



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 : **ATS Electronic Technology Co., Ltd.**

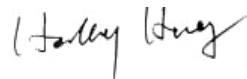

Applicant's name : **HUIZHOU FORYOU OPTOELECTRONICS TECHNOLOGY CO., LTD.**
Address..... : Foryou Industrial Park District B, No.1 North Shangxia Road, Dongjiang Hi-tech Industry Park, Huizhou, 516005 Guangdong, P.R. China

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

TRF template used..... : IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. : IEC62368_1D
Test Report Form(s) Originator .. : UL(US)
Master TRF : Dated 2022-04-14

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General disclaimer:
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Test Item description		Portable Power Station
Trade Mark		ADAYO (ADAYO)
Manufacturer		Same as applicant
Model/Type reference		SP2500
Ratings		Input: 1400W, 230V~ 50/60Hz Output: AC Output: 230V~ 50/60Hz, Total 2500W. USB3.0: 5Vdc 3A, 9Vdc 2A, 12Vdc 1.5A; Max. 18W. Type-C: 5V/9V/12V/15Vdc 3A,or 20Vdc 5A; Max. 100W. Cigar lighter port: 13Vdc 10A; Max.130W. DC Output: 13Vdc 3A Max. 39W. Anderson port: 13Vdc 15A; Max. 195W.
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	ATS Electronic Technology Co., Ltd.
Testing location/ address		3/F, Building A, No. 1 Hedong Three Road, Jinxia Community, Changan Town, DongGuan City, GuangDong, P.R. China
Tested by (name, function, signature)		Halley Huang (Project Handler) 
Approved by (name, function, signature):		Henry Chen (Reviewer) 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	N/A
Testing location/ address		N/A
Tested by (name, function, signature):		
Approved by (name, function, signature):		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	N/A
Testing location/ address		N/A
Tested by (name, function, signature):		
Witnessed by (name, function, signature)		
Approved by (name, function, signature)		
<input type="checkbox"/>	Testing procedure: CTF Stage 3 :	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	N/A
Testing location/ address		N/A
Tested by (name, function, signature):		
Witnessed by (name, function, signature)		
Approved by (name, function, signature)		

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

- Attachment 1: National differences (11 pages)
- Attachment 2: Working voltage measurement and construction of transformer. (5 pages)
- Attachment 3: Photo documentation (22 pages)

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

Following tests performed during evaluation

Clause(s)	Test(s)
5.2	Electrical energy source classifications
5.4.1.4, 6.3.2, 9.0, B.2.6	Max. operating temperatures for materials, components and systems
5.4.1.10.3	Ball pressure test
5.4.1.8	Determination of working voltage
5.4.5.2	Voltage surge test
5.4.2.2, 5.4.2.4 & 5.4.3	Min. Clearances/Creepage distance
5.4.8	Humidity conditioning
5.4.9	Electric strength test
5.6.6.2	Resistance of protective conductors and terminations
5.7	Prospective touch voltage, touch current and protective conductor current
6.2.2	Electrical power sources (PS) measurements for classification
8.6	Stability
8.8	Handles strength
9.2	Thermal energy source Classifications
B.2.5	Input tests
B.3	Simulated Abnormal operating condition tests
B.4	Simulated single fault conditions
F.3.9	Durability, legibility and permanence of markings
G.5.3.3	Transformer overload
G.10	Resistors
Q.1	Limited power source test (LPS)
T.2	Steady force test, 10 N
T.3	Steady force test, 30 N
T.5	Steady force test, 250 N
T.6	Enclosure impact test
T.6	Stress relief test
M.4	Additional safeguards test for equipment

Testing location:

Unless otherwise indicated, all tests were performed at the location stated in "Testing procedure and testing location".

	containing a portable secondary lithium battery	
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Remark:

All tests conducted with fans model YY6020H12B ,

Summary of compliance with National Differences (List of countries addressed):

EU Group Differences, EU Special National Conditions.

For National Differences see attachment 1 of this test report.

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

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

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

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

Information on uncertainty of measurement:

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

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

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

Copy of marking plate(s):

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

**Remark:**

1. The artwork above may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks. Since similar label used, only label for models above listed to represent other similar ones.

TEST ITEM PARTICULARS:	
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input checked="" type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - - <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	16 A Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Class of equipment	<input checked="" type="checkbox"/> Class I <input 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 location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	40°C (Charging), 45°C(Discharging).
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP___
Power Systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ___ V _{L-L} ; <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"/> Up to 5000 m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> Approx. 25.5kg
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	2023-03-01
Date (s) of performance of tests	2023-03-02 to 2023-03-31
GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of 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)	Same as applicant

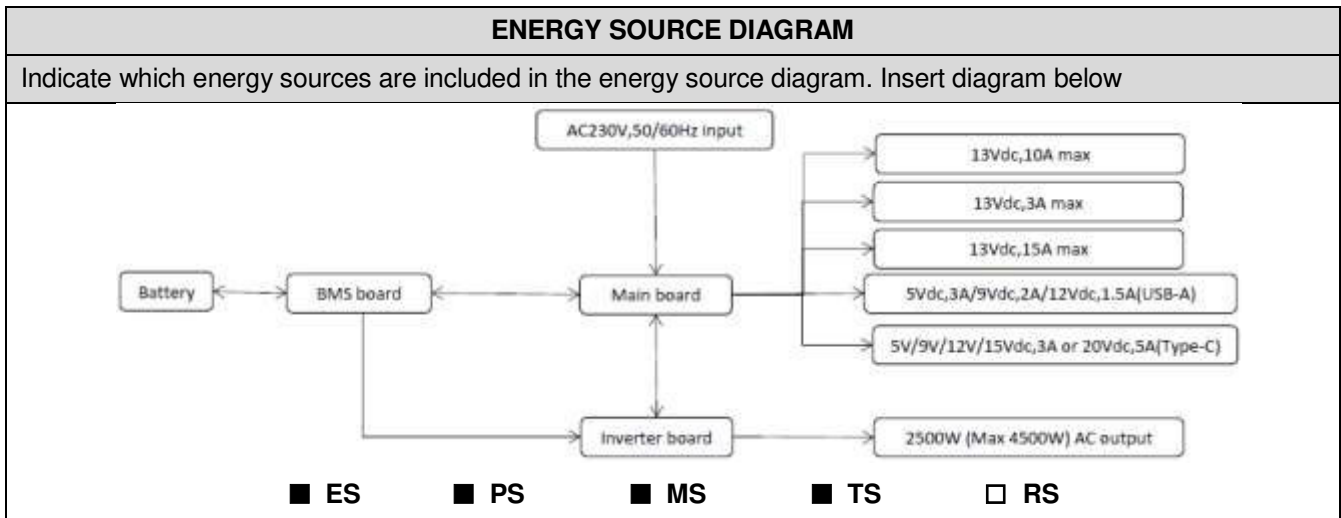
General product information and other remarks:**Product Description:**

1. The product is Portable power station which is classified as class I product. It is intended to be used for information technology equipment and indoor used only.
2. All electronic components are mounted on PWB and housed in a plastics enclosure which is secured by screw, output terminal with USB port, Type-C port, Anderson port, DC5521 port, Cigar lighter port and AC socket outlet.
3. The main enclosure is V-0 plastic enclosure which is considered to be fire, electrical and mechanical enclosure.
4. There are sixty Li-ion cells (15S4P) inside this product, the Li-ion cell is already IEC 62619 CB approved, details see appended table 4.1.2.
5. Type-C Output, Anderson port and Cigarette Lighter Port are not evaluated according to Limited power source test (LPS), so the equipment connected to these ports should have a fire enclosure.
6. The specified ambient temperature range is 0-40°C (Charging), -10-45°C(Discharging).
7. The product have three different plastic cover, Details see photo documentation.
8. The product is for use at altitudes up to 2000m above the sea level.

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)
All circuits except for AC output circuits	ES3
AC output circuits	ES3
Transformer T1 secondary	ES1
Transformer T2 secondary	ES1
USB-A port	ES1
Type-C port	ES1
Anderson port	ES1
DC5521 port	ES1
Cigar lighter port	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (Max. 85 watts): PS2	
Source of power or PIS	Corresponding classification (PS)
Primary circuit	PS3, Arcing PIS,
Battery cell	PS3, Resistive PIS
Output connector except for USB-A, DC5521 port output,	PS3, Resistive PIS
Cigar lighter port	PS3
USB Type C	PS3
USB-A output	PS2 (LPS)
DC5521 port output	PS2 (LPS)
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)
Equipment Mass	MS2
Edges and corners	MS1

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
DC fans	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	Corresponding classification (TS)
Accessible Enclosure (plastics)	TS1
Internal parts/circuits	TS3
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)
LED	RS1



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 AC output circuits	N/A	N/A	Enclosure, See 5.4.2, 5.4.3, 5.5.3 and 5.5.4
Ordinary	ES1: All circuits except for AC output circuits	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
PCB	PS3 circuit	See 6.3	See 6.3	V-1 or better
Enclosure	PS3 circuit	See 6.3	See 6.3	V-0 or better
Output connector except for USB-A, DC5521 port output	PS3 circuit	N/A	N/A	See 6.5
Cigar lighter port	PS3 circuit	N/A	N/A	See 6.5
USB-A output	PS2: <100 Watt circuit	See 6.3	See 6.3	N/A
DC5521 port output	PS2: <100 Watt circuit	See 6.3	See 6.3	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Sharp edge and corners	N/A	N/A	N/A
Ordinary	MS1: DC fan	N/A	N/A	N/A
Ordinary	MS2: equipment mass	Clause 8.6 considered	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS3: Internal parts/circuits	N/A	N/A	Enclosure

Ordinary	TS1: Accessible surface of switch	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplement ary	Reinforced
Ordinary	RS1: LED for lighting	N/A	N/A	N/A
Supplementary Information: (1) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See 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	No accessible part which could cause injury.	P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests	The external enclosure applicabled 250N steady force test and 30N steady force test, see Annex T.3 and T.5	P
4.4.4.3	Drop tests		N/A
4.4.4.4	Impact tests	The external enclosure applicabled impact test, see Annex T.6, other sides shall be considered in end system.	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests	The external enclosure cannot be opened without damaging the product.	P
4.4.4.6	Glass Impact tests	No such glass used.	N/A
4.4.4.7	Thermoplastic material tests	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.4, 4.4.4.5, 4.4.4.7, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to	Apply a force of 10 N in the most unfavourable direction, the conductor cannot defeat a safeguard, such as reducing clearances or creepage distances below the values specified in 5.4.2 and 5.4.3.	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.2	Mains plug part complies with the relevant standard..... :		N/A
4.7.3	Torque (Nm) :		N/A
4.8	Products containing coin/button cell batteries	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery :		—
4.8.4	Battery Compartment Mechanical Tests :		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object..... :	No likelihood of conductive object entering into enclosure. (See 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 :	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses :	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringling signals :	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals :	No such audio signals	N/A
5.3	Protection against electrical energy sources		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		N/A
	a) Test with test probe from Annex V..... :		N/A
	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T 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	Max. operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied. No insulating compound applied (however see 5.5.4).	N/A
5.4.1.5.3	Thermal cycling	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	N/A
5.4.1.8	Determination of working voltage	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See only 5.4.1.10.3 below.	P
5.4.1.10.2	Vicat softening temperature.....	Not performed.	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 in Cl 5.4.2.2 and Cl 5.4.2.3 be used.	P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage	2500 Vpk considered for Overvoltage Cat. II	—
	b) d.c. mains transient voltage	No such transient	—
	c) external circuit transient voltage.....	No such transient	—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Using procedure 2 to determine the clearance according to 5.4.2.3.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages	Up to 2000m	N/A
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	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4	Solid insulation	See below	P
5.4.4.2	Min. distance through insulation	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation	No such insulation applied.	N/A
5.4.4.4	Solid insulation in semiconductor devices	Approved Opto-coupler used.	P
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material	See below	P
5.4.4.6.1	General requirements	Insulation tape used in transformer winding.	P
5.4.4.6.2	Separable thin sheet material	See above	P
	Number of layers (pcs)	2 layers	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	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz	See appended table 5.4.9	P
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		P
5.4.5.2	Voltage surge test		P
	Insulation resistance (MΩ)	500 MΩ	P
5.4.6	Insulation of internal wire as part of supplementary safeguard	No such insulation of internal wire as part of supplementary safeguard.	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Test was performed on product with each source of transformer listed in table 4.1.2.	P
	Relative humidity (%)	95%	—
	Temperature (°C)	40°C	—
	Duration (h)	120h (as client's requirement)	—
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	Compliance was checked immediately following temperature test in 5.4.1.4 and on a sample of the transformer raised to the relevant temperature as measured during that test.	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 circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test		N/A
5.4.11	Insulation between external circuits and earthed circuitry	No such connections for external circuit applied within the EUT	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	No such connections to external circuit as above.	N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General	See below.	P
5.5.2	Capacitors and RC units	Approved X and Y type capacitors provided. See G.11.1 for compliance and their application.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See Annex G.12)	P
5.5.5	Relays		P
5.5.6	Resistors		P
5.5.7	SPD's		P
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....	No such external circuits.	N/A
5.6	Protective conductor		
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P

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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		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm ²).....	1.5	—
	Protective current rating (A)	32	—
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	See annex N	P
5.6.6	Resistance of the protective system	See below.	P
5.6.6.1	Requirements	Compliance checked.	P
5.6.6.2	Test Method Resistance.....	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing		P
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	(See appended table 5.2 and table 5.7.2.2, 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage	(See appended table 5.2)	P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:1999 applied.	P
	System of interconnected equipment (separate connections/single connection)	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)	Single connection.	—
5.7.4	Earthed conductive accessible parts.....		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 Max. 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	(See appended table 6.2.2)	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		P
6.2.3.1	Arcing PIS	All circuit is claimed as Arcing PIS	P
6.2.3.2	Resistive PIS	All circuit is claimed as Resistive PIS	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	Label	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control of fire spread applied.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	No PS1 circuits.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	Method by control of fire spread applied as 6.4.1.	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		P
6.4.5.2	Supplementary safeguards		P
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: – <u>Printed board</u> : rated min. V-1 – <u>Wire insulation</u> : complying with Clause 6 (See Table 4.1.2 for tubing used). The internal wires and output cord are complied to UL 758 standard, which test method and testing condition equal to IEC/EN 60695-11-21. – <u>All other components</u> : 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. – <u>Isolating transformer</u> : complying with G.5.3. – Fire enclosure used.	P
6.4.7	Separation of combustible materials from a PIS	V-0 fire enclosure used.	P
6.4.7.1	General.....		P
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	The V-0 fire enclosure is used for the whole enclosure.	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier used.	N/A
6.4.8.2.2	Requirements for a fire enclosure	For available power <4000W, the V-0 fire enclosure is used for the overall enclosure as above	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	No opening	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	No opening	P
	Flammability tests for the bottom of a fire enclosure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Fire enclosure is made of V-0 material	N/A
6.5	Internal and external wiring		P
6.5.1	Requirements	Internal wires, earth wire and output cord are comply with UL 758, which has the equivalent requirement with IEC/TS 60695-11-21.	P
6.5.2	Cross-sectional area (mm ²)	(See appended table 4.1.2)	—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
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.....	See annex M	P

8	MECHANICALLY-CAUSED INJURY		P
8.1	General		P
8.2	Mechanical energy source classifications	Sharp edges and corners are both classified as MS1. Equipment mass as MS2 DC fan (inside the product and it can not be touched by user): classified as MS1.	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards		P
8.5	Safeguards against moving parts	DC Fan used as MS1	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard..... :		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....:		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
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		P
8.6.1	Product classification	MS2	P
	Instructional Safeguard.....:		—
8.6.2	Static stability	See below.	P
8.6.2.2	Static stability test	Test with angle of 10°.	P
	Applied Force	Not required.	—
8.6.2.3	Downward Force Test	No flip.	P
8.6.3	Relocation stability test		P
	Unit configuration during 10° tilt	No flip.	—
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		P
8.8.1	Classification	MS2	P
8.8.2	Applied Force	Two handles provided, three times the weight force distributed between the handles.	P
8.9	Wheels or casters attachment requirements		N/A

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

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	The accessible surfaces are classified as TS1. 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 plastic enclosure 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		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification	RS1	N/A
10.3	Protection against laser radiation	No laser.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :		N/A
	Instructional safeguard :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation	The LED used as indicating light which considered as RS1.	P
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons :		N/A
10.4.1.b)	RS3 accessible to a skilled person..... :		N/A
	Personal safeguard (PPE) instructional safeguard..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 . :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation..... :		N/A
10.4.1.g)	Materials resistant to degradation UV :		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard :		N/A
10.5	Protection against x-radiation	No such x-radiation generated from the equipment	N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give Max. radiation..... :		—
	Abnormal and single-fault condition :		N/A
	Max. radiation (pA/kg) :		N/A
10.6	Protection against acoustic energy sources	Not such equipment.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards :		N/A


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Clause	Requirement + Test	Result - Remark	Verdict
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Max. dB(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Max. 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 model, 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 +10%/-10%	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		P
B.3.3	D.C. mains polarity test	AC Mains	N/A
B.3.4	Setting of voltage selector	No voltage selector was used.	N/A
B.3.5	Max. load at output terminals	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Not such equipment.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	(See appended table 4.1.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.3	Motor tests	Lock DC fan (See appended table B.4)	P
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		P
B.4.4	Short circuit of functional insulation	(See appended table B.4)	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	No change to circuits classified in 5.3.	P
B.4.9	Battery charging under single fault conditions ... :		P
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
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	Not such equipment.	N/A
	Audio signal voltage (V)		--

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Clause	Requirement + Test	Result - Remark	Verdict

	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	See below.	P
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	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 page 2 for details	—
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....	See copy of marking plate.	—
F.3.3.4	Rated voltage	See copy of marking plate.	—
F.3.3.4	Rated frequency	See copy of marking plate.	—
F.3.3.6	Rated current or rated power	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one mains supply connection provided.	N/A
F.3.4	Voltage setting device	No voltage setting device.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings.....	See copy of marking plate.	P
F.3.5.2	Switch position identification marking	Symbol “  TRF No. IEC62368_1D	

