



Test Report issued under the responsibility of:



TEST REPORT

IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number: SUES240400055501

Date of issue: 2024-05-28

Total number of pages.....: 61 pages

Name of Testing Laboratory preparing the Report: SGS-CSTC Standards Technical Services Co., Ltd. Suzhou Branch

Applicant's name.....: Hangzhou Hikvision Digital Technology Co., Ltd.

Address: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China.

Test specification:

Standard: IEC 62368-1:2014

Test procedure: CB Scheme

Non-standard test method: N/A

TRF template used: IECEE OD-2020-F1:2021, Ed.1.4

Test Report Form No.....: IEC62368_1D

Test Report Form(s) Originator ...: UL(US)

Master TRF: Dated 2022-04-14

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General disclaimer:

The test results presented in this report relate only to the object tested.

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The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description	Smart Barrier Gate System	
Trade Mark	HIKVISION	
Manufacturer	Same as applicant	
Model/Type reference	DS-TMG420-L, DS-TMG420-R, DS-TMG421-R, DS-TMG421-L, DS-TMG423-R, DS-TMG423-L, DS-TMG070, DS-TMG080, DS-TMG090, DS-TMG420/A/B, DS-TMG420/A	
Ratings	100-120V~, 200-240V~, 50Hz/60Hz, 2,1 A; Class I	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	SGS-CSTC Standards Technical Services Co., Ltd. Suzhou Branch
Testing location/ address..... :		No.10, Weiye Road, Kunshan Development Zone, Suzhou, Jiangsu, China.
Tested by (name, function, signature)..... :		Cookie Zhang Project Engineer
Approved by (name, function, signature)..... :		Ade Wu Reviewer
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature)..... :		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature)		
Approved by (name, function, signature)..... :		
<input type="checkbox"/>	Testing procedure: CTF Stage 3 :	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature)		
Approved by (name, function, signature)..... :		
Supervised by (name, function, signature)		

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

Attachment 1 – 13 pages of Photos documents;

Attachment 2 – 10 pages of European group differences and national differences;

Attachment 3 – 2 pages of Safety information.

Summary of testing:

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

Unless otherwise specified, the EUT with model DS-TMG420-R was selected as representative model for full testing.

All test data are based on SGS CB test report SHES230200313701, dated on 2023-06-08 and SHES230200313701-M1, dated on 2023-10-23 with the following changes.

- Add an alternative approved building-in power supply (model: LRS-50-24), please see table 4.1.2 and attachment 1 for details.
- Add new models DS-TMG420/A/B, DS-TMG420/A which are identical to previous model except for model name which have no impact for safety.
- Update the mass of the equipment, please see page 7 for details.

After evaluation, the following tests were considered necessary for the differences.

Clause B.2.5 Input test

Clause 5.2 Classification of electrical energy sources

Clause 5.4.1.4, 9.3, B.1.5, B.2.6 Temperature measurements

Clause 5.4.9 Electric strength tests

Clause 5.6.6.2 Resistance of protective conductors and terminations

Clause 5.7.2.2, 5.7.4 Earthed accessible conductive part

Clause B.3, B.4 Abnormal operating and fault condition tests

Heating test:

T_{ma} = 60°C (declared by manufacturer)

K-type thermocouple used for temperature measurement.

Unless otherwise specified, the safeguards against energy sources for ordinary person are complied, instead of safeguards against energy sources for instructed person in this report.

Tests performed (name of test and test clause): <input checked="" type="checkbox"/> 4. General requirements <input checked="" type="checkbox"/> 5. Electrically-caused injury <input checked="" type="checkbox"/> 6. Electrically-caused fire <input checked="" type="checkbox"/> 7. Injury caused by hazardous substances <input checked="" type="checkbox"/> 8. Mechanically-caused injury <input checked="" type="checkbox"/> 9. Thermal burn injury <input checked="" type="checkbox"/> 10. Radiation <input checked="" type="checkbox"/> Annex B. Normal operating condition tests, abnormal operating condition tests and single fault condition tests <input checked="" type="checkbox"/> Annex F.3.9. Performance of Marking test <input checked="" type="checkbox"/> Annex M Equipment containing batteries and their protection circuits <input checked="" type="checkbox"/> Annex Q. Limited Power Source <input checked="" type="checkbox"/> Annex T. Mechanical strength tests <input checked="" type="checkbox"/> Annex V. Determination of accessible parts	Testing location: SGS-CSTC Standards Technical Services Co., Ltd. Suzhou Branch No.10, Weiye Road, Kunshan Development Zone, Suzhou, Jiangsu, China
Summary of compliance with National Differences: List of countries addressed 1. EU Group Differences (EN 62368-1:2014+A11:2017) 2. EU Special National Conditions, EU A-deviations: DE, DK, FI, GB, IE, NO, SE Explanation of used codes: DE=Germany, DK=Denmark, FI=Finland, GB= United Kingdom, IE=Ireland, NO=Norway, SE=Sweden <input checked="" type="checkbox"/> The product fulfils the above requirements.	
Use of uncertainty of measurement for decisions on conformity (decision rule) : <input checked="" type="checkbox"/> 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"). <input type="checkbox"/> 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 National Certification Body that own these marks.

Marking for model DS-TMG420-R**HIKVISION****Smart Barrier Gate System****Model: DS-TMG420-R****I/P: 100-120V~,200-240V~,50/60Hz,2.1A****SN: C12345678****Date: 02/2023 3m straight boom pole****Made in China****Manufacturer: Hangzhou Hikvision Digital Technology Co.,Ltd.****Address: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China****Remark:**

- 1) The Height of CE logo shall not be less than 5 mm; Height of WEEE logo shall not be less than 7 mm.
- 2) As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
- 3) The marking plates for other models are of the same pattern except for model name.

TEST ITEM PARTICULARS:	
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input checked="" type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input checked="" type="checkbox"/> ES3
Supply % Tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input type="checkbox"/> None
Supply Connection – Type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input checked="" type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other: Not directly connected to mains
Considered current rating of protective device as part of building or equipment installation	For North America: 20 A For other markets except North America: 16 A Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input checked="" type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: Not directly connected to mains
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient	60 °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP____
Power Systems	<input checked="" type="checkbox"/> TN <input checked="" type="checkbox"/> TT <input type="checkbox"/> IT - ____ V _{L-L}
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> 100 m
Mass of equipment (kg)	<input checked="" type="checkbox"/> 42,97kg 46,75 kg (with alternative building-in power supply (model: LRS-50-24))

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 : 2024-04-24	
Date (s) of performance of tests..... : 2024-04-24 to 2024-05-20	
GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report.</p> <p>"(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p> <p>This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.</p> <p>Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.</p> <p>Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC62368-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable Factory declaration letter.pdf, dated 2024-05-16.
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	1. Hangzhou Hikvision Technology Co., Ltd. No. 700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China 2. Hangzhou Hikvision Electronics Co., Ltd. No. 299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 311500, China 3. Chongqing Hikvision technology Co., Ltd. No. 118, Haikang Road, Area C, Jiangqiao Industrial Park, Dadukou District, Chongqing, 401325, China
GENERAL PRODUCT INFORMATION:	

Product Description –

Functions	The equipment under test is a Class I Smart Barrier Gate System. And there are two building power supplies, one power for main board and the other power for LED.
Material of enclosure	Metal & plastic (for antenna)
Others	Indoor use only

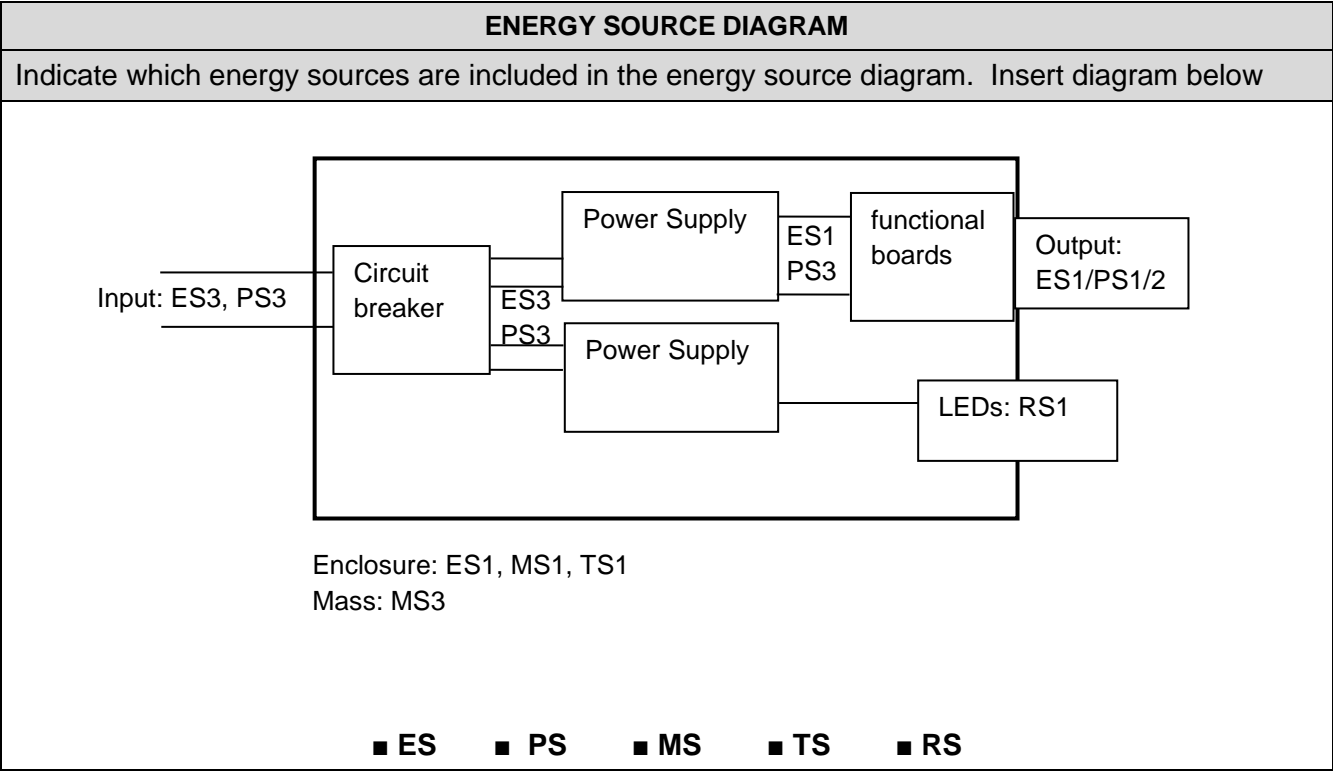
Model Differences –

All the models are identical except for model name which have no impact for safety.

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

N/A

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	Corresponding classification (ES)
Internal Power Supply primary circuits	ES3
AC Power input	ES3
Enclosure	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)
AC Power input	PS3
All internal circuits	PS3
Output	PS1/2
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
Lithium RTC battery	Lithium-ion
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)
Sharp edges and corners	MS1
Equipment mass	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)
Accessible parts	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	RS1



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	ES3: Power Supply primary circuits	Basic Insulation	Protective Earthing	Enclosure / reinforced insulation
Ordinary person	ES2: Other internal circuits	Basic Insulation	Protective Earthing	N/A
Ordinary person	ES1: 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
Internal combustible materials	PS3: Internal circuits	1. No ignition occurred. 2. No parts exceeding 90% of its spontaneous ignition temperature. 3. combustible material outside fire enclosure is of min HB	1. PCB is of min V-1 material 2. All other components were mounted on min V-1 PCB or of min V-2 or small parts of combustible material less than 4g. 3. Fire enclosure provided	N/A
Output	PS1/2	1. No ignition occurred. 2. No parts exceeding 90% of its spontaneous ignition temperature. 3. combustible material outside fire enclosure is of min	1. PCB is of min V-1 material 2. All other components were mounted on min V-1 PCB or of min V-2 or small parts of combustible material less than 4g.	N/A

		HB		
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Lithium RTC battery	Lithium-ion	N/A	N/A	Comply with Annex M
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS1: Sharp edges and corners	N/A	N/A	N/A
Ordinary person	MS3: Equipment mass	N/A	N/A	Fixed installation
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	TS1: Accessible parts	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	RS1: LEDs	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				

