



Test Report issued under the responsibility of:



<b>TEST REPORT</b> <b>IEC 62368-1</b> <b>Audio/video, information and communication technology equipment</b> <b>Part 1: Safety requirements</b>	
Report Number. .... : SUES240300020701	
Date of issue ..... : 2024-03-21	
Total number of pages ..... : 58 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 62368-1:2018
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_1E	
Test Report Form(s) Originator.... : UL(US)	
Master TRF ..... : Dated 2022-04-14	
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Test item description .....	Video Wall Controller	
Trade Mark(s) .....	<b>HIKVISION</b>	
Manufacturer .....	Same as applicant	
Model/Type reference .....	See page 8	
Ratings .....	100-120 V a.c./200-240 V a.c., 50/60 Hz, 2,3 A MAX; Class I	
<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<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	
<b>Testing procedure: CTF Stage 1:</b>		
Testing location/ address .....		
Tested by (name, function, signature) .....		
Approved by (name, function, signature) ..		
<b>Testing procedure: CTF Stage 2:</b>		
Testing location/ address .....		
Tested by (name, function, signature) .....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) ..		
<b>Testing procedure: CTF Stage 3:</b>		
<b>Testing procedure: CTF Stage 4:</b>		
Testing location/ address .....		
Tested by (name, function, signature) .....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) ..		
Supervised by (name, function, signature) :		

<b>List of Attachments (including a total number of pages in each attachment):</b> Attachment 1 – 18 pages of Photos documents; Attachment 2 – 23 pages of European group differences and national differences; Attachment 3 – 2 page of Safety information.	
<b>Summary of test</b> The sample(s) tested complies with the requirements of IEC 62368-1: 2018 and EN IEC 62368-1:2020+A11:2020.  Unless otherwise specified, the EUT with model DS-B31-16H32H was selected as representative model for full testing. We choose the prototype with the most HDMI ports for testing. Maximum normal load: USB3.0: 0,9A X2 Heating test: Tma = 55°C (declared by manufacturer)  K-type thermocouple used for temperature measurement.	
<b>Tests performed (name of test and test clause):</b> <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	<b>Testing location:</b> SGS-CSTC Standards Technical Services Co., Ltd. Suzhou Branch  No.10, Weiye Road, Kunshan Development Zone, Suzhou, Jiangsu, China
<b>Summary of compliance with National Differences (List of countries addressed):</b> 1. EU Group Differences (EN IEC 62368-1:2020+A11:2020) 2. EU Special National Conditions, EU A-deviations: DE, DK, FI, FR, GB, IE, NO, SE Explanation of used codes: DE=Germany, DK=Denmark, FI=Finland, FR=France, GB= United Kingdom, IE=Ireland, NO=Norway, SE=Sweden <input checked="" type="checkbox"/> <b>The products fulfil the requirements.</b>	

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

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

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

**Information on uncertainty of measurement:**

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

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

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

**Copy of marking plate:**

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

**Marking for model DS-B31-16H32H****HIKVISION****Video Wall Controller**

Model: DS-B31-16H32H

Config. Info:

I/P: 100-120V~/200-240V~, 50/60Hz, 2.3A MAX

SN: C12345678

**HDMI™**

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.

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

**Made in 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 placed 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 and trade mark.

<b>Test item particulars:</b>			
<b>Product group</b> .....	<input checked="" type="checkbox"/> end product	<input type="checkbox"/> built-in component	
<b>Classification of use by</b> .....	<input checked="" type="checkbox"/> Ordinary person	<input type="checkbox"/> Children likely present	
	<input checked="" type="checkbox"/> Instructed person		
	<input checked="" type="checkbox"/> Skilled person		
<b>Supply connection</b> .....	<input checked="" type="checkbox"/> AC mains	<input type="checkbox"/> DC mains	
	<input type="checkbox"/> not mains connected:		
	<input type="checkbox"/> ES1	<input type="checkbox"/> ES2	<input type="checkbox"/> ES3
<b>Supply tolerance</b> .....	<input checked="" type="checkbox"/> +10%/-10%		
	<input type="checkbox"/> +20%/-15%		
	<input type="checkbox"/> +      %/ -      %		
	<input type="checkbox"/> None		
<b>Supply connection – type</b> .....	<input checked="" type="checkbox"/> pluggable equipment type A -		
	<input type="checkbox"/> non-detachable supply cord		
	<input checked="" type="checkbox"/> appliance coupler		
	<input type="checkbox"/> direct plug-in		
	<input type="checkbox"/> pluggable equipment type B -		
	<input type="checkbox"/> non-detachable supply cord		
	<input type="checkbox"/> appliance coupler		
	<input type="checkbox"/> permanent connection		
	<input type="checkbox"/> mating connector <input type="checkbox"/> other:		
<b>Considered current rating of protective device</b> .....	<input checked="" type="checkbox"/> 20 A for or North America;		
	<input checked="" type="checkbox"/> 16 A for other markets except North America.		
	Location:	<input checked="" type="checkbox"/> building	<input type="checkbox"/> equipment
	<input type="checkbox"/> N/A		
<b>Equipment mobility</b> .....	<input checked="" type="checkbox"/> movable	<input type="checkbox"/> hand-held	<input type="checkbox"/> transportable
	<input type="checkbox"/> direct plug-in	<input type="checkbox"/> stationary	<input type="checkbox"/> for building-in
	<input type="checkbox"/> wall/ceiling-mounted	<input type="checkbox"/> SRME/rack-mounted	
	<input type="checkbox"/> other:		
<b>Overvoltage category (OVC)</b> .....	<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:	
<b>Class of equipment</b> .....	<input checked="" type="checkbox"/> Class I	<input type="checkbox"/> Class II	<input type="checkbox"/> Class III
	<input type="checkbox"/> Not classified	<input type="checkbox"/>	
<b>Special installation location</b> .....	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> restricted access area	
	<input type="checkbox"/> outdoor location <input type="checkbox"/>		
<b>Pollution degree (PD)</b> .....	<input type="checkbox"/> PD 1	<input checked="" type="checkbox"/> PD 2	<input type="checkbox"/> PD 3
<b>Manufacturer's specified T<sub>ma</sub></b> .....	50°C	<input type="checkbox"/> Outdoor: minimum	°C
<b>IP protection class</b> .....	<input checked="" type="checkbox"/> IPX0	<input type="checkbox"/> IP___	
<b>Power systems</b> .....	<input checked="" type="checkbox"/> TN	<input checked="" type="checkbox"/> TT	<input type="checkbox"/> IT -      V <sub>L-L</sub>
	<input type="checkbox"/> not AC mains		
<b>Altitude during operation (m)</b> .....	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> m	
<b>Altitude of test laboratory (m)</b> .....	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> 100 m	
<b>Mass of equipment (kg)</b> .....	13,52 kg		

<b>Possible test case verdicts:</b> - test case does not apply to the test object .....: N/A - test object does meet the requirement.....: P (Pass) - test object does not meet the requirement.....: F (Fail)	
<b>Testing:</b> Date of receipt of test item .....: 2024-03-06 Date (s) of performance of tests .....: 2024-03-06 to 2024-03-14	
<b>General remarks:</b> "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. <b>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</b> This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx</a> . Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. 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. 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.	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>Not applicable</b> Factory declaration letter.pdf, dated on 2024-03-07.
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies).....:</b>	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, Jianqiao Industrial Park, Dadukou District, Chongqing, 401325, China

**General product information:****Product Description –**

Functions	The equipment under test is a Class I Video Wall Controller which powered by certified built-in power supply.
Material of enclosure	Metal
Terminals	HDMI port X48, USB 3.0 port X2, AC inlet X1, Lan port X1, CONSOLE port X1, RESERVE port X1, RS232/485 port X1
Others	Indoor use only We choose the prototype with the most ports for testing.
Model Differences	All the models are identical except for model name, software version and the numbers of HDMI port

**Model list:**

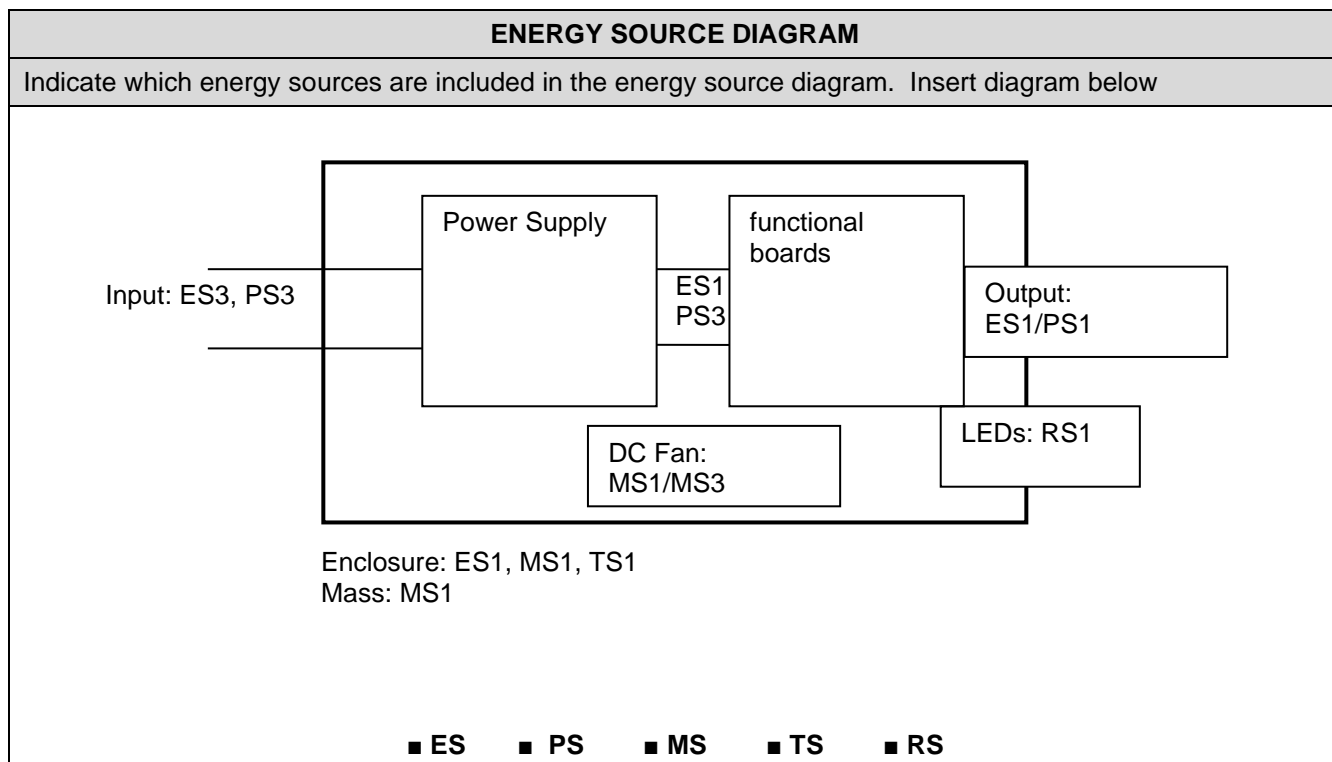
DS-B31-16H32H	DS-B31-12H24H	DS-B31-08H16H	DS-B31-06H12H
DS-B31-04H24H	DS-B31-04H20H	DS-B31-04H16H	DS-B31-04H12H
DS-B31-04H08H	DS-B31-MCU	DS-B31-0204HIO	DS-B31-04HO
DS-B31*****	(*=0-9 or A-Z or / or * or-,or blank)		

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



OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Power input and primary circuit	Ordinary, Instructed and Skilled Person	Basic Insulation	Protective Earthing	Double or Reinforced insulation distance
ES1: Other internal circuit	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
ES1: All accessible parts	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 <sup>st</sup> S	2 <sup>nd</sup> S
PS3: Power input	Enclosure, materials inside and outside the enclosure	meet clause 6.3	meet clause 6.4.6	N/A
PS3: All internal circuits	Enclosure, materials inside and outside the enclosure	meet clause 6.3	meet clause 6.4.6	N/A
PS1: Other output ports	Enclosure, materials inside and outside the enclosure	N/A	N/A	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
RTC Battery	Ordinary, Instructed and Skilled Person	N/A	N/A	Comply with Annex M
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edges and corners	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
MS2: Equipment mass	Ordinary, Instructed and Skilled Person	N/A	N/A	Comply with CI 8.6
MS1: DC fan (Model: MGT4012MB-W20 H)	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
MS3: DC fan (Model: MGT6012ZB-W20 B)	Ordinary, Instructed and Skilled Person	N/A	N/A	Comply with CI 8.5
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R

TS1: The outer enclosure of the equipment	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LEDs only as indicator	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
Supplementary Information:				
“B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.4	Specified ambient temperature for outdoor use (°C) ..... :		N/A
4.1.5	Constructions and components not specifically covered	No such part	N/A
4.1.8	Liquids and liquid filled components (LFC)		N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Annex T.2, T.5)	P
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	(See Annex T.6)	P
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests		N/A
4.4.3.9	Air comprising a safeguard		P
4.4.3.10	Accessibility, glass, safeguard effectiveness		P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
<b>4.5</b>	<b>Explosion</b>		P
4.5.1	General	(See Annex M for batteries)	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
<b>4.6</b>	<b>Fixing of conductors</b>		P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test..... :	(See Clause T.2)	P
<b>4.7</b>	<b>Equipment for direct insertion into mains socket-outlets</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.2	Mains plug part complies with relevant standard .. :		N/A
4.7.3	Torque (Nm) ..... :		N/A
<b>4.8</b>	<b>Equipment containing coin/button cell batteries</b>		N/A
4.8.1	General	RTC soldered on PCB	N/A
4.8.2	Instructional safeguard ..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
<b>4.9</b>	<b>Likelihood of fire or shock due to entry of conductive object</b>		P
<b>4.10</b>	<b>Component requirements</b>		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays	(See Annex G)	P

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
<b>5.2</b>	<b>Classification and limits of electrical energy sources</b>		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits ..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits ..... :	Considered in power supply test report.	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
<b>5.3</b>	<b>Protection against electrical energy sources</b>		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		P
	Test with test probe from Annex V	Figure V.2	-
5.3.2.2 a)	Air gap – electric strength test potential (V) .....		N/A
5.3.2.2 b)	Air gap – distance (mm) .....	More than 2mm.	P
5.3.2.3	Compliance		P
5.3.2.4	Terminals for connecting stripped wire		N/A
<b>5.4</b>	<b>Insulation materials and requirements</b>		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic		P
5.4.1.4	Maximum operating temperature for insulating materials .....	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degrees .....	2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage .....	Evaluated in internal power supply test report.	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat test.....		N/A
5.4.1.10.3	Ball pressure test .....	Evaluated in internal power supply test report.	P
5.4.2	Clearances	Evaluated in internal power supply report, the power supply is fully wrapped, and the primary circuit is not exposed.	P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance	Evaluated in internal power supply test report.	P
	Temporary overvoltage .....	2000	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.3	Procedure 2 for determining clearance		P
5.4.2.3.2.2	a.c. mains transient voltage .....	2500	—
5.4.2.3.2.3	d.c. mains transient voltage .....		—
5.4.2.3.2.4	External circuit transient voltage.....		—
5.4.2.3.2.5	Transient voltage determined by measurement .....		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....		N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....		N/A
5.4.2.6	Clearance measurement .....	(See appended table 5.4.2)	P
5.4.3	Creepage distances	Evaluated in internal power supply report, the power supply is fully wrapped, and the primary circuit is not exposed.	P
5.4.3.1	General		P
5.4.3.3	Material group .....	IIIb	—
5.4.3.4	Creepage distances measurement .....	(See appended table 5.4.3)	P
5.4.4	Solid insulation	Evaluated in internal power supply test report.	P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation .....	Evaluated in internal power supply test report.	P
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material	Evaluated in internal power supply test report.	P
5.4.4.6.1	General requirements	Evaluated in internal power supply test report.	P
5.4.4.6.2	Separable thin sheet material	Evaluated in internal power supply test report.	P
	Number of layers (pcs) .....	Evaluated in internal power supply test report.	P
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.9	Solid insulation at frequencies >30 kHz, $E_P$ , $K_R$ , $d$ , $V_{PW}$ (V) .....	(See appended Table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), $K_R$ .....	(See appended Tables 5.4.4.9 and 5.4.9)	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
5.4.5.3	Insulation resistance ( $M\Omega$ ) .....		N/A
	Electric strength test .....	(See appended table 5.4.9)	N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%), temperature ( $^{\circ}C$ ), duration (h) .....	Evaluated in internal power supply test report.	—
5.4.9	Electric strength test		P
5.4.9.1	Test procedure for type test of solid insulation .....	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		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
5.4.10.3	Verification for insulation breakdown for impulse test .....		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage $U_{op}$ (V) .....		—
	Nominal voltage $U_{peak}$ (V) .....		—
	Max increase due to variation $\Delta U_{sp}$ .....		—