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal		P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		P
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	IPX0.	—
F.3.8	External power supply output marking		N/A
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	The equipment is intended to be used for information technology equipment	P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals provided.	N/A
	f) Protective earthing employed as safeguard		P
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment	No such symbols used as a safeguard considered.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, Max. load	Approved switch used and Switches no used as disconnect devices.	P
G.2	Relays		N/A
G.2.1	General requirements		P
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs	No Thermal cut-off used.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω). :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	Current fuse used as overcurrent protection device.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.4	Connectors		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration		P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	Approved inlet	P
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....	(See appended table G.5.3)	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Physical separation provided by insulation tape or tube or Margin tape.	P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
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.....	T1, T2	—
	Method of protection	By protection circuit design.	—
G.5.3.2	Insulation	Primary windings and secondary windings are separated by double insulation (two layer of insulation tape used in transformer winding).	P
	Protection from displacement of windings.....	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 table B.3)	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		P
	Position	DC Fan, Inside equipment	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	Approved DC Fan used	P
G.5.4.6.2	Tested in the unit		P
	Max. Temperature	(See appended table B.4)	P
	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
G.6.1	General	Approved wire used	P
G.6.2	Solvent-based enamel wiring insulation	Insulation does not rely on solvent-based enamel.	N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	No such cord provided	N/A
	Type.....		—
	Rated current (A).....		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire	No such wire.	N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		P
G.8.1	General requirements	Approved varistor used	P
G.8.2	Safeguard against shock		P
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 IC current limiter provided within the equipment.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		--
G.9.1 d)	IC limiter output current (max. 5A)		--
G.9.1 e)	Manufacturers' defined drift		--
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		P
G.10.1	General requirements		P
G.10.2	Resistor test		P
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		P
G.11.1	General requirements	X and Y capacitors used according to IEC 60384-14. (see appended table 4.1.2)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12. Y1 capacitors bridging Reinforced insulation with rated voltage at least 250V tested with impulse 8kV peak and 4kV rms	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)	Approved Optocoupler used. (see appended table 4.1.2)	P
	Type test voltage V_{ini}	Considered	—
	Routine test voltage, $V_{ini,b}$	Considered	—
G.13	Printed boards		P
G.13.1	General requirements	Approved printed board used.	P
G.13.2	Uncoated printed boards	(see appended table 4.1.2)	P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	No coating on component terminals considered to affect creepage or clearances.	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such device provided within the equipment.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such ICX used.	N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
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)		—
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	Appliance inlet or AC plug of non-detachable power supply cord serves as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	No accessible parts on the supply side of the disconnect device.	P
L.4	Single phase equipment	Disconnect device disconnects all 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		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements	IEC 62619 CB approved Li-ion cell used.	P
M.2	Safety of batteries and their cells	See above	P
M.2.1	Requirements		P
M.2.2	Compliance and test method (identify method) .. :		P
M.3	Protection circuits		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.3.1	Requirements		P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery	(See appended table M.3)	P
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery	Impossible to reverse charging	N/A
	- Excessive discharging rate for any battery		P
M.3.3	Compliance		P
M.4	Additional safeguards for equipment containing secondary lithium battery		P
M.4.1	General		P
M.4.2	Charging safeguards		P
M.4.2.1	Charging operating limits		P
M.4.2.2a)	Charging voltage, current and temperature	(See appended table M.4)	--
M.4.2.2 b)	Single faults in charging circuitry	(See appended table M.4)	--
M.4.3	Fire Enclosure	V-0 plastic enclosure used.	P
M.4.4	Endurance of equipment containing a secondary lithium battery		P
M.4.4.2	Preparation		P
M.4.4.3	Drop and charge/discharge function tests	See below	P
	Drop	Three impacts at the height of 1000mm. The voltage difference did not exceed 5% after test.	P
	Charge	After drop, the charge circuit function (charge-control voltage, charging control current and temperature control) are effective	P
	Discharge	After drop, the discharge circuit function (discharge-control voltage, discharging control current and temperature control) are effective	P
M.4.4.4	Charge-discharge cycle test	Three complete discharge and charge cycles under normal operating conditions.	P
M.4.4.5	Result of charge-discharge cycle test	No fire, explosion and any electrolyte leakage	P
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	The internal and external short circuits testing has been evaluated in the cell' IEC 62619 report.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	Not lead acid batteries	N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		--
M.9	Preventing electrolyte spillage	Not such battery used.	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		P
	Metal(s) used	Considered.	--
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied	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		N/A
	Location and Dimensions (mm)	Internal opening (ventilation opening): 56.8x2.8mm Ventilation opening cover: 28.4x2.8mm	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
P.2.3	Safeguard against the consequences of entry of foreign object		P
P.2.3.1	Safeguards against the entry of a foreign object	No PIS within 5° angle of the project	P
	Openings in transportable equipment	Not transportable equipment	N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids	No such liquids.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such construction.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A

Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition	(See annex Q.1 for detail)	P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		P
	Max. output current (A)		—
	Current limiting method		—

R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements	No such consideration.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A). :		N/A
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		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Conditioning (°C) :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Conditioning (°C) :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire 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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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, T.3, T.4, T.5)	P
T.3	Steady force test, 30 N	(See appended table T.2, T.3, T.4, T.5)	P
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.2, T.3, T.4, T.5)	P
T.6	Enclosure impact test		P
	Fall test	(See appended table T.6, T.9)	P
	Swing test		N/A
T.7	Drop test		N/A
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 antennas provided within the equipment.	N/A
	Torque value (Nm)		—

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	Following the test probes specified in this Annex except for Figures V.3, V.4 and V.5 are not suitable. The surfaces and all the openings is evaluated by the test probe of Figure V.1 and Figure V.2.	P
V.2	Accessible part criterion	No live parts can be accessible.	P

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

4.1.2	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Li-ion Cell	EVE POWER Co., Ltd	C32	3.2V, 13Ah	IEC 62619:2017	CB certificate No.: JPTUV- 135052	
Appliance inlet	HONGJU (DONGGUAN) ELECTRONIC & METAL PRODUCTS CO LTD	S-03-11, S-03-12	250V,10A	EN 60320-1	TUV SUD 68100210136 01	
Socket-outlets	Guangdong Boytall Electronics Co., Ltd	BT-DE-1	250V,16A	DIN VDE 0620- 1:2016+A1	TUV RH mark: R 50552408 0001	
Enclosure	CHI MEI CORPORATION	PC-110T(a)	V-0, 130°C, min. thickness 2.5mm	UL 94, UL 746C	UL E56070	
DC input wire (DC board J6)	GUANGDONG HAERKN NEW ENERGY CO LTD	1180	200°C,12AWG, 300V	UL 758	UL E300956	
Alternative	DONGGUAN ZHONGZHEN ENERGY TECHNOLOGY CO., LTD	3135	200°C,12AWG, 600V	UL 758	UL E355578	
AC input wire	GUANGDONG HAERKN NEW ENERGY CO LTD	1180	200°C,12AWG, 300V	UL 758	UL E300956	
Alternative	DONGGUAN ZHONGZHEN ENERGY TECHNOLOGY CO.,LTD	3135	200°C,12AWG, 600V	UL 758	UL E355578	
Overload Protection Device	KUOYUH W L ENTERPRISE CO LTD	88	250VAC, 20A	UL 508	UL E155159	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
AC input connector	Changzhou Amass Electronics Co Ltd	XT90	500Vdc, 40A, 130°C	UL 1977	UL E482722
USB-C port (J1, J10)	BUBUJING Technology Co., Ltd.	Type-C	20V, 5A	--	Tested with appliance
DC5521 port (J4, J5)	BUBUJING Technology Co., Ltd.	DC-084	30Vdc,5A	--	Tested with appliance
12V Anderson port	GEN Power connector	SN15-45A	13V,15A	--	Tested with appliance
Anderson port wire	DONGGUAN ZHONGZHEN ENERGY TECHNOLOGY CO., LTD	3135	14AWG, 600V, 200°C	UL 758	UL E355578
Anderson port connector	Changzhou Amass Electronics Co Ltd	XT60-M	500Vdc,30A	UL 1977	UL E482722
USB3.0 port (J7, J8, J9,12)	BUBUJING Technology Co., Ltd.	USB 3.0	Max. 12Vdc	--	Tested with appliance
Cigarette Lighter Socket (J14)	Dongguan Dietian Car Appliance Technology Co., Ltd	LW-020-H	13Vdc, 10A	--	Tested with appliance
Cigarette Lighter Socket Wire	DONGGUAN ZHONGZHEN ENERGY TECHNOLOGY CO., LTD	3135	16AWG, 600V, 200°C	UL 758	UL E355578
Cigarette Lighter Socket Connector (J15)	Changzhou Amass Electronics Co Ltd	XT30U-M	500Vdc,15A	UL 1977	UL E482722

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Fan	Shenzhen HaoZhi Technology Co Ltd	FB6020BH	12Vdc, 0.15A, CFM 30.42	EN 62368-1	TUV SUD Mark :No.B11 8811 0002
Alternative	Shenzhenshi Yongyihao Electronic Co., Ltd	YY6020H12B	12Vdc, 0.16A CFM 22.14	EN 62368-1	TUV SUD Mark :No.B09 0231 0008
Alternative	Shenzhenshi Yongyihao Electronic Co.,Ltd	YY6025H12B	12Vdc, 0.31A CFM 32.7	EN 62368-1	TUV SUD Mark :No.B09 0231 0008
Mylar sheet under Power board	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX FRPC-1880	V-0, 125°C, thickness 0.4mm,	UL 94	UL E315185
Power board					
PCB (Multilayer)	SHENZHEN FUSHENG ELECTRONICS CO LTD	CB-M	V-0, 130°C, thickness 2.2mm, Interval of each layer: 0.7mm	UL 796	UL E308301
(Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL approved
Varistor (VR1)	BestBright Electronics Co. Ltd	471KD20	470V, 105°C	IEC/EN 61051-1; IEC/EN 61051-2+A1; IEC/EN 61051-22	VDE 40050493
Alternative	Yageo Corporation	471KD20	470V, 105°C	IEC/EN 61051-1; IEC/EN 61051-2+A1; IEC/EN 61051-22	VDE 40053394
X-Capacitor(C191 ,C15)	STRONG Components Co. LTD	MPX	3.3uF, 310V, 110°C, X2	IEC/EN 60384-14	VDE 40037125
Alternative	DongGuan Chengdong Electronic Technology Co., Ltd.	MPX	3.3uF, 310V, 110°C, X2	IEC/EN 60384-14	VDE 40046845

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Dongguan Weiqing Electronic Co., Ltd.	MPX	3.3uF, 310V, 110°C, X2	IEC/EN 60384-14	VDE 40040406
Discharge resistor(R5,R23, R32,R33,R194, R203,R204,R205,R178,R179,R180,R182,R206,R207,R208,R209	Interchangeable	Interchangeable	1MΩ,±1%,min.1/4W	IEC/EN 62368-1	Tested with appliance
Y-Capacitor(CY1, CY2,CY4,CY5)	DONGGUAN JYHWEI ELECTRONICS CO., LTD	JN	Y1, 4.7nF, 500V, 125°C	IEC/EN 60384-14	VDE 40047520
Alternative	Dongguan Easygather Electronic Co., Ltd.	DCF	Y1, 4.7nF, 400V, 125°C	IEC/EN 60384-14	VDE 40022942
Alternative	DONGGUAN WEIqing Electronic Co., Ltd.	WD series	Y1, 4.7nF, 400V, 125°C	IEC/EN 60384-14	VDE 40050021
Alternative	WALSIN TECHNOLOGY CORP	AH	Y1, 4.7nF, 400V, 125°C	IEC/EN 60384-14	VDE 40001804
Diode (DB2)	Fuxinsemi Semiconductor (Shenzhen) Co., LTD	GBU2510	25A,1000V	--	Tested with appliance
Alternative	Yangzhou Yangjie Electronic Technology Co., Ltd.	GBU2510	25A,1000V	--	Tested with appliance
Alternative	JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD	GBU2510	25A,1000V	--	Tested with appliance

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Relay (K1, K2, K3, K4)	Xiamen Hongfa Electroacoustic Co., Ltd.	HF161F-W/12-HT	26A, 277V~, pollution degree 3, glow wire temperature of 750°C Endurance: 50 000 operating cycles, 85°C DTI: 2mm Max. enclosure temperature: 103°C	IEC 618101:2015	VDE 40031410
Current Sensor (U1, U15)	Cross Chup Microsystems Inc.	CC6921	65A, 125°C, 6000Vdc isolation voltage	IEC/EN 623681:2014	TUV mark: R 50531533
IC (U4, U5, U6, U7, U9, U10, U11)	Suzhou Novosense Microelectronics Co., Ltd	NSi6602A-DSWR	3000Vac isolation voltage	UL1577	UL E500602
Choke Coil (L1, L3)	ZEAL ELECTRONIC CO., LTD	T31x19x131.69m H-12TS, ZM-21056B	1.69mH ±30%,130°C	--	Tested with appliance
Choke Coil (L8)	ZEAL ELECTRONIC CO.,LTD	NPF157060,ZM2 1057B	870uH±8%,130° C	--	Tested with appliance
Choke Coil (L5)	ZEAL ELECTRONIC CO.,LTD	PQ3535-25uH, ZM-21114A	25uH±5%,130°C	--	Tested with appliance
Transformer (T1)	ZEAL ELECTRONIC CO.,LTD	PQ4050	Class 130(B)	IEC/EN 62368-1	Test with appliance
- Bobbin	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, 150°C Min. 0.7mm thickness	UL 94, UL 746C	UL E41429
- Magnet wire	DAYANG ELECTRICAL TECHNOLOGY(HEYUAN) CO LTD	xUEW@	155°C	UL 1446	UL E518668
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PF*(d)(g)	180°C	UL 510A	UL E165111

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
- Varnish	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	UL 1446	UL E335405
Transformer (T2)	ZEAL ELECTRONIC CO.,LTD	EE19	Class 130(B)	IEC/EN 62368-1	Test with appliance
- Bobbin	SUMITOMO BAKELITE CO LTD	PM9820	V-0, 150°C Min. 0.7mm thickness	UL 94, UL 746C	UL E41429
- Magnet wire	DAYANG ELECTRICAL TECHNOLOGY(HEYUAN) CO LTD	xUEW@	155°C	UL 1446	UL E518668
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PF*(d)(g)	180°C	UL 510A	UL E165111
- Varnish	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	UL 1446	UL E335405
MOSFET (Q23,Q24,Q26,Q 33)	China Resources MICROELECTR ONICS (Chongqing) Limited	NCEP039N10D	135A,100V	--	Tested with appliance
MOSFET (Q33)	China Resources MICROELECTR ONICS (Chongqing) Limited	CRSS037N10N	120A,100V	--	Tested with appliance
Alternative	Wuxi Unigroup Microelectronics Company	TSP15N10A	120A,100V	--	Tested with appliance
Alternative	MagnaChip Semiconductor Ltd.	MDP1921TH	120A,100V	--	Tested with appliance

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
Choke Coil (L4, L6)	ZEAL ELECTRONIC CO., LTD	NPH131090, ZM-22013B	50uH±10% 130°C	--	Tested with appliance
Choke Coil(L7)	ZEAL ELECTRONIC CO., LTD	CGS229606-34TS,50uH, ZM-21045B	50uH±10% 130°C	--	Tested with appliance
PV output wire	GUANGDONG HAERKN NEW ENERGY CO LTD	1180	200°C, 12AWG, 300V	UL758	UL E300956
Alternative	DONGGUAN ZHONGZHEN ENERGY TECHNOLOGY CO., LTD	3135	200°C, 12AWG, 600V	UL758	UL E355578
Fuse (F6, F7)	Dongguan Reomax Electronics Technology Co., Ltd	STE2150	15A, 125VAC/DC	UL248-1 UL248-14	UL E340427
Resistor (R21; R22;R24;R25;R26;R27;R28;R29; R30;R31;R34;R35;R39;R43;R51; R52;R64;R67;R72;R77;R78;R82; R83;R85;R89;R92;R114;R122;R123;R154;R156;R157;R158;R159; R178;R179;R180;R182;R183;R184;R185;R189;R191;R192;R193; R196;R197;R198;R199;R200;R201;R213)	YAGEO	RV1206	300KΩ,±1%,1/4W	IEC/EN 62368-1	Tested with appliance
Alternative	Uniroyal Electronics Global Co., Ltd.	1206	300KΩ,±1%,1/4W	IEC/EN 62368-1	Tested with appliance
Alternative	Walshin Technology Corporation	1206	300KΩ,±1%,1/4W	IEC/EN 62368-1	Tested with appliance

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
Fuse(F1)	DONGGUAN HONGDA ELECTRONIC TECHNOLOGY CO., LTD	63FCP 30A,500V	500V,30A	UL 248-1 UL 248-14	UL E318938
MOSFET (Q1, Q2, Q3, Q4)	Crmicro	CRG60T60AK3H	600V, 60A	--	Tested with appliance
Alternative	Shanghai Luxin Electronic Technology Co., Ltd.	YGW60N65F1A1	650V,60A	--	Tested with appliance
Alternative	Wuxi NCE Power Co., Ltd	NCE60TD60BT	600V,60A	--	Tested with appliance
MOSFET (Q5, Q6, Q7, Q11)	China Resources MICROELECTRONICS (Chongqing) Limited	CRJQ80N65F	650V, 43A	--	Tested with appliance
MOSFET (Q8, Q9,Q10,Q12,Q13,Q14,Q15,Q16, Q19,Q21,Q100)	China Resources MICROELECTRONICS (Chongqing) Limited	CRST040N10N	100V,120A	--	Tested with appliance
Heat-shrinkable tube on J2,J8	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR	V-0, 600°C Min. 0.4mm thickness	UL 94, UL 746C	UL E203950
Control board on power board					
Choke Coil (T5)	ZEAL ELECTRONIC CO., LTD	EE19-68uH, ZM-22025A	Class 130(B)	EN 62368-1	Test with appliance
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, 150°C Min. 0.75mm thickness	UL 94, UL 746C	UL E59481
- Magnet wire	DAYANG ELECTRICAL TECHNOLOGY(HEYUAN) CO LTD	xUEW@	155°C	UL 1446	UL E518668
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PF*(d)(g)	180°C	UL 510A	UL E165111

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
- Varnish	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	UL 1446	UL E335405
MOSFET (Q31)	Sourcechips	SM4286T9RL	100V, 14A	--	Test with appliance
Protective IC (U8, U13)	Texas Instruments Incorporated	SN74AHC86DR	Vcc 2-5.5V	--	Test with appliance
IC(U25)	Onsemi	UC2845BD1R2G	36V	--	Test with appliance
Battery Enclosure	CHI MEI CORPORATION	PC-110(+)	V-2, 125°C, min. thickness 1.7mm	UL 94, UL 746C	UL E56070
BMS Board					
PCB	Interchangeable	Interchangeable	V-0, 130°C	UL796	UL approved
Sampling resistor (R32, R33, R35)	Interchangeable	Interchangeable	1mΩ, 5W	EN 62368-1	Tested with appliance
Fuse (F1, F2)	DONGGUAN REOMAX ELECTRONICS TECHNOLOGY CO LTD	1032F.2500	125VAC, 50A	UL248-1 UL248-14	UL E340427
Alternative	Nanjing Sart Science & Technology Development Co., Ltd.	S1032-F-60A	250V,60A	UL248-1 UL248-14	UL E319512
MOS(Q1,Q2,Q3, Q4,Q6,Q7,Q8,Q 9,Q11,Q12,Q14, Q15)	China Resources MICROELECTR ONICS (Chongqing) Limited	CRSS023N08N	MIN85V, 180A	--	Tested with appliance
Protective IC (U2)	Texas Instruments	IC-BQ76200PWR	VCU=3.6±0.01V, VDL=2.6±0.01V	--	Tested with appliance
Choke Coil (L1)	CJIANG	FXL1040-680-M	68uH±20%,2.5A 130°C	--	Tested with appliance
Alternative	CHILISIN ELECTRONICS CORP.	SSL1306T- 680M-N	68uH,±20%,2.5A 130°C	--	Tested with appliance

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Alternative	PROD Electronic Technology (Shenzhen) Co., LTD	PSPMAA0605H-680M-IGF	68uH, ±20%, 2.5A 130°C	--	Tested with appliance
Choke Coil (L2)	Sunlord	GZ1608D471CTF	GZ1608D471CTF, 2 5%, 0.5A 130°C	--	Tested with appliance
Wire	Interchangeable	Interchangeable	Min. 8AWG, min. 80°C, Min. 30V	UL 758	UL approved
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance.					

