E206440
Alternative	TOTOKU ELECTRIC CO LTD	TIW-2	Reinforced insulation, rated 130° C (Class B)	UL 2353 IEC/EN 62368-1 UL 60601-1	VDE 40005152 UL E249037
Alternative	E&B TECHNOLOGY CO LTD	E&B-XXXB E&B-XXXB-1	Reinforced insulation, Class B	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 40023473 UL E315265
Alternative	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-TIW	Reinforced insulation, Class B	IEC/EN 62368-1 UL 2353 UL 60601-1	Tested with equipment UL E249037
Alternative	SHENZHEN JIUDING NEW MATERIAL CO LTD	DTIW-B	Reinforced insulation, Class B	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE 40037495 UL E357999
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J T375HF	V-0, 150°C, thickness 0.45 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E59481
Alternative	CHANG CHUN PLASTICS CO LTD	4130	V-0, 140°C, thickness 0.74 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E59481
Alternative	SUMITOMO BAKELITE CO LTD	PM-9820 PM-9823	V-0, 150°C, thickness 0.45 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E41429
Alternative	HITACHI CHEMICAL CO LTD	CP-J-8800	V-0, 150°C, thickness 0.45 mm min.	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	Tested with equipment UL E42956
-Insulating tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 1350T-1 44	Min.130°C	IEC/EN 62368-1 UL 510	Tested with equipment UL E17385
Alternative	BONDTEC PACIFIC CO LTD	370S(b)	Min.130°C	IEC/EN 62368-1 UL 510	Tested with equipment UL E175868

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ CT WF	Min.130°C	IEC/EN 62368-1	Tested with equipment UL E165111
Alternative	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A(b)	Min.130°C	IEC/EN 62368-1	Tested with equipment UL E246950
Alternative	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX(a)(b)	Min.130°C	IEC/EN 62368-1	Tested with equipment UL E246820
-PTFE tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFT / TFS	Min. 300V, 200°C	IEC/EN 62368-1	Tested with equipment UL E156256
Alternative	SHENZHEN WOER HEAT- SHRINKABLE MATERIAL CO LTD	WF	600V, 200°C	IEC/EN 62368-1	Tested with equipment UL E203950
Alternative	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-TT-T / CB- TT-S	Min. 300V, 200°C	IEC/EN 62368-1	Tested with equipment UL E180908
Varistor MOV1 (Optional)	Thinking Electronic Industrial Co., Ltd.	TVR10471K TVR14471K	Max. Continuous voltage: min 300Vac(rms), 85°C	IEC 61051-1 IEC 61051-2	VDE 005944 UL E314979
Alternative	Thinking Electronic Industrial Co., Ltd.	TVR10471K-M	Max. Continuous voltage: min 300Vac(rms), 125°C	IEC 61051-1 IEC 61051-2	VDE 40036061 UL E314979
Alternative	CENTRA SCIENCE CORP	CNR- 10D471K	Max. Continuous voltage: min 300Vac(rms), 105°C	IEC 61051-1 IEC 61051-2	VDE 40008220 UL E316325
Alternative	CENTRA SCIENCE CORP	CNR- 14D471K	Max. Continuous voltage: min 300Vac(rms), 105°C	IEC 61051-1 IEC 61051-2	VDE 40008220 UL E316325
Alternative	SUCCESS ELECTRONICS CO LTD	SVR10D471K SVR14D471K	Max. Continuous voltage: min 300Vac(rms), 105°C	IEC 61051-1 IEC 61051-2	VDE 40030401 UL E330256

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	SUCCESS ELECTRONICS CO LTD	SVR10D471K SVR14D471K	Max. Continuous voltage: min 300Vac(rms), 125°C	IEC 61051-1 IEC 61051-2	VDE 123677
Alternative	WALSIN TECHNOLOGY CORP	VZ10D471K VZ14D471K	Max. Continuous voltage: min 300Vac(rms), 85°C	IEC 61051-1 IEC 61051-2	VDE 005932 UL E309297
Alternative	BestBright Electronics Co. Ltd	10D471K 14D471K	Max. Continuous voltage: min 300Vac(rms), 105°C	IEC 61051-1 IEC 61051-2	VDE 40005858
Alternative	CERAMATE TECHNICAL CO LTD	GNR10D471K GNR14D471K	Max. Continuous voltage: min 300Vac(rms), 105°C	IEC 61051-1 IEC 61051-2	VDE 40031745 UL E315429
Alternative	BRIGHTKING (SHENZHEN) CO LTD	10D471K 14D471K	Max. Continuous voltage: min 300Vac(rms), 105°C	IEC 61051-1 IEC 61051-2	VDE 40027827 UL E327997
Alternative	BRIGHTKING (SHENZHEN) CO LTD	10H471K-(+)	Max. Continuous voltage: min 300Vac(rms), 125°C	IEC 61051-1 IEC 61051-2	VDE 40027827 UL E327997
Alt. use	JOYIN CO LTD	JVT10N471K JVT14N471K	Max. Continuous voltage: min 300Vac(rms), 125°C	IEC 61051-1 IEC 61051-2	VDE 005937 UL E325508
Alternative	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	07D471K 10D471K 14D471K	Max. Continuous voltage: min 300Vac(rms), 125°C	IEC 61051-1 IEC 61051-2	VDE 40023049 UL E330837
Alternative	Guangdong Huiwan Electronics Technology Co., LTD.	V-471K-10D, V-471K-10E V-471K-14D, V-471-14E	Max. Continuous voltage: min 300Vac(rms), 125°C	IEC 61051-1 IEC 61051-2	VDE 40043880 UL E480104
Opto coupler (U4)	Everlight Electronics Co., Ltd.	EL817	Dti=0.5mm Int. , dcr=6.0mm EXT.dcr=7.7mm, thermal cycling test,110°C	IEC/EN 60747-5-5	VDE 132249

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	COSMO ELECTRONICS CORP	K1010	Dti=0.6mm Int. , dcr=4.0mm EXT.dcr=5.0mm, thermal cycling test,115°C	IEC/EN 60747-5-5	VDE 101347
Alternative	COSMO Electronics Corporation	KP1010	Dti=0.6mm Int. , dcr=4.0mm EXT.dcr=5.0mm, thermal cycling test,115°C	IEC/EN 60747-5-5	VDE 101347
Alternative	Lite-On Technology Corporation	LTV-817	Dti=0.8mm Int. , EXT.dcr=7.8mm, thermal cycling test,110°C	IEC/EN 60747-5-5	VDE 40015248
Alternative	Fairchild Semiconductor Pte Ltd	H11A817B	Insulation voltage: 850V; Transient overvoltage: 6000V; CTI175; Int. Cr/ Ext. Cr: $\geq 7,0/$ 7,0 mm; 30/110/21	IEC/EN 60747-5-5	VDE 40026857
Alternative	Fairchild Semiconductor Pte Ltd	FOD817B	Insulation voltage: 850V; Transient overvoltage: 6000V; CTI175; Int. Cr/ Ext. Cr: $\geq 7,0/$ 7,0 mm; 30/110/21	IEC/EN 60747-5-5	VDE 40026857
Alternative	SHARP CORP ELECTRONIC COMPONENTS AND DEVICES BU	PC817	Insulation voltage: 890V; Transient overvoltage: 9000V Int. Cr/ Ext. Cr: 7,62/ 7,62 mm; 30/110/21	IEC/EN 60747-5-5	VDE 40008087
Alternative	Bright Led Electronics Corp.	BPC-817 A/B/C/D/L	Dti=0.4mm EXT. dcr=7.0mm, thermal cycling test,110°C	IEC/EN 60747-5-5	VDE 40007240
Alternative	Bright Led Electronics Corp.	BPC-817 M	Dti=0.4mm EXT. dcr=7.0mm, thermal cycling test,110°C	IEC/EN 60747-5-5	VDE 40007240

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Bright Led Electronics Corp.	BPC-817 S	Dti=0.4mm EXT. dcr=7.0mm, thermal cycling test,110°C	IEC/EN 60747-5-5	VDE 40007240
Alternative	TOSHIBA ELECTRONIC DEVICES & STORAGE CORPORATION	TLP817FK TLP817KF	Dti > 0,4mm, Ext cr > 8,0mm, Isolation 3000Vac min., 110°C min., Thermal cycling test	IEC/EN 60747-5-5	VDE 40021173
Alternative	Renesas Electronics Corporation	PS2701-1	Dti > 0,4mm, Ext cr > 7.0mm, Isolation 6000Vac min., 100°C min., Thermal cycling test	IEC/EN 60747-5-5	VDE 40008902
Earthing wire for Class I	DONGGUAN CHUANTAI WIRE PRODUCTS CO LTD	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E315628
Alternative	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E333601
Alternative	YONG HAO ELECTRICAL INDUSTRY CO LTD	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E240426
Alternative	Dongguan Cooperation Wire&Cable Co Ltd	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E204204
Alternative	KUNSHAN XINGHONGME NG ELECTRONIC CO LTD	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E315421
Alternative	Suzhou Jiahuishu Electronic Co Ltd	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E353532

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Suzhou Liyueke Electronic Technology Co Ltd	1015, 1007, 1185	Min. 20 AWG, Min. 300V, Min. 80°C,	IEC/EN 62368-1	Tested with equipment UL E476385
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
--		--	--	--
4.8.4.3	TABLE: Battery replacement test			—
Battery part no. .... :				—
Battery Installation/withdrawal			Battery Installation/ Removal Cycle	Comments
--			1	--
			2	--
			3	--
			4	--
			5	--
			6	--
			8	--
			9	--
				10

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

<b>4.8.4.4</b>	<b>TABLE: Drop test</b>			—
	Impact Area	Drop Distance	Drop No.	Observations
	--	--	1	--
	--	--	2	--
	--	--	3	--
<b>4.8.4.5</b>	<b>TABLE: Impact</b>			—
	Impacts per surface	Surface tested	Impact energy (Nm)	Comments
	--	--	--	--
	--	--	--	--
	--	--	--	--
<b>4.8.4.6</b>	<b>TABLE: Crush test</b>			—
	Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
	--	--	--	--
	--	--	--	--
Supplementary information:				

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



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

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	
Model: GT*961600P*16012-T2*							
1	264Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal	--	--	--	ES3 (Declared)
			Single fault – SC/OC	--	--	--	
2	264Va.c. 60Hz	Output V+ to V-	Normal	13.9	--	DC	ES1
			Single fault – U4A SC	0	--	DC	
			Single fault – U4B SC	0	--	DC	
			Single fault – Q5 D-S SC	0	--	DC	
3	264Va.c. 60Hz	Output V+ to Earth	Normal	--	0.05 mA	DC	ES1
			Single fault – U4A SC	--	0.051 mA	DC	
			Single fault – U4B SC	--	0.052 mA	DC	
4	264Va.c. 60Hz	Output V+ to V-	Normal	--	0.05 mA	DC	ES1
			Single fault – U4A SC	0	0.05 mA	DC	
			Single fault – U4B SC	0	0.052 mA	DC	
Model: GT*961600P*17015-T3*							
1	264Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal	--	--	--	ES3 (Declared)
			Single fault – SC/OC	--	--	--	
2	264Va.c. 60Hz	Output V+ to V-	Normal	16.1	--	DC	ES1
			Single fault – U4A SC	0	--	DC	
			Single fault – U4B SC	0	--	DC	
			Single fault – Q5 D-S SC	0	--	DC	
3	264Va.c. 60Hz	Output V+ to Earth	Normal	--	0.075mA	DC	ES1
			Single fault – U4A SC	--	0.075mA	DC	

IEC 62368-1							
Clause		Requirement + Test			Result - Remark		Verdict
			Single fault – U4B SC	--	0.076mA	DC	
4	264Va.c, 60Hz	Output V+ to V-	Normal	--	0.076mA	DC	ES1
			Single fault – U4A SC	0	0.077mA	DC	
			Single fault – U4B SC	0	0.076mA	DC	
Model: GT*961800P*18019-T3*							
1	264Va.c, 60Hz	Primary circuits supplied by a.c. mains supply	Normal	--	--	--	ES3 (Declared)
			Single fault – SC/OC	--	--	--	
2	264Va.c, 60Hz	Output V+ to V-	Normal	19.8	--	DC	ES1
			Single fault – U4A SC	0	--	DC	
			Single fault – U4B SC	0	--	DC	
			Single fault – Q5 D-S SC	0	--	DC	
3	264Va.c, 60Hz	Output V+ to Earth	Normal	--	0.074mA	DC	ES1
			Single fault – U4A SC	--	0.074mA	DC	
			Single fault – U4B SC	--	0.076mA	DC	
4	264Va.c, 60Hz	Output V+ to V-	Normal	--	0.075mA	DC	ES1
			Single fault – U4A SC	0	0.075mA	DC	
			Single fault – U4B SC	0	0.076mA	DC	
Model: GT*961800P*18054-T2*							
1	264Va.c, 60Hz	Primary circuits supplied by a.c. mains supply	Normal	--	--	--	ES3 (Declared)
			Single fault – SC/OC	--	--	--	
2	264Va.c, 60Hz	Output V+ to V-	Normal	55.0	--	DC	ES1
			Single fault – U4A SC	0	--	DC	
			Single fault – U4B SC	0	--	DC	
			Single fault – Q5 D-S SC	0	--	DC	
3	264Va.c, 60Hz	Output V+ to Earth	Normal	--	0.076 mA	DC	ES1
			Single fault – U4A SC	--	0.077 mA	DC	

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Clause	Requirement + Test	Result - Remark	Verdict

			Single fault – U4B SC	--	0.078 mA	DC	
4	264Va.c, 60Hz	Output V+ to V-	Normal	--	0.076 mA	DC	ES1
			Single fault – U4A SC	0	0.076 mA	DC	
			Single fault – U4B SC	0	0.076 mA	DC	

## 5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1	264V	CX1	Normal	330	372	ES3
			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)	Ipk (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)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

## Test Conditions:

Normal –

Abnormal -

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

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

<b>5.4.1.4, 6.3.2, 9.0, B.2.6</b>	<b>TABLE: Temperature measurements</b>					<b>P</b>
	Supply voltage (V) .....	90	264	90	264	—
	Ambient $T_{min}$ (°C) .....	--	--	--	--	—
	Ambient $T_{max}$ (°C) .....	--	--	--	--	—
	Tma (°C) .....	40	40	40	40	—
Maximum measured temperature T of part/at:		T (°C)				Allowed $T_{max}$ (°C)
		<b>Model:GTM961600P1 6012-T2*</b>		<b>Model:GTM961600P1 7015-T3*</b>		--
AC inlet		69.1	53.1	64.2	58.9	75
Varistor MOV1		81.2	68.2	76.0	65.3	85
Line chock of LF1		89.6	71.9	93.1	69.4	110
X-capacitor( CX1)		91.1	74.3	95.1	71.6	100
Line chock of LF2		97.8	85.1	97.7	72.9	110
PCB under BD1		91.2	77.2	93.5	73.2	130
Line chock of L1		100.6	88.7	106.4	76.7	110
Line chock of L2		99.1	78.5	100.8	76.6	110
E-capacitor C4		97.3	82.7	99.6	79.8	105
PCB between D2 and Q1		93.1	86.3	94.6	75.9	130
PCB between Q2 and Q3		90.2	78.6	92.1	75.1	130
Capacitor C25		97.7	85.7	98.4	80.7	105
E-capacitor C28		95.3	84.3	97.5	81.0	105
Transformer (T1) Primary Winding		101.1	90.4	101.7	85.9	110
Transformer (T1) Secondary Winding		102.5	97.0	98.8	83.2	110
Transformer (T1) Core		80.0	75.5	88.5	59.7	Ref.
Opto coupler U4		97.2	89.5	95.6	82.6	110
CY1 body near Transformer		87.9	78.6	87.9	74.5	125
CY2 body near Transformer		87.7	80.6	85.4	74.6	125
PCB between Q4 and Q5		108.8	102.7	109.7	98.1	130
E-capacitor C41 near Transformer		102.0	94.4	96.1	84.1	105
E-capacitor C42 near Transformer		101.4	94.6	94.1	81.7	105
Line chock of LF3		106.2	101.4	94.4	85.9	110
E-capacitor C43		94.7	91.5	83.9	77.1	105
Output cord		75.0	73.4	72.8	68.4	80
Enclosure inside above Transformer		84.6	77.5	83.3	71.6	90
Insulation Sheet		95.4	91.4	95.4	78.3	100
Ambient		40.0	40.0	40.0	40.0	--
Touch temperature						