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

4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.</p> <p>Components not certified are used in accordance with their ratings and they comply with applicable parts of this standard and the relevant component standard.</p> <p>Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of this standard.</p>	P
4.1.3	Equipment design and construction		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.....:		N/A
4.4.4.4	Impact tests.....:	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:		N/A
4.4.4.6	Glass Impact tests.....:		N/A
4.4.4.7	Thermoplastic material tests.....:		N/A
4.4.4.8	Air comprising a safeguard.....:	See Table 5.4.2.2, 5.4.2.4 and 5.4.3	P
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to.....:	10 N applied to all components, no loose.	P
4.7	Equipment for direct insertion into mains socket - outlets	Not such equipment.	N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries	The battery is soldered on the PCB.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....	(See Annex P)	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications.....		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current.....		P
5.2.2.3	Capacitance limits	(See appended table 5.2)	P
5.2.2.4	Single pulse limits		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringing signals		N/A
5.2.2.7	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	No bare parts at ES2 or ES3 or ES3 basic safeguard could be accessed by operator.	P
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)	More than 2mm.	P
5.3.2.4	Terminals for connecting stripped wire		P
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning	Approved internal power supply.	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	2	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	Approved internal power supply.	P
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature..... :		N/A
5.4.1.10.3	Ball pressure :	Approved internal power supply.	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage :	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage :	2500	—
	b) d.c. mains transient voltage :		—
	c) external circuit transient voltage :		—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages :		N/A
5.4.3	Creepage distances :	(See appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group :	IIIb	—
5.4.4	Solid insulation	Approved internal power supply.	P
5.4.4.2	Minimum distance through insulation :	Approved internal power supply.	P
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material	Approved internal power supply.	P
5.4.4.6.1	General requirements	Approved internal power supply.	P
5.4.4.6.2	Separable thin sheet material	Approved internal power supply.	P
	Number of layers (pcs) :		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz		N/A
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		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Evaluated in approved power supplies unit.	P
	Relative humidity (%).....		—
	Temperature (°C)		—
	Duration (h)		—
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		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		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.11	Insulation between external circuits and earthed circuitry		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
5.5.1	General		P
5.5.2	Capacitors and RC units		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:		N/A
5.5.3	Transformers	Approved internal power supply.	P
5.5.4	Optocouplers	Approved internal power supply.	P
5.5.5	Relays		N/A
5.5.6	Resistors	Approved internal power supply.	P
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	(See Annex G.10.3)	N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation	Min. 16AWG yellow/green wire used from inlet earthing pin to metal enclosure considered as protective bonding conductor	P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm ²)	Min. 16AWG	—
5.6.4	Requirement for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm ²).	Min. 18 AWG (cross-sectional area 0,75mm ²) used.	—
	Protective current rating (A)	Protective current rating 16A (20A for USA and Canada)	—
5.6.4.3	Current limiting and overcurrent protective devices		P
5.6.5	Terminals for protective conductors		P
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).	Conductor: 0,75mm ² Normal thread diameter: 4,0 mm.	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective system	All the conductors meet the required conductor sizes. All the Terminals meet the required Terminal sizes.	P
5.6.6.1	Requirements		P
5.6.6.2	Test Method Resistance (Ω).....:	(See appended table 5.6.6)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.7	Reliable earthing		P
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	(See appended table 5.7.4)	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)	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)	Single connection.	—
5.7.4	Earthed conductive accessible parts	(See appended Table 5.7.4)	P
5.7.5	Protective conductor current		N/A
	Supply Voltage (V)		—
	Measured current (mA)		—
	Instructional Safeguard		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		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 ... :	The internal circuit is considered as PS3 without test.	P
6.2.2.3	Power measurement for worst-case power source fault		P
6.2.2.4	PS1	Output	P
6.2.2.5	PS2	Output	P
6.2.2.6	PS3	The product is powered by PS3. And internal circuit is considered as PS3 without test.	P

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Clause	Requirement + Test	Result - Remark	Verdict
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
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	Min HB.	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread used.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
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		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		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		P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	No opening	P
	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)	Stationary equipment. The bottom of the product is mounted on the floor of a fireproof or non-combustible material.	P
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)	No door or cover.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Enclosure is metal.	P
6.5	Internal and external wiring		P
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm ²)	Suitable UL recognized wiring which is PVC insulated and rated VW-1 used.	—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1	See table annex Q.1	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
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)	P

8	MECHANICALLY-CAUSED INJURY		P
8.1	General		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners	No sharp edges or corners, MS1 Mass: MS3.	P
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..... :		—
8.5.4	Special categories of equipment comprising moving parts	Not such equipment.	N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....:		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps	No such part.	N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....:		N/A
8.6	Stability	Permanently connected equipment.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard.....:		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force.....:		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No such part.	N/A
8.9.1	Classification		N/A

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

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	TS1 for accessible parts.	P
9.3	Safeguard against thermal energy sources	Enclosure safeguard	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		P
9.4.2	Instructional safeguard	Not used.	N/A


10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification	RS1 for LEDs.	P
10.3	Protection against laser radiation	No such part.	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	RS1 for LEDs.	P
10.4.1	General		P

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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. :	RS1 for LEDs.	P
10.4.1.d)	Normal, abnormal, single-fault conditions		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.....		P
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation	No such radiation.	N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		—
	Abnormal and single-fault condition		N/A
	Maximum radiation (pA/kg).....		N/A
10.6	Protection against acoustic energy sources	No such radiation.	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
10.6.5.1	Corded passive listening devices with analog input		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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	No such part.	N/A
B.2.3	Supply voltage and tolerances		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	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		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		P
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature	(See Clause G.5)	P
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
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
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)	P
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	No such part	N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Exterior of equipment.	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	See copy of marking plate	—
F.3.2.2	Model identification	See copy of marking plate	—
F.3.3	Equipment rating markings	See copy of marking plate	P
F.3.3.1	Equipment with direct connection to mains		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.2	Equipment without direct connection to mains	Rating marked	N/A
F.3.3.3	Nature of supply voltage.....:	See copy of marking plate	—
F.3.3.4	Rated voltage	See copy of marking plate	—
F.3.3.4	Rated frequency	See copy of marking plate	—
F.3.3.6	Rated current or rated power	See copy of marking plate	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device	No such part.	N/A
F.3.5	Terminals and operating devices		P
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	No such marking.	P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal		P
F.3.6.1.2	Neutral conductor terminal		P
F.3.6.1.3	Protective bonding conductor terminals		N/A
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
F.3.10	Test for permanence of markings	The label was subject to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. with cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		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		P
j)	j) Replaceable components or modules providing safeguard function		P
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		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
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	See table 4.1.2	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Test Voltage (V) and Insulation Resistance (Ω) :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	See table 4.1.2.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....:		N/A
G.4	Connectors		N/A
G.4.1	Spacings		N/A
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		N/A
G.5	Wound Components		P
G.5.1	Wire insulation in wound components.....	Insulation bush	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		P
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).....	Considered in certified power supplies.	P
	Position.....		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....		—
G.5.3.3	Overload test		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		P
G.5.4.1	General requirements		P
	Position	Inside equipment	—
G.5.4.2	Test conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.3	Running overload test		P
G.5.4.4	Locked-rotor overload test		P
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General		P
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	No such part	N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	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		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock	N/A	N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		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		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)	Part of certified power supplies.	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		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such part.	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No ringing signal.	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
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
	General requirements		P
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		P
L.1	General requirements		P
L.2	Permanently connected equipment	The disconnect device shall be provided as part of the building installation.	P
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements		P
M.2	Safety of batteries and their cells		P
M.2.1	Requirements	Certified coin battery.	P
M.2.2	Compliance and test method (identify method) .. :		P
M.3	Protection circuits		P
M.3.1	Requirements		P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery		P
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		P
M.3.3	Compliance	(See appended Tables and Annex M and M.4)	P
M.4	Additional safeguards for equipment containing secondary lithium battery	The average resistance of the lithium coin battery is larger than 3Ω according to IEC 62133-2 Annex D.	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		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.4.2.2 b)	Single faults in charging circuitry		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying	Coin battery soldered on PCB.	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		P
M.6.1	Short circuits	Certified coin battery.	P
M.6.1.1	General requirements		P
M.6.1.2	Test method to simulate an internal fault	Certified coin battery.	N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		P
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries	Not lead acid or NiCd battery.	N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	Not such battery.	N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)	Sufficient information in the user manual.	P
N	ELECTROCHEMICAL POTENTIALS		P
	Metal(s) used	Pollution degree considered	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied	Refer to the certified power supply.	—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements		P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm)	Side openings: The hole is stuffed with insulated stoppers Bottom openings: Install the barrier gate on horizontal ground.	—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids	No internal liquid.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		P
Q.1.1 b)	Impedance limited output		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		P
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A).		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test		N/A
T.8	Stress relief test		N/A
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		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 EFFECTS OF IMPLOSION		N/A
U.1	General requirements	No such part.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment		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	Min.1,2mm thickness	IEC 62368-1: 2014; EN 62368- 1:2014+A11: 2017	Tested with appliance
Common Plastic Parts of Barrier Gate Control Box (inside of fire enclosure)	SABIC JAPAN LLC	C2950(GG)	Min.2,0mm thickness, V-0, 75°C	UL 94 UL 746	UL E45587
Alternative	Covestro Deutschland AG [PC Resins]	FR3010+(z)	Min.2,0mm thickness, V-0, 85°C	UL 94 UL 746	UL E41613
Black plastic hole stoppers	KINGFA SCI & TECH CO LTD	FRABS-518	V-0, Min. thickness: 2,5mm, 60°C	UL 94 UL 746	UL E171666
Building power supply (power for main board)	Delta Electronics, Inc.	PMT- 24V350W2BR	Input: 100- 120V~, 6,8A, 50- 60Hz; 200- 240V~, 3,4A, 50- 60Hz; Output: 24VDC, 14,6A	IEC 62368-1:2014	TÜVRheinland Cert No.: JPTUV- 101388-M1
Alternative	MEAN WELL Enterprises Co., Ltd.	LRS-50-24	100-240V~, 1,0A, 50/60 Hz; Output: 24VDC, 2,2A; Altitude: 5000m	IEC 62368-1:2018	TÜVRheinlan d Cert No.: JPTUV- 137050-M1; Report No.: CN22KWDS 002
Building power supply (power for LED)	MEAN WELL Enterprises Co., Ltd.	LRS-50-12	Input: 100- 240V~, 1,0A, 50/60Hz; Output: 12VDC, 4,2A	IEC 62368-1:2014	UL Cert No.: DK-80195-UL
Alternative	Delta Electronics, Inc.	PMT- 12V50W2BA	Input: AC 100- 240V, 1.2A, 50- 60Hz or AC 100- 240V, 1.5A, 50- 60Hz; Output: 12VDC, 4,2A	IEC 62368-1:2014	CB issued by TUV Rhinland, Cert. No.: JPTUV- 091086-M2

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
PCB	SHENZHEN XUNJIEXING CIRCUIT TECH CO LTD	JX02	V-0, 130°C	UL 796 UL 94	UL E305654
Alternative	WENZHOU OULONG ELECTRIC CO LTD	OL-MX	V-0, 130°C	UL 796 UL 94	UL E231017
Alternative	SUNTAK MULTILAYER PCB CO LTD	STM-5	V-0, 130°C	UL 796 UL 94	UL E207844
Alternative	Interchangeable	Interchangeable	Min V-1, 130°C	UL 796	UL
Miniature Circuit-breaker	ZHEJIANG CHINT ELECTRICS CO., LTD	NXB-63	400VAC; 50Hz, 6000A; 1P+N	IEC 60898-1:2002 (1st Edition) + A1:2002 + A2:2003	CQC: 00901-CB2015CQC-068027
Alternative	DELIXI ELECTRIC LTD	CDB6i	400VAC; 50Hz, 6000A; 1P+N	EN 60898-2:2006 EN 60898-1:2003+A1+A11+A12+A13	TÜVRheinland Cert No.: R 50324983
Disc Ceramic Capacitor (C110, C109)	Fenghua Advanced Technology (Holding) CO.LTD	CT81-M12Y5V1E103 MSEW	10nF, Y5V, 2KV	IEC 62368-1: 2014; EN 62368-1:2014+A11: 2017	Tested with appliance
Earth wire	TONGXIANG XIN YI HONG ELECTRIC CO LTD	1015	10A, 250VAC, VW-1, 18AWG	UL 817 UL 60320-1	UL E224763
Earth Screw	Interchangeable	Interchangeable	Thread diameter: 4mm	IEC 62368-1: 2014; EN 62368-1:2014+A11: 2017	Tested with appliance
DC Motor	ZX-MOTOR	90ZWN24-250/125JC	24V d.c., 16,02A; Rated speed: 1400RPM	IEC 62368-1: 2014; EN 62368-1:2014+A11:2017	Tested with appliance
RTC battery	FDK CORPORATION	ML614R	Max Charging Current 300mA Max Charging Voltage 5,0V dc	UL 1642	UL MH13421
LED Warning Light	Energylid	WLD012B2RB003	12V, 1,8W, Exempt group	IEC 62471:2006	Tested with appliance
LED on door	Jiangsu Amicc Opto-Electronics Technology Co., Ltd.	A-SC6302R6AGH C-A07-2T	12V, 20mA, Exempt group	IEC 62471:2006	Tested with appliance
Light strip	-	DH-5050 RGB-999	12V, 20mA, Exempt group	IEC 62471:2006	Tested with appliance

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

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

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

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
--		--	--	--
4.8.4.3	TABLE: Battery replacement test			—
Battery part no.:				—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
		1		
		2		
		3		
		4		
		5		
		6		
		8		
		9		
10				
4.8.4.4	TABLE: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
--		--	--	--
--		--	--	--
--		--	--	--
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:				