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	TABLE: Stress Relief test		—
Part	Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test		—
Battery part no.:			—
Battery Installation/withdrawal		Battery Installation/Removal Cycle	Comments
		1	
		2	
		3	
		4	
		5	
		6	
		8	
		9	
		10	
4.8.4.4	TABLE: Drop test		—
Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	
4.8.4.5	TABLE: Impact		—
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test		—
Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:			
4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 ¹⁾	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	253Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal:	253Vac	--	60	ES3
			Abnormal:	--	--	--	
			Single fault – SC/OC	--	--	--	
2	253Va.c. 60Hz	USB-A Output (12V/1.5A)	Normal:	12.12Vpk	--	--	ES1
			Abnormal: AC appliance output SC	12.12Vpk	--	--	
			Single fault –SC U8 pin 10 to pin7	0	--	--	
			Single fault –SC R245	12.12Vpk	--	--	
3	253Va.c. 60Hz	Type-C Output (20V/5A)	Normal	20.6Vpk	--	--	ES1
			Abnormal: AC appliance output SC	20.6Vpk	--	--	
			Single fault –SC U3 pin14 to pin21	0	--	--	
			Single fault –SC Q2 D-S	0	--	--	
4	253Va.c. 60Hz	Cigar lighter port (13V/10A)	Normal	13.09Vpk	--	--	ES1
			Abnormal: AC appliance output SC	13.09Vpk	--	--	
			Single fault –SC U23 pin10 to pin20	0	--	--	
			Single fault –SC R164	13.09Vpk	--	--	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
			Single fault –SC Q23 D-S	0	--	--	
5	253Va.c. 60Hz	DC 5521 Output (13V, 3A)	Normal	13.09Vpk	--	--	ES1
			Abnormal: AC appliance output SC	13.09Vpk	--	--	
			Single fault –SC U24 pin10 to pin20	0	--	--	
			Single fault –SC R326	13.09Vpk	--	--	
			Single fault –SC Q24 D-S	0	--	--	
6	253Va.c. 60Hz	Plastic enclosure to earth	Normal	--	0.014mApk	60	ES2
			Abnormal	--	0.020mApk	60	
			Single fault – SC/OC	--	0.023mApk	60	
7	253Va.c. 60Hz	Metal ring to earth	Normal	--	0.014mApk	60	ES1
			Abnormal	--	0.025mApk	60	
			Single fault – SC/OC	--	0.0273mApk	60	

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, uF	Upk (V)	
1	253Vdc	Input L to N	Normal	C15 (3.3uF±20%); C191 (3.3uF±20%)	60V	ES1
			Abnormal	--	--	--
			Single fault – SC/OC	C15 (3.3uF±20%); C191 (3.3uF±20%)	120V	ES2

5.2.2.4 - Single Pulses

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

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	lpk (mA)	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	--
			Single fault – SC/OC	--	--	--	--
Test Conditions: Normal – Full load and no load. Abnormal – Overload output Supplementary information: SC=Short Circuit, OC=Open Circuit.							
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements						P

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
	Supply voltage (V)	<p>a) AC 207V input, 1400W max with fully discharged battery inside (no load, only on charging mode)</p> <p>b) AC 253V input, 1400W max with fully discharged battery inside (no load, only on charging mode)</p> <p>c) AC 207V input, 1400W max with fully charged battery inside</p> <p>Load with max load: AC outlet: 230Vac, 50Hz, 2500W USB3.0 Output: 18W max (5V/3A, 9V/2A, 12V/1.5A) *4 DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W max (20V/5A,15V/3A,12V/3A,9V/3A,5V/3A)*2</p> <p>d) AC 253V input, 1400W, max with fully charged battery inside</p> <p>Load with max load: AC outlet: 230Vac, 50Hz, 2500W USB3.0 Output: 18W max (5V/3A, 9V/2A, 12V/1.5A) *4 DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W max (20V/5A,15V/3A,12V/3A,9V/3A,5V/3A)*2</p> <p>e) Unit supplied with fully charged battery inside.</p> <p>Load with max load: AC outlet: 230Vac, 50Hz, 2500W USB3.0 Output: 18W max (5V/3A, 9V/2A, 12V/1.5A) *4 DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W max (20V/5A,15V/3A,12V/3A,9V/3A,5V/3A)</p>					—
	Ambient T _{min} (°C)	--	--	--	--	--	—
	Ambient T _{max} (°C)	--	--	--	--	--	—
	T _{ma} (°C)	--	--	--	--	--	—
Max. measured temperature T of part/at:		T (°C)					Allowed T _{max} (°C)
		a)	b)	c)	d)	e)	
AC output		43.3	49.0	61.1	54.3	57.9	70
LCD Board U1		44.9	50.3	57.1	51.2	55.4	130
AC inlet		43.4	49.7	59.0	53.0	55.2	70

IEC 62368-1						
Clause	Requirement + Test	Result - Remark				Verdict
BAT+ wire	49.9	57.4	66.5	57.0	66.2	200
E cap C182	49.0	56.4	68.8	60.5	65.9	105
PCB near Q23	61.9	57.0	88.2	78.6	78.8	130
E cap C31	49.6	57.1	65.6	52.8	60.0	105
PCB near Q100	53.0	54.9	65.6	50.7	58.3	130
L4 winding	51.9	53.5	61.7	50.2	57.1	130
E cap C11	50.7	51.8	56.6	50.5	55.8	105
PV+ wire	47.5	50.3	56.0	50.4	55.2	125
PE wirre	45.3	50.0	54.7	50.2	55.3	125
VR1	45.6	53.3	56.7	51.9	58.1	85
L1 winding	45.9	52.7	55.9	51.3	57.4	130
L3 winding	45.4	53.8	56.6	54.2	58.5	130
L8 winding	47.4	64.4	75.1	57.2	66.8	130
PCB near U11	48.0	62.7	69.9	57.7	64.5	130
E cap C1	45.6	53.3	61.4	53.3	58.3	105
L5 winding	46.9	65.1	69.7	57.7	62.6	130
T1 coil	56.7	78.7	96.8	61.2	80.3	110
T1 core	48.3	67.0	73.4	61.0	73.8	110
Y cap CY1	46.9	52.4	56.7	51.2	57.0	125
Y cap CY10	48.9	52.1	57.2	50.8	56.7	125
PCB near Q13	56.7	73.6	91.1	60.3	75.9	130
PCB near Q5	46.2	61.4	66.4	67.9	61.7	130
PCB near DB2	46.0	56.2	59.1	55.9	61.0	130
T2 coil	45.4	63.8	67.7	69.4	65.9	110
T2 core	44.6	57.8	64.0	62.5	63.7	110
E cap C183	45.4	56.2	65.3	63.5	64.2	105
L7 winding	46.7	61.4	71.6	68.9	67.9	130
L6 winding	49.3	62.8	77.2	68.2	71.2	130
DC fan surface	45.8	56.4	63.1	57.9	59.8	--
PCB near U27	56.0	63.2	62.3	54.3	61.6	130
T5 coil	74.1	76.4	80.0	72.8	73.3	110
T5 core	69.7	73.2	74.8	66.5	70.8	110
Battery Cell surface	47.4	57.3	67.8	51.7	65.2	--
Plastic enclosure inside under battery	45.9	53.5	62.7	66.5	59.9	85
Metal enclosure inside near the T1	45.7	51.4	58.3	51.1	57.0	85
Plastic enclosure inside near the T1	41.8	47.0	54.1	52.3	51.7	85

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

Ambient	Shifted to 40	Shifted to 40	Shifted to 45	Shifted to 45	Shifted to 45	--
LCD panel surface	32.6	44.3	39.0	32.6	44.3	77#
Buttons	26.8	30.1	32.5	29.5	30.1	77#
Metal DC output ring	30.6	45.6	47.6	47.7	45.6	60*
Plastic enclosure outside side near T1	27.0	30.5	33.2	29.8	31.0	77#
Plastic enclosure outside front	25.9	26.7	28.0	27.3	27.5	77#
Handle	25.9	25.9	27.2	27.2	26.3	77#
Ambient	25.9	25.9	27.1	26.2	26.2	--

Supplementary information:

* Temperature limit for TS1 of accessible enclosure outside according to Table 38. (External surfaces of metal enclosure will be touched occasionally for very short periods (>1 s and <10 s), so temperature limit 60°C considered.)

External surfaces of Switch surface will be touched occasionally for very short periods (>1 s and <10 s), so temperature limit 77°C considered.)

Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

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

Supplementary information: --

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics				P
Allowed impression diameter (mm)	≤ 2 mm				—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)		
AC input connector	Changzhou Amass Electronics Co Ltd	125	0.6		

Supplementary information:
Phenolic material which is acceptable without test.

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Min. Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequen cy (kHz)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
PCB trace under F7(BI)	420	230	0.06	1.5	2.8	2.5	2.8
Line trace to Neutral trace before	420	230	0.06	1.5	3.4	2.5	3.4

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
fuse F7(BI)							
Between two pin of Y cap. CY1(BI)	420	230	0.06	1.5	6.2	2.5	6.2
Between two pin of Y cap. CY2(BI)	420	230	0.06	1.5	6.2	2.5	6.2
Between two pin of Y cap. CY3(BI)	420	230	0.06	1.5	6.2	2.5	6.2
Between two pin of Y cap. CY4(BI)	420	230	0.06	1.5	6.2	2.5	6.2
Primary component C254 to secondary component C183 (RI)	420	230	0.06	3.0	8.0	5.0	8.0
PCB trace under U7 (RI)	420	230	0.06	3.0	6.7	5.0	6.7
PCB trace under U9 (RI)	420	230	0.06	3.0	6.7	5.0	6.7
PCB trace under U4 (RI)	420	230	0.06	3.0	6.7	5.0	6.7
PCB trace under U6 (RI)	420	230	0.06	3.0	6.7	5.0	6.7
PCB trace under U1 (RI)	420	230	0.06	3.0	6.7	5.0	6.7
Resistor R24 Primary side to Resistor R213 secondary side (Short circuit any one of the resistors)(RI)	420	230	0.06	3.0	11.5	5.0	11.5
Resistor R77 Primary side to Resistor R64 secondary side (Short circuit any one of the resistors)(RI)	420	230	0.06	3.0	11.5	5.0	11.5
Resistor R183 Primary side to Resistor R157 secondary side (Short circuit any one of the resistors)(RI)	420	230	0.06	3.0	11.5	5.0	11.5
Transformer T1 primary pin to secondary pin (RI)	492	240	2340	3.0	19.3	5.0	19.3
Transformer T1 primary winding to secondary winding (RI)	492	240	2340	3.0	19.3	5.0	19.3
Transformer T1 core to primary winding (BI)	492	240	2340	3.0	16.6	5.0	16.6
Transformer T1 core to secondary winding (SI)	492	240	2340	3.0	18.1	5.0	18.1
Transformer T2 primary pin to secondary pin (RI)	690	265	132.6	3.0	9.8	5.4	9.8
Transformer T2 primary winding to secondary winding (RI)	690	265	132.6	3.0	9.8	5.4	9.8
Transformer T2 core to secondary winding (RI)	690	265	132.6	3.0	10.0	5.4	10.0
Primary internal wire connected to the pin to accessible plastic enclosure (RI)	420	230	0.06	3.0	10.2	5.0	11.5

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
Outlet earthing pin to L/N (B)	420	230	0.06	1.5	12.4	2.5	12.4
Earthing pin - external enclosure with metal foil (after plug insert)	420	230	0.06	1.5	6.7	2.5	6.7
Relay K1 primary to secondary	420	230	0.06	3.0	3.1	5.0	7.2
Supplementary information: BI: Basic insulation; SI: Supplementary insulation; RI: Reinforced insulation. Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Material group: III b. 1. At least 2 layers insulation tape wrapped around the transformer T1&T2. At least 2 layers insulation tape wrapped at the transformer winding, see photo document for detail. 2. Core of transformer T1 is considered as intermediate conductive part. 3. Core of transformer T2 is considered as primary conductive part. 4. Unless otherwise specified, the worst conditions of Cl. & Cr. In above mentioned locations have been considered and listed.							

5.4.2.3	TABLE: Min. Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:		Required withstand voltage (V _{peak})	Required cl (mm)*	Measured cl (mm)
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.		2500V	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.
Supplementary information:				

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
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					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (Hz)	Material	Required DTI (mm)	DTI (mm)	

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Supplementary information: 1). See appended table 4.1.2.					

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown Yes / No	
AC L/N to plastic enclosure	DC	4000	No	
AC L/N to All DC output connectors	DC	4000	No	
All DC output connectors to AC socket outlet	DC	4000	No	
Plastic enclosure to AC output inlet	DC	4000	No	
Metal DC output ring to AC output inlet	DC	4000	No	
AC socket outlet primary pin to earth pin	DC	2500	No	
AC socket outlet earth pin to plastic enclosure	DC	2500	No	
ALL input connector to plastic enclosure	DC	2500	No	
T1 primary winding to secondary winding	DC	4000	No	
T1 core to primary winding	DC	2500	No	
T1 core to secondary winding	DC	2500	No	
T2 primary winding to secondary winding	DC	4000	No	
T2 core to secondary winding	DC	4000	No	
One insulation tape	DC	4000	No	
Mylar sheet	DC	4000	No	
Supplementary information: By applying a d.c. voltage in one polarity and then repeat it in reverse polarity. All sources of transformer, Insulation tape listed in table 4.1.2 have been considered.				

5.5.2.2	TABLE: Stored discharge on capacitors				P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position ON or OFF	Measured Voltage (after 2 seconds)	ES Classification
253Vac, 60Hz	Phase to Neutral	N	--	12	ES1
253Vac, 60Hz	Phase to Neutral	N (R5 opened)	--	38	ES1
253Vac, 60Hz	Phase to Neutral	N (R209 opened)	--	36	ES1

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

Supplementary information:
 X-capacitor installed for testing are: C191= C15=3.3uF;
 Bleeding resistor rating: R5=R23=R32=R33= R194=R203=R204=R205= R178=R179=R180=R182=R206=R207=R208=R209=1.0MΩ
 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 (Bleeder Resistor open circuit)

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Appliance connector earthing pin to earthed terminal	32	2	0.180	0.006	
Appliance connector earthing pin to earthed terminal	40	2	0.260	0.007	
Supplementary Information: Evaluated in end product					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage	253Vac		—
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)
Measured to earthed point	1 (e open, normal and reverse polarity p)		Normal: 1.42mApk Reversed: 1.42mApk
	2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p)		N/A
	3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)		N/A
	4 (for three-phase, each phase conductor open, one at a time switches l)		N/A
	5 (IT power system or three phase delta system)		N/A
	6 (three-phase for use on centre-earthed dalta supply system)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

		8 (incidental electrically connected to other parts)	N/A
--	--	--	-----

Notes:

[1] Supply voltage is the anticipated Max. 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
A	All circuit inside	Power (W) :	--	--	PS3 (declaration)
		V _A (V) :	--	--	
		I _A (A) :	--	--	
B	USB-A Output(x4): 5Vdc 3A, 9Vdc 2A, 12Vdc 1.5A; Max. 18W.	Power (W) :	31.02	--	PS2 (declaration)
		V _A (V) :	11.52	--	
		I _A (A) :	2.58	--	
C	DC 5521 Output (x2): 13Vdc 3A Max. 39W.	Power (W) :	50.06	--	PS2 (declaration)
		V _A (V) :	12.68	--	
		I _A (A) :	4.50	--	
D	Anderson port	Power (W) :	--	--	PS3 (declaration)
		V _A (V) :	--	--	
		I _A (A) :	--	--	
F	AC output	Power (W) :	--	--	PS3 (declaration)
		V _A (V) :	--	--	
		I _A (A) :	--	--	
G	Cigar lighter port	Power (W) :	--	--	PS3 (declaration)
		V _A (V) :	--	--	
		I _A (A) :	--	--	

Supplementary information:

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

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

Primary circuits and secondary circuit / parts except for output connector	--	--	--	Yes (Declaration)
--	----	----	----	----------------------

Supplementary information:
 An Arcing PIS requires a Min. 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.
 All conductors and devices are considered as PIS.

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 /components	--	--	--	--	Yes (Declaration)

Supplementary Information:
 All primary and secondary circuit are considered as resistive PIS
 A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.
 If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.
 A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.
 All conductors and devices are considered as PIS.

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

B.2.5	TABLE: Input test		P
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IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
207Vac, 50Hz	2.26	--	389.03	--	--	2.26	No load, only on charging mode.
207Vac, 50Hz	2.53	--	418.04	--	--	2.53	with fully charged battery inside USB3.0 Output: 18W max DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W
230Vac, 50Hz	1.86	--	406.06	1400	--	1.86	No load, only on charging mode.
230Vac, 50Hz	2.13	--	442.02	1400	--	2.13	with fully charged battery inside USB3.0 Output: 18W max DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W
253Vac, 50Hz	1.78	--	475.03	--	--	1.78	No load, only on charging mode.
253Vac, 50Hz	1.90	--	512.04	--	--	1.90	with fully charged battery inside USB3.0 Output: 18W max DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W
207Vac, 60Hz	2.26	--	386.05	--	--	2.26	No load, only on charging mode.
207Vac, 60Hz	2.53	--	417.04	--	--	2.53	with fully charged battery inside USB3.0 Output: 18W max DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W
230Vac, 60Hz	1.85	--	404.06	1400	--	1.85	No load, only on charging mode.
230Vac, 60Hz	2.12	--	439.00	1400	--	2.12	with fully charged battery inside USB3.0 Output: 18W max DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W
253Vac, 60Hz	1.78	--	474.01	1400	--	1.78	No load, only on charging mode.
253Vac, 60Hz	1.90	--	511.06	--	--	1.90	with fully charged battery inside USB3.0 Output: 18W max DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W

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Clause	Requirement + Test	Result - Remark	Verdict
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Fully charged battery	48 (for battery pack)	--	--	--	--	--	Unit supplied with fully charged battery inside. Record the discharging current 2.8A for one cell block Load with max load: AC outlet: 230Vac, 50Hz, 2500W USB3.0 Output: 18W max (5V/3A, 9V/2A, 12V/1.5A) *4 DC Output: 39W max(13V/3A)*1 Anderson Output:195W max (13V/15A)*1 Type-C Output:100W max (20V/5A,15V/3A,12V/3A,9V/3A,5V/3A) *2
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Supplementary information:
 The Max. measured current under rated voltage did not exceed 110% of the rated current.

B.3	TABLE: Abnormal operating condition tests						P	
Ambient temperature (°C)						See below	—	
Power source for EUT: Manufacturer, model/type, output rating .:						--	—	
Comp onent No.	Abnor mal Condi tion	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T- couple	Temp. (°C)	Observation

IEC 62368-1								
Clause	Requirement + Test					Result - Remark	Verdict	
AC outlet (230V, 50Hz)	OL	253Vac	4 hour 20 min	F6/F7	--	--	AC output inlet 57.3 LCD Board U1 49.1 AC yellow connector 49.7 BAT+ wire 52.2 E cap C182 52.8 PCB near Q23 55.3 E cap C31 53.5 PCB near Q100 52.6 L4 winding 50.6 E cap C11 49.4 PV+ wire 47.7 PE wirre 47.6 VR1 51.6 L1 winding 48.5 L3 winding 52.2 L8 winding 64.4 PCB near U11 57.1 E cap C1 62.7 L5 winding 52.1 T1 coil 65.1 T1 core 78.7 Y cap CY1 64.7 Y cap CY10 50.7 PCB near Q13 49.7 PCB near Q5 73.6 PCB near DB2 55.6 T2 coil 61.4 T2 core 63.8 E cap C183 57.8 L7 winding 56.2 L6 winding 61.4 DC fan surface 62.8 PCB near U27 56.4 T5 coil 53.8 T5 core 60.8 Battery Cell surface 66.6 Plastic enclosure inside under battery 49.8 Metal enclosure inside near the T1 53.5 Plastic enclosure inside near the	AC Output: 2.13A→2.9A 2500W→2865W Battery: 64.5A→68.6A EUT fully discharged at last. No damage. No hazards.

