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 .....:	E307937-A6119-CB-2
Date of issue .....:	2023-02-01
Total number of pages.....:	91
Name of Testing Laboratory preparing the Report.....:	UL-CCIC Company Limited No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China
Applicant's name.....:	**HANGZHOU HIKVISION DIGITAL TECHNOLOGY CO LTD**
Address .....:	**NO 555 QIANMO RD** **BINJIANG DISTRICT** **HANGZHOU** **ZHEJIANG 310052 CHINA**
Test specification:	
Standard .....:	IEC 62368-1: 2018
Test procedure.....:	CB Scheme
Non-standard test method.....:	N/A
TRF template used .....:	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....:	IEC62368_1E
Test Report Form(s) Originator...:	UL(US)
Master TRF .....:	Dated 2022-04-14

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

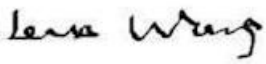
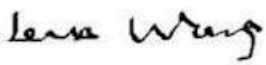
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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.....:	HANGZHOU HIKVISION DIGITAL TECHNOLOGY CO LTD NO 555 QIANMO RD BINJIANG DISTRICT HANGZHOU ZHEJIANG 310052 CHINA
Model/Type reference .....:	Construction 1: iDS-9664NXI-I16/X, iDS-9664NXI-I16/X/S,iDS-9664NXI-I16/X/SUHK,iDS-9664NXI-I16/X/SCKV, iDS-9664NXI-I16/X/SUVS, iDS-9664NXI-I16/X/SKVO, iDS-9664NXI-I16/X/SHUN *DS-96***N*I-I16********** *: 0-9 or A-Z or a-z or “-” or “/” or "(" or ")" or blank Construction 2: DS-9664NI-M16, DS-9664NI-M16/RTA, DS-9664NI-M16/RTB, DS-9664NI-M16/RTC, DS-9664NI-M16/RTD, DS-9664NI-M16/RTE, DS-9664NI-M16/RTF, DS-9664NI-M16/RTG, DS-9664NI-M16/RTH, DS-9664NI-M16/RTI, DS-9664NI-M16/RTJ, DS-9664NI-M16/YD, DS-9664NI-M16/ZC, DS-9632NI-M16/RTA, DS-9632NI-M16/RTB, DS-9632NI-M16/RTC, DS-9632NI-M16/RTD, DS-9632NI-M16/RTE, DS-9632NI-M16/RTF, DS-9632NI-M16/RTG, DS-9632NI-M16/RTH, DS-9632NI-M16/RTI, DS-9632NI-M16/RTJ, DS-9632NI-M16/YD, DS-9632NI-M16/ZC, DS-9616NI-M16/RTA, DS-9616NI-M16/RTB, DS-9616NI-M16/RTC, DS-9616NI-M16/RTD, DS-9616NI-M16/RTE, DS-9616NI-M16/RTF, DS-9616NI-M16/RTG, DS-9616NI-M16/RTH, DS-9616NI-M16/RTI, DS-9616NI-M16/RTJ, DS-9616NI-M16/YD, DS-9616NI-M16/ZC , DS-9632NI-M16, DS-9616NI-M16 DS-9664NI-M16/DX, DS-9632NI-M16/DX, DS-9616NI-M16/DX, X can be 0-9, a-z, A-Z, (,), -, /, or blank *DS-96***N*I-I16********** *can be 0-9 or A-Z or a-z or “-” or “/” or "(" or ")" or blank Construction 3: iDS-9632NXI-M16/X;iDS-9632NXI-M16/XUHK;iDS-9632NXI-M16/XCKV;iDS-9632NXI-M16/XUVS;iDS-9632NXI-M16/XKVO;iDS-9632NXI-M16/XHUN;iDS-9632NXI-M16/X/EDU;iDS-9632NXI-M16/X/RTL;iDS-9632NXI-M16/X/NRG;iDS-9632NXI-M16/X/LGX;iDS-9632NXI-M16/X/MFG;iDS-9632NXI-M16/X/RMS; iDS-9664NXI-M16/X;iDS-9664NXI-M16/XUHK;iDS-9664NXI-M16/XCKV;iDS-9664NXI-M16/XUVS;iDS-9664NXI-M16/XKVO;iDS-9664NXI-M16/XHUN;iDS-9664NXI-M16/X/EDU;iDS-9664NXI-M16/X/RTL;iDS-9664NXI-M16/X/NRG;iDS-9664NXI-M16/X/LGX;iDS-9664NXI-M16/X/MFG;iDS-9664NXI-M16/X/RMS; DS-96128NI-M16,DS-96128NI-M16on,DS-96128NI-M16UHK,DS-96128NI-M16CKV,DS-96128NI-M16UVS,DS-96128NI-M16KVO,DS-96128NI-M16HUN

