



Test Report issued under the responsibility of:



TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

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Name of Testing Laboratory preparing the Report.....: Waltek Testing Group Co., Ltd. Dongguan Branch

Applicant's name.....: Shenzhen Filmbase Technology Co., Ltd.
Address.....: 31F, 3A Building, Smart Park, Baolong, Longgang, Shenzhen, China

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

TRF template used.....: IECEE OD-2020-F1:2020, Ed.1.3
Test Report Form No.....: IEC62368_1D
Test Report Form(s) Originator...: UL(US)
Master TRF.....: Dated 2021-02-04




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Test Item description	PDLC Film, Smart glass, Transformer	
Trade Mark(s)	 /Filmbase	
Manufacturer	Shenzhen Filmbase Technology Co., Ltd.. 31F, 3A Building, Smart Park, Baolong, Longgang, Shenzhen ,China	
Model/Type reference	FB-03-20-60V	
Ratings	Input: 110-120V~ , 50/60Hz, 0.6A Output: 60V~ Max.0.83A	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Waltek Testing Group Co., Ltd. Dongguan Branch
	Testing location/ address	No.77, Houjie Section, Guantai Road, HoujieTown, Dongguan City, Guangdong, China
	Tested by (name, function, signature)	Grace Feng (Project Handler) 
	Approved by (name, function, signature)	Sam Qi (Project Reviewer) 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
	Testing location/ address	
	Tested by (name, function, signature)	
	Approved by (name, function, signature)	
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
	Testing location/ address	
	Tested by (name, function, signature)	
	Witnessed by (name, function, signature)	
	Approved by (name, function, signature)	
<input type="checkbox"/>	Testing procedure: CTF Stage 3 :	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
	Testing location/ address	
	Tested by (name, function, signature)	
	Witnessed by (name, function, signature)	
	Approved by (name, function, signature)	
	Supervised by (name, function, signature)	

<p>List of Attachments (including a total number of pages in each attachment):</p> <p>Attachment 1: National differences (33 pages)</p> <p>Attachment 2: Output Connector Spec. (1 page)</p> <p>Attachment 3 : Photo documentation (7 pages)</p>	
<p>Summary of testing:</p>	
<p>Tests performed (name of test and test clause):</p> <p>Classification and limits of electrical energy sources (5.2,5.7)</p> <p>Maximum operating temperatures for materials, components and systems (5.4.1.4, 6.3.2, 9.2.6, B.2.6)</p> <p>Ball pressure test (5.4.1.10.3)</p> <p>Separable thin sheet materials (5.4.4.6.2)</p> <p>Antenna terminal insulation – voltage surge(5.4.5, G.10.3.2)</p> <p>Humidity conditioning (5.4.8)</p> <p>Electric strength test (5.4.9)</p> <p>Power measurements (6.2.2)</p> <p>Input test (Annex B.2.5)</p> <p>Simulated abnormal operating condition tests (Annex B.3)</p> <p>Simulated single fault conditions (Annex B.4)</p> <p>Durability, legibility and permanence of markings (Annex F.3.9)</p> <p>Transformer overload (G.5.3.3)</p> <p>Strain relief test (ANNEX G.7.3.2)</p> <p>Steady force test, 10 N (Annex T.2)</p> <p>Steady force test, 250 N (Annex T.5, 4.4.4.2,)</p> <p>Impact test (Annex T.6, 4.4.4.4)</p> <p>Drop test (Annex T.7)</p> <p>Stress relief test (Annex T.8)</p> <p>Remark:</p> <p>The EUT passed the above all tests.</p>	<p>Testing location:</p> <p>Waltek Testing Group Co., Ltd. Dongguan Branch No.77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China</p>
<p>Summary of compliance with National Differences (List of countries addressed):</p> <p>EU Group Differences, EU Special National Conditions, AU, NZ, US, CA, DK, JP, IT, UK, AU=Australian, NZ= New Zealand, US=United States of America, CA=Canada, DK= Denmark, IT= Italy, JP=Japan, UK= United Kingdom, See attachment 1 for above national differences.</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of AS/NZS 62368.1:2018</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of EN 62368-1: 2014+A11: 2017, J62368-1 (2020), BS EN 62368-1: 2014+A11: 2017</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of UL 62368-1: 2014 (2nd Ed.)</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of CAN/CSA C22.2 No. 62368-1-14, 2nd Ed.</p>	

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:

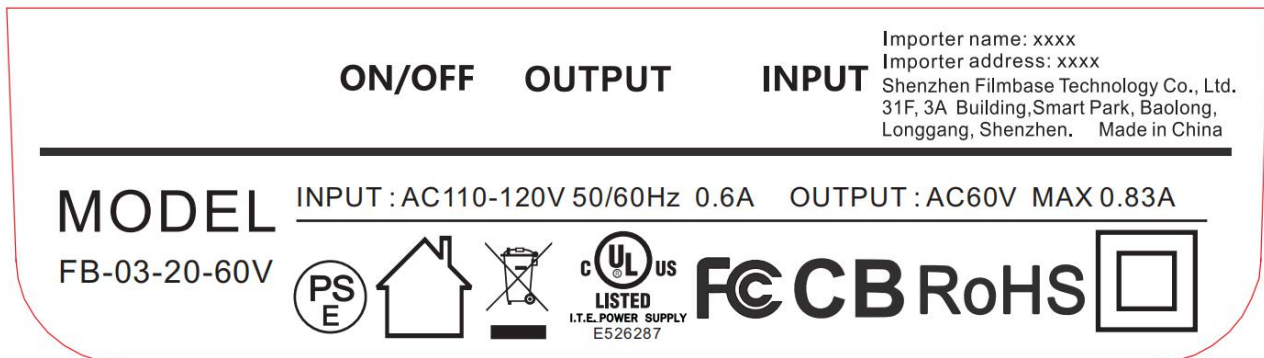
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Statement not required by the standard used for type testing

(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

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.

**Note:**

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added
2. Since similar labels used, only labels for models above listed to represent other similar ones.

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 checked="" 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 type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other: _____
Considered current rating of protective device as part of building or equipment installation :	16A (20A for US and CSA, 13A for UK); Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility :	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input checked="" 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 <input type="checkbox"/> Class II with functional earthing <input type="checkbox"/> Not classified
Access location	<input type="checkbox"/> restricted access area <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient :	50°C
IP protection class	<input checked="" type="checkbox"/> IPX0
Power Systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - __ V _{LL} ; <input type="checkbox"/> dc mains <input type="checkbox"/> N/A
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> Approximately: 0.91kg

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.....: 2021-10-27	
Date (s) of performance of tests.....: 2021-10-27 to 2021-11-11	
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	Shenzhen Yuguang New Material Co., Ltd. 3101-3102 Room 31F, 3A Building, Smart Park, Baolong, Longgang, Shenzhen, China
General product information and other remarks:	
Product Description:	
<ol style="list-style-type: none"> 1. This PDLC Film, Smart glass, Transformer, Model FB-03-20-60V is equipped with class II construction, which is designed to supply power for PDLC Film and Smart glass, for indoor use only. 2. The equipment's top enclosure is secured to the bottom enclosure by buckles. 3. The test samples are pre-production sample without serial numbers. 4. The sample was submitted and evaluated for use at the specified maximum ambient temperature (T_{ma}) 50°C. 5. The equipment was evaluated for a maximum operating altitude of 2000m. 6. Functional insulation is kept between input (ES3) circuits and output (ES3) circuits. 7. The equipment's load can be PDLC film, Smart glass or resistive load. When testing, choose the load with the highest input power to conduct all the electrical tests. See B.2.5 input test for details. 	
Model Differences:	
N/A	
Additional application considerations – (Considerations used to test a component or sub-assembly) –	
N/A	

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)
Input terminal	ES3
Output terminal (inaccessible current carrying metal part)	ES3
Accessible enclosure surface	ES1
Internal circuits (Both primary circuits and secondary circuits)	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 internal circuits except for secondary output terminal	PS3, Arcing PIS, Resistive PIS
Internal wiring	PS3
Output terminal	PS2, Arcing PIS
Output cord	PS2
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)
System fan	MS3
Mass of the unit	MS1
Edges and corners	MS1
Mounting height is Less than or equal to 2 meters	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)
Enclosure (plastics)	TS1
Internal circuits	TS3

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Radiation (Clause 10)	
(Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	Corresponding classification (RS)
N/A	N/A

ENERGY SOURCE DIAGRAM

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

ES **PS** **MS** **TS** **RS**

See details in ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: All circuits	N/A	N/A	Enclosure, See 5.4.2, 5.4.3, and 5.5.3
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3 circuits	See 6.3	V-0	N/A
PCB	PS3 circuits	See 6.3	V-1 or better	N/A
Plastic materials not part of PS3 circuits	PS2 circuits	See 6.3	V-2 or better	N/A
The other components/materials	PS2 circuits and PS3 circuits	See 6.3	See 6.4.5, 6.4.6	N/A
Internal wiring	PS3	N/A	N/A	See 6.5
Plastic material of secondary output terminal	PS2 circuits	See 6.3	V-2 or better	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)
System fan	MS3	N/A	N/A	Enclosed by Plastic enclosure
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS3: Internal circuits	N/A	N/A	Enclosure
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G.	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding preventing access to ES3 parts, 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.5)	P
4.4.4.3	Drop tests.....:	(See Annex T.7)	P
4.4.4.4	Impact tests.....:		P
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.....:		N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8.)	P
4.4.4.8	Air comprising a safeguard.....:	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.3, 4.4.4.4, 4.4.4.7, no safeguard damaged. Class 3 energy sources do not become accessible to an ordinary person or to an instructed person and all other safeguards do remain effective.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to	internal parts and components	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	Torque (Nm)..... :		N/A
4.8	Products containing coin/button cell batteries	No coin/button cell batteries	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—
4.8.4	Battery Compartment Mechanical Tests.....:		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object..... :	The top openings that do not exceed 5 mm in any dimension. See also Annex P.	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications..... :	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :		N/A
5.2.2.4	Single pulse limits..... :		N/A
5.2.2.5	Limits for repetitive pulses..... :		N/A
5.2.2.6	Ringling signals	No such ringling signals within the EUT	N/A
5.2.2.7	Audio signals	No such audio signals	N/A
5.3	Protection against electrical energy sources	See 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. Output terminal conductive metal part is not accessible by the test probe.	P
	a) Test with test probe from Annex V..... :	Checked by V.1.2 (figure V.1)	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

