



APPLICATION FOR TEST REPORT

On Behalf of

Shenzhen UniMAT Automation Technology Co., LTD


PROGRAMMABLE LOGIC CONTROLLER(PLC)

**Model No. : CPU SR20XP, CPU SR20, CPU SR30, CPU SR40, CPU
SR60**

Prepared for : Shenzhen UniMAT Automation Technology Co., LTD
Address: 19F, Hangsheng Technology Building, No.8, Gaoxin South Sixth
Road, Nanshan District, Shenzhen City

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.
Address: Building i, No.2, Lixin Road, Fuyong Street, Bao'an District,
518103, Shenzhen, Guangdong, China

Date of Test: June 27, 2023 to July 18, 2023
Date of Report: July 18, 2023
Report Number: A2306145-C01-R01
Version Number: V0

<p style="text-align: center;">TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements</p>	
Report Number.....	A2306145-C01-R01
Date of issue	July 18, 2023
Name of Testing Laboratory preparing the Report	Shenzhen Alpha Product Testing Co., Ltd.
Applicant's name	Shenzhen UniMAT Automation Technology Co., LTD
Address	19F, Hangsheng Technology Building, No.8, Gaoxin South Sixth Road, Nanshan District, Shenzhen City
Test specification: Standard: <input type="checkbox"/> IEC 62368-1:2018 <input checked="" type="checkbox"/> EN IEC 62368-1:2020+A11:2020 Test procedure.....: Test report Non-standard test method.....: N/A	
TRF template used	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....	IEC62368_1E
Test Report Form(s) Originator....	ALPHA
Master TRF	Dated 2022-04-14
Test item description	PROGRAMMABLE LOGIC CONTROLLER(PLC)
Trade Mark(s)	N/A
Manufacturer	Shenzhen UniMAT Automation Technology Co., LTD
Address	19F, Hangsheng Technology Building, No.8, Gaoxin South Sixth Road, Nanshan District, Shenzhen City
Model/Type reference.....	CPU SR20XP, CPU SR20, CPU SR30, CPU SR40, CPU SR60
Ratings.....	AC input: 120-240V~, 50/60Hz, 0.12A Max DC Output: 24V  , 0.3A
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):	
Testing Laboratory	Shenzhen Alpha Product Testing Co., Ltd.
Testing location/ address	Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China
Tested by	Taylor Hong
Approved by	Marco Fu



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

All clauses were considered.

☒ Cl.4 General requirements

☒ Cl.5 Electrically-caused injury

☒ Cl.6 Electrically-caused fire

☐ Cl.7 Injury caused by hazardous substances

☒ Cl.8 Mechanically-caused injury

☒ Cl.9 Thermal burn injury

☒ Cl.10 Radiation

Testing location:

Shenzhen Alpha Product Testing Co., Ltd.

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China


Copy of marking plate:

The artwork below may be only a draft.

PROGRAMMABLE LOGIC CONTROLLER(PLC)

Model: CPU SR20XP

Input: 120-240V~, 50/60Hz, 0.12A Max.

DC Output: 24V , 0.3A



Manufacturer: Shenzhen UniMAT Automation Technology Co., LTD

Address: 19F, Hangsheng Technology Building, No.8, Gaoxin South Sixth Road, Nanshan District, Shenzhen City

Importer: XXX

Address: YYY

Note:

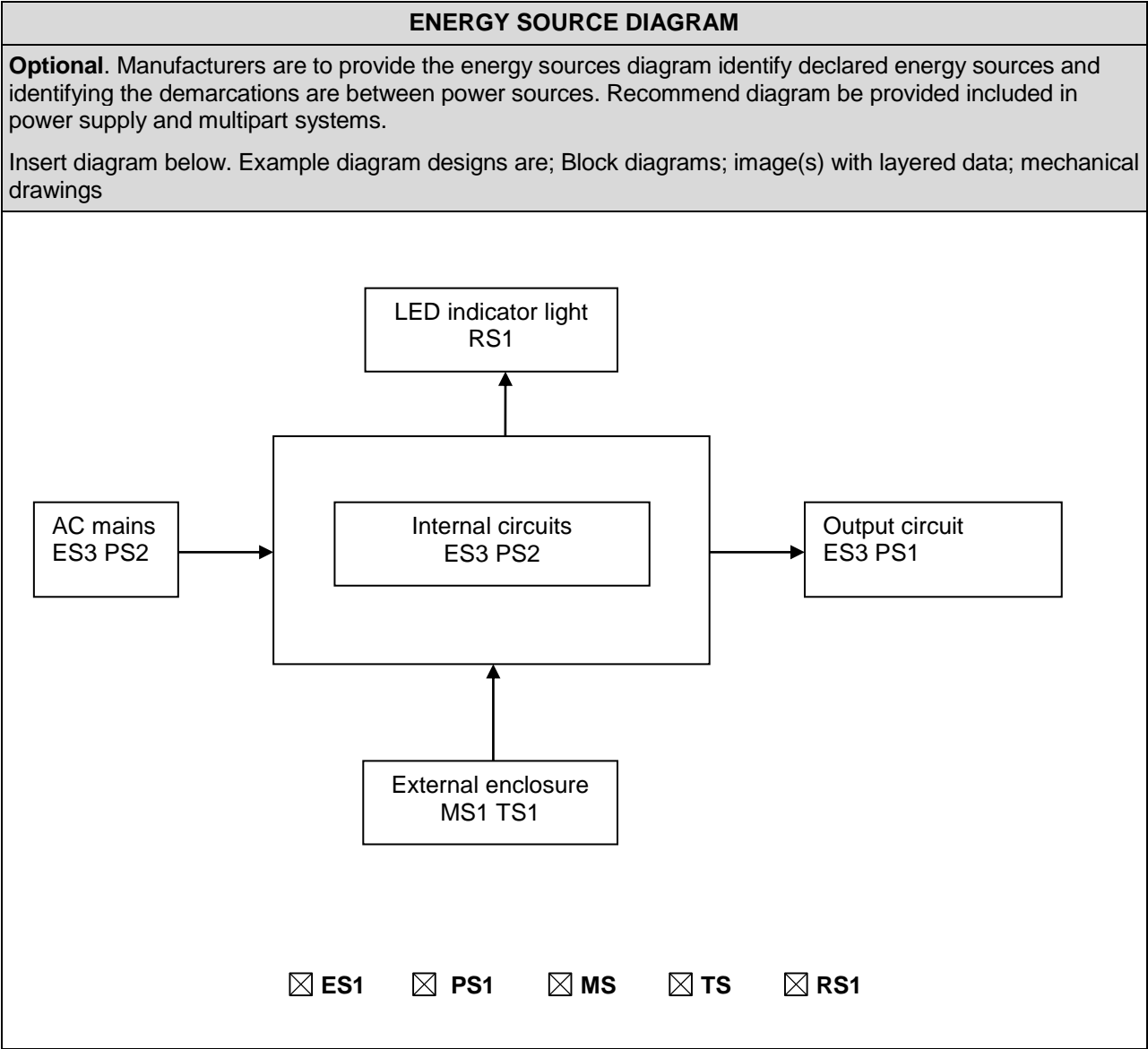
1. The height of the letters is not less than 2mm, the height of the WEEE logo is not less than 7mm, height of CE mark at least 5mm, the height of other marks at least 5mm.

2. XXX means Importer name; YYY means Importer address.

Test item particulars:			
Product group	<input checked="" type="checkbox"/> end product	<input type="checkbox"/> built-in component	
Classification of use by	<input type="checkbox"/> Ordinary person <input type="checkbox"/> Children likely present <input type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person		
Supply connection	<input checked="" type="checkbox"/> AC mains <input type="checkbox"/> DC mains <input type="checkbox"/> not mains connected: <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3		
Supply tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + %/ - % <input type="checkbox"/> other		
Supply connection – type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input checked="" type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other:		
Considered current rating of protective device	<input checked="" type="checkbox"/> 16 A; Location: <input type="checkbox"/> building <input checked="" type="checkbox"/> equipment <input type="checkbox"/> N/A		
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> direct plug-in <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> wall/ceiling-mounted <input type="checkbox"/> SRME/rack-mounted <input type="checkbox"/> other:		
Overvoltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:		
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified <input type="checkbox"/>		
Special installation location	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> restricted access area <input type="checkbox"/> outdoor location <input type="checkbox"/>		
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3		
Manufacturer's specified T_{ma}	60°C <input type="checkbox"/> Outdoor: minimum °C		
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP		
Power systems	<input checked="" type="checkbox"/> TN <input checked="" type="checkbox"/> TT <input type="checkbox"/> IT - V _{L-L} <input type="checkbox"/> not AC mains		
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> m		
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> m		
Mass of equipment (kg)	Approximately 0.427kg		

Possible test case verdicts: - test case does not apply to the test object: N (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 : June 26, 2023 Date (s) of performance of tests : June 27 to July 18, 2023
General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.
General product information and other remarks: <ol style="list-style-type: none"> 1. The product is connected to the Ground pin with the connection terminal so the product belongs to class II. 2. The specified max. ambient temperature is 60°C. 3. Instructions and equipment marking related to safety is applied in the language that is acceptable in the country, in which the equipment is to be sold. 4. The EUT is only fixed installed in a closed metal enclosure by skilled with an industrial site. It can be installed horizontally or vertically. Ordinary and instructed people are out of reach. 5. All tests were performed on model CPU SR20XP. All models are identical in electronic circuit, electronic & mechanical construction except for the model name.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: primary circuit	Skilled	N/A	N/A	Enclosure, Transformer, Y-Capacitance
ES1: Secondary circuit	Skilled	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS1: Output terminal <15 Watt	PCB, Isolating transformer, enclosure, output terminal	N/A	N/A	N/A
PS2: Input >15 Watt	PCB, Isolating transformer, enclosure, output terminal	Equipment safeguards (no ignition)	See cl. 6.4.5.2	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Edges and corners	Skilled	N/A	N/A	N/A
MS1: Mass <7kg	Skilled	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Plastic enclosure	Skilled	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED for indicating	Skilled	N/A	N/A	N/A
Supplementary Information:				
“B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding limiting the outputs to fulfil ES1 and protection in regard to risk of spread of fire, mechanical and thermal burn injury considered.	P
4.1.4	Specified ambient temperature for outdoor use (°C):	The EUT is only installed in a closed metal enclosure. Ordinary and instructed people should not touch	P
4.1.5	Constructions and components not specifically covered		P
4.1.8	Liquids and liquid filled components (LFC)	No such component used.	N
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		N
4.4.3.1	General		N
4.4.3.2	Steady force tests	(See appended table T.2, T.5)	P
4.4.3.3	Drop tests		N
4.4.3.4	Impact tests	(See appended table T.6)	P
4.4.3.5	Internal accessible safeguard tests		N
4.4.3.6	Glass impact tests	No glass used.	N
4.4.3.7	Glass fixation tests		N
	Glass impact test (1J)		N
	Push/pull test (10 N)		N
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	P
4.4.3.9	Air comprising a safeguard		N
4.4.3.10	Accessibility, glass, safeguard effectiveness	After relevant tests, no safeguard damaged	P
4.4.4	Displacement of a safeguard by an insulating liquid		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.4.5	Safety interlocks	No such component used.	N
4.5	Explosion		P
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions		P
4.6	Fixing of conductors		P
	Fix conductors not to defeat a safeguard	The internal components are soldered to PCB and additional fixed by glue.	P
	Compliance is checked by test :	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
4.7	Equipment for direct insertion into mains socket-outlets		N
4.7.2	Mains plug part complies with relevant standard .. :	Not direct plug-in equipment	N
4.7.3	Torque (Nm) :		N
4.8	Equipment containing coin/button cell batteries		N
4.8.1	General	No coin/button cell batteries	N
4.8.2	Instructional safeguard :		N
4.8.3	Battery compartment door/cover construction		N
	Open torque test		N
4.8.4.2	Stress relief test		N
4.8.4.3	Battery replacement test		N
4.8.4.4	Drop test		N
4.8.4.5	Impact test		N
4.8.4.6	Crush test		N
4.8.5	Compliance		N
	30N force test with test probe		N
	20N force test with test hook		N
4.9	Likelihood of fire or shock due to entry of conductive object		N
4.10	Component requirements		N
4.10.1	Disconnect Device		N
4.10.2	Switches and relays	No such component	N
5	ELECTRICALLY-CAUSED INJURY		P
5.2	Classification and limits of electrical energy sources		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2	ES1, ES2 and ES3 limits	(See appended table 5.2)	P
5.2.2.2	Steady-state voltage and current limits	(See appended table 5.2)	P
5.2.2.3	Capacitance limits		N
5.2.2.4	Single pulse limits	No single pulse	N
5.2.2.5	Limits for repetitive pulses	No repetitive pulses	N
5.2.2.6	Ringling signals	No analogue telephone network ringing signals	N
5.2.2.7	Audio signals		N
5.3	Protection against electrical energy sources		N
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.	N
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N
5.3.2.1	Accessibility to electrical energy sources and safeguards	.	N
	Accessibility to outdoor equipment bare parts	No outdoor equipment.	N
5.3.2.2	Contact requirements		N
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V)		N
5.3.2.2 b)	Air gap – distance (mm)		N
5.3.2.3	Compliance		N
5.3.2.4	Terminals for connecting stripped wire	No such terminals	N
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic	Hygroscopic materials are not used for insulating material	N
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degrees	PD2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied	N
5.4.1.5.3	Thermal cycling test		N
5.4.1.6	Insulation in transformers with varying dimensions		N
5.4.1.7	Insulation in circuits generating starting pulses		N
5.4.1.8	Determination of working voltage	(See appended table 5.4.1.8)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See only 5.4.1.10.3 below.	P
5.4.1.10.2	Vicat test.....:		N
5.4.1.10.3	Ball pressure test	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances	(See appended table 5.4.2.2)	P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method		N
5.4.2.2	Procedure 1 for determining clearance	(See appended table 5.4.2.2)	P
	Temporary overvoltage		—
5.4.2.3	Procedure 2 for determining clearance	(See appended table 5.4.2.3)	P
5.4.2.3.2.2	a.c. mains transient voltage	2500	—
5.4.2.3.2.3	d.c. mains transient voltage		—
5.4.2.3.2.4	External circuit transient voltage.....:		—
5.4.2.3.2.5	Transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N
5.4.2.5	Multiplication factors for clearances and test voltages	(See appended table 5.4.2.4)	P
5.4.2.6	Clearance measurement	<2000m	N
5.4.3	Creepage distances	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material group	IIIb	—
5.4.3.4	Creepage distances measurement		P
5.4.4	Solid insulation		P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation		P
5.4.4.3	Insulating compound forming solid insulation		N
5.4.4.4	Solid insulation in semiconductor devices		N
5.4.4.5	Insulating compound forming cemented joints		N
5.4.4.6	Thin sheet material		N
5.4.4.6.1	General requirements		N
5.4.4.6.2	Separable thin sheet material		N
	Number of layers (pcs)		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.3	Non-separable thin sheet material		N
	Number of layers (pcs)		N
5.4.4.6.4	Standard test procedure for non-separable thin sheet material		N
5.4.4.6.5	Mandrel test		N
5.4.4.7	Solid insulation in wound components	(See Annex G.5.3 and Annex G.6.1)	P
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P , K_R , d , V_{PW} (V)		N
	Alternative by electric strength test, tested voltage (V), K_R		N
5.4.5	Antenna terminal insulation	No such antenna terminal used.	N
5.4.5.1	General		N
5.4.5.2	Voltage surge test		N
5.4.5.3	Insulation resistance (M Ω)		N
	Electric strength test		N
5.4.6	Insulation of internal wire as part of supplementary safeguard		N
5.4.7	Tests for semiconductor components and for cemented joints		N
5.4.8	Humidity conditioning	Test was performed on product with each source of transformer listed in table 4.1.2	P
	Relative humidity (%), temperature (°C), duration (h)	96%, 40°C, 120h	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for type test of solid insulation	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 test		—
5.4.10	Safeguards against transient voltages from external circuits	No external circuit	N
5.4.10.1	Parts and circuits separated from external circuits		N
5.4.10.2	Test methods		N
5.4.10.2.1	General		N
5.4.10.2.2	Impulse test		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.3	Steady-state test..... :		N
5.4.10.3	Verification for insulation breakdown for impulse test..... :		N
5.4.11	Separation between external circuits and earth	No such circuit	N
5.4.11.1	Exceptions to separation between external circuits and earth		N
5.4.11.2	Requirements		N
	SPDs bridge separation between external circuit and earth		N
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation ΔU_{sp} :		—
	Max increase due to ageing ΔU_{sa} :		—
5.4.11.3	Test method and compliance..... :		N
5.4.12	Insulating liquid		N
5.4.12.1	General requirements		N
5.4.12.2	Electric strength of an insulating liquid..... :		N
5.4.12.3	Compatibility of an insulating liquid..... :		N
5.4.12.4	Container for insulating liquid..... :		N
5.5	Components as safeguards		P
5.5.1	General		P
5.5.2	Capacitors and RC units		N
5.5.2.1	General requirement		N
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :	permanent connection	N
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See Annex G.12)	P
5.5.5	Relays		N
5.5.6	Resistors	No such resistor	N
5.5.7	SPDs	No such SPD	N
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable..... :		N
5.5.9	Safeguards for socket-outlets in outdoor equipment		N
	RCD rated residual operating current (mA)..... :		—
5.6	Protective conductor		N
5.6.2	Requirement for protective conductors		N
5.6.2.1	General requirements		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2.2	Colour of insulation		N
5.6.3	Requirement for protective earthing conductors		N
	Protective earthing conductor size (mm ²) :		—
	Protective earthing conductor serving as a reinforced safeguard		N
	Protective earthing conductor serving as a double safeguard		N
5.6.4	Requirements for protective bonding conductors		N
5.6.4.1	Protective bonding conductors		N
	Protective bonding conductor size (mm ²). :		—
5.6.4.2	Protective current rating (A) :		N
5.6.5	Terminals for protective conductors		N
5.6.5.1	Terminal size for connecting protective earthing conductors (mm) :		N
	Terminal size for connecting protective bonding conductors (mm) :		N
5.6.5.2	Corrosion		N
5.6.6	Resistance of the protective bonding system		N
5.6.6.1	Requirements		N
5.6.6.2	Test Method :		N
5.6.6.3	Resistance (Ω) or voltage drop :		N
5.6.7	Reliable connection of a protective earthing conductor		N
5.6.8	Functional earthing		N
	Conductor size (mm ²) :		N
	Class II with functional earthing marking :		N
	Appliance inlet cl & cr (mm) :		N
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)	P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		N
5.7.4	Unearthed accessible parts :		N
5.7.5	Earthed accessible conductive parts :		N
5.7.6	Requirements when touch current exceeds ES2 limits		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective conductor current (mA)		N
	Instructional Safeguard		N
5.7.7	Prospective touch voltage and touch current associated with external circuits		N
5.7.7.1	Touch current from coaxial cables		N
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N
5.7.8	Summation of touch currents from external circuits		N
	a) Equipment connected to earthed external circuits, current (mA)		N
	b) Equipment connected to unearthed external circuits, current (mA)		N
5.8	Backfeed safeguard in battery backed up supplies		N
	Mains terminal ES		N
	Air gap (mm)		N