	DS-9664NI-M16UHK;DS-9664NI-M16CKV;DS-9664NI-M16UVS;DS-9664NI-M16KVO;DS-9664NI-M16HUN;DS-9632NI-M16UHK;DS-9632NI-M16CKV;DS-9632NI-M16UVS;DS-9632NI-M16KVO;DS-9632NI-M16HUN;DS-96316NI-M16UHK;DS-96316NI-M16CKV;DS-96316NI-M16UVS;DS-96316NI-M16KVO;DS-96316NI-M16HUN; DS-96128NI-M16;DS-96128NI-M16UHK;DS-96128NI-M16CKV;DS-96128NI-M16RUVS;DS-96128NI-M16RKVO;DS-96128NI-M16HUN;DS-96128NI-M16EDU;DS-96128NI-M16RTL;DS-96128NI- M16NRG;DS-96128NI-M16LGX;DS-96128NI-M16MFG;DS-96128NI-M16RMS; iDS-96128NXI-M16/X；*DS-96***NI-M16******;*DS-96***NXI-M16****** '*' can be uppercase or lowercase English letter, or '/', '-', '0-9'or empty
Ratings .....:	100-240V~, 50/60Hz, 3.5A MAX

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**		
Testing location/ address .....:		UL-CCIC Company Limited, No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China	
Tested by (name, function, signature).....:		Aggie Peng / Project Handler	
Approved by (name, function, signature) ..:		Levis Wang / Reviewer	
☒	**Testing procedure: CTF Stage 1:**		
Testing location/ address .....:		Hangzhou HikVision Digital Technology Co.,Ltd. NO 518 WULIANWANG STREET BINJIANG DISTRICT HANGZHOU ZHEJIANG 310052 CHINA	
Tested by (name, function, signature).....:		Aggie Peng / Project Handler	
Approved by (name, function, signature) ..:		Levis Wang / Reviewer	
☐	**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):

National Differences (37 pages)
Enclosures (73 pages)

Summary of testing:

Tests performed (name of test and test clause):	**Testing Location:**
	CBTL: UL-CCIC Company Limited, No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China
4.4.3.2, T.5 – STEADY FORCE TEST, 250 N	
4.4.3.4, T.6 - IMPACT TEST	
4.4.3.8, T.8 – STRESS RELIEF TEST	
5.4.9.1 – ELECTRIC STRENGTH TEST – TYPE TESTING OF SOLID INSULATION	
5.6.6.2 – RESISTANCE OF THE PROTECTIVE BONDING SYSTEM	
5.7.5 – TOUCH CURRENT MEASUREMENT – EARTHED ACCESSIBLE CONDUCTIVE PARTS – SINGLE-PHASE EQUIPMENT ON IT SYSTEM	
8.6.2 – STATIC STABILITY	
8.6.3.2 – RELOCATION STABILITY TEST	
B.2.5 – INPUT TEST: SINGLE PHASE	
B.2.6, 5.4.1.4, 6.3, 9.3, B.1.5 – NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT	
B.3 – SIMULATED ABNORMAL OPERATING CONDITIONS	
B.4 – SIMULATED SINGLE FAULT CONDITIONS	
F.3.10 – TEST FOR THE PERMANENCE OF MARKINGS	
Q.1 – LIMITED POWER SOURCE	