IEC 62368-1									
Clause	Requirement + Test						Result - Remark		Verdict
							T1 50.2 Ambient Shifted to 40 LCD panel surface 36.1 Buttons 35.5 Metal DC output ring 30.9 Plastic enclosure outside side near T1 34.1 Plastic enclosure outside front 31.7 Handle 27.9 Ambient Shifted to 25		
USB 3.0 port (12V, 1.5A)	OL	253Vac	5 hour	F6/F7	--	--	AC output inlet 54.1 LCD Board U1 57.9 AC yellow connector 62.4 BAT+ wire 61.0 E cap C182 63.6 PCB near Q23 80.0 E cap C31 54.0 PCB near Q100 83.6 L4 winding 48.4 E cap C11 47.6 PV+ wire 48.1 PE wirre 51.8 VR1 54.6 L1 winding 51.3 L3 winding 53.4 L8 winding 59.0 PCB near U11 62.5 E cap C1 54.8 L5 winding 61.4 T1 coil 68.3 T1 core 65.3 Y cap CY1 49.9 Y cap CY10 48.8 PCB near Q13 71.9 PCB near Q5 70.7 PCB near DB2 57.8 T2 coil 75.8 T2 core 70.2 E cap C183 62.1 L7 winding 65.7 L6 winding 73.1 DC fan surface 55.0 PCB near U27 55.1	Output: 1.5A→2.32A 11.18W→12.88W EUT fully discharged at last. No damage. No hazards.	

IEC 62368-1								
Clause	Requirement + Test					Result - Remark	Verdict	
						T5 coil 66.6 T5 core 63.9 Battery Cell surface 50.7 Plastic enclosure inside under battery 47.6 Metal enclosure inside near the T1 50.1 Plastic enclosure inside near the T1 44.4 Ambient Shifted to 40 LCD panel surface 30.0 Buttons 26.3 Metal DC output ring 35.7 Plastic enclosure outside side near T1 29.4 Plastic enclosure outside front 31.9 Handle 26.2 Ambient Shifted to 25		
Type-c port (20V5.0A)	OL	253Vac	4 hour 45 min	F6/F7	--	--	AC output inlet 55.2 LCD Board U1 59.0 AC yellow connector 63.5 BAT+ wire 62.1 E cap C182 64.7 PCB near Q23 81.1 E cap C31 55.1 PCB near Q100 80.0 L4 winding 49.5 E cap C11 48.7 PV+ wire 49.2 PE wirre 52.9 VR1 55.7 L1 winding 52.4 L3 winding 54.5 L8 winding 60.1 PCB near U11 63.6 E cap C1 55.9 L5 winding 62.5 T1 coil 69.4 T1 core 66.4 Y cap CY1 51.0 Y cap CY10 49.9 PCB near Q13 73.0 PCB near Q5 71.8	Output: 5A→6.2A 100.6W→125.3W EUT fully discharged at last. No damage. No hazards.

IEC 62368-1							
Clause	Requirement + Test					Result - Remark	Verdict
						PCB near DB2 58.9 T2 coil 76.9 T2 core 71.3 E cap C183 63.2 L7 winding 66.8 L6 winding 74.2 DC fan surface 56.1 PCB near U27 56.2 T5 coil 67.7 T5 core 65.0 Battery Cell surface 51.8 Plastic enclosure inside under battery 48.7 Metal enclosure inside near the T1 51.2 Plastic enclosure inside near the T1 45.5 Ambient Shifted to 40 LCD panel surface 33.6 Buttons 29.9 Metal DC output ring 39.3 Plastic enclosure outside side near T1 27.6 Plastic enclosure outside front 34.1 Handle 27.4 Ambient Shifted to 25	
Cigar lighter port (13V10 A)	OL	253Vac	3 hour 10 min	F6/F7	--	--	AC output inlet 66.3 LCD Board U1 55.6 AC yellow connector 57.5 BAT+ wire 65.0 E cap C182 67.3 PCB near Q23 86.7 E cap C31 64.1 PCB near Q100 64.1 L4 winding 60.2 E cap C11 55.1 PV+ wire 54.5 PE wirre 53.2 VR1 55.2 L1 winding 54.4 Output: 10.0A→ 11.48A 129.26W→ 142.39WW EUT fully discharged at last. No damage. No hazards.

IEC 62368-1							
Clause	Requirement + Test					Result - Remark	Verdict
						L3 winding 55.1 L8 winding 73.6 PCB near U11 68.4 E cap C1 68.4 L5 winding 59.9 T1 coil 68.2 T1 core 95.3 Y cap CY1 71.9 Y cap CY10 55.2 PCB near Q13 55.7 PCB near Q5 89.6 PCB near DB2 57.6 T2 coil 64.9 T2 core 66.2 E cap C183 62.5 L7 winding 63.8 L6 winding 70.1 DC fan surface 75.7 PCB near U27 61.6 T5 coil 60.8 T5 core 73.3 Battery Cell surface 78.5 Plastic enclosure inside under battery 64.0 Metal enclosure inside near the T1 61.2 Plastic enclosure inside near the T1 56.8 Ambient Shifted to 40 LCD panel surface 46.7 Buttons 42.5 Metal DC output ring 36.0 Plastic enclosure outside side near T1 39.7 Plastic enclosure outside front 36.7 Handle 31.5 Ambient Shifted to 25	
Anders on Output(13V15)	OL	253Vac	3 hour 50 min	F6/F7	--	--	AC output inlet 57.6 LCD Board U1 61.4 AC yellow connector 65.9 Output: 10A→11.8A, 120W→144 W EUT fully

IEC 62368-1							
Clause	Requirement + Test					Result - Remark	Verdict
A)						BAT+ wire 64.5 E cap C182 67.1 PCB near Q23 83.5 E cap C31 57.5 PCB near Q100 80.0 L4 winding 51.9 E cap C11 51.1 PV+ wire 51.6 PE wirre 55.3 VR1 58.1 L1 winding 54.8 L3 winding 56.9 L8 winding 62.5 PCB near U11 66.0 E cap C1 58.3 L5 winding 64.9 T1 coil 71.8 T1 core 68.8 Y cap CY1 53.4 Y cap CY10 52.3 PCB near Q13 75.4 PCB near Q5 74.2 PCB near DB2 61.3 T2 coil 79.3 T2 core 73.7 E cap C183 65.6 L7 winding 69.2 L6 winding 76.6 DC fan surface 58.5 PCB near U27 58.6 T5 coil 70.1 T5 core 67.4 Battery Cell surface 54.2 Plastic enclosure inside under battery 51.1 Metal enclosure inside near the T1 53.6 Plastic enclosure inside near the T1 47.9 Ambient Shifted to 40 LCD panel surface 37.1	discharged at last. No damage. No hazards.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark	Verdict	
						Buttons 33.4 Metal DC output ring 42.8 Plastic enclosure outside side near T1 31.1 Plastic enclosure outside front 37.6 Handle 30.9 Ambient Shifted to 25		
Ventilation opening	Blocked	253Vac	3 hour 42min	F6/F7	--	--	AC output inlet 59.6 LCD Board U1 61.3 AC yellow connector 58.5 BAT+ wire 62.7 E cap C182 69.1 PCB near Q23 91.3 E cap C31 61.5 PCB near Q100 58.4 L4 winding 57.2 E cap C11 56.2 PV+ wire 56.0 PE wire 57.5 VR1 59.2 L1 winding 58.0 L3 winding 59.2 L8 winding 62.0 PCB near U11 62.2 E cap C1 60.4 L5 winding 65.3 T1 coil 67.2 T1 core 101.1 Y cap CY1 58.0 Y cap CY10 56.7 PCB near Q13 75.2 PCB near Q5 76.5 PCB near DB2 62.5 T2 coil 79.7 T2 core 75.2 E cap C183 66.9 L7 winding 67.9 L6 winding 78.9 DC fan surface 62.6 PCB near U27 66.0	EUT fully discharged at last. No damage. No hazards.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark	Verdict	
						T5 coil 75.1 T5 core 71.9 Battery Cell surface 56.9 Plastic enclosure inside under battery 52.2 Metal enclosure inside near the T1 56.0 Plastic enclosure inside near the T1 49.5 Ambient Shifted to 40 LCD panel surface 48.8 Buttons 48.4 Metal DC output ring 67.8 Plastic enclosure outside side near T1 44.1 Plastic enclosure outside front 50.3 Handle 42.2 Ambient Shifted to 25		
Transformer T1 primary winding (after C143)	OL	253Vac	1h15 min	F6/F7	--	--	T1 coil 49.2 T2 coil 47.2 Ambient Shifted to 40 LCD panel surface 30.2 Buttons 34.2 Metal DC output ring 27.9 Plastic enclosure outside side near T1 27.8 Plastic enclosure outside front 26.6 Handle 34.0 Ambient Shifted to 25	Overload current: 1.92A→2.36 A→0A When the over load current to 2.7A, unit shut down, can recover, no damaged, no hazards. Max temperature record as below:
Fan	Locked	253Vac	4.3 hour	F6/F7	--	--	AC output inlet 62.1 LCD Board U1 63.8 AC yellow connector 61.0 BAT+ wire 65.2 E cap C182 71.6 PCB near Q23 93.8 E cap C31 64.0 PCB near Q100 60.9 L4 winding 59.7 E cap C11 58.7	EUT fully discharged at last. No damage. No hazards.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
		PV+ wire 58.5 PE wirre 60.0 VR1 61.7 L1 winding 60.5 L3 winding 61.7 L8 winding 64.5 PCB near U11 64.7 E cap C1 62.9 L5 winding 67.8 T1 coil 69.7 T1 core 103.6 Y cap CY1 60.5 Y cap CY10 59.2 PCB near Q13 77.7 PCB near Q5 79.0 PCB near DB2 65.0 T2 coil 82.2 T2 core 77.7 E cap C183 69.4 L7 winding 70.4 L6 winding 81.4 DC fan surface 65.1 PCB near U27 68.5 T5 coil 77.6 T5 core 74.4 Battery Cell surface 59.4 Plastic enclosure inside under battery 54.7 Metal enclosure inside near the T1 58.5 Plastic enclosure inside near the T1 52.0 Ambient Shifted to 40 LCD panel surface 37.8 Buttons 37.4 Metal DC output ring 56.8 Plastic enclosure outside side near T1 33.1 Plastic enclosure outside front 39.3 Handle 31.2 Ambient Shifted to 25	

IEC 62368-1								
Clause	Requirement + Test						Result - Remark	Verdict
AC output inlet (230V, 50Hz)	SC	253Vac	10min	F6/F7	--	--	--	AC port is protected, others are not protected, and can be restored. No damage. No hazards. Battery Current: 46A→16.0A
USB 3.0 port (12V, 1.5A)	SC	253Vac	10min	F6/F7	--	--	--	All output ports are protected except car charging output port and AC output port.No damage. No hazards. Battery Current: 42A→38.2A
Type-c port (20V5.0A)	SC	253Vac	10min	F6/F7	--	--	--	All output ports are protected except car charging output port and AC output port.No damage. No hazards. Battery Current: 43A→39.0A
Cigar lighter port (13V10A)	SC	253Vac	10min	F6/F7	--	--	--	All output ports are protected except car charging output port and AC output port. No damage. No hazards. Battery Current:

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Clause	Requirement + Test						Result - Remark	Verdict
							43.3A→38.8 A	
Anders on Output(13V15 A)	SC	253Vac	10min	F6/F7	--	--	--	DC port is protected, others are not protected. No damage. No hazards. Battery Current: 43.1A→37.5 A
Fully charged battery output "+ to -"	SC	253Vac	10min	F6/F7	--	--	--	EUT is protected, recoverable. No damage. No hazards. Battery Current: 46.2A→0A
C1	SC	253Vac	10min	F6/F7	--	--	--	AC output port is protected, other output ports are not protected. No damage. No hazards. Battery Current: 42.1A→14.3 A
DB2	SC	253Vac	10min	F6/F7	--	--	--	AC output port is protected, other output ports are not protected. No damage. No hazards. Battery Current: 42A→14.5A
Q4 pin G-S	SC	253Vac	10min	F6/F7	--	--	--	EUT was under normal working condition. No damage. No hazards. Battery Current: 44.8A→44.3

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Clause	Requirement + Test						Result - Remark	Verdict
								A
Q4 pin D-S	SC	253Vac	10min	F6/F7	--	--	--	EUT is protected, and the AC port cannot be restored.No damage. No hazards. Battery Current: 44.7A→0.1A
Q4 pin G-D	SC	253Vac	10min	F6/F7	--	--	--	EUT is protected, and the AC port cannot be restored.No damage. No hazards. Battery Current: 46.0A→0.1A
C16	SC	253Vac	10min	F6/F7	--	--	--	EUT is protected and recoverable. No damage. No hazards. Battery Current: 42.2A→0A
R61	SC	253Vac	10min	F6/F7	--	--	--	EUT is protected and recoverable. No damage. No hazards. Battery Current: 46.0A→0A
D7	SC	253Vac	10min	F6/F7	--	--	--	EUT is protected and recoverable. No damage. No hazards. Battery Current: 42.1A→1.0A
U1 pin 2 to pin 6	SC	253Vac	10min	F6/F7	--	--	--	AC output port is protected, other output ports are not

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Clause	Requirement + Test						Result - Remark	Verdict
							protected.Recoverable. No damage.No hazards. Battery Current: 43.4A→14.4 A	
U1 pin 8 to pin 6	SC	253Vac	10min	F6/F7	--	--	-- AC output port is protected, other output ports are not protected.Recoverable.No damage.No hazards. Battery Current: 48.0A→14.2 A	
T1 pin A to pin B	SC	253Vac	2 hour	F6/F7	--	--	-- EUT is protected and recoverable. No damage. No hazards. Battery Current: 47.8A→0A	
T1 pin C to pin D	SC	253Vac	10min	F6/F7	--	--	-- EUT is protected and recoverable. No damage. No hazards. Battery Current: 47.8A→0A	
T2 pin 1 to pin 2	SC	253Vac	1hour	F6/F7	--	--	-- EUT is shut down and not recoverable. No damage. No hazards. Battery Current: 47.5A→0A	
T2 pin 4 to pin5	SC	253Vac	10min	F6/F7	--	--	-- EUT is shut down and not recoverable. No damage. No hazards. Battery Current: 47.5A→0A	

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

Supplementary information:

- 1) OL: Overloaded.
- 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.
- 3) The overloaded condition is applied according to annex G.5.3.3.
- 4) Winding temperature Limit for:
Transformer (T1, T2): Class B → 175-10=165°C
- 5) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.

Annex M	TABLE: Batteries								P
The tests of Annex M are applicable only when appropriate battery data is not available									N/A
Is it possible to install the battery in a reverse polarity position? :							Impossible		P
	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	--	--	--	4.9A	6.5A	5.2A	6.5A	--	--
Max. current during fault condition Q1 shorted circuit	--	--	--	4.9A	6.5A	--	--	--	--
Max. current during fault condition Q2 shorted circuit	--	--	--	4.9A	6.5A	--	--	--	--
Max. current during fault condition Q10 shorted circuit	--	--	--	4.9A	6.5A	--	--	--	--
Max. current during fault condition Q11 shorted circuit	--	--	--	4.9A	6.5A	--	--	--	--
Max. current during fault condition Q12 shorted circuit	--	--	--	4.9A	6.5A	--	--	--	--

IEC 62368-1									
Clause	Requirement + Test				Result - Remark				Verdict
Max. current during fault condition Q13 shorted circuit	--	--	--	4.9A	6.5A	--	--	--	--
Max. current during fault condition C22 shorted circuit	--	--	--	--	--	0.001	6.5A	--	--

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries					P
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp (C)		
--	Normal	--	--	--	--	
--	Abnormal	--	--	--	--	
--	Single fault –SC/OC	--	--	--	--	
--	Normal	--	--	--	--	
--	Abnormal	--	--	--	--	
--	Single fault – SC/OC	--	--	--	--	

Supplementary Information:

Battery identification	Charging at Tlowest (°C)	Observation	Charging at Thighest (°C)	Observation
EVE POWER Co., Ltd / C32	1.7*	EUT stopped to be charged when the temperature was reached.	55.3 *	EUT stopped to be charged when the temperature was reached.

Supplementary Information:* max. charging temperature limit by internal battery, which evaluated in IEC 62619 test report (charging temperature 0-55°C).

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
DC output (13V, 3A)	Normal condition	13.53	4.82	8	62.55	100
	At R326 SC	13.57	4.84	8	63.51	100
USB3.0 (5V/3A)	Normal condition	5.17	3.35	8	13.6	100
	At U8 pin10 to pin7 SC	0	0	8	0	100

IEC 62368-1						
Clause	Requirement + Test	Result - Remark				Verdict
USB3.0 (9V/2A)	Normal condition	9.32	2.56	8	20.41	100
	At U8 pin10 to pin7 SC	0	0	8	0	100
USB3.0 (12V/1.5A)	Normal condition	12.28	1.88	8	21.77	100
	At U8 pin10 to pin7 SC	0	0	8	0	100
Supplementary Information:						

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Enclosure top, closed to transformer (T.4, T.5)	1)	2.0	100/250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side (T.4, T.5)	1)	2.0	100/250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure bottom, closed to transformer (T.4, T.5)	1)	2.0	100/250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Internal components (T.2)	1)	--	10	5	No insulation breakdown. No reduction the clearances and creepage distances	
Supplementary information:						

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Enclosure top, closed to transformer (T.6)	1)	2.0	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side (T.6)	1)	2.0	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information: 1) See list of critical components 4.1.2 of report					

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

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Plastic enclosure	1)	1)	77	7	Mylar sheet remained intact, no crack/opening developed. No insulation breakdown.	
Supplementary information: 1) All mylar sheet materials have been tested, see table 4.1.2 for details.						