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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 and 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, 6.3.2, 9.0, B.2.6)	P
5.4.1.5	Pollution degree..... :	PD2	—
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		N/A
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat softening temperature..... :		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
5.4.2.2	Determining clearance using peak working voltage	Temporary overvoltage 2000V _{peak} 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..... :	1500 V _{pk} 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		N/A
5.4.2.5	Multiplication factors for clearances and test voltages..... :	Up to 2000m, factor :1.0	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 :	IIIb	—
5.4.4	Solid insulation		P

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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	Insulation tape used for transformer	P
5.4.4.6.1	General requirements	Two layers of insulation tape between winding and core of transformer is used for reinforced insulation and are not expected to be subject to handling or abrasion during ordinary or instructed person servicing.	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.....		N/A
5.4.5	Antenna terminal insulation		P
5.4.5.1	General		P
5.4.5.2	Voltage surge test	Surge test with 50 discharges at a maximum rate of 12/min from a 1 nF capacitor charged to 10kV performed.	P
	Insulation resistance (MΩ).....	Input to output: >100 MΩ	—
5.4.6	Insulation of internal wire as part of supplementary safeguard.....		N/A
5.4.7	Tests for semiconductor components and for cemented joints	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		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10	Protection against transient voltages between external circuit	No such external circuit	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :		N/A
5.4.10.2.3	Steady-state test..... :		N/A
5.4.11	Insulation between external circuits and earthed circuitry..... :	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 $\times U_{sa}$:		—
	$U_{op} = U_{peak} + \times U_{sp} + \times U_{sa}$:		—
5.5	Components as safeguards		P
5.5.1	General		P
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :		N/A
5.5.3	Transformers	Linear type transformer (See Annex G.5.3)	P
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		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

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²).....		—
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).....		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current.....	(See appended table 5.7.2.2, 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).....		—
	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

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Clause	Requirement + Test	Result - Remark	Verdict
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

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	P
6.2.2.1	General	See the following details.	P
6.2.2.2	Power measurement for worst-case load fault.... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault.....:	(See appended table 6.2.2)	P
6.2.2.4	PS1		N/A
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources	All conductors are considered as PIS.	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		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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	See 6.4.6	P
6.4.5.2	Supplementary safeguards	Safeguards checked as part of 6.4.6.	P
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: - Printed board: rated min. V-1 - All other components: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material (with mass less than 4g) or components complying to relevant IEC standard - Isolating transformer: complying with G.5.3. - Internal wires: complying with UL 758 standard, which test method and testing condition equal to IEC/EN 60695-11-21. - Fire enclosure rated V-0 used.	P
6.4.7	Separation of combustible materials from a PIS	Fire enclosure rated V-0 used.	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	Fire enclosure rated V-0 used.	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	Fire enclosure rated V-0 used.	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	See below	P
6.4.8.3.2	Fire barrier dimensions	No fire barrier	N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	Openings that do not exceed 5 mm in any dimension	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	Openings that do not exceed 3 mm in any dimension	P
	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).....	No enclosure can be opened by an ordinary person	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....	Fire enclosure rated V-0 used.	P
6.5	Internal and external wiring		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.1	Requirements	The internal wires are complied with UL standard, rated VW-1. The test method and testing condition are equal to IEC/EN 60695-11-21.	P
6.5.2	Cross-sectional area (mm ²)	See appended table 4.1.2 for detail	—
6.5.3	Requirements for interconnection to building wiring.....	No such wire used	N/A
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1	(See appended tables Q.1)	P

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	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

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See the following details.	P
8.2	Mechanical energy source classifications	MS1: Edges and corners of enclosure, MS1: Mass of the unit, MS1: mounting height is less than 2 meters or equal to 2 meters.	P
8.3	Safeguards against mechanical energy sources	See below	P
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of the enclosure are rounded.	P
8.4.1	Safeguards	See above.	N/A
8.5	Safeguards against moving parts	DC fan is installed (enclosed By plastic enclosure)	P
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	Moving MS3 parts only accessible to skilled person.	P
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

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....:		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....:		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N).....:		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....:		N/A
8.6	Stability	Classification MS1 according to table 35, line 5 and no stability requirements.	N/A
8.6.1	Product classification	MS1: Mass of the unit	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	No handles	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters	N/A
8.9.1	Classification		N/A
8.9.2	Applied force.....:		—
8.10	Carts, stands and similar carriers	No carts or stands or other carriers	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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	Not rack mounted	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No such part.	N/A
	Button/Ball diameter (mm)..... :		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	No part considered to be accessible other than enclosure. The equipment evaluated by temperature test (See appended Table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
9.3	Safeguard against thermal energy sources	Temperature of enclosure is classed as TS1.	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.4.2	Instructional safeguard	Instructional safeguard is not required	N/A

10	RADIATION		P
10.2	Radiation energy source classification	RS1: LED only for indicating use which is considered as low power application.	P
10.2.1	General classification		P
10.3	Protection against laser radiation	No such radiation generated from the equipment.	N/A
	Laser radiation that exists in the equipment:		—
	Normal, abnormal, single-fault..... :		N/A


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Clause	Requirement + Test	Result - Remark	Verdict
	Instructional safeguard..... :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons..... :		N/A
10.4.1.b)	RS3 accessible to a skilled person..... :		N/A
	Personal safeguard (PPE) instructional safeguard..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1... :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation..... :		N/A
10.4.1.g)	Materials resistant to degradation UV..... :		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard..... :		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition..... :		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards..... :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Equipment safeguard prevent ordinary person to RS2.....:		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output.....:		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....:		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....:		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements.....:	(See 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	Rated voltage $\pm 10\%$	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	(See appended table B.3)	P
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 such battery	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Not such equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.8	Safeguards functional during and after abnormal operating conditions	During an abnormal operating condition that does not lead to a single fault condition, all safeguards are remained effective. After restoration of normal operating conditions, all safeguards are compliant with applicable requirements. For those abnormal operating conditions lead to single fault conditions, see Clause B.4.	P
B.4	Simulated single fault conditions 错误!未指定书签。		P
B.4.2	Temperature controlling device open or short-circuited.....:	(See appended table B.4)	P
B.4.3	Motor tests	Tested on system fan	P
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature	(See appended table B.4)	P
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)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	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
C	UV RADIATION		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

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Clause	Requirement + Test	Result - Remark	Verdict
D	TEST GENERATORS		P
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		P
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V).....:		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
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.....:	See copy of marking plate	—
F.3.3.4	Rated voltage.....:	See copy of marking plate	—
F.3.3.5	Rated frequency.....:	See copy of marking plate	—
F.3.3.6	Rated current or rated power.....:	See copy of marking plate	—
F.3.3.7	Equipment with multiple supply connections	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

