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

Report Number.....:	250612021SZN-001
Date of issue.....:	July 31, 2025
Total number of pages.....:	Refer to page 3 for details
Name of Testing Laboratory preparing the Report ..... :	Intertek Testing Services Shenzhen Ltd. Longhua Branch
Applicant's name.....:	Audio Effetti S.r.l.
Address.....:	Via A. Manuzio, 57A, 16143 Genova (GE) Italy.
Test specification:	
Standard .....:	IEC 62368-1:2014
Test procedure.....:	General Safety Report
Non-standard test method .....:	N/A
TRF template used..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. .....:	IEC62368_1D
Test Report Form(s) Originator .....:	UL(US)
Master TRF.....:	Dated 2022-04-14

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test Item description .....:		LED display	
Trade Mark(s) .....:		audio/effetti, ego DISPLAY	
Manufacturer .....:		Same as applicant	
Model/Type reference .....:		EasyCOB G2 P0.6, EasyCOB G2 P0.9, EasyCOB G2 PX (Where "X"= 1.25 1.56 1.87)	
Ratings .....:		Input: 100-240VAC, 50/60Hz, 10A(max.) Class I	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	Intertek Testing Services Shenzhen Ltd. Longhua Branch	
Testing location/ address..... :		No.101&201, Building B, No.308, Wuhe Avenue, Zhangkengjing, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China	
Tested by (name, function, signature)..... :		Steven Zhu/ Engineer	
Approved by (name, function, signature)..... :		Jacky Chen/ Sr. Project Engineer	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address..... :			
Tested by (name, function, signature)..... :			
Approved by (name, function, signature)..... :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address..... :			
Tested by (name, function, signature)..... :			
Witnessed by (name, function, signature) ..... :			
Approved by (name, function, signature)..... :			
☐	**Testing procedure: CTF Stage 3 :**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address..... :			
Tested by (name, function, signature)..... :			
Witnessed by (name, function, signature) ..... :			
Approved by (name, function, signature)..... :			
Supervised by (name, function, signature) ..... :			

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

- Pages 1 to 57 for IEC 62368-1 TRF (main report)
- Appendix 1 (10 pages): European group differences and national differences of EN 62368-1:2014 + A11:2017
- Appendix 2 (7 pages): Product photos

Summary of testing:

The sample(s) tested complies with the requirements of IEC 62368-1:2014/ EN 62368-1:2014 + A11:2017.

Tropical climates have been considered in this report.

Tests performed (name of test and test clause):	**Testing location:**
Refer to content of this test report.	Intertek Testing Services Shenzhen Ltd. Longhua Branch No.101&201, Building B, No.308, Wuhe Avenue, Zhangkengjing, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

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

European group differences and national differences were checked.

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

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

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

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

Information on uncertainty of measurement:

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

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

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

Copy of marking plate:

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

Remark:

- The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
- Above information was labelled or silk-screened on rear enclosure.
- The CE marking and WEEE symbol (if any) should be at least 5.0 mm and 7.0 mm respectively in height.
- The model no. and brand name shown above can be replaced by others listed in this report.
- When placing electrical equipment on the EU market, according to EU NLF (new legislative framework), the importer (and manufacturer, if it is different from importer)'s name registered trade name or registered trade mark and the postal address at which he can be contacted shall be marked on the product or, where that is not possible, on its packaging or in a document accompanying the product. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☐ Ordinary person ☒ Instructed person ☒ Skilled person ☐ Children likely to be present
Supply Connection ..... :	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance ..... :	☒ +10%/ -10% ☐ +20%/ -15% ☐ +____%/ -____% ☐ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: evaluate in final system
Considered current rating of protective device as part of building or equipment installation ..... :	16 A; Installation location: ☒ building ☐ equipment ☐ other:
Equipment mobility ..... :	☐ movable ☐ hand-held ☐ transportable ☐ stationary ☒ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: ____
Class of equipment ..... :	☒ Class I ☐ Class II ☐ Class III ☐ Class II with functional earthing ☐ Not classifed
Access location ..... :	☒ restricted access location ☐ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	45°C
IP protection class ..... :	☒ IPX0 ☐ IP____
Power Systems ..... :	☒ TN ☐ TT ☐ IT - ____ V_{L-L} ☐ dc mains ☐ N/A
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ ____ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ ____ m
Mass of equipment (kg) ..... :	Max. 4.64
Possible test case verdicts:	

- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing:	
Date of receipt of test item ..... :	October 30, 2024 (from previous report 241030018SZN-001)
Date (s) of performance of tests ..... :	October 30, 2024 – December 03, 2024 (from previous report 241030018SZN-001)

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 ☐ comma / ☒ point is used as the decimal separator.

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The clause which indicated with * is the subcontract test item. (if there is subcontracting test).

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	**Guangdong Unilumin Energy Resource Co. Ltd** No.3 Longsheng 5th Rd, Daya Bay Western District, Huiyang District 516200 Huizhou Guangdong China

General product information and other remarks:

Product Description:

The product covered by this report is LED Display for indoor use. It is considered as a component and shall be installed in a prepared recess in final system, such as in a wall, or similar situation. Or the product shall be installed with additional frame of back enclosure, so that qualified person can open the enclosure of product by using special tools only.

The LED lamp of this equipment is classified as exempt group according to IEC 62471 (test for the whole LED module).

Types of disconnect devices: Need to further evaluate in final system.

Remark: All test results were taken from the previous report 241030018SZN-001 amendment 1.

Model Differences:

The models covered by this report are identical, except brand name, model No., rating output and lattice distance of LED in panel.

See below:

Model No.	Pixel pitch (mm)	LED models	Sizes (mm)
EasyCOB G2 P0.6	0.6	MTC-4R0306A-AEA for red, MTC-RG0306B-ACA for green, MTC-RB0306B-ABA for blue	600x337.5mm
EasyCOB G2 P0.9	0.9		
EasyCOB G2 PX	"X" =1.25, 1.56, 1.87		

Additional application considerations – (Considerations used to test a component or sub-assembly):

Conditions of Acceptability:

The products covered in this Report are incomplete in construction features or limited in performance capabilities and are intended for use and evaluation in other products. Consideration should be given to the following when the component is used in or with another product.

1) Max. power delivery from one unit to the other is required to be verified in end application.

2) Protection against access to hazardous parts is to be checked.

3) Mounting method is to be evaluated.

No operator access area, the device is intended for service person access only.

Following items are required to be verified in accordance with the applicable standard(s) in the final application.

Clause 5.3.2 Accessibility to electrical energy sources and safeguards (Accessibility test)

Clause 5.5.2.2 Safeguards against capacitance discharge test

Clause 5.6.4.2 Determination of the protective current rating

Clause 5.6.6.2 Resistance of the protective bonding system (Ground continuity test)

Clause 5.7.2.1 Measurement of touch current

Clause 8.6 Stability of equipment

Clause 8.7 Wall or ceiling mount loading test

Clause 10.4 Safeguards against visible, infra-red, and ultra-violet radiation

Annex T.5 Steady force test, 250 N

Annex T.6 Enclosure impact test

Annex V Determination of Accessible Parts Test

The electrical rating of power cord shall be selected to match the power consumption of final system. In addition, the actual installation shall comply with installation instructions.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	ES1
Source of electrical energy	**Corresponding classification (ES)**
Input and the primary circuits of power supply board	ES3 (declared)
Output of Transformer PT101 after PEC207	ES1
Signal ports and accessible parts	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	PS2
Source of power or PIS	**Corresponding classification (PS)**
Input and the primary circuits of power supply board	PS3 (declared)
Output of Transformer PT101 after PEC207	PS2
Signal ports	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	Glycol
Source of hazardous substances	**Corresponding chemical**
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Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	MS2
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Equipment mass	MS1
Edges and corners	MS1
Wall/ceiling or other structure mount	MS3
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	TS1
Source of thermal energy	**Corresponding classification (TS)**
External surface of the equipment (contact time >1s and <10s)	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	RS1
Type of radiation	**Corresponding classification (RS)**
LED panel	RS1

ENERGY SOURCE DIAGRAM					
Indicate which energy sources are included in the energy source diagram. Insert diagram below					
	☐ **ES**	☐ **PS**	☐ **MS**	☐ **TS**	☐ **RS**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Instructed person	ES3: Input and the primary circuits of power supply board	1. Sufficient clearances and creepage distances	1.Protective bonding and protective earthing	1. Approved internal switch power supply. 2. Sufficient clearances and creepage distances 3. Verified the test of prospective touch voltage and touch current
Instructed person	ES1: Output of Transformer PT101 after PEC207	N/A	N/A	N/A
Instructed person	ES1: Signal ports	N/A	N/A	N/A
Instructed person	ES1: Metal enclosure	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible material	PS3: Input and the primary circuits of power supply board	No parts exceeding 90% of its spontaneous ignition temperature	All components mound on the V-1 or better material.	N/A
Combustible material	PS2: Output of Transformer PT101 after PEC207	No parts exceeding 90% of its spontaneous ignition temperature	All components mound on the V-1 or better material.	N/A
Combustible material	PS1: Signal ports	N/A	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
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8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)

