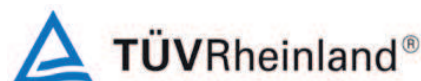




Test Report issued under the responsibility of:



## TEST REPORT

IEC 62368-1

### Audio/video, information and communication technology equipment

### Part 1: Safety requirements

Report Number .....: 50351921 001

Date of issue .....: 2020-04-10

Total number of pages .....: 87

Applicant's name .....: GlobTek, Inc.

Address .....: 186 Veterans Dr. Northvale, NJ 07647, USA

#### Test specification:

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

Test procedure .....: CB Scheme

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

Test Report Form No .....: IEC62368\_1B

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

Master TRF .....: 2014-03

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**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.

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Test Item description .....: ICT/ITE POWER SUPPLY

Trade Mark .....:  **GlobTek® ,Inc.**

Manufacturer .....: Same as applicant

Model/Type reference .....: GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables, for details see model list on page 6)

Ratings .....: Input: see model list on page 6  
Output: see model list on page 6

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	TÜV Rheinland Shanghai Co., Ltd.
<b>Testing location/ address .....</b>		No.177, 178, Lane 777, West Guangzhong Road, Jing'an District, Shanghai, China
<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	
<b>Testing location/ address.....</b>		
<b>Tested by (name + signature).....:</b>		Johnson Ma / Technical Expert 
<b>Approved by (name + signature) .....</b>		Sunny Sun / Reviewer 
<input type="checkbox"/>	<b>Testing procedure: TMP/CTF Stage 1</b>	
<b>Testing location/ address.....</b>		
<b>Tested by (name + signature).....:</b>		
<b>Approved by (name + signature) .....</b>		
<input type="checkbox"/>	<b>Testing procedure: WMT/CTF Stage 2</b>	
<b>Testing location/ address.....</b>		
<b>Tested by (name + signature).....:</b>		
<b>Witnessed by (name + signature) ...:</b>		
<b>Approved by (name + signature) .....</b>		
<input type="checkbox"/>	<b>Testing procedure: SMT/CTF Stage 3 or 4</b>	
<b>Testing location/ address.....</b>		
<b>Tested by (name + signature).....:</b>		
<b>Approved by (name + signature) .....</b>		
<b>Supervised by (name + signature) ...:</b>		

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

- Attachment 1: National Differences (34 pages)
- Attachment 2: Plug portion test (26 pages)
- Attachment 3: Photo documentation (34 pages)

**Summary of testing:**
**Tests performed (name of test and test clause):**

This CB test report is based on the previous CB test report No. 50302336 001 with certificate No. JPTUV-102062 with following changes:

1. Applicant and Manufacturer
2. Model/Type reference

No further testing was deemed necessary for this test report.

**Testing location:**

**TÜV Rheinland Shanghai Co., Ltd.**

No.177, 178, Lane 777, West  
Guangzhong Road, Jing'an District,  
Shanghai, China

**Summary of compliance with National Differences:**

List of countries addressed: (According to IEC 62368-1:2014 (Second Edition))

EU Group Differences, EU Special National Conditions

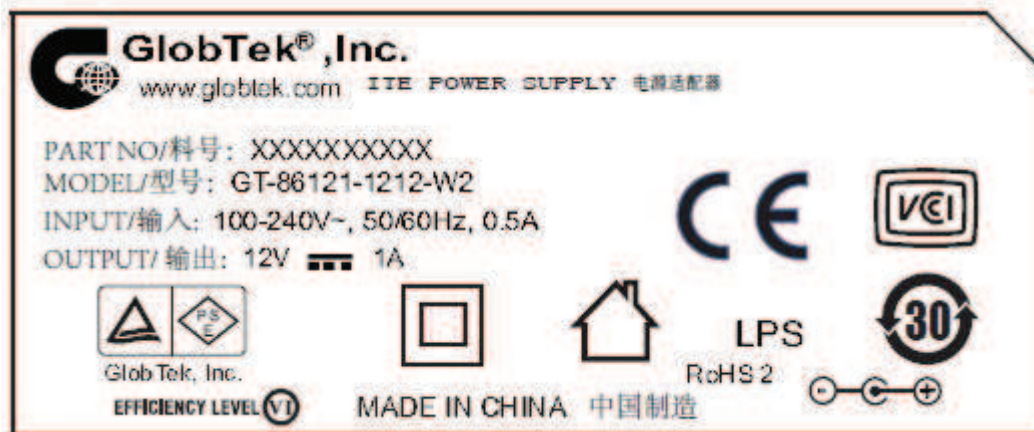
AU, DE, DK, FI, GB, IE, JP, NO, NZ, SE, US

Explanation of used codes: AU=Australia, DE=Germany, DK=Denmark, FI=Finland, GB= United Kingdom, IE=Ireland, JP=Japan, NO=Norway, NZ=New Zealand, SE=Sweden, US=United States of America.

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

**Copy of marking plate(s):**

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.


**Notes:**

1. Since similar label used, only labels for models above listed to represent other similar ones.
2. The CE marking symbol (if any) should be at least 5.0mm height.
3. The manufacturer's address and importer's name and address should be provided on label or package or a document accompanying the equipment before the product is placed on the EU market.

TEST ITEM PARTICULARS:	
Classification of use by .....	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection.....	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance .....	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input type="checkbox"/> None
Supply Connection – Type .....	<input checked="" type="checkbox"/> pluggable equipment   type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input checked="" type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment   type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other: _____
Considered current rating of protective device as part of building or equipment installation.....	16 A (20A for US and CA, 13A for GB) Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility .....	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC) .....	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
Class of equipment .....	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location .....	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient.....	50°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 - <u>230</u> V L-L
Altitude during operation (m) .....	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> Up to 5000m
Altitude of test laboratory (m) .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
Mass of equipment (kg) .....	<input checked="" type="checkbox"/> Approx. 0.092kg

<b>POSSIBLE TEST CASE VERDICTS:</b>	
- 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)
<b>TESTING:</b>	
Date of receipt of test item .....	2019-10-12 for report no. 50302336 001 2020-03-06 for this report
Date (s) of performance of tests .....	2019-10-16 to 2019-10-24 for report no. 50302336 001 2020-03-16 for this report
<b>GENERAL REMARKS:</b>	
<p>"(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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 62368-1:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b>	<b>1. GlobTek, Inc.</b> 186 Veterans Dr. Northvale, NJ 07647 USA <b>2. GlobTek (Suzhou) Co., Ltd.</b> Building 4, No. 76, Jinling East Road, Suzhou Industrial Park, 215021 Jiangsu, P.R. China
<b>GENERAL PRODUCT INFORMATION:</b>	
<ol style="list-style-type: none"> <li>The apparatus are class II switching adapter (direct plug-in type) used for DC supply of Audio/video, information and communication technology equipment, the output cord is non-detachable.</li> <li>The power adapter's top enclosure is secured to bottom enclosure by ultrasonic welding.</li> <li>Pre-production samples without serial numbers.</li> <li>The power pin parts of European plug and Korea plug are fixed into the enclosure of plug portion by a screw. The pin parts of other plug were moulded into the enclosure of plug portion. It is impossible to remain in the mains socket-outlet after removal of the adapter, details see photo document.</li> <li>Specified maximum ambient temperature is 50°C.</li> <li>All models were evaluated for a maximum operating altitude of 5000m. Therefore the requirements of IEC 62368-1 for clearances were considered and the required clearance was multiplied with an altitude correction factor of 1.48.</li> <li>There two current fuses and fuse resistor (F1 &amp; F2), one varistors (MOV1) within equipment. The configuration for them are below:</li> </ol>	

Configuration	F1	F2	MOV
Combination 1	3.3ohm	Jumper	Optional
Combination 2	6.8ohm	Jumper	Optional
Combination 3	2.0A	Jumper	Optional
Combination 4	6.3A	3.3ohm	Optional
Combination 5	6.3A	6.8ohm	Optional
Combination 6	6.3A	10.0ohm	Optional
Combination 7	Jumper	2.0A	Without
Combination 8	Jumper	3.3ohm	Without
Combination 9	Jumper	6.8ohm	Without
Combination 10	Jumper	10.0ohm	Without

#### Model difference:

1. R1, R2, R3, R4, R5, R5A, R6, R7, R8, R9, R10, R11, R12, C5, C6, C7, D3, D2.: The parameters of these components depend on output current.
2. The series products have four kinds of transformers. They are identical to each other except for model name and the specification of primary auxiliary winding, secondary winding and winding method.
3. GT-86121-WWVV-W2Z is incorporated with fixed plug portion and GT-86121-WWVV is incorporated with detachable plug portion.
4. GT-86121-WWVV; GT-86121-WWVV-W2Z (VV=09-12, 24): PCB REV: 2.  
GT-86121-WWVV; GT-86121-WWVV-W2Z (VV=04.2-05.2): PCB REV: 3, They are identical with each other except secondary layout.

#### Model list:

##### GT-86121-WWVV; GT-86121-WWVV-W2Z

Model name	Input	Output voltage (V)	Max. Output current (A)	Max. Output power (W)
GT-86121-WWVV GT-86121-WWVV-W2Z	100-240V~, 50/60Hz, 0.5A	4.2-5.2	2.1	11
		9.0	1.33	12
		9.1-12.0	1.0	12
		24.0	0.5	12

#### Note:

Variable:	Range of variable:	Content:
WW	Max. 12	Means the standard output wattage, WW is 2 digit number with a maximum value of "12"
VV	can be from "4.2" to "5.2", "9.0" to "12.0", "24.0" or from "04.2" to "05.2", from "09" to "12", "24"	the standard rated output voltage designation, with interval of 0.1V
Z	can be E, U, blank, C, I, A, K, AR, BR, SA or AF	designates type of plug and can be E for European plug, U for British plug, blank for North American / Japan plug/Taiwan plug, C for Chinese plug, I for India plug, A for Australia plug, K for Korea plug, AR for Argentina plug, BR for Brazilian plug, SA or AF for South African plug

<b>ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:</b>	
<p>(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)</p> <p>(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)</p>	
<p><b>Electrically-caused injury (Clause 5):</b></p> <p>(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)</p> <p>Example: +5 V dc input <span style="float: right;">ES1</span></p>	
Source of electrical energy	Corresponding classification (ES)
Primary circuit	ES3
Output circuit	ES1
<p><b>Electrically-caused fire (Clause 6):</b></p> <p>(Note: List sub-assembly or circuit designation and corresponding energy source classification)</p> <p>Example: Battery pack (maximum 85 watts): <span style="float: right;">PS2</span></p>	
Source of power or PIS	Corresponding classification (PS)
Primary circuit	PS3
Output terminal	PS2
<p><b>Injury caused by hazardous substances (Clause 7)</b></p> <p>(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)</p> <p>Example: Liquid in filled component <span style="float: right;">Glycol</span></p>	
Source of hazardous substances	Corresponding chemical
N/A	None
<p><b>Mechanically-caused injury (Clause 8)</b></p> <p>(Note: List moving part(s), fan, special installations, etc. &amp; corresponding MS classification based on Table 35.)</p> <p>Example: Wall mount unit <span style="float: right;">MS2</span></p>	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Edges and corners of enclosure	MS1
Mass of the unit	MS1
<p><b>Thermal burn injury (Clause 9)</b></p> <p>(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)</p> <p>Example: Hand-held scanner – thermoplastic enclosure <span style="float: right;">TS1</span></p>	
Source of thermal energy	Corresponding classification (TS)
External surfaces	TS1 for accessible part
<p><b>Radiation (Clause 10)</b></p> <p>(Note: List the types of radiation present in the product and the corresponding energy source classification.)</p> <p>Example: DVD – Class 1 Laser Product <span style="float: right;">RS1</span></p>	
Type of radiation	Corresponding classification (RS)
N/A	None

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
<p style="text-align: center;"><b>See above table</b></p> <p><b>ES3 (on the left side of transformer T1), PS3 (on the left side of transformer T1), enclosure surface is TS1</b></p> <p><b>ES1 (on the right side of transformer T1), output is PS2 energy source, all areas contains PIS sources</b></p> <p style="text-align: center;"> <input checked="" type="checkbox"/> ES               <input checked="" type="checkbox"/> PS               <input checked="" type="checkbox"/> MS               <input checked="" type="checkbox"/> TS               <input type="checkbox"/> RS         </p>



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	Supplement ary	Reinforced (Enclosure)
Ordinary	ES3: primary circuit	N/A	N/A	Transformer, Y-capacitor, Enclosure
Ordinary	ES1: Output connector	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source	Safeguards		
		Basic	Supplement ary	Reinforced
Combustible materials within equipment	PS3: >100 Watt circuit (Primary circuit)	Equipment safeguard	Equipment safeguards	N/A
Output connector	PS2: >15Watt circuit, ≤100 Watt circuit	Equipment safeguard	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplement ary	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	Supplement ary	Reinforced (Enclosure)
Ordinary	MS1: Smooth Edges and corners	N/A	N/A	N/A
Mass of the unit	MS1	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplement ary	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	Supplement ary	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	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G.	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding preventing access to ES3 parts, limiting the source supplying outputs to fulfill ES1, and protection in regard to risk of ignition, mechanical-caused injury and thermal burn considered.	P
4.1.15	Markings and instructions .....	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests .....	(See Annex T.2, T.4 and T.5)	P
4.4.4.3	Drop tests .....	(See Annex T.7)	P
4.4.4.4	Impact tests.....	Direct plug in equipment	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests .....	The external enclosure cannot be opened without damaging the product.	N/A
4.4.4.6	Glass Impact tests.....	No such glass used.	N/A
4.4.4.7	Thermoplastic material tests .....	After 7 hours and cooling down to room temperature, no shrinkage, distortion or loosening any enclosure part was noticeable on the adapter. Test was performed for all sources of enclosure material, detail see Annex T.8.	P
4.4.4.8	Air comprising a safeguard .....	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.3, 4.4.4.7, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard	The conductors will be connected by wire terminals.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6.2	10 N force test applied to .....	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
4.7	Equipment for direct insertion into mains socket - outlets	Direct plug-in equipment.	P
4.7.2	Mains plug part complies with the relevant standard.....	The dimension and construction of the plug portion part is in accordance with: 1) EN 50075:1990 for European plug. 2) BS 1363-1:2016+A1:2018 for UK plug. The plugs for other countries shall be evaluated when submitted for national approval.	P
4.7.3	Torque (Nm) .....	Max. 0.05Nm for all orientation of both vertical and horizontal enclosure with EU and UK plug, The plugs for other countries shall be evaluated when submitted for national approval.	P
4.8	Products containing coin/button cell batteries	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery .....		—
4.8.4	Battery Compartment Mechanical Tests .....		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object .....	No likelihood of conductive object entering 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 .....		N/A
5.2.2.4	Single pulse limits.....	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses.....	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringling signals .....	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals .....	No such audio signals	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3	Protection against electrical energy sources	See below	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 4.3 and 5.3 to 5.5 which applies to protection between the accessible parts and hazardous parts of other circuits.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
5.3.2.2	Contact requirements	No openings allowing entry of a probe. No access with test probe to any ES3 circuit or parts.	P
	a) Test with test probe from Annex V.....:		P
	b) Electric strength test potential (V).....:		N/A
	c) Air gap (mm) .....		N/A
5.3.2.4	Terminals for connecting stripped wire	No stripped wire used.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T and natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning .....	No hygroscopic material used.	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.....	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied. No insulating compound applied (however see 5.5.4).	N/A
5.4.1.5.3	Thermal cycling	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses.	N/A
5.4.1.8	Determination of working voltage	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See only 5.4.10.3 below.	P
5.4.1.10.2	Vicat softening temperature.....		N/A
5.4.1.10.3	Ball pressure .....	See appended table 5.4.1.10.3.	P
5.4.2	Clearances	The highest value of 5.4.3.3 and 5.4.2.3 be used.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.2	Determining clearance using peak working voltage	Temporary overvoltage 2000V <sub>peak</sub> assumed.	P
5.4.2.3	Determining clearance using required withstand voltage .....	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
	a) a.c. mains transient voltage .....	2500 V <sub>pk</sub> considered for Overvoltage Cat. II	—
	b) d.c. mains transient voltage .....	Not d.c. mains.	—
	c) external circuit transient voltage .....	No such transient	—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Using procedure 2 to determine the clearance according to 5.4.2.3.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....	1.48	P
5.4.3	Creepage distances .....	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group .....	IIIa & IIIb	—
5.4.4	Solid insulation	See below	P
5.4.4.2	Minimum distance through insulation .....	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material	Tape used in T1	P
5.4.4.6.1	General requirements	See below.	P
5.4.4.6.2	Separable thin sheet material	Reinforced insulation consisting of two layers of tape, each layer shall pass the electric strength test for reinforced insulation.	P
	Number of layers (pcs) .....	2	P
5.4.4.6.3	Non-separable thin sheet material	No such insulation used within the EUT.	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	See G.5.3 and G.6.1 only.	P
5.4.4.9	Solid insulation at frequencies >30 kHz .....		P
5.4.5	Antenna terminal insulation		P
5.4.5.1	General		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.5.2	Voltage surge test		P
	Insulation resistance (MΩ).....:	>30 MΩ	P
5.4.6	Insulation of internal wire as part of supplementary safeguard.....:	No such insulation of internal wire as part of supplementary safeguard.	N/A
5.4.7	Tests for semiconductor components and for cemented joints	No tests necessary –see only 5.4.4.4.	N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%).....:	95%	—
	Temperature (°C) .....	40°C	—
	Duration (h) .....	120h	—
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	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine tests	Should be considered and conducted during production at factory.	N/A
5.4.10	Protection against transient voltages between external circuit	No such external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test .....		N/A
5.4.10.2.3	Steady-state test.....:		N/A
5.4.11	Insulation between external circuits and earthed circuitry .....	No such external circuit.	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		
5.5.1	General	See below.	P
5.5.2	Capacitors and RC units	Approved Y capacitor (CY1) provided. See G.11.1.	P
5.5.2.1	General requirement		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....		N/A
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers		N/A
5.5.5	Relays	No such component provided	N/A
5.5.6	Resistors	None providing a safeguard.	N/A
5.5.7	SPD's		N/A
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 .....	No such external circuits.	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Class II apparatus with no means of earthing.	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm <sup>2</sup> ) .....		—
5.6.4	Requirement for protective bonding conductors		N/A
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		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance.....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2	Measuring devices and networks	Figure 4 & Figure 5 of IEC 60990 was used in determining of the value.	P
5.7.2.1	Measurement of touch current .....	(See appended table 5.2.2.2, 5.7.2.2, 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	Clause 4, 5.3 and 5.4 of IEC 60990:1999 applied.	P
	System of interconnected equipment (separate connections/single connection) .....	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections) .....	Single connection.	—
5.7.4	Earthed conductive accessible parts .....	Class II equipment.	N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V) .....		—
	Measured current (mA) .....		—
	Instructional Safeguard .....		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	No 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	No external circuits.	N/A
	a) Equipment with earthed external circuits Measured current (mA) .....		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA) .....		N/A

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		<b>P</b>
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		<b>P</b>
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	<b>P</b>
6.2.2.1	General	See the following details.	<b>P</b>
6.2.2.2	Power measurement for worst-case load fault ..	(See appended table 6.2.2)	<b>P</b>
6.2.2.3	Power measurement for worst-case power source fault .....	(See appended table 6.2.2)	<b>P</b>
6.2.2.4	PS1 .....	(See appended table 6.2.2)	<b>P</b>



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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.5	PS2 .....	All secondary circuit inside enclosure is claimed as PS3	N/A
6.2.2.6	PS3 .....	All primary circuit inside enclosure is claimed as PS3	P
6.2.3	Classification of potential ignition sources	See the following details.	P
6.2.3.1	Arcing PIS .....	All circuit inside enclosure is claimed as Arcing PIS	P
6.2.3.2	Resistive PIS .....	All circuit inside enclosure is claimed as Resistive PIS	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	Only output wire and connector which comply with 6.4.5.	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control of fire spread applied, Fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits	Compliance detailed as follows: <ul style="list-style-type: none"> <li>- <u>Printed board</u>: rated min. V-1</li> <li>- <u>Wire insulation (tubing)</u>: complying with Clause 6 (See Table 4.1.2 for wiring used).</li> <li>- <u>All other components</u>: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.</li> <li>- <u>Isolating transformer</u>: complying with G.5.3.</li> </ul>	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards .....	(See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: – <u>Parts as in 6.4.5 above including wiring</u> – Fire enclosure rated V-0 used.	P
6.4.7	Separation of combustible materials from a PIS	Fire enclosure provided.	N/A
6.4.7.1	General .....		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier	No specific barrier provided.	N/A
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	The V-0 material is used for the fire enclosure (overall enclosure).	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier used.	N/A
6.4.8.2.2	Requirements for a fire enclosure	The V-0 fire enclosure is used. See above.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....	No openings	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....	No opening	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 .....	Fire enclosure is made of V-0 material.	N/A
6.5	Internal and external wiring		P
6.5.1	Requirements	Internal input wire and output cord provided	P
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....	See table 4.1.2	—
6.5.3	Requirements for interconnection to building wiring .....	(See Annex Q.)	N/A
6.6	Safeguards against fire due to connection to additional equipment		P

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Clause	Requirement + Test	Result - Remark	Verdict
	External port limited to PS2 or complies with Clause Q.1	Output complies with Clause Q.1.	P

<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		P
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	P
7.3	Ozone exposure	No ozone production within the equipment.	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 .....	No battery used.	N/A

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
8.1	General	No moving parts in the equipment. See below regarding edges and corners.	P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of the enclosure are rounded.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No moving parts.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard .....		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard .....		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N) .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....		N/A
8.6	Stability	Classification MS1 according to table 35, line 5 and no stability requirements.	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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 N .....		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No such parts.	N/A
	Button/Ball diameter (mm) .....		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
9.2	Thermal energy source classifications	No part considered to be accessible other than enclosure. The equipment evaluated by temperature test (see table 5.4.1.4).	P
9.3	Safeguard against thermal energy sources	Temperature of enclosure classed as TS1.	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		P
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
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....		N/A
	Instructional safeguard.....		—
	Tool .....		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons .....		N/A
10.4.1.b)	RS3 accessible to a skilled person .....		N/A
	Personal safeguard (PPE) instructional safeguard .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 .....		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque .....		N/A
10.4.1.f)	UV attenuation .....		N/A
10.4.1.g)	Materials resistant to degradation UV:		N/A
10.4.1.h)	Enclosure containment of optical radiation.....		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....		N/A
10.4.2	Instructional safeguard .....		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment .....		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards:		N/A
	Instructional safeguard for skilled person.....		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation:		—
	Abnormal and single-fault condition:		N/A
	Maximum radiation (pA/kg):		N/A
10.6	Protection against acoustic energy sources	Not such equipment.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A).....		N/A
	Output voltage, unweighted r.m.s.....		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards .....		N/A
	Equipment safeguard prevent ordinary person to RS2.....		—
	Means to actively inform user of increase sound pressure .....		—
	Equipment safeguard prevent ordinary person to RS2.....		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) $L_{Aeq}$ acoustic		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
<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 summary of testing for tested models, each loaded according to its output ratings. See also appended table B.2.5.)	P
	Audio Amplifiers and equipment with audio amplifiers .....	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	+10 % and -10 % considered.	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	The EUT is not connected to a D.C. mains	N/A
B.3.4	Setting of voltage selector:	No voltage selector was used.	N/A
B.3.5	Maximum load at output terminals:	(See appended table B.3)	P
B.3.6	Reverse battery polarity	No battery within the EUT	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Not such equipment.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited:	No such device used.	N/A
B.4.3	Motor tests	No motors used.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature :		N/A
B.4.4	Short circuit of functional insulation	See below.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4 for faults on semiconductor components)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P



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Clause	Requirement + Test	Result - Remark	Verdict
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	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...	No battery involved in the EUT	N/A

<b>C</b>	<b>UV RADIATION</b>		N/A
C.1	Protection of materials in equipment from UV radiation	No UV generated from the equipment.	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		P
D.2	Antenna interface test generator		N/A
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	Not such equipment.	N/A
	Audio signal voltage (V).....		—
	Rated load impedance ( $\Omega$ ) .....		—
E.2	Audio amplifier abnormal operating conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		<b>P</b>
F.1	General requirements	See below.	P
	Instructions – Language .....	English user manual provided.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	N/A
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings	See copy of marking plate.	P
F.3.2.1	Manufacturer identification .....	See copy of marking plate.	—
F.3.2.2	Model identification .....	See model list.	—
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is direct connected to AC mains, see F.3.3.3 to F.3.3.6.	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage .....	AC	—
F.3.3.4	Rated voltage.....	See copy of marking plate.	—
F.3.3.4	Rated frequency.....	See copy of marking plate.	—
F.3.3.6	Rated current or rated power.....	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one mains supply connection provided.	N/A
F.3.4	Voltage setting device	No voltage setting device.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings:	No outlet used.	N/A
F.3.5.2	Switch position identification marking:	No switch used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.3	Replacement fuse identification and rating markings ..... :	Fusible resistor and Current fuse used, marking provided on PCB adjacent to them:  F1: T6.3AL, 250V; T2.0AL, 250V; 3.3ohm, 2W; 6.8ohm, 2W; F2: ; T2.0AL, 250V; 3.3ohm, 2W; 6.8ohm, 2W; 10.0ohm, 2W;  However, the fuse resistor is not intended to be replaceable.	P
F.3.5.4	Replacement battery identification marking:	No such battery on the equipment. See sub-clause F.5	N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification	See below.	P
F.3.6.1	Class I Equipment	Class II equipment.	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)	Symbol IEC 60417-5172 used.	P
F.3.6.2.1	Class II equipment with or without functional earth	See above	P
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	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	user manual was available	P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals provided.	N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment	No such symbols used as a safeguard considered.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No such markings.	N/A
F.5	Instructional safeguards	No instructional safeguard is considered as necessary.	N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction	No instructional safeguard required in the equipment.	N/A

<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General requirements	No switch used.	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	No relay used.	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	No thermal cut-off used.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	No thermal link used.	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	No PTC thermistor used.	N/A
G.3.4	Overcurrent protection devices		P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		P
G.3.5.1	Non-resettable devices suitably rated and marking provided	See F.3.5.3	P
G.3.5.2	Single faults conditions .....	(See appended Table B.4)	P
<b>G.4</b>	<b>Connectors</b>		P
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration .....	Refer to sub-clause 4.7	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	Output connector with a shape that insert into mains connector is unlikely to occur.	P
<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°	Physical separation provided by tape.	P
G.5.1.2 b)	Construction subject to routine testing		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 .....	By bobbin and insulating tape	—
G.5.3.3	Overload test:	(See appended table B.3)	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.)	P
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
<b>G.5.4</b>	<b>Motors</b>		N/A
G.5.4.1	General requirements	No motor used.	N/A
	Position .....		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V) .....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V) .....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....		N/A
	Electric strength test (V) .....		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....		N/A
	Electric strength test (V) .....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Operating voltage .....		—
<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.	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>		N/A
G.7.1	General requirements	Direct plug-in product.	N/A
	Type .....		—
	Rated current (A) .....		—
	Cross-sectional area (mm <sup>2</sup> ), (AWG) .....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N) .....		—
G.7.3.2.2	Strain relief mechanism failure	Class II equipment.	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	No such 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	Approve surge suppressor (MOV1) used after mains current fuse or fuse resistor	P
G.8.2	Safeguard against shock		P
G.8.3	Safeguard against fire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.8.3.2	Varistor overload test.....:		N/A
G.8.3.3	Temporary overvoltage .....		N/A
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No IC current limiter provided within the equipment.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....		—
G.9.1 d)	IC limiter output current (max. 5A).....:		—
G.9.1 e)	Manufacturers' defined drift .....		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General requirements	No such resistor as safeguard used	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
<b>G.11</b>	<b>Capacitor and RC units</b>		P
G.11.1	General requirements	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14. (see appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units	(see appended table 4.1.2)	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
<b>G.12</b>	<b>Optocouplers</b>		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) .....	No optocoupler.	N/A
	Type test voltage Vini .....		—
	Routine test voltage, Vini,b .....		—
<b>G.13</b>	<b>Printed boards</b>		P
G.13.1	General requirements	See the following details.	P



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Clause	Requirement + Test	Result - Remark	Verdict
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction) .....		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....		N/A
	Number of insulation layers (pcs) .....		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	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 .....	No coating on component terminals considered to affect creepage or clearances.	N/A
<b>G.15</b>	<b>Liquid filled components</b>		N/A
G.15.1	General requirements	No such device provided within the equipment.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
a)	Humidity treatment in accordance with sc5.4.8 – 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
D2)	Capacitance .....		—
D3)	Resistance .....		—

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

J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
	General requirements	Approved triple insulated wire used. See appended table 4.1.2.	P

K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No safety interlock provided.	N/A
K.2	Components of safety interlock safeguard mechanism .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance .....		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method .....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....		N/A
K.7.2	Overload test, Current (A) .....		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....		N/A

L	DISCONNECT DEVICES		P
L.1	General requirements	AC mains plug used as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	When AC plug is disconnected no hazardous voltage in the equipment.	P
L.4	Single phase equipment	The mains plug disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices	See above	P
L.8	Multiple power sources	Only one a.c. mains connection.	N/A

M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements	No battery used.	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) ..		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
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 .....	Class II equipment.	—

<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		P
	Figures O.1 to O.20 of this Annex applied .....	Considered.	—

<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS</b>		P
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object	No openings of enclosure.	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	No such liquids.	N/A
P.3.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such construction.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C).....		—
	Tr (°C).....		—
	Ta (°C) .....		—
P.4.2 b)	Abrasion testing .....		N/A
P.4.2 c)	Mechanical strength testing.....		N/A

Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources	See appended table Annex Q.1	P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition	A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault.	P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	See appended table Annex Q.1	P
Q.2	Test for external circuits – paired conductor cable	No such circuit for connection to the EUT	N/A
	Maximum output current (A) .....		—
	Current limiting method .....		—

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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		<b>P</b>
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	Approved fire enclosure with V-0 material used.	P
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (□C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (□C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials	See Table 4.1.2 only.	P
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (test condition), (°C).....:		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N .....	(See appended table T.2)	P
T.3	Steady force test, 30 N .....		N/A
T.4	Steady force test, 100 N .....	(See appended table T.4)	P
T.5	Steady force test, 250 N .....	(See appended table T.5)	P
T.6	Enclosure impact test	Direct plug in equipment.	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test .....	(See appended table T.7)	P
T.8	Stress relief test .....	(See appended table T.8)	P
T.9	Impact Test (glass)	No glass used.	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....		—
	Height (m).....		—
T.10	Glass fragmentation test.....		N/A
T.11	Test for telescoping or rod antennas	No such device.	N/A
	Torque value (Nm) .....		—

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

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



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

4.1.2	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>	
Enclosure	Sabic Innovative Plastics Japan L L C	925U(GG), 945 (GG)	PC, V-0, 115°C. min. thickness 1.5mm	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternate)	Covestro Deutschland AG.	FR6005 + (z)	PC, V-0, 105°C. min. thickness 1.5mm	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternate)	LG Chemical	EF1006FH	PC, V-0, 115°C. min. thickness: 1.5mm	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternative)	Idemitsu Kosan Co Ltd	AZ2201	PC, V-0, 125°C, minimum 1.5 mm thickness.	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternative)	SABIC Japan L L C	CH6410(GG)	PC, V-0, 100°C, minimum 1.5 mm thickness.	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
European plug for non- detachable plug	GlobTek	EU fixed plug	0.5A, 250VAC	EN 50075	Tested with appliance	
Pin sleeve of Plug holder	Sabic Innovative Plastics Japan L L C	925U(GG), 945 (GG)	PC, V-0, 115°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternative)	Covestro Deutschland AG.	FR6005 + (z)	PC, V-0, 105°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternative)	LG Chemical	EF1006FH	PC, V-0, 115°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
British plug for non-detachable plug	GlobTek	UK fixed plug	0.5A, 250VAC	BS 1363- 1:2016+A1	Tested with appliance	
Pin sleeve of British plug	Nan Ya plastic Corp.	6410G5	PA66, V-0, 130°C	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternative)	Sabic Innovative Plastics Us L L C	940A	PC, V-0, 120°C	IEC/EN 62368-1 UL 94	UL & Tested with appliance	
(Alternative)	LG Chemical	EF1006FH	PC, V-0, 115°C. min. thickness: 1.5mm	IEC/EN 62368-1 UL 94	UL & Tested with appliance	

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
European plug for detachable plug	GlobTek	G-EU	0.5A, 250VAC	IEC/EN 62368-1 UL 94	UL & Tested with appliance
Pin sleeve of Plug holder	Sabic Innovative Plastics Japan L L C	925U(GG), 945 (GG)	PC, V-0, 115°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance
(Alternative)	Covestro Deutschland AG.	FR6005 + (z)	PC, V-0, 105°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance
(Alternative)	LG Chemical	EF1006FH	PC, V-0, 115°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance
British plug for detachable plug	GlobTek	G-UK	0.5A, 250VAC	BS 1363- 1:2016+A1	Tested with appliance
Pin sleeve of British plug	Nan Ya plastic Corp.	6410G5	PA66, V-0, 130°C	IEC/EN 62368-1 UL 94	UL & Tested with appliance
(Alternative)	Sabic Innovative Plastics Us L L C	940A	PC, V-0, 120°C	IEC/EN 62368-1 UL 94	UL & Tested with appliance
(Alternative)	LG Chemical	EF1006FH	PC, V-0, 115°C.	IEC/EN 62368-1 UL 94	UL & Tested with appliance
PCB	Shenzhen Wuzhu Tech Co Ltd	WZ-4	V-0, 130°C	IEC/EN 62368-1 UL 94, UL 796	UL & Tested with appliance
(Alternative)	Huizhou Shunjia Electronics Co Ltd	SJ-B	V-0, 130°C	IEC/EN 62368-1 UL 94, UL 796	UL & Tested with appliance
(Alternative)	Interchangeable	Interchangeable	V-1 or better, 130°C	IEC/EN 62368-1 UL 94, UL 796	UL & Tested with appliance
Primary lead wire (Optional)	Dong Ju	1007	80°C, Min. 24AWG, VW-1, min. 300V	IEC/EN 62368-1 UL 758	UL & Tested with appliance
(alternative)	Interchangeable	Interchangeable	Min. 80°C, min. 24AWG, VW-1, min. 300V	IEC/EN 62368-1 UL 758	UL & Tested with appliance
Output wire	LiCheng Electronics	1185	80°C, min. 24AWG min. VW-1, min. 30V	IEC/EN 62368-1 UL 758	UL & Tested with appliance