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of PS and PIS		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS		P
6.2.3.2	Resistive PIS		P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials		P
	Combustible materials outside fire enclosure		N
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		N
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N
6.4.3.1	Supplementary safeguards		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.3.2	Single Fault Conditions		N
	Special conditions for temperature limited by fuse		N
6.4.4	Control of fire spread in PS1 circuits		N
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: – <u>Printed board</u> : rated min. V-1 – <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.	P
6.4.6	Control of fire spread in PS3 circuits		N
6.4.7	Separation of combustible materials from a PIS		N
6.4.7.2	Separation by distance		N
6.4.7.3	Separation by a fire barrier		N
6.4.8	Fire enclosures and fire barriers		N
6.4.8.2	Fire enclosure and fire barrier material properties		N
6.4.8.2.1	Requirements for a fire barrier	No fire barrier used.	N
6.4.8.2.2	Requirements for a fire enclosure		N
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N
6.4.8.3.1	Fire enclosure and fire barrier openings		N
6.4.8.3.2	Fire barrier dimensions		N
6.4.8.3.3	Top openings and properties		P
	Openings dimensions (mm).....	Top opening : Max.9.32mm*2.1mm, tilt at a 5° Angle 15mm, no PIS	P
6.4.8.3.4	Bottom openings and properties		P
	Openings dimensions (mm).....	Bottom opening : Max. 9.32mm*2.1mm, tilt at a 5° Angle 15mm, no PIS	P
	Flammability tests for the bottom of a fire enclosure		N
	Instructional Safeguard.....		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Side openings and properties		P
	Openings dimensions (mm)..... :	Side opening : Max. 9.32mm*2.1mm, tilt at a 5° Angle 15mm, no PIS	P
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) :		N
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating :	No insulating liquid	N
6.4.9	Flammability of insulating liquid..... :	No insulating liquid	N
6.5	Internal and external wiring		N
6.5.1	General requirements		N
6.5.2	Requirements for interconnection to building wiring :		N
6.5.3	Internal wiring size (mm ²) for socket-outlets..... :		N
6.6	Safeguards against fire due to the connection to additional equipment		N

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES	N
7.2	Reduction of exposure to hazardous substances	N
7.3	Ozone exposure	N
7.4	Use of personal safeguards or personal protective equipment (PPE)	N
	Personal safeguards and instructions :	—
7.5	Use of instructional safeguards and instructions	N
	Instructional safeguard (ISO 7010)..... :	—
7.6	Batteries and their protection circuits	N

8	MECHANICALLY-CAUSED INJURY		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners		P
8.4.1	Safeguards	Mass<7kg, see below regarding edges and corners.	P
	Instructional Safeguard.....:		N
8.4.2	Sharp edges or corners	Edges and corners of the enclosure are rounded.	P
8.5	Safeguards against moving parts		N
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	MS2 or MS3 part required to be accessible for the function of the equipment		N
	Moving MS3 parts only accessible to skilled person		N
8.5.2	Instructional safeguard.....:		N
8.5.4	Special categories of equipment containing moving parts		N
8.5.4.1	General		N
8.5.4.2	Equipment containing work cells with MS3 parts		N
8.5.4.2.1	Protection of persons in the work cell		N
8.5.4.2.2	Access protection override		N
8.5.4.2.2.1	Override system		N
8.5.4.2.2.2	Visual indicator		N
8.5.4.2.3	Emergency stop system		N
	Maximum stopping distance from the point of activation (m).....:		N
	Space between end point and nearest fixed mechanical part (mm)		N
8.5.4.2.4	Endurance requirements		N
	Mechanical system subjected to 100 000 cycles of operation		N
	- Mechanical function check and visual inspection		N
	- Cable assembly		N
8.5.4.3	Equipment having electromechanical device for destruction of media		N
8.5.4.3.1	Equipment safeguards		N
8.5.4.3.2	Instructional safeguards against moving parts		N
8.5.4.3.3	Disconnection from the supply		N
8.5.4.3.4	Cut type and test force (N).....:		N
8.5.4.3.5	Compliance		N
8.5.5	High pressure lamps		N
	Explosion test.....:		N
8.5.5.3	Glass particles dimensions (mm)		N
8.6	Stability of equipment		N
8.6.1	General		N
	Instructional safeguard.....:		N
8.6.2	Static stability		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.2.2	Static stability test		N
8.6.2.3	Downward force test		N
8.6.3	Relocation stability		N
	Wheels diameter (mm)		—
	Tilt test		N
8.6.4	Glass slide test		N
8.6.5	Horizontal force test		N
8.7	Equipment mounted to wall, ceiling or other structure		N
8.7.1	Mount means type		N
8.7.2	Test methods		N
	Test 1, additional downwards force (N).....		N
	Test 2, number of attachment points and test force (N)		N
	Test 3 Nominal diameter (mm) and applied torque (Nm).....		N
8.8	Handles strength		N
8.8.1	General		N
8.8.2	Handle strength test		N
	Number of handles.....		—
	Force applied (N)		—
8.9	Wheels or casters attachment requirements		N
8.9.2	Pull test	No such equipment	N
8.10	Carts, stands and similar carriers		N
8.10.1	General	No such equipment	N
8.10.2	Marking and instructions		N
8.10.3	Cart, stand or carrier loading test		N
	Loading force applied (N)		N
8.10.4	Cart, stand or carrier impact test		N
8.10.5	Mechanical stability		N
	Force applied (N)		—
8.10.6	Thermoplastic temperature stability		N
8.11	Mounting means for slide-rail mounted equipment (SRME)		N
8.11.1	General	No such equipment	N
8.11.2	Requirements for slide rails		N
	Instructional Safeguard		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.11.3	Mechanical strength test		N
8.11.3.1	Downward force test, force (N) applied		N
8.11.3.2	Lateral push force test		N
8.11.3.3	Integrity of slide rail end stops		N
8.11.4	Compliance		N
8.12	Telescoping or rod antennas		N
	Button/ball diameter (mm)		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications		P
9.3	Touch temperature limits		P
9.3.1	Touch temperatures of accessible parts		P
9.3.2	Test method and compliance	Temperature of enclosure classed as TS1.	P
9.4	Safeguards against thermal energy sources		N
9.5	Requirements for safeguards		N
9.5.1	Equipment safeguard		N
9.5.2	Instructional safeguard.....		N
9.6	Requirements for wireless power transmitters		N
9.6.1	General		N
9.6.2	Specification of the foreign objects		N
9.6.3	Test method and compliance		N