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Clause	Requirement + Test	Result - Remark	Verdict
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
F.3.5.3	Replacement fuse identification and rating markings..... :	Current fuse F1 used, marking provided on PCB adjacent to them: F1: T3.15A/250Vac, However, the fuse 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		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth	See copy of marking plate.	P
F.3.6.2.2	Class II equipment with functional earth terminal marking	See copy of marking plate.	P
F.3.7	Equipment IP rating marking	IPX0	—
F.3.8	External power supply output marking	See copy of marking plate.	P
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	Explanation is provided with manuals.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment		P
	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
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements	No switches	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		P
G.2.1	General requirements	A relay is connected in the secondary circuit of the transformer.	P
G.2.2	Overload test	The circuit design of the sample is not allowed to overload the relay.	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
G.3	Protection Devices		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
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		P
G.3.2.1a)	Thermal links separately tested with IEC 60691	Approved thermal link installed inside transformer	P
G.3.2.1b)	Thermal links tested as part of the equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Aging hours (H)..... :		—
	Single Fault Condition..... :		—
	Test Voltage (V) and Insulation Resistance (Ω).. :		—
G.3.3	PTC Thermistors	No PTC thermistor provided as safeguard within the equipment.	N/A
G.3.4	Overcurrent protection devices	Approved fuse link used as over current protection device in power supply boards. See appended table 4.1.2 for details.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions..... :		N/A
G.4	Connectors		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration	The appliance inlet used within their rating considered acceptable without further evaluation	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.....	The primary, secondary windings and core of the transformer are separated by bobbin material and margin tape.	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing	The routine tests are to be considered for the production based on the relevant approval.	P
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
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
	Position..... :	TA	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Method of protection	See G.5.3.2 and G.5.3.3.	—
G.5.3.2	Insulation	Primary windings and secondary windings (margin tape used) are separated by functional insulation minimum.	P
	Protection from displacement of windings.....	The end turn of each winding is fixed by insulating tape.	—
G.5.3.3	Overload test.....	(See appended table B.3)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended tables B.3&B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
G.5.4	Motors		P
G.5.4.1	General requirements	A recognized DC cooling fan installed.	P
	Position	Refer to circuit diagram	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
G.6.1	General		P
G.6.2	Solvent-based enamel wiring insulation	.	N/A
G.7	Mains supply cords		P
G.7.1	General requirements	Output cord	P
	Type.....:	refer to critical components table	—
	Rated current (A).....:	0.83	—
	Cross-sectional area (mm ²), (AWG).....:	Min. 24AWG	—
G.7.2	Compliance and test method		P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N).....:	30N (pull): tested on output cord. A torque of 0,25 Nm tested on output cord	—
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		P
G.7.4	Cord Entry.....:		P
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		P
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....:		N/A
G.8.3.3	Temporary overvoltage.....:		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such IC	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.1 d)	IC limiter output current (max. 5A)..... :		—
G.9.1 e)	Manufacturers' defined drift :		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements	No such resistors used	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)..... :		N/A
	Type test voltage Vini :		—
	Routine test voltage, Vini,b :		—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	No such coating	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such liquid	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 sc 5.4.8 – 120 hours	No such ICX	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	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		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
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	The appliance coupler considered as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment	The appliance coupler 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		N/A
L.8	Multiple power sources	Single power source	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements	No battery used	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method)... :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature..... :		—
M.4.2.2 b)	Single faults in charging circuitry..... :		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 Vz (m ³ /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used.....		—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied.....	Pollution degree considered	—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements		P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm)	Openings that do not exceed 5 mm in any dimension	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C).....		—
	Tr (°C).....		—
	Ta (°C).....		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing.....		N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources	Does not comply. Not apply.	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		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		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
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	Approved fire enclosure with V-0 material used.	N/A
	Samples, material.....		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (test condition), (°C)..... :		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.5)	P
T.6	Enclosure impact test		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Fall test		P
	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 CRTs	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	Mark(s) of conformity ¹	
AC Inlet (CN1)	LECI Electronics Co., LTD	DB-8	2.5A / 5A, 250VAC, 70°C C8 Sheet	IEC/EN/UL 60320-1	UL E302229 VDE 40032028	
(Alt.)	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A03-005	2.5A / 5A, 250VAC, 70°C C8 Sheet	IEC/EN/UL 60320-1	UL E225980 VDE 40014833	
(Alt.)	Yueqing Yanghui Electronics Co., Ltd	DB-14-T	2.5A, 250VAC, 70°C C8 Sheet	IEC/EN/UL 60320-1	UL E334847 VDE 40035411	
Material of enclosure	SABIC INNOVATIVE PLASTICS B V	SHF4910(G G)	V-0, 120°C, 1.5mm min. thickness, All color.	UL94	UL E45329	
PCB	ZHEJIANG ZAPON ELECTRONIC TECHNOLOGY CO LTD	Z-M	V-0; 130°C	UL 796	UL E253641	
(Alt.)	Interchangeable	Interchangeable	Min. V-1, 130°C	UL 796	UL	
Current fuse	SHENZHEN LANSON ELECTRONICS CO LTD	SMT	250V AC; T3.15A	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E221465 VDE 40012592	
(Alt.)	Littelfuse Inc	392	250V AC; T3.15A	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E67006 VDE 126983	
(Alt.)	XC Electronics (shenzhen) Corp. LTD	5TE	250V AC; T3.15A	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E249609 VDE 40029550 VDE 40036821	
(Alt.)	DONGGUAN BETTER ELECTRONICS TECHNOLOGY CO LTD	932	250V AC; T3.15A	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E300003 TUV R50279350 VDE 40033369	
(Alt.)	CONQUER ELECTRONICS CO LTD	MET Or MEF	250V AC; T3.15A	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E82636 VDE 40017157	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Mylar sheet	JINGMEN GORUN TECHNOLOGY CO LTD	HF11	Min. 0.125mm, Min 80°C, V-0; Color: Natural (No pigmentation).	UL 94	UL E305163
Strain relief for output wire	SABIC INNOVATIVE PLASTICS B V	SHF4910(G G)	V-1 or better, 1.5mm min. Thickness, 120°C	UL 94	UL E45329
Output wire	Dongguan Jinlan Industry Co Ltd	2464;2468	Min 24AWG; 300V; 80°C, VW-1, max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E339790
(Alt.)	Shenzhen City De Xing Long Electric Co., Ltd.	2464;2468	Min 24AWG; 300V; 80°C, VW-1. max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E328945
(Alt.)	DONGGUAN CITY DHE WIRE & CABLE CO., LTD	2464;2468	Min 24AWG; 300V; 80°C, VW-1. max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E343712
(Alt.)	Dongguan Zhihe Electrical Cable Tech Co., LTD	2464;2468	Min 24AWG; 300V; 80°C, VW-1, max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E258239
(Alt.)	KWANG IL ELECTRIC WIRE CO LTD	2464;2468	Min 24AWG; 300V; 80°C, VW-1, max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E150633
(Alt.)	DONGGUAN TRIUMPHCABLE CO LTD	2464;2468	Min 24AWG; 300V; 80°C, VW-1, max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E249743
(Alt.)	Dongguan Wenchang Electronic Co., LTD	2464;2468	Min 24AWG; 300V; 80°C, VW-1, max. 3.05m in length, jacketed cable for style 2464 only	UL 758	UL E214500
(Alt.)	GUANGDONG DONGJU WIRE & CABLE CO LTD	SVT, SJT, ST, SJTW	Min 24AWG; 300V; 105°C, VW-1, max. 3.05m in length, jacketed cable	UL 758	UL E189672

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
(Alt.)	KAI TAT INDUSTRIES CO	SVT, SJT, ST, SJTW	Min 24AWG; 300V, 105°C, VW-1, max. 3.05m in length, jacketed cable	UL 758	UL E246527
Output connector	SHENZHEN LINKO ELECTRIC CO LTD	LC-20- C03PE-01- 001	Rated 250V, 3A max. operating temp. 105°C, V-0 See attachment 2 for details.	UL 1977	UL E365869
Transformer (T1)	JANOHIG ELECTRONICS TECHNOLOGY CO., LTD	YG6625- 50W	Class 130 (B)	IEC 62368-1	Tested with appliance
- Insulation system	JANOHIG ELECTRONICS TECHNOLOGY CO., LTD	YCI-130	Class 130 (B) electrical insulation systems (Table V)	UL 1446	UL E252663
- Bobbin	CHANGCHUN PLASTICS	Phenolic; T375HF	V-0; 150°C, min 0.43mm thick	UL 94	UL E59481
- Magnet wire (for primary winding)	Interchangeable	MW28, MW75	130°C	UL 1446	UL E316891
- Magnet wire (for secondary winding)	Interchangeable	MW28, MW75	130°C	UL 1446	UL E316891
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (b)(g)	130°C	UL 510A	UL E165111
-Varnish	John C. Dolph Co	BB-359FR	155°C	UL 1446	UL E317427
-Thermal link	ZHANGZHOU AUPO ELECTRONICS CO LTD	A4	2A; 130°C	UL 60691	UL E140847
- Primary lead wire	SHENZHEN TONGJIAXIN ELECTRONIC CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E338302
(Alt.)	DONGGUAN CHANGAN HUAWEI WIRE CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E320244
(Alt.)	DONGGUAN TRIUMPHCABLE CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E249743
(Alt.)	DONGGUAN CITY JIN ZAO LI ELECTRONIC TECHNOLOGY CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E348531
(Alt.)	RAN SUN INDUSTRIAL CO	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E157882
(Alt.)	SHENZHEN HONGYA ELECTRONICS CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E346933

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Clause	Requirement + Test		Result - Remark		Verdict
(Alt.)	GUANG DONG XIN LONG ENTERPRISE CO	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E207567
(Alt.)	ZHONGSHAN BAOXU ELECTRONICS CO LTD	1015	Min 24AWG; 105°C, 600V	UL 758	UL E496532
(Alt.)	HUIZHOU CITY AO KAI SI WIRE & CABLE CO LTD	1015	Min 24AWG; 105°C, 600V	UL 758	UL E503522
- Secondary lead wire	SHENZHEN TONGJIAXIN ELECTRONIC CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E338302
(Alt.)	DONGGUAN CHANGAN HUAWEI WIRE CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E320244
(Alt.)	DONGGUAN TRIUMPHCABLE CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E249743
(Alt.)	DONGGUAN CITY JIN ZAO LI ELECTRONIC TECHNOLOGY CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E348531
(Alt.)	RAN SUN INDUSTRIAL CO	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E157882
(Alt.)	SHENZHEN HONGYA ELECTRONICS CO LTD	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E346933
(Alt.)	GUANG DONG XIN LONG ENTERPRISE CO	1672,1015	Min 24AWG; 105°C, 300V	UL 758	UL E207567
(Alt.)	ZHONGSHAN BAOXU ELECTRONICS CO LTD	1015	Min 24AWG; 105°C, 600V	UL 758	UL E496532
(Alt.)	HUIZHOU CITY AO KAI SI WIRE & CABLE CO LTD	1015	Min 24AWG; 105°C, 600V	UL 758	UL E503522
Heat shrinkable tube enclosed secondary lead wire	GUANGZHOU KAIHENG NEW MATERIAL CO LTD	K-102 (CB)	Rated 300V, 125°C, VW-1	UL 224	UL E321827
(Alt.)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR	Rated 600V,125°C, VW-1	UL 224	UL E203950
(Alt.)	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-DWT	Rated 600V,125°C, VW-1	UL 224	UL E180908
(Alt.)	Interchangeable	Interchangeable	Min300V,125°C, VW-1	UL 224	UL
DC fan	SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD	HA40101V4- 1000C-A99	12VDC, 0.80W, 5.4CFM	IEC/EN 62368-1 UL 507	UL E77551 Test with appliance

