

# TEST REPORT

Report No.: BCTC2209095521S

Applicant: Shenzhen Creality 3D Technology Co. , Ltd.

Product Name: 3D Printer

Product Type: Ender-3 V2 Neo


Tested Date: 2022-07-14 to 2022-07-29

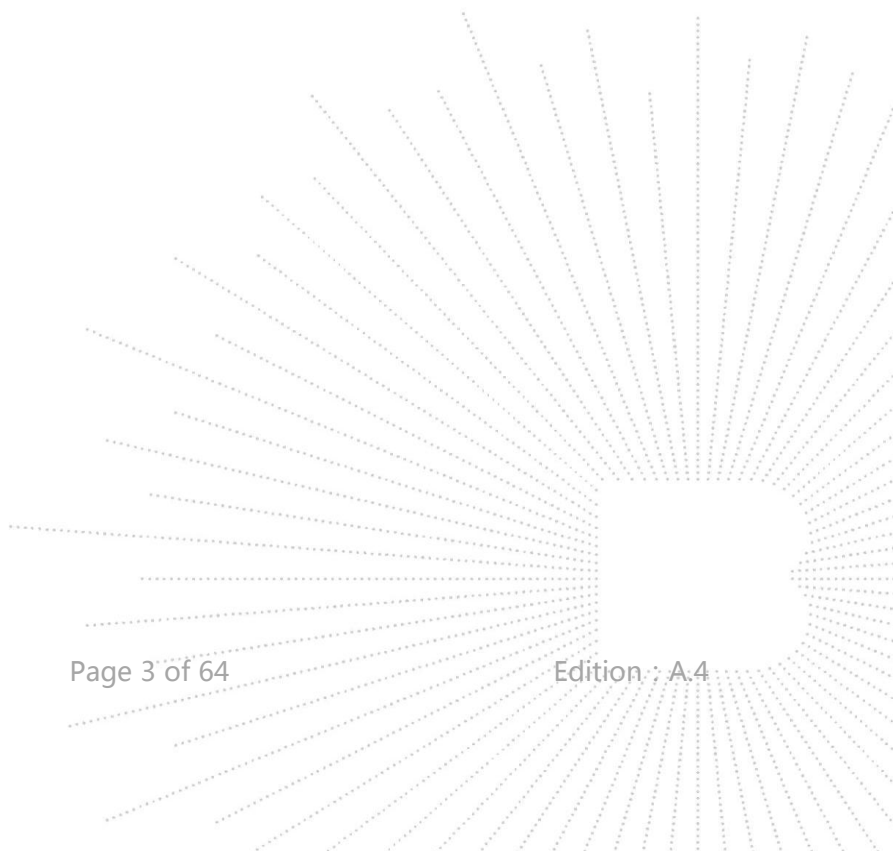
Issued Date: 2022-10-12

**Shenzhen BCTC Testing Co., Ltd.**



<b>TEST REPORT</b> <b>IEC 62368-1</b> <b>Audio/video, information and communication technology equipment</b> <b>Part 1: Safety requirements</b>	
<b>Report Number</b> .....	: BCTC2209095521S
Date of issue .....	: 2022-10-12
Total number of pages .....	: 64
<b>Testing Laboratory</b> .....	<b>Shenzhen BCTC Testing Co., Ltd.</b>
Address .....	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
<b>Applicant's name</b> .....	: Shenzhen Creality 3D Technology Co., Ltd.
Address .....	: 18F, JinXiuHongDu Building, Meilong Blvd., Longhua Dist., Shenzhen, China 518131
<b>Test specification:</b>	
Standard.....	: IEC 62368-1: 2018
Test procedure.....	: Test Report
Non-standard test method .....	: N/A
<b>Test Report Form No.</b> .....	: IEC62368_1C
Test Report Form(s) Originator.....	: UL(US)
Master TRF .....	: Dated 2019-01-17
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Test Item description .....	3D Printer
Trade Mark .....	
Manufacturer .....	Shenzhen Creality 3D Technology Co., Ltd. 18F, JinXiuHongDu Building, Meilong Blvd., Longhua Dist., Shenzhen, China 518131
Model/Type reference .....	Ender-3 V2 Neo
Ratings .....	Input: 100-120/200-240V~ 50/60Hz, 350W



**Testing procedure and testing location:**

**Testing Laboratory**..... : **Shenzhen BCTC Testing Co., Ltd.**  
**Address**..... : 1-2/F., Building B, Pengzhou Industrial Park, No.158,  
Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

**Tested by (name, function, signature) ... :** New Zhai *New zhai*  
(Project Handler)

**Approved by (name, function, signature) .....** Winnie Wang *Winnie Wang*  
(Reviewer)

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

-- Attachment I: 9 pages for Photo documentation.

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

-- IEC 62368-1: 2018

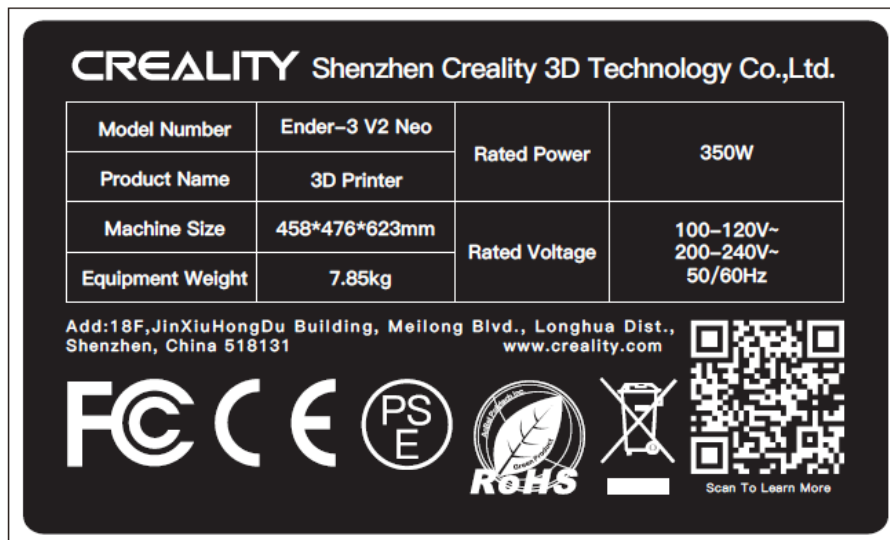
The submitted samples were found to comply with the requirements of above specification.

**Testing location:**

 Shenzhen BCTC Testing Co., Ltd.  
 1-2/F., Building B, Pengzhou Industrial Park, No.158,  
 Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict,  
 Bao'an District, Shenzhen, Guangdong, China

**Copy of marking plate:**

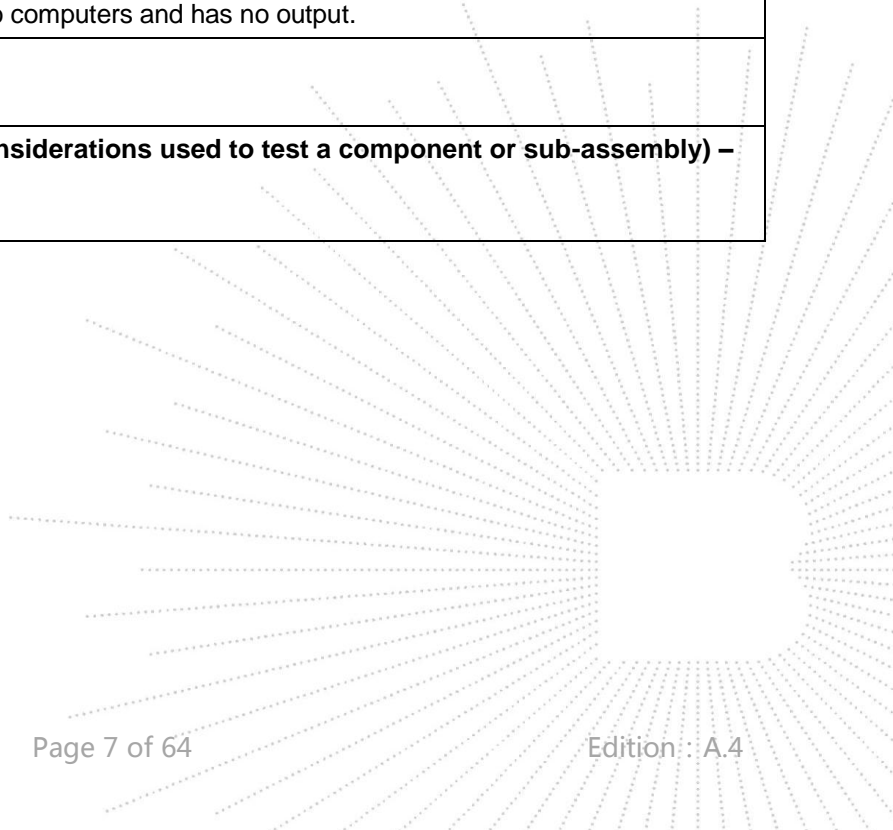
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.


**Note:**

1.The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

TEST ITEM PARTICULARS:	
Product group .....	<input checked="" type="checkbox"/> end product <input type="checkbox"/> built-in component
Classification of use by .....	<input checked="" type="checkbox"/> Ordinary person <input checked="" type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection .....	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit – not Mains connected <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input checked="" type="checkbox"/> ES3
Supply Tolerance .....	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input type="checkbox"/> None
Supply Connection – Type .....	<input checked="" type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input checked="" type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other:
Considered current rating of protective device ...:	20A (for building); Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility .....	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC) .....	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: N/A
Class of equipment .....	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III
Special installation location .....	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> restricted access area <input type="checkbox"/> outdoor location
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified T <sub>ma</sub> .....	35°C
IP protection class .....	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP____
Power Systems .....	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT – 230 V <sub>L-L</sub>
Altitude during operation (m) .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> 5000 m
Altitude of test laboratory (m) .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m
Mass of equipment (kg) .....	<input checked="" type="checkbox"/> 7.85kg
<b>POSSIBLE TEST CASE VERDICTS:</b>	
- test case does not apply to the test object .....	N/A

- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement .....	F (Fail)
<b>TESTING:</b>	
Date of receipt of test item.....	2022-07-14
Date (s) of performance of tests.....	2022-07-14 to 2022-07-29
<b>GENERAL REMARKS:</b>	
<p>“(See Enclosure #)” refers to additional information appended to the report.                  “(See appended table)” refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
<b>Manufacturer’s Declaration per sub-clause 4.2.5 of IEC60335-1:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b>	Shenzhen Creality 3D Technology Co., Ltd. Factory No.156, Huawang Road, Langkou Community, Dalang Street, Longhua District, Shenzhen, China 518131
<b>GENERAL PRODUCT INFORMATION:</b>	
<b>Product Description:</b>	
1. The 3D Printer is for indoor use only and for the use in information technology equipment. 2. The equipment is supplied by one internal Switching Power Supply, details see appended table 4.1.2; and it is Class I equipment. 3. Maximum operation ambient: 35°C 4. The micro USB port is only used to connect to computers and has no output.	
<b>Model Differences -</b>	
N/A	
<b>Additional application considerations – (Considerations used to test a component or sub-assembly) –</b>	
N/A	



<b>OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS</b>				
<b>Clause</b>	<b>Possible Hazard</b>			
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	Ordinary	Basic insulation	Earthed metal enclosure	See 5.4.2, 5.4.3, 5.4.5, 5.5.3, 5.5.4
ES1:secondary circuit	Ordinary	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 <sup>st</sup> S	2 <sup>nd</sup> S
PS3: Primary circuits	Enclosure	See 6.3	Metal enclosure Plastic enclosure: V-0	N/A
PS3: Primary circuits	PCB	See 6.3	V-1 or better	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
MS2:Equipment mass	Ordinary	See 8.6.2.2	N/A	N/A
MS1:Sharp edges and corners	Ordinary	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:Accessible surfaces of unit except for nozzle surface of unit	Ordinary	N/A	N/A	N/A
TS3:nozzle surface of unit	Ordinary	See 9.4	instructional	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: Indicating lights	Ordinary	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				



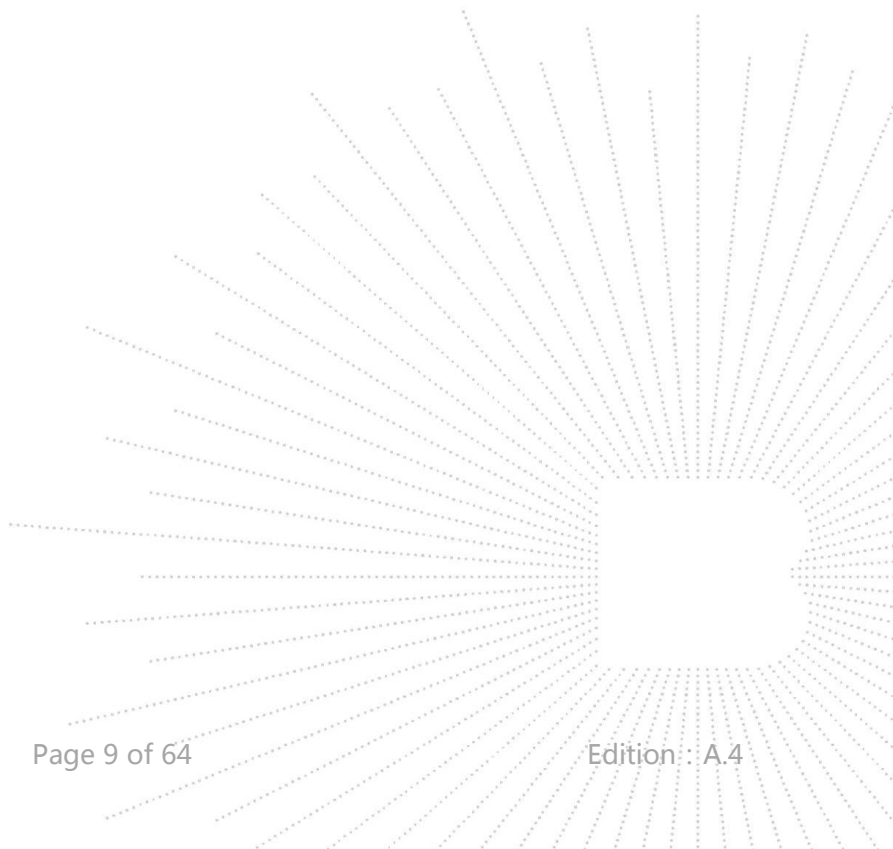
**ENERGY SOURCE DIAGRAM**

**Optional.** Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.

Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings

**SEE NERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE**

ES     PS     MS     TS     RS



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.4	Specified ambient temperature for outdoor use (°C).....		N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)	(See G.15)	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Annex T.5)	P
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	See Annex T.6)	P
4.4.3.5	Internal accessible safeguard tests	(See Annex T.3)	N/A
4.4.3.6	Glass impact tests	No glass used	N/A
4.4.3.7	Glass fixation tests	No glass used	N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests		N/A
4.4.3.9	Air comprising a safeguard	(See Annex T)	P
4.4.3.10	Accessibility, glass, safeguard effectiveness		P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	(See Annex K)	N/A
<b>4.5</b>	<b>Explosion</b>		P
4.5.1	General		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	(See Clause B.4)	P
<b>4.6</b>	<b>Fixing of conductors</b>		P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test.....:	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4.7</b>	<b>Equipment for direct insertion into mains socket-outlets</b>		N/A
4.7.2	Mains plug part complies with relevant standard...:	Not direct plug-in equipment.	N/A
4.7.3	Torque (Nm).....:		N/A
<b>4.8</b>	<b>Equipment containing coin/button cell batteries</b>		N/A
4.8.1	General		N/A
4.8.2	Instructional safeguard.....:		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
<b>4.9</b>	<b>Likelihood of fire or shock due to entry of conductive object</b>		P
<b>4.10</b>	<b>Component requirements</b>		N/A
4.10.1	Disconnect Device	(See Annex L)	N/A
4.10.2	Switches and relays	(See Annex G)	N/A

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
<b>5.2</b>	<b>Classification and limits of electrical energy sources</b>		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits ..... :	ES1	P
5.2.2.3	Capacitance limits ..... :	(See appended table 5.2)	N/A
5.2.2.4	Single pulse limits..... :	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses..... :	(See appended table 5.2)	N/A
5.2.2.6	Ringling signals	(See Annex H)	N/A
5.2.2.7	Audio signals	(See Clause E.1)	N/A
<b>5.3</b>	<b>Protection against electrical energy sources</b>		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements	No opening of enclosure, no access with test probe to any ES3 circuit or parts.	P
	Test with test probe from Annex V		-
5.3.2.2 a)	Air gap – electric strength test potential (V)..... :		N/A
5.3.2.2 b)	Air gap – distance (mm) ..... :		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
<b>5.4</b>	<b>Insulation materials and requirements</b>		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic	Checked by 5.4.8 and then by 5.4.9.1	P
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degrees..... :	2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses.	N/A
5.4.1.8	Determination of working voltage ..... :	(See appended table 5.4.1.8)	N/A
5.4.1.9	Insulating surfaces	Considered for accessible surface of enclosure.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See only 5.4.10.3 below.	P
5.4.1.10.2	Vicat test ..... :	Not performed.	N/A
5.4.1.10.3	Ball pressure test..... :		N/A
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage ..... :		—
5.4.2.3	Procedure 2 for determining clearance	(See appended table 5.4.2.2, 5.4.2.6 and 5.4.3)	P
5.4.2.3.2.2	a.c. mains transient voltage ..... :	2500V for Overvoltage Cat. II	—

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Clause	Requirement + Test	Result - Remark	Verdict
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/A
5.4.2.5	Multiplication factors for clearances and test voltages .....	1.0	P
5.4.2.6	Clearance measurement .....	(See appended table 5.4.2.6, 5.4.2.4 and 5.4.3)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group .....	IIIb	—
5.4.3.4	Creepage distances measurement .....	(See appended table 5.4.2.6, 5.4.2.4 and 5.4.3)	P
5.4.4	Solid insulation	Evaluated in approved power supply.	N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation .....		N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material	Evaluated in approved power supply.	N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) .....		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	Evaluated in approved power supply.	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, $E_p$ , $K_R$ , $d$ , $V_{PW}$ (V) .....		N/A
	Alternative by electric strength test, tested voltage (V), $K_R$ .....		N/A
5.4.5	Antenna terminal insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ) .....		N/A
	Electric strength test .....		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%), temperature (°C), duration (h) .....	95%,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 on the complete unit and on a sample of the transformer raised to the relevant temperature as measured during that test. (See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits	No connection to external circuits with transient voltage.	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test .....	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test .....	(See appended table 5.4.9)	N/A
5.4.10.3	Verification for insulation breakdown for impulse test .....		N/A
5.4.11	Separation between external circuits and earth	No connection to external circuits with transient voltage.	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage $U_{op}$ (V) .....		—
	Nominal voltage $U_{peak}$ (V) .....		—
	Max increase due to variation $\Delta U_{sp}$ .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Max increase due to ageing $\Delta U_{sa}$ .....		—
5.4.11.3	Test method and compliance.....		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid .....		N/A
5.4.12.3	Compatibility of an insulating liquid.....		N/A
5.4.12.4	Container for insulating liquid .....		N/A
<b>5.5</b>	<b>Components as safeguards</b>		P
5.5.1	General	Evaluated in approved power supply.	N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....	All the related evaluation is done in the switching power supply module which is controlled as critical component in appended table 4.1.2	N/A
5.5.3	Transformers	All the related evaluation is done in the switching power supply module which is controlled as critical component in appended table 4.1.2 (See Annex G.5.3)	N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable.....		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) .....		—
<b>5.6</b>	<b>Protective conductor</b>		N/A
5.6.2	Requirement for protective conductors		N/A
<b>5.6</b>	<b>Protective conductor</b>		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors	AC inlet used	P
	Protective earthing conductor size (mm <sup>2</sup> ) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm <sup>2</sup> ). ..... :	16WAG	—
5.6.4.2	Protective current rating (A) ..... :	20A	P
5.6.5	Terminals for protective conductors		P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm) ..... :		P
	Terminal size for connecting protective bonding conductors (mm)..... :	Nominal thread diameter:3.5mm	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective bonding system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method ..... :	(See appended table 5.6.6)	P
5.6.6.3	Resistance ( $\Omega$ ) or voltage drop ..... :	(See appended table 5.6.6)	P
5.6.7	Reliable connection of a protective earthing conductor		P
5.6.8	Functional earthing		N/A
	Conductor size (mm <sup>2</sup> ) ..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm) ..... :		N/A
<b>5.7</b>	<b>Prospective touch voltage, touch current and protective conductor current</b>		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current		P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	P
5.7.5	Earthed accessible conductive parts ..... :	(See appended table 5.7.5)	P
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA) ..... :		N/A
	Instructional Safeguard ..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA)..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA)..... :		N/A
<b>5.8</b>	<b>Backfeed safeguard in battery backed up supplies</b>		N/A
	Mains terminal ES ..... :	(See appended table 5.8)	N/A
	Air gap (mm)..... :		N/A