Tests performed (name of test and test clause):	**Testing Location:**
	CTF Stage 1: Hangzhou HikVision Digital Technology Co.,Ltd. **NO 518 WULIANWANG STREET** **BINJIANG DISTRICT** **HANGZHOU** **ZHEJIANG 310052 CHINA**
4.4.3.2, T.5 – STEADY FORCE TEST, 250 N	
4.4.3.4, T.6 - IMPACT TEST	
4.4.3.8, T.8 – STRESS RELIEF TEST	
B.2.5 – INPUT TEST: SINGLE PHASE	
B.2.6, 5.4.1.4, 6.3, 9.3, B.1.5 – NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT	

B.3 – SIMULATED ABNORMAL OPERATING CONDITIONS B.4 – SIMULATED SINGLE FAULT CONDITIONS Q.1 – LIMITED POWER SOURCE	

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

Australia / New Zealand, EU Group and National Differences, Singapore, USA / Canada

☒ **The product fulfils the requirements of** AS/NZS 62368.1:2022

EN IEC 62368-1:2020+A11:2020

Special National Conditions for Singapore

CSA/UL 62368-1:2019

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

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

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

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

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

Copy of marking plate:

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

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

Test item particulars:	
Product group	end product
Classification of use by	Ordinary person Children likely to be present
Supply Connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection – type	pluggable equipment type A - appliance coupler
Considered current rating of protective device	20 A; Location: building
Equipment mobility	movable
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	N/A 0
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	55
IP protection class	IPX0
Power systems	TN
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	17.49 for constrution 1; 10.41 for construction 2(with no HDD); 10.54 for for construction 3
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 .....:	2020-12-18, 2020-12-22, 2022-07-19, 2022-08-17
Date (s) of performance of tests .....:	2021-01-15 to 2021-01-26, 2022-07-20 to 2022-07-23, 2022-08-23 to 2022-09-23
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.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	

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

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

Name and address of factory (ies) ..... :	Hangzhou Hikvision Technology Co., Ltd. No.700,Dongliu Road, Binjiang District, Hangzhou , Zhejiang, 310052, China; Hangzhou Hikvision Electronics Co., Ltd. No.299,Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou,Zhejiang,311500,China Chongqing Hikvision technology Co.,LTD NO.118.Haikang Road,Area C,Jianqiao Industrial Park,Dadukou District,Chongqing,China.

General product information and other remarks:

Product Description

This product is Network Video Recorder, powered by approved power supply, with components mounted on V-1 PWB, consist of DC fan, H.D.D (Max. 16 Provided), covered by metal and plastic enclosure.

Model Differences

Models are similar to each other except model names.

Models in construction 2 is similar to models in construction 1 except for mainboard and internal power supply.

Models in construction 3 is similar to models in construction 2 except for mainboard.

Additional Information

--This report need to be read in conjunction with original CB test report, Ref No:

1. E307937-A6119-CB-1 issued on 2021-05-12, CB test certification, Ref No: DK-113338-UL, issued on 2021-05-13

2. E307937-A6119-CB-1 Amendment 1, issued on 2022-08-26, CB test certification, Ref No: DK-113338-M1-UL, issued on 2022-08-26.

3. E307937-A6119-CB-1 Amendment 2, issued on 2022-09-05, CB test certification, Ref No: DK-113338-M2-UL,issued on 2022-09-06.

4.E307937-A6119-CB-1 Amendment 2, issued on 2022-10-25, CB test certification, Ref No: DK-113338-M3-UL,issued on 2022-10-26.

--This report were deemed to reissued due to below changes:

1. Add models in Construction 3.

--No test was considered necessary due to engineering judgment.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 55°C
- The product is intended for use on the following power systems : TN
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-10%
- The equipment disconnect device is considered to be : Appliance inlet
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : All out port
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt Group (Indicator)
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product has been evaluated and complied the AUSTRALIA / NEW ZEALAND NATIONAL DIFFERENCES, see attachment enclosure 07-03 for details.