Instructed person	MS1: Mass of the unit	N/A	N/A	N/A
Instructed person	MS3: Wall/ceiling or other structure mount	N/A	N/A	Further evaluation in final system
Instructed person	MS1: Sharp edge and corner	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed person	TS1: External surface of the equipment	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed person	RS1: LED panel	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies		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	P
4.1.3	Equipment design and construction	Safeguards are provided to reduce the likelihood of injury or, in the case of fire, property damage	P
4.1.15	Markings and instructions.....	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests.....	(See Annex T.5)	P
4.4.4.3	Drop tests	(See Annex T.7)	N/A
4.4.4.4	Impact tests	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....	Internal safeguard cannot be accessible	N/A
4.4.4.6	Glass Impact tests.....	No glass used	N/A
4.4.4.7	Thermoplastic material tests	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion	No explosion occurred	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to	10 N force test applied to the most unfavourable direction	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard.....		N/A
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....		—
4.8.4	Battery Compartment Mechanical Tests	(See table 4.8.4)	N/A
4.8.5	Battery Accessibility		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.9	Likelihood of fire or shock due to entry of conductive object.....	(See Annex P) Building-in equipment, need to further evaluate in final system	P
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications.....	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current	(See appended table 5.2)	P
5.2.2.3	Capacitance limits	(See appended table 5.2)	P
5.2.2.4	Single pulse limits.....	No single pulse	N/A
5.2.2.5	Limits for repetitive pulses.....	No repetitive pulse	N/A
5.2.2.6	Ringing signals	No ringing signals	N/A
5.2.2.7	Audio signals	No audio signals	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
5.3.2.2	Contact requirements		P
	a) Test with test probe from Annex V.....	Test probe from Annex V cannot contact a bare internal conductive part	P
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree.....	Pollution degree 2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances	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 appended table 5.4.2.2)	P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage	2500V peak	—
	b) d.c. mains transient voltage	Not d.c. mains.	—
	c) external circuit transient voltage.....	No such transient	—
	d) transient voltage determined by measurement.....	Not applicable	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages	The requirements of IEC 60664-1 for clearances were considered	P
5.4.3	Creepage distances	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 appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group	Material Group IIIb	—
5.4.4	Solid insulation		P
5.4.4.2	Minimum distance through insulation	See table 5.4.4.2	P
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices	Complied with Clause G.12 for optocoupler	P
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		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

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.4	Standard test procedure for non-separable thin sheet material	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz	(See appended table 5.4.4.9)	P
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ)		—
5.4.6	Insulation of internal wire as part of supplementary safeguard	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Tested for AC components only	P
	Relative humidity (%)	93	—
	Temperature (°C)	40	—
	Duration (h)	120	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test		P
5.4.9.2	Test procedure for routine tests	Should be considered and conducted during production at factory.	N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test.....	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry	(See appended table 5.4.9)	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V).....		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....	(See appended table 5.5.2.2)	P
5.5.3	Transformers		P
5.5.4	Optocouplers		P
5.5.5	Relays	(See Annex G.2)	N/A
5.5.6	Resistors	(See Annex G.10)	N/A
5.5.7	SPD's	(See Annex G.8)	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable	(See Annex G.10.3)	N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors	Class I equipment	P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation	Green-and-yellow	P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm^2)	See appended table 4.1.2	—
5.6.4	Requirement for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm^2).....	See appended table 4.1.2	—
	Protective current rating (A)	16	—
5.6.4.3	Current limiting and overcurrent protective devices		P
5.6.5	Terminals for protective conductors		P
5.6.5.1	Requirement		P
	Conductor size (mm^2), nominal thread diameter (mm).	Minimum nominal thread diameter, screw type: 3.9 mm	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method Resistance (Ω)	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.1	Measurement of touch current	(See appended table 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
	System of interconnected equipment (separate connections/single connection).....	Considered in final system	—
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts.....	(See appended table 5.7.4)	P
5.7.5	Protective conductor current	Test in one module, when use more than one module should be evaluated in final system (See appended table 5.7.5)	P
	Supply Voltage (V)	See appended table 5.7.5	—
	Measured current (mA)	See appended table 5.7.5	—
	Instructional Safeguard	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA)		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....		N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ..	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault	(See appended table 6.2.2)	P
6.2.2.4	PS1	(See appended table 6.2.2)	P
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions.....	(See appended table 6.4.3)	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
6.4.5.2	Supplementary safeguards	All components mounted on PCB with V-0 classified material	P
6.4.6	Control of fire spread in PS3 circuit		P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Fire enclosures used	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Fire enclosure is made of non-combustible material: metal, and made of V-0 class material	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	Building-in equipment, need to further evaluate in final system	N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	Building-in equipment, need to further evaluate in final system	N/A
	Needle Flame test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	Building-in equipment, need to further evaluate in final system	N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Fire enclosure is made of non-combustible material: metal, and made of V-0 or better class material	P
6.5	Internal and external wiring		P
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm^2)	(See appended tables 4.1.2)	—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries.....	(See Annex M)	N/A

8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of product are rounded and smooth	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard.....	See caution marking for details	—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....	(See Annex F.4 and Annex K)	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test	(See appended table 8.5.5.2)	N/A
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard.....	See safety instruction for details	—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force.....		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....		N/A
	Position of feet or movable parts		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)	Built-in component evaluated in the final system	N/A
8.7.2	Direction and applied force.....	Building-in equipment, need to further evaluate in final system	N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force.....		—
8.10	Carts, stands and similar carriers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force.....		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N).....		—
8.10.6	Thermoplastic temperature stability (°C).....		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N*		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	(See Annex T)	N/A
	Button/Ball diameter (mm).....		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	TS1	P
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard		N/A
10	**RADIATION**		P
10.2	Radiation energy source classification		P
10.2.1	General classification	The LED lamp of this equipment is classified as Exempt group according to IEC/EN 62471 (test for the whole LED panel module)	P
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....		N/A
	Instructional safeguard		—
	Tool.....		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....		N/A
	Personal safeguard (PPE) instructional safeguard.....		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1.....	The LED lamp of this equipment is classified as Exempt group according to IEC/EN 62471	P
10.4.1.d)	Normal, abnormal, single-fault conditions	(See appended table B.3 & B.4) Considered	P
10.4.1.e)	Enclosure material employed as safeguard is opaque.....		N/A
10.4.1.f)	UV attenuation.....		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation.....		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....		N/A
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment.....	(See appended table B.3 & B.4)	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....		N/A
	Instructional safeguard for skilled person.....		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		—
	Abnormal and single-fault condition	(See appended table B.3 & B.4)	N/A
	Maximum radiation (pA/kg).....		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A).....		N/A
	Output voltage, unweighted r.m.s.....		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2.....		—
	Means to actively inform user of increase sound pressure.....		—
	Equipment safeguard prevent ordinary person to RS2.....		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	Corded passive listening devices with analogue input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output.....		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....		—
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements.....	(See 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	(See appended table B.2.5)	P
B.2.5	Input test.....	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	(See appended table B.4)	N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature	(See Clause G.5)	N/A
B.4.4	Short circuit of functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions...	(See Annex M)	N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V).....		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements		P
	Instructions – Language	English and/ or local language	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.1	Equipment marking locations	On the exterior of the equipment	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	See marking plate for details	—
F.3.2.2	Model identification	See marking plate for details	—
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 supply voltage.....		—
F.3.3.4	Rated voltage.....	See the marking plate	—
F.3.3.5	Rated frequency	See the marking plate	—
F.3.3.6	Rated current or rated power.....	See the marking plate	—
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		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking.....		N/A
F.3.5.3	Replacement fuse identification and rating markings		N/A
F.3.5.4	Replacement battery identification marking		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment	Class I equipment	P
F.3.6.1.1	Protective earthing conductor terminal	Terminal for protective earthing conductor is identified with the symbol ⏚	P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals	Terminals for protective bonding conductors need not be identified	P
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	The marking was subjected to the durability of marking test. After this test, the marking still be legible, it cannot remove marking plates easily and show no curling.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		P
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		P
	d) Equipment intended for use only in restricted access area		P
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		P
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
j)	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		P
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	See caution marking for details	P

G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		P
G.3.1	Thermal cut-offs		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω).....		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices		P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....	(See appended table B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	**Wound Components**		P
G.5.1	Wire insulation in wound components.....	(See Annex J)	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s).....		—
	Temperature (°C).....		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	Comply with G.5.3.2 – G.5.3.3	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Position	Isolation between primary and secondary part	—
	Method of protection	Protection by inherent or external impedance.	—
G.5.3.2	Insulation		P
	Protection from displacement of windings	All windings are mechanically secured by tapes and bobbin.	—
G.5.3.3	Overload test	(See appended table B.3)	N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature	(See appended table B.4)	N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h).....		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	**Wire Insulation**		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.6.1	General	ES3 for transformer: Approved triple insulated wire used	P
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type.....	(See appended tables 4.1.2)	—
	Rated current (A).....	(See appended tables 4.1.2)	—
	Cross-sectional area (mm^2), (AWG).....	(See appended tables 4.1.2)	—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry.....	(See appended table 5.4.11.1)	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m).....		—
	Temperature (°C).....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements	Approved varistors used	P
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....	(See appended table B.3)	N/A
G.8.3.3	Temporary overvoltage.....	(See appended table B.3)	N/A
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A).....		—
G.9.1 e)	Manufacturers' defined drift		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		P
G.11.1	General requirements	Approved Y1, X2 capacitors used and see appended table 4.1.2 for details	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....	Approved optocoupler used in power board, see appended table 4.1.2 for details	P
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	**Printed boards**		P
G.13.1	General requirements		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
	Compliance with cemented joint requirements (Specify construction).....		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation	(See appended table 5.4.4.5)	N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements	(See G.13)	N/A
G.15	**Liquid filled components**		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—

H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage.....		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		P
	General requirements	Approved triple insulating wire used, see appended table 4.1.2 for details	P
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test	(See appended table 5.4.11)	N/A
L	**DISCONNECT DEVICES**		P
L.1	General requirements	Need to further evaluate in final system	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment	Need to further evaluate in final system	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method).....	(See appended tables 4.1.2)	N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance	(See appended tables and Annex M and M.4)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature.....	(See appended table M.4)	—
M.4.2.2 b)	Single faults in charging circuitry	(See Annex B.4)	—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s)		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance *d* (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A