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT							
IEC 62368-1							
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES							
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)							
Differences according to : EN 62368-1:2014+A11:2017							
Attachment Form No. : EU_GD_IEC62368_1D_II							
Attachment Originator : Nemko AS							
Master Attachment : Date 2021-02-04							
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	CENELEC COMMON MODIFICATIONS (EN)			P			
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".			--			
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords			P			
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:			P			
	0.2.1	Note	1	Note 3	4.1.15	Note	
	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	
	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	
	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	
	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	
	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	
	For special national conditions, see Annex ZB.						P



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1	<p>Add the following note:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</p>		P
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	<p>Considered.</p> <p>Complied with item a) for internal fuse (F6, F7) used and for parts as described in b) reliance on the protection in the building installation.</p>	P
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	No external circuits.	N/A
10.2.1	<p>Add the following to c) and d) in table 39:</p> <p>For additional requirements, see 10.5.1.</p>	No such radiation from the equipment.	N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p>Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i></p> <p><i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i></p> <p><i>For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>	No such radiation from the equipment.	N/A
10.6.1	<p>Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>	No such x-radiation generated from the equipment.	N/A
10.Z1	<p>Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>	Added. The equipment is a low power switching adapter, it does incorporate only non-intentional radiators, but does not contain radio transmitters; the typical usage, installation and physical characteristics make the equipment inherently compliant with all applicable EMF exposure levels (EN 62479:2010 clause 4.1 Route A).	N/A
G.7.1	<p>Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>	Added.	N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	<p>Add the following standards:</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		P
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high touch current.	N/A



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



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>	Considered.	P
5.6.1	<p>Denmark</p> <p>Add to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>	Considered.	P
5.6.4.2.1	<p>Ireland and United Kingdom</p> <p>After the indent for pluggable equipment type A, the following is added:</p> <p>– the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.</p>	Considered.	P
5.6.5.1	<p>To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm² to 1,5 mm² in cross-sectional area.</p>	See above.	N/A
5.7.5	<p>Denmark</p> <p>To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high protective conductor current.	N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>	Not such system.	N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>	No external circuits.	N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c</p>		N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N/A
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A



IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>Germany</p> <p>The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de</p>	No CRT within the equipment.	N/A

Supplementary test results for subclause 5.4.1.8:

5.4.1.8	Table: working voltage measurement			P
Location	Peak voltage (V)	RMS voltage (V)	Comments	
T1 pin C-A	356	181	--	
T1 pin C-A	492	230	Max. Vpeak (Max. frequency: 2.34MHz)	
T1 pin D-B	456	240	Max. Vrms (Max. frequency: 2.34MHz)	
T1 pin D-B	416	188	--	
T2 pin 6-1	252	118	--	
T2 pin 6-2	270	120	--	
T2 pin 6-3	270	125	--	
T2 pin 6-4	472	238	--	
T2 pin 6-5	508	244	--	
T2 pin 8-1	274	116	--	
T2 pin 8-2	310	112	--	
T2 pin 8-3	380	102	--	
T2 pin 8-4	516	237	--	
T2 pin 8-5	496	240	--	
T2 pin 9-1	370	163	--	
T2 pin 9-2	660	158	--	
T2 pin 9-3	690	175	Max. Vpeak (Max. frequency: 132.6KHz)	
T2 pin 9-4	584	265	Max. Vrms (Max. frequency: 132.6KHz)	
T2 pin 9-5	536	243	--	
T2 pin 10-1	300	126	--	
T2 pin 10-2	310	121	--	
T2 pin 10-3	300	106	--	
T2 pin 10-4	444	231	--	
T2 pin 10-5	688	237	--	
Supplementary information: Test voltage: 230V/60Hz				

Supplementary test results for subclause G.5.3:

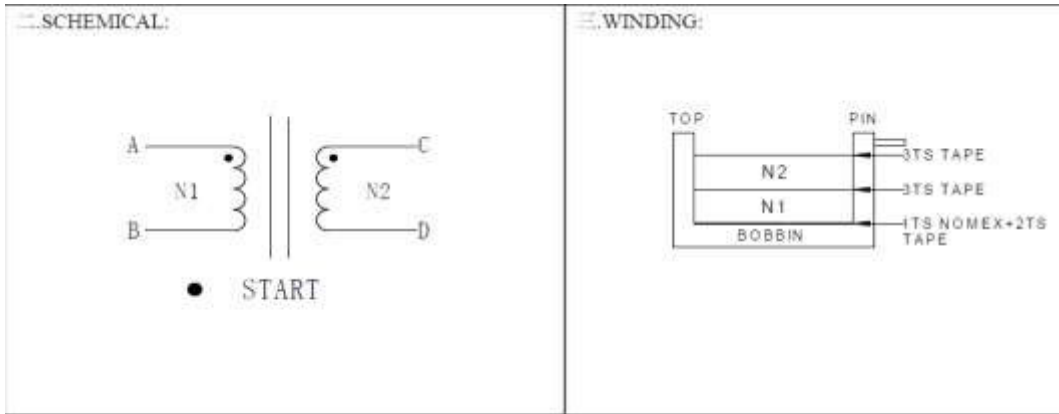
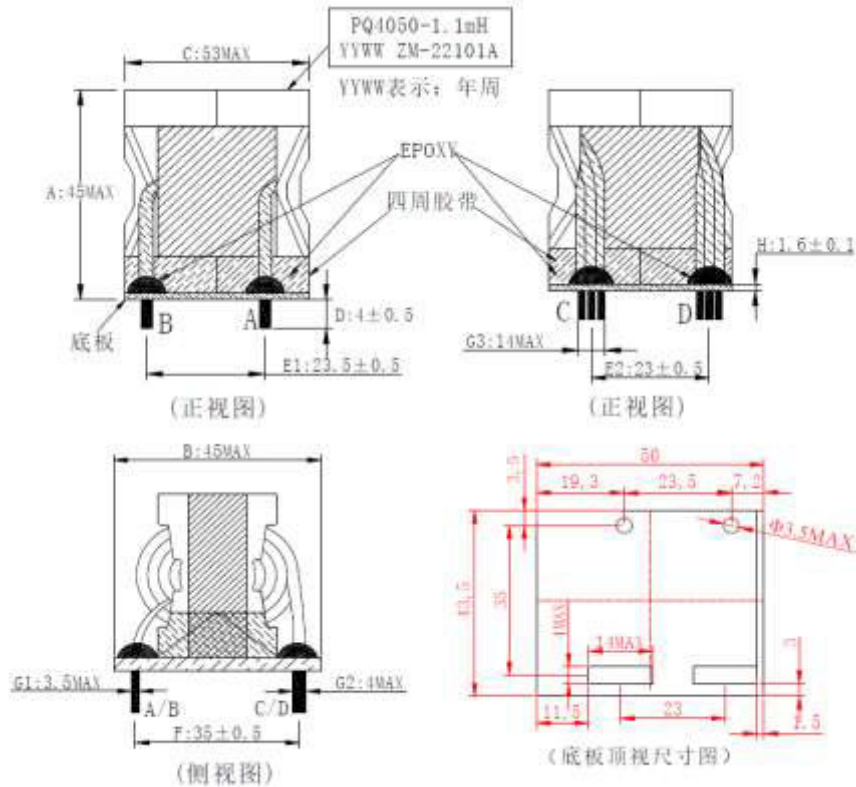
G.5.3	TABLE: transformers of T1							P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4.6)	
T1 primary winding to secondary winding	Reinforced insulation	492	240	4000Vdc	3.0	5.0	Min. 0.4mm	
T1 core and primary winding	Basic insulation	492	240	2500Vdc	1.5	2.5	Min. 0.4mm	
T1 core to secondary winding	Supplementary insulation	492	240	2500Vdc	1.5	2.5	Min. 0.4mm	
T1 core and primary pin	Basic insulation	492	240	2500Vdc	1.5	2.5	Min. 0.4mm	
T1 core and secondary pin	Supplementary insulation	492	240	2500Vdc	1.5	2.5	Min. 0.4mm	
Loc.	Tested insulation			Test voltage/ V	Measure d clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T1 primary winding to secondary winding	Reinforced insulation			4000Vdc	18.2	18.2	2 layers insulation tape.	
T1 core and primary winding	Basic insulation			2500Vdc	9.8	9.8	2 layers insulation tape.	
T1 core to secondary winding	Supplementary insulation			2500Vdc	9.8	9.8	2 layers insulation tape.	
T1 core and primary pin	Basic insulation			2500Vdc	10.3	10.3	2 layers insulation tape.	
T1 core and secondary pin	Supplementary insulation			2500Vdc	10.2	10.2	2 layers insulation tape.	

Supplementary information:

Concentric windings on phenolic type bobbin. Transformers T2 of primary winding and secondary winding are magnet wire, core considered as intermediate part. At least 3.5mm margin tape used between primary winding /secondary winding and core as basic/supplementary insulation. All winding leads enclosed by tube and extend margin tape at least 1.0mm. Min. two layers insulation tape wrapped over top and bottom core as basic insulation. Primary lead pins soldered to primary windings directly moulded in bobbin and secondary lead pins soldered to secondary windings directly moulded in bobbin also.

G.5.3	TABLE: transformers of T2							P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4.6)	
T2 primary pin to secondary pin	Reinforced insulation	690	265	4000Vdc	3.0	5.4	2 layers insulation tape and insulated wire.	
T2 core to secondary pin	Reinforced insulation	690	265	4000Vdc	3.0	5.4	2 layers insulation tape and insulated wire.	
Loc.	Tested insulation			Test voltage/ V	Measure d clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
T2 primary pin to secondary pin	Reinforced insulation			4000Vdc	9.8	9.8	2 layers insulation tape and insulated wire.	
T2 core to secondary pin	Reinforced insulation			4000Vdc	10.0	10.0	2 layers insulation tape and insulated wire.	
<p>Supplementary information:</p> <p>Concentric windings on phenolic type bobbin. Transformers T1 of primary winding N1 and secondary winding N2 are triple insulation wire, core considered as secondary part. Primary lead pins soldered to primary windings directly moulded in bobbin and secondary lead pins soldered to secondary windings directly moulded in bobbin also.</p>								

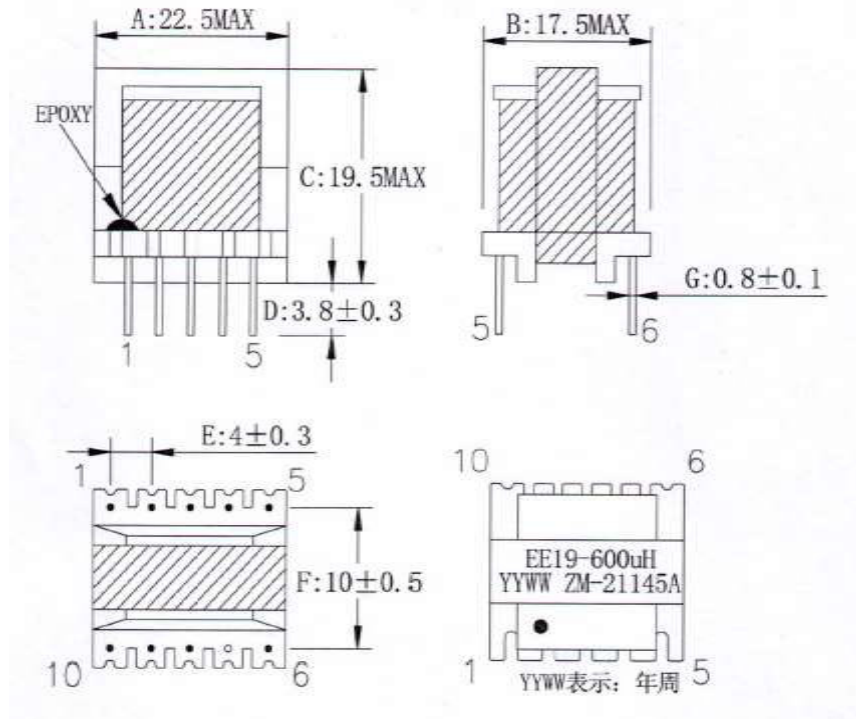
Construction:
For transformers T1:



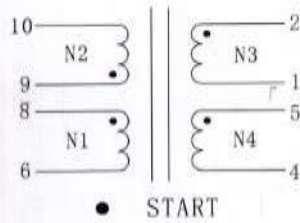
四. WINDING:

STEP	WINDING	START	FINISH	SPECIFICATION	TURNS	MLYER TAPE	REMARK
#1				NOMEX	1TS	2	
#2	N1	A	B	膜包线 0.1Φ*300P*1C	32TS	3	密绕
#3	N2	C	D	膜包线 0.1Φ*400P*4C	4TS	3	密绕

For transformers T2:



二.SCHEMICAL:



三.WINDING:



四. WINDING:

STEP	WINDING	START	FINISH	SPECIFICATION	TURNS	MLYER TAPE	REMARK
#1	N1	8	6	xUEW 0.2Φ*1C	11TS	2	居中密绕
#2	N2	9	10	xUEW 0.3Φ*1C	90TS	2	密绕
#3	N3	2	1	xUEW 0.4Φ*1C	12TS	2	居中密绕
#4	N4	5	4	xUEW 0.4Φ*1C	37TS	2	密绕