10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification	RS1	P
	Lasers	—
	Lamps and lamp systems.....		—
	Image projectors		—
	X-Ray.....		—
	Personal music player		—
10.3	Safeguards against laser radiation		N
	The standard(s) equipment containing laser(s) comply		N
10.4	Safeguards against optical radiation from lamps and lamp systems (including LED types)		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.4.1	General requirements	Complied with RS1	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N
	Risk group marking and location		N
	Information for safe operation and installation		N
10.4.2	Requirements for enclosures		N
	UV radiation exposure	No UV	N
10.4.3	Instructional safeguard		N
10.5	Safeguards against X-radiation		N
10.5.1	Requirements		N
	Instructional safeguard for skilled persons		—
10.5.3	Maximum radiation (pA/kg)		—
10.6	Safeguards against acoustic energy sources		N
10.6.1	General		N
10.6.2	Classification		N
	Acoustic output $L_{Aeq,T}$, dB(A)		N
	Unweighted RMS output voltage (mV)		N
	Digital output signal (dBFS)		N
10.6.3	Requirements for dose-based systems		N
10.6.3.1	General requirements		N
10.6.3.2	Dose-based warning and automatic decrease		N
10.6.3.3	Exposure-based warning and requirements		N
	30 s integrated exposure level (MEL30)		N
	Warning for $MEL \geq 100$ dB(A)		N
10.6.4	Measurement methods		N
10.6.5	Protection of persons		N
	Instructional safeguards		N
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N
10.6.6.1	Corded listening devices with analogue input		N
	Listening device input voltage (mV)		N
10.6.6.2	Corded listening devices with digital input		N
	Max. acoustic output $L_{Aeq,T}$, dB(A)		N
10.6.6.3	Cordless listening devices		N
	Max. acoustic output $L_{Aeq,T}$, dB(A)		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.1	General		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	Normal operating conditions		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	No such part	N
B.2.3	Supply voltage and tolerances	+10 % and -10 % considered.	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General	(See appended table B.3 & B.4)	P
B.3.2	Covering of ventilation openings	No openings	N
	Instructional safeguard		N
B.3.3	DC mains polarity test	The EUT is not connected to a D.C. mains	N
B.3.4	Setting of voltage selector		N
B.3.5	Maximum load at output terminals	(See appended table B.3 & B.4)	P
B.3.6	Reverse battery polarity	No battery within the EUT	N
B.3.7	Audio amplifier abnormal operating conditions	No such equipment.	N
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.1	General		P
B.4.2	Temperature controlling device	No such part	N
B.4.3	Blocked motor test	No such parts used	N
B.4.4	Functional insulation	See below.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used.	N
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3 & B.4 for faults on electronic components)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3 & B.4)	P
B.4.7	Continuous operation of components		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.4.8	Compliance during and after single fault conditions :	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions		N
C	UV RADIATION		N
C.1	Protection of materials in equipment from UV radiation		N
C.1.2	Requirements		N
C.1.3	Test method		N
C.2	UV light conditioning test		N
C.2.1	Test apparatus..... :		N
C.2.2	Mounting of test samples		N
C.2.3	Carbon-arc light-exposure test		N
C.2.4	Xenon-arc light-exposure test		N
D	TEST GENERATORS		N
D.1	Impulse test generators		N
D.2	Antenna interface test generator		N
D.3	Electronic pulse generator		N
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N
E.1	Electrical energy source classification for audio signals		N
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω) :		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard :		—
E.2	Audio amplifier normal operating conditions		N
	Audio signal source type :		—
	Audio output power (W)..... :		—
	Audio output voltage (V) :		—
	Rated load impedance (Ω) :		—
	Requirements for temperature measurement		N
E.3	Audio amplifier abnormal operating conditions		N
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	Language :	English or local language	—
F.2	Letter symbols and graphical symbols		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings	See copy of marking plate.	P
F.3.2.1	Manufacturer identification	See copy of marking plate.	P
F.3.2.2	Model identification	See copy of marking plate.	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N
F.3.3.3	Nature of the supply voltage		P
F.3.3.4	Rated voltage		P
F.3.3.5	Rated frequency		P
F.3.3.6	Rated current or rated power		P
F.3.3.7	Equipment with multiple supply connections		N
F.3.4	Voltage setting device		P
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings		N
F.3.5.2	Switch position identification marking		N
F.3.5.3	Replacement fuse identification and rating markings		N
	Instructional safeguards for neutral fuse	No such battery on the equipment.	N
F.3.5.4	Replacement battery identification marking		N
F.3.5.5	Neutral conductor terminal		N
F.3.5.6	Terminal marking location		N
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment		P
F.3.6.1.1	Protective earthing conductor terminal		N
F.3.6.1.2	Protective bonding conductor terminals		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.2	Equipment class marking		N
F.3.6.3	Functional earthing terminal marking		P
F.3.7	Equipment IP rating marking	IPX0	—
F.3.8	External power supply output marking		N
F.3.9	Durability, legibility and permanence of marking	See below	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed for 15 sec. with a piece of cloth soaked with water. And then on different sample label was rubbed for 15 sec. with a piece of cloth soaked with the n-hexane. 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.	P
F.4	Instructions		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		P
	c) Instructions for installation and interconnection		P
	d) Equipment intended for use only in restricted access area		N
	e) Equipment intended to be fastened in place		N
	f) Instructions for audio equipment terminals		N
	g) Protective earthing used as a safeguard		N
	h) Protective conductor current exceeding ES2 limits		N
	i) Graphic symbols used on equipment		N
	j) Permanently connected equipment not provided with all-pole mains switch		N
	k) Replaceable components or modules providing safeguard function		N
	l) Equipment containing insulating liquid		N
	m) Installation instructions for outdoor equipment		N
F.5	Instructional safeguards		N
G	COMPONENTS		P
G.1	Switches		N
G.1.1	General	No such component	N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.1.2	Ratings, endurance, spacing, maximum load		N
G.1.3	Test method and compliance		N
G.2	Relays		N
G.2.1	Requirements		N
G.2.2	Overload test		N
G.2.3	Relay controlling connectors supplying power to other equipment		N
G.2.4	Test method and compliance		N
G.3	Protective devices		P
G.3.1	Thermal cut-offs		N
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N
	Thermal cut-outs tested as part of the equipment as indicated in c)		N
G.3.1.2	Test method and compliance		N
G.3.2	Thermal links		N
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N
	b) Thermal links tested as part of the equipment		N
G.3.2.2	Test method and compliance		N
G.3.3	PTC thermistors	No PTC thermistor used.	N
G.3.4	Overcurrent protection devices	Fuse used as over current protection device and protected within 1 s.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N
G.3.5.1	Non-resettable devices suitably rated and marking provided		N
G.3.5.2	Single faults conditions..... :		N
G.4	Connectors		N
G.4.1	Spacings		N
G.4.2	Mains connector configuration :		N
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N
G.5	Wound components		P
G.5.1	Wire insulation in wound components	Approved triple insulated wire used as Reinforced insulation for secondary winding of transformer.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.1.2	Protection against mechanical stress		P
G.5.2	Endurance test		N
G.5.2.1	General test requirements		N
G.5.2.2	Heat run test		N
	Test time (days per cycle)		—
	Test temperature (°C).....		—
G.5.2.3	Wound components supplied from the mains		N
G.5.2.4	No insulation breakdown		N
G.5.3	Transformers		P
G.5.3.1	Compliance method.....	T1	P
	Position		P
	Method of protection	By protection circuit design.	P
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation	P
	Protection from displacement of windings		—
G.5.3.3	Transformer overload tests		P
G.5.3.3.1	Test conditions		P
G.5.3.3.2	Winding temperatures		P
G.5.3.3.3	Winding temperatures - alternative test method		N
G.5.3.4	Transformers using FIW		N
G.5.3.4.1	General		N
	FIW wire nominal diameter		—
G.5.3.4.2	Transformers with basic insulation only		N
G.5.3.4.3	Transformers with double insulation or reinforced insulation.....		N
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N
G.5.3.4.5	Thermal cycling test and compliance		N
G.5.3.4.6	Partial discharge test		N
G.5.3.4.7	Routine test		N
G.5.4	Motors		N
G.5.4.1	General requirements		N
G.5.4.2	Motor overload test conditions		N
G.5.4.3	Running overload test		N
G.5.4.4.2	Locked-rotor overload test		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test duration (days)		—
G.5.4.5	Running overload test for DC motors		N
G.5.4.5.2	Tested in the unit		N
G.5.4.5.3	Alternative method		N
G.5.4.6	Locked-rotor overload test for DC motors		N
G.5.4.6.2	Tested in the unit		N
	Maximum Temperature		N
G.5.4.6.3	Alternative method		N
G.5.4.7	Motors with capacitors		N
G.5.4.8	Three-phase motors		N
G.5.4.9	Series motors		N
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General		P
G.6.2	Enamelled winding wire insulation		P
G.7	Mains supply cords		N
G.7.1	General requirements		N
	Type.....		—
G.7.2	Cross sectional area (mm ² or AWG)		N
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N
G.7.3.2	Cord strain relief		N
G.7.3.2.1	Requirements		N
	Strain relief test force (N).....		N
G.7.3.2.2	Strain relief mechanism failure		N
G.7.3.2.3	Cord sheath or jacket position, distance (mm)		N
G.7.3.2.4	Strain relief and cord anchorage material		N
G.7.4	Cord Entry		N
G.7.5	Non-detachable cord bend protection		N
G.7.5.1	Requirements		N
G.7.5.2	Test method and compliance		N
	Overall diameter or minor overall dimension, <i>D</i> (mm)		—
	Radius of curvature after test (mm)		—
G.7.6	Supply wiring space		N
G.7.6.1	General requirements		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.6.2	Stranded wire		N
G.7.6.2.1	Requirements		N
G.7.6.2.2	Test with 8 mm strand		N
G.8	Varistors		N
G.8.1	General requirements		N
G.8.2	Safeguards against fire		N
G.8.2.1	General		N
G.8.2.2	Varistor overload test		N
G.8.2.3	Temporary overvoltage test		N
G.9	Integrated circuit (IC) current limiters		N
G.9.1	Requirements		N
	IC limiter output current (max. 5A)		—
	Manufacturers' defined drift		—
G.9.2	Test Program		N
G.9.3	Compliance		N
G.10	Resistors		N
G.10.1	General		N
G.10.2	Conditioning		N
G.10.3	Resistor test		N
G.10.4	Voltage surge test		N
G.10.5	Impulse test		N
G.10.6	Overload test		N
G.11	Capacitors and RC units		P
G.11.1	General requirements	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14. (see appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units		N
G.11.3	Rules for selecting capacitors		N
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5 with specifics	(See appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$		—
	Routine test voltage, $V_{ini,b}$		—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N
G.13.4	Insulation between conductors on the same inner surface		N
G.13.5	Insulation between conductors on different surfaces		N
	Distance through insulation :		N
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N
G.13.6.1	Sample preparation and preliminary inspection		N
G.13.6.2	Test method and compliance		N
G.14	Coating on components terminals		N
G.14.1	Requirements :		N
G.15	Pressurized liquid filled components		N
G.15.1	Requirements		N
G.15.2	Test methods and compliance		N
G.15.2.1	Hydrostatic pressure test		N
G.15.2.2	Creep resistance test		N
G.15.2.3	Tubing and fittings compatibility test		N
G.15.2.4	Vibration test		N
G.15.2.5	Thermal cycling test		N
G.15.2.6	Force test		N
G.15.3	Compliance		N
G.16	IC including capacitor discharge function (ICX)		N
G.16.1	Condition for fault tested is not required		N
	ICX with associated circuitry tested in equipment		N
	ICX tested separately		N
G.16.2	Tests		N
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test		—
G.16.3	Capacitor discharge test.....		N
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N
H.1	General		N
H.2	Method A		N
H.3	Method B		N
H.3.1	Ringing signal		N
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
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
H.3.2.2	Tripping device		N
H.3.2.3	Monitoring voltage (V)		N
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
J.1	General		P
	Winding wire insulation.....		—
	Solid round winding wire, diameter (mm).....		N
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm ²).....		N
J.2/J.3	Tests and Manufacturing		—
K	SAFETY INTERLOCKS		N
K.1	General requirements		N
	Instructional safeguard		
K.2	Components of safety interlock safeguard mechanism		N
K.3	Inadvertent change of operating mode		N
K.4	Interlock safeguard override		N
K.5	Fail-safe		N
K.5.1	Under single fault condition		N
K.6	Mechanically operated safety interlocks		N
K.6.1	Endurance requirement		N
K.6.2	Test method and compliance		N
K.7	Interlock circuit isolation		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.7.1	Separation distance for contact gaps & interlock circuit elements		N
	In circuit connected to mains, separation distance for contact gaps (mm)..... :		N
	In circuit isolated from mains, separation distance for contact gaps (mm)..... :		N
	Electric strength test before and after the test of K.7.2 :		N
K.7.2	Overload test, Current (A) :		N
K.7.3	Endurance test		N
K.7.4	Electric strength test		N
L	DISCONNECT DEVICES		P
L.1	General requirements		N
L.2	Permanently connected equipment		P
L.3	Parts that remain energized		N
L.4	Single-phase equipment		N
L.5	Three-phase equipment		N
L.6	Switches as disconnect devices		N
L.7	Plugs as disconnect devices		N
L.8	Multiple power sources		N
	Instructional safeguard :		N
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N
M.1	General requirements		N
M.2	Safety of batteries and their cells		N
M.2.1	Batteries and their cells comply with relevant IEC standards :		N
M.3	Protection circuits for batteries provided within the equipment		N
M.3.1	Requirements		N
M.3.2	Test method		N
	Overcharging of a rechargeable battery		N
	Excessive discharging		N
	Unintentional charging of a non-rechargeable battery		N
	Reverse charging of a rechargeable battery		N
M.3.3	Compliance		N
M.4	Additional safeguards for equipment containing a portable secondary lithium battery		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.4.1	General		N
M.4.2	Charging safeguards		N
M.4.2.1	Requirements		N
M.4.2.2	Compliance..... :		N
M.4.3	Fire enclosure..... :		N
M.4.4	Drop test of equipment containing a secondary lithium battery		N
M.4.4.2	Preparation and procedure for the drop test		N
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): :		N
M.4.4.4	Check of the charge/discharge function		N
M.4.4.5	Charge / discharge cycle test		N
M.4.4.6	Compliance		N
M.5	Risk of burn due to short-circuit during carrying		N
M.5.1	Requirement		N
M.5.2	Test method and compliance		N
M.6	Safeguards against short-circuits		N
M.6.1	External and internal faults		N
M.6.2	Compliance		N
M.7	Risk of explosion from lead acid and NiCd batteries		N
M.7.1	Ventilation preventing explosive gas concentration		N
	Calculated hydrogen generation rate :		N
M.7.2	Test method and compliance		N
	Minimum air flow rate, Q (m ³ /h)..... :		N
M.7.3	Ventilation tests		N
M.7.3.1	General		N
M.7.3.2	Ventilation test – alternative 1		N
	Hydrogen gas concentration (%)..... :		N
M.7.3.3	Ventilation test – alternative 2		N
	Obtained hydrogen generation rate..... :		N
M.7.3.4	Ventilation test – alternative 3		N
	Hydrogen gas concentration (%)..... :		N
M.7.4	Marking..... :		N
M.8	Protection against internal ignition from external spark sources of batteries with aqueous electrolyte		N
M.8.1	General		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.8.2	Test method		N
M.8.2.1	General		N
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s) :		—
M.8.2.3	Correction factors :		—
M.8.2.4	Calculation of distance d (mm) :		—
M.9	Preventing electrolyte spillage		N
M.9.1	Protection from electrolyte spillage		N
M.9.2	Tray for preventing electrolyte spillage		N
M.10	Instructions to prevent reasonably foreseeable misuse		N
	Instructional safeguard :		N
N	ELECTROCHEMICAL POTENTIALS		N
	Material(s) used :		—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N
	Value of X (mm) :		—
P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		P
P.1	General		P
P.2	Safeguards against entry or consequences of entry of a foreign object		N
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object		P
	Location and Dimensions (mm) :	Max.9.32mm*2.1mm, tilt at a 5° Angle 15mm, no PIS	—
P.2.3	Safeguards against the consequences of entry of a foreign object	The UET is building-in product, Located in a closed metal box, No foreign matter.	P
P.2.3.1	Safeguard requirements	Foreign object not defeat an equipment supplementary safeguard or equipment reinforce safeguard and not create a PIS. With Figure P.3 there are no PIS	P
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N
	Transportable equipment with metalized plastic parts :		N
P.2.3.2	Consequence of entry test :		N
P.3	Safeguards against spillage of internal liquids		N
P.3.1	General		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
P.3.2	Determination of spillage consequences		N
P.3.3	Spillage safeguards		N
P.3.4	Compliance		N
P.4	Metallized coatings and adhesives securing parts		N
P.4.1	General		N
P.4.2	Tests		N
	Conditioning, T _c (°C)		—
	Duration (weeks)		—
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1	Requirements		P
	a) Inherently limited output		P
	b) Impedance limited output		N
	c) Regulating network limited output		P
	d) Overcurrent protective device limited output		N
	e) IC current limiter complying with G.9		N
Q.1.2	Test method and compliance	See appended table Annex Q.1	P
	Current rating of overcurrent protective device (A)		N
Q.2	Test for external circuits – paired conductor cable		N
	Maximum output current (A)		N
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N
R.1	General		N
R.2	Test setup		N
	Overcurrent protective device for test		—
R.3	Test method		N
	Cord/cable used for test		—
R.4	Compliance		N
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N
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
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test flame according to IEC 60695-11-5 with conditions as set out		N
	- Material not consumed completely		N
	- Material extinguishes within 30s		N
	- No burning of layer or wrapping tissue		N
S.2	Flammability test for fire enclosure and fire barrier integrity		N
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
S.3	Flammability test for the bottom of a fire enclosure		N
S.3.1	Mounting of samples		N
S.3.2	Test method and compliance		N
	Mounting of samples		—
	Wall thickness (mm)		—
S.4	Flammability classification of materials		N
S.5	Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W		N
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
T	MECHANICAL STRENGTH TESTS		P
T.1	General		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N	No internal enclosure.	N
T.4	Steady force test, 100 N		N
T.5	Steady force test, 250 N	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test		N
T.8	Stress relief test.....	(See appended table T.8)	P
T.9	Glass Impact Test		N
T.10	Glass fragmentation test		N
	Number of particles counted.....		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T.11	Test for telescoping or rod antennas		N
	Torque value (Nm) :		N
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N
U.1	General		N
	Instructional safeguard :		N
U.2	Test method and compliance for non-intrinsically protected CRTs		N
U.3	Protective screen		N
V	DETERMINATION OF ACCESSIBLE PARTS		P
V.1	Accessible parts of equipment		P
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		N
V.1.4	Plugs, jacks, connectors tested with blunt probe		N
V.1.5	Slot openings tested with wedge probe		N
V.1.6	Terminals tested with rigid test wire		N
V.2	Accessible part criterion		N
X	ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)		N
	Clearance :		N
Y	CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES		N
Y.1	General		N
Y.2	Resistance to UV radiation		N
Y.3	Resistance to corrosion		N
Y.3	Resistance to corrosion		N
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by :		N
Y.3.2	Test apparatus		N
Y.3.3	Water – saturated sulphur dioxide atmosphere		N
Y.3.4	Test procedure :		N
Y.3.5	Compliance		N
Y.4	Gaskets		N
Y.4.1	General		N
Y.4.2	Gasket tests		N
Y.4.3	Tensile strength and elongation tests		N

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Alternative test methods :		N
Y.4.4	Compression test		N
Y.4.5	Oil resistance		N
Y.4.6	Securing means		N
Y.5	Protection of equipment within an outdoor enclosure		N
Y.5.1	General		N
Y.5.2	Protection from moisture		N
	Relevant tests of IEC 60529 or Y.5.3 :		N
Y.5.3	Water spray test		N
Y.5.4	Protection from plants and vermin		N
Y.5.5	Protection from excessive dust		N
Y.5.5.1	General		N
Y.5.5.2	IP5X equipment		N
Y.5.5.3	IP6X equipment		N
Y.6	Mechanical strength of enclosures		N
Y.6.1	General		N
Y.6.2	Impact test :		N

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type ¹⁾	Additional Info ²⁾	
264Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal	264Vrms	--	SS	60	ES3
		Abnormal	--	--	--	--	
		Single fault – SC/OC	--	--	--	--	
264Va.c. 60Hz	T1 Pin 4-6,7 after D6	Normal	32.2Vpk	--	SS	60	ES1
		Abnormal	32.2Vpk	--	--	--	
		Single fault – SC/OC	--	--	--	--	
264Va.c. 60Hz	Output	Normal	23.55Vrms	--	SS	60	ES1
		Abnormal	--	--	--	--	
		Single fault – SC/OC	--	--	--	--	
264Va.c. 60Hz	Between L/N and output terminal	Normal	--	0.140 mApk	--	--	ES1
		Single fault- U1 2-3 SC	--	0.140 mApk	--	--	
		BD1 SC	--	0.180 mApk	--	--	
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.							
2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.							

5.4.1.8	TABLE: Working voltage measurement					P
Location		RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
T1 1-6, 7		227	356	60	--	
T1 2-6, 7		226	370	60	--	
T1 3-6, 7		264	468	51.3K	Max. RMS voltage& Max. Peak voltage	
T1 4-6, 7		230	376	60	--	
T1 5-6, 7		224	355	60	--	
T1 1-9, 10		226	365	60	--	
T1 2-9, 10		263	457	42.5K	--	
T1 3-9, 10		234	365	60	--	
T1 4-9, 10		245	376	27.9K	--	
T1 5-9, 10		220	368	60	--	

Supplementary information:

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N
Method.....:			--	—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	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	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)	
T1 bobbin	468	see appended table 4.1.2	125	1.3	
One layer insulation tape wrapped around transformer	468	see appended table 4.1.2	2 layers	2 layers	
Supplementary information:					

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U _p (V)	U _{rms} (V)	Freq ¹⁾ (Hz)	Required cl (mm)	cl (mm)	E.S. ²⁾ (V)	Required cr (mm)	cr (mm)
L-N between traces on PCB (before fuse)	420	250	60	1.5	3.8	--	2.5	3.8
L to earthing	420	250	60	1.5	2.9	--	2.5	2.9
N to earthing	420	250	60	1.5	2.6	--	2.5	2.6
Different polarities of fuse	420	250	60	1.5	2.8	--	2.5	2.8
Primary trace to secondary trace under transformer T1 on PCB	468	264	60	3.0	>6	--	5.2	>6
Transformer T1 core and secondary	468	264	60	3.0	>6	--	5.2	>6
Transformer T1 primary and secondary windings	468	264	60	3.0	>6	--	5.2	>6
Supplementary information:								
1) Only for frequency above 30 kHz								
2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								

5.4.4.2	TABLE: Minimum distance through insulation				P
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
Bobbin of T1	468	See appended table 4.1.2 for details.	0.4	0.6	
Enclosure	468	See appended table 4.1.2 for details.	0.4	Min. 1.1	
One layer of insulation tape	468	Reinforced	Min. 2 layers	2 layers	
Supplementary information:					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					P
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
Bobbin of T1	17KV	51.3K	0.71	0.60	Reinforced	468
Supplementary information:						
$V_w = 17KV * 0.71 * 0.60 = 7242.0V_{pk} > 1.2 * 2 * 468 / 1.41 = 796.6V_{pk}$						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No	
L and N of input(without fuse)	DC	2500	No	
Line& neutral and Enclosure(Metal) for unit	DC	2500	No	
Line& neutral and output for unit	DC	4000	No	
T1:primary and secondary	DC	4000	No	
T1:secondary and core	DC	4000	No	
One layer insulation tape wrapped around T1	DC	4000	No	
Supplementary information:				
Core of transformer was considered as primary. Test after humidity treatment, heating test, and for unit primary to secondary, primary to plastic enclosure electric strength after each fault condition test. Tests were performed on product with each source listed in table 4.1.2.				
The DC voltage source was performed on all testing once in forward and once in reverse.				

5.5.2.2	TABLE: Stored discharge on capacitors				N
Location	Supply voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class
--	--	--	--	--	--
Supplementary information:					

X-capacitors installed for testing:
☐ bleeding resistor rating:
☐ ICX:
 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit

5.6.6	TABLE: Resistance of protective conductors and terminations				N
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
--	--	--	--	--	
Supplementary information:					

5.7.4	TABLE: Unearthed accessible parts					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
Between L/N and output terminal	Normal	264	--	0.140mA _{pk}	60.0	ES1
	Single fault- U1 2-3 SC	264	--	0.140mA _{pk}	60.0	ES1
	BD1 SC	264	--	0.180mA _{pk}	60.0	ES1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			N
Supply voltage (V) :				—
Phase(s) :		[] Single Phase; [] Three Phase: [] Delta [] Wye		
Power Distribution System :		[] TN [] TT [] IT		
Location		Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment
--		--	--	--
Supplementary Information:				

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
--	--	--	--	--	--	--
Supplementary information:						
Abbreviation: SC= short circuit, OC= open circuit						

6.2.2	TABLE: Power source circuit classifications						P
Location	Operating and fault	Voltage (V)	Current (A)	Max.	Time (S)	PS class	

	condition			Power ¹⁾ (W)		
Input	Normal operation	--	--	--	--	PS2 (Declaration)
DC Output	Normal operation	22.43	0.53	11.87	3	PS1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	TABLE: Determination of Arcing PIS				P
Location		Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
Primary circuits and secondary circuit / parts except for output connector		--	--	--	Yes
Supplementary information:					

6.2.3.2	TABLE: Determination of resistive PIS			P
Location		Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes / No
All internal circuits /components		--	--	Yes
Supplementary information:				
Abbreviation: SC= short circuit; OC= open circuit				

8.5.5	TABLE: High pressure lamp				N
Lamp manufacturer		Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No
--		--	--	--	--
Supplementary information:					

9.6	TABLE: Temperature measurements for wireless power transmitters				N
Supply voltage (V) :					—
Max. transmit power of transmitter (W) :					—
Foreign objects	w/o receiver and direct contact	with receiver and direct contact	with receiver and at distance of 2 mm	with receiver and at distance of 5 mm	

	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)
--	--	--	--	--	--	--	--	--
Supplementary information:								

5.4.1.4, 9.3, B.1.5, B.2.6		TABLE: Temperature measurements						P
Supply voltage (V) :				108V		264V		—
Ambient temperature during test T_{amb} (°C):				--	--	--	--	—
Maximum measured temperature T of part/at:				T (°C)				Allowed T_{max} (°C)
				--	Shift to 40°C	--	Shift to 40°C	
L-N connector				42.9	77.9	45.8	80.8	105
C4(CX1) body				45.7	80.7	48.9	83.9	130
C1(CY1) body				48.6	83.6	50.4	85.4	130
L2 winding				49.5	84.5	53.3	88.3	110
C61 body				56.7	91.7	59.3	94.3	105
CE1 body				49.2	84.2	52.7	87.7	105
T1 body				56.7	61.7	63.5	98.5	110
PCB near T1 winding				50.1	85.1	53.7	88.7	110
PCB near T1 bobby				53.3	88.3	55.2	100.2	110
PCB near U1				49.6	84.6	52.1	87.1	130
PCB near optocoupler				48.7	83.7	50.4	85.4	130
Internal enclosure				37.7	72.7	40.6	75.6	105
External enclosure				31.6	--	35.4	--	77
External enclosure at the installation connection				42.6	--	43.4	--	77
Terminal connector				29.6	64.6	31.5	66.5	110
Ambient				25.0	60.0	25.0	60.0	--
Temperature T of winding:		t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--		--	--	--	--	--	--	--
Supplementary information:								
Note 1: Tma should be considered as directed by applicable requirement								
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)								

B.2.5		TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	

108	50	0.180	--	10.2		F1	0.180	Load with : 24Vdc, 0.3A
108	60	0.180	--	10.2		F1	0.180	
120	50	0.167	0.12	10.3	--	F1	0.167	
120	60	0.166	0.12	10.3	--	F1	0.166	
240	50	0.094	0.12	10.6	--	F1	0.094	
240	60	0.093	0.12	10.5	--	F1	0.093	
264	50	0.088	--	10.7	--	F1	0.088	
264	60	0.088	--	10.7	--	F1	0.088	
Supplementary information: Equipment may be have rated current or rated power or both. Both should be measured								

B.3, B.4		TABLE: Abnormal operating and fault condition tests					P
Ambient temperature Tamb (°C) :						25°C	—
Power source for EUT: Manufacturer, model/type, output rating :						--	—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
T1 pin 4-6, 7	OL	264	6h14min	F1	0.088→ 0.117→ 0.130→ 0.132	Unit steady state at 0.53A temperature rise, when increase to 0.59A, unit shut down immediately, and no hazard. T1 body: 66.4°C; PCB near T1: 58.5°C; External enclosure: 36.9°C; Button: 34.7°C; Ambient: 24.1°C	
Output	OL	264	6h01min	F1	0.088→ 0.117→ 0.130→ 0.132	Unit steady state at 0.53A temperature rise, when increase to 0.59A, unit shut down immediately, and no hazard. T1 body: 66.4°C; PCB near T1: 58.5°C; External enclosure: 36.9°C; Button: 34.7°C; Ambient: 24.1°C	
T1 pin 4- 6, 7	SC	264	10min	F1	0.088→0	Unit shutdown immediately, no damaged, no hazards.	
T1 pin 3-9, 10	SC	264	10min	F1	0.088→0	Unit shutdown immediately, no damaged, no hazards.	
Output	SC	264	10min	F1	0.088→0	Unit shutdown immediately, no damaged, no hazards.	
D1 pin G-S	SC	264	1s	F1	0.088→0	Unit shutdown immediately, recoverable, no hazard.	