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
(Alternative)	Interchangeable	Interchangeable	Min. 80°C, min. 24AWG min. VW-1, min. 30V	IEC/EN 62368-1 UL 758	UL & Tested with appliance
Current Fuse (F1) (optional when MOV1 not used and F2 used)	Littelfuse Wickmann Werke	392	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Conquer Electronics Co Ltd	MST	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	COOPER BUSSMANN LLC	SS-5	T2.0A, T6.3A, 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40015513  UL E19180
(Alternative)	Bel Fuse Inc	RST	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Conquer Electronics Co Ltd	PTU	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Littelfuse Inc	877+	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Ever Island Electric Co., Ltd.	2010	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	NIPPON SEISEN CABLE LTD	SLT	T2.0A, T6.3A, 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40013103  UL E120786
(Alternative)	Walter Electronic Co Ltd	ICP	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	XC Electronics	5TE series	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	XC Electronics	4T series	T2.0A, T6.3A 250Vac, Sub- miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Fuse resistor (F1) (optional when MOV1 not used and F2 used)	CHANGSHENG	FRT	6.8Ω, 3.3Ω, 2W	IEC/EN 62368-1	Tested with appliance
(Alternative)	TZAI YUAN	KNF	6.8Ω, 3.3Ω, 2W	IEC/EN 62368-1	Tested with appliance
(Alternative)	Hua Sheng Electronics	FKN	6.8Ω, 3.3Ω, 2W	IEC/EN 62368-1	Tested with appliance
(Alternative)	Shenzhen Great	RXF series	6.8Ω, 3.3Ω, 2W	IEC/EN 62368-1	Tested with appliance
Current Fuse (F2) (optional when F1 used)	Littelfuse Wickmann Werke	392	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Conquer Electronics Co Ltd	MST	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	COOPER BUSSMANN LLC	SS-5	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40015513  UL E19180
(Alternative)	Bel Fuse Inc	RST	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Chi Lick Schurter Limited	SPT	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40015228 UL E184831
(Alternative)	Conquer Electronics Co Ltd	PTU	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Littelfuse Inc	877+	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	Ever Island Electric Co., Ltd.	2010	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	NIPPON SEISEN CABLE LTD	SLT	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40013103  UL E120786
(Alternative)	Walter Electronic Co Ltd	ICP	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
(Alternative)	XC Electronics	5TE series	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
(Alternative)	XC Electronics	4T series	T2.0A, 250Vac, Sub-miniature type	IEC/EN 60127-1 IEC/EN 60127-3	VDE UL
Fuse resistor (F2) (optional when F1 used)	CHANGSHENG	FRT	3.3Ω, 2W; 6.8Ω, 2W; 10.0Ω, 2W;	IEC/EN 62368-1	Tested with appliance
(Alternative)	TZAI YUAN	KNF	3.3Ω, 2W; 6.8Ω, 2W; 10.0Ω, 2W;	IEC/EN 62368-1	Tested with appliance
(Alternative)	Hua Sheng Electronics	FKN	3.3Ω, 2W; 6.8Ω, 2W; 10.0Ω, 2W;	IEC/EN 62368-1	Tested with appliance
(Alternative)	Shenzhen Great	RXF series	3.3Ω, 2W; 6.8Ω, 2W; 10.0Ω, 2W;	IEC/EN 62368-1	Tested with appliance
Heat-shrinkable tube for F1 and F2	SHENZHEN WOER HEAT- SHRINKABLE MATERIAL CO LTD	RSFR	125°C, VW-1, 600V	IEC/EN 62368-1	UL E203950 Tested with appliance
(Alternative)	Interchangeable	Interchangeable	125°C, VW-1, 600V	UL 224 IEC/EN 62368-1	UL
Insulation sheet use for input pin	Interchangeable	Interchangeable	V-0, 125°C	UL 94 IEC/EN 62368-1	UL
Varistor (MOV1) (optional)	Centra Science Corp	CNR-14D471K CNR-14D561K CNR-10D471K CNR-10D561K	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	Uppermost Electronic Industries Co Ltd	V10K300, V14K300,	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test.	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE 010108 UL E330441
(Alternative)	JYA-NAY Co., Ltd.	14D471K, 10D471K,	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
(Alternative)	Joyin Co Ltd	14N471K, 14N561K, 10N471K, 10N561K,	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	Thinking Electronic Industrial Co Ltd	TVR10471-U, TVR14471, TVR10561-U, TVR14561	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	Guangdong Fenghua Advanced Technology Holding Co Ltd. Xianhua New Sensitive Components Branch	FNR-14K471 , FNR-10K471, FNR-14K561, FNR-10K561	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	HONGZHI ENTERPRISES LTD	HEL10D471K(@), HEL14D471K(@),	Min. 300Vac, 105°C, (tested by UL for 6KV/3KA combination pulse), Coating rated V-0.	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 60950-1 2nd Annex Q UL 1449	VDE UL
(Alternative)	Cerglass MFG Inc.	10D471K 14D471K	Min. 300Vac, 125°C, (tested by UL for 3KV/1.5KA combination pulse), Coating rated V-0.	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 60950-1 2nd Annex Q UL 1449	VDE UL
(Alternative)	Brightking (Shenzhen) Co Ltd	14D471K, 14D561K, 10D471K, 10D561K	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	Littelfuse Inc	V14E300P-385P	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	Guangxi New Future Information Industry Co Ltd	14D471K, 14D561K, 10D471K, 10D561K	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL
(Alternative)	Hongzhi Enterprises Ltd.	10D471-561K, 14D471-561K,	Min. 300Vac, min. 385Vdc, fulfilled 6kV/3kA pulse test. The body min. V-1	IEC/EN 61051-1, IEC/EN 61051-2, IEC/EN 60950-1 2nd Annex Q	VDE UL

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Common choke (LF1)	Dee Van Enterprise Co Ltd	30C040120-xxx ("xxx" to denote the part number, can be any alphanumeric character for marketing purposes only.)	L1: Pin 1-2: Φ0.12*120Ts L2: Pin 4-3: Φ0.12*120Ts Min.30mH 130°C	IEC/EN 62368-1	Tested with appliance
- Magnet wire	Interchangeable	Interchangeable	130°C	--	UL
-Bobbin	Chang Chun Plastics Co Ltd	T375J,T373J, T200HF, T220NA	Phenolic, V-0, 150 °C, min. 0.71 mm thickness	--	UL
(Alternative)	Sumitomo Bakelite Co Ltd	PM-9820, PM- 9630, PM-9823	Phenolic, V-0, 150 °C, min. 0.51 mm thickness	--	UL
- Insulation tape	3M Company Electrical Markets Div (Emd)	1350-F1,1350-F2	130°C	--	UL
(Alternative)	Symbio Inc	35660, 35661, 35660Y	130°C	--	UL
(Alternative)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	CT, PZ	130°C	--	UL
(Alternative)	JING JIANG JINYI	JY25-A	130°C	UL 510	UL E246950
Differential Mode Choke (LF1)	Interchangeable	Interchangeable	130°C	IEC/EN 62368-1	Tested with appliance
Bridge Rectifier (DB1)	Interchangeable	Interchangeable	Min. 0.6A, Min.500V	IEC/EN 62368-1	Tested with appliance
Electrolytic Cap. (C1, C2) for input voltage 100-240Vac; 200-240Vac	Interchangeable	Interchangeable	4.7-22μF, Min. 400Vdc 105°C	IEC/EN 62368-1	Tested with appliance
Electrolytic Cap. (C1, C2) for input voltage 100-120Vac;	Interchangeable	Interchangeable	4.7-22μF, Min. 200Vdc 105°C	IEC/EN 62368-1	Tested with appliance



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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
IC (U1)	Interchangeable	Interchangeable	Min. 2.0A, Min. 600V	IEC/EN 62368-1	Tested with appliance
Y-Capacitor (CY1) (Optional)	Tdk-Epc Corp	CD	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Success Electronics Co Ltd	SE, SB	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Murata Mfg Co Ltd	KX	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Jya-Nay Co Ltd	JN	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Welson Industrial Co Ltd	WD	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Samwha Capacitor Samwha Capacitor	SD	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Nanjing Yuyue Electronics Co., Ltd.	CT7	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Yinan Don's Electronic Component Co	CT81	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Jyh Hsu (Jec) Electronics Ltd	JD	Max. 2200pF, min. 250Vac, 25/125/21/C, Y1 type	IEC/EN 60384-14	VDE UL
(Alternative)	Dongguan Easy- gather Electronic Co., Ltd.	DCF	Max. 2200pF, min. 250Vac, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL



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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
(Alternative)	South China Electronic Co.,Ltd.	CY	Max. 2200pF, min. 250Vac, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
Transformer (T1) output voltage from 9V to 12V	Dee Van Enterprise Co Ltd	90E12PU12-xxxx ("xxxx" to denote the part number, can be any alphanumeric character for marketing purposes only.)	Pri. Winding: (pin 2-1): Φ0.32mmx1px100Ts (pin 4-5): Φ0.32mmx1px19Ts ±2Ts (pin 4-NC): Φ0.32mmx1px7Ts  Sec. Winding: (pin 7-6): Φ0.55mmx1px15Ts Class B	Applicable parts in IEC/EN 62368-1 and according to IEC 60085	Tested with appliance
Transformer (T1) output voltage for 24V	Dee Van Enterprise Co Ltd	90E12PU24-xxxx ("xxxx" to denote the part number, can be any alphanumeric character for marketing purposes only.)	Pri. Winding: (pin 2-1): Φ0.32mmx1px100Ts (pin 4-5): Φ0.32mmx1px12Ts (pin 4-NC) Φ0.32mmx1px6Ts  Sec. Winding: (pin 7-6): Φ0.35mmx1px20Ts Class B	Applicable parts in IEC/EN 62368-1 and according to IEC 60085	Tested with appliance
Transformer (T1) output voltage for 9V	Dee Van Enterprise Co Ltd	90E12PU09-xxxx ("xxxx" to denote the part number, can be any alphanumeric character for marketing purposes only.)	Pri. Winding: (pin 2-1): Φ0.32mmx1px100Ts (pin 4-5): Φ0.32mmx1px19Ts (pin 4-NC) Φ0.32mmx1px10Ts  Sec. Winding: (pin 6-7): Φ0.65mmx1px13Ts Class B	Applicable parts in IEC/EN 62368-1 and according to IEC 60085	Tested with appliance

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
Transformer (T1) output voltage from 4.2V to 5.2V	Dee Van Enterprise Co Ltd	90E12PU05-xxxx ("xxxx" to denote the part number, can be any alphanumeric character for marketing purposes only.)	Pri. Winding: (pin 2-1): Φ0.32mmx1px100Ts (pin 4-5): Φ0.32mmx1px 18Ts (pin 4-NC) Φ0.32mmx1p x11Ts  Sec. Winding: (pin 7-6): Φ0.55mmx2px7Ts Class B	Applicable parts in IEC/EN 62368- 1 and according to IEC 60085	Tested with appliance
Component used in T1					
- Bobbin	Sumitomo Bakelite Co Ltd	T375J, T373J, T200HF, T220NA	Phenolic, V-0, 150 °C, min. 0.71 mm thickness	--	UL
(Alternative)	Chang Chun Plastics Co Ltd	PM-9820, PM- 9630, PM-9823	Phenolic, V-0, 150 °C, min. 0.71 mm thickness	--	UL
(Alternative)	Hitachi Chemical Co Ltd	CP-J-8800	Phenolic, V-0, 150°C, Min. thickness 0.71mm	--	UL
- Magnet wire	TAI-I Electric Wire & Cable	UEW	130°C	--	UL
(Alternative)	Pacific Electric Wire & Cable Co Ltd	DD-NYU	130°C	--	UL
(Alternative)	Heshan Jiangci Wire & Cable Co Ltd	XUEW-ULx	130°C	--	UL
(Alternative)	Shen Zhen City Chengwei Industry Co Ltd	2UEW	130°C	--	UL
(Alternative)	Interchangeable	Interchangeable	130°C	--	UL
-Triple insulate wire	Furukawa Electric Co Ltd	TEX-E	Class B	IEC/EN 60950-1	VDE
(Alternative)	Cosmolink Co Ltd	TIW-M	Class B	IEC/EN 60950-1	VDE
(Alternative)	Young Chang Silicone Co Ltd	STW-B	Class B	IEC/EN 60950-1	VDE

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

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>
(Alternative)	Great Leoflon Industrial Co Ltd	TRW (B)	Class B	IEC/EN 60950-1	VDE
(Alternative)	E&B Technology Co Ltd	E&B-B-X.XX	Class B	IEC/EN 60950-1	VDE
(Alternative)	Dah Jin Technology Co Ltd	TLW-B	Class B	IEC/EN 60950-1	VDE
(Alternative)	Yusheng Electric Co., Ltd.	TIW-B, TWE-3	Class B	IEC/EN 60950-1	VDE
(Alternative)	Golden Ocean	XYW(B)	130°C	IEC/EN 60950-1	VDE 40017563 UL
(Alternative)	Dongguan Koshen Insulator Co.,Ltd.	TIW-B	130°C	IEC/EN 60950-1	VDE UL
- Insulation tape	3M Company Electrical Markets Div (Emd)	1350-F1, 1350-F2	130°C	--	UL
(Alternative)	Symbio Inc	35660, 35661, 35660Y	130°C	--	UL
(Alternative)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	CT, PZ	130°C	--	UL
(Alternative)	JING JIANG JINYI	JY25-A	130°C	UL 510	UL E246950

**Supplementary information:**
<sup>1)</sup> Provided evidence ensures the agreed level of compliance. See OD-CB2039.

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
--		--	--	--
4.8.4.3	TABLE: Battery replacement test			—
Battery part no. ....				—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
		1		--
		2		--
		3		--
		4		--
		5		--
		6		--
		8		--
		9		--
		10		--
4.8.4.4	TABLE: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
--		--	1	--
--		--	2	--
--		--	3	--
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
--		--	--	--
4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
--		--	--	--
Supplementary information: Not Lithium coin/button cell batteries				

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

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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 <sup>1)</sup>	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264Va.c, 60Hz	Output (for U measure, '+' to '-', for I measure, the max. of '+' to earth & '-' to earth) (GT-86121-1224-W2E)	Normal	23.95Vdc	0.188mApk	--	ES1
			Abnormal (as table B.3)	24.06Vdc	0.190mApk	--	
			Single fault – SC/OC (as table B.4)	0Vdc	0.207mApk	--	
2	264Va.c, 60Hz	Enclosure to earth	Normal	--	0.01mApk	--	ES1
			Abnormal (as table B.3)	--	0.01mApk	--	
			Single fault – SC/OC (as table B.4)	--	0.01mApk	--	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
--	--	--	Normal	--	--	--	
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	lpk (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)	lpk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	

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Clause	Requirement + Test			Result - Remark		Verdict
			Single fault – SC/OC	--	--	--
Test Conditions: Normal – Full load and no load. Abnormal – Overload output Supplementary information: SC=Short Circuit, OC=Open Circuit						

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	
<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) .....	90V/60Hz	264V/60Hz	—	
	Ambient $T_{min}$ (°C) .....	--	--	—	
	Ambient $T_{max}$ (°C) .....	--	--	—	
	Tma (°C) .....	--	--	—	
Maximum measured temperature T of part/at:		T (°C)			Allowed $T_{max}$ (°C)
12V1.0A(common choke)	Vertical	Horizontal	Vertical	Horizontal	--
Plug holder	61.0	63.8	56.6	57.1	100
Input wire	70.8	73.7	61.8	62.4	80
Varistor MOV1	78.4	81.9	64.7	65.3	85
E-capacitor C1	91.6	95.4	69.0	69.7	105
Line chock of LF1 winding	105.8	108.7	71.8	71.7	130
PCB under DB1	86.5	90.7	72.3	73.6	130
E-capacitor C2	90.8	93.2	76.1	76.1	105
PCB under U1	100.3	102.6	96.4	95.6	130
T1 winding	91.0	93.7	86.9	87.8	110
T1 core	90.6	93.1	87.2	87.9	110
Y-capacitor CY1 body	71.5	74.4	69.4	70.3	125
PCB under D3	75.6	77.5	73.9	74.2	130
E-capacitor C7	74.7	76.5	72.7	73.2	105
Line chock of LF2 winding	68.0	69.7	66.6	67.1	130
Output wire	63.7	65.3	62.8	63.2	80
Enclosure inside near T1	67.3	71.8	65.2	68.7	100
Enclosure outside near T1	62.9	68.0	60.7	65.0	Ref.
Ambint	50.0	50.4	50.0	49.9	--
24V0.5A(common choke)	Vertical	Horizontal	Vertical	Horizontal	--
Plug holder	61.0	62.0	58.0	57.4	100
Input wire	76.1	77.5	67.1	66.4	80
Varistor Mov1	80.8	82.7	69.6	69.2	85
E-capacitor C1	92.1	94.5	72.3	71.6	105
Line chock of LF1 winding	105.1	106.3	75.1	73.3	130
PCB under DB1	88.0	89.2	78.2	76.8	130
E-capacitor C2	90.5	91.7	80.1	79.1	105
PCB under U1	99.8	99.2	103.1	100.6	130
T1 winding	95.3	95.1	96.0	94.9	110

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
T1 core	88.1	89.0	89.7	89.3	110
Y-capacitor CY1 body	72.3	74.0	73.0	72.9	125
PCB under D3	79.9	80.5	81.7	80.7	130
E-capacitor C7	77.1	77.8	78.6	78.5	105
Line chock of LF2 winding	74.6	75.1	75.9	75.0	130
Output wire	66.4	67.3	67.3	66.8	80
Enclosure inside near T1	74.4	75.9	74.9	75.2	100
Enclosure outside near T1	66.7	68.6	65.8	66.9	Ref.
Ambint	50.0	50.2	50.3	50.3	--
24V0.5A (detachable plug common choke)	Vertical	Horizontal	Vertical	Horizontal	--
Plug holder	--	--	55.0	--	100
Input wire	--	--	66.8	--	80
Varistor MOV1	--	--	69.0	--	85
E-capacitor C1	--	--	72.0	--	105
Line chock of LF1 winding	--	--	74.1	--	130
PCB under DB1	--	--	77.7	--	130
E-capacitor C2	--	--	79.9	--	105
PCB under U1	--	--	102.7	--	130
T1 winding	--	--	95.8	--	110
T1 core	--	--	88.8	--	110
Y-capacitor CY1 body	--	--	71.2	--	125
PCB under D3	--	--	81.5	--	130
E-capacitor C7	--	--	77.2	--	105
Line chock of LF2 winding	--	--	74.3	--	130
Output wire	--	--	65.3	--	80
Enclosure inside near T1	--	--	73.6	--	100
Enclosure outside near T1	--	--	61.5	--	Ref.
Ambint	--	--	50.3	--	--
9.0V1.33A(common choke)	Vertical	Horizontal	Vertical	Horizontal	--
Plug holder	63.5	60.4	60.4	62.7	100
Input wire	69.5	63.5	63.5	66.7	80
Varistor MOV1	73.9	66.4	66.4	69.8	85
E-capacitor C1	85.2	70.9	70.9	74.3	105
Line chock of LF1 winding	104.3	75.0	75.0	77.8	130
PCB under DB1	89.3	75.9	75.9	80.2	130
E-capacitor C2	94.1	81.3	81.3	83.9	105
PCB under U1	105.4	100.5	100.5	104.6	130



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
T1 winding	99.5	95.3	95.3	98.4	110
T1 core	97.9	93.1	93.1	96.2	110
Y-capacitor CY1 body	78.0	75.2	75.2	78.9	125
PCB under D3	91.3	87.6	87.6	91.7	130
E-capacitor C7	87.8	84.3	84.3	87.3	105
Line choke of LF2 winding	80.1	77.5	77.5	80.9	130
Output wire	70.9	69.3	69.3	72.1	80
Enclosure inside near T1	83.2	79.9	79.9	83.2	100
Enclosure outside near T1	71.5	69.6	69.6	73.6	Ref.
Ambint	50.3	50.1	50.1	50.0	--
5.2V2.1A(common choke for non-detachable plug)	Vertical	Horizontal	Vertical	Horizontal	--
Plug holder	66.5	66.7	65.5	64.7	100
Input wire	76.5	76.9	70.7	71.2	80
Varistor MOV1	81.6	81.8	73.2	73.9	85
E-capacitor C1	90.2	92.5	78.1	78.4	105
Line choke of LF1 winding	100.9	101.9	80.0	79.0	130
PCB under DB1	94.7	96.7	84.0	85.4	130
E-capacitor C2	92.9	92.5	85.7	84.5	105
PCB under U1	109.4	112.8	110.7	110.9	130
T1 winding	101.0	102.3	100.8	100.4	110
T1 core	97.9	100.0	96.4	96.5	110
Y-capacitor CY1 body	79.7	83.4	78.3	80.9	125
PCB under D3	98.7	102.3	94.8	97.4	130
E-capacitor C7	88.1	91.1	84.8	87.0	105
Line choke of LF2 winding	83.5	88.1	81.2	85.0	130
Output wire	73.5	76.8	72.2	75.0	80
Enclosure inside near T1	85.2	87.3	84.3	84.8	100
Enclosure outside near T1	73.8	76.4	73.0	74.4	Ref.
Ambint	50.3	50.4	50.1	49.9	--
5.2V2.1A(common choke for detachable plug )	Vertical	Horizontal	Vertical	Horizontal	--
Plug holder	--	65.2	--	--	100
Input wire	--	73.6	--	--	80
Varistor MOV1	--	79.3	--	--	85
E-capacitor C1	--	90.1	--	--	105
Line choke of LF1 winding	--	100.8	--	--	130
PCB under DB1	--	95.4	--	--	130
E-capacitor C2	--	90.9	--	--	105

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Clause	Requirement + Test		Result - Remark		Verdict		
PCB under U1	--	109.3	--	--	130		
T1 winding	--	101.5	--	--	110		
T1 core	--	99.3	--	--	110		
Y-capacitor CY1 body	--	82.2	--	--	125		
PCB under D3	--	100.6	--	--	130		
E-capacitor C7	--	89.0	--	--	105		
Line chock of LF2 winding	--	86.3	--	--	130		
Output wire	--	74.5	--	--	80		
Enclosure inside near T1	--	84.9	--	--	100		
Enclosure outside near T1	--	74.9	--	--	Ref.		
Ambint	--	50.4	--	--	--		
GT-86121-1105.2-W2E	Vertical	Horizontal	Vertical	Horizontal	--		
Enclosure outside near T1 top	--	46.7	--	47.4	77		
Enclosure outside near T1 bottom	--	52.9	--	52.8	77		
Ambint	--	25	--	25	--		
Supplementary information: * Temperature limit for TS1 of accessible enclosure according to Table 38. Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (Tma) of 50°C. Note 2: The temperatures were measured under the worse case normal mode defined in clause B.2.1. Note 3: Temperature limits are calculated as follows: Winding components providing safety isolation: Class B → Tmax = 120 - 10=110°C							
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
--	--	--	--	--	--	--	--

<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)	
ISODs pin material /L/N pin sleeving/ Enclosure	SABIC Japan L L C/925U(GG)	125	1.1	

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Clause	Requirement + Test	Result - Remark	Verdict
ISODs pin material /L/N pin sleeving/ Enclosure	SABIC Japan L L C/945 (GG)	125	1.0
ISODs pin material /L/N pin sleeving/ Enclosure	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD/LUPOY/ EF-1006FH	125	1.1
ISODs pin material /L/N pin sleeving	Nan Ya plastic Corp. (6410G5)	125	1.3
Plastic material of enclosure and plug holder	Covestro Deutschland AG / FR6005 + (z))	125	1.2
Pin sleeving	Manufacturer: Sabic Innovative Plastics Us L L C / 940A)	125	1.0
Supplementary information: The bobbin material of transformer (T1) is phenolic, no test is needed.			

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
	Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)	Required cl (mm)	cl (mm) <sup>2</sup>	Required <sup>3</sup> cr (mm)	cr (mm)
Basic/supplementary:								
	Line trace to Neutral trace before fuse F1	420	250	0.06	2.3	4.0	2.5	4.0
	PCB trace under fuse F1	420	250	0.06	2.3	3.0	2.5	3.0
	PCB trace under fuse F2	420	250	0.06	2.3	3.0	2.5	3.0
	Line to primary circuit	420	250	0.06	2.3	2.6	2.5	2.6
Reinforce:								
	primary circuit to accessible enclosure	420	250	0.06	4.5	6.6	5.0	6.6
	PCB: primary □□secondary traces under CY1	420	250	0.06	4.5	7.3	5.0	7.3
	PCB: primary □□secondary traces under discharger pin	420	250	0.06	4.5	6.4	5.0	6.4
	Primary circuit to secondary circuit under T1	552	270	96.24	4.5	8.5	5.4	8.5
	Transformer core to Secondary Component C7	552	270	96.24	4.5	7.1	5.4	7.1
	Transformer Primary winding to secondary winding /pins	552	270	96.24	4.5	6.7	5.4	6.7
	Transformer core to secondary	552	270	96.24	4.5	7.0	5.4	7.0

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Clause	Requirement + Test			Result - Remark			Verdict

pins							
For detachable plug							
For all plug (Surface to live parts)	420	250	0.06	4.5	6.1	6.0	6.1
Supplementary information: 1) Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed. 2) The internal wires are additionally fixed by glue or clamping. 3) The Cl. was evaluated for altitude up to 5000m above sea level correction factor for clearance is 1.48. * B= Basic insulation, S=Supplementary insulation, R=Reinforced insulation.							
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)	
1)		2500V		2)		3)	
Supplementary information: 1) 2) 3) See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.							

<b>5.4.2.4</b>	<b>TABLE: Clearances based on electric strength test</b>			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
Supplementary information: Using procedure 2 to determine the clearance.				

<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 (Hz)	Material	Required DTI (mm)	DTI (mm)	
Enclosure	552	96.24	See appended table 4.1.2	0.4	<sup>1)</sup>	
Opto-coupler	420	0.06	See appended table 4.1.2	0.4	<sup>1)</sup>	
Supplementary information: <sup>1)</sup> See appended table 4.1.2						

<b>5.4.9</b>	<b>TABLE: Electric strength tests</b>			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown Yes / No
Basic/supplementary:				

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Clause	Requirement + Test	Result - Remark	Verdict
Different polarity of power supply (Fuse resistor or Fuse disconnection)	DC	2500	No
Insulation sheet	DC	2500	No
Reinforced:			
Unit: Primary circuit to secondary circuit	AC	4242	No
Unit: Primary circuit to enclosure with metal foil	AC	4242	No
Transformer: Primary winding to secondary winding	AC	4242	No
Transformer: Core to secondary winding	AC	4242	No
One layer insulation tape	AC	4242	No
Supplementary information: Core of transformer T1 was considered as primary.			

<b>5.5.2.2</b>	<b>TABLE: Stored discharge on capacitors</b>					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
--	--	--	--	--	--	
Supplementary information: X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating: see table 4.1.2 <input type="checkbox"/> ICX: Approval discharge IC 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 (Bleeder Resistor open circuit)						

<b>5.6.6.2</b>	<b>TABLE: Resistance of protective conductors and terminations</b>				N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
--	--	--	--	--	
Supplementary Information: Class II equipment.					

<b>5.7.2.2, 5.7.4</b>	<b>TABLE: Earthed accessible conductive part</b>		N/A
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)
--	1		N/A
--	2*		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
--		3	N/A
--		4	N/A
--		5	N/A
--		6	N/A
--		8	N/A
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.			

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Clause	Requirement + Test	Result - Remark	Verdict

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 <sup>*)</sup>	PS Classification
Test model: GT-86121-1224-W2E					
Output	Normal operation	Power (W) :	--	18.53	PS2
		VA (V) :	--	24.10	
		IA (A) :	--	0.77	
Output	Abnormal operation	Power (W) :	--	18.53	PS2
		VA (V) :	--	24.10	
		IA (A) :	--	0.77	
Output	U1 pin1-5,6 SC	Power (W) :	0#	--	PS1
		VA (V) :	0#	--	
		IA (A) :	0#	--	
Output	U1 pin5,6-8 SC	Power (W) :	0#	--	PS1
		VA (V) :	0#	--	
		IA (A) :	0#	--	
Output	R10 SC	Power (W) :	0#	--	PS1
		VA (V) :	0#	--	
		IA (A) :	0#	--	
Supplementary information: # Unit shutdown immediately, no hazard.					

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	
See below	--	--	--	--	
Supplementary information: <b>Considered arcing PIS in all primary and secondary circuit.</b> 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 <sub>p</sub> ) and normal operating condition rms current (I <sub>rms</sub> ) is greater than 15.					

6.2.3.2	<b>Table: Determination of Potential Ignition Sources (Resistive PIS)</b>				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
--	--	--	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary Information:

**Considered resistive PIS in all primary and secondary circuit.**

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

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

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



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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5		TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
12V/1.0A(common choke)								
90	0.257	--	14.57	--	F1, F2	0.257	Rated load at 50 Hz	
90	0.255	--	14.53	--	F1, F2	0.255	Rated load at 60 Hz	
100	0.231	0.5	14.30	--	F1, F2	0.231	Rated load at 50 Hz	
100	0.235	0.5	14.31	--	F1, F2	0.235	Rated load at 60 Hz	
120	0.194	0.5	14.04	--	F1, F2	0.194	Rated load at 50 Hz	
120	0.200	0.5	14.05	--	F1, F2	0.200	Rated load at 60 Hz	
200	0.108	0.5	13.92	--	F1, F2	0.108	Rated load at 50 Hz	
200	0.103	0.5	13.90	--	F1, F2	0.103	Rated load at 60 Hz	
240	0.096	0.5	13.94	--	F1, F2	0.096	Rated load at 50 Hz	
240	0.098	0.5	13.96	--	F1, F2	0.098	Rated load at 60 Hz	
264	0.091	--	14.03	--	F1, F2	0.091	Rated load at 50 Hz	
264	0.093	--	14.05	--	F1, F2	0.093	Rated load at 60 Hz	
12V/1.0A(Different choke)								
90	0.256	--	14.49	--	F1, F2	0.256	Rated load at 50 Hz	
90	0.254	--	14.45	--	F1, F2	0.254	Rated load at 60 Hz	
100	0.229	0.5	14.27	--	F1, F2	0.229	Rated load at 50 Hz	
100	0.233	0.5	14.29	--	F1, F2	0.233	Rated load at 60 Hz	
120	0.195	0.5	14.03	--	F1, F2	0.195	Rated load at 50 Hz	
120	0.199	0.5	14.04	--	F1, F2	0.199	Rated load at 60 Hz	
200	0.106	0.5	13.94	--	F1, F2	0.106	Rated load at 50 Hz	
200	0.104	0.5	13.91	--	F1, F2	0.104	Rated load at 60 Hz	
240	0.099	0.5	13.98	--	F1, F2	0.099	Rated load at 50 Hz	
240	0.100	0.5	13.95	--	F1, F2	0.100	Rated load at 60 Hz	
264	0.093	--	14.06	--	F1, F2	0.093	Rated load at 50 Hz	
264	0.092	--	14.09	--	F1, F2	0.092	Rated load at 60 Hz	
24V/0.5A(common choke)								
90	0.252	--	14.20	--	F1, F2	0.252	Rated load at 50 Hz	
90	0.251	--	14.18	--	F1, F2	0.251	Rated load at 60 Hz	
100	0.028	0.5	13.99	--	F1, F2	0.028	Rated load at 50 Hz	
100	0.232	0.5	14.02	--	F1, F2	0.232	Rated load at 60 Hz	
120	0.197	0.5	13.82	--	F1, F2	0.197	Rated load at 50 Hz	
120	0.199	0.5	13.85	--	F1, F2	0.199	Rated load at 60 Hz	

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
200	0.107	0.5	13.84	--	F1, F2	0.107	Rated load at 50 Hz
200	0.108	0.5	13.83	--	F1, F2	0.108	Rated load at 60 Hz
240	0.100	0.5	13.90	--	F1, F2	0.100	Rated load at 50 Hz
240	0.102	0.5	13.91	--	F1, F2	0.102	Rated load at 60 Hz
264	0.093	--	14.02	--	F1, F2	0.093	Rated load at 50 Hz
264	0.094	--	14.03	--	F1, F2	0.094	Rated load at 60 Hz
24V/0.5A(Different choke)							
90	0.248	--	14.15	--	F1, F2	0.248	Rated load at 50 Hz
90	0.249	--	14.16	--	F1, F2	0.249	Rated load at 60 Hz
100	0.224	0.5	13.96	--	F1, F2	0.224	Rated load at 50 Hz
100	0.229	0.5	13.97	--	F1, F2	0.229	Rated load at 60 Hz
120	0.195	0.5	13.76	--	F1, F2	0.195	Rated load at 50 Hz
120	0.197	0.5	13.79	--	F1, F2	0.197	Rated load at 60 Hz
200	0.109	0.5	13.77	--	F1, F2	0.109	Rated load at 50 Hz
200	0.108	0.5	13.80	--	F1, F2	0.108	Rated load at 60 Hz
240	0.098	0.5	13.86	--	F1, F2	0.098	Rated load at 50 Hz
240	0.101	0.5	13.88	--	F1, F2	0.101	Rated load at 60 Hz
264	0.092	--	13.97	--	F1, F2	0.092	Rated load at 50 Hz
264	0.094	--	13.99	--	F1, F2	0.094	Rated load at 60 Hz
9.0V/1.33A(common choke)							
90	0.262	--	14.45	--	F1, F2	0.262	Rated load at 50 Hz
90	0.261	--	14.42	--	F1, F2	0.261	Rated load at 60 Hz
100	0.236	0.5	14.22	--	F1, F2	0.236	Rated load at 50 Hz
100	0.238	0.5	14.23	--	F1, F2	0.238	Rated load at 60 Hz
120	0.205	0.5	14.09	--	F1, F2	0.205	Rated load at 50 Hz
120	0.214	0.5	14.12	--	F1, F2	0.214	Rated load at 60 Hz
200	0.117	0.5	13.98	--	F1, F2	0.117	Rated load at 50 Hz
200	0.121	0.5	13.99	--	F1, F2	0.121	Rated load at 60 Hz
240	0.110	0.5	13.95	--	F1, F2	0.110	Rated load at 50 Hz
240	0.103	0.5	13.94	--	F1, F2	0.103	Rated load at 60 Hz
264	0.102	--	14.02	--	F1, F2	0.102	Rated load at 50 Hz
264	0.094	--	14.01	--	F1, F2	0.094	Rated load at 60 Hz
9.0V/1.33A (Different choke)							
90	0.258	--	14.39	--	F1, F2	0.258	Rated load at 50 Hz
90	0.259	--	14.36	--	F1, F2	0.259	Rated load at 60 Hz

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
100	0.234	0.5	14.19	--	F1, F2	0.234	Rated load at 50 Hz
100	0.236	0.5	14.20	--	F1, F2	0.236	Rated load at 60 Hz
120	0.209	0.5	14.12	--	F1, F2	0.209	Rated load at 50 Hz
120	0.219	0.5	14.15	--	F1, F2	0.219	Rated load at 60 Hz
200	0.019	0.5	14.01	--	F1, F2	0.019	Rated load at 50 Hz
200	0.127	0.5	14.03	--	F1, F2	0.127	Rated load at 60 Hz
240	0.107	0.5	14.00	--	F1, F2	0.107	Rated load at 50 Hz
240	0.099	0.5	13.98	--	F1, F2	0.099	Rated load at 60 Hz
264	0.010	--	14.08	--	F1, F2	0.010	Rated load at 50 Hz
264	0.092	--	14.10	--	F1, F2	0.092	Rated load at 60 Hz
5.2V/2.1A(common choke)							
90	0.246	--	14.13	--	F1, F2	0.246	Rated load at 50 Hz
90	0.245	--	14.10	--	F1, F2	0.245	Rated load at 60 Hz
100	0.221	0.5	13.92	--	F1, F2	0.221	Rated load at 50 Hz
100	0.222	0.5	13.90	--	F1, F2	0.222	Rated load at 60 Hz
120	0.192	0.5	13.72	--	F1, F2	0.192	Rated load at 50 Hz
120	0.198	0.5	13.70	--	F1, F2	0.198	Rated load at 60 Hz
200	0.111	0.5	13.68	--	F1, F2	0.111	Rated load at 50 Hz
200	0.115	0.5	13.66	--	F1, F2	0.115	Rated load at 60 Hz
240	0.100	0.5	13.63	--	F1, F2	0.100	Rated load at 50 Hz
240	0.096	0.5	13.62	--	F1, F2	0.096	Rated load at 60 Hz
264	0.093	--	13.75	--	F1, F2	0.093	Rated load at 50 Hz
264	0.089	--	13.73	--	F1, F2	0.089	Rated load at 60 Hz
5.2V/2.1A(Different choke)							
90	0.245	--	13.90	--	F1, F2	0.245	Rated load at 50 Hz
90	0.244	--	13.87	--	F1, F2	0.244	Rated load at 60 Hz
100	0.222	0.5	13.72	--	F1, F2	0.222	Rated load at 50 Hz
100	0.221	0.5	13.71	--	F1, F2	0.221	Rated load at 60 Hz
120	0.193	0.5	13.57	--	F1, F2	0.193	Rated load at 50 Hz
120	0.200	0.5	13.60	--	F1, F2	0.200	Rated load at 60 Hz
200	0.111	0.5	13.54	--	F1, F2	0.111	Rated load at 50 Hz
200	0.116	0.5	13.57	--	F1, F2	0.116	Rated load at 60 Hz
240	0.099	0.5	13.52	--	F1, F2	0.099	Rated load at 50 Hz
240	0.094	0.5	13.50	--	F1, F2	0.094	Rated load at 60 Hz
264	0.091	--	13.60	--	F1, F2	0.091	Rated load at 50 Hz

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Clause	Requirement + Test				Result - Remark		Verdict
264	0.086	--	13.62	--	F1, F2	0.086	Rated load at 60 Hz
Supplementary information: The maximum measured current under rated voltage did not exceed 110% of the rated current.							