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Clause	Requirement + Test		Result - Remark		Verdict
Enclosure outside above Transformer	71.1	65.9	73.2	64.9	77
Ambient	25.0	25.0	25.0	25.0	--
Maximum measured temperature T of part/at:	T (°C)				Allowed T <sub>max</sub> (°C)
	Model:GTM961600P1 8019-T3*		Model:GTM961600P1 8054-T2*		--
AC inlet	68.0	55.4	69.0	69.0	75
Varistor MOV1	78.2	64.9	78.6	76.3	85
Line chock of LF1	94.3	68.8	97.2	97.2	110
X-capacitor( CX1)	96.2	69.9	97.2	97.2	100
Line chock of LF2	100.3	72.0	101.9	101.9	110
PCB under BD1	89.6	70.0	94.1	94.1	130
Line chock of L1	106.2	75.4	105.4	105.4	110
Line chock of L2	105.1	76.5	107.1	106.5	110
E-capacitor C4	99.4	78.7	101.7	101.7	105
PCB between D2 and Q1	93.2	74.7	95.6	95.6	130
PCB between Q2 and Q3	91.0	73.5	92.9	92.9	130
Capacitor C25	97.6	79.3	100.7	100.7	105
E-capacitor C28	96.0	78.7	99.7	99.7	105
Transformer (T1) Primary Winding	107.1	88.3	105.6	105.6	110
Transformer (T1) Secondary Winding	101.9	84.7	107.4	107.4	110
Transformer (T1) Core	100.4	83.7	101.9	101.9	Ref.
Opto coupler U4	95.6	82.7	99.1	99.1	110
CY1 body near Transformer	86.4	72.5	87.1	87.1	125
CY2 body near Transformer	93.2	72.3	82.6	82.6	125
PCB between Q4 and Q5	100.3	89.3	103.2	103.2	130
E-capacitor C41 near Transformer	91.9	79.4	94.1	94.1	105
E-capacitor C42 near Transformer	93.6	79.7	92.4	92.4	105
Line chock of LF3	89.6	81.4	85.0	85.0	110
E-capacitor C43	81.3	75.0	73.8	73.8	105
Output cord	76.8	72.6	73.5	73.5	80
Enclosure inside above Transformer	75.4	65.6	74.7	74.7	90
Insulation Sheet	88.0	74.0	88.0	88.0	100
Ambient	40.0	40.0	40.0	40.0	--
Touch temperature					
Enclosure outside above Transformer	69.0	61.9	65.5	65.5	77
Ambient	25.0	25.0	25.0	25.0	--
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							
Supplementary information:							
Note 1: T <sub>ma</sub> should be considered as directed by applicable requirement							
Note 2: T <sub>ma</sub> is not included in assessment of Touch Temperatures (Clause 9)							

<b>5.4.1.10.2</b>	<b>TABLE: Vicat softening temperature of thermoplastics</b>	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 (SE1X, SE1)	SABIC INNOVATIVE PLASTICS B V	125	Max. 1.4	
Enclosure (945(GG), CX7211, C2950, HR500R)	SABIC INNOVATIVE PLASTICS B V	125	Max. 1.3	
Enclosure (SE1X, SE1)	SABIC JAPAN L L C	125	Max. 1.4	
Enclosure (945(GG), CX7211, C2950, HR500R)	SABIC JAPAN L L C	125	Max. 1.3	
Enclosure (LN-1250P)	TEIJIN CHEMICALS LTD	125	Max. 1.5	
Enclosure (LN-1250G)	TEIJIN CHEMICALS LTD	125	Max. 1.5	
Bobbin (T375J, T375HF)	CHANG CHUN PLASTICS CO LTD	125	Max. 0.8	
Bobbin (4130)	CHANG CHUN PLASTICS CO LTD	125	1.0	
Bobbin (PM-9820)	SUMITOMO BAKELITE CO LTD	125	0.8	
Bobbin (CP-J-8800)	HITACHI CHEMICAL CO LTD	125	0.8	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

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) <sup>1</sup>	Required cl (mm)	cl (mm) <sup>2</sup>	Required <sup>3</sup> cr (mm)	cr (mm)
L to N before fuse (FI)	372	240	<30	2.3	4.3	2.4	4.3
Two poles of fuse (FI)	372	240	<30	2.3	3.3	2.4	3.3
CY1 Primary circuits to secondary circuits (BI)	372	240	125	2.3	4.3	2.4	4.3
CY2 Primary circuits to secondary circuits (SI)	372	240	125	2.3	4.5	2.4	4.5
Live parts to Enclosure parts (RI)	372	240	125	4.5	7.5	5.0	7.5
Live parts to accessible parts (RI)	372	240	125	4.5	7.5	5.0	7.5
Primary circuit to secondary circuits (PCB trace under T1) (RI)	444	240	125	4.5	6.5	5.0	6.5
Transformer Primary winding to secondary winding (RI)	444	240	125	4.5	7.7	5.0	7.7
Transformer Secondary winding to core (RI)	444	240	125	4.5	7.5	5.0	7.5
Supplementary information:							
Note 1: Only for frequency above 30 kHz							
Note 2: See table 5.4.2.4 if this is based on electric strength test							
Note 3: Provide Material Group							
BI=Basic insulation, SI=Supplementary insulation, RI=Reinforced insulation.							
Required value was multiplied by the factor 1.48 due to the maximum specified altitude of 5000m.							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.		--	--	--
Supplementary information:				

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	
--	--	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict
--	--	--	--
Supplementary information:			

<b>5.4.4.2, 5.4.4.5 c) 5.4.4.9</b>	<b>TABLE: Distance through insulation measurements</b>					P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Enclosure	372	125K	Plastic	0.4	See table 4.1.2	
Bobbin of T1	444	125K	Phenolic	0.4	See table 4.1.2	
Insulation tape on T1 and secondary heat-sink	444	125K	--	2 layers	--	
Insulation sheet	444	125K	Phenolic	0.4	See table 4.1.2	
Supplementary information:						

<b>5.4.9</b>	<b>TABLE: Electric strength tests</b>				P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No	
Basic/supplementary:					
Line to Neutral (with fuse disconnect)		DC	2500	No	
L/N to Metal part		DC	2500	No	
Reinforced:					
Primary circuit to body (RI)		DC	4000	No	
Primary circuit to secondary circuit (RI)		DC	4000	No	
Primary winding to secondary winding of T1 (RI)		DC	4000	No	
Secondary winding to core (RI)		DC	4000	No	
Insulation tape around transformer per layer (RI)		DC	4000	No	
Supplementary information:					
Test model GTM961600P17015-T3*					



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Clause	Requirement + Test	Result - Remark	Verdict

5.5.2.2	TABLE: Stored discharge on capacitors					P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
264V, 60Hz	Plug	N	No switch	26.4	ES3	
264V, 60Hz	Plug	S (R2A open)	No switch	30.4	ES3	
264V, 60Hz	Plug	S (R2B open)	No switch	30.4	ES3	
Supplementary information:						
X-capacitors installed for testing are: CX1: Max. 0.47μF <input type="checkbox"/> bleeding resistor rating: R1=R2=R28=R29=3.9MΩ <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				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Protective earth of inlet to faster metal part	32	2	--	0.032	
Protective earth of inlet to faster metal part	40	2	1.28	0.032	
Supplementary information:					
Test model GTM961600P17015-T3*					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage .....	264Vac		—
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)
L, N to Output cord	1		0.15
	2*		0.15
	3		--
	4		--
	5		--
	6		--

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Clause	Requirement + Test	Result - Remark	Verdict
		8	--
Supplementary Information:			
Notes: [1] Supply voltage is the anticipated maximum Touch Voltage [2] Earthed neutral conductor [Voltage differences less than 1% or more] [3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3 [4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable. [5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.			

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	
Model: GTM961600P16012-T2*						
Output	Normal operation	Power (W) :	160	160	PS3	
		V <sub>A</sub> (V) :	12.0	12.0		
		I <sub>A</sub> (A) :	13.352	13.352		
Model: GTM961600P17015-T3*						
Output	Normal operation	Power (W) :	170	170	PS3	
		V <sub>A</sub> (V) :	15.98	15.98		
		I <sub>A</sub> (A) :	10.647	10.647		
Model: GTM961600P18019-T3*						
Output	Normal operation	Power (W) :	180	180	PS3	
		V <sub>A</sub> (V) :	18.89	18.89		
		I <sub>A</sub> (A) :	9.536	9.536		
Model: GTM961600P18054-T2*						
Output	Normal operation	Power (W) :	180	180	PS3	
		V <sub>A</sub> (V) :	53.88	53.88		
		I <sub>A</sub> (A) :	3.347	3.347		
Supplementary Information:						
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits						

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				P
Location	Open circuit voltage After 3 s (V <sub>p</sub> )	Measured r.m.s current (I <sub>rms</sub> )	Calculated value (V <sub>p</sub> x I <sub>rms</sub> )	Arcing PIS? Yes / No	
Model: GTM961600P18054-T2*					
All circuits	--	--	--	Yes (Declared)	
Other Models					

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
Primary circuit	--	--	--	Yes (Declared)
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	
All circuits	--	--	--	--	Yes (Declared)	
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 ( $VA \times IA$ ) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.						

8.5.5	TABLE: High Pressure Lamp		N/A
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)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
Model: GTM961600P16012-T2*									

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Clause		Requirement + Test				Result - Remark		Verdict
90	50	2.047	--	182.5	--	F1	2.047	Max normal load
100	50	1.812	2.2	181.6	--	F1	1.812	
240	50	0.768	2.2	177.7	--	F1	0.768	
264	50	0.704	--	177.6	--	F1	0.704	
90	60	2.066	--	184.3	--	F1	2.066	
100	60	1.815	2.2	183.0	--	F1	1.815	
240	60	0.772	2.2	178.2	--	F1	0.772	
264	60	0.705	--	177.9	--	F1	0.705	
Model: GTM961600P17015-T3*								
90	50	2.102	--	189.5	--	F1	2.102	Max normal load
100	50	1.883	2.2	188.5	--	F1	1.883	
240	50	0.793	2.2	183.0	--	F1	0.793	
264	50	0.727	--	183.0	--	F1	0.727	
90	60	2.124	--	189.9	--	F1	2.124	
100	60	1.888	2.2	189.0	--	F1	1.888	
240	60	0.797	2.2	183.3	--	F1	0.797	
264	60	0.729	--	183.1	--	F1	0.729	
Model: GTM961600P18019-T3*								
90	50	2.243	--	200.0	--	F1	2.243	Max normal load
100	50	1.990	2.2	198.3	--	F1	1.990	
240	50	0.837	2.2	193.8	--	F1	0.837	
264	50	0.765	--	193.4	--	F1	0.765	
90	60	2.260	--	202.0	--	F1	2.260	
100	60	2.005	2.2	199.7	--	F1	2.005	
240	60	0.839	2.2	194.1	--	F1	0.839	
264	60	0.766	--	193.9	--	F1	0.766	
Model: GT*961800P18054-T2*								
90	50	2.218	--	197.8	--	F1	2.218	Max normal load
100	50	1.983	2.2	196.6	--	F1	1.983	
240	50	0.832	2.2	192.5	--	F1	0.832	
264	50	0.762	--	193.2	--	F1	0.762	
90	60	2.232	--	201	--	F1	2.232	
100	60	2.000	2.2	200	--	F1	2.000	
240	60	0.837	2.2	194.1	--	F1	0.837	
264	60	0.765	--	193.3	--	F1	0.765	
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								

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Clause	Requirement + Test	Result - Remark	Verdict

<b>B.3</b>	<b>TABLE: Abnormal operating condition tests</b>							<b>P</b>
Ambient temperature (°C) .....					25.0°C		—	
Power source for EUT: Manufacturer, model/type, output rating ..					--		—	
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Model: GTM961600P18054-T2*								
Output	OL	90VAC	5hrs 26mins	F1	2.232 → 2.509 → 0.064	--	Transformer (T1) Primary Winding : 109.9 Enclosure outside above Transformer: 73.2 Ambient : 25.0	When output current 3.63A for attaining steady conditions, and no hazard, then output current rise to 3.73A, the output can't be loaded, no higher temperature rise occurred. No hazard.
Supplementary information:								
<p>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.</p> <p>SC: Short-circuited; OC: Open-circuited; OL: Overloaded; BL: Blocked.</p> <p>Temperature Limit:</p> <p>Transformer (T1) Primary Winding: 165-10-15=140°C</p> <p>Enclosure outside above Transformer: 87°C</p>								

<b>B.4</b>	<b>TABLE: Fault condition tests</b>							<b>P</b>
Ambient temperature (°C) .....					25.0°C		—	
Power source for EUT: Manufacturer, model/type, output rating ..					--		—	
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Model: GTM961600P18054-T2*								
BD1 Pin 1-2	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.

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Clause	Requirement + Test				Result - Remark			Verdict
C4	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard
U4A	SC	264VAC	0.1s	F1	0.64	--	--	Unit shutdown, immediately Unit is recoverable. No damage.
U4B	SC	264VAC	1min	F1	0	--	--	The Voltage dropped down from 54.2V to 0V. Work for 7h. Unit is recoverable. No damage.
Q2 G-D	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.
Q2 G-S	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.
Q2 D-S	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.
Q3 G-D	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.
Q3 G-S	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.

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Clause	Requirement + Test				Result - Remark			Verdict
Q3 D-S	SC	264VAC	0.1s	F1	0	--	--	Unit shutdown, immediately F1, F2 open. No hazard.
U2 pin 8-2	SC	264VAC	45s	F1	0	--	--	The Voltage dropped down from 36.0V to 0V. Work for 7h. Unit is recoverable. No damage.
T1 Pin 7-8	SC	264VAC	45s	F1	0.64	--	--	The Voltage dropped down from 36.0V to 0V. Work for 7h. Unit is recoverable. No damage.
T1 Pin 11-10	SC	264VAC	45s	F1	0.64	--	--	The Voltage dropped down from 36.0V to 7.12V. Work for 7h. Unit is recoverable. No damage.
Supplementary information:								
SC: Short-circuited; OC: Open-circuited; OL: Overloaded; BL: Blocked.								

IEC 62368-1									
Clause	Requirement + Test					Result - Remark			Verdict
<b>Annex M.3</b>	<b>TABLE: Batteries</b>								N/A
The tests of Annex M are applicable only when appropriate battery data is not available								--	
Is it possible to install the battery in a reverse polarity position? .....						--		--	
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--
Test results:								Verdict	
- Chemical leaks								--	
- Explosion of the battery								--	
- Emission of flame or expulsion of molten metal								--	
- Electric strength tests of equipment after completion of tests								--	
Supplementary information:									

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



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Clause	Requirement + Test	Result - Remark	Verdict

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
--	--	--	--	--	--	--
Supplementary Information:						
SC=Short circuit, OC=Open circuit						

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Clause	Requirement + Test			Result - Remark	Verdict
<b>T.2, T.3, T.4, T.5</b>	<b>TABLE: Steady force test</b>				<b>P</b>
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Enclosure top, closed to transformer (T.4)	Plastics	2.0	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure side (T.4)	Plastics	2.0	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure bottom, closed to transformer (T.4)	Plastics	2.0	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Internal components (T.2)	--	--	10	5	No insulation breakdown. No reduction the clearances and creepage distances
Supplementary information:					

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure	Plastice	2.0	1300	After the Impact tests, no open was found for the enclosure	
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Three side of enclosure	Plastics	2.0	1000	After the drop test, no open was found for the enclosure	
Supplementary information:					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	Plastics	2.0	96.2	7	Enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:						

IEC62368_1D - ATTACHMENT																																										
Clause	Requirement + Test				Result - Remark	Verdict																																				
<div>ATTACHMENT TO TEST REPORT</div> <div>IEC 62368-1</div> <div>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</div> <div>(Audio/video, information and communication technology equipment - Part 1: Safety requirements)</div>																																										
Differences according to.....: EN 62368-1:2014+A11:2017																																										
Attachment Form No.....: EU_GD_IEC62368_1D_II																																										
Attachment Originator .....: Nemko AS																																										
Master Attachment .....: Date 2021-02-04																																										
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	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”.					--																																				
CONTENT S	<b>Add</b> the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					P																																				
	<b>Delete</b> 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	<b>Add</b> 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																																				

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	<p><b>Add</b> 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. <b>mains</b>, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for <b>pluggable equipment type B</b> or <b>permanently connected equipment</b>, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for <b>pluggable equipment type A</b> the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P
5.4.2.3.2.4	<p><b>Add</b> the following to the end of this subclause:</p> <p>The requirement for interconnection with <b>external circuit</b> 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
10.5.1	<p><b>Add</b> the following after the first paragraph:</p> <p><i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><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>		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Cont'd	<p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm<sup>2</sup>, at any point 10 cm from the outer surface of the apparatus.</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	<b>Add</b> the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	<p><b>Add</b> the following new subclause after 10.6.5.</p> <p><b>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</b></p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>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><b>Add</b> the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A
Bibliography	<p><b>Add</b> the following standards:</p> <p><b>Add</b> 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>		P

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		<b>P</b>
4.1.15	<p><b>Denmark, Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p><b>Class I pluggable equipment type A</b> intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and <b>accessible</b> parts, have a marking stating that the equipment shall be connected to an earthed <b>mains</b> socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In <b>Denmark</b>: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In <b>Finland</b>: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In <b>Norway</b>: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In <b>Sweden</b>: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		N/A
5.2.2.2	<p><b>Denmark</b></p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking <b>safeguard</b>) for high <b>touch current</b> is required if the <b>touch current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	<p><b>Finland and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>• two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>• passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and</li> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14: 2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11;</li> <li>• the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> </ul> <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		N/A
5.5.2.1	<p><b>Norway</b></p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A
5.5.6	<p><b>Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p>Resistors used as <b>basic safeguard</b> or bridging <b>basic insulation in class I pluggable equipment type A</b> shall comply with G.10.1 and the test of G.10.2.</p>		N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.1	<p><b>Denmark</b></p> <p><b>Add</b> to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N/A
5.6.4.2.1	<p><b>Ireland and United Kingdom</b></p> <p>After the indent for <b>pluggable equipment type A</b>, the following is added:</p> <p>– the <b>protective current rating</b> is taken to be 13 A, this being the largest rating of fuse used in the <b>mains</b> plug.</p>		P
5.6.5.1	<p>To the second paragraph the following is added:</p> <p>The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is:</p> <p>1,25 mm<sup>2</sup> to 1,5 mm<sup>2</sup> in cross-sectional area.</p>		N/A
5.7.5	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added:</p> <p>The installation instruction shall be affixed to the equipment if the <b>protective conductor current</b> exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p><b>Norway and Sweden</b></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 jordtilkoplest utstyr – og er tilkoplest 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
5.7.6.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added:</p> <p>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA.</p>		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.1 and B.4	<p><b>Ireland and United Kingdom</b></p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of <b>direct plug-in equipment</b>, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the <b>direct plug-in equipment</b>, until the requirements of Annexes B.3.1 and B.4 are met</p>		P
G.4.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i></p> <p>Heavy Current Regulations, Section 6c</p>		N/A
G.4.2	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A

