Test Report issued under the responsibility of:

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

Report Number..... :	SHES240100172501
Date of issue ..... :	2024-03-06
Total number of pages ..... :	71 pages
Name of Testing Laboratory preparing the Report ..... :	SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
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-F1:2020, Ed.1.3
Test Report Form No. ..... :	IEC62368_1E
Test Report Form(s) Originator.... :	UL(US)
Master TRF ..... :	Dated 2021-02-04

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

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:	Network Video Recorder	
Trade Mark(s) .....:	HIKVISION	
Manufacturer.....:	Same as applicant	
Model/Type reference .....:	See Page 7	
Ratings .....:	Input: 100 V a. c. - 240 V a. c., 50/60Hz, 4,4 A Max; Class I Output: Each PoE 44-57 V d.c., 0,6 A Max	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ **CB Testing Laboratory:**	SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.	
Testing location/ address ..... :	588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.	
Tested by (name, function, signature) ..... :	Leo Wang Project Engineer	Leo Wang
Approved by (name, function, signature) .. :	Emilien Li Reviewer	Emilien Li
☐ **Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :		
Tested by (name, function, signature) ..... :		
Approved by (name, function, signature) .. :		
☐ **Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :		
Tested by (name, function, signature).....:		
Witnessed by (name, function, signature). :		
Approved by (name, function, signature) .. :		
☐ **Testing procedure: CTF Stage 3:**		
☐ **Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :		
Tested by (name, function, signature) ..... :		
Witnessed by (name, function, signature). :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

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

Attachment 1 – 33 pages of Photos documents;

Attachment 2 – 23 pages of European group differences and national differences;

Attachment 3 – 3 pages of Safety information.

Summary of testing:

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-7732NI-K4/16P was selected as representative model for full testing; models DS-7732NI-M4/16P, iDS-7732NXI-M4/16P/X, DS-7732NI-K4/16P and DS-7716NXI-K4/16P were selected for part testing.

Heating test:
Tma = 55°C (declared by manufacturer)

K-type thermocouple used for temperature measurement.

Tests performed (name of test and test clause):	**Testing location:**
☒ 4. General requirements	SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
☒ 5. Electrically-caused injury	588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.
☒ 6. Electrically-caused fire	
☒ 7. Injury caused by hazardous substances	
☒ 8. Mechanically-caused injury	
☒ 9. Thermal burn injury	
☒ 10. Radiation	

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

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

☒ **The product fulfils the above requirements.**

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

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

☒ **Statement not required by the standard used for type testing**

Copy of marking plate:

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

Marking for model DS-7732NI-K4/16P

Marking for model DS-7732NI-M4/16P

Marking for model iDS-7732NXI-M4/16P/X

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) The marking plates for other models are of the same pattern except for model name.

3) As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place

on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

Test item particulars:	
Product group .....:	☒ end product ☐ built-in component
Classification of use by .....:	☐ Children likely present ☒ Ordinary person ☒ Instructed person ☒ Skilled person
Supply connection .....:	☒ AC mains ☐ DC mains ☐ not mains connected: ☐ ES1 ☐ ES2 ☐ ES3
Supply tolerance .....:	☒ +10%/-10% ☐ +20%/-15%
Supply connection – type .....:	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other: External power supply
Considered current rating of protective device ..... :	32 A for or North America; 16 A for other markets except North America. Location: ☒ building ☐ equipment
Equipment mobility..... :	☒ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☐ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: Not connected to mains
Class of equipment ..... :	☒ Class I ☐ Class II ☐ Class III ☐ Class II with functional earthing ☐ Not classified
Special installation location ..... :	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma} ..... :	55 °C ☐ Outdoor: minimum °C
IP protection class ..... :	☒ IPX0 ☐
Power systems ..... :	☒ TN ☒ TT ☐ IT - V L-L ☐ not AC mains
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ m
Mass of equipment (kg) ..... :	4,5kg
Possible test case verdicts:	
- test case does not apply to the test object....:	N/A

- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement....:	F (Fail)
Testing:	
Date of receipt of test item .....:	2023-12-22
Date (s) of performance of tests.....:	2023-12-23 to 2024-01-10

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

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.

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

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	☒ Yes ☐ Not applicable **Factory declaration Declaration letter.pdf, dated 2023-01-04.**

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

Name and address of factory (ies).....:	1. Hangzhou Hikvision Technology Co., Ltd. No. 700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China. 2. Hangzhou Hikvision Electronics Co., Ltd. No. 299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China. 3. Chongqing Hikvision Technology Co., Ltd. No. 118, Haikang Road, Area C, Jianqiao Industrial Park, Dadukou District, Chongqing, 401325, China.

General product information and other remarks:

Functions	The equipment under test is Class I Network Video Recorder, which is powered by building-in power supply through detachable power cord set.
Material of enclosure	Front side: Plastic Other sides: Metal
Model differences	All the models are identical except for model name which have no impact for safety.
Others	Indoor use only

Models list:

DS-7716NI-K4/16P	DS-7716NI-K4/16PUHK	DS-7716NI-K4/16PCKV
DS-7716NI-K4/16PKVO	DS-7716NI-K4/16PHUN	DS-7732NI-K4/16P
DS-7732NI-K4/16PCKV	DS-7732NI-K4/16PUVS	DS-7732NI-K4/16PKVO
DS-7716NI-Q4/16P	DS-7716NI-Q4/16PUHK	DS-7716NI-Q4/16PCKV
DS-7716NI-Q4/16PKVO	DS-7716NI-Q4/16PHUN	DS-7732NI-Q4/16P
DS-7732NI-Q4/16PCKV	DS-7732NI-Q4/16PUVS	DS-7732NI-Q4/16PKVO
DS-7XXXNI-XXXXX	DS-7XXXNI-XXXXXUHK	DS-7XXXNI-XXXXXCKV
DS-7716NI-K4/16PUVS	DS-7732NI-K4/16PUHK	DS-7732NI-K4/16PHUN
DS-7716NI-Q4/16PUVS	DS-7732NI-Q4/16PUHK	DS-7732NI-Q4/16PHUN
DS-7XXXNI-XXXXXUVS	DS-7XXXNI-XXXXXKVO	DS-7XXXNI-XXXXXHUN
DS-7716NI-M4/16P	DS-7716NI-M4/16PUHK	DS-7716NI-M4/16PCKV
DS-7716NI-M4/16PKVO	DS-7716NI-M4/16PHUN	DS-7716NI-M4/16P/EDU
DS-7716NI-M4/16P/NRG	DS-7716NI-M4/16P/LGX	DS-7716NI-M4/16P/MFG
DS-7732NI-M4/16P	DS-7732NI-M4/16PUHK	DS-7732NI-M4/16PCKV
DS-7732NI-M4/16PKVO	DS-7732NI-M4/16PHUN	DS-7732NI-M4/16P/EDU
DS-7732NI-M4/16P/NRG	DS-7732NI-M4/16P/LGX	DS-7732NI-M4/16P/MFG
DS-7916NXI-K4/16P	DS-7732NXI-K4/16PHUN	DS-7916NXI-K4/16PUHK
DS-7916NXI-K4/16PUVS	DS-7916NXI-K4/16PKVO	DS-7916NXI-K4/16PHUN
DS-7932NXI-K4/16PUHK	DS-7932NXI-K4/16PCKV	DS-7932NXI-K4/16PUVS
DS-7932NXI-K4/16PHUN	DS-7732NXI-K4/16PKVO	DS-7716NXI-K4/16P
DS-7716NXI-K4/16PCKV	DS-7716NXI-K4/16PUVS	DS-7716NXI-K4/16PKVO
DS-7732NXI-K4/16P	DS-7732NXI-K4/16PUHK	DS-7732NXI-K4/16PCKV
DS-7716NI-M4/16PUVS	DS-7716NI-M4/16P/RTL	DS-7716NI-M4/16P/RMS
DS-7732NI-M4/16PUVS	DS-7732NI-M4/16P/RTL	DS-7732NI-M4/16P/RMS
DS-7916NXI-K4/16PCKV	DS-7932NXI-K4/16P	DS-7932NXI-K4/16PKVO
DS-7716NXI-K4/16PUHK	DS-7716NXI-K4/16PHUN	DS-7732NXI-K4/16PUVS

iDS-7716NXI-M4/16P/X	iDS-7716NXI-M4/16P/XUHK	iDS-7716NXI-M4/16P/XCKV
iDS-7716NXI-M4/16P/XKVO	iDS-7716NXI-M4/16P/XHUN	iDS-7716NXI-M4/16P/X/EDU
iDS-7716NXI-M4/16P/X/NRG	iDS-7716NXI-M4/16P/X/LGX	iDS-7716NXI-M4/16P/X/MFG
iDS-7732NXI-M4/16P/X	iDS-7732NXI-M4/16P/XUHK	iDS-7732NXI-M4/16P/XCKV
iDS-7732NXI-M4/16P/XKVO	iDS-7732NXI-M4/16P/XHUN	iDS-7732NXI-M4/16P/X/EDU
iDS-7732NXI-M4/16P/X/NRG	iDS-7732NXI-M4/16P/X/LGX	iDS-7732NXI-M4/16P/X/MFG
iDS-7716NXI-M4/16P/XUVS	iDS-7716NXI-M4/16P/X/RTL	iDS-7716NXI-M4/16P/X/RMS
iDS-7732NXI-M4/16P/XUVS	iDS-7732NXI-M4/16P/X/RTL	iDS-7732NXI-M4/16P/X/RMS
X can be 0-9, a-z, A-Z, (,), -, /, or blank		

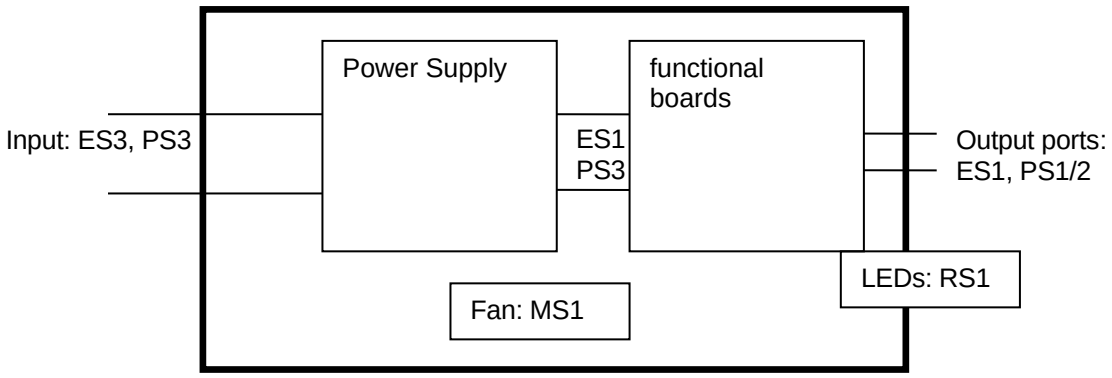
OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Internal Power Supply primary circuits	Ordinary, Instructed and Skilled Person	Basic Insulation	Protective Earthing	Enclosure / reinforced insulation
ES1: Main board	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
ES1: Output terminal	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	1st S	2nd S
PS3: Internal circuits	Internal combustible materials	1. No ignition occurred. 2. No parts exceeding 90% of its spontaneous ignition temperature. 3. Combustible material outside fire enclosure is of min HB	1. PCB is of min V-1 material 2. All other components were mounted on min V-1 PCB or of min V-2 or small parts of combustible material less than 4g. 3. Fire enclosure provided	N/A
PS1/2	Output port	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
Lithium coin battery	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edges and corners	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
MS1: Equipment mass	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A

MS1: Fan	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Accessible parts	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 act as indicator	Ordinary, Instructed and Skilled Person	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM

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

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



Enclosure: ES1, MS1, TS1
Mass: MS1

☒ ES ☒ PS ☒ MS ☒ TS ☒ RS

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.4	Specified ambient temperature for outdoor use (°C) .....:		N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)		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 Clause T.3, T.4, T.5)	P
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests		P
4.4.3.5	Internal accessible safeguard tests		P
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		P
4.4.3.9	Air comprising a safeguard		N/A
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
4.5	**Explosion**		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
4.6	**Fixing of conductors**		P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test..... :		P
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard .. :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	Torque (Nm) ..... :		N/A
4.8	**Equipment containing coin/button cell batteries**		N/A
4.8.1	General	Professional equipment	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
4.9	**Likelihood of fire or shock due to entry of conductive object**		P
4.10	**Component requirements**		P
4.10.1	Disconnect Device		P
4.10.2	Switches and relays		N/A
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits.....:		P
5.2.2.3	Capacitance limits.....:	Approved internal power supply	P
5.2.2.4	Single pulse limits .....:		N/A
5.2.2.5	Limits for repetitive pulses .....:		N/A
5.2.2.6	Ringing signals		N/A
5.2.2.7	Audio signals		N/A
5.3	**Protection against electrical energy sources**		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Accessibility to outdoor equipment bare parts		P
5.3.2.2	Contact requirements		P
	Test with test probe from Annex V	See Annex T	—
5.3.2.2 a)	Air gap – electric strength test potential (V) .....:		N/A
5.3.2.2 b)	Air gap – distance (mm) .....:		P
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic	Approved internal power supply	P
5.4.1.4	Maximum operating temperature for insulating materials.....:	See table 5.4.1.4	N/A
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.....:	Approved internal power supply	P
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat test.....:		N/A
5.4.1.10.3	Ball pressure test .....:		N/A
5.4.2	Clearances	Evaluated in internal power supply report	P
5.4.2.1	General requirements		N/A
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage .....:		—
5.4.2.3	Procedure 2 for determining clearance		N/A
5.4.2.3.2.2	a.c. mains transient voltage.....:		—
5.4.2.3.2.3	d.c. mains transient voltage .....:		—
5.4.2.3.2.4	External circuit transient voltage.....:		—

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
5.4.8	Humidity conditioning	Approved internal power supply for solid insulation	N/A
	Relative humidity (%), temperature (°C), duration (h) ..... :	93%, 40°C, 120h	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for type test of solid insulation.....:		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 ..... :		—
5.4.10.2.3	Steady-state test..... :		—
5.4.10.3	Verification for insulation breakdown for impulse test ..... :		—
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 ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{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
5.5	**Components as safeguards**		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.1	General	Approved internal power supply	P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :		N/A
5.5.3	Transformers		P
5.5.4	Optocouplers		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)..... :		—
5.6	**Protective conductor**		P
5.6.2	Requirement for protective conductors	Evaluated in internal power supply report.	P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm^2) ..... :	AC inlet	—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors	Approved internal power supply	P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm^2). ..... :	AC inlet	—
5.6.4.2	Protective current rating (A)..... :	16A (20A for Canada and the USA)	P
5.6.5	Terminals for protective conductors		P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Certified appliance inlet.	P
	Terminal size for connecting protective bonding conductors (mm) .....:		P
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.6.1	Requirements		P
5.6.6.2	Test Method ..... :		P
5.6.6.3	Resistance (Ω) or voltage drop ..... :	(See appended table 5.6.6.3)	P
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2) ..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm) ..... :		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		P
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current	Evaluated in internal power supply report	P
5.7.2.2	Measurement of voltage	(See appended table 5.7.4)	P
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts ..... :		P
5.7.5	Earthed accessible conductive parts ..... :		P
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA) ..... :		N/A
	Instructional Safeguard ..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
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
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES ..... :		N/A
	Air gap (mm) ..... :		N/A

6	**ELECTRICALLY- CAUSED FIRE**	P
6.2	**Classification of PS and PIS**	P

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Clause	Requirement + Test	Result - Remark	Verdict
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 note to appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS .....:	The internal circuit is considered as resistive PIS without test.	P
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... :	(See appended table B.1.5 and B.3)	P
	Combustible materials outside fire enclosure.....:		P
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method	Control fire spread used.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	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	(See appended tables 4.1.2 and Annex G)	P
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		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

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Clause	Requirement + Test	Result - Remark	Verdict
	Openings dimensions (mm)..... :	Top side: top openings in which vertical entry is prevented. Left/right side: Numerous hexagons with maximum dimension 4mm.	P
6.4.8.3.4	Bottom openings and properties		P
	Openings dimensions (mm)..... :	Part of openings under components and parts meeting the requirements for V-1 class material, others are within 30mm diameter cylinder extending indefinitely below the PIS.	P
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	P
	Instructional Safeguard.....:		N/A
6.4.8.3.5	Side openings and properties	No door or cover.	N/A
	Openings dimensions (mm)..... :	No door or cover.	N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :	V-0	P
6.4.9	Flammability of insulating liquid.....:	Control fire spread	P
6.5			P
6.5.1	General requirements		P
6.5.2	Requirements for interconnection to building wiring ..... :		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets..... :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		P

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

8	**MECHANICALLY-CAUSED INJURY**	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		P
8.4	**Safeguards against parts with sharp edges and corners**		P
8.4.1	Safeguards		P
	Instructional Safeguard.....:		P
8.4.2	Sharp edges or corners		P
8.5	**Safeguards against moving parts**		P
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard .....:		P
8.5.4	Special categories of equipment containing moving parts	DC Fan MGA6012SR-O15: K = 6 x 10-7(0,029 x 302 x 36002) =202,95 3600/15000 + 202,95/2400 = 0,32<1; Alternative ME60151V3-000C-A99 in system: K=6x10-7(0,035x302x39002) =287,47 3900/15000+287,47/2400=0,38<1; DC Fan EFC-06C12H: K = 6 x 10-7(0,033 x 302 x 39002) =271,042 3900/15000 + 271,042/2400 = 0,373<1; According to above calculation, moving fans blade are considered not likely to cause injury. The DC Fan is within the limits under normal and fault conditions. Radiator DC Fan MGA4012LB-O15: K = 6 x 10-7(0,016 x 202 x 45002) =77,76 4500/15000 + 77,76/2400 = 0,33<1; According to above calculation, moving fans blade are considered not likely to cause injury.	P
8.5.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
	- 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
8.6	**Stability of equipment**		N/A
8.6.1	General		N/A
	Instructional safeguard .....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test .....:		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
8.7	**Equipment mounted to wall, ceiling or other structure**		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
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N) .....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		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
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		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
8.12	**Telescoping or rod antennas**		N/A
	Button/ball diameter (mm) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
9	**THERMAL BURN INJURY**		P
9.2	**Thermal energy source classifications**		P
9.3	**Touch temperature limits**		P
9.3.1	Touch temperatures of accessible parts .....:	(See appended table)	P
9.3.2	Test method and compliance		P
9.4	**Safeguards against thermal energy sources**		P
9.5	**Requirements for safeguards**		p
9.5.1	Equipment safeguard		p
9.5.2	Instructional safeguard .....:		N/A
9.6	**Requirements for wireless power transmitters**		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance .....:		N/A

10	**RADIATION**		P
10.2	**Radiation energy source classification**		P
10.2.1	General classification	RS1 for LEDs	P
	Lasers ..... :		—
	Lamps and lamp systems ..... :		—
	Image projectors ..... :		—
	X-Ray ..... :		—
	Personal music player ..... :		—
10.3	**Safeguards against laser radiation**		N/A
	The standard(s) equipment containing laser(s) comply .....:		N/A
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		N/A
10.4.1	General requirements	RS1 for LEDs.	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location .....:		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure .....:		N/A
10.4.3	Instructional safeguard ..... :		N/A
10.5	**Safeguards against X-radiation**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons ..... :		—
10.5.3	Maximum radiation (pA/kg)..... :		—
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
	Unweighted RMS output voltage (mV)..... :		N/A
	Digital output signal (dBFS)..... :		N/A
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 ≥ 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	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	**Normal operating conditions**		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test ..... :	(See appended table B.2.5)	P
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General		P
B.3.2	Covering of ventilation openings		P
	Instructional safeguard ..... :		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		P
B.3.6	Reverse battery polarity		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.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test		P
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnection of passive components		P
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
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
D	**TEST GENERATORS**		N/A
D.1	**Impulse test generators**		N/A
D.2	**Antenna interface test generator**		N/A
D.3	**Electronic pulse generator**		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω) ..... :		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard ..... :		—
E.2	**Audio amplifier normal operating conditions**		N/A
	Audio signal source type ..... :		—
	Audio output power (W)..... :		—
	Audio output voltage (V) ..... :		—
	Rated load impedance (Ω) ..... :		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language ..... :	English	—
F.2	**Letter symbols and graphical symbols**		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
F.3	**Equipment markings**		P
F.3.1	Equipment marking locations	Exterior of equipment.	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification ..... :	See copy of marking plate	P
F.3.2.2	Model identification ..... :	See copy of marking plate	P
F.3.3	Equipment rating markings	See copy of marking plate	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains	Rating marked	N/A
F.3.3.3	Nature of the supply voltage ..... :	AC mains	P
F.3.3.4	Rated voltage..... :	see marking plate	P
F.3.3.5	Rated frequency ..... :	50/60Hz	P
F.3.3.6	Rated current or rated power..... :	see marking plate	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :		N/A
F.3.5.2	Switch position identification marking..... :		P
F.3.5.3	Replacement fuse identification and rating markings ..... :	Considered in AC certified Power Supply	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	No such marking.	P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment		P
F.3.6.1.1	Protective earthing conductor terminal..... :	AC inlet	P
F.3.6.1.2	Protective bonding conductor terminals ..... :		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
F.4	**Instructions**		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		p
	c) Instructions for installation and interconnection		P
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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
F.5	Instructional safeguards		P
G	**COMPONENTS**		P
G.1	**Switches**		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
G.2	**Relays**		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
G.3	**Protective devices**		P
G.3.1	Thermal cut-offs	Considered in AC Certified Power Supply.	P
	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		P
G.3.4	Overcurrent protection devices		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions ..... :		N/A
G.4	**Connectors**		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration..... :	Certified power supply	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound components**		P
G.5.1	Wire insulation in wound components	approved internal power supply	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	approved internal power supply	P
G.5.3.1	Compliance method..... :	approved internal power supply	P
	Position ..... :	approved internal power supply	P
	Method of protection..... :	approved internal power supply	P
G.5.3.2	Insulation		P
	Protection from displacement of windings..... :		—
G.5.3.3	Transformer overload tests		P
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		P
G.5.4.1	General requirements	Certified DC fan	N/A
G.5.4.2	Motor overload test conditions	Secondary circuit.	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		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature ..... :		N/A
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 ..... :		—
G.6	**Wire Insulation**		P
G.6.1	General		P
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		P
G.7.1	General requirements	See table 4.1.2	N/A
	Type..... :		—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N)..... :		P
G.7.3.2.2	Strain relief mechanism failure		P
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.4	Strain relief and cord anchorage material		P
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		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
G.8	**Varistors**		P
G.8.1	General requirements		P
G.8.2	Safeguards against fire		P
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		P
G.9.1	Requirements		P
	IC limiter output current (max. 5A)..... :	See table 4.1.2	—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	**Resistors**		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	**Capacitors and RC units**		P
G.11.1	General requirements		P
G.11.2	Conditioning of capacitors and RC units		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.11.3	Rules for selecting capacitors		P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5 with specifics		P
	Type test voltage $V_{ini,a}$ ..... :		—
	Routine test voltage, $V_{ini,b}$ ..... :		—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
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
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :		N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) ..... :		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
J.1	**General**		N/A
	Winding wire insulation..... :		—
	Solid round winding wire, diameter (mm) ..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2)..... :		N/A
J.2/J.3	Tests and Manufacturing		—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard ..... :		N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance ..... :		N/A
K.7	**Interlock circuit isolation**		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 ..... :		N/A
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		P
L.1	**General requirements**		P
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**	The disconnect device can disconnect both poles simultaneously.	P
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		P
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		P
M.1	**General requirements**		P
M.2	**Safety of batteries and their cells**		P
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :		P
M.3	**Protection circuits for batteries provided within the equipment**		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		P
M.3.3	Compliance	(See appended table M.3)	P
M.4	**Additional safeguards for equipment containing a portable secondary lithium battery**		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
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	**Safeguards against short-circuits**		P
M.6.1	External and internal faults	Certified coin battery.	P
M.6.2	Compliance		P
M.7	**Risk of explosion from lead acid and NiCd batteries**		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate ..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m^3/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