B.3 TABLE: Abnormal operating condition tests								P
Ambient temperature (°C) .....					25°C, if not specified			—
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
24V/0.5A (Tested with fuse F1(6.3A), F2(3.3Ω) and MOV1)								
Output	S-C	264	30min	F1, F2	0.010	Type K	--	Unit shutdown immediately, recoverable, no hazard.
24V Output	O-L	264	5h	F1, F2	0.094 → 0.149 → 0.171 → 0.018	Type K	T1 winding : 111.8 °C T1 core: 104.8°C Ambient: 49.9°C	Output Overload to 0.78A, and unit shutdown at 0.79A, No hazards.
12V/1.0A								
12V Output	O-L	264	5h	F1, F2	0.093 → 0.135 → 0.145 → 0.020	Type K	T1 winding : 99.4°C T1 core: 96.8°C Ambient: 50.1°C	Output Overload to 1.26A, and unit shutdown at 1.27 A, No hazards,
9.0V/1.33A								
9.0V Output	O-L	264	4h	F1, F2	0.102 → 0.117 → 0.012	Type K	T1 winding : 102.9°C T1 core: 100.3°C Ambient: 49.9°C	Output Overload to 1.46A, and unit shutdown at 1.47 A, No hazards,
5.2V/2.1A								
5.2V Output	O-L	264	3h	F1, F2	0.093 → 0.105 → 0.013	Type K	T1 winding : 103.5°C T1 core: 99.2°C Ambient: 50.1°C	Output Overload to 2.35A, and unit shutdown at 2.36 A, No hazards,

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Clause	Requirement + Test					Result - Remark		Verdict
Output terminal	O-L	264	8hr 10min	F1	0.116 → 0.121 → 0.125 → 0.032	Type K	Enclosure outside near Transformer: 54.9 °C max.	Output Overload to 2.30A, and unit shutdown at 2.45A, No hazards.
<p>Supplementary information:</p> <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>1) S-C: Short-circuited; O-C: Open-circuited; O-L: Overloaded.</p> <p>2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.</p> <p>3) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.</p> <p>4) The overloaded condition is applied according to annex G.5.3.3.</p> <p>Winding Limit for T1: 175-10=165°C.</p>								

B.4		TABLE: Fault condition tests							P
Ambient temperature (°C) ..... :					25°C, if not specified			—	
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	
24V/0.5A (Tested with fuse F1(6.3A), F2(3.3Ω) and MOV1)									
MOV1	s-c	264	1s	F1, F2	--	--	--	Fuse F1 opened immediately, no hazard. test conducted on all fuse sources.	
DB1- to +	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.	

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Clause	Requirement + Test				Result - Remark			Verdict
C2	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-1	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-8	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
R10	s-c	264	30min	F1, F2	0.005	--	--	U1 damaged. test repeated 3 times, the same as result test conducted on all fuse sources. No hazard.
T1 pin 1-2	s-c	264	30min	F1, F2	0.005	--	--	U1 damaged. test repeated 3 times, the same as result test conducted on all fuse sources. No hazard.
T1 pin 4-5	s-c	264	30min	F1, F2	0.031	--	--	Unit shutdown immediately, recoverable, no hazard.
T1 pin 6-7	s-c	264	30min	F1, F2	0.005	--	--	U1 damaged. test repeated 3 times, the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
D3	s-c	264	30min	F1, F2	0.005	--	--	U1 damaged. test repeated 3 times, the same as result test conducted on all fuse sources. No hazard.
C7	s-c	264	30min	F1, F2	0.012	--	--	Unit shutdown immediately, recoverable, no hazard.
24V/0.5A (Tested with fuse F1(6.3A), F2(6.8Ω) and MOV1)								
MOV1	s-c	264	1s	F1, F2	--	--	--	Fuse F1 opened immediately, no hazard. test conducted on all fuse sources.
DB1- to +	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
C2	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-1	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U1 pin 5,6-8	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(6.3A), F2(10.0Ω) and MOV1)								
MOV1	s-c	264	1s	F1, F2	--	--	--	Fuse F1 opened immediately, no hazard. test conducted on all fuse sources.
DB1- to +	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
C2	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-1	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.



IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U1 pin 5,6-8	s-c	264	1s	F1, F2	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(3.3 Ω), F2(Jumper))								
MOV1	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
C2	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(2.0 A), F2(Jumper))								
MOV1	s-c	264	1s	F1	--	--	--	Fuse F1 opened immediately, the same as result test conducted on all fuse sources. No hazard.
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse F1 opened immediately, the same as result test conducted on all fuse sources. No hazard
C2	s-c	264	1s	F1	--	--	--	Fuse F1 opened immediately, the same as result test conducted on all fuse sources. No hazard
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse F1 opened immediately, U1 damaged. the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse F1 opened immediately, U1 damaged. the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(Jumper), F2(2.0A))								
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse F2 opened immediately, the same as result test conducted on all fuse sources. No hazard
C2	s-c	264	1s	F1	--	--	--	Fuse F2 opened immediately, the same as result test conducted on all fuse sources. No hazard
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse F2 opened immediately, U1 damaged. the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse F2 opened immediately, U1 damaged. the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(Jumper), F2(3.3 Ω))								

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
C2	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(Jumper), F2(6.8 Ω))								
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
C2	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(Jumper), F2(10.0 Ω))								
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
C2	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse resistor F2 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
24V/0.5A (Tested with fuse F1(6.8 Ω), F2(Jumper))								
MOV1	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
DB1- to +	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
C2	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
U1 pin 5,6-1	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
U1 pin 5,6-8	s-c	264	1s	F1	--	--	--	Fuse resistor F1 opened immediately, U1 damaged. test repeated 10 times, the same as result test conducted on all fuse sources. No hazard.
<p>Supplementary information:</p> <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>1) S-C: Short-circuited; O-C: Open-circuited; O-L: Overloaded.</p> <p>2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.</p> <p>3) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.</p>								

Annex M	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available									N/A	
Is it possible to install the battery in a reverse polarity position? .....:									N/A	
	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							--		--	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
- 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 $T_{lowest}$ (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	
--	--	--	--	--	
Supplementary Information:					

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
24V/0.5A						
Output	Normal operation	24.01	0.84	8.0	18.9	100
Output	S-C U1 pin 1-5, 6	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100
Output	S-C U1 pin 5, 6-8	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100



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Clause	Requirement + Test			Result - Remark		Verdict
Output	S-C R10	--	0 (U1 damaged, no hazard.)	8.0	0 (U1 damaged, no hazard.)	100
12V/1.0A						
Output	Normal operation	12.03	1.33	8.0	15.1	100
Output	S-C U1 pin 1-5, 6	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100
Output	S-C U1 pin 5, 6-8	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100
Output	S-C R10	--	0 (U1 damaged, no hazard.)	8.0	0 (U1 damaged, no hazard.)	100
9.0V/1.33A						
Output	Normal operation	9.09	1.56	8.0	13.6	100
Output	S-C U1 pin 1-5, 6	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100
Output	S-C U1 pin 5, 6-8	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100
Output	S-C R10	--	0 (U1 damaged, no hazard.)	8.0	0 (U1 damaged, no hazard.)	100
5.2V/2.1A						
Output	Normal operation	5.31	2.41	8.0	12.4	100
Output	S-C U1 pin 1-5, 6	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100

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Clause	Requirement + Test			Result - Remark		Verdict
Output	S-C U1 pin 5, 6-8	--	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	8.0	0 (Fuse or fuse resistor opened immediately, U1 damaged, no hazard.)	100
Output	S-C R10	--	0 (U1 damaged, no hazard.)	8.0	0 (U1 damaged, no hazard.)	100
Supplementary Information: S-C=Short circuit, O-C=Open circuit Test sample test specimen to Common choke						

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Clause	Requirement + Test	Result - Remark	Verdict

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Internal components (according to T.2)	--	--	10	5	No hazard.	
No opening (according to T.3)	--	--	--	--	--	
External enclosure top, bottom, sides (according to T.4)	Plastic	See table 4.1.2	100	5	No hazard.	
External enclosure top, bottom, sides (according to T.5)	Plastic	See table 4.1.2	250	5	No hazard.	
Supplementary information: --						

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

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Three side of enclosure	Plastics*	1.5	1000mm	After the drop test, enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information: *Test were performed on product with each source listed in table 4.1.2					

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Clause	Requirement + Test	Result - Remark	Verdict

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	Plastics*	1.5mm	98	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: *Test were performed on product with each source listed in table 4.1.2						

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Clause	Requirement + Test	Result - Remark	Verdict

Appendix Table:

TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	
24V/0.5A			
Transformer secondary pin 6-7	79.0	--	--
Across C7	--	24.03	After D3
12V/1.0A			
Transformer secondary pin 6-7	56.8	--	--
Across C7	--	12.0	After D3
9.0V/1.33A			
Transformer secondary pin 6-7	50.8	--	--
Across C7	--	8.60	After D3
5.2V/2.1			
Transformer secondary pin 6-7	27.2	--	--
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)		
D3 short-circuited(For all models)	0(U1 damaged. No hazard.)		
supplementary information:			
Test voltage: 240V, Test frequency: 60Hz Note:Test sample test specimen to Common choke			

5.4.1.8	Table: working voltage measurement			P
Location From	to	RMS voltage (V)	Peak voltage (V)	Comments
12V/1.0A				
Transformer T1 pin	1 – 6	217	348	--
Transformer T1 pin	2 – 6	<b>260</b>	<b>500</b>	<b>The highest working voltage, 76.60kHz</b>
Transformer T1 pin	4 – 6	221	360	--
Transformer T1 pin	5 – 6	223	418	--
Transformer T1 pin	1 – 7	219	400	--
Transformer T1 pin	2 – 7	249	476	--
Transformer T1 pin	4 – 7	222	364	--
Transformer T1 pin	5 – 7	221	364	--

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Clause	Requirement + Test	Result - Remark	Verdict
CY1	221	356	--
24V/0.5A			
Transformer T1 pin 1 – 6	218	352	--
Transformer T1 pin 2 – 6	<b>270</b>	<b>520</b>	<b>The highest working voltage</b>
Transformer T1 pin 4 – 6	219	356	--
Transformer T1 pin 5 – 6	220	392	--
Transformer T1 pin 1 – 7	219	416	--
Transformer T1 pin 2 – 7	252	484	--
Transformer T1 pin 4 – 7	221	380	--
Transformer T1 pin 5 – 7	219	364	--
CY1	218	356	--
9.0V/1.33A			
Transformer T1 pin 1 – 6	210	340	--
Transformer T1 pin 2 – 6	<b>256</b>	<b>484</b>	<b>The highest working voltage</b>
Transformer T1 pin 4 – 6	220	356	--
Transformer T1 pin 5 – 6	221	416	--
Transformer T1 pin 1 – 7	211	380	--
Transformer T1 pin 2 – 7	243	476	--
Transformer T1 pin 4 – 7	220	360	--
Transformer T1 pin 5 – 7	219	372	--
CY1	219	352	--
5.2V/2.1A			
Transformer T1 pin 1 – 6	203	336	--
Transformer T1 pin 2 – 6	<b>264</b>	<b>552</b>	<b>The highest working voltage, 96.24kHz</b>
Transformer T1 pin 4 – 6	224	380	--
Transformer T1 pin 5 – 6	227	440	--
Transformer T1 pin 1 – 7	203	328	--
Transformer T1 pin 2 – 7	252	536	--
Transformer T1 pin 4 – 7	224	356	--
Transformer T1 pin 5 – 7	226	416	--
CY1	220	356	--
supplementary information:			
Test voltage: 240V			
Test frequency: 60Hz			
Note: Test sample test specimen to Common choke			

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Clause	Requirement + Test	Result - Remark	Verdict

Appended table	TABLE: transformers (T1)							P
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.	
Primary winding to secondary winding	RI	552	270	4242Vac peak	4.5	5.4	0.4	
Core to secondary winding	RI	552	270	4242Vac peak	4.5	5.4	0.4	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
Primary winding to secondary winding	RI			4242Vac peak	6.7	6.7	TIW used.	
Core to secondary winding	RI			4242Vac peak	7.0	7.0	TIW used.	
supplementary information:								
Transformer description: Concentric windings on EF20 size phenolic bobbin. The whole transformer core was wrapped with 2 layers of insulation tape. 2 layers on outer winding, Magnet wire used at primary winding, Triple insulation wire used at secondary winding. The core was considered as primary part. More details see photo document.								

-END-

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT IEC 62368-1</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> <b>(Audio/video, information and communication technology equipment Part 1: Safety requirements)</b>	
Differences according to..... :	EN 62368-1:2014+A11:2017
Attachment Form No. .... :	EU_GD_IEC62368_1B_II
Attachment Originator..... :	Nemko AS
Master Attachment..... :	Date 2017-09-22
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	<b>CENELEC COMMON MODIFICATIONS (EN)</b>					P
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".					P
CONTENTS	<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:					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_1B - 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>Considered.</p> <p>Complied with item a) for internal fuse used and for parts as described in b) reliance on the protection in the building installation.</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>	No external circuits.	N/A
10.2.1	<p><b>Add</b> the following to <sup>c)</sup> and <sup>d)</sup> in table 39:</p> <p>For additional requirements, see 10.5.1.</p>	No such radiation from the equipment.	N/A
10.6.1	<p><b>Add</b> the following paragraph to the end of the subclause:</p> <p>EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>	No such x-radiation generated from the equipment.	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</p>	No such consideration for the purpose of personal music players.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		
G.7.1	<b>Add</b> the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
Bibliography	<b>Add</b> the following standards: <b>Add</b> the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		P
4.1.15	<b>Denmark, Finland, Norway and Sweden</b> To the end of the subclause the following is added: <b>Class I pluggable equipment type A</b> intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and <b>accessible</b> parts, have a marking stating that the equipment shall be connected to an earthed <b>mains</b> socket-outlet. The marking text in the applicable countries shall be as follows:	Class II equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<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 jordan stikkontakt"</p> <p>In <b>Sweden</b>: "Apparaten skall anslutas till jordat uttag"</p>		
4.7.3	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added: 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>	See attachment plug portion report	P
5.2.2.2	<p><b>Denmark</b></p> <p>After the 2nd paragraph add the following: 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>	No high touch current.	N/A
5.4.11.1 and Annex G	<p><b>Finland and Sweden</b></p> <p>To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <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</li> </ul>	No TNV circuits.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>performed using 1,5 kV), and</p> <ul style="list-style-type: none"> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.</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; 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.</li> </ul>		
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>	Shall be evaluated when national approval	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>	No such resistors.	N/A
5.6.1	<p><b>Denmark</b></p> <p><b>Add</b> to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i></p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>	Considered.	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.2.1	<b>Ireland and United Kingdom</b> After the indent for <b>pluggable equipment type A</b> , the following is added: – 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.	Considered.	P
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm <sup>2</sup> to 1,5 mm <sup>2</sup> in cross-sectional area.	See above.	N/A
5.7.5	<b>Denmark</b> To the end of the subclause the following is added: 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.	No high protective conductor current.	N/A
5.7.6.1	<b>Norway and Sweden</b> To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. 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. 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: “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)”	Not such system.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>		
5.7.6.2	<p><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>	No external circuits.	N/A
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>	Considered	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</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		
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>	See attachment plug portion report	P
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



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	<b>Ireland</b> To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	<b>Ireland and United Kingdom</b> To the first paragraph the following is added: 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.		N/A
<b>ZC</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		
10.5.2	<b>Germany</b> The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. <b>NOTE</b> Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a>	No CRT within the equipment.	N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<p align="center"><b>ATTACHMENT TO TEST REPORT IEC 62368-1</b>  <b>DENMARK NATIONAL DIFFERENCES</b>  Audio/video, information and communication technology equipment –  Part 1: Safety requirements</p>			
<b>Differences according to</b> ..... : DS/EN 62368-1:2014			
<b>Attachment Form No.</b> .... : DK_ND_IEC62368_1B			
<b>Attachment Originator</b> ..... : UL (Demko)			
<b>Master Attachment</b> ..... : 2014-10			
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	National Differences		
4.1.15	<p>To the end of the subclause the following is added:</p> <p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:</p> <p>“Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.”</p>		N/A
5.2.2.2	<p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.6.1	<p>Add 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>Justification:</p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.2	To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA.		N/A
G.4.2	To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. 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. 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. 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. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. 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 Justification: Heavy Current Regulations, Section 6c		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT IEC 62368-1 2<sup>th</sup> Ed.</b> <b>U.S.A NATIONAL DIFFERENCES</b> Audio/video, information and communication technology equipment – Part 1: Safety requirements	
<b>Differences according to..... :</b>	CSA/UL 62368-1:2014
<b>Attachment Form No. .... :</b>	US&CA_ND_IEC623681B
<b>Attachment Originator..... :</b>	UL(US)
<b>Master Attachment..... :</b>	Date 2015-06
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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.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.	Considered.	P
4.1.17	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.		N/A
	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.	See above.	N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.	No such batteries.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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	Direct plug-in type, Class II	N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.	No TNV circuits within the equipment.	N/A
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.	No such parts.	N/A
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.	DC output connector is provided. Indicated by User specification.	P
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.	The equipment is not permanent connection equipment.	N/A
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.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	See above.	N/A
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.	See above.	N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits within the equipment.	N/A
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.	No TNV circuits within the equipment.	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.	No such parts.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	The equipment not intended to be used within such environments.	N/A
	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.	Not such equipment.	N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.	The equipment is not for children used.	N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a baby monitors.	N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No flammable liquids within the equipment.	N/A
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.	No such application.	N/A
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).	No such parts.	N/A
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).	No such parts.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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."	Single phase only.	N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current	Not such application.	N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position	No such parts.	N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard supply outlets, receptacles, medium-base or smaller lampholders provided.	N/A
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).	No such parts.	N/A
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.	No such parts.	N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No such parts.	N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).	No such parts.	N/A
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.	Not such application.	N/A
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.	Not applicable for the equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.	Not such application.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	Not such application.	N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury 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.	UL approved components used. Refer to table 4.1.2 of IEC 62368-1 test report for details.	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	The equipment is not permanently connected equipment.	N/A
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.	Pluggable equipment type A.	N/A
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.	No terminals for permanent wiring.	N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm <sup>2</sup> ).	No wire binding screws.	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	The equipment is not permanently connected equipment.	N/A



IEC62368_1B - 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.	The equipment not connected to a centralized d.c. power system.	N/A
Annex DVI (6.7 )	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No TNV circuits within the equipment.	N/A
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.	No TNV circuits within the equipment.	N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT</b> IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)			
<b>Differences according to</b> .....: AS/NZS 62368.1:2018			
<b>Attachment Form No.</b> .....: AU_NZ_ND_IEC62368_1B			
<b>Attachment Originator</b> .....: JAS-ANZ			
<b>Master Attachment</b> .....: 2019-02-04			
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	<b>National Differences</b>		
<b>Appendix ZZ</b>	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand		P
<b>ZZ1 Scope</b>	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)		P
<b>ZZ2 Variations</b>	The following modifications are required for Australian/New Zealand conditions:		P
<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>		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>-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></p> <p>-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></p> <p>-AS/NZS 60695.11.10, <i>Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <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 Replace the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.</p> <p>2 Replace the text 'IEC 60065' with 'AS/NZS 60065'.</p>		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>4.7</b>	<b>Equipment for direct insertion into mains socket-outlets</b>		N/A
<b>4.7.2</b>	<b>Requirements</b> Delete the text of the second paragraph and replace with the following: 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.	Direct plug-in equipment. Shall be evaluated during national approval	N/A
<b>4.7.3</b>	<b>Compliance Criteria</b> Delete the first paragraph and Note 1 and Note 2 and replace with the following: Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.	Direct plug-in equipment. Shall be evaluated during national approval	N/A
<b>4.8</b>	Delete existing clause title and replace with the following: <b>4.8 Products containing coin/button cell batteries</b>		N/A
<b>4.8.1</b>	<b>General</b> 1 Second dashed point, delete the text and replace with the following: – include coin/button cell batteries with a diameter of 32 mm or less. 2 After the second dashed point, insert the following Note: NOTE 1: Batteries are specified in IEC 60086-2. 3 After the third dashed point, renumber the existing Note as 'NOTE 2'. 4 Fifth dashed point, delete the word 'lithium'.		N/A
<b>4.8.2</b>	<b>Instructional Safeguard</b> First line, delete the word 'lithium'.		N/A
<b>4.8.3</b>	<b>Construction</b> First line, after the word 'Equipment' insert the words 'containing one or more coin/button batteries and'		N/A

IEC62368_1B - ATTACHMENT					
Clause	Requirement + Test		Result - Remark	Verdict	
4.8.5	<b>Compliance criteria</b> <i>Delete the first paragraph and <b>replace</b> with the following:</i> <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>			N/A	
5.4.10.2	<b>Test methods</b>			N/A	
5.4.10.2.1	<b>General</b> <i>Delete the first paragraph and <b>replace</b> with the following:</i> 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.			N/A	
Table 29	Replace the table with the following:			N/A	
Parts		Impulse test		Steady state test	
		New Zealand	Australia	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	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) <sup>b</sup>		1.5 kV 10/700 µs <sup>c</sup>		1.0 kV	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.					

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>5.4.10.2.2</b>	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.		N/A
<b>5.4.10.2.3</b>	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. 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.		N/A
<b>6</b>	<b>Electrically-caused fire</b>		P
<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		P
<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)		P
<b>8.5.4</b>	<b>Special categories of equipment comprising moving parts</b>		N/A
<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'.		N/A
<b>8.6</b>	<b>Stability of equipment</b>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<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: <sup>c</sup> 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 track, 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'		N/A
<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)		N/A
<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'.		N/A
<b>Annex G Paragraph G.4.2</b>	<b>Mains connectors</b> 1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'. 2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series' 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.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>Paragraph G.5.3.1</b>	<b>Transformers, General</b> 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' 2 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.		N/A
<b>Paragraph G.7.1</b>	<b>Mains supply cords, General</b> In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
<b>Table G.5</b>	<b>Sizes of conductors</b> 1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5' 2 In the second row, second column, <i>delete</i> '0,75' and <i>replace</i> with '0.75 <sup>b</sup> 3 <i>Delete</i> Note 1. 4 <i>Replace</i> 'NOTE 2' with 'NOTE:'. 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). 6 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
<b>Annex M Paragraph M.3.2</b>	<b>Protection circuits for batteries provided within the equipment, Test method</b> 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.		N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<b>Special national conditions (if any)</b>		N/A
<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 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>		P
<b>6.202</b>	<b>Resistance to fire—Alternative tests</b>	UL recognized material	P
<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:</li> </ul>		N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;</p> <p>– 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.</p> <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>		
	<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> <p>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.</p> <p>These tests are not carried out on internal wiring.</p>		N/A
6.202.2	<p><b>Testing of non-metallic materials</b></p> <p>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.</p> <p>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.</p>		N/A
6.202.3	<p><b>Testing of insulating materials</b></p> <p>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.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE: Contacts in components such as switch contacts are considered to be connections</p>		N/A

IEC62368_1B - ATTACHMENT											
Clause	Requirement + Test	Result - Remark	Verdict								
	<p>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.</p> <p>However, parts shielded by a barrier which meets the needle-flame test need not be tested</p>		N/A								
	<p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p> <table><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><p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p><p>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 corner.</p><p>The duration of application of the test flame shall be 30 s ± 1 s.</p></td></tr><tr><td><b>9.3 Number of test specimens</b></td><td><p><i>Replace</i> with the following:</p><p>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.</p></td></tr></table>	<b>Clause of AS/NZS 60695.11.5</b>	Change	<b>9 Test procedure</b>		<b>9.2 Application of needle-flame</b>	<p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p> <p>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 corner.</p> <p>The duration of application of the test flame shall be 30 s ± 1 s.</p>	<b>9.3 Number of test specimens</b>	<p><i>Replace</i> with the following:</p> <p>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.</p>		N/A
<b>Clause of AS/NZS 60695.11.5</b>	Change										
<b>9 Test procedure</b>											
<b>9.2 Application of needle-flame</b>	<p><i>Delete</i> the first and second paragraphs and <i>replace</i> with the following:</p> <p>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 corner.</p> <p>The duration of application of the test flame shall be 30 s ± 1 s.</p>										
<b>9.3 Number of test specimens</b>	<p><i>Replace</i> with the following:</p> <p>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.</p>										

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test		Verdict
	<p><b>11 Evaluation of test results</b></p> <p><i>Replace with the following:</i></p> <p>The duration of burning (tb) shall not exceed 30 s.</p> <p>However, for printed circuit boards, it shall not exceed 15 s.</p>		
	<p>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.</p>		
<b>6.202.4</b>	<p><b>Testing in the event of non-extinguishing material</b></p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>		N/A

IEC62368_1B - ATTACHMENT			
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>		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.202.6	<b>For open circuit voltages greater than 4 kV</b> 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.		N/A
8.6.1.201	<b>8.6.1.201 Instructional safeguard for fixed-mount television sets</b> 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. The elements of the instructional safeguard shall 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		N/A
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.		N/A

IEC62368_1B - 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 (H30)			
<b>Attachment Form No.</b> ..... : JP_ND_IEC62368_1B			
<b>Attachment Originator</b> ..... : UL (JP)			
<b>Master Attachment</b> ..... : Date 2018-11-22			
<b>Copyright © 2018 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.</b>			
	National Differences		—
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.		N/A
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.	Class II	N/A
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.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
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.		N/A
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.		N/A
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.	Test with appliance	P
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.		N/A
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.		P



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.		P
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.		P
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) <sup>b,c</sup>		N/A
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.	Class II	N/A
F.3.5.3	If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic.		N/A
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.		N/A
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.		P
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.		N/A



IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	No such component	N/A
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.		P
G.4.1	This requirement is not applicable to Clauses G.4.2 and G.4.2A.		N/A
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.	Direct plug-in equipment. Shall be evaluated during national approval	N/A
G.4.2A	Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively.		N/A
G.7.1	A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor.		N/A
G.8.3.3	Withstand $1,71 \times 1.1 \times U_0$ for 5 s.		N/A

-END-

## EN 50075 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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**Fixed European plug portion test: EU fixed plug**

<b>6</b>	<b>Marking</b>		<b>P</b>
	Appliances shall be marked as follows:	Incorporated with adaptor.	<b>P</b>
	Rated current in amperes (A)		<b>P</b>
	Rated Voltage in volts (V)		<b>P</b>
	Symbol for nature of supply (~)		<b>P</b>
	Name, trade mark or identification mark of manufacturer or responsible vendor		<b>P</b>
	Type reference		<b>P</b>

7	Dimensions			P
	Plug shall comply with Standard Sheet 1			P
	Between two pins (pin base)	18.0 – 19.2 mm	18.08 mm	P
	Between two pins (pin top)	17.0 – 18.0 mm	17.23 mm	P
	Diameter of pin (metallic part)	4 <sup>±0.06</sup> mm	4.04 mm	P
	Diameter of pin (pin base)	max. 4.0 mm	3.80 mm	P
	Diameter of pin (middle part)	max. 3.8 mm	3.44 mm	P
	Pin length	19 <sup>±0.5</sup> mm	19.14 mm	P
	Length of pin except metal part	10 <sup>+ 1.0</sup> mm	10.35 mm	P
	Shape of pin top		Round shape mm	P
	Length of plug base	35.3 <sup>±0.7</sup> mm	35.09 mm	P
	Width of plug base	13.7 <sup>±0.7</sup> mm	14.28 mm	P
	Diagonal dimension of plug base within a distance of 18mm	<26.1 <sup>±0.5</sup> mm <26.1 <sup>±0.5</sup> mm	26.51 mm 26.51 mm	P
	Angle	45°	45 °	P
	Radius	R 5 -0, +1 mm	5.21 mm	P

<b>8</b>	<b>Protection against electric shock</b>		<b>P</b>
8.1	Live parts of the plug not accessible (standard test finger)	Incorporated with adaptor.	<b>P</b>
8.2	No connection between one plug-pin and socket outlet		<b>P</b>
8.3	External parts of insulating material		<b>P</b>

<b>9</b>	<b>Construction</b>		<b>P</b>
9.1	Plugs are not replaceable	Incorporated with adaptor.	<b>P</b>
9.2	Switches, fuse, lampholder not incorporated		<b>P</b>
9.3	Solid pins	See clause 13	<b>P</b>

## EN 50075 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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	Adequate mechanical strength		<b>P</b>
9.4	Pins locked against rotation	See clause 13.1 & 13.4	<b>P</b>
	Adequate fixed into the body		<b>P</b>
9.5	Kind of connection		<b>P</b>
9.6	Easily to be withdrawn from socket-outlet	Incorporated with adaptor	<b>P</b>

<b>10</b>	<b>Resistance to humidity</b>		<b>P</b>
	-Humidity treatment for 48 hours	Tested with adaptor.	<b>P</b>

<b>11</b>	<b>Insulation resistance and electric strength</b>		<b>P</b>
11.1	Insulation resistance (500V, min 5MΩ)	200MΩ	<b>P</b>
11.2	Electric strength (2000V)	(see appended table)	<b>P</b>

<b>13</b>	<b>Mechanical strength</b>		<b>P</b>
13.1	Pressed with 150N for 5 min		<b>P</b>
13.2	Tumbling barrel according to IEC/EN 61558-1(or VDE 0620-2-1) Number of cycles:	Weight: 88g Number of cycles: 500 cycles(1000 falls) was conducted on the plug portion mated with AC Adapter according to DIN VDE 0620-2-1:2013, item 24.2. Three samples tested. After the test, it was fulfilled the requirements of DIN VDE 0620-101:1992 item 7 figure 2 "gauge for interchangeability" and no damage.	<b>P</b>
	No damages after the test		<b>P</b>
	Requirements of clause 7 and 8.2 still fulfilled		<b>N/A</b>
13.3	Rubbing test of plug-pins: 10000 cycles, 4N		<b>P</b>
	No damage of the pins		<b>P</b>
13.4	Pull test at 70°C with 40N		<b>P</b>
	Pins not more than 1 mm displaced	Displacement: 0.2mm	<b>P</b>

<b>14</b>	<b>Resistance to heat and to aging</b>		<b>P</b>
14.1	Sufficient resistant to heat	Incorporated with adaptor.	<b>P</b>
14.1.1	After 1 h in heating cabinet at 100°C no damage shown	Tested with adaptor.	<b>P</b>
14.1.2	After 1 h in heating cabinet at 80°C and a force of 20N through the jaws no damage shown		<b>P</b>

## EN 50075 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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14.2	Aging test		<b>P</b>
	-at 70°C for 168h		<b>P</b>
	-at room temperature for 96h		<b>P</b>
	No traces of cloth at a force of 5N		<b>P</b>
	No damage leads to non-compliance		<b>P</b>

<b>15</b>	<b>Current-carrying parts and connections resistance to heat and to aging</b>		<b>P</b>
15.1	Connections withstand the mechanical stresses occurring in normal use		<b>P</b>
15.2	Contact pressure not through isolating material		<b>P</b>
15.3	Current carrying parts of copper		<b>P</b>
	No electroplated coating when part is subjected to mechanical wear		<b>P</b>
	Other metals having a mechanical strength, an electrical conductivity and a resistance to corrosion		<b>N/A</b>

<b>16</b>	<b>Creepage distances, clearances and distances through insulation</b>		<b>P</b>
	Live parts of different polarity: 3mm	___>3.0___mm	<b>P</b>
	Through insulation between live parts and accessible surfaces: 1.5mm	___>1.5___mm	<b>P</b>

<b>17</b>	<b>Resistance of insulation material to abnormal heat and fire</b>		<b>P</b>
	Insulating material not unduly affected by abnormal heat and by fire	(see appended table)	<b>P</b>

EN 50075 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

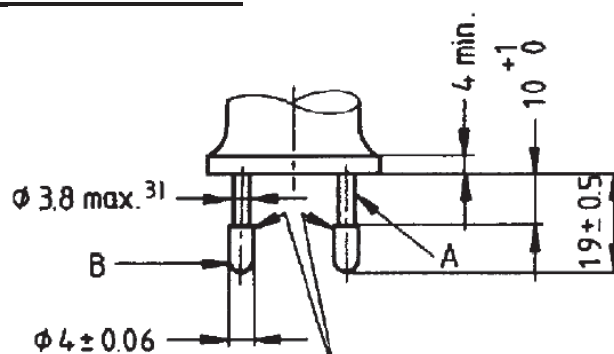
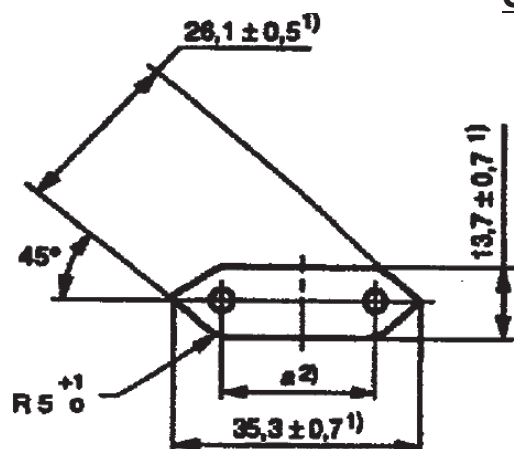
<b>11.1</b>	<b>TABLE: Insulation resistance measurements</b>		<b>P</b>
Measured between:		Result	
Pins connected together and the body ( $\geq 5\text{M}\Omega$ )		__>1000__ $\text{M}\Omega$	<b>P</b>
Each pins in turn and the other, the latter being connected to the body ( $\geq 5\text{M}\Omega$ )		__>1000__ $\text{M}\Omega$	<b>P</b>
Note: --			

<b>11.2</b>	<b>TABLE: electric strength measurements</b>		<b>P</b>
Test voltage applied between:		Test voltage (V)	Break down
Pins connected together and the body		__2000__ VAC	No
Each pins in turn and the other, the latter being connected to the body		__2000__ VAC	No
Note: --			

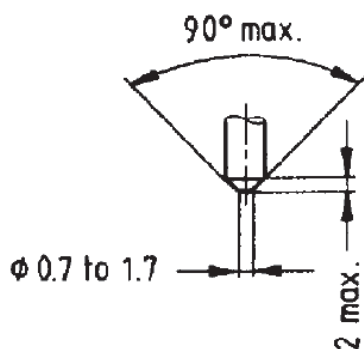
<b>17.3</b>	<b>TABLE: Resistance of insulating material to abnormal heat and to fire</b>		<b>P</b>
Parts that retain current-carrying parts in position: 750°C			<b>P</b>
Other parts: 650°C			<b>P</b>
Note: --			

Clause	Requirement – Test	Result - Remark	Verdict
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### Standard sheet 1



The edges of the metal parts shall be either chamfered or rounded off



Alternative for end of pins

Dimensions in millimetres

A = insulating collar

B = metal pin

¹) These dimensions shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

²) Dimension  $a$  is:

18 mm to 19,2 mm in the plane of the engagement face;

17 mm to 18 mm at the ends of the pins.