Product: Portable Power Station

Type Designation: SP2500



Figure 1 External view



Figure 2 External view

Product: Portable Power Station

Type Designation: SP2500



Figure 3 External view



Figure 4 External view

Product: Portable Power Station

Type Designation: SP2500



Figure 5 External view



Figure 6 External view

Product: Portable Power Station

Type Designation: SP2500



Figure 7 External view



Figure 8 External view

Product: Portable Power Station

Type Designation: SP2500



Figure 9 External view



Figure 10 Internal view

Product: Portable Power Station

Type Designation: SP2500



Figure 11 Internal view

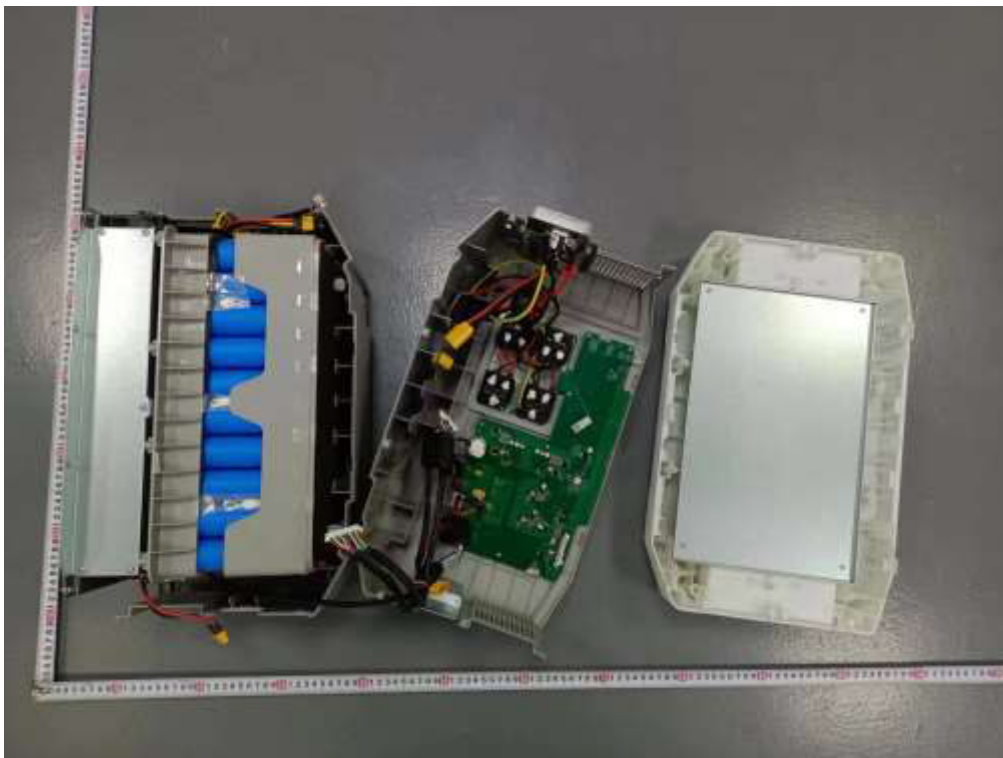


Figure 12 Internal view

Product: Portable Power Station

Type Designation: SP2500



Figure 13 Internal view

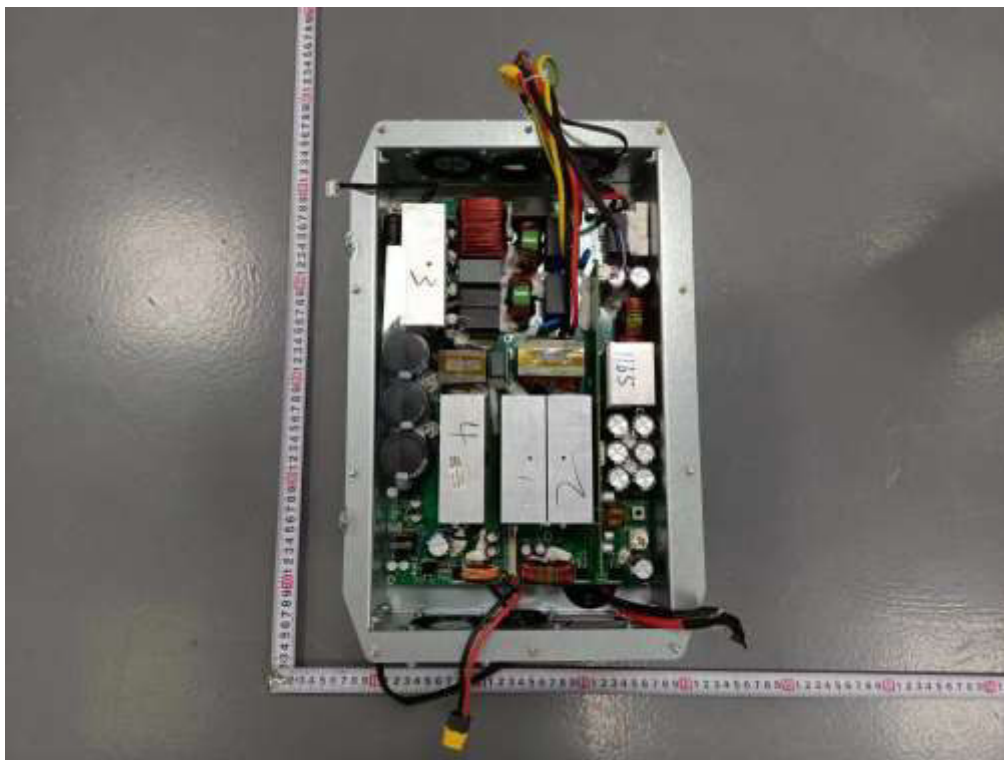


Figure 14 Internal view

Product: Portable Power Station

Type Designation: SP2500

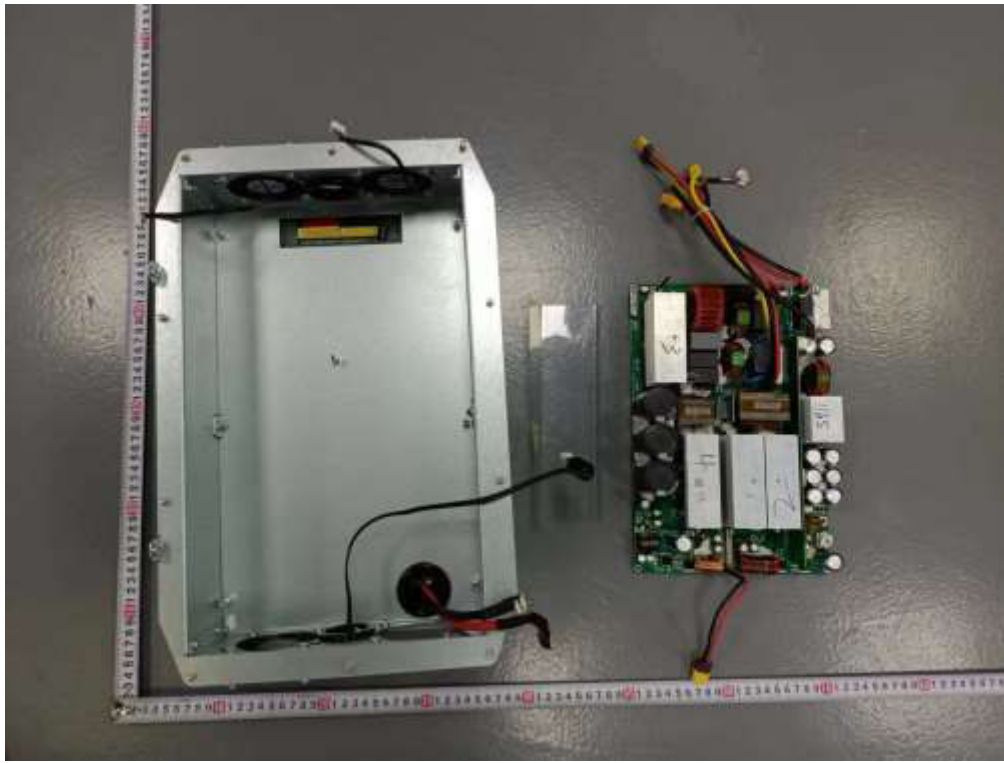


Figure 15 Internal view

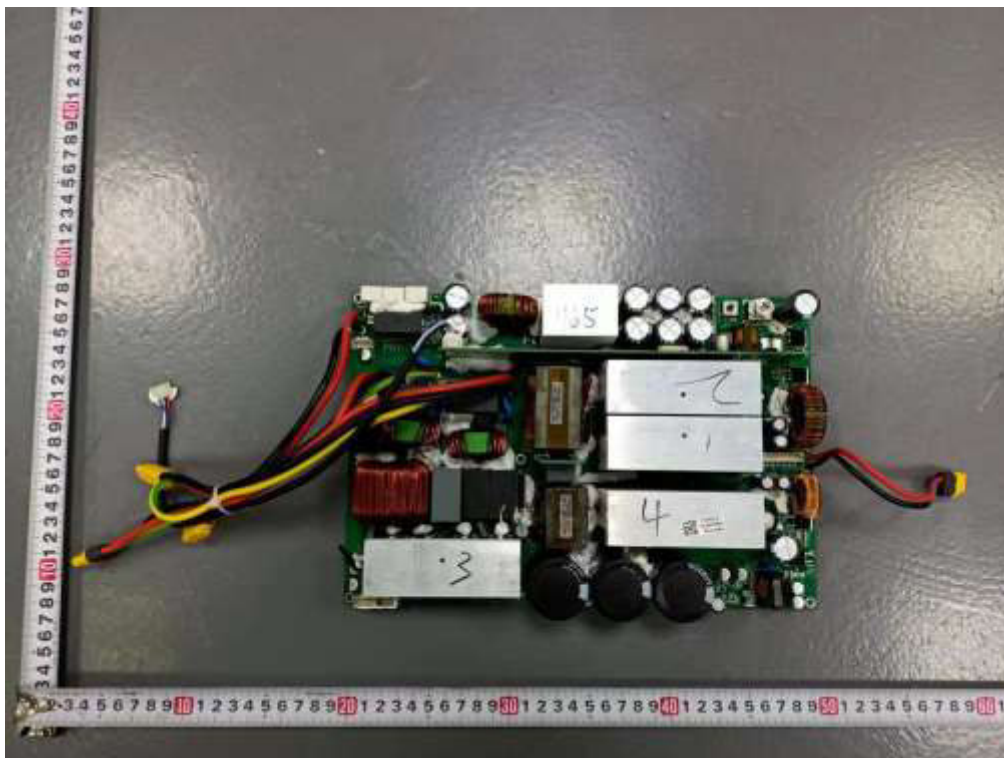


Figure 16 PWB-components side

Product: Portable Power Station

Type Designation: SP2500

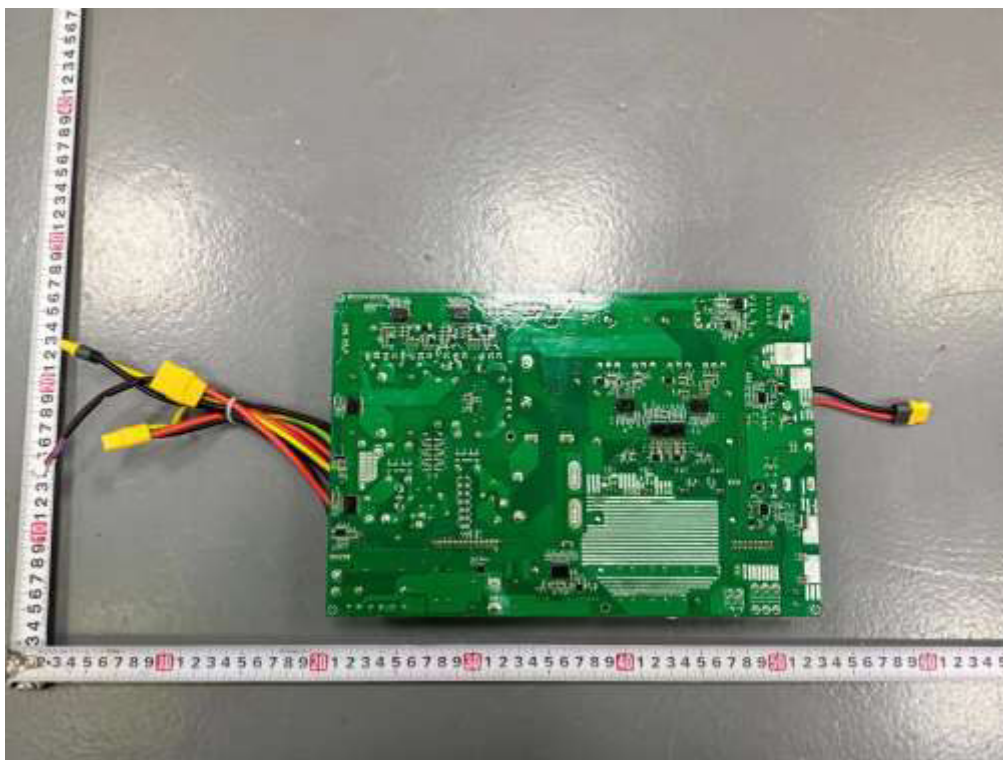