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Clause	Requirement + Test	Result - Remark	Verdict
	Max increase due to ageing $\Delta U_{sa}$ .....		—
5.4.11.3	Test method and compliance .....		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid .....		N/A
5.4.12.3	Compatibility of an insulating liquid .....		N/A
5.4.12.4	Container for insulating liquid .....		N/A
<b>5.5</b>	<b>Components as safeguards</b>		P
5.5.1	General		P
5.5.2	Capacitors and RC units	Evaluated in internal power supply test report.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....	Evaluated in internal power supply test report.	P
5.5.3	Transformers	Evaluated in internal power supply test report.	P
5.5.4	Optocouplers	Evaluated in internal power supply test report.	P
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		P
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable .....		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) .....		—
<b>5.6</b>	<b>Protective conductor</b>		P
5.6.2	Requirement for protective conductors		P
<b>5.6</b>	<b>Protective conductor</b>		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation	Green/Yellow	P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm <sup>2</sup> ) .....	Certified AC inlet, min. 0,75 mm <sup>2</sup>	—
	Protective earthing conductor serving as a reinforced safeguard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm <sup>2</sup> ). ..... :	Min.18AWG.	—
5.6.4.2	Protective current rating (A)..... :	16A&20A	P
5.6.5	Terminals for protective conductors		P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Certified AC inlet	P
	Terminal size for connecting protective bonding conductors (mm) ..... :	Protective bonding terminal: 4,0 mm diameter.	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective bonding 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..... :	(See appended table 5.6.6)	P
5.6.6.3	Resistance ( $\Omega$ ) or voltage drop..... :	(See appended table 5.6.6)	P
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm <sup>2</sup> )..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm)..... :		N/A
<b>5.7</b>	<b>Prospective touch voltage, touch current and protective conductor current</b>		<b>P</b>
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current		P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	P
5.7.5	Earthed accessible conductive parts ..... :	(See appended table 5.7.5)	P
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA)..... :		N/A
	Instructional Safeguard..... :		N/A

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


<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		P
<b>6.2</b>	<b>Classification of PS and PIS</b>		P
6.2.2	Power source circuit classifications .....	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS .....	(See appended table 6.2.3.2)	P
<b>6.3</b>	<b>Safeguards against fire under normal operating and abnormal operating conditions</b>		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
	Combustible materials outside fire enclosure .....		N/A
<b>6.4</b>	<b>Safeguards against fire under single fault conditions</b>		P
6.4.1	Safeguard method	Control fire spread.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions .....		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.6	Control of fire spread in PS3 circuits		P
6.4.7	Separation of combustible materials from a PIS		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
6.4.8.2	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	Metal enclosure used	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 and properties		P
	Openings dimensions (mm)..... :	No openings	P
6.4.8.3.4	Bottom openings and properties		P
	Openings dimensions (mm)..... :	No openings.	P
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties		P
	Openings dimensions (mm)..... :	Side: Max Numerous hexagon with $\Phi$ 5,0mm dimensions.  The opening is out of the zone of the PIS as shown in Figure 41.  Several hexagon opening were provided in rear enclosure for fan (alternative power supply) and no hazard parts located in 5° vertical projection.	P
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating..... :	Enclosure is metal	P
6.4.9	Flammability of insulating liquid..... :		N/A
<b>6.5</b>	<b>Internal and external wiring</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.1	General requirements	1) VW-1 wires used, Which considered to equivalent to IEC/TS 60695-11-21  2) Acceptance of components and component requirements from IEC 60065 and IEC 60950-1.	P
6.5.2	Requirements for interconnection to building wiring ..... :		N/A
6.5.3	Internal wiring size (mm <sup>2</sup> ) for socket-outlets..... :		N/A
<b>6.6</b>	<b>Safeguards against fire due to the connection to additional equipment</b>		<b>P</b>

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

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		<b>P</b>
<b>8.2</b>	<b>Mechanical energy source classifications</b>		<b>P</b>
<b>8.3</b>	<b>Safeguards against mechanical energy sources</b>		<b>P</b>
<b>8.4</b>	<b>Safeguards against parts with sharp edges and corners</b>		<b>N/A</b>
8.4.1	Safeguards	No sharp edges or corners.	N/A
	Instructional Safeguard..... :		N/A
8.4.2	Sharp edges or corners		N/A
<b>8.5</b>	<b>Safeguards against moving parts</b>		<b>P</b>

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	The DC Fan is within the limits under normal and fault conditions. MS1: DC Fan1 MGT4012MB-W20 H in system: $K=6 \times 10^{-7}(0,139 \times 20^2 \times 6000^2)$ $=1200,96$ $6000/15000+1200,96/2400=0,4+0,5=0,9<1$ ; According to above calculation, moving fans blade are considered not likely to cause injury.	P
	MS2 or MS3 part required to be accessible for the function of the equipment	MS3: DC Fan2 MGT6012ZB-W20 B in system: $K=6 \times 10^{-7}(0,166 \times 30^2 \times 6400^2)$ $=3671,66$ $6400/22000+3671,66/3600=0,29+1,02=1,31>1$ ;	P
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:	 Caution: Keep hands away from fan	P
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm) .....		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Mechanical function check and visual inspection		N/A
	- Cable assembly .....		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts .....		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N).....		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test.....		N/A
8.5.5.3	Glass particles dimensions (mm) .....		N/A
<b>8.6</b>	<b>Stability of equipment</b>		P
8.6.1	General	MS2	P
	Instructional safeguard.....		P
8.6.2	Static stability		P
8.6.2.2	Static stability test .....		P
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) .....		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test .....		N/A
<b>8.7</b>	<b>Equipment mounted to wall, ceiling or other structure</b>		N/A
8.7.1	Mount means type .....		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N).....		N/A
	Test 2, number of attachment points and test force (N).....		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm).....		N/A
<b>8.8</b>	<b>Handles strength</b>		P
8.8.1	General		P
8.8.2	Handle strength test		P
	Number of handles.....	2	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Force applied (N) .....	200N	—
<b>8.9</b>	<b>Wheels or casters attachment requirements</b>		N/A
8.9.2	Pull test		N/A
<b>8.10</b>	<b>Carts, stands and similar carriers</b>		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions.....		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) .....		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) .....		—
8.10.6	Thermoplastic temperature stability		N/A
<b>8.11</b>	<b>Mounting means for slide-rail mounted equipment (SRME)</b>		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
<b>8.12</b>	<b>Telescoping or rod antennas</b>		N/A
	Button/ball diameter (mm) .....		—

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



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

<b>10</b>	<b>RADIATION</b>		P
<b>10.2</b>	<b>Radiation energy source classification</b>		P
10.2.1	General classification		P
	Lasers .....		—
	Lamps and lamp systems .....	RS1 for LEDs only as indicator.	—
	Image projectors .....	No such part	—
	X-Ray .....	No such part	—
	Personal music player .....	No such part	—
<b>10.3</b>	<b>Safeguards against laser radiation</b>		N/A
	The standard(s) equipment containing laser(s) comply .....		N/A
<b>10.4</b>	<b>Safeguards against optical radiation from lamps and lamp systems (including LED types)</b>		P
10.4.1	General requirements		P
	Instructional safeguard provided for accessible radiation level needs to exceed		P
	Risk group marking and location .....	RS1 for LEDs only as indicator.	P
	Information for safe operation and installation		P
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure .....		N/A
10.4.3	Instructional safeguard .....		N/A
<b>10.5</b>	<b>Safeguards against X-radiation</b>		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons .....		—
10.5.3	Maximum radiation (pA/kg) .....	(See appended tables B.3 & B.4)	—
<b>10.6</b>	<b>Safeguards against acoustic energy sources</b>		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$ , dB(A) .....		N/A

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

<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		P
<b>B.1</b>	<b>General</b>		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
<b>B.2</b>	<b>Normal operating conditions</b>		P
B.2.1	General requirements .....	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers.....:		N/A
B.2.3	Supply voltage and tolerances	+/-10%	P
B.2.5	Input test .....	(See appended table B.2.5)	P
<b>B.3</b>	<b>Simulated abnormal operating conditions</b>		P
B.3.1	General		P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
	Instructional safeguard.....:		N/A
B.3.3	DC mains polarity test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Impossible	N/A
B.3.7	Audio amplifier abnormal operating conditions		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions .....	(See appended table B.3)	P
<b>B.4</b>	<b>Simulated single fault conditions</b>		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	Certified DC fan used.	P
B.4.4	Functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnection of passive components		N/A
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions .....	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	(See Annex M)	P
<b>C</b>	<b>UV RADIATION</b>		N/A
<b>C.1</b>	<b>Protection of materials in equipment from UV radiation</b>		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
<b>C.2</b>	<b>UV light conditioning test</b>		N/A
C.2.1	Test apparatus .....		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
<b>D</b>	<b>TEST GENERATORS</b>		N/A
<b>D.1</b>	<b>Impulse test generators</b>		N/A
<b>D.2</b>	<b>Antenna interface test generator</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>D.3</b>	<b>Electronic pulse generator</b>		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
<b>E.1</b>	<b>Electrical energy source classification for audio signals</b>		N/A
	Maximum non-clipped output power (W) .....		—
	Rated load impedance ( $\Omega$ ) .....		—
	Open-circuit output voltage (V) .....		—
	Instructional safeguard.....	See Clause F.5	—
<b>E.2</b>	<b>Audio amplifier normal operating conditions</b>		N/A
	Audio signal source type.....		—
	Audio output power (W) .....		—
	Audio output voltage (V) .....		—
	Rated load impedance ( $\Omega$ ) .....		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
<b>F.1</b>	<b>General</b>		P
	Language .....	English	—
<b>F.2</b>	<b>Letter symbols and graphical symbols</b>		P
F.2.1	Letter symbols according to IEC60027-1	Used letter symbols according to IEC 60027-1 in label and user manual.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
<b>F.3</b>	<b>Equipment markings</b>		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification .....	See copy of marking plate	P
F.3.2.2	Model identification .....	See copy of marking plate	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage .....	AC	P
F.3.3.4	Rated voltage .....	See copy of marking plate	P
F.3.3.5	Rated frequency.....	50/60Hz	P
F.3.3.6	Rated current or rated power .....	See copy of marking plate	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings .....:		N/A
F.3.5.2	Switch position identification marking .....:	Evaluated in internal power supply test report.	P
F.3.5.3	Replacement fuse identification and rating markings .....:	Evaluated in internal power supply test report.	P
	Instructional safeguards for neutral fuse.....:		N/A
F.3.5.4	Replacement battery identification marking.....:		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		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 .....:	Certified appliance inlet used.	P
F.3.6.1.2	Protective bonding conductor terminals .....:	Evaluated in internal power supply test report.	P
F.3.6.2	Equipment class marking.....:		N/A
F.3.6.3	Functional earthing terminal marking.....:		N/A
F.3.7	Equipment IP rating marking.....:	IPX0 not marked	N/A
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		P
<b>F.4</b>	<b>Instructions</b>		<b>P</b>
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		P
	c) Instructions for installation and interconnection		P
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		P
	h) Protective conductor current exceeding ES2 limits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	i) Graphic symbols used on equipment		P
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
<b>F.5</b>	Instructional safeguards		P
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
<b>G.2</b>	<b>Relays</b>		N/A
G.2.1	Requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
<b>G.3</b>	<b>Protective devices</b>		P
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices	Evaluated in internal power supply test report.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.5.2	Single faults conditions .....		N/A
<b>G.4</b>	<b>Connectors</b>		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration .....	See table 4.1.2.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
<b>G.5</b>	<b>Wound components</b>		P
G.5.1	Wire insulation in wound components	Evaluated in internal power supply test report.	P
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) .....		—
	Test temperature (°C) .....		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers	Evaluated in internal power supply test report.	P
G.5.3.1	Compliance method .....	Evaluated in internal power supply test report.	P
	Position .....	Evaluated in internal power supply test report.	P
	Method of protection .....	Evaluated in internal power supply test report.	P
G.5.3.2	Insulation	Evaluated in internal power supply test report.	P
	Protection from displacement of windings .....		—
G.5.3.3	Transformer overload tests	Evaluated in internal power supply test report.	P
G.5.3.3.1	Test conditions	Evaluated in internal power supply test report.	P
G.5.3.3.2	Winding temperatures	Evaluated in internal power supply test report.	P
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation .....		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors	DC Fan	P
G.5.4.1	General requirements		P
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		P
G.5.4.6.2	Tested in the unit		P
	Maximum Temperature .....	See appended table B.4	P
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....		—
<b>G.6</b>	<b>Wire Insulation</b>		P
G.6.1	General		P
G.6.2	Enamelled winding wire insulation		N/A
<b>G.7</b>	<b>Mains supply cords</b>		P
G.7.1	General requirements		P
	Type .....	See table 4.1.2	—
G.7.2	Cross sectional area (mm <sup>2</sup> or AWG).....	See table 4.1.2	P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A



