




TEST REPORT

IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number.....:	BCTC-FY171107615S
Date of issue.....:	Nov. 30, 2017
Total number of pages.....:	58 pages
Testing Laboratory Name	Shenzhen BCTC Testing Co., Ltd.
Address	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Applicant's Name	ITEAD Intelligent Systems Co., Ltd.
Address	5F, Building A, Yuxing Multiple-use Building, Jihua Road, Longhua Dist, Shenzhen, GD 518109, China
Test specification	
Standard.....:	IEC 62368-1:2014, EN 62368-1:2014.
Test procedure.....:	CE-LVD
Procedure deviation	N/A
Non-standard test method	N/A
Test Report Form	
Test Report Form No.....:	IEC62368_1B
Test Report Form(s) Originator.....:	UL(US)
Master TRF	2014-03
Copyright © 2014 Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), Geneva, Switzerland. All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.	
Test item description	Sonoff WiFi&RF Wall Switch
Manufacturer	ITEAD Intelligent Systems Co., Ltd.
Address	5F, Building A, Yuxing Multiple-use Building, Jihua Road, Longhua Dist, Shenzhen, GD 518109, China
Trademark	
Model and/or type reference	Sonoff T1(UK/EU/US), Sonoff T2(UK/EU/US), Sonoff T3(UK/EU/US)
Rating(s).....:	INPUT: AC90V-250V~, 50/60Hz, 4A

**Testing procedure and testing location:****Testing Laboratory**.....: **Shenzhen BCTC Testing Co., Ltd.****Address**.....: BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
-----**Date of Test**.....: **Nov. 21, 2017 to Nov. 30, 2017**
-----**Tested by (name + signature)**.....: Tim Luo
-----**Reviewed by (name + signature)**.....: Levi Li
-----**Approved by (name + signature)**.....: Awen He
-----

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

- Attachment I : 3 pages for EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
- Attachment II: 6 pages for Photo documentation from 54-58

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

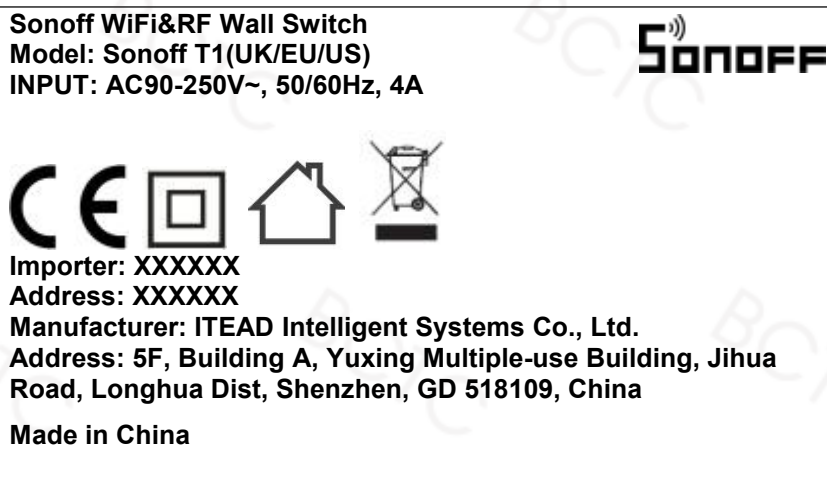
- EN 62368-1:2014;
- The submitted samples were found to comply with the requirements of above specification.

Testing location:

BCTC Building & 1-2F, East of B Building,
Pengzhou Industrial, Fuyuan 1st Road, Qiaotou
Community, Fuyong Street, Bao'an District,
Shenzhen, China

Copy of marking plate

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


Remark on above marking:

- 1, The height of CE symbols is more than 5 mm;
- 2, The height of WEEE symbols is more than 7 mm;

**TEST ITEM PARTICULARS:**

Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection.....:	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input checked="" 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 type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input checked="" 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; Installation location: <input type="checkbox"/> building; <input checked="" type="checkbox"/> equipment
Equipment mobility.....:	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
Class of equipment	<input 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:	35°C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP ____
Power Systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V _{L-L}
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> 0.125kg

POSSIBLE TEST CASE VERDICTS:

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

TESTING:

- | | |
|--|--------------------------------|
| Date of receipt of test item.....: | Nov. 21, 2017 |
| Date (s) of performance of tests.....: | Nov. 21, 2017 to Nov. 28, 2017 |



GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
GENERAL PRODUCT INFORMATION:	
Product Description	
<ol style="list-style-type: none">1. The equipment is a "Sonoff WiFi&RF Wall Switch" with Audio/video, information and communication technology equipment.2. The EUT is building-in the wall in normal installation (Please to see specification for detailed).3. The EUT max. using ambient temperature: 35°C4. Sonoff WiFi&RF Wall Switch is control of live wire ON or OFF by wireless WiFi. So this test is not to assess for extra ac output loading.5. They are with the similar construction and circuit theory, the differences among them are model name and number of live wire gang. If no others specified, all tests were conducted at the model of Sonoff T1(UK/EU/US. The test results comply with the requirement of the relevant standards.	

**ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:**

(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)

(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.

Electrically-caused injury (Clause 5):

(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)

Example: +5 V dc input

ES1

Source of electrical energy	Corresponding classification (ES)
Primary circuits supplied by AC mains supply	ES3

Electrically-caused fire (Clause 6):

(Note: List sub-assembly or circuit designation and corresponding energy source classification)

Example: Battery pack (maximum 85 watts):

PS2

Source of power or PIS	Corresponding classification (PS)
All primary circuits and secondary circuits inside the equipment enclosure	PS3

Injury caused by hazardous substances (Clause 7)

(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)

Example: Liquid in filled component

Glycol

Source of hazardous substances	Corresponding chemical
N/A	N/A

Mechanically-caused injury (Clause 8)

(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)

Example: Wall mount unit

MS2

Source of kinetic/mechanical energy	Corresponding classification (MS)
Sharp edges and corners	MS1
Equipment mass	MS1

Thermal burn injury (Clause 9)

(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)

Example: Hand-held scanner – thermoplastic enclosure

TS1

Source of thermal energy	Corresponding classification (TS)
Accessible surfaces	TS1

Radiation (Clause 10)