D1 pin G-D	SC	264	1s	F1	0.088→0	Unit shutdown immediately, recoverable, no hazard.
D1 pin S-D	SC	264	1s	F1	0.088→0	Fuse F1 opened immediately, no hazard.
Optocoupler	SC	264	1s	F1	0.088→0	Unit shutdown immediately, recoverable, no hazard.
Supplementary information: SC= short circuit; OC= open circuit, OL=overload.						

M.3	TABLE: Protection circuits for batteries provided within the equipment						N
Is it possible to install the battery in a reverse polarity position? :				No hazard.		—	
Equipment Specification	Charging						
	Voltage (V)			Current (A)			
	--			--			
Manufacturer/type	Battery specification						
	Non-rechargeable batteries		Rechargeable batteries				
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
--	--	--	--	--	--	--	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C):				--		--	
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
--	--	--	--	--	--	--	--
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery						N
Maximum specified charging voltage (V) :					--		—
Maximum specified charging current (A) :					--		—
Highest specified charging temperature (°C) :					--		
Lowest specified charging temperature (°C) :					--		
Battery manufacturer/type	Operating and fault condition	Measurement			Observation		
		Charging voltage (V)	Charging current (A)	Temp. (°C)			
--	--	--	--	--	--		

Supplementary information:
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						P
Output Circuit	Condition	U _{oc} (V)	Time (s)	I _{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
DC output	--	--	3s	--	8	--	100
Supplementary Information:							
SC= short circuit; OC= open circuit, OL=overload.							

T.2, T.3, T.4, T.5	TABLE: Steady force test						P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
Enclosure(T.5)	Plastic	see appended table 4.1.2	--	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Internal components near the gap between primary and secondary (T.2)	--	--	--	10	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:							

T.6, T.9	TABLE: Impact test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Three sides of enclosure	see appended table 4.1.2	see appended table 4.1.2	1300	After the test, enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:					

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

T.8	TABLE: Stress relief test				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	see appended table 4.1.2	see appended table 4.1.2	70	7	Enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:					

4.1.2	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Input terminal	DONGGUAN JINLING ELECTRONIC CO., LTD	JL2EDGVJ	300V, 18A	UL 94	UL	
Fuse F1	Hollyland (China) Electronics Technology Corporation Ltd.	5ET T1A	T1A,250VAC	UR/CUR CQC VDE	UL E156471 CQC05012 01 40015669	
Inductor L2	HUIZHOU XINRUI TECHNOLOGY CO.,LTD.	RCY-1703004	UU9.8-10mH	UL 94, UL 746	UL	
X2 capacitor C4,C6	SHARE TECHNOLOGY CO.,LTD.	CT7-Y5V-2E4-400VAC-472M	X2-333K-275VAC	UL ENEC VDE CE CQC	E343072 40034920 E/EC41281 51222066 CQC12001 069051	
Rectifier diode D2,D3,D4,D5	JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD	1N4007	1000V, 1A	UL 94	UL	
Y2 capacitor C1,C5	SHARE TECHNOLOGY CO.,LTD.	Y2-Y5V-472M	4.7nF,±20%,250VAC	IEC/EN/UL 60384-14	UL	
NTC resistor NTC1	THINKING ELECTRONIC INDUSTRIAL CO., LTD.	SCK08152MSY	15W,2A,± 20%,f 8 mm	UL CSA TUV CQC	E138827 97495 R 50050155 CQC05001 011993	
Varistor VZ1	Taiwan Kangtai Industry Co. , Ltd.	VDR-10D471K-P	470V	UL CQC VDE IEC	E317616 120010764 79 40028836 60950-1 Annex Q	
E-capacitor (CE3)	SHEN ZHEN JIANGHAO ELECTRONICS CO.,LTD	CD263	100uF 400V,+105℃	IEC/EN/UL 60384-14	UL	

Photo-coupler OP1	CT Micro International Corporation	CT817C(SL)(T3)-H	External Creepage ≥ 7.5mm External Creepage ≥ 8.0mm	UL VDE CQC – GB4943.1, GB8898 IEC60065, IEC60950	E364000 VDE0884-5 GB4943.1, GB8898 IEC60065, IEC60950
Transformer T1	Huizhou Sun Rui Technology Co. , Ltd.	RCY-1706001	EFD25 5+5Class B	EN 62368-1	Tested with appliance
PCB	DONG GUAN KAIMAU ELECTRONICSC O.,LTD	4CEM	Minimum V-0, 130 degree C	UL 94, UL 746C	E237305
-Magnet wire	SHANTOU SHENGANG ELECTRIC INDUSTRIAL CO.,LTD	2UEW	155°C	UL 1446	E239508
Bobbin	CHANGCHUN PLASICS CO.,LTD. OR EQUAL	EFD25 5+5 T375J 94V-0	150°C	UL 94	E59481(S)
Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO., LTD	mylar	130°C	UL 510	E165111(S)
Varnish	DONGGUAN JINGUO FLUX FACTORY OR EQUAL	E962A	130°C	UL 1446	E235951
Enclosure	Interchangeable	Interchangeable	V-0, 105°C, min. thickness 3.5mm	UL 94, UL746C	UL
Supplementary information:					

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

<p align="center">ATTACHMENT TO TEST REPORT</p> <p align="center">IEC 62368-1</p> <p align="center">EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</p> <p align="center">(Audio/video, information and communication technology equipment - Part 1: Safety requirements)</p>			
Differences according to : EN IEC 62368-1:2020+A11:2020			
Attachment Form No. : EU_GD_IEC62368_1E			
Attachment Originator : UL(Demko)			
Master Attachment : 2021-02-04			
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	CENELEC COMMON MODIFICATIONS (EN)		—
	<p>Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018.</p> <p>Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed "Z".</p>		—
	<p>Add the following annexes:</p> <p>Annex ZA (normative) Normative references to international publications with their corresponding European publications</p> <p>Annex ZB (normative) Special national conditions</p> <p>Annex ZC (informative) A-deviations</p> <p>Annex ZD (informative) IEC and CENELEC code designations for flexible cords</p>		—
1	Modification to Clause 3 .		—
3.3.19	Sound exposure		N
	Replace 3.3.19 of IEC 62368-1 with the following definitions:		
3.3.19.1	<p>momentary exposure level, MEL</p> <p>metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2.</p> <p>Note 1 to entry: MEL is measured as A-weighted levels in dB.</p> <p>Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.</p>		N



IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.3	<p>sound exposure, E</p> <p>A-weighted sound pressure (p) squared and integrated over a stated period of time, T</p> <p>Note 1 to entry: The SI unit is Pa² s.</p> $E = \int_0^T p(t)^2 dt$		N
3.3.19.4	<p>sound exposure level, SEL</p> <p>logarithmic measure of sound exposure relative to a reference value, E_0, typically the 1 kHz threshold of hearing in humans.</p> <p>Note 1 to entry: SEL is measured as A-weighted levels in dB.</p> $SEL = 10 \lg \left(\frac{E}{E_0} \right) \text{ dB}$ <p>Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.</p>		N
3.3.19.5	<p>digital signal level relative to full scale, dBFS</p> <p>levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused</p> <p>Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.</p>		N
2	Modification to Clause 10		—
10.6	<p>Safeguards against acoustic energy sources</p> <p>Replace 10.6 of IEC 62368-1 with the following:</p>		N
10.6.1.1	<p>Introduction</p> <p>Safeguard requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an ordinary person, that:</p> <p>– is designed to allow the user to listen to audio or</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>audiovisual content / material; and</p> <ul style="list-style-type: none"> – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). <p>EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.</p> <p>Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.</p> <p>NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.</p> <p>Listening devices sold separately shall comply with the requirements of 10.6.6.</p> <p>These requirements are valid for music or video mode only.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: <ul style="list-style-type: none"> • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <ul style="list-style-type: none"> – a player while connected to an external amplifier that does not allow the user to walk around while in use. <p>For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.</p>		

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	<p>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). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.</p>		N
10.6.2	Classification of devices without the capacity to estimate sound dose		N
10.6.2.1	<p>General</p> <p>This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3.</p> <p>For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period.</p> <p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song.</p> <p>NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.2	RS1 limits (to be superseded, see 10.6.3.2) RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2.		N
10.6.2.3	RS2 limits (to be superseded, see 10.6.3.3) RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.		N
10.6.2.4	RS3 limits RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N
10.6.3	Classification of devices (new)		N
10.6.3.1	General Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Commission Decision of 23 June 2009, are given below.		
10.6.3.2	RS1 limits (new) RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.		N
10.6.3.3	RS2 limits (new) RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.		N
10.6.4	Requirements for maximum sound exposure		N
10.6.4.1	Measurement methods All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		N
10.6.4.2	Protection of persons		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Except as given below, protection requirements for parts accessible to ordinary persons, instructed persons and skilled persons are given in 4.3.</p> <p>NOTE 1 Volume control is not considered a safeguard.</p> <p>Between RS2 and an ordinary person, the basic safeguard may be replaced by an instructional safeguard in accordance with Clause F.5, except that the instructional safeguard shall be placed on the equipment, or on the packaging, or in the instruction manual.</p> <p>Alternatively, the instructional safeguard may be given through the equipment display during use.</p> <p>The elements of the instructional safeguard shall be as follows:</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> – element 1a: the symbol , IEC 60417-6044 (2011-01) – element 2: “High sound pressure” or equivalent wording – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording <p>An equipment safeguard shall prevent exposure of an ordinary person to an RS2 source without intentional physical action from the ordinary person and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off.</p> <p>The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off.</p> <p>A skilled person shall not be unintentionally exposed to RS3.</p>		
10.6.5	Requirements for dose-based systems		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	<p>General requirements</p> <p>Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause.</p> <p>The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration.</p> <p>The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.</p>		N
10.6.5.2	<p>Dose-based warning and requirements</p> <p>When a dose of 100 % <i>CSD</i> is reached, and at least at every 100 % further increase of <i>CSD</i>, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1.</p> <p>The warning shall at least clearly indicate that listening above 100 % <i>CSD</i> leads to the risk of hearing damage or loss.</p>		N
10.6.5.3	<p>Exposure-based requirements</p> <p>With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at.</p> <p>The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3.</p> <p>The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>faster.</p> <p>Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface.</p> <p>NOTE In case the source is known not to be music (or test signal), the EL may be disabled.</p>		
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N
10.6.6.1	<p>Corded listening devices with analogue input</p> <p>With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV.</p> <p>NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.</p>		N
10.6.6.2	<p>Corded listening devices with digital input</p> <p>With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.</p>		N
10.6.6.3	<p>Cordless listening devices</p> <p>In cordless mode,</p> <ul style="list-style-type: none"> – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set 		N

IEC62368-1																																																																			
Clause	Requirement + Test				Result - Remark		Verdict																																																												
	to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.																																																																		
10.6.6.4	Measurement method <i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i>						N																																																												
3	Modification to the whole document						N																																																												
	Delete all the “country” notes in the reference document according to the following list: <table><tr><td>0.2.1</td><td>Note 1 and 2</td><td>1</td><td>Note 4 and 5</td><td>3.3.8.1</td><td>Note 2</td></tr><tr><td>3.3.8.3</td><td>Note 1</td><td>4.1.15</td><td>Note</td><td>4.7.3</td><td>Note 1 and 2</td></tr><tr><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 12</td><td>Note c</td><td>5.4.2.3.2.4</td><td>Note 1 and 3</td></tr><tr><td>5.4.2.3.2.4 Table 13</td><td>Note 2</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.4.10.2.1</td><td>Note</td><td>5.4.10.2.2</td><td>Note</td><td>5.4.10.2.3</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3 and 4</td></tr><tr><td>5.6.8</td><td>Note 2</td><td>5.7.6</td><td>Note</td><td>5.7.7.1</td><td>Note 1 and Note 2</td></tr><tr><td>8.5.4.2.3</td><td>Note</td><td>10.2.1 Table 39</td><td>Note 3 and 4 and 5</td><td>10.5.3</td><td>Note 2</td></tr><tr><td>10.6.4</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td><td>Y.4.1</td><td>Note</td></tr><tr><td>Y.4.5</td><td>Note</td><td></td><td></td><td></td><td></td></tr></table>						0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2	3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note	5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4	5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2	8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2	10.6.4	Note 3	F.3.3.6	Note 3	Y.4.1	Note	Y.4.5	Note					P
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Y.4.5	Note																																																																		
4	Modification to Clause 1						—																																																												
1	Add the following note: <i>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</i>						P																																																												
5	Modification to 4.Z1						—																																																												
4.Z1	Add the following new subclause after 4.9: 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						P																																																												

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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>		
6	Modification to 5.4.2.3.2.4		—
5.4.2.3.2.4	<p><i>Add the following to the end of this subclause:</i></p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>		N
7	Modification to 10.2.1		—
10.2.1	<p>Add the following to c) and d) in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N
8	Modification to 10.5.1		—
10.5.1	<p><i>Add the following after the first paragraph:</i></p> <p>For RS 1 compliance is checked by measurement under the following conditions:</p> <p>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 pre-sets 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.</p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>The dose-rate is determined by means of a</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</p> <p>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.</p> <p>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		
9	Modification to G.7.1		—
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N
10	Modification to Bibliography		—
	<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
11	ADDITION OF ANNEXES		—
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: 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</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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>		
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		N
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • 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</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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), <p>and</p> <ul style="list-style-type: none"> is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. <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>		
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>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>		N
5.6.1	<p>Denmark</p> <p>Add to the end of the subclause</p> <p>Due to many existing installations where the</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i></p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		
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>		N
5.6.4.2.1	<p>France</p> <p>After the indent for pluggable equipment type A, the following is added:</p> <p>– in certain cases, the protective current rating of the circuit supplied from the mains is taken as 20 A instead of 16 A.</p>		N
5.6.5.1	<p>To the second paragraph the following is added:</p> <p>The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm² to 1,5 mm² in cross-sectional area.</p>		N
5.6.8	<p>Norway</p> <p>To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as class I equipment. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.</p>		N
5.7.6	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N
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>		N
5.7.7.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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: “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>		
8.5.4.2.3	United Kingdom		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Add the following after the 2nd dash bullet in 3rd paragraph:</p> <p>An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.</p>		
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>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
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-</p>		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c		
G.4.2	United Kingdom 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.		N
G.7.1	United Kingdom 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. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N
G.7.1	Ireland To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm ² is allowed for equipment which is rated over 10 A and up to and including 13 A.		N
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		—
10.5.2	Germany The following requirement applies:		N

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> 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>		
ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)		—

IEC62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Type of flexible cord	Code designations		N
		IEC	CENELEC	
	PVC insulated cords			
	Flat twin tinsel cord	60227 IEC 41	H03VH-Y	
	Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F	
	Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F	
	Rubber insulated cords			
	Braided cord	60245 IEC 51	H03RT-F	
	Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F	
	Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F	
	Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F	
	Cords having high flexibility			
	Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H	
	Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H	
	Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H	
	Cords insulated and sheathed with halogen-free thermoplastic compounds			
	Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F	
	Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F	