³) This dimension may be increased to 4 mm within a distance of 4 mm from the engagement face of the plug.

Pin ends shall be rounded, or conical as shown in detail sketch.

The sketches are not intended to govern design except as regards the dimensions shown.

## EN 50075 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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**European plug portion test: G-EU**

<b>6</b>	<b>Marking</b>		<b>P</b>
	Appliances shall be marked as follows:	Incorporated with adaptor.	<b>P</b>
	Rated current in amperes (A)		<b>P</b>
	Rated Voltage in volts (V)		<b>P</b>
	Symbol for nature of supply (~)		<b>P</b>
	Name, trade mark or identification mark of manufacturer or responsible vendor		<b>P</b>
	Type reference		<b>P</b>

7	Dimensions			P
	Plug shall comply with Standard Sheet 1			P
	Between two pins (pin base)	18.0 – 19.2 mm	18.4 mm	P
	Between two pins (pin top)	17.0 – 18.0 mm	17.3 mm	P
	Diameter of pin (metallic part)	4 <sup>±0.06</sup> mm	4.0 mm	P
	Diameter of pin (pin base)	max. 4.0 mm	3.8 mm	P
	Diameter of pin (middle part)	max. 3.8 mm	3.5 mm	P
	Pin length	19 <sup>±0.5</sup> mm	19.4 mm	P
	Length of pin except metal part	10 <sup>+1.0</sup> mm	10.3 mm	P
	Shape of pin top		Round shape mm	P
	Length of plug base	35.3 <sup>±0.7</sup> mm	35.5 mm	P
	Width of plug base	13.7 <sup>±0.7</sup> mm	13.8 mm	P
	Diagonal dimension of plug base within a distance of 18mm	<26.1 <sup>±0.5</sup> mm <26.1 <sup>±0.5</sup> mm	26.4 mm 26.3 mm	P
	Angle	45°	45 °	P
	Radius	R 5 -0, +1 mm	5.34 mm	P

<b>8</b>	<b>Protection against electric shock</b>		<b>P</b>
8.1	Live parts of the plug not accessible (standard test finger)	Incorporated with adaptor.	<b>P</b>
8.2	No connection between one plug-pin and socket outlet		<b>P</b>
8.3	External parts of insulating material		<b>P</b>

<b>9</b>	<b>Construction</b>		<b>P</b>
9.1	Plugs are not replaceable	Incorporated with adaptor.	<b>P</b>
9.2	Switches, fuse, lampholder not incorporated		<b>P</b>

## EN 50075 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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9.3	Solid pins	See clause 13	P
	Adequate mechanical strength		P
9.4	Pins locked against rotation	See clause 13.1 & 13.4	P
	Adequate fixed into the body		P
9.5	Kind of connection		P
9.6	Easily to be withdrawn from socket-outlet	Incorporated with adaptor	P

<b>10</b>	<b>Resistance to humidity</b>		<b>P</b>
	-Humidity treatment for 48 hours	Tested with adaptor.	P

<b>11</b>	<b>Insulation resistance and electric strength</b>		<b>P</b>
11.1	Insulation resistance (500V, min 5MΩ)	200MΩ	P
11.2	Electric strength (2000V)	(see appended table)	P

<b>13</b>	<b>Mechanical strength</b>		<b>P</b>
13.1	Pressed with 150N for 5 min		P
13.2	Tumbling barrel according to IEC/EN 61558-1(or VDE 0620-2-1) Number of cycles:	Weight: 98g Number of cycles: 500 cycles (1000 falls) was conducted on the plug portion mated with AC Adapter according to DIN VDE 0620-2-1:2013, item 24.2. Three samples tested. After the test, it was fulfilled the requirements of DIN VDE 0620-101:1992 item 7 figure 2 "gauge for interchangeability" and no damage.	P
	No damages after the test		P
	Requirements of clause 7 and 8.2 still fulfilled		N/A
13.3	Rubbing test of plug-pins: 10000 cycles, 4N		P
	No damage of the pins		P
13.4	Pull test at 70°C with 40N		P
	Pins not more than 1 mm displaced	Displacement: 0.2mm	P

<b>14</b>	<b>Resistance to heat and to aging</b>		<b>P</b>
14.1	Sufficient resistant to heat	Incorporated with adaptor.	P
14.1.1	After 1 h in heating cabinet at 100°C no damage shown	Tested with adaptor.	P



## EN 50075 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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14.1.2	After 1 h in heating cabinet at 80°C and a force of 20N through the jaws no damage shown		<b>P</b>
14.2	Aging test		<b>P</b>
	-at 70°C for 168h		<b>P</b>
	-at room temperature for 96h		<b>P</b>
	No traces of cloth at a force of 5N		<b>P</b>
	No damage leads to non-compliance		<b>P</b>

<b>15</b>	<b>Current-carrying parts and connections resistance to heat and to aging</b>		<b>P</b>
15.1	Connections withstand the mechanical stresses occurring in normal use		<b>P</b>
15.2	Contact pressure not through isolating material		<b>P</b>
15.3	Current carrying parts of copper		<b>P</b>
	No electroplated coating when part is subjected to mechanical wear		<b>P</b>
	Other metals having a mechanical strength, an electrical conductivity and a resistance to corrosion		<b>N/A</b>

<b>16</b>	<b>Creepage distances, clearances and distances through insulation</b>		<b>P</b>
	Live parts of different polarity: 3mm	___>3.0___mm	<b>P</b>
	Through insulation between live parts and accessible surfaces: 1.5mm	___>1.5___mm	<b>P</b>

<b>17</b>	<b>Resistance of insulation material to abnormal heat and fire</b>		<b>P</b>
	Insulating material not unduly affected by abnormal heat and by fire	(see appended table)	<b>P</b>

EN 50075 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

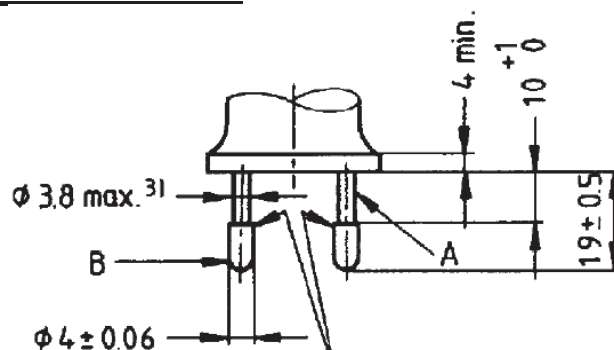
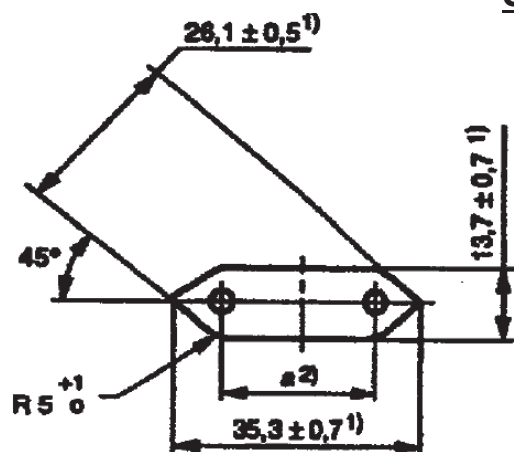
<b>11.1</b>	<b>TABLE: Insulation resistance measurements</b>		<b>P</b>
Measured between:		Result	
Pins connected together and the body ( $\geq 5\text{M}\Omega$ )		__>1000__ $\text{M}\Omega$	<b>P</b>
Each pins in turn and the other, the latter being connected to the body ( $\geq 5\text{M}\Omega$ )		__>1000__ $\text{M}\Omega$	<b>P</b>
Note: --			

<b>11.2</b>	<b>TABLE: electric strength measurements</b>		<b>P</b>
Test voltage applied between:		Test voltage (V)	Break down
Pins connected together and the body		__2000__ VAC	No
Each pins in turn and the other, the latter being connected to the body		__2000__ VAC	No
Note: --			

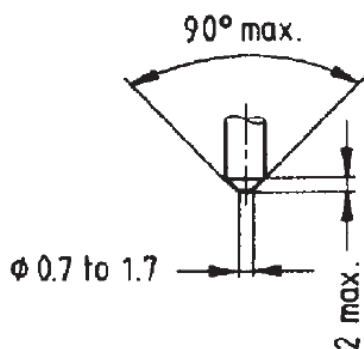
<b>17.3</b>	<b>TABLE: Resistance of insulating material to abnormal heat and to fire</b>		<b>P</b>
Parts that retain current-carrying parts in position: 750°C			<b>P</b>
Other parts: 650°C			<b>P</b>
Note: --			

EN 50075 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

### Standard sheet 1



The edges of the metal parts shall be either chamfered or rounded off



Alternative for end of pins

Dimensions in millimetres

A = insulating collar

B = metal pin

¹) These dimensions shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

²) Dimension  $a$  is:

18 mm to 19,2 mm in the plane of the engagement face;

17 mm to 18 mm at the ends of the pins.

³) This dimension may be increased to 4 mm within a distance of 4 mm from the engagement face of the plug.

Pin ends shall be rounded, or conical as shown in detail sketch.

The sketches are not intended to govern design except as regards the dimensions shown.

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

British plug portion test: G-UK			
12	<i>Construction of Plugs</i>		P
12.1	The disposition of the pins shall be shown as figure 4.	The dispositions of the pins were shown as figure 4.	P
12.2	Pin and sleeve dimensions, body outline were checked according to figure 4 of BS1363: Part 1.	6.85mm was measured from the engagement surface. (It shall not less than 6.35 mm)	P
		The dimensions were found within the specified limits as shown in figure 4. (please refer to attached appendix 1 for details)	P
	The plug portion shall enter the gauge fully with a force less than 10N was applied to the centre of the sample at right angle	Sample could enter into the gauge fully with a force less than 10 N.	P
12.3	No parts of a line or neutral pin shall be less than 9.5mm from the periphery of the plug measured along the engagement surface.	Complied.	P
12.9	Plug pins were constructed of brass or nickel plated brass	Brass. Details refer to material list on page 4.	P
12.9.1	Exposed surface of plug pins were smooth and free from burrs or sharp edges and other irregularities, which could cause damage or excessive wear to sockets or shutters.	Complied.	P
12.9.4	The adaptor plug pins were tested as specified in the standard.	After test at 1100 N, the pin portions could fit the relevant gauge.	P
12.9.5	Plugs with nickel plated brass shall not cause excessive wear to socket contacts or shutters of socket-outlets.	See below	P
	Each plug is inserted into and withdrawn from the socket-outlet at a rate of six insertions and six withdrawals per minute, the speed of travel of the plug being approximately 150 mm/s. The periods during which the plug is inserted and withdrawn shall be approximately equal. The plug pins are renewed or a new plug is used after each 5 000 insertions and withdrawals.	The socket-outlet show no sign of damage that would impair further use. The plugs show no damage and conform to the dimensional requirements of 12.2. The shutters of the socket-outlet operate satisfactorily and the socket contacts shall be safely shielded.	P
12.9.6	Each pin of the adapter was subjected to a torque of 1Nm for 60s as specified in the standard.	After the test, the pin portion could fit the relevant gauge.	P
12.11	The adaptors were tested as specified in standard. After being placed in an oven at 70°C for 1 hour, each pin of the samples was subjected for 60s to a pull of 100N in the oven.	After the test, no plug pin was detached and the plug pins could fit the relevant gauge.	P

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict
12.12	The degree of the flexibility of mounting of the plug pins was checked by inspection	Complied.	P
12.13	Suitable means shall be provided for withdrawing the plug without subjecting the flexible cord to stress.	Complied.	P
12.16	Line and neutral plug pin shall be fitted with insulating sleeves. The dimensions of the pin and sleeve shall fall within the specific limit.	Both line and neutral pins were fitted with insulating sleeve.	P
12.17.1	Plug pin sleeve shall be compliance with 12.17.2 to 12.17.4	Complied.	P
12.17.2	Electric strength test applied between the metal part of the plug pin and the sleeve. (1250V±30V for 60s)		P
12.17.3	Abrasion test for plug pin sleeve The plug pin sleeves were subjected to 20000 movements of abrasion as specified in the standard.	After the test, the sleeves showed no damage that impaired further use and could satisfy the electric strength test in 12.17.2	P
12.17.4	Resistance to deformation The plug pins with sleeves were placed in a heating cabinet at 200°C and tested according to the standard for 120min. The test shall be carried out at 125°C based on the UK deviation to clause 4.3.6 for Direct plug-in equipment in IEC 60950-1: 2005	After the test carried out at 125 °C for 120 min, only slightly impression observed, the impressions were less than 50 % of the thickness measured before the test.	P
22.2	Parts of insulating material shall be sufficiently resistant to heat and still shaving its location and function.	Complied. See 22.2.1	P
22.2.1	Compliance checked as follows: a) Parts of ceramic material are used; b) external parts of plugs tested according to 22.1.3; c) all other parts of insulating material including ISOD subjected to the ball pressure at a temperature of 75°C ± 5°C	See appended table 22.2.1	P
23	Resistance to abnormal heat, fire and tracking		P
23.1	Plugs shall be proof against abnormal heat, fire and tracking		P
23.1.1	Compliance shall be checked by the test described in 23.2		P
23.2	Glow-wire test The test is performed according to BS EN 60695-2-11:2014 and at the test temperature given in Table 10 a) Parts necessary to retain live parts in position including ISOD were tested at 750°C. b) Parts not necessary to retain live in position were tested at 650°C.	See appended table 23.2	P
<b>Additional Requirements (Clause 12.2, 12.9.4.3, 12.9.5, 12.9.6, 22.2 and 23) for the ISOD</b>			

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

## According to the standard BS 1363-1

12.2	Solid insulated shutter opening device should comply all the dimensions specified in Figure 4 with exception of the width of the ISOD should be 4.05 mm maximum and 3.90 mm minimum. and its height which should be 8.05 mm maximum and 7.75 mm minimum	The measured dimensions were found to be within the specified limits. (see attached appendix 1 for details)	P
12.9.4	Solid insulated shutter opening device were tested as specified in the standard.	After subjected to a force of 400N, the pin portion still could fit the relevant gauge.	P
12.9.5	Plugs with ISOD shall not cause excessive wear to socket contacts or shutters of socket-outlets.	See below	P
	Each plug is inserted into and withdrawn from the socket-outlet at a rate of six insertions and six withdrawals per minute, the speed of travel of the plug being approximately 150 mm/s. The periods during which the plug is inserted and withdrawn shall be approximately equal. The plug pins are renewed or a new plug is used after each 5 000 insertions and withdrawals.	The socket-outlet show no sign of damage that would impair further use. The plugs show no damage and conform to the dimensional requirements of 12.2. The shutters of the socket-outlet operate satisfactorily and the socket contacts shall be safely shielded.	P
12.9.6	ISOD of the adapter was subjected to a torque of 1Nm for 60s as specified in the standard.	After the test, the pin portion could fit the relevant gauge.	P

22.2.1	<b>TABLE: Ball-pressure test</b>						
Specimen				Ball-pressure test			
Part	Material	Material-thickness [mm]	Colour	[C°]	Measured [mm]	Required [mm]	Result
ISODs pin material/L/N pin sleeving material	SABIC Japan L L C/925U(GG)	2.5	BK	125	1.1	< 2.0	Pass
ISODs pin material/L/N pin sleeving material	SABIC Japan L L C/945 (GG)	2.5	BK	125	1.0	< 2.0	Pass
ISODs pin material/L/N pin sleeving material	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD/LUPOY EF-1006FH	2.5	BK	125	1.1	< 2.0	Pass
ISODs pin material/L/N pin sleeving	Nan Ya plastic Corp. (6410G5)	2.5	BK	125	1.3	< 2.0	Pass

## ATTACHMENT 2

## Plug test data



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Clause	Requirement – Test	Result - Remark	Verdict
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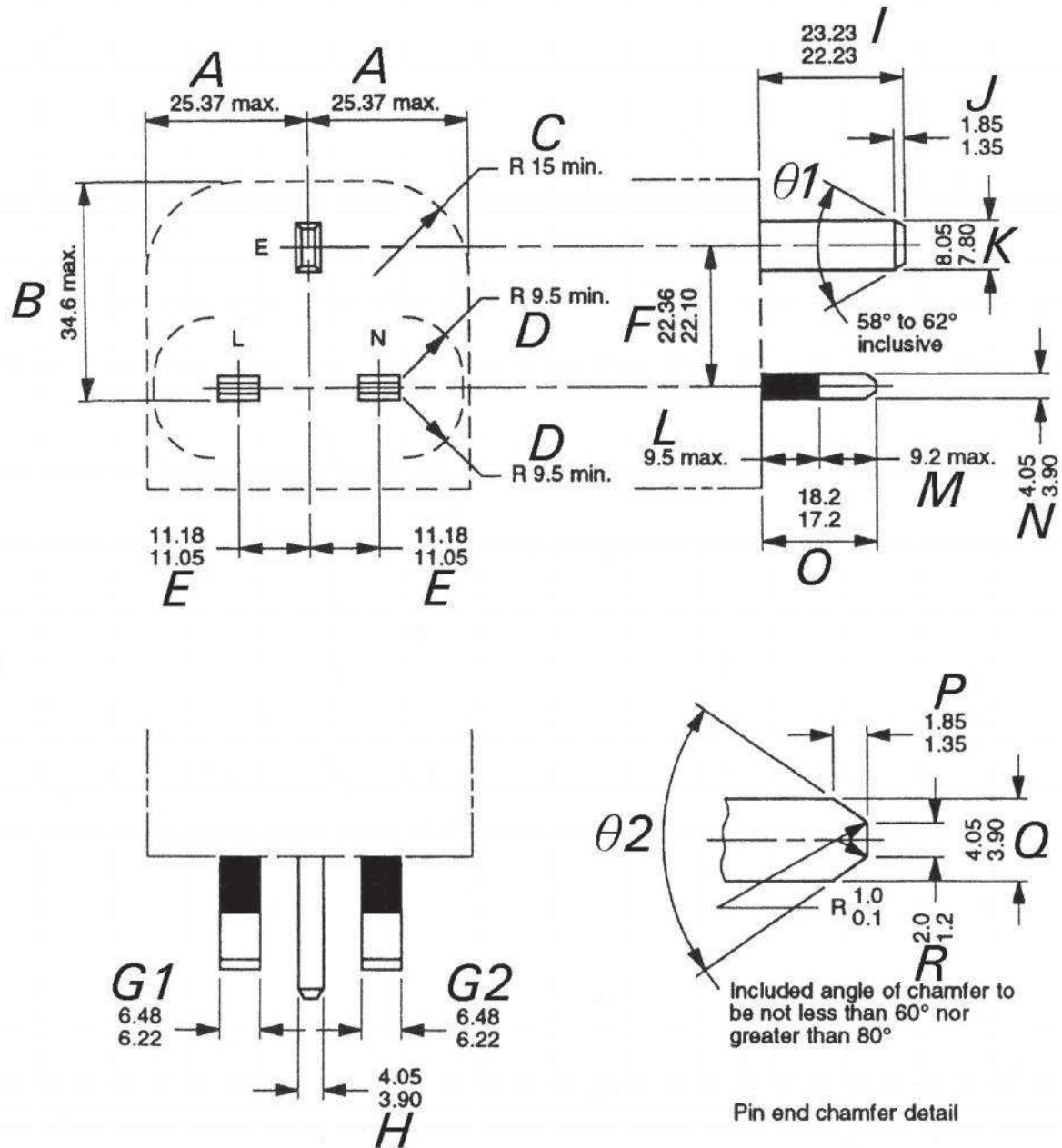
material							
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Supplementary information:

23.2	<b>TABLE: Glow-wire-test [60 s]</b>								
Specimen				Flame					
Part	Material	Material-thickness [mm]	Colour	[°C]	Start [s]	End [s]	Height [mm]	Ignition of tissue paper	Result
ISODs pin material/L/N pin sleeving material/Endlosure	SABIC Japan L L C/925U(GG)	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material/Endlosure	SABIC Japan L L C/945 (GG)	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material/Endlosure	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD/LUPOY EF-1006FH	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material/Endlosure	Nan Ya plastic Corp. (6410G5)	1.5	BK	750	0	0	0	No	Pass
Supplementary information:									

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

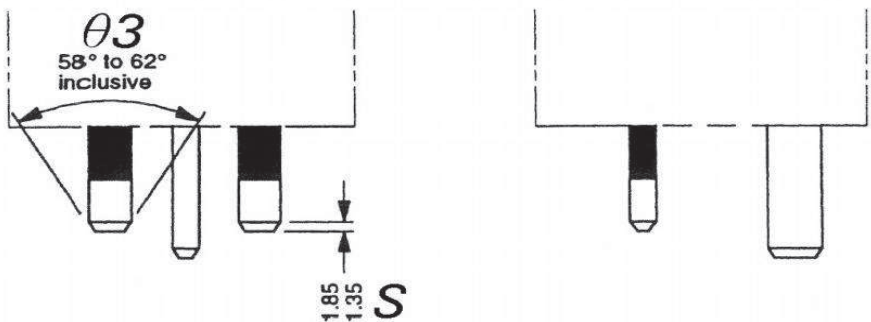
### UK plug portion for switching power adapter



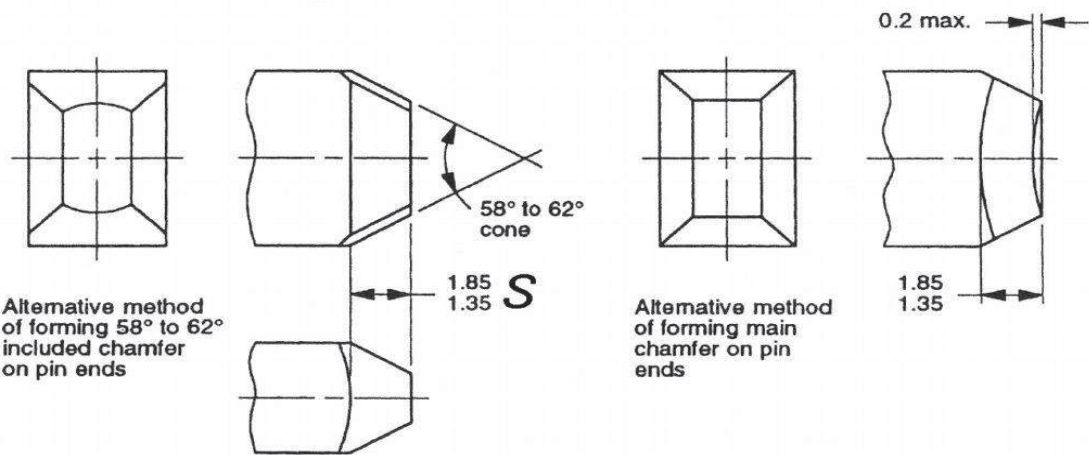
All dimensions are in millimetres.



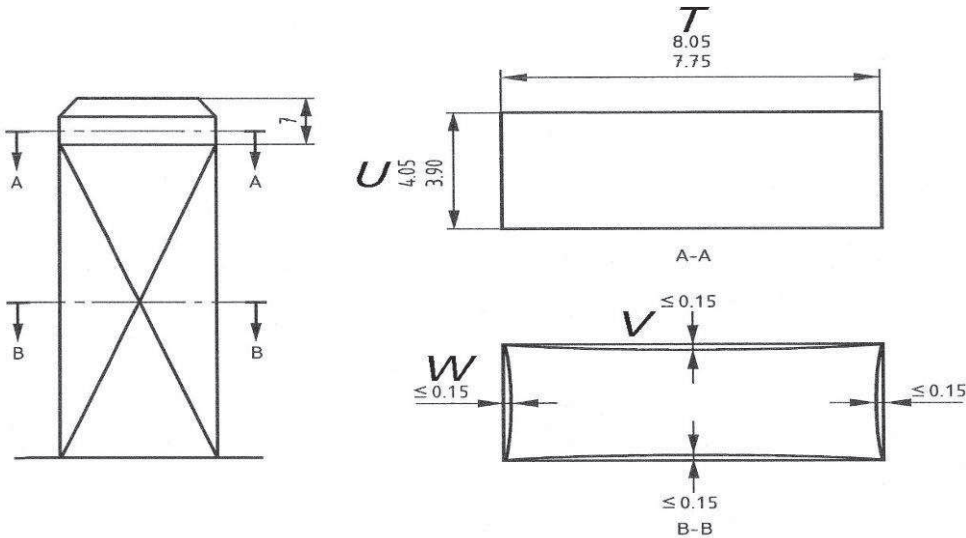
BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict



Permitted additional chamfers on L and N pins  
(if additional chamfer is used it has to be on both pins)



All dimensions are in millimetres.  
NOTE 1. External edges of pins are to be free from burrs or sharp edges and may have a radius not exceeding 1 mm.  
NOTE 2. The surfaces of pins are to be flat within the specified tolerances.



Solid insulated shutter opening device (ISOD)  
NOTE Section A-A to be measured away from chamfer as shown.

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

Appendix 1 (Refer to 12.2)

### 13A Plug Portion Dimensions

<u>Linear Dimensions (mm)</u>	<u>Measurement</u>	<u>Limit</u>	<u>Verdict</u>
A	24.23	25.37 max.	P
B	29.52	34.6 max.	P
C	<sup>1)</sup>	15 min.	P
D	9.51	9.5 min.	P
E (from L to E)	11.13	11.05 - 11.18	P
(from N to E)	11.13		P
F	22.27	22.10 - 22.36	P
G1	6.30	6.22 – 6.48	P
G2	6.30	6.22 – 6.48	P
H	4.00	3.90 – 4.05	P
I	22.61	22.23 – 23.23	P
J	1.77	1.35 – 1.85	P
K	7.98	7.80 – 8.05	P
L (line)	9.45	9.5 max.	P
(neutral)	9.45		P
M (line)	8.26	9.2 max.	P
(neutral)	8.26		P
N (line) (sleeve)	4.00	3.90 – 4.05	P
(neutral) (sleeve)	4.00		P
O (line)	17.71	17.20 – 18.20	P
(neutral)	17.71		P
P (line)	1.61	1.35 – 1.85	P
(neutral)	1.61		P

## ATTACHMENT 2

## Plug test data



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Clause	Requirement – Test	Result - Remark	Verdict

<u>Linear Dimensions (mm)</u>	<u>Measurement</u>	<u>Limit</u>	<u>Verdict</u>
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(earth)	1.77		P
Q (line) (metal)	4.02	3.90 – 4.05	P
(neutral) (metal)	4.02		P
(earth) (metal)	ISOD		P
R (line)	1.83	1.2 – 2.0	P
(neutral)	1.83		P
(earth)	1.82		P
S (line/ neutral)	1.61	1.35 – 1.85	P
Ø1	59.2	58° – 62°	P
Ø2 (line/ neutral)	70.6	60° – 80°	P
(earth)	74.7		P
Ø3	59.1	58° – 62°	P

<sup>1)</sup> The outline of the plug is different from shown in figure, but it can insert the gauge fully with a force less than 10 N. So the dimension C is not applicable for the case.