N	**ELECTROCHEMICAL POTENTIALS**		P
	Metal(s) used	Zinc on iron	—

O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied	Considered	—

P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements	Building-in equipment, need to further evaluate in final system	N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Transportable equipment with metalized plastic parts.....		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C).....		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing.....	(See Annex T)	N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	(See appended table Q.1)	N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A))		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		P
S.5	Flammability test for fire enclosure materials of equipment with a steady-state power exceeding 4000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

T	**MECHANICAL STRENGTH TESTS**	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N	(See appended table T.3)	N/A
T.4	Steady force test, 100 N	(See appended table T.4)	N/A
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	(See appended table T.7)	N/A
T.8	Stress relief test.....	(See appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....		—
	Height (m).....		—
T.10	Glass fragmentation test.....	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—

U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen	(See Annex T)	N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment		P
V.2	Accessible part criterion		P

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

4.1.2	**TABLE: List of critical components**				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Metal enclosure	Interchangeable	Interchangeable	Die-cast aluminum, Thickness min. 1.7mm.	IEC/EN 62368-1	Tested with appliance
Appliance inlets	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A03-002, ST-A03-004, ST-A03-005	AC250V, 2.5A	IEC/EN 60320-1	VDE
Alternative	Zhejiang Yangkang Holding Co., Ltd.	AI-06 - Serie(s)	AC250V, 2.5A	IEC/EN 60320-1	VDE
Alternative	Shenzhen kangyongda electronics Cp., Ltd	DE-8, DE-6, DE-14	AC250V, 2.5A	IEC/EN 60320-1	TUV
Alternative	YUEQING LECI ELECTRONICS CO LTD	DB-8	AC250V, 2.5A	IEC/EN 60320-1	VDE
Alternative	Yueqing Jiaxin Technology Co Ltd	DB-8, DB-8-04, DB-8-09	AC250V, 2.5A	IEC/EN 60320-1	TUV
Mains fuse (PF101, PF102)	ZHONG SHAN LANBAO ELECTRICAL APPLIANCES CO LTD	6125SB, 6125FA	AC 250V, T3.15AL	IEC/EN 60127-1 IEC/EN 60127-3	TUV
Alternative	XC ELECTRONICS (SHENZHEN) CORP LTD	24T Series	AC 250V, T3.15AL	IEC/EN 60127-1 IEC/EN 60127-3	TUV
Alternative	Interchangeable	Interchangeable	AC 250V, T3.15AL	IEC/EN 60127-1 IEC/EN 60127-3	S & other EU Cert. marks
X-Capacitor (PCX101, PCX102)	Shenzhen Sincerity Technology Co., Ltd..	MPX/MKP	Min.AC 275V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Xiamen Wanming Electronics Co., Ltd.	MPX	Min.AC 275V, 0.33uF X2 type	IEC 60384-14	VDE

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

Alternative	Shenzhen Shenfeng Electronics Co., Ltd.	CBB62	Min.AC 275V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Shenzhen Jinghao Capacitor Co., Ltd.	CBB62B	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Shenzhen Weidy Industrial Development Co., Ltd.	MKP	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Dongguan Champion Electric Technology Co., Ltd	MPX Series	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Shenzhen Shanrui Electronics Co., Ltd.	MPX	Min.AC 310V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Fuxin Pan Ocean Electronic Ltd.	MPX-X2	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Hongzhi Enterprises Ltd.	MPX	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Dongguan City Dafu Electronics Co. Ltd.	MPX Series	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	VDE
Alternative	Interchangeable	Interchangeable	Min.AC 250V, 0.33uF X2 type	IEC 60384-14	S & other EU Cert. marks
Y-Capacitor (PCY102)	Shenzhen Weidy Industrial Development Co., Ltd.	WYS	Min. AC 250V, 1000pF,125°C, Y1 type	IEC 60384-14	VDE
Alternative	Sichuan Teruixiang Technology International Co Ltd	TRX	Min. AC 250V, 1000pF,125°C, Y1 type	IEC 60384-14	ENEC

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

Alternative	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	Min. AC 250V, 1000pF,125°C, Y1 type	IEC 60384-14	ENEC
Alternative	Xiamen Sino Faith Electronic Technology Co. Ltd.	HCY	Min. AC 250V, 1000pF,125°C, Y1 type	IEC 60384-14	VDE
Alternative	Nanjing Yuyue Electronics Co., Ltd.	SL, B, E, F series,	Min. AC 250V, 1000pF,125°C, Y1 type	IEC 60384-14	ENEC
Alternative	Interchangeable	Interchangeable	Min. AC 250V, 1000pF,125°C, Y1 type	IEC 60384-14	S &other EU Cert. marks
Y-Capacitor (PCY103, PCY104)	Shenzhen Weidy Industrial Development Co., Ltd.	WYS - Series	Min. AC 250V, 220pF, 125°C, Y1 type	IEC 60384-14	VDE
Alternative	Sichuan Teruixiang Technology International Co Ltd	TRX	Min. AC 250V, 220pF, 125°C, Y1 type	IEC 60384-14	ENEC
Alternative	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	Min. AC 250V, 220pF, 125°C, Y1 type	IEC 60384-14	ENEC
Alternative	Xiamen Sino Faith Electronic Technology Co. Ltd.	HCY	Min. AC 250V, 220pF, 125°C, Y1 type	IEC 60384-14	VDE
Alternative	Nanjing Yuyue Electronics Co., Ltd.	SL，B，E，F series,	Min. AC 250V, 220pF, 125°C, Y1 type	IEC 60384-14	ENEC
Alternative	Interchangeable	Interchangeable	Min. AC 250V, 220pF, 125°C, Y1 type	IEC 60384-14	S &other EU Cert. marks

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

Varistor (PRV101)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd	10D681K	Min.300V, 6kV/3kA, coating: V-0, 40/85/56	IEC 61051-1 IEC 61051-2	VDE
Transformer (PT101)	Huizhou MVT New Power Technology CO., LTD	ZY-T0221	130°C, Class B N1: Φ0.45* 1.0mm* 44Ts; N2: Φ0.30* 1.0mm* 4Ts; N3: 4.0* 0.8mm* 1Ts; N2: 4.0* 0.8mm* 1Ts	IEC/EN 62368-1	Tested with appliance
Insulation system	Huizhou MVT New Power Technology CO., LTD	ZY-T	Class B	UL 1446	UL
-Bobbin	CHANGCHUN PLASTICS CO.,LTD	T200HF, T220NA	150 °C, V-0, min. thickness 0.6mm	UL 94	UL
Alternative	SUMIDUREZ SINGAPORE PTE LTD	PM9820, PM9825	150 °C, V-0, min. thickness 0.6mm	UL 94	UL
-Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (b)(g)	130 °C	UL 510A	UL
Alternative	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-19-02-15b, LY-19-02-18b	130 °C	UL 510A	UL
Alternative	DONGGUAN SHIN YAHUA ELECTRONIC MATERIAL CO LTD	CT* (b)(g), CT* (c)(g)	130 °C	UL 510A	UL
-Triple insulation wire	Huizhou Dongju Fluo Tech Plastic Co. LTD	TIW-FXXX	155°C	IEC/EN 62368-1	VDE
Insulation tube	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-L	200°C, 150V	UL 224	UL

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

Alternative	HUIZHOU DONGJU FLUO TECH PLASTIC CO LTD	TFL	200°C, 150V	UL 224	UL
Alternative	GREAT HOLDING INDUSRLAL CO LTD	TFL	200°C, 150V	UL 224	UL
Line filter (PL101)	Huizhou MVT New Power Technology Co., LTD	ZY-T0231	Min. 250Uh N1: Φ0.20* 10P*1, 36Ts	IEC/EN 62368-1	Tested with appliance
-Bobbin	CHANGCHUN PLASTICS CO.,LTD	T375HF, T220NA	150 °C, V-0, min. thickness 0.75mm	UL 94	UL
Alternative	SUMIDUREZ SINGAPORE PTE LTD	PM9830, PM9850	150 °C, V-0, min. thickness 0.75mm	UL 94	UL
- Wire	HOI LUEN ELECTRICAL MFR CO LTD	xUEW, xUEW-F	Min. 130 °C	UL 1446	UL
Alternative	ZHEJIANG HONGBO TECHNOLOGY CO LTD	xUEW	Min. 130 °C	UL 1446	UL
Line filter (PLF101, PLF103)	Huizhou MVT New Power Technology Co., LTD	SYUC19-L017mA	Min. 17 mH L(1-4): Φ0.15* 1.0mm*60Ts; L(2-3): Φ0.15* 1.0mm*60Ts	IEC/EN 62368-1	Tested with appliance
-Bobbin	CHANGCHUN PLASTICS CO.,LTD	T375J, T375HF	150 °C, V-0, min. thickness 0.75mm	UL 94	UL
- Wire	HOI LUEN	2UEW	Min. 130 °C	UL 1446	UL
Alternative	SHENZHEN CHENGWEI INDUSMVTY CO LTD	2UEW	Min. 130 °C	UL 1446	UL
Alternative	ZHAOQING RUNHUI METAL INDUSTRIAL CO LTD	2UEW	Min. 130 °C	UL 1446	UL