Appendix 1
Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
Aa-SE001	Data Acquisition / Switch Unit	Agilent	34970A	MY44052414	2022.07.28	2023.07.27
Aa-SE002	Thermocouple wire	OMEGA	TT-K-30-1000	kxff	2022.08.03	2023.08.02
Aa-SE004	Oven Chamber	Rongfeng	101A-3	31446	2022.07.28	2023.07.27
Aa-SE005	DC Electronic Load	Array	3711A	A06BI03017	2022.07.28	2023.07.27
Aa-SE006	DC Electronic Load	Array	3711A	A06BI02095	2022.07.28	2023.07.27
Aa-SE007	DC Electronic Load	Array	3711A	A06BI03015	2022.07.28	2023.07.27
Aa-SE008	DC Electronic Load	Array	3711A	A06BH02122	2022.07.28	2023.07.27
Aa-SE010	Digital Power Meter	Qingzhi	8716C	870806042	2022.07.28	2023.07.27
Aa-SE011	Digital Power Meter	Qingzhi	8716C	870806037	2022.07.28	2023.07.27
Aa-SE013	Multi Meter	Fluke	115C	96721596	2022.07.28	2023.07.27
Aa-SE014	Desktop Multi Meter	Fluke	45	7662018	2022.07.28	2023.07.27
Aa-SE015	Desktop Multi Meter	Fluke	45	8095018	2022.07.28	2023.07.27
Aa-SE016	Desktop Multi Meter	Fluke	45	6792039	2022.07.28	2023.07.27
Aa-SE017	Grounding Bond Meter	Yang Zhi	YD2654B	548-053	2022.07.28	2023.07.27
Aa-SE018	Leakage Current Meter	EXTECH	7611	1330848	2022.08.03	2023.08.02
Aa-SE019	Insulation Resistance Tester	Yang Zhi	YD9820A	9820A-184225	2022.07.28	2023.07.27
Aa-SE022	Push-Pull Scale	Algol	NK-300	67420	2022.07.28	2023.07.27
Aa-SE023	Digital Caliper	Yitu	YT211	P840156	2022.07.28	2023.07.27
Aa-SE026	Tumbling Barrel	Zhilitong	GT-1	G010308	2022.07.28	2023.07.27
Aa-SE027	Audio Generator	LWDQGS	TAG-101	308909	2022.07.28	2023.07.27
Aa-SE028	Noise Generator	DF	DF1681	071001107	2022.08.09	2023.08.08
Aa-SE029	Plug Torque Tester	Zhilitong	LJ-1	LJ010908	2022.07.28	2023.07.27
Aa-SE030	Test Probe 13	Zhilitong	TP13	D3L15	2022.07.30	2023.07.29
Aa-SE031	Test Probe 41	Zhilitong	TP41	D30L80	2022.07.30	2023.07.29
Aa-SE035	Test Probe	Zhilitong	D4L100	60065-913	2022.07.30	2023.07.29
Aa-SE036	Test Probe C	Zhilitong	TP-C	60065-915	2022.07.30	2023.07.29
Aa-SE037	Test Probe D	Zhilitong	TP-D	60065-914	2022.07.30	2023.07.29
Aa-SE039	Test hook	Zhilitong	TH-1	W8L180T1	2022.07.30	2023.07.29
Aa-SE040	Accessibility Probe	Zhilitong	ZA-1	A1310	2022.07.30	2023.07.29
Aa-SE041	UL Finger Probe	Zhilitong	ULP-01	D5L97	2022.07.30	2023.07.29
Aa-SE042	Steel Ball	Zhilitong	GQ-1	G121008	2022.07.28	2023.07.27
Aa-SE043	Ball Pressure Tester	Sinna	SN3407	08051808	2022.07.28	2023.07.27
Aa-SE044	Ball Pressure Tester	Sinna	SN3407	08082302	2022.07.28	2023.07.27
Aa-SE045	Hammer	Sinna	SN3406	08083102	2022.07.30	2023.07.29
Aa-SE046	Torque Driver	kanon	12LTDK	08G338	2022.07.28	2023.07.27
Aa-SE050	hardened steel pin	Zhilitong	SC30	R25N30	2022.07.30	2023.07.29
Aa-SE053	Test rod	Zhilitong	TZ-14	D40N5	2022.07.30	2023.07.29
Aa-SE054	Vibration tester	shengshiwei	SW-TF	20100228	2022.07.28	2023.07.27
Aa-SE056	Digital Power Meter	Qingzhi	8713B1	870909080	2022.07.28	2023.07.27
Aa-SE058	Draught-proof enclosure	Tengbo	TB180	Q100226	2022.07.28	2023.07.27
Aa-SE059	Hammer	Zhilitong	CJ-3	C031026	2022.07.30	2023.07.29
Aa-SE060	Hammer	Zhilitong	CJ-3	C031027	2022.07.30	2023.07.29
Aa-SE061	Hammer	Zhilitong	CJ-3	C031028	2022.07.30	2023.07.29
Aa-SE063	Leakage Current Tester	Simpson	228	7173286	2022.08.03	2023.08.02
Aa-SE066	Oscillating tube	damsion	DMS-E01	2011DNS-E010401	2022.08.14	2023.08.13
Aa-SE068	immersion tester	kunshang	IPX7-1	SK2018M5	2022.07.28	2023.07.27
Aa-SE069	Test Probe 18	Aodesaichuang	AUTO-18	auto110721-18-01	2022.07.30	2023.07.29
Aa-SE070	Test Probe 19	Aodesaichuang	AUTO-19	auto110721-19-02	2022.07.30	2023.07.29
Aa-SE071	Data Acquisition / Switch Unit	Agilent	34970A	MY44052411	2022.07.28	2023.07.27
Aa-SE072	Data Acquisition / Switch Unit	Agilent	34970A	MY44011615	2022.07.28	2023.07.27
Aa-SE073	Digital Power Meter	Yokogawa	WT210	91K223105	2022.07.28	2023.07.27
Aa-SE074	Desktop Multi Meter	Agilent	34401A	MY44008459	2022.07.28	2023.07.27
Aa-SE075	Desktop Multi Meter	Agilent	34401A	MY44008472	2022.07.28	2023.07.27
Aa-SE076	Hi-Pot Tester	ME I RUIKE	RK2672D	RK72D111130-010	2022.07.28	2023.07.27
Aa-SE078	Torque Driver	Aigu	10DPSK	356019	2022.07.28	2023.07.27
Aa-SE079	Magnifying glass	German	10x	12234	2022.07.28	2023.07.27
Aa-SE080	Regulated Power Supply	APC	AFC-11010G	F310120052	2022.07.28	2023.07.27
Aa-SE082	Step Temperature Room	Long An	LA-ORT28	LA-201206001	2022.07.28	2023.07.27
Aa-SE083	"GO" Gauge for E27 Caps	KINGPO	7006-27B-1	8688	2022.07.30	2023.07.29
Aa-SE084	"NOT GO" Gauge for E27 Caps	KINGPO	7006-28A-1	8689	2022.07.30	2023.07.29
Aa-SE085	"GO" Gauge for dimension "S1" of E27 Caps	KINGPO	7006-27C-1	8691	2022.07.30	2023.07.29

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
Aa-SE086	Gauge for E27 Caps for testing contact making	KINGPO	7006-50-1	8693	2022.07.30	2023.07.29
Aa-SE087	Gauge for E27 Caps for testing protection against accidental contact during insertion	KINGPO	7006-51A-2	8690	2022.07.30	2023.07.29
Aa-SE089	Single wing drop tester	FEILING	FL8618	/	2022.07.28	2023.07.27
Aa-SE090	Data Acquisition / Switch Unit	Agilent	34970A	MY44006829	2022.07.28	2023.07.27
Aa-SE091	Thermocouple wire	OMEGA	TT-J-30-1000	/	2022.07.30	2023.07.29
Aa-SE092	Touch current tester	Ceprei	410B	1207AG10	2022.07.30	2023.07.29
Aa-SE093	Cord oscillating tester	Dongguan lixiong	LX-1211	/	2022.07.28	2023.07.27
Aa-SE094	Lampholder digital torsion meter	Inventfine Instrument Co., Ltd.	CH338	1301004	2022.07.30	2023.07.29
Aa-SE095	Straight steel pin	KINGPO	SE095	/	2022.07.30	2023.07.29
Aa-SE096	Digital Caliper	Guanglu	SF2000	C1211225254	2022.07.28	2023.07.27
Aa-SE097	Digital Caliper	Guanglu	SF2000	C1211225024	2022.07.28	2023.07.27
Aa-SE098	Timer	PURSUN	PS-528	/	2022.07.30	2023.07.29
Aa-SE099	Timer	PURSUN	PS-528	/	2022.07.30	2023.07.29
Aa-SE100	Switching Mode DC Power Supply	GW INSTEK	GPS-1850D	EN820728	2022.07.28	2023.07.27
Aa-SE101	Digital Power Meter	EVERFINE	PF9901	1005046	2022.07.28	2023.07.27
Aa-SE102	Digital Power Meter	EVERFINE	PF9901	G100731CJ6331237	2022.07.28	2023.07.27
Aa-SE103	Tape line	YANGGUANG	YG-206	/	2022.07.30	2023.07.29
Aa-SE105	Pressure Gauge	ZHHY	SE105	/	2022.07.30	2023.07.29
Aa-SE106	"GO" Gauge for E14 Caps	GRT/china	7006-27F-1	2013053131	2022.07.30	2023.07.29
Aa-SE107	"NOT GO" Gauge for E14 Caps	GRT/china	7006-28B-1	2013053126	2022.07.30	2023.07.29
Aa-SE108	"GO" Gauge for dimension "S1" of E14 Caps	GRT/china	7006-27G-1	2013053132	2022.07.30	2023.07.29
Aa-SE109	Gauge for E14 Caps for testing contact making	GRT/china	7006-54-2	2013053128	2022.07.30	2023.07.29
Aa-SE110	Gauge for E14 Caps for testing protection against accidental contact during insertion	GRT/china	7006-55-2	2013053129	2022.07.30	2023.07.29
Aa-SE111	"GO" and "NOT GO" Gauge for base GU10	KINGPO	7006-121-1	KingPo12485237	2022.07.30	2023.07.29
Aa-SE112	"GO" plug gauge for E12 lampholder	GRT/china	7006-25C-1	20130512135005	2022.07.30	2023.07.29
Aa-SE113	"NOT GO" plug gauge for E12 lampholder	GRT/china	7006-26B-1	20130512135006	2022.07.30	2023.07.29
Aa-SE114	"GO" Gauge for E26 Caps	GRT/china	7006-27D-3	2013053135	2022.07.30	2023.07.29
Aa-SE115	"NOT GO" Gauge for E26 Caps	GRT/china	7006-29L-4	2013053125	2022.07.30	2023.07.29
Aa-SE116	"GO" Gauge for E40 Caps	ANGUI TESTING	7006-27-7	20140405	2022.07.30	2023.07.29
Aa-SE117	"NOT GO" Gauge for E40 Caps	ANGUI TESTING	7006-28D-1	20140406	2022.07.30	2023.07.29
Aa-SE118	Gauge for E40 Caps for testing contact making	ANGUI TESTING	7006-52-1	20140407	2022.07.30	2023.07.29
Aa-SE119	Gauge for E40 Caps for testing protection against accidental contact during insertion	ANGUI TESTING	7006-53-1	20140408	2022.07.30	2023.07.29
Aa-SE120	"Go" gauge for bi-pin cap on finished lamps G13	KINGPO	7006-45-4	KingPo12485238	2022.07.30	2023.07.29
Aa-SE121	"Go" gauge for bi-pin cap on finished lamps G5	KINGPO	7006-46A-3	KingPo12485230	2022.07.30	2023.07.29
Aa-SE122	Gauge for three-pin flat-pin plugs (10A)	KINGPO	AS/NZS 3112 Fig A 10A	KingPo12485231	2022.07.30	2023.07.29
Aa-SE123	Gauge for three-pin flat-pin plugs (15A)	KINGPO	AS/NZS 3112 Fig A 15A	KingPo12485232	2022.07.30	2023.07.29
Aa-SE124	Gauge for three-pin flat-pin plugs (20A)	KINGPO	AS/NZS 3112 Fig A 20A	KingPo12485233	2022.07.30	2023.07.29
Aa-SE125	Gauge for two-pin flat-pin plugs with parallel pins	KINGPO	AS/NZS 3112 Fig B	KingPo12485236	2022.07.30	2023.07.29
Aa-SE126	Gauge for flat and round pin plugs (two flat live pins and a round earth pin)	KINGPO	AS/NZS 3112 Fig F-A	KingPo12485234	2022.07.30	2023.07.29
Aa-SE127	Gauge for flat and round pin plugs (two round live pins and a	KINGPO	AS/NZS 3112 Fig F-B	KingPo12485235	2022.07.30	2023.07.29

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
	flat earth pin)					
Aa-SE128	Transport type simulation vibration tester	KING DESIGN	KD-9363-550-PC	LT0PCLA13003	2022.07.28	2023.07.27
Aa-SE129	Oven Chamber	Rongfeng	101A-3	33897	2022.07.28	2023.07.27
Aa-SE130	"Go" gauges for caps on finished lamps B22	ANGUI TESTING	1865241	20140404	2022.07.30	2023.07.29
Aa-SE131	"Not Go" gauges for caps on finished lamps B22	ANGUI TESTING	1865210	20140403	2022.07.30	2023.07.29
Aa-SE132	Gauges for testing the insertion of caps in lampholders B22d	ANGUI TESTING	7006-4A-2	20140401	2022.07.30	2023.07.29
Aa-SE133	Gauges for testing the retention of B22d caps in the holder	ANGUI TESTING	7006-4B-1	20140402	2022.07.30	2023.07.29
Aa-SE134	1000:1 Oscillograph Probe	Pintek	HVP-18HF	13010082	2022.08.03	2023.08.02
Aa-SE136	AC power source	All power	APW-150N	930607	2022.07.28	2023.07.27
Aa-SE137	Horizontal&vertical tester	AUTOSTRONG	AUTO-SPA	AUTO1033	2022.07.28	2023.07.27
Aa-SE138	Tracking index tester	AUTOSTRONG	AUTO-LDA	AUTO1040	2022.07.28	2023.07.27
Aa-SE139	Vicat softening tester	AUTOSTRONG	AUTO-WK	AUTO-20140514WK	2022.12.15	2023.12.14
Aa-SE140	Electroplated coating thickness tester	Guangzhou Dongru electronic	DR280	9324	2022.07.28	2023.07.27
Aa-SE141	Battery Tester	DG	W602	DG2014W6021772	2022.07.28	2023.07.27
Aa-SE142	Test plug for antenna coaxial sockets	ANGUI TESTING	AG-IEC60065F9	/	2022.07.30	2023.07.29
Aa-SE143	SHORE D Durometer	Handpi	LX-D	8134006969	2022.07.30	2023.07.29
Aa-SE144	Steel Ball	ANGUI TESTING	GQ-2	/	2022.07.28	2023.07.27
Aa-SE145	"Go" gauges for caps on finished lamps B15	ANGUI TESTING	1865241	140728017	2022.07.30	2023.07.29
Aa-SE146	"Not Go" gauges for caps on finished lamps B15	ANGUI TESTING	1865210	140728010	2022.07.30	2023.07.29
Aa-SE147	Gauges for testing the insertion of caps in lampholders B15d	ANGUI TESTING	7006-4A-2	140728004	2022.07.30	2023.07.29
Aa-SE148	Gauges for testing the retention of B15d caps in the holder	ANGUI TESTING	7006-4B-1	140728009	2022.07.30	2023.07.29
Aa-SE149	"GO" Gauge for E39 Caps	ANGUI TESTING	7006-24B-1	144509	2022.07.30	2023.07.29
Aa-SE150	Gauge for E39 Caps for testing contact making	ANGUI TESTING	7006-24A-1	144511	2022.07.30	2023.07.29
Aa-SE151	"NOT GO" Gauge for E39 Caps	ANGUI TESTING	7006-24C-1	144510	2022.07.30	2023.07.29
Aa-SE152	Noise Generator/filter	ZCTEK	ZC6221	ZC16120255	2022.08.09	2023.08.08
Aa-SE153	Hi-Pot Tester	ME I RUIKE	RK2671C	RK71C-BEAI005	2022.07.28	2023.07.27
Aa-SE155	AS/NZS3112 High temperature pressure testing device	ANGUI TESTING	AG8113F1	/	2022.07.28	2023.07.27
Aa-SE156	Low Pressure Tester	BELL	BE-ZK-125	201505250002	2022.07.28	2023.07.27
Aa-SE157	Thermal abuse chamber	BELL	BE-101-480B	201505250003	2022.07.28	2023.07.27
Aa-SE158	Temperature control short-circuit tester	BELL	BE-1000W	201505250004	2022.07.28	2023.07.27
Aa-SE159	Projectile Tester	BELL	BE-6046	201505250005	2022.07.28	2023.07.27
Aa-SE160	Test machine for forced internal short circuit of cells	BELL	BE-6045W	201505250006	2022.07.28	2023.07.27
Aa-SE161	Crush tester	BELL	BE-6045-2T	201505250007	2022.07.28	2023.07.27
Aa-SE162	Rapid temperature test chamber	BELL	BTKS-408C-5	201505250008	2022.07.28	2023.07.27
Aa-SE163	Mechanical shock(crash hazard)	BELL	BE-5066	201505250009	2022.07.28	2023.07.27
Aa-SE164	Battery Testing System	NEWARE	CT-3008-5V10A-204	T1505-080859	2022.07.28	2023.07.27
Aa-SE165	Battery Testing System	NEWARE	CT-3008-5V10A-204	T1505-080860	2022.07.28	2023.07.27
Aa-SE166	Battery Testing System	NEWARE	CT-3008-20V6A-A	T1505-080861	2022.07.28	2023.07.27