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

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<p align="center"><b>ATTACHMENT TO TEST REPORT</b>  <b>IEC 62368-1</b>  <b>U.S.A. NATIONAL DIFFERENCES</b>          Audio/video, information and communication technology equipment – Part 1: Safety requirements</p>			
<b>Differences according to</b> ..... : CSA/UL 62368-1:2014			
<b>TRF template used:</b> ..... : IEC62368-1:2014, Ed. 1.1			
<b>Attachment Form No.</b> ..... : US_CA_ND_IEC62368_1D			
<b>Attachment Originator</b> ..... : UL(US)			
<b>Master Attachment</b> ..... : Dated 2021-02-04			
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<b>IEC 62368-1 - US and Canadian National Differences</b> <b>Special National Conditions based on Regulations and Other National Differences</b>			

1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		P
4.1.17	<i>For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.</i>		NA
	<i>For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.</i>		NA
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		NA
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment		NA
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		NA
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		NA

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Clause	Requirement + Test	Result - Remark	Verdict
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		NA
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		NA
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		NA
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		NA
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		NA
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		NA
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V <sub>peak</sub> or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		NA
Annex M	Battery packs for stationary applications comply with special component requirements.		NA
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.		NA
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m <sup>3</sup> (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		NA
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.		NA
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		NA
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		P

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		NA
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m <sup>2</sup> (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		P
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		NA
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		NA
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		NA
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		NA
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		NA
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		NA
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).		NA
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		NA
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		NA
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		NA

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		NA
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.		NA
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		NA
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		NA
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		NA
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.		NA
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.		NA
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm <sup>2</sup> ).		NA
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		NA



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.		NA
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		NA
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT</b> <b>IEC 62368-1</b> <b>(JAPAN) NATIONAL DIFFERENCES</b> (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
<b>Differences according to</b> .....: J62368-1 (2020)			
<b>TRF template used:</b> ..... : IECEE OD-2020-F3, Ed. 1.1			
<b>Attachment Form No.</b> ....: JP_ND_IEC62368_1D			
<b>Attachment Originator</b> .....: UL (JP)			
<b>Master Attachment</b> .....: Date 2021-02-04			
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	<b>National Differences</b>		—
4.1.2	Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these.		P
5.6.1	Mains socket-outlet and appliance outlet shall comply with Clause G.4.2A if they are incorporated as part of the equipment.		NA
5.6.2.1	Mains connection of class 0I equipment: Instructional safeguard in accordance with Clause F.3.6.1A; Mains plug having a lead wire for protective earthing connection of class 0I equipment; Independent main protective earthing terminal installed by ordinary person.		NA
5.6.2.2	This requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector.		NA
5.6.3	In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following: – use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire – single core cord or single core cable with 1.25 mm <sup>2</sup> or more cross-sectional area		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.3	For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series or JIS C 8303, or otherwise being considered to comply with relevant regulations, or that is provided with mains appliance outlet as specified in JIS C 8283-2-2 for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains.		NA
5.7.4	In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990.		NA
6.4.3.3	A fuse complying with JIS C 6575 series or a fuse having equivalent characteristics shall open within 1 s. For Class A fuse of JIS C 6575, replace "2.1 times" by "1.35 times" and in case of Class B fuse of JIS C 6575, replace "2.1 times" by "1.6 times". A fuse not complying with JIS C 6575 series shall be tested with the breaking capacity taken into account.		NA
8.5.4.2.1	Only three-phase stationary equipment rated more than 200 V ac can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4.		NA
8.5.4.2.2	For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional.		NA
8.5.4.2.4	The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part.		
8.5.4.2.5	The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts.		NA
9.2.6, Table 38	Handles, Knobs, grips, etc. and external surfaces either held, touched or worn against the body in normal use (> 1 min) b,c		NA
F.3.5.1	Instructional safeguard of class 0I equipment in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8303 or relevant regulation to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons.		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.3	If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic		NA
F.3.6.1A	Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.3 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions and instructional safeguard shall be provided regarding the earthing connection.		NA
F.3.6.2.1	Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment.		NA
F.4	Instruction for audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A. Installation instruction for the protective earthing connection for class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment.		NA
G.3.2.1	The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that.		NA
G.3.4	Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the relevant part of JIS C 6575 (corresponding to IEC60127) or shall have equivalent characteristics. If there are no applicable IEC standards, overcurrent protective devices used as a safeguard shall comply with their applicable IEC standards.		NA
G.4.1	This requirement is not applicable to Clauses G.4.2 and G.4.2A.		NA
G.4.2	Mains connector shall comply with JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series. Mains plugs and socket-outlets shall comply with JIS C 8282 series, JIS C 8303, IEC 60309 series, or have equivalent or better performance. A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286. Construction preventing mechanical stress not to transmit to the soldering part of inlet terminal. Consideration for an equipment rated not more than 125 V provided with Type C14 and C18 appliance coupler complying with JIS C 8283 series.		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2A	Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively.		NA
G.7.1	A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor.		NA
G.8.3.3	Withstand $1,71 \times 1.1 \times U_0$ for 5 s.		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT</b> IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES <b>(Audio/video, information and communication technology equipment)</b>			
<b>Differences according to.....:</b> AS/NZS 62368.1:2018			
<b>TRF template used: ..... :</b> IECEE OD-2020-F3, Ed. 1.1			
<b>Attachment Form No.....:</b> AU_NZ_ND_IEC62368_1D			
<b>Attachment Originator .....</b> JAS-ANZ			
<b>Master Attachment .....</b> 2021-12-21			
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	<b>National Differences</b>		NA
<b>Appendix ZZ</b>	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand		NA
<b>ZZ1 Scope</b>	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)		NA
<b>ZZ2 Variations</b>	The following modifications are required for Australian/New Zealand conditions:		NA
<b>2</b>	Add the following to the list of normative references: The following normative documents are referenced in Appendix ZZ: -AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i> -AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i> -AS/NZS 3191, <i>Electric flexible cords</i> -AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i> -AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i> -AS/NZS 60320.2.2, <i>Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i> -AS/NZS 60695.2.11, <i>Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i> -AS/NZS 60695.11.5, <i>Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i> -AS/NZS 60695.11.10, <i>Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i>		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>-AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p>-AS/NZS 60950.1:2015, <i>Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p>IEC 61032:1997, <i>Protection of persons and equipment by enclosures—Probes for verification</i></p> <p>-AS/NZS 61558.1:2008 (including Amendment 2:2015), <i>Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)</i></p> <p>-AS/NZS 61558.2.16, <i>Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p>		
4.1.1	<p><b>Application of requirements and acceptance of materials, components and subassemblies</b></p> <p>1 <i>Replace</i> the text ‘IEC 60950-1’ with ‘AS/NZS 60950.1:2015’.</p> <p>2 <i>Replace</i> the text ‘IEC 60065’ with ‘AS/NZS 60065’.</p>		NA
4.7	<b>Equipment for direct insertion into mains socket-outlets</b>		NA
4.7.2	<p><b>Requirements</b></p> <p><i>Delete</i> the text of the second paragraph and <i>replace</i> with the following:</p> <p>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>		NA
4.7.3	<p><b>Compliance Criteria</b></p> <p><i>Delete</i> the first paragraph and Note 1 and Note 2 and <i>replace</i> with the following:</p> <p><i>Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</i></p>		NA
4.8	<p><i>Delete</i> existing clause title and <i>replace</i> with the following:</p> <p><b>4.8 Products containing coin/button cell batteries</b></p>		NA
4.8.1	<p><b>General</b></p> <p>1 Second dashed point, <i>delete</i> the text and <i>replace</i> with the following:</p> <p>– include coin/button cell batteries with a diameter of 32 mm or less.</p> <p>2 After the second dashed point, <i>insert</i> the following Note:</p> <p>NOTE 1: Batteries are specified in IEC 60086-2.</p> <p>3 After the third dashed point, <i>renumber</i> the existing Note as ‘NOTE 2’.</p>		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	4 Fifth dashed point, <i>delete</i> the word 'lithium'.		
4.8.2	<b>Instructional Safeguard</b> First line, <i>delete</i> the word 'lithium'.		NA
4.8.3	<b>Construction</b> First line, after the word 'Equipment' <i>insert</i> the words 'containing one or more coin/button batteries and'		NA
4.8.5	<b>Compliance criteria</b> <i>Delete</i> the first paragraph and <i>replace</i> with the following: <i>Compliance is checked by applying a force of 30 N +/- 1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.</i>		NA
5.4.10.2	<b>Test methods</b>		NA
5.4.10.2.1	<b>General</b> <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3.		NA
<b>Table 29</b>	<i>Replace</i> the table with the following:		NA
Parts		Impulse test	Steady state test
		New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) <sup>a</sup>		2.5 kV 10/700 µs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs
Parts indicated in Clause 5.4.10.1 b) and c) <sup>b</sup>		1.5 kV 10/700 µs <sup>c</sup>	1.5 kV
<sup>a</sup> Surge suppressors shall not be removed. <sup>b</sup> Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. <sup>c</sup> During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.			
5.4.10.2.2	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		NA
5.4.10.2.3	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.		NA



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Clause	Requirement + Test	Result - Remark	Verdict
	NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.		
<b>6</b>	<b>Electrically-caused fire</b>		NA
<b>6.1</b>	<b>General</b> After the first paragraph, <i>insert</i> the following new paragraph: Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202		NA
<b>6.6</b>	After Clause 6.6, <i>add</i> the new Clauses 6.201 and 6.202 as follows: <b>6.201 External power supplies, docking stations and other similar devices</b> and <b>6.202 Resistance to fire—Alternative tests</b> (see special national conditions)		NA
<b>8.5.4</b>	<b>Special categories of equipment comprising moving parts</b>		NA
<b>8.5.4.1</b>	<b>Large data storage equipment</b> In the first dashed row and the second dashed rows <i>replace</i> 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'.		NA
<b>8.6</b>	<b>Stability of equipment</b>		NA
<b>8.6.1 and Table 36</b>	<b>Requirements</b> 1. Table 36, <i>insert</i> Footnote c at the end of the 'Glass slide' heading, and <i>add</i> a new Footnote c after the text of Footnote b in the last row of Table 36 as follows: ° The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display. 2. Table 36, fifth row, <i>insert</i> '201' at the end of 'No stability requirements' 3. Table 36, ninth row, <i>insert</i> '201' at the end of 'No stability requirements' 4. Table 36, <i>add</i> the following new footnote: 201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply. 5. Second paragraph beneath Table 36, <i>delete</i> the words 'MS2 and MS3 television sets' and <i>replace</i> with 'MS2 and MS3 television sets and display devices'		NA
<b>8.6.1</b>	After Clause 8.6.1 <i>add</i> the following new clauses: <b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b> (see special national conditions)		NA
<b>Annex F Paragraph F.3.5.1</b>	<b>Mains appliance outlet and socket-outlet markings</b> <i>Replace</i> 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.		NA
<b>Annex G</b>	<b>Mains connectors</b>		NA

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>Paragraph G.4.2</b>	<p>1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'.</p> <p>2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series'</p> <p>3 <i>Add</i> the following new paragraph: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.</p>		
<b>Paragraph G.5.3.1</b>	<p><b>Transformers, General</b></p> <p>1 In the third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'</p> <p>2 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.</p>		NA
<b>Paragraph G.7.1</b>	<p><b>Mains supply cords, General</b></p> <p>In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p>		NA
<b>Table G.5</b>	<p><b>Sizes of conductors</b></p> <p>1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5'</p> <p>2 In the second row, second column, <i>delete</i> '0,75' and <i>replace</i> with '0.75<sup>b</sup>'</p> <p>3 <i>Delete</i> Note 1.</p> <p>4 <i>Replace</i> 'NOTE 2' with 'NOTE:'.</p> <p>5 <i>Delete</i> the text of 'Footnote b' and <i>replace</i> with the following: <sup>b</sup> This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm<sup>2</sup> three-core supply flexible cords are not permitted; see AS/NZS 3191).</p> <p>6 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p> <p>7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p>		NA
<b>Annex M Paragraph M.3.2</b>	<p><b>Protection circuits for batteries provided within the equipment, Test method</b></p> <p>After the first dashed point <i>add</i> the following Note: NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.</p>		NA
	<b>Special national conditions (if any)</b>		NA
<b>6.201</b>	<p><b>External power supplies, docking stations and other similar devices</b></p> <p>For external power supplies, docking stations and other similar devices, during</p>		NA

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>and after abnormal operating conditions and during single fault conditions the output voltage—</p> <ul style="list-style-type: none"> <li>– at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and</li> <li>– of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher.</li> </ul> <p>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.</p> <p><i>Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4</i></p>		
<b>6.202</b>	<b>Resistance to fire—Alternative tests</b>		NA
<b>6.202.1</b>	<p><b>General</b></p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:</p> <ul style="list-style-type: none"> <li>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.</li> <li>b) The following parts which would contribute negligible fuel to a fire: <ul style="list-style-type: none"> <li>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;</li> <li>– small electrical components, such as capacitors with a volume not exceeding 1 750 mm<sup>3</sup>, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.</li> </ul> </li> </ul> <p>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.</p>		NA
	<p><i>Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.</i></p> <p>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.</p>		NA

IEC62368_1D - ATTACHMENT											
Clause	Requirement + Test	Result - Remark	Verdict								
	The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.										
6.202.2	<b>Testing of non-metallic materials</b> Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.		NA								
6.202.3	<b>Testing of insulating materials</b> Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE: Contacts in components such as switch contacts are considered to be connections		NA								
	For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test need not be tested		NA								
	<table><tr><td colspan="2">The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</td></tr><tr><td><b>Clause of AS/NZS 60695.11.5</b></td><td>Change</td></tr><tr><td><b>9 Test procedure</b></td><td></td></tr><tr><td><b>9.2 Application of needle-flame</b></td><td>Delete the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a</td></tr></table>	The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:		<b>Clause of AS/NZS 60695.11.5</b>	Change	<b>9 Test procedure</b>		<b>9.2 Application of needle-flame</b>	Delete the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a		NA
The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:											
<b>Clause of AS/NZS 60695.11.5</b>	Change										
<b>9 Test procedure</b>											
<b>9.2 Application of needle-flame</b>	Delete the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a										

IEC62368_1D - ATTACHMENT				
Clause	Requirement + Test		Result - Remark	Verdict
		corner. The duration of application of the test flame shall be 30 s ± 1 s.		
	9.3 Number of test specimens	Replace with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		
	11 Evaluation of test results	Replace with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.		
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested.			
6.202.4	Testing in the event of non-extinguishing material  If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing. NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing. NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.			NA

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Clause	Requirement + Test	Result - Remark	Verdict
6.202.5	<p><b>Testing of printed boards</b></p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.</p> <p>The test is not carried out if—</p> <ul style="list-style-type: none"> <li>– the printed board does not carry any potential ignition source;</li> <li>– the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or</li> <li>– the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.</li> </ul> <p><i>Conformance shall be determined using the smallest thickness of the material.</i></p> <p>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.</p>		NA
6.202.6	<p><b>For open circuit voltages greater than 4 kV</b></p> <p>Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.</p>		NA
8.6.1.201	<p><b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b></p> <p>MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment.</p> <p>The elements of the instructional safeguard shall</p>		NA

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Clause	Requirement + Test	Result - Remark	Verdict
	be as follows: – element 1a: not available; – element 2: 'Stability Hazard' or equivalent wording; – element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text; – element 4: the following or equivalent text: To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions		
8.6.1.202	<b>Restraining device</b> MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage. Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation.		NA

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT</b> <b>IEC 62368-1</b> <b>(SINGAPORE) NATIONAL REQUIREMENTS</b> (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
<b>NR according to</b> .....: Singapore Consumer Protection (Safety Requirements) Registration Scheme 2002 Edition (Revision 09, dated 23 November 2020)			
<b>TRF template used:</b> ..... : IECEE OD-2020-F3, Ed. 1.1			
<b>Attachment Form No.</b> .....: SG_NR_IEC62368_1D			
<b>Attachment Originator</b> .....: Intertek(SZ)			
<b>Master Attachment</b> .....: Date 2022-02-21			
<b>Copyright © 2022 Intertek Testing Services Shenzhen Ltd. Longhua Branch. All rights reserved.</b>			
<b>6</b>	<b>Controlled Goods and their Applicable Safety Standards</b>		-
	<b>Low Risk</b>		-
	<b>Air cooler</b>		-
	Air cooler, which is an electrical appliance intended for household use to agitate the air and equipped to use water as a cooling medium, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-98:2002		N/A
	<b>Fuse (≤13 amperes) for use in plug</b>		-
	Fuse (13-amp or less) for use in a 13-amp plug, which is a device that, by the fusion of one or more of its specially designed and proportioned components, opens the circuit in which it is inserted and breaks the current when this exceeds a given value for a sufficient time		N/A
	SS 167:1977		N/A
	<b>Room air-conditioner</b>		-
	Room air-conditioner, which is an electrical appliance intended for household use and designed as a self-contained unit for mounting on a window or through a wall to provide conditioned air to an enclosed area, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-40:2002		N/A
	<b>Table lamp / standing lamp</b>		-
	An electrical portable general purpose luminary intended for household use with supply voltage of not more than 250 Vac.		N/A
	IEC 60598-2-4: 2017		N/A
	<b>Medium Risk</b>		-
	<b>AC Adaptor</b>		-