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Clause	Requirement + Test	Result - Remark	Verdict
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.4	Marking ..... :		N/A
M.8	**Protection against internal ignition from external spark sources of batteries with aqueous electrolyte**		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^3/s)..... :		—
M.8.2.3	Correction factors ..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	**Preventing electrolyte spillage**		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		P
	Instructional safeguard ..... :		P
N	**ELECTROCHEMICAL POTENTIALS**		P
	Material(s) used ..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Value of *X* (mm)..... :		—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		P
P.1	**General**		P
P.2	**Safeguards against entry or consequences of entry of a foreign object**		P
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object		P
	Location and Dimensions (mm) ..... :	Top side: top openings in which vertical entry is prevented. Left/right side: Numerous hexagons with maximum dimension 4mm. Bottom side: Part of openings under components and parts meeting the requirements for V-1 class material, others are within 30mm diameter cylinder extending indefinitely below the PIS.	—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
P.3	**Safeguards against spillage of internal liquids**		P
P.3.1	General		P
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		P
P.3.4	Compliance		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		—
	Conditioning, T_C (°C) ..... :		—
	Duration (weeks)..... :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	**Limited power sources**		P
Q.1.1	Requirements		P
	a) Inherently limited output		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 ..... :		P
	Current rating of overcurrent protective device (A) ..... :		N/A
Q.2	**Test for external circuits – paired conductor cable**		N/A
	Maximum output current (A) ..... :		N/A
	Current limiting method ..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**		N/A
R.2	**Test setup**		N/A
	Overcurrent protective device for test..... :		—
R.3	**Test method**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Cord/cable used for test ..... :		—
R.4	**Compliance**		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	**Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		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) ..... :		—
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N ..... :**		P
T.3	**Steady force test, 30 N ..... :**	(See appended table T.3)	N/A
T.4	**Steady force test, 100 N ..... :**		N/A
T.5	**Steady force test, 250 N ..... :**		P
T.6	**Enclosure impact test**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Fall test		P
	Swing test		—
T.7	**Drop test ..... :**		N/A
T.8	**Stress relief test..... :**	(See appended table T.8)	P
T.9	**Glass Impact Test .....:**		N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted.....:		N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) ..... :		N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard **:**		N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A
U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		P
V.1	**Accessible parts of equipment**		P
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		P
V.1.4	Plugs, jacks, connectors tested with blunt probe		P
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		P
V.2	**Accessible part criterion**		P
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		N/A
	Clearance .....:		N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		N/A
Y.1	**General**		N/A
Y.2	**Resistance to UV radiation**		N/A
Y.3	**Resistance to corrosion**		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

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Clause	Requirement + Test	Result - Remark	Verdict
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		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
Y.5	**Protection of equipment within an outdoor enclosure**		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
Y.6	**Mechanical strength of enclosures**		N/A
Y.6.1	General		N/A
Y.6.2	Impact test ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	**TABLE: Classification of electrical energy sources**						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
Tested with Building-in power supply: DPS-300AB-81H							
264Va.c./ 60Hz	Plastic enclosure to earth	Normal	--	0,002	SS	--	ES1
Tested with Building-in power supply: DPS-300AB-101C							
264Va.c./ 60Hz	Plastic enclosure to earth	Normal	--	0,002	SS	--	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.							
Tested with model: DS-7716NXI-I4/4S and iDS-7732NXI-I4/4F							

5.4.1.8	**TABLE: Working voltage measurement**				N/A
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
Supplementary information:					

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

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.10.3	**TABLE: Ball pressure test of thermoplastics**				N/A
Allowed impression diameter (mm) .....:		≤ 2 mm			—
Object/Part No./Material		Manufacturer / trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)
Supplementary information:					

5.4.2, 5.4.3	**TABLE: Minimum Clearances/Creepage distance**								N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq [1)] (Hz)	Required cl (mm)	cl (mm)	E.S. [2)] (V)	Required cr (mm)	cr (mm)	
Supplementary information:									
1) Only for frequency above 30 kHz									
2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)									

5.4.4.2	**TABLE: Minimum distance through insulation**				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:							

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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
Basic/supplementary:				
L/N to Metal enclosure		DC	2500	No
L/N to Plastic enclosure		DC	2500	No
L/N to metal enclosure (HK460-93PP)		DC	2500	No
L/N to metal enclosure (DPS-360AB-10 A)		DC	2500	No
Reinforced:				
L/N to terminal output		DC	4000	No
Primary circuit to secondary circuit		DC	4000	No
L/N to plastic enclosure (HK460-93PP)		DC	4000	No
L/N to secondary (HK460-93PP)		DC	4000	No
L/N to plastic enclosure (DPS-360AB-10 A)		DC	4000	No
L/N to secondary (DPS-360AB-10 A)		DC	4000	No
Supplementary information:				
Building-in power supply: DPS-300AB-101C and DPS-300AB-81H				

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Location	Supply voltage (V)	Operating and fault condition [1)]	Switch position	Measured voltage (Vpk)	ES Class
Supplementary information:					
X-capacitors installed for testing: [ ] bleeding resistor rating: [ ] ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit					

5.6.6	TABLE: Resistance of protective conductors and terminations			P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
Test with Building-in Power Supply DPS-300AB-81H				
Metal enclosure	32	2	0,16	0,005
Metal enclosure	40	2	0,16	0,004

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Test with Building-in Power Supply DPS-300AB-101C				
Metal enclosure	32	2	0,16	0,005
Metal enclosure	40	2	0,20	0,005
Test with Building-in Power Supply HK460-93PP				
PE pin of AC inlet to metal enclosure	32	2	0,224	0,007
PE pin of AC inlet to metal enclosure	40	2	0,28	0,007
Test with Building-in Power Supply DPS-360AB-10 A				
PE pin of AC inlet to metal enclosure	32	2	0,256	0,008
PE pin of AC inlet to metal enclosure	40	2	0,32	0,008
Supplementary information:				

5.7.4	**TABLE: Unearthed accessible parts**					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	**TABLE: Earthed accessible conductive part**			P
Supply voltage (V) ..... :	264Va.c./60Hz			—
Phase(s) ..... :	[X] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System ..... :	[x] TN [x]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Test with Building-in Power Supply DPS-300AB-81H				
L/N and metal enclosure	--	0,562	--	
Test with Building-in Power Supply DPS-300AB-101C				
L/N and metal enclosure	--	1,32	--	
Test with Building-in Power Supply HK460-93PP				
L/N and metal enclosure	--	0,503	--	
Test with Building-in Power Supply DPS-360AB-10 A				
L/N and metal enclosure	--	0,632	--	
Supplementary Information:				

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Clause	Requirement + Test	Result - Remark	Verdict

5.8	TABLE: Backfeed safeguard in battery backed up supplies					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						

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
All internal circuit	Normal	264	-	-	-	PS3 without test
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

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
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
Internal circuits	--	--	Yes
Supplementary information:			
Abbreviation: SC= short circuit; OC= open circuit All internal circuits 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:				

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Clause	Requirement + Test	Result - Remark	Verdict

9.6	TABLE: Temperature measurements for wireless power transmitters								N/A
Supply voltage (V) :									—
Max. transmit power of transmitter (W) :									—
	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		
Foreign objects	Object (ºC)	Ambient (ºC)	Object (ºC)	Ambient (ºC)	Object (ºC)	Ambient (ºC)	Object (ºC)	Ambient (ºC)	
Supplementary information:									

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements				P
Supply voltage (V) :	90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Tested with EUT(Building-in power supply: DPS-300AB-81H)					
RTC	67,7	67,9	--	--	Ref.
PCB near U1	72,4	71,6	--	--	130
HDD body	69,7	68,7	--	--	Ref.
PCB near RS6	69,0	68,1	--	--	130
PCB near URL5	63,3	62,3	--	--	130
Metal enclosure*	30,6	59,5	--	--	70
Plastic internal enclosure	59,0	58,7	--	--	60
Plastic outside enclosure*	30,8	30,0	--	--	77

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:							

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

*: the measured temperature for this part is under ambient temperature of 25°C

Other temperture point list in this table has shifted to 55°C.

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**				P
Supply voltage (V) :	90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Building-in power supply: DPS-300AB-81H					
L pin of inlet	62,9	62,5	--	--	70
Case near inlet	58,9	60,6	--	--	70
T501 coil	66,3	66,2	--	--	110
T501 core	65,9	66,5	--	--	110
T901 coil	77,6	77,9	--	--	110
T901 core	70,7	70,2	--	--	110
T502 coil	66,5	64,3	--	--	110
CX4	75,0	66,0	--	--	100
CY3	64,8	63,0	--	--	125
FL1 coil	77,3	65,9	--	--	130
FL2 coil	73,6	65,0	--	--	130
L801 coil	73,7	67,1	--	--	130
PCB near BD1	83,8	68,9	--	--	130
PCB near Q501	70,8	66,7	--	--	130
IC501	66,0	66,1	--	--	100
IC601	67,8	67,5	--	--	100
L151 coil	55,8	57,6	--	--	105
C802	69,1	65,5	--	--	85
HS2	77,4	77,7	--	--	85

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:

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

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

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Other temperture point list in this table has shifted to 55°C.

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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) :	90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Tested with EUT(Building-in power supply: DPS-300AB-101C)					
RTC	72,1	67,8	--	--	Ref.
PCB near U1	77,8	74,2	--	--	130
HDD body	72,2	69,8	--	--	Ref.
PCB near RS6	68,4	70,6	--	--	130
PCB near URL5	65,4	65,9	--	--	130
Metal enclosure*	33,2	31,9	--	--	70
Plastic internal enclosure	59,2	59,0	--	--	60
Plastic outside enclosure*	30,3	31,7	--	--	77

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

Supplementary information:

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

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

*: the measured temperature for this part is under ambient temperature of 25°C

Other temperture point list in this table has shifted to 55°C.

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**				P
Supply voltage (V) :	90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Building-in power supply: DPS-300AB-101C					
L pin of inlet	69,0	65,9	--	--	70
T501 coil	74,1	71,4	--	--	110
T501 core	72,0	71,5	--	--	110

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Clause	Requirement + Test	Result - Remark	Verdict

T901 core	82,0	73,9	--	--	110	
T901 coil	88,0	85,6	--	--	110	
T502 coil	77,0	70,0	--	--	130	
CX4 near FL1	88,8	70,3	--	--	100	
CY3 near HS3	70,4	65,2	--	--	125	
FL1 coil	88,4	70,6	--	--	130	
L801 coil	78,8	70,4	--	--	130	
PCB near BD1	101,2	74,0	--	--	130	
IC601	78,8	77,4	--	--	100	
C802(near HS1)	86,1	72,8	--	--	105	
Case	63,9	61,2	--	--	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:

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

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

*: the measured temperature for this part is under ambient temperature of 25°C

Other temperture point list in this table has shifted to 55°C.

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**	P

Supply voltage (V) :	90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Tested with EUT DS-7732NI-M4/16P (Building-in power supply: DPS-300AB-101C)					
RTC	64,1	61,1	--	--	Ref.
PCB near U1	76,7	73,2	--	--	130
Plastic internal enclosure	58,9	57,8	--	--	60
Plastic outside enclosure*	27,5	27,1	--	--	77
Metal enclosure*	35,3	32,2	--	--	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
--	--	--	--	--	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
Note 1: Tma should be considered as directed by appliable requirement
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)
*: the measured temperature for this part is under ambient temperature of 25°C
Other temperture point list in this table has shifted to 55°C.

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**					P
Supply voltage (V) :		90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :		25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:		*T* (°C)				Allowed T_{max} (°C)
Tested with EUT iDS-7732NXI-M4/16P/X (Building-in power supply: DPS-300AB-101C)						
PCB(80494 V1.1) near U1		79,8	77,8	--	--	130
RTC battery		71,9	69,8	--	--	Ref.
PCB(8294 V1.1) near U46		83,4	81,0	--	--	130
PCB(8281 V1.1) near U1		73,7	71,6	--	--	130
PCB(81064 V2.0) near JP1		59,4	57,3	--	--	130
PCB(81202 V2.0) near U1		79,5	77,6	--	--	130
plastic enclosure inside		58,9	57,8	--	--	60
Plastic outside enclosure*		34,3	32,7	--	--	77
Metal enclosure*		39,6	36,5	--	--	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:
Note 1: Tma should be considered as directed by appliable requirement
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)
*: the measured temperature for this part is under ambient temperature of 25°C
Other temperture point list in this table has shifted to 55°C.

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**					P
Supply voltage (V) :		90Va.c. 50Hz	264Va.c. 60Hz	--	--	—

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Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Tested with EUT DS-7716NXI-K4/16P (Building-in power supply: HK460-93PP)					
T1 coil	86,9	86,0	--	--	130
T1 core	90,7	88,5	--	--	130
T2 coil	124,6	121,9	--	--	130
T2 core	102.8	99,3	--	--	130
L wire	76,9	74,0	--	--	80
earthing wire	76,3	71,4	--	--	80
MOV1	67,9	67,0	--	--	85
CX3	77,1	75,9	--	--	85
output wire	75,4	72,9			80
fan wire	71,3	69,5			80
AC inlet	67,4	62,4	--	--	70
PCB near U1(DS-80476_P)	88,2	87,2	--	--	130
RTC	71,7	70,8	--	--	100
PCB near U1(DS-81144_P)	63,4	63,0	--	--	130
plastic enclsoure*	27,0	26,9	--	--	77
plastic enclsoure Internal	31,0	31,2	--	--	Ref
metal enclosure*	28,8	27,8	--	--	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:

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

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

*: the measured temperature for this part is under ambient temperature of 25°C

Other temperture point list in this table has shifted to 55°C.

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**				P
Supply voltage (V) :	90Va.c. 50Hz	264Va.c. 60Hz	--	--	—
Ambient temperature during test T_{amb} (°C) :	25,0	25,0	--	--	—

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Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Tested with EUT DS-7716NXI-K4/16P (Building-in power supply: DPS-360AB-10 A)					
plastic enclosure inside near PCB 81184	29,5	29,5	--	--	77
metal enclosure near HHD*	32,4	32,7	--	--	70
CN1	69,3	64,5	--	--	105
CX1	73,2	66,0	--	--	100
FL1	83,1	66,2	--	--	130
PCB near BD1	82,3	70,8	--	--	130
T501 core	67,0	65,7	--	--	110
T501 coil	73,3	71,7	--	--	110
T201 core	94,7	93,3			110
T201 coil	93,7	93,7			110
C801	72,2	69,2	--	--	105
CY5	64,4	63,9	--	--	125
PCB near U1(DS-80476_P)	87,9	86,7	--	--	130
RTC	71,5	70,6	--	--	100
PCB near U1(DS-81144_P)	66,1	64,3	--	--	130
plastic enclosure outside near light*	26,0	25,5	--	--	77

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

Supplementary information:

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

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

*: the measured temperature for this part is under ambient temperature of 25°C

Other temperture point list in this table has shifted to 55°C.

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
Tested with Building-in power supply: DPS-300AB-81H								
90Va.c.	50	3,27	--	287,60	--	F1	3,27	Each USB2.0 port loaded with 0,5A, USB3.0 port loaded with 0,9A.
90Va.c.	60	3,27	--	288,29	--	F1	3,27	
100Va.c.	50	2,91	4,4	283,54	--	F1	2,91	

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Clause	Requirement + Test					Result - Remark		Verdict
100Va.c.	60	2,88	4,4	284,59	--	F1	2,88	
240Va.c.	50	1,22	4,4	271,71	--	F1	1,22	
240Va.c.	60	1,22	4,4	271,92	--	F1	1,22	
264Va.c.	50	1,12	--	272,50	--	F1	1,12	
264Va.c.	60	1,12	--	271,36	--	F1	1,12	
Tested with Building-in power supply: DPS-300AB-101C								
90Va.c.	50	3,36	--	295,40	--	F1	3,36	Each USB2.0 port loaded with 0,5A, USB3.0 port loaded with 0,9A.
90Va.c.	60	3,30	--	292,07	--	F1	3,30	
100Va.c.	50	2,96	1	288,69	--	F1	2,96	
100Va.c.	60	2,95	1	289,40	--	F1	2,95	
240Va.c.	50	1,23	1	273,04	--	F1	1,23	
240Va.c.	60	1,23	1	272,91	--	F1	1,23	
264Va.c.	50	1,13	--	272,87	--	F1	1,13	
264Va.c.	60	1,14	--	273,96	--	F1	1,14	
Supplementary information:								

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Tested with Building-in power supply: DPS-300AB-101C (DS-7732NI-M4/16P)								
90 V a. c.	50	3,25	--	289,61	--	F1	3,25	Normal operation condition.
90 V a. c.	60	3,27	--	292,06	--	F1	3,27	Normal operation condition.
100 V a. c.	50	2,90	4,4	286,41	--	F1	2,90	Normal operation condition.
100 V a. c.	60	2,92	4,4	288,69	--	F1	2,92	Normal operation condition.
240 V a. c.	50	1,20	4,4	268,88	--	F1	1,20	Normal operation condition.
240 V a. c.	60	1,21	4,4	271,18	--	F1	1,21	Normal operation condition.

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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
264 V a. c.	50	1,10	--	269,00	--	F1	1,10	Normal operation condition.
264 V a. c.	60	1,10	--	268,96	--	F1	1,10	Normal operation condition.
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured.								

B.2.5	TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Tested with Building-in power supply: DPS-300AB-101C(iDS-7732NXI-M4/16P/X)								
90 V a. c.	50	3,25	--	287,24	--	F1	3,25	Normal operation condition. PoE load 200W
90 V a. c.	60	3,23	--	287,67	--	F1	3,23	Normal operation condition. PoE load 200W
100 V a. c.	50	2,90	4,4	284,01	--	F1	2,90	Normal operation condition. PoE load 200W
100 V a. c.	60	2,92	4,4	284,70	--	F1	2,92	Normal operation condition. PoE load 200W
240 V a. c.	50	1,20	4,4	268,52	--	F1	1,20	Normal operation condition. PoE load 200W
240 V a. c.	60	1,21	4,4	269,12	--	F1	1,21	Normal operation condition. PoE load 200W

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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
264 V a. c.	50	1,10	--	268,95	--	F1	1,10	Normal operation condition. PoE load 200W
264 V a. c.	60	1,10	--	268,82	--	F1	1,10	Normal operation condition. PoE load 200W
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured.								

B.2.5	TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Tested with Building-in power supply: DPS-300AB-101C (DS-7732NI-K4/16P)								
90 V a. c.	50	3,24	--	285,53	--	F1	3,24	Normal operation condition. USB 3.0: 0,9A UAB 2.0: 0,5A*2
90 V a. c.	60	3,24	--	283,76	--	F1	3,24	
100 V a. c.	50	2,83	4,4	276,26	--	F1	2,83	
100 V a. c.	60	2,83	4,4	278,84	--	F1	2,83	
240 V a. c.	50	1,18	4,4	268,64	--	F1	1,18	
240 V a. c.	60	1,18	4,4	267,19	--	F1	1,18	
264 V a. c.	50	1,09	--	267,31	--	F1	1,09	
264 V a. c.	60	1,08	--	267,46	--	F1	1,08	
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured.								

B.2.5	TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Tested with Building-in power supply: DPS-360AB-10 A								
90 V a. c.	50	2,89	--	260,01	--	--	--	Normal operation condition.
100 V a. c.	50	2,61	4,4	259,48	--	--	--	Normal operation condition.

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

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
240 V a. c.	50	1,04	4,4	248,92	--	--	--	Normal operation condition.
264 V a. c.	50	0,95	--	250,35	--	--	--	Normal operation condition.
90 V a. c.	60	2,89	--	259,64	--	--	--	Normal operation condition.
100 V a. c.	60	2,58	4,4	257,02	--	--	--	Normal operation condition.
240 V a. c.	60	1,04	4,4	248,34	--	--	--	Normal operation condition.
264 V a. c.	60	0,95	--	240,01	--	--	--	Normal operation condition.
Tested with Building-in power supply: HK460-93PP								
90 V a. c.	50	2,89	--	260,03	--	--	--	Normal operation condition.
100 V a. c.	50	2,62	4,4	260,60	--	--	--	Normal operation condition.
240 V a. c.	50	1,05	4,4	251,36	--	--	--	Normal operation condition.
264 V a. c.	50	0,96	--	250,50	--	--	--	Normal operation condition.
90 V a. c.	60	2,91	--	260,27	--	--	--	Normal operation condition.
100 V a. c.	60	2,60	4,4	258,16	--	--	--	Normal operation condition.
240 V a. c.	60	1,04	4,4	249,39	--	--	--	Normal operation condition.

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

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
264 V a. c.	60	0,95	--	249,15	--	--	--	Normal operation condition.
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)..... :			25°C if not specified			—
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
Tested with Building-in power supply: DPS-300AB-81H						
Opening	Block	264Va.c.	3h	F1	1,13	The EUT normal operation. Max. temp. measured: Max temperature: RTC battery: 50,5°C; PCB near U1: 58,8°C; Metal enclosure: 47,3°C; Plastic enclosure: 71,3°C; Ambient: 24,3°C No damage, no hazards.
Fan	Block	264Va.c.	3h	F1	1,13	The EUT normal operation. Max. temp. measured: Max temperature: RTC battery: 37,8°C; PCB near U1: 40°C; Metal enclosure: 38°C; Plastic enclosure: 39,3°C; Ambient: 24,0°C No damage, no hazards.
USB 2.0	Overload	264Va.c.	3h	F1	1,13->1,17->0	USB output load 0,5A->1,6A->2,0A. normal work until temperature steady,then load 2,0A, USB output shutdown. RTC battery: 37,1°C; PCB near U1: 41,8°C; Metal enclosure: 29,6°C; Plastic enclosure: 33,8°C; Ambient: 24,8°C No damage, no hazards.
USB 2.0	Sc	264Va.c.	10min	F1	1,12	USB output shutdown,no damage,no hazard. No damage, no hazards.

IEC 62368-1							
Clause	Requirement + Test					Result - Remark	Verdict
USB 3.0	Overload	264Va.c.	3h	F1	1,13->1,17->0	USB output load 1,7A->2,0A. normal work until temperature steady,then load 2,0A, USB output shutdown Max temperature: RTC battery: 37,0°C; PCB near U1: 41,8°C; Metal enclosure: 29,6°C; Plastic enclosure: 33,8°C; Ambient: 24,8°C. No damage, no hazards.	
USB 3.0	Sc	264Va.c.	10min	F1	1,12	USB output shutdown,no damage,no hazard.	
UL4 pin1-3	SC	264Va.c.	10min	F1	1,13	The EUT normal work. No damage, no hazards.	
UL5 pin1-3	SC	264Va.c.	10min	F1	1,13	The EUT normal work. No damage, no hazards.	
CV197	SC	264Va.c.	10min	F1	0,13	The EUT shutdown immediately. No damage, no hazards.	
Tested with Building-in power supply: DPS-300AB-101C							
Opening	Block	264Va.c.	3h	F1	1,12	The EUT normal operation. Max. temp. measured: Max temperature: RTC battery: 51,1°C; PCB near U1: 56,4°C; Metal enclosure: 45,2°C; Plastic enclosure: 54,9°C; Ambient: 24,2°C No damage, no hazards.	
Fan	Block	264Va.c.	3h	F1	1,13	The EUT normal operation. Max. temp. measured: Max temperature: RTC battery: 32,3°C; PCB near U1:32,9°C; Metal enclosure: 31,6°C; Plastic enclosure: 32,5°C; Ambient: 23,3°C No damage, no hazards.	
USB 2.0	Overload	264Va.c.	3h	F1	1,12->1,16->0	USB output load 0,5A->1,6A->2,0A. normal work until temperature steady,then load 2,0A, USB output shutdown. Max temperature: RTC battery: 37,1°C; PCB near U1: 41,8°C; Metal enclosure: 29,6°C; Plastic enclosure: 33,8°C; Ambient: 24,8°C. No damage, no hazards.	
USB 2.0	Sc	264Va.c.	10min	F1	1,11	USB output shutdown,no damage,no hazard. No damage, no hazards.	