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

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
<b>G.11</b>	<b>Capacitors and RC units</b>		P
G.11.1	General requirements	Evaluated in internal power supply test report.	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		N/A
<b>G.12</b>	<b>Optocouplers</b>		P
	Optocouplers comply with IEC 60747-5-5 with specifics	Evaluated in internal power supply test report.	P
	Type test voltage $V_{ini,a}$ .....	Min. 4000	—
	Routine test voltage, $V_{ini,b}$ .....	Min. 4000	—
<b>G.13</b>	<b>Printed boards</b>		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
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....		N/A
	Number of insulation layers (pcs) .....		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements .....	(See Clause G.13)	N/A
<b>G.15</b>	<b>Pressurized liquid filled components</b>		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
G.16.1	Condition for fault tested is not required	No such part	N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test .....		—
	Mains voltage that impulses to be superimposed on .....		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test.....		—
G.16.3	Capacitor discharge test .....		N/A
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
<b>H.1</b>	<b>General</b>		N/A
<b>H.2</b>	<b>Method A</b>		N/A
<b>H.3</b>	<b>Method B</b>		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz) .....		—
H.3.1.2	Voltage (V) .....		—
H.3.1.3	Cadence; time (s) and voltage (V) .....		—
H.3.1.4	Single fault current (mA): .....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) .....		N/A
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		P
<b>J.1</b>	<b>General</b>		P
	Winding wire insulation .....	Evaluated in internal power supply test report.	—
	Solid round winding wire, diameter (mm) .....		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm <sup>2</sup> ) .....		N/A
<b>J.2/J.3</b>	Tests and Manufacturing		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
<b>K.1</b>	<b>General requirements</b>		N/A
	Instructional safeguard.....:		N/A
<b>K.2</b>	<b>Components of safety interlock safeguard mechanism</b>		N/A
<b>K.3</b>	<b>Inadvertent change of operating mode</b>		N/A
<b>K.4</b>	<b>Interlock safeguard override</b>		N/A
<b>K.5</b>	<b>Fail-safe</b>		N/A
K.5.1	Under single fault condition		N/A
<b>K.6</b>	<b>Mechanically operated safety interlocks</b>		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance.....:		N/A
<b>K.7</b>	<b>Interlock circuit isolation</b>		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm).....:		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm).....:		N/A
	Electric strength test before and after the test of K.7.2.....:	(See appended table 5.4.9)	N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
<b>L</b>	<b>DISCONNECT DEVICES</b>		P
<b>L.1</b>	<b>General requirements</b>		P
<b>L.2</b>	<b>Permanently connected equipment</b>		N/A
<b>L.3</b>	<b>Parts that remain energized</b>		P
<b>L.4</b>	<b>Single-phase equipment</b>	AC inlet as the disconnect device	P
<b>L.5</b>	<b>Three-phase equipment</b>		N/A
<b>L.6</b>	<b>Switches as disconnect devices</b>		N/A
<b>L.7</b>	<b>Plugs as disconnect devices</b>		N/A
<b>L.8</b>	<b>Multiple power sources</b>		N/A
	Instructional safeguard.....:		N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		P
<b>M.1</b>	<b>General requirements</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>M.2</b>	<b>Safety of batteries and their cells</b>		P
M.2.1	Batteries and their cells comply with relevant IEC standards .....	See table 4.1.2	P
<b>M.3</b>	<b>Protection circuits for batteries provided within the equipment</b>		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		P
	Unintentional charging of a non-rechargeable battery		P
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance	(See appended table M.3)	P
<b>M.4</b>	<b>Additional safeguards for equipment containing a portable secondary lithium battery</b>		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance .....	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure .....		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): .....		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
<b>M.5</b>	<b>Risk of burn due to short-circuit during carrying</b>		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
<b>M.6</b>	<b>Safeguards against short-circuits</b>		P
M.6.1	External and internal faults	Certified coin battery	P
M.6.2	Compliance		P
<b>M.7</b>	<b>Risk of explosion from lead acid and NiCd batteries</b>		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, $Q$ (m <sup>3</sup> /h) .....		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%) .....		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate .....		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) .....		N/A
M.7.4	Marking .....		N/A
<b>M.8</b>	<b>Protection against internal ignition from external spark sources of batteries with aqueous electrolyte</b>		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume $V_z$ (m <sup>3</sup> /s) .....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
<b>M.9</b>	<b>Preventing electrolyte spillage</b>		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
<b>M.10</b>	Instructions to prevent reasonably foreseeable misuse		P
	Instructional safeguard.....	Provided in the manual	P
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		P
	Material(s) used .....	Closed loop connectors: Tin plated (Sn) Nuts and stud terminals: Steel and Zinc plated Chassis: Al/Fe	—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		P
	Value of $X$ (mm) .....	Refer to the certified power supply.	—
<b>P</b>	<b>SAFEGUARDS AGAINST CONDUCTIVE OBJECTS</b>		P
<b>P.1</b>	General		P
<b>P.2</b>	<b>Safeguards against entry or consequences of entry of a foreign object</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object		P
	Location and Dimensions (mm) .....:	Top: no openings. Side: Max Numerous hexagon with $\Phi$ 5,0mm dimensions. No PIS circuit and live parts within the left/right side opening.	—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts .....:		N/A
P.2.3.2	Consequence of entry test .....:		N/A
<b>P.3</b>	<b>Safeguards against spillage of internal liquids</b>		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
<b>P.4</b>	<b>Metallized coatings and adhesives securing parts</b>		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T <sub>C</sub> (°C).....:		—
	Duration (weeks) .....:		—
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		P
<b>Q.1</b>	<b>Limited power sources</b>		P
Q.1.1	Requirements		P
	a) Inherently limited output		N/A
	b) Impedance limited output		P
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		P
Q.1.2	Test method and compliance.....:	(See appended table Q.1)	P
	Current rating of overcurrent protective device (A) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>Q.2</b>	<b>Test for external circuits – paired conductor cable</b>		N/A
	Maximum output current (A) .....		N/A
	Current limiting method.....		—
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
<b>R.1</b>	<b>General</b>		N/A
<b>R.2</b>	<b>Test setup</b>		N/A
	Overcurrent protective device for test.....		—
<b>R.3</b>	<b>Test method</b>		N/A
	Cord/cable used for test.....		—
<b>R.4</b>	<b>Compliance</b>		N/A
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
<b>S.1</b>	<b>Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W</b>		N/A
	Samples, material .....		—
	Wall thickness (mm).....		—
	Conditioning (°C).....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
<b>S.2</b>	<b>Flammability test for fire enclosure and fire barrier integrity</b>		N/A
	Samples, material .....		—
	Wall thickness (mm).....		—
	Conditioning (°C).....		—
<b>S.3</b>	<b>Flammability test for the bottom of a fire enclosure</b>		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples .....		—
	Wall thickness (mm).....		—
<b>S.4</b>	<b>Flammability classification of materials</b>		N/A
<b>S.5</b>	<b>Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W</b>		N/A
	Samples, material .....		—



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Clause	Requirement + Test	Result - Remark	Verdict
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		P
<b>T.1</b>	<b>General</b>		P
<b>T.2</b>	<b>Steady force test, 10 N .....</b>	(See appended table T.2)	P
<b>T.3</b>	<b>Steady force test, 30 N .....</b>		N/A
<b>T.4</b>	<b>Steady force test, 100 N .....</b>		N/A
<b>T.5</b>	<b>Steady force test, 250 N .....</b>	(See appended table T.5)	P
<b>T.6</b>	<b>Enclosure impact test</b>	(See appended table T.6)	P
	Fall test		P
	Swing test		N/A
<b>T.7</b>	<b>Drop test .....</b>		N/A
<b>T.8</b>	<b>Stress relief test .....</b>		N/A
<b>T.9</b>	<b>Glass Impact Test.....</b>		N/A
<b>T.10</b>	<b>Glass fragmentation test</b>		N/A
	Number of particles counted .....		N/A
<b>T.11</b>	<b>Test for telescoping or rod antennas</b>		N/A
	Torque value (Nm) .....		N/A
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		N/A
<b>U.1</b>	<b>General</b>		N/A
	Instructional safeguard :		N/A
<b>U.2</b>	<b>Test method and compliance for non-intrinsically protected CRTs</b>		N/A
<b>U.3</b>	<b>Protective screen</b>		N/A
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS</b>		P
<b>V.1</b>	<b>Accessible parts of equipment</b>		P
V.1.1	General	Not accessible without tool	P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		P
V.1.4	Plugs, jacks, connectors tested with blunt probe	No such plugs, jacks, connectors	N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		P
<b>V.2</b>	<b>Accessible part criterion</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>X</b>	<b>ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)</b>		N/A
	Clearance ..... :	(See appended table X)	N/A
<b>Y</b>	<b>CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES</b>		N/A
<b>Y.1</b>	<b>General</b>		N/A
<b>Y.2</b>	<b>Resistance to UV radiation</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by ..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance		N/A
<b>Y.4</b>	<b>Gaskets</b>		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods ..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
<b>Y.5</b>	<b>Protection of equipment within an outdoor enclosure</b>		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3 ..... :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
<b>Y.6</b>	<b>Mechanical strength of enclosures</b>		N/A
Y.6.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.6.2	Impact test.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

<b>5.2</b>	<b>TABLE: Classification of electrical energy sources</b>						N/A
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type <sup>1)</sup>	Additional Info <sup>2)</sup>	
264 V a.c.	Output terminal	Normal	--	0,046m Apk	--	60	ES1
264 V a.c.	Output terminal	Abnormal – Opening blocked	--	0,046m Apk	--	60	ES1
264 V a.c.	Output terminal	Single fault – Fuse open	--	0,001m Apk	--	60	ES1
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.							
2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.							

5.4.1.8	TABLE: Working voltage measurement					P
Location		RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
--		--	--	--	--	
Supplementary information:						
Evaluated in internal power supply test report.						

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Method.....:		ISO 306 / B50		—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
--	--	--	--	
Supplementary information:				

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics					P
Allowed impression diameter (mm).....:				≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)		
--	--	--	--	--		
Supplementary information:						
Evaluated in internal power supply test report.						

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	$U_p$ (V)	$U_{rms}$ (V)	Freq <sup>1)</sup> (Hz)	Required cl (mm)	cl (mm)	E.S. <sup>2)</sup> (V)	Required cr (mm)	cr (mm)
Functional:								
--	--	--	--	--	--	--	--	--
Basic/supplementary:								
--	--	--	--	--	--	--	--	--
Reinforced:								
--	--	--	--	--	--	--	--	--
Supplementary information:								
1) Only for frequency above 30 kHz Evaluated in internal power supply report, the power supply is fully wrapped, and the primary circuit is not exposed.								

5.4.4.2	TABLE: Minimum distance through insulation				N/A
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
--	--	--	--	--	
Supplementary information:					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz						N/A
Insulation material	$E_p$	Frequency (kHz)	$K_R$	Thickness $d$ (mm)	Insulation	$V_{PW}$ (Vpk)	
--	--	--	--	--	--	--	
Supplementary information:							

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
L/N to metal enclosure		DC	2500	No
L/N to output terminals		DC	4000	No
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

5.5.2.2	TABLE: Stored discharge on capacitors					P
Location	Supply voltage (V)	Operating and fault condition <sup>1)</sup>	Switch position	Measured voltage (V <sub>pk</sub> )	ES Class	
--	--	--	--	--	--	
Supplementary information:						
Evaluated in internal power supply test report. X-capacitors installed for testing: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit						

5.6.6	TABLE: Resistance of protective conductors and terminations				P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
PE pin of AC inlet to the farthest metal enclosure	32	2	0,192	0,006	
PE pin of AC inlet to the farthest metal enclosure	40	2	0,280	0,007	
Supplementary information:					

5.7.4	TABLE: Unearthed accessible parts					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V <sub>rms</sub> or V <sub>pk</sub> )	Current (A <sub>rms</sub> or A <sub>pk</sub> )	Freq. (Hz)	
USB2.0	Normal	264	--	0,046mA <sub>pk</sub>	60	ES1
USB2.0	Earth open	264	--	0,046mA <sub>pk</sub>	60	ES1
USB2.0	Fuse open	264	--	0,001mA <sub>pk</sub>	60	ES1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part				P
Supply voltage (V) .....		264V / 60Hz			—
Phase(s) .....		<input checked="" type="checkbox"/> Single Phase; <input type="checkbox"/> Three Phase: <input type="checkbox"/> Delta <input type="checkbox"/> Wye			—
Power Distribution System .....		<input checked="" type="checkbox"/> TN <input checked="" type="checkbox"/> TT <input type="checkbox"/> IT			—
Location	Fault Condition No in IEC 60990 clause 6.2.2		Touch current (mA)	Comment	

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Clause	Requirement + Test	Result - Remark	Verdict

Metal enclosure	NO.1	1,75	Polarity: normal
Metal enclosure	NO.1	1,77	Polarity: reverse
Supplementary Information:			

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

<b>6.2.2</b>	<b>TABLE: Power source circuit classifications</b>					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power <sup>1)</sup> (W)	Time (S)	PS class
Input	--	--	--	--	--	PS3 without test
HDMI	Normal	5,02	0	0	3	PS1
Network port	Normal	0	0	0	3	PS1
USB	Normal Protected by AP2822	5,14	2,60	10,50	3	PS1
Supplementary information:						
PoE outputs were protected by fuse, please see table 4.1.2 for details.						

6.2.3.1	TABLE: Determination of Arcing PIS				P
Location		Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
All primary circuits		--	--	--	Yes
Supplementary information:					
All primary circuits are considered as Arcing PIS without test.					

6.2.3.2	TABLE: Determination of resistive PIS			P
Location		Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
All internal circuits		--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit

All internal circuits except primary are considered as Resistive PIS without test.

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

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



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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements							P
Supply voltage (V) .....		90VAC/60Hz		132VAC/50Hz		--	—	
Ambient temperature during test $T_{amb}$ (°C) .....		23,9		23,8		--	—	
Maximum measured temperature $T$ of part/at:		$T$ (°C)					Allowed $T_{max}$ (°C)	
AC inlet		59,1		60,0		--	70	
CY1		58,9		60,2		--	85	
input wire		58,9		60,2		--	80	
CY3		60,8		62,3		--	85	
PCB near BD1		63,5		64,3		--	130	
L2 coil		66,0		67,1		--	130	
RY1 winding		62,1		62,7		--	85	
T2 coil		63,3		64,2		--	110	
T2 core		57,8		59,2		--	110	
T1C coil		58,3		60,0		--	110	
T1C core		58,4		60,2		--	110	
PCB near U1(DS-90148)		52,4		51,9		--	130	
BAT		51,8		51,4		--	Ref	
PCB near JP1(DS-94018)		54,5		56,8		--	130	
PCB near U1(DS-90150)		73,7		78,7		--	130	
Metal enclosure near power supply*		31,2		33,6		--	70	
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:								
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 touchble surface temperature were considered base on ambient temperature 25°C. Other temperature point list in this table has shifted to Tma 50°C.								
The limit of power supply was refered to the CB report of power supply.								

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Clause	Requirement + Test	Result - Remark	Verdict

<b>5.4.1.4, 9.3, B.1.5, B.2.6</b>	<b>TABLE: Temperature measurements</b>						P
Supply voltage (V) .....	180VAC/60Hz	264VAC/50Hz	--	--	--	--	—
Ambient temperature during test $T_{amb}$ (°C) .....	23,3	23,9	--	--	--	--	—
Maximum measured temperature $T$ of part/at:	$T$ (°C)						Allowed $T_{max}$ (°C)
AC inlet	60,2	58,2	--	--	--	--	70
CY1	60,5	58,3	--	--	--	--	85
input wire	60,5	58,3	--	--	--	--	80
CY3	63,0	59,5	--	--	--	--	85
PCB near BD1	64,4	62,3	--	--	--	--	130
L2 coil	67,4	63,1	--	--	--	--	130
RY1 winding	62,9	60,4	--	--	--	--	85
T2 coil	64,5	63,5	--	--	--	--	110
T2 core	59,6	57,6	--	--	--	--	110
T1C coil	60,5	58,1	--	--	--	--	110
T1C core	60,6	58,3	--	--	--	--	110
PCB near U1(DS-90148)	52,2	51,8	--	--	--	--	130
BAT	51,6	51,4	--	--	--	--	Ref
PCB near JP1(DS-94018)	57,0	54,4	--	--	--	--	130
PCB near U1(DS-90150)	79,1	73,7	--	--	--	--	130
Metal enclosure near power supply*	33,7	31,1	--	--	--	--	70
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:							
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 touchble surface temperature were considered base on ambient temperature 25°C.							
Other temperature point list in this table has shifted to Tma 50°C.							
The limit of power supply was refered to the CB report of power supply.							