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
-Lead wire	Interchangeable	1015	Min 24AWG; 80°C,VW-1, 300V	UL 758	UL
Electrolytic Capacitor (C1)	Interchangeable	Interchangeable	27-40uF, min 400V, 105 degree C	-	Test with appliance
Electrolytic Capacitor (C2)	Interchangeable	Interchangeable	8-12uF, min 400V, 105 degree C	-	Test with appliance
Electrolytic Capacitor (C3)	Interchangeable	Interchangeable	390-560uF, min 25V, 105 degree C	-	Test with appliance
Electrolytic Capacitor (C4)	Interchangeable	Interchangeable	180-260uF, min 10V, 105 degree C	-	Test with appliance
Relay (K1)	CHANGZHOU RUIYING IMPORT&EXPORT CORP.LTD.	JQC-3FF-S- Z	12Vdc; 15A/125Vac; 105 degree C	UL 60947-1	UL E495411
MOS (Q2, Q3)	Interchangeable	Interchangeable	Min. 400V, min. 0.5A	-	Test with appliance
Line Choke (L1)	Shenzhen Glorious Electronic Co.,Ltd.	GCRH74- 471MC	130 degree C	-	Test with appliance
Glue for fixing components in place	Interchangeable	Interchangeable	Min. V-2, min. 130 degree C	UL 94	UL
Supplementary information: License available upon request ¹⁾ 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)
	--	--	--
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.
	--	--	1
	--	--	2
	--	--	3
4.8.4.5	TABLE: Impact		—
	Impacts per surface	Surface tested	Impact energy (Nm)
	--	--	--
	--	--	--
	--	--	--
4.8.4.6	TABLE: Crush test		—
	Test position	Surface tested	Crushing Force (N)
	--	--	--
	--	--	--
Supplementary information:			
--			

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 (A _{pk} or A _{rms})	Hz	
1	132Va.c. 60Hz	Output terminals (+ to -)	Normal:	73.2Vrms	--	60	ES3
			Abnormal: output overload	54.7Vrms	--	60	
			Single fault – SC: C1	0	--	--	
2	132Va.c. 60Hz	Enclosure wrapped with metal foil to earth	Normal:	--	2.5mVpk/ 500 ohm = 0.005mApk	60	ES1
			Abnormal: output overload	--	3.0mVpk/ 500 ohm = 0.006mApk	60	
			Single fault – SC: C1	--	3.0mVpk/500ohm = 0.006mApk	60	
3	132Va.c. 60Hz	Output terminal (+/-) to earth	Normal:	--	3.0mVpk/ 500 ohm = 0.006mApk	60	ES1
			Abnormal: output overload	--	3.5mVpk/ 500 ohm = 0.007mApk	60	
			Single fault – SC: C1	--	4.0mVpk/500ohm = 0.008mApk	60	
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: R1A	--	--		
5.2.2.4 - Single Pulses							

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
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	--	--	--	
			Single fault – SC/OC	--	--	--	
Test Conditions: Normal –Full load and no load, Abnormal - Overload output 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)	132V / 60Hz	99V / 60Hz	132V / 60Hz	99V / 60Hz	—
	Ambient T _{min} (°C)	23.4	23.4	23.4	23.4	—
	Ambient T _{max} (°C)	24.8	24.8	24.8	24.8	—
	T _{ma} (°C)	50.0	50.0	50.0	50.0	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
Tested at oven 50 degree C		Test on the test bench		mounting on the wall, vertically		--
AC inlet		65.0	63.6	65.4	63.8	70
Pri. wire of Transformer		91.4	87.4	85.4	81.9	105
Pri. winding of Transformer		108.0	102.3	107.0	101.3	110
Sec. winding of Transformer		106.3	100.8	102.5	97.3	110
Transformer bobbin		96.6	92.1	96.2	91.6	150
Core of Transformer		85.0	81.6	84.5	81.0	For ref.
Sec. wire of Transformer		76.7	74.1	74.7	72.2	105
PCB near U1		89.6	85.8	91.5	87.4	130
L1 Winding		89.9	86.0	86.2	82.6	130

IEC 62368-1							
Clause	Requirement + Test			Result - Remark		Verdict	
C1 body	81.6	78.6	80.2	77.2	105		
K1 body	80.9	78.0	83.4	80.1	105		
PCB near U2	80.1	77.2	81.0	77.9	130		
PCB near U3	77.1	74.5	76.8	74.1	130		
Material of Output connector	69.6	67.7	71.2	69.1	105		
Fan lead wire	75.5	73.1	75.0	72.5	80		
Enclosure inside near the transformer (Top)	92.3	88.2	89.9	85.9	120		
Enclosure inside near the transformer (Bottom)	86.4	82.9	86.1	82.5	120		
Mylar sheet near transformer core	66.5	65.0	68.1	66.3	80		
Ambient	50.0	50.0	50.0	50.0	--		
Tested under 25°C ambient							
Enclosure outside near the transformer (Top)	62.0	58.4	60.9	57.4	94*		
Enclosure outside near the transformer (Bottom)	53.2	50.5	53.0	50.2	94*		
Ambient (shifted)	25.0	25.0	25.0	25.0	--		
Supplementary information:							
* Temperature limit for TS1 of accessible enclosure according to Table 38 to be measured at normal ambient temperature.							
Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (T _{ma}) 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 → T _{max} = 120 - 10=110°C							
Note 4: The output of the sample was connected to a resistive load (@60Vac, 0.83A).							
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:							

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:				
--				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.3	TABLE: Ball pressure test of thermoplastics		P
Allowed impression diameter (mm) : ≤ 2 mm			—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
Enclosure	See table 4.1.2	125	1.12
Bobbin	See table 4.1.2	125	0.95
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)
L to N before F1 on the board (FI)	170	120	0.06	1.27	3.8	1.5	3.8
Between polarity of fuse F1 on power board (FI)	170	120	0.06	1.27	2.7	1.5	2.7
TA: Primary winding to secondary winding (FI)	170	120	0.06	1.27	Greater than 10.0	1.5	Greater than 10.0
TA: Core to primary winding (FI)	170	120	0.06	1.27	9.5	1.5	9.5
TA: Core to secondary winding (FI)	170	120	0.06	1.27	9.5	1.5	9.5
Primary circuit PWB Trace to secondary circuit PWB trace (FI)	170	120	0.06	1.27	6.2	1.5	6.2
Output connector current carrying metal part(*)	-	-	-	-	-	-	-
Supplementary information:							
Note 1: The equipment was evaluated for a maximum operating altitude of 2000m.							
Note 2: See table 5.4.2.4 if this is based on electric strength test							
Note 3: Material Group: IIIb;							
Note 4: FI: Functional insulation; BI: Basic Insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation.							
Note 5: The core of transformer TA was considered as Primary part.							
(*) current carrying metal part is unable to be contacted by the test probe fig. V.2							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			N/A
Overvoltage Category (OV):				II
Pollution Degree:				2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	
-	-	-	-	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage		N/A
	Overvoltage Category (OV):		II
	Pollution Degree:		2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
1) Limits in previous table for clearance selected based on Table 15 for Required Withstand Voltage 2.5kV (mains transient voltage 2.5kV).			
2) For the equipment intended to be used in a level above to 2000m.			

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

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm) *	DTI (mm) **	
Plastic enclosure	170	0.06	See table 4.1.2	0.4	See table 4.1.2	
Bobbin of transformer	170	0.06	See table 4.1.2	0.4	See table 4.1.2	
Insulation tape (Functional insulation) (for all sources)	170	0.06	See table 4.1.2	Min. 2 layers	2 layers	
Supplementary information:						
*See also sub-clause 5.4.4.9;						
**Measured on each source listed in table 4.1.2.						
1) See appended table 4.1.2 for details.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No	
Basic/supplementary:				
L –N (fuse disconnected)	DC	2600	No	
TA: core to primary winding (*)	DC	2600	No	
TA: core to secondary winding (*)	DC	2600	No	
Reinforced:				
Primary to secondary terminal	DC	4000 (**)	No	
Primary to plastic enclosure wrapped by metal foil	DC	4000(**)	No	

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.9	TABLE: Electric strength tests		P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)
			Breakdown Yes / No
TA: primary to secondary winding (*)		DC	4000(**)
One layer of insulation tape of transformer T1(*)		DC	4000(**)
One layer of mylar sheet(*)		DC	4000(**)
Supplementary information:			
Core of transformer T1 was considered as primary part. Test after humidity treatment, heating test, and for unit primary to secondary, primary to plastic enclosure electric strength after each fault condition test. Test was performed on product with each source listed in table 4.1.2. The DC voltage source was performed on all testing once in forward and once in reverse.			
(*) All alternate insulation tape, insulating sheet and transformer were tested. Pls. refer to the CCL table for details.			
(**)- test voltage is requested by the applicant			

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:						
<input type="checkbox"/> bleeding resistor rating:						
<input type="checkbox"/> ICX:						
Notes:						
A. Test Location:						
Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth						
B. Operating condition abbreviations:						
N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						
OC: open circuit						

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

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage.....:			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		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			P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*	PS Classification
For model: FB-03-20- 60V	Output terminals(+ to -)	Power (W) :	61.6	61.6	PS2
		V _A (V) :	53.6	53.6	
		I _A (A) :	1.147	1.147	
	Single fault – D1 SC	Power (W) :	0**	--	PS1
		V _A (V) :	0**	--	
		I _A (A) :	0**	--	
For model: FB-03-20- 60V	Transformer output (+ to -)	Power (W) :	62.22	62.22	PS2
		V _A (V) :	54.1	54.1	
		I _A (A) :	1.15	1.15	
	Single fault – D1 SC	Power (W) :	0**	--	PS1
		V _A (V) :	0**	--	
		I _A (A) :	0**	--	
Supplementary Information:					

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Clause	Requirement + Test	Result - Remark	Verdict

* Measurement taken only when limits at 3 seconds exceed PS1 limits
 **Unit shutdown immediately, recoverable, no hazard.
 SC=short circuit
 The single fault reference LPS

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				P
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No	
Considered arcing PIS in all primary and secondary circuit.	--	--	--	Yes (declaration)	
Supplementary information:					
Considered arcing PIS in all primary and secondary circuit. An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V _p) and normal operating condition rms current (I _{rms}) is greater than 15.					

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)					P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No	
All internal circuits / parts	--	--	--	--	Yes (declaration)	
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. 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, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.						