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

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

5.2		Table: Classification of electrical energy sources					P	
5.2.2.2 – Steady State Voltage and Current conditions								
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class	
				U (Vrms or Vpk)	I (Apk or Arms)	Hz		
Test with power supply PMT-24V350W2BR and LRS-50-12								
1	264V/60Hz	Metal enclosure to earth	Normal	1,1 Vpk/0,2Vrms	--	9M	ES1	
			Abnormal- Motor locked	1,1 Vpk/0,14Vrms	--	1,6M		
			Single fault – Fuse open	0,3 Vpk/0,1Vrms	--	202,8k		
2	264V/60Hz	Secondary output terminals to earth	Normal	11,2 Vpk/4Vrms	--	110	ES1	
			Abnormal- Motor locked	11,2 Vpk/3,9Vrms	--	82		
			Single fault – Fuse open	9,6 Vpk/3,9Vrms	--	88		
3	264V/60Hz	Plastic enclosure (antenna)	Normal	0,4 Vpk/0,07Vrms	--	165k	ES1	
			Abnormal- Motor locked	0,6 Vpk/0,09Vrms	--	102k		
			Single fault – Fuse open	0,03Vpk/0,01Vrms	--	218k		
Test with power supply LRS-50-24								
1	264V/60Hz	Metal enclosure to earth	Normal	2,28 Vpk/0,96Vrms	--	0,72K	ES1	
			Abnormal- Motor locked	2,32 Vpk/0,95Vrms	--	1,2K		
			Single fault – Fuse open	1,08 Vpk/0,06Vrms	--	1,2K		
2	264V/60Hz	Secondary output terminals to earth	Normal	16,4 Vpk/12,10Vrms	--	60	ES1	
			Abnormal- Motor locked	16,8 Vpk/12,10Vrms	--	60		
			Single fault – Fuse open	9,40 Vpk/5,48Vrms	--	60		

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

5.2	Table: Classification of electrical energy sources						P
3	264V/60Hz	Plastic enclosure (antenna)	Normal	0,30 Vpk/0,02Vrms	--	60	ES1
			Abnormal- Motor locked	0,30 Vpk/0,02Vrms	--	60	
			Single fault – Fuse open	0,29 Vpk/0,01Vrms	--	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	--	--	Normal	--	--	--
			Abnormal	--	--	
			Single fault – SC/OC	--	--	

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	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

IEC 62368-1						
Clause	Requirement + Test		Result - Remark			Verdict
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V)	90VAC/ 60Hz	132VAC/ 50Hz	180VAC/ 60Hz	264VAC/ 50Hz	—
	Ambient T _{min} (°C)	23,6	23,2	23,4	23,8	—
	Ambient T _{max} (°C)	24,3	24,1	24,0	24,6	—
	Tma (°C)	60,0	60,0	60,0	60,0	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
Buliding-in power supply (model: LRS-50-12)						
LF1 coil		70,8	69,9	70,0	70,5	130
PCB near Q1		75,9	75,7	76,9	76,8	105
U2 body		72,3	71,5	71,4	70,8	110
T1 coil		72,0	71,1	71,0	70,3	110
T1 core		72,4	71,6	71,5	70,9	110
C32 body near T1		71,5	70,4	70,3	69,5	85
PCB near Q23		82,0	81,7	81,6	78,7	130
PCB near U9		76,7	75,9	75,3	75,5	130
PCB near URL3		72,2	71,9	71,0	71,1	130
PCB near U25		80,7	79,4	80,1	76,1	130
PCB near U7		76,2	75,5	75,0	75,1	130
RTC battrey		77,8	76,4	76,3	76,5	Ref
Motor		70,4	66,7	67,6	63,6	Ref
Cricuit-breaker*		29,5	28,8	27,8	27,1	94
Metal enclosure near power supply*		30,6	30,3	29,3	28,9	70
Metal enclosure near motor*		29,6	28,9	27,9	27,1	70
Plastic internal enclosure of antena		66,2	66,2	65,1	64,9	75
Plastic external enclosure of antena*		28,8	29,0	27,8	27,4	48
Buliding-in power supply (model: PMT-24V350W2BR)						
CY5 body		69,7	69,2	68,6	68,1	125
L101 coil		78,0	79,3	78,3	76,5	130
FL2 coil		71,0	70,1	70,1	69,5	130
T2 coil		72,7	72,5	74,5	71,7	130
T2 core		72,9	72,9	75,0	72,4	130
T1 coil		75,7	75,9	75,6	73,8	110
T1 core		73,4	73,4	73,2	72,0	110
IC35 body		74,2	74,0	74,0	72,6	110

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

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: T_{ma} should be considered as directed by applicable requirement

Note 2: T_{ma} is not included in assessment of Touch Temperatures (Clause 9)

* The test results of touchable surface temperature were considered base on ambient temperature 25°C.

Other temperature point list in this table has shifted to T_{ma}.

The limited value of power supply unit temperature refers to the power supply test report.

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V) :	90VAC/ 60Hz	132VAC/ 50Hz	180VAC/ 60Hz	264VAC/ 50Hz	—
	Ambient T _{min} (°C) :	23,7	23,4	23,3	23,4	—
	Ambient T _{max} (°C) :	23,7	23,4	23,3	23,4	—
	Tma (°C) :	60,0	60,0	60,0	60,0	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
Building-in power supply (model: PMT-12V50W2BA)						
T1 coil (Class B)		80,9	81,3	81,4	81,0	110
T1 core (Class B)		79,8	80,2	80,3	79,9	110
FL1 coil		77,0	77,4	77,5	77,1	110
CX1 near FL1		78,3	78,6	78,7	78,4	105
C1 near BD1		79,0	79,3	79,4	79,0	130
C103 near T1 and D101		73,0	73,3	73,4	73,2	130
IC51		88,3	88,6	88,6	88,3	130
PCB near NTC1		90,7	90,9	91,1	90,9	130
Input terminal CN1 L pin		68,1	68,4	68,5	68,2	85
Output terminal CN1 + pin		68,9	69,1	69,3	68,8	85
Building-in power supply (model: PMT-24V350W2BR)						
CY5 body		74,5	72,6	72,4	71,0	105
FL2 coil		72,4	71,9	70,6	69,0	110
T2 coil		73,7	73,0	71,0	69,4	110
T2 core		72,9	73,2	71,2	70,9	Ref.
L101 coil		78,7	76,7	74,5	71,6	110
T1 coil		72,2	71,8	69,5	66,5	110

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Clause	Requirement + Test			Result - Remark			Verdict
T1 core		73,8	73,9	71,6	68,8	Ref.	
IC35 body		68,5	68,3	66,3	65,9	130	
EUT:							
PCB near Q23		81,3	81,6	81,7	81,3	130	
RTC battery		77,4	75,9	75,7	74,2	130	
Motor		73,4	73,3	71,3	69,7	Ref.	
Circuit-breaker*		33,6	30,1	27,9	39,3	77	
Metal enclosure near power supply*		30,8	28,4	28,3	27,8	71	
Plastic internal enclosure of antenna		66,5	29,4	29,0	28,5	Ref.	
Plastic external enclosure of antenna*		29,5	28,0	27,8	27,8	77	
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
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Supplementary information: Note 1: Tma should be considered as directed by applicable requirement Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9) * The test results of touchable surface temperature were considered base on ambient temperature 25°C. Other temperture point list in this table has shifted to Tma. The limited value of power supply unit temperature refers to the power supply test report.							

IEC 62368-1								
Clause	Requirement + Test		Result - Remark			Verdict		
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P		
	Supply voltage (V)	90VAC/ 60Hz	132VAC/ 50Hz	180VAC/ 60Hz	264VAC/ 50Hz	—		
	Ambient T _{min} (°C)	23,9	24,3	23,9	23,5	—		
	Ambient T _{max} (°C)	24,4	24,5	24,0	23,7	—		
	T _{ma} (°C)	60,0	60,0	60,0	60,0	—		
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)		
Test with power supply LRS-50-24								
LF1 coil		71,0	69,9	70,6	70,9	130		
PCB near IC101		74,8	74,7	75,1	76,0	130		
BD1 body		76,0	72,1	74,5	71,5	105		
T1 coil		73,4	72,1	73,7	72,6	110		
T1 core		74,7	74,5	75,1	75,4	110		
C32 body near T1		72,7	72,0	72,8	72,7	85		
PCB near Q23		86,9	83,7	86,9	85,3	130		
PCB near U9		80,8	79,0	80,8	80,1	130		
PCB near URL3		76,9	75,9	76,9	77,0	130		
PCB near U25		81,2	79,3	81,0	80,3	130		
PCB near U7		86,7	83,6	86,6	85,2	130		
RTC battery		84,2	81,7	84,1	83,1	Ref		
Motor		66,4	65,8	66,8	65,7	Ref		
Circuit-breaker		66,0	66,1	65,4	64,6	Ref		
Metal enclosure near power supply*		27,7	27,3	27,6	27,6	70		
Metal enclosure near motor*		27,5	27,3	27,5	27,4	70		
Plastic internal enclosure of antenna		62,7	60,2	62,2	62,8	Ref		
Plastic external enclosure of antenna*		27,1	26,7	26,9	27,1	94		
Plastic internal enclosure near LED		69,1	69,0	70,8	70,1	Ref		
Plastic external enclosure near LED*		31,7	31,4	34,1	32,6	94		
Supplementary information:								
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

Note 1: Tma should be considered as directed by applicable requirement

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

* The test results of touchable surface temperature were considered base on ambient temperature 25°C.

Other temperture point list in this table has shifted to Tma.

The limited value of power supply unit temperature refers to the power supply test report.

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

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)	
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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)	Frequenc y (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Primary circuit to metal enclosure	420	250	--	1,3	>1,95	2,5	>3,25
Supplementary information:							
Unless otherwise specified, the worst conditions of Cl. & Cr. In above mentioned locations have been considered and listed.							

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)	
Primary circuit to metal enclosure		2500Vpk	1,5	>1,95	
Supplementary information:					

5.4.2.4	TABLE: Clearances based on electric strength test	N/A
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Clause	Requirement + Test	Result - Remark	Verdict

Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
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Supplementary information:			

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Supplementary information:						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
L/N to metal enclosure		DC	2500	No
Reinforced:				
L/N to plastic enclosure(antenna)		DC	4000	No
L/N to secondary output terminals		DC	4000	No
Supplementary information:				
The result of test with power supply PMT-12V50W2BA and PMT-24V350W2BR is the same as this data.				

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
L/N to metal enclosure		DC	2500	No
Reinforced:				
L/N to plastic enclosure(antenna)		DC	4000	No
L/N to secondary output terminals		DC	4000	No
Supplementary information:				
Test with power supply LRS-50-24				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
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Supplementary information: X-capacitors installed for testing are: See table 4.1.2 [x] 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 Oc=Open circuit					

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Farthest earth pin to metal enclosure	32	2	0,32	0,010 Ω	
Farthest earth pin to metal enclosure	40	2	0,32	0,008 Ω	
Supplementary information: The result of test with power supply PMT-12V50W2BA and PMT-24V350W2BR is the same as this data.					

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Farthest earth pin to metal enclosure	32	2	1,12	0,035 Ω	
Farthest earth pin to metal enclosure	40	2	1,08	0,027 Ω	
Supplementary information: Test with power supply LRS-50-24					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage	264V		—
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)
L/N to metal enclosure	1		Normal: 2mA _{pk} /1,92mA _{rms} ; Reverse:

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Clause	Requirement + Test	Result - Remark	Verdict

		2mApk/1,02m Arms
	2*	-
	3	-
	4	-
	5	-
	6	-
	8	-

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

The result of test with power supply PMT-12V50W2BA and PMT-24V350W2BR is the same as this data.

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage	264V	—	
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)	
L/N to metal enclosure	1	Normal: 0,83mApk/0,42 mArms; Reverse: 0,83mApk/0,45 mArms	
	2*	-	
	3	-	
	4	-	
	5	-	
	6	-	
	8	-	
Supplementary Information:			
Notes:			
[1] Supply voltage is the anticipated maximum Touch Voltage			

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Clause	Requirement + Test	Result - Remark	Verdict

[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.

Test with power supply LRS-50-24

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
Power input & Internal circuit	--	Power (W) :	--	--	PS3 without test
		V _A (V) :	--	--	
		I _A (A) :	--	--	
12 V interface	Normal	Power (W) :	--	21,5	PS2
		V _A (V) :	--	11,9	
		I _A (A) :	--	2,0	
12 V interface	Overload	Power (W) :	--	60,0	PS2
		V _A (V) :	--	12,0	
		I _A (A) :	--	1,0	
Traffic light interface	Normal	Power (W) :	0	--	PS1
		V _A (V) :	0	--	
		I _A (A) :	0	--	
Limit output	Normal	Power (W) :	0	--	PS1
		V _A (V) :	0	--	
		I _A (A) :	0	--	

Supplementary Information:

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

Equipment meets LPS and can be considered PS2 compliant.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			P
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No
--	--	--	--	--

Supplementary information:

Internal Power Supply primary circuits and AC power input are considered as Arcing PIS.

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.

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

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
The internal circuit	--	--	--	--	Yes
Supplementary Information: The internal circuits except primary circuit are considered as resistive PIS without test. A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.					