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
USB 3.0	Overload	264Va.c.	3h	F1	1,12->1,17->0	USB output load 1,7A->2,0A. normal work until temperature steady,then load 2,0A, USB output shutdown Max temperature: RTC battery: 40°C; PCB near U1: 45,3°C; Metal enclosure: 33°C; Plastic enclosure: 39,9°C; Ambient: 24,8°C. No damage, no hazards.
USB 3.0	Sc	264Va.c.	10min	F1	1,11	USB output shutdown,no damage,no hazard.
UL4 pin1-3	SC	264Va.c.	10min	F1	1,12	The EUT normal work. No damage, no hazards.
UL5 pin1-3	SC	264Va.c.	10min	F1	1,12	The EUT normal work. No damage, no hazards.
CV157	SC	264Va.c.	10min	F1	1,09	The EUT shutdown immediately. No damage, no hazards.
CN47	SC	264Va.c.	10min	F1	0,12	The EUT shutdown immediately. No damage, no hazards.
Tested with Building-in power supply: HK460-93PP (DS-7716NXI-K4/16P)						
opening	blocked	264	3h	--	0,95	Max temperature: T2 Coil: 92,5°C; Plastic enclosure: 38,0°C; EUT normal work, no damage, no hazard.
Fan（all）	locked	264	3h	--	0,95	Max temperature: T2 Coil: 92,4°C; Metal enclosure: 33,2°C EUT normal work, no damage, no hazard.
USB2.0	OL	264	3h	--	0,95-0,96A-0,96A-0,94A	Max temperature: T2 Coil: 92,9°C; Plastic enclosure: 25,8°C USB load 0,5A-1,0A-1,2A-0AEUT normal work, no damage, no hazard.
USB3.0	OL	264	3h	--	0,95-0,96A-0,97A-0,93A	Max temperature: T2 Coil: 93,7°C; Plastic enclosure: 26,2°C USB load 1,0A-1,5A-2,3A-0AEUT normal work, no damage, no hazard,
USB2.0	SC	264	10min	--	0,94A	USB shutdown immediately,no damage,no hazard.
USB3.0	SC	264	10min	--	0,93A	USB shutdown immediately,no damage,no hazard.
Tested with Building-in power supply: DPS-360AB-10 A (DS-7716NXI-K4/16P)						
opening	blocked	264	3h	--	0,95	Max temperature: T201 Coil: 96,7°C; Plastic enclosure: 28,5°C EUT normal work, no damage, no hazard.
Fan（all）	locked	264	3h	--	0,95	Max temperature: T201 Coil: 96,0°C; Plastic enclosure: 28,8°C EUT normal work, no damage, no hazard.

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Clause	Requirement + Test					Result - Remark	Verdict
USB2.0	OL	264	3h	--	0,95-0,96A-0,96A-0,94A	Max temperature: T201 Coil: 93,9°C; Plastic enclosure: 26,6°C USB load 0,5A-1,0A-1,2A-0AEUT normal work, no damage, no hazard.	
USB3.0	OL	264	3h	--	0,95-0,96A-0,97A-0,93A	Max temperature: T201 Coil: 93,7°C; Plastic enclosure: 26,2°C USB load 1.0A-1.5A-2.3A-0AEUT normal work, no damage, no hazard,	
USB2.0	SC	264	10min	--	0.94A	USB shutdown immediately,no damage,no hazard.	
USB3.0	SC	264	10min	--	0.93A	USB shutdown immediately,no damage,no hazard.	
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit; OL=Overload.							

M.3	**TABLE: Protection circuits for batteries provided within the equipment**						P
Is it possible to install the battery in a reverse polarity position? :					No		—
Equipment Specification	Charging						
	Voltage (V)				Current (A)		
	3Vd.c.				2,5mA		
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)			
GUANGDONG TIANQIU ELECTRONICS TECHNOLOGY CO LTD	0,005mA	Prevented	--	--	--	--	
GUANGDONG TIANQIU ELECTRONICS TECHNOLOGY CO LTD	1,9mA	C154 SC	--	--	--	--	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C):					--		--

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

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

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) :			N/A
Lowest specified charging temperature (°C) :			N/A

Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	

Supplementary information:

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

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						P
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
USB 2.0	Normal	5,07	60	1,99	8	8,24	100
USB 2.0	UL4 pin 1-3 SC	5,06	60	6,54	8	19,22	100
USB 3.0	Normal	5,07	60	1,99	8	8,99	100
USB 3.0	UL5 pin 1-3 SC	5,07	60	7,04	8	21,23	100
HDMI	Normal	0	60	0	8	0	100
VGA	Normal	0	60	0	8	0	100
POE port	Normal	51,49	60	0,6	8	29,26	100
POE port	QL3M1 pin 1-4 SC	51,49	60	1,66	8	76,93	100

Supplementary Information:

Sc: Short circuit.

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						P
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
DS-7732NI-M4/16P							
USB 2.0	Normal	5,02	60	2,00	8	8,31	100

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
USB 3.0	Normal	5,03	60	2,00	8	8,99	100
HDMI	Normal	5,02	60	0	8	0	100
VGA	Normal	0	60	0	8	0	100
DC12V	Normal	11,94	60	2,90	8	32,12	100
Ctrl 12V	Normal	11,94	60	1,00	8	11,52	100
POE port	Normal	51,44	60	0,6	8	28,54	100
POE port	QL1M1 pin 1-4 SC	51,44	60	1,66	8	75,56	100
Supplementary Information:							
Sc: Short circuit.							

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						P
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
iDS-7732NXI-M4/16P/X							
LAN	Normal	0	60	0	8	0	100
USB 2.0	Normal	5,00	60	1,40	8	6,19	100
USB 3.0	Normal	5,01	60	2,30	8	9,79	100
POE port	Normal	51,29	60	0,6	8	28,52	100
POE port	QL1M1 pin 1-4 SC	51,29	60	1,66	8	74,55	100
Supplementary Information:							
Sc: Short circuit.							

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						P
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
DS-7716NXI-K4/16P							
USB 2.0	Normal	5.06	60	1.99	8	8.23	100
USB 2.0	UL4 pin1-3 SC	5.05	60	6.54	8	19.18	100
USB 3.0	Normal	5.06	60	1.99	8	8.62	100
USB 3.0	UL5 pin1-3 SC	5.05	60	7.01	8	21.23	100
HDMI	Normal	0	60	0	8	0	100
VGA	Normal	0	60	0	8	0	100
PoE port	Normal	51.26	60	0.61	8	29.23	100
PoE port	QL3M1 pin1-4 SC	51,44	60	1.66	8	75.58	100
Supplementary Information:							

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

Sc: Short circuit.

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Enclosure	Metal	0,8mm	250	5	Intact	Intact
Enclosure	Plastic-FRABS-518	1,7mm	250	5	Intact	Intact
Components	--	--	--	10	5	Intact
Supplementary information:						

T.6, T.9	TABLE: Impact test			P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Enclosure	Metal	0,8mm	410	Intact
Enclosure	Plastic-FRABS-518	1,7mm	410	Intact
Supplementary information:				

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

T.8	TABLE: Stress relief test				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	Plastic-FRABS-518	1,7mm	70	7	Intact
Supplementary information:					

X	TABLE: Alternative method for determining minimum clearances distances	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Building-in power supply	Delta Electronics Inc	DPS-300AB-81H	I/P: 100-240Vac, 50/60Hz, 5,5A O/P: +12Vd.c./Max. 12,5A; -53Vd.c./ Max. 2,83A; Total Power 300W MAX	IEC 62368-1:2014	TÜV Rheinland CB Cert No.: JPTUV-099630 Ref No.: 50280684 001
Alternative	Delta Electronics Inc	DPS-300AB-101C	I/P: 100-240Vac, 50/60Hz, 5,5A O/P: +12Vd.c./Max. 12,5A; -53Vd.c./ Max. 2,83A; Total Power 300W MAX; O/P: +12Vd.c./Max. 12,5A; -53Vd.c./ Max. 3,96A; Total Power 360W MAX	IEC 62368-1:2014	TÜV Rheinland CB Cert No.: JPTUV-104106 Ref No.: 50322985 001
Alternative	Delta Electronics Inc	DPS-360AB-10 A	I/P: 100-240Vac, 50-60Hz, 5,5A-3A O/P: +12Vd.c./12,5A; +52Vd.c./4,04A; Total Power 360W	IEC 62368-1: 2018	TUV Rh CB Cert: JPTUV-146890; Report: CN23A30H 001
Alternative	Shenzhen Huntkey Electric Co.,Ltd.	HK460-93PP	I/P: 100-240Vac, 50-60Hz, 6,0A Max O/P: +12Vd.c./12,5A; -52Vd.c./4,04A; Total Power 360W	IEC 62368-1: 2018	UL CB Cert: DK-143408-UL; Report: JCS2306090 01-001
Metal enclosure (Fire enclosure)	Interchangeable	Interchangeable	Min. thickness: 0,8mm	IEC/EN 62368-1:2014	Test with appliance
Plastic enclosure	KINGFA SCI & TECH CO LTD	FRABS-518	V-0, Min. thickness: 1,7mm, 60°C	UL94	UL E171666
PCB	HUIZHOU CHINA EAGLE ELECTRONIC TECHNOLOGY CO LTD	CA-F121	V-0, 130°C	UL 796 UL 94	UL E198681

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Clause	Requirement + Test	Result - Remark	Verdict

Alternative	GUANGZHOU FAST-PRINT CIRCUIT TECHNOLOGY CO LTD	M11	V-0, 130°C	UL 796 UL 94	UL E204460
Alternative	SHENZHEN MANKUN ELECTRONICS CO LTD	MK-D	V-0, 130°C	UL796 UL94	UL E248237
Alternative	WENZHOU OULONG ELECTRIC CO LTD	OL-D	V-0, 130°C	UL796 UL94	UL E231017
Alternative	WENZHOU GALAXY ELECTRONICS CO LTD	01V0	V-0, 130°C	UL796 UL94	UL E157634
Alternative	Interchangeable	Interchangeable	V-1 or better, 130°C	UL796 UL94	UL
Lithium Battery	GUANGZHOU TIANQIU ENTERPRISE CO LTD	CR1220	3V d. c., 38mAh, Max abnormal charging current 2,5mA, Max abnormal charging voltage 3,5V	UL1642	UL MH48705
Alternative	POWER GLORY BATTERY TECH(SHENZHEN)CO.,LTD	CR1220	3V d. c., 38mAh, Max abnormal charging current 10mA, Max abnormal charging voltage 5Vd.c.	UL1642	UL MH29853
DC Fan	Dongguan Protechnic ElectricCo., Ltd.	MGA6012SR-O15	12VDC, 75mA, Max; 0,72W; 19,10CFM, Min. 17,19CFM, 3600±10% RPM	EN 62368-1:2014	TÜV SUDCert. No.:B 031023 0139
Alternative	Sunonwealth Electric Machine Industry Co Ltd	ME60151V3-000C-A99	12Vdc, 75mA, 0,9W, 18,1CFM, 3900±15% RPM	EN 62368-1:2014	TUV Rheinland Cert. No.: R 50152959
Alternative	Shenzhen Dongweifeng Electronic Technology CO., LTD.	EFC-06C12H	12VDC, 0,25A; 2,16W;18,59CFM, Min.16,71CFM; 3900±10% RPM	EN IEC 62368-1: 2020+A11	TUV Rheinland Cert. No.: R 50467958
AC inlet	Scolmore International Ltd.	SW903	10A 250VAC	EN 60320-1:2001;A1	Nemko ENEC NO3683

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Clause	Requirement + Test	Result - Remark	Verdict

Power Plug	Phino Electric Co.,Ltd	PHP-206	AC250V ,16A	DIN VDE 0620-2-1(VDE 0620-2-1):2013-03	VDE 40013375
Alternative	Phino Electric Co.,Ltd	SW102	AC250V ,16A	VDE 0620-1:2010	VDE 40004330
Alternative	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
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
Power cord	Phino Electric Co.,Ltd	H05VV-F	3*0,75mm^2	DIN EN 50525-2-11(VDE 0285-525-2-1):2012-01 EN 50525-2-11	VDE 113841
Alternative	Hangzhou Hongshi Electrical Ltd	H05VV-F	3*0,75mm^2	EN 50525-2-11 VDE 0285-525	VDE 40010839
Alternative	LINOYA ELECTRONIC TECHNOLOGY CO LTD	H05VV-F	3*0,75mm^2	DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011	VDE 40035072
PVC-LSOLIERUNG	PHINO ELECTRIC CO.,LTD	PVC INSULATION	H05VV-F 3X0.75MM²	DIN EN 50525-2-11(VDE 0285-525-2-11):2012-01;EN 50525-2-11:2011	VDE 113841

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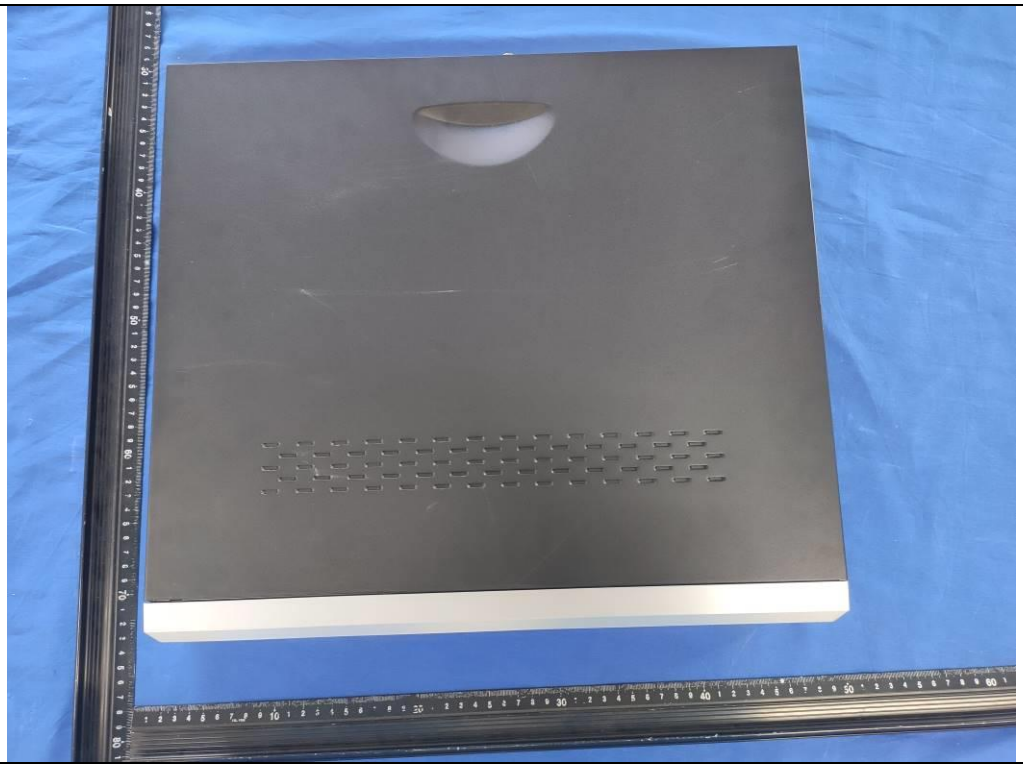
Clause	Requirement + Test	Result - Remark	Verdict

IC for USB port	DIODES INC	AP2822	Input Voltage: 2,7 to 5,5 Vd.c.; Output Continuous Rating: 0,5 to 2,0 A; Output Current Limit: 1,4 to 3,2 A	IEC 62368-1:2014	UL Ref. Certif. No.: US-34501-UL; Report No.: E339337-A6001-CB-1
-Alternative	SG Micro Corp	SGM2580CYN5G/TR	2,5Vdc to 5,5Vdc	IEC 60950-1:2005/AMD1:2009, IEC 60950-1:2005/AMD2:2013, IEC 60950-1:2005	UL DK-82510-UL
-Alternative	DIODES INC	AP22816AKBWT-7	Input Voltage: 2,7 to 5,5 Vd.c.: Output Continuous Rating: 1,0 A; Output Current Limit: 2,1A	IEC 62368-1:2018	UL CB Cert No.: US-38695-UL; UL Cert No.: E322375
-Alternative	RichTek Technology Corp	RT9742MGJ5	Input Voltage: 2,7 to 6 Vd.c.: Output current: 3A/2,5A/2A/1,5A/ 1A/0,5A	IEC 62368-1:2014	CB Cert No.: NO 109777; UL Cert No.: E219878
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

- - - End of Report - - -

Details of: General view (Model: DS-7732NI-M4/16P)



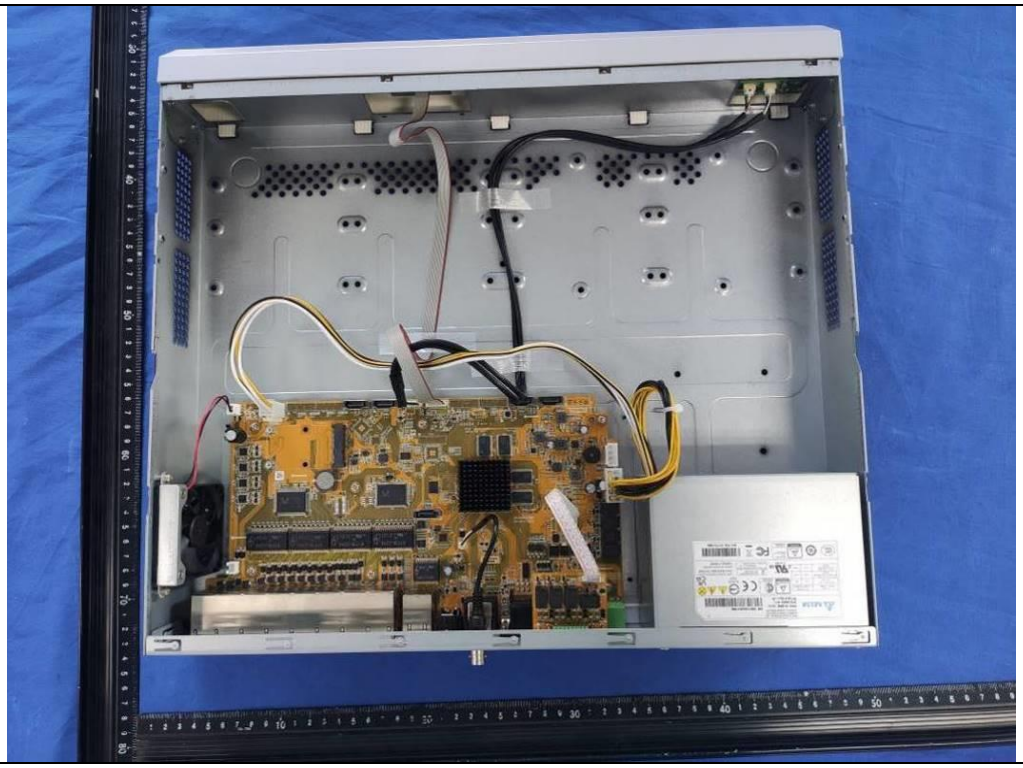
Details of: General view (Model: DS-7732NI-M4/16P)

Details of: Terminal view (Model: DS-7732NI-M4/16P)

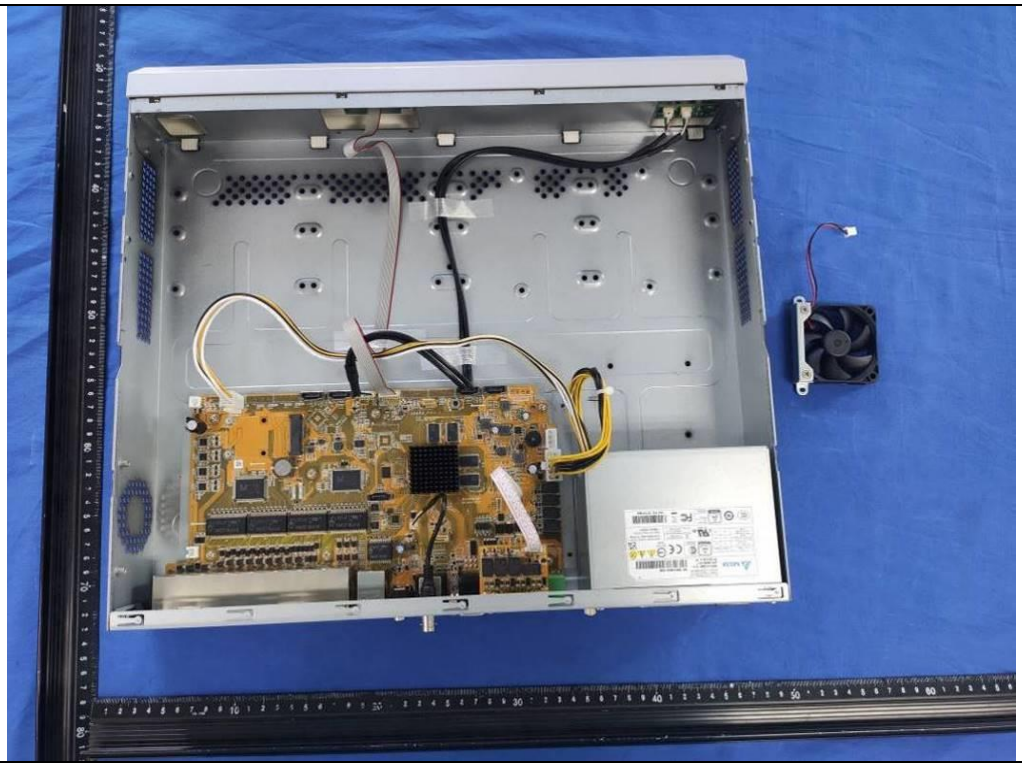
Details of: Terminal view (Model: DS-7732NI-M4/16P)

Details of: Internal view (Model: DS-7732NI-M4/16P)

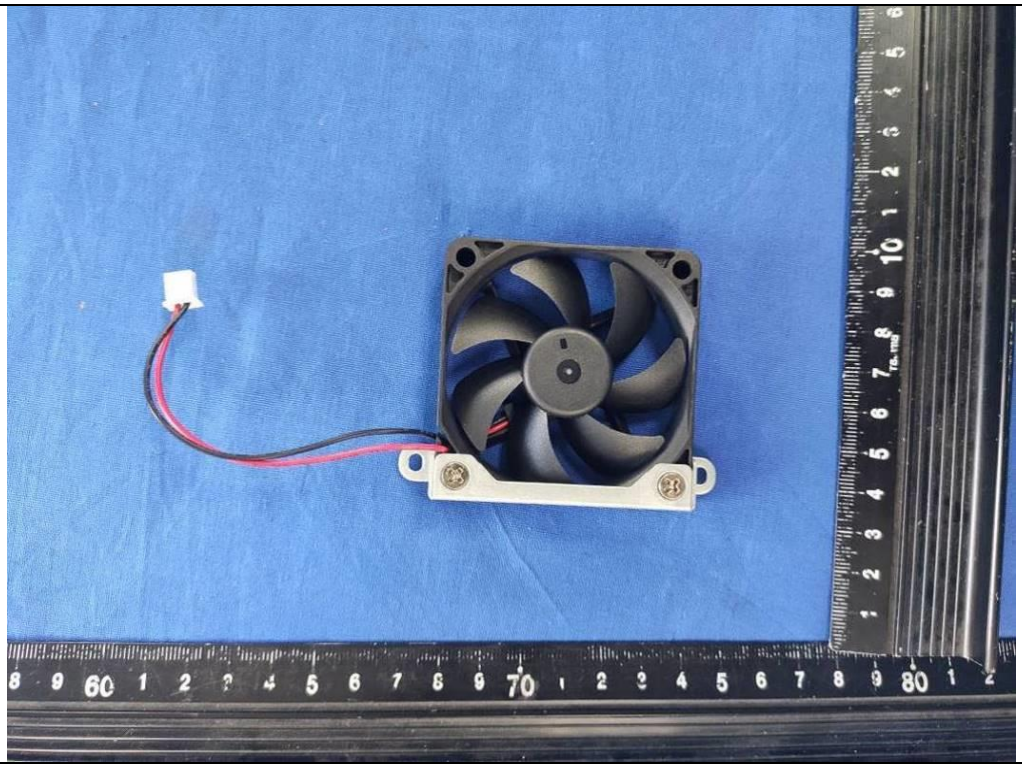
Details of: Internal view (Model: DS-7732NI-M4/16P)