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

Optocoupler (PU204)	Changzhou Galaxy Century Micro-electronics Co., Ltd.	BL817 (A,B,C,D,L), BL817M (A,B,C,D,L), BL817S (A,B,C,D,L)	Internal: CI, Cr≥5.0mm, External: CI, Cr≥5.0mm, Dti≥0.4mm	DIN EN IEC 60747-5-5	VDE
Bleeder resistors (PR126, PR127, PR128, PR129)	Interchangeable	Interchangeable	1MΩ, 1/4W	IEC/EN 62368-1	Tested with appliance
Electrolytic capacitor (PEC101)	Interchangeable	Interchangeable	Min. 450V, Max.68uF, 105°C	IEC/EN 62368-1	Tested with appliance
Insulating sheet	SICHUAN LONGHUA FILM CO LTD	PP-BK15V, PP-WT16	V-0, 65°C, min. thickness 0.4mm	IEC 60695-11-10	UL
Alternative	SICHUAN LONGHUA FILM CO LTD	PC-870	V-0, 80°C, min. thickness 0.4mm	IEC 60695-11-10	UL
Alternative	Chengdu Kanglongxin Plastics Co., Ltd	KLX PP WT-10-NTC	V-0, 65°C, min thickness 0.4mm	IEC 60695-11-10	UL
Alternative	Sichuan Dongfang Insulating Material Co., Ltd	DFR-WT (c) DFR-BK(b)	V-0, 65°C, min thickness 0.4mm	IEC 60695-11-10	UL
Alternative	Sichuan Dongfang Insulating Material Co., Ltd	DFR117ECOB, DFR700, DFR3738A, DFR3732A	V-0, 80°C, min thickness 0.4mm	IEC 60695-11-10	UL
Alternative	Chengdu Kanglongxin Plastics Co., Ltd	KLX PP WT-10, KLX PP BK-10	V-0, 80°C, min thickness 0.4mm	IEC 60695-11-10	UL
Alternative	Chengdu Kanglongxin Plastics Co., Ltd	KLX FRPC -1880B, KLX FRPC-1860B, KLX FRPC-870B	V-0, 80°C, min thickness 0.4mm	IEC 60695-11-10	UL
Plastic enclosure	DongGuan ZhiShang Plastics Technology Co Ltd	ZS960	V-0, Min. thickness 1.5mm, 80°C	IEC 60695-11-10	UL

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Clause	Requirement + Test	Result - Remark	Verdict

Internal plastic enclosure above power board	DongGuan ZhiShang Plastics Technology Co Ltd	ZS660	V-0, Min. thickness 1.6mm, 80°C	UL 94	UL
(alternative)	Interchangeable	Interchangeable	V-0, Min. 1.6mm, 80°C	UL 94	UL
PCB	SHENZHEN RUOMEI ELECTRONICS CO LTD	RM-01	V-0,130°C	UL 796	UL
Alternative	Interchangeable	Interchangeable	Min. V-0, Min.130°C	UL 796	UL
LEDs	Jiangxi Zhaochi Semiconductor Co., Ltd	MC-M MTC-4R0306A-AEA for red, MTC-RG0306B-ACA for green, MTC-RB0306B-ABA for blue 4193BBL	Red: I_F:2mA, V_F:1.8-2.4V; Green: I_F:0.5mA; V_F:2.2-2.8V; Blue: I_F:0.3mA; V_F:2.4-2.9V	IEC 62471	Test by intertek. Report No.: 230216130GZU-001

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.

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	**TABLE: Classification of electrical energy sources**	P

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264Vac/ 60Hz	Primary circuits supplied by AC mains	Normal	--	--	--	ES3 (declared)
			Abnormal	--	--	--	
			Single fault	--	--	--	
2	264Vac/60 Hz	Plastic material of front panel	Normal	--	0.005mApk	60	ES1
			Single fault: PU204 pin 3-4 SC	--	0.005mApk	60	
			Single fault: PBD101 pin 1-3 SC	--	0.007mApk	60	
3	264Vac/60 Hz	RJ45 terminal +/- to GND	Normal	0	--	60	ES1
			Abnormal-OL	0	--	60	
			Single fault: PU204 pin 1-2 SC	0	--	60	

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1)	1)	1)	Normal	1)	1)	1)
			Abnormal	1)	1)	
			Single fault - SC/OC	1)	1)	

1) See appended table 5.5.2.2.

5.2.2.4 - Single Pulses

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

5.2.2.5 - Repetitive Pulses

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

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Clause	Requirement + Test	Result - Remark	Verdict

			Abnormal	--	--	--	
			Single fault - SC/OC	--	--	--	
Test Conditions:							
Supplementary information: SC=Short Circuit, OC=Short Circuit							

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**			P
	Supply voltage (V) ..... :	90V/60Hz	264V/50Hz	—
	Ambient T_{min} (°C) ..... :	25	25	—
	Ambient T_{max} (°C) ..... :	25	25	—
	Tma (°C) ..... :	45	45	—
Maximum measured temperature T of part/at:		T (°C)		Allowed T_{max} (°C)
AC inlet		39.5	37.0	50=70-45+25
PRV101 body		41.7	38.3	65=85-45+25
PCX101 body		41.3	38.1	60=85-45+25
PLF103 coil		47.9	40.7	110=130-45+25
PEC101 body		45.9	42.7	85=105-45+25
PCB near PQ102		53.2	51.7	110=130-45+25
PCB near PQ104		53.7	52.0	110=130-45+25
PCB near PBD101		50.0	45.0	110=130-45+25
PL101 coil		54.3	43.5	110=130-45+25
PU204 body		58.4	56.8	80=100-45+25
PCY103 body		43.0	39.5	105=125-45+25
PCY102 body		46.1	44.6	105=125-45+25
PT101 coil		70.8	69.2	90=120-10-45+25
PT101 coil		71.6	70.0	90=120-10-45+25
PCB near U1		50.6	49.1	110=130-45+25
PCB near U17		44.3	43.0	110=130-45+25
PCB near U78		46.4	45.1	110=130-45+25

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Clause	Requirement + Test	Result - Remark	Verdict

Plastic enclosure outside	35.4	34.3	77
Display screen	45.3	42.3	77
Button	44.6	42.9	77
Metal enclosure	36.1	34.6	60
Plastic enclosure inside	39.2	39.3	Ref.

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 appliable requirement

Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

5.4.1.10.2	**TABLE: Vicat softening temperature of thermoplastics**	N/A
Penetration (mm) ..... :		—

Object/ Part No./Material	Manufacturer/trademark	T softening (°C)
--	--	--
--	--	--

supplementary information:

5.4.1.10.3	**TABLE: Ball pressure test of thermoplastics**	N/A
Allowed impression diameter (mm) ..... :	≤ 2 mm	—

Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
--	--	--	--

Supplementary information:

5.4.2.2, 5.4.2.4 and 5.4.3	**TABLE: Minimum Clearances/Creepage distance**	P

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (Hz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
Different polarity of line and neutral of PCB trace CNB1 before mains fuse-link	<420	<240	60	1.27	5.9	2.4	5.9
Different poles of mains fuse-link	<420	<240	60	1.27	3.1	2.4	3.1
Live part of primary component to secondary circuits	<420	<240	60	2.54	>6.3	4.8	>6.3
Primary circuits to accessible part (metal enclosure)	<420	<240	60	1.27	>4.9	2.4	>4.9

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Clause	Requirement + Test	Result - Remark	Verdict

Primary circuits to accessible part (LED module)	<420	<240	60	2.54	>7.0	4.8	>7.0
Primary PCB trace and secondary PCB trace of Y capacitor	<420	<240	60	2.54	8.0	4.8	8.0
Primary PCB trace and secondary PCB trace of Optocoupler	<420	<240	60	2.54	6.5	4.8	6.5
Primary and secondary copper track under switching transformer PT101	<420	240	68.7K	2.54	>7.0	4.8	>7.0
Ferrite core and primary pin of switching transformer PT101	<420	240	68.7K	2.54	>7.0	4.8	>7.0

Supplementary information:

Note 1: Only for frequency above 30 kHz

Note 2: See table 5.4.2.4 if this is based on electric strength test

Note 3: Provide Material Group

Note 4: Ferrite core of PT101 was considered as secondary parts.

5.4.2.3	**TABLE: Minimum Clearances distances using required withstand voltage**			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above		2500	1.5 (for B/S) 3.0 (for R)	See table 5.4.2.2, 5.4.2.4 and 5.4.3
Supplementary information:				

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

5.4.4.2, 5.4.4.5 c) 5.4.4.9	**TABLE: Distance through insulation measurements**				P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
Plastic enclosure	<420	0.06	See table 4.1.2	0.4	1.5
Bobbin of transformer TB101	<420	68.7	See table 4.1.2	0.4	0.6
Mylar sheet	<420	0.06	See table 4.1.2	0.4	0.4
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Between mains poles (primary fuse disconnected)		DC	2500	No
Between parts separated by basic or supplementary insulation		DC	2500	No
Between parts separated by double or reinforced insulation		DC	4000	No
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors				P
Supply Voltage (V, Hz)	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
264V, 60Hz	Normal	N	--	12V peak	ES1
264V, 60Hz	PR124 OC	N	--	16V peak	ES1

Supplementary information:
Without considering approved power supply module inside.
X-capacitors installed for testing are: see table 4.1.2
☒ bleeding resistor rating: see table 4.1.2
☐ ICX:
Notes:
A. Test Location:
Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth
B. Operating condition abbreviations:
N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part		Test current (A)	Duration (min)	Voltage drop (V)	Resistance (mΩ)
The furthest metal enclosure corner to input connector earth pin		32	2	--	13
Supplementary information: Test parameter is requested by the manufacturer.					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage..... :		264V/60Hz	—

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Clause	Requirement + Test	Result - Remark	Verdict

Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
Metal enclosure	1	0.165
	2*	0.005
	3	--
	4	--
	5	--
	6	--
	8	--