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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	1,40	--	125,77	--	F1	1,40	USB load 0,9A*2	
100	50	1,26	2,3	125,59	--	F1	1,26		
120	50	1,03	2,3	124,98	--	F1	1,03		
132	50	0,95	--	124,77	--	F1	0,95		
180	50	0,69	--	123,72	--	F1	0,69		
200	50	0,62	2,3	123,45	--	F1	0,62		
240	50	0,53	2,3	122,58	--	F1	0,53		
264	50	0,48	--	122,36	--	F1	0,48		
90	60	1,44	--	126,79	--	F1	1,44		
100	60	1,27	2,3	126,18	--	F1	1,27		
120	60	1,06	2,3	126,41	--	F1	1,06		
132	60	0,95	--	126,41	--	F1	0,95		
180	60	0,70	--	123,72	--	F1	0,70		
200	60	0,63	2,3	125,22	--	F1	0,63		
240	60	0,54	2,3	124,85	--	F1	0,54		
264	60	0,50	--	123,31	--	F1	0,50		
Supplementary information:									
Equipment may be have rated current or rated power or both. Both should be measured									

B.3, B.4		TABLE: Abnormal operating and fault condition tests					P
Ambient temperature $T_{amb}$ (°C)..... :					See below		—
Power source for EUT: Manufacturer, model/type, outputrating .. :					See table 4.1.2		—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
Ventilation Openings	Blocked	90	3h	F1	1,44	Maximum temperature: T1C coil =36,7°C, T1C core = 36,8°C, T2 coil =38,8°C, T2 core = 35,1°C, Metal enclosure: 36,4 Ambient = 23,1°C	

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						EUT work normally, no damage, no hazard.
USB3.0 output	Overload	90V	3h	F1	1,44→ 1,51→ 1,53→ 1,39	Maximum temperature: T1C coil =32,1°C, T1C core = 32,2°C, T2 coil =35,2°C, T2 core = 31,5°C, Metal enclosure: 30,2°C, Ambient = 23,2°C USB3.0 output port shut down,USB load: 0,9A →1,6A →2,6A→0A(shutdown), Normal operation, no damage, no hazard.
USB3.0 output	SC	90V	10min	F1	1,04	USB3.0 shutdown, no damage, no hazard
HDMI	SC	90V	10min	F1	1,04	HDMI shutdown, no damage, no hazard
All DC fans in system	Lockd	90V	3h	F1	1,44	Maximum temperature: T1C coil =36,7°C, T1C core = 36,8°C, T2 coil =38,8°C, T2 core = 35,1°C, Metal enclosure: 36,4°C, Ambient = 24,3°C EUT normal work No damage, no hazard.
Power DC fan	Lockd	90V	10min	F1	0,1	Power supply shutdown after 1s, EUT shutdown, no damage, no hazard.
Supplementary information:						
Sc=Short circuit.						

<b>M.3</b>	<b>TABLE: Protection circuits for batteries provided within the equipment</b>	<b>P</b>
Is it possible to install the battery in a reverse polarity position? .....:		No
Equipment Specification	Charging	
	Voltage (V)	Current (A)

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Clause	Requirement + Test	Result - Remark	Verdict

	See page 2				See page 2		
Manufacturer/type	Battery specification						
	Non-rechargeable batteries		Rechargeable batteries				
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
See Table 4.1.2	--	--	3,4	300mA	--	--	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C) .....				60		--	
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
R74	Sc	Overcharge	10min	--	5,53mA	3V	NL, NS , NE, NF
C104	Sc	Rapid-discharge	10min	--	2,6mA	3V	NL, NS , NE, NF
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery					N/A
Maximum specified charging voltage (V) .....				--		—
Maximum specified charging current (A) .....				--		—
Highest specified charging temperature (°C) .....				--		
Lowest specified charging temperature (°C) .....				--		--
Battery manufacturer/type	Operating and fault condition	Measurement			Observation	
		Charging voltage (V)	Charging current (A)	Temp. (°C)		
--	--	--	--	--	--	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature						

<b>Q.1</b>	<b>TABLE: Circuits intended for interconnection with building wiring (LPS)</b>						<b>P</b>
Output Circuit	Condition	U <sub>oc</sub> (V)	Time (s)	I <sub>sc</sub> (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
HDMI	Normal	5,02	5	0	8	0	100
Network port	Normal	0	5	0	8	0	100

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Clause	Requirement + Test	Result - Remark	Verdict

USB	Protected by AP2822	5,14	5	2,60	8	10,50	100
Supplementary Information:							
Sc=Short circuit.							

<b>T.2, T.3, T.4, T.5</b>	<b>TABLE: Steady force test</b>						P
Part/Location	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
Internal components and parts, conductors	--	--	--	10	5	The clearance and creepage distances do not be reduced below the required values.	
Rear side and left enclosure near power supply	Metal	See Table 4.1.2	--	250	5	Intact	
Supplementary information:							

T.6, T.9	TABLE: Impact test				P
Location/part	Material	Thickness (mm)	Height (mm)	Observation	
Rear side and left enclosure near power supply	Metal	See Table 4.1.2	1300	Intact	
Supplementary information:					

<b>T.7</b>	<b>TABLE: Drop test</b>				N/A
Location/part	Material	Thickness (mm)	Height (mm)	Observation	
--	--	--	--	--	
Supplementary information:					

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

<b>X</b>	<b>TABLE: Alternative method for determining minimum clearances distances</b>				N/A
Clearance distanced	Peak of working voltage	Required cl	Measured cl		

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

between:	(V)	(mm)	(mm)
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1</sup>	
Metal enclosure	Interchangeable	Interchangeable	Min.1 mm thickness	IEC 62368-1: 2014  EN 62368- 1:2014+ A11:2017	Tested with appliance	
Power Supply Unit	China Greatwall Technology Group Co., Ltd.	QW-CRPS550N	Input: 100 – 240 V; 50/60 Hz; 7- 3,5A or 240VDC, 3,5A China used only; Class I; DC Output: +12VDC; 45A; +12VSBDC, 3A; Rated Output Power: 550W	IEC 62368-1: 2014	UL CB Cert: DK-97775-UL; Report: ESTS- P20040109	
DC fan 1	MGT6012ZB- W20 B	12VDC, 0,36A, 6400RPM, Min 28,85CFM	EN IEC 62368- 1:2020/A11:202 0	TUV SUD: B 031023 01349	MGT6012ZB- W20 B	
DC fan 2	ASIA VITAL COMPONENTS CO.,LTD.	MGT4012MB- W20 H	12VDC, 0,11A, 6000RPM, Min 6,47CFM	EN 62368- 1:2014/A11:2017	TUV SUD: B 031023 0138	
RTC Battery (BT1)	FDK CORPORATION	ML614R	Max Charging Current 300mA Max Charging Voltage 5,0V dc	UL1642	UL MH13421	
Power switch with Flag (UJ4)	Joulwatt Technology Co., Limited	JW7115S- 1SOTA#TRPBF	VIn: 2,7-5,5V; Vout: 2,7-5,5V, 1,1-1,5A	IEC 62368- 1:2014	UL CB: DK- 92033-UL; Report: E497605- A6003-CB-1	
High-Side Power Switches with Flag (UJ4)	Richtek Technology Corp.	RT9742..G	VIn: 2,7-6V; Vout: 0,5-3A	IEC 62368- 1:2014	Nemko CB: NO109777; Report: 382012	
Power switch with Flag (UJ900)	Joulwatt Technology Co., Limited	JW7115S- 2SOTA#TRPBF	VIn: 2,7-5,5V; Vout: 2,7-5,5V, 1,1-1,5A	IEC 62368- 1:2014	UL CB: DK- 90295-UL;	
Component IC Overcurrent Projector for USB	DIODES INC	AP2822	VIn: 2,7-5,5V; Vout: 0,5-2A	IEC 62368- 1:2014	UL CERT: US-34501-UL; Report: E339337- A6001-CB-1	



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
PCB	GUANGZHOU FAST-PRINT CIRCUIT TECHNOLOGY CO LTD	M11	V-0, 130°C	UL796 UL94	UL E204460
Alternative	SHENZHEN KINWONG ELECTRONIC CO LTD	8B	V-0, 130°C	UL796 UL94	UL E243951
Alternative	DELTON TECHNOLOGY (GUANGZHOU) INC	ML-4A	V-0, 130°C	UL796 UL94	UL E237771
Alternative	VICTORY GIANT TECHNOLOGY (HUIZHOU) CO LTD	SH	V-0, 130°C	UL796 UL94	UL E248779
Alternative	SUNTAK MULTILAYER PCB CO LTD	STM-5	V-0, 130°C	UL796 UL94	UL E207844
Alternative	SUNSHINE GLOBAL CIRCUITS CO LTD	SS-3	V-0, 130°C	UL796 UL94	UL E229342
Alternative	Interchangeable	Interchangeable	V-1 or better, 130°C	UL796 UL94	UL
Plug	Phino Electric Co.,Ltd	PHP-206	AC250V ,16A	DIN VDE 0620-2-1(VDE 0620-2-1):2013-03	VDE 40013375
-Alt.	Scolmore International Ltd.	SW102	AC250V ,16A	VDE 0620-1:2010	VDE 40004330
-Alt.	LINOYA ELECTRONIC TECHNOLOGY CO LTD	XYP-02L	16A, 250V	DIN VDE 0620-2-1 (VDE 0620-2-1):2016-01 DIN VDE 0620-2-1/A1 (VDE 0620-2-1/A1):2017-09	VDE 40015292
-Alt.	Interchangeable	Interchangeable	AC250V ,16A	DIN VDE 0620-2-1(VDE 0620-2-1):2013-03	VDE
Power cord	Phino Electric Co.,Ltd	H05VV-F	3*0,75mm <sup>2</sup>	DIN EN 50525-2-11(VDE 0285-525-2-1):2012-01 EN 50525-2-11	VDE 113841

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

-Alt.	Hangzhou Hongshi Electrical Ltd	H05VV-F	3*0,75mm <sup>2</sup>	EN 50525-2-11 VDE 0285-525	VDE 40010839
-Alt.	LINOYA ELECTRONIC TECHNOLOGY CO LTD	H05VV-F	3*0,75mm <sup>2</sup>	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 40035072
-Alt.	Interchangeable	Interchangeable	3*0,75mm <sup>2</sup>	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE
Power connector	Phino Electric Co.,Ltd	PHS 301	AC250V ,10A	DIN EN 60320-1(VDE 0625-1):2008-05 EN 60320-1:2001+ A1:2007 IEC 60320-1(ed.2);am1	VDE Cert. No.: 40038017
Alternative	LINOYA ELECTRONIC TECHNOLOGY CO LTD	XYC-03	10A, 250V	DIN EN 60320-1 (VDE 0625-1):2016-04; EN 60320-1:2015 + AC:2016 IEC 60320-1:2015	VDE 40016051
-Alt.	Interchangeable	Interchangeable	10A, 250V	DIN EN 60320-1 (VDE 0625-1):2016-04; EN 60320-1:2015 + AC:2016 IEC 60320-1:2015	VDE
Internal secondary Wiring	Interchangeable	Interchangeable	Marked VW-1, Min.80°C, Min. 30V.	--	--
Earthing Screw	Interchangeable	Interchangeable	Screw type, Min. Ø3,5mm	IEC 62368-1:2018	Tested with equipment

Supplementary information:

<sup>1)</sup> Provided evidence ensures the agreed level of compliance. See OD-CB2039.