Figure 17 PWB-trace side

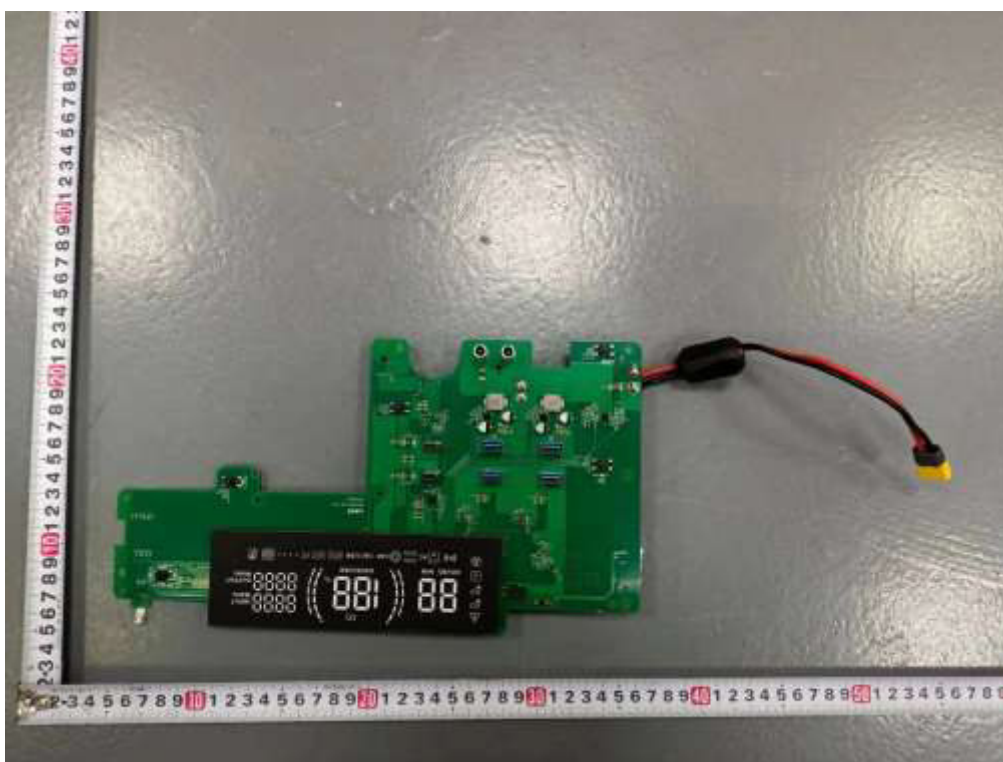


Figure 18 PWB-components side

Product: Portable Power Station

Type Designation: SP2500

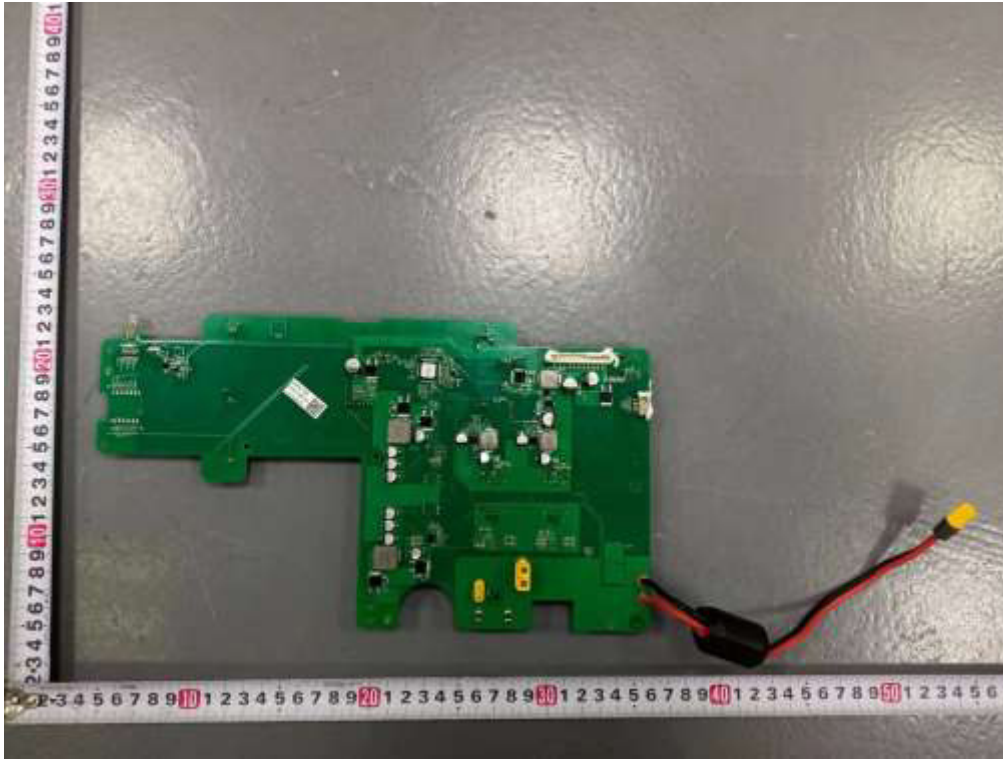


Figure 19 PWB-trace side

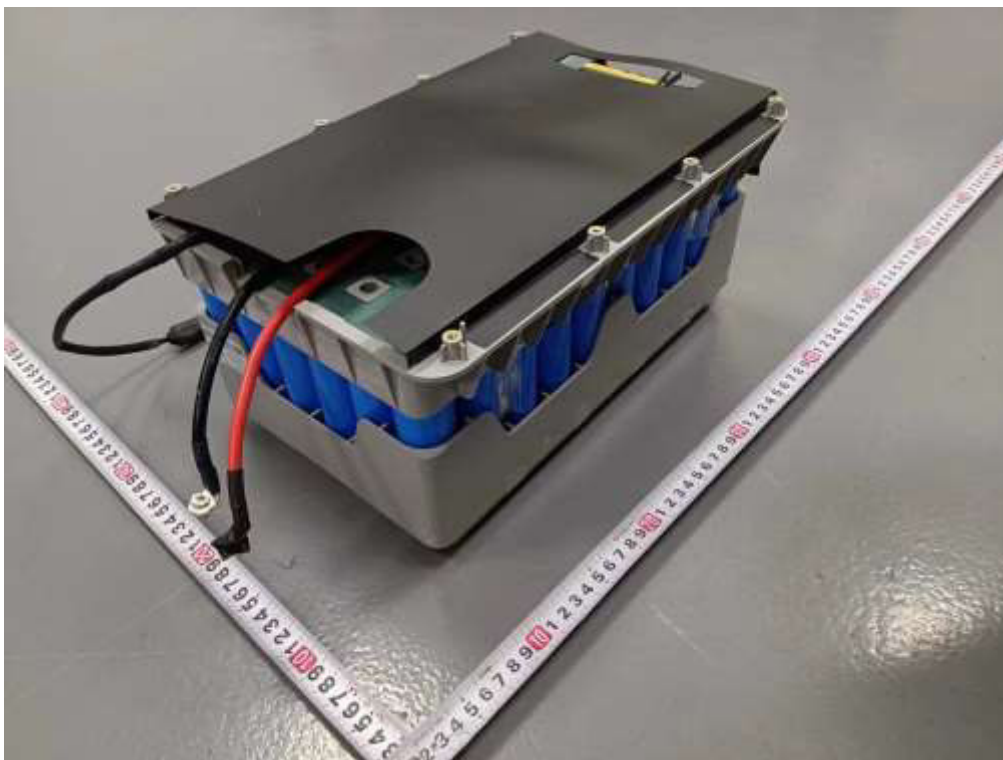


Figure 20 battery pack

Product: Portable Power Station

Type Designation: SP2500

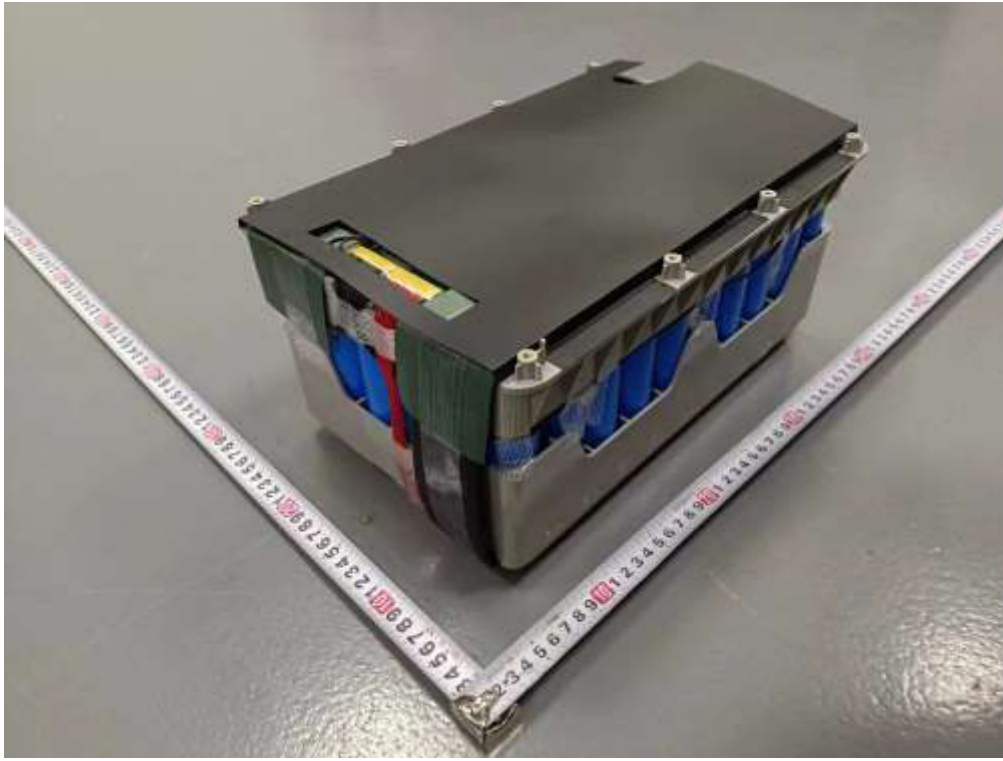


Figure 21 battery pack

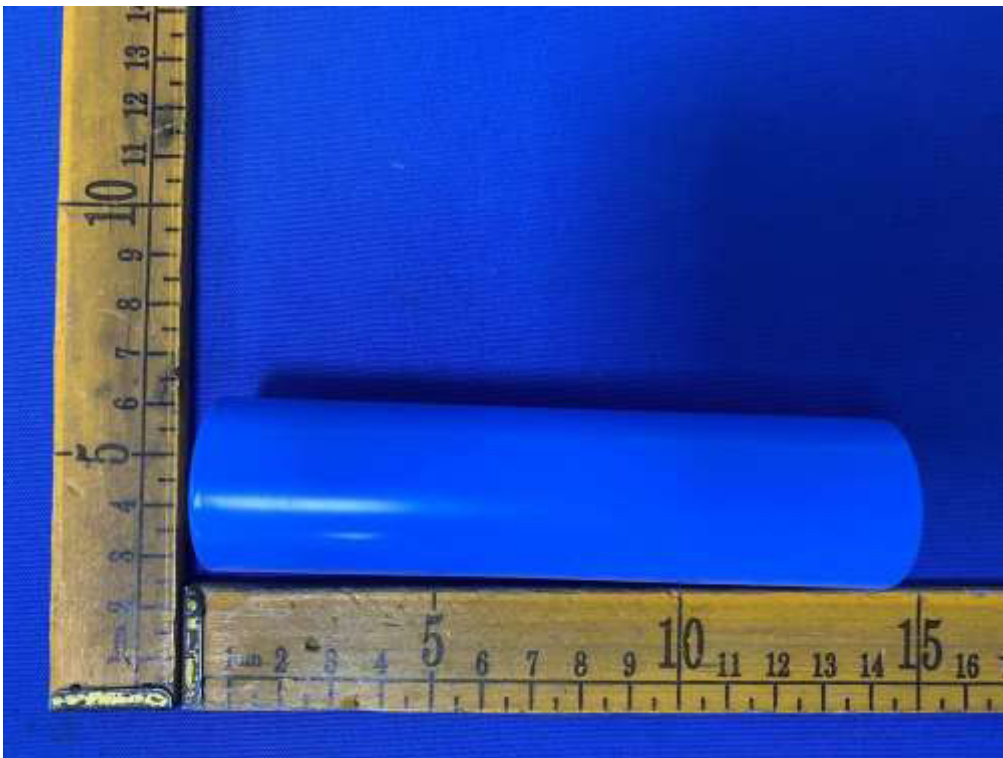


Figure 22 battery cell

Product: Portable Power Station

Type Designation: SP2500



Figure 23 battery cell

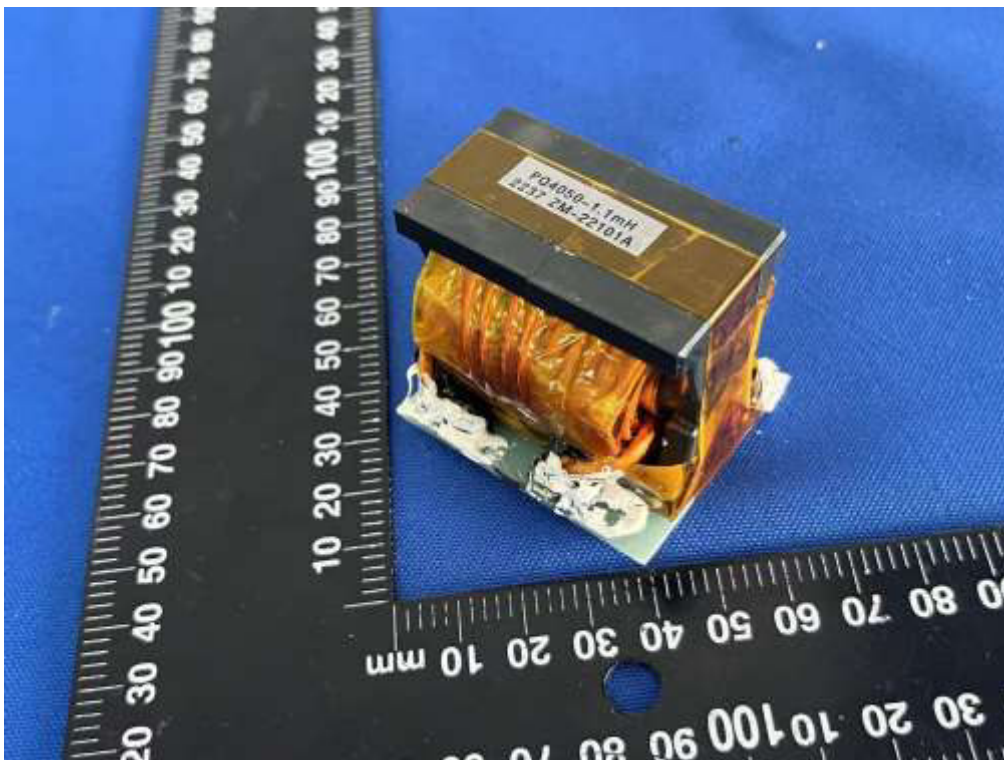


Figure 24 T1

Product: Portable Power Station
Type Designation: SP2500

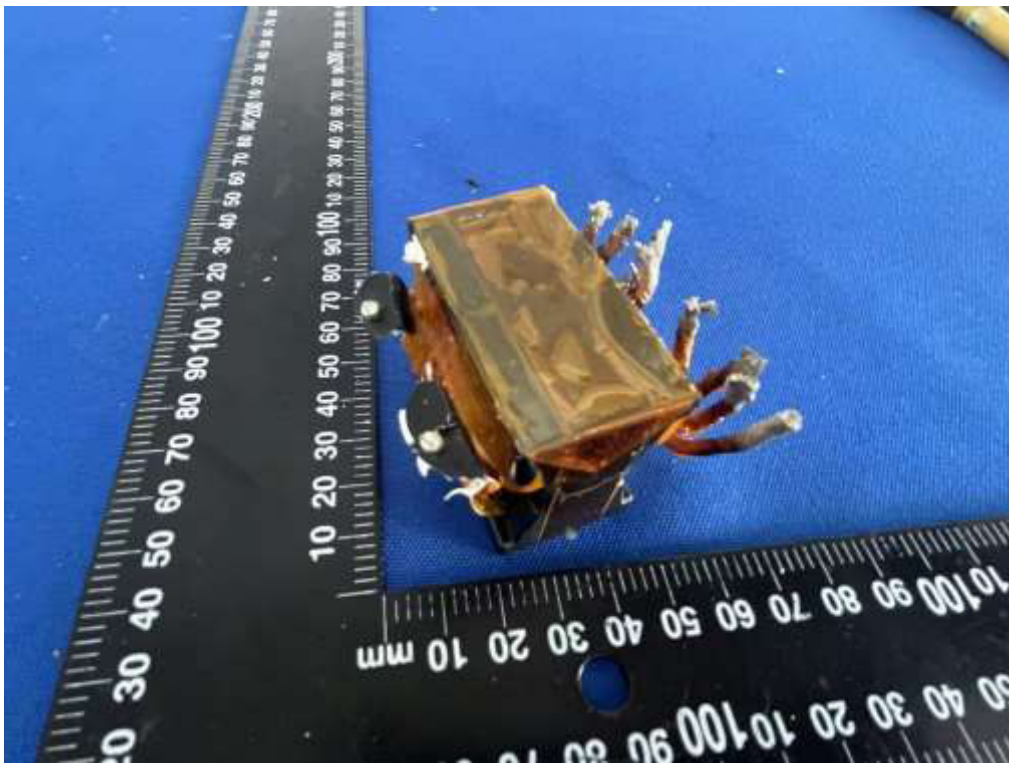


Figure 25 T1



Figure 26 T1

Product: Portable Power Station

Type Designation: SP2500



Figure 27 T1



Figure 28 T1

Product: Portable Power Station

Type Designation: SP2500

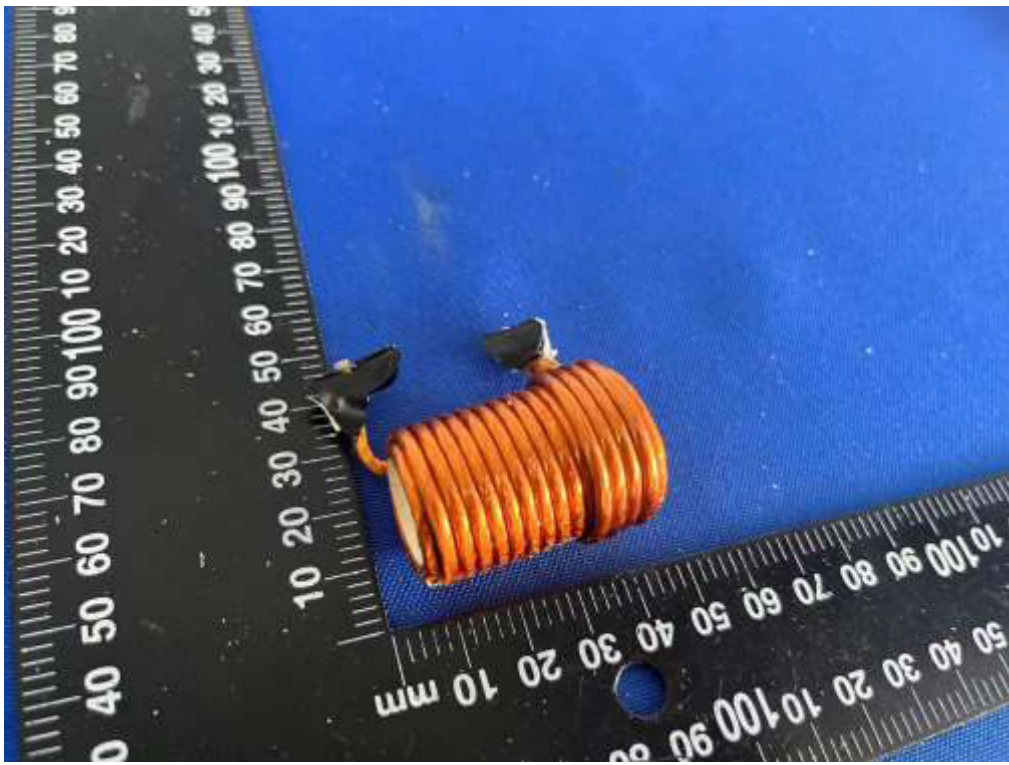


Figure 29 T1

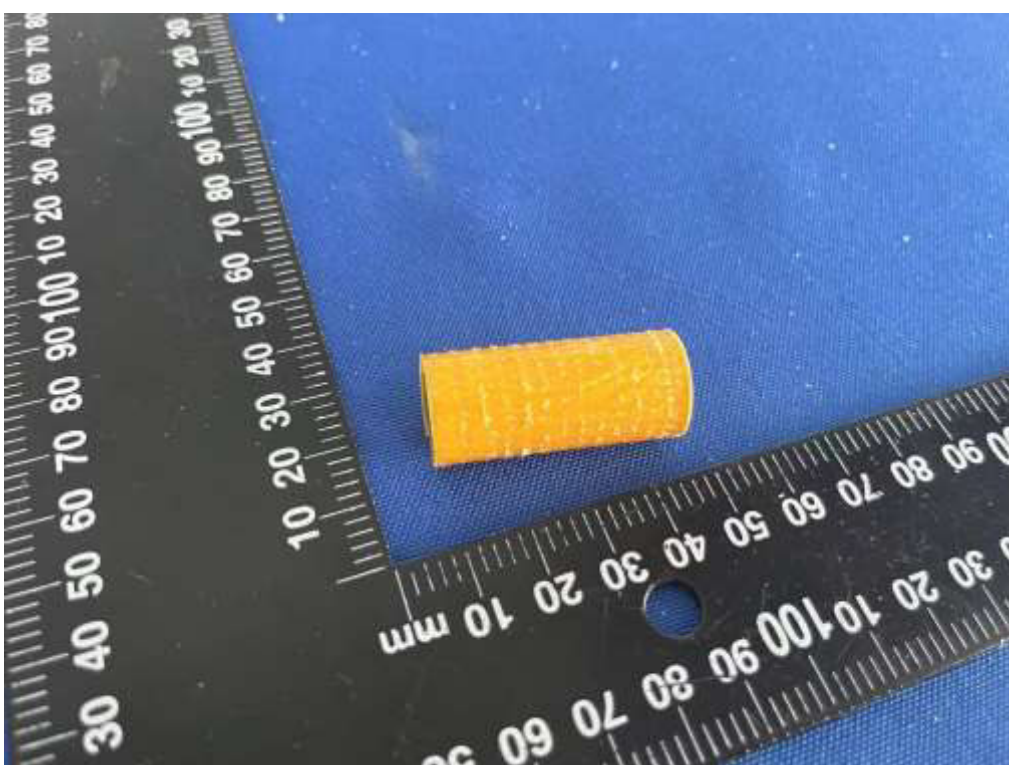


Figure 30 T1

Product: Portable Power Station

Type Designation: SP2500

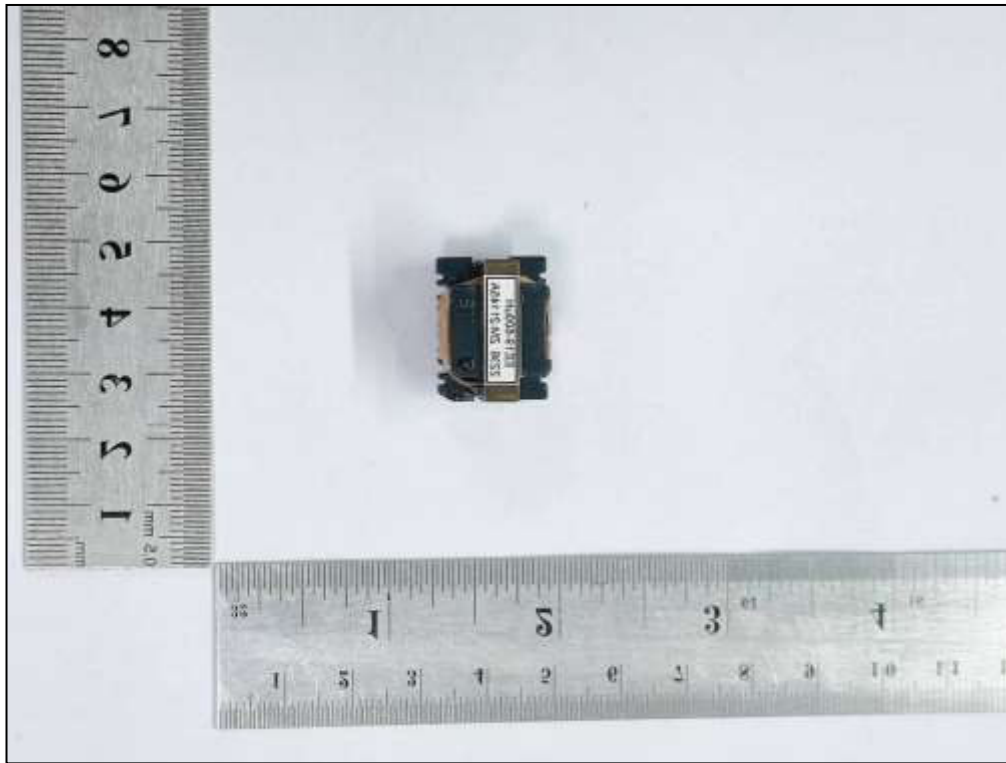