For solid insulated shutter opening device

<u>Linear Dimensions (mm)</u>	<u>Measurement</u>	<u>Limit</u>	<u>Verdict</u>
T	7.98	7.75 – 8.05	P
U	4.02	3.90 – 4.05	P
V (E → L)	0.11	0.15 max.	P
(E → N)	0.10	0.15 max.	P
W (E → Top)	0.10	0.15 max.	P
(E → L&N)	0.11	0.15 max.	P

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

British plug portion test: UK fixed plug			
12	<i>Construction of Plugs</i>		P
12.1	The disposition of the pins shall be shown as figure 4.	The dispositions of the pins were shown as figure 4.	P
12.2	Pin and sleeve dimensions, body outline were checked according to figure 4 of BS 1363: Part 1.	7.50mm was measured from the engagement surface. (It shall not less than 6.35 mm)	P
		The dimensions were found within the specified limits as shown in figure 4. (please refer to attached appendix 1 for details)	P
	The plug portion shall enter the gauge fully with a force less than 10N was applied to the centre of the sample at right angle	Sample could enter into the gauge fully with a force less than 10 N.	P
12.3	No parts of a line or neutral pin shall be less than 9.5mm from the periphery of the plug measured along the engagement surface.	Complied.	P
12.9	Plug pins were constructed of brass or nickel plated brass	Brass. Details refer to material list on page 4.	P
12.9.1	Exposed surface of plug pins were smooth and free from burrs or sharp edges and other irregularities, which could cause damage or excessive wear to sockets or shutters.	Complied.	P
12.9.4	The adaptor plug pins were tested as specified in the standard.	After test at 1100 N, the pin portions could fit the relevant gauge.	P
12.9.5	Plugs with nickel plated brass shall not cause excessive wear to socket contacts or shutters of socket-outlets.	See below	P
	Each plug is inserted into and withdrawn from the socket-outlet at a rate of six insertions and six withdrawals per minute, the speed of travel of the plug being approximately 150 mm/s. The periods during which the plug is inserted and withdrawn shall be approximately equal. The plug pins are renewed or a new plug is used after each 5 000 insertions and withdrawals.	The socket-outlet show no sign of damage that would impair further use.  The plugs show no damage and conform to the dimensional requirements of 12.2.  The shutters of the socket-outlet operate satisfactorily and the socket contacts shall be safely shielded.	P
12.9.6	Each pin of the adapter was subjected to a torque of 1Nm for 60s as specified in the standard.	After the test, the pin portion could fit the relevant gauge.	P
12.11	The adaptors were tested as specified in standard. After being placed in an oven at 70°C for 1 hour, each pin of the samples was subjected for 60s to a pull of	After the test, no plug pin was detached and the plug pins could fit the relevant gauge.	P

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict
	100N in the oven.		
12.12	The degree of the flexibility of mounting of the plug pins was checked by inspection	Complied.	P
12.13	Suitable means shall be provided for withdrawing the plug without subjecting the flexible cord to stress.	Complied.	P
12.16	Line and neutral plug pin shall be fitted with insulating sleeves. The dimensions of the pin and sleeve shall fall within the specific limit.	Both line and neutral pins were fitted with insulating sleeve.	P
12.17.1	Plug pin sleeve shall be compliance with 12.17.2 to 12.17.4	Complied.	P
12.17.2	Electric strength test applied between the metal part of the plug pin and the sleeve. (1250V±30V for 60s)		P
12.17.3	Abrasion test for plug pin sleeve The plug pin sleeves were subjected to 20000 movements of abrasion as specified in the standard.	After the test, the sleeves showed no damage that impaired further use and could satisfy the electric strength test in 12.17.2	P
12.17.4	Resistance to deformation The plug pins with sleeves were placed in a heating cabinet at 200°C and tested according to the standard for 120min. The test shall be carried out at 125°C based on the UK deviation to clause 4.3.6 for Direct plug-in equipment in IEC 60950-1: 2005	After the test carried out at 125 °C for 120 min, only slightly impression observed, the impressions were less than 50 % of the thickness measured before the test.	P
22.2	Parts of insulating material shall be sufficiently resistant to heat and still shaving its location and function.	Complied. See 22.2.1	P
22.2.1	Compliance checked as follows: a) Parts of ceramic material are used; b) external parts of plugs tested according to 22.1.3; c) all other parts of insulating material including ISOD subjected to the ball pressure at a temperature of 75°C ± 5°C	See appended table 22.2.1	P
23	Resistance to abnormal heat, fire and tracking		P
23.1	Plugs shall be proof against abnormal heat, fire and tracking		P
23.1.1	Compliance shall be checked by the test described in 23.2		P
23.2	Glow-wire test The test is performed according to BS EN 60695-2-11:2014 and at the test temperature given in Table 10 c) Parts necessary to retain live parts in position including ISOD were tested at 750°C. d) Parts not necessary to retain live in position were tested at 650°C.	See appended table 23.2	P

BS 1363-1: 2016+A1:2018 (Partial)			
Clause	Requirement – Test	Result - Remark	Verdict

**Additional Requirements (Clause 12.2, 12.9.4.3, 12.9.5, 12.9.6, 22.2 and 23) for the ISOD  
According to the standard BS 1363-1**

12.2	Solid insulated shutter opening device should comply all the dimensions specified in Figure 4 with exception of the width of the ISOD should be 4.05 mm maximum and 3.90 mm minimum. and its height which should be 8.05 mm maximum and 7.75 mm minimum	The measured dimensions were found to be within the specified limits. (see attached appendix 1 for details)	P
12.9.4	Solid insulated shutter opening device were tested as specified in the standard.	After subjected to a force of 400N, the pin portion still could fit the relevant gauge.	P
12.9.5	Plugs with ISOD shall not cause excessive wear to socket contacts or shutters of socket-outlets.	See below	P
	Each plug is inserted into and withdrawn from the socket-outlet at a rate of six insertions and six withdrawals per minute, the speed of travel of the plug being approximately 150 mm/s. The periods during which the plug is inserted and withdrawn shall be approximately equal. The plug pins are renewed or a new plug is used after each 5 000 insertions and withdrawals.	The socket-outlet show no sign of damage that would impair further use. The plugs show no damage and conform to the dimensional requirements of 12.2. The shutters of the socket-outlet operate satisfactorily and the socket contacts shall be safely shielded.	P
12.9.6	ISOD of the adapter was subjected to a torque of 1Nm for 60s as specified in the standard.	After the test, the pin portion could fit the relevant gauge.	P

22.2.1	<b>TABLE: Ball-pressure test</b>						
Specimen				Ball-pressure test			
Part	Material	Material-thickness [mm]	Colour	[C°]	Measured [mm]	Required [mm]	Result
ISODs pin material/L/N pin sleeving material	SABIC Japan L L C/925U(GG)	2.5	BK	125	1.1	< 2.0	Pass
ISODs pin material/L/N pin sleeving material	SABIC Japan L L C/945 (GG)	2.5	BK	125	1.0	< 2.0	Pass
ISODs pin material/L/N pin sleeving material	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD/LUPOY EF-1006FH	2.5	BK	125	1.1	< 2.0	Pass
ISODs pin material/L/N	Nan Ya plastic Corp. (6410G5)	2.5	BK	125	1.3	< 2.0	Pass

## ATTACHMENT 2

## Plug test data



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Clause	Requirement – Test				Result - Remark		Verdict

pin sleeving material							
ISODs pin material/L/N pin sleeving material	Sabic Innovative Plastics Us L L C (940A)	2.5	BK	125	1.2	< 2.0	Pass

Supplementary information:

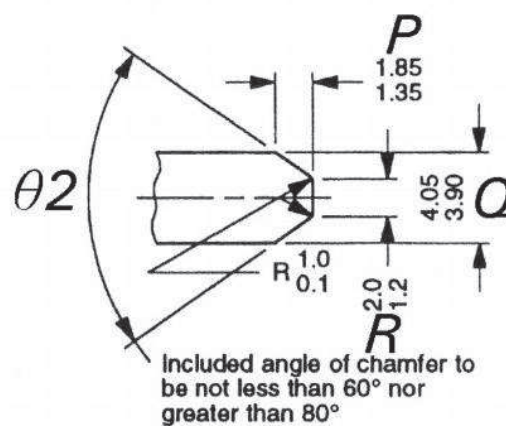
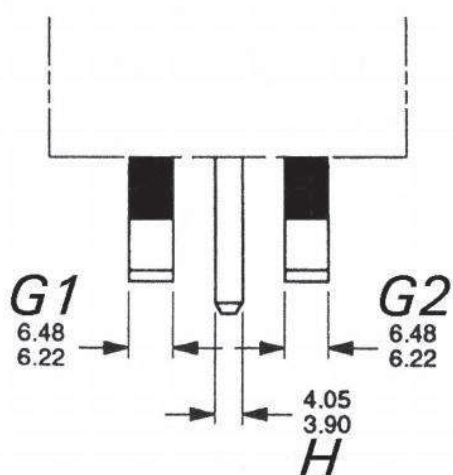
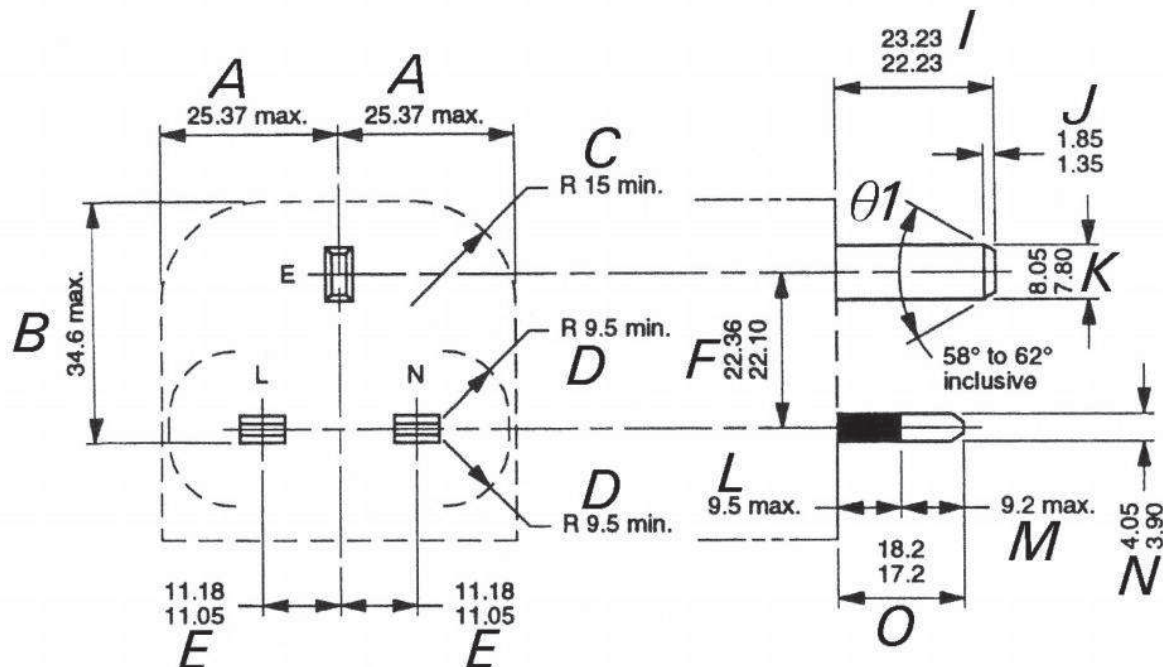
23.2	<b>TABLE: Glow-wire-test [60 s]</b>								
Specimen				Flame					
Part	Material	Material-thickness [mm]	Colour	[°C]	Start [s]	End [s]	Height [mm]	Ignition of tissue paper	Result
ISODs pin material/L/N pin sleeving material/Enclosure	SABIC Japan L L C/925U(GG)	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material/Enclosure	SABIC Japan L L C/945 (GG)	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material/Enclosure	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD/LUPOY EF-1006FH	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material/Enclosure	Nan Ya plastic Corp. (6410G5)	1.5	BK	750	0	0	0	No	Pass
ISODs pin material/L/N pin sleeving material	Sabic Innovative Plastics Us L L C (940A)	1.5	BK	750	0	0	0	No	Pass

Supplementary information:



Clause	Requirement – Test	Result - Remark	Verdict
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## UK plug portion for switching power adapter

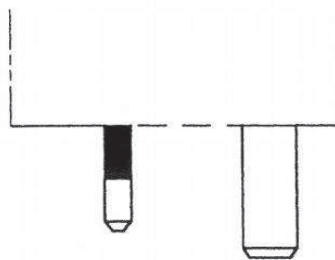
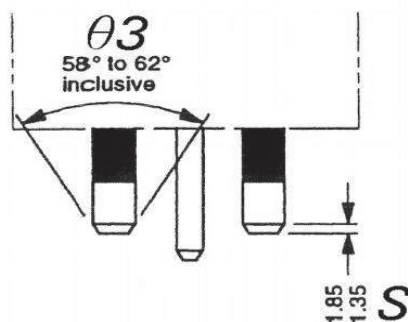


Pin end chamfer detail

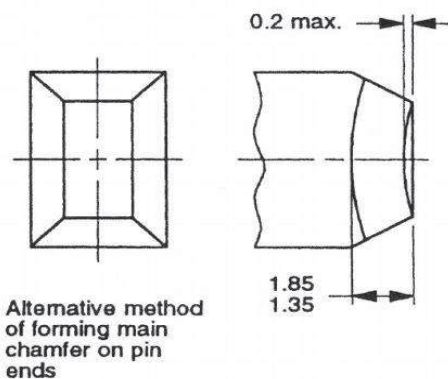
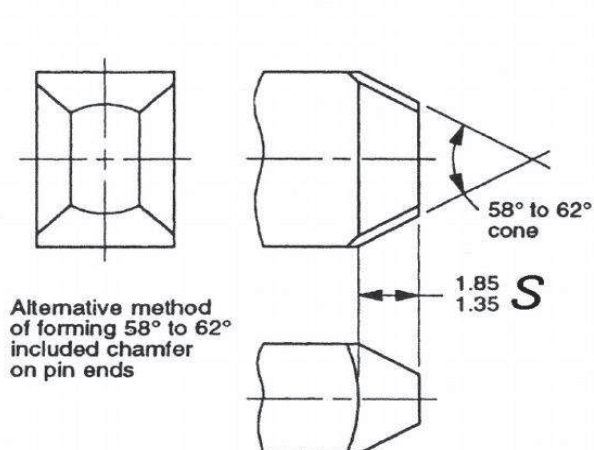
All dimensions are in millimetres.



Clause	Requirement – Test	Result - Remark	Verdict
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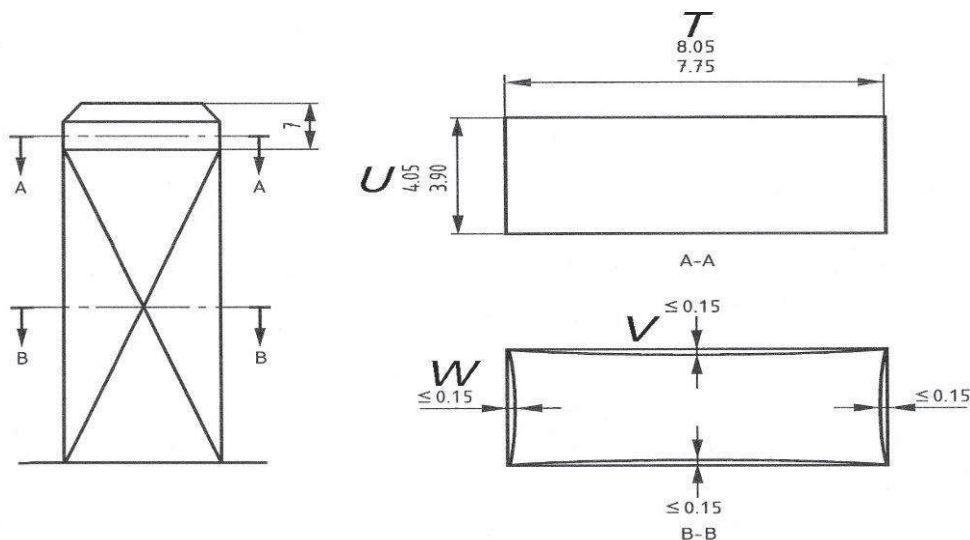
Permitted additional chamfers on L and N pins  
(if additional chamfer is used it has to be on both pins)



All dimensions are in millimetres.

NOTE 1. External edges of pins are to be free from burrs or sharp edges and may have a radius not exceeding 1 mm.

NOTE 2. The surfaces of pins are to be flat within the specified tolerances.



Solid insulated shutter opening device (ISOD)

NOTE Section A-A to be measured away from chamfer as shown.

## BS 1363-1: 2016+A1:2018 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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**13A Plug Portion Dimensions**

<u>Linear Dimensions (mm)</u>	<u>Measurement</u>	<u>Limit</u>	<u>Verdict</u>
A	24.55	25.37 max.	P
B	31.00	34.6 max.	P
C	<sup>1)</sup>	15 min.	P
D	9.56	9.5 min.	P
E (from L to E)	11.08	11.05 - 11.18	P
(from N to E)	11.08		P
F	22.20	22.10 - 22.36	P
G1	6.40	6.22 – 6.48	P
G2	6.40	6.22 – 6.48	P
H	4.00	3.90 – 4.05	P
I	23.00	22.23 – 23.23	P
J	1.70	1.35 – 1.85	P
K	7.90	7.80 – 8.05	P
L (line)	9.26	9.5 max.	P
(neutral)	9.26		P
M (line)	8.44	9.2 max.	P
(neutral)	8.44		P
N (line) (sleeve)	4.00	3.90 – 4.05	P
(neutral) (sleeve)	4.00		P
O (line)	17.60	17.20 – 18.20	P
(neutral)	17.60		P
P (line)	1.70	1.35 – 1.85	P
(neutral)	1.70		P
(earth)	1.40		P
Q (line) (metal)	4.00	3.90 – 4.05	P

## BS 1363-1: 2016+A1:2018 (Partial)

Clause	Requirement – Test	Result - Remark	Verdict
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<u>Linear Dimensions (mm)</u>	<u>Measurement</u>	<u>Limit</u>	<u>Verdict</u>
(neutral) (metal)	4.00	1.2 – 2.0	P
(earth) (metal)	ISOD		P
R (line)	1.85		P
(neutral)	1.86	1.35 – 1.85	P
(earth)	1.82		P
S (line/ neutral)	1.70		P
Ø1	59	58° – 62°	P
Ø2 (line/ neutral)	75.6	60° – 80°	P
(earth)	76.4		P
Ø3	59	58° – 62°	P
<sup>1)</sup> The outline of the plug is different from shown in figure, but it can insert the gauge fully with a force less than 10 N. So the dimension C is not applicable for the case.			

For solid insulated shutter opening device

<u>Linear Dimensions (mm)</u>	<u>Measurement</u>	<u>Limit</u>	<u>Verdict</u>
T	7.90	7.75 – 8.05	P
U	4.00	3.90 – 4.05	P
V (E → L)	0.11	0.15 max.	P
(E → N)	0.11	0.15 max.	P
W (E → Top)	0.12	0.15 max.	P
(E → L&N)	0.11	0.15 max.	P

**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)



Photo 1 GT-86121-WWVV-W2E (EU plug)

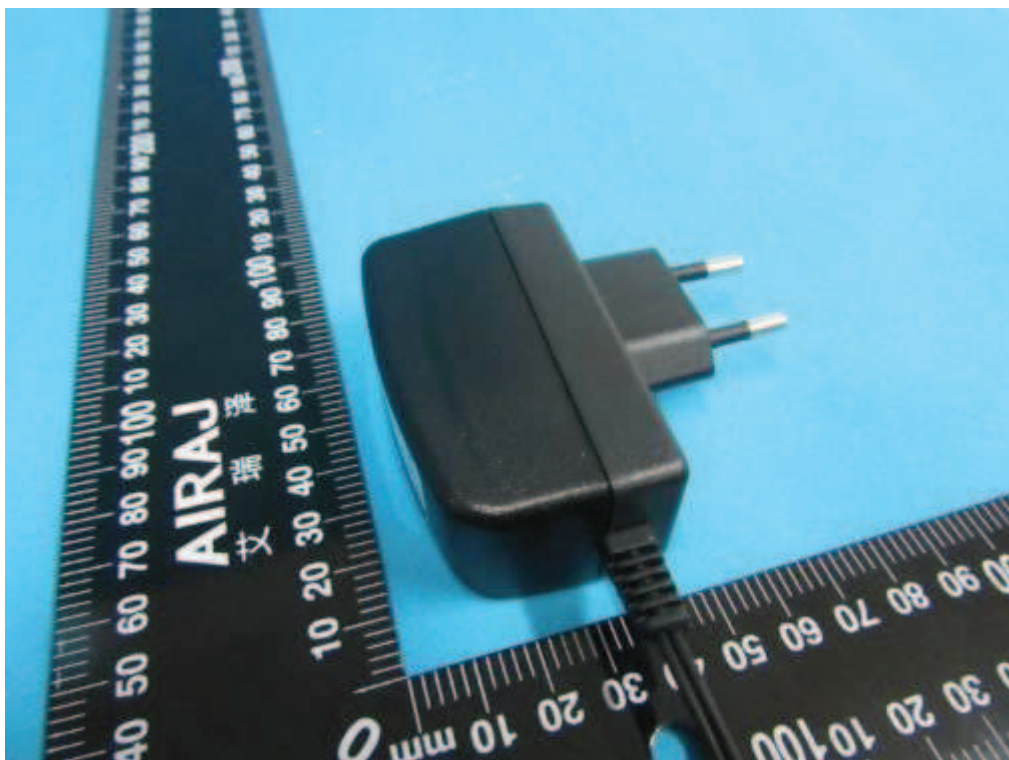


Photo 2 GT-86121-WWVV-W2E (EU plug)



**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)

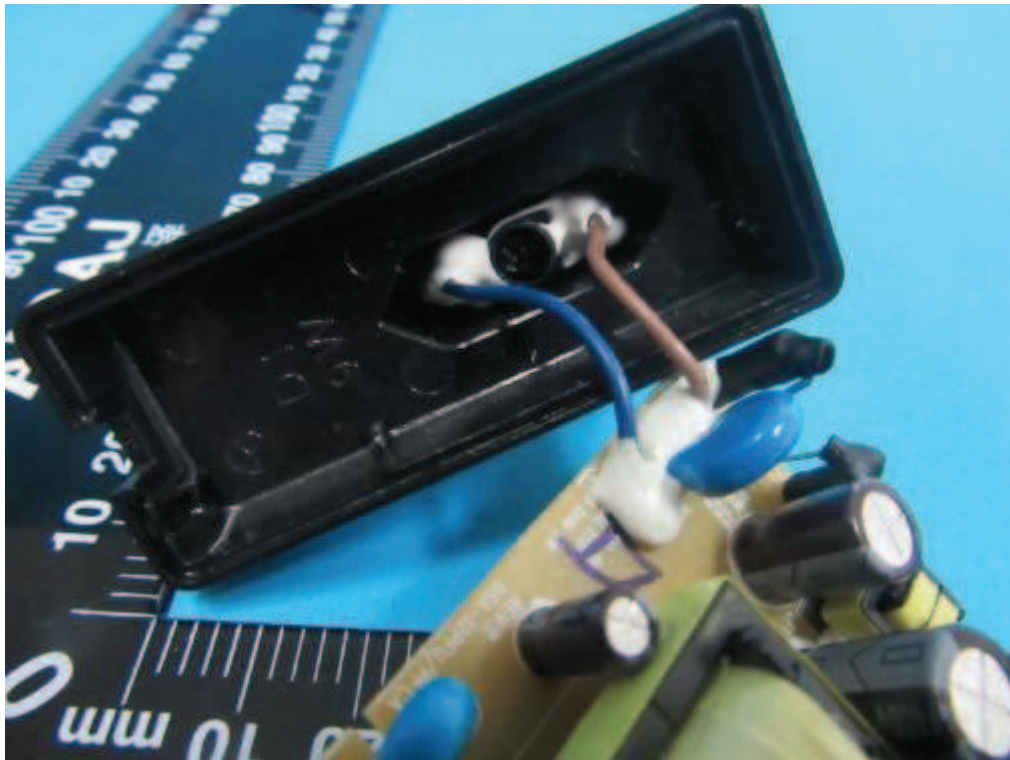


Photo 3 GT-86121-WWVV-W2E (EU plug)

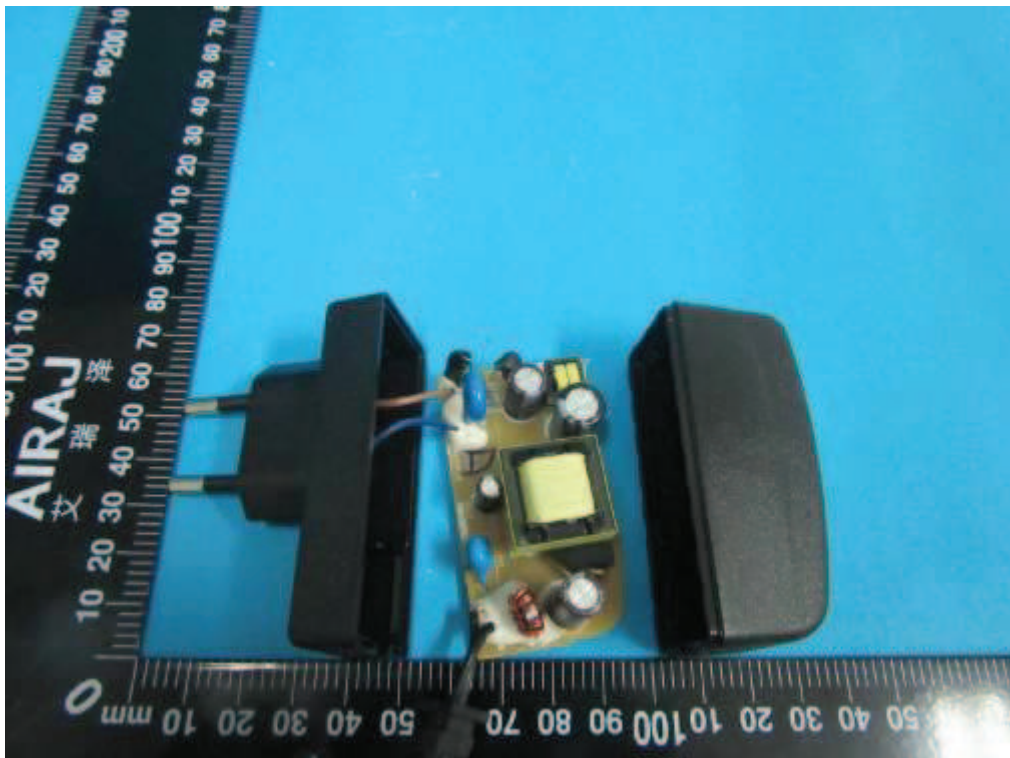


Photo 4 Internal view

**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)

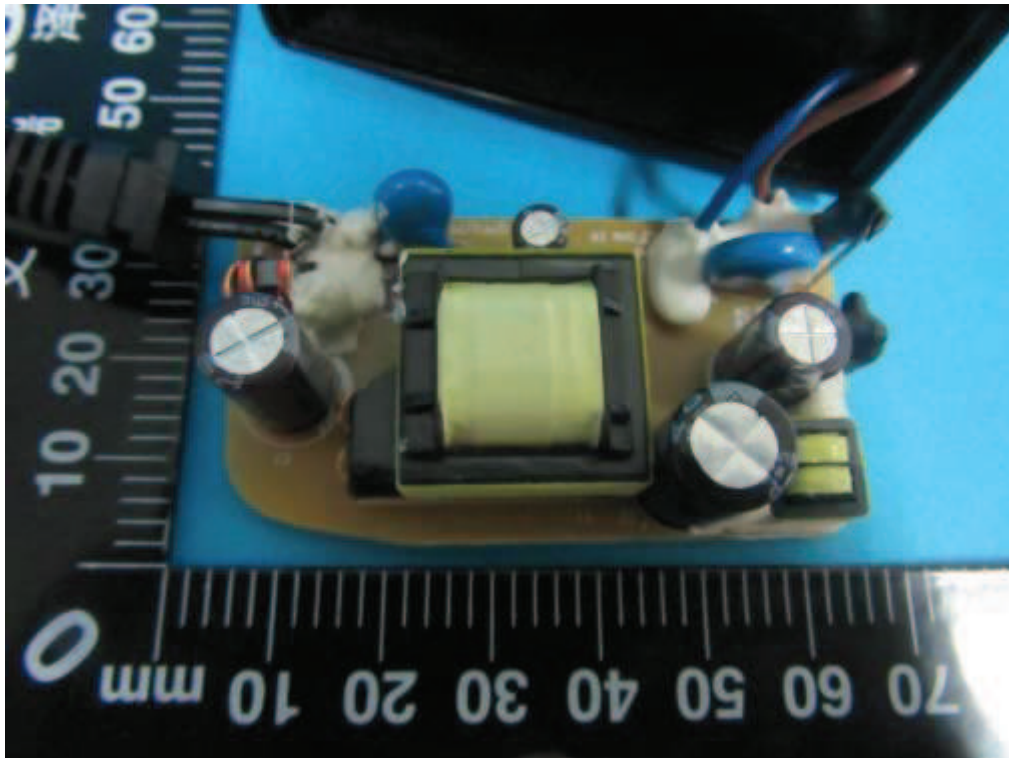


Photo 5 Internal view for common choke

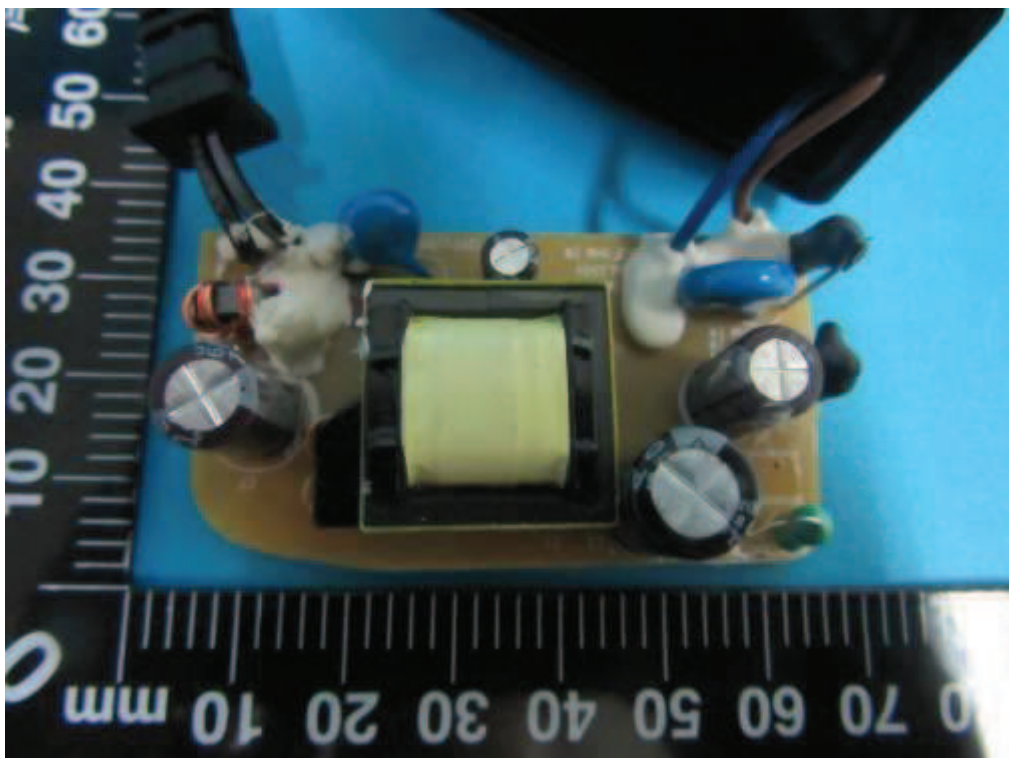


Photo 6 Internal view for Different choke



**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)

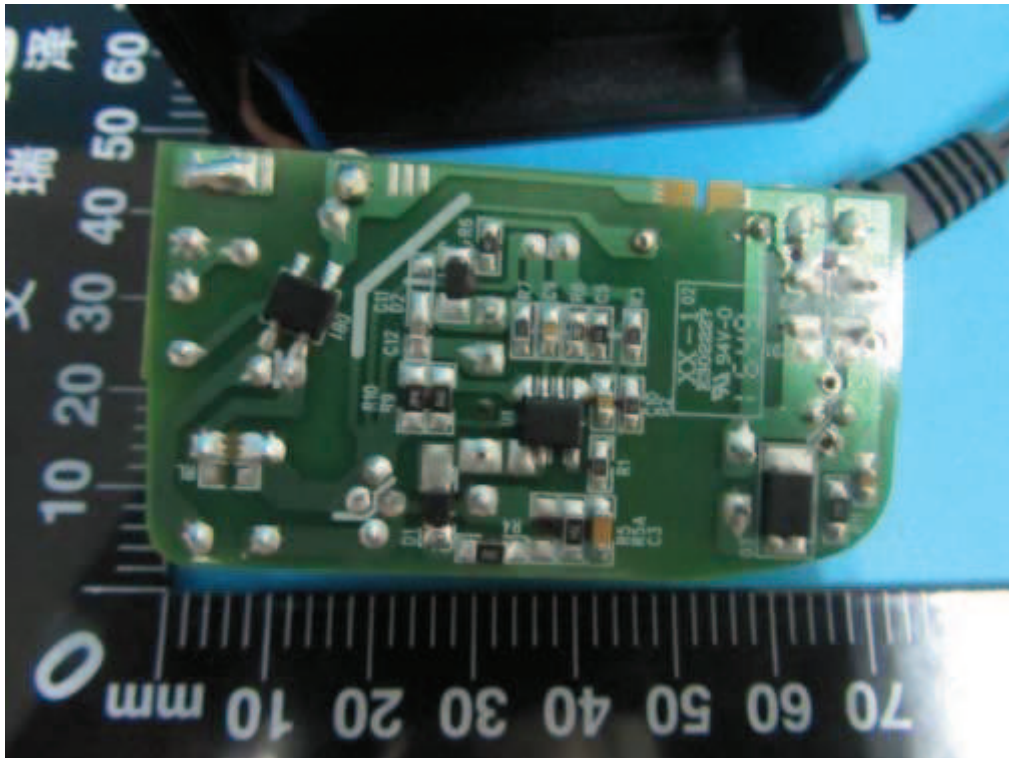


Photo 7 Internal view



Photo 8 GT-86121-WWVV-W2U (UK plug)

**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)

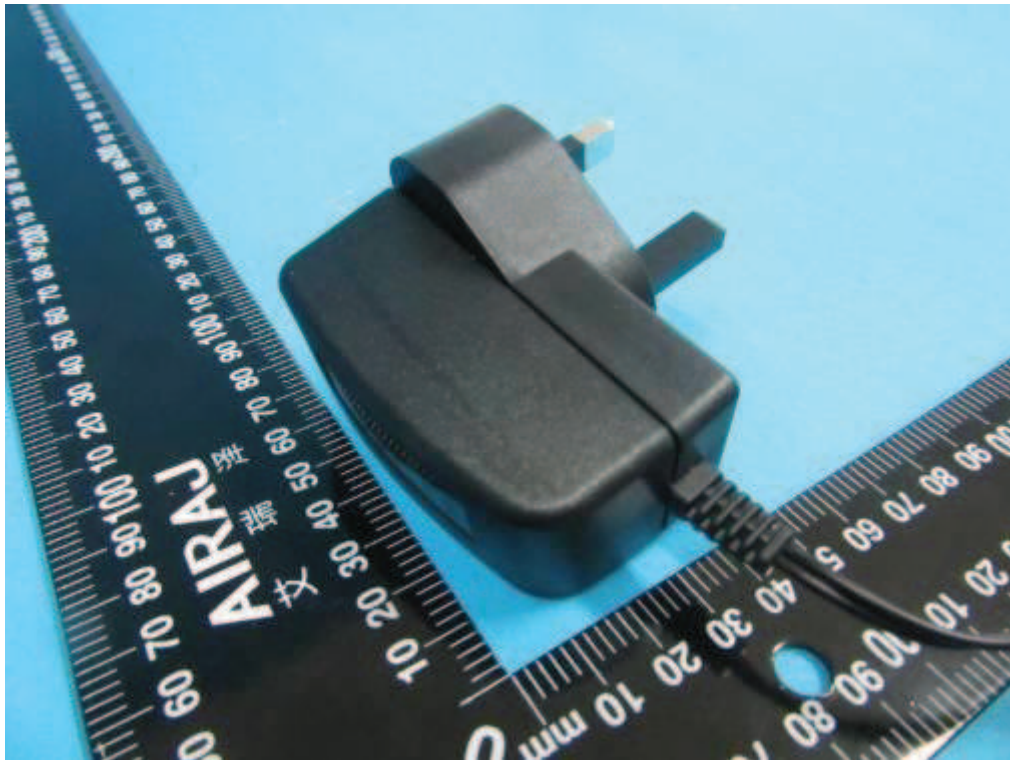


Photo 9 GT-86121-WWVV-W2U (UK plug)



Photo 10 GT-86121-WWVV-W2U (UK plug)



**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)



Photo 11 GT-86121-WWVV-W2A (AU plug)



Photo 12 GT-86121-WWVV-W2A (AU plug)

**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)

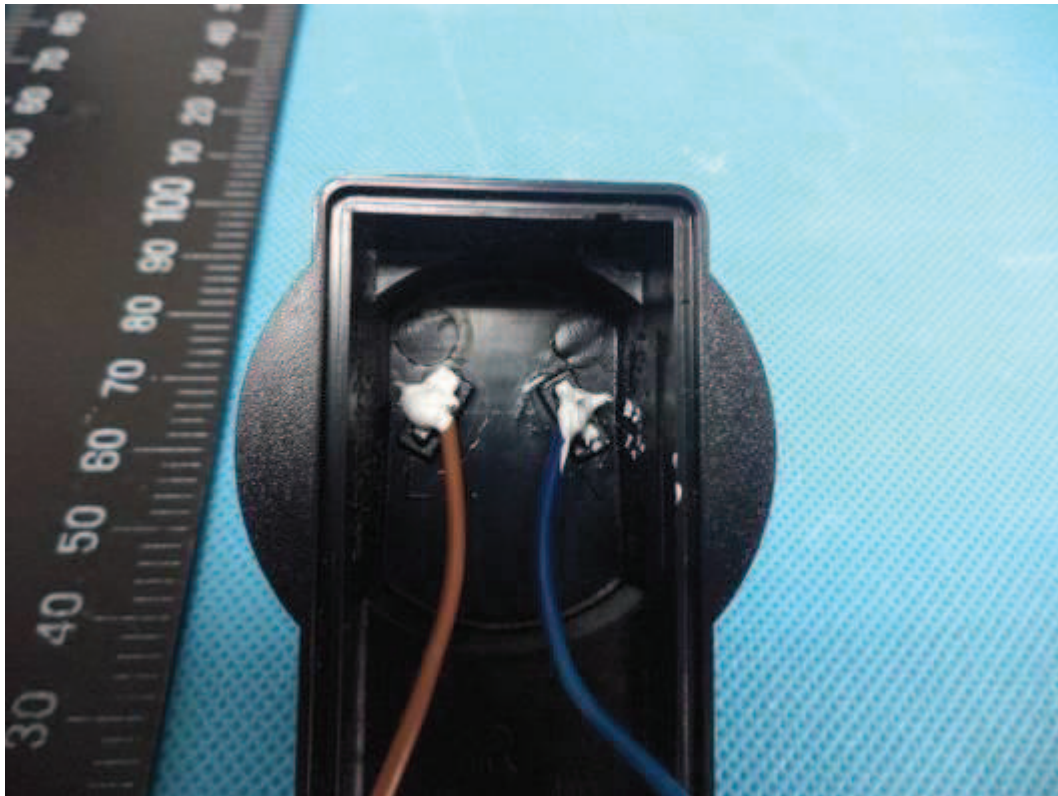


Photo 13 GT-86121-WWVV-W2A (AU plug)