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: X capacitor connected between L and N	Ordinary	--	--	Approved power supply
ES3: All circuits on power supply except output	Ordinary	--	--	Enclosure See 5.4.2, 5.4.3
ES1: Internal circuits	Ordinary	--	--	--
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 circuit	Enclosure	See sub-clause 6.3	See sub-clause 6.4.5 and 6.4.6	--
PS3: Internal circuit	Internal wiring or external wiring	--	--	See sub-clause 6.5
PS3: Internal circuit	Printed Wiring Board	See sub-clause 6.3	See sub-clause 6.4.5 and 6.4.6	--
PS3: Internal circuit	Other components/material	See sub-clause 6.3	See sub-clause 6.4.5 and 6.4.6	--
PS2: Output circuits	--	--	--	--
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
Lithium	Ordinary	--	--	See Annex M
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS2: Equipment mass	Ordinary	--	--	See sub-clause 8.6
MS1: Sharp edges and corners	Ordinary	--	--	--
MS1: Plastic fan	Ordinary	--	--	--
9	Thermal burn			

Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS3: Internal components	Ordinary	--	--	Enclosure
TS1: Enclosure	Ordinary	--	--	--
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: Indicator	Ordinary	--	--	--
Supplementary Information:				
“B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

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
☐ **ES** ☐ **PS** ☐ **MS** ☐ **TS** ☐ **RS**

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Clause	Requirement + Test	Result - Remark	Verdict