Supplementary Information:
[1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2	**TABLE: Electrical power sources (PS) measurements for classification**				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
For power source circuits	Primary circuits supplied by AC mains	Power (W) :	--	--	PS3 (declared)
		V_A (V) :	--	--	
		I_A (A) :	--	--	
For load circuits	Signal port	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
For load circuits	Transformer PT101 output after PEC207	Power (W) :	70.25	70.25	PS2
		V_A (V) :	2.91	2.91	
		I_A (A) :	24.14	24.14	
For power source circuits	Transformer PT101 output after PEC207 (Single fault: PU204 pin 1-2 SC)	Power (W) :	0	--	
		V_A (V) :	0	--	
		I_A (A) :	0	--	

Supplementary Information:
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

6.2.3.1	**TABLE: Determination of Potential Ignition Sources (Arcing PIS)**	P

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Clause	Requirement + Test	Result - Remark	Verdict

Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
All PS3 circuits	--	--	--	Yes (declared)

Supplementary information:

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

6.2.3.2	TABLE: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
All PS3 circuits	--	--	--	--	Yes (declared)

Supplementary Information:

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

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

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

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

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

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
90V/50Hz	0.624	--	55.80	--	PF101	0.624	Normal full display with white light
90V/60Hz	0.625	--	55.77	--	PF101	0.625	
100V/50Hz	0.559	10	55.57	--	PF101	0.559	
100V/60Hz	0.560	10	55.67	--	PF101	0.560	
240V/50Hz	0.251	10	54.66	--	PF101	0.251	
240V/60Hz	0.254	10	54.64	--	PF101	0.254	
264V/50Hz	0.236	--	54.27	--	PF101	0.236	
264V/60Hz	0.240	--	54.43	--	PF101	0.240	
Supplementary information:							

B.3	**TABLE: Abnormal operating condition tests**								P
Ambient temperature (°C) .....:							--		—
Power source for EUT: Manufacturer, model/type, output rating .:							--		—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Transformer PT101 output after PEC207	**OL**	90	7hrs 28mins	PF101	1021 to 1226 to1452 to1560 to 1655 to 1837	Type K	PT101 coil:125.5°C; PCB near PBD101: 102.4°C; Metal enclosure: 41.1°C Plastic enclosure outside: 41.9°C	When Transformer PT101 output after PEC207 Output loaded with 21A , EUT attained steady conditions, and no hazard, then output current rise to 21.1A, the Transformer PT101 output after PEC207 Output can't be loaded, no higher temperature rise occurred.	
Supplementary information: Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.									

B.4	**TABLE: Fault condition tests**		P
Ambient temperature (°C) ..... :		25	—
Power source for EUT: Manufacturer, model/type, output rating . :		See page 2	—

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Clause	Requirement + Test	Result - Remark	Verdict

Component No.	Fault Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	T-couple	Temp. (°C)	Observation
PBD101 PIN 1-3	SC	264	1S	PF101	0	--	--	Fuse opened immediately with fuse open current exceeding 2.75 times fuse link rated current, No hazard, NB, NT, NC
PEC101	SC	264	1S	PF101	0	--	--	Fuse opened immediately with fuse open current exceeding 2.75 times fuse link rated current, No hazard, NB, NT, NC
PQ104 PIN G-S	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PQ104 PIN G-D	SC	264	1S	PF101	0	--	--	Fuse opened immediately with fuse open current exceeding 2.75 times fuse link rated current, No hazard, NB, NT, NC
PQ104 PIN D-S	SC	264	1S	PF101	0	--	--	Fuse opened immediately with fuse open current exceeding 2.75 times fuse link rated current, No hazard, NB, NT, NC
PT101 PIN 1-2	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PT101 PIN 3-4	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PT101 PIN 6-7	SC	264	10mins	PF101	0.240	--	--	Unit normal operation, no hazard, NB
PT101 PIN 5-7	SC	264	10mins	PF101	0.240	--	--	Unit normal operation, no hazard, NB
PU204 PIN 1-2	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PU204 PIN 3-4	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PU204 PIN 1	OC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PU101B PIN 16-6	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PU101B PIN 16-11	SC	264	10mins	PF101	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed

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Clause	Requirement + Test	Result - Remark	Verdict

PU101B PIN 16-14	SC	264	10mins	PF1 01	0.125	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PEC207	SC	264	10mins	PF1 01	0.136	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PQ413 PIN D-S	SC	264	10mins	PF1 01	0.136	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
PQ414 PIN D-S	SC	264	10mins	PF1 01	0.136	--	--	The unit shut down recoverable, no hazard, NB, no flame observed
Supplementary information: SC=Short circuit, OC=Open circuit, NB= No indication of dielectric breakdown, NT= Tissue paper remained intact, NC= Cheesecloth remained intact.								

Annex M.3	**TABLE: Batteries**	N/A
The tests of Annex M are applicable only when appropriate battery data is not available		--
Is it possible to install the battery in a reverse polarity position? ..... :	--	--

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--

Test results:		Verdict
- Chemical leaks	--	--
- Explosion of the battery	--	--
- Emission of flame or expulsion of molten metal	--	--
- Electric strength tests of equipment after completion of tests	--	--
Supplementary information:		

Annex M.4	**TABLE: Additional safeguards for equipment containing secondary lithium batteries**				N/A
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
--	Normal	--	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

--	Abnormal	--	--	--	--
--	Single fault – SC/OC	--	--	--	--
Supplementary Information:					

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation
--	--	--	--	--
Supplementary Information:				

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
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)	Force (N)	Test Duration (sec)	Observation
Internal component	--	--	10	5	Except for PS3, no class 3 energy sources become accessible to an ordinary person or to an instructed person
Enclosure of completed product	Metal	See appended table 4.1.2.	250	5	Except for PS3, no class 3 energy sources become accessible to an ordinary person or to an instructed person
Enclosure of completed product	Plastic	See appended table 4.1.2.	250	5	Except for PS3, no class 3 energy sources become accessible to an ordinary person or to an instructed person
Supplementary information: For LED tile plastic enclosure should be consider in final system.					

T.6, T.9	**TABLE: Impact tests**			P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Enclosure of product	Metal	See appended table 4.1.2.	1300	Except for PS3, no class 3 energy sources become accessible
Enclosure of completed product	Plastic	See appended table 4.1.2.	1300	Except for PS3, no class 3 energy sources become accessible

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

Supplementary information:
For LED tile plastic enclosure should be consider in final system.

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

T.8	**TABLE: Stress relief test**					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure of product	Plastic	See appended table 4.1.2.	70	7	No class 3 energy sources become accessible	
Supplementary information: For LED tile plastic enclosure should be consider in final system.						

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to .....: EN 62368-1:2014+A11:2017

Attachment Form No. .....: EU_GD_IEC62368_1D_II

Attachment Originator .....: Nemko AS

Master Attachment .....: Date 2021-02-04

	CENELEC COMMON MODIFICATIONS (EN)	—
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
CONTENTS	**Add** the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

	For special national conditions, see Annex ZB.		—
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		P

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 building installation, subject to the following, a), b) and c): 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; 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; 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. 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.		N/A
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
10.2.1	Add the following to [c)] and [d)] in table 39: For additional requirements, see 10.5.1.		N/A
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Cont'd	*The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *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.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** 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		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		—
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
4.1.15	**Denmark, Finland, Norway** and **Sweden** 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 equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • 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. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14: 2005, may bridge this insulation under the following conditions: • 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; 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.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	**Norway and Sweden** 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 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. 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. 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: “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)” 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. Translation to Norwegian (the Swedish text will also be accepted in Norway): “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.” 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.”.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** 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 .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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/A
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/A
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/A
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/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