Photo 14 GT-86121-WWVV-W2K (KR plug)



**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)



Photo 15 GT-86121-WWVV-W2K (KR plug)



Photo 16 GT-86121-WWVV-W2 (JP/US/Taiwan plug)

**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)

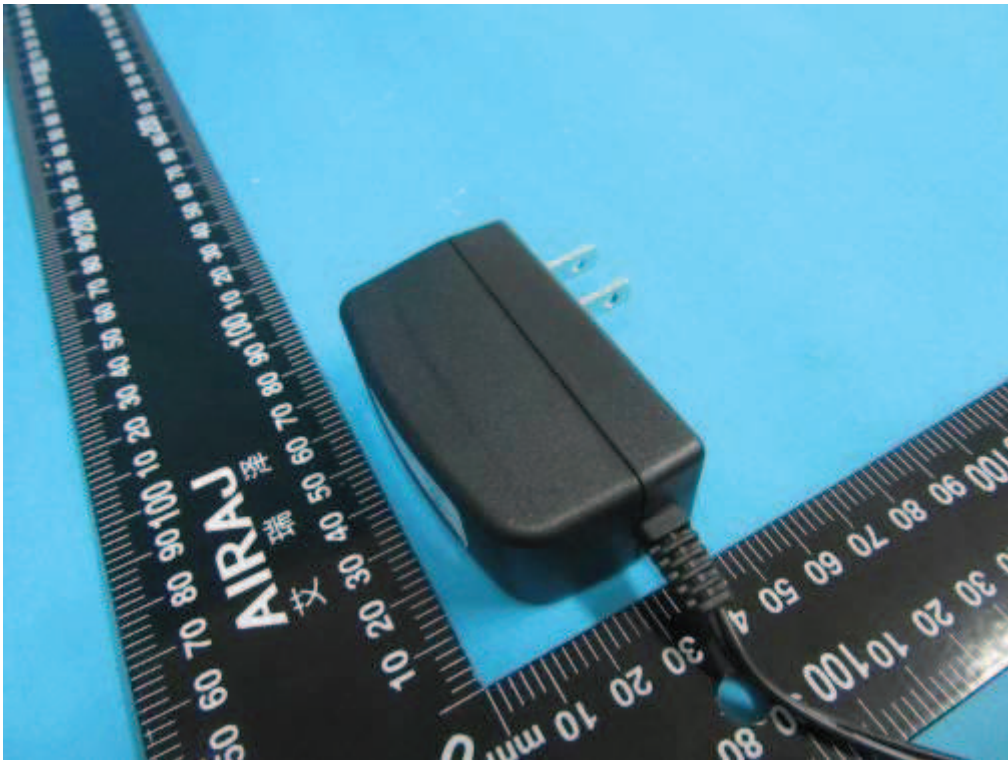


Photo 17 GT-86121-WWVV-W2 (JP/US/Taiwan plug)

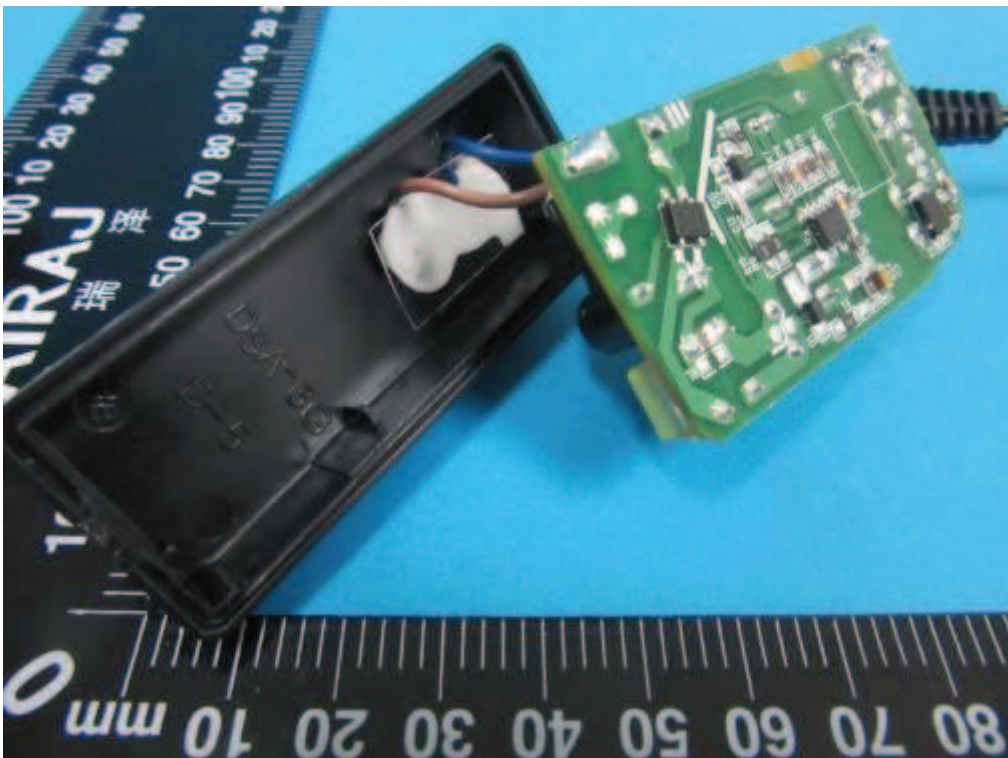


Photo 18 GT-86121-WWVV-W2 (JP/US/Taiwan plug)



**Model:** GT-86121-WWVV-W2Z (WW, VV and Z are variables)



Photo 19 GT-86121-WWVV-W2C (CN plug)

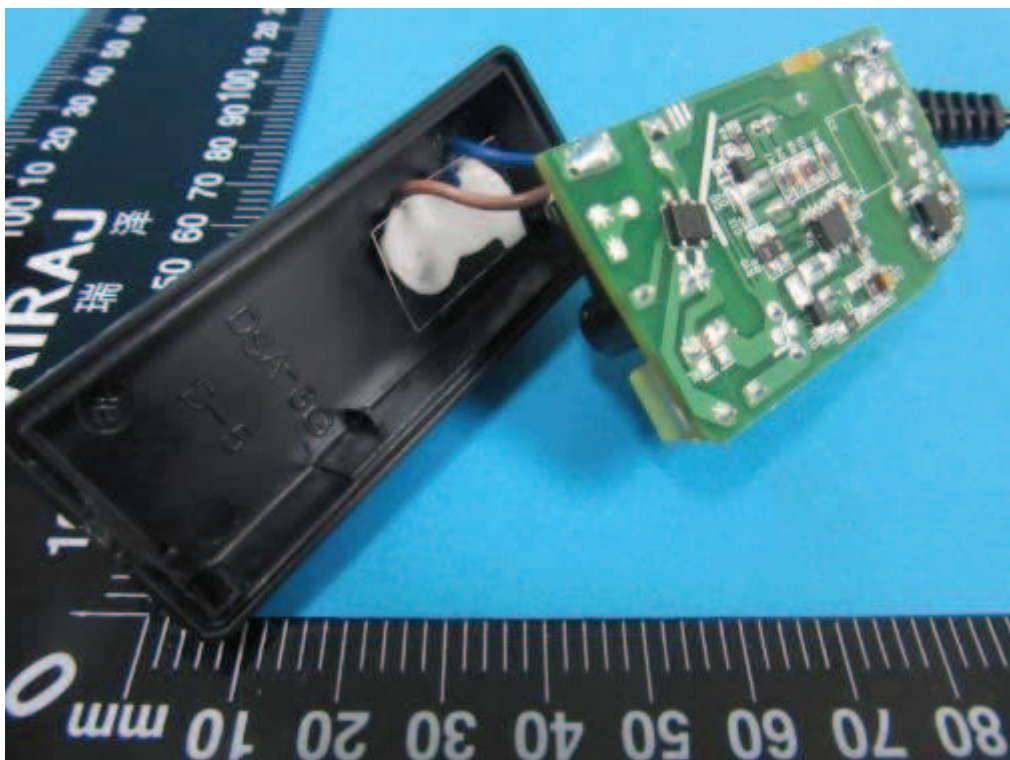


Photo 20 GT-86121-WWVV-W2C (CN plug)

**Report Number:** 50351921 001

**Model:** GT-86121-WWVV (WW and VV are variables)



Photo 21 GT-86121-WWVV (EU plug)



Photo 22 GT-86121-WWVV (EU plug)



**Model:** GT-86121-WWVV (WW and VV are variables)

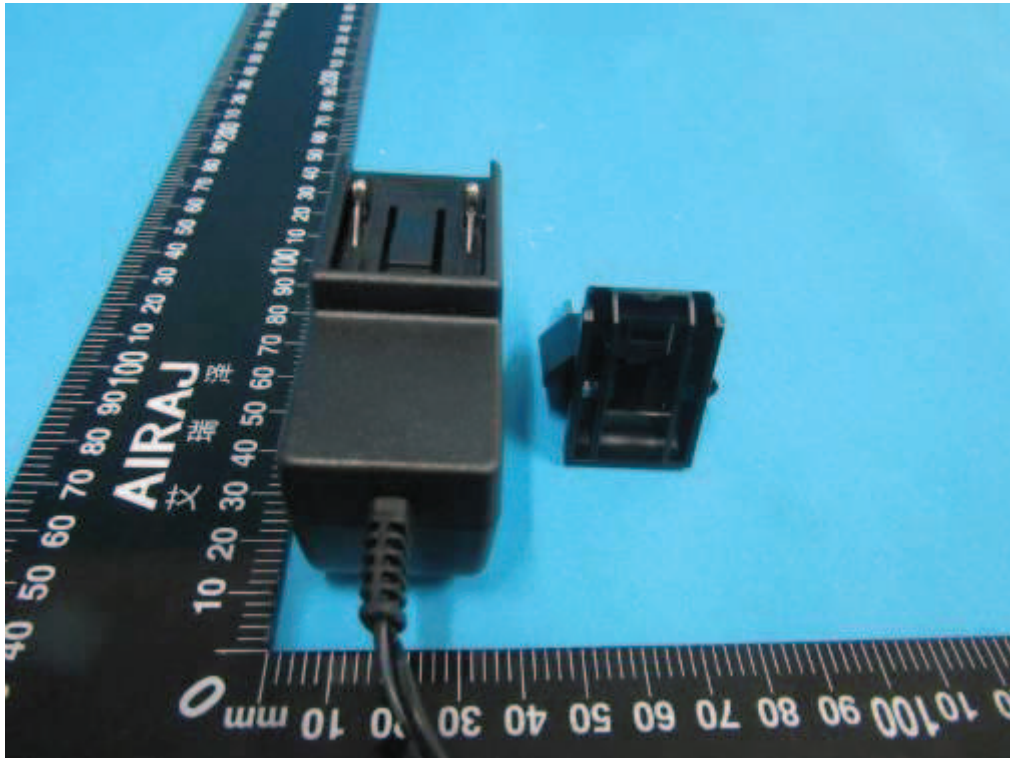


Photo 23 GT-86121-WWVV (EU plug)



Photo 24 GT-86121-WWVV (UK plug)

**Model:** GT-86121-WWVV (WW and VV are variables)

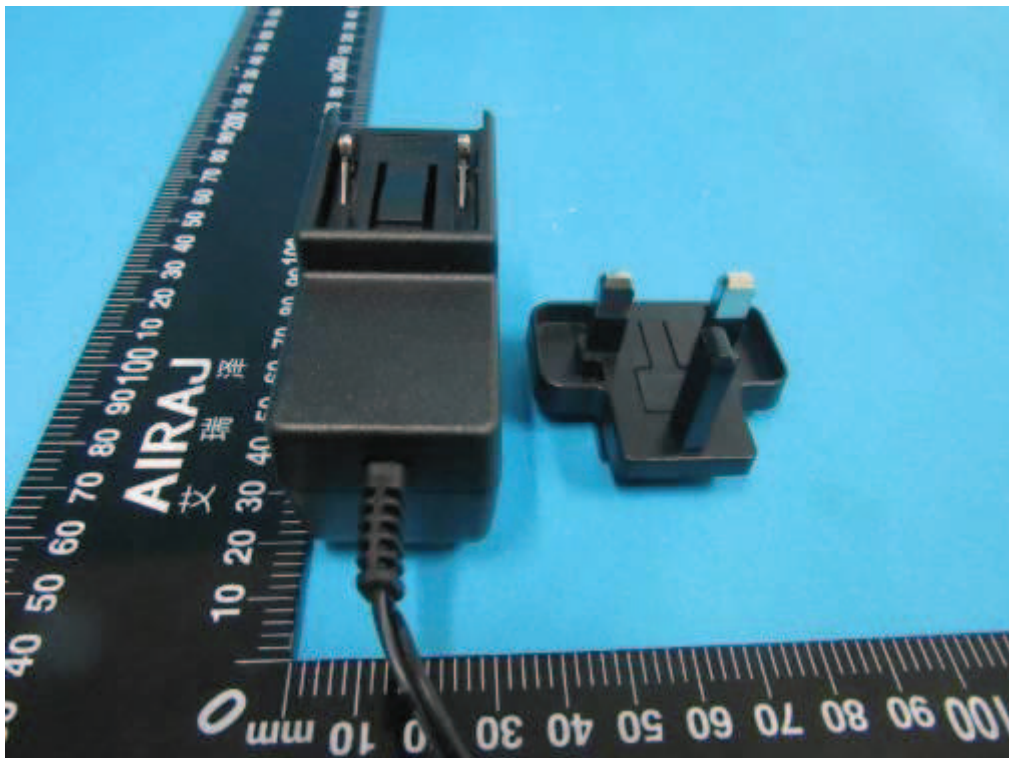


Photo 25 GT-86121-WWVV (UK plug)

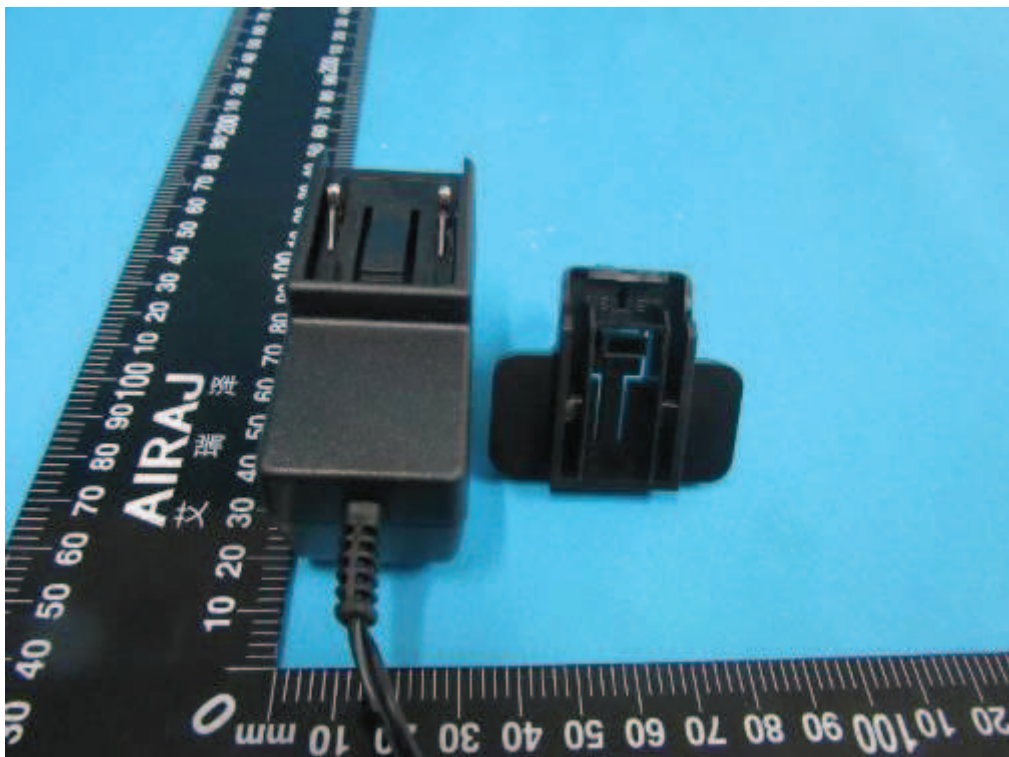


Photo 26 GT-86121-WWVV (UK plug)



**Model:** GT-86121-WWVV (WW and VV are variables)



Photo 27 GT-86121-WWVV for internal view

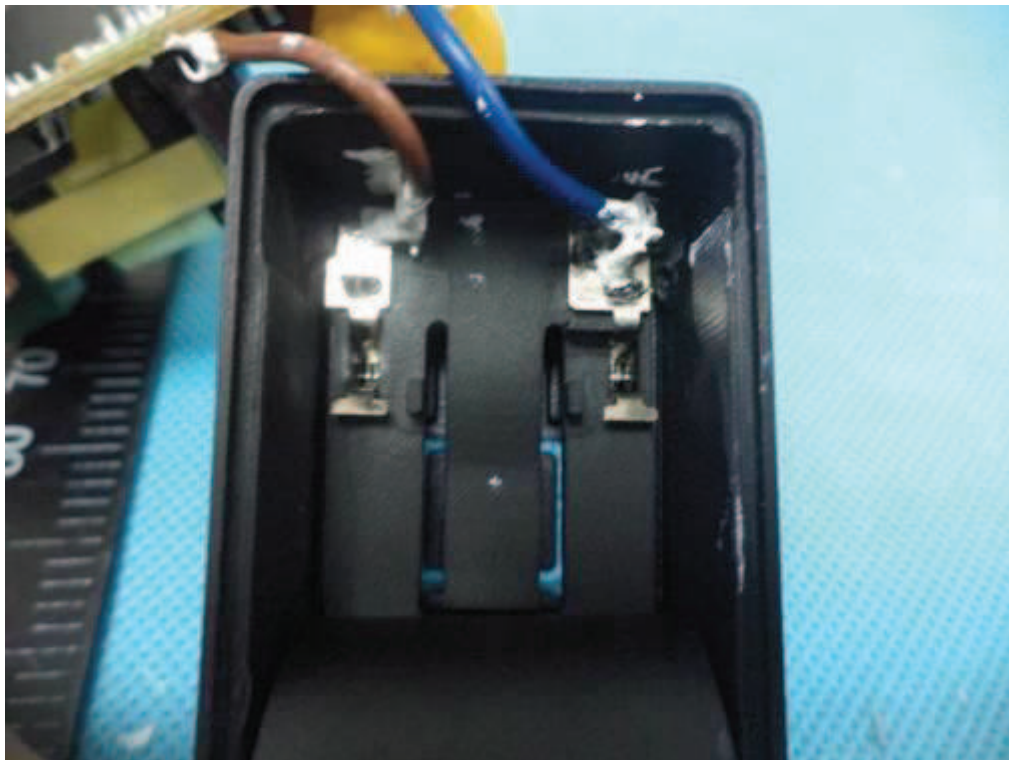


Photo 28 GT-86121-WWVV for internal view

**Report Number:** 50351921 001

**Model:** GT-86121-WWVV (WW and VV are variables)



Photo 29 GT-86121-WWVV (AU plug)



Photo 30 GT-86121-WWVV (AU plug)



**Report Number:** 50351921 001

**Model:** GT-86121-WWVV (WW and VV are variables)



Photo 31 GT-86121-WWVV (AU plug)



Photo 32 GT-86121-WWVV (US/JP/Taiwan plug)

**Model:** GT-86121-WWVV (WW and VV are variables)

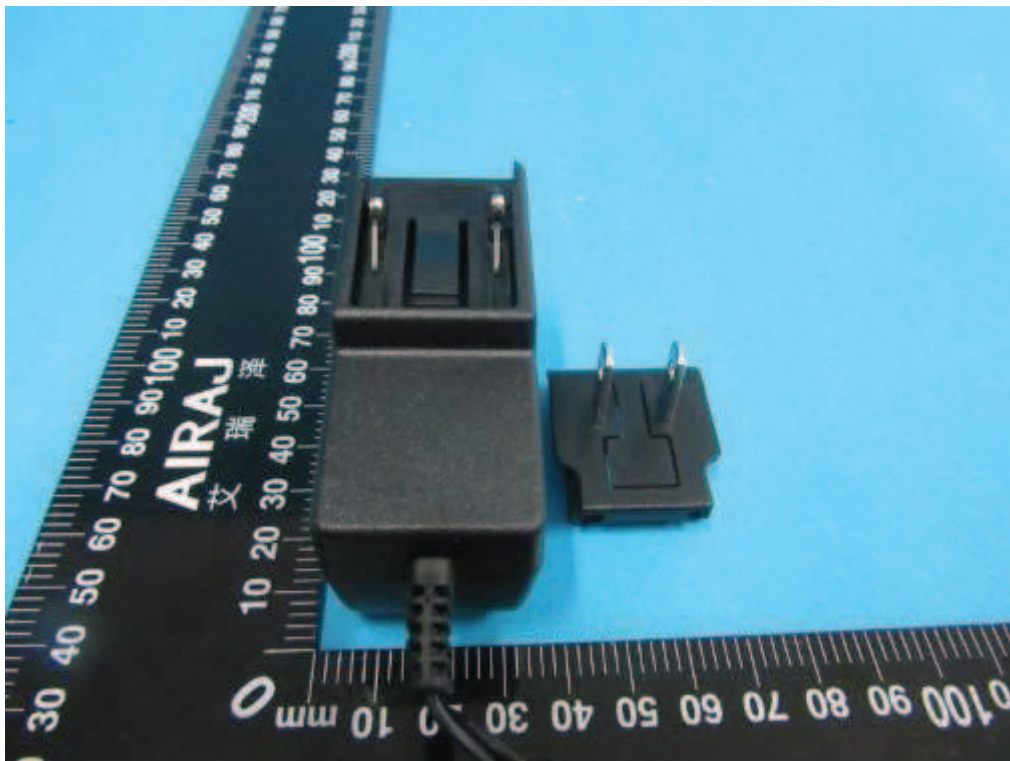


Photo 33 GT-86121-WWVV (US/JP/Taiwan plug)

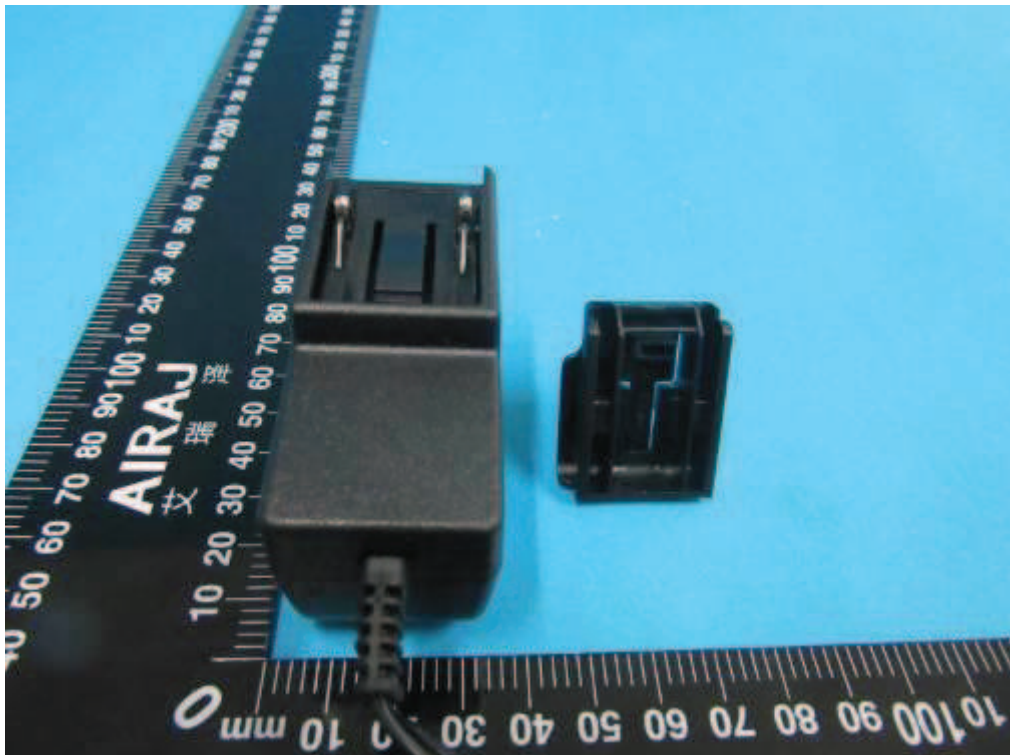


Photo 34 GT-86121-WWVV (US/JP/Taiwan plug)

**Report Number:** 50351921 001

**Model:** GT-86121-WWVV (WW and VV are variables)



Photo 35 GT-86121-WWVV (CN plug)

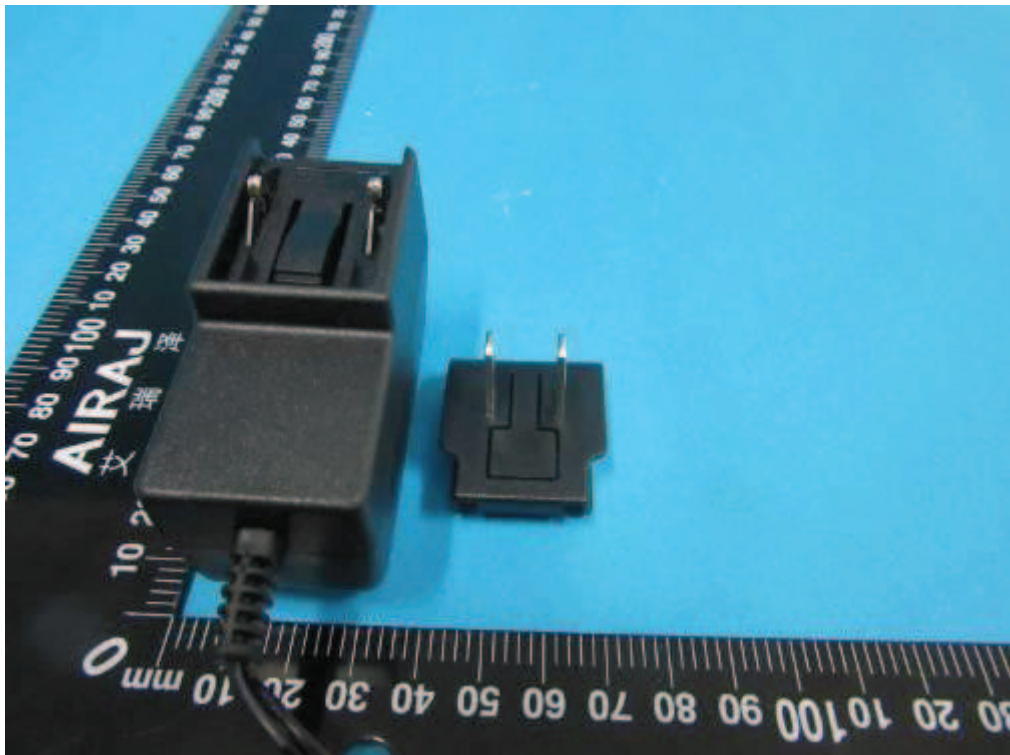


Photo 36 GT-86121-WWVV (CN plug)



**Model:** GT-86121-WWVV (WW and VV are variables)

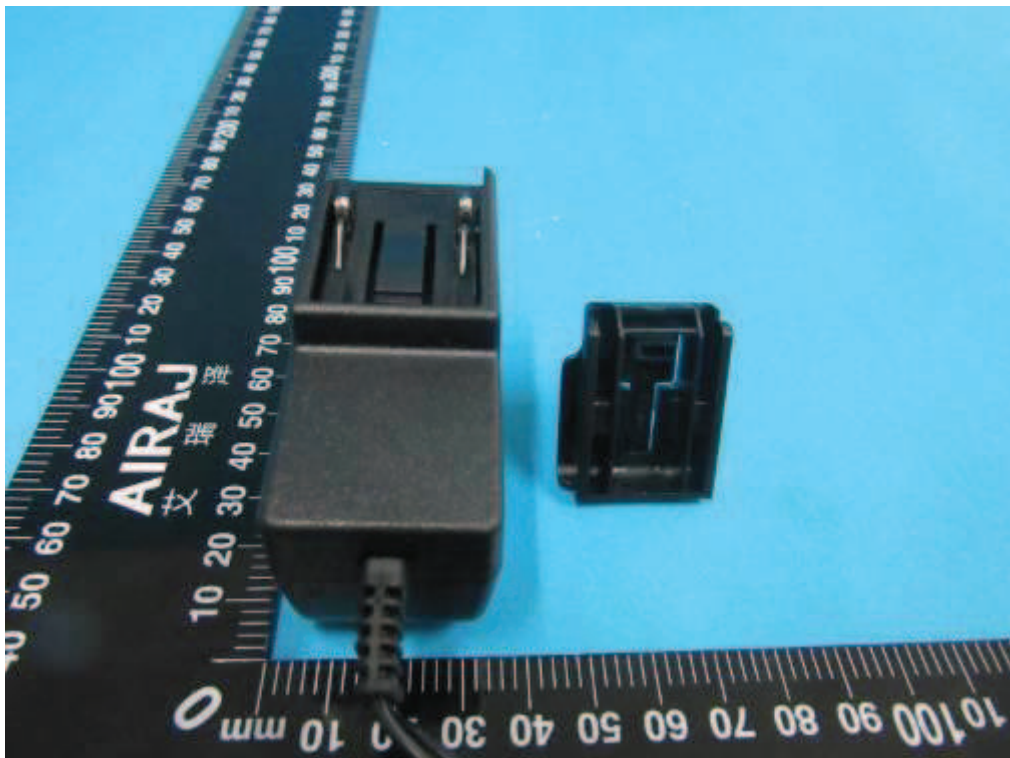


Photo 37 GT-86121-WWVV (CN plug)



Photo 38 GT-86121-WWVV (KR plug)

**Model:** GT-86121-WWVV (WW and VV are variables)

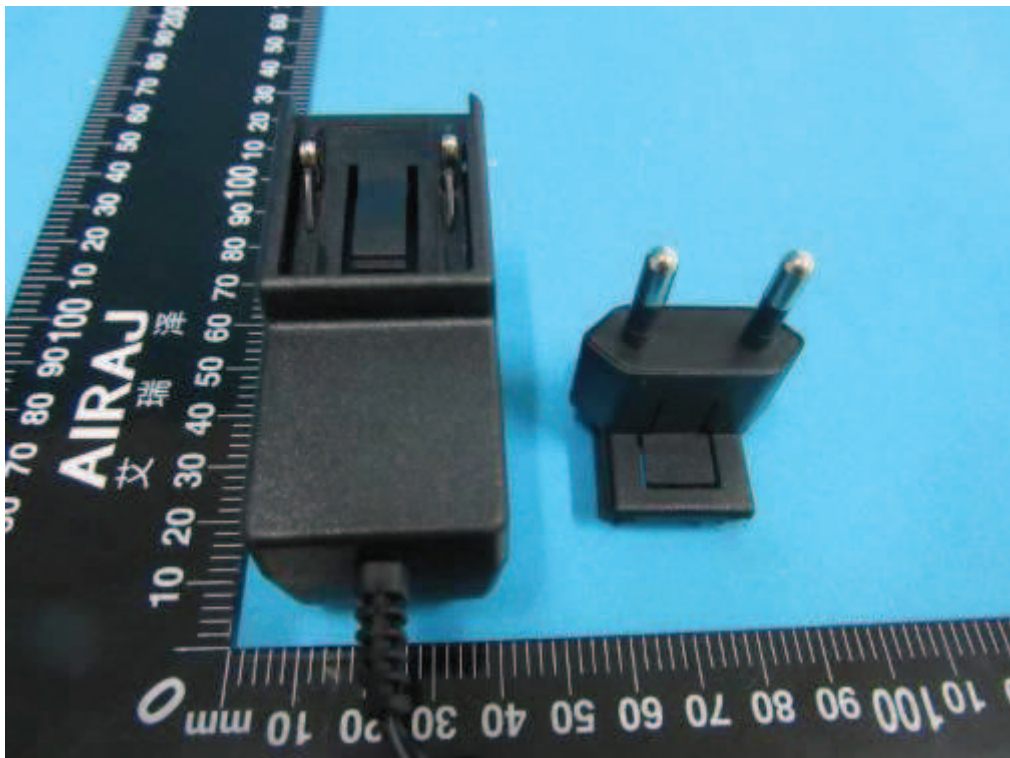


Photo 39 GT-86121-WWVV (KR plug)

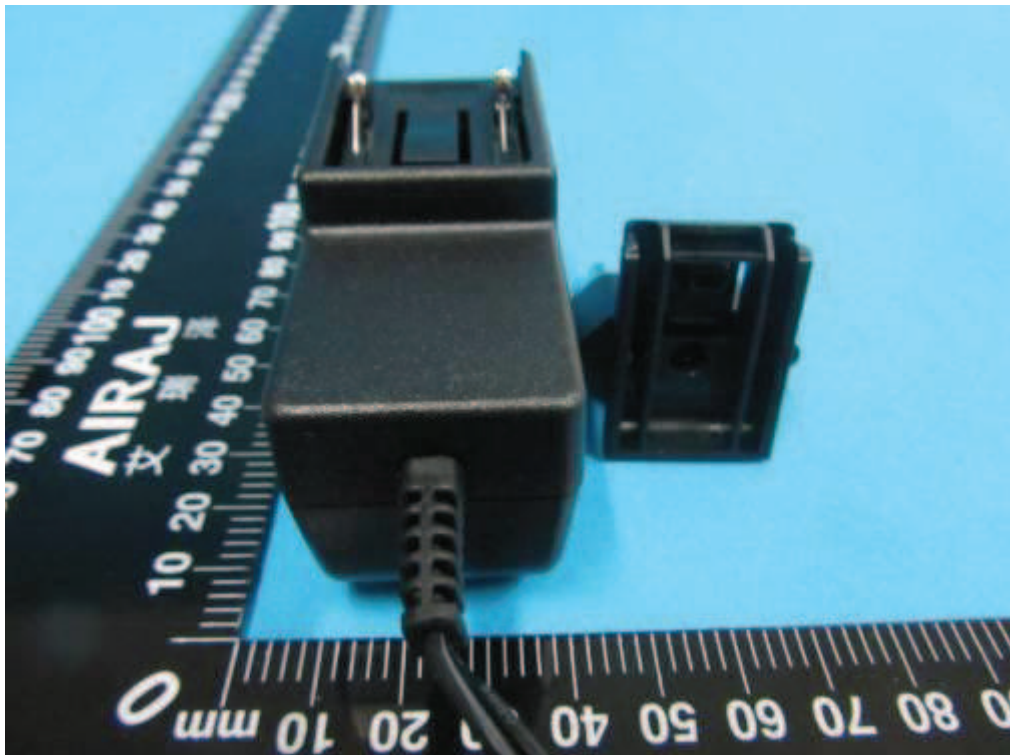


Photo 40 GT-86121-WWVV (KR plug)