8.5.5	TABLE: High Pressure Lamp		N/A
Description	Values	Energy Source Classification	
Lamp type.....:	--	—	
Manufacturer.....:	--	—	
Cat no.....:	--	—	
Pressure (cold) (MPa).....:	--	MS_	
Pressure (operating) (MPa).....:	--	MS_	
Operating time (minutes).....:	--	—	
Explosion method.....:	--	—	

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Clause	Requirement + Test	Result - Remark	Verdict
Max particle length escaping enclosure (mm) :		--	MS_
Max particle length beyond 1 m (mm).....:		--	MS_
Overall result		--	
Supplementary information:			
--			

B.2.5		TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
99	50	0514	--	50.6	--	F1	0514	Output load: load with PDLC film	
99	60	0.515	--	50.2	--	F1	0.515		
110	50	0.517	0.6	56.4	--	F1	0.517		
110	60	0.513	0.6	56.1	--	F1	0.513		
120	50	0.520	0.6	61.3	--	F1	0.520		
120	60	0.513	0.6	61.1	--	F1	0.513		
132	50	0.526	--	69.9	--	F1	0.526		
132	60	0.512	--	66.8	--	F1	0.512		
99	50	0515	--	51.8	--	F1	0515	Output load: 60V, 0.83A (load with resistive load)	
99	60	0.516	--	51.2	--	F1	0.516		
110	50	0.518	0.6	57.9	--	F1	0.518		
110	60	0.514	0.6	57.3	--	F1	0.514		
120	50	0.521	0.6	63.7	--	F1	0.521		
120	60	0.515	0.6	63.2	--	F1	0.515		
132	50	0.528	--	72.4	--	F1	0.528		
132	60	0.515	--	68.9	--	F1	0.515		
Supplementary information: Max. loading: Output connected to resistive load.									
The maximum measured current under rated voltage did not exceed 110% of the rated current.									

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25 (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-coupl e	Temp. (°C)	Observation
Output terminal	OL	132	5hour 10mins	F1	0.498 → 0.84 → 1.04 → 0.01	see next column	Pri.winding of transformer : 132.1°C Sec. winding of transformer : 127.5°C Core of transformer :121.4°C Ambient: 50.0°C Plastic enclosure outside near the transformer (Top): 73.6°C Ambient:25.0°C	Output terminal overload to 1.04A, and unit shutdown at 1.05A. immediately, no hazard. Max. Touch current (+/- to earth): 0.007mA, Touch Voltage (+ to-): 54.7V, NC, NB
Output terminal	SC	132	10mins	F1	0.498 → 0.01	see next column	--	Unit shut down immediately, recoverable, no hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V, NC, NB

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Clause	Requirement + Test					Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25 (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-coupl e	Temp. (°C)	Observation
Ventilation	Blocked	132	2h40min	F1	0.510	see next column	Pri.winding of Transformer :127.8°C; Sec. winding of Transformer :126.1°C; Core of Transformer :114.5°C Ambient: 50.0°C Enclosure outside near the transformer (Top):69.9°C Ambient: 25.0°C	Unit working normally, no damage, no hazard. No higher temperature rise exceeding its limit occurred. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 62.7V, NC, NB
Fan	disconnect	132	1h50min	--	0.509A→ 0.01A	see next column	Pri.winding of Transformer :142.0°C; Sec. winding of Transformer :147.4°C; Core of Transformer :134.7°C; Ambient: 50.0°C Enclosure outside near the transformer (Top):71.3°C Ambient: 25.0°C	Unit shut down after working about 1h 50mins, Transformer damaged (Thermal link opened),no hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 62.7V, NC, NB
Supplementary information:								

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Clause	Requirement + Test					Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)					25 (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
<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>NB –no indication of dielectric breakdown; NC–Cheesecloth remained intact; NT-Tissue paper remained intact</p> <p>1) SC: Short-circuited; OL: 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 overload condition for transformer is applied according to annex G.5.3.3.</p> <p>Winding Limit for winding of transformer T1: 175°C -10°C=165°C</p> <p>Limit temperature:</p> <p>Plastic material: 87°C,</p> <p>[x] During and after abnormal operating condition test, the output voltage did not increase by more than 3V or 10% which one is higher of its rated output voltage under normal operating condition;</p> <p>[] During and after abnormal operating condition test, the output voltage did not increase by more than 10% of its rated output voltage under normal operating condition</p>								

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Clause	Requirement + Test	Result - Remark	Verdict

B.4		TABLE: Fault condition tests						P
Ambient temperature (°C)						23.5	—	
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-coupl e	Temp. (°C)	Observation
C4	SC	132V	10min	F1	0.001	-	--	After short circuit ,Unit shut down,immediately, Transformer damaged, No hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT
C1	CS	132V	10min	F1	0.001	-	--	After short circuit ,Unit shut down,immediately, Transformer damaged, No hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT
D1	SC	132V	10min	F1	0.001	- -	--	After short circuit ,Unit shut down,immediately, No hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT
U1 Pin1-8	SC	132V	10min	F1	0.001	-	--	After short circuit ,Unit shut down,immediately, No hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT
K1	SC	132V	10min	F1	0.001	-	--	After short circuit ,Unit shut down,immediately, No hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT

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Clause	Requirement + Test					Result - Remark		Verdict
Q2 Pin G-S	SC	132V	10min	F1	0.001	-	--	After short circuit ,Unit shut down,immediately, No hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT
Transformer output	OL	132V	5h 4mins	F2	0.503 → 0.01	-	Pri.winding of Transformer :133.9°C; Sec. winding of Transformer :129.1°C; Core of Transformer :123.0°C Ambient: 50.0°C Enclosure outside near the transformer (Top):74.6°C Ambient : 25.0°C	Transformer Output max. loading current was1.10A, over 1.10A, unit shut down, recoverable, no hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 54.7V. NC, NB, NT
Transformer output	SC	132V	10mins	F2	0.001	-	--	Transformer damaged. (Thermal-link opened); no hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 0V. NC, NB, NT

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Clause		Requirement + Test				Result - Remark			Verdict
fan	locked	132V	1h 50mins	F1	0.512 → 0.01	-	Pri.winding of Transformer :143.2°C; Sec. winding of Transformer :148.8°C; Core of Transformer :135.8°C Ambient: 50.0°C Enclosure outside near the transformer (Top):71.6°C Ambient : 25.0°C	Unit shut down after working about 1h50mins, Transformer damaged (Thermal link opened),,no hazard. Max. Touch current (+/- to earth): 0.005mA, Touch Voltage (+ to-): 62.7V. NC, NB, NT	
Supplementary information:									
<p>Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.</p> <p>NB – no indication of dielectric breakdown; NC – Cheesecloth remained intact; NT - Tissue paper remained intact</p> <p>1) SC: Short-circuited; OC: Open-circuited, OL: 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>[x] During single fault operating condition test, the output voltage did not increase by more than 3V or 10% which one is higher of its rated output voltage under normal operating condition;</p> <p>[] During single fault operating condition test, the output voltage did not increase by more than 10% of its rated output voltage under normal operating condition</p> <p>4.1.2 and with same result.</p>									

IEC 62368-1										
Clause	Requirement + Test			Result - Remark				Verdict		
Annex M.3	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available									--	
Is it possible to install the battery in a reverse polarity position?..... :									--	
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition	--	--	--	--	--	--	--	--	--	
Max. current during abnormal 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							--	--		
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:						
SC = short circuit, OC = open circuit						

Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation
--	--	--	--	--

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

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured U_{OC} (V) with all load circuits disconnected:						
Output Circuit	Components	U_{OC} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
--	--	--	--	--	--	--
Supplementary Information:						
SC = short circuit, OC = open circuit						
* Unit shutdown immediately, recoverable, no hazard.						

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 (T.2)	--	--	10	5	No reduction the clearances and creepage distances	
Enclosure bottom (T.5)	Plastic*	See table 4.1.2	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Enclosure top (T.5)	Plastic*	See table 4.1.2	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side (T.5)	Plastic*	See table 4.1.2	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:						
*Test was performed on product with each source listed in table 4.1.2.						

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure bottom	Plastic*	See table 4.1.2	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	

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Clause	Requirement + Test			Result - Remark	Verdict
Enclosure top	Plastic*	See table 4.1.2	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side	Plastic*	See table 4.1.2	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:					
*Test was performed on product with each source listed in table 4.1.2.					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Enclosure bottom	Plastic*	See table 4.1.2	1000	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Enclosure top	Plastic*	See table 4.1.2	1000	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side	Plastic*	See table 4.1.2	1000	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:					
*Test was performed on product with each source listed in table 4.1.2.					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Whole of the sample	Plastic*	See table 4.1.2	103°C	7h	Enclosure remained intact, no crack/opening developed. Internal ES3, TS2, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:						
*Test was performed on product with each source listed in table 4.1.2.						