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
Aa-SE167	Shock tester	LABTONE	HSKT10	L150529	2022.07.28	2023.07.27
Aa-SE168	Electromagnetic vibration tester	LABTONE	CV-700	L150530	2022.07.28	2023.07.27
Aa-SE169	Electronic scales	JM	JM-A	/	2022.07.28	2023.07.27
Aa-SE170	Digital Power Meter	EVERFINE	PF9901	G100731CO1351143	2022.07.28	2023.07.27
Aa-SE171	"GO" and "NOT GO" Gauge for starters	KINGPO	IEC 60155 Fig 6	/	2022.07.30	2023.07.29
Aa-SE172	"NOT GO" Gauge for starters	KINGPO	IEC 60155 Fig 7	/	2022.07.30	2023.07.29
Aa-SE173	"GO" Gauge for starters	KINGPO	IEC 60155 Fig 8	/	2022.07.30	2023.07.29
Aa-SE174	Internal resistance tester	TestPad	BTS-100	IR09100699	2022.07.28	2023.07.27
Aa-SE175	DC Electronic Load	PRODIGIT	3302C	80602C 446	2022.07.28	2023.07.27
Aa-SE176	DC Electronic Load	PRODIGIT	3302C	25689721698	2022.07.28	2023.07.27
Aa-SE177	Data Acquisition / Switch Unit	Agilent	34970A	MY44083167	2022.07.28	2023.07.27
Aa-SE180	Digital Power Meter	EVERFINE	PF9901	G100731CN1351244	2022.07.28	2023.07.27
Aa-SE181	Cord oscillating tester	Futexing	FT-CWT03	CWT1604001	2022.07.28	2023.07.27
Aa-SE182	Pointer type DC current meter	Shanghai Liangbiao	C31-A	6003	2022.07.28	2023.07.27
Aa-SE183	Three phase ammeter	Chengdu Huayi	PMH8161-9K4	20100604801	2022.07.28	2023.07.27
Aa-SE184	Shunt	pulianchuang	FL-2/0.5	/	2022.07.30	2023.07.29
Aa-SE185	Shunt	pulianchuang	FL-2/0.5	/	2022.07.30	2023.07.29
Aa-SE186	Creepage distance testing card-Straight card	ANGUI TESTING	SE-A141	/	2022.07.28	2023.07.27
Aa-SE187	Creepage distance testing card-Bending card	ANGUI TESTING	SE-A142	/	2022.07.28	2023.07.27
Aa-SE188	Conductivity Meters	leici	DDS-11A	163	2022.07.28	2023.07.27
Aa-SE189	Manual Supercharger	Zhejiang Yuhuang	SB-10Mpa	/	2022.07.30	2023.07.29
Aa-SE190	Grounding resistance meter	hangzhoudongshun	ZC29B-2	16020265	2022.07.28	2023.07.27
Aa-SE191	AC power source	All power	AFW-210A	992429	2022.07.28	2023.07.27
Aa-SE192	Digital Power Meter	EVERFINE	PF9901	G135716CM5361147	2022.07.28	2023.07.27
Aa-SE193	Horizontal distributed photometer	EVERFINE	GO-2000B	G105623CM5361116	2022.05.26	2024.05.25
Aa-SE194	UV-VIS-NIR Spectroradiometer for Photobiological Safety Analysis	EVERFINE	PMS-700	G107114CJ1341112	2022.08.16	2024.08.15
Aa-SE195	Band Radiometer	EVERFINE	RD-2000F	G114280CM1361115	2022.08.18	2024.08.17
Aa-SE196	Pupil Imaging Radiance Meter	EVERFINE	CX-2K	G132536CF1361113	2022.08.16	2024.08.15
Aa-SE197	Digital Power Meter	EVERFINE	PF9811	G135717CJ7361129	2022.07.28	2023.07.27
Aa-SE198	Digital CC&CV DC Power Supply	EVERFINE	WY3010	G111418CM5361135	2022.07.28	2023.07.27
Aa-SE199	AC Power Source	EVERFINE	DPS1005	G119890CJ6361133	2022.07.28	2023.07.27
Aa-SE200	Spectral irradiance standard lamp	EVERFINE	D204BH	G100284CA1361114	2016.09.24	after ignited 50 hours
Aa-SE201	Standard luminance source	EVERFINE	SLS-150	G137329CJ6361112	2016.09.24	after ignited 50 hours
Aa-SE202	Standard lamp of ultraviolet radiation	EVERFINE	SIS-631	G110132CA1361120	2016.09.24	after ignited 50 hours
Aa-SE203	Falling water drops device	Gongwen	DJ-B	/	2022.07.28	2023.07.27
Aa-SE204	Continuous immersion in water device	Gongwen	X8	161130	2022.07.28	2023.07.27
Aa-SE205	Torque Driver	kanon	30LTDK	/	2022.07.28	2023.07.27
Aa-SE206	Gauge for single-phase two-pole plug	ANGUI TESTING	AGGB02F6	/	2022.07.30	2023.07.29
Aa-SE207	"GO" and "Not Go" Gauge for plug pins	ANGUI TESTING	AGENF1GO	/	2022.07.30	2023.07.29
Aa-SE208	Gauge for pin diameter	ANGUI TESTING	AGENF2	/	2022.07.30	2023.07.29
Aa-SE209	Gauge for checking impossibility of single-pole insertion of into socket-outlets	ANGUI TESTING	AGENF4	/	2022.07.30	2023.07.29

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
Aa-SE210	Gauge for plug pins	ANGUI TESTING	AGBS1363F5	/	2022.07.30	2023.07.29
Aa-SE211	12.5mm steel ball	ANGUI TESTING	ST-12.5	/	2022.07.28	2023.07.27
Aa-SE212	Electronic Thermo-Hygrometer	Boyang	HTC-1	SE212	2022.07.30	2023.07.29
Aa-SE213	Electronic Thermo-Hygrometer	Boyang	HTC-1	SE213	2022.07.30	2023.07.29
Aa-SE218	Visual IR Thermometer	FLUKE	VT04	VT04-14060109	2022.07.30	2023.07.29
Aa-SE219	Industrial microscope	SAIKEDIGITAL	SK2610B	/	2023.04.18	2024.04.17
Aa-SE220	Leakage Current Tester	Simpson	229-2	12267	2022.07.28	2023.07.27
Aa-SE221	Portable Ground Fault Circuit Interrupter (GFCI)	Technology research, LLC	25000	/	2018.06.27	2024.06.26
Aa-SE222	"GO" Gauge for starters for class II fluorescent luminaires	ANGUI TESTING	IEC 60155 Fig B.2	/	2023.04.21	2024.04.20
Aa-SE223	Ingestion gauge	ANGUI TESTING	AGB2F3	/	2022.07.30	2023.07.29
Aa-SE224	Heating enclosure for thermally protected ballasts	ANGUI TESTING	AGSB1778	/	2022.07.28	2023.07.27
Aa-SE225	Battery Testing System	NEWARE	CT-4008-6V4A-CCDL	T1505-080859	2022.07.28	2023.07.27
Aa-SE226	125mm diameter circular baffle test finger	Shice testing	SC-F2B-B	SC17110102	2022.07.30	2023.07.29
Aa-SE227	aneroid barometer	Yanrui testing	DYM3	No19378	2022.08.08	2023.08.07
Aa-SE228	Electric humiture grapher	Accurate	TH10W-E	HHW-004	2022.07.30	2023.07.29
Aa-SE229	Electric humiture grapher	Accurate	TH10W-E	HHW-005	2022.07.30	2023.07.29
Aa-SE230	Electric humiture grapher	Accurate	TH10W-E	HHW-006	2022.07.30	2023.07.29
Aa-SE231	Electric humiture grapher	Accurate	TH10W-E	HHW-007	2022.07.30	2023.07.29
Aa-SE232	Electric humiture grapher	Accurate	TH10W-E	HHW-008	2022.07.30	2023.07.29
Aa-SE233	Electric humiture grapher	Accurate	TH10W-E	HHW-009	2022.07.30	2023.07.29
Aa-SE234	8mm diameter test rod	Zhongzheng testing	SZZT-8	2017010202	2022.07.30	2023.07.29
Aa-SE235	Apparatus for refrigerator spillage test	ANBIAO TESTING	ANB-4706.13NS	/	2022.07.30	2023.07.29
Aa-SE236	Apparatus for 30 ml spillage test	ANBIAO TESTING	AT-4706.19-102	/	2022.07.30	2023.07.29
Aa-SE237	Touch current testing network	ANGUI TESTING	AG990F4	/	2022.07.30	2023.07.29
Aa-SE238	Wedge probe	Hanyang testing	FZ-1108A	1905111	2023.04.21	2024.04.20
Aa-SE239	13mm Straight steel pin	KINGPO	9504.6.4.2	/	2022.12.17	2023.12.16
Aa-SE240	LCR meter	TONGHUI	TH2811D	QC-211-05420	2022.12.15	2023.12.14
Aa-SE241	Meter rod	ANGUI TESTING	M6-M25	/	2022.12.17	2023.12.16
Aa-SE242	Pin gauge	ANGUI TESTING	0.5mm-6mm	/	2022.12.17	2023.12.16
Aa-SE244	Test circuit for thermally protected lamp controlgear	ANGUI TESTING	AG347B1	/	2022.12.15	2023.12.14
Aa-SE245	Oscilloscope	Tektronix	TDS3032B	B036945	2023.04.23	2024.04.22
Aa-SE246	Glow Wire Test Apparatus	ANGUI TESTING	AGZRS	180121661	2023.04.18	2024.04.17
Aa-SE247	Clamp flow meter	FLUKE	FLUKE 36	67307993	2022.07.28	2023.07.27
Aa-SE248	DC Electronic Load	PRODIGIT	3311F	20602FL0450	2022.07.28	2023.07.27
Aa-SE249	DC Electronic Load	PRODIGIT	3311F	20502FL0345	2022.07.28	2023.07.27
Aa-SE250	Hammer	ANGUI TESTING	AGCJ10	1808132041	2022.07.30	2023.07.29
Aa-SE251	Hammer	ANGUI TESTING	AGCJ20	1808132042	2022.07.30	2023.07.29
Aa-SE252	IK Shock tester	ANGUI TESTING	AGCKCJ	1808132043	2022.07.30	2023.07.29
Aa-SE254	Switch life tester	ANGUI TESTING	SLT-10M	/	2022.07.28	2023.07.27
Aa-SE255	Battery Testing System	NEWARE	CT-4008-5V12A-204	T1711-141960	2022.07.28	2023.07.27
Aa-SE256	Digital display inclinometer	AICE	DXL-360S	3609975	2022.07.28	2023.07.27
Aa-SE257	Contact tachometer	SMART	AR925	03301201	2022.07.30	2023.07.29
Aa-SE258	Photoelectric tachometer	SMART	AR926	03171211	2022.07.28	2023.07.27
Aa-SE259	Hemispherical clindrical rod	ANGUI TESTING	AGD40	1810312038	2022.07.28	2023.07.27
Aa-SE260	Single-phase leakage current testing network	ANGUI TESTING	AG335F1	/	2023.04.23	2024.04.22
Aa-SE261	Three-phase leakage current testing network	ANGUI TESTING	AG335F3	/	2023.04.23	2024.04.22
Aa-SE262	Three-phase intelligent electric quantity measuring instrument	EVERFINE	PF9830	P185192CM5381117	2023.04.18	2024.04.17
Aa-SE263	Three-phase leakage current testing network	ANGUI TESTING	AG950F5B	/	2023.04.23	2024.04.22
Aa-SE264	Load cabinet	ANGUI TESTING	AG250V30A	/	2022.07.28	2023.07.27
Aa-SE265	Digital Power Meter	Yokogawa	WT310E-C2-	C3UH02073E	2022.12.15	2023.12.14

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
			H/G5			
Aa-SE266	Plug pins strength testing apparatus	ANGUI TESTING	AGBSF32	1904151050	2023.04.18	2024.04.17
Aa-SE267	Plus pins mechanical life test apparatus	ANGUI TESTING	AGAS31444	1903231843	2023.04.18	2024.04.17
Aa-SE268	Plug pins reliability test apparatus	ANGUI TESTING	AGBSF7	1904151051	2023.04.18	2024.04.17
Aa-SE269	Plug pins torque test apparatus	ANGUI TESTING	AGBSF33	1904151053	2023.04.18	2024.04.17
Aa-SE270	Plug pins deflection test apparatus	ANGUI TESTING	AGBSF8	1901241557	2023.04.18	2024.04.17
Aa-SE271	Abrasion test apparatus	ANGUI TESTING	AGENF9	1905091509	2023.04.18	2024.04.17
Aa-SE272	"Go" and "Not Go" gauge for unmounted bi-pin cap G5	Hanyang testing	7006-46-3	/	2023.04.23	2024.04.22
Aa-SE273	Low temperature impact test apparatus	ANGUI TESTING	AGASF26	1904151055	2023.04.18	2024.04.17
Aa-SE274	Tumbling barrel	ANGUI TESTING	AGDTBBE	1904151018	2023.04.18	2024.04.17
Aa-SE275	"Go" and "Not Go" gauge for unmounted bi-pin cap G13	Hanyang testing	7006-44-4	/	2023.04.18	2024.04.17
Aa-SE276	Plug temperature rise test apparatus	ANGUI TESTING	AGGBF446A	1904151058	2023.04.21	2024.04.20
Aa-SE277	Plug temperature rise test apparatus	ANGUI TESTING	AGBSF17B	1904151056	2023.04.21	2024.04.20
Aa-SE278	Plug temperature rise test apparatus	ANGUI TESTING	AGASF29A	1904151057	2023.04.21	2024.04.20
Aa-SE279	Electric humiture grapher	Accurate	TH10W-E	HHW-931	2023.04.21	2024.04.20
Aa-SE281	Electric humiture grapher	Accurate	TH10W-E	HHW-933	2023.04.21	2024.04.20
Aa-SE282	Electric humiture grapher	Accurate	TH10W-E	HHW-934	2023.04.21	2024.04.20
Aa-SE283	Ohm Meter	Yang Zi	YD2511A	2511-182336	2022.07.28	2023.07.27
Aa-SE284	Electronic Scale	Senssun	ACS-15-S	J5030333	2022.07.28	2023.07.27
Aa-SE285	Needle Flame Test Set	ANGUI TESTING	AG695115	1810071756	2023.04.18	2024.04.17
Aa-SE286	Switching Mode Power Supply	ZHAOXIN	KXN-6030D	18K6030D12183	2022.07.28	2023.07.27
Aa-SE287	100:1 Oscillograph Probe	RIGOL	RP1300H	/	2022.07.30	2023.07.29
Aa-SE289	Digital Power Meter	EVERFINE	PF9901	P185823CA1391202	2022.07.28	2023.07.27
Aa-SE290	Data Acquisition / Switch Unit	Agilent	34970A	US37005584	2022.07.28	2023.07.27
Aa-SE291	Switching Mode Power Supply	Longwei	LW3080KD	190903414	2022.07.28	2023.07.27
Aa-SE292	Electronic scales	JM	JM-A30002	193	2022.07.28	2023.07.27
Aa-SE293	Precision Oven Box	GAOXIN	GX-3020-B50T	1901022	2022.07.28	2023.07.27
Aa-SE294	Oscilloscope	Tektronix	MDO34	C018406	2022.07.30	2023.07.29
Aa-SE295	Finger Nail Probe	HANYANG	FZ-1105	1910118	2022.07.30	2023.07.29
Aa-SE296	Thrust Test Finger	HANYANG	FZ-1106	1910104	2022.07.30	2023.07.29
Aa-SE297	Test Probe	HANYANG	FZ-1109	1910096	2022.07.30	2023.07.29
Aa-SE298	Test Probe B Joint Test Finger	HANYANG	FZ-1101A	1910095	2022.07.30	2023.07.29
Aa-SE299	Joint Test Finger	HANYANG	FZ-1101S	1910117	2022.07.30	2023.07.29
Aa-SE300	Pressure Test Apparatus	HANYANG	330N	1910116	2022.07.28	2023.07.27
Aa-SE301	Lampholder bending moment tester	HANYANG	FZ-1202E	1910097	2022.07.30	2023.07.29
Aa-SE302	Luminance Colorimeter	Topcon	BM-7A	990648	2022.08.03	2023.08.02
Aa-SE303	Temp. & Humid. Chamber	Teelong	TL-HW408S	TL-20191205-01	2022.07.28	2023.07.27
Aa-SE304	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN01	2022.07.28	2023.07.27
Aa-SE305	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN02	2022.07.28	2023.07.27
Aa-SE306	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN03	2022.07.28	2023.07.27
Aa-SE307	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN04	2022.07.28	2023.07.27
Aa-SE308	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN05	2022.07.28	2023.07.27
Aa-SE309	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN06	2022.07.28	2023.07.27
Aa-SE310	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN07	2022.07.28	2023.07.27
Aa-SE311	Battery Testing System	CORSHN	CTS-	CORSHN08	2022.07.28	2023.07.27