**Model:** GT-86121-WWVV (WW and VV are variables)

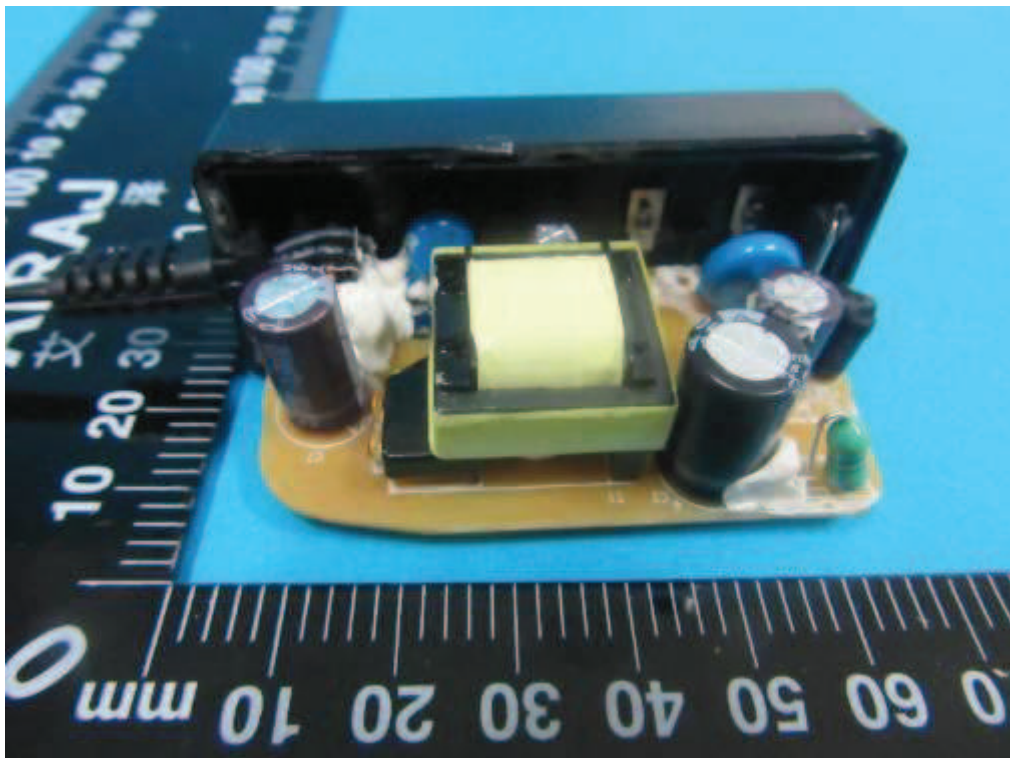


Photo 41 Internal view of shrapnel connection

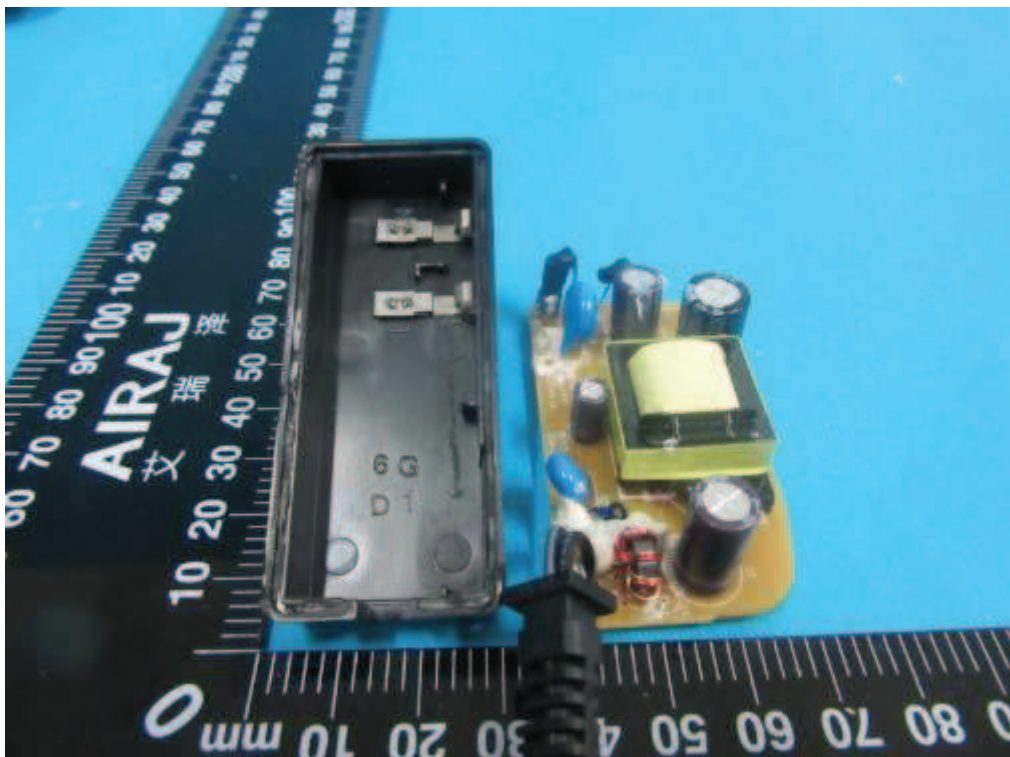


Photo 42 Internal view of shrapnel connection



**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

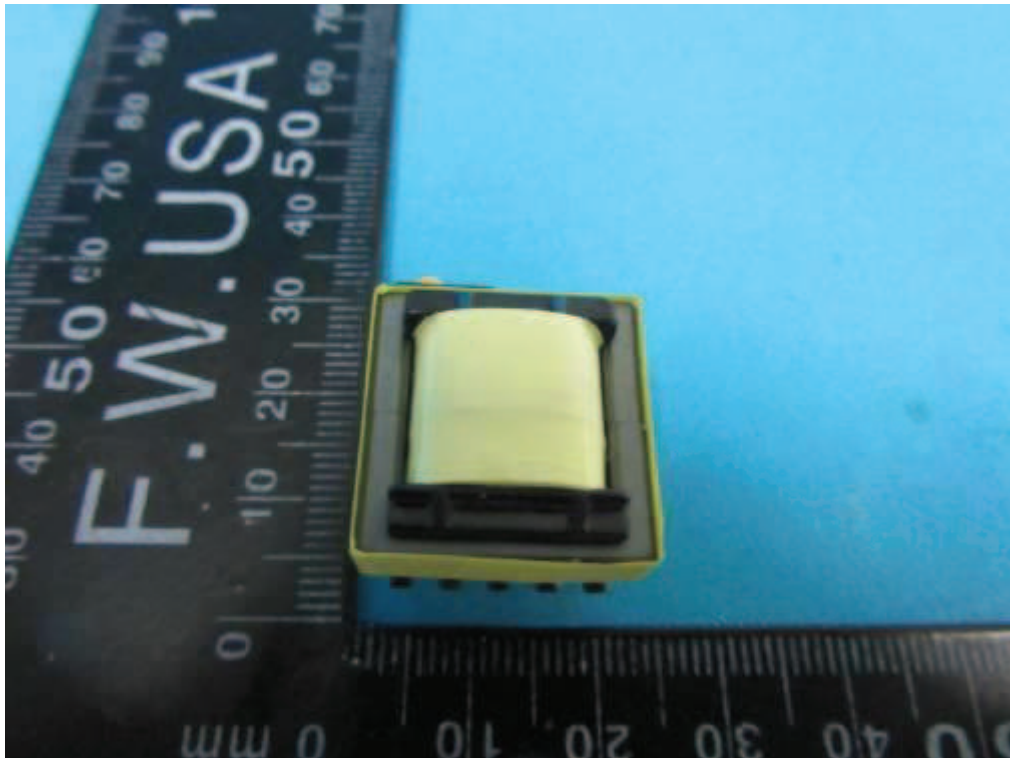


Photo 43 Detail view of transformer

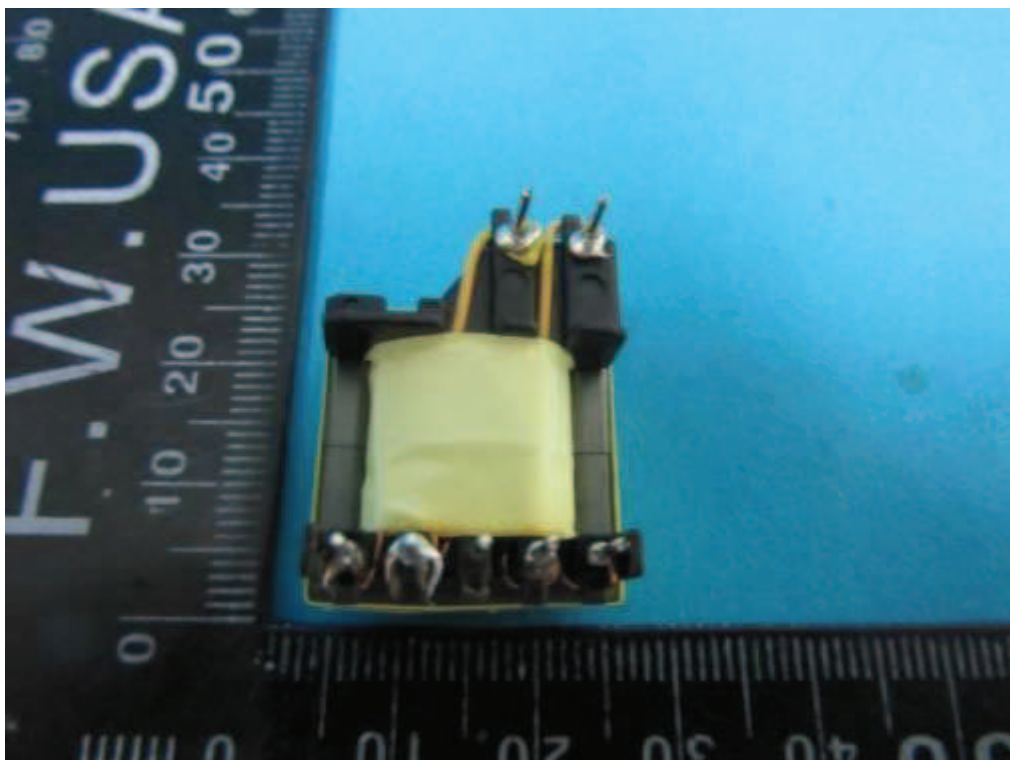


Photo 44 Detail view of transformer

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

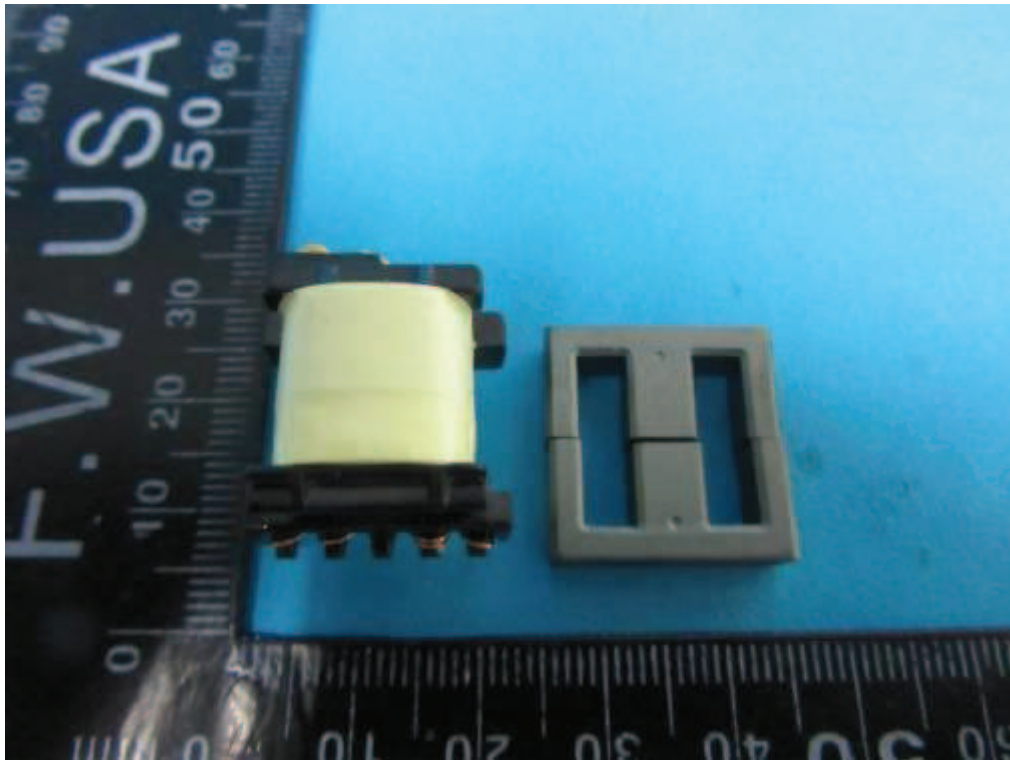


Photo 45 Detail view of transformer

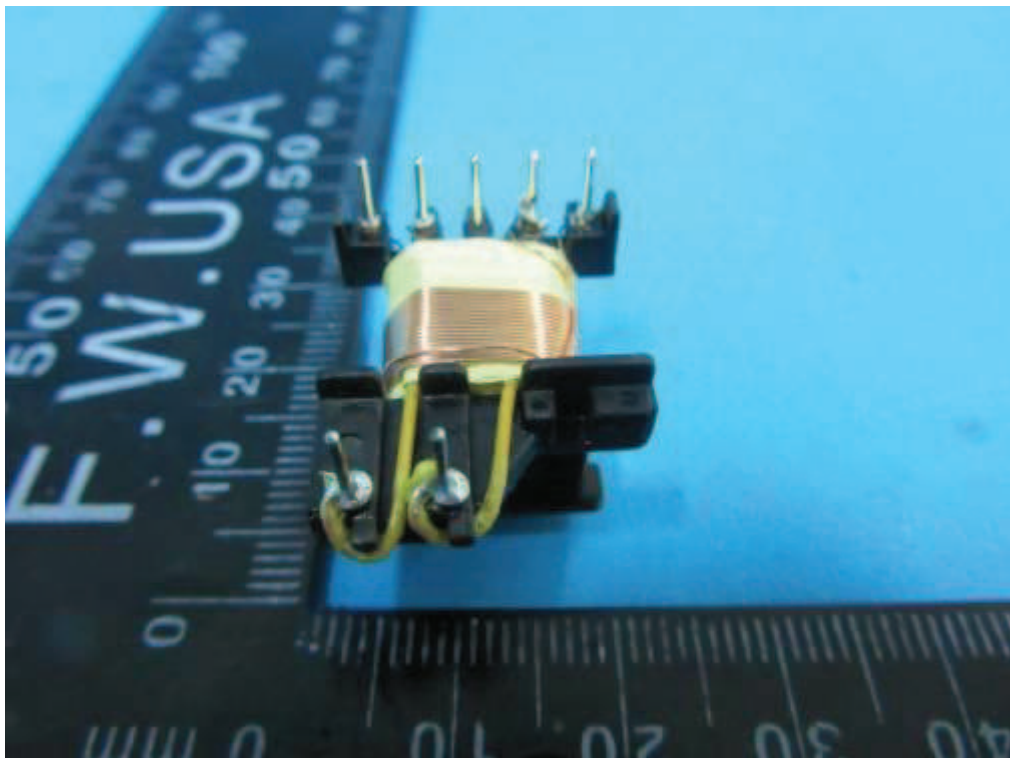


Photo 46 Detail view of transformer

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

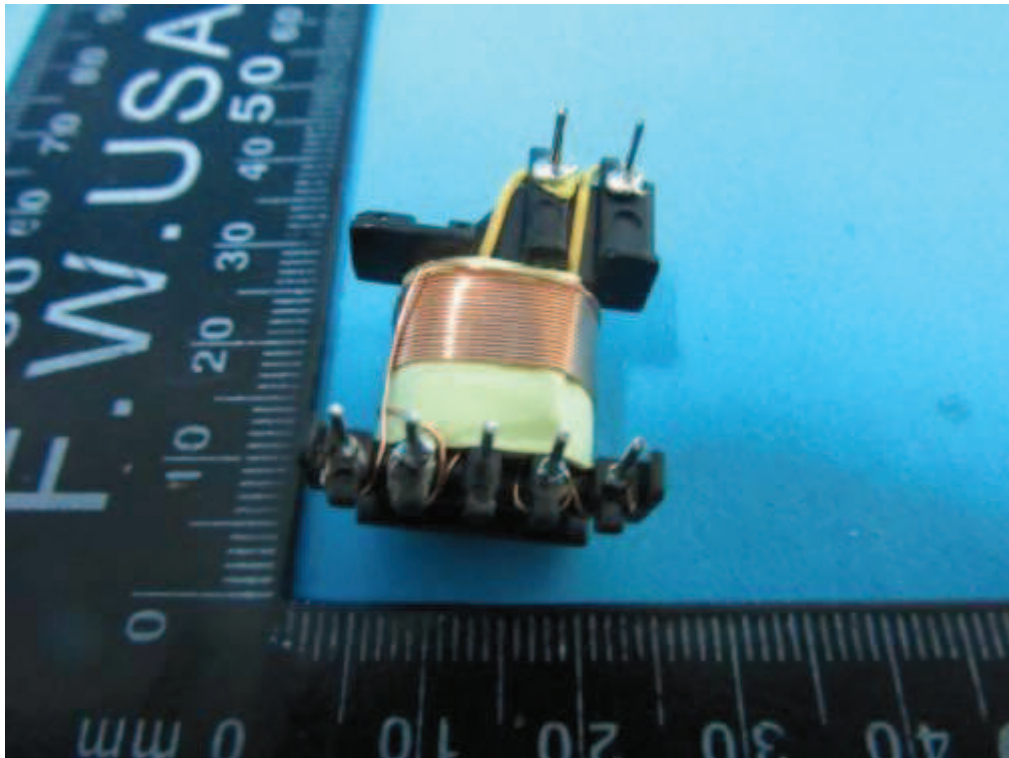


Photo 47 Detail view of transformer

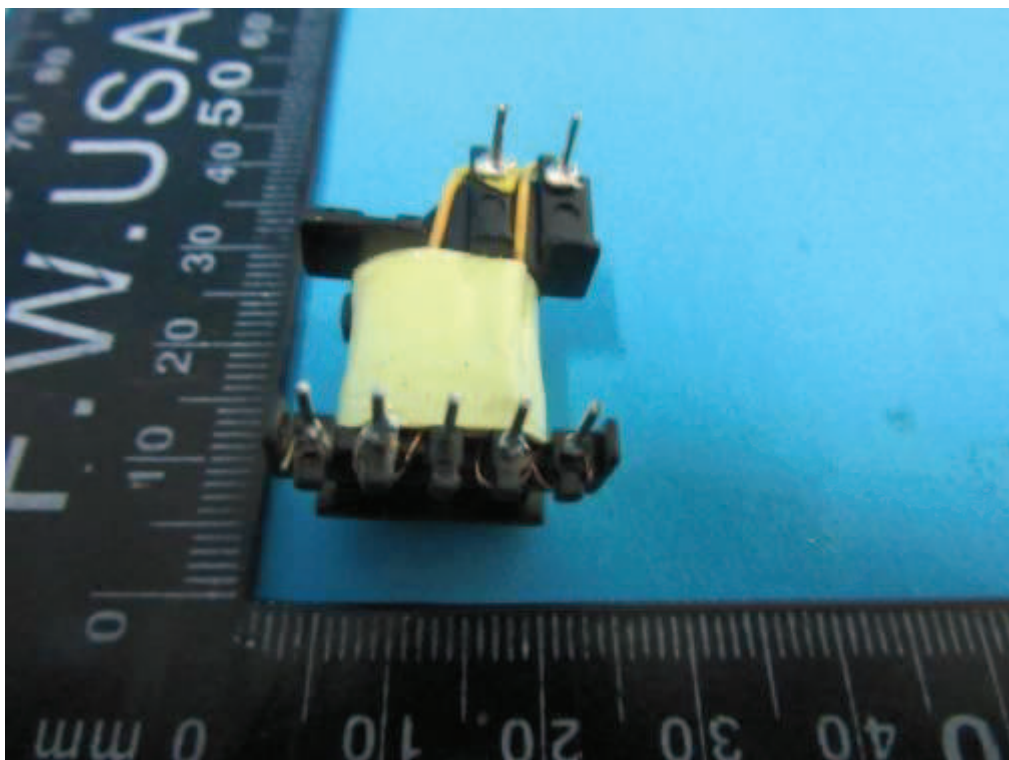


Photo 48 Detail view of transformer



**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

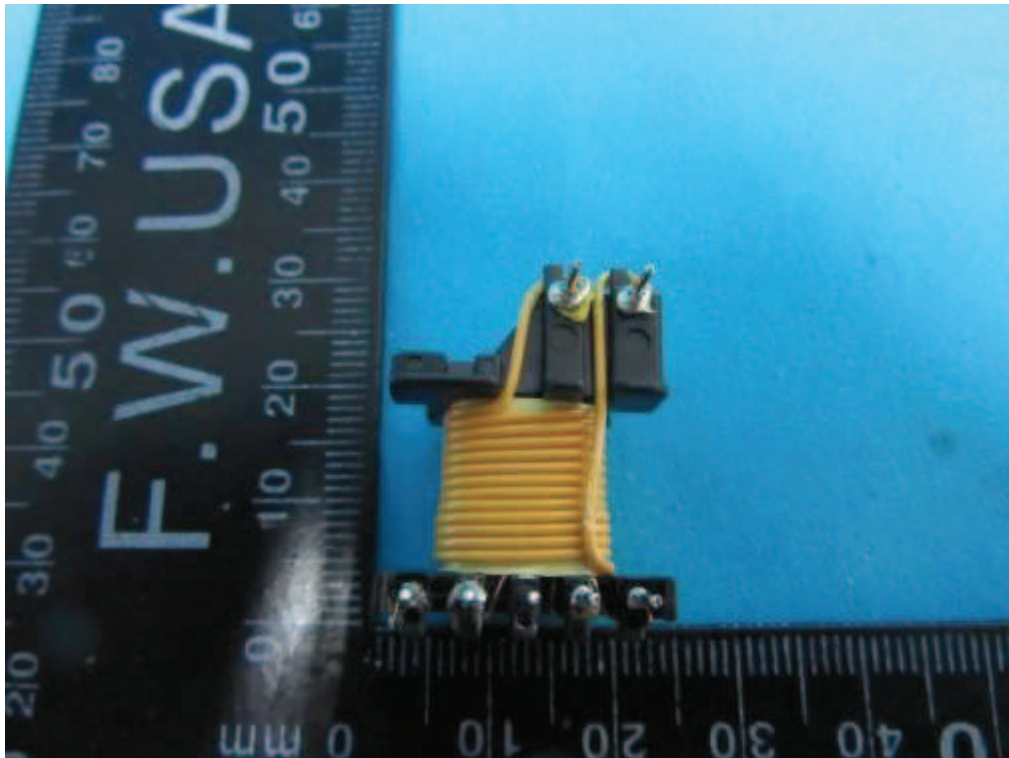


Photo 49 Detail view of transformer



Photo 50 Detail view of transformer

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

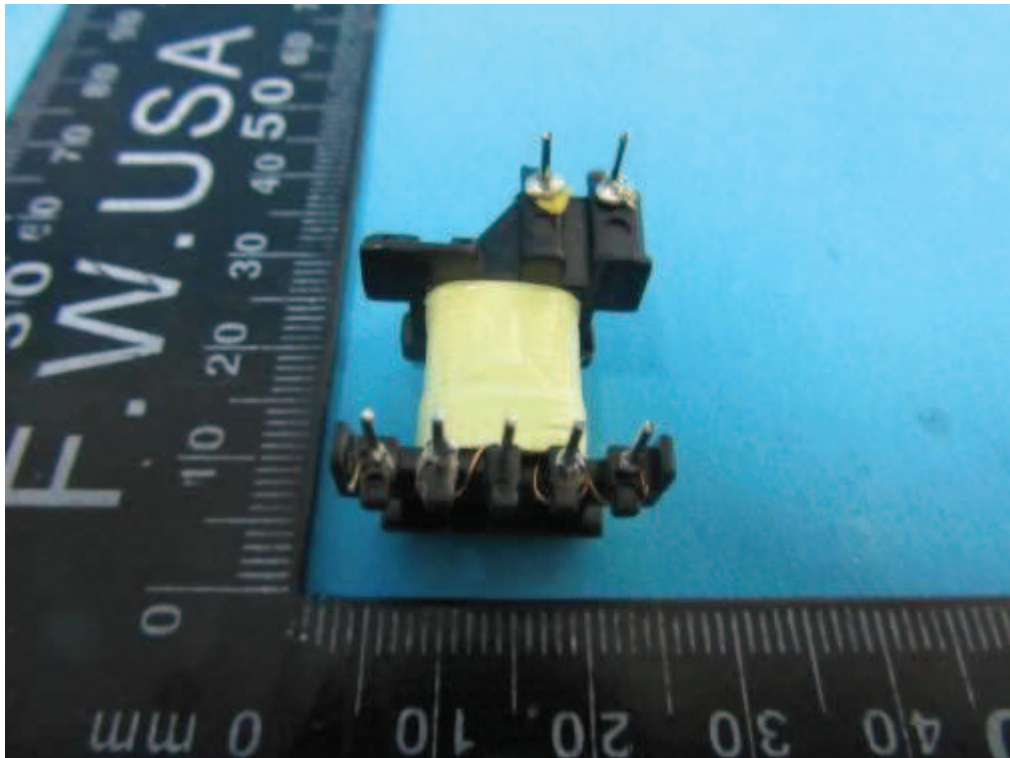


Photo 51 Detail view of transformer

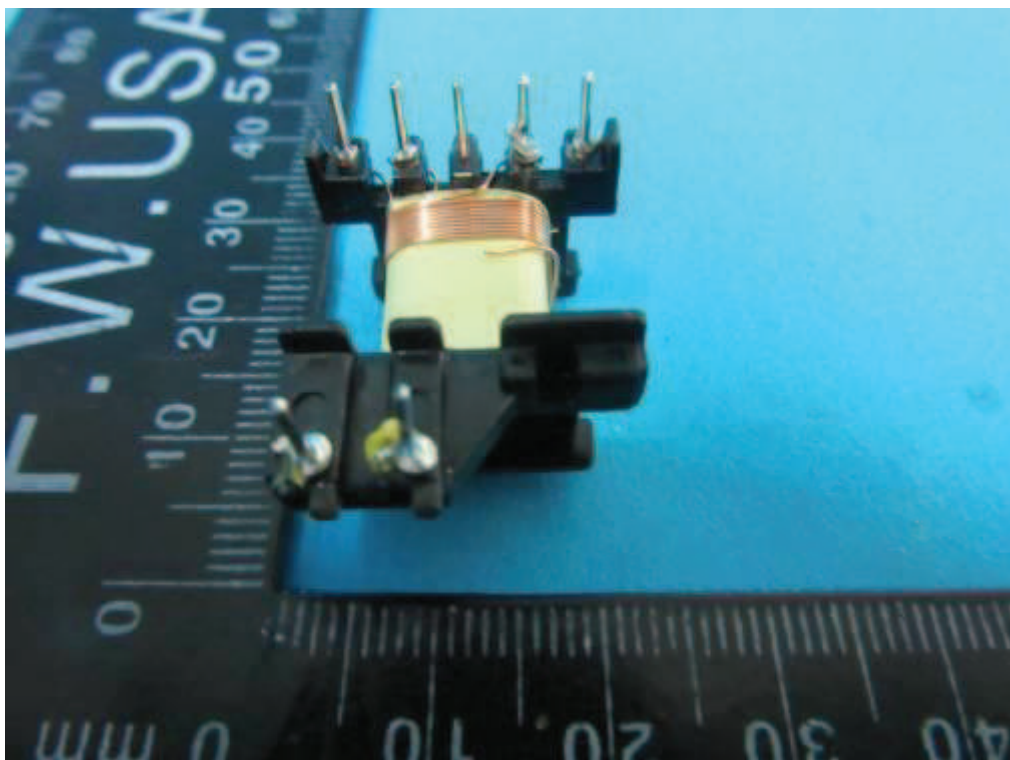


Photo 52 Detail view of transformer

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

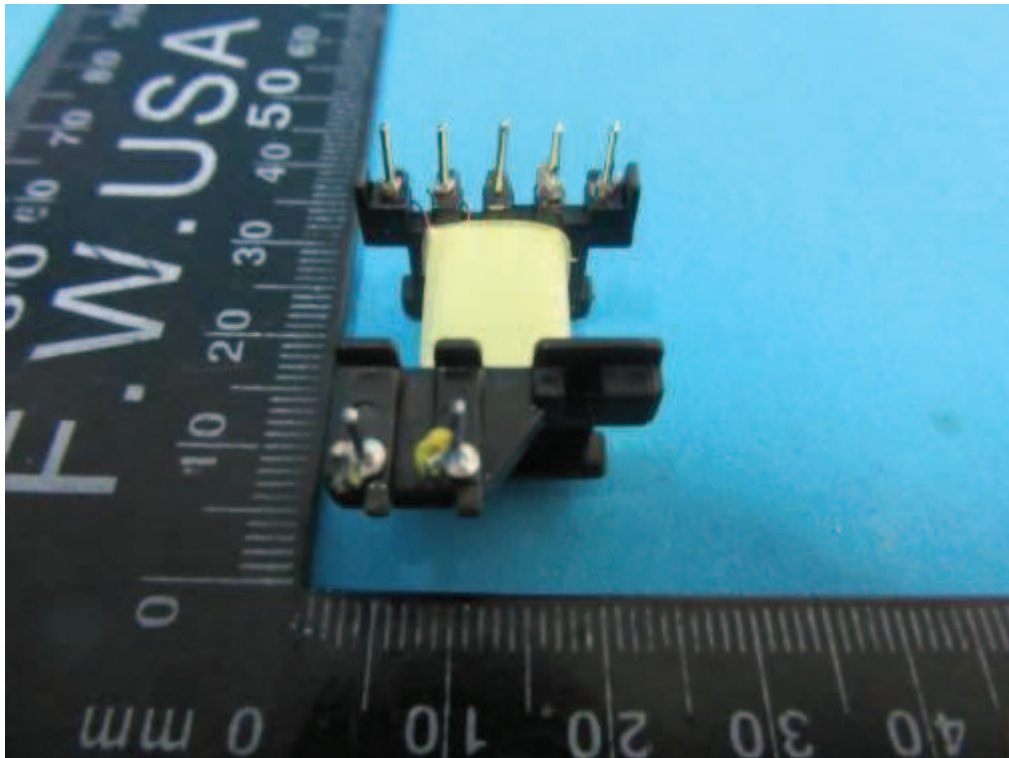


Photo 53 Detail view of transformer

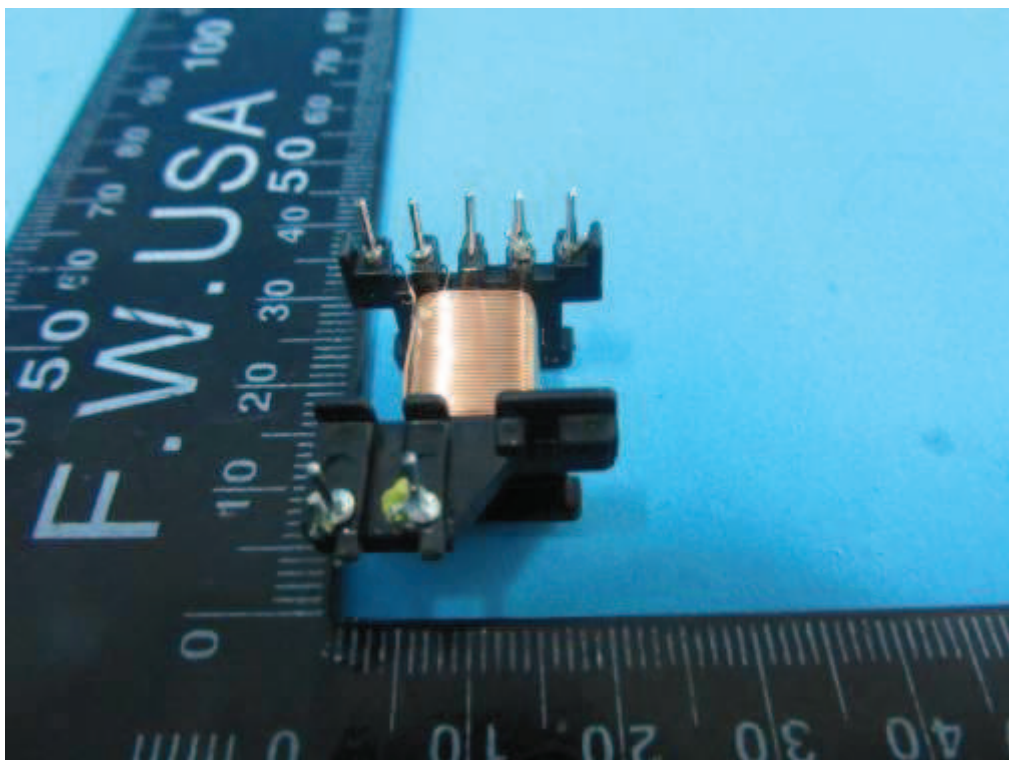


Photo 54 Detail view of transformer



**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

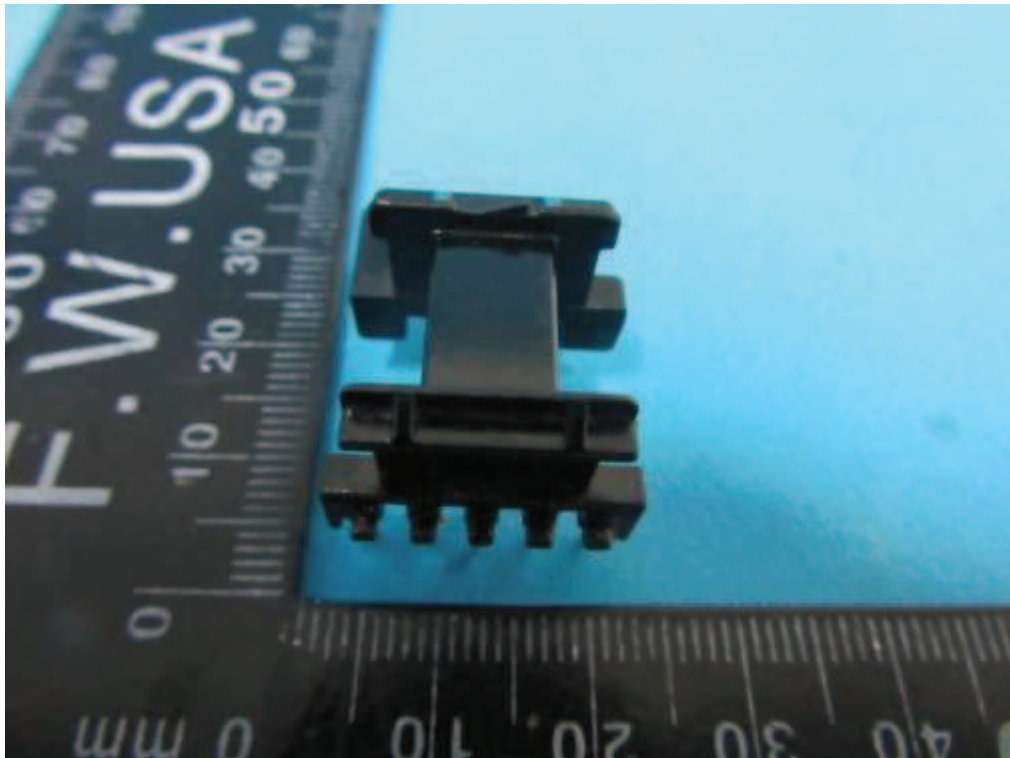


Photo 55 Detail view of transformer

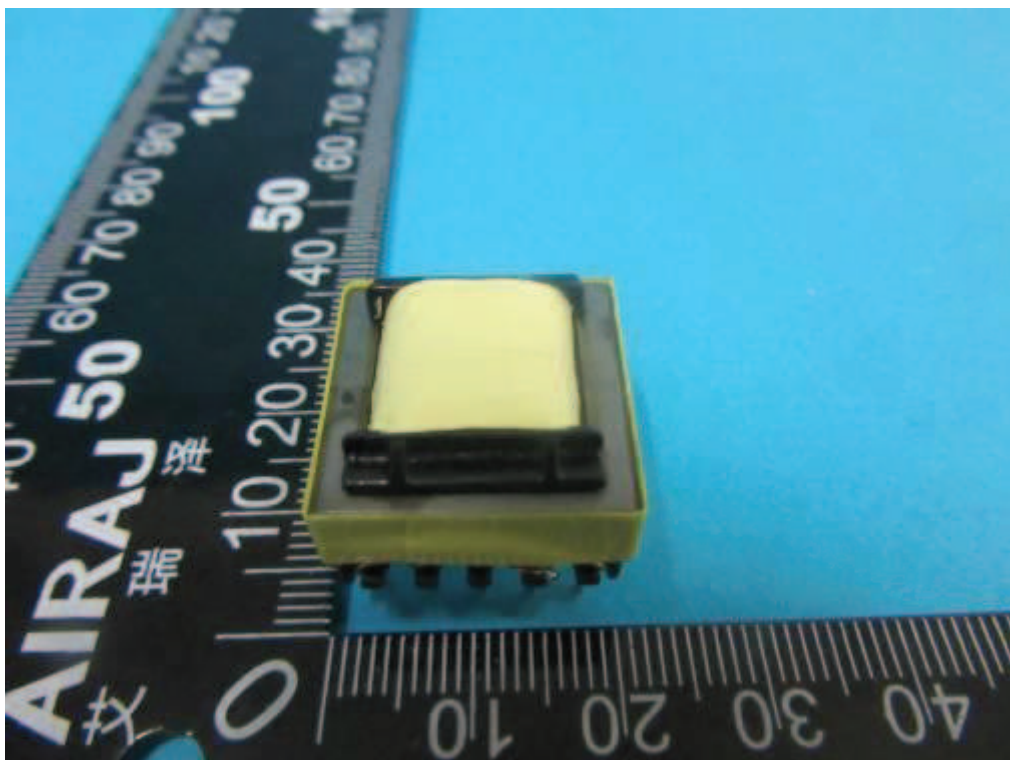


Photo 56 Detail view of transformer (for 90E12PU05-xxxx)