Photo Documentation

Model No.: FB-03-20-60V



Figure 1: Overall view

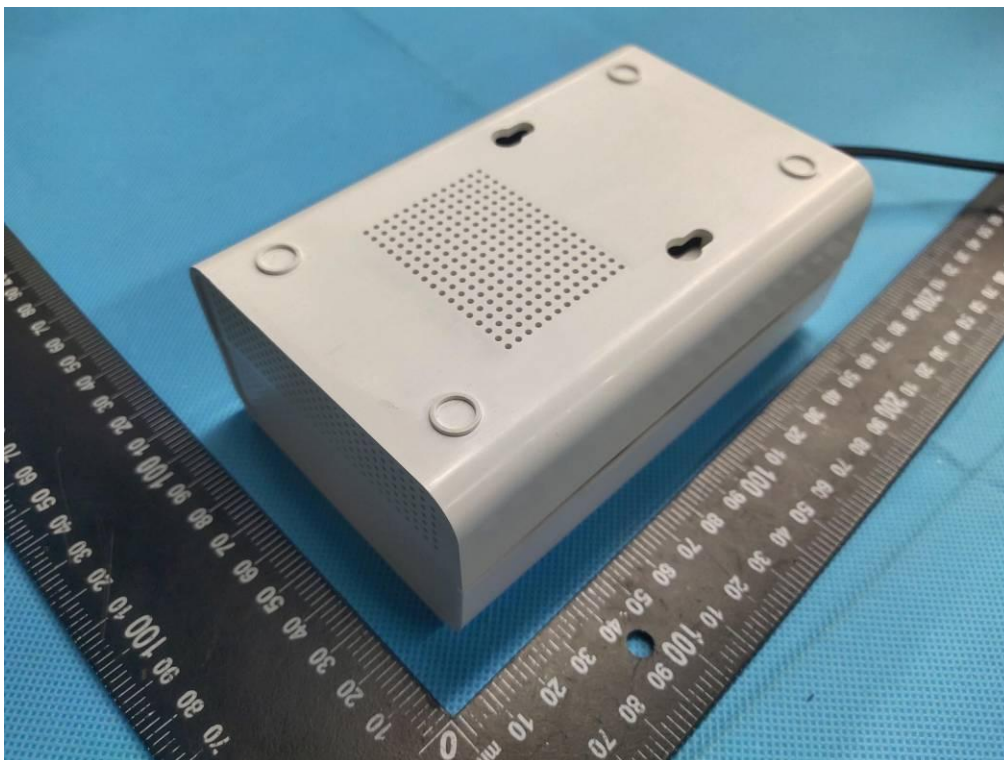


Figure 2: Overall view

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Model No.: FB-03-20-60V



Figure 3: Overall view

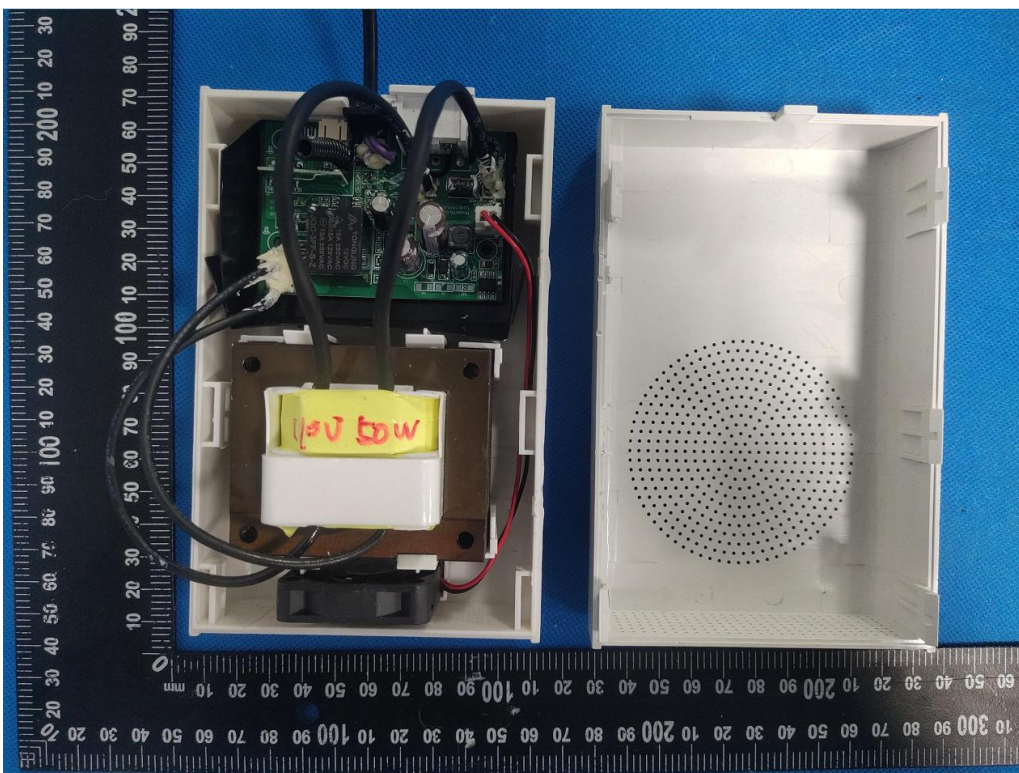


Figure 4: Internal view

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Model No.: FB-03-20-60V

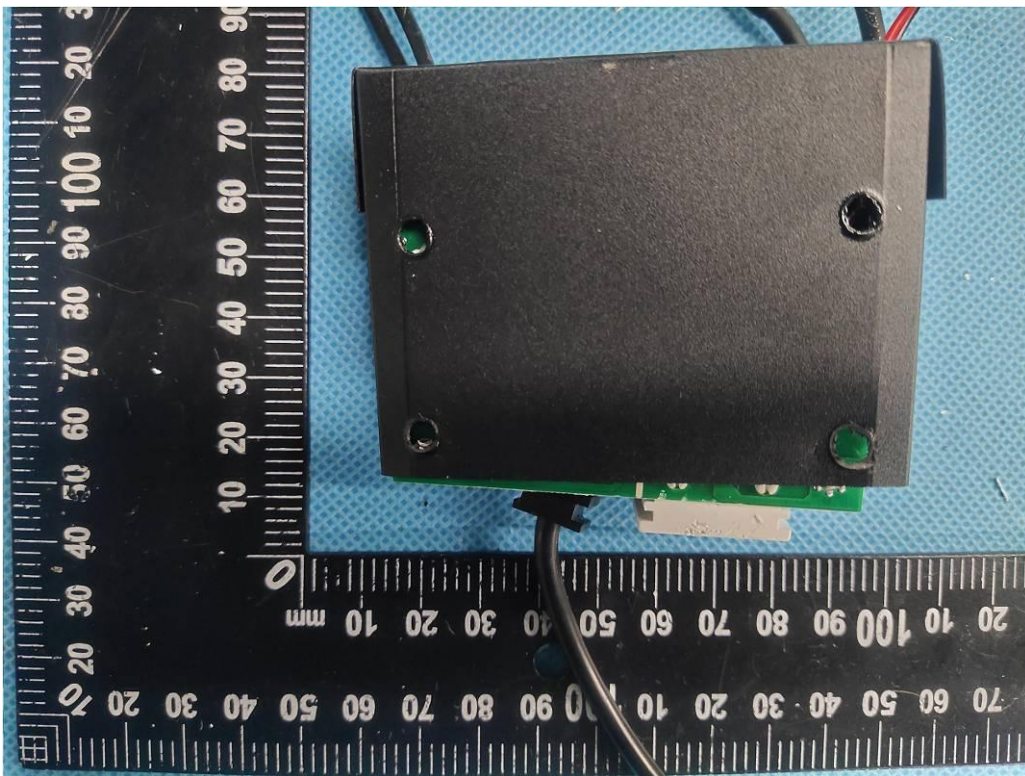