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		P
<b>6.2</b>	<b>Classification of PS and PIS</b>		P
6.2.2	Power source circuit classifications ..... :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS ..... :	(See appended table 6.2.3.2)	P
<b>6.3</b>	<b>Safeguards against fire under normal operating and abnormal operating conditions</b>		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..... :	(See appended table 6.3.1 )	P
	Combustible materials outside fire enclosure..... :		N/A
<b>6.4</b>	<b>Safeguards against fire under single fault conditions</b>		P
6.4.1	Safeguard method	Method by control of fire spread applied, Fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		P
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions..... :	(See appended table B.4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: -Printed board: rated min. V-1 -internal wire :VW-1 -enclosure: metal	P
6.4.6	Control of fire spread in PS3 circuits		P
6.4.7	Separation of combustible materials from a PIS	Internal fire enclosure provided.	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier	Internal fire enclosure provided.	N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.2	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier.	N/A
6.4.8.2.2	Requirements for a fire enclosure		P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions	No fire barrier	N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties		P
	Openings dimensions (mm)..... :	Circular opening, diameter 2.7mm	P
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating..... :	Metal Enclosure	P
6.4.9	Flammability of insulating liquid..... :		N/A
<b>6.5</b>	<b>Internal and external wiring</b>		P
6.5.1	General requirements		P
6.5.2	Requirements for interconnection to building wiring..... :		N/A
6.5.3	Internal wiring size (mm <sup>2</sup> ) for socket-outlets..... :		N/A
<b>6.6</b>	<b>Safeguards against fire due to the connection to additional equipment</b>		P
<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		N/A
<b>7.2</b>	<b>Reduction of exposure to hazardous substances</b>		N/A

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Clause	Requirement + Test		Verdict
<b>7.3</b>	<b>Ozone exposure</b>		N/A
<b>7.4</b>	<b>Use of personal safeguards or personal protective equipment (PPE)</b>		N/A
	Personal safeguards and instructions .....		—
<b>7.5</b>	<b>Use of instructional safeguards and instructions</b>		N/A
	Instructional safeguard (ISO 7010).....		—
<b>7.6</b>	<b>Batteries and their protection circuits</b>		N/A

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
<b>8.2</b>	<b>Mechanical energy source classifications</b>		P
<b>8.3</b>	<b>Safeguards against mechanical energy sources</b>		P
<b>8.4</b>	<b>Safeguards against parts with sharp edges and corners</b>		P
8.4.1	Safeguards		P
	Instructional Safeguard .....	Edges and corners are classed as MS1.	P
8.4.2	Sharp edges or corners		P
<b>8.5</b>	<b>Safeguards against moving parts</b>		P
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard .....	Instructional safeguard shall be provided to user in the instruction manual	P
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m) .....		N/A
	Space between end point and nearest fixed mechanical part (mm).....		N/A
8.5.4.2.4	Endurance requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly..... :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test..... :		N/A
8.5.5.3	Glass particles dimensions (mm)..... :		N/A
<b>8.6</b>	<b>Stability of equipment</b>		P
8.6.1	General		P
	Instructional safeguard..... :		N/A
8.6.2	Static stability		P
8.6.2.2	Static stability test..... :	10°, the equipment had no tip over.	P
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm)..... :		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test..... :		N/A
<b>8.7</b>	<b>Equipment mounted to wall, ceiling or other structure</b>		N/A
8.7.1	Mount means type..... :		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N)..... :		N/A
	Test 2, number of attachment points and test force (N)..... :		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... :		N/A
<b>8.8</b>	<b>Handles strength</b>		N/A
8.8.1	General	No handles.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.8.2	Handle strength test		N/A
	Number of handles ..... :		—
	Force applied (N)..... :		—
<b>8.9</b>	<b>Wheels or casters attachment requirements</b>		N/A
8.9.2	Pull test	No wheels or casters.	N/A
<b>8.10</b>	<b>Carts, stands and similar carriers</b>		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions ..... :		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N)..... :		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N)..... :		—
8.10.6	Thermoplastic temperature stability		N/A
<b>8.11</b>	<b>Mounting means for slide-rail mounted equipment (SRME)</b>		N/A
8.11.1	General	Not rack mounted.	N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard ..... :		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied ..... :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
<b>8.12</b>	<b>Telescoping or rod antennas</b>		N/A
	Button/ball diameter (mm)..... :	No rod antennas.	—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
<b>9.2</b>	<b>Thermal energy source classifications</b>		P
<b>9.3</b>	<b>Touch temperature limits</b>		P
9.3.1	Touch temperatures of accessible parts ..... :	Enclosure	P
9.3.2	Test method and compliance		P
<b>9.4</b>	<b>Safeguards against thermal energy sources</b>		P
<b>9.5</b>	<b>Requirements for safeguards</b>		N/A
9.5.1	Equipment safeguard		N/A
9.5.2	Instructional safeguard ..... :		N/A
<b>9.6</b>	<b>Requirements for wireless power transmitters</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance .....	(See appended table 9.6)	N/A

<b>10</b>	<b>RADIATION</b>		P
<b>10.2</b>	<b>Radiation energy source classification</b>		P
10.2.1	General classification	LED lamp is used as indicating light, minor power consumption which is no significant effect for safety.	P
	Lasers .....		—
	Lamps and lamp systems .....		—
	Image projectors .....		—
	X-Ray .....		—
	Personal music player .....		—
<b>10.3</b>	<b>Safeguards against laser radiation</b>		P
	The standard(s) equipment containing laser(s) comply .....		N/A
<b>10.4</b>	<b>Safeguards against optical radiation from lamps and lamp systems (including LED types)</b>		N/A
10.4.1	General requirements		N/A
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location .....		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure .....		N/A
10.4.3	Instructional safeguard .....		N/A
<b>10.5</b>	<b>Safeguards against X-radiation</b>		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons .....		—
10.5.3	Maximum radiation (pA/kg) .....		—
<b>10.6</b>	<b>Safeguards against acoustic energy sources</b>		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$ , dB(A) .....		N/A
	Unweighted RMS output voltage (mV) .....		N/A
	Digital output signal (dBFS) .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30) .....		N/A
	Warning for MEL $\geq$ 100 dB(A).....		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards.....		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV).....		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$ , dB(A) .....		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$ , dB(A) .....		N/A


<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		P
<b>B.1</b>	<b>General</b>		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
<b>B.2</b>	<b>Normal operating conditions</b>		P
B.2.1	General requirements .....	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers .....	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test .....	(See appended table B.2.5)	P
<b>B.3</b>	<b>Simulated abnormal operating conditions</b>		P
B.3.1	General		P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
	Instructional safeguard .....		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector	No voltage selector	N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity	No battery	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.7	Audio amplifier abnormal operating conditions		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions .....	(See appended table B.3)	P
<b>B.4</b>	<b>Simulated single fault condition</b>		P
B.4.1	General		P
B.4.2	Temperature controlling device		P
B.4.3	Blocked motor test		P
B.4.4	Functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	All safeguards remained effective.	P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		P
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	(See Annex M)	N/A
<b>C</b>	<b>UV RADIATION</b>		N/A
<b>C.1</b>	<b>Protection of materials in equipment from UV radiation</b>		N/A
C.1.2	Requirements	General indoor used equipment only	N/A
C.1.3	Test method		N/A
<b>C.2</b>	<b>UV light conditioning test</b>		N/A
C.2.1	Test apparatus.....		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
<b>D</b>	<b>TEST GENERATORS</b>		N/A
<b>D.1</b>	<b>Impulse test generators</b>		N/A
<b>D.2</b>	<b>Antenna interface test generator</b>		N/A
<b>D.3</b>	<b>Electronic pulse generator</b>		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
<b>E.1</b>	<b>Electrical energy source classification for audio signals</b>		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance ( $\Omega$ ) .....		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard .....		—
<b>E.2</b>	<b>Audio amplifier normal operating conditions</b>		N/A
	Audio signal source type .....		—
	Audio output power (W)..... :		—
	Audio output voltage (V) .....		—
	Rated load impedance ( $\Omega$ ) .....		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
<b>F.1</b>	<b>General</b>		P
	Language .....	Instructions in English are reviewed.	—
<b>F.2</b>	<b>Letter symbols and graphical symbols</b>		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
<b>F.3</b>	<b>Equipment markings</b>		P
F.3.1	Equipment marking locations	Rear of the enclosure	P
F.3.2	Equipment identification markings		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/A
F.3.3.3	Nature of the supply voltage..... :	See copy of marking plate	P
F.3.3.4	Rated voltage..... :	See copy of marking plate	P
F.3.3.5	Rated frequency .....	See copy of marking plate	P
F.3.3.6	Rated current or rated power..... :	See copy of marking plate	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :	No such devices on the equipment.	N/A
F.3.5.2	Switch position identification marking..... :	No such switch on the equipment.	N/A
F.3.5.3	Replacement fuse identification and rating markings ..... :		N/A
	Instructional safeguards for neutral fuse ..... :	No used neutral fuse.	N/A
F.3.5.4	Replacement battery identification marking ..... :	No used battery.	N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
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..... :		P
F.3.6.1.2	Protective bonding conductor terminals ..... :		N/A
F.3.6.2	Equipment class marking ..... :		N/A
F.3.6.3	Functional earthing terminal marking ..... :		N/A
F.3.7	Equipment IP rating marking ..... :	IP X0.	P
F.3.8	External power supply output marking ..... :		N/A
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit.  After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
<b>F.4</b>	<b>Instructions</b>		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		P