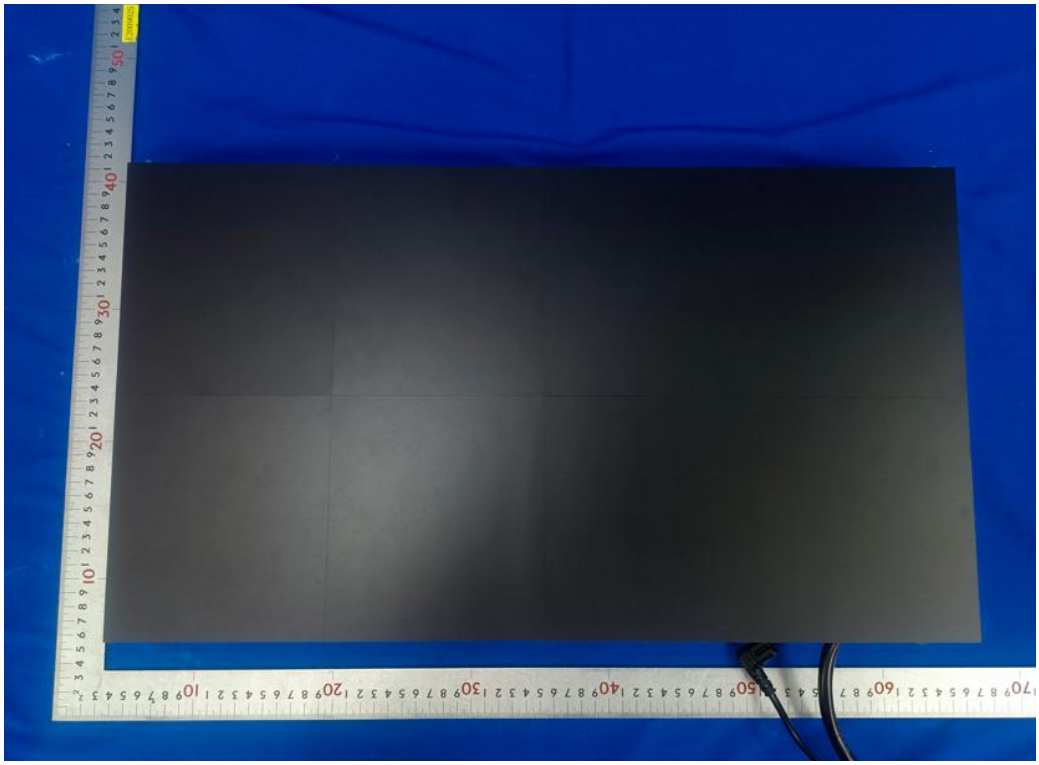

Photo 1. - External view of EUT

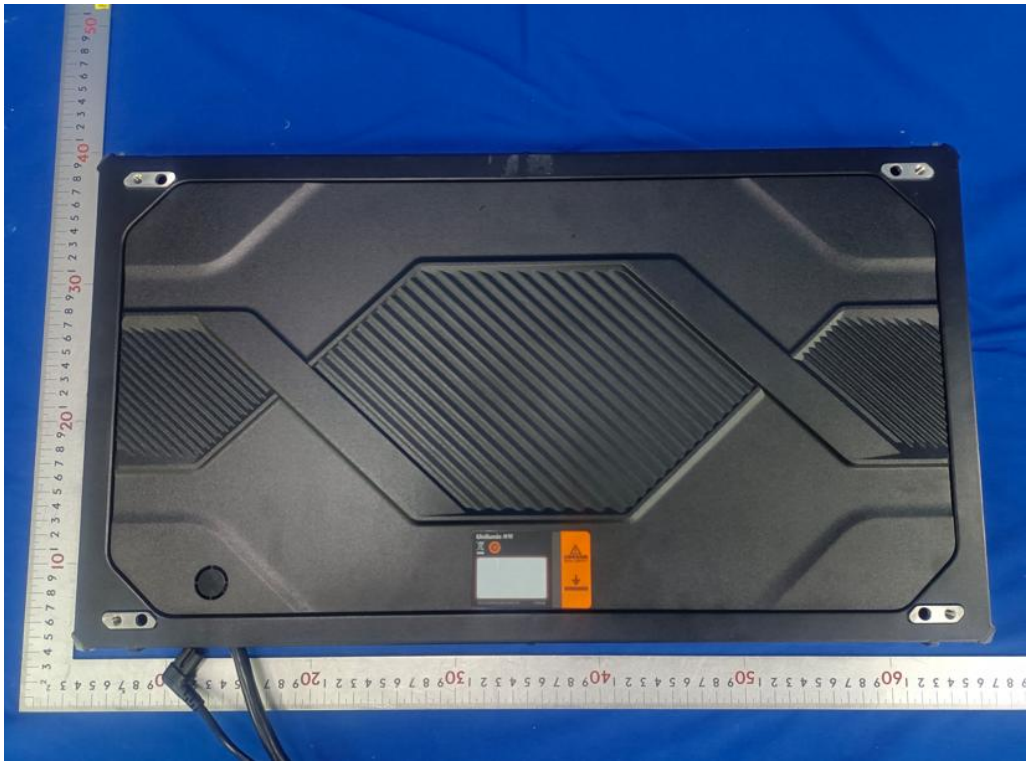

Photo 2. - External view of EUT

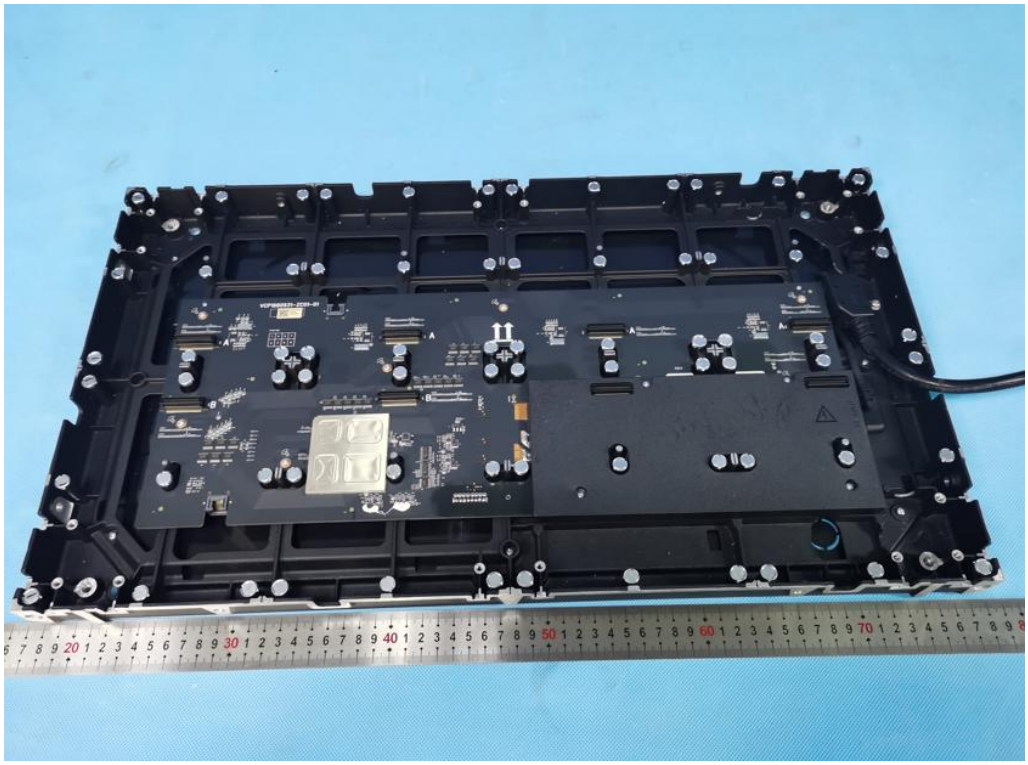

Photo 3. - Internal view

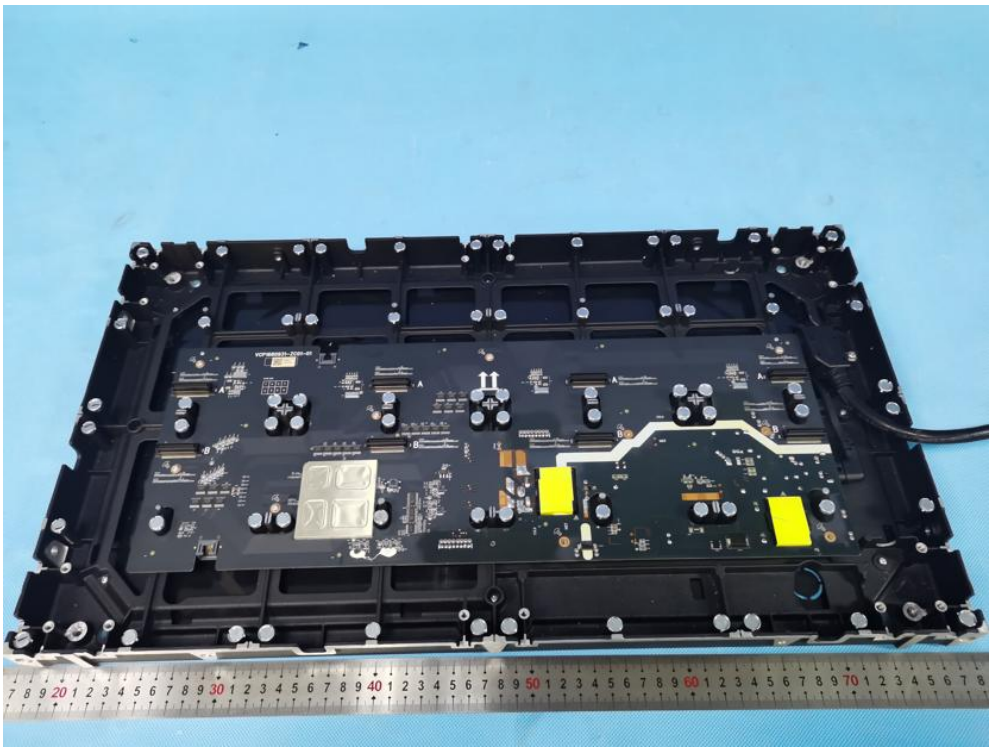

Photo 4. - Internal view

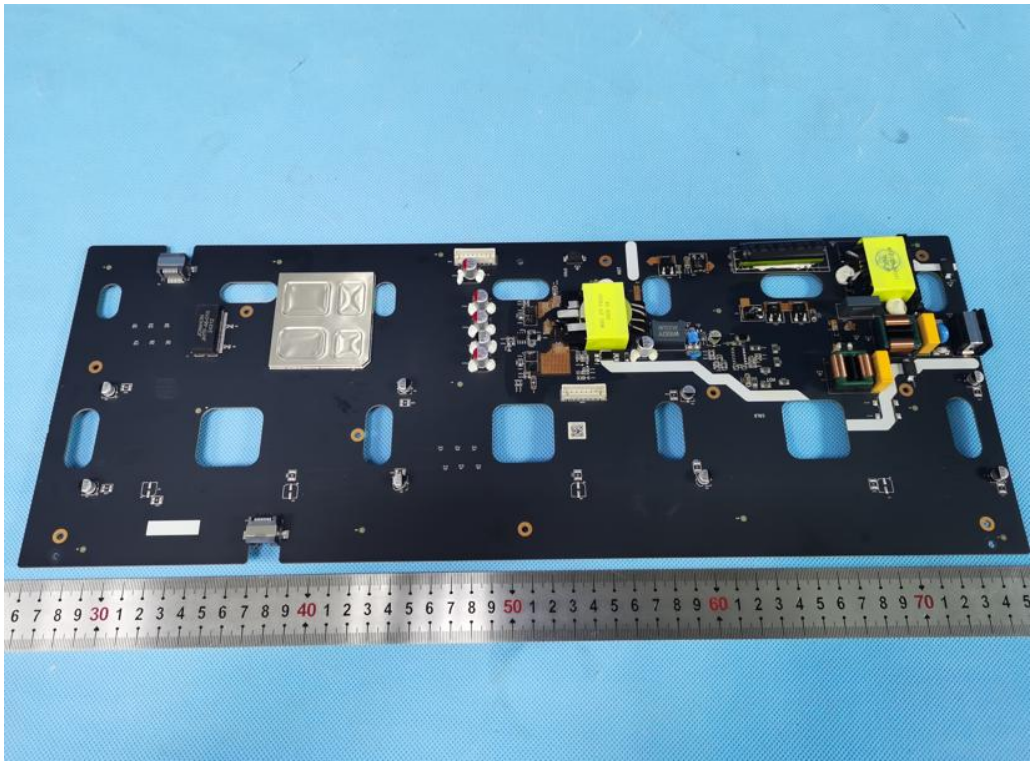

Photo 5. - Power board view