Figure 5: Internal view

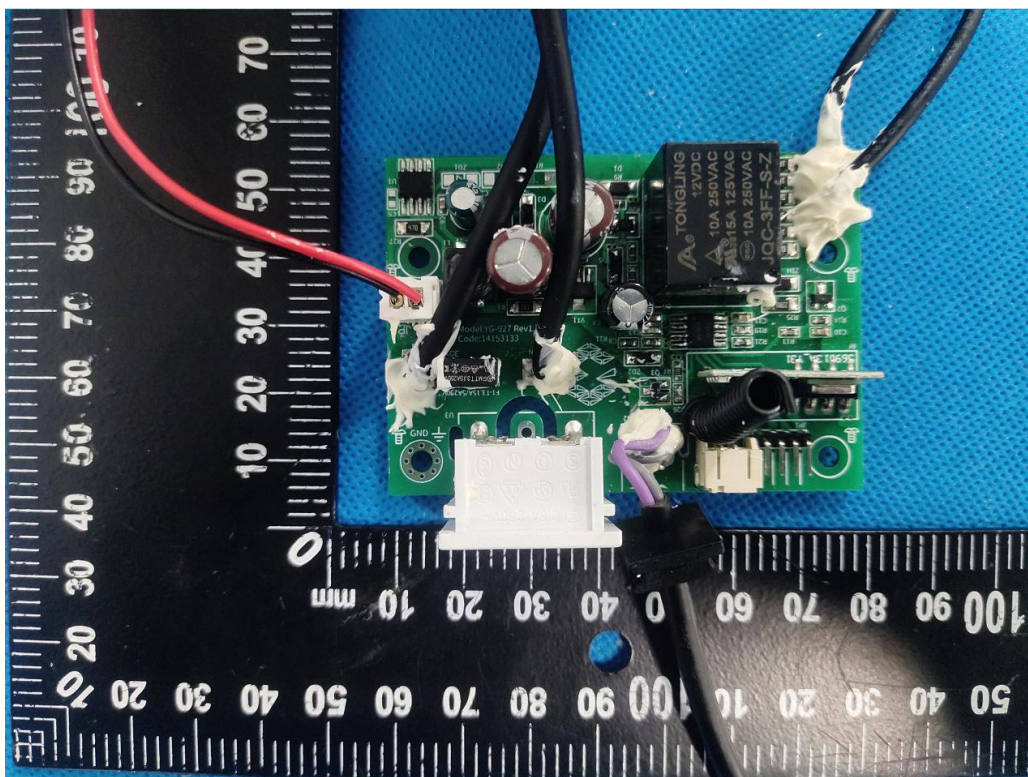


Figure 6: PCB view

Photo Documentation

Model No.: FB-03-20-60V

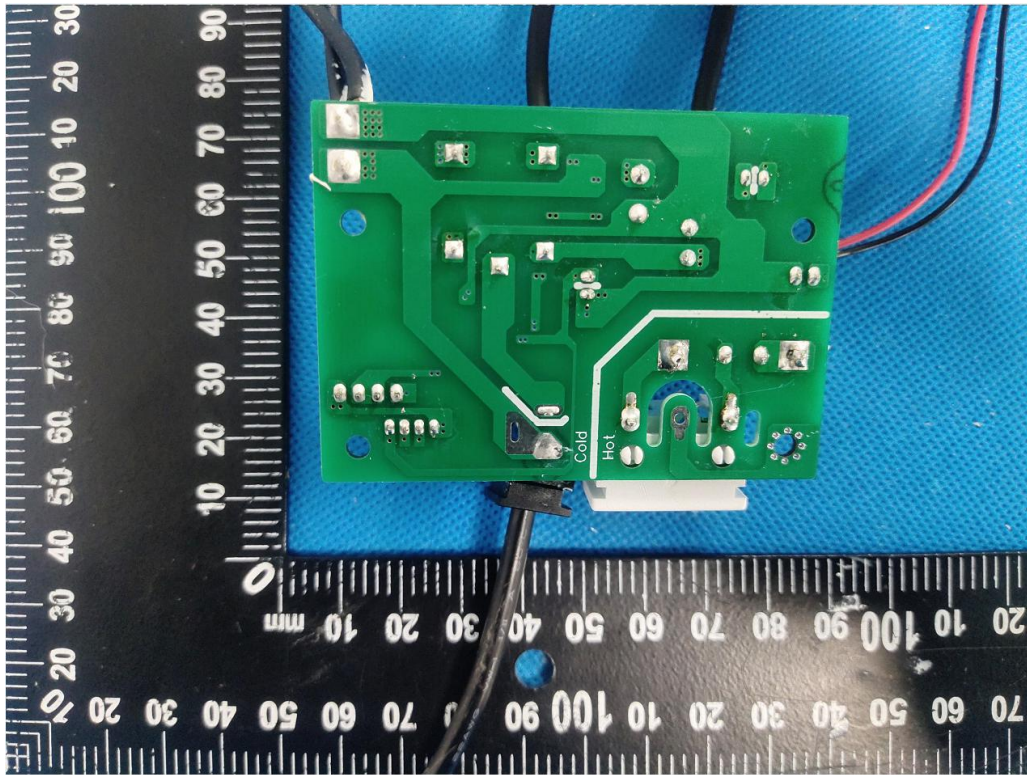


Figure 7: PCB view

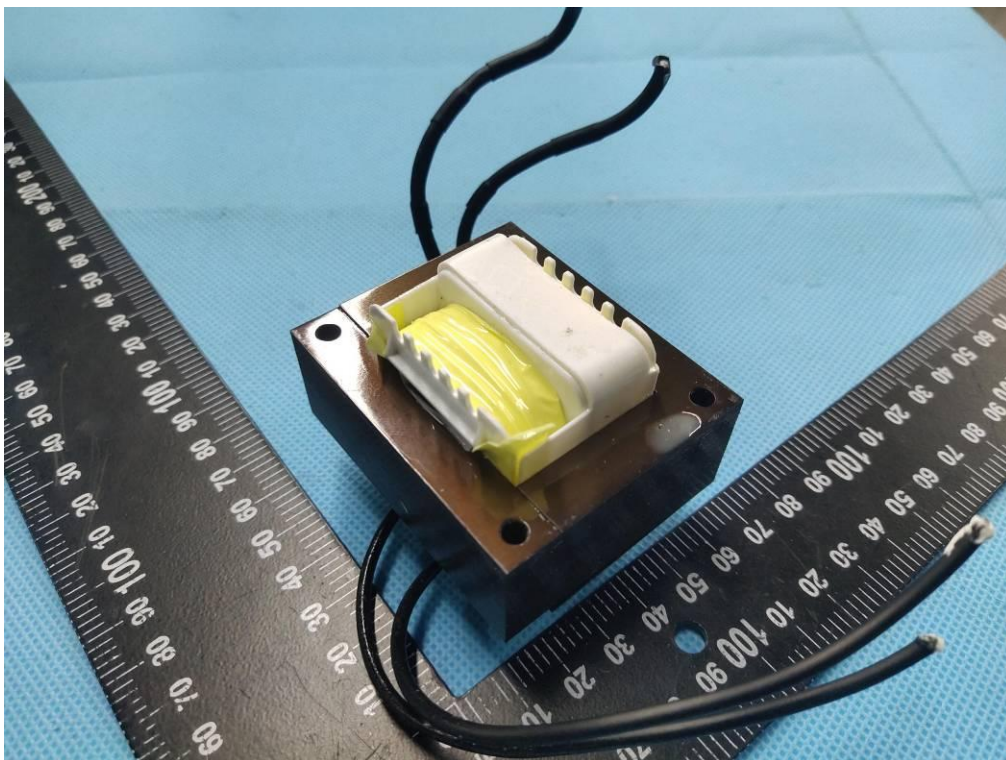


Figure 8: Transformer view

Photo Documentation

Model No.: FB-03-20-60V

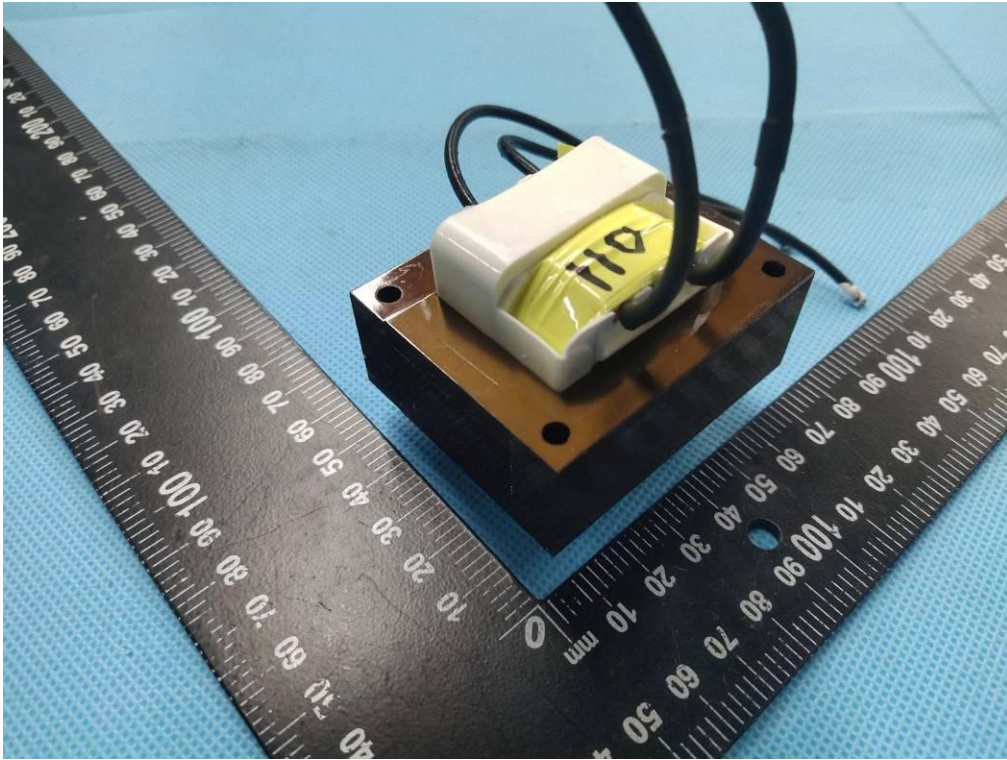


Figure 9: Transformer view

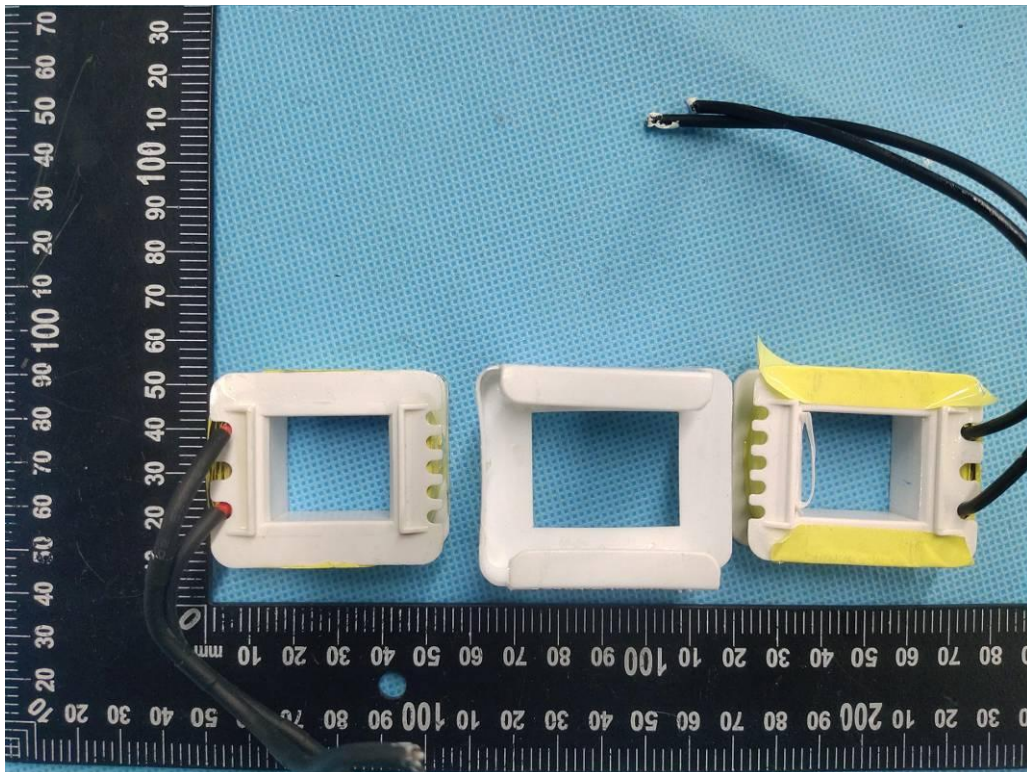