**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

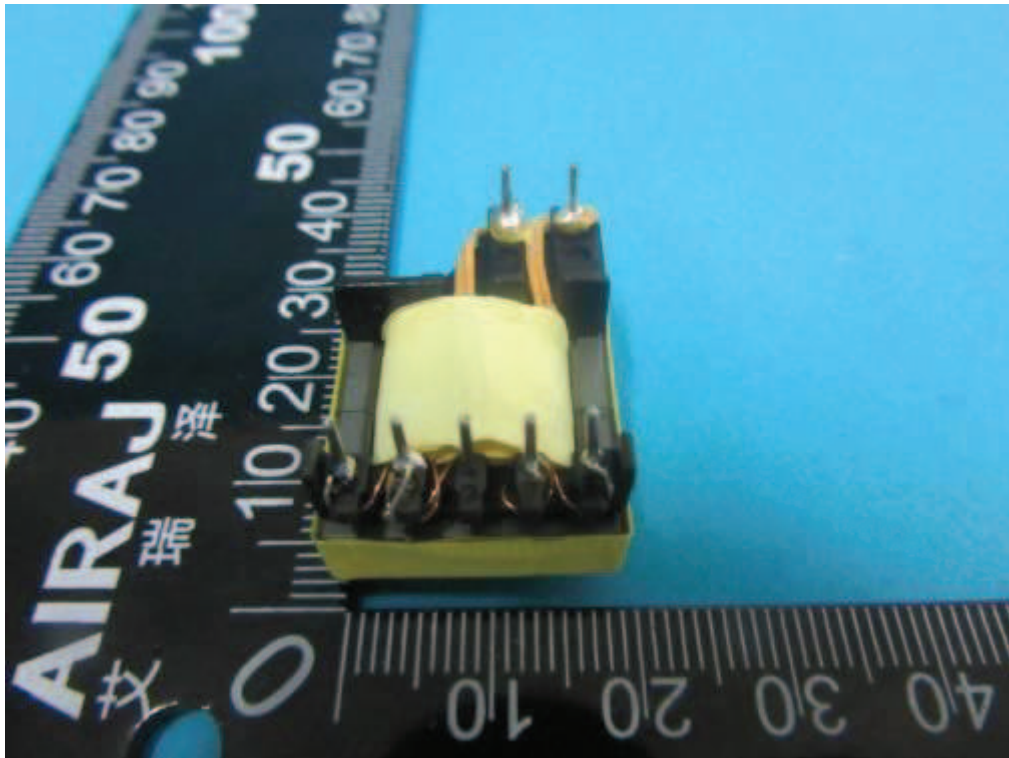


Photo 57 Detail view of transformer (for 90E12PU05-xxxx)

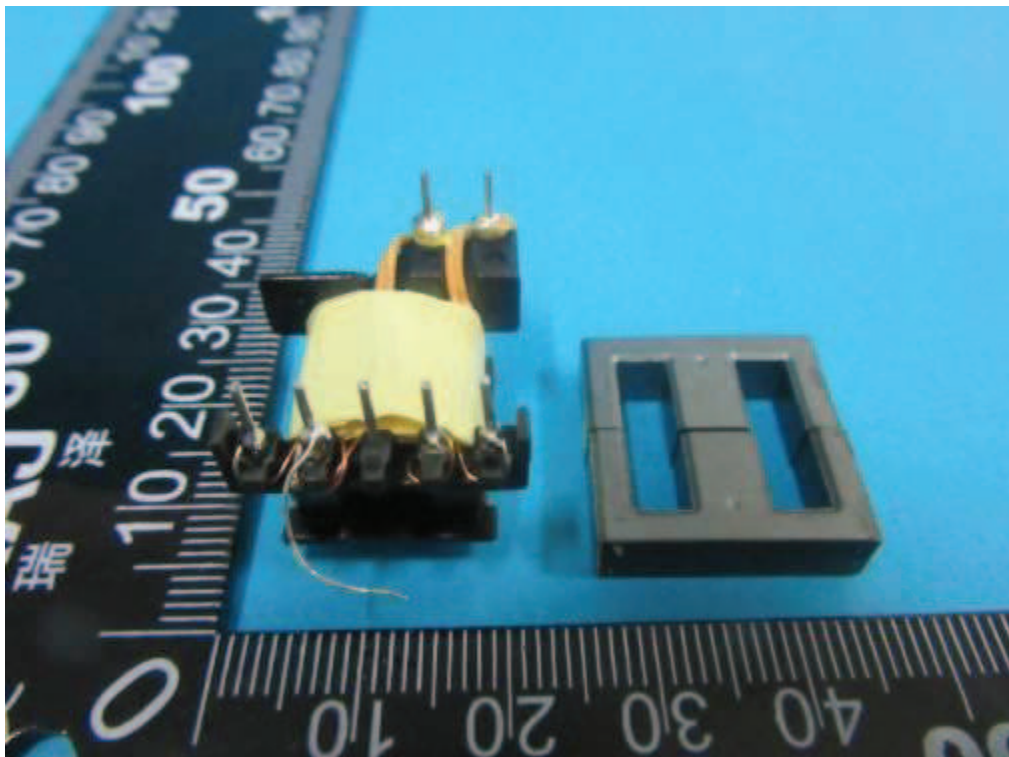


Photo 58 Detail view of transformer (for 90E12PU05-xxxx)

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

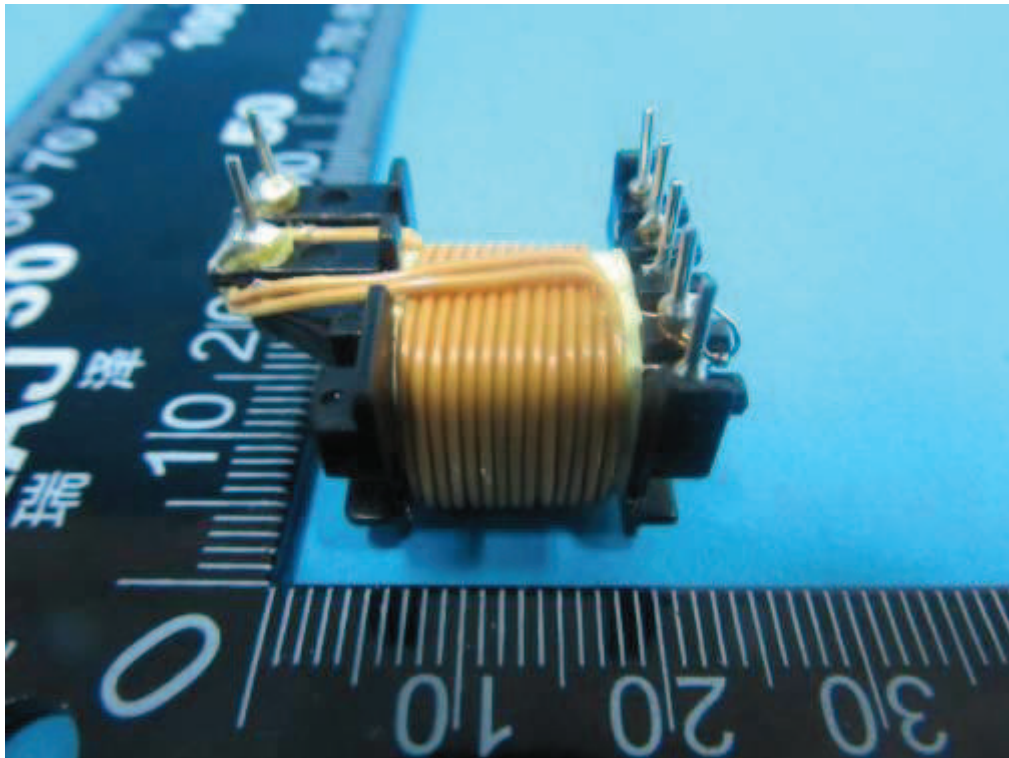


Photo 59 Detail view of transformer (for 90E12PU05-xxxx)

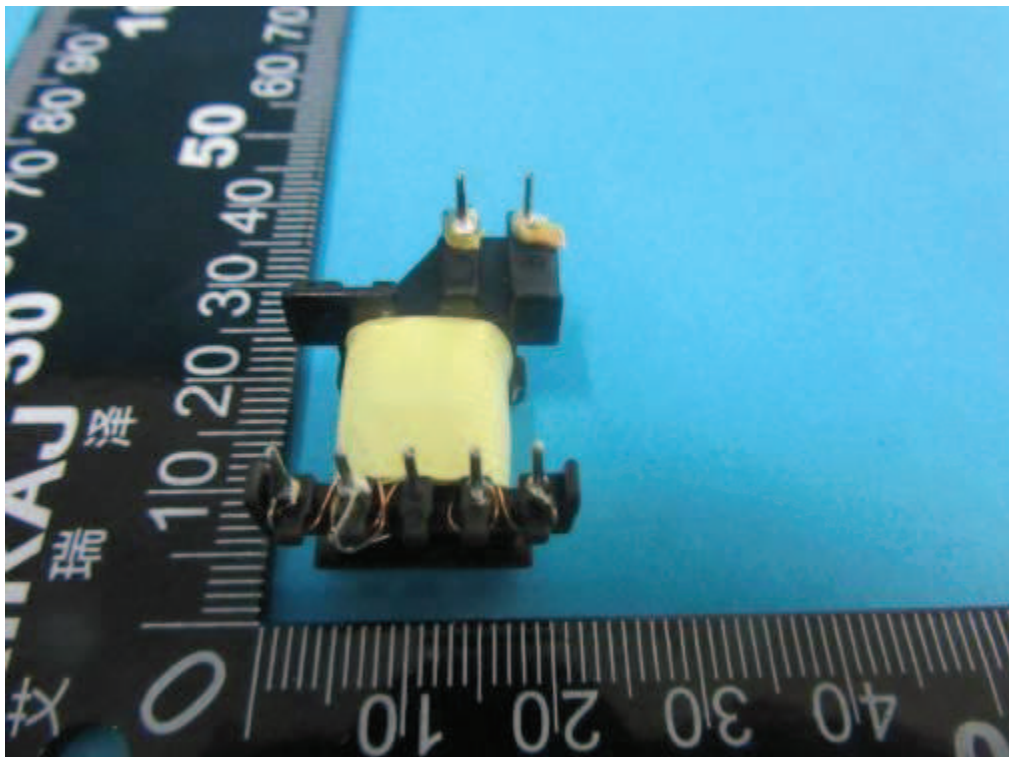


Photo 60 Detail view of transformer (for 90E12PU05-xxxx)

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

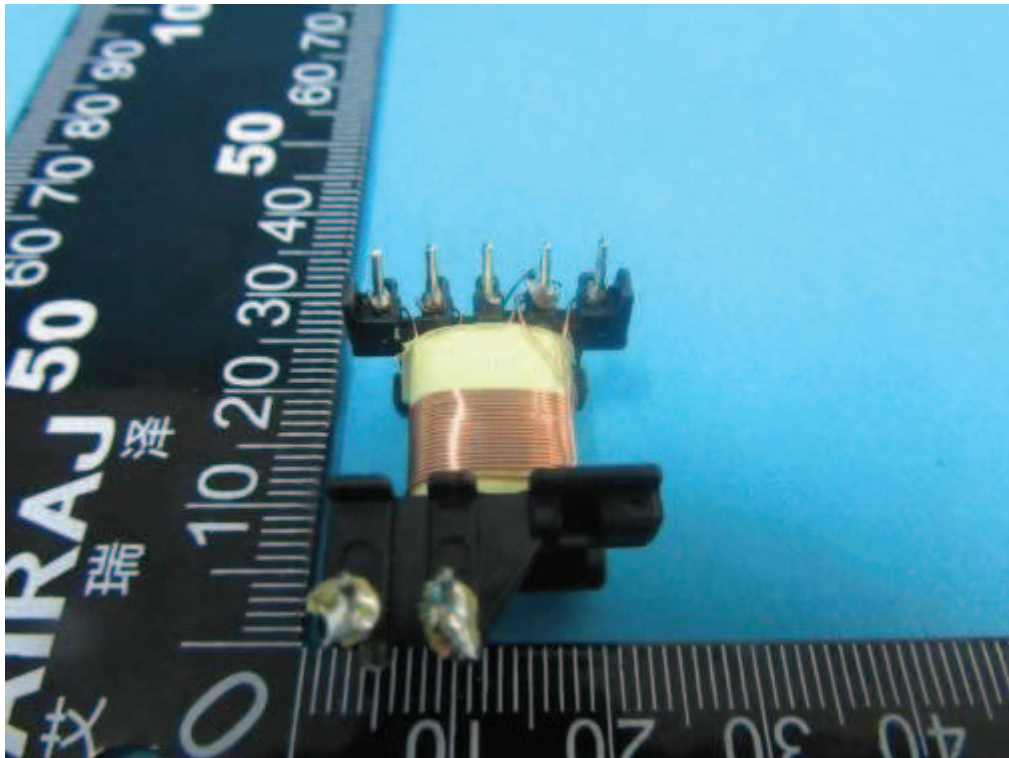


Photo 61 Detail view of transformer (for 90E12PU05-xxxx)

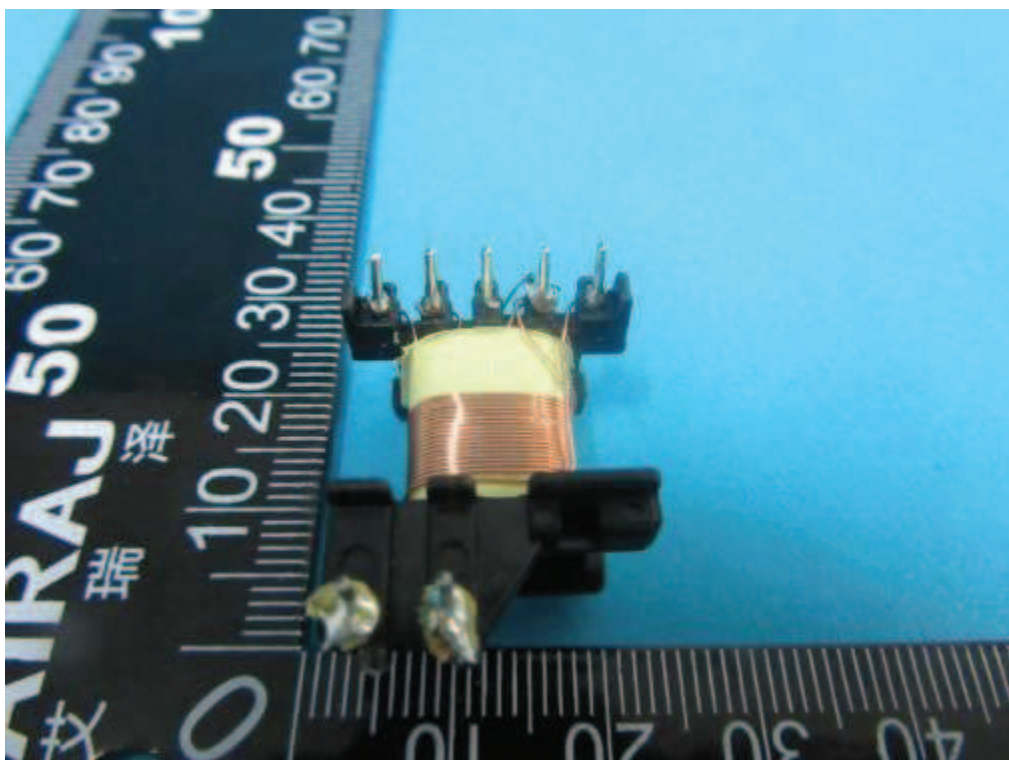


Photo 62 Detail view of transformer (for 90E12PU05-xxxx)



**Model:** GT-86121-WVVV; GT-86121-WVVV-W2Z (WW, VV and Z are variables)

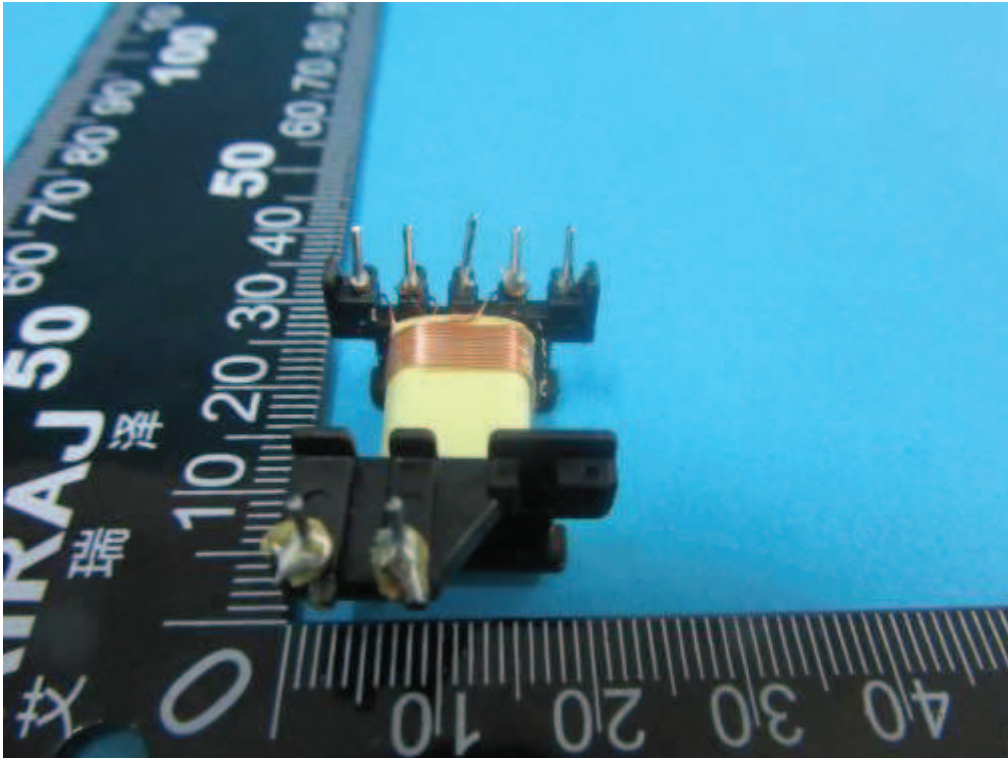


Photo 63 Detail view of transformer (for 90E12PU05-xxxx)

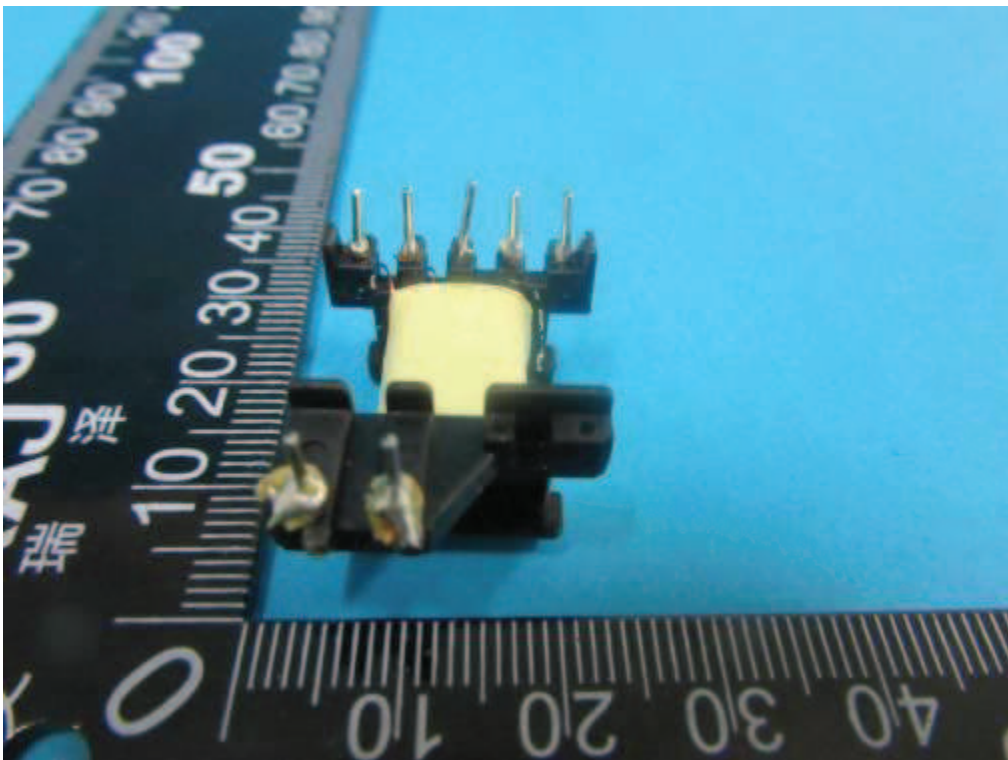


Photo 64 Detail view of transformer (for 90E12PU05-xxxx)

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

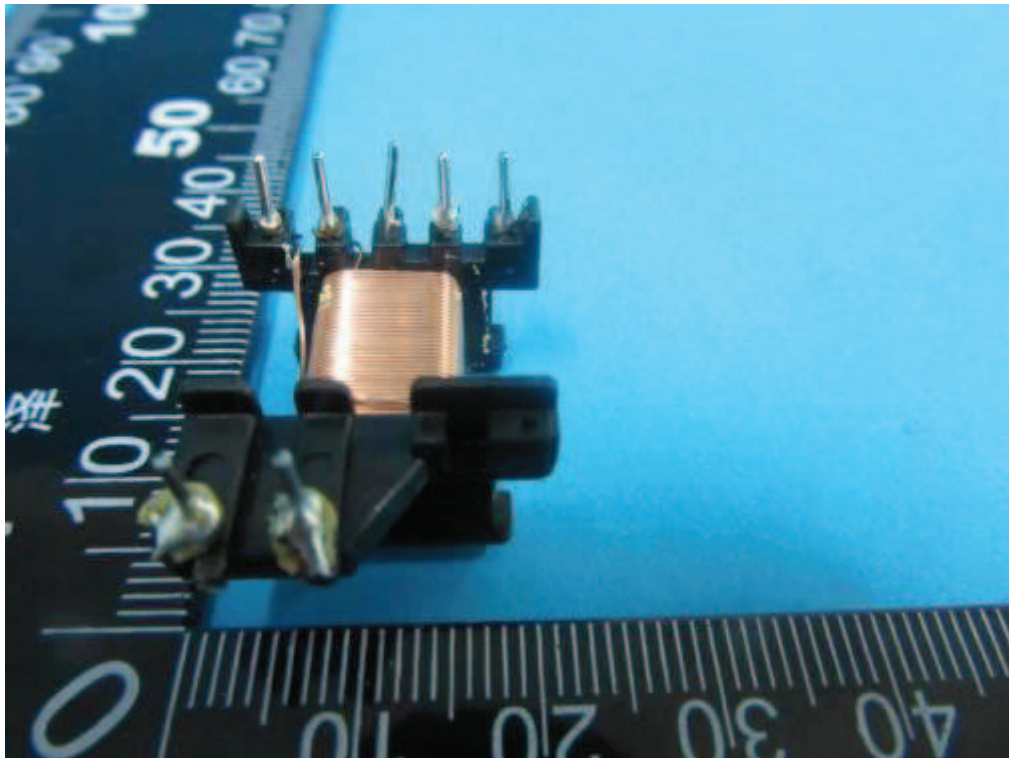


Photo 65 Detail view of transformer (for 90E12PU05-xxxx)

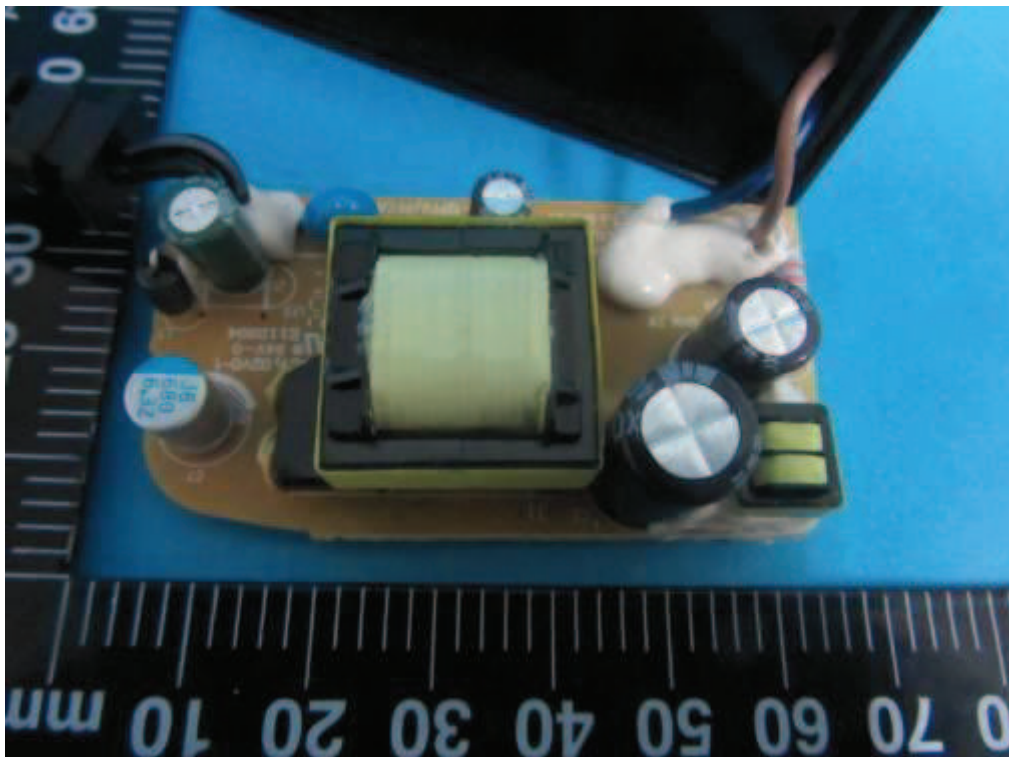


Photo 66 Internal view for common choke for 4.2-5.2V output

**Model:** GT-86121-WWVV; GT-86121-WWVV-W2Z (WW, VV and Z are variables)

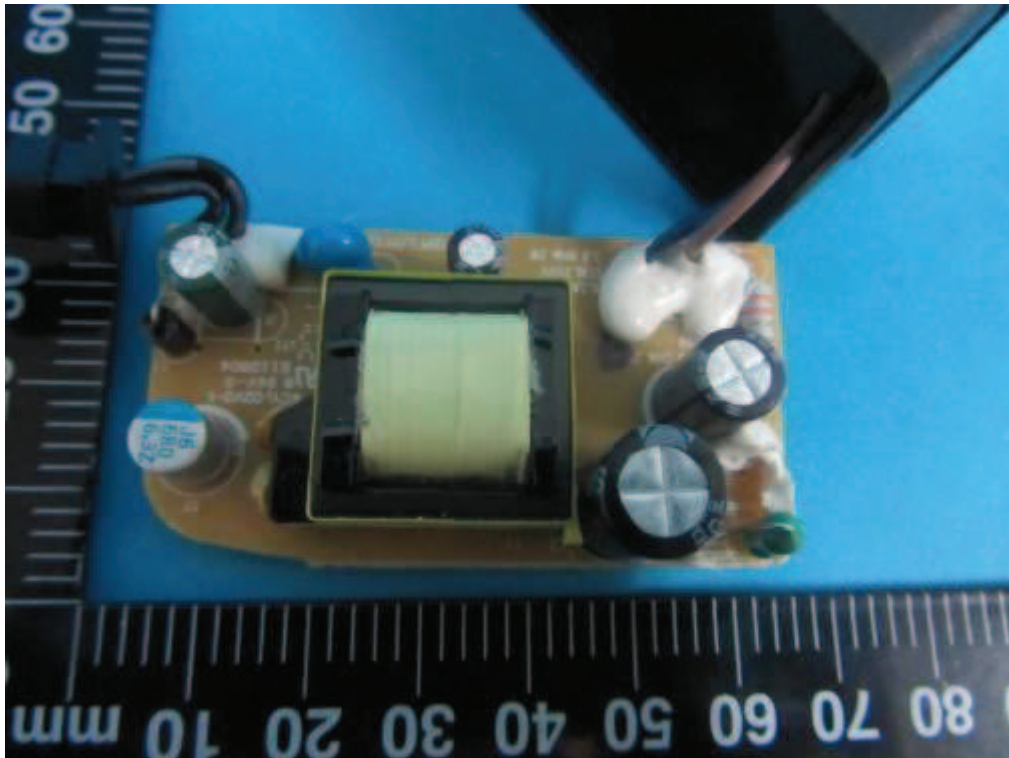


Photo 67 Internal view for Different choke for 4.2-5.2V output

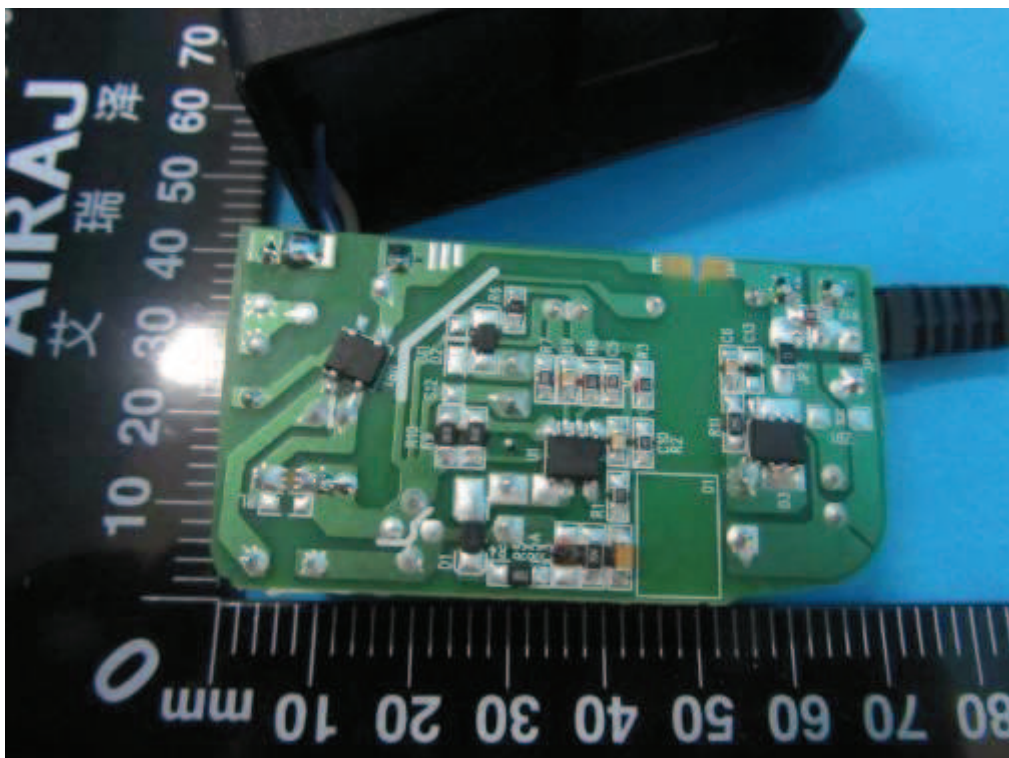


Photo 68 Internal view for 4.2-5.2V output