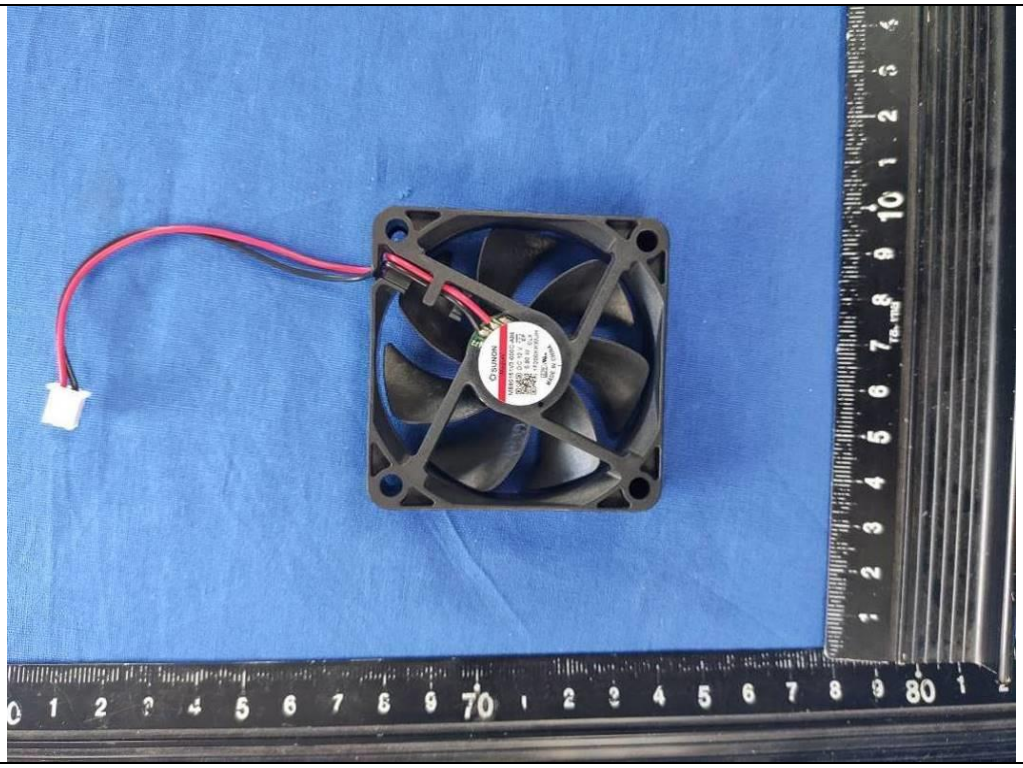
Details of: Internal view (Model: DS-7732NI-M4/16P)



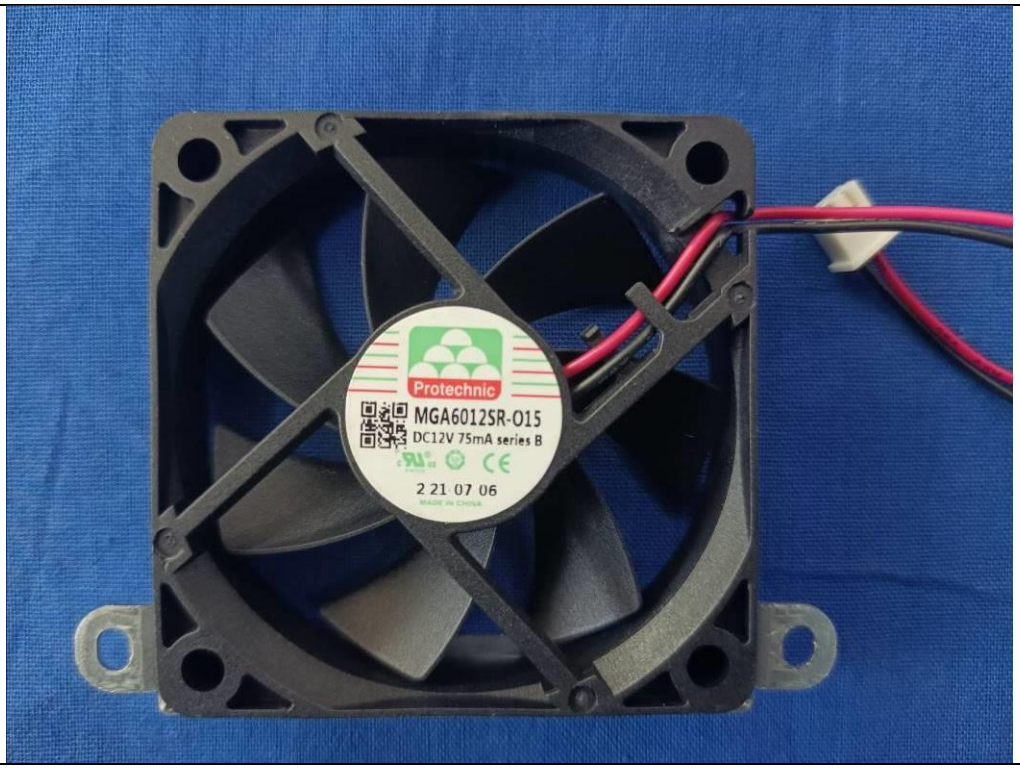
Details of: DC Fan (Model: ME60151V3-000C-A99)



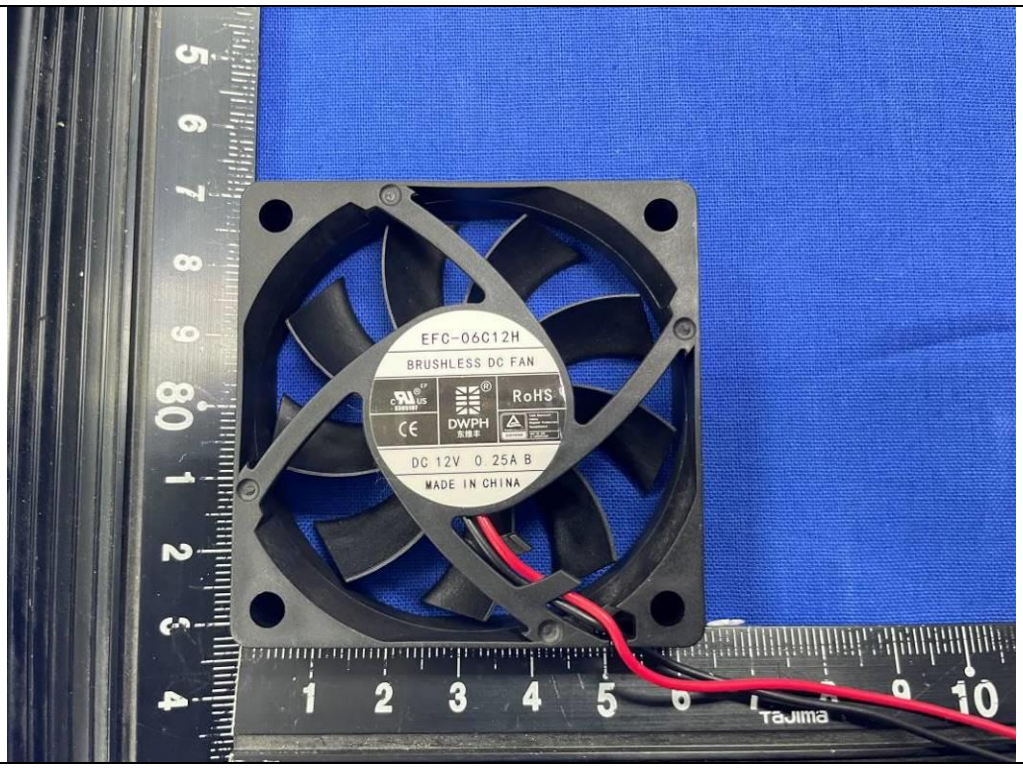
Details of: DC Fan (Model: ME60151V3-000C-A99)



Details of: Alternative DC Fan (Model: MGA6012SR-O15)



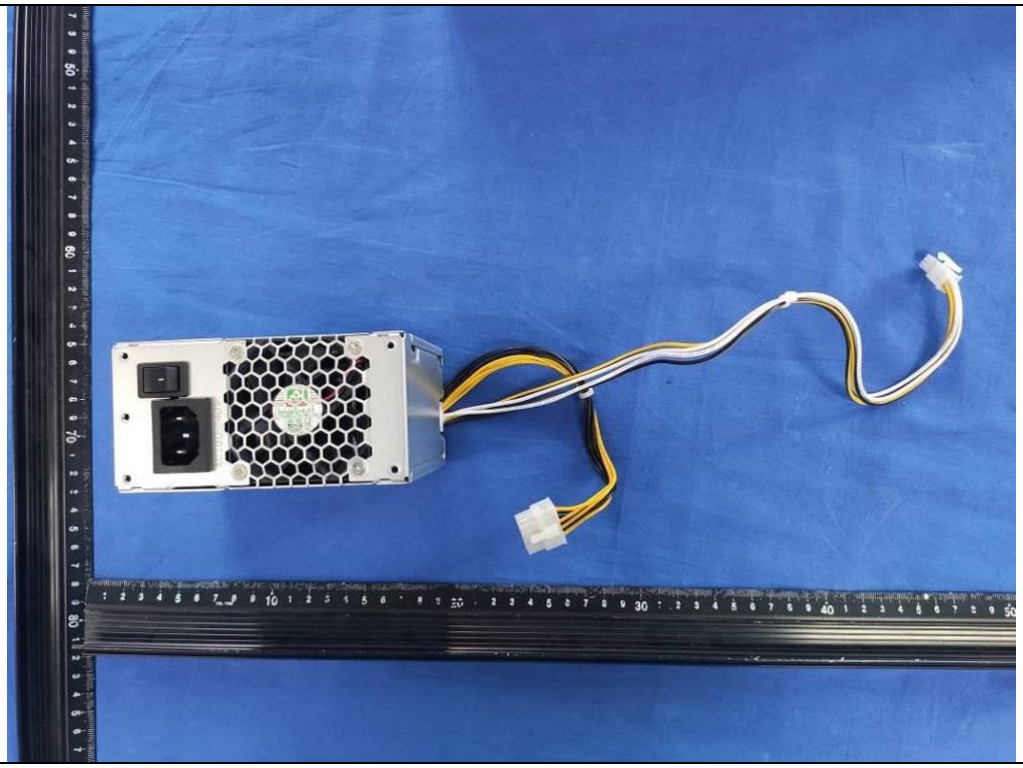
Details of: Alternative DC Fan (Model: EFC-06C12H)



Details of: Internal view (Model: DS-7732NI-M4/16P)

Details of: Building-in power supply (Model: DPS-300AB-101C)

Details of: Building-in power supply (Model: DPS-300AB-101C)

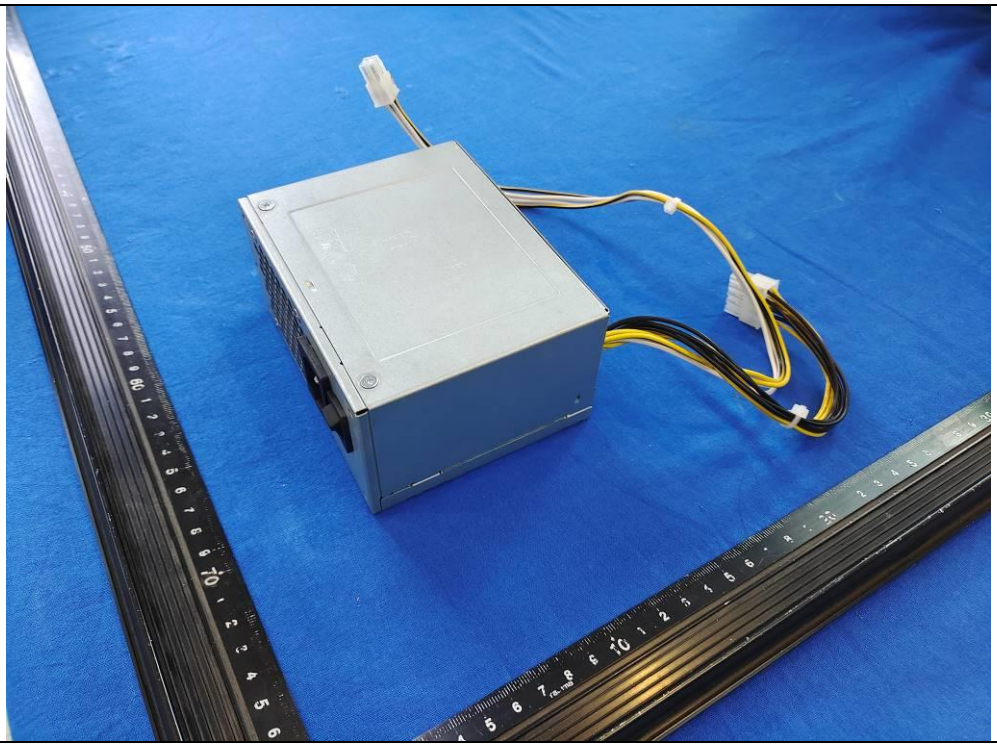


Details of: Building-in power supply (Model: DPS-300AB-101C)

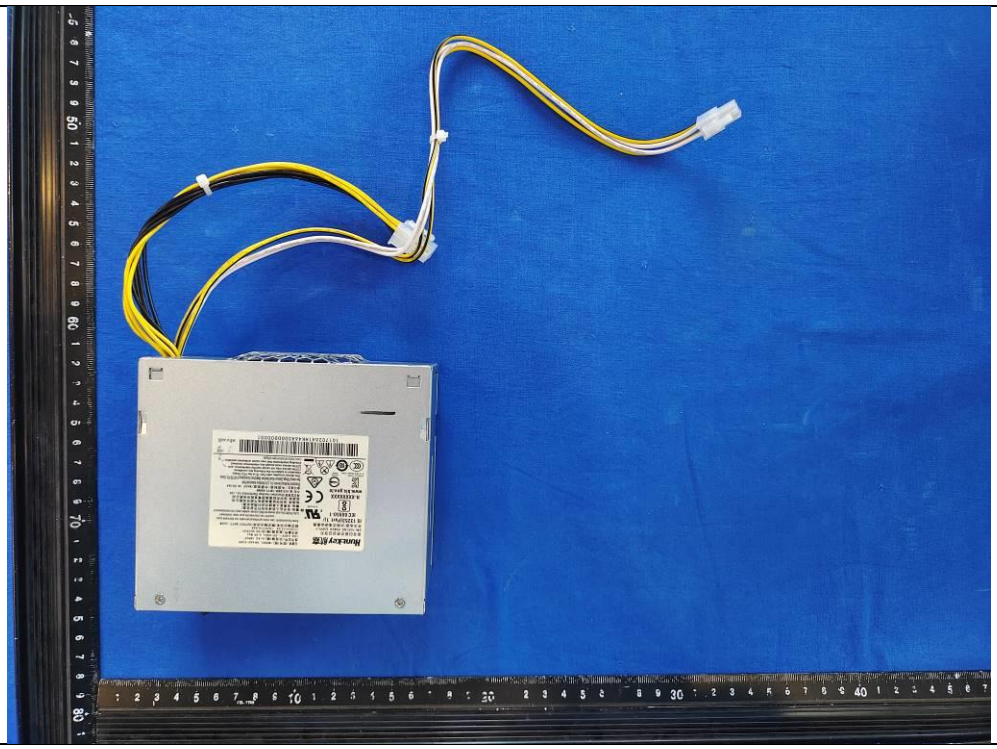
Details of: Alternative Building-in power supply (Model: DPS-300AB-81H)

Details of: Building-in power supply (Model: DPS-360AB-10 A)

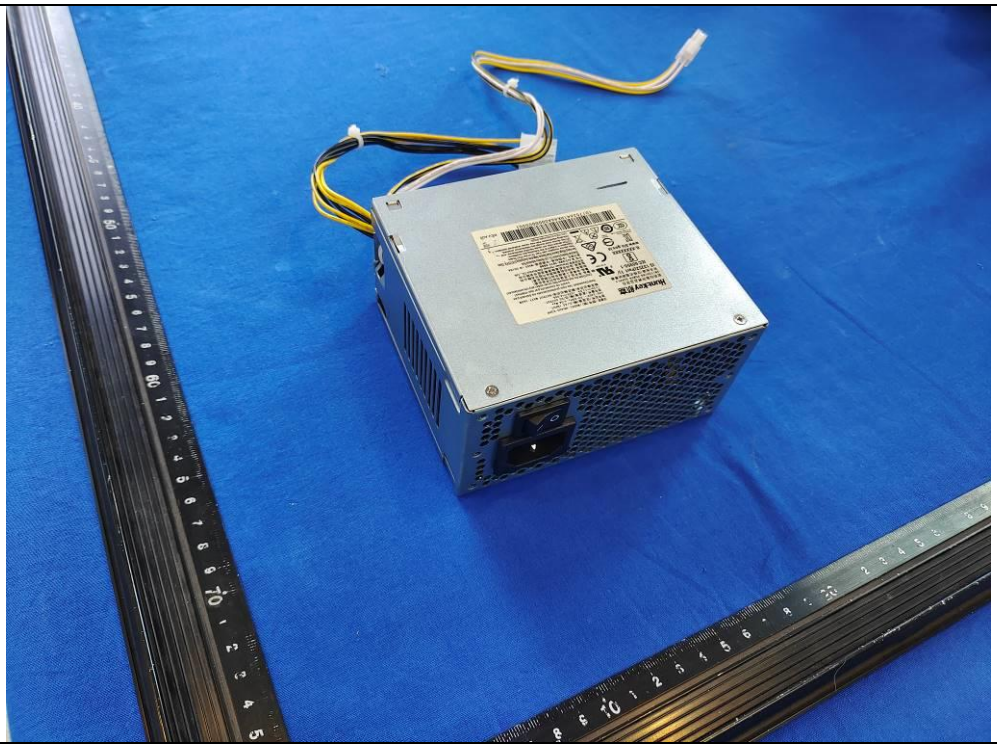
Details of: Alternative Building-in power supply (Model: DPS-360AB-10 A)



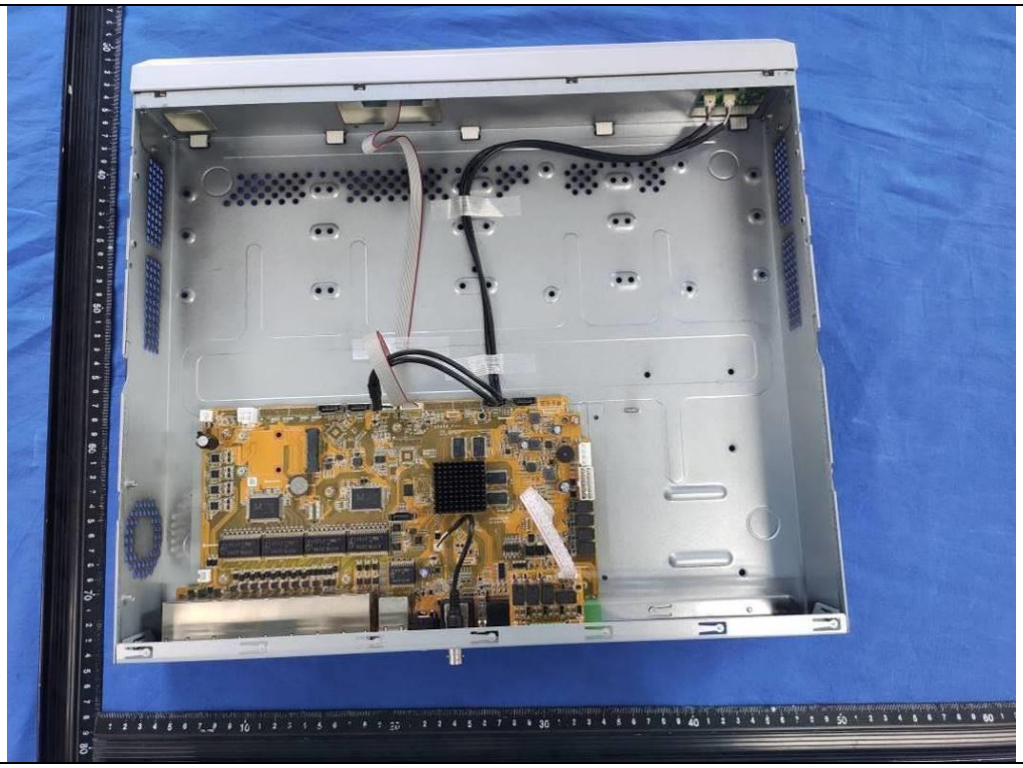
Details of: Building-in power supply (Model: HK460-93PP)



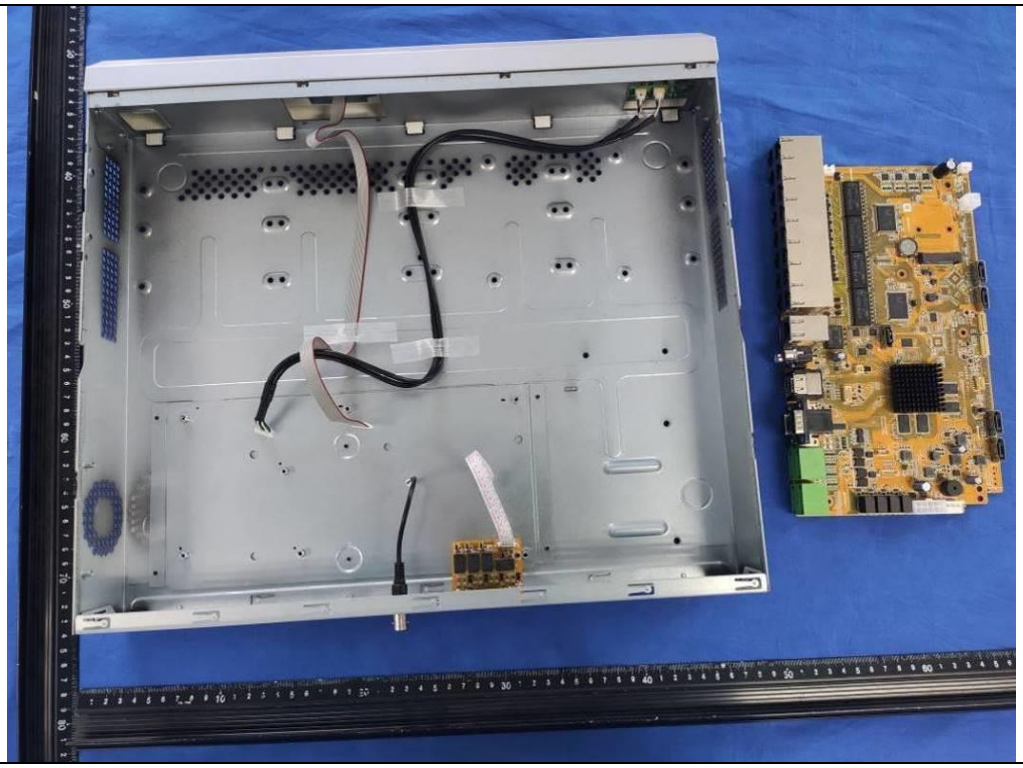
Details of: Alternative Building-in power supply (Model: HK460-93PP)