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

B.2.5	TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
90	50	1,00	--	61,20	--	Circuit breaker	1,00	Normal work. Test with power supply PMT-24V350W2BR and LRS-50-12
100	50	0,90	2,1	57,30	--	Circuit breaker	0,90	
120	50	0,81	2,1	57,00	--	Circuit breaker	0,81	
132	50	0,74	--	59,70	--	Circuit breaker	0,74	
180	50	0,58	--	58,10	--	Circuit breaker	0,58	
200	50	0,54	2,1	57,40	--	Circuit breaker	0,54	
240	50	0,50	2,1	61,20	--	Circuit breaker	0,50	

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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	
264	50	0,45	--	60,70	--	Circuit breaker	0,45		
90	60	1,01	--	60,30	--	Circuit breaker	1,01		
100	60	0,90	2,1	56,90	--	Circuit breaker	0,90		
120	60	0,80	2,1	56,50	--	Circuit breaker	0,80		
132	60	0,76	--	59,30	--	Circuit breaker	0,76		
180	60	0,57	--	57,20	--	Circuit breaker	0,57		
200	60	0,54	2,1	57,00	--	Circuit breaker	0,54		
240	60	0,51	2,1	61,00	--	Circuit breaker	0,51		
264	60	0,43	--	60,50	--	Circuit breaker	0,43		
Supplementary information:									
Equipment may be have rated current or rated power or both. Both should be measured									

B.2.5		TABLE: Input test						P	
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
90	50	0,99	--	61,14	--	Circuit breaker	0,99	Normal work. Test with power supply PMT-12V50W2BA and PMT-24V350W2BR	
100	50	0,90	2,1	57,29	--	Circuit breaker	0,90		
120	50	0,81	2,1	57,00	--	Circuit breaker	0,81		
132	50	0,82	--	58,49	--	Circuit breaker	0,82		
180	50	0,57	--	58,02	--	Circuit breaker	0,57		
200	50	0,54	2,1	57,29	--	Circuit breaker	0,54		
240	50	0,50	2,1	61,18	--	Circuit breaker	0,50		
264	50	0,45	--	60,04	--	Circuit breaker	0,45		
90	60	1,01	--	60,24	--	Circuit breaker	1,01		
100	60	0,90	2,1	56,78	--	Circuit breaker	0,90		
120	60	0,79	2,1	56,42	--	Circuit breaker	0,79		
132	60	0,75	--	58,97	--	Circuit breaker	0,75		
180	60	0,55	--	57,18	--	Circuit breaker	0,55		
200	60	0,54	2,1	57,00	--	Circuit breaker	0,54		
240	60	0,50	2,1	60,49	--	Circuit breaker	0,50		
264	60	0,42	--	60,21	--	Circuit breaker	0,42		
Supplementary information:									
Equipment may be have rated current or rated power or both. Both should be measured									

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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	
90	50	2,29	--	143,74	--	Circuit breaker	0,99	Normal work. Test with power supply LRS-50-24	
100	50	2,09	2,1	144,89	--	Circuit breaker	0,90		
120	50	1,75	2,1	142,29	--	Circuit breaker	0,81		
132	50	1,62	--	139,72	--	Circuit breaker	0,82		
180	50	1,26	--	140,24	--	Circuit breaker	0,57		
200	50	1,15	2,1	137,26	--	Circuit breaker	0,54		
240	50	1,03	2,1	132,73	--	Circuit breaker	0,50		
264	50	0,94	--	130,60	--	Circuit breaker	0,45		
90	60	2,23	--	143,25	--	Circuit breaker	1,01		
100	60	2,13	2,1	145,32	--	Circuit breaker	0,90		
120	60	1,75	2,1	142,27	--	Circuit breaker	0,79		
132	60	1,65	--	143,10	--	Circuit breaker	0,75		
180	60	1,25	--	142,38	--	Circuit breaker	0,55		
200	60	1,16	2,1	139,14	--	Circuit breaker	0,54		
240	60	0,99	2,1	135,55	--	Circuit breaker	0,50		
264	60	0,94	--	135,18	--	Circuit breaker	0,42		
Supplementary information:									
Equipment may be have rated current or rated power or both. Both should be measured									

B.3		TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25°C if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ...:						See Table 4.1.2			—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Test with power supply PMT-24V350W2BR and LRS-50-12									
Ventilation Openings	Blocked	90	2h	Circuit breaker	0,96	K	Max temperature: PCB near Q23: 41,9°C; Motor: 26,7°C; Metal enclosure near power supply: 26,1°C; Ambient: 23,5°C	Normal work. No damaged, no hazards.	

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Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25°C if not specified		—
Power source for EUT: Manufacturer, model/type, output rating ..						See Table 4.1.2		—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
12 output interface	Overload	90	2h	Circuit breaker	0,5->0,9->1,0	K	Max temperature: PCB near Q23: 56,4°C; Motor: 28,8°C; Metal enclosure near power supply: 26,7°C; Ambient: 23,4°C	Normal work. No damaged, no hazards.
12 output interface	Sc	90	10min	Circuit breaker	0,98->0	--	--	12 output interface shut down, no damage, no hazard.
RS485 interface	Sc	90	10min	Circuit breaker	1,00->0	--	--	RS485 interface shut down, no damage, no hazard.
Test with power supply LRS-50-24								
12V output	OL	90V/60 Hz	2,5h	Circuit breaker	2,48->2,52->2,26	K	Max temperature: PCB near Q23: 53,2°C; Metal enclosure near power supply: 27,4°C; Ambient: 24°C	Load condition: 1A->1,2A->1,4A->0 Normal work. No damaged, no hazards.
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.								

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Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Fault condition tests							P
Ambient temperature (°C)					25°C if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ..					See Table 4.1.2			—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Test with power supply PMT-24V350W2BR and LRS-50-12								
Motor	Locked	90	7h	Circuit breaker	0,25	K	Max temperature: PCB near Q23: 33,5°C; Motor: 25,0°C; Metal enclosure near power supply: 26,8°C; Ambient: 23,2°C	Normal work. No damaged, no hazards.
Power fan	Locked	90	2h	Circuit breaker	0,98	K	Max temperature: PCB near Q23: 43,9°C; Motor: 31,7; Metal enclosure near power supply: 28,3°C; Ambient: 23,3°C	Normal work. No damaged, no hazards.
URL1 pin 1-8	Sc	90	10min	Circuit breaker	0,97	--	--	Normal work, no obviously temperature rise. No damaged, no hazards.
F1	Sc	90	10min	Circuit breaker	0,98	--	--	Normal work, no obviously temperature rise. No damaged, no hazards.
D4	Sc	90	10min	Circuit breaker	0,97	--	--	Normal work, no obviously temperature rise. No damaged, no hazards.
Test with power supply LRS-50-24								

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Clause	Requirement + Test					Result - Remark		Verdict
Power Fan	locked	90	7h	Circuit breaker	2,25	K	Max temperature: PCB near Q23: 49,6°C; Metal enclosure near power supply: 27,3°C; Ambient: 24,5°C	Normal work. No damaged, no hazards.
Supplementary information: Sc=Short circuit.								

Annex M	TABLE: Batteries								P	
The tests of Annex M are applicable only when appropriate battery data is not available									P	
Is it possible to install the battery in a reverse polarity position?..... :							No		N/A	
	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	--	--	--	135,3µA	300mA	2,2µA	--	--	--	
Max. current during fault condition	--	--	--	485µA D12 Sc	300mA	775,4µA D13 Sc	--	--	--	
Test results:									Verdict	
- Chemical leaks							No		N/A	
- Explosion of the battery							No		N/A	
- Emission of flame or expulsion of molten metal							No		N/A	
- Electric strength tests of equipment after completion of tests									N/A	
Supplementary information:										

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

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Clause	Requirement + Test		Result - Remark	Verdict
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)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Normal	12 V interface	12,1	3,90	8	38,94	100
Overload	12 V interface	12,1	2,0	8	60,0	100
Normal	Traffic light interface	0	0	8	0	100
Normal	Limit output	0	0	8	0	100
Supplementary Information: Sc=Short 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 primary components	--	--	10	5	After the application of the force, clearances and creepage distances shall not be reduced below the required values.	
Host enclosure	Meta	1,2 mm	250	5	Intact	
Supplementary information:						

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Host enclosure	Meta	1,2 mm	1300	Intact	
Supplementary information:					

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

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Clause	Requirement + Test	Result - Remark	Verdict

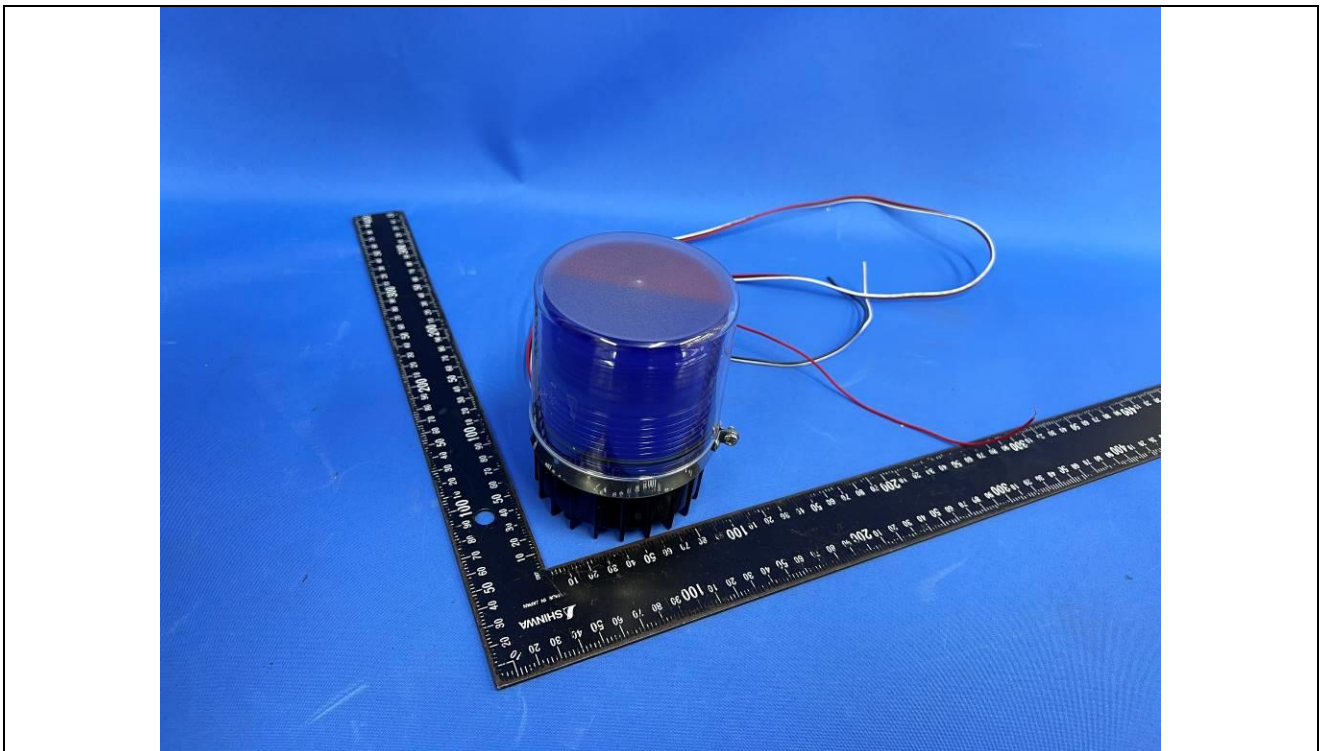
T.8	TABLE: Stress relief test					N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Supplementary information:						