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

Example: DVD – Class 1 Laser Product

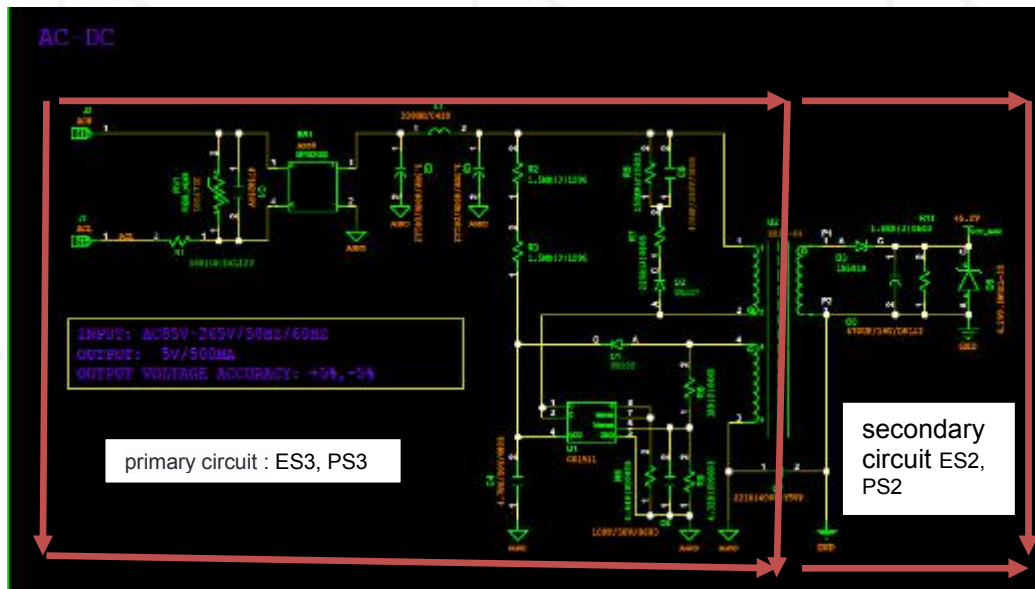
RS1

Type of radiation	Corresponding classification (RS)
LEDS	RS1

ENERGY SOURCE DIAGRAM

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

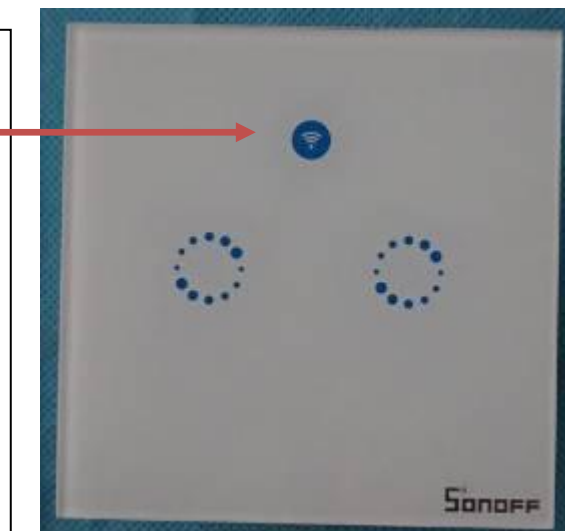
ES3 and PS3



Diagrammatize.1

Accessible surfaces: TS1

LEDs: RS1



Equipment mass :MS1
Sharp edges and corners:MS1

Diagrammatize.2



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: All primary circuits	N/A	N/A	Equipment enclosure Transformer, Y capacitor used for bridging reinforced safeguard
Ordinary	ES1: Enclosure outside	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	PS3 primary circuit	N/A	N/A	Enclosure used as reinforced safeguard
Connections of secondary equipment (external wiring)	PS3: >100 Watt circuit (Primary circuits) PS2: <100 Watt circuit (secondary circuit)	N/A	VW-1 for USA/CAN	N/A
Plastic enclosure	PS3: >100 Watt circuit (Primary circuits) PS2: <100 Watt circuit (secondary circuit)	N/A	Equipment safeguard (Control of fire spread)	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Sharp edges and corners	N/A	N/A	N/A
Ordinary	MS1: Equipment mass	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible surfaces	N/A	N/A	N/A
10.1	Radiation			
Body Part	Energy Source	Safeguards		



(e.g., Ordinary)	(Output from audio port)	Basic	Supplementary	Reinforced
Ordinary	RS1: LEDs(Exempt group)	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	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.	P
4.1.2	Use of components	See table 4.1.2	P
4.1.3	Equipment design and construction	No accessible part which could cause injury	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.3, T.4, T.5)	P
4.4.4.3	Drop tests..... :	(See Annex T.7)	N/A
4.4.4.4	Impact tests..... :	(See Annex T.9)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests..... :	No internal enclosure.	N/A
4.4.4.6	Glass Impact tests..... :	No such glass used.	N/A
4.4.4.7	Thermoplastic material tests..... :	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard..... :	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After test, all safeguard remains effective, No damaged	P
4.5	Explosion	No explosion	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard	All conductive parts are fixed on PCB by at least two soldering points; The primary and secondary lead wire were soldered to PCB and fixed by glue.	P
4.6.2	10 N force test applied to :	Applied 10 N force, no loosen	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard..... :	Not pluggable equipment	N/A
4.7.3	Torque (Nm)..... :		N/A
4.8	Products containing coin/button cell batteries	No lithium coin/button cell battery used.	N/A
4.8.2	Instructional safeguard	No lithium coin/button cell battery used.	N/A



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.3	Battery Compartment Construction	No lithium coin/button cell battery used.	N/A
	Means to reduce the possibility of children removing the battery.....:	No lithium coin/button cell battery used.	—
4.8.4	Battery Compartment Mechanical Tests.....:	(See Table 4.8.4)	N/A
4.8.5	Battery Accessibility	No lithium coin/button cell battery used.	N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	(See Annex P)	N/A

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications.....:		N/A
5.2.2	ES1, ES2 and ES3 limits	The accessible enclosure is considered as ES1 circuit. See appended table 5.2)	N/A
5.2.2.2	Steady-state voltage and current.....:		N/A
5.2.2.3	Capacitance limits.....:		N/A
5.2.2.4	Single pulse limits	No such single pulses with the EUT	N/A
5.2.2.5	Limits for repetitive pulses.....:	No such repetitive pulses with the EUT	N/A
5.2.2.6	Ringing signals	No such ringing signals with the EUT	N/A
5.2.2.7	Audio signals	No such audio signals with the EUT	N/A
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See below.	N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 could be accessible to ordinary person.	N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V.....:	The probe could not insert into the equipment as there is no ventilation on the product.	N/A
	b) Electric strength test potential (V).....:	The probe could not insert into the equipment as there is no ventilation on the product.	N/A
	c) Air gap (mm)	The probe could not insert into the equipment as there is no ventilation on the product.	N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminals intended to be used by ordinary person.	N/A
5.4	Insulation materials and requirements		P



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 except natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning..... :	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials :	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree..... :	Pollution degree 2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2	N/A
5.4.1.5.3	Thermal cycling	Pollution degree 2	N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses	Evaluation is reached according to clause 5.4.9.1.	P
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces	Considered.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See below	P
5.4.1.10.2	Vicat softening temperature..... :	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage :	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage..... :	2500Vac	—
	b) d.c. mains transient voltage :		—
	c) external circuit transient voltage..... :		—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages..... :		N/A
5.4.3	Creepage distances..... :	(See appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group :	IIIb	—
5.4.4	Solid insulation	Enclosure is compliance with 5.4.4.2.	P