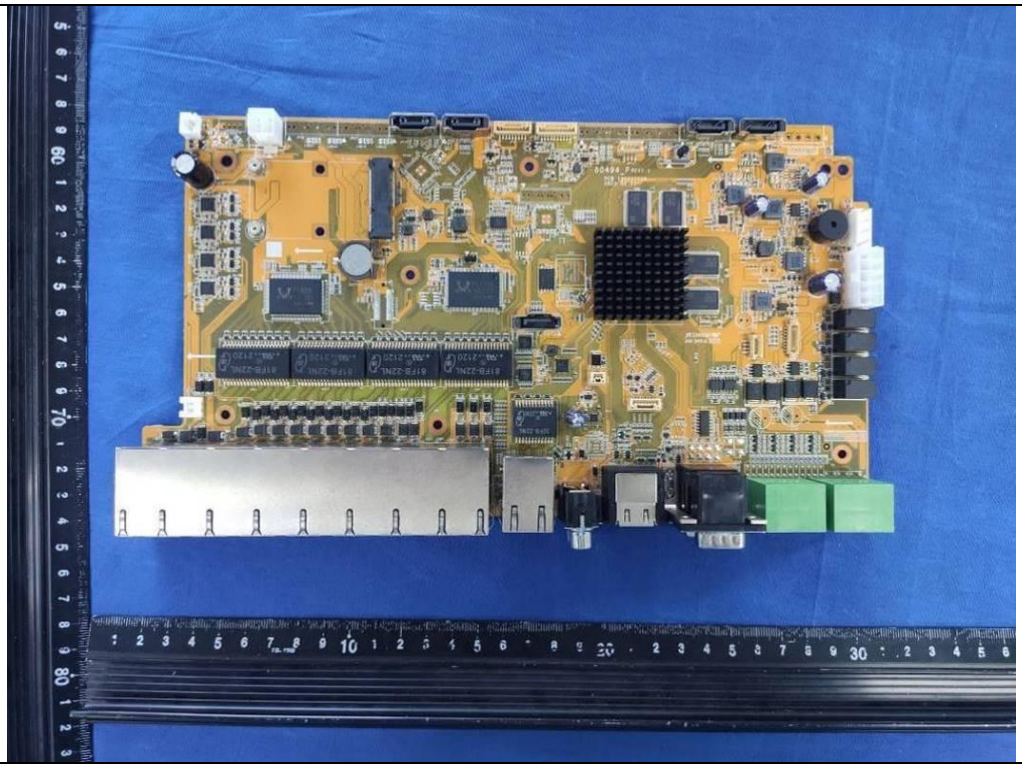
Details of: Internal view (Model: DS-7732NI-M4/16P)



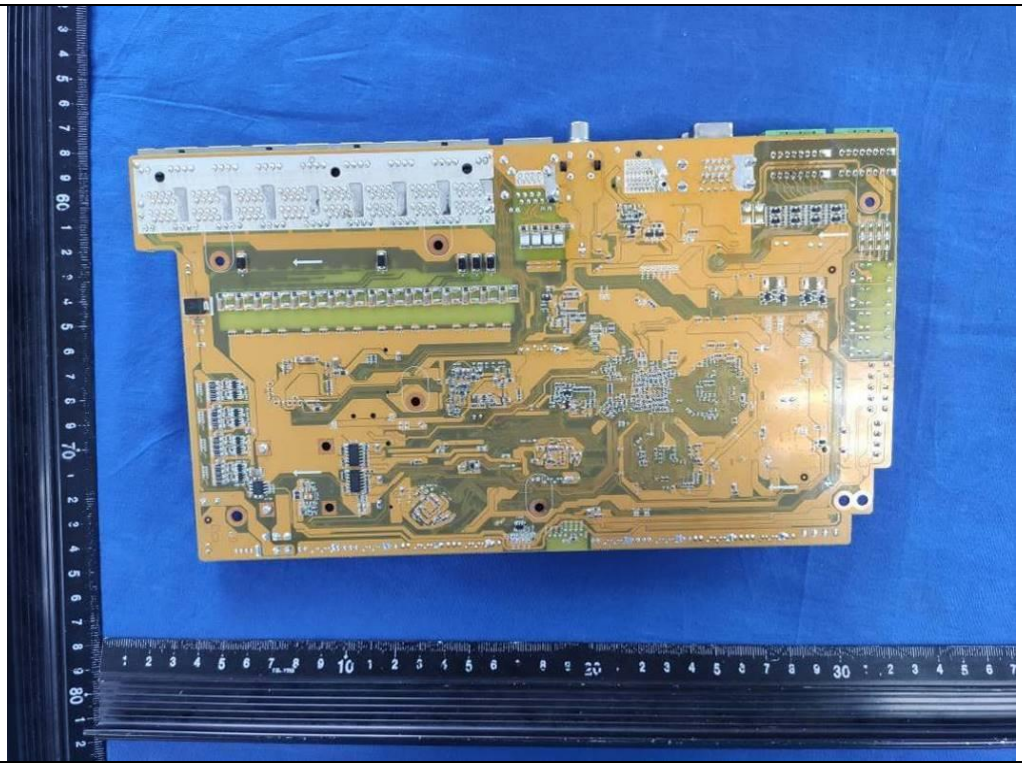
Details of: Internal view (Model: DS-7732NI-M4/16P)



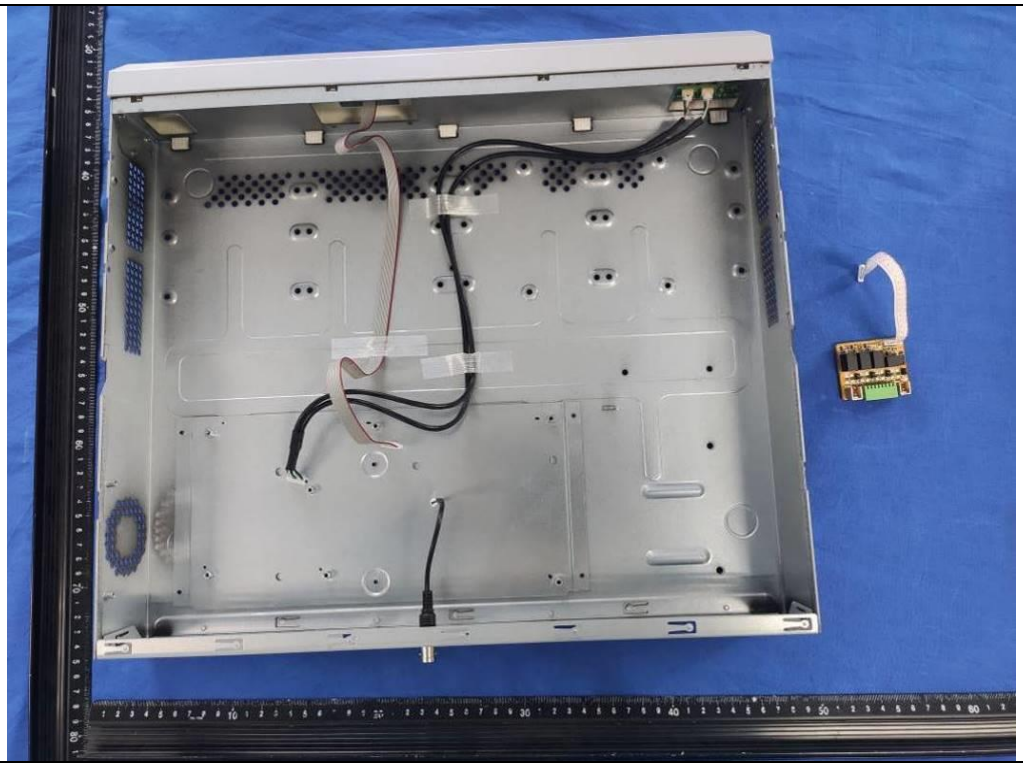
Details of: PCB-1 view (Model: DS-7732NI-M4/16P)



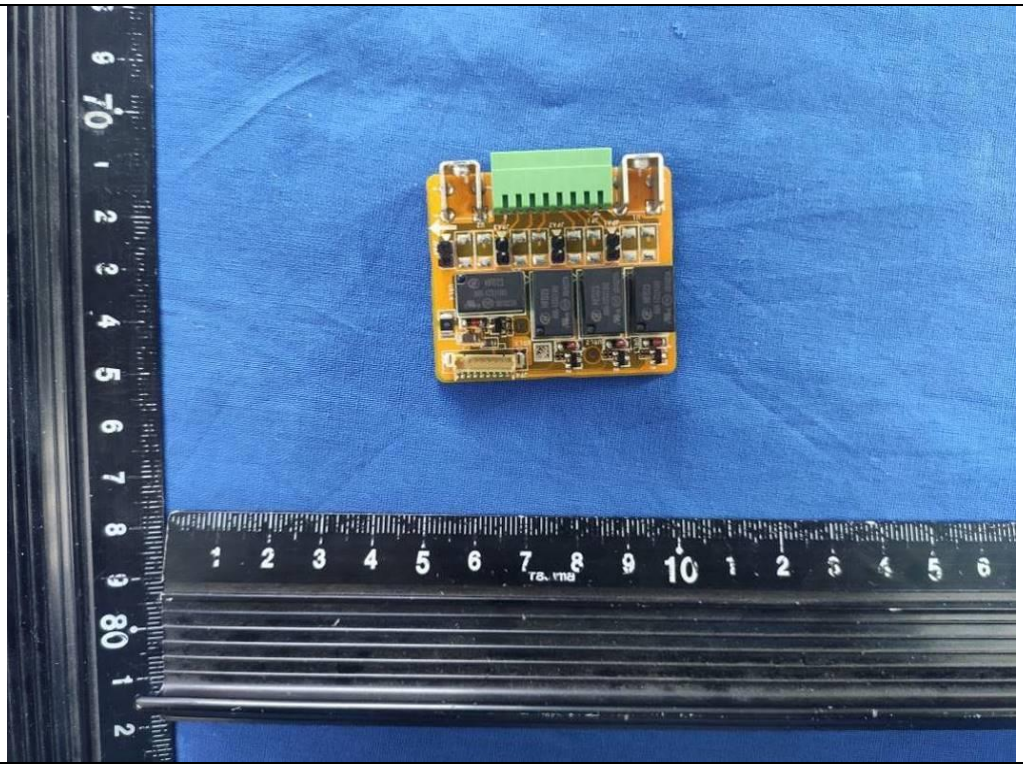
Details of: PCB-1 view (Model: DS-7732NI-M4/16P)



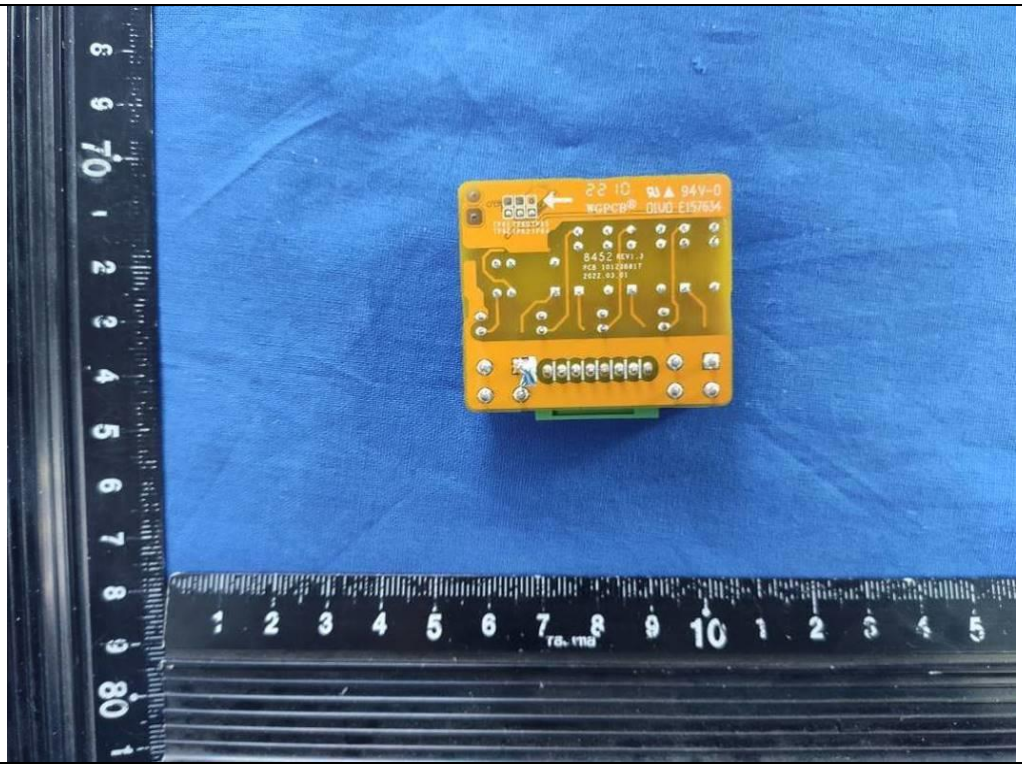
Details of: Internal view (Model: DS-7732NI-M4/16P)



Details of: PCB-2 view (Model: DS-7732NI-M4/16P)



Details of: PCB-2 view (Model: DS-7732NI-M4/16P)



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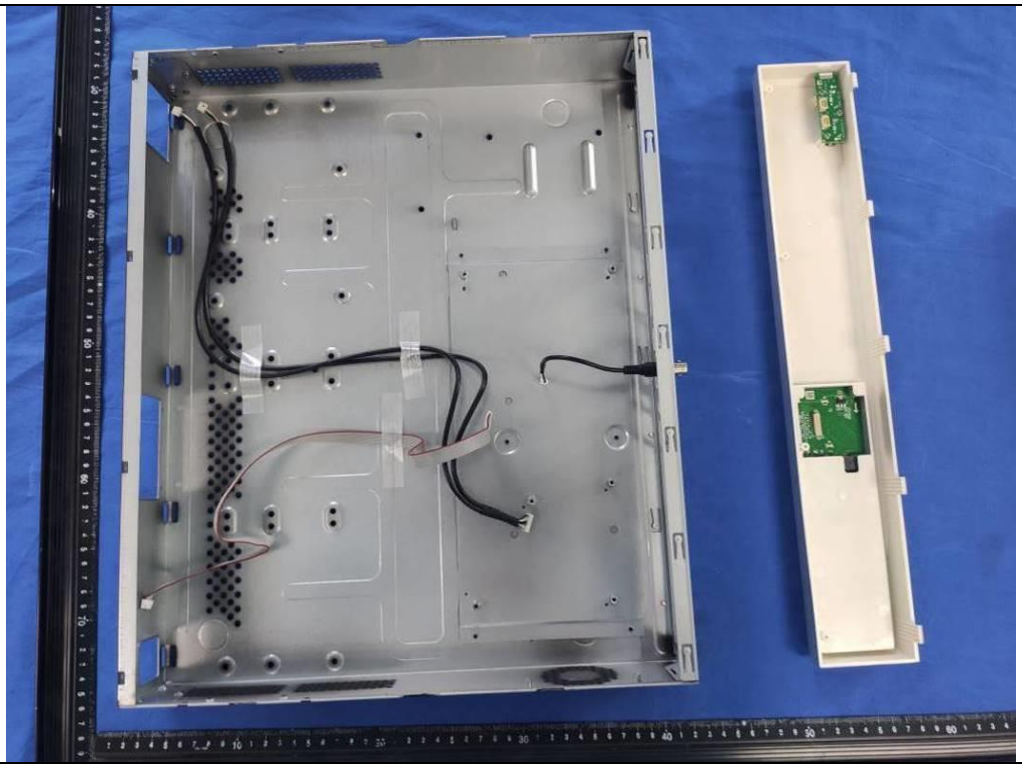
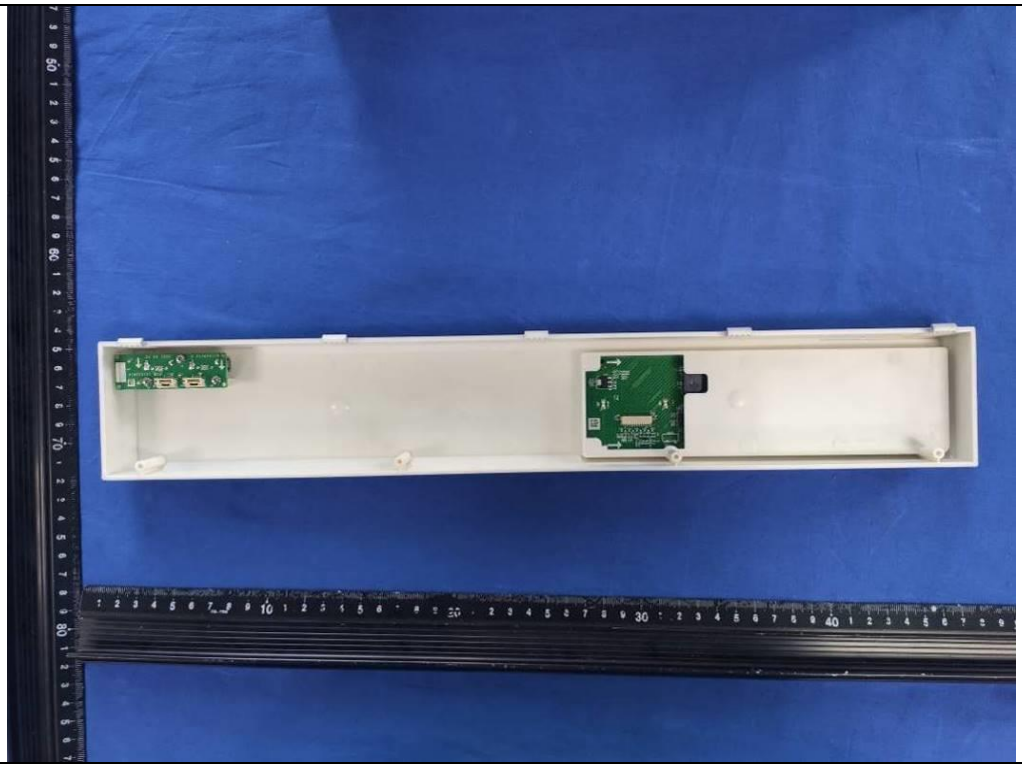
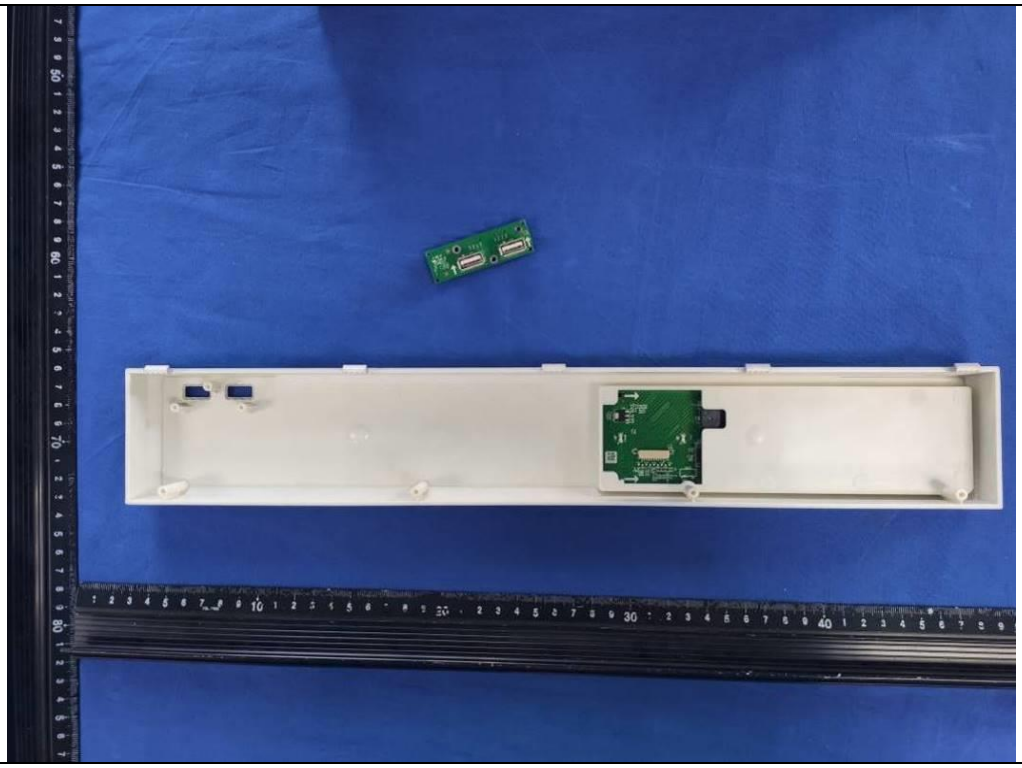


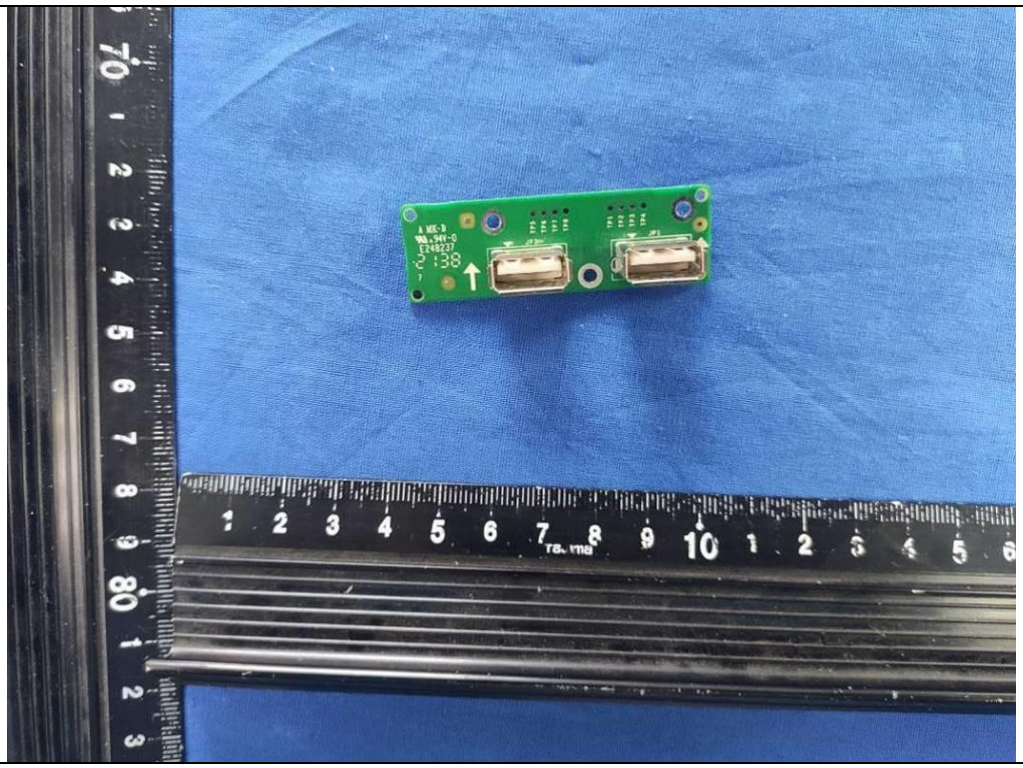
Details of: Internal view (Model: DS-7732NI-M4/16P)



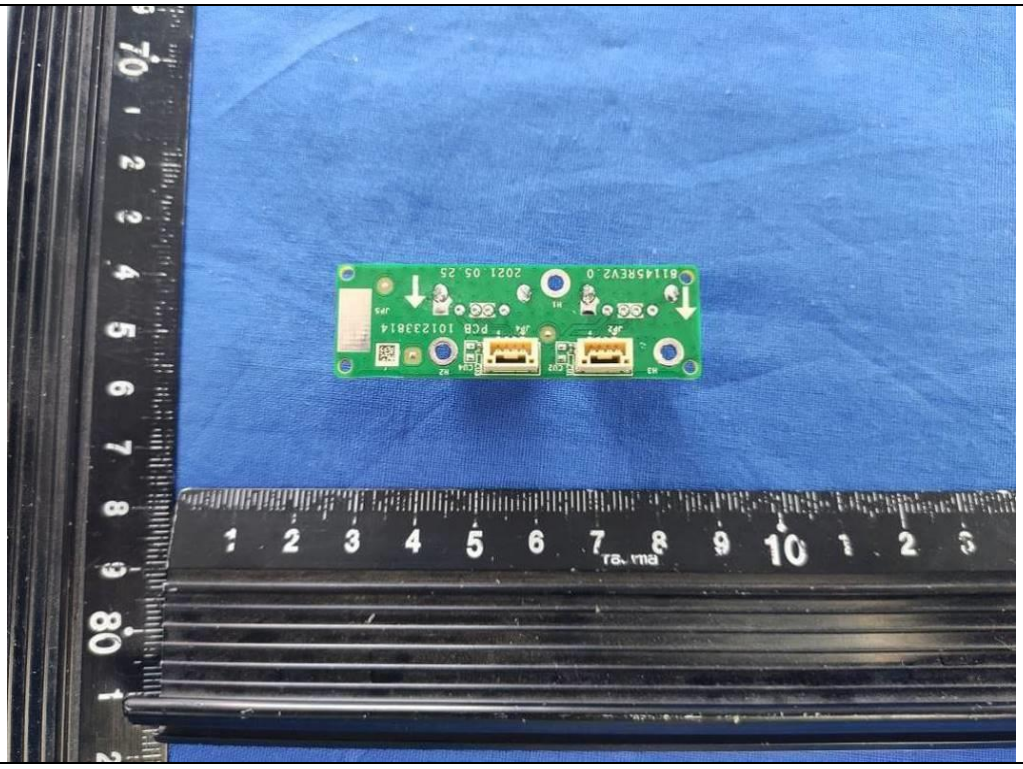
Details of: Internal view (Model: DS-7732NI-M4/16P)