---End of Report---

Details of: General View



Details of: General View



Details of:     General View



Details of:     General View

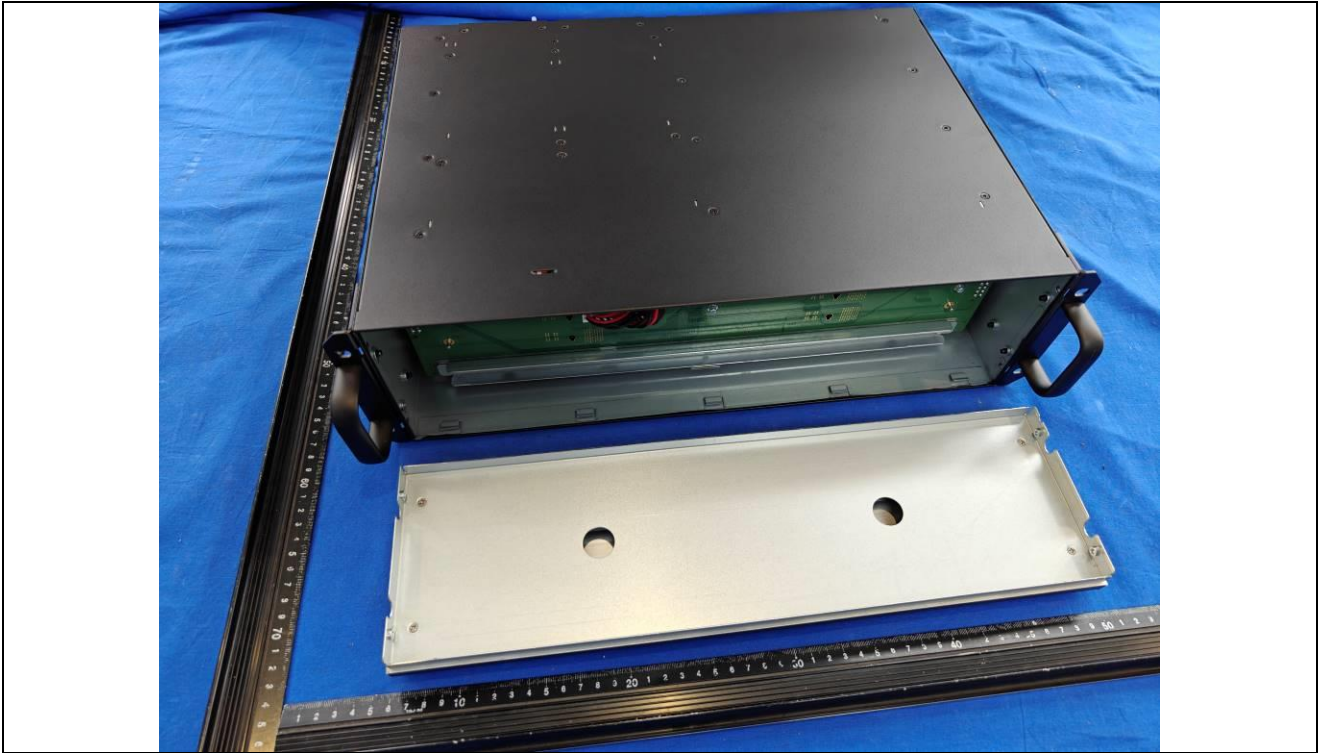




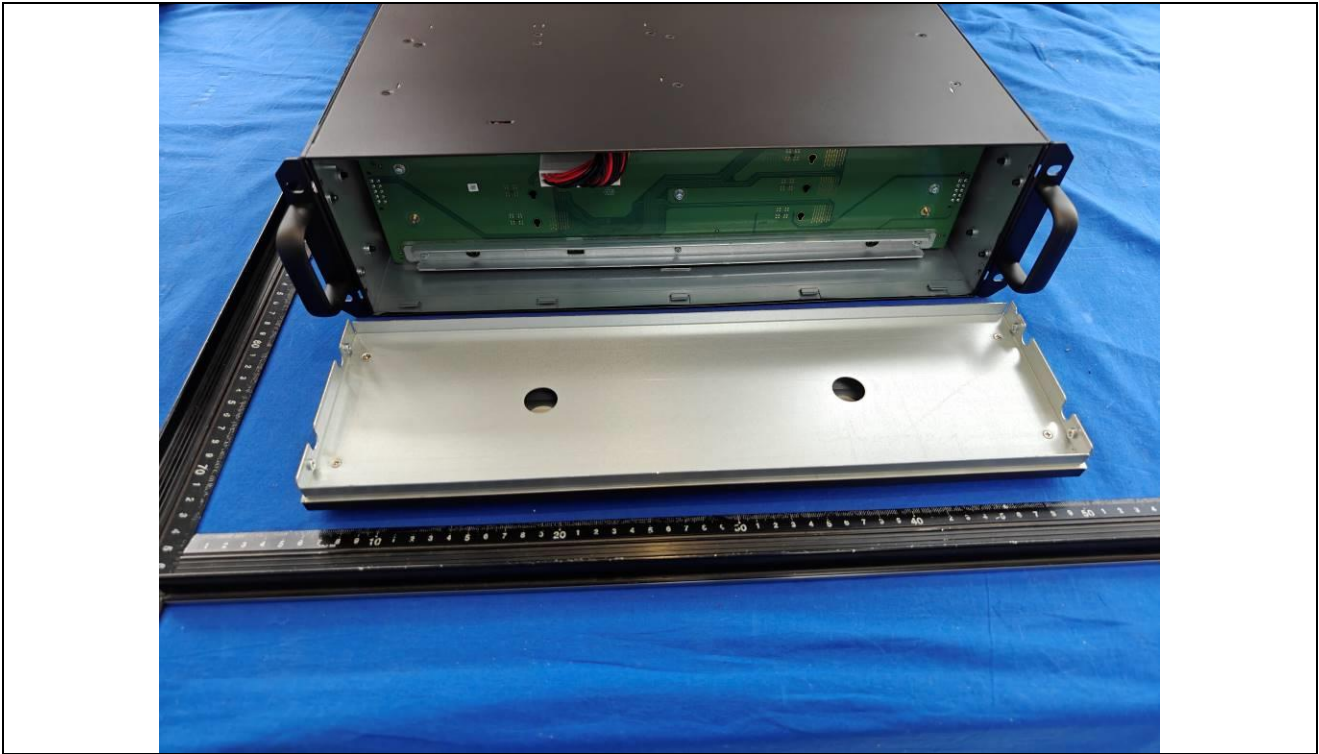
Details of: General View



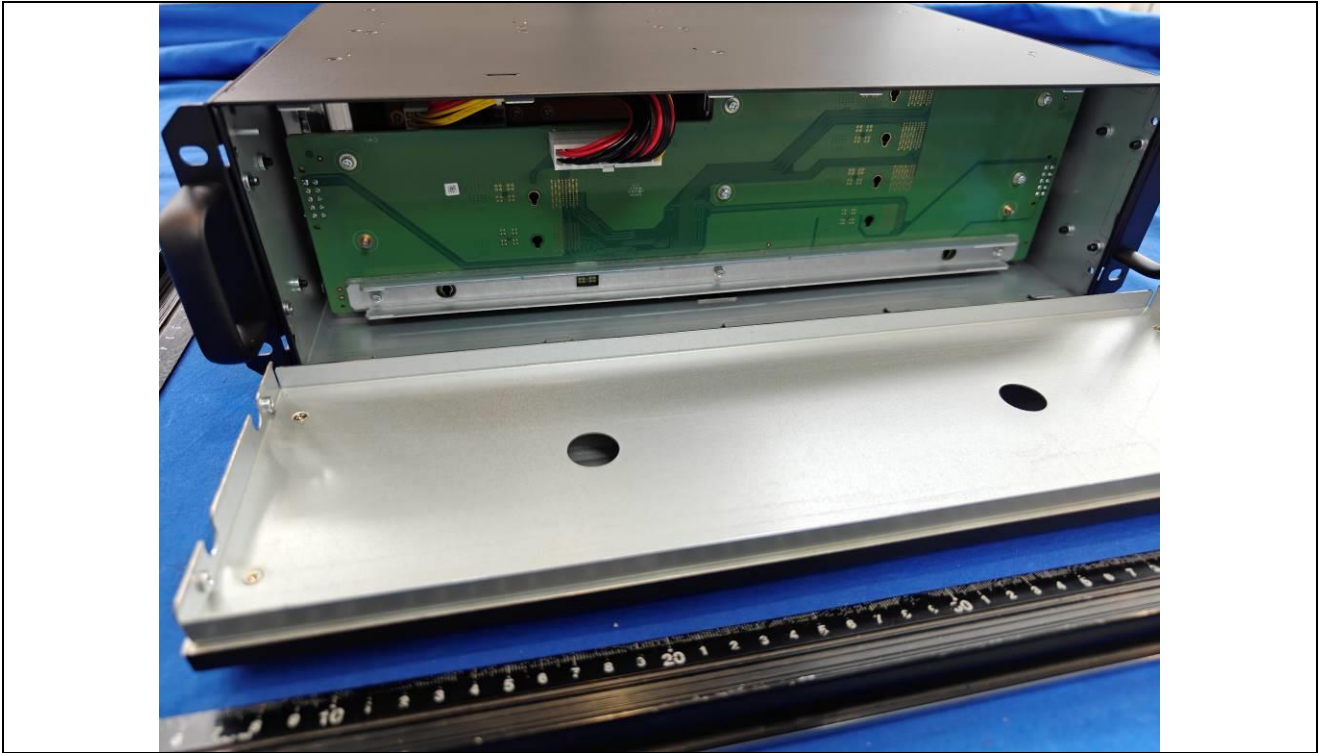
Details of: Internal View



Details of: Internal View

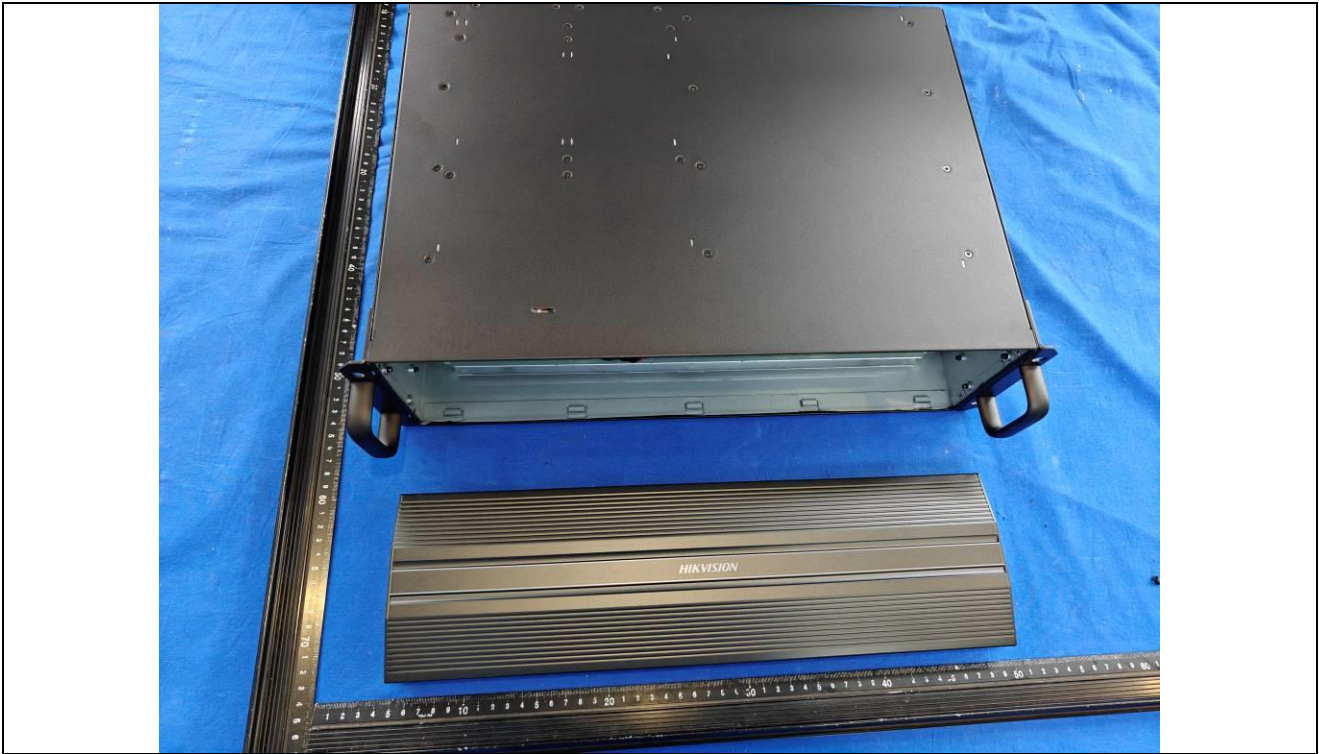


Details of: Internal View





Details of: Internal View



Details of: Terminal View



Details of: Terminal View



Details of: Terminal View





Details of: Internal View



Details of: Internal View



Details of: Internal View

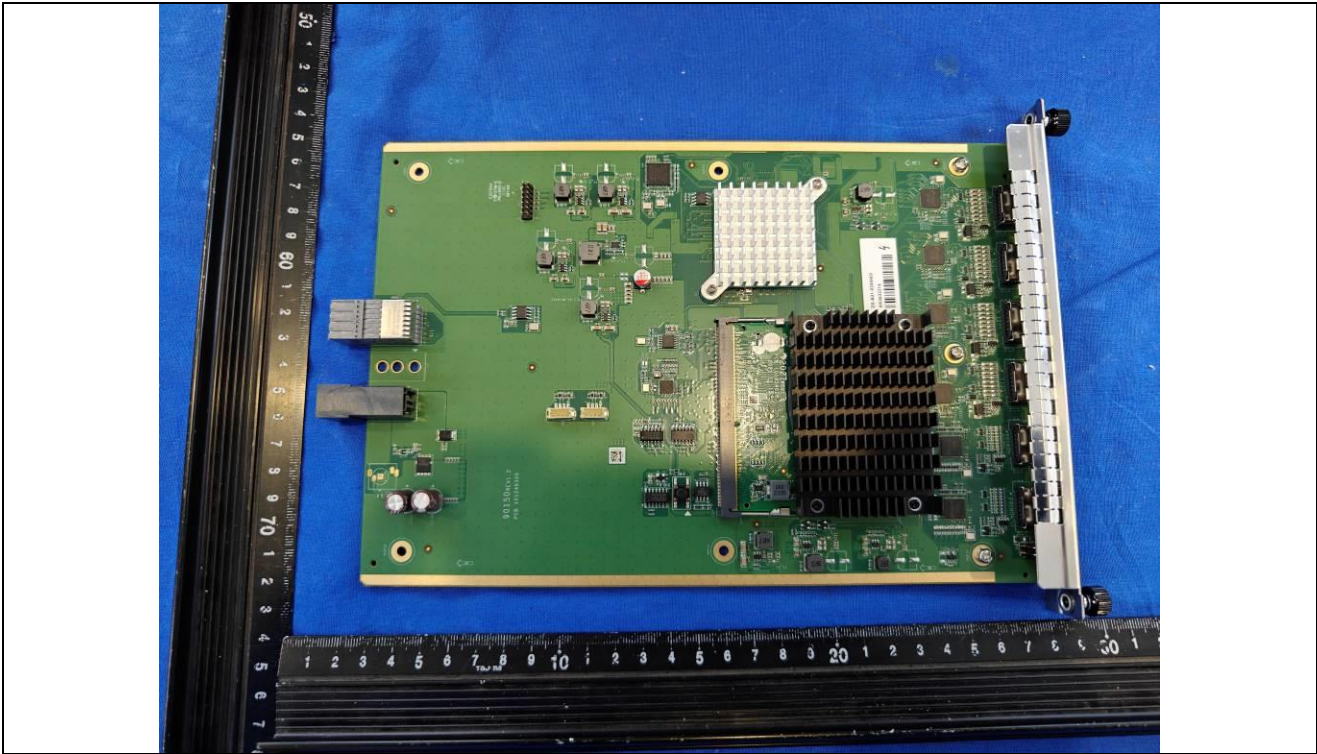


Details of: Internal View

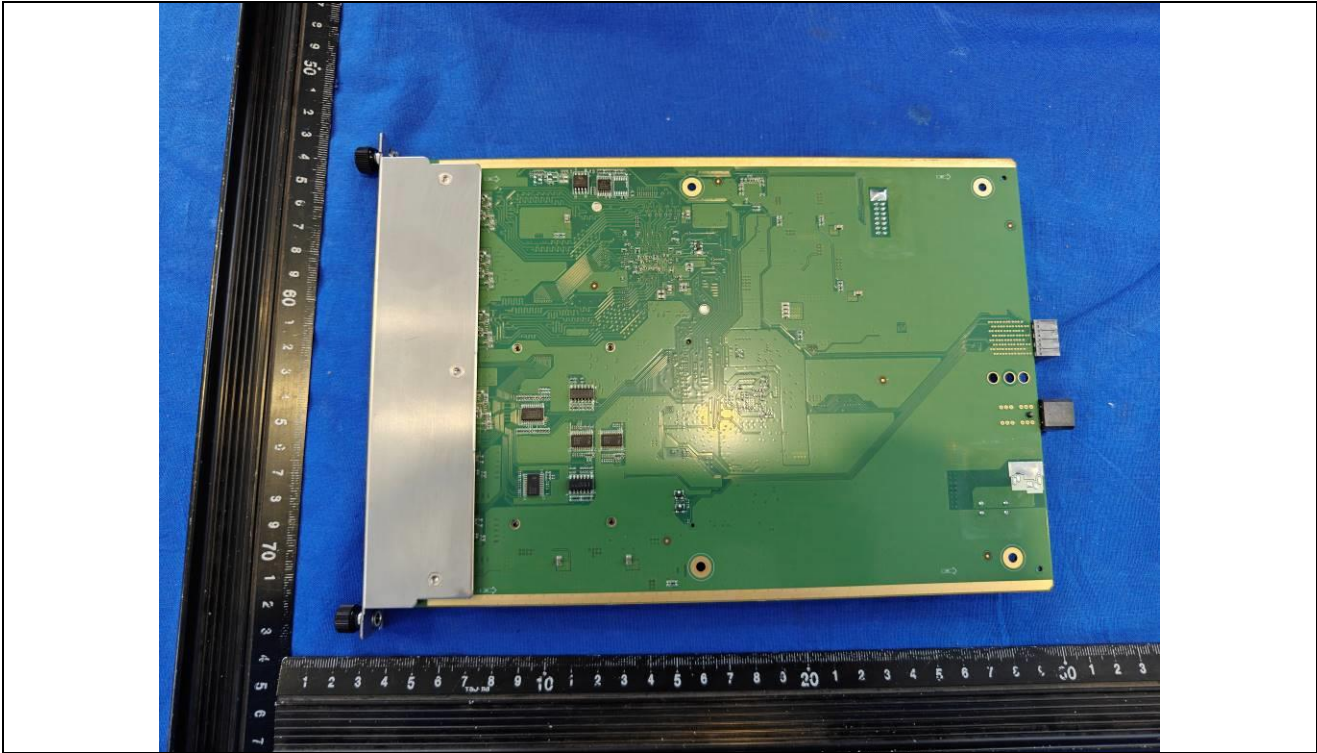




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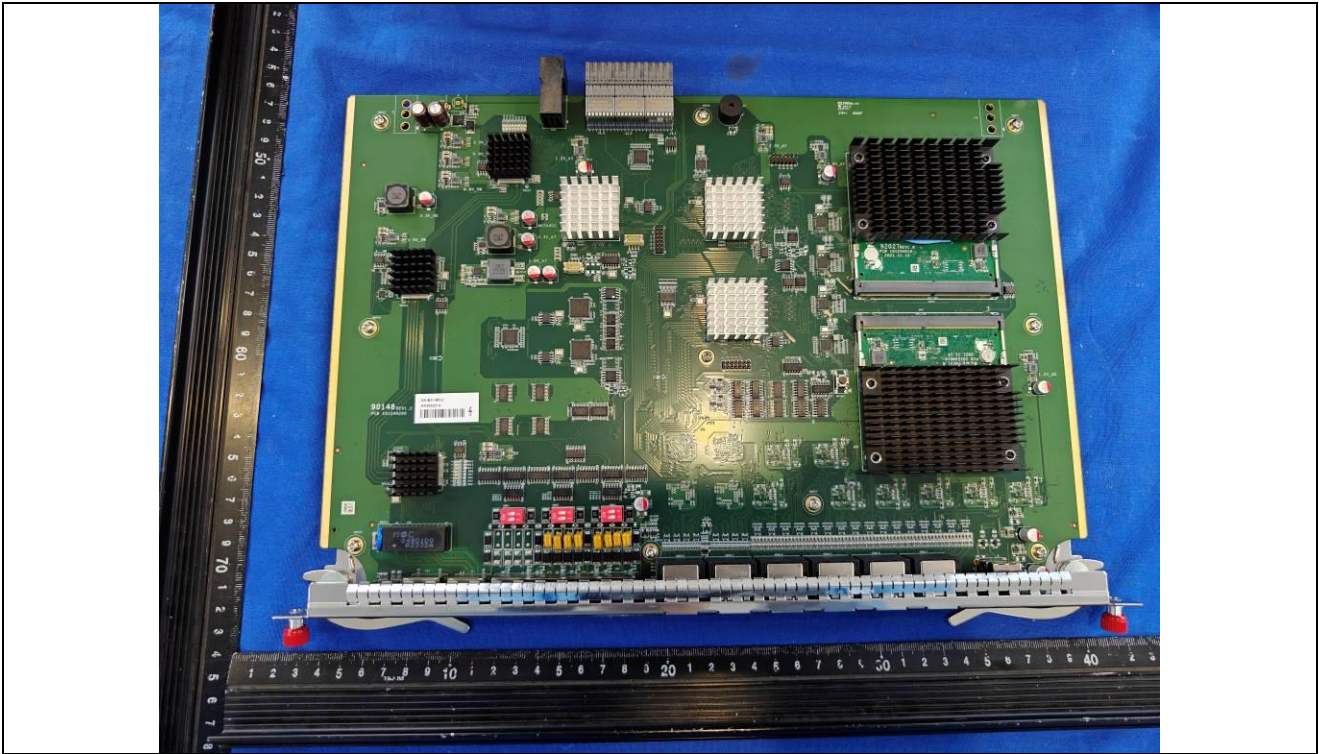