4	**GENERAL REQUIREMENTS**		Pass
4.1.1	Acceptance of materials, components and subassemblies		Pass
4.1.2	Use of components	Components, which are certified to IEC and/or national standards, are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	Pass
4.1.3	Equipment design and construction		Pass
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)	Pass
4.4.3	Safeguard robustness		Pass
4.4.3.1	General		Pass
4.4.3.2	Steady force tests	(See Annex T.5)	Pass
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	(See Annex T.6)	Pass
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	Pass
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	Except for PS3, no class 3 energy source is accessible within the equipment and all other safeguards remain effective.	Pass
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.5	**Explosion**		Pass
4.5.1	General	(See Annex M for batteries)	Pass
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	Pass
	No harm by explosion during single fault conditions	(See Clause B.4)	Pass
4.6	**Fixing of conductors**		N/A
	Fix conductors not to defeat a safeguard		N/A
	Compliance is checked by test ..... :		N/A
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard .. :		N/A
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**		Pass
4.10	**Component requirements**		Pass
4.10.1	Disconnect Device		Pass
4.10.2	Switches and relays		N/A
5	**ELECTRICALLY-CAUSED INJURY**		Pass
5.2	**Classification and limits of electrical energy sources**		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2	ES1, ES2 and ES3 limits		Pass
5.2.2.2	Steady-state voltage and current limits .....:	All output circuits are classified as ES1 circuit.	Pass
5.2.2.3	Capacitance limits .....:	Evaluated as part of certified switching power supply module.	N/A
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**		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V) .....:	(See appended table 5.4.9)	N/A
5.3.2.2 b)	Air gap – distance (mm) .....:		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		Pass
5.4.1.2	Properties of insulating material	Evaluated as part of certified switching power supply module.	N/A
5.4.1.3	Material is non-hygroscopic	Evaluated as part of certified switching power supply module.	N/A
5.4.1.4	Maximum operating temperature for insulating materials .....:		N/A
5.4.1.5	Pollution degrees .....:	Pollution degree 2 applicable	N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage .....:	Evaluated as part of certified switching power supply module. (See appended table 5.4.1.8)	N/A
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		N/A
5.4.2.1	General requirements	All critical clearance distances are covered in power supply evaluation.	N/A
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage .....:		—
5.4.2.3	Procedure 2 for determining clearance		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.....:		—
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)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....:		N/A
5.4.2.6	Clearance measurement .....:	(See appended table 5.4.2)	N/A
5.4.3	Creepage distances	Creepages in primary circuits covered in power supply evaluation.	N/A
5.4.3.1	General		N/A
5.4.3.3	Material group .....:		—
5.4.3.4	Creepage distances measurement .....:	(See appended table 5.4.3)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4	Solid insulation		N/A
5.4.4.1	General requirements	All critical distances through insulation are covered in power supply evaluation.	N/A
5.4.4.2	Minimum distance through insulation .....:		N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....:		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V) .....:		N/A
	Alternative by electric strength test, tested voltage (V), K_R .....:	(See appended Tables 5.4.4.9 and 5.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ).....:		N/A
	Electric strength test.....:	(See appended table 5.4.9)	N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Evaluated as part of certified switching power supply module.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Relative humidity (%), temperature (°C), duration (h)..... :		—
5.4.9	Electric strength test	(See appended table 5.4.9)	Pass
5.4.9.1	Test procedure for type test of solid insulation.....:		N/A
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test ..... :		N/A
5.4.10.2.3	Steady-state test..... :		N/A
5.4.10.3	Verification for insulation breakdown for impulse test ..... :		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
5.4.11.3	Test method and compliance ..... :	(See appended table 5.4.9)	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 ..... :	(See appended table 5.4.9)	N/A
5.4.12.3	Compatibility of an insulating liquid ..... :	(See appended table 5.4.9)	N/A
5.4.12.4	Container for insulating liquid ..... :		N/A
5.5	**Components as safeguards**		N/A
5.5.1	General	Evaluated as part of certified switching power supply module.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector ..... :		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays	(See sub-clause 5.4)	N/A
5.5.6	Resistors	(See Clause G.10)	N/A
5.5.7	SPDs	(See Clause G.8)	N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable ..... :	(See Clause G.10.3)	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) ..... :		—
5.6	**Protective conductor**		Pass
5.6.2	Requirement for protective conductors		Pass
5.6.2.1	General requirements		Pass
5.6.2.2	Colour of insulation	Evaluated as part of certified switching power supply module.	N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) ..... :	Evaluated as part of certified switching power supply module.	—
	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	Evaluated as part of certified switching power supply module.	N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). ..... :		—
5.6.4.2	Protective current rating (A) ..... :		N/A
5.6.5	Terminals for protective conductors	The earthing terminal in the appliance inlet is regarded as the main protective earthing terminal.	N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminal size for connecting protective bonding conductors (mm) .....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		Pass
5.6.6.1	Requirements		Pass
5.6.6.2	Test Method ..... :	(See appended table 5.6.6)	Pass
5.6.6.3	Resistance (Ω) or voltage drop..... :	(See appended table 5.6.6)	Pass
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**		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current	Evaluated as part of certified switching power supply module.	N/A