*** End of Test report ***

Details of: General View



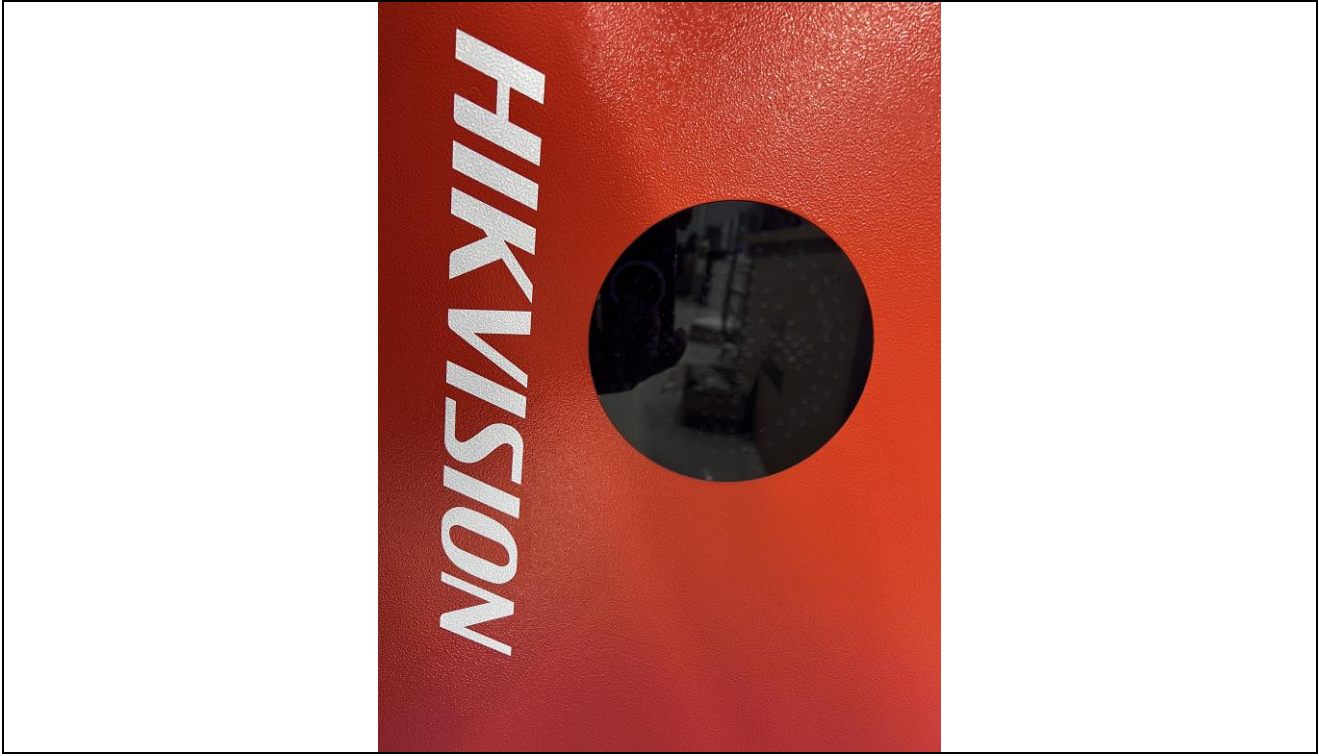
Details of: LED Warning Light



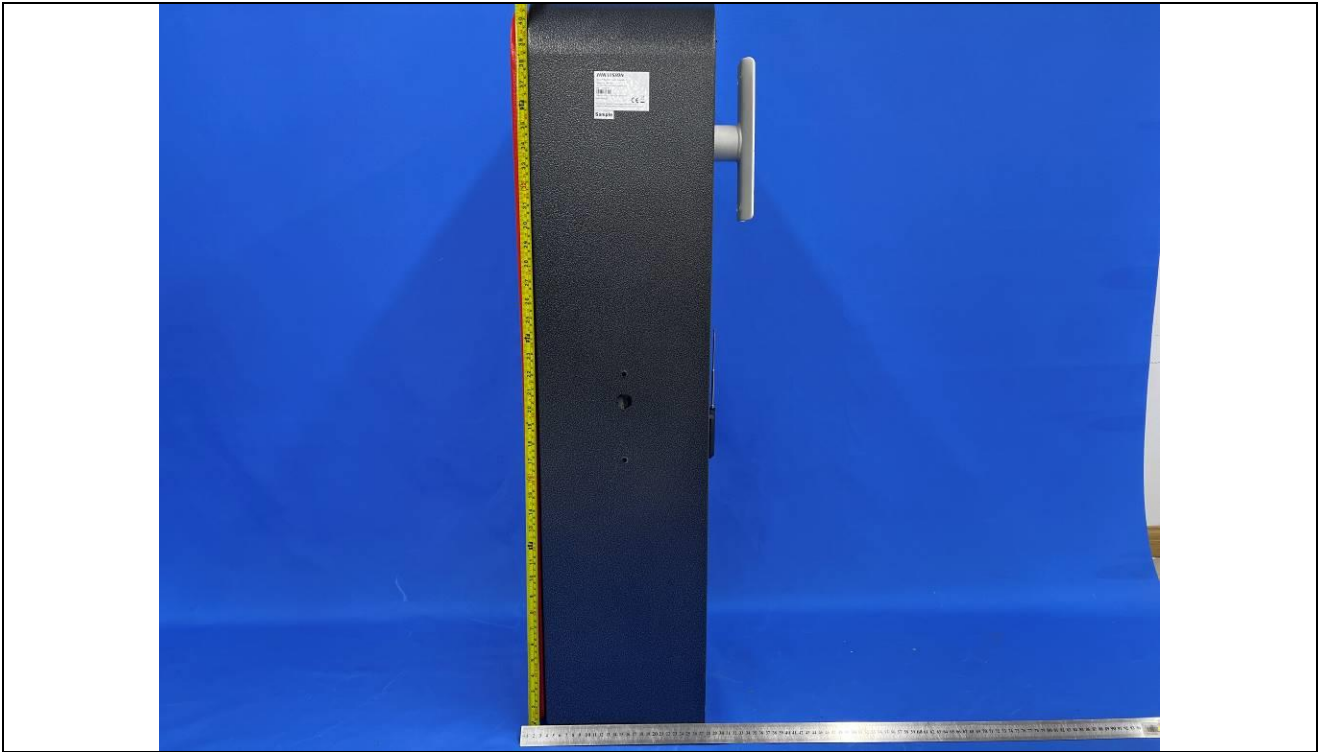
Details of: General View



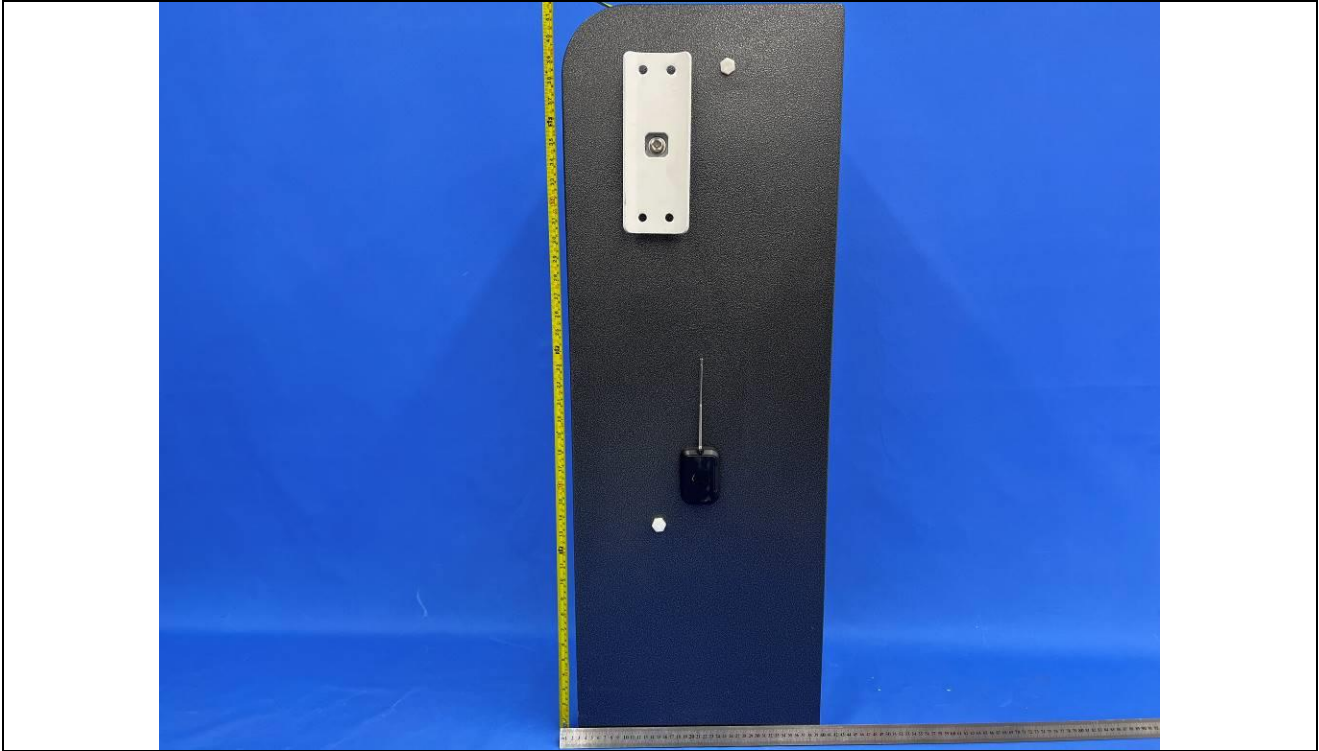
Details of: General View



Details of: General View



Details of: General View



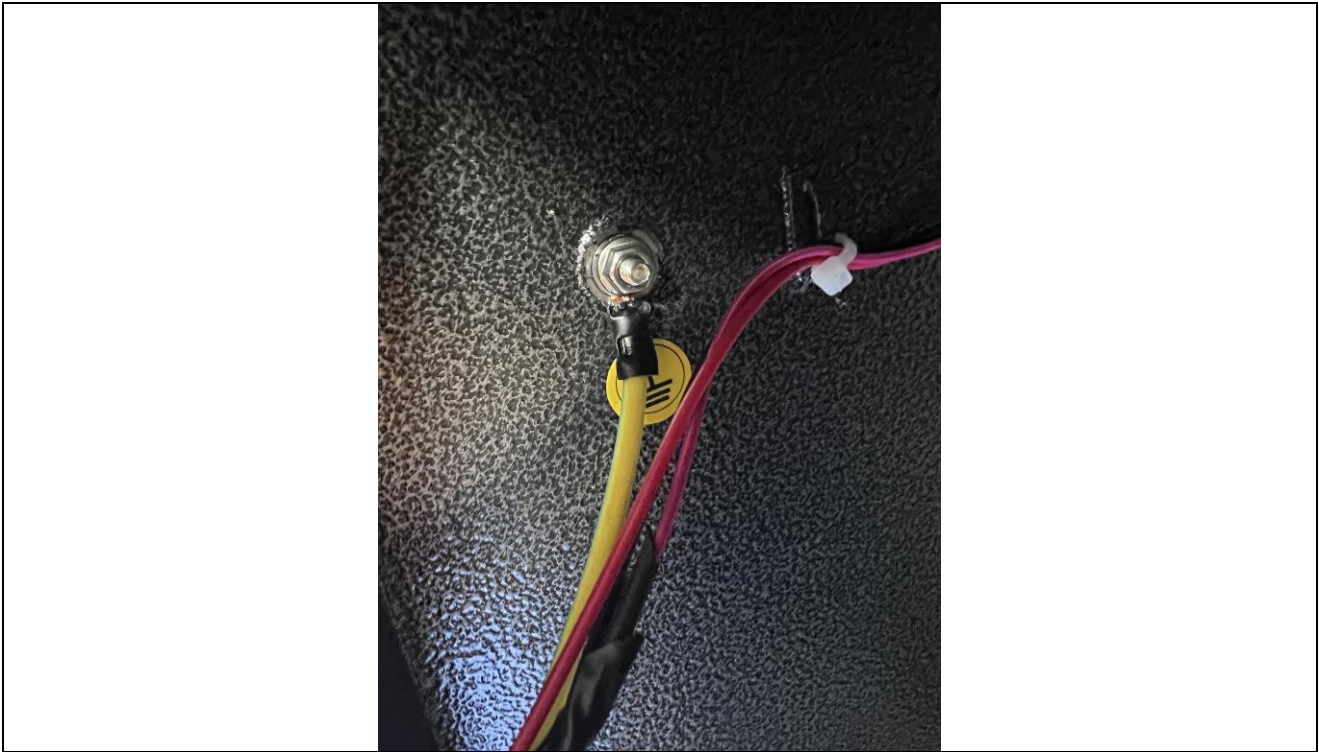
Details of: Internal View