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs)	Two layers of insulation tape used as reinforced insulation, any combination of two layers pass the electric strength test.	P
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....	(See appended Table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz.....	(See appended Table 5.4.4.9)	P
5.4.5	Antenna terminal insulation	See below	P
5.4.5.1	General	Test was conducted between mains and output terminal of the EUT.	P
5.4.5.2	Voltage surge test	See G.10.3.2	P
	Insulation resistance (MΩ).....	>4 MΩ	—
5.4.6	Insulation of internal wire as part of supplementary safeguard.....	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%).....	95%	—
	Temperature (°C)	30°C	—
	Duration (h)	48h	—
5.4.9	Electric strength test.....	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test	Method 1	P
5.4.9.2	Test procedure for routine tests		P
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	Impulse test..... :	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test..... :	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry..... :	(See appended table 5.4.9)	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation U_{sp} :		—
	Max increase due to ageing ΔU_{sa} :		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$:		—
5.5	Components as safeguards		
5.5.1	General		P
5.5.2	Capacitors and RC units	Y capacitor complying with IEC 60384-14 is used.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	No used	N/A
5.5.5	Relays	No such component	N/A
5.5.6	Resistors	No such component	N/A
5.5.7	SPD's	No such component	N/A
5.5.7.1	Use of an SPD connected to reliable earthing	No such component	N/A
5.5.7.2	Use of an SPD between mains and protective earth	No such component	N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable..... :	(See Annex G.10.3)	P
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No such component	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)..... :		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²)..... :		—



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors	Class II equipment	N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).....		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system	Class II equipment	N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current.....	(See appended table 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage		P
5.7.3	Equipment set-up, supply connections and earth connections	Class II equipment, no earth connections	N/A
	System of interconnected equipment (separate connections/single connection).....		—
	Multiple connections to mains (one connection at a time/simultaneous connections).....		—
5.7.4	Earthed conductive accessible parts.....	(See appended Table 5.7.4)	N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....		—
	Measured current (mA).....		—
	Instructional Safeguard.....	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	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		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



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		N/A
6.2.2	Power source circuit classifications		N/A
6.2.2.1	General		N/A
6.2.2.2	Power measurement for worst-case load fault..... :	(See appended table 6.2.2)	N/A
6.2.2.3	Power measurement for worst-case power source fault..... :	(See appended table 6.2.2)	N/A
6.2.2.4	PS1	(See appended table 6.2.2)	N/A
6.2.2.5	PS2	(See appended table 6.2.2)	N/A
6.2.2.6	PS3	Primary part is considered as PS3	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... :	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	No such materials used.	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Approved fire enclosure used	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	See above.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See above.	N/A
6.4.3.1	General	See above.	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		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuit	Fire enclosure of clause 6.4.8 provided with the equipment.	P
6.4.7	Separation of combustible materials from a PIS	See the following details.	P
6.4.7.1	General..... :	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance	No separation	N/A



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.7.3	Separation by a fire barrier	No separation	N/A
6.4.8	Fire enclosures and fire barriers	V-0 plastic enclosure used	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	V-0 plastic enclosure used	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings	Buliding-in equipment	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	Top of enclosure no openings	N/A
	Needle Flame test	No opening on the enclosure	N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	Bottom of enclosure no openings	N/A
	Flammability tests for the bottom of a fire enclosure	No opening on the enclosure	N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....	No removable door or cover on the equipment	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating :	V-0 plastic enclosure used and no distance between PIS and enclosure	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements	No internal and external wiring	N/A
6.5.2	Cross-sectional area (mm 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		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

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



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See the following details.	P
8.2	Mechanical energy source classifications	Sharp edges and corners, and equipment mass are both classified as MS1	P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners	Accessible edges and corners of the equipment are rounded and are classified as MS1.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No moving parts within the equipment.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard..... :		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks..... :	(See Annex F.4 and Annex K)	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)..... :		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :	(See appended table 8.5.5.2)	N/A
8.6	Stability	Equipment maximum mass 0.216kg < 7 kg, classified as MS1.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force..... :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	No such handles.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force.....:		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force.....:		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N).....:		—
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	(See Annex T)	N/A
	Button/Ball diameter (mm).....:		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	All accessible surfaces are classified as TS1, see appended table 5.4.1.4, 6.3.2, 9.0, B.2.6.	P



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.3	Safeguard against thermal energy sources		P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard		N/A

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



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	No such consideration for the purpose of personal music players.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards..... :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)..... :		—





EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements.....:	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers.....:	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	$\pm 10\%$	P
B.2.5	Input test.....:	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....:	(See appended table B.3)	P
B.3.2	Covering of ventilation openings	No ventilation openings provided.	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 setting of voltage selector within the EUT	N/A
B.3.5	Maximum load at output terminals.....:	Switch similar equipment, not assess ac output	N/A
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.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effectively.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited.....:	No such device	N/A
B.4.3	Motor tests	No motor within the EUT	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	See the following details.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3 & B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3 & B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	B.3	P
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3 & B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.3 & B.4)	P



EN 62368-1			
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	(See appended table B.3&B.4)	P
B.4.9	Battery charging under single fault conditions.....:	No battery involved in the EUT	N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	No such UV generated from the equipment.	N/A
C.1.2	Requirements		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
D	TEST GENERATORS		N/A
D.1	Impulse test generators	No such consideration.	N/A
D.2	Antenna interface test generator	No antenna interface	N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions	No such consideration.	N/A
	Audio signal voltage (V).....:		—
	Rated load impedance (Ω)		
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	Evaluated the user manual in English version. The manufacturer commits to provide them in the language of the countries where the product will be distributed.	—
F.2	Letter symbols and graphical symbols	Complied	P
F.2.1	Letter symbols according to IEC60027-1	Complied	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Complied	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	On the product	P



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	Trade mark: 	—
F.3.2.2	Model identification	See page 1	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains	Considered	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....	~ used for input voltage	—
F.3.3.4	Rated voltage.....	90-250V~	—
F.3.3.4	Rated frequency.....	50/60 Hz	—
F.3.3.6	Rated current or rated power.....	4A	—
F.3.3.7	Equipment with multiple supply connections	No such device	N/A
F.3.4	Voltage setting device	No such device	N/A
F.3.5	Terminals and operating devices	No such device	N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings	No such device	N/A
F.3.5.2	Switch position identification marking.....	No such device	N/A
F.3.5.3	Replacement fuse identification and rating markings.....	No replaceable fuse	N/A
F.3.5.4	Replacement battery identification marking.....	No such device	N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment	Class II equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal	Class II equipment	N/A
F.3.6.1.2	Neutral conductor terminal	Class II equipment	N/A
F.3.6.1.3	Protective bonding conductor terminals	Class II equipment	N/A
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth	 marked on the label	P
F.3.6.2.2	Class II equipment with functional earth terminal marking	Class II equipment	N/A
F.3.7	Equipment IP rating marking	IPX0 product without marking	—
F.3.8	External power supply output marking	Marked on the label	P
F.3.9	Durability, legibility and permanence of marking	Marking plate was provided on the enclosure and it was legible, permanent and easily discernible.	P
F.3.10	Test for permanence of markings	Complied	P