Figure 31 T2

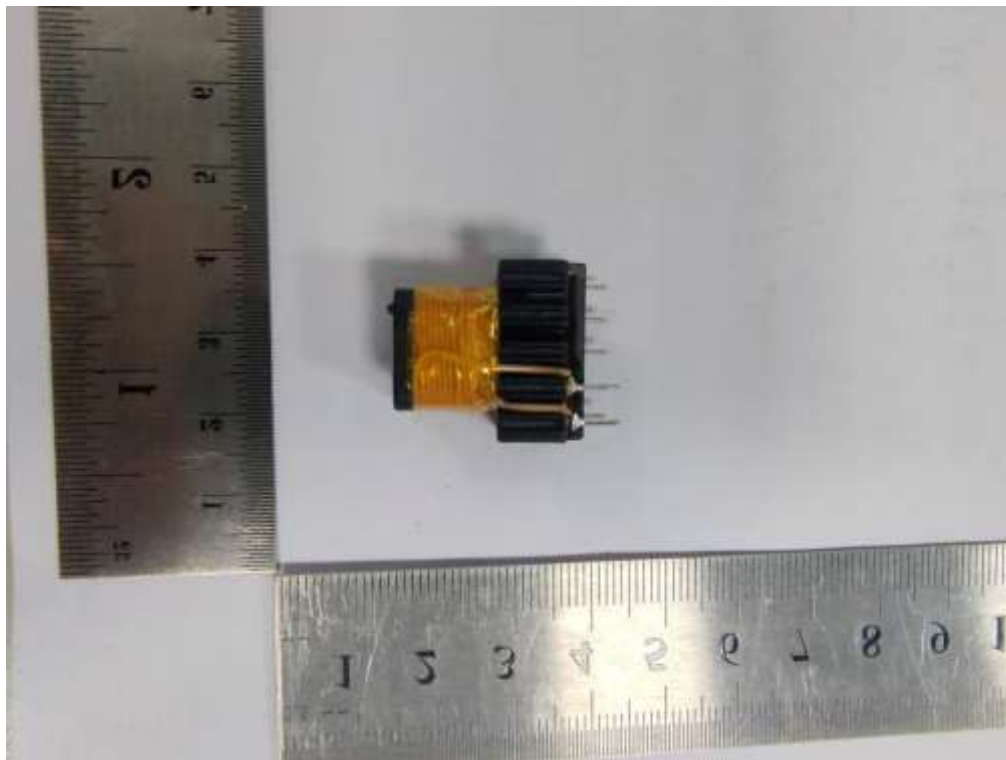


Figure 32 T2

Product: Portable Power Station
Type Designation: SP2500

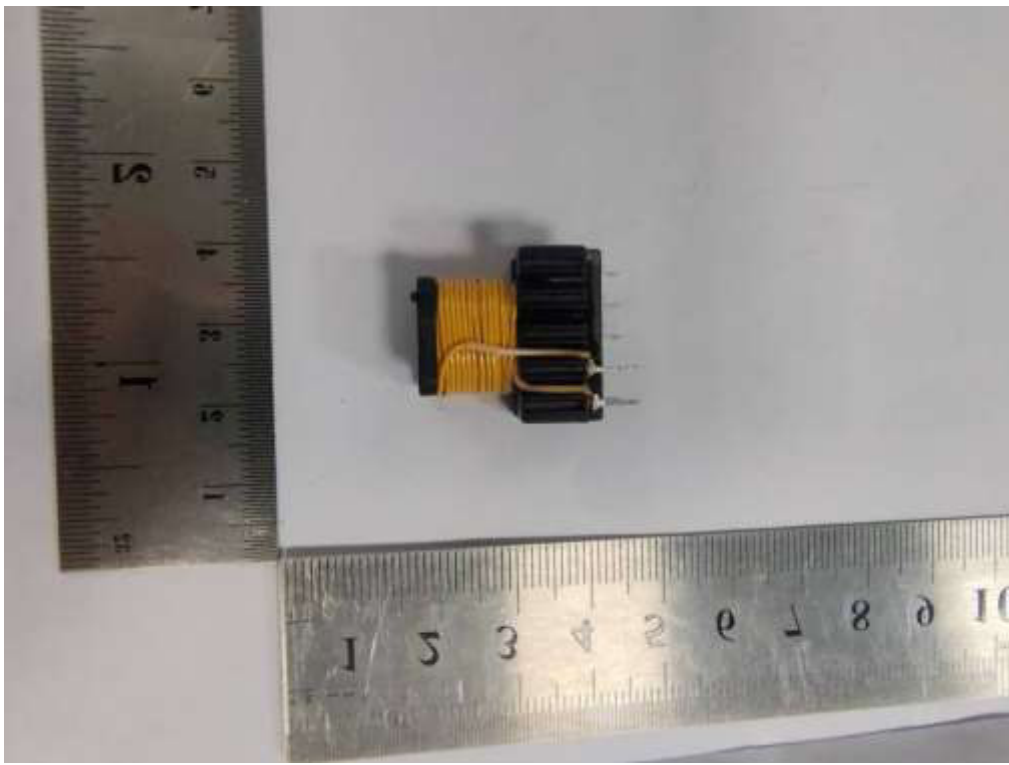


Figure 33 T2

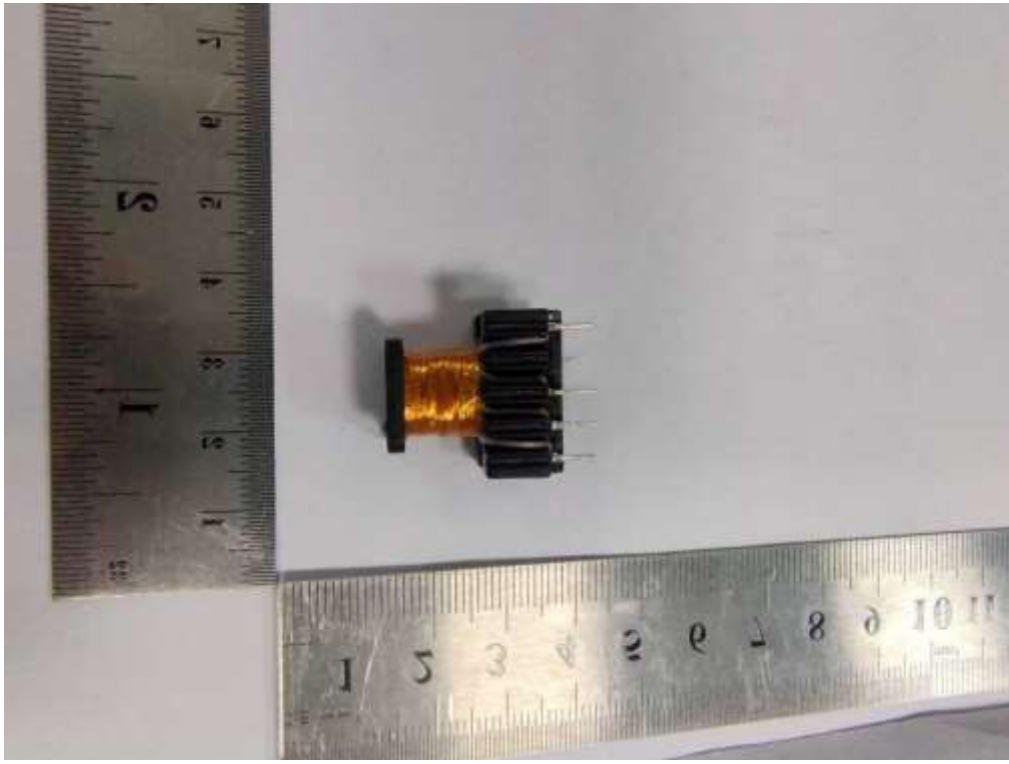


Figure 34 T2

Product: Portable Power Station

Type Designation: SP2500

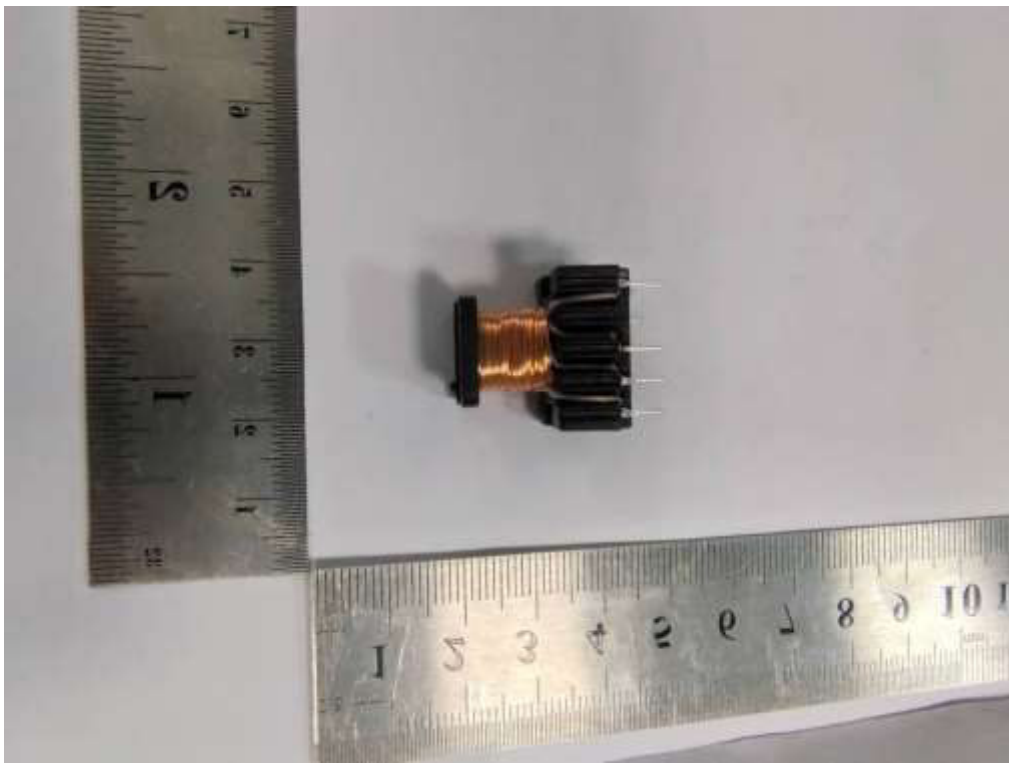


Figure 35 T2

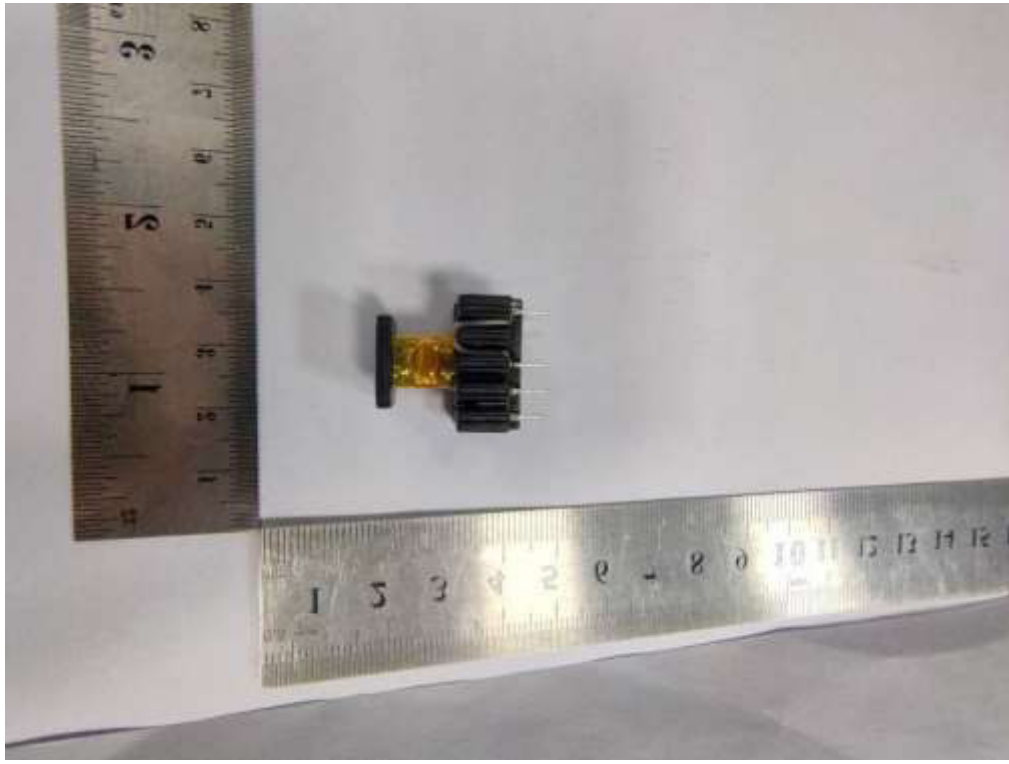


Figure 36 T2

Product: Portable Power Station

Type Designation: SP2500



Figure 37 T2

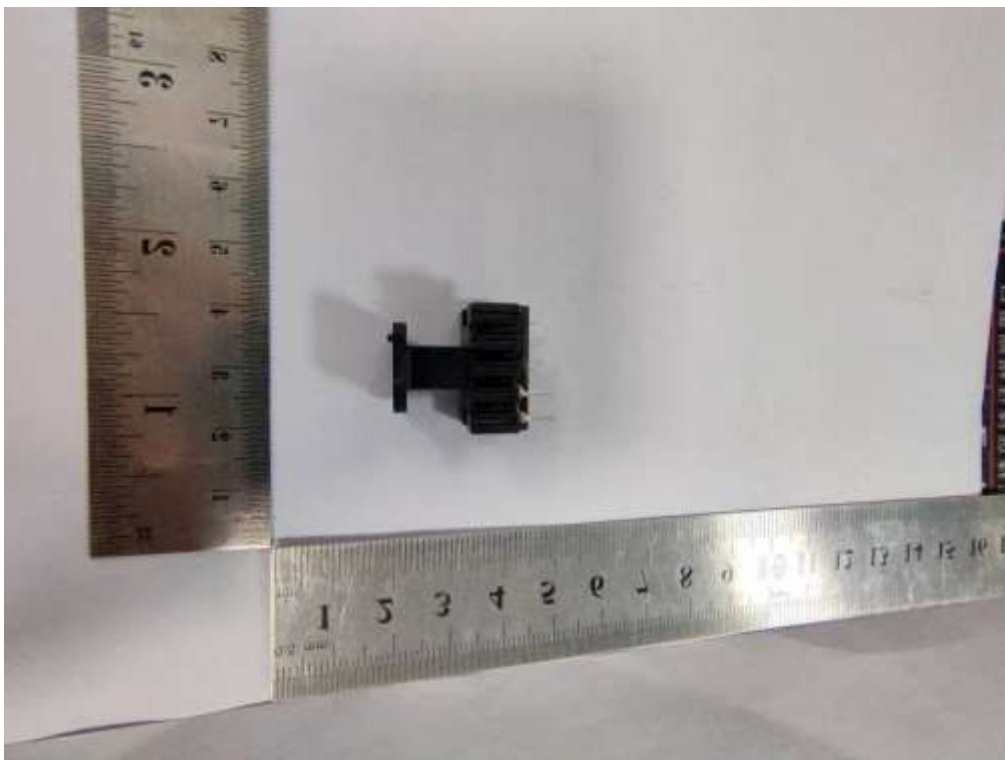


Figure 38 T2

Product: Portable Power Station

Type Designation: SP2500

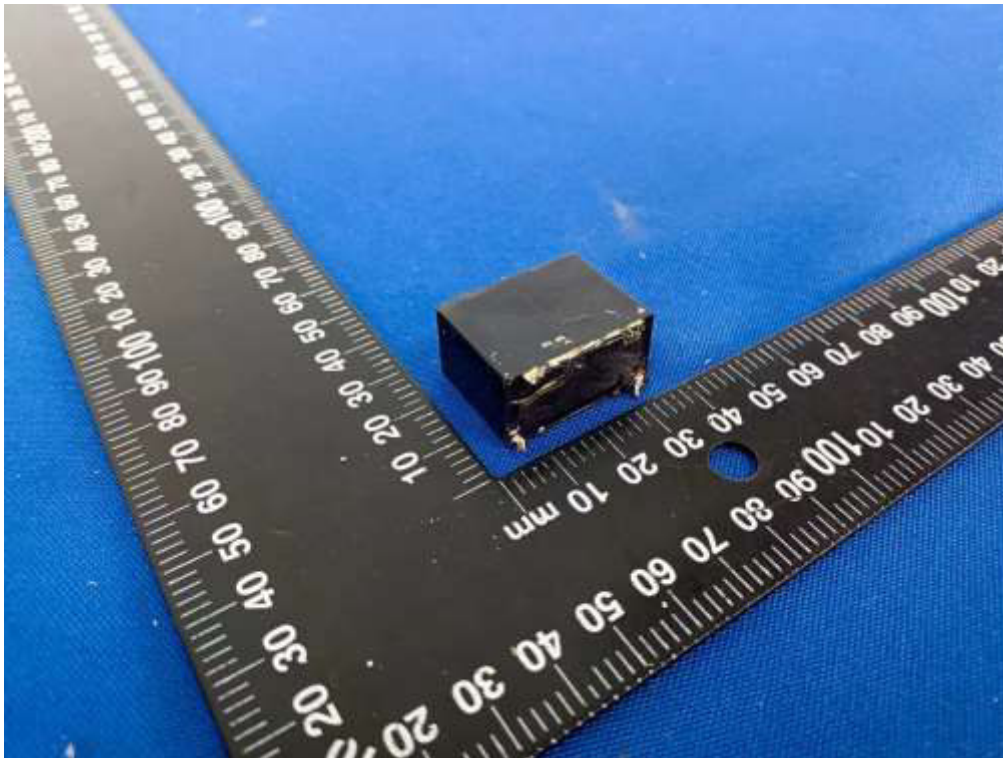


Figure 39 Relay (K1, K2, K3, K4)

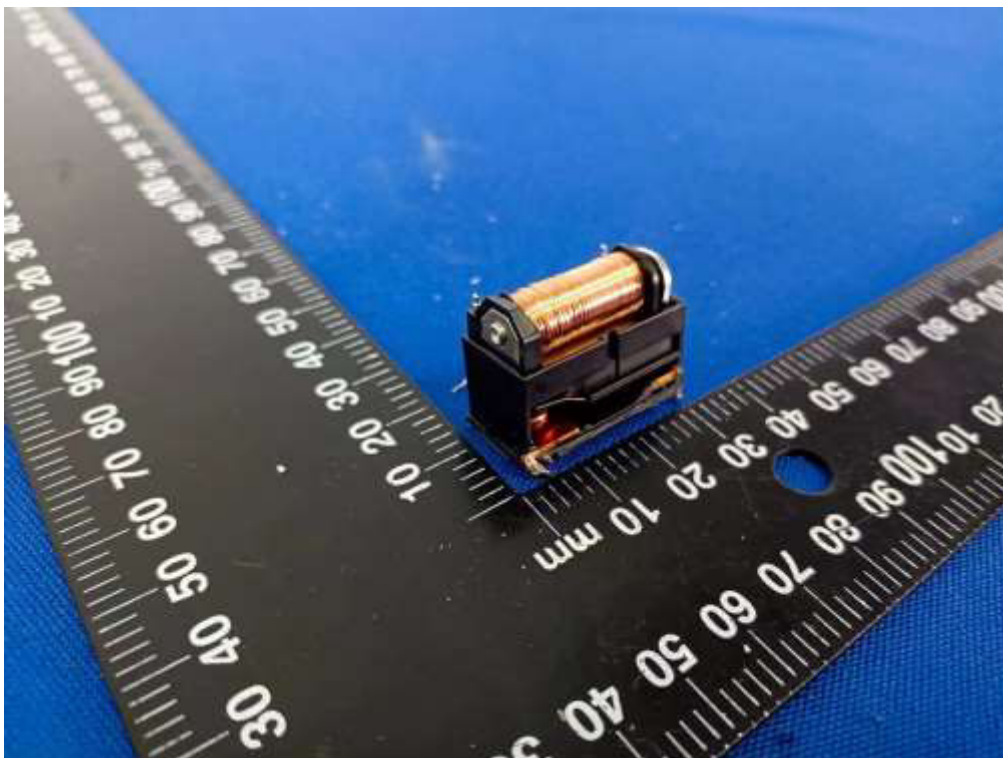


Figure 40 Relay (K1, K2, K3, K4)

Product: Portable Power Station

Type Designation: SP2500

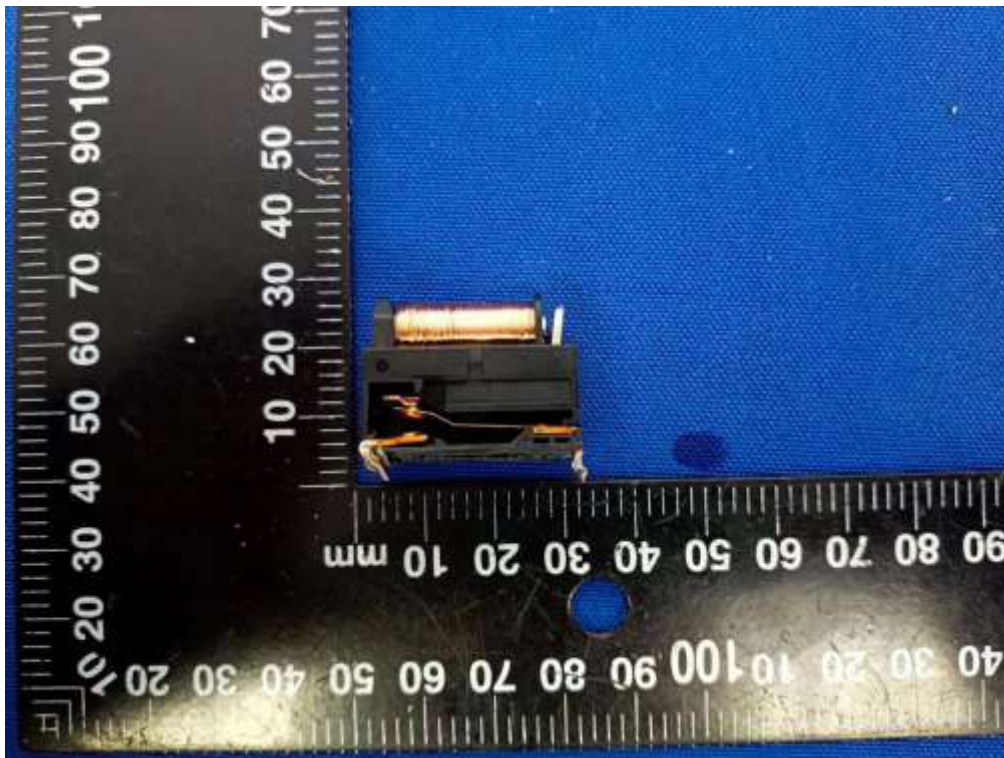


Figure 41 Relay (K1, K2, K3, K4)

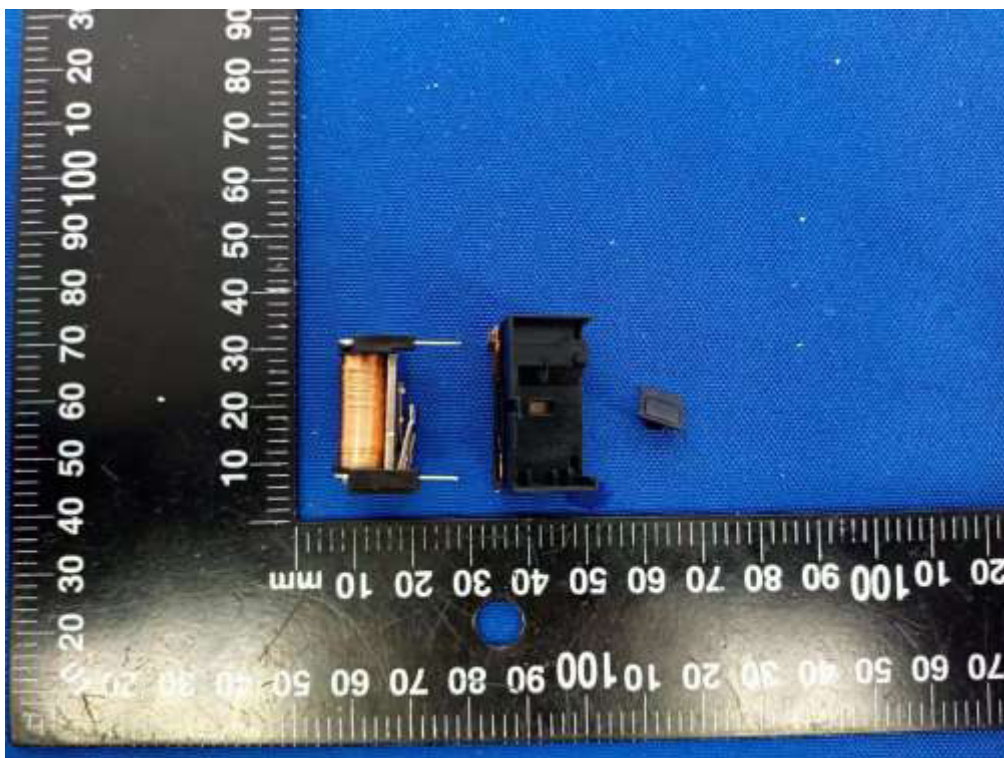


Figure 42 Relay (K1, K2, K3, K4)

Product: Portable Power Station

Type Designation: SP2500



Figure 43 Relay (K1, K2, K3, K4)

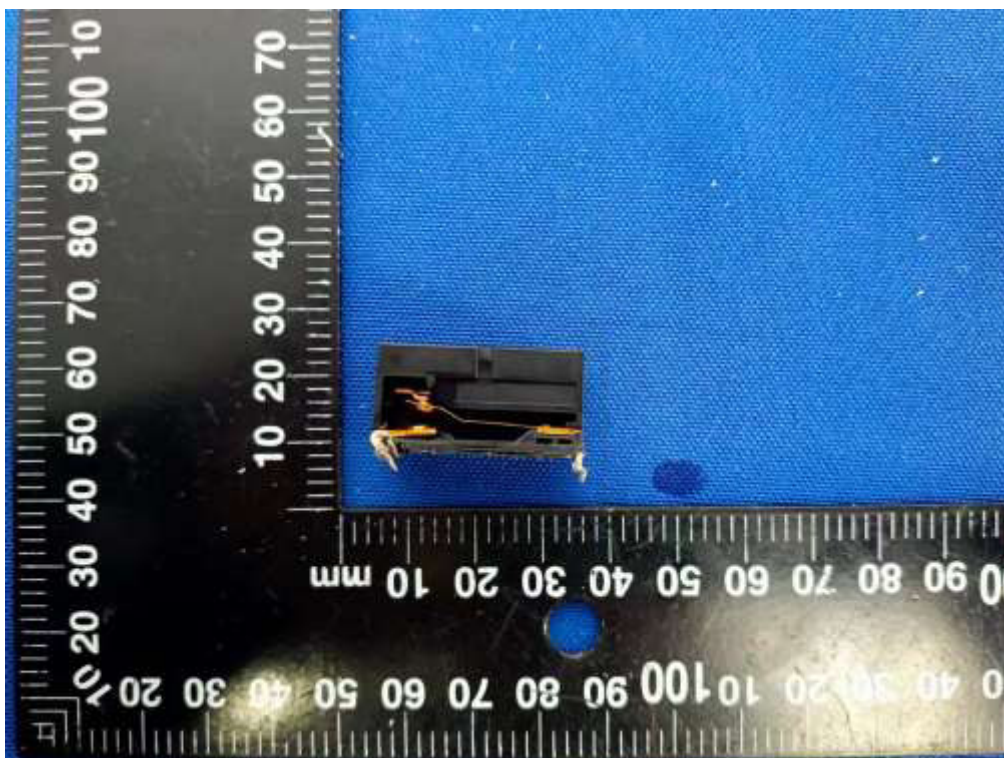


Figure 44 Relay (K1, K2, K3, K4)