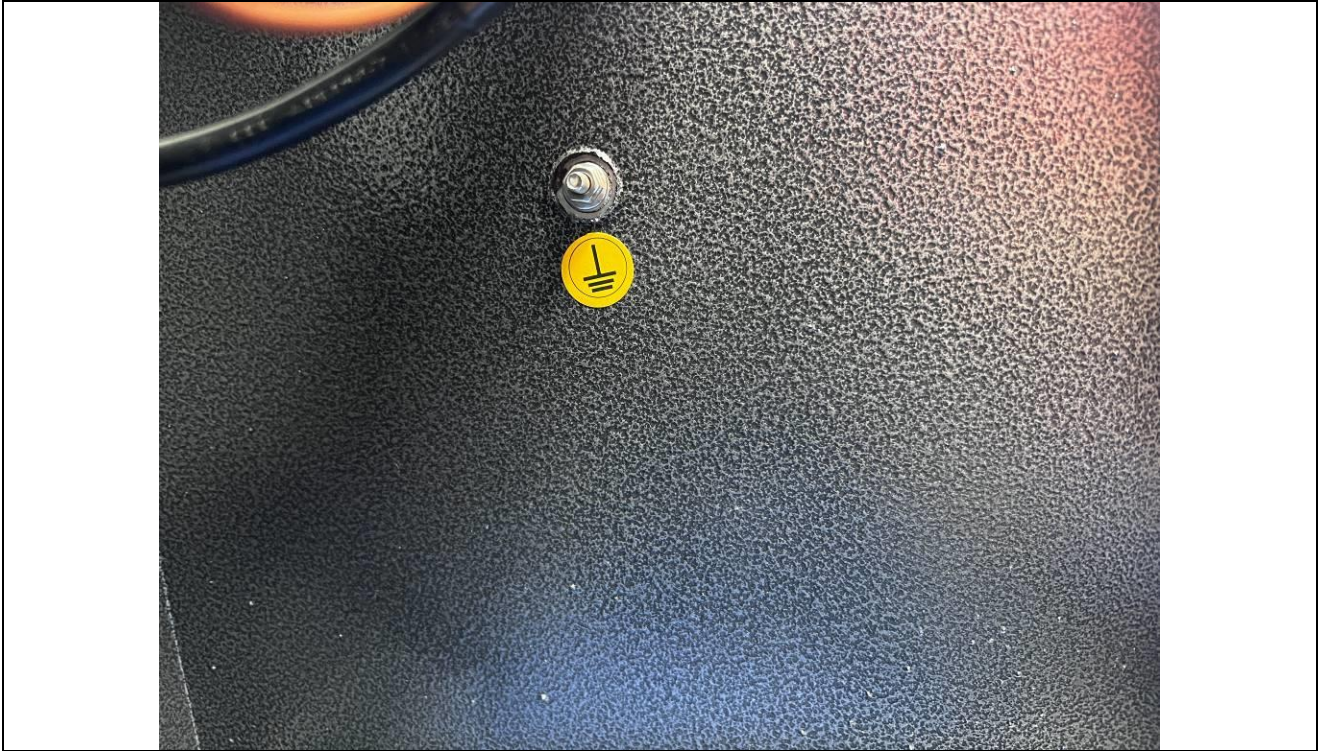
Details of: Internal View



Details of: Internal View



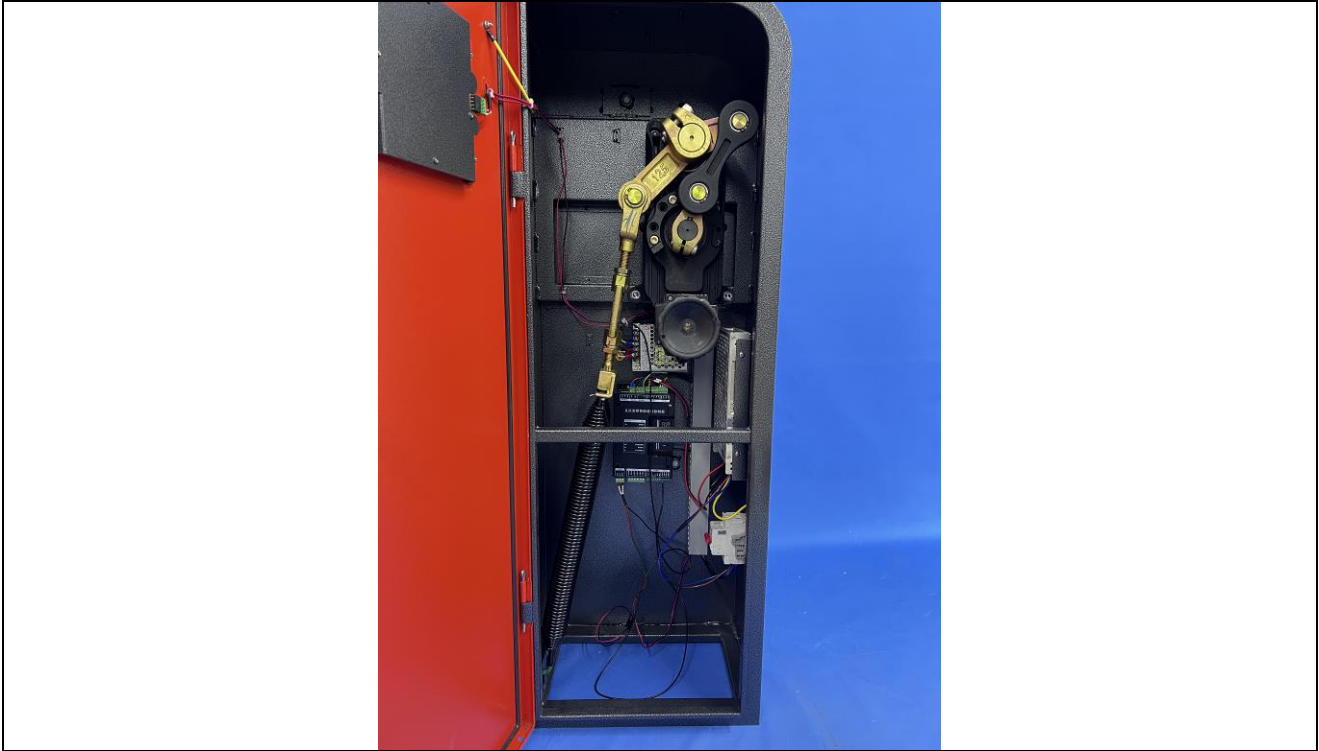
Details of: Internal View



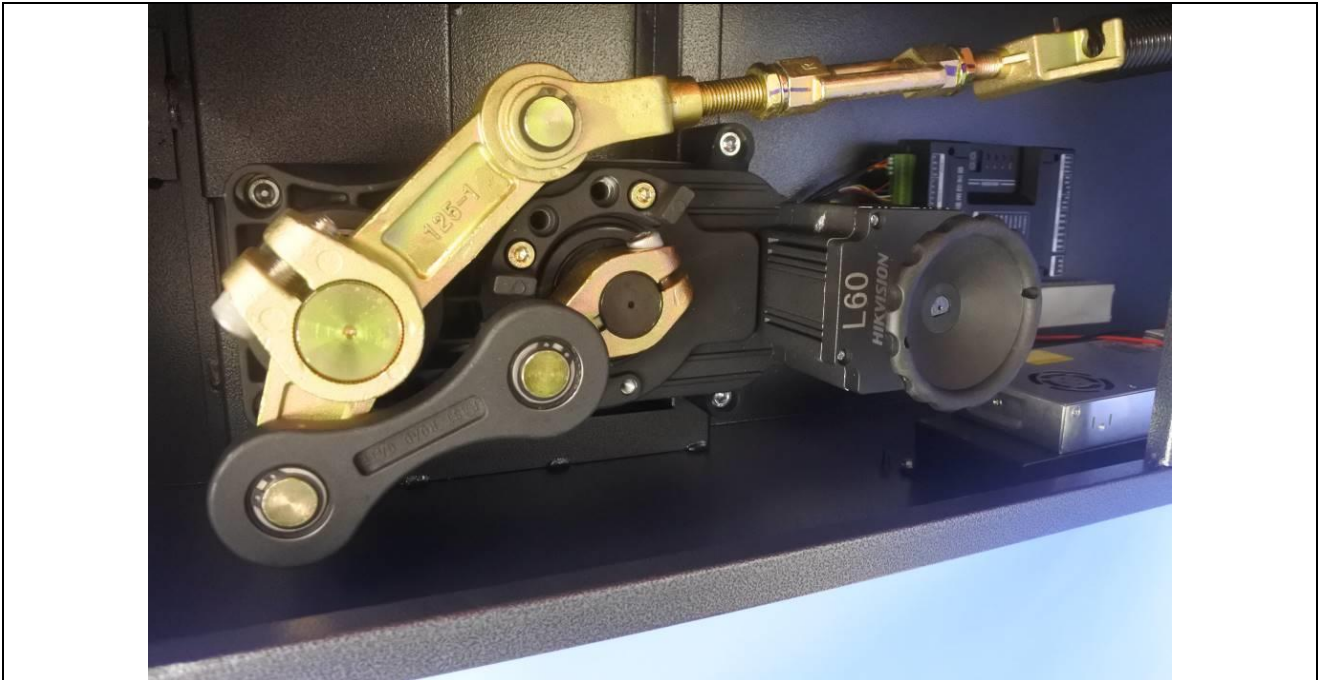
Details of: Internal View



Details of: Internal View



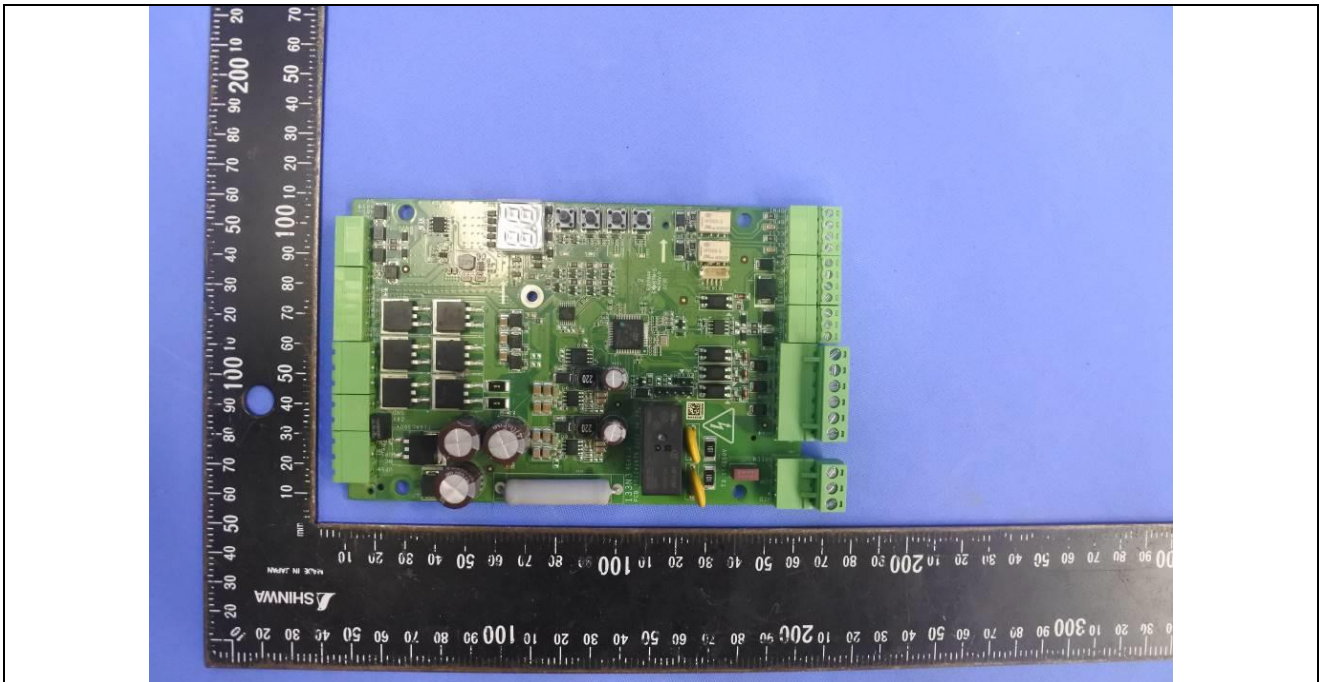
Details of: Internal View



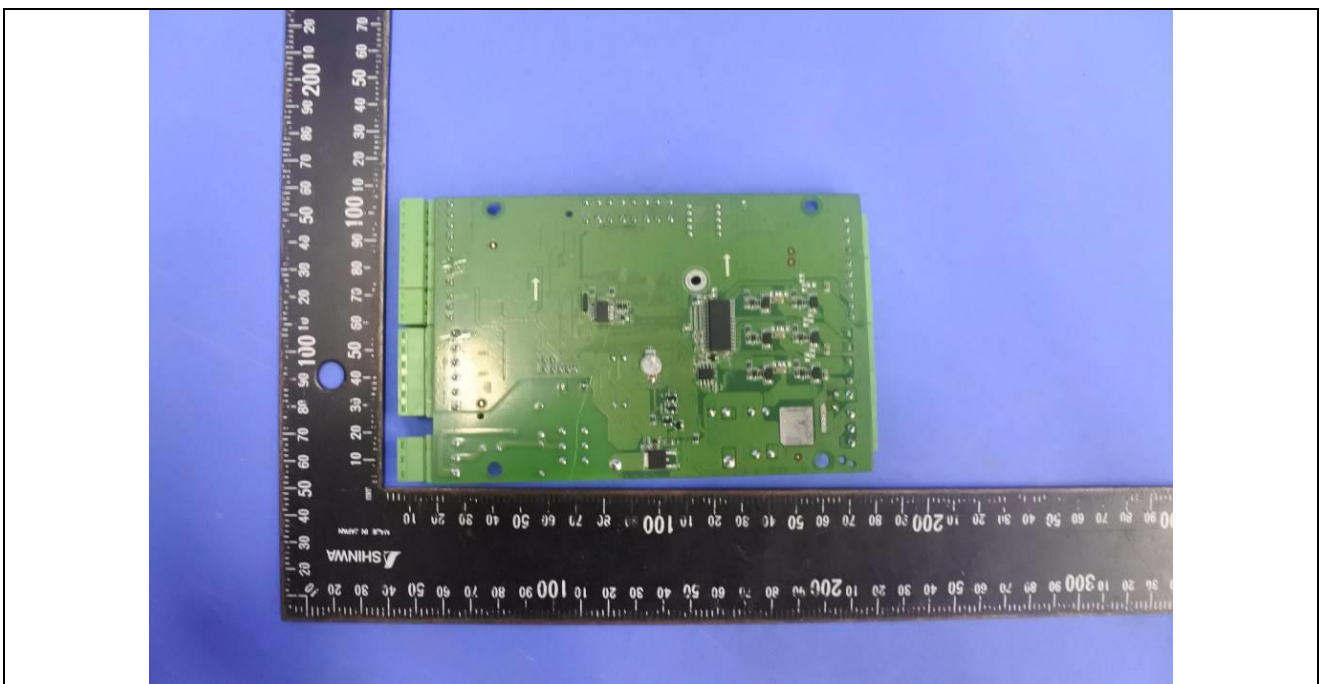
Details of: Circuit breaker