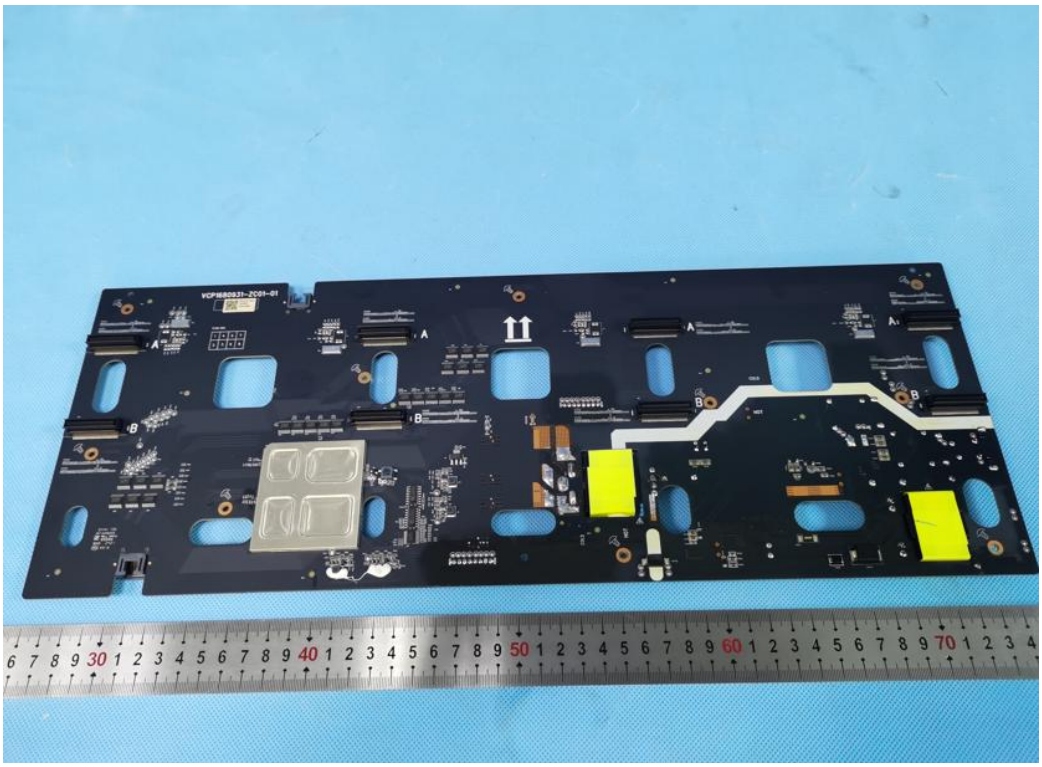

Photo 6. - Power board view

Photo 7. - Protected earthing terminal view

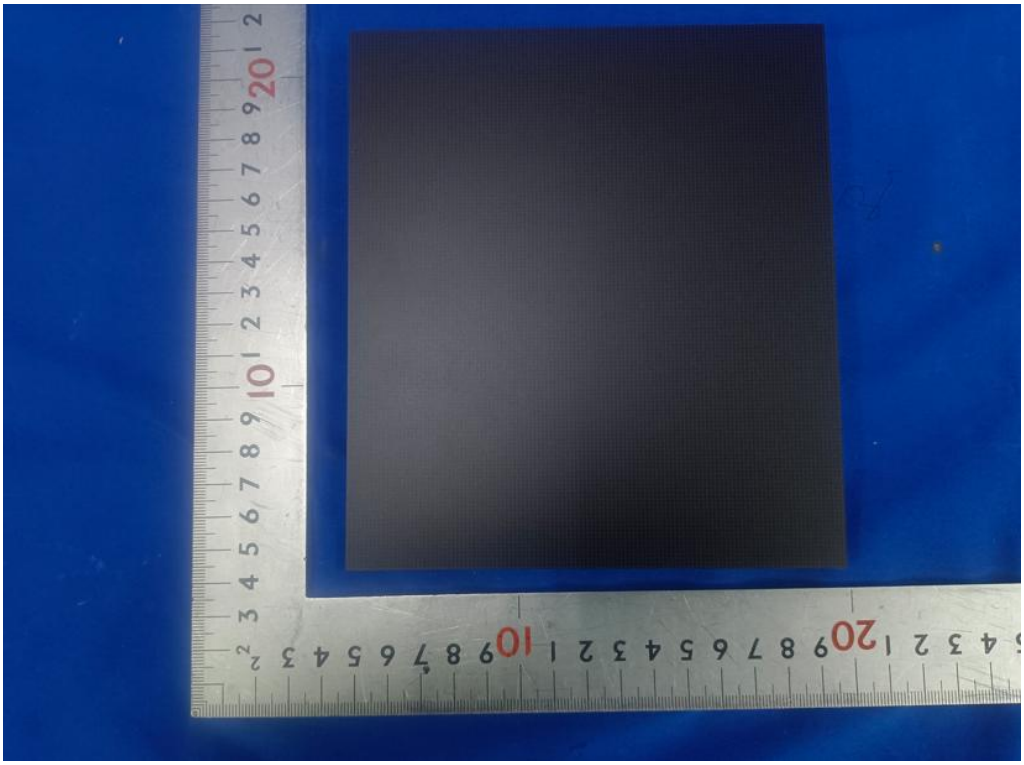

Photo 8. - LED module view

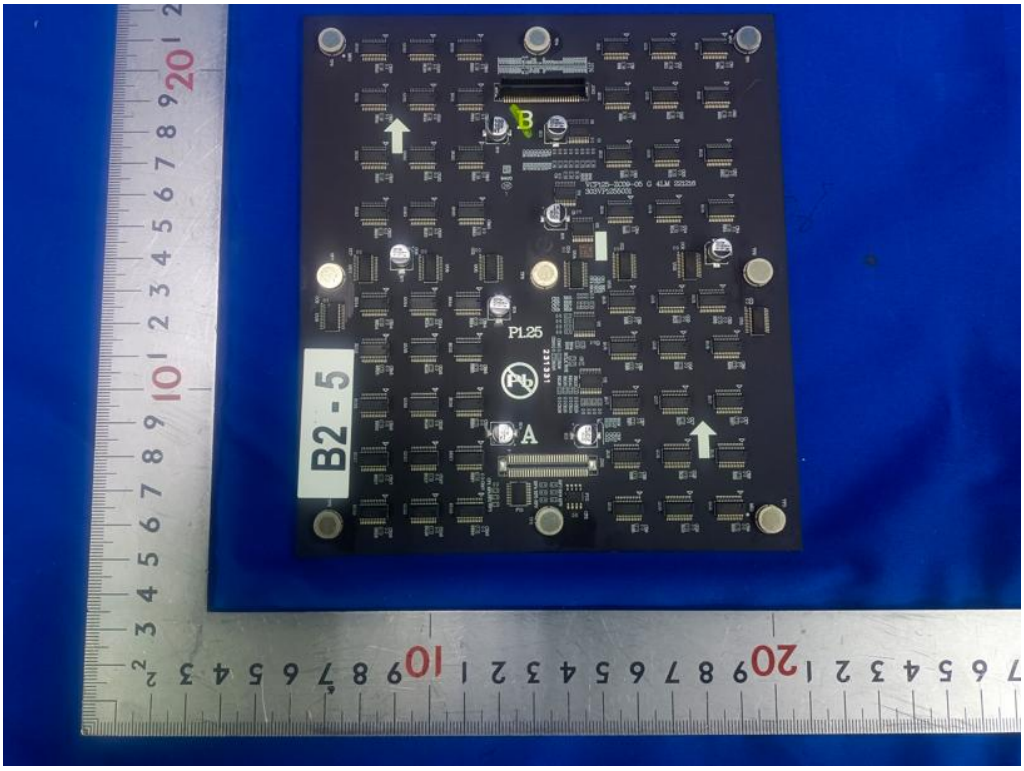

Photo 9. - LED module view

Photo 10. - External view of transformer

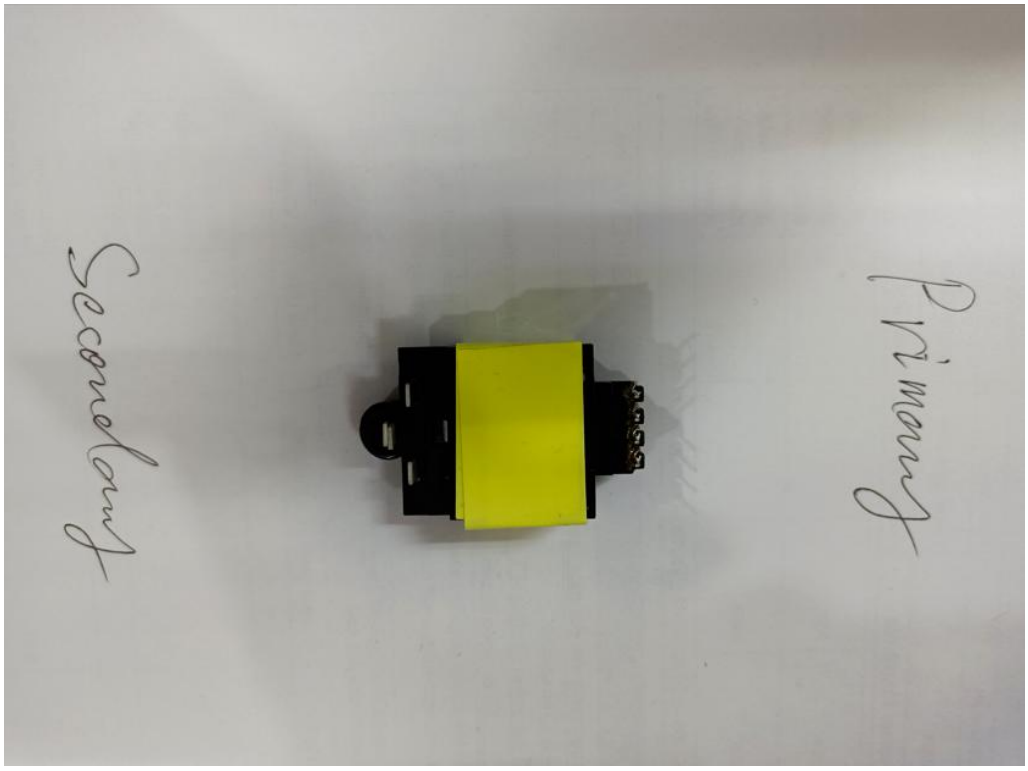