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	The accessibility of equipment was evaluated by using test probe of Figure V.2.	P
	b) Instructions given for installation or initial use	Relevant safety caution texts and installation instruction are available.	N/A
	c) Equipment intended to be fastened in place	See above.	N/A
	d) Equipment intended for use only in restricted access area	The EUT is not such type equipment	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	Class II equipment	N/A
	g) Protective earthing conductor current exceeding ES 2 limits	Class II equipment	N/A
	h) Symbols used on equipment	Complied	P
	i) Permanently connected equipment not provided with all-pole mains switch	The EUT is not a permanently connected equipment	N/A
	j) Replaceable components or modules providing safeguard function	No replaceable components	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
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements	No such switch as disconnect devices provided within the equipment.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		P
G.2.1	General requirements		P
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		P
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	No thermal cut-off provided within the equipment.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal link provided within the equipment.	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)..... :		—
	Single Fault Condition..... :		—
	Test Voltage (V) and Insulation Resistance (Ω)... :		—
G.3.3	PTC Thermistors	No PTC thermistor provided within the equipment.	N/A
G.3.4	Overcurrent protection devices	All sources of fuse (F1) complied with IEC 60127-1, IEC 60127-3.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided	No such component.	N/A
G.3.5.2	Single faults conditions..... :	(See appended Table B.4)	P
G.4	Connectors		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration		P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		P
G.5.1	Wire insulation in wound components.....	(See Annex J)	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Insulation tube used as physical separation	P
G.5.1.2 b)	Construction subject to routine testing	See G.5.1.2 a)	P
G.5.2	Endurance test on wound components	See G.5.1.2 a)	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
G.5.3	Transformers		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



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Position.....:	T1	—
	Method of protection	Reinforced insulation	—
G.5.3.2	Insulation	See above and appended table B.3 & B.4.	P
	Protection from displacement of windings.....:	Insulation tape used	—
G.5.3.3	Overload test.....:		N/A
G.5.3.3.1	Test conditions	The test loads are applied to the output of the power supply unit	N/A
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3&B.4)	N/A
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No such devices within the EUT	N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V).....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h).....:		N/A
	Electric strength test (V).....:		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		P



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.6.1	General	Triple-insulated winding wiring used as reinforced safeguard in the isolating transformer that complied with Annex J.	P
G.6.2	Solvent-based enamel wiring insulation	Insulation is not relied on solvent-based enamel.	N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	No mains supply cords	N/A
	Type.....:		—
	Rated current (A).....:		—
	Cross-sectional area (mm ²), (AWG).....:		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....:		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....:		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry.....:	(See appended table 5.4.11.1)	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m).....:		—
	Temperature (°C).....:		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		P
G.8.1	General requirements	Complied. (See appended table B.3)	P
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....:		N/A
G.8.3.3	Temporary overvoltage.....:		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.9.1 a)	Manufacturer defines limit at max. 5A.	No IC current limiter provided within the equipment.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A).....		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		P
G.10.1	General requirements	Complied.	P
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	No resistor used for safety guard	N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		P
G.11.1	General requirements	Y-capacitor used as safeguard and complied with IEC/EN 60384-14.	P
G.11.2	Conditioning of capacitors and RC units	At least 21 days at $40 \pm 2^{\circ}\text{C}$ and $93 \pm 3\% \text{ RH}$.	P
G.11.3	Rules for selecting capacitors		P
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....	No used	N/A
	Type test voltage V_{ini}		—
	Routine test voltage, $V_{\text{ini,b}}$		—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements	P
G.13.3	Coated printed boards	No coated printed board provided within the equipment.	N/A



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.....:	(See appended table 5.4.4.5)	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
G.14	Coating on components terminals		N/A
G.14.1	Requirements	(See G.13)	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such component used	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		—



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	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 TIW used	P
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No safety interlock provided within the equipment.	N/A
K.2	Components of safety interlock safeguard mechanism	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A).....		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test	(See appended table 5.4.11)	N/A
L	DISCONNECT DEVICES		P
L.1	General requirements		P



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
L.2	Permanently connected equipment		P
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
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 such battery used.	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method)... :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature..... :	(See Table M.4)	—
M.4.2.2 b)	Single faults in charging circuitry..... :	(See Annex B.4)	—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used.....	Pollution degree considered	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied.....		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See the following details.	P
P.2.2	Safeguards against entry of foreign object		P



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Location and Dimensions (mm)	Rear: <1mm	—
P.2.3	Safeguard against the consequences of entry of foreign object	Building-in equipment, can't entry of foreign object	N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment	Building-in 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 internal liquids	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C).....		—
	Tr (°C).....		—
	Ta (°C).....		—
P.4.2 b)	Abrasion testing	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing.....	(See Annex T)	N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method.....		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.3	Test method Supply voltage (V) and short-circuit current (A). :		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	The fire enclosure was made of rated min. V-0 material.	N/A
	Samples, material.....:	Plastic enclosure, 940(f1)	—
	Wall thickness (mm).....:	Min. 1.5 mm	—
	Conditioning (°C).....:	Approved V-0 enclosure used.	—
	Test flame according to IEC 60695-11-5 with conditions as set out	Approved V-0 enclosure used.	N/A
	- Material not consumed completely	Approved V-0 enclosure used.	N/A
	- Material extinguishes within 30s	Approved V-0 enclosure used.	N/A
	- No burning of layer or wrapping tissue	Approved V-0 enclosure used.	N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		P
	Samples, material.....:	Enclosure, 940(f1)	—
	Wall thickness (mm).....:	Min. 1.5 mm	—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out	Approved V-0 enclosure used.	N/A
	Test specimen does not show any additional hole	Approved V-0 enclosure used.	N/A
S.3	Flammability test for the bottom of a fire enclosure	Approved V-0 enclosure used.	P
	Samples, material.....:	Enclosure, 940(f1)	—
	Wall thickness (mm).....:	Min. 1.5 mm	—
	Cheesecloth did not ignite	Approved V-0 enclosure used.	N/A
S.4	Flammability classification of materials	Approved V-0 enclosure used.	N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (test condition), (°C).....:		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A



EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N	(See appended table T3)	N/A
T.4	Steady force test, 100 N	(See appended table T4)	N/A
T.5	Steady force test, 250 N	(See appended table T5)	P
T.6	Enclosure impact test	(See appended table T.6,T.9)	P
	Fall test	(See appended table T.6,T.9)	P
	Swing test	(See appended table T.6,T.9)	P
T.7	Drop test	Not such equipment	N/A
T.8	Stress relief test.....	(See appended table T8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....		—
	Height (m).....		—
T.10	Glass fragmentation test.....	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....	(See Annex T)	N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	Following the probes test specified in this annex except Figure V.3., V.4 and V.5 is not suitable.	P
V.2	Accessible part criterion	No live parts can be accessible.	P