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Clause	Requirement + Test	Result - Remark	Verdict
	c) Instructions for installation and interconnection		N/A
	Equipment intended for use only in restricted access area		N/A
	d) Equipment intended to be fastened in place	No such terminals provided.	N/A
	e) Instructions for audio equipment terminals		N/A
	f) Protective earthing used as a safeguard		P
	g) Protective conductor current exceeding ES2 limits		N/A
	h) Graphic symbols used on equipment	 used and explained in the instruction.	P
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No such markings.	N/A
	k) Equipment containing insulating liquid		N/A
	l) Installation instructions for outdoor equipment		N/A
<b>F.5</b>	Instructional safeguards		P
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		P
G.1.1	General	Approved switch used.	P
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
<b>G.2</b>	<b>Relays</b>		N/A
G.2.1	Requirements	No such device used	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
<b>G.3</b>	<b>Protective devices</b>		P
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors	No PTCs	N/A
G.3.4	Overcurrent protection devices	Approved fuse used	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions..... :	(See appended table B.4)	N/A
<b>G.4</b>	<b>Connectors</b>		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration..... :	Considered	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
<b>G.5</b>	<b>Wound components</b>		N/A
G.5.1	Wire insulation in wound components		N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) .....		—
	Test temperature (°C)..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers		N/A
G.5.3.1	Compliance method..... :		N/A
	Position .....		N/A
	Method of protection .....		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings..... :		—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	FIW wire nominal diameter .....		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation.....		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		P
G.5.4.1	General requirements		P
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors	(See appended table B.4)	P
G.5.4.6.2	Tested in the unit	(See appended table B.4)	P
	Maximum Temperature .....	(See appended table B.4)	P
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....		—
<b>G.6</b>	<b>Wire Insulation</b>		N/A
G.6.1	General		N/A
G.6.2	Enamelled winding wire insulation		N/A
<b>G.7</b>	<b>Mains supply cords</b>		N/A
G.7.1	General requirements		N/A
	Type.....		—
G.7.2	Cross sectional area (mm <sup>2</sup> or AWG) .....		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, <i>D</i> (mm) ..... :		—
	Radius of curvature after test (mm)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand	(See appended table 4.1.2)	N/A
<b>G.8</b>	<b>Varistors</b>		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
<b>G.9</b>	<b>Integrated circuit (IC) current limiters</b>		N/A
G.9.1	Requirements		
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>G.11</b>	<b>Capacitors and RC units</b>		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
<b>G.12</b>	<b>Optocouplers</b>		N/A
	Optocouplers comply with IEC 60747-5-5 with specifics		N/A
	Type test voltage $V_{ini,a}$ ..... :		—
	Routine test voltage, $V_{ini,b}$ ..... :		—
<b>G.13</b>	<b>Printed boards</b>		P
G.13.1	General requirements	Approved Printed board used	P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation..... :		N/A
	Number of insulation layers (pcs)..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements..... :	(See Clause G.13)	N/A
<b>G.15</b>	<b>Pressurized liquid filled components</b>		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on ..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test ..... :		—
G.16.3	Capacitor discharge test..... :		N/A
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
<b>H.1</b>	<b>General</b>		N/A
<b>H.2</b>	<b>Method A</b>		N/A
<b>H.3</b>	<b>Method B</b>		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) ..... :	Not such apparatus	—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) ..... :		N/A
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		N/A
<b>J.1</b>	<b>General</b>		N/A
	Winding wire insulation..... :	No such winding wire used	—
	Solid round winding wire, diameter (mm) ..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm <sup>2</sup> )..... :		N/A
<b>J.2/J.3</b>	Tests and Manufacturing	(See separate test report)	—
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
<b>K.1</b>	<b>General requirements</b>		N/A
	Instructional safeguard ..... :		N/A
<b>K.2</b>	<b>Components of safety interlock safeguard mechanism</b>		N/A
<b>K.3</b>	<b>Inadvertent change of operating mode</b>		N/A
<b>K.4</b>	<b>Interlock safeguard override</b>		N/A
<b>K.5</b>	<b>Fail-safe</b>		N/A
K.5.1	Under single fault condition		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
<b>K.6</b>	<b>Mechanically operated safety interlocks</b>		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance .....		N/A
<b>K.7</b>	<b>Interlock circuit isolation</b>		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm).....		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm).....		N/A
	Electric strength test before and after the test of K.7.2 .....	(See appended table 5.4.9)	N/A
K.7.2	Overload test, Current (A) .....		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		P
L.1	General requirements	Appliance coupler as disconnect device	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single-phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
	Instructional safeguard .....		N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards .....		N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance		N/A
<b>M.4</b>	<b>Additional safeguards for equipment containing a portable secondary lithium battery</b>		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance..... :		N/A
M.4.3	Fire enclosure..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
<b>M.5</b>	<b>Risk of burn due to short-circuit during carrying</b>		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
<b>M.6</b>	<b>Safeguards against short-circuits</b>		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
<b>M.7</b>	<b>Risk of explosion from lead acid and NiCd batteries</b>		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m <sup>3</sup> /h)..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A

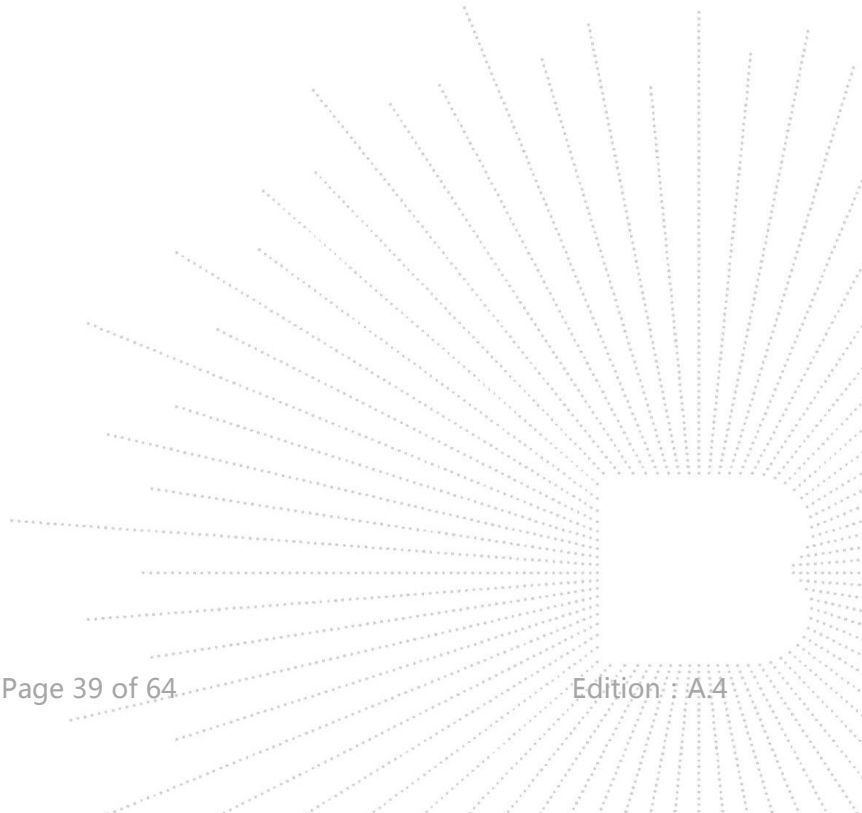
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Clause	Requirement + Test	Result - Remark	Verdict
	Hydrogen gas concentration (%) .....		N/A
M.7.4	Marking .....		N/A
<b>M.8</b>	<b>Protection against internal ignition from external spark sources of batteries with aqueous electrolyte</b>		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume $V_z$ (m <sup>3</sup> /s) .....		—
M.8.2.3	Correction factors .....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
<b>M.9</b>	<b>Preventing electrolyte spillage</b>		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
<b>M.10</b>	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard .....		N/A
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Material(s) used .....		—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		P
	Value of $X$ (mm) .....		—
<b>P</b>	<b>SAFEGUARDS AGAINST CONDUCTIVE OBJECTS</b>		P
<b>P.1</b>	<b>General</b>		P
<b>P.2</b>	<b>Safeguards against entry or consequences of entry of a foreign object</b>		P
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object		P
	Location and Dimensions (mm) .....		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts .....		N/A
P.2.3.2	Consequence of entry test .....		N/A
<b>P.3</b>	<b>Safeguards against spillage of internal liquids</b>		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.3.4	Compliance		N/A
<b>P.4</b>	<b>Metallized coatings and adhesives securing parts</b>		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T <sub>c</sub> (°C) .....		—
	Duration (weeks) .....		—
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		N/A
<b>Q.1</b>	<b>Limited power sources</b>		N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output	(See table annex Q.1)	N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance .....	(See appended table Q.1)	N/A
	Current rating of overcurrent protective device (A) .....		N/A
<b>Q.2</b>	<b>Test for external circuits – paired conductor cable</b>		N/A
	Maximum output current (A) .....		N/A
	Current limiting method .....		—
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
<b>R.1</b>	<b>General</b>		N/A
<b>R.2</b>	<b>Test setup</b>		N/A
	Overcurrent protective device for test .....		—
<b>R.3</b>	<b>Test method</b>		N/A
	Cord/cable used for test .....		—
<b>R.4</b>	<b>Compliance</b>		N/A
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
<b>S.1</b>	<b>Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W</b>		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
<b>S.2</b>	<b>Flammability test for fire enclosure and fire barrier integrity</b>		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
<b>S.3</b>	<b>Flammability test for the bottom of a fire enclosure</b>		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples .....		—
	Wall thickness (mm) .....		—
<b>S.4</b>	<b>Flammability classification of materials</b>		N/A
<b>S.5</b>	<b>Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power exceeding 4 000 W</b>		N/A
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		P
<b>T.1</b>	General		P
<b>T.2</b>	Steady force test, 10 N .....	(See appended table T.2)	P
<b>T.3</b>	Steady force test, 30 N .....	(See appended table T.3)	N/A
<b>T.4</b>	Steady force test, 100 N .....	(See appended table T.4)	N/A
<b>T.5</b>	Steady force test, 250 N .....	(See appended table T.5)	P
<b>T.6</b>	Enclosure impact test	(See appended table T.6)	P
	Fall test	1.3m, 500g	P
	Swing test		N/A
<b>T.7</b>	Drop test .....		N/A
<b>T.8</b>	Stress relief test.....		N/A
<b>T.9</b>	Glass Impact Test.....		N/A
<b>T.10</b>	Glass fragmentation test		N/A
	Number of particles counted.....		N/A
<b>T.11</b>	Test for telescoping or rod antennas		N/A
	Torque value (Nm) .....		N/A
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		N/A
<b>U.1</b>	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructional safeguard :		N/A
<b>U.2</b>	Test method and compliance for non-intrinsically protected CRTs		N/A
<b>U.3</b>	Protective screen		N/A
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS</b>		P
<b>V.1</b>	<b>Accessible parts of equipment</b>		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/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
<b>V.2</b>	<b>Accessible part criterion</b>		P
<b>X</b>	<b>ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)</b>		N/A
	Clearance ..... : (See appended table X)		N/A
<b>Y</b>	<b>CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES</b>		N/A
<b>Y.1</b>	<b>General</b>		N/A
<b>Y.2</b>	<b>Resistance to UV radiation</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by ..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance		N/A
<b>Y.4</b>	<b>Gaskets</b>		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods ..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
<b>Y.5</b>	<b>Protection of equipment within an outdoor enclosure</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3 ..... :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
<b>Y.6</b>	<b>Mechanical strength of enclosures</b>		N/A
Y.6.1	General		N/A
Y.6.2	Impact test ..... :		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