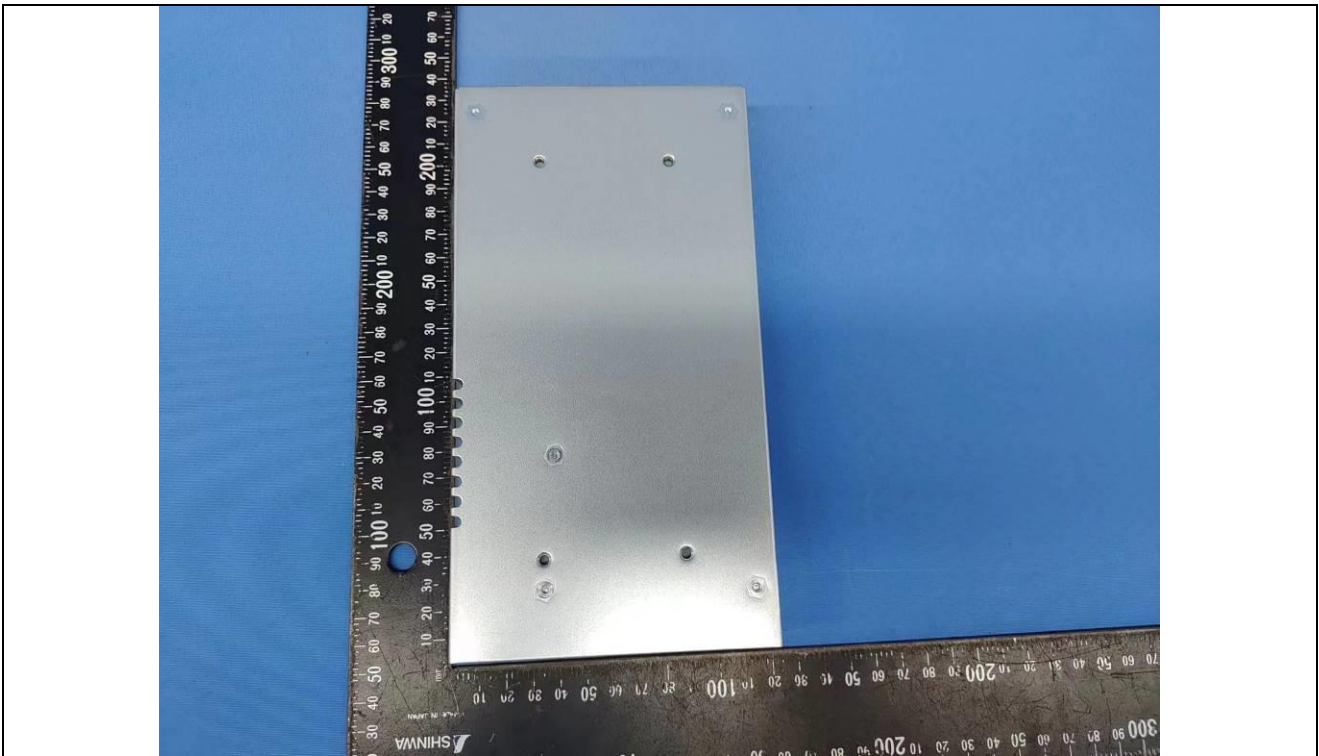
Details of: PCB



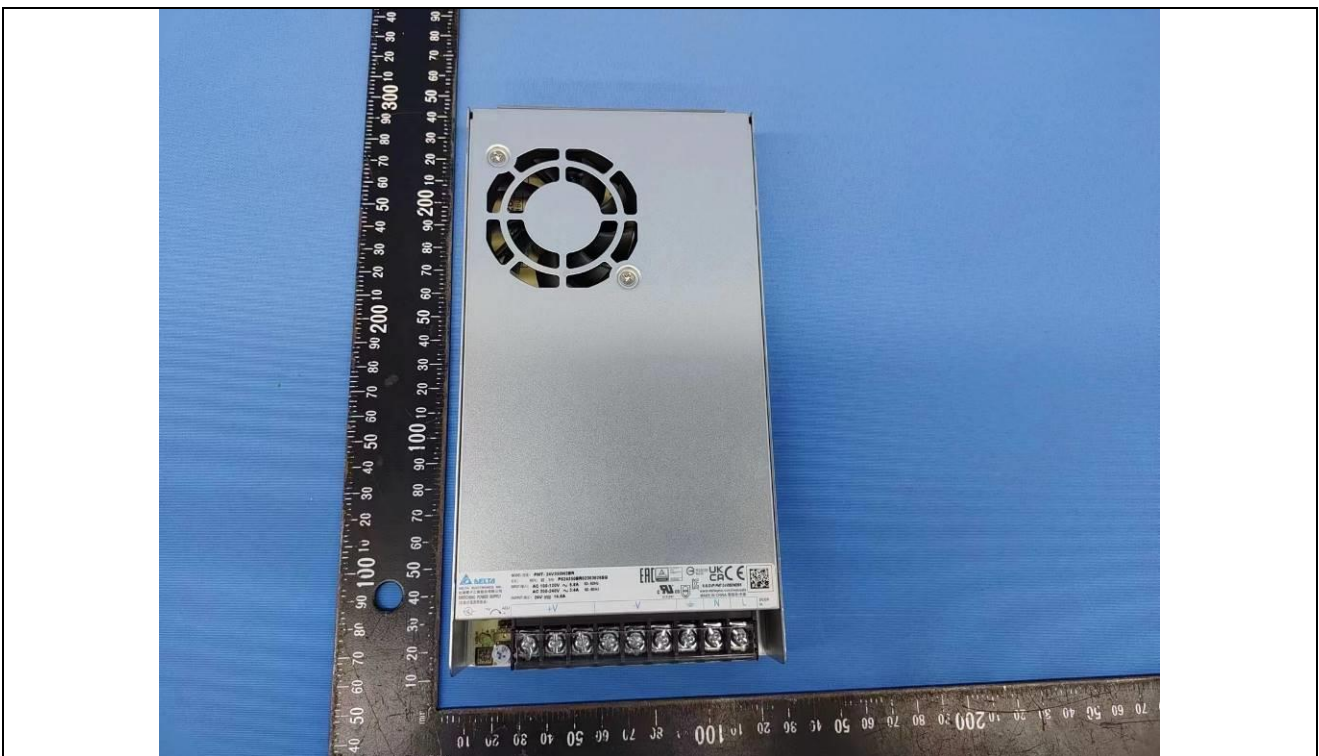
Details of: Internal View



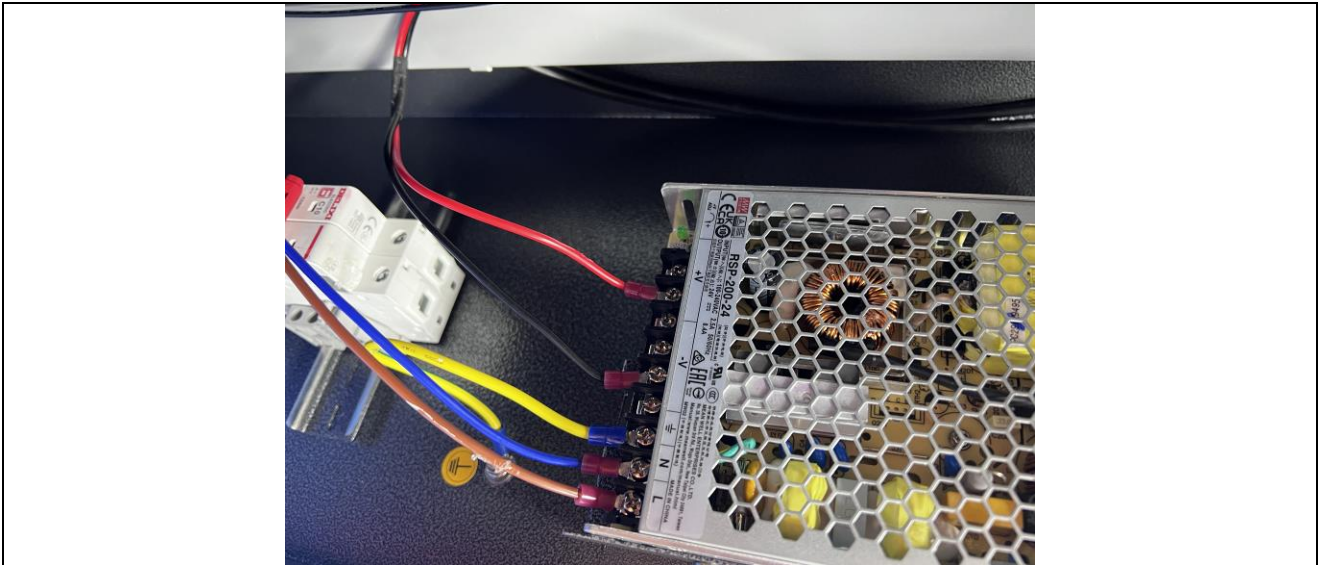
Details of: Building power supply (power for main board) (model: PMT-24V350W2BR)



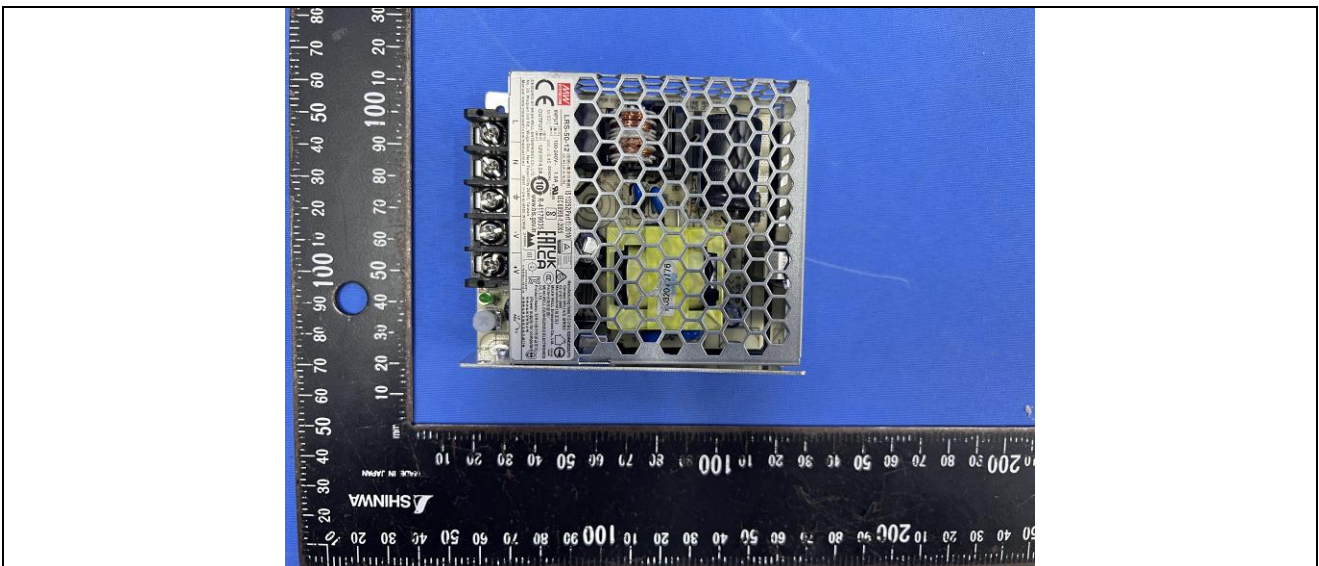
Details of: Building power supply (power for main board) (model: PMT-24V350W2BR)