4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Terminal block	Heavy power Co., Ltd.	PA66	10A/400V	UL1059	UL	
Enclosure	SABIC INNOVATIVE PLASTICS US LL C	940	PC.V-0.120℃	UL 94 UL 746C	ULE121562	
Y-Capacitor	Shenzhen Haotian Electronic Co., Ltd.	HTC	Min.250 Vac, Y2 type, Max.2200pF, 125℃	IEC 60384-14 EN 60384-14 UL60384-14	VDE 40039430 UL E326483	
PCB	SHANDONG JINBAO ELECTRONICS CO LTD	ZD-95(G)F	V-0 130℃, Thickness: 1.8mm	UL 796	UL E214321	
Fuse(FR1)	Xuyi Sanwei Electric Co. Ltd.	RXF	10R 1W	DIN EN 60065 (VDE 0860)	VDE 40037299	
Varistor	BRIGHTKING (SHENZHEN) CO LTD	07D471K	470V	UL 1449	UL VDE E331985	
Transformer(T1)	Dongguan Shuogu electronics co., Ltd.	TR IW1700 500mA	EE10 5V Class B	IEC/EN60950	Test with appliance	
Bobbin for T1	CHANG CHUN PLASTICS CO LTD	EE10	V-0 150℃	UL 94 UL 746	UL E59481	
Margin winding for T1	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO LTD	2UEW	155℃; N1: Φ0.13mm*1; N2: Φ0.15mm*2; N3: Φ0.4mm*1	UL 1446	UL E239508	
Alt.	SHANTOU SHENGGANG ELECTRON CO LTD	UEW	130℃	UL 1446	UL E239508	
Insulation tape for T1	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ	130℃	UL 510	UL E165111	
Insulation tube for T	Shenzhen woer heat shrinkable material co.ltd	ptfe	200℃	UL 224	UL203950	
Triple insulation wire	Great Leoflen	TRWXXX series	130℃	UL94	UL,VDE	
VARNISH	HONGDATONG MATERIAL CO.LTD	T386	155	UL1446	E238459	
Relay	ZHEJIANG HKE RELAY CO LTD	HRS3FNH-S-DC 5V	10A250V; 18.4*10.2*15.3	UL 508	UL E164730	
Supplementary information:						



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:				

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



--	--	--	--
--	--	--	--
Supplementary information:			

5.2	Table: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	275Vac	L/N to accessible plastic enclosure with foil	Normal	64Vpeak	0.003mA peak	50Hz	ES1
			Abnormal	64Vpeak	0.003mA peak	50Hz	
			Single fault – SC/OC	98Vpeak	0.003mA peak	50Hz	
Note: All condition are considered, the maximum values are shown in the above table.							
Steady state is considered established when the voltage or current values persist for 2 s or longer.							

5.2.2.3 - Capacitance Limits						
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
--	--	--	--	--	--	ES3
			--	--	--	
			--	--	--	

Note: All modes are considered, the maximum values are shown in the above table.

5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	



Test Conditions:

Normal –

Abnormal -

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

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements							P
	Supply voltage (V)	AC81V/ 60Hz	AC275V / 50Hz	--	--	--	--	
	Test condition	--	--	--	--	--	--	
	Ambient T(°C)	24.5	24.9	--	--	--	--	
Maximum measured temperature T of part/at:		T (°C)						Allowed T _{max} (°C)
C1 body (Varistor)		63.5	64.2	--	--	--	--	105
C2 body		71.5	72.5	--	--	--	--	105
K1(Relay body)		42.3	44.6	--	--	--	--	120
CY1 body		62.3	61.7	--	--	--	--	125
PCB near DB1		73.5	72.4	--	--	--	--	130
T1 coil		76.2	74.2	--	--	--	--	110
T1 core		73.5	71.8	--	--	--	--	Ref.
PCB near T1		70.6	68.5	--	--	--	--	130
C8 body		67.5	72.1	--	--	--	--	105
Enclosure inside near T1		29.6	30.2	--	--	--	--	120
Enclosure outside near T1		28.5	28.2	--	--	--	--	95
Supplementary information: Test in normal operation								
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--		--	--	--	--	--	--	--
--		--	--	--	--	--	--	--
Supplementary information:								
Note1: Ambient T is the actual test ambient.								
Note2: T _{ma} is the max								

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



5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			P
Allowed impression diameter (mm) : ≤ 2 mm				—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic enclosure(near input terminal)	See table 4.1.2	125	0.6	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Functional insulation							
L to N before fuse F1	420	250	<30	2.0	3.8	2.5	3.8
Two pins under fuse F1	420	250	<30	2.0	2.2	2.5	>4.5
Reinforced insulation							
Primary circuit to accessible enclosure	420	250	<30	3.0	>7.5	5.0	>7.5
Transformer T1 Core to Sec. Component (RI)	<420	<250	<30	3.0	4.6	5.0	>4.6
Transformer T1 Core to Sec. Pins (RI)	<420	<250	<30	3.0	4.8	5.0	4.8
Transformer T1 Pri. coil to Sec. Pins (RI)	<420	<250	<30	3.0	7.5	5.0	7.5
CY1 pri to sec (RI)	<420	<250	<30	3.0	5.5	5.0	5.5
Supplementary information:							
Note 1: See table 5.4.2.4 if this is based on electric strength test							
2. The iron core of T1 is considered as primary hazardous live part.							

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)
Primary trace of different polarity before F1		2500 Vpeak	1.5	Refer to table 5.4.2.2, 5.4.2.4 and 5.4.3 for details
Primary circuitst to accessible enclosure		2500Vpeak	3.0	>7.5
Supplementary information:				
Note 4: The all models were checked only the maximum voltage and minimum clearance & creepage distance were shown on the above table.				



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

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Plastic enclosure	<420	--	See table 4.1.2	0.4	1.8	
T1 bobbin	<420	--	See table 4.1.2	0.4	1.4	
Supplementary information: The all models are considered, only the maximum test voltage and minimum distance through insulation were shown on the table.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
L to N (fuse opened)	DC	2500 V	No	
Basic/supplementary:				
--	--	--	--	
Reinforced:				
L/N to plastic enclosure with foil	DC	4000 V	No	
T1 primary to secondary winding	DC	4000 V	No	
T1 secondary winding to core	DC	4000 V	No	
Two layer combination of insulation tape used in T1	DC	4000 V	No	
Routine Tests:				
--	--	--	--	
--	--	--	--	
Supplementary information:				
1. Core of transformers T1 is considered as primary part.				
2. Above test performed immediately after the humidity test.				

5.5.2.2	TABLE: Stored discharge on capacitors	N/A
----------------	--	-----



Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary information: X-capacitors installed for testing are: CX1=0.047uF <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: U1 Notes:					

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

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage.....:			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		1	
		2*	
		3	
		4	
		5	
		6	
		8	
Supplementary Information:			
Notes: [1] Supply voltage is the anticipated maximum Touch Voltage [2] Earthed neutral conductor [Voltage differences less than 1% or more] [3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3			



[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2	Table: Electrical power sources (PS) measurements for classification					N/A
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification	
Output connector + to -;	Normal	Power (W) :	--	--		
		V _A (V) :	--	--		
		I _A (A) :	--	--		
Output connector + to -;	short	Power (W) :	--	--		
		V _A (V) :	--	--		
		I _A (A) :	--	--		

Supplementary Information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits. Measurement taken only when limits at 5 seconds exceed PS2 limits

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				P
Location		Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p × I _{rms})	Arcing PIS? Yes / No
All primary circuits and secondary circuits inside the equipment enclosure		*	*	*	*

Supplementary information:

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

The output circuit is not arcing PIS as the open voltage of which is less than 50Vpeak.