Photo 11. - External view of transformer

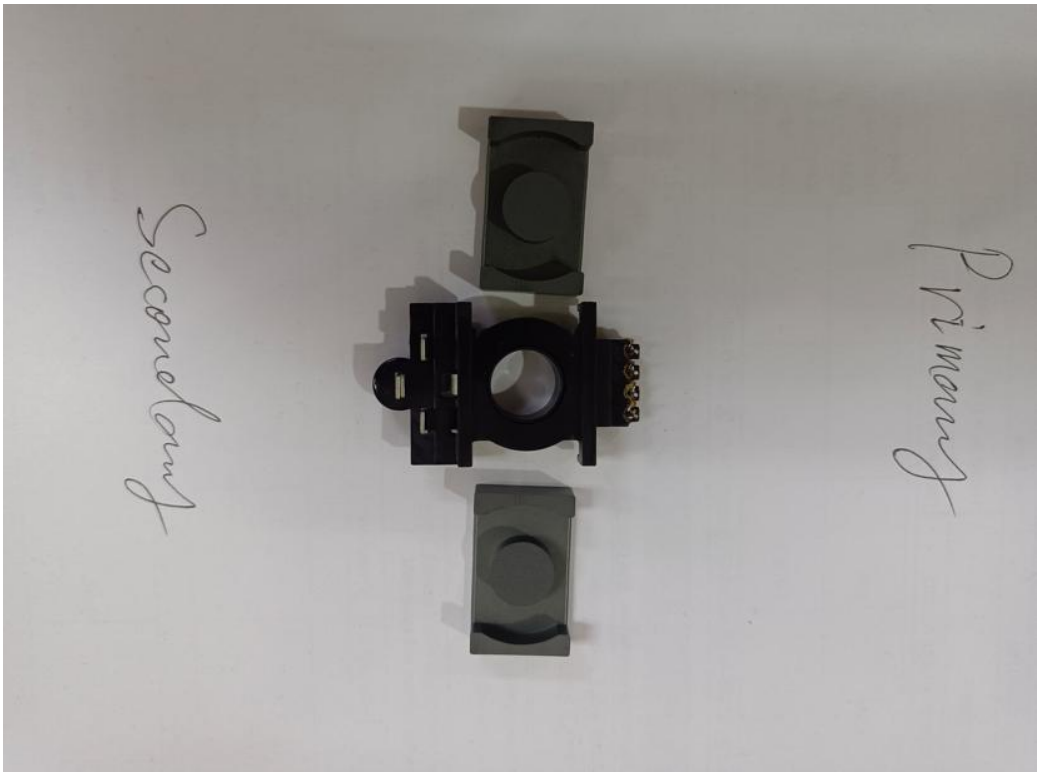

Photo 12. - Internal view of transformer

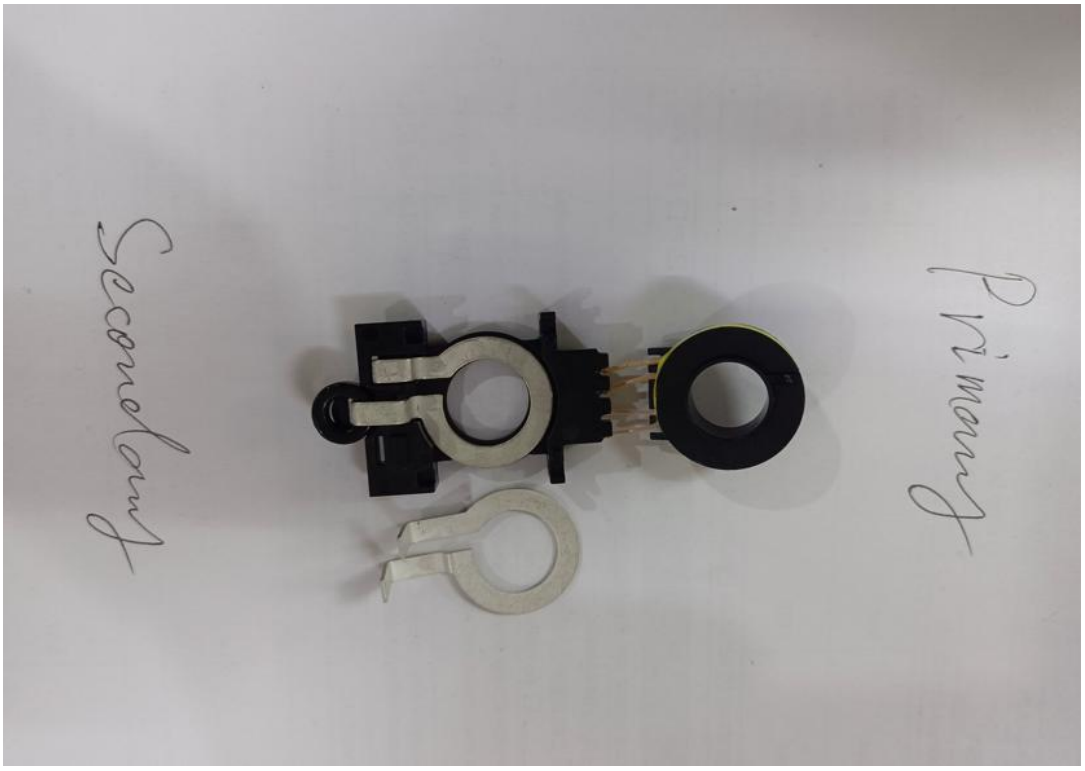

Photo 13. - Internal view of transformer

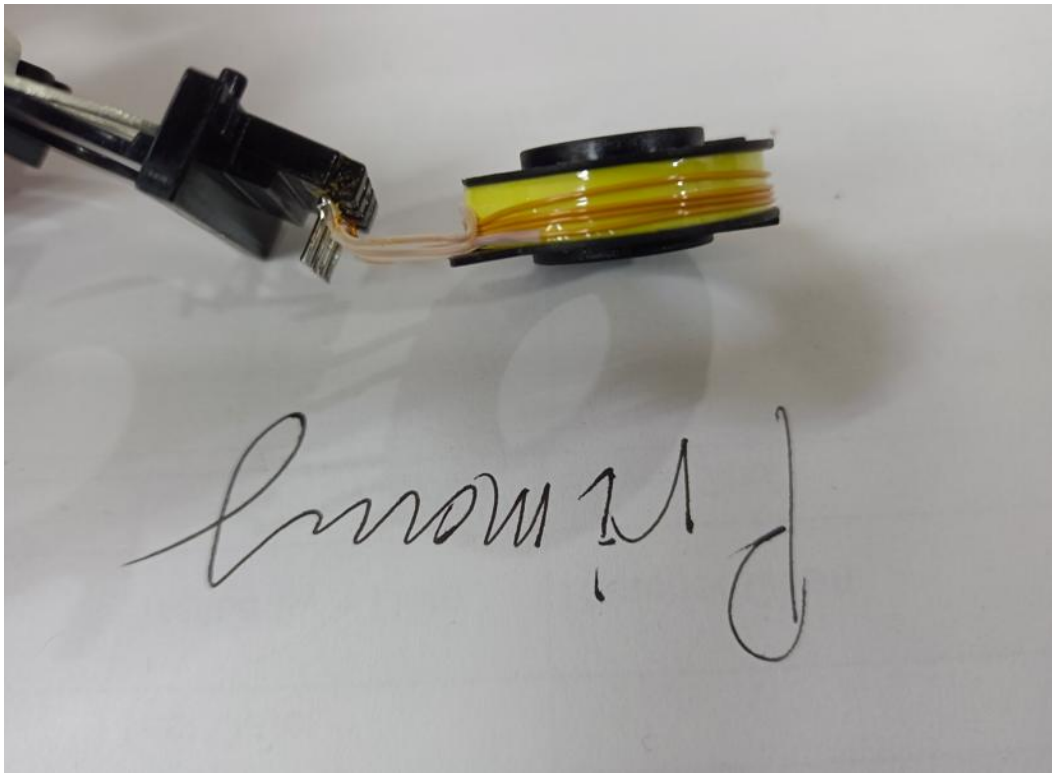

Photo 14. - Internal view of transformer

********** **End of Report** **********