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 <sup>1)</sup>	Additional Info <sup>2)</sup>	
264Va.c. 60Hz	All primary circuit components and parts	Normal	264	--	SS	60Hz	ES3
		Abnormal	--	--	--	--	
		Single fault:-	--	--	--	--	
264Va.c. 60Hz	Switch power supply output	Normal	24.0	--	SS	DC	ES1
		Abnormal-OC	24.0	--	--	--	
		Single fault:-	--	--	--	--	
264Va.c. 60Hz	Accessible display to Earth	Normal	--	0.072mApk	SS	60Hz	ES1
		Abnormal:	--	0.072mApk	SS	60Hz	
		Single fault:	--	0.072mApk	SS	60Hz	
264Va.c. 60Hz	Accessible Metal Enclosure to Earth	Normal	--	0.660mApk	SS	60Hz	ES1
		Abnormal:	--	0.660mApk	SS	60Hz	
		Single fault:	--	0.660mApk	SS	60Hz	

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				N/A
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	

Supplementary information:

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
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	N/A
------------	---	-----



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

Allowed impression diameter (mm)..... :			—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)
Supplementary information:			

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U <sub>p</sub> (V)	U <sub>rms</sub> (V)	Freq <sup>1)</sup> (Hz)	Required cl (mm)	cl (mm)	E.S. <sup>2)</sup> (V)	Required cr (mm)	cr (mm)
Line and Neutral of AC inlet	420	250	60	1.5	>3.5	--	2.5	>3.5
Live part of primary components (power supply module) to accessible metal enclosure	420	250	60	1.5	>3.5	--	2.5	>3.5
Live part of power supply module to secondary circuits	420	250	60	3.0	>8.0	--	5.0	>8.0
Supplementary information:								
1) Only for frequency above 30 kHz								
2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz						N/A
Insulation material	E <sub>p</sub>	Frequency (kHz)	K <sub>R</sub>	Thickness d (mm)	Insulation	V <sub>PW</sub> (Vpk)	
Supplementary information:							

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	
Functional:				
--	--	--	--	
Basic/supplementary:				
Line/Neutral and earthing metal enclosure	DC	2500	No	
Reinforced:				
Line/Neutral and output terminal	DC	4000	No	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Line/Neutral and screen outside (with metal foil)	DC	4000	No
Routine Tests:			
--	--	--	--
Supplementary information:			

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Location	Supply voltage (V)	Operating and fault condition <sup>1)</sup>	Switch position	Measured voltage (V <sub>pk</sub> )	ES Class	
--	--	--	--	--	--	
--	--	--	--	--	--	
Supplementary information: X-capacitors installed for testing: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> 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				P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Earthing pin of AC input connector and farthest metal enclosure	40	2	2.16	0.054	
Supplementary information:					

5.7.4	TABLE: Unearthed accessible parts					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V <sub>rms</sub> or V <sub>pk</sub> )	Current (A <sub>rms</sub> or A <sub>pk</sub> )	Freq. (Hz)	
Accessible display	Normal Operating	264V/60Hz	--	0.072mA <sub>pk</sub>	--	ES1
Supplementary information: Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part		P
Supply voltage (V).....:			—
Phase(s) .....	[ X ] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye		

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

Power Distribution System .....	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT		
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment
Line/Neutral to metal enclosure	1	0.660mApk	ES1
Supplementary Information:			

<b>5.8</b>	<b>TABLE: Backfeed safeguard in battery backed up supplies</b>					N/A
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						

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

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power <sup>1)</sup> (W)	Time (S)	PS class
Input port	Normal	--	--	--	--	PS3**

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.  
 2) (\*\*) supplied any circuit whose power source has not been classified, which belongs to PS3 power.

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 supplied by AC mains	--	--	--	Yes (declared)	

Supplementary information:

6.2.3.2	TABLE: Determination of resistive PIS			P
Location	Operating and fault condition	Dissipate power (W)		Arcing PIS? Yes / No
Primary circuits supplied by AC mains	--	>100		Yes (declared)

Supplementary information:  
 (\*\*) supplied any circuit whose power source has not been classified, which belongs to PS3 power.

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

Supplementary information:

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

9.6	TABLE: Temperature measurements for wireless power transmitters							N/A
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) .....	90V/60Hz	132V/60Hz	180V/50 Hz	264V/60Hz	--	--	—	
Test condition	Normal operation	Normal operation	Normal operation	Normal operation	--	--	--	
T <sub>ma</sub> (°C) .....	35.0	35.0	35.0	35.0	--	--	—	
Maximum measured temperature T of part/at:	T (°C)						Allowed T <sub>max</sub> (°C)	
AC inlet	56.7	54.9	49.9	48.3	--	--	70	
AC Input wire	51.7	50.3	51	48.5	--	--	105	
T1 coil (power source)	68	64.9	62.5	61.1	--	--	110	
T1 core (power source)	65.4	61.8	57.6	55.3	--	--	110	
Power source outside enclosure	50.5	48.4	46.6	45	--	--	Ref.	
DC Input wire	54.9	53.3	51.4	49.5	--	--	80	
PCB near U10	56.2	54.4	52.8	51.7	--	--	130	
PCB near U5	56.2	54.3	52.8	51.7	--	--	130	
C3 body	53.9	52.6	52	49.5	--	--	105	
PCB near L4	50.7	50.1	48.8	48.4	--	--	130	
C36 body	57.7	57	56.6	55.9	--	--	105	
FAN wire(control panel)	49.8	49.3	48.6	47.9	--	--	80	
FAN Enclosure outside(control panel)	50.3	49.8	49.2	48.9	--	--	Ref.	

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

Internal wire	49.7	49.1	48	47.6	--	--	80
Metal Enclosure outside	45.5	45	44.8	43.8	--	--	Ref.
Knob	43.1	40.9	39.3	38.6	--	--	Ref.
Switch	43.3	42.3	41.7	41	--	--	77
Display screen	40.9	39.9	39.8	39.1	--	--	77
Ambient	35.0	35.0	35.0	35.0	--	--	--

**For accessible surfaces (T<sub>ma</sub>=25.0°C)**

Metal Enclosure outside	35.5	35.0	34.8	33.8	--	--	Ref.
Knob	33.1	30.9	29.3	28.6	--	--	77
Switch	33.3	32.3	31.7	31.0	--	--	77
Display screen	30.9	29.9	29.8	29.1	--	--	77
Ambient	35.0	35.0	35.0	35.0	--	--	--

## Supplementary information:

Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--	--	--	--	--	--	--	--

## Supplementary information:

 Note 1: T<sub>ma</sub> should be considered as directed by applicable requirement.

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
90	50Hz	2.310	--	135.3	--	--	2.310	Normal operation.
90	60Hz	2.285	--	134.2	--	--	2.285	
100	50Hz	2.308	--	139.2	350	--	2.308	
100	60Hz	2.310	--	140.5	350	--	2.310	
120	50Hz	1.705	--	130.5	350	--	1.705	
120	60Hz	1.700	--	130.3	350	--	1.700	
132	50Hz	1.695	--	136.4	--	--	1.695	
132	60Hz	1.695	--	137.2	--	--	1.695	
180	50Hz	1.676	--	141.5	--	--	1.676	
180	60Hz	1.666	--	140.7	--	--	1.666	
200	50Hz	1.646	--	135.8	350	--	1.646	

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

200	60Hz	1.645	--	136.4	350	--	1.645
240	50	1.401	--	133.6	350	--	1.401
240	60	1.412	--	134.8	350	--	1.412
264	50	1.324	--	134.8	--	--	1.324
264	60	1.324	--	136.4	--	--	1.324

Supplementary information:

B.3, B.4		TABLE: Abnormal operating and fault condition tests					P
Ambient temperature $T_{amb}$ (°C).....:		See below					—
Power source for EUT: Manufacturer, model/type, outputrating....:		See table 4.1.2					—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
Fan (The Nozzle Motor)	Locked	264	4 h 38mins	--	1.329	The maximum temperature were: Metal outside enclosure: 34.9°C Knob: 29.6°C Switch: 31.9°C Display screen: 29.7°C Ambient: 25.0°C Normal operation No damage, no hazard.	
Fan (The Nozzle )	Locked	264	3 h 42mins	--	1.329	The maximum temperature were: Metal outside enclosure: 35.2°C Knob: 29.3°C Switch: 31.6°C Display screen: 29.4°C Ambient: 25.0°C Normal operation No damage, no hazard.	
Fan (control board)	Locked-rotor	264	4 h 42mins	--	1.348	The maximum temperature were: Metal outside enclosure: 34.8°C Knob: 29.0°C Switch: 31.8°C Display screen: 29.9°C Ambient: 25.0°C	

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
						Normal operation No damage, no hazard.
All openings	Blocked	264	3hours 26mins	--	1.324	The maximum temperature were: Metal outside enclosure: 36.4°C Knob: 31.0°C Switch: 32.3°C Display screen: 32.5°C Ambient: 25.0°C Normal operation No damage, no hazard.
Z axis motor	Locked	264	7h	--	1.216	The maximum temperature were: Metal outside enclosure: 33.9°C Knob: 28.8°C Switch: 31.5°C Display screen: 29.6°C Ambient: 25.0°C Normal operation No damage, no hazard.
Y axis motor	Locked	264	7h	--	1.208	The maximum temperature were: Metal outside enclosure: 33.6°C Knob: 28.8°C Switch: 31.7°C Display screen: 29.5°C Ambient: 25.0°C Normal operation No damage, no hazard.
X axis motor	Locked	264	7h	--	1.211	The maximum temperature were: Metal outside enclosure: 34.1°C Knob: 28.5°C Switch: 31.8°C Display screen: 31.1°C Ambient: 25.0°C Normal operation No damage, no hazard.
C3	SC	264	10mins	--	0.030	--



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

D4	SC	264	10mins	--	0.030	--
C36	SC	264	10mins	--	0.030	--
D6	SC	264	10mins	--	0.030	--

Supplementary information:

OL= over load; SC= short circuit; OC= open circuit

<b>M.3</b>	<b>TABLE: Protection circuits for batteries provided within the equipment</b>	N/A
------------	---	-----

Is it possible to install the battery in a reverse polarity position? ..... :

---

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.