5.7.2.2	Measurement of voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	N/A
5.7.5	Earthed accessible conductive parts ..... :	(See appended table 5.7.5)	N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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.....:	(See appended table 5.8)	N/A
	Air gap (mm).....:		N/A
6	**ELECTRICALLY- CAUSED FIRE**		Pass
6.2	**Classification of PS and PIS**		Pass
6.2.2	Power source circuit classifications.....:	(See appended table 6.2.2)	Pass
6.2.3	Classification of potential ignition sources		Pass
6.2.3.1	Arcing PIS .....:	All connectors used within equipment are considered as arcing PIS.	Pass
6.2.3.2	Resistive PIS .....:	All components used within equipment are considered as resistive PIS.	Pass
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		Pass
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)	Pass
	Combustible materials outside fire enclosure .....:	(See appended table 4.1.2)	Pass
6.4	**Safeguards against fire under single fault conditions**		Pass
6.4.1	Safeguard method	Control of fire spread	Pass
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..... :	(See appended table B.4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards	Components other than PCB and wires are: - mounted on PCB rated V-1 or better, or - made of V-2/VTM-2 or better. - made of V-1 or better for PS3 connector subject to changing resistance (See appended tables 4.1.2 and Annex G)	Pass
6.4.6	Control of fire spread in PS3 circuits		Pass
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		Pass
6.4.8.2	Fire enclosure and fire barrier material properties		Pass
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	The fire enclosure material is metal and V-0 plastic.	Pass
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		Pass
6.4.8.3.1	Fire enclosure and fire barrier openings		Pass
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		Pass
	Openings dimensions (mm)..... :	No opening within fire cone top area of PIS of PS3 circuits.	Pass
6.4.8.3.4	Bottom openings and properties		Pass
	Openings dimensions (mm)..... :	No openings.	Pass
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard.....:		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :	Metal and V-0 plastic enclosure used.	Pass
6.4.9	Flammability of insulating liquid.....:		N/A
6.5	**Internal and external wiring**		Pass
6.5.1	General requirements		Pass
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**		Pass
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		Pass
7.2	**Reduction of exposure to hazardous substances**		N/A
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**		Pass
8	**MECHANICALLY-CAUSED INJURY**		Pass
8.2	**Mechanical energy source classifications**		Pass
8.3	**Safeguards against mechanical energy sources**		Pass
8.4	**Safeguards against parts with sharp edges and corners**		N/A
8.4.1	Safeguards		N/A
	Instructional Safeguard.....:		N/A
8.4.2	Sharp edges or corners		N/A
8.5	**Safeguards against moving parts**		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	System fan and mainboard fan are considered as MS1 energy source.	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.....:	-	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm) .....:		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- 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**		Pass
8.6.1	General	Equipment mass is considered as MS2 energy source.	Pass
	Instructional safeguard.....:	Not applicable	Pass
8.6.2	Static stability		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.2.2	Static stability test.....:	The EUT was tipped to any angle from the vertical, up to and including 10 degree C.	Pass
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		Pass
	Wheels diameter (mm).....:		—
	Tilt test		Pass
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test .....:		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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) .....:		—
9	**THERMAL BURN INJURY**		Pass
9.2	**Thermal energy source classifications**		Pass
9.3	**Touch temperature limits**		Pass
9.3.1	Touch temperatures of accessible parts .....:	(See appended table)	Pass
9.3.2	Test method and compliance		Pass
9.4	**Safeguards against thermal energy sources**		Pass
9.5	**Requirements for safeguards**		Pass
9.5.1	Equipment safeguard	Enclosure provide the equipment safeguard	Pass
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 .....:	(See appended table 9.6)	N/A
10	**RADIATION**		Pass
10.2	**Radiation energy source classification**		Pass
10.2.1	General classification	Indicator is considered as RS1.	Pass
	Lasers ..... :		—
	Lamps and lamp systems..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location .....:		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure .....:	(See Annex C)	N/A
10.4.3	Instructional safeguard ..... :		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons ..... :		—
10.5.3	Maximum radiation (pA/kg)..... :	(See appended table B.3, B.4)	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
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**		Pass
B.1	**General**		Pass
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	Pass
B.2	**Normal operating conditions**		Pass
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	Pass
	Audio Amplifiers and equipment with audio amplifiers ..... :		N/A
B.2.3	Supply voltage and tolerances		Pass
B.2.5	Input test..... :	(See appended table B.2.5)	Pass
B.3	**Simulated abnormal operating conditions**		Pass
B.3.1	General	(See appended table B.3)	Pass
B.3.2	Covering of ventilation openings		N/A
	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	(See appended table B.3)	Pass
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.8	Safeguards functional during and after abnormal operating conditions..... :	all safeguards shall remain effective	Pass
B.4	**Simulated single fault conditions**		Pass
B.4.1	General		Pass
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	(See appended table B.4)	Pass
B.4.4	Functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnection of passive components		N/A
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions ..... :	(See appended table B.3, B.4)	Pass
B.4.9	Battery charging and discharging under single fault conditions		N/A
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure 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