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	A device with rated voltage of not more than 250 Vac, and designed to supply a.c. or d.c. power for applications such as computers, telecommunication equipment, home entertainment equipment or toys.		P
	IEC 61558-2-6: 1997 or IEC 61558-2-16: 2009 (applicable for electrical appliances)		N/A
	IEC 60065: 2001 or IEC 62368-1:2014 (applicable for electronic appliances)		N/A
	IEC 60950-1: 2001 or IEC 62368-1:2014 (applicable for computer / telephonic appliances)		P
	IEC 60335-2-8: 2002 (applicable for shavers)		N/A
	IEC 60335-2-29: 2002 with A1 or IEC 60335-2-29: 2004 (applicable for battery chargers)		N/A
	IEC 61347-2-13: 2006 (applicable for LED lightings)		N/A
	IEC 60598-2-4: 1997 (applicable for table/standing lamps)		N/A
	IEC 60601-1: 2005 (applicable for breast pump)		N/A
	<b>Audio and video products</b>		-
	Audio and video products, which are electronic devices for home entertainment designed to be fed from the supply mains and intended for reception, generation, recording or reproduction, respectively of audio, video and associated signals, with rated voltage of not more than 250 Vac.		N/A
	IEC 60065: 2001 or IEC 62368-1:2014		N/A
	<b>Coffee maker, slow cooker, steam boat and similar appliances</b>		-
	Coffee makers, slow cookers, steam boats and similar appliances, which are electrical appliances intended for household use to heat liquids for the purpose of food or beverages preparation, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-15: 2002		N/A
	<b>Decorative lighting chain</b>		-
	Decorative lighting chain, which is an electrical lightning chain intended for household use and fitted with a series or parallel or combination of series or parallel connected light emitting devices, with rated voltage of not more than 250 Vac.		N/A
	IEC 60598-2-20: 2002		N/A
	IEC 60598-2-21: 2014 (Applicable for rope lights)		
	<b>Fans</b>		-

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Fans, limited to ceiling, table, standing and wall fans, which are electrical appliances for circulating the air in its vicinity and intended for household use, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-80: 2002		N/A
	SS 360: 1992 (sub-clauses 5.7 & 5.8 only) (applicable for ceiling fan)		N/A
	<b>Gas canister</b>		-
	A non-refillable metallic container up to 1.4 litres capacity filled with liquefied petroleum gases intended for household use with a portable gas cooker.		N/A
	SS 400:1997		N/A
	<b>Hair care appliances</b>		-
	Hair care appliances, limited to hair dryers, hair curlers, hair straighteners and hair stylers, which are electrical hand-held appliances intended for household use to dry or care for human hair, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-23:2003		N/A
	<b>Home computer system (inclusive of monitor, printer, speaker and other mains operated accessories)</b>		-
	Home computer system (inclusive of monitor, printer, speaker and other mains operated accessories), which is a microcomputer and its associated accessories, intended for household use, with rated voltage of not more than 250 Vac.		N/A
	IEC 60950-1:2001 or IEC 62368-1:2014		N/A
	<b>Iron</b>		-
	Iron, which is an electrical hand-held appliance intended for household use, with a heated soleplate for smoothing or pressing fabric, including those with a separate water reservoir or boiler having a capacity not exceeding 5 litres, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-3: 2002		N/A
	<b>Isolating transformer for downlight fitting</b>		-
	Isolating transformer for downlight fitting, which is an isolating transformer intended for household electrical installation with input and output windings that are electrically separated to limit hazards due to accidental simultaneous contact with earth and live parts or metal parts that may become live in the event of an insulation failure.		N/A
	IEC 61558-2-6:1997 (magnetic type)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	IEC 61347-2-2:2000 (electronic type)		N/A
	<b>Kitchen machines</b>		-
	Kitchen machines, including mixers, blenders and mincers, which are electrical appliances intended for household use to prepare food or beverages, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-14: 2002		N/A
	<b>Liquid heating appliances</b>		-
	Liquid heating appliances, limited to kettles, airpots and hot water dispensers, which are electrical appliances intended for household use to heat liquids for consumption that have a rated capacity not exceeding 10 litres, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-15: 2002		N/A
	IEC 60335-2-21: 2004 (hot water dispenser-storage type)		N/A
	IEC 60335-2-35: 2002 (hot water dispenser-instantaneous type)		N/A
	<b>Microwave oven</b>		-
	Microwave oven, which is an electrical appliance intended for household use that uses high-frequency electromagnetic waves for heating food or beverages, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-25:2002		N/A
	<b>Multi-way Adaptor</b>		-
	Multi-way adaptor, which is intended for household use, has more than one set of socket contacts, and which may or may not be of the same type or rating as the plug pin portion.		N/A
	SS 246:2004		N/A
	<b>Toaster, grill, roaster, hot plate, deep fryer, wok and similar appliances</b>		-
	Toasters, grills, roasters, hot plates, deep fryers and similar appliances, which are electrical appliances intended for household use that use heated medium such as air and cooking oil for food preparation, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-9: 2002 (applicable for toaster, hot plate (including induction type), grill, oven and similar appliances)		N/A
	IEC 60335-2-13: 2002 (applicable for deep fryer, electric wok and similar appliances)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	IEC 60335-2-78: 2002 (applicable for outdoor electric barbeque grill)		N/A
	<b>Portable socket-outlet</b>		-
	3-pin portable socket-outlets, including portable cable reels, which are electrical accessories intended for household use that have at least a set of 13-amp shuttered socket-outlets with flexible cords, and which can be easily moved from one place to another while connected to rated voltage supply of not more than 250 Vac.		N/A
	SS145: Part 2: 1997 (3-pin portable socket-outlet)		N/A
	SS 145: Part 2: 2018 (3-pin portable socket outlet incorporated with USB port(s) and/or electronic device(s)) (Mandatory to use this standard from 9 Sep 2020)		
	SS 307: 1996 (Portable cable reel)		N/A
	<b>Residual Current Circuit Breaker (RCCB)</b>		-
	Residual current circuit breaker (RCCB), which is an electrical device intended for household fixed-electrical installation with sensitivity of 30 mA intended to protect persons against indirect contact, the exposed conductive parts of the installation being connected to an appropriate earth electrode.		N/A
	SS 97: Part 1:2005		N/A
	<b>Rice cooker</b>		-
	Rice cooker, which is an electrical appliance intended for household use to cook rice, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-15:2002		N/A
	<b>Stationary cooking appliances</b>		-
	Stationary cooking appliances, limited to cooking ranges, hobs and ovens, which are electrical stationary appliances intended for household use for cooking, with rated voltage of not more than 250 Vac for single-phase and 480 Vac for three-phase.		N/A
	IEC 60335-2-6: 2002		N/A
	<b>Vacuum cleaner</b>		-
	Vacuum cleaner, which is an electrical portable appliance intended for household use to remove dirt or dust, with supply voltage of not more than 250 Vac.		N/A
	IEC 60335-2-2:2002		N/A
	<b>Washing machine</b>		-

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Clause	Requirement + Test	Result - Remark	Verdict
	Washing machine, which is an electrical appliance intended for household use to wash clothes and textiles, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-7:2000		N/A
	<b>3-pin main plugs</b>		-
	3-pin mains plug, limited to 13-amp rectangular types and 15-amp round types, which are portable devices that have rectangular or cylindrical projecting pins designed to engage with the contacts of a corresponding socket-outlet. 3-pin mains plugs also incorporate means for the electrical connection and the mechanical retention of a suitable flexible cord.		N/A
	SS 145: Part 1: 1997 (3-pin rectangular type 13-amp plug)		N/A
	SS 472: 1999 (3-pin round type 15-amp plug)		N/A
	<b>High Risk</b>		-
	<b>Components of the Liquefied Petroleum Gas system - Hose</b>		-
	Hose, namely a hose intended for household use in liquefied petroleum gas vapour phase and liquefied petroleum gas or air appliances not exceeding 5 KPa (50 mbar) operating pressure.		N/A
	SS 233: 2013		N/A
	<b>Components of the Liquefied Petroleum Gas system - Regulator</b>		-
	Regulator, which is a non-adjustable device intended for household use that maintains the outlet pressure constant at a nominal value up to and including 50 mbar, independent, within specified limits, of inlet pressure or flow rate.		N/A
	SS 281:1984		N/A
	<b>Components of the Liquefied Petroleum Gas system - Valve</b>		-
	Valve, which is a device that is made from brass, bronze or aluminium forging, intended for household use with liquefied petroleum gas cylinders, to control the direction and volume of flow of the liquefied petroleum gas.		N/A
	SS 294:1998		N/A
	<b>Domestic electric wall switch</b>		-
	Domestic electric wall switch, which is an electrical manually operated general purpose switch for alternating current only, with a rated voltage not exceeding 440 V and a rated current not exceeding 63 A, intended for household fixed-electrical installations.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	IEC 60669-1: 1998		N/A
	SS 403: 1997 (13A fused connection units switched)		N/A
	<b>Gas cooking appliances</b>		-
	Gas cooking appliances, limited to built-in, table, free standing and portable gas cookers, which are cooking appliances intended for household use that use gas or liquefied petroleum gas obtained from a non-refillable gas canister up to 1.4 litres as fuel.		N/A
	EN 30-1-1: 2008 Or AS 4551: 2008 (Valid till 30/03/2021) or AS 5263.1.1: 2016 (gas cooker)		N/A
	EN 30-1-2: 2012 (forced-convection gas oven)		N/A
	EN 30-1-3: 2003 (glass-ceramic gas hob with enclosed covered burner)		N/A
	EN 30-1-4: 2012 and IEC 60335-2-102: 2004 (gas cooker with automatic burner control system)		N/A
	SS 401: 1997 (Portable cooking gas appliance)		N/A
	<b>Lamp control gears</b>		-
	Lamp control gear, which is an electrical device intended for household electrical installation that limits the current of the lamp or supplies constant current or constant voltage to power LED lighting.		N/A
	IEC 61347-2-8: 2000 (magnetic type)		N/A
	IEC 61347-2-3: 2000 (electronic type)		N/A
	IEC 61347-2-13: 2006 (for LED driver)		N/A
	<b>Main socket-outlets</b>		-
	Mains socket-outlets, which are electrical devices that have 13-amp or 15-amp switched shuttered socket-outlets in a single or multiple arrangements, to engage with the pins of a corresponding plug designed for flush mounting in a suitable box or for surface or panel mounting.		N/A
	SS 145: Part 2: 1997 (3-pin 13-amp socket-outlet)		N/A
	SS 145: Part 2:2018 (3-pin 13-amp socket outlet incorporated with USB port(s) and/or energy monitoring device(s))		
	BS 4177: 1992 (3-pin 13-amp socket-outlet) (cooker control unit)		N/A
	BS 7288: 1990 (3-pin 13-amp socket-outlet) (socket-outlet with RCD)		N/A
	SS 472: 1999 (3-pin round type 15-amp socket-outlet)		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<b>Water heaters</b>		-
	Water heaters, limited to instantaneous and storage types, which are electrical appliances intended for household use to heat water below boiling temperature, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-35: 2002 (Instantaneous electric water heater)		N/A
	IEC 60335-2-21: 2004 (Mains pressure electric storage water heater)		N/A
	<b>Refrigerator</b>		-
	Refrigerator, which is an electrical appliance intended for household use that operates on the vapour compression principle for food storage and preservation, with rated voltage of not more than 250 Vac.		N/A
	IEC 60335-2-24: 2000		N/A
<b>7</b>	<b>Safety Authority's Additional Requirements</b>		<b>P</b>
	<b>Applicable to all products</b>		-
No. 1	Test certificate / Test report		-
	Test certificate / Test report more than three (3) years old shall be rejected.	Within three years	P
No. 2	Controlled Goods incorporated with additional function		-
	a) The additional function must be tested to its applicable safety standard. b) If a product has both functions of a Controlled Good and Non-Controlled Good, the product should be classified as a whole as a Controlled Good. The fact that it may have other functions that do not fall within the 33 categories is irrelevant. However, if the product with 'controlled' and 'non-controlled' functions are capable of being entirely and physically separated, such that it can be treated and sold as two separate and distinct products, then the registration can apply to only the 'controlled' product, and not the 'non-controlled' product.	No additional function	N/A
	<b>Applicable to all electrical products</b>		-
No. 3	All appliances		-
	All appliances must be tested to 230 VAC, 50Hz.	See Page 2	P
No. 4	Voltage selector (voltage mis-match test)	No Voltage selector used	-
	Appliance fitted with voltage selector shall be tested as follows:		-

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Clause	Requirement + Test	Result - Remark	Verdict
	Connect appliance to 230 VAC mains with voltage selector switch to settings not suitable for operation at 230 VAC.		N/A
No. 5	Tropical condition test		-
	All appliances (with tropical test requirements in applicable Standards) shall comply with the tropical condition test as stated in the relevant IEC Standards.	Considered the tropical condition according to the relevant standard if appropriate.	P
No. 6	Class I appliances (3-pin mains plug)		-
	All Class I appliances must be fitted with 3-pin mains plug complied with SS 145/SS 472 that are registered with the Safety Authority.		N/A
No. 7	Class II appliances (mains plug)		P
(a)	All Class II appliances must be fitted with 2-pin mains plug (Appendix S) complied with EN 50075.	Plug complied with EN 50075.	P
(b)	Class II appliances that are fitted with 3-pin mains plug must use plugs that are complied with SS 145 and registered with the Safety Authority.		N/A
No. 8	Appliances rated $\geq 3$ kW or connected to fixed wiring		-
	Electric appliance $\geq 3$ kW must be connected to fixed wiring. All connection to fixed wiring must be in accordance with Code of Practice CP5. If a range of power output is given, the maximum value output will be taken. Value will be based on supplier's declared output.		N/A
No. 9	Detachable power cord set (consists of mains plug, mains cord and appliance connector)		-
	Detachable power cord set must be listed in the test report critical component list.		N/A
No. 10	Circuit diagrams		-
	Circuit diagrams must be indicated with component's value for products tested to IEC 60065 and IEC 60950.	Need to further consider while to apply national approval	N/A
No. 11	Circuit diagrams of electronic modules in electrical appliances		-
	Circuit diagrams of the electronic modules in the electrical appliances must be provided.		N/A
No. 12	Controlled goods likely to be treated as toy by children		-
	Controlled goods, having an enclosure, which is shaped and decorated so that it is likely to be treated as a toy by children, shall not be accepted for certification and registration.		N/A



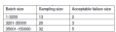

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
No. 13	Controlled Goods with rated voltage that are not suitable for local supply voltage		-
(a)	Controlled Goods with rated voltage that are not suitable for local supply voltage will not be allowed for registration unless they are supplied with step-down isolating transformer and are tested together with the transformer as a complete set.		N/A
(b)	A test to ensure that the Controlled Goods shut-down/fail safely should the consumer accidentally plugs the product directly into the 230 V mains supply socket outlet without using the isolating stepdown transformer shall be conducted.		N/A
No. 14	Controlled Goods with direct plug-in 3-pin (eg. 3-pin AC adaptor, 3-pin Power Line Adaptor)		-
	Test report showing that the 3-pin (Appendix U) complied with subclauses 12.1 & 12.3 of SS 246 or BS 1363-3 shall be provided.		N/A
No. 15	Controlled Goods with direct plug-in 2-pin (eg. 2-pin AC adaptor, 2-pin Power Line Adaptor)		-
	The 2-pin (Appendix U) shall be in accordance with EN 50075.	EN 50075 complied	P
	<b>Applicable to electric airpot</b>		-
No. 16	Reboil switch		-
	No part of the reboil switch is allowed to protrude into the water pot, even if it is located above the maximum water level mark.		N/A
	<b>Applicable to AC adaptor</b>		-
No. 17	Detachable power supply cord set not supplied by Registered Supplier		-
(a)	Registered Supplier who is not supplying the detachable power supply cord set together with the AC Adaptor must provide written instruction to its customer on the type of approved detachable power cord set to use and declare to Conformity Assessment Body when applying for Certificate of Conformity.		N/A
(b)	This requirement is only applicable to Register Supplier whose core business is supplying AC Adaptor or its Registered Supplier name is affiliated with the AC Adaptor's manufacturer.		N/A
No. 18	AC Adaptor incorporated with 13A socket-outlet		-
	Additional tests clauses to 13, 17 and 18 of SS 246 (till 25/10/2021), or clauses 12.1 & 12.3 of SS 145 Part 3: 2020 shall be provided.		N/A
No. 19	AC adaptor with detachable interchangeable plug pins		N/A