<b>M.4.2</b>	<b>TABLE: Charging safeguards for equipment containing a secondary lithium battery</b>	N/A
--------------	--	-----

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

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

charging temperature

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Output Circuit	Condition	U <sub>oc</sub> (V)	Time (s)	I <sub>sc</sub> (A)		S (VA)	
				Meas.	Limit	Meas.	Limit

Supplementary Information:  
SC=Short circuit, OC=Open circuit

T.2, T.3, T.4, T.5	TABLE: Steady force test						P
Part/Location	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
Internal component or part	See table 4.1.2	See table 4.1.2	--	10	5	No damage, no hazard	
Enclosure of completed product	See table 4.1.2	See table 4.1.2	--	250	5	Enclosure remained intact, no crack/opening developed.	

Supplementary information:

T.6, T.9	TABLE: Impact test				P
Location/part	Material	Thickness (mm)	Height (mm)	Observation	
Enclosure (Top)	See appended table 4.1.2	See appended table 4.1.2	1300	Enclosure remained intact, no crack/opening developed.	
Enclosure (Side)	See appended table 4.1.2	See appended table 4.1.2	1300	Enclosure remained intact, no crack/opening developed.	

Supplementary information:

T.7	TABLE: Drop test				N/A
Location/part	Material	Thickness (mm)	Height (mm)	Observation	

Supplementary information:

T.8	TABLE: Stress relief test				N/A
-----	---------------------------	--	--	--	-----

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

Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Supplementary information:					

X	TABLE: Alternative method for determining minimum clearances distances			N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1</sup>	
Plug	DongGuan HongMao Electronics Co., Ltd.	HM-802	250VAC, 16A	IEC 60884- 1:2002+A1:2 006+A2:2013	ENECKEMA - KEURCert:4 333646.01	
Alt.	CHING CHENG	EL-208	16A, 250V	ASNS 164-1	SABS Certificate No.: 6358/9367	
Supply cord	DongGuan HongMao Electronics Co., Ltd.	H05VV-F	3*0.75mm <sup>2</sup>	EN 50525- 1:2011; EN 50525-2- 1:2011	ENECKEMA - KEURCert:2 213228.02	
Alt.	CHING CHENG	H05VV-F	300/500V 3G0.75mm <sup>2</sup>	ASNS 60227-5/ ASNS 1574- 2	SABS Certificate No.: 6358/9367	
Appliance connector	DongGuan HongMao Electronics Co., Ltd.	HM-804	250VAC, 10A	EN 60320- 1:2015	ENECKEMA - KEURCert:2 215588.01	
Alt.	CHING CHENG	EL-701	10A, 250V	ASNS 60320-1	SABS Certificate No.: 6358/9367	
AC inlet	DONGGUAN HUACONN ELECTRONICS CO LTD	HC-99 series	250V~, 10A	UL 498 IEC/EN 60320-1 IEC/EN 60320-3	UL E475637 VDE 40032734	
Alt.	Interchangeable	Interchangeable	250V~, 10A	UL 498 IEC/EN 60320-1 IEC/EN 60320-3	UL	
Switch	DONGGUAN HUACONN ELECTRONICS CO LTD	HS9 Series	20(8) A, 125/250Vac	UL 61058-1	UL E473864	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark	Verdict	
Fuse	DONGGUAN HUACONNELECTRONICS CO LTD	52TD	T10AL250	UL 248-1 DIN EN 60127-2 IEC60127-1 IEC60127-2	UL E318938 VDE 40027749
PCB	SHENZHEN HUAQIU ELECTRONICS CO LTD	HQPCB-1, HQPCB-2	V-0, 130°C	UL 796	UL E469747
Alt.	Interchangeable	Interchangeable	Min. V-1, min. 130°C	UL 796	UL
Built-in power supply	Shenzhen Creality 3D Technology Co Ltd	CMS-350-24	Input: 100-120Vac; 50/60Hz; 8.6A or 200-240Vac; 50/60Hz; 8.6/4.3A; Output: 24Vdc, 14.6A;	UL 62368-1	UL E522644
Input wire for built-in power supply	Interchangeable	1007, 3135, 1015	Min. 18AWG, min. 80°C,	UL 758	UL
Output wire for built-in power supply	Interchangeable	3135	Min. 16AWG, min. 105°C,	UL 758	UL
Ground wire	Interchangeable	1007, 3135, 1015	min.16 AWG, min.300V, min. 80C;	UL 758	UL
DC motor (used on X axial)	SHENZHEN KELI MOTOR CO., LTD	BJ42D15-26V09	Min. 11.8mN.m, DC 5.04V, 0.84A	IEC/EN 62368-1	Test with appliance
Alt.	Interchangeable	Interchangeable	Min. 11.8mN.m, DC 5.04V, 0.84A	IEC/EN 62368-1	Test with appliance
DC motor (used on Y axial)	SHENZHEN KELI MOTOR CO., LTD	BJ42D15-26V10	Min. 11.8mN.m, DC 5.04V, 0.84A	IEC/EN 62368-1	Test with appliance
Alt.	Interchangeable	Interchangeable	Min. 11.8mN.m, DC 5.04V, 0.84A	IEC/EN 62368-1	Test with appliance
DC motor (used on Z axial)	SHENZHEN KELI MOTOR CO., LTD	BJ42D15-26V12	Min. 11.8mN.m, DC 5.04V, 0.84A	IEC/EN 62368-1	Test with appliance
Alt.	Interchangeable	Interchangeable	Min. 11.8mN.m, DC 5.04V, 0.84A	IEC/EN 62368-1	Test with appliance
DC motor (used for squeeze out Material)	SHENZHEN KELI MOTOR CO., LTD	BJ42D09-20V02	Min. 150mN.m, DC 1.47V, 0.84A	IEC/EN 62368-1	Test with appliance
Alt.	Interchangeable	Interchangeable	Min. 150mN.m, DC 1.47V, 0.84A	IEC/EN 62368-1	Test with appliance
DC fan (FAN3)	Interchangeable	Interchangeable	24Vdc, 0.1A, 6800RPM	IEC/EN 62368-1	Test with appliance

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

DC fan (FAN1, FAN2)	Interchangeable	Interchangeable	24Vdc, 0.10A, 7000RPM	IEC/EN 62368-1	Test with appliance
Nozzle Heater	shenglong electric heating technology co.,Ltd	A6-20	24Vdc, 40W	IEC/EN 62368-1	Test with appliance
Thermistor	THERMISTOR-MOV ELECTRONICS CO LTD	HNG104F	100k ohm 300°C	UL1434	UL E477656
Plastic enclosure	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AC310(+)	Min. thk(mm)1.0 V-0	UL746C	UL E162823
Alt.	NAN YA PLASTICS (HUI ZHOU) CORP LTD	6401G6	Min. thk(mm)1.5 V-0	UL746C	UL E235269
Alt.	LG Chem Huizhou Petrochemical Co Ltd	AF312C	Min. thk(mm)2.5 V-0	UL746C	UL E476284
Sleeving	Dongguan Gushang Electronics Technology Co Ltd	GSKJ-PET-WG	VW-1	UL1441	UL E468206
Alt.	Interchangeable	Interchangeable	VW-1	UL1441	UL
LCD Display	Interchangeable	Interchangeable	4.3 inch	IEC/EN 62368-1	Tested with appliance

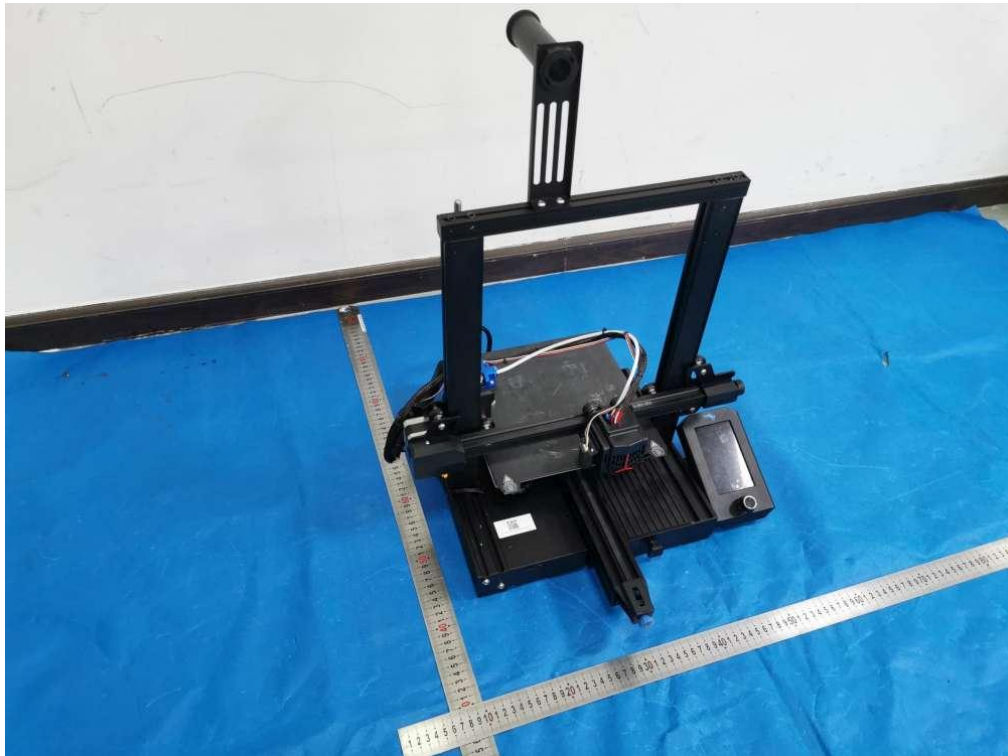
**Supplementary information:**

1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

2) Description line content is optional. Main line description needs to clearly detail the component used for testing