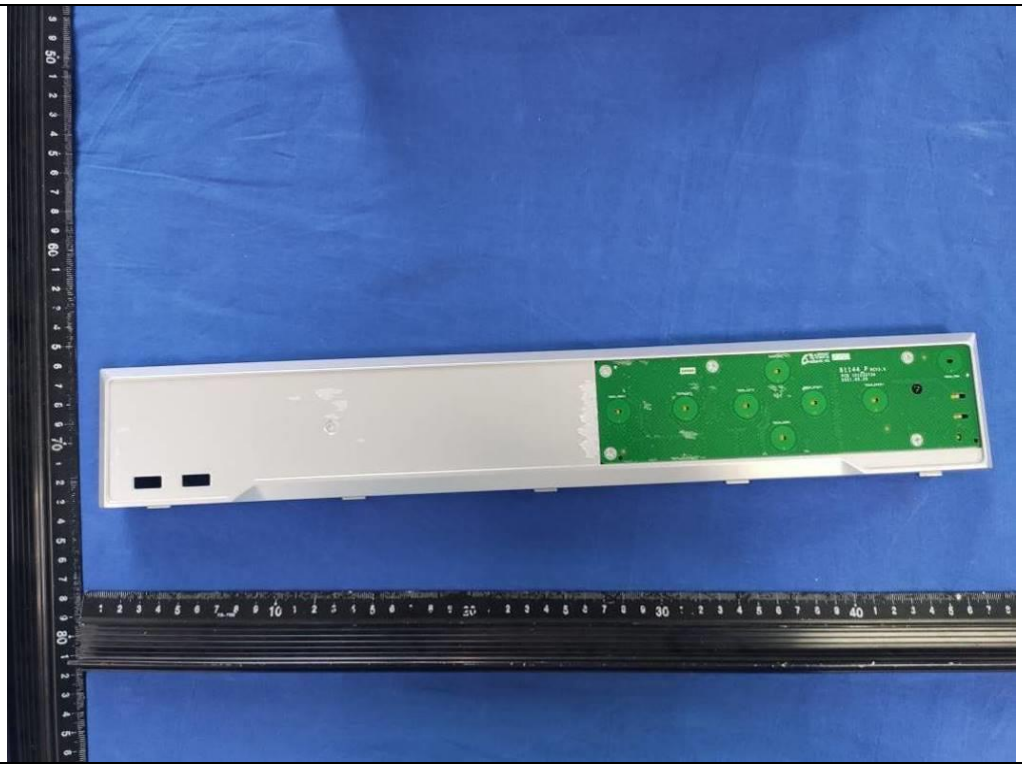
Details of: PCB-3 view (Model: DS-7732NI-M4/16P)



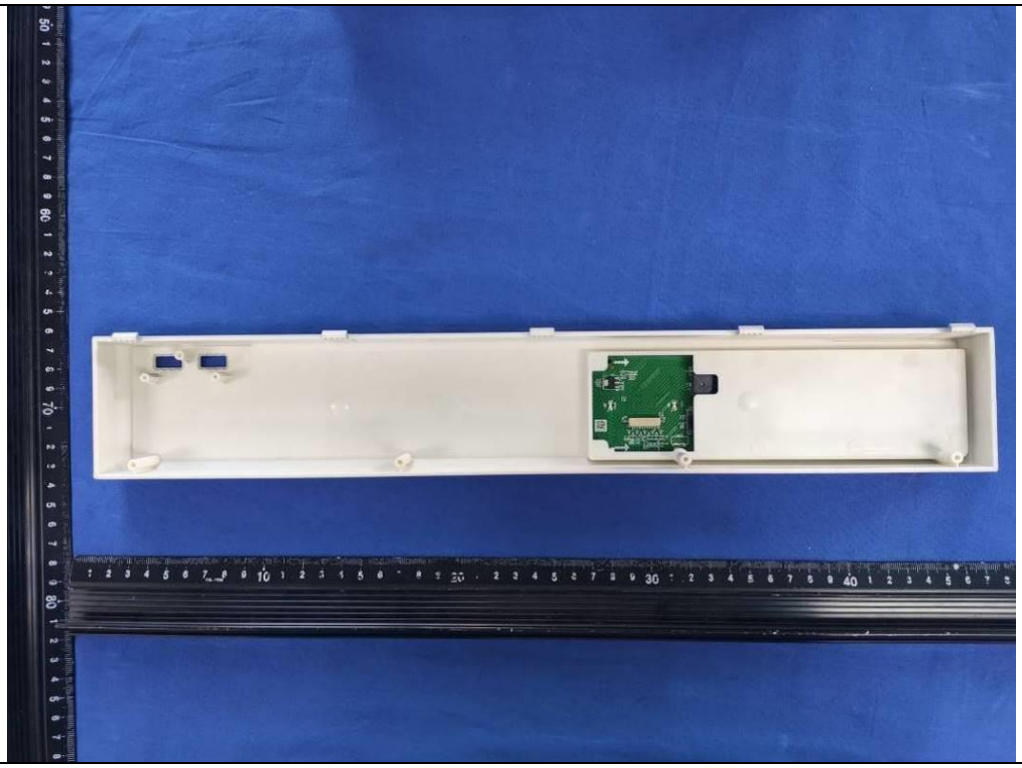
Details of: PCB-3 view (Model: DS-7732NI-M4/16P)



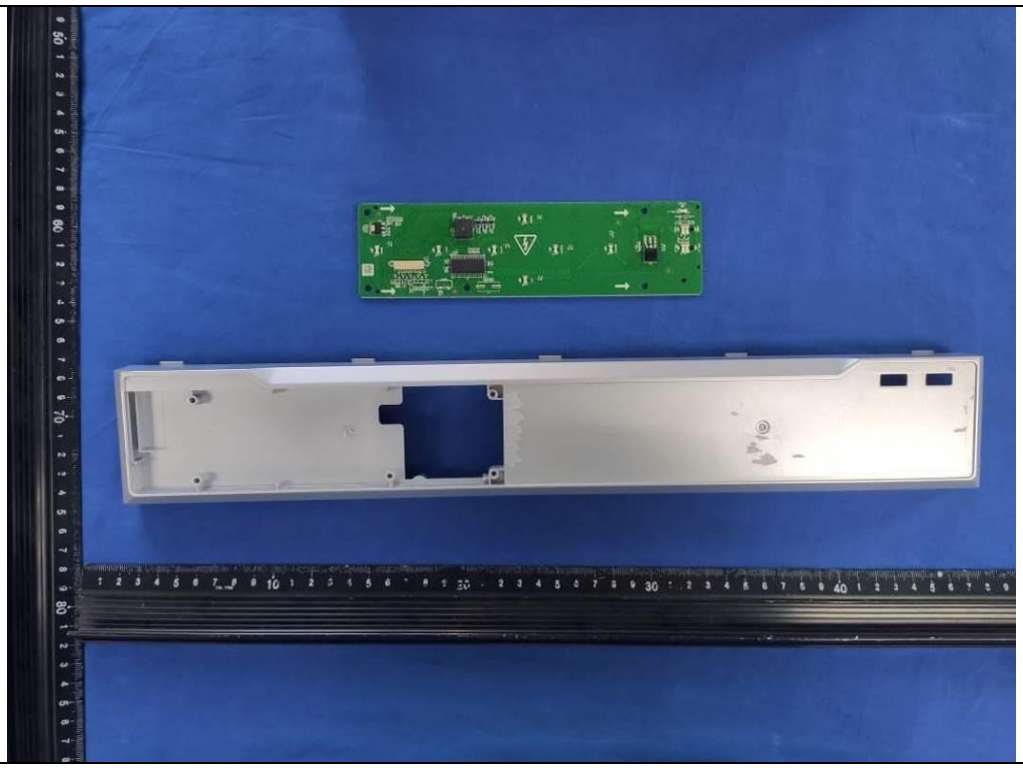
Details of: Internal view (Model: DS-7732NI-M4/16P)



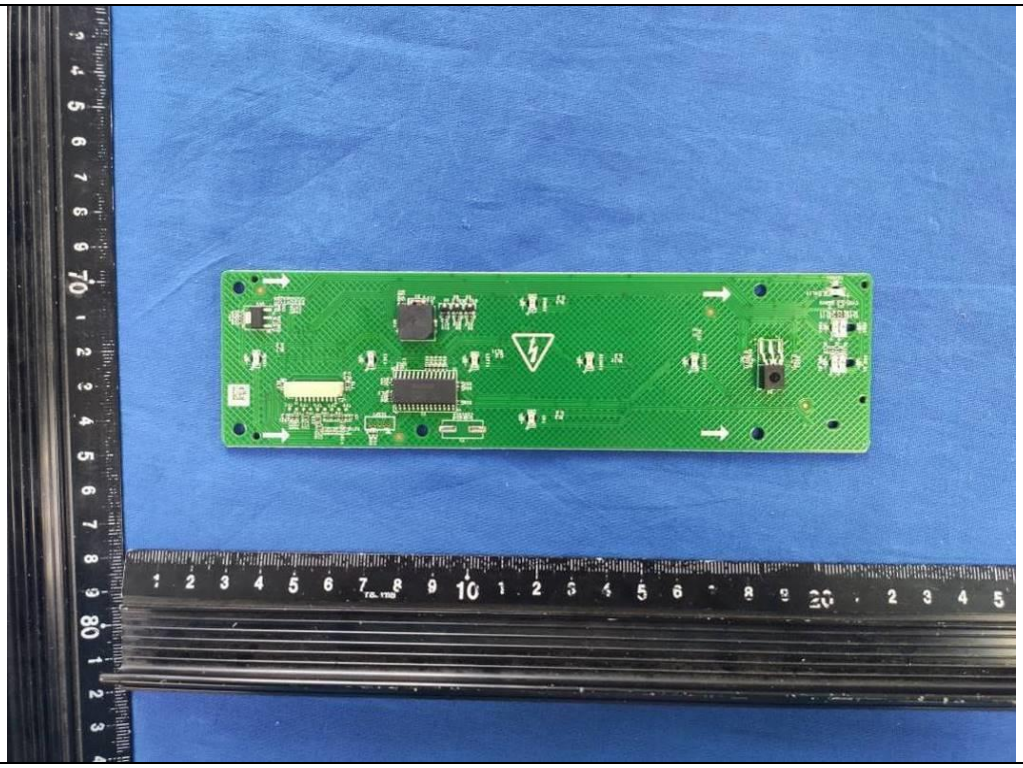
Details of: Internal view (Model: DS-7732NI-M4/16P)



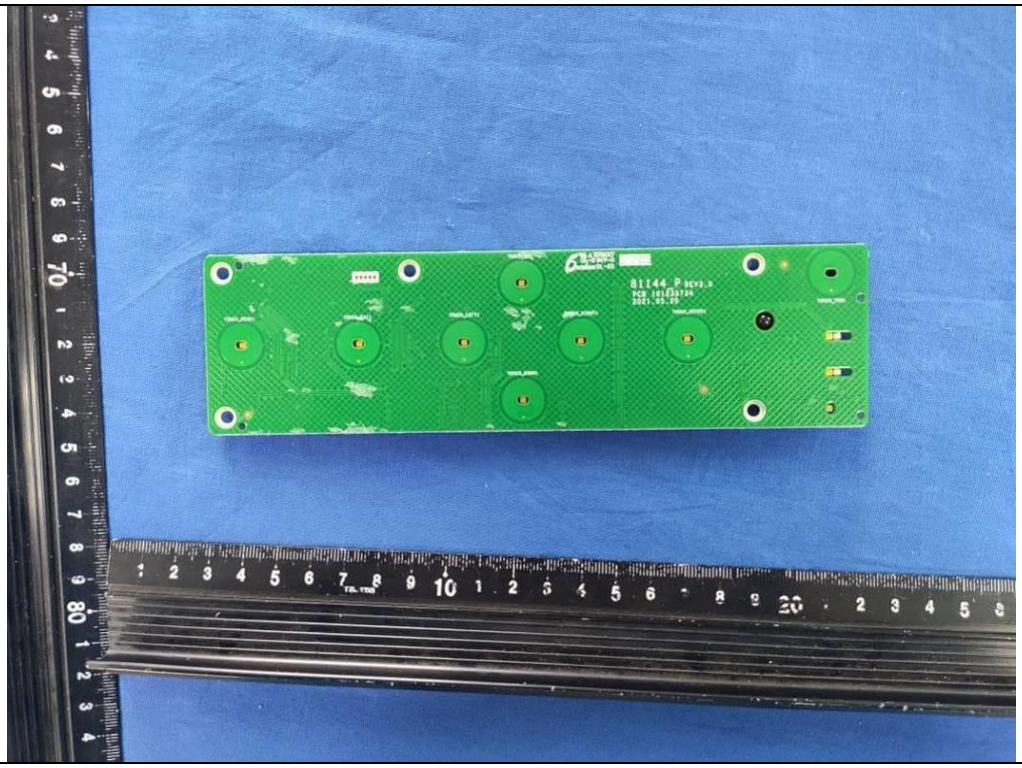
Details of: Internal view (Model: DS-7732NI-M4/16P)



Details of: PCB-4 view (Model: DS-7732NI-M4/16P)



Details of: PCB-4 view (Model: DS-7732NI-M4/16P)

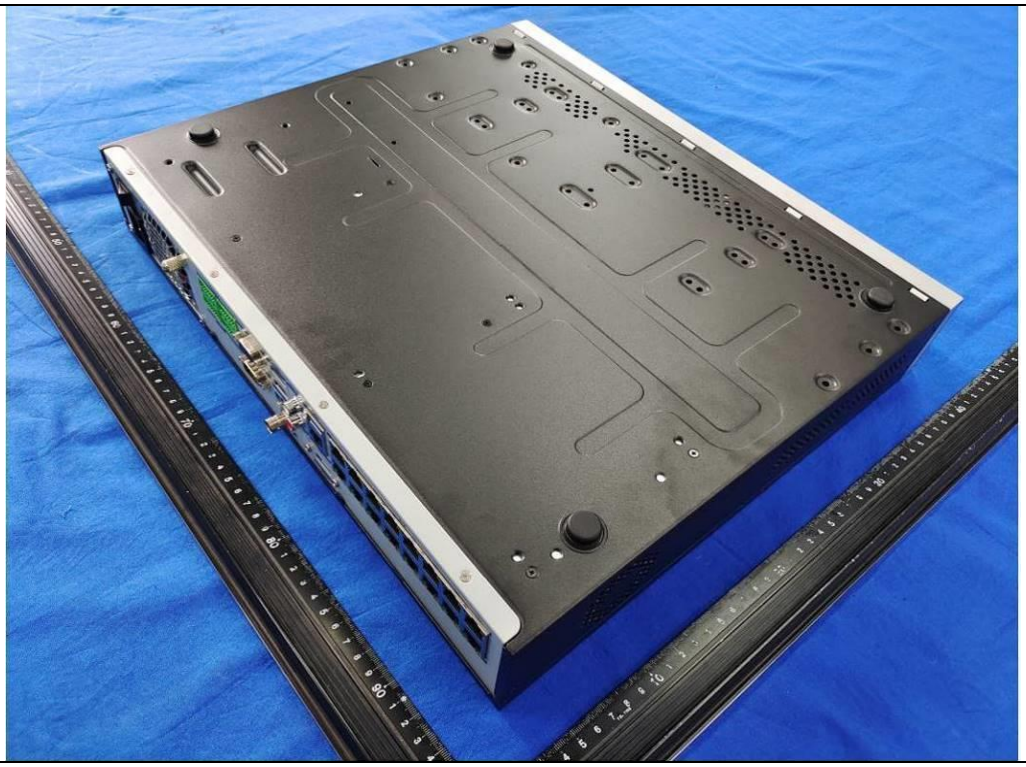


Details of: Power cord

Details of: Power connector

Details of: General view (Model: iDS-7732NXI-M4/16P/X)

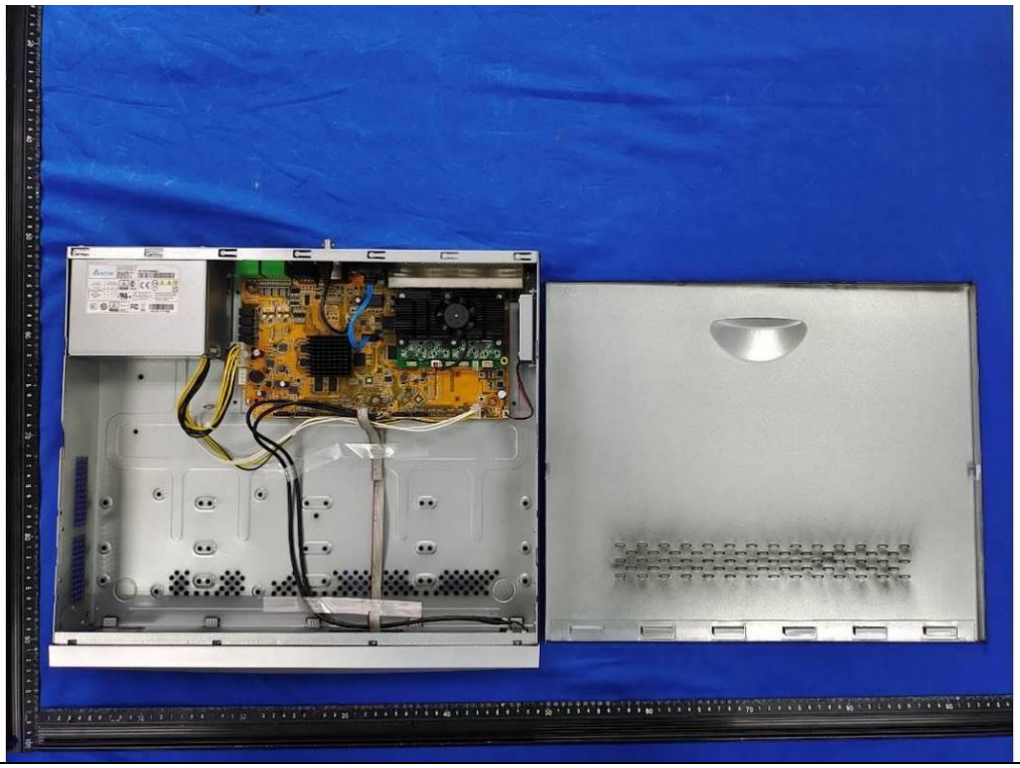
Details of: General view (Model: iDS-7732NXI-M4/16P/X)



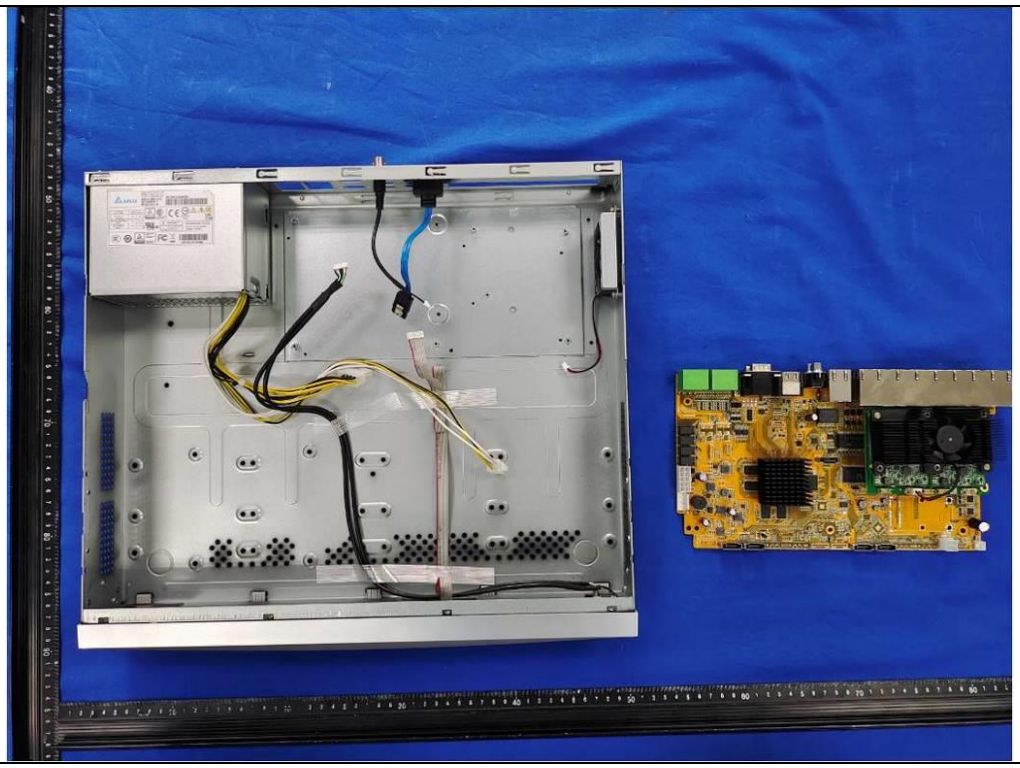
Details of: Terminal view (Model: iDS-7732NXI-M4/16P/X)

Details of: Terminal view (Model: iDS-7732NXI-M4/16P/X)

Details of: Internal view (Model: iDS-7732NXI-M4/16P/X)

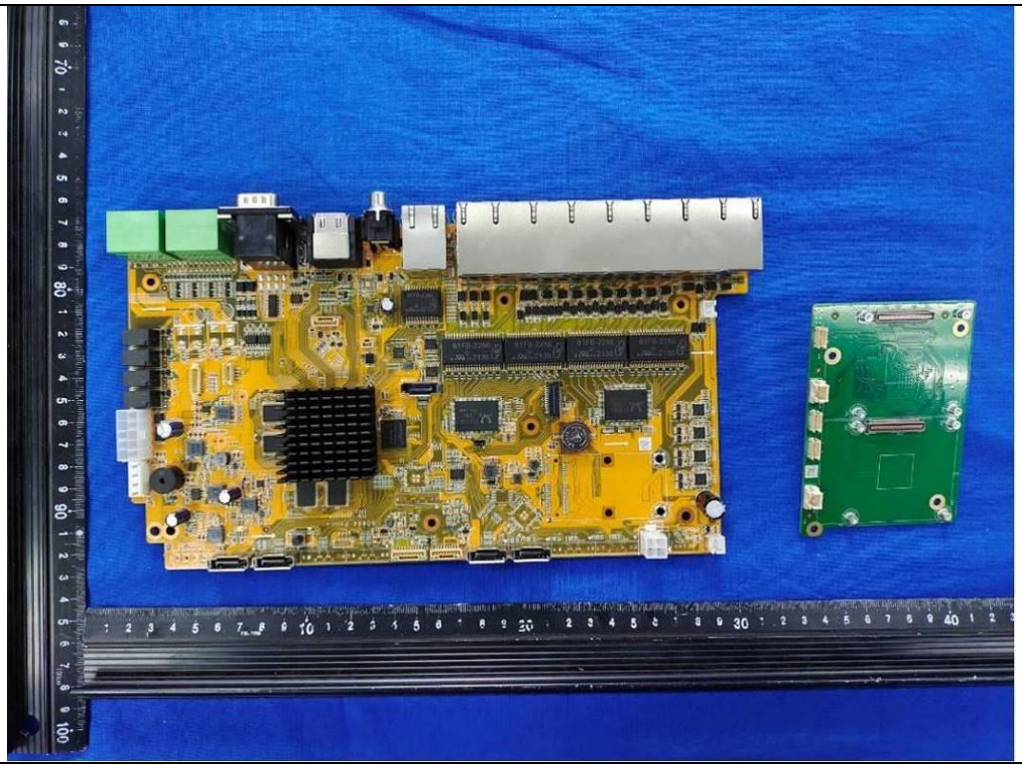


Details of: Internal view (Model: iDS-7732NXI-M4/16P/X)