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
			5V10A08CU			
Aa-SE312	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN09	2022.07.28	2023.07.27
Aa-SE313	Battery Testing System	CORSHN	CTS-5V10A08CU	CORSHN10	2022.07.28	2023.07.27
Aa-SE314	Probe for measuring surface temperatures	HANYANG	FZ1121	2005019	2022.07.30	2023.07.29
Aa-SE315	Battery Testing System	CORSHN	CTS-30V10A08CU	CORSHN11	2022.07.28	2023.07.27
Aa-SE316	Battery Testing System	CORSHN	CTS-30V10A08CU	CORSHN12	2022.07.28	2023.07.27
Aa-SE317	Battery Testing System	CORSHN	CTS-30V10A08CU	CORSHN13	2022.07.28	2023.07.27
Aa-SE318	Battery Testing System	CORSHN	CTS-30V10A08CU	CORSHN14	2022.07.28	2023.07.27
Aa-SE319	High Accuracy Array Spectrora	EVERFINE	HAAS-2000-IR1	M112279CM1361113	2022.08.16	2024.08.15
Aa-SE320	DC Power Supply	ITECH	IT6872A	800445020747120000	2022.07.28	2023.07.27
Aa-SE321	Multi Meter	HYELEC	MY64	/	2022.07.28	2023.07.27
Aa-SE322	10:1 Oscilloscope Probe	Tektronix	TPP0250	C125615	2022.07.30	2023.07.29
Aa-SE323	Data Acquisition / Switch Unit	Agilent	34970A	MY41000156	2022.12.15	2023.12.14
Aa-SE324	Data Acquisition / Switch Unit	Agilent	34970A	MY44025310	2022.12.15	2023.12.14
Aa-SE325	Data Acquisition / Switch Unit	Agilent	34970A	MY41000172	2022.12.15	2023.12.14
Aa-SE326	Data Acquisition / Switch Unit	Agilent	34970A	MY41000174	2022.12.15	2023.12.14
Aa-SE327	Data Acquisition / Switch Unit	Agilent	34970A	MY44025527	2022.12.15	2023.12.14
Aa-SE328	DC Electronic Load	ITECH	IT8512A+	802143041757210143	2022.12.15	2023.12.14
Aa-SE329	DC Electronic Load	ITECH	IT8512A+	802143041757510007	2022.12.15	2023.12.14
Aa-SE330	DC Electronic Load	ITECH	IT8512A+	802143041757510019	2022.12.15	2023.12.14
Aa-SE331	DC Electronic Load	ITECH	IT8512A+	802143041757510040	2022.12.15	2023.12.14
Aa-SE332	Data Acquisition / Switch Unit	Agilent	34970A	MY41002131	2022.12.15	2023.12.14
Aa-SE333	Data Acquisition / Switch Unit	Agilent	34970A	MY49012230	2022.12.15	2023.12.14
Aa-SE334	Data Acquisition / Switch Unit	Agilent	34970A	MY44025500	2022.12.15	2023.12.14
Aa-SE335	Digital Power Meter	EVERFINE	PF9901	P185823CJ7401168	2022.12.15	2023.12.14
Aa-SE336	Digital Power Meter	EVERFINE	PF9901	P185823CJ7401180	2022.12.15	2023.12.14
Aa-SE337	Digital Power Meter	EVERFINE	PF9901	P185823CJ7401175	2022.12.15	2023.12.14
Aa-SE338	Temp. & Humid. Chamber	Teelong	TL-HW408S	TL-20210428-002	2022.07.28	2023.07.27
Aa-SE339	Salt spary tester	Teelong	TL-YW-960	TL-20210428-001	2022.12.15	2023.12.14
Aa-SE340	Electronic platform scale	Jieli	T0066541	TCS-150-A	2022.07.28	2023.07.27
Aa-SE341	DC Power Supply	ITECH	IT6872A	800445020766810002	2022.12.15	2023.12.14
Aa-SE342	AC power source	Kunchen Technology	KC-83145	20210822648	2022.12.15	2023.12.14
Aa-SE343	Air Velocity Meter	FLUKE	923	/	2022.12.21	2023.12.20
Aa-SE344	Digital Power Meter	EVERFINE	PF9901	P185823CD1401130	2022.12.15	2023.12.14
Aa-SE345	Digital Power Meter	EVERFINE	PF9901	P185823CM5411393	2022.12.15	2023.12.14
Aa-SE346	Internal wire bending test machine	Angui TESTING	AG335233	2111010950	2022.12.19	2023.12.18
Aa-SE347	Combustible gas concentration tester	Industrial Scientific	GB90	210914K039	2022.12.17	2023.12.16
Aa-SE348	Ionizing radiometer	COLIY	R500	R2108349	2022.12.21	2023.12.20
Aa-SE349	UL Rain test device	Dongguan Kingpo	KP3421	/	2022.12.19	2023.12.18
Aa-SE350	Digital Caliper	Guanglu	(0-150mm)mm/0.01mm	K21E173274	2022.12.19	2023.12.18
Aa-SE351	Digital Caliper	Guanglu	(0-	K21E173275	2022.12.19	2023.12.18

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
			150mm)/mm/0.01mm			
Aa-SE352	IP56X sand dust experiment box	Guangzhou Grey	GR-IP56X-1000	/	2022.12.15	2023.12.14
Aa-SE353	IPX56 strong water spray test machine	Guangzhou Grey	GR-IPX56	/	2022.12.19	2023.12.18
Aa-SE354	Surge tester (mode one, mode two)	Guangzhou Grey	GR-MC20	/	2022.12.15	2023.12.14
Aa-SE355	Surge tester (mode three)	Guangzhou Grey	GR-MC20	/	2022.12.15	2023.12.14
Aa-SE356	DC Power Supply	ZHAOXIN	KXN-15010D	21K15010D118791	2022.12.15	2023.12.14
Aa-SE357	UV ultraviolet aging test box	Dongguan Huitai	WJ-UVA-225	21120105	2022.12.15	2023.12.14
Aa-SE359	Enameled wire twisted test device	Guangdong angui	AG8515	2112201450	2022.12.19	2023.12.18
Aa-SE360	Enameled wire flexibility and adherence test device	Guangdong angui	AG8513	2112201451	2022.12.19	2023.12.18
Aa-SE361	Enameled wire bending breakdown test device	Guangdong angui	AG851T5F3	2112201452	2022.12.19	2023.12.18
Aa-SE362	Test voltage generator	Guangdong angui	AGR1200	2112201454	2022.12.15	2023.12.14
Aa-SE364	Air Pressure Gauge	Guangzhou CheLang	TR-3205A	2234745	2022.12.29	2023.12.28
Aa-SE365	Single Phase Two Pole Plug Gauge	KINGPO	Figure 8-10A	0220225101	2022.12.17	2023.12.16
Aa-SE366	Single-phase two-pole with grounding plug gauge 10A	KINGPO	Figure 9-10A	0220225102	2022.12.17	2023.12.16
Aa-SE367	Single-phase two-pole with grounding plug gauge 16A	KINGPO	Figure 9-16A	0220225103	2022.12.17	2023.12.16
Aa-SE368	Single-phase two-pole socket	KINGPO	Figure 10-10A	0220225104	2022.12.17	2023.12.16
Aa-SE369	Single-phase two-pole with grounding socket general gauge 16A	KINGPO	Figure 11-16A	0220225105	2022.12.17	2023.12.16
Aa-SE370	Single-phase socket single-pin hole stop gauge 16A	KINGPO	Figure 12-16A	0220225106	2022.12.17	2023.12.16
Aa-SE371	Single-phase socket single-pin hole stop gauge 10A	KINGPO	Figure 12-10A	0220225107	2022.12.17	2023.12.16
Aa-SE372	Single-phase two-pole socket without contact gauge	KINGPO	Figure 13-10A	0220225108	2022.12.17	2023.12.16
Aa-SE373	Single-phase two-pole with grounding socket general gauge 10A	KINGPO	Figure 11-10A	0220225109	2022.12.17	2023.12.16
Aa-SE374	Single-phase two-pole grounded socket non-contact gauge 16A	KINGPO	Figure 14-16A	0220225110	2022.12.17	2023.12.16
Aa-SE375	Single-phase two-pole grounded socket non-contact gauge 10A	KINGPO	Figure 14-10A	0220225111	2022.12.17	2023.12.16
Aa-SE376	Single-phase two-pole socket contact gauge	KINGPO	Figure 15-10A	0220225112	2022.12.17	2023.12.16
Aa-SE377	Single-phase two-pole with grounded socket contact gauge 10A	KINGPO	Figure 16-10A	0220225113	2022.12.17	2023.12.16
Aa-SE378	Single-phase two-pole with ground socket contact gauge 16A	KINGPO	Figure 16-16A	0220225114	2022.12.17	2023.12.16
Aa-SE379	Electric humiture grapher	Accurate	TH40W-E	MXTH1X-V138	2023.04.21	2024.04.20
Aa-SE380	Electric humiture grapher	Accurate	TH10W-E	HHW-003	2023.04.21	2024.04.20
Aa-SE381	Electric humiture grapher	Accurate	TH10W-E	HHW-022	2023.04.21	2024.04.20

Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Calibration date	Calibration due date
Aa-SE382	Wireless Electric humiture grapher	Accurate	TH40W-EX	MXTH1X-V138	2023.04.21	2024.04.20
Aa-SE383	Electric humiture grapher	Accurate	TH40W-E	PCP34696756906	2022.10.08	2023.10.07
Aa-SE384	Contact current analyzer	Qingdao ainuo	AN1620H	207162004	2022.10.08	2023.10.07
Aa-SE385	Industrial microscope	AOSVI	AO-UV200	202209221923	2022.09.29	2023.09.28
Aa-SE386	Digital Power Meter	EVERFINE	PF9811	P185824CS1411209	2022.10.08	2023.10.07
Aa-SE387	Carton packaging and stacking tester	Guangzhou Grey	GR-2XDM01	GR22112807	2022.12.21	2023.12.20
Aa-SE388	DC resistance tester	MEIRUIKE INSTRUMENT	RK2511BL	2511BL220427126	2022.12.21	2023.12.20
Aa-SE389	Constant temperature test chamber	Shenzhen Sanshun	SS-HWHS-100	/	2022.12.15	2023.12.14
Aa-SE390	thermal shock chamber	Shenzhen Sanshun	SS-LC-80	/	2022.12.27	2023.12.26
Aa-SE391	Pressure blasting testing machine	Guangzhou Grey	GR-JYBP01	GR23020601	2023.04.18	2024.04.17