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Clause	Requirement + Test	Result - Remark	Verdict
	Registered Supplier who is supplying AC adaptors with detachable interchangeable plug pins must include with its products, written instructions to inform customer on the type of detachable interchangeable plug pins that are approved and suitable to use in Singapore. These instructions are to be submitted to the Conformity Assessment Body for verification when applying for Certificate of Conformity.		N/A
No. 20	AC adaptor to be used with/ bundled together with Personal Mobility Devices (PMDs)		N/A
	1. Registered Supplier to declare the model of the AC adaptor that is to be used with/ bundled together with the PMDs; 2. Registered Supplier to provide valid IEC 60950-1 or IEC 62368-1 test reports for certification and registration of the declared AC adaptor under the CPS scheme; and 3. Registered Supplier to provide the UL 2272 test report as supporting document, showing that the listed AC adaptor in the UL 2272 test report is the model declared to be used with/ bundled together with the PMDs.		N/A
	<b>Applicable to computer products</b>		-
No. 21	CD/DVD ROM (used in personal computer)		-
	Test certificate showing that CD/DVD ROM has complied with IEC 60825-1 must be provided.		N/A
No. 22	Modem Card (used in personal computer)		-
	Modem card incorporated in the personal computer must be tested at set level (sub-clauses 5.1 & 6 of IEC 60950) or at component level.		N/A
No. 23	Powerline Ethernet Adaptor incorporated with 13A socket-outlet		-
	Additional tests to clauses 13, 17 & 18 of SS 246 (till 25/10/2021), or clauses 13, 17 & 18 of SS 145 Part 3: 2020 shall be provided.		N/A
	<b>Applicable to ceiling fan and cycle fan</b>		-
No. 24	Ceiling fan		-
(a)	These appliances must be tested to sub-clauses 5.7 & 5.8 of SS 360:1992.		N/A
(b)	Installation instruction must mention the 3 expansion bolts for fastening the main suspension, safety cord, expansion bolt with hook for fastening safety cord and mounting plate. (Appendix Q)		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(c)	The warranty issued shall recommend user to conduct regular examination of the fan suspension system at least once in every two years. (For example: Users are advised to contact the fan supplier to conduct regular examination of the fan suspension system at least once in every two years.) Written permission from the Safety Authority shall be obtained if a warranty with the above note is not supplied with the product.		N/A
No. 25	Cycle Fan		-
(a)	These appliances must be tested to sub-clauses 5.7 and 5.8 of SS 360: 1992.		N/A
(b)	Installation instruction shall mention the 3 expansion bolts for fastening the main suspension, safety cord, and expansion bolt with hook to fasten the safety cord and mounting plate. (Appendix Q)		N/A
No. 26	Decorative ceiling fan		-
(a)	The appliance shall be tested to sub-clauses 5.7 and 5.8 of SS 360: 1992.		N/A
(b)	Installation instruction shall mention the 3 expansion bolts for fastening of the main suspension, safety cord, and expansion bolt with hook to fasten the safety cord and mounting plate (Appendix Q).		N/A
(c)	Decorative ceiling fan submitted to Conformity Assessment Body (CAB) for certification shall subject to conformity check. CAB shall request a new sample and check the identical safety components are listed in the test report of IEC 60335-2-80. The check also covers the minimum dimension requirements and availability of the safety cord indicated in the test report of sub-clauses 5.7 & 5.8 of SS 360.		N/A
(d)	Drawing (Appendix P) to show that the wires within the motor shaft are not stressed must be provided.		N/A
(e)	The warranty issued shall recommend user to conduct regular examination of the fan suspension system at least once in every two years. (For example: Users are advised to contact the fan supplier to conduct regular examination of the fan suspension system at least once in every two years.) Written permission from the Safety Authority shall be obtained if a warranty with the above note is not supplied with the product.		N/A
	<b>Applicable to portable/wall socket-outlet and portable cable reel</b>		-
No. 27	Portable/wall socket-outlet and portable cable reel		-

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(a)	If residual current device (RCD) is incorporated, its tripping current must be less than 30mA and operating time must be less than 0.1 second and testing to sub-clauses 9.9.2.1, 9.9.2.2, 9.9.2.3 and 9.16 of SS 97: Part 1: 2000 are required.		N/A
(b)	The shutters screening the current-carrying socket contacts shall not be opened by the insertion of any corresponding <b>SINGLE</b> pin of the plug into any current-carrying socket aperture.		N/A
No. 28	Wall switched socket outlet (2 x single socket outlet)		-
	Single socket-outlet with 2-gang faceplate/frame must be fulfilled with the test requirements as 2-gang socket-outlet.		N/A
No. 29	Remote controlled wall socket-outlet		-
	Remote controlled wall socket-outlet shall not be allowed for registration.		N/A
No. 30	3-pin 13-amp socket outlet incorporated with type C USB port(s) or 3-pin portable socket outlet incorporated with type C USB port(s)		-
	3-pin 13-amp socket outlet or 3-pin portable socket-outlet incorporated with type C USB port(s) shall be tested to the following a) SS 145 Part 2: 2018; and IEC 60950-1: 2001 or IEC 62368-1: 2014		N/A
	<b>Applicable to Roaster</b>		-
No. 31	Roaster		-
	A metal ring (Appendix V) must be provided to prevent the roaster from falling off in case the glass bowl shattered.  If supplier has other method, approval would be required from the Safety Authority.  Note: This requirement is not applicable to roaster that is provided with metal bowl.		N/A
	<b>Applicable to gas appliances</b>		-
No. 32	Test pressure of town gas for gas appliances		-
	All gas appliances must be tested to 31 mbar for town gas.		N/A
No. 33	Gas appliances tested to EN 30-1-1:1998/2008		-
	Testing to sub-clause 6.1.6 (Temperature of the LPG cylinder and its compartment) and sub-clause 6.2.1 (Ignition, cross-lighting and flame stability) must be carried out.  To use G112 gas as a limit gas for test clause 7.3.2.1.3 third test group to check for occurrence of light back, under performance clause 6.2.1.1.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
No. 34	Flame failure device (FFD) incorporated in gas appliances		-
	Component testing Supplier can choose to test to one of the following:		-
(a)	Test report/certificate showing that the FFD complied with EN 126: 1995 or EN 125: 1991 for gas appliance tested to EN 30-1-1 at component level must be provided.		N/A
(b)	Test report/certificate showing that FFD complied with AG 204: 1984 for gas appliance tested to AG 101 at component level must be provided. (Valid till 30/03/2021)		N/A
(c)	c) Test report/certificate showing that FFD complied with AS 4620 – Thermoelectric flame safeguards for gas appliance tested to AS 5263.0:2017 or AS 5263.1.1:2016 at component level must be provided.		N/A
	Set testing Supplier can choose to test to one of the following:		-
(d)	Testing to sub-clause 6.1.3 of EN 30-1-1 at set level must be carried out.		N/A
(e)	Testing to sub-clause 3.6.13 of AG 101 at set level must be carried out. (Valid till 30/03/2021)		N/A
(f)	Testing to sub-clauses of 3.6.1.15 of AS 5263.0:2017 at set level must be carried out.		N/A
No. 35	Gas oven		-
	It is compulsory for all gas ovens to be fitted with flame failure device.		N/A
No. 36	Toughened glass gas hob		-
(a)	A brochure, entitled 'Toughened Glass – A Shattering Experience?' must be included for each toughened glass gas hob put up for sale. (Order for the brochure can be placed with the Safety Authority)		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(b)	<p>Toughened glass gas hob tested to EN 30-1-1 would require any of the following testing and compliance:</p> <ul style="list-style-type: none"> <li>● sub-clauses 2.1.15, 2.1.16, 2.1.18, 2.10.9.5, 2.11.2.2 &amp; 5.7.5 of AG101: 1998/AS 4551: 1998 (Valid till 30/03/2021)</li> <li>● sub-clauses 2.1.16(a), 2.1.17, 2.1.19, 2.10.9(e), 2.11.2.2 &amp; 5.7.5 of AG 101: 2000/AS 4551: 2000 (Valid till 30/03/2021)</li> <li>● sub-clauses 2.1.16(a), 2.1.17, 2.1.19, 2.10.8.3(e), 2.11.3(g) &amp; 5.8.4 of AS 4551: 2008</li> <li>● sub-clauses of 5.7.101(a), 5.12.101, 5.12.5, 2.14.2.2(d), 2.15.3.101 &amp; 5.7.104 of AS 5263.1.1:2016</li> </ul>		N/A
No. 37	Gasket for elbow joint of gas cooker		-
	Installation instruction must mention about the fixing of gasket for the elbow joint, if applicable. (Appendix R)		N/A
No. 38	Glass-ceramic gas hob with enclosed covered burner (simulated gas explosion test)		-
	The gas hob must be subject to 'simulated gas explosion' test. The hob is filled with an explosive mixture of gas and detonated with a source of ignition.		N/A
No. 39	Material of gas hob cook top		-
	Different material requires separate certification and registration. Eg. stainless steel, enamel, stone, toughened-glass, ceramic-glass		N/A
No. 40	Gas canister		N/A
(a)	<p>All registered gas canisters shall be subjected to batch test conducted by the laboratory who conducted the full-type test in accordance with the sampling plan as shown below:</p> 		N/A
(b)	<p>The sampled gas canisters shall be tested to the following clauses of SS 400 as follows:</p> 		N/A
(c)	Registered gas canister shall be affixed with 'SAFETY Mark' and 'batch test sticker'. Both labels shall be affixed either on an individual canister, the packaging of two canisters or packaging of three canisters.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(d)	<p>Sample of batch test sticker is as shown below:</p> 		N/A
No. 41	Installation manual or installation instructions for gas cookers		-
	All registered gas cookers shall be supplied with installation manual or installation instructions within the operating manual, user's manual, user's guide, etc. which shall also include safety instructions for use of the gas cooker.		N/A
	<b>Applicable to Residual Current Circuit Breaker (RCCB)</b>		-
No. 42	RCCB		-
(a)	Registration of RCCB is limited to 30mA sensitivity and the operating time must be less than 0.1 second. Electronic RCCB will not be accepted for registration.		N/A
(b)	Registered Suppliers must affix the Safety Mark on the RCCB and the Safety Mark must be identifiable when installed		N/A
	<b>Applicable to electric instantaneous and storage water heater</b>		-
No. 43	Instantaneous electric water heater and mains pressure electric storage water heater		-
(a)	Heating elements used must not be of the "bare element" type.		N/A
(b)	Registered Supplier must declare that the water heater is not using bare heating element when applying Certificate of Conformity with Conformity Assessment Body.		N/A
No. 44	Water heater incorporated with residual current device (RCD)		-
	Testing to sub-clauses 9.9.2.1, 9.9.2.2, 9.9.2.3 and 9.16 of SS 97: Part 1: 2000 are required		N/A
No. 45	Pressure-relief device (for closed storage water heater)		-
(a)	Closed water heaters having a rated pressure of 0.6 MPa and above shall be provided with a pressure-relief device.		N/A
(b)	Pressure-relief devices shall prevent the pressure in the container from exceeding the rated pressure by more than 0.1 MPa.		N/A
No. 46	Thermal cut-out (for closed instantaneous and storage water heater)		-

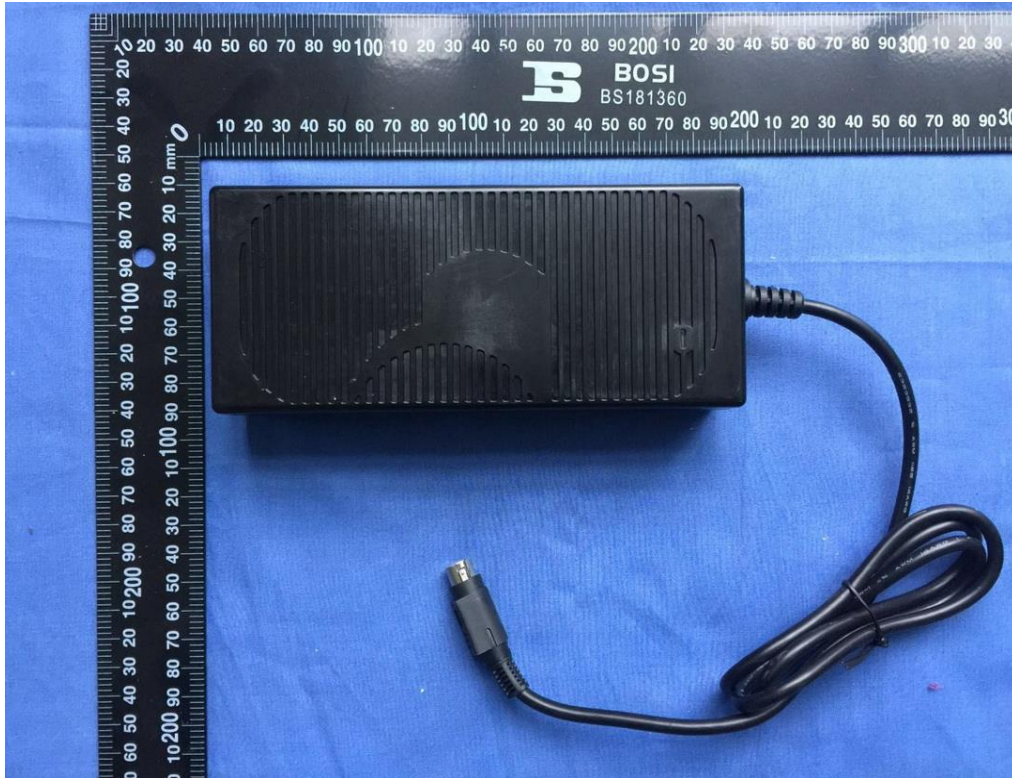
IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(a)	Closed water heaters shall incorporate a thermal cut-out providing all-pole disconnection and which operates independently from the thermostat.		N/A
(b)	Registered Supplier must declare that the water heater is incorporated with a thermal cut-out providing all pole disconnection when applying Certificate of Conformity with Conformity Assessment Body.		N/A
No. 47	Instruction/user manual for storage water heaters		-
	Instruction/user manual of the storage water heaters to include but not limited to the following information:		-
(a)	For consumer <ul style="list-style-type: none"> <li>● Operating instructions</li> <li>● Parts identification – indicating critical safety components such as the thermostat, pressure relief valve, etc.), and advice to consumers on how to identify them</li> <li>● Safety precaution/ tips</li> <li>● General maintenance instructions – to include how to check the functionality of safety features such as the pressure relief valve, and good practices to check for and minimise wear and tear</li> <li>● Troubleshooting guide - e.g. how to look out for signs of malfunction, and include appropriate warnings to stop using the appliance, and seek out qualified service technicians to rectify potential issues</li> <li>● Advise to consumers to have the storage water heater serviced periodically by a qualified service technician</li> </ul>		N/A
(b)	For authorised installers <ul style="list-style-type: none"> <li>● Installation instructions:</li> <li>● Appropriate storage tank location, and secure mounting</li> <li>● Electrical connections– connections should account for electrical safety, and prevent short circuit/ electrocution</li> <li>● Piping connections – connections should account for potential pressure build ups and possibility of leakage/ corrosion</li> <li>● Pressure Relief valve connection</li> </ul>		N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(c)	Warning note <ul style="list-style-type: none"> <li>To warn the consumer that the storage water heater should only be repaired/serviced by a qualified service technician</li> <li>To warn the consumer that the storage water heater should only be operated with all the safety devices fitted and functioning</li> </ul>		N/A
	The requirement to include the above essential information into the instruction/user manual shall apply to all new registration and renewal of registration of electric storage water heaters on and after 23 March 2019.		N/A
	<b>Applicable to multi-way adaptor</b>		-
No. 48	Multi-way adaptor with 3-pin socket-outlets or combination of 3-pin and 2-pin socket-outlets		-
(a)	The socket contacts of the adaptor shall only accept 13A 3-pin mains plug complying with SS 145 and/or 2.5A 2-pin mains plug complying with EN 50075.		N/A
(b)	The shutters screening the current-carrying socket contacts shall not be opened by the insertion of any corresponding <b>SINGLE</b> pin of the plug into any current-carrying socket aperture.		N/A
(c)	A barrier or other acceptable means shall be provided on the engagement surface of the 2.5A 2-pin socket-outlet of the adaptor to PREVENT entry of any types of 2-pin mains plugs except those complying with EN 50075. (note: shutters cannot be regarded as barriers)		N/A
(d)	Adaptor incorporates with switch would require additional test to sub-clauses 13.11, 17.1.3 and 18.1.3 of SS 145: Part 2: 1997.		N/A
	<b>Applicable to plasma/LCD display monitor</b>		-
No. 49	Plasma/LCD display monitor with TV tuner		-
	Plasma/LCD display monitor tested to IEC 60950 would require additional test to clauses 9 (related to antenna only), 10.1, 10.2, 10.3 and 12.5 of IEC 60065.		N/A
	<b>Applicable to table lamp / standing lamp</b>		-
No. 50	Child appealing table lamp/standing lamp		-
	Child appealing table/standing lamp will not be allowed for registration unless it is powered by an AC Adaptor. Only the AC Adaptor would need registration.		N/A
	<b>Applicable to hot/warm &amp; cold water dispenser</b>		-
No. 51	Hot & cold water dispenser		-

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
(a)	Hot water dispenser which has below boiling temperature shall be tested to IEC 60335-2-21 or IEC 60335-2-35.		N/A
(b)	Testing to IEC 60335-2-24 shall be required if the water dispenser is incorporated with compressor for dispensing cold water.		N/A
	<b>Applicable to high risk Controlled Goods</b>		-
No. 52	Renewal of registration for high risk Controlled Goods		-
	Application for renewal of registration of high risk Controlled Goods shall be supported with a valid new test report that is within 3 years when submitted to the Conformity Assessment Body for re-certification. Valid new test report refers to new full type test report. The following are not accepted: a) Test report (submitted during initial COC application) + supplementary test report; and b) Test report (submitted during initial COC application) + verification test report.		N/A
	The following Controlled Goods are deemed as high risk: <ul style="list-style-type: none"> <li>● Gas Cooking appliances</li> <li>● Components of LPG system (hose, regulator &amp; valve)</li> <li>● Main socket-outlets</li> <li>● Water heaters</li> <li>● Lamp control gears</li> <li>● Refrigerator</li> <li>● Domestic electric wall switch</li> </ul>		N/A