Details of: PCB-1





Details of: PCB-2

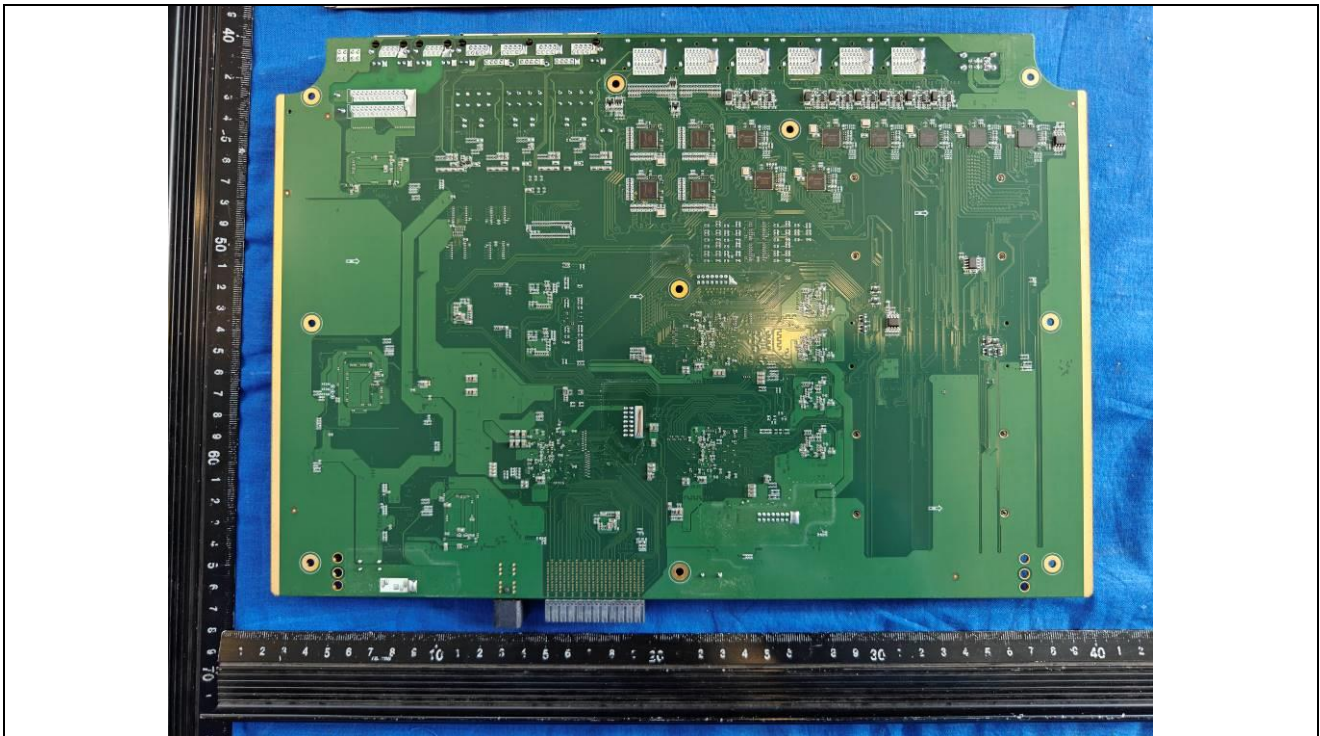


Details of: PCB-2





Details of: PCB-2



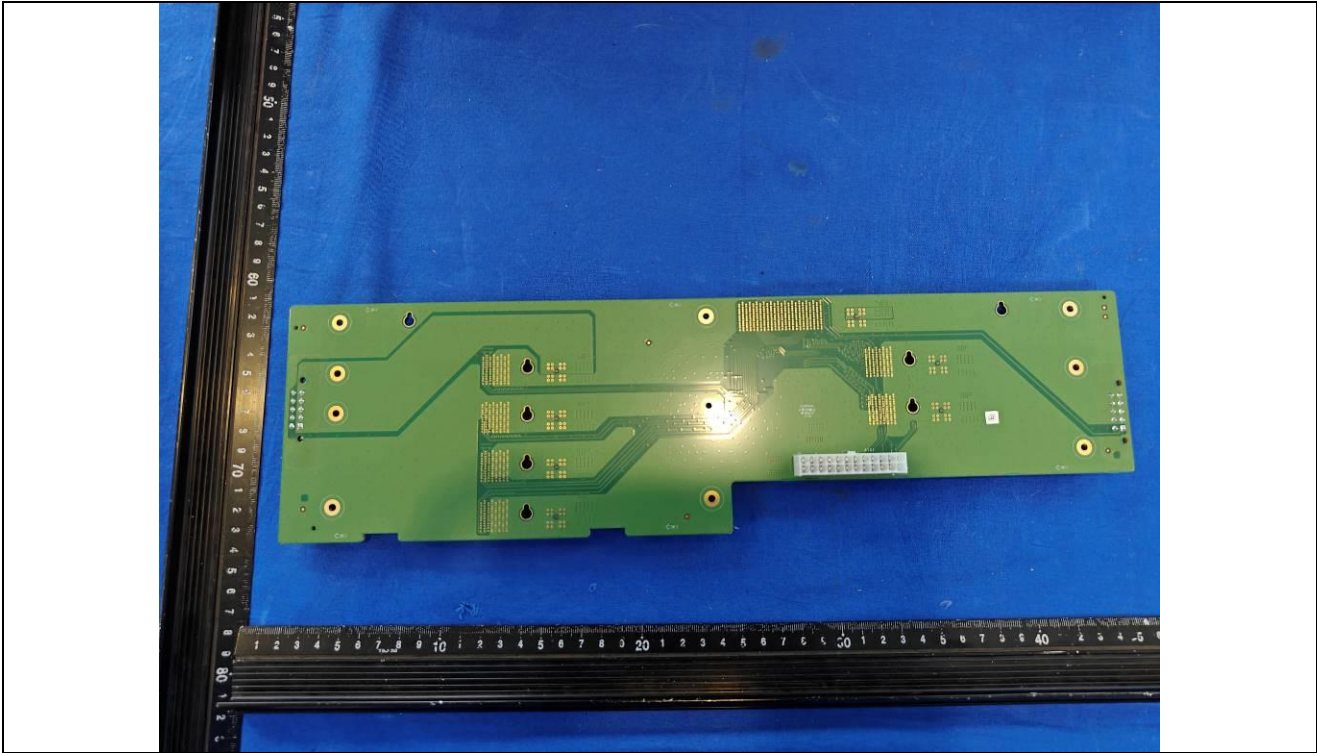
Details of: Internal View



Details of: Internal View

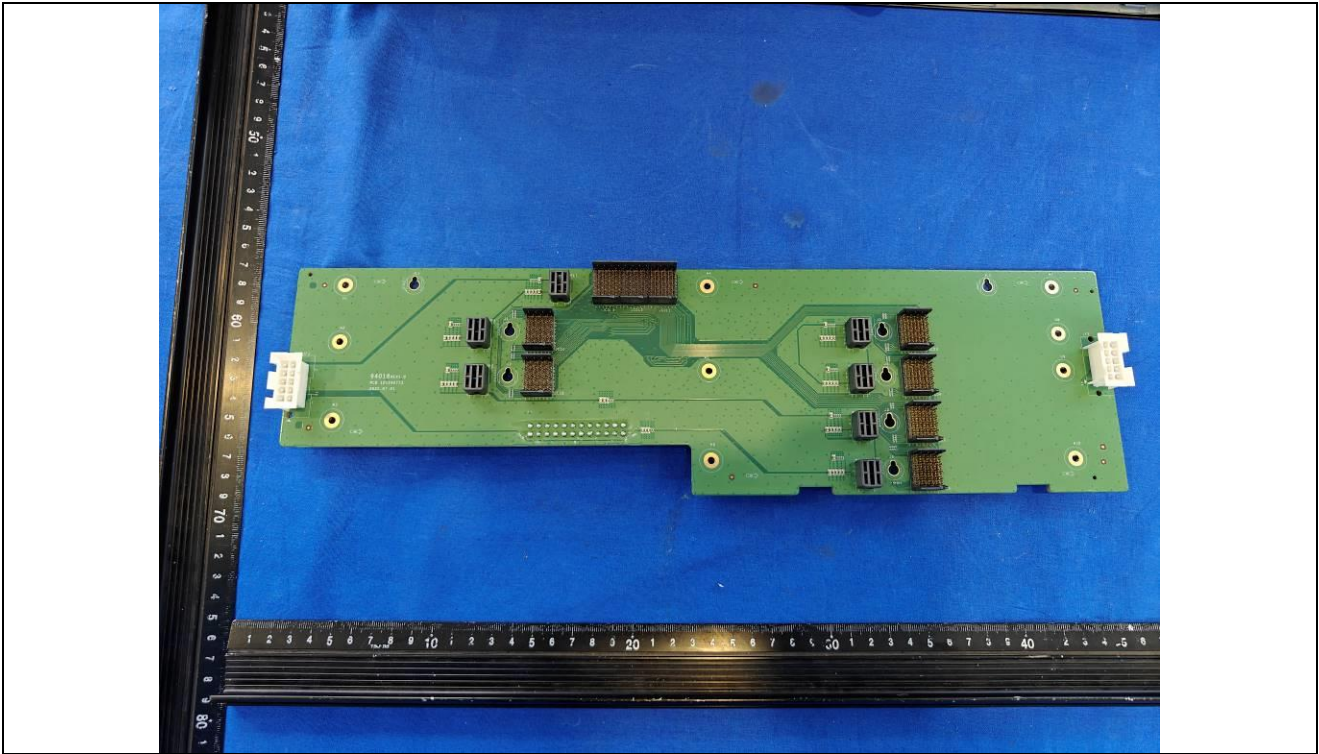


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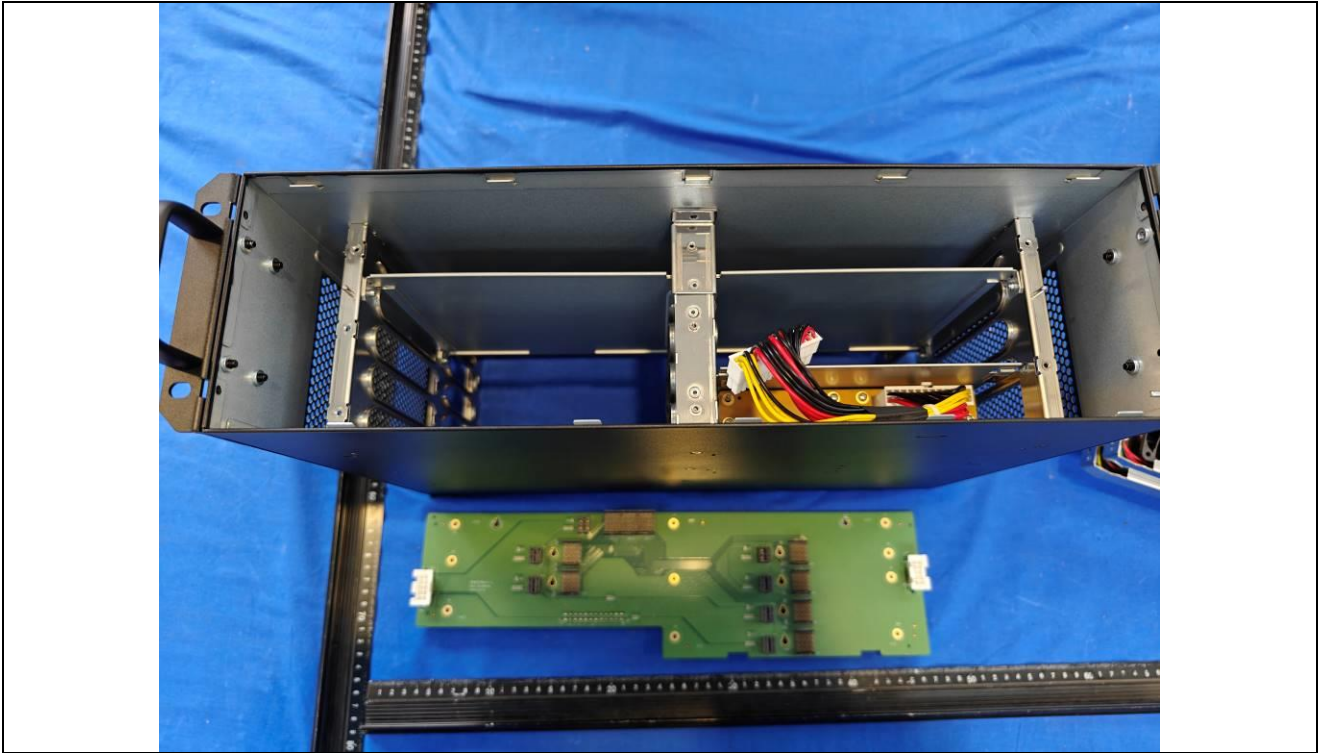