**Attachment I:**  
**Photo-documentation**

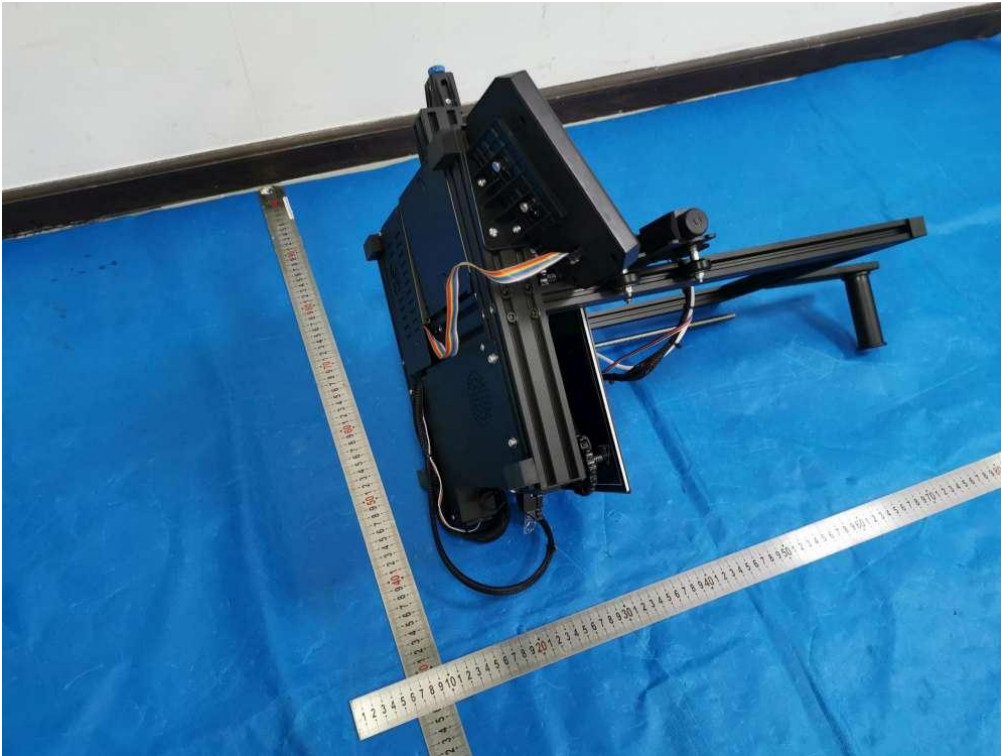
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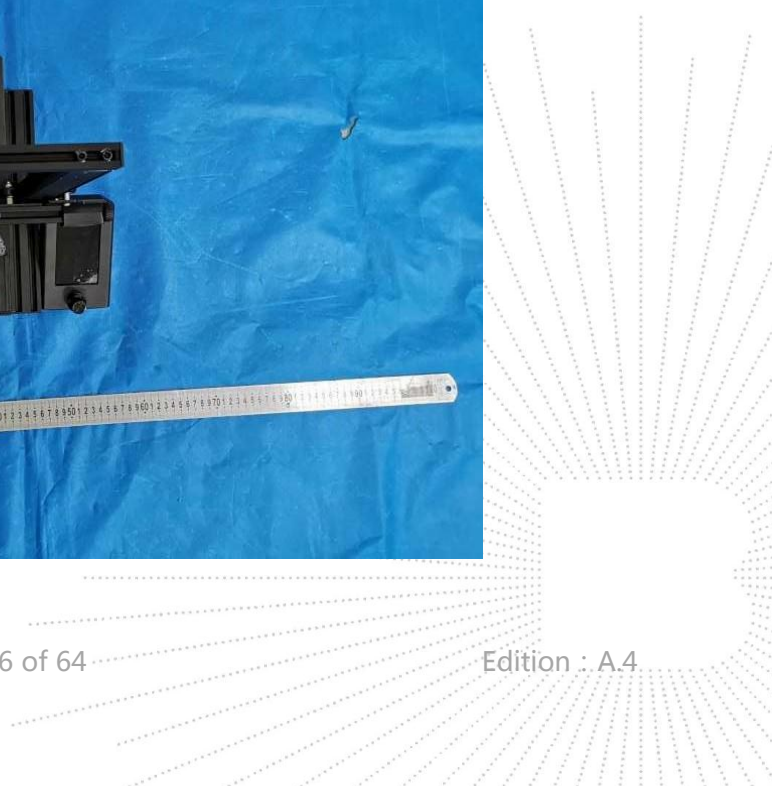
**EUT PHOTO 2**