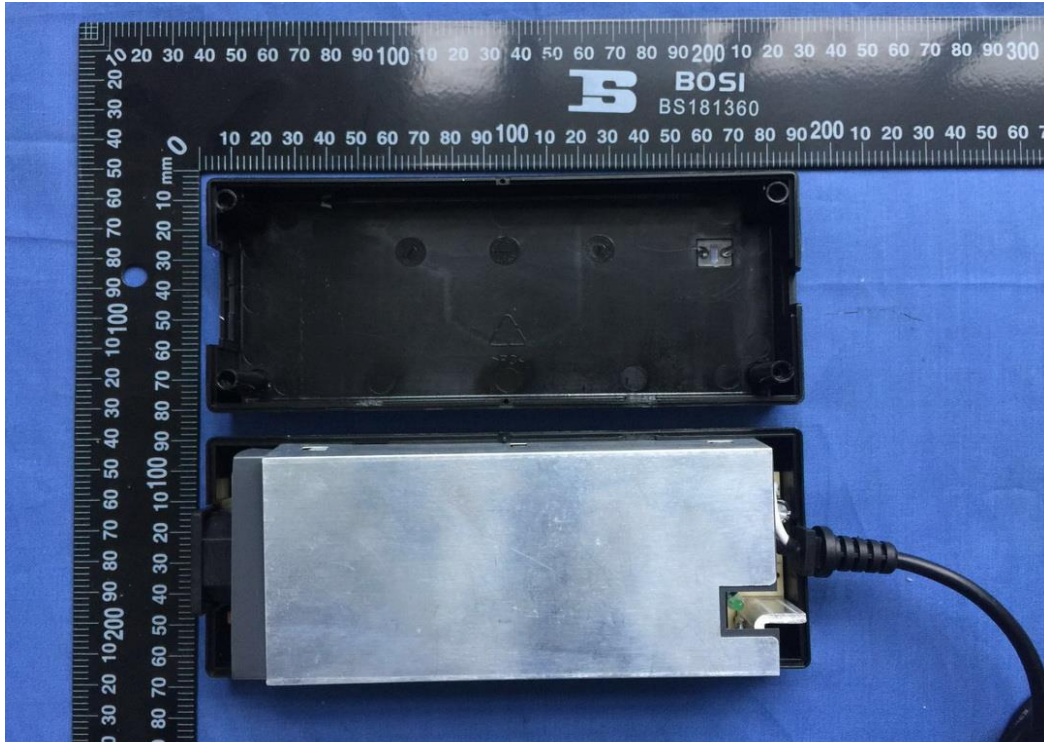
**External view**



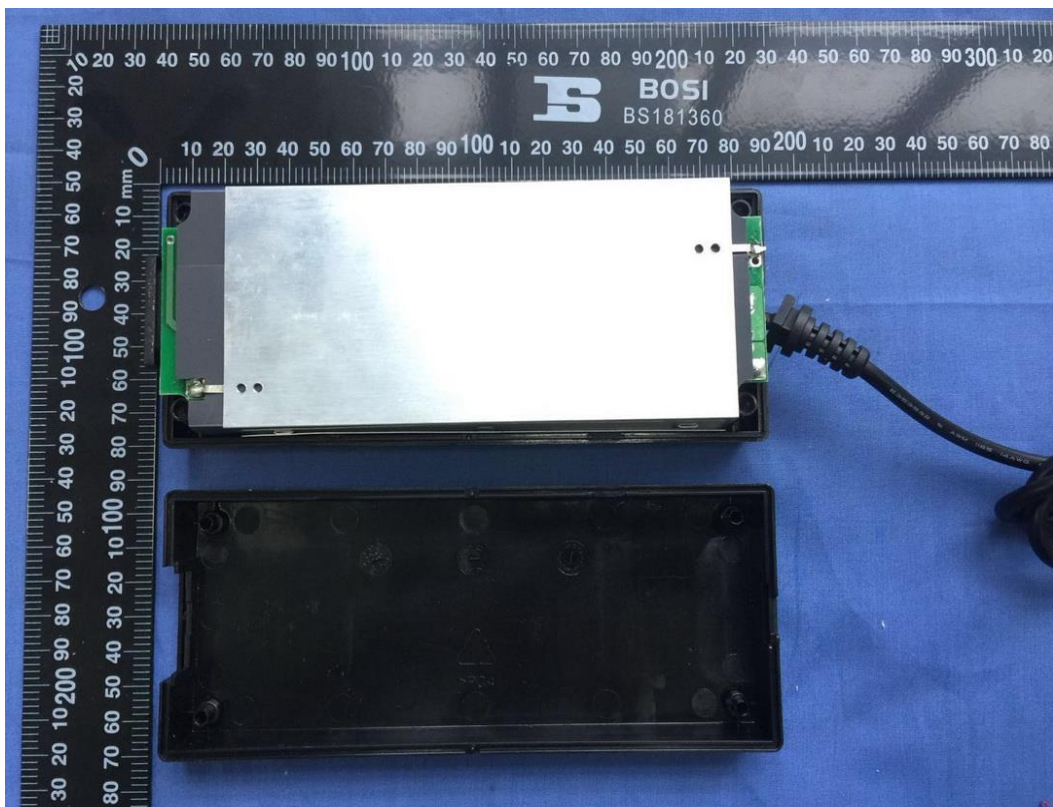
**External view**



**Internal view with Top Enclosure Removed**

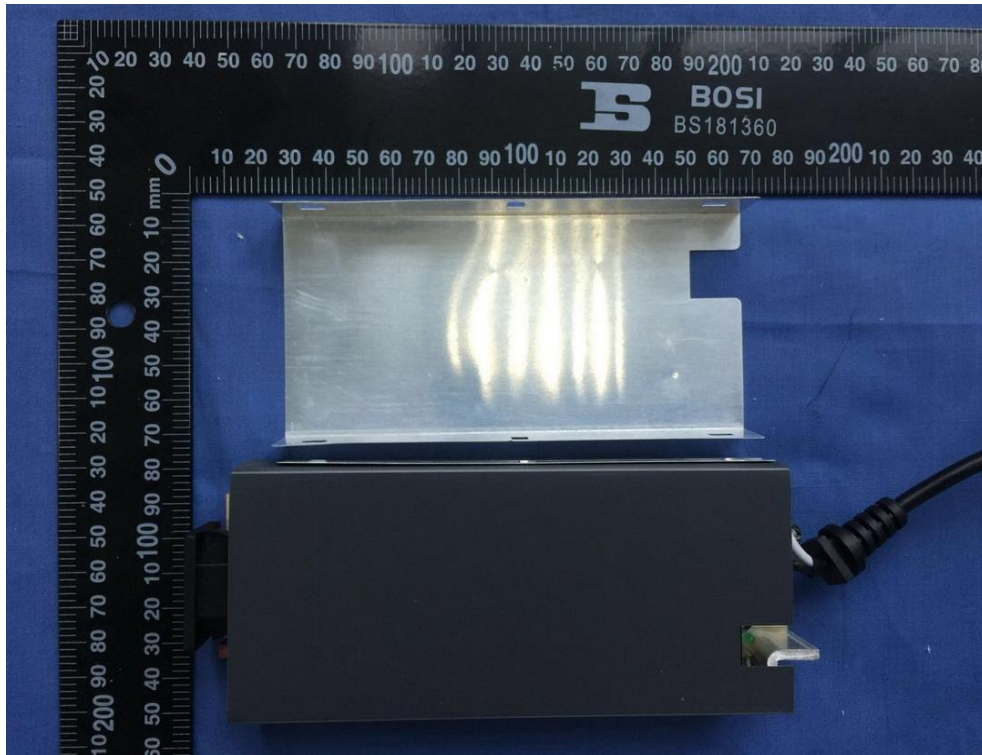


**Internal view with Lower Enclosure Removed**

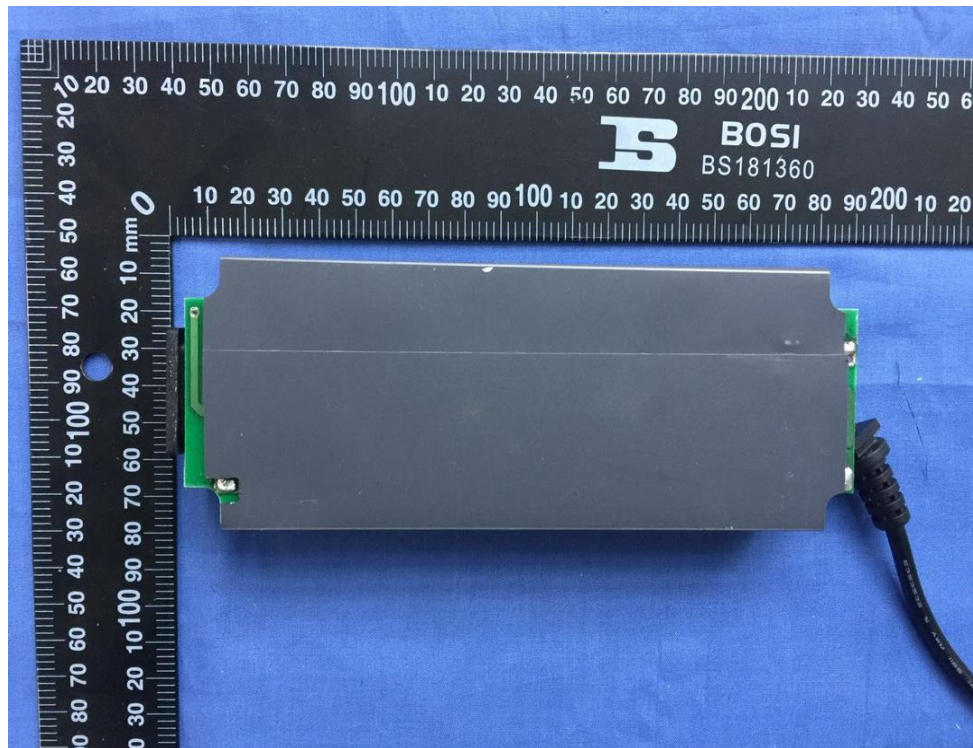




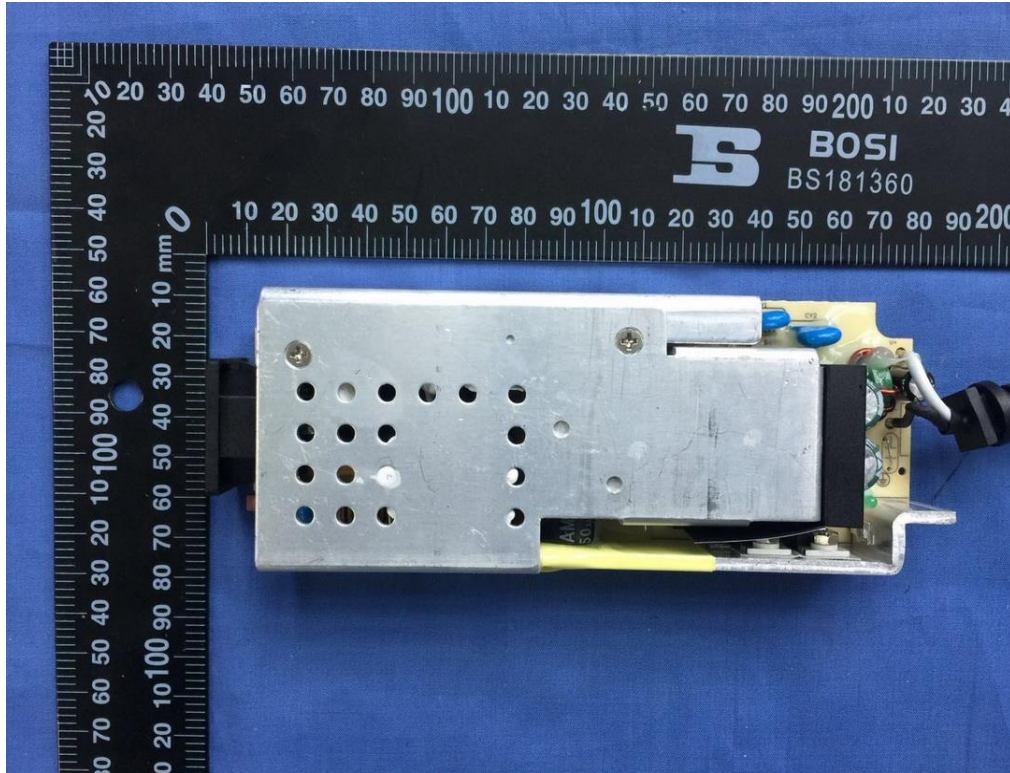
**Internal view with Top Metal Cover Removed**



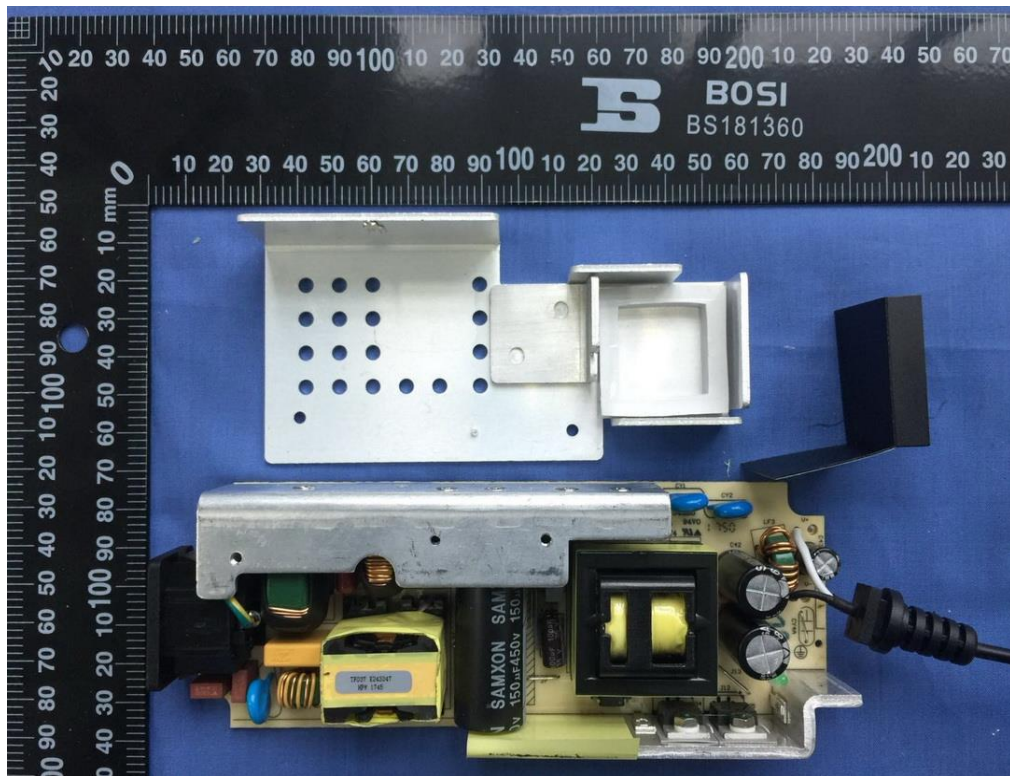
**Internal view with Lower Metal Cover Removed**