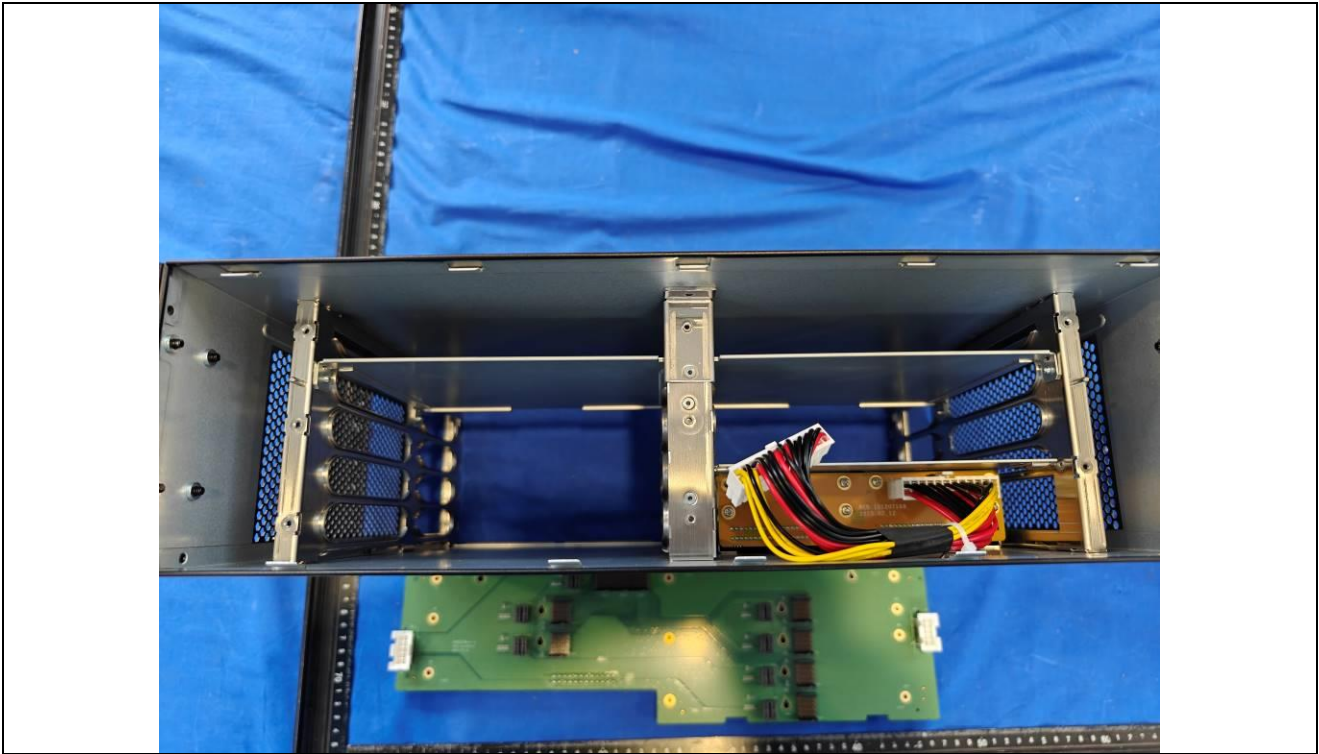
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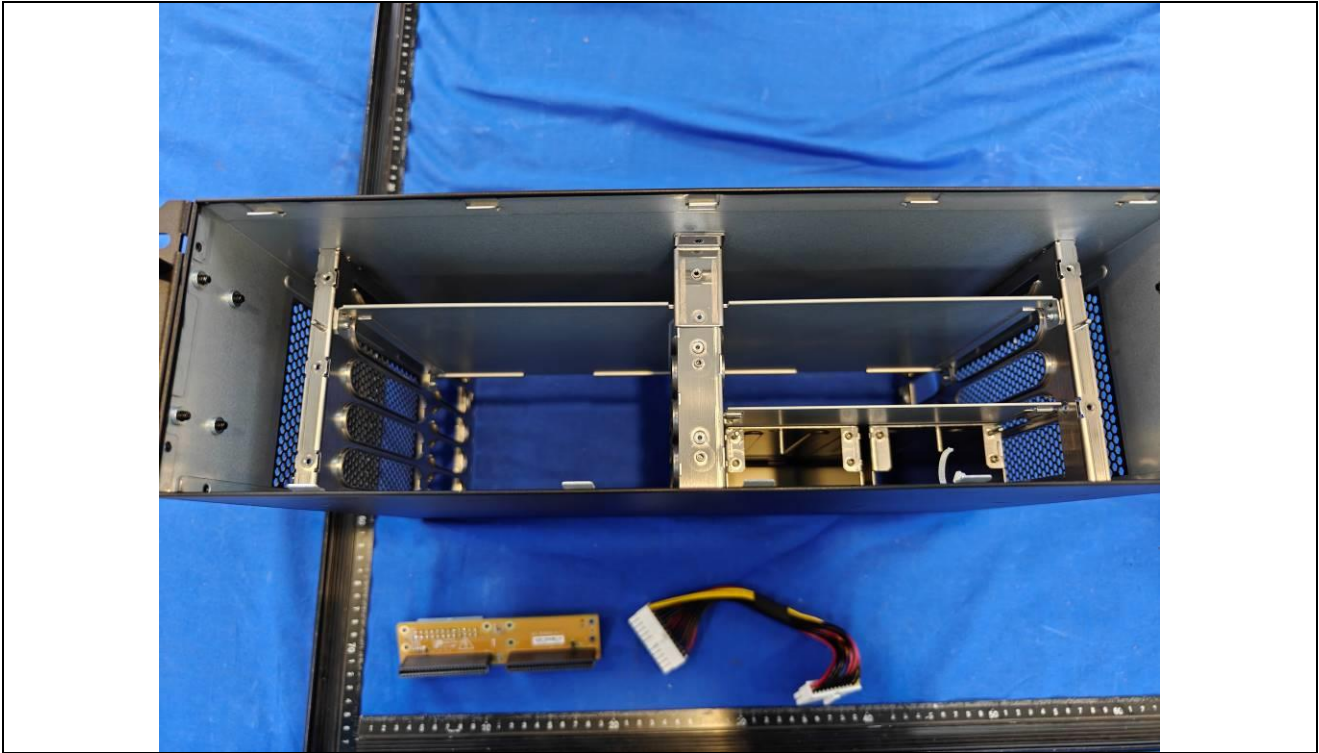
Details of: Internal View



Details of: Internal View

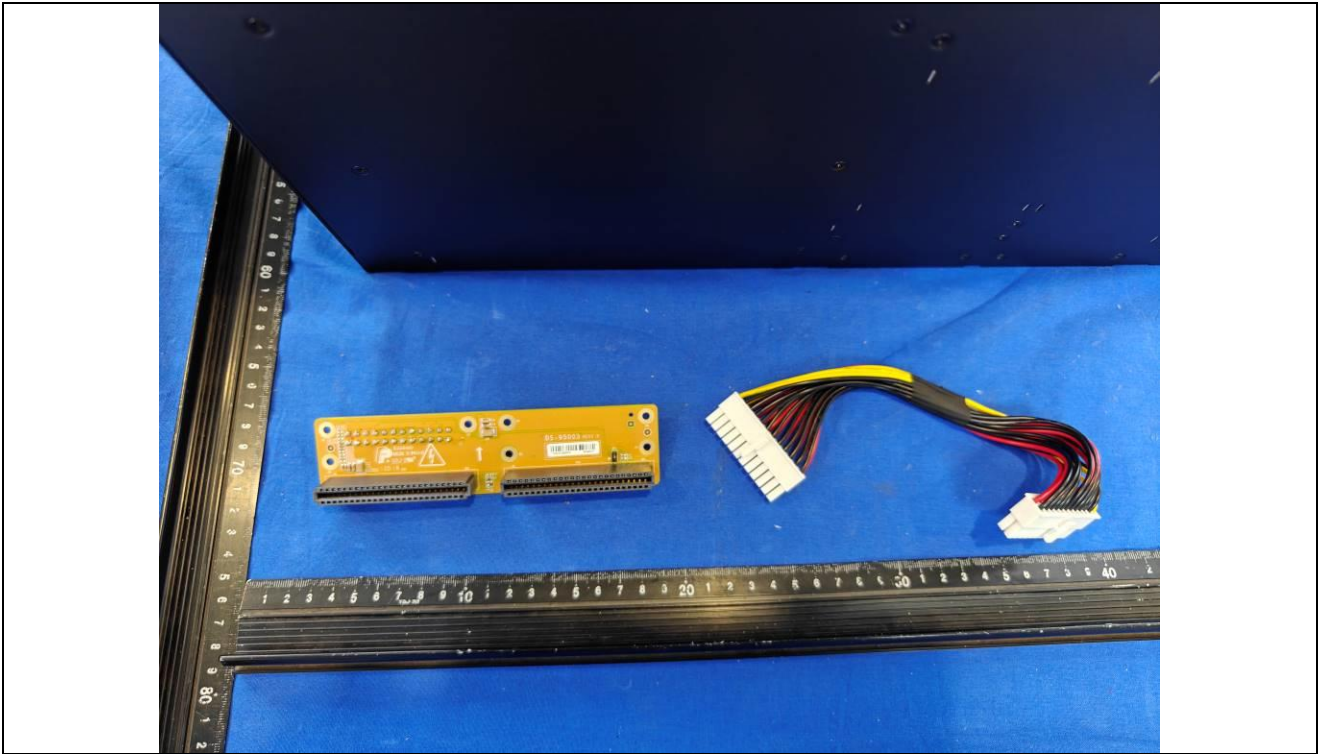


Details of: Internal View





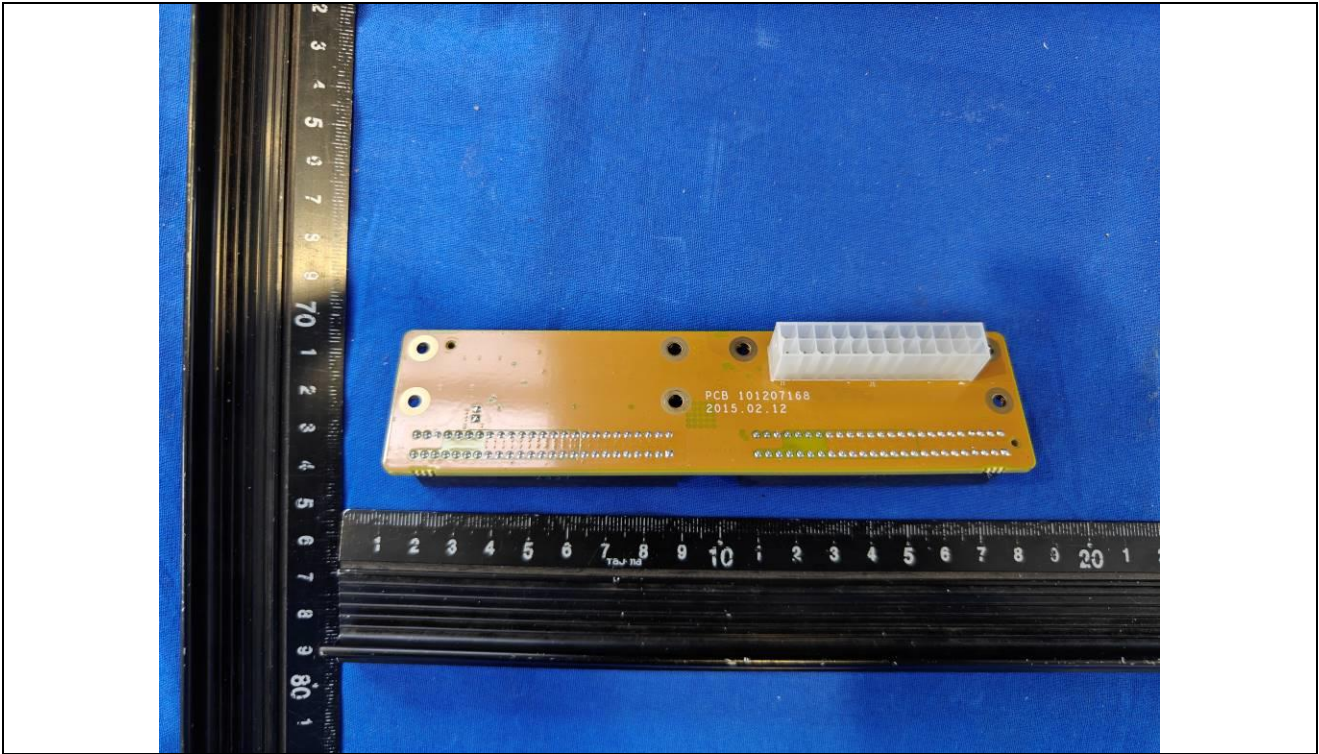
Details of: Internal View



Details of: PCB-4



Details of: PCB-4



Details of: Terminal View

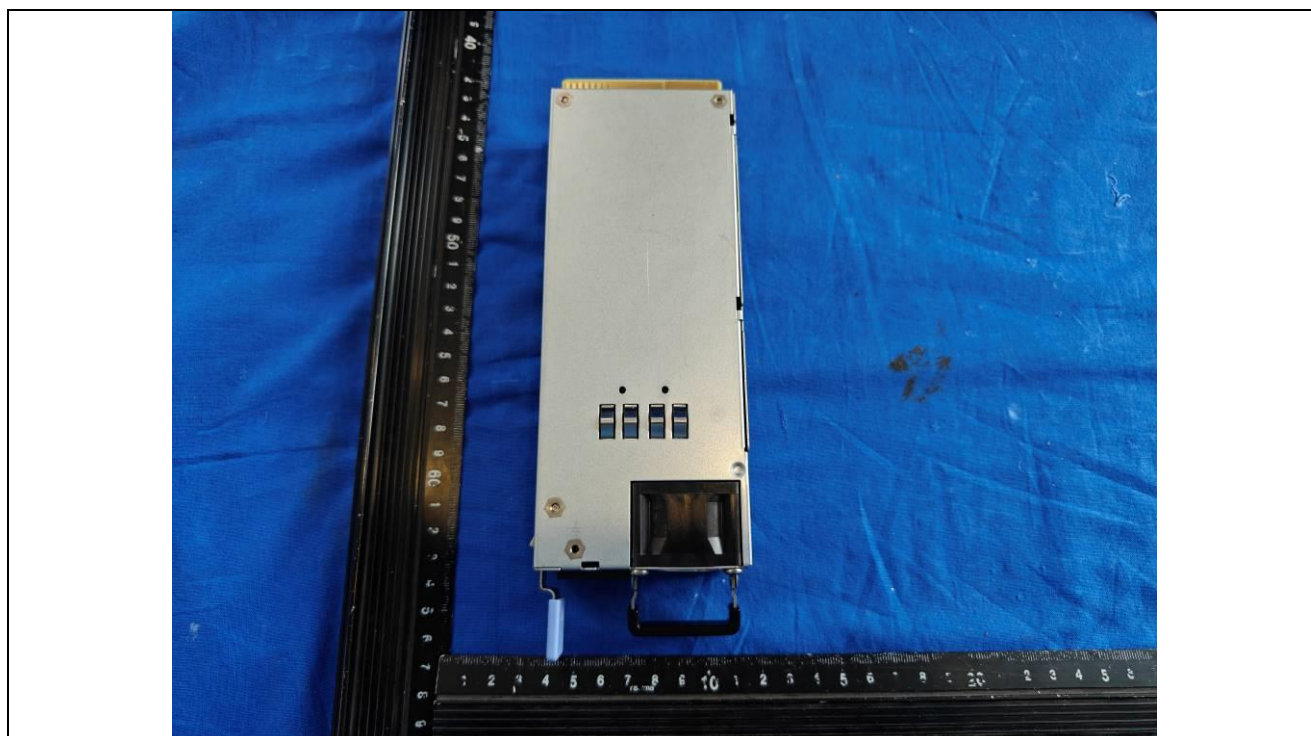




Details of: Building-in power supply



Details of: Building-in power supply



Details of: Power cord set



Details of: Power cord set



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

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<b>ATTACHMENT TO TEST REPORT</b> <b>IEC 62368-1</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> (Audio/video, information and communication technology equipment - Part 1: Safety requirements)			
<b>Differences according to</b> ..... : EN IEC 62368-1:2020+A11:2020			
<b>Attachment Form No.</b> ..... : EU_GD_IEC62368_1E			
<b>Attachment Originator</b> ..... : UL(Demko)			
<b>Master Attachment</b> ..... : 2021-02-04			
<b>Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.</b>			
	<b>CENELEC COMMON MODIFICATIONS (EN)</b>		P
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018.  Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed "Z".		P
	Add the following annexes: Annex ZA (normative)                      Normative references to international publications with their corresponding European publications Annex ZB (normative)                      Special national conditions Annex ZC (informative)                      A-deviations Annex ZD (informative)                      IEC and CENELEC code designations for flexible cords		P
<b>1</b>	<b>Modification to Clause 3 .</b>		N/A
<b>3.3.19</b>	<b>Sound exposure</b> <i>Replace 3.3.19 of IEC 62368-1 with the following definitions:</i>		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.1	<b>momentary exposure level, MEL</b> metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2.  Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.		N/A
3.3.19.3	<b>sound exposure, E</b>  A-weighted sound pressure ( $p$ ) squared and integrated over a stated period of time, $T$  Note 1 to entry: The SI unit is Pa <sup>2</sup> s.  $E = \int_0^T p(t)^2 dt$		N/A
3.3.19.4	<b>sound exposure level, SEL</b>  logarithmic measure of sound exposure relative to a reference value, $E_0$ , typically the 1 kHz threshold of hearing in humans.  Note 1 to entry: SEL is measured as A-weighted levels in dB.  $SEL = 10 \lg \left( \frac{E}{E_0} \right) \text{ dB}$  Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	<b>digital signal level relative to full scale, dBFS</b>  levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused  Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	<b>Modification to Clause 10</b>		N/A
10.6	<b>Safeguards against acoustic energy sources</b> Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	<b>Introduction</b>  <b>Safeguard</b> requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled		N/A





IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an <b>ordinary person</b>, that:</p> <ul style="list-style-type: none"> <li>– is designed to allow the user to listen to audio or audiovisual content / material; and</li> <li>– uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and</li> <li>– has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.).</li> </ul> <p>EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.</p> <p>Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.</p> <p>NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.</p> <p>Listening devices sold separately shall comply with the requirements of 10.6.6.</p> <p>These requirements are valid for music or video mode only.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> <li>– professional equipment;</li> </ul> <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> <li>– hearing aid equipment and other devices for assistive listening;</li> <li>– the following type of analogue personal music players: <ul style="list-style-type: none"> <li>• long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and</li> <li>• cassette player/recorder;</li> </ul> </li> </ul> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <ul style="list-style-type: none"> <li>– a player while connected to an external amplifier that does not allow the user to walk around</li> </ul>		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>while in use.</p> <p>For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.</p> <p>The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		
<b>10.6.1.2</b>	<p><b>Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</b></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
<b>10.6.2</b>	<b>Classification of devices without the capacity to estimate sound dose</b>		N/A
<b>10.6.2.1</b>	<p><b>General</b></p> <p>This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3.</p> <p>For classifying the acoustic output <math>L_{Aeq,T}</math>, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period.</p> <p>For music where the average sound pressure (long term <math>L_{Aeq,T}</math>) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, <math>T</math> becomes the duration of the song.</p> <p>NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term <math>L_{Aeq,T}</math>) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.</p>		N/A
<b>10.6.2.2</b>	<b>RS1 limits (to be superseded, see 10.6.3.2)</b>		N/A



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> <li>– for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the <math>L_{Aeq,T}</math> acoustic output shall be <math>\leq 85</math> dB when playing the fixed “programme simulation noise” described in EN 50332-1.</li> <li>– for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be <math>\leq 27</math> mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.</li> <li>– The RS1 limits will be updated for all devices as per 10.6.3.2.</li> </ul>		
<b>10.6.2.3</b>	<p><b>RS2 limits (to be superseded, see 10.6.3.3)</b></p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> <li>– for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the <math>L_{Aeq,T}</math> acoustic output shall be <math>\leq 100</math> dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1.</li> <li>– for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be <math>\leq 150</math> mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.</li> </ul>		N/A
<b>10.6.2.4</b>	<p><b>RS3 limits</b></p> <p>RS3 is a class 3 acoustic energy source that exceeds RS2 limits.</p>		N/A
<b>10.6.3</b>	<b>Classification of devices (new)</b>		N/A
<b>10.6.3.1</b>	<p><b>General</b></p> <p>Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.</p>		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>10.6.3.2</b>	<b>RS1 limits (new)</b>  RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be $\leq 80$ dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be $\leq 15$ mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		N/A
<b>10.6.3.3</b>	<b>RS2 limits (new)</b>  RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be $\leq 80$ dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be $\leq 15$ mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		N/A
<b>10.6.4</b>	<b>Requirements for maximum sound exposure</b>		N/A
<b>10.6.4.1</b>	<b>Measurement methods</b>  All volume controls shall be turned to maximum during tests.  Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		N/A
<b>10.6.4.2</b>	<b>Protection of persons</b>  Except as given below, protection requirements for parts <b>accessible to ordinary persons, instructed persons and skilled persons</b> are given in 4.3.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE 1 Volume control is not considered a <b>safeguard</b>.</p> <p>Between RS2 and an <b>ordinary person</b>, the <b>basic safeguard</b> may be replaced by an <b>instructional safeguard</b> in accordance with Clause F.5, except that the <b>instructional safeguard</b> shall be placed on the equipment, or on the packaging, or in the instruction manual.</p> <p>Alternatively, the <b>instructional safeguard</b> may be given through the equipment display during use.</p> <p>The elements of the <b>instructional safeguard</b> shall be as follows:</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>– element 1a: the symbol , IEC 60417-6044 (2011-01)</li> <li>– element 2: “High sound pressure” or equivalent wording</li> <li>– element 3: “Hearing damage risk” or equivalent wording</li> <li>– element 4: “Do not listen at high volume levels for long periods.” or equivalent wording</li> </ul> <p>An <b>equipment safeguard</b> shall prevent exposure of an <b>ordinary person</b> to an RS2 source without intentional physical action from the <b>ordinary person</b> and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off.</p> <p>The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off.</p> <p>A <b>skilled person</b> shall not be unintentionally exposed to RS3.</p>		
<b>10.6.5</b>	<b>Requirements for dose-based systems</b>		N/A
<b>10.6.5.1</b>	<p><b>General requirements</b></p> <p>Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause.</p>		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface.</p> <p>NOTE In case the source is known not to be music (or test signal), the EL may be disabled.</p>		

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Clause	Requirement + Test	Result - Remark	Verdict

<b>10.6.6</b>	<b>Requirements for listening devices (headphones, earphones, etc.)</b>		N/A
<b>10.6.6.1</b>	<b>Corded listening devices with analogue input</b>  With 94 dB $L_{Aeq}$ acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be $\geq 75$ mV.  NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		N/A
<b>10.6.6.2</b>	<b>Corded listening devices with digital input</b>  With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be $\leq 100$ dB with an input signal of -10 dBFS.		N/A
<b>10.6.6.3</b>	<b>Cordless listening devices</b>  In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be $\leq 100$ dB with an input signal of -10 dBFS.		N/A
<b>10.6.6.4</b>	<b>Measurement method</b>  <i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i>		N/A
<b>3</b>	<b>Modification to the whole document</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	<b>Delete</b> all the “country” notes in the reference document according to the following list:					N/A
	0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
	3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
	5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
	5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
	5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
	5.5.2.1	Note	5.5.8	Note	5.6.4.2.1	Note 2 and 3 and 4
	5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
	8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
	<del>10.6.1</del>	Note 3	F.3.3.6	Note 3	Y.4.1	Note
	Y.4.5	Note				
<b>4</b>	<b>Modification to Clause 1</b>					N/A
<b>1</b>	<b>Add</b> the following note:  <i>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</i>					N/A

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Clause	Requirement + Test	Result - Remark	Verdict

<b>5</b>	<b>Modification to 4.Z1</b>		N/A
<b>4.Z1</b>	<p><b>Add the following new subclause after 4.9:</b></p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. <b>mains</b>, 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 <b>pluggable equipment type B</b> or <b>permanently connected equipment</b>, 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 <b>pluggable equipment type A</b> the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		N/A
<b>6</b>	<b>Modification to 5.4.2.3.2.4</b>		N/A
<b>5.4.2.3.2.4</b>	<p><b>Add the following to the end of this subclause:</b></p> <p>The requirement for interconnection with <b>external circuit</b> is in addition given in EN 50491-3:2009.</p>		N/A
<b>7</b>	<b>Modification to 10.2.1</b>		N/A
<b>10.2.1</b>	<p>Add the following to <sup>c)</sup> and <sup>d)</sup> in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

<b>8</b>	<b>Modification to 10.5.1</b>		N/A
<b>10.5.1</b>	<p><b>Add the following after the first paragraph:</b></p> <p>For RS 1 compliance is checked by measurement under the following conditions:</p> <p>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm<sup>2</sup>, at any point 10 cm from the outer surface of the apparatus.</p> <p>Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</p> <p>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
<b>9</b>	<b>Modification to G.7.1</b>		N/A
<b>G.7.1</b>	<p><b>Add the following note:</b></p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

<b>10</b>	<b>Modification to Bibliography</b>		N/A
	<b>Add the following notes for the standards indicated:</b>  IEC 60130-9      NOTE Harmonized as EN 60130-9. IEC 60269-2      NOTE Harmonized as HD 60269-2. IEC 60309-1      NOTE Harmonized as EN 60309-1. IEC 60364          NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4    NOTE Harmonized as EN 60601-2-4. IEC 60664-5      NOTE Harmonized as EN 60664-5. IEC 61032:1997   NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1      NOTE Harmonized as EN 61508-1. IEC 61558-2-1    NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4    NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6    NOTE Harmonized as EN 61558-2-6. IEC 61643-1      NOTE Harmonized as EN 61643-1. IEC 61643-21     NOTE Harmonized as EN 61643-21. IEC 61643-311    NOTE Harmonized as EN 61643-311. IEC 61643-321    NOTE Harmonized as EN 61643-321. IEC 61643-331    NOTE Harmonized as EN 61643-331.		N/A
<b>11</b>	<b>ADDITION OF ANNEXES</b>		N/A
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		N/A
<b>4.1.15</b>	<b>Denmark, Finland, Norway and Sweden</b>  To the end of the subclause the following is added: <b>Class I pluggable equipment type A</b> 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 <b>accessible</b> parts, have a marking stating that the equipment shall be connected to an earthed <b>mains</b> socket-outlet.  The marking text in the applicable countries shall be as follows:  In <b>Denmark</b> : "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In <b>Finland</b> : "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In <b>Norway</b> : "Apparatet må tilkoples jordet stikkontakt" In <b>Sweden</b> : "Apparaten skall anslutas till jordat uttag"		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4.7.3</b>	<b>United Kingdom</b>  To the end of the subclause the following is added:  The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
<b>5.2.2.2</b>	<b>Denmark</b>  After the 2nd paragraph add the following:  A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
<b>5.4.11.1 and Annex G</b>	<b>Finland and Sweden</b>  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 <ul style="list-style-type: none"> <li>• two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> 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 <ul style="list-style-type: none"> <li>• 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),</li> </ul> and <ul style="list-style-type: none"> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<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"> <li>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;</li> <li>the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> </ul> <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		
5.5.2.1	<p><b>Norway</b></p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A
5.5.6	<p><b>Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p>Resistors used as <b>basic safeguard</b> or bridging <b>basic insulation</b> in <b>class I pluggable equipment type A</b> shall comply with G.10.1 and the test of G.10.2.</p>		N/A
5.6.1	<p><b>Denmark</b></p> <p><b>Add</b> to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i></p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N/A
5.6.4.2.1	<p><b>Ireland and United Kingdom</b></p> <p>After the indent for <b>pluggable equipment type A</b>, the following is added:</p> <p>– the <b>protective current rating</b> is taken to be 13 A, this being the largest rating of fuse used in the <b>mains</b> plug.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.2.1	<b>France</b>  After the indent for <b>pluggable equipment type A</b> , the following is added: – in certain cases, the <b>protective current rating</b> of the circuit supplied from the mains is taken as 20 A instead of 16 A.		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 <sup>2</sup> to 1,5 mm <sup>2</sup> in cross-sectional area.		N/A
5.6.8	<b>Norway</b>  To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as <b>class I equipment</b> . See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	<b>Denmark</b>  To the end of the subclause the following is added:  The installation instruction shall be affixed to the equipment if the <b>protective conductor current</b> 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

<b>5.7.6.2</b>	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N/A
<b>5.7.7.1</b>	<p><b>Norway and Sweden</b></p> <p>To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building 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</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>nettet.”</p> <p>Translation to Swedish:            ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>		
<b>8.5.4.2.3</b>	<p><b>United Kingdom</b></p> <p>Add the following after the 2<sup>nd</sup> dash bullet in 3<sup>rd</sup> paragraph:</p> <p>An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.</p>		N/A
<b>B.3.1 and B.4</b>	<p><b>Ireland and United Kingdom</b></p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of <b>direct plug-in equipment</b>, 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 <b>direct plug-in equipment</b>, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

<b>G.4.2</b>	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		N/A
<b>G.4.2</b>	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
<b>G.7.1</b>	<p><b>United Kingdom</b></p> <p>To the first paragraph the following is added:</p> <p>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
<b>G.7.1</b>	<p><b>Ireland</b></p> <p>To the first paragraph the following is added:</p> <p>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N/A
<b>G.7.2</b>	<p><b>Ireland and United Kingdom</b></p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm<sup>2</sup> is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		
10.5.2	<p><b>Germany</b></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> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p><b>NOTE</b> Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a></p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)		N/A					
	<table><tr><th rowspan="2">Type of flexible cord</th><th colspan="2">Code designations</th></tr><tr><th>IEC</th><th>CENELEC</th></tr></table>		Type of flexible cord	Code designations		IEC	CENELEC	N/A
	Type of flexible cord	Code designations						
		IEC	CENELEC					
	<b>PVC insulated cords</b>							
	Flat twin tinsel cord	60227 IEC 41	H03VH-Y					
	Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F					
	Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F					
	<b>Rubber insulated cords</b>							
	Braided cord	60245 IEC 51	H03RT-F					
	Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F					
	Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F					
	Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F					
	<b>Cords having high flexibility</b>							
	Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H					
	Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H					
	Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H					
	<b>Cords insulated and sheathed with halogen-free thermoplastic compounds</b>							
Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F						
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F						

---End of Attachment 2---

### Safety Information

Please read all the safety information carefully before using.

- Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.
- Firmly connect the plug to the power socket. Do not connect several devices to one power adapter. Power off the device before connecting and disconnecting accessories and peripherals.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- For the device with the sign ⚡ indicating hazardous live, the external wiring connected to the terminals requires installation by an instructed person.
- This equipment is not suitable for use in locations where children are likely to be present.





#### Warning:

1. Do not ingest battery. Chemical Burn Hazard!
  2. This product contains a coin/button cell battery. If the coin/button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
  3. Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).
  4. Do not dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.
  5. Do not leave the battery in an extremely high temperature surrounding environment, which may result in an explosion or the leakage of flammable liquid or gas.
  6. Do not subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.
  7. Dispose of used batteries according to the instructions.
- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.
  - Use the device in conjunction with an UPS, and use factory recommended HDD if possible.
  - For the device with fan blades or motors, keep body parts away from fan blades or motors. Disconnect the power source during servicing.
  - Do not touch the bare components (such as the metal contacts of the inlets) and wait for at least 5 minutes, since electricity may still exist after the device is powered off.
  - Never place the device in an unstable location. The device may fall, causing serious personal injury or death.

### Preventive and Cautionary Tips

Before connecting and operating your device, please be advised of the following tips:

- The device shall not be exposed to water dripping or splashing, and no objects filled with liquids, such as vases, shall be placed on the device.
- No naked flame sources should be placed on the device, such as lighted candles.
- For the device with ventilation openings, the ventilation openings should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, and curtains. The openings shall never be blocked by placing the device on a bed, sofa, rug, or other similar surface.
- If the power output port of the device does not comply with Limited Power Source, the connected device powered by this port shall be equipped with a fire enclosure.
- The USB port of the equipment is used for connecting to a mouse, keyboard, USB flash drive, or Wi-Fi dongle only. The current for the connected device shall be not more than 0.1 A.

- For the device with sticker  or , pay attention to the following cautions:  
CAUTION: Hot parts! Do not touch. Burned fingers when handling the parts. Wait one-half hour after switching off before handling the parts.
- If the device needs to be installed on the wall or ceiling,
  1. Install the device according to the instructions in this manual.
  2. To prevent injury, this device must be securely attached to the installation surface in accordance with the installation instructions.
- When device has wall installation holes, but its accessories do not contain screws for wall installation:
  - If the device wall installation hole diameter is 5 mm, please use screws that diameter not less than M4 and screw length not less than 15 mm to install all device holes on wall.
  - If the device wall installation hole diameter is 4.5/4.0/3.5 mm, please use screws that diameter not less than M3 and screw length not less than 15 mm to install all device holes on wall.
- If a power adapter is provided in the device package, use the provided adapter only.
- If the device needs to be wired by yourself, select the corresponding wire to supply power according to the electric parameters labeled on the device. Strip off wire with a standard wire stripper at corresponding position. To avoid serious consequences, the length of stripped wire shall be appropriate, and conductors shall not be exposed.
- Make sure that the power has been disconnected before you wire, install, or disassemble the device.

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