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



Supplementary Information:

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

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

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

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

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
81V/50Hz	0.018	--	0.71	--	FR1	0.018	Normal load.
81V/60Hz	0.020	--	0.72	--	FR1	0.020	Normal load.
90V/50Hz	0.017	4	0.71	--	FR1	0.017	Normal load.
90V/60Hz	0.017	4	0.73	--	FR1	0.017	Normal load.
250V/50Hz	0.009	4	1.07	--	FR1	0.009	Normal load.
250V/60Hz	0.010	4	1.10	--	FR1	0.010	Normal load.
275V/50Hz	0.008	--	1.18	--	FR1	0.008	Normal load.
275V/60Hz	0.008	--	1.21	--	FR1	0.008	Normal load.
Supplementary information:							
1. Equipment may be have rated current or rated power or both. Both should be measured							
2. This test is not assess ac output loading, only test wireless circuits board consumed power.							



B.3	TABLE: Abnormal operating condition tests							N/A
Ambient temperature (°C)					--		—	
Power source for EUT: Manufacturer, model/type, output rating ...:					Refer to below		—	
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
--	--	--	--	--	--	--	--	--
						--	--	
						--	--	
Supplementary information: Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.								

B.4	TABLE: Fault condition tests							P
Ambient temperature (°C)					25			—
Power source for EUT: Manufacturer, model/type, output rating ..					See below			—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
BD1	Short	250Vac/60Hz	<1S	F1	0	--	--	FR1 opened immediately, no hazard
C2	Short	250Vac/60Hz	<1S	F1	0	--	--	FR1 opened immediately, no hazard
U1 pin4-5	Short	250Vac/60Hz	<1S	F1	0	--	--	FR1 opened immediately, U1 damage, no hazard
R9	Short	250Vac/60Hz	<1S	F1	0	--	--	FR1 opened immediately, no hazard
T1 pin1-2	Short	250Vac/60Hz	<1S	F1	0.01	--	--	Unit shutdown immediately and recoverable, no damaged, no hazard.
T1 pin3-4	Short	250Vac/60Hz	<1S	F1	0.01	--	--	Unit shutdown immediately and recoverable, no damaged, no hazard.



T1 Fly A to Fly B	Short	250Vac/60Hz	<1S	F1	0.009	--	--	Unit shutdown immediately and recoverable, no damaged, no hazard.
D3	Short	250Vac/60Hz	<1S	F1	0.008	--	--	Unit shutdown immediately and recoverable, no damaged, no hazard.
C8	Short	250Vac/60Hz	<1S	F1	0.007	--	-	Unit shutdown immediately and recoverable, no damaged, no hazard.

Supplementary information:

For fault condition with current fuse opened, all sources listed in table 4.1.2 are evaluated and the same results were got.

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

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries								N/A
Battery/Cell		Test conditions		Measurements				Observation	



No.		U	I (A)	Temp (C)	
--	Normal	--	--	--	N/A
--	Abnormal	--	--	--	N/A
--	Single fault –SC/OC	--	--	--	N/A
--	Normal	--	--	--	N/A
--	Abnormal	--	--	--	N/A
--	Single fault – SC/OC	--	--	--	N/A

Supplementary Information:

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

Supplementary Information:

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)	N/A
------------------	--	-----

Note: Measured UOC (V) with all load circuits disconnected:

Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Output terminal	Normal	--	--	--	--	--
--	--	--	--	--	--	--

Supplementary Information:

S-C=Short circuit, O-C=Open circuit

T.2, T.3, T.4, T.5	TABLE: Steady force test	P
---------------------------	---------------------------------	----------

Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Top enclosure	Plastic	Min.2.0	250	5	No damaged
Side enclosure	Plastic	Min.2.0	250	5	No damaged
Bottom enclosure	Plastic	Min.2.0	250	5	No damaged

Supplementary information:

T.6, T.9	TABLE: Impact tests	P
-----------------	----------------------------	----------

Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Top enclosure	Plastic	--	1300	No damaged



Side enclosure	Plastic	--	1300	No damaged
Supplementary information:				

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
--	--	--	--	--	
Supplementary information:					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Completed sample	Plastic enclosure (for all sources)	Min.2.0	70	7	No damaged, the hazardous live parts cannot be touched	
Supplementary information:						



ATTACHMENT TO TEST REPORT IEC 62368-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
(Audio/video, information and communication technology equipment Part 1: Safety requirements)

Differences according to.....: EN 62368-1:2014

Attachment Form No.....: EU_GD_IEC62368_1B

Attachment Originator.....: Intertek Semko AB

Master Attachment.....: Date (2015-08)

Copyright © 2015 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
CENELEC COMMON MODIFICATIONS (EN)			
1	NOTE Z1		N/A
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a) Included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A
5.4.2.3.2.4	Interconnection with external circuit		N/A
10.2.1	Additional requirements in 10.5.1		N/A
10.5.1	RS1 compliance measurement conditions		N/A
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N/A
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N/A
G.7.1	NOTE Z1		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		
4.1.15	Denmark, Finland, Norway and Sweden: Class I pluggable equipment type A marking		N/A
4.7.3	United Kingdom: Torque test socket-outlet BS 1363, and the plug part BS 1363.		N/A
5.2.2.2	Denmark: Warning for high touchcurrent		N/A
5.4.11.1 and Annex G	Finland and Sweden: Separation of the telecommunication network from earth		N/A



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	Norway: Capacitors rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden: Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N/A
5.6.1	Denmark: Protection for pluggable equipment type A; integral part of the equipment		N/A
5.6.4.2.1	Ireland and United Kingdom: The protective current rating is taken to be 13 A		N/A
5.6.5.1	Ireland and United Kingdom: Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N/A
5.7.5	Denmark: The installation instruction affixed to the equipment if high protective conductor current		N/A
5.7.6.1	Norway and Sweden: Television distribution system isolation text in user manual		N/A
5.7.6.2	Denmark: Warning for high touch current		N/A
B.3.1 and B.4	Ireland and United Kingdom: Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N/A
G.4.2	Denmark: Appliances rated ≤ 13 A provided with a plug according to DS 60884-2-D1:2011.		N/A
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N/A
	If a single-phase equipment having rated > 13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N/A
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.		N/A
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N/A
	Mains socket-outlets with earth 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		N/A