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Clause	Requirement + Test	Result - Remark	Verdict
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 ..... :	See Clause F.5	—
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	(See appended table B.1.5)	N/A
E.3	Audio amplifier abnormal operating conditions	(See appended table B.3, B.4)	N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		Pass
F.1	**General**		Pass
	Language ..... :	Operating / safety instructions made available to the user. Safety instructions in English. Other languages will be provided when submitted for National Approval.	—
F.2	**Letter symbols and graphical symbols**		Pass
F.2.1	Letter symbols according to IEC60027-1		Pass
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		Pass
F.3	**Equipment markings**		Pass
F.3.1	Equipment marking locations		Pass
F.3.2	Equipment identification markings		Pass
F.3.2.1	Manufacturer identification ..... :	HANGZHOU HIKVISION DIGITAL TECHNOLOGY CO LTD or E307937	Pass
F.3.2.2	Model identification ..... :	Refer to the Model information at the beginning of this Test Report.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		Pass
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage ..... :	Refer to the Rating information at the beginning of this Test Report.	Pass
F.3.3.4	Rated voltage..... :	Refer to the Rating information at the beginning of this Test Report.	Pass
F.3.3.5	Rated frequency ..... :	Refer to the Rating information at the beginning of this Test Report.	Pass
F.3.3.6	Rated current or rated power..... :	Refer to the Rating information at the beginning of this Test Report.	Pass
F.3.3.7	Equipment with multiple supply connections	Electrical ratings provided on power supply only.	N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		Pass
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :		N/A
F.3.5.2	Switch position identification marking..... :		N/A
F.3.5.3	Replacement fuse identification and rating markings ..... :		N/A
	Instructional safeguards for neutral fuse ..... :		N/A
F.3.5.4	Replacement battery identification marking..... :	See manual.	Pass
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		Pass
F.3.6.1	Class I equipment		Pass
F.3.6.1.1	Protective earthing conductor terminal ..... :	Evaluated as part of certified switching power supply module.	N/A
F.3.6.1.2	Protective bonding conductor terminals ..... :		N/A
F.3.6.2	Equipment class marking..... :		N/A
F.3.6.3	Functional earthing terminal marking ..... :		N/A
F.3.7	Equipment IP rating marking ..... :		N/A
F.3.8	External power supply output marking ..... :		N/A
F.3.9	Durability, legibility and permanence of marking		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings		Pass
F.4	**Instructions**		Pass
	a) Information prior to installation and initial use		Pass
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		Pass
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		Pass
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		Pass
	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		Pass
G	**COMPONENTS**		Pass
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**		N/A
G.3.1	Thermal cut-offs	Evaluated as part of certified switching power supply module.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
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**		N/A
G.4.1	Spacings	Evaluated as part of certified switching power supply module.	N/A
G.4.2	Mains connector configuration ..... :		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound components**		N/A
G.5.1	Wire insulation in wound components	Evaluated as part of certified switching power supply module.	N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) ..... :		—
	Test temperature (°C) ..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3	Transformers		N/A
G.5.3.1	Compliance method ..... :		N/A
	Position ..... :		N/A
	Method of protection ..... :		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings ..... :		—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter ..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation ..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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**		Pass
G.6.1	General	Evaluated as part of certified switching power supply module.	N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		Pass
G.7.1	General requirements		Pass
	Type ..... :	See critical component list	—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :	See critical component list	Pass
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N) ..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, *D* (mm) ..... :		—
	Radius of curvature after test (mm) ..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements	Evaluated as part of certified switching power supply module.	N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		Pass
G.9.1	Requirements		Pass
	IC limiter output current (max. 5A)..... :	-	—
	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	Evaluated as part of certified switching power supply module.	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**		N/A
G.11.1	General requirements	Evaluated as part of certified switching power supply module.	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5 with specifics	Evaluated as part of certified switching power supply module.	N/A
	Type test voltage $V_{ini,a}$..... :		—
	Routine test voltage, $V_{ini,b}$..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.13	**Printed boards**		Pass
G.13.1	General requirements		Pass
G.13.2	Uncoated printed boards		Pass
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
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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	(See separate test report)	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
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**		Pass
L.1	**General requirements**		Pass
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**		Pass
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		Pass
M.1	**General requirements**		Pass
M.2	**Safety of batteries and their cells**		Pass
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :	Comply with UL1642	Pass
M.3	**Protection circuits for batteries provided within the equipment**		Pass
M.3.1	Requirements		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
M.3.2	Test method		Pass
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		Pass
	Unintentional charging of a non-rechargeable battery		Pass
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance	(See appended table M.3)	Pass
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**		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
M.7	**Risk of explosion from lead acid and NiCd batteries**		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.4	Marking ..... :		N/A
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		Pass
	Instructional safeguard ..... :	See manual.	Pass
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Material(s) used ..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Value of *X* (mm)..... :		—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		Pass
P.1	**General**		Pass
P.2	**Safeguards against entry or consequences of entry of a foreign object**		Pass
P.2.1	General		Pass
P.2.2	Safeguards against entry of a foreign object		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
	Location and Dimensions (mm) ..... :	See enclosure for details	—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
P.3	**Safeguards against spillage of internal liquids**		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) ..... :		—
	Duration (weeks)..... :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		Pass
Q.1	**Limited power sources**		Pass
Q.1.1	Requirements		Pass
	a) Inherently limited output		Pass
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		Pass
Q.1.2	Test method and compliance ..... :	See Annex table	Pass
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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 ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
T	**MECHANICAL STRENGTH TESTS**		Pass
T.1	**General**		Pass
T.2	**Steady force test, 10 N ..... :**		N/A
T.3	**Steady force test, 30 N ..... :**		N/A
T.4	**Steady force test, 100 N ..... :**		N/A
T.5	**Steady force test, 250 N ..... :**	(See appended table T.5)	Pass
T.6	**Enclosure impact test**	(See appended table T.6)	Pass
	Fall test	(See appended table T.6)	Pass
	Swing test		N/A
T.7	**Drop test ..... :**		N/A
T.8	**Stress relief test..... :**	(See appended table T.9)	Pass
T.9	**Glass Impact Test .....:**	(See appended table T.9)	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**		Pass
V.1	**Accessible parts of equipment**		Pass
V.1.1	General		Pass
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
V.1.6	Terminals tested with rigid test wire		N/A
V.2	**Accessible part criterion**		Pass
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 .....:	(See appended table X)	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
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	(See Annex P.4)	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