Figure 10: Transformer view

Photo Documentation

Model No.: FB-03-20-60V

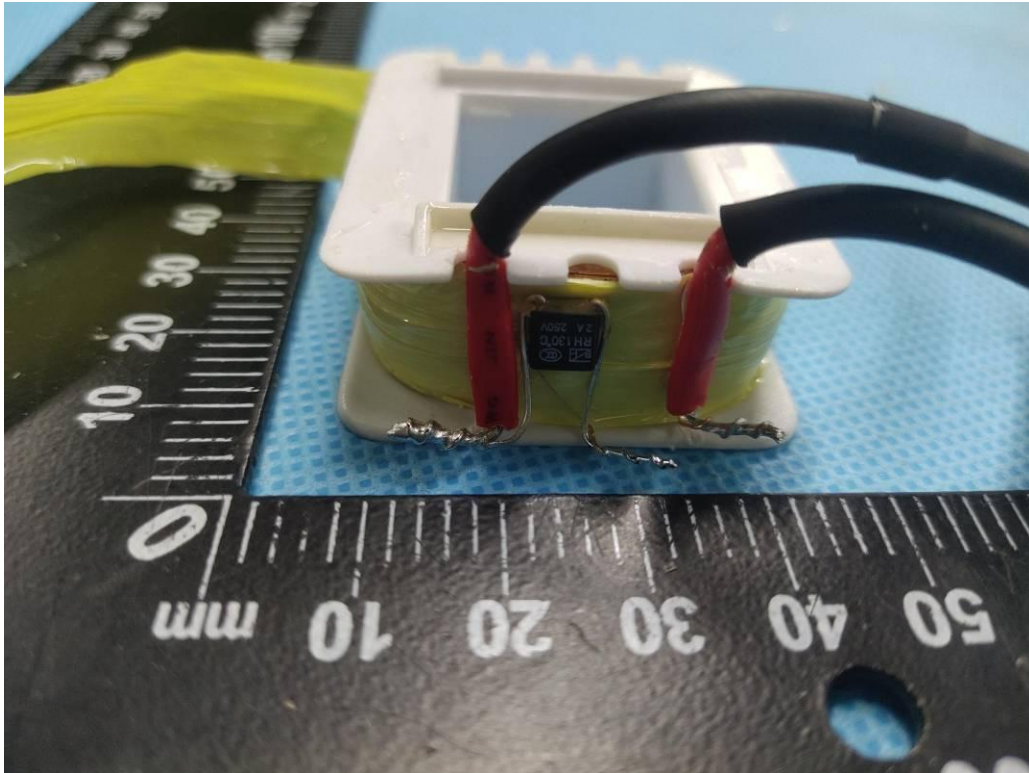


Figure 11: Transformer view

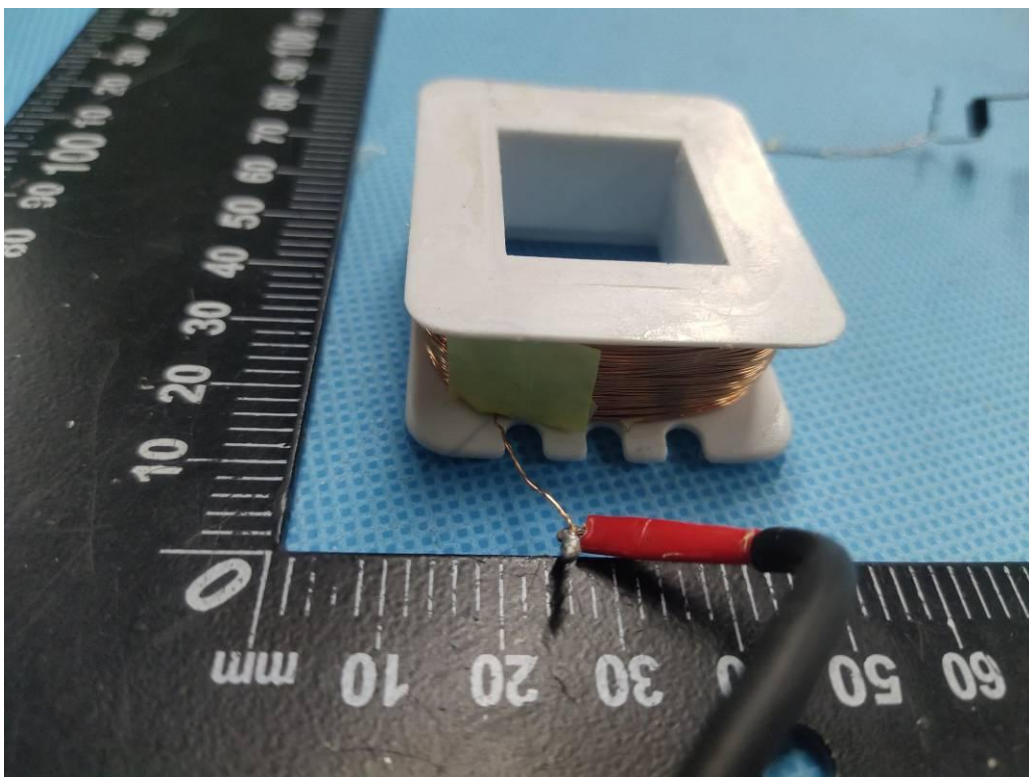


Figure 12: Transformer view

Photo Documentation

Model No.: FB-03-20-60V

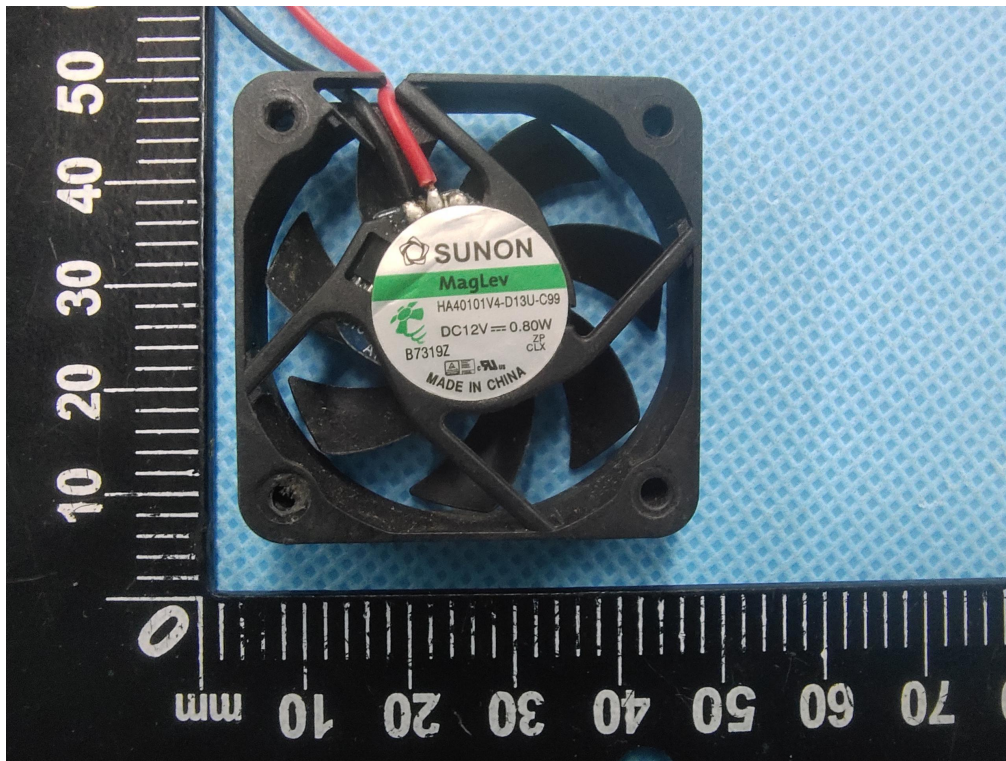


Figure 13: Fan view

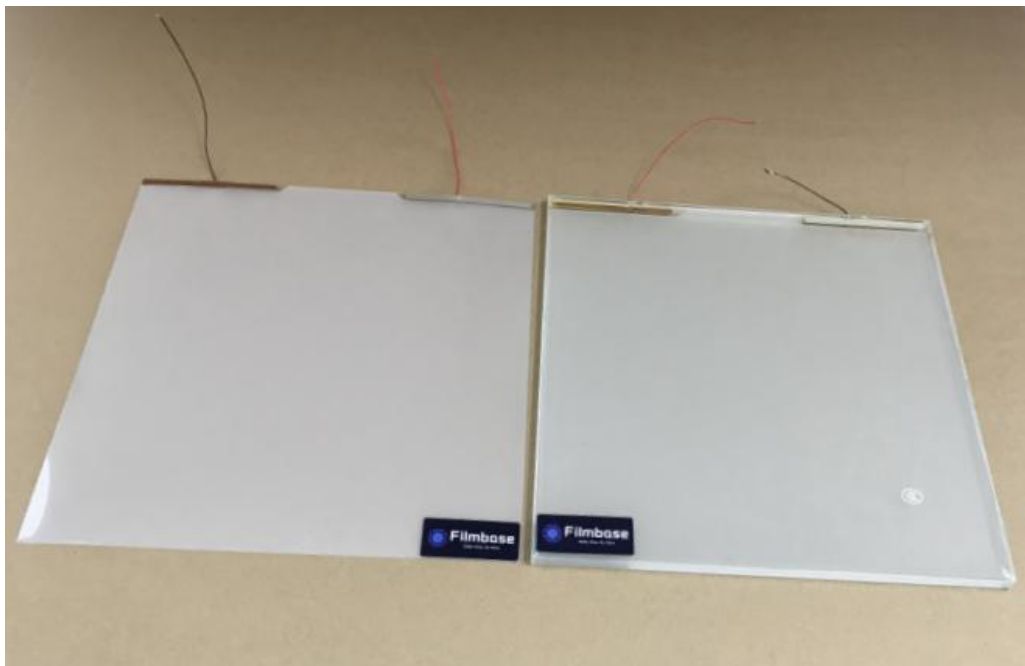


Figure 14: PDLC film, Smart glass view