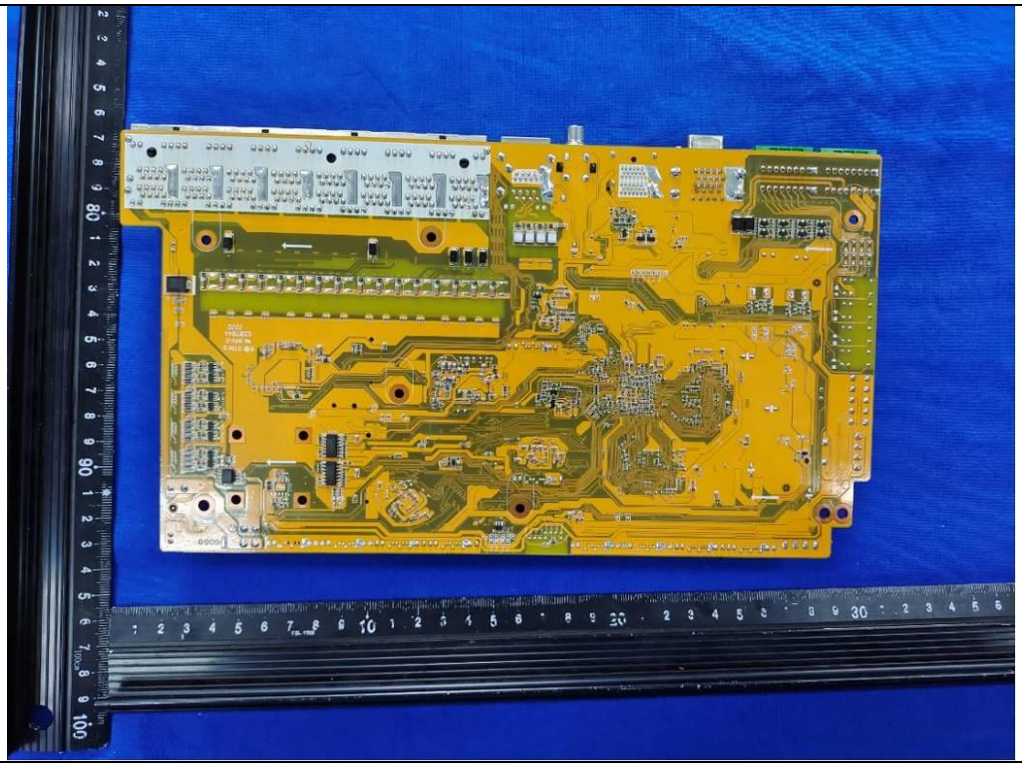


Details of: Internal view (Model: iDS-7732NXI-M4/16P/X)

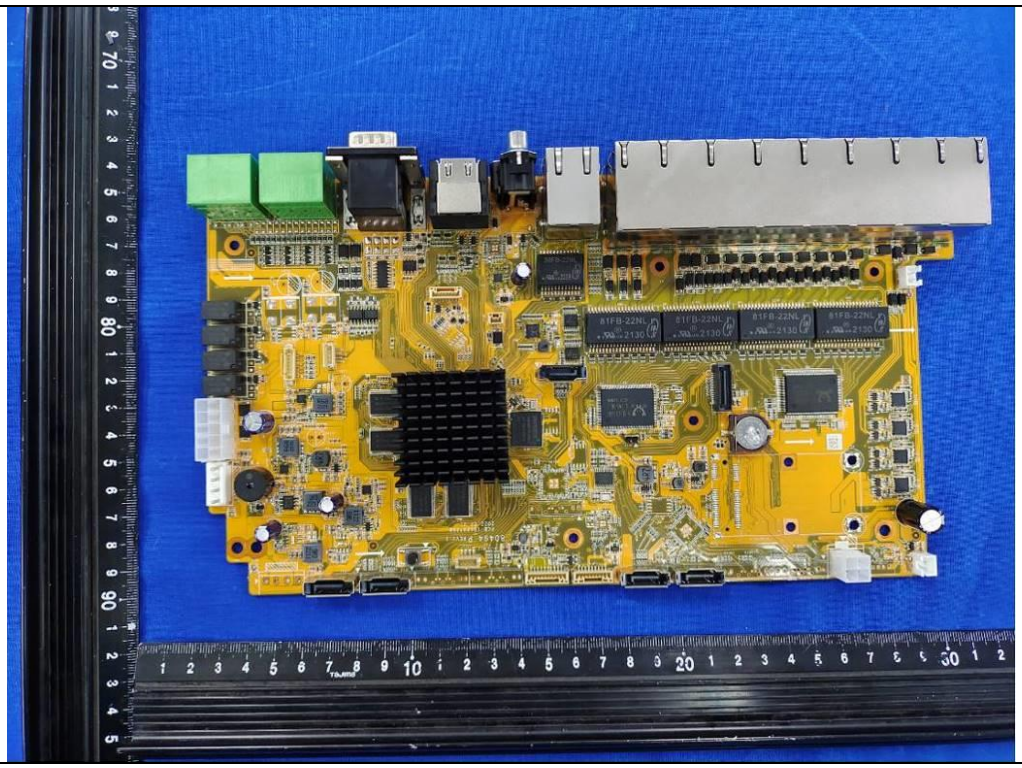
Details of: Internal view (Model: iDS-7732NXI-M4/16P/X)



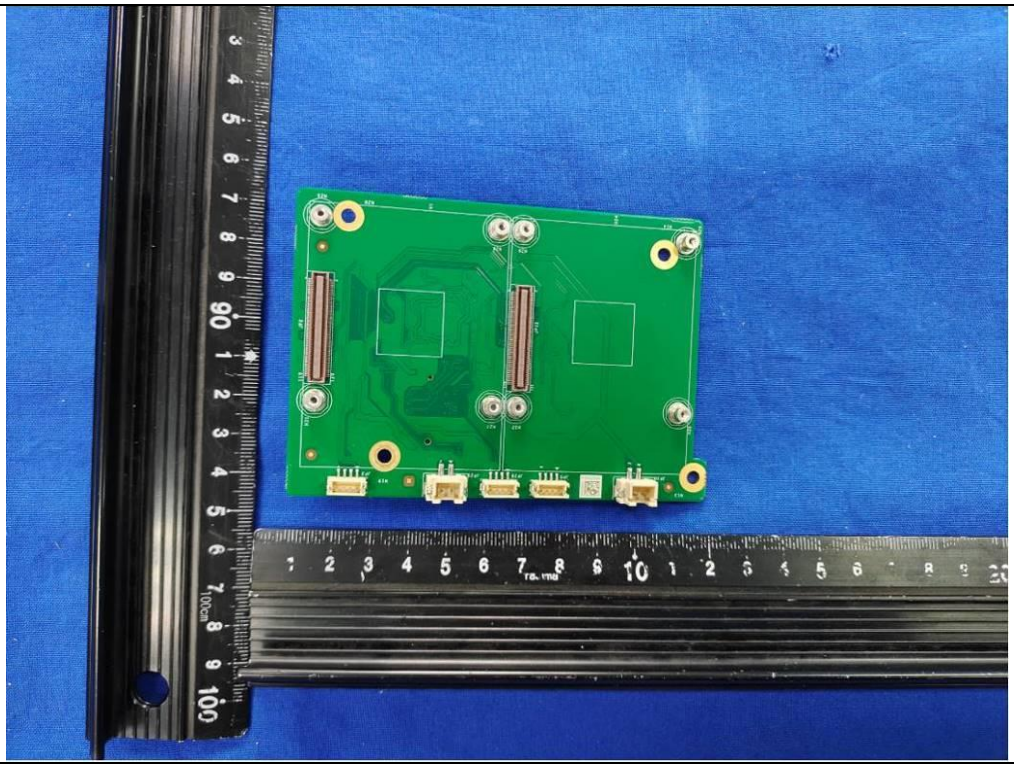
Details of: PCB-1 (Model: iDS-7732NXI-M4/16P/X)



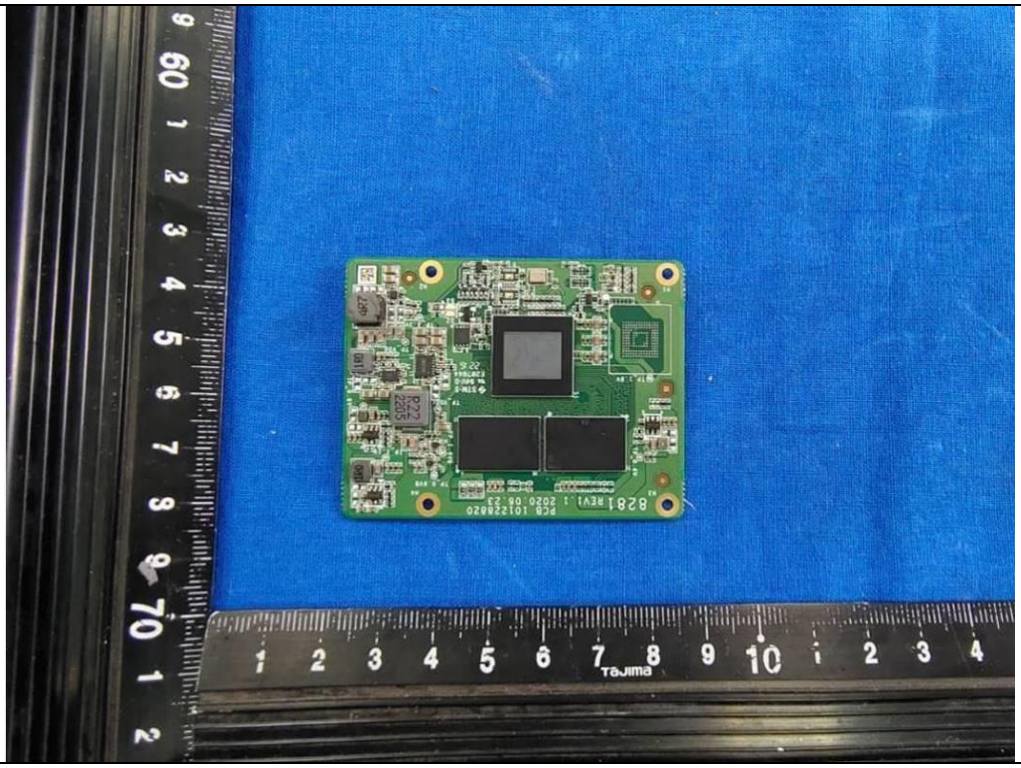
Details of: PCB-1 (Model: iDS-7732NXI-M4/16P/X)



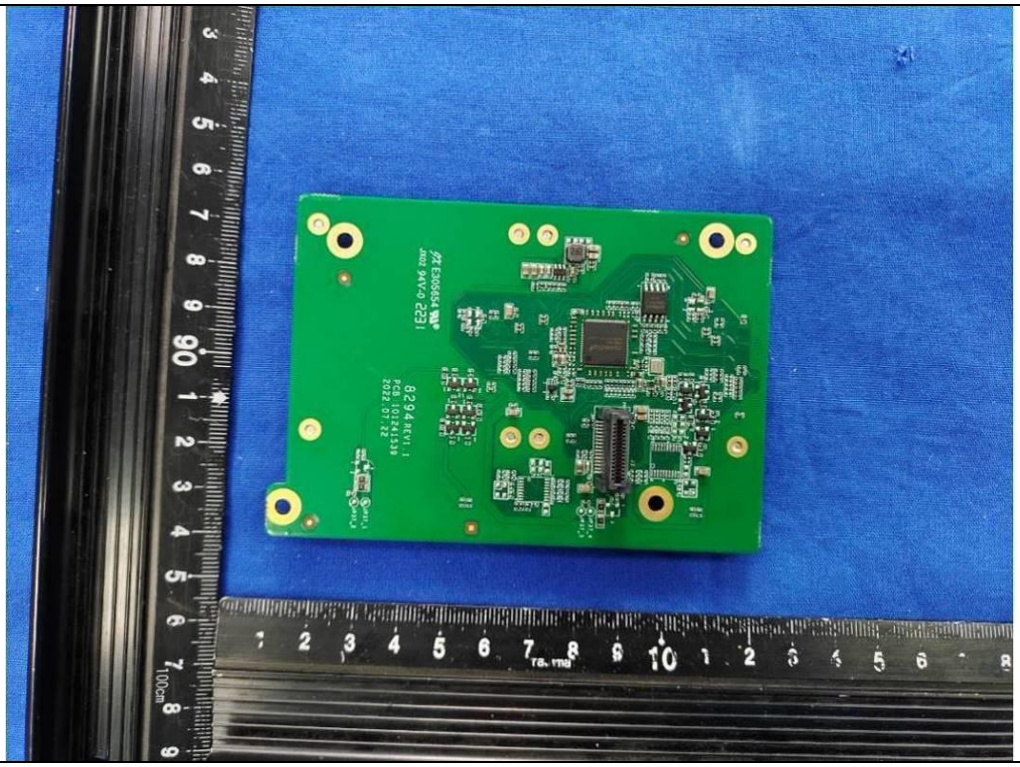
Details of: PCB-2 (Model: iDS-7732NXI-M4/16P/X)



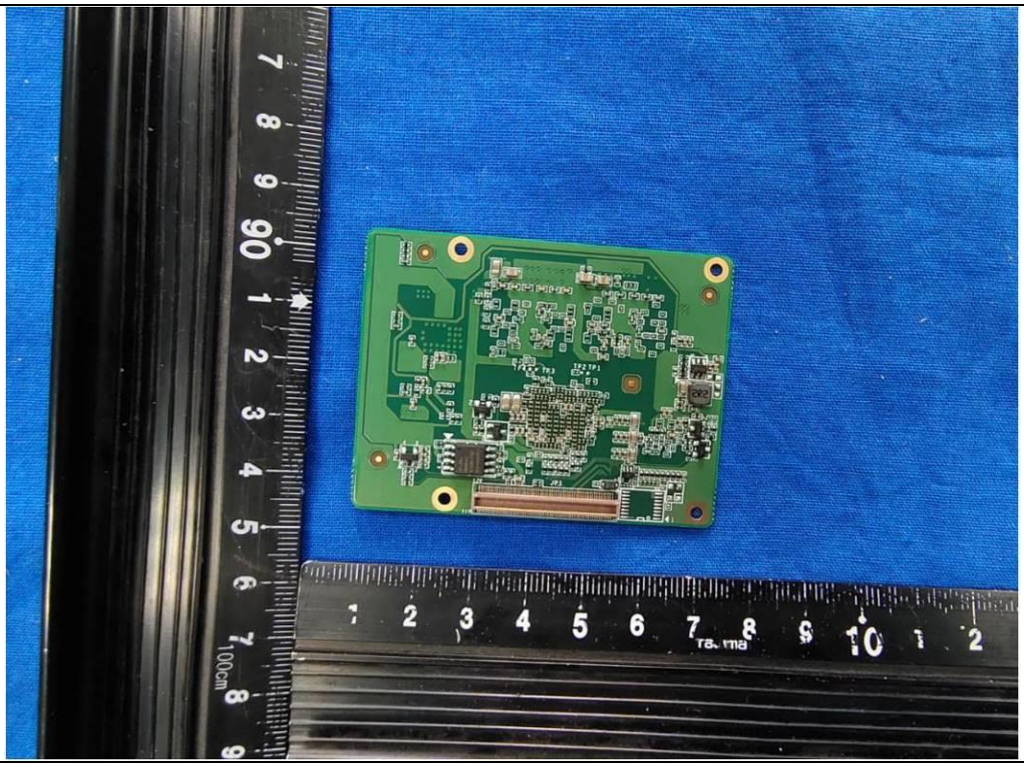
Details of: PCB-2 (Model: iDS-7732NXI-M4/16P/X)



Details of: PCB-3 (Model: iDS-7732NXI-M4/16P/X)

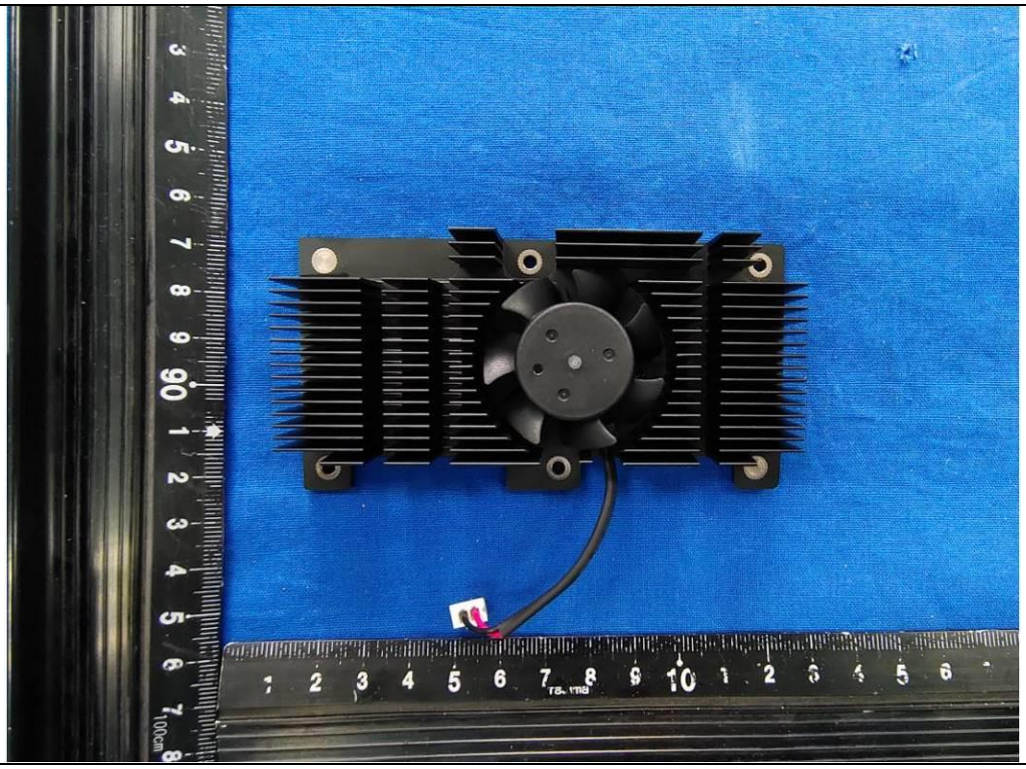


Details of: PCB-3 (Model: iDS-7732NXI-M4/16P/X)

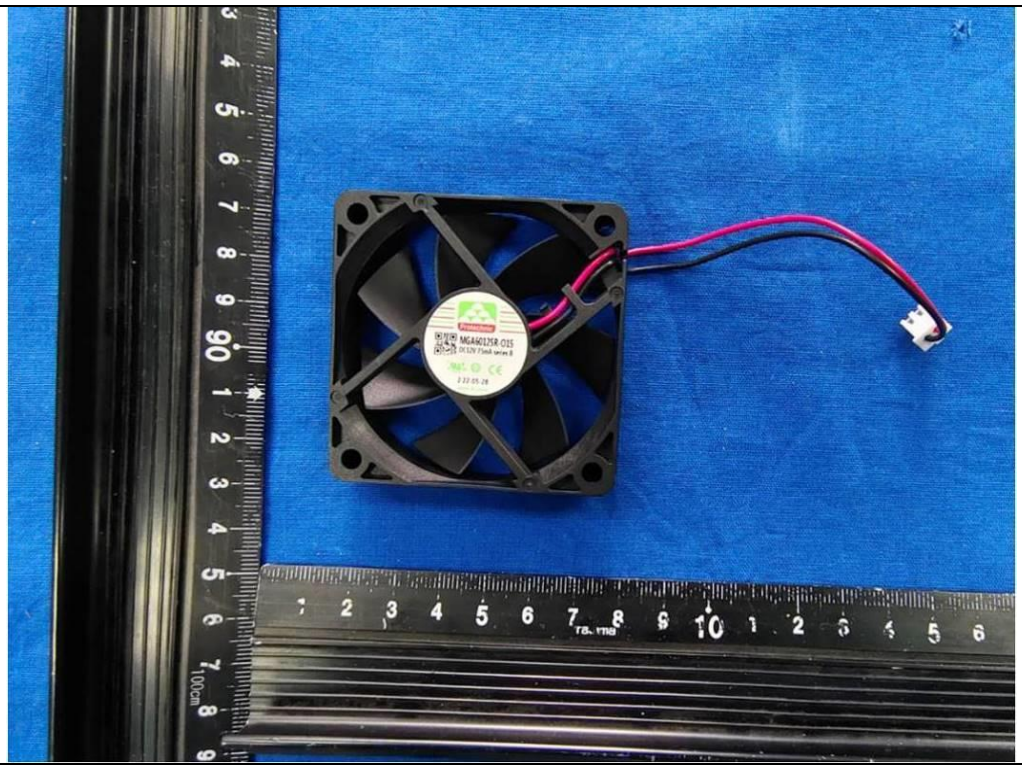


Details of: Building-in power supply (Model: DPS-300AB-101C)