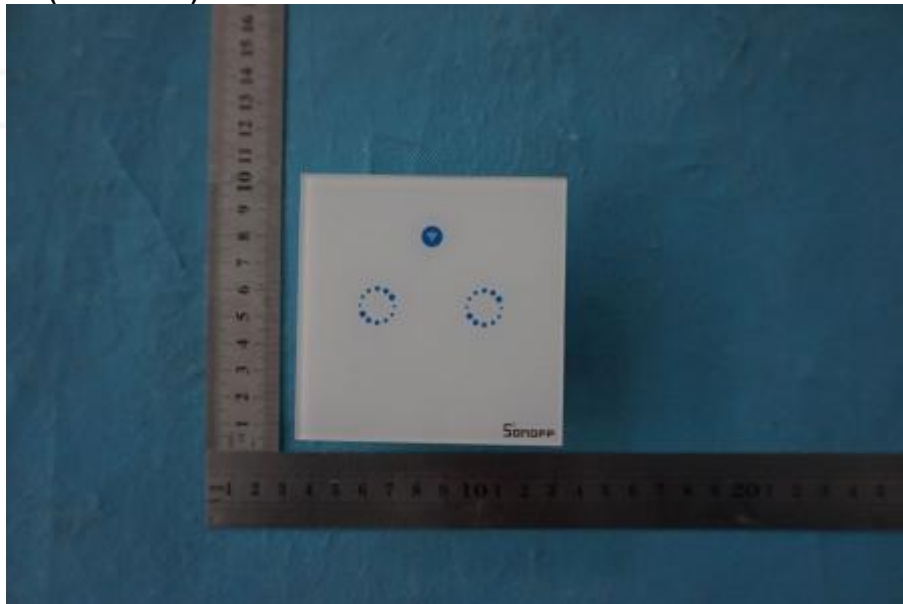


IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	United Kingdom: The plug part of direct plug-in equipment assessed to BS 1363		N/A
G.7.1	United Kingdom: Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N/A
G.7.1	Ireland: Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N/A
G.7.2	Ireland and United Kingdom: A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		
10.5.2	Germany: Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N/A
F.1	Italy: The power consumption in Watts (W) indicated on TV receiver and in instruction for use		N/A
	TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.		N/A
	Marking for controls and terminals in Italian language.		N/A
	Conformity declaration according to the above requirements in the instruction manual		N/A
	First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover.		N/A

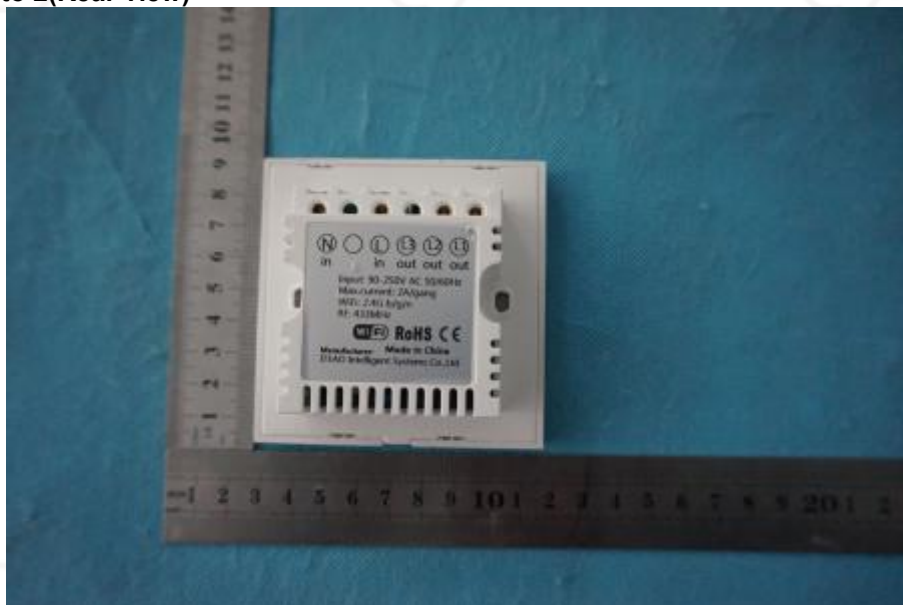
ANNEX A:

Photo-documentation

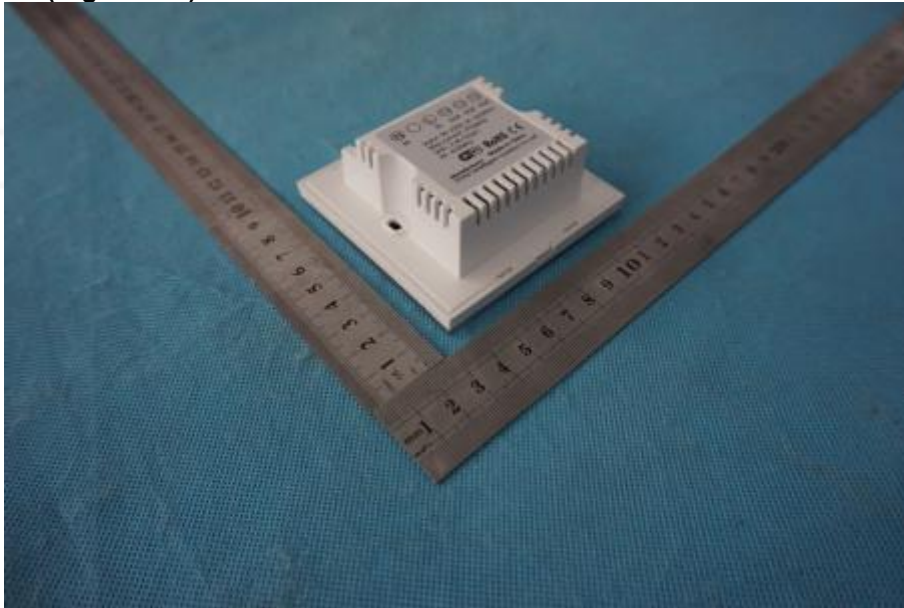
EUT Photo 1(Front view)



EUT Photo 2(Rear view)



EUT Photo 3(Right view)



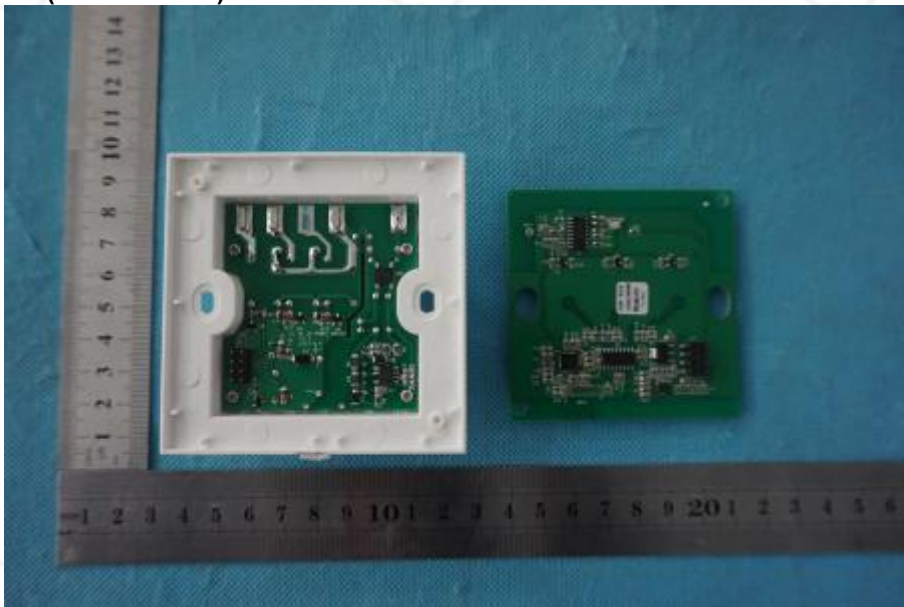
EUT Photo 4(Label view)