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Clause	Requirement + Test	Result - Remark	Verdict
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 ..... :	(See Table T.6)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	**TABLE: Classification of electrical energy sources**						Pass
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
-	-	Normal	-	-	SS	-	-
-	-	Abnormal	-	-	SS	-	-
-	-	Single fault – SC/OC	-	-	SS	-	-
-	-	Normal	-	-	CP	-	-
-	-	Abnormal	-	-	CP	-	-
-	-	Single fault – SC/OC	-	-	CP	-	-
-	-	Normal	-	-	SP	-	-
-	-	Abnormal	-	-	SP	-	-
-	-	Single fault – SC/OC	-	-	SP	-	-
-	-	Normal	-	-	RP	-	-
-	-	Abnormal	-	-	RP	-	-
-	-	Single fault – SC/OC	-	-	RP	-	-
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. Class I equipment is intended to be supplied by internal switching power supply modules with ES1 output and no ES2 or ES3 voltage is generated within unit. All output circuits are classified as ES1 and no operator access to energized parts.							

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 .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict

Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)
Supplementary information:			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics				N/A
Allowed impression diameter (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:	Up (V)	U_{rms} (V)	Freq [1] (kHz)	Required cl (mm)	cl (mm)	E.S. [2] (V)	Required cr (mm)	cr (mm)
Supplementary information:								

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

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

5.4.9	TABLE: Electric strength tests	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Functional:	--	--	--
--	--	--	--
Basic/supplementary:	--	--	--
Model: iDS-9664NXI-I16X in construction 1	--	--	--
With PSU DPS-200AB-101 B	--	--	--
AC Inlet to Metal enclosure	DC	2837	No
For models DS-9664NI-M16 in construction 2	--	--	--
For PSU SFXA1251A	--	--	--
AC Inlet to Metal enclosure	DC	2837	No
For PSUHK350-48PP	--	--	--
AC Inlet to Metal enclosure	DC	2837	No
Reinforced:	--	--	--
Model: iDS-9664NXI-I16X in construction 1			
With PSU DPS-200AB-101 B	--	--	--
AC Inlet to Plastic enclosure	DC	4242	No
AC Inlet to Secondary port	DC	4242	No
For models DS-9664NI-M16 in construction 2	--	--	--
For PSU SFXA1251A	--	--	--
AC Inlet to Plastic enclosure	DC	4242	No
AC Inlet to Secondary port	DC	4242	No
For PSUHK350-48PP	--	--	--
AC Inlet to Plastic enclosure	DC	4242	No
AC Inlet to Secondary port	DC	4242	No
Routine Tests:	--	--	--
--	--	--	--
Supplementary information:			
--			

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:					

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Clause	Requirement + Test	Result - Remark	Verdict

5.6.6	TABLE: Resistance of protective conductors and terminations				Pass
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Model: iDS-9664NXI-I16X	-	-	-	-	
With PSU DPS-200AB-101 B	-	-	-	-	
Metal enclosure	32	2	0.64	0.02	
Metal enclosure	40	2	0.80	0.02	
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:						

5.7.5	TABLE: Earthed accessible conductive part			