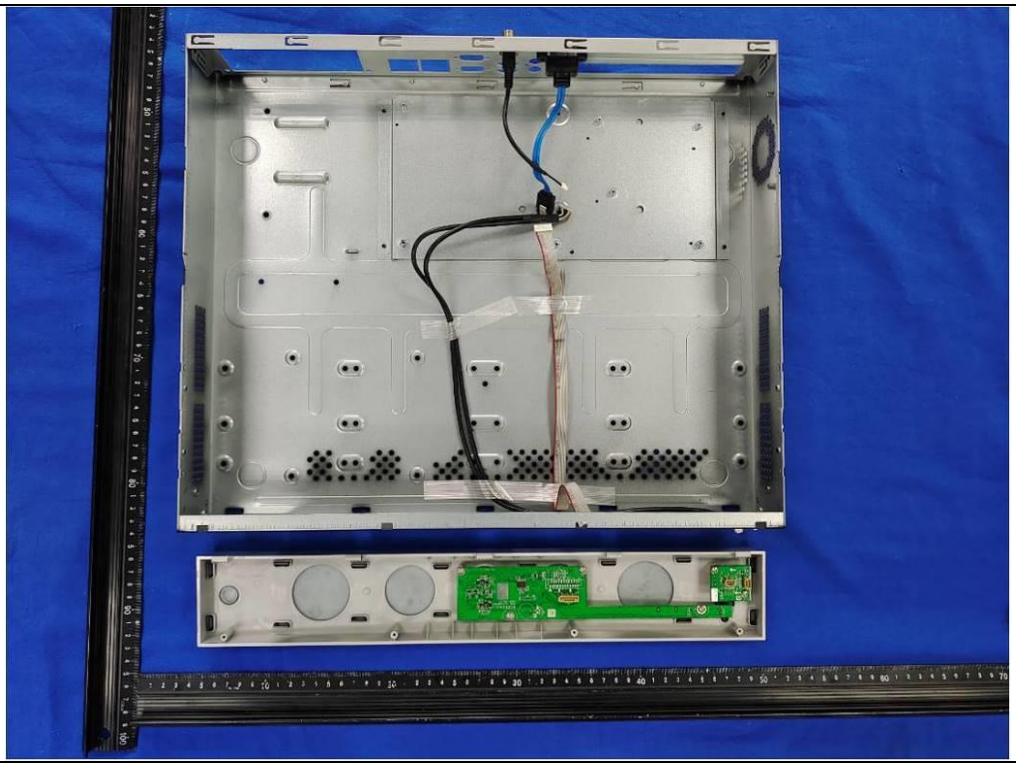
Details of: FAN



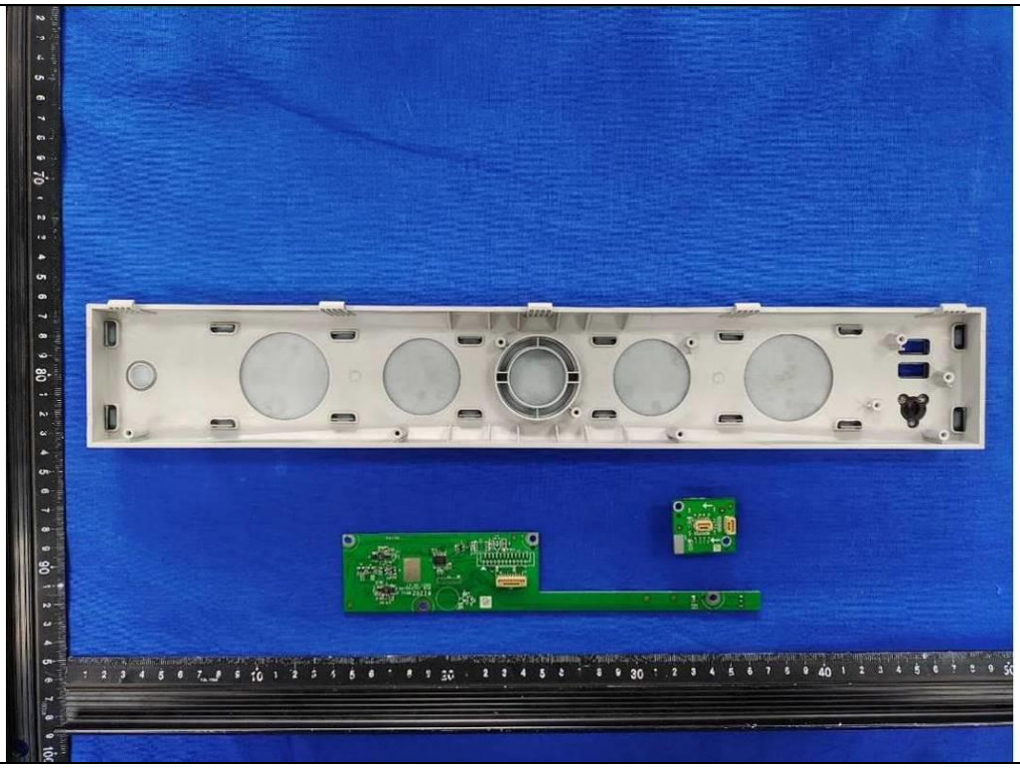
Details of: DC Fan (Model: MGA6012SR-O15)



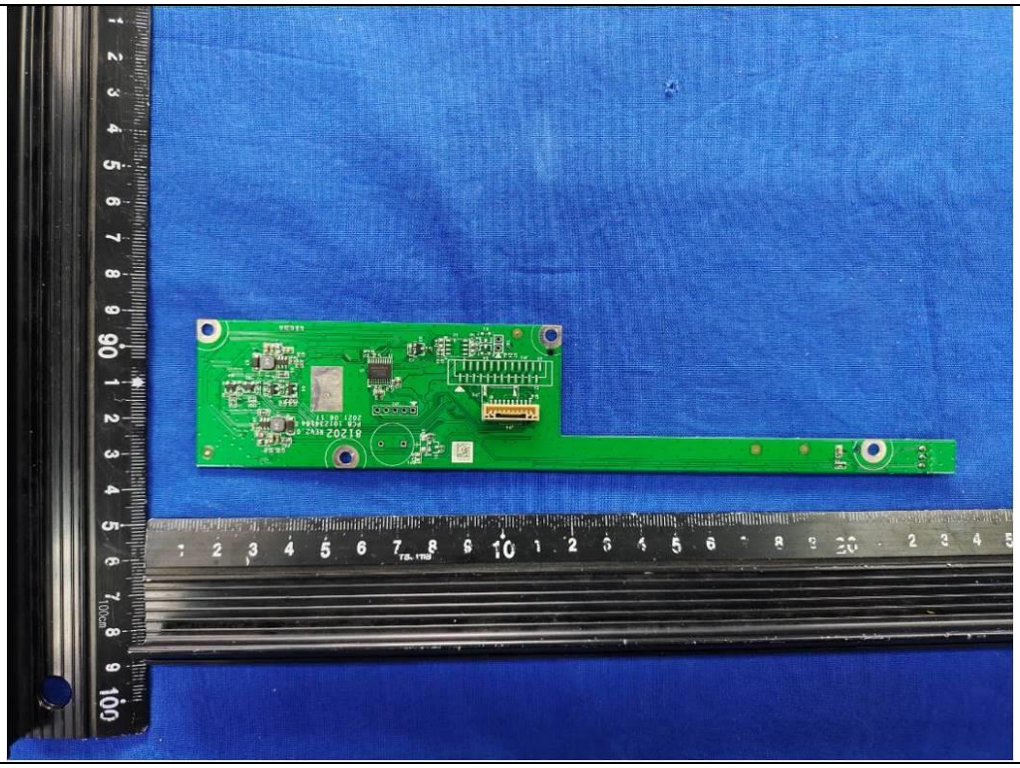
Details of: Internal view (Model: iDS-7732NXI-M4/16P/X)



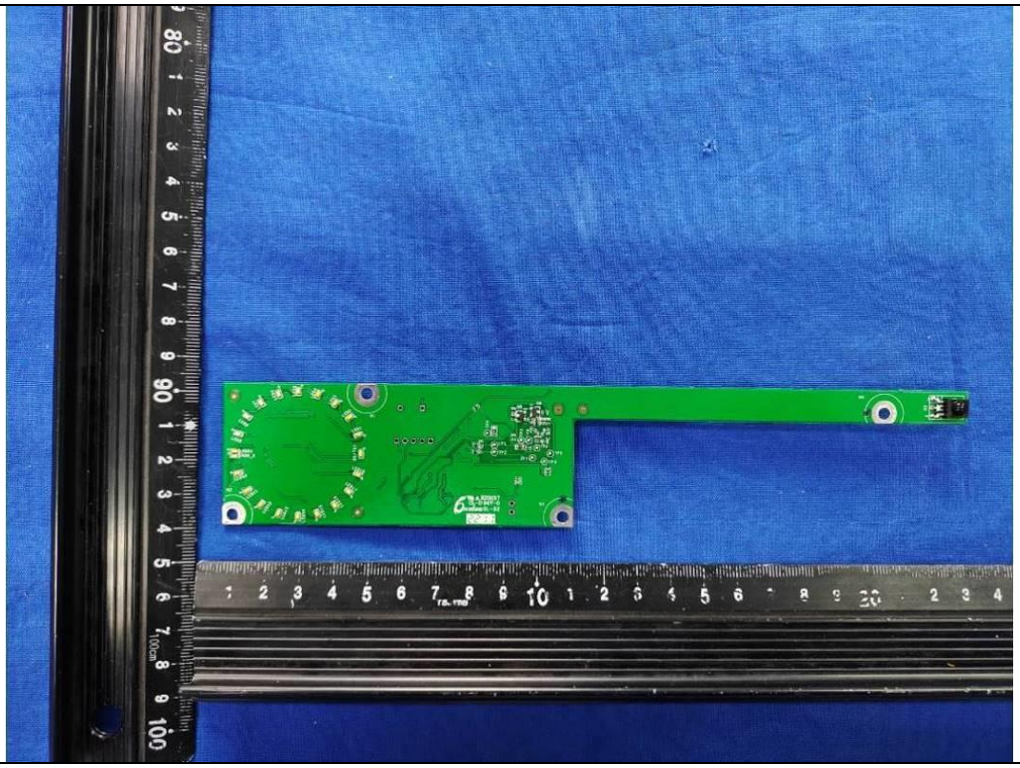
Details of: Internal view (Model: iDS-7732NXI-M4/16P/X)



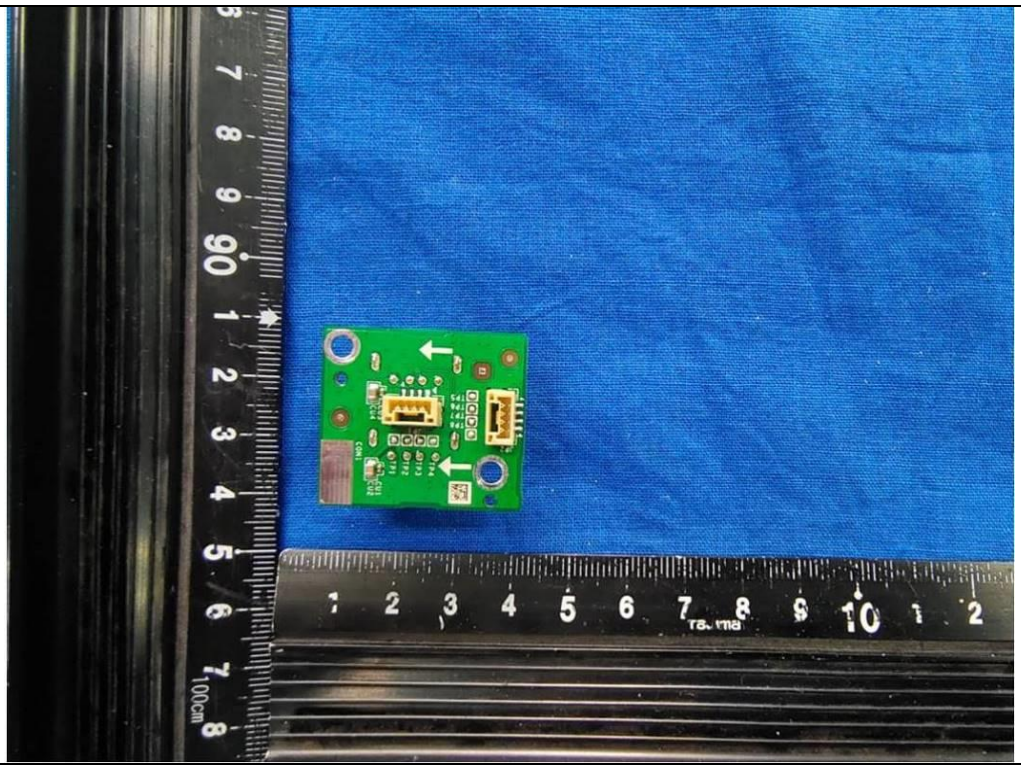
Details of: PCB-4 (Model: iDS-7732NXI-M4/16P/X)



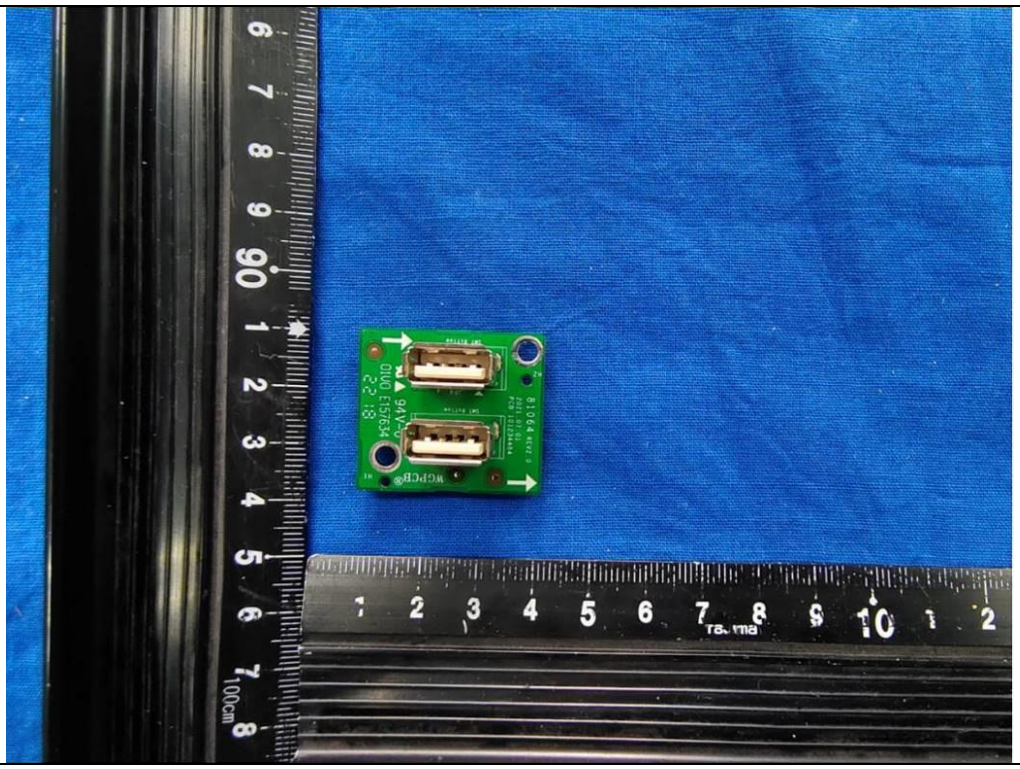
Details of: PCB-4 (Model: iDS-7732NXI-M4/16P/X)



Details of: PCB-5 (Model: iDS-7732NXI-M4/16P/X)

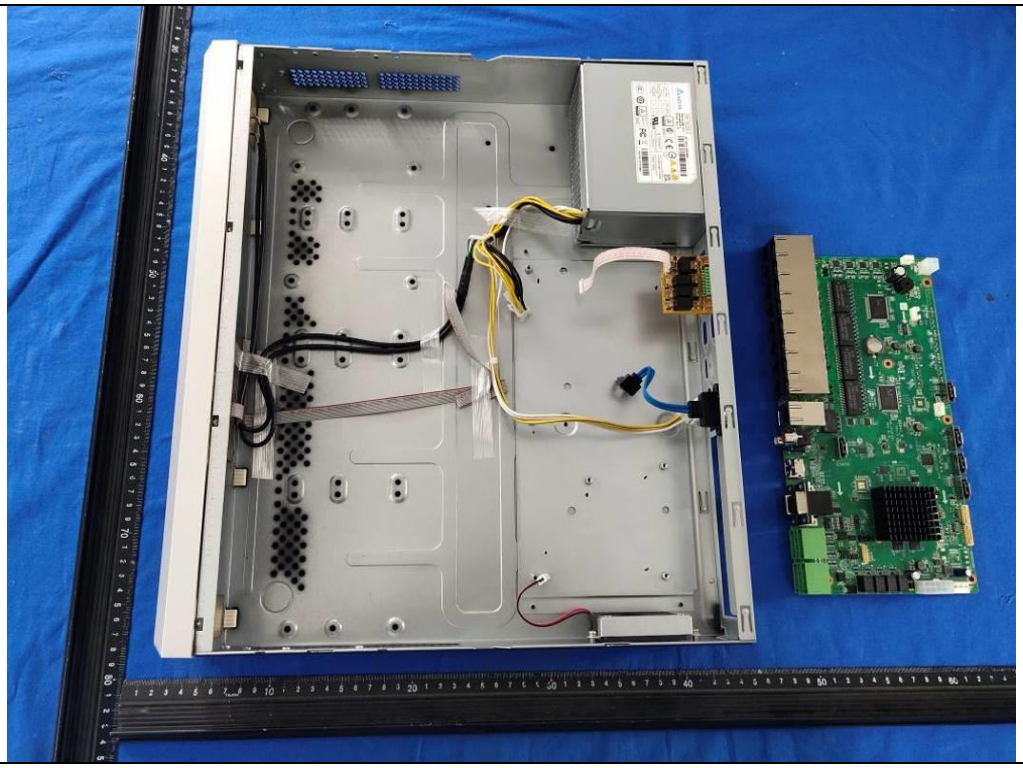


Details of: PCB-5 (Model: iDS-7732NXI-M4/16P/X)



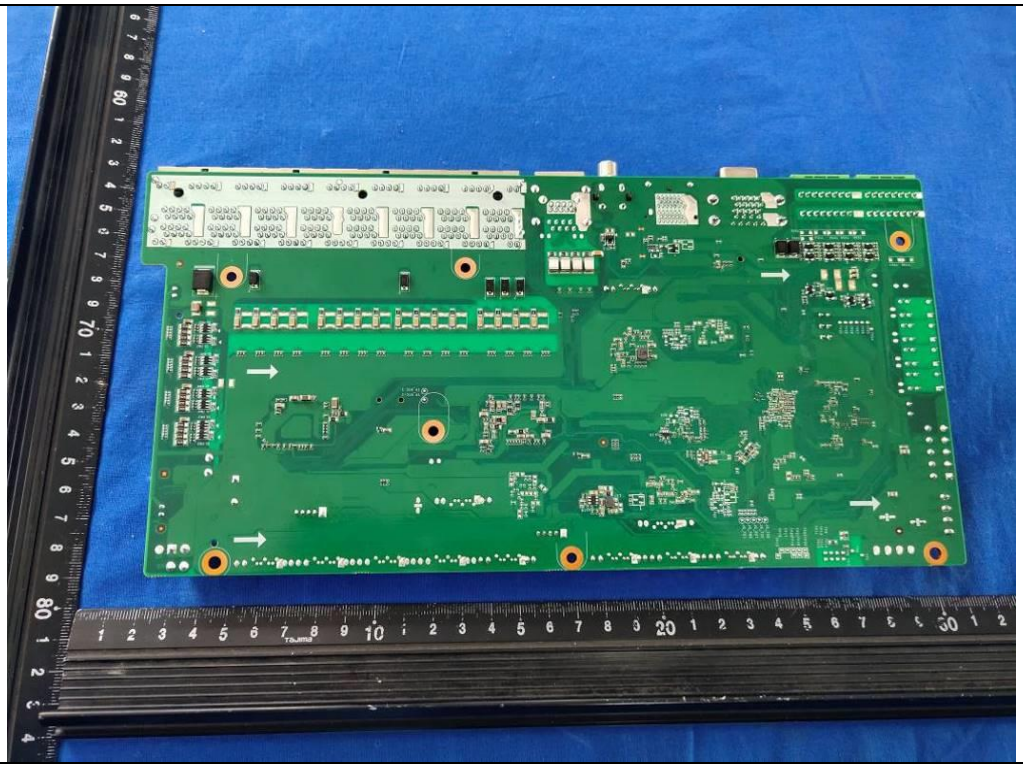
Details of: Alternative Internal view (Model: DS-7732NI-K4/16P)

Details of: Alternative Internal view (Model: DS-7732NI-K4/16P)



Details of: Alternative main board view

Details of: Alternative main board view



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

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 62368-1** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** (Audio/video, information and communication technology equipment - Part 1: Safety requirements)			
Differences according to ..... : EN IEC 62368-1:2020+A11:2020			
Attachment Form No. ..... : EU_GD_IEC62368_1E **Attachment Originator**..... : UL(Demko) **Master Attachment** ..... : 2021-02-04			
	CENELEC COMMON MODIFICATIONS (EN)		P
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. 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
1	**Modification to Clause 3 .**		N/A
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.1	**momentary exposure level, MEL** 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	**sound exposure, *E*** A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa^2 s. $E = \int_0^T p(t)^2 \, dt$		N/A
3.3.19.4	**sound exposure level, *SEL*** 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. $SEL = 10 \lg\left(\frac{E}{E_0}\right)$ dB Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** 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	**Modification to Clause 10**		N/A
10.6	**Safeguards against acoustic energy sources** Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	**Introduction** **Safeguard** 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
	to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. 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. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; 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. – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; 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. – a player while connected to an external amplifier that does not allow the user to walk around		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	while in use. For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	**Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.		N/A
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** 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. For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		N/A
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2.		
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed "programme simulation noise" as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed "programme simulation noise" as described in EN 50332-1.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.		N/A
10.6.3.2	**RS1 limits (new)**		N/A

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows: – element 1a: the symbol  , IEC 60417-6044 (2011-01) – element 2: “High sound pressure” or equivalent wording – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. 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. NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. 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. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause. The manufacturer may offer optional settings to		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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. 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.		
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % *CSD* is reached, and at least at every 100 % further increase of *CSD*, 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. The warning shall at least clearly indicate that listening above 100 % *CSD* leads to the risk of hearing damage or loss.		N/A
10.6.5.3	**Exposure-based requirements** 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. 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. Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		

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Clause	Requirement + Test	Result - Remark	Verdict

10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed "programme simulation noise" as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed "programme simulation noise" described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.3	**Cordless listening devices** 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 ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		P

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

	Delete all the “country” notes in the reference document according to the following list:		P

0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4
5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
~~10.6.1~~	Note 3	F.3.3.6	Note 3	Y.4.1	Note
Y.4.5	Note				

4	**Modification to Clause 1**		P
1	***Add*** *the following note:* *NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.*		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	**Modification to 4.Z1**		P
4.Z1	***Add*** *the following new subclause after 4.9:* To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
6	**Modification to 5.4.2.3.2.4**		N/A
5.4.2.3.2.4	***Add*** *the following to the end of this subclause:* The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
7	**Modification to 10.2.1**		N/A
10.2.1	Add the following to [c)] and [d)] in table 39: For additional requirements, see 10.5.1.		N/A

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

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

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

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		P
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: – in certain cases, the **protective current rating** 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^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
5.7.7.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	nettet." Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.".		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: 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.		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a 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. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

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

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

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

ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)**	N/A
		N/A

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

---End of Attachment 2---

EU Conformity Statement

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the EMC Directive 2014/30/EU, the RoHS Directive 2011/65/EU.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: ***http://www.recyclethis.info***.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: ***http://www.recyclethis.info***.

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instruction

- Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.
- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.
- 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.
- Shock hazard! Disconnect all power sources before maintenance.
- The equipment must be connected to an earthed mains socket-outlet.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

- ϟ indicates hazardous live and the external wiring connected to the terminals requires installation by an instructed person.
- Never place the equipment in an unstable location. The equipment may fall, causing serious personal injury or death.
- Input voltage should meet the SELV (Safety Extra Low Voltage) and the LPS (Limited Power Source) according to the IEC62368.
- High touch current! Connect to earth before connecting to the power supply.
- If smoke, odor or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.
- Use the device in conjunction with an UPS, and use factory recommended HDD if possible.
- This product contains a coin/button cell battery. If the battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- This equipment is not suitable for use in locations where children are likely to be present.
- CAUTION: Risk of explosion if the battery is replaced by an incorrect type.
- Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).
- 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.
- 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.
- Do not subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.
- Dispose of used batteries according to the instructions.
- Keep body parts away from fan blades and motors. Disconnect the power source during servicing.
- Keep body parts away from motors. Disconnect the power source during servicing.

Preventive and Cautionary Tips

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

- The device is designed for indoor use only. Install it in a well-ventilated, dust-free environment without liquids.
- Ensure recorder is properly secured to a rack or shelf. Major shocks or jolts to the recorder as a result of dropping it may cause damage to the sensitive electronics within the recorder.
- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids shall be placed on the equipment, such as vases.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc. The openings shall never be blocked by placing the equipment on a bed, sofa, rug or other similar surface.
- For certain models, ensure correct wiring of the terminals for connection to an AC mains supply.
- For certain models, the equipment has been designed, when required, modified for connection to an IT power distribution system.
-  identifies the battery holder itself and identifies the positioning of the cell(s) inside the battery holder.

- + identifies the positive terminal(s) of equipment which is used with, or generates direct current. + identifies the negative terminal(s) of equipment which is used with, or generates direct current.
- Keep a minimum 200 mm (7.87 inch) distance around the equipment for sufficient ventilation.
- For certain models, ensure correct wiring of the terminals for connection to an AC mains supply.
- Use only power supplies listed in the user manual or user instruction.
- The USB port of the equipment is used for connecting to a mouse, keyboard, USB flash drive, or Wi-Fi dongle only.
- Use only power supplies listed in the user manual or user instruction.
- Do not touch the sharp edges or corners.
- When the device is running above 45 °C (113 °F), or its HDD temperature in S.M.A.R.T. exceeds the stated value, please ensure the device is running in a cool environment, or replace HDD(s) to make the HDD temperature in S.M.A.R.T. below the stated value.

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