**EUT PHOTO 3**



**EUT PHOTO 4**





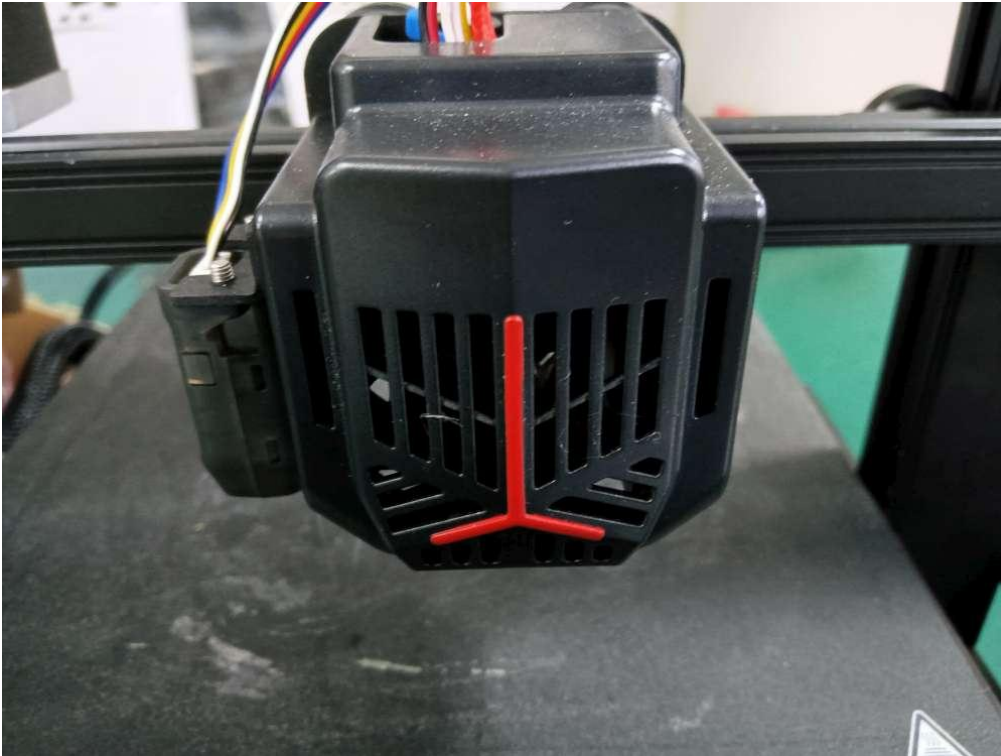
**EUT PHOTO 5**



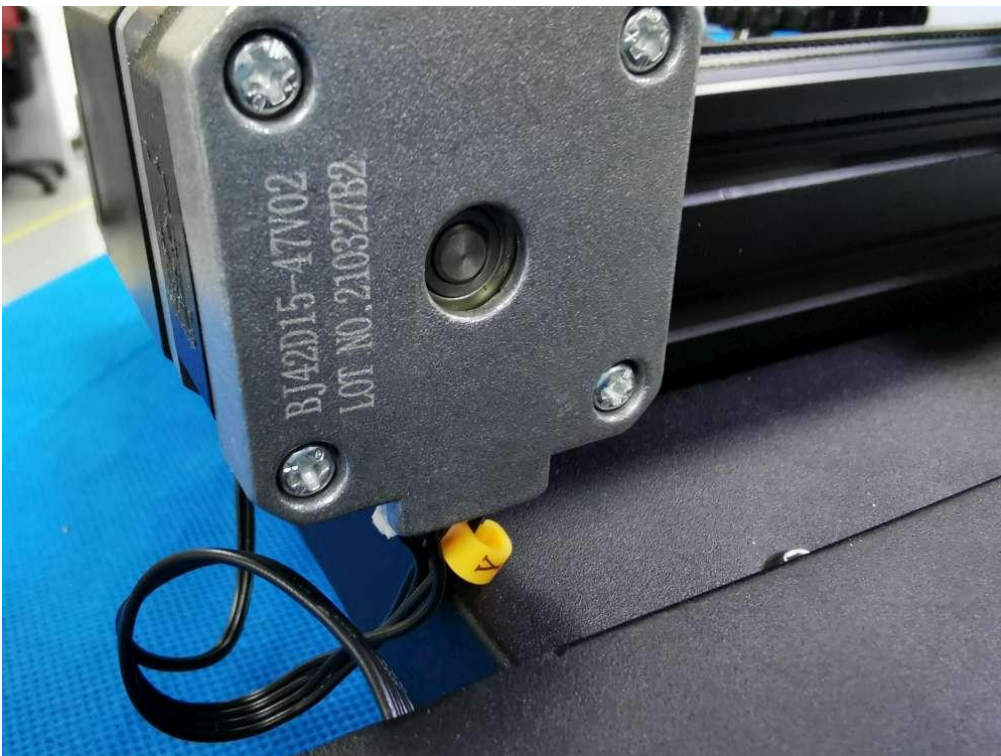
**EUT PHOTO 6**



**EUT PHOTO 7**



**EUT PHOTO 8**



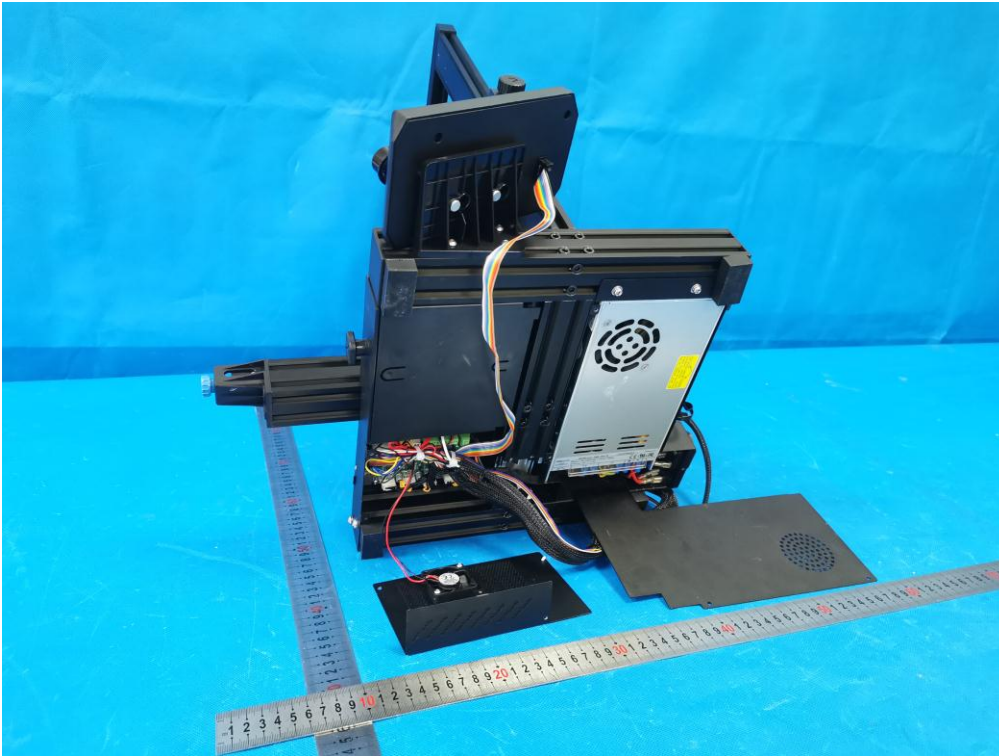
**EUT PHOTO 9**



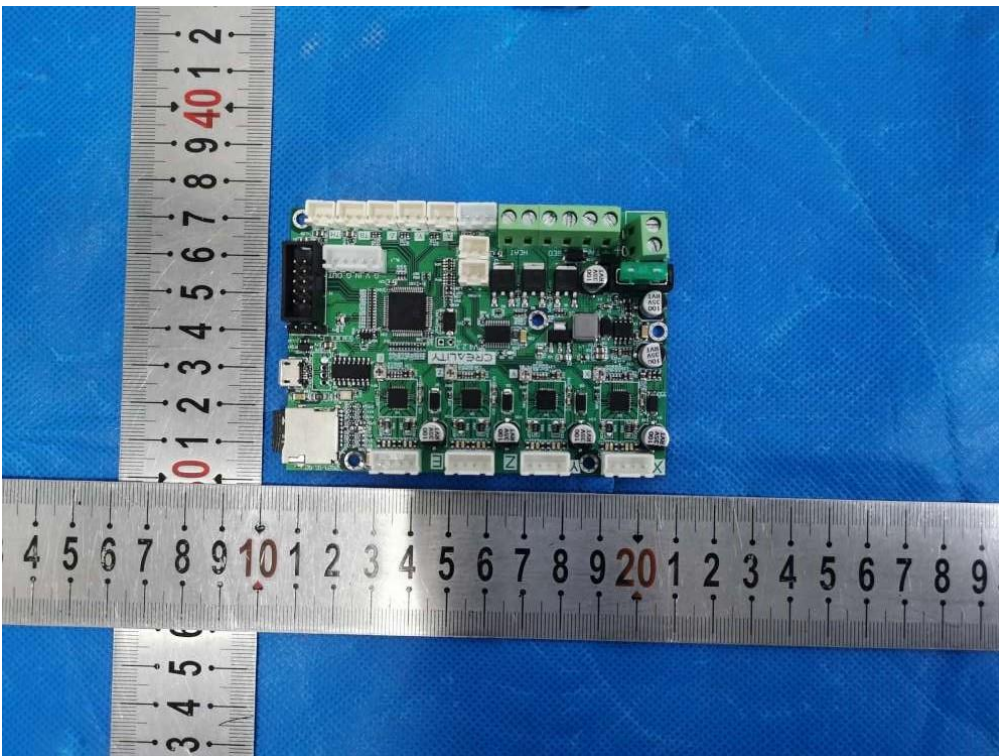
**EUT PHOTO 10**



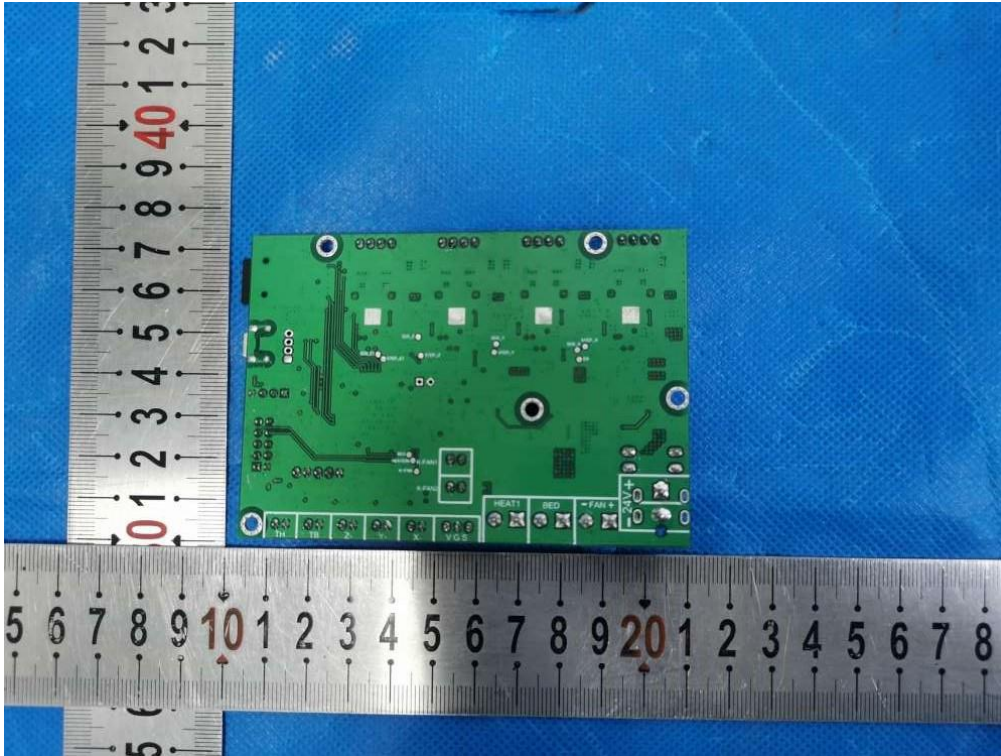
**EUT PHOTO 11**



**EUT PHOTO 12**



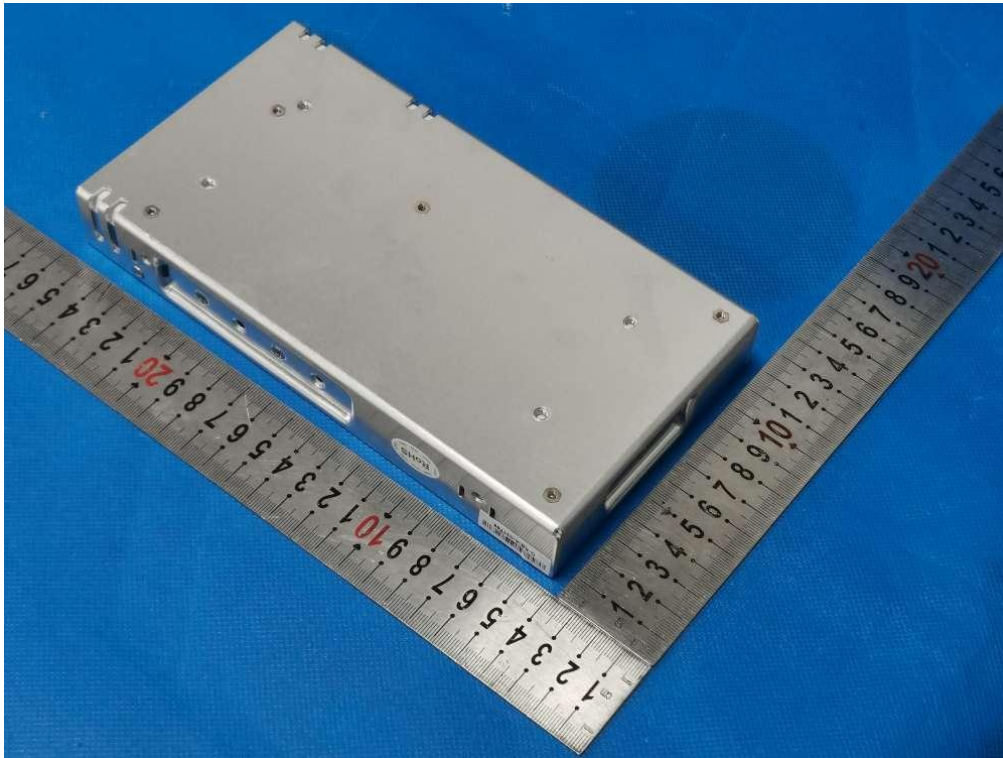
EUT PHOTO 13



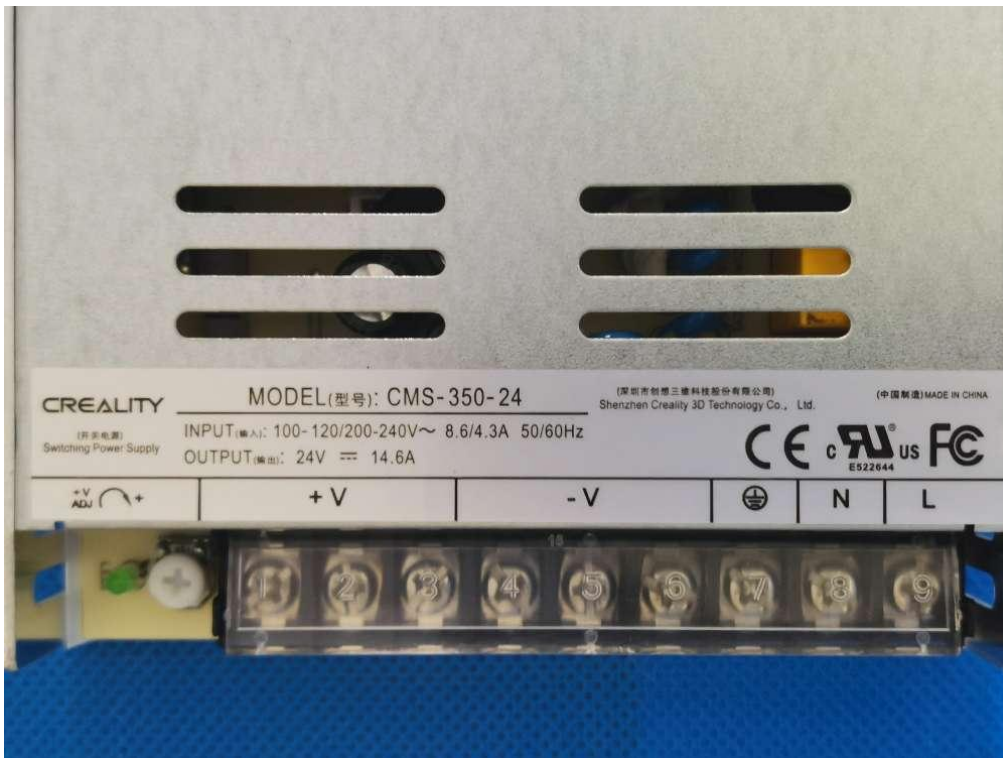
EUT PHOTO 14



EUT PHOTO 15



EUT PHOTO 16



EUT PHOTO 17



EUT PHOTO 18



## STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China  
TEL : 400-788-9558

P. C.: 518103

FAX : 0755-33229357

Website : <http://www.chnbctc.com>

E-Mail : [bctc@bctc-lab.com.cn](mailto:bctc@bctc-lab.com.cn)

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