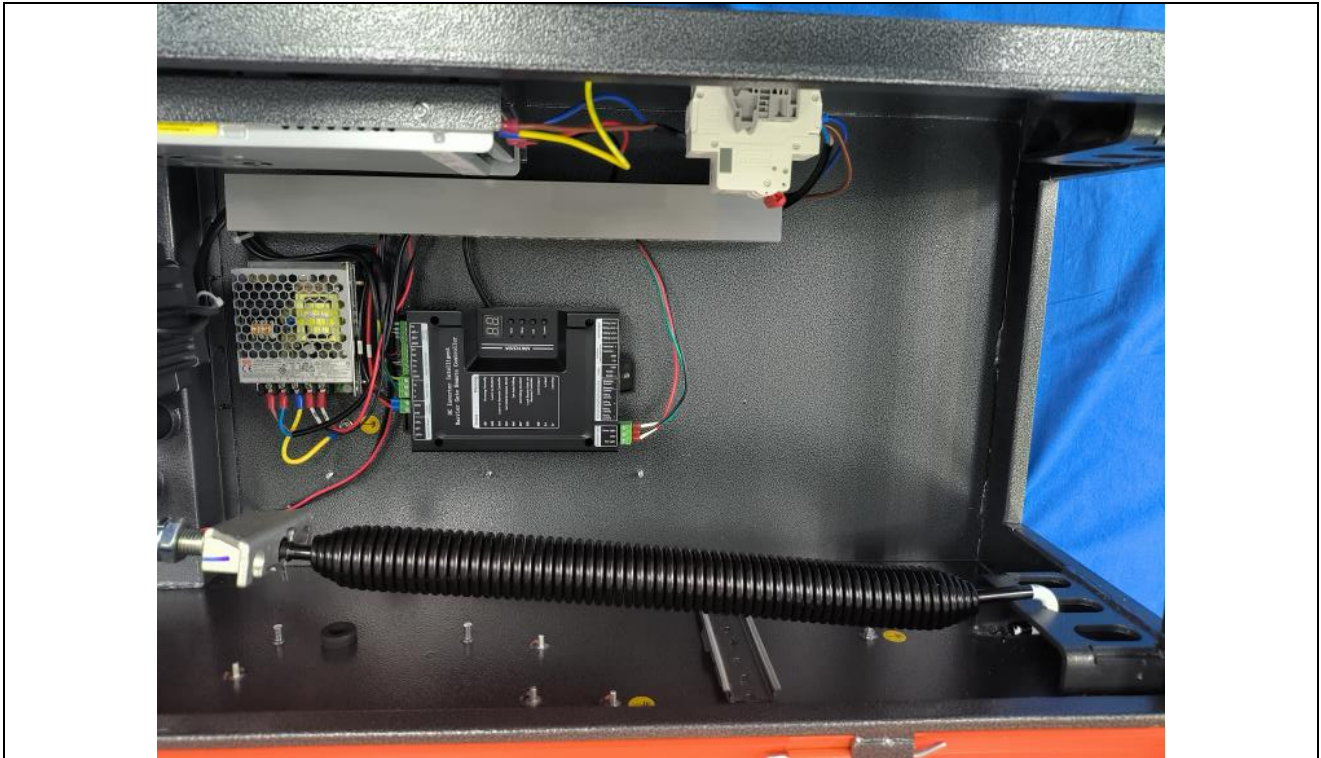
Details of: Internal View



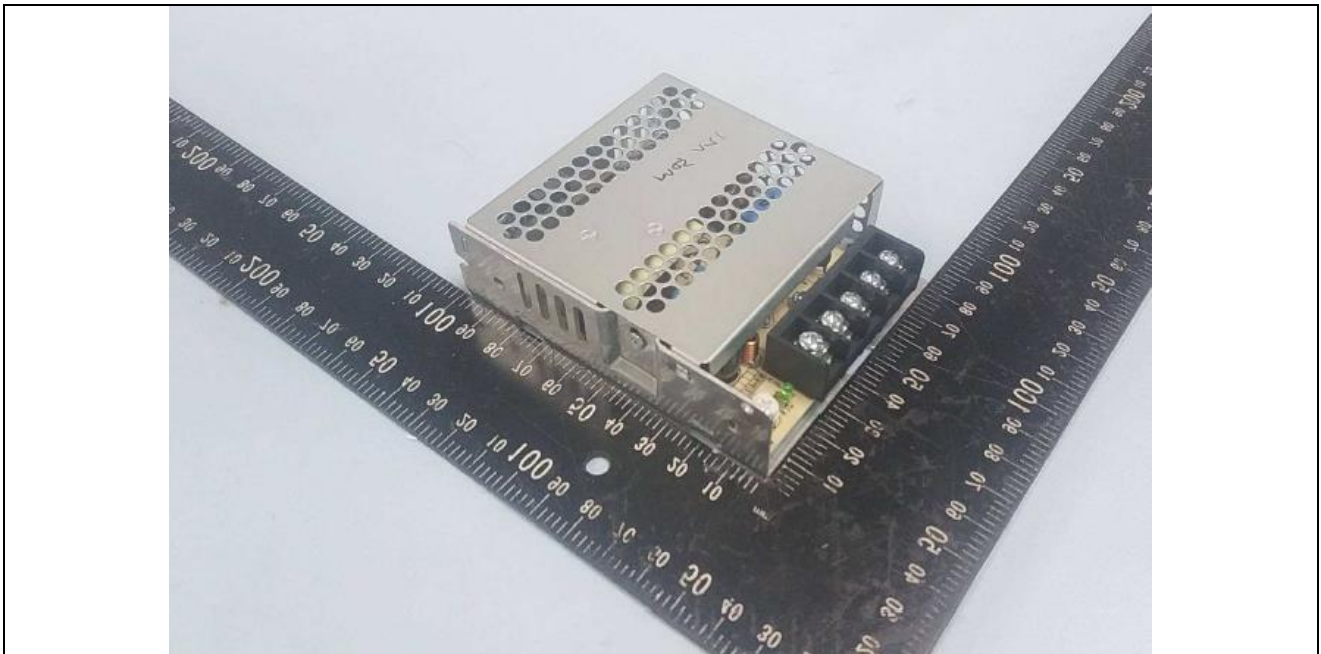
Details of: Building power supply (power for LED)



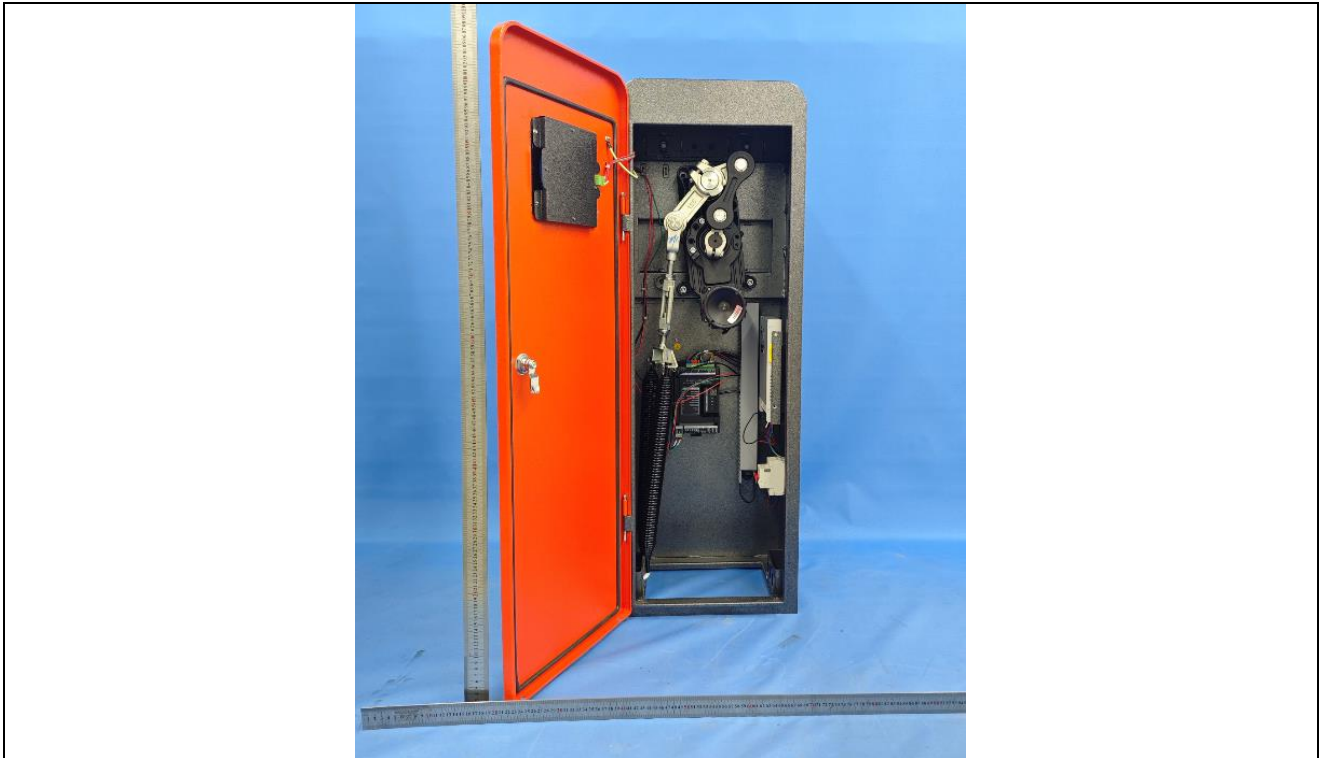
Details of: Internal view with alternative Building power supply (power for LED) PMT-12V50W2BA



Details of: Alternative Building power supply (power for LED) PMT-12V50W2BA



Details of: Internal view with alternative Building power supply LRS-50-24



Details of: Alternative Building power supply LRS-50-24



Details of: Alternative Building power supply LRS-50-24



*****End of Attachment 1*****

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IEC62368_1D – ATTACHMENT 2																																									
Clause	Requirement + Test			Result - Remark	Verdict																																				
<div>ATTACHMENT TO TEST REPORT</div> <div>IEC 62368-1</div> <div>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</div> <div>(Audio/video, information and communication technology equipment - Part 1: Safety requirements)</div>																																									
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																																									
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.																																									
	CENELEC COMMON MODIFICATIONS (EN)				P																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed “Z”.				P																																				
CONTENTS	<div>Add the following annexes:</div> <div><div>Annex ZA (normative)</div><div>Normative references to international publications with their corresponding European publications</div><div>Annex ZB (normative)</div><div>Special national conditions</div><div>Annex ZC (informative)</div><div>A-deviations</div><div>Annex ZD (informative)</div><div>IEC and CENELEC code designations for flexible cords</div></div>				P																																				
	<div>Delete all the “country” notes in the reference document (IEC 62368-1:2014) according to the following list:</div> <table><tr><td>0.2.1</td><td>Note</td><td>1</td><td>Note 3</td><td>4.1.15</td><td>Note</td></tr><tr><td>4.7.3</td><td>Note 1 and 2</td><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 13</td><td>Note c</td></tr><tr><td>5.4.2.3.2.4</td><td>Note 1 and 3</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3</td></tr><tr><td>5.7.5</td><td>Note</td><td>5.7.6.1</td><td>Note 1 and 2</td><td>10.2.1 Table 39</td><td>Note 2, 3 and 4</td></tr><tr><td>10.5.3</td><td>Note 2</td><td>10.6.2.1</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td></tr></table>				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	P
0.2.1	Note	1	Note 3	4.1.15	Note																																				
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	For special national conditions, see Annex ZB.				P																																				
1	<div>Add the following note:</div> <div>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</div>				P																																				

IEC62368_1D – ATTACHMENT 2

Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>		N/A
10.2.1	<p>Add the following to c) and d) in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A

IEC62368_1D – ATTACHMENT 2

Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p>Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i></p> <p><i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i></p> <p><i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
10.6.1	<p>Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		N/A
10.Z1	<p>Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>		N/A
G.7.1	<p>Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		N/A
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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. <i>Justification:</i> 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

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

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

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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

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

---End of Attachment 2---

Safety Instructions

Regulation

Use of the product must be in strict compliance with the local laws and regulations. Please shut down the device in prohibited area.

Power

- Use of the product must be in strict compliance with the local electrical safety regulations.
- Use the power adapter provided by qualified manufacturer. Refer to the product specification for detailed power requirements. It is recommended to provide independent power adapter for each device as adapter overload may cause over-heating or a fire hazard.
- Make sure that the power has been disconnected before you wire, install, or disassemble the device in the authorized way according to the description in the manual. To avoid electric shock, DO NOT directly touch exposed contacts and components once the device is powered up.
- DO NOT use damaged power supply devices (e.g., cable, power adapter, etc.) to avoid electric shock, fire hazard, and explosion.
- DO NOT directly cut the power supply to shut down the device. Please shut down the device normally and then unplug the power cord to avoid data loss.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- Make sure the power supply has been disconnected if the power adapter is idle. Connect to earth before connecting to the power supply.
- DO NOT touch the bare metal contacts of the inlets after the circuit breaker is turned off. Electricity still exists.
- Ensure correct wiring of the terminals for connection to an AC mains supply.
- An overcurrent protective device conforming to the power supply specification shall be incorporated external to the equipment, not exceeding the specification of the building. Refer to the specification for the detailed power supply requirement.

Transport, Use, and Archive

- To avoid heat accumulation, good ventilation is required for a proper operating environment. Store the device in dry, well-ventilated, corrosive-gas-free, no direct sunlight, and no heating source environment.
- Avoid fire, water, and explosive environment when using the device. Install the device in such a way that lightning strikes can be avoided. Provide a surge suppressor at the inlet opening of the equipment under special conditions such as the mountain top, iron tower, and forest.
- Keep the device away from magnetic interference.
- Avoid device installation on vibratory surfaces or places. Failure to comply with this may cause device damage.
- DO NOT touch the heat dissipation component to avoid burns. DO NOT expose the device to extremely hot, cold, or humidity environments. For temperature and humidity requirements, see device specification.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- DO NOT touch the sharp edges or corners. To prevent possible hearing damage, DO NOT listen at high volume levels for long periods.
- The device can only be safely used in the region below 2,000 meters above the sea level.
- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the equipment.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc. The openings shall never be blocked by placing the equipment on a bed, sofa, rug or other similar surface.
- This equipment is suitable for mounting on concrete or other non-combustible surface only.
- Keep body parts away from motors. Disconnect the power source during servicing.
- The disconnect device shall be provided as part of the building installation

Maintenance

- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.
If the device cannot work properly, contact the store you purchased it or the nearest service center. DO NOT disassemble or modify the device in the unauthorized way (For the problems caused by unauthorized modification or maintenance, the company shall not take any responsibility).
- Keep all packaging after unpacking them for future use. In case of any failure occurred, you need to return the device to the factory with the original packaging. Transportation without the original packaging may result in damage to the device and the company shall not take any responsibility.

*******End of attachment 3*******