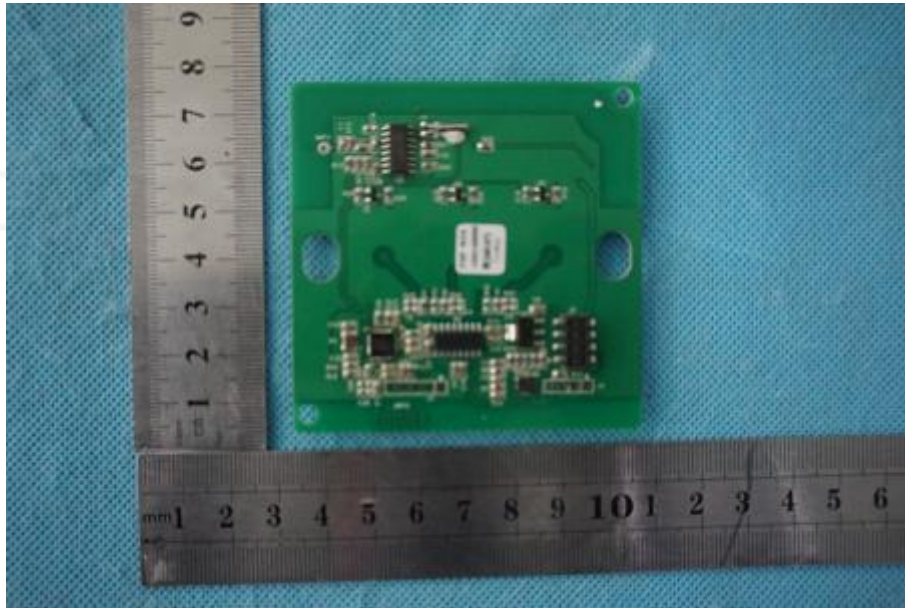
EUT Photo 5(Open view)



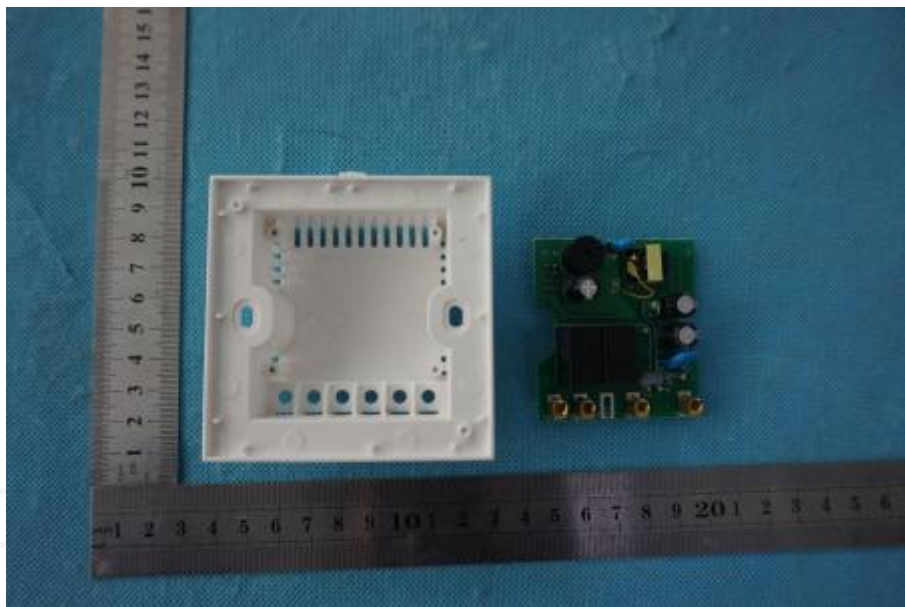
EUT Photo 6(Internal view)



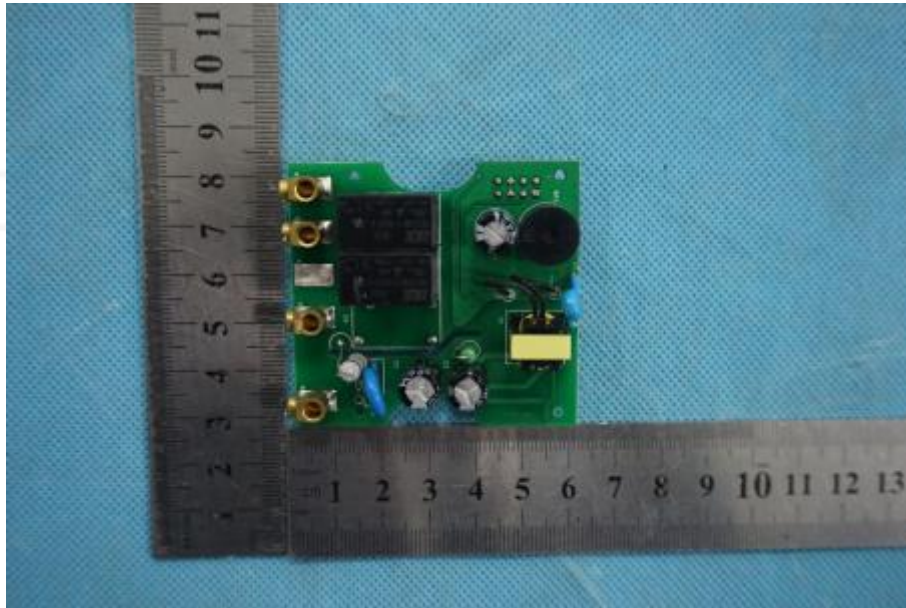
EUT Photo 7(PCB)



EUT Photo 8



EUT Photo 9



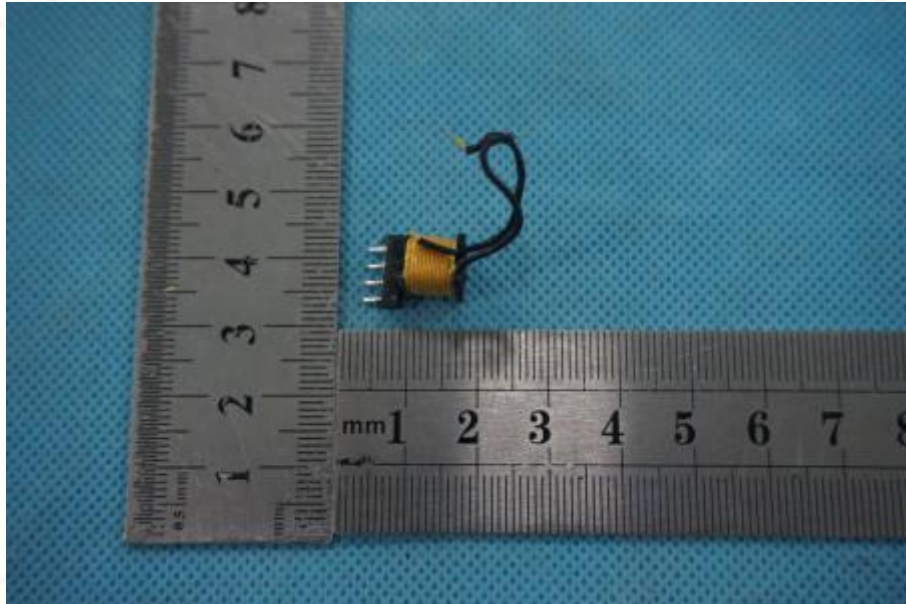
EUT Photo 10



EUT Photo 11 (transformer)



EUT Photo 12



***** END OF REPORT *****