Appendix 2

Photo documentation

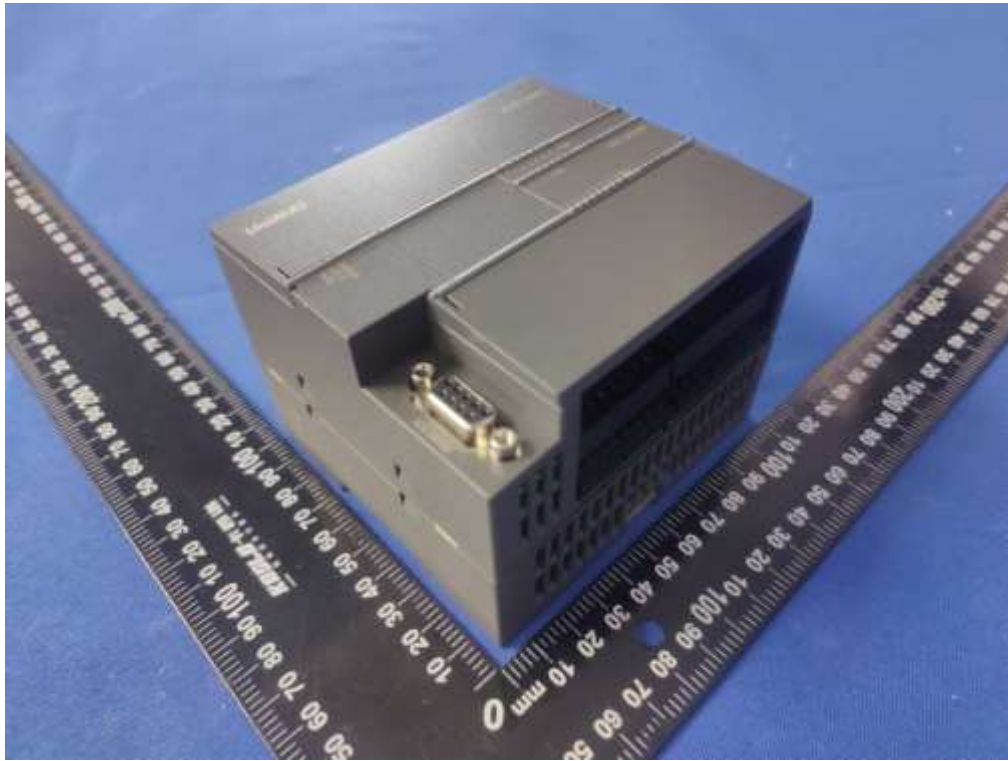


Figure 1 External view

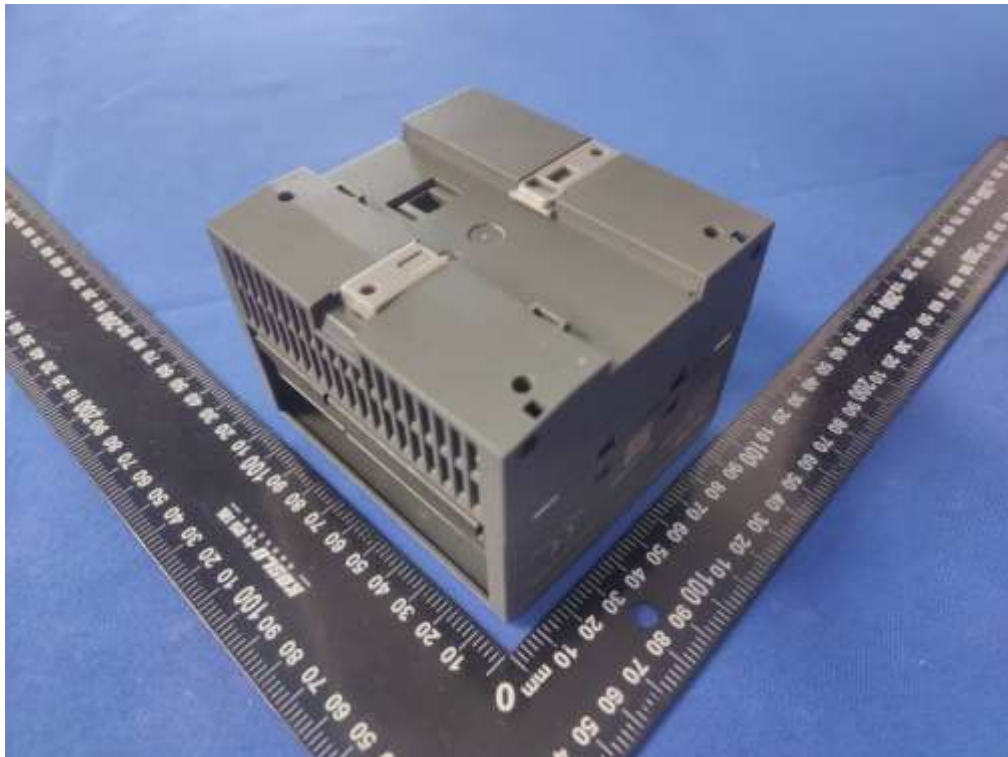


Figure 2 External view

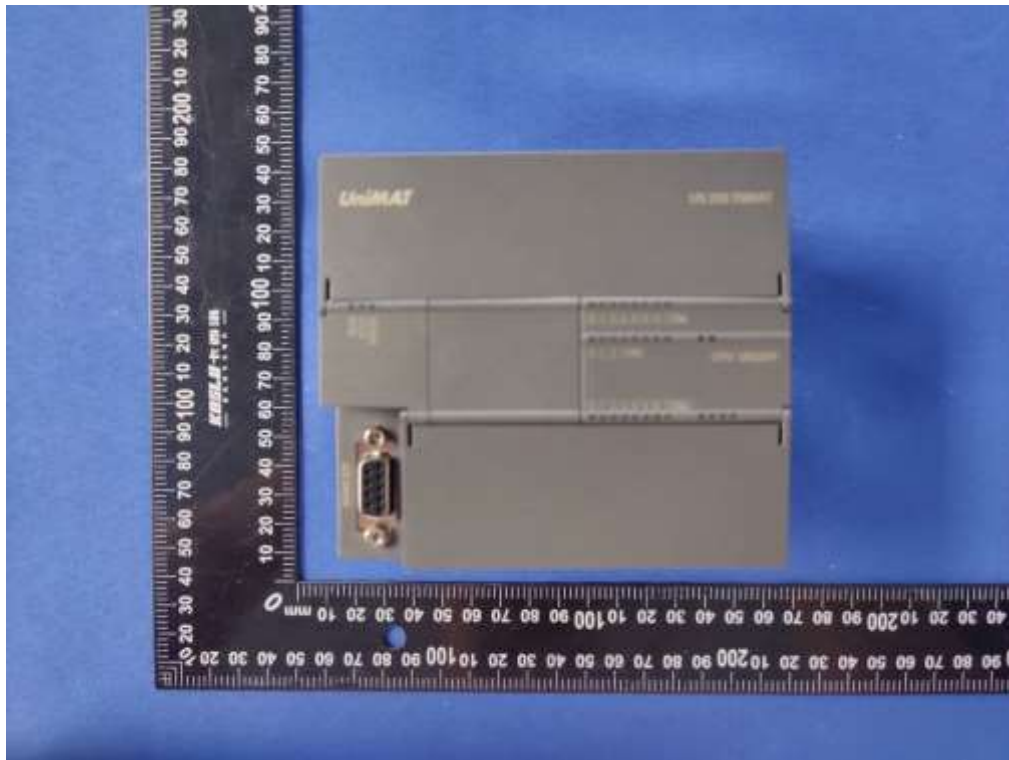
Photo documentation

Figure 3 External view

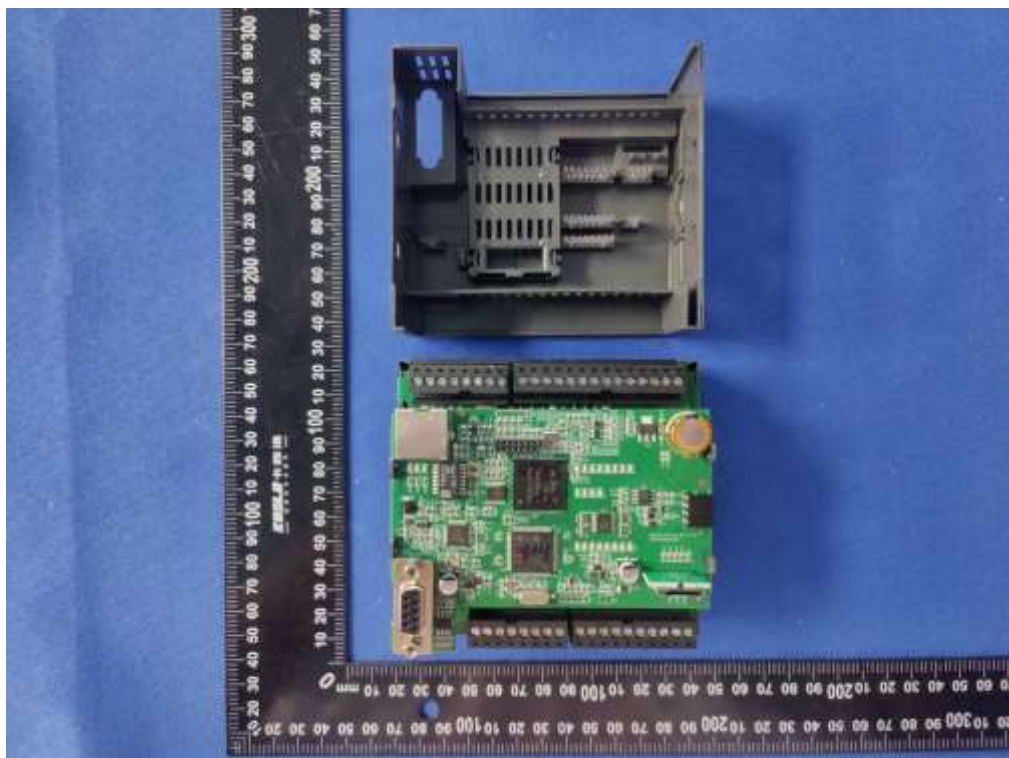


Figure 4 Internal view

Photo documentation

Figure 5 Internal view

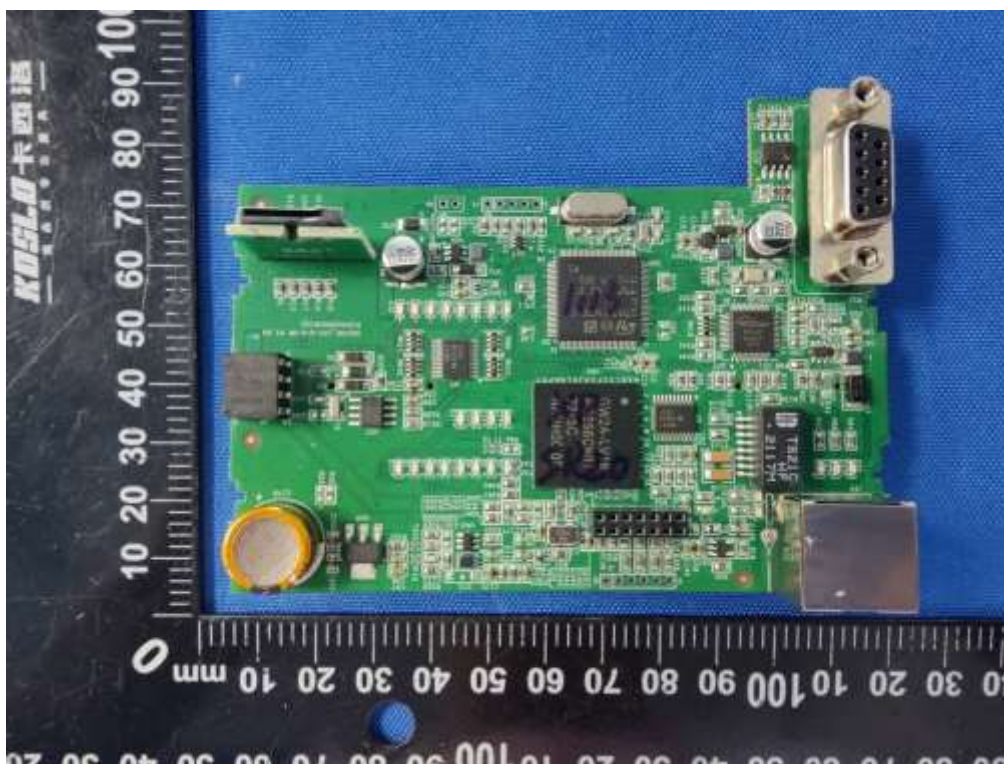


Figure 6 PCB view

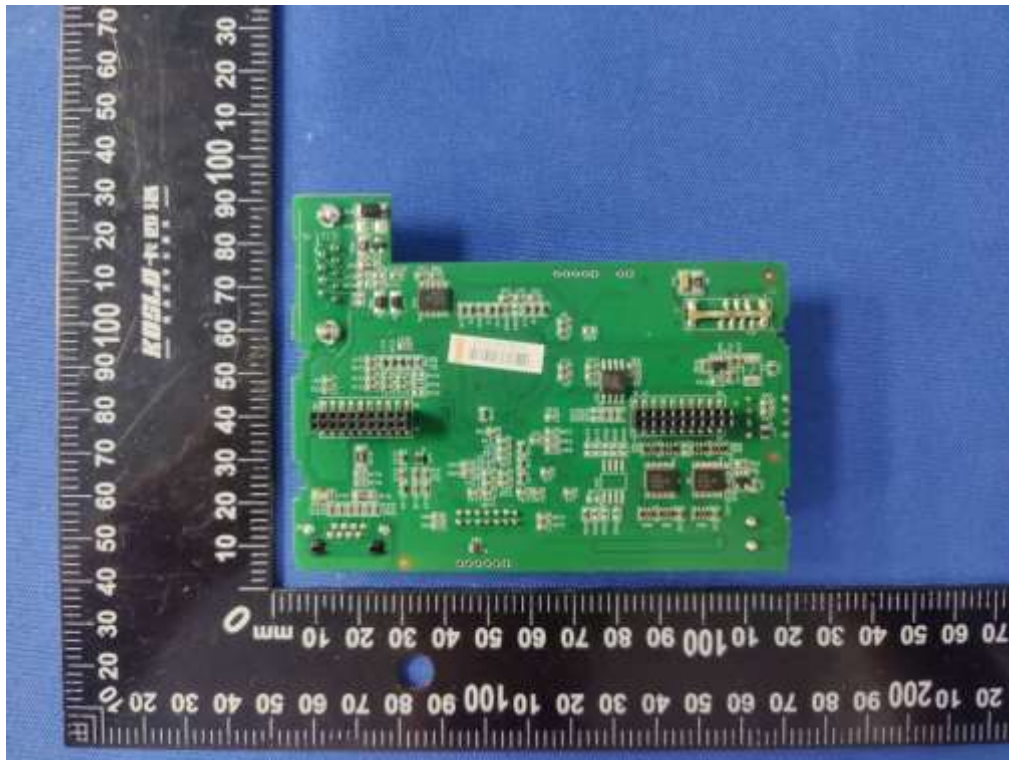
Photo documentation

Figure 7 PCB view

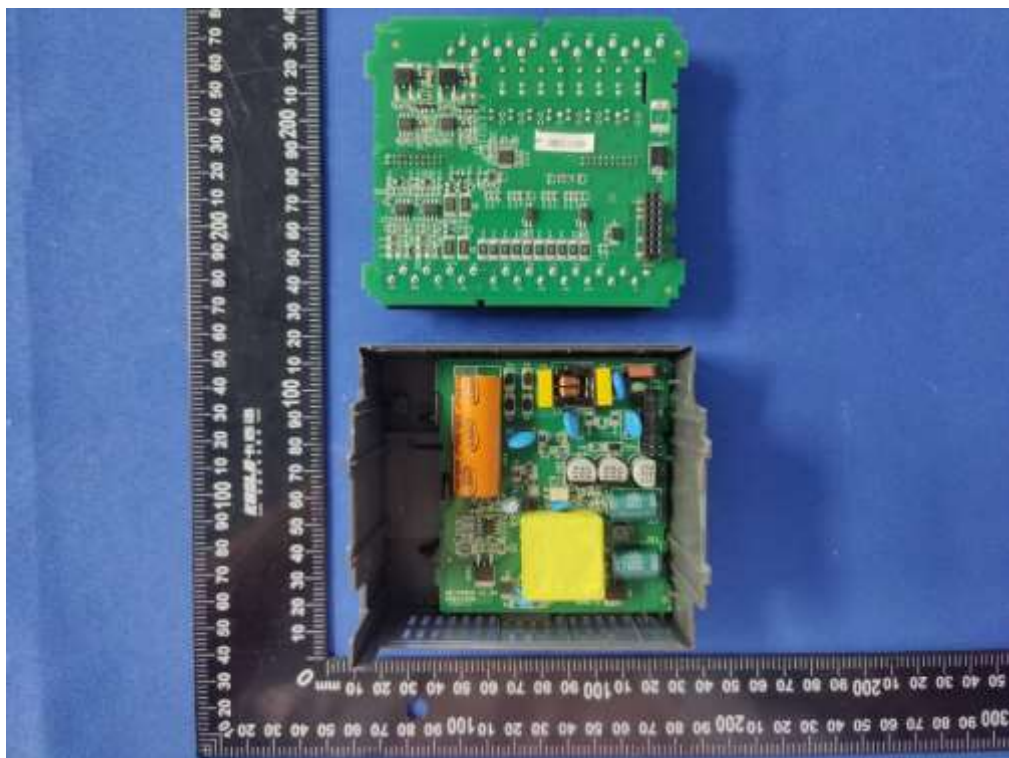


Figure 8 Internal view

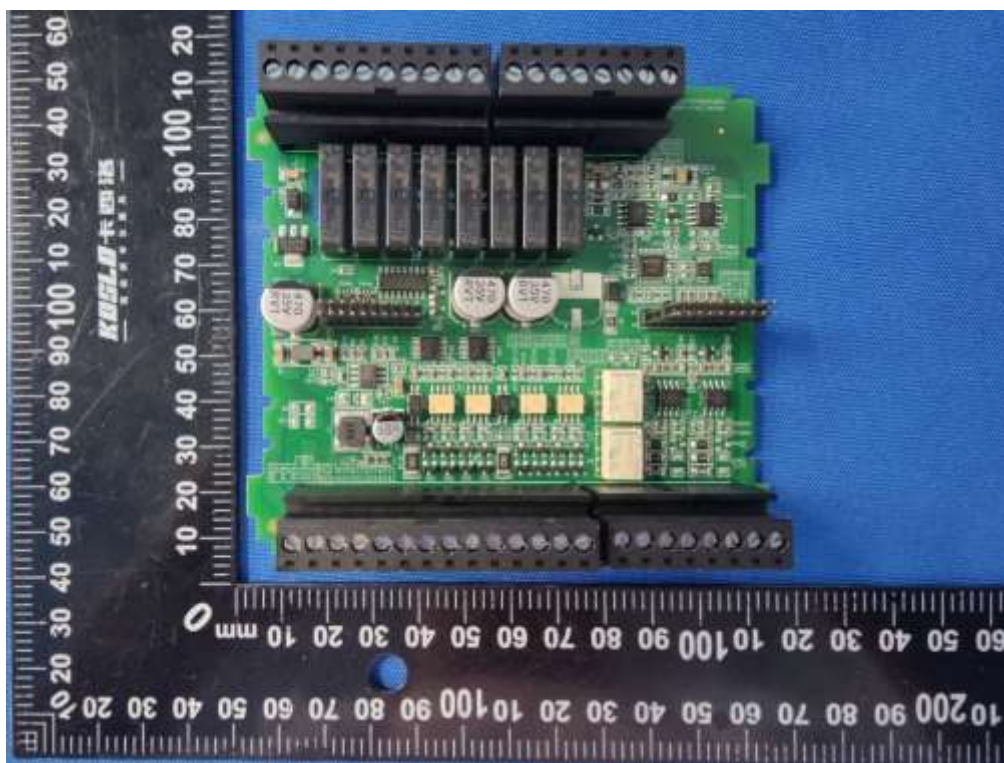
Photo documentation

Figure 9 PCB view

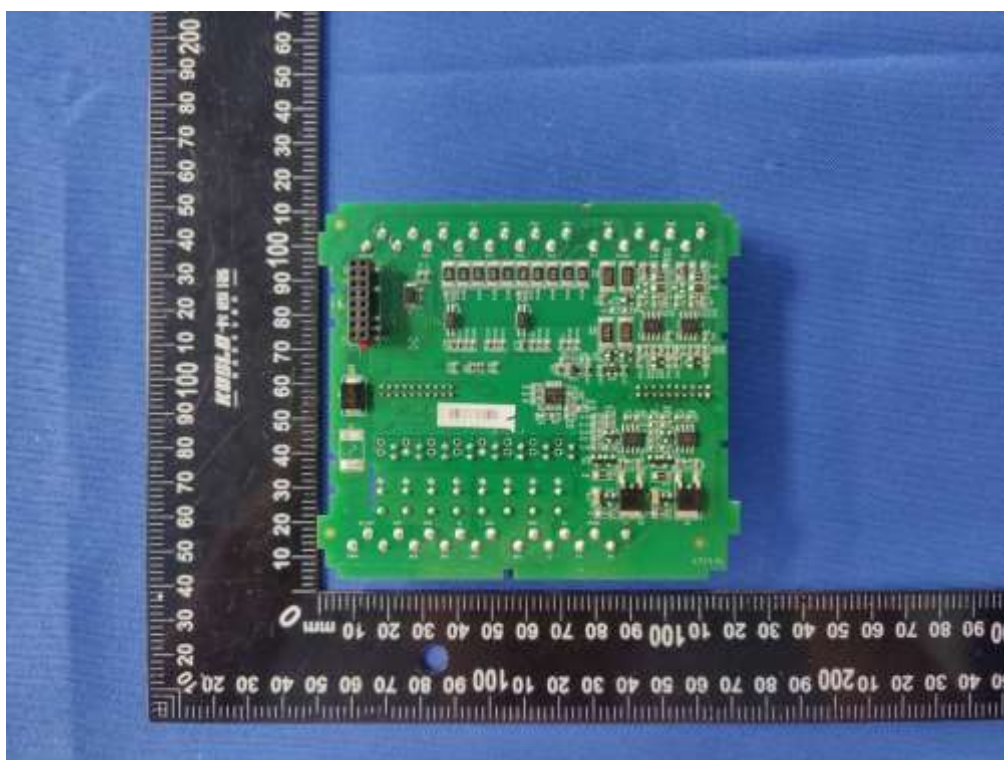


Figure 10 PCB view

Photo documentation

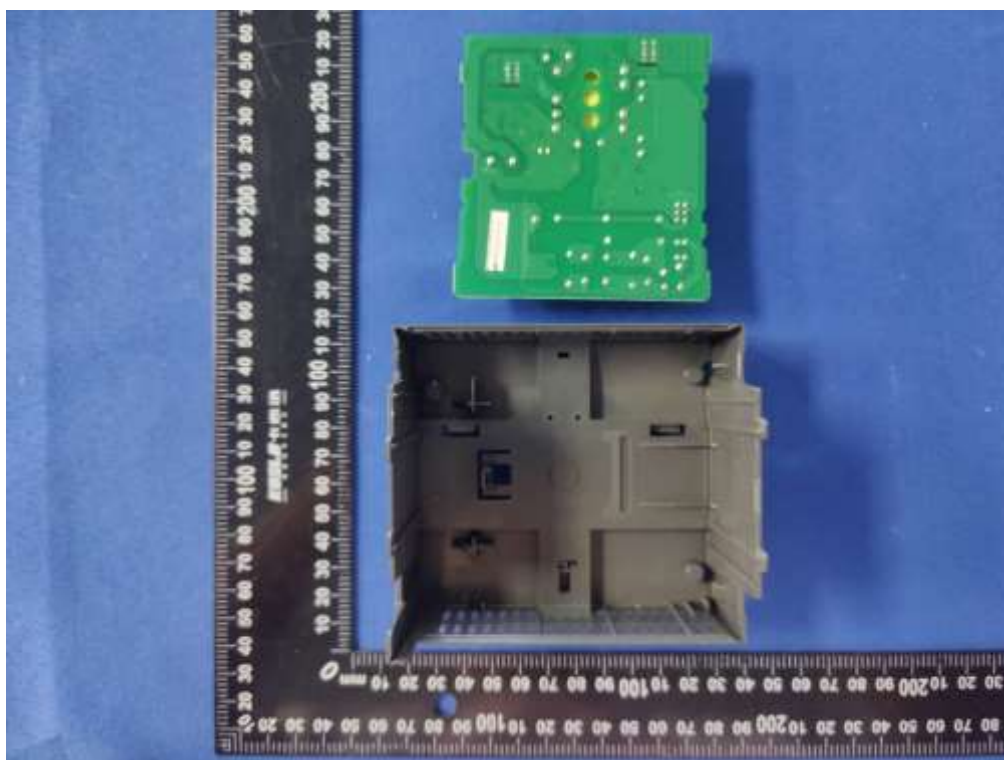


Figure 11 Internal view



Figure 12 PCB view

Photo documentation

Figure 13 PCB view



Figure 14 Terminal view

Photo documentation



Figure 15 External view



Figure 16 Opening view

Photo documentation



Figure 17 External view



Figure 18 Opening view

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