**Internal view with Insulation Sheet Removed**

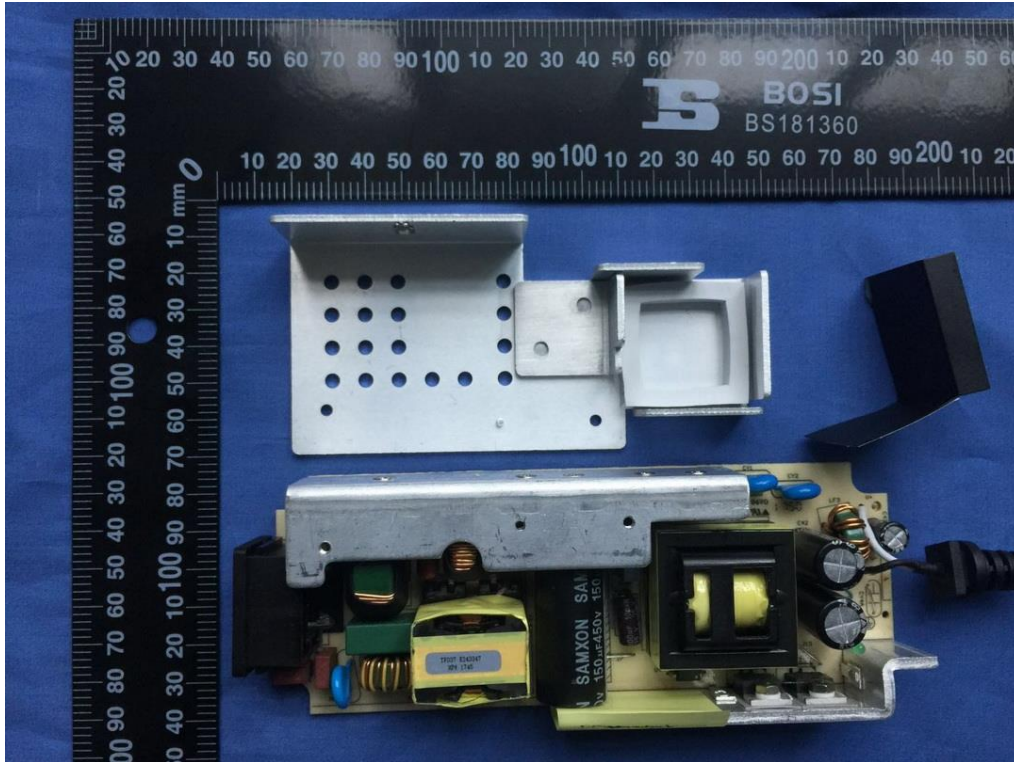


**PCB Top Side (Class I)**

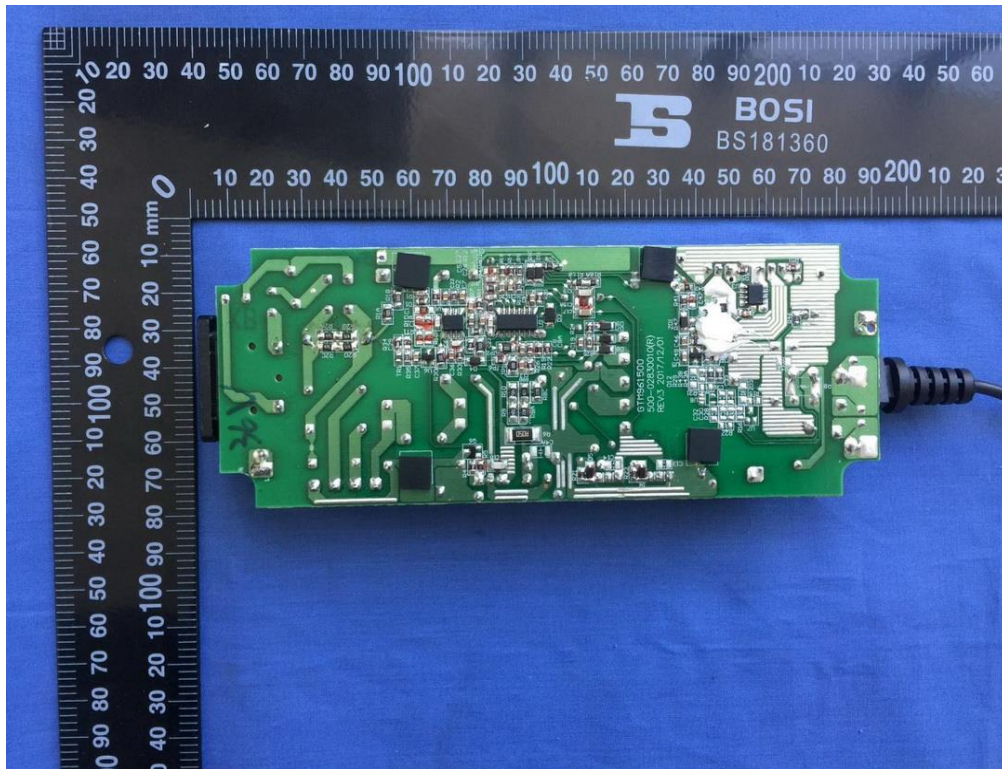




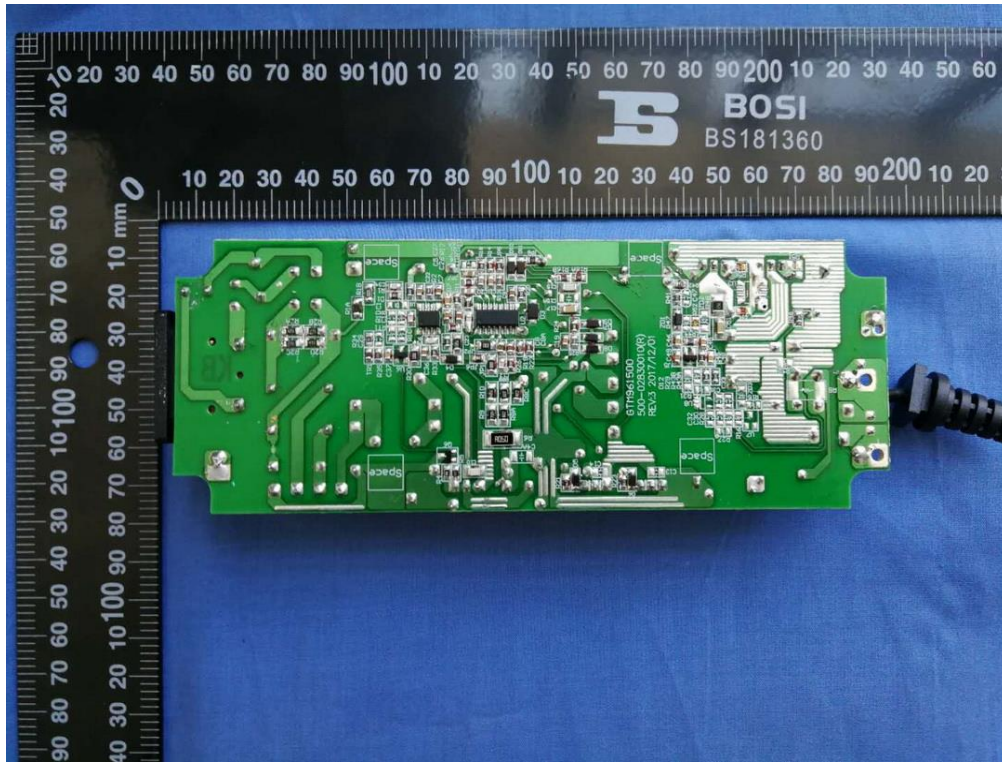
**PCB Top Side (Class II)**



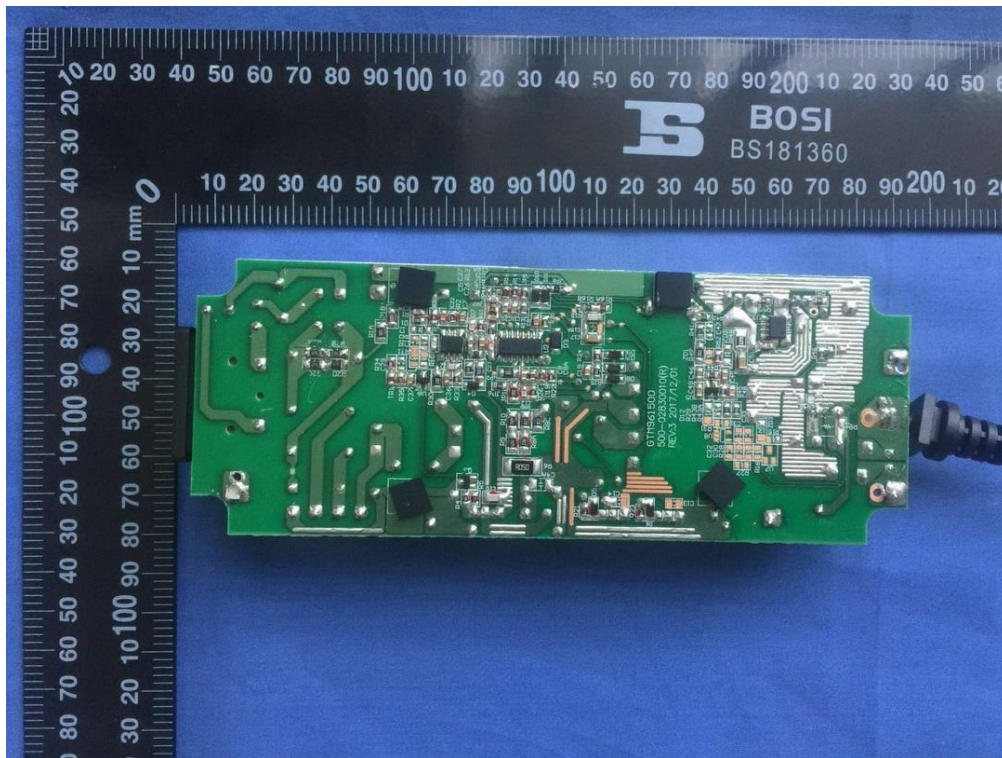
**PCB Bottom Side (12.0-36.0V model, Class I)**



**PCB Bottom Side (36.1-54V model, Class I)**

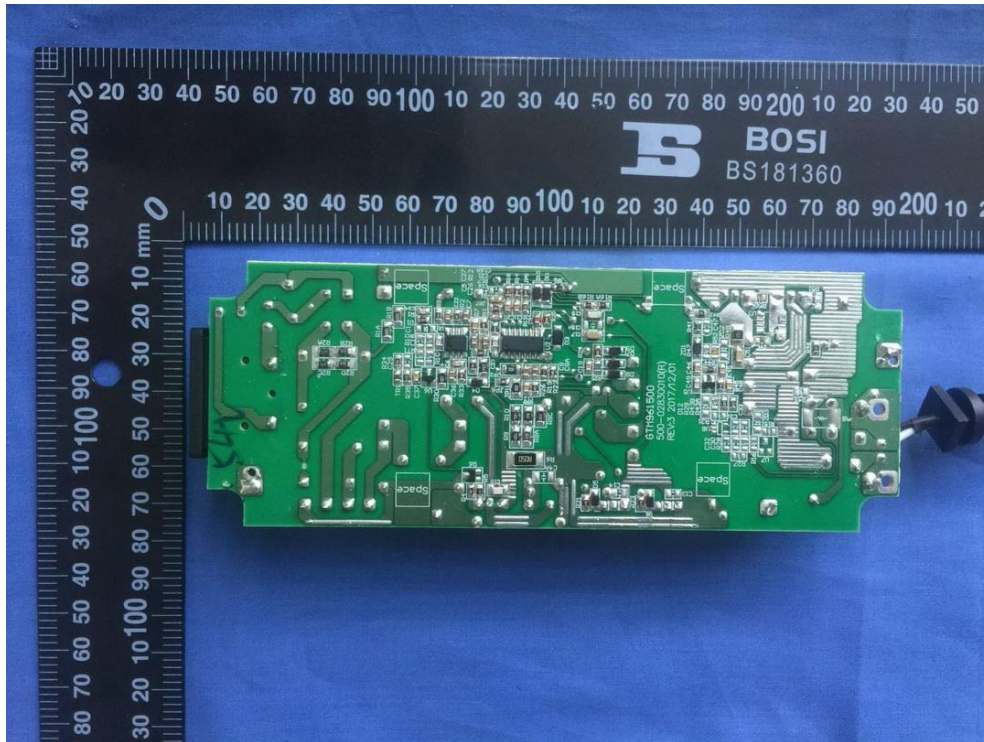


**PCB Bottom Side (12.0-36.0V model, Class II)**

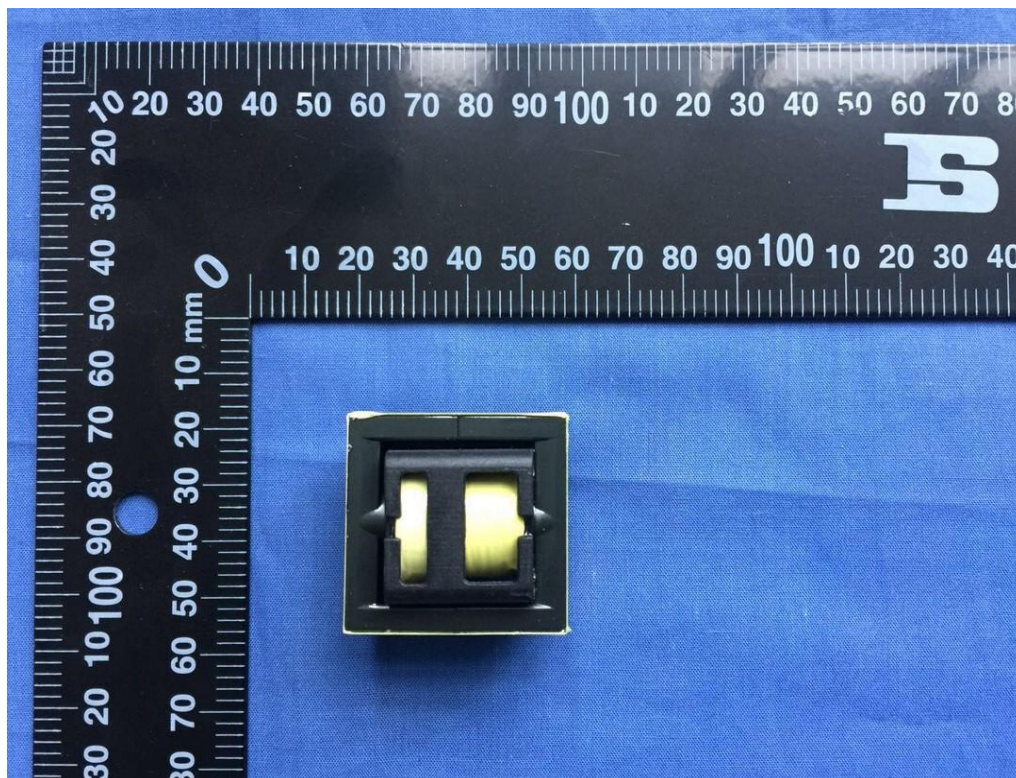




**PCB Bottom Side (36.1-54V model, Class II)**

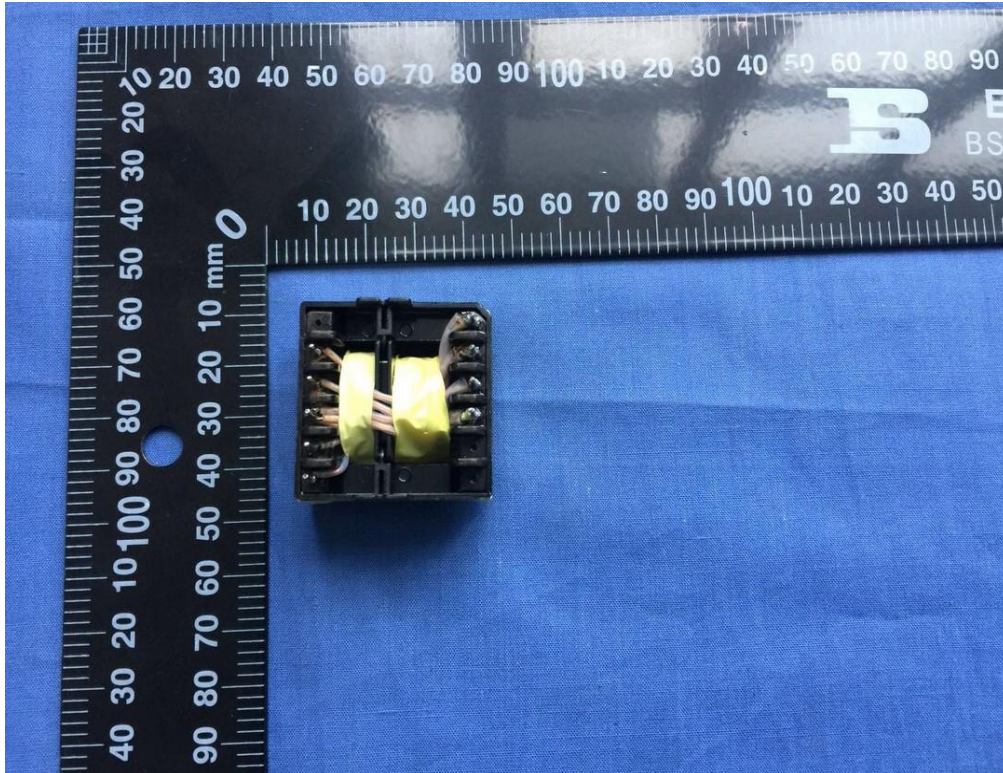


**Transformer view**

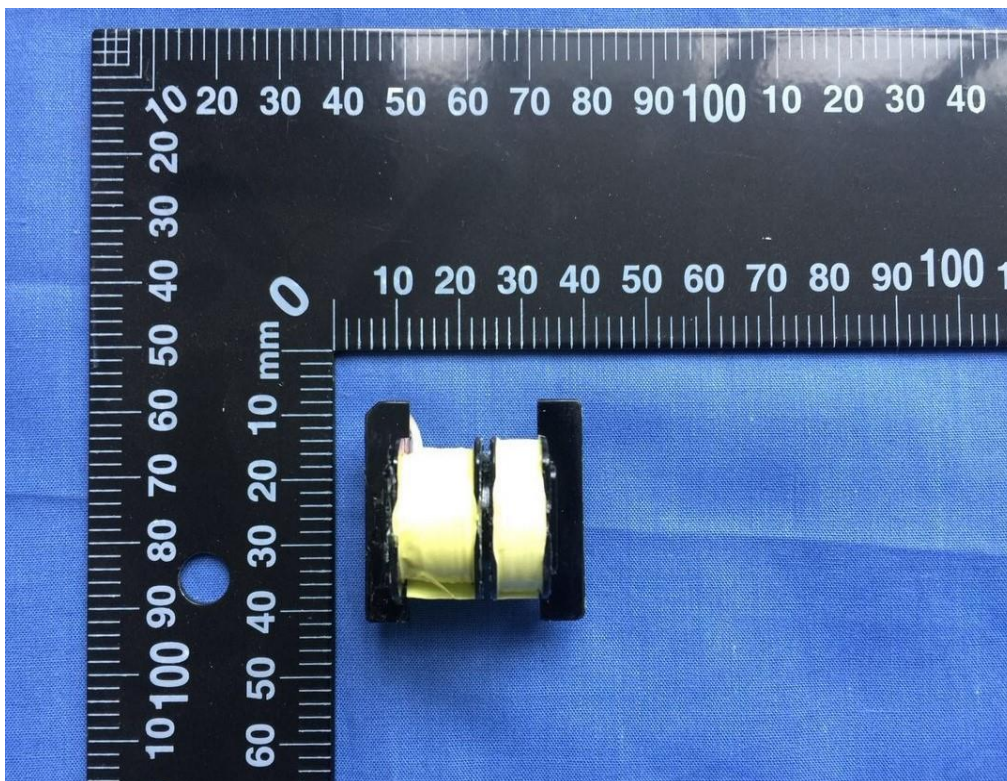




**Transformer view**

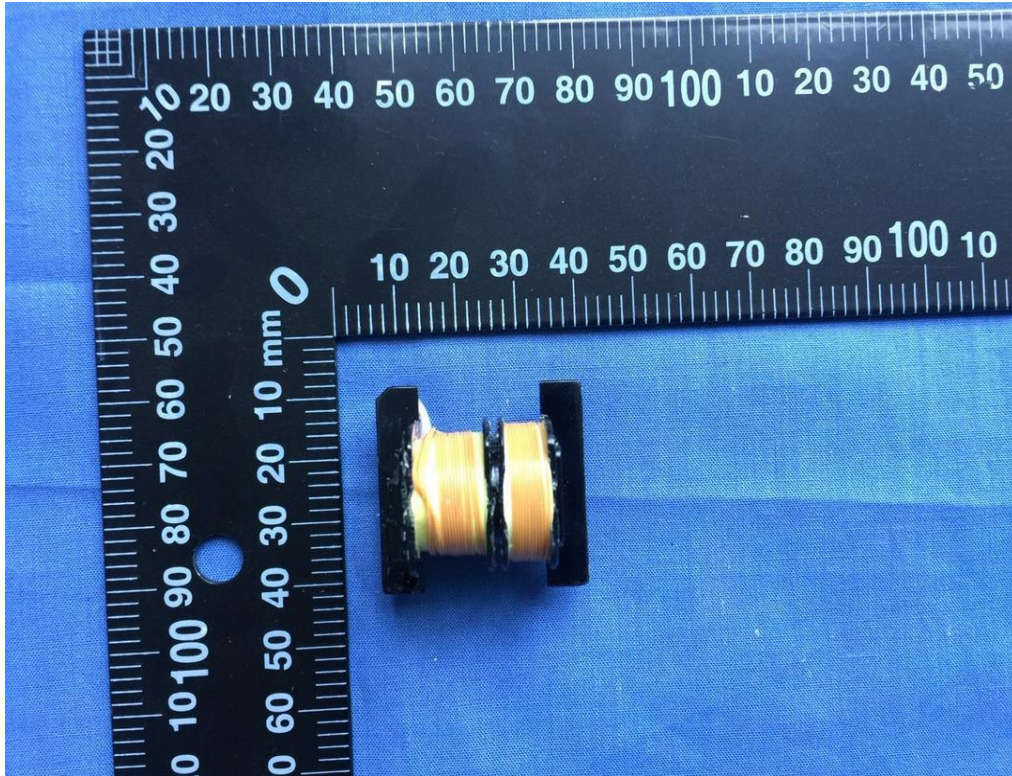


**Transformer view**

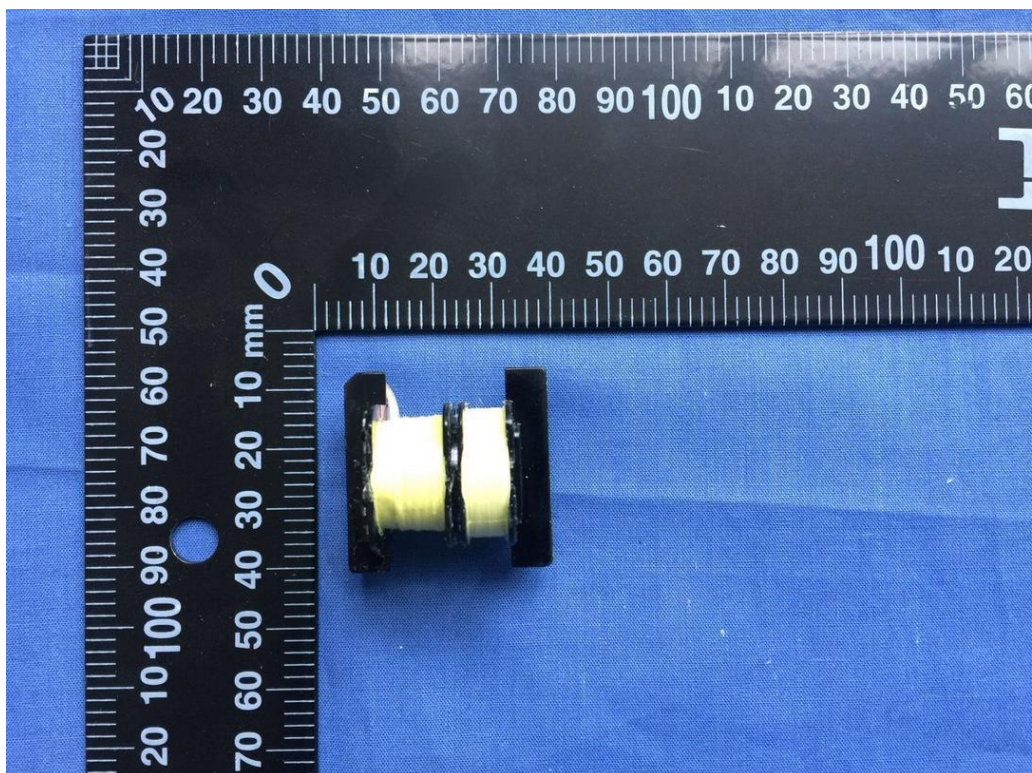




**Transformer view**

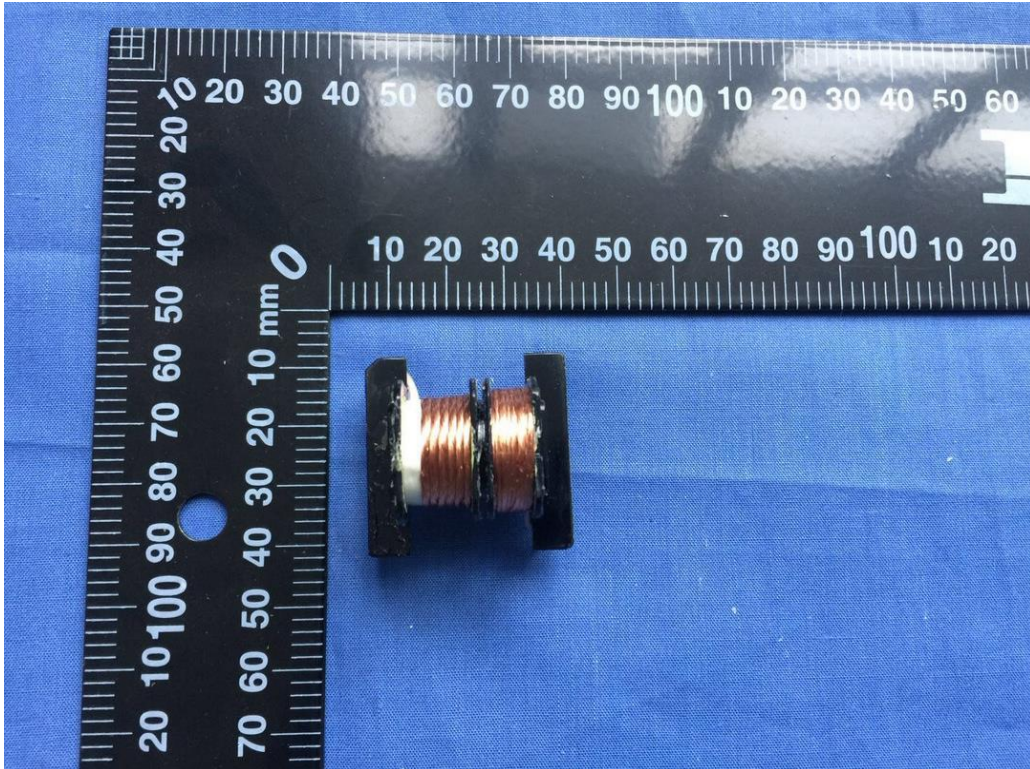


**Transformer view**

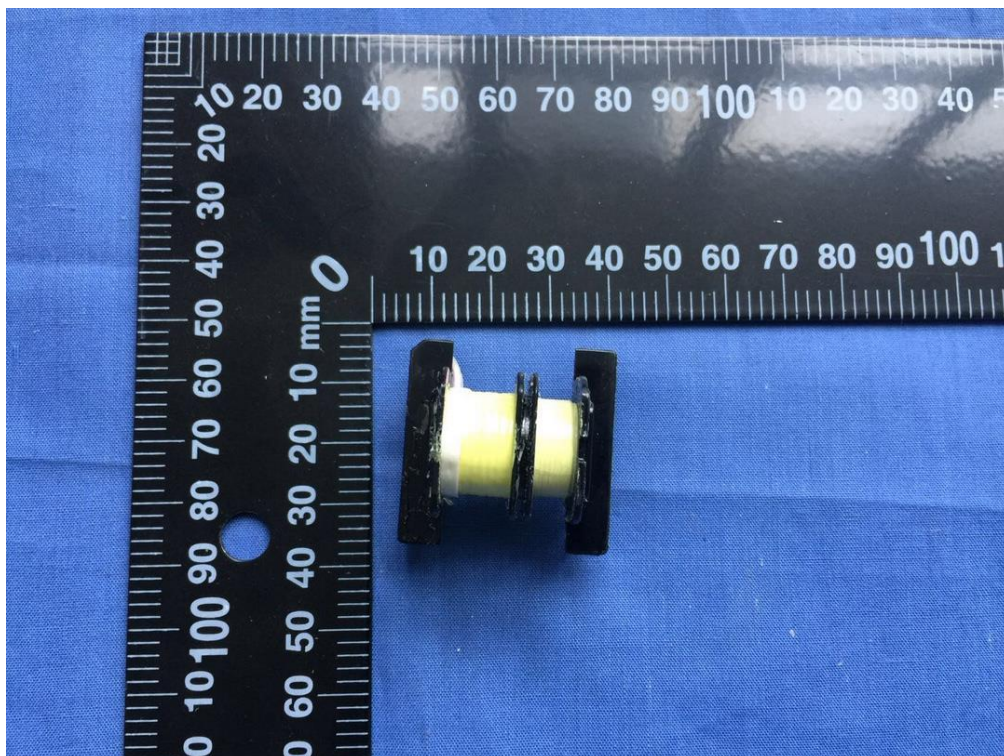




**Transformer view**

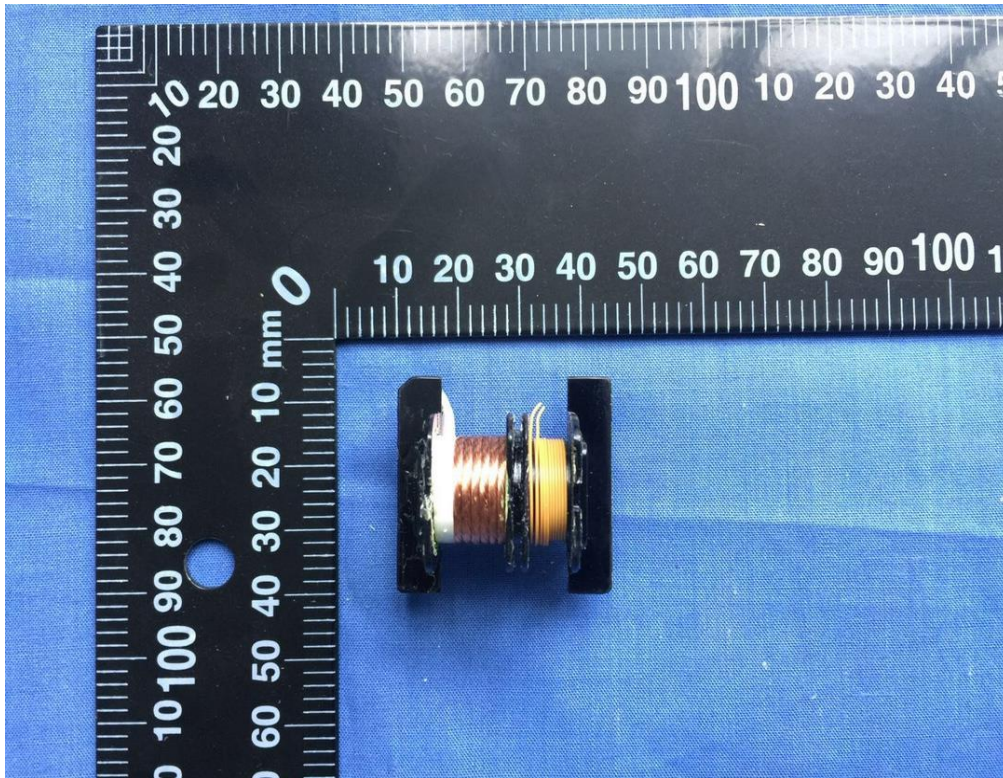


**Transformer view**

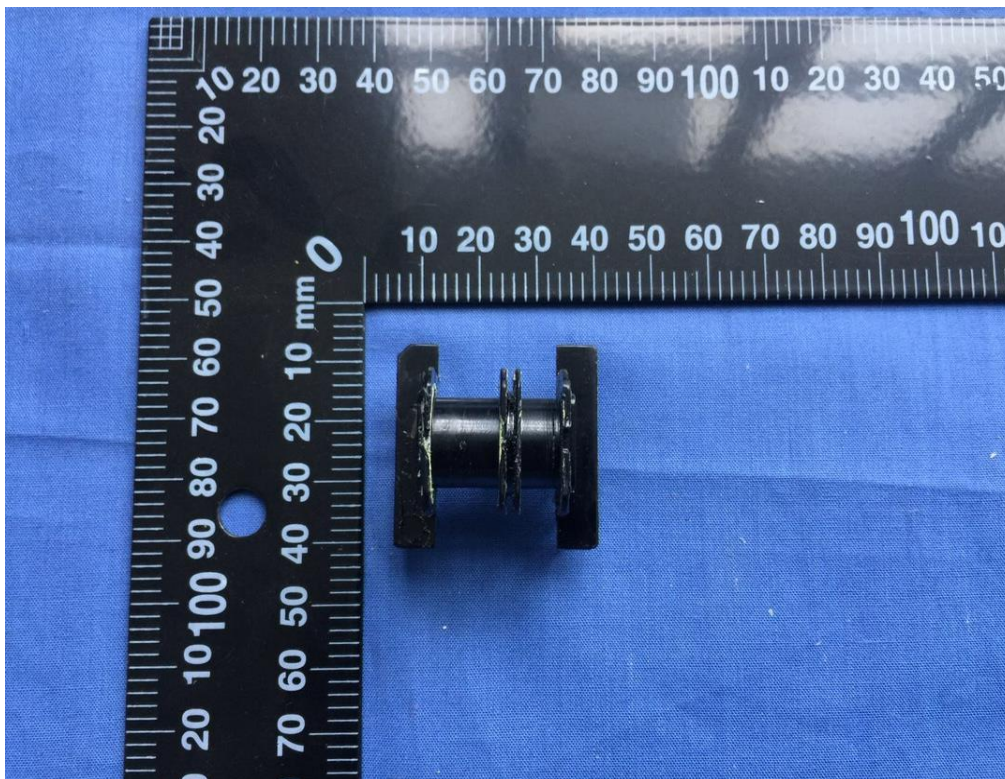




**Transformer view**

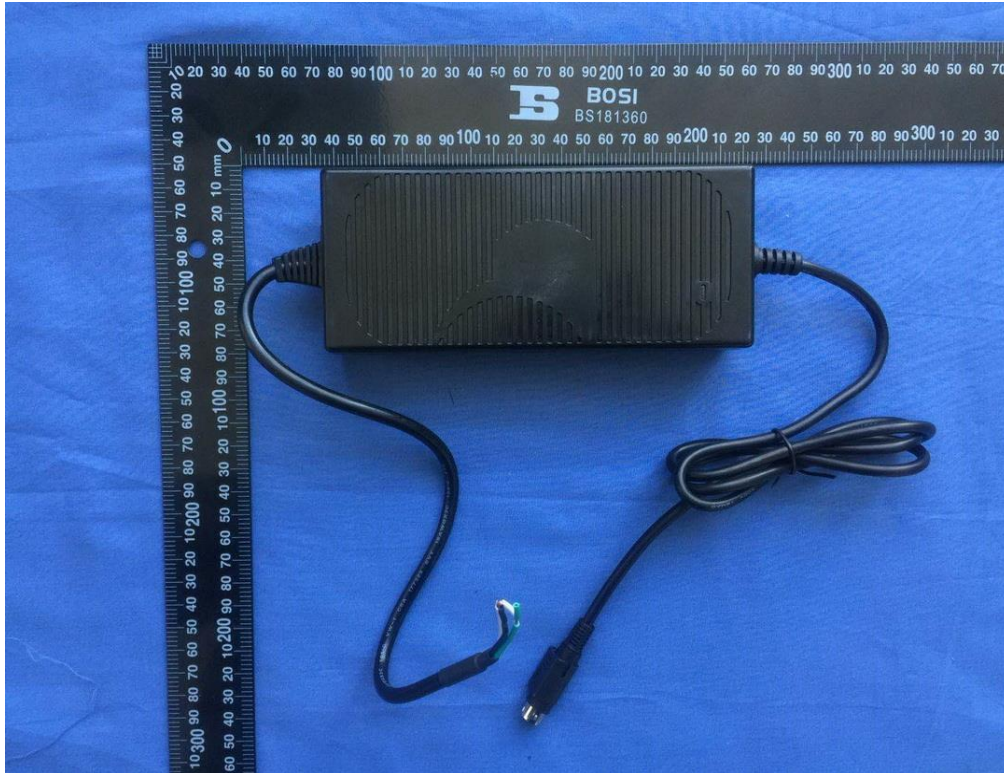


**Transformer view**





**Cord Connected Model Without Plug**



**Cord Connected Model With Plug**



\*\*\*\*\*End of Report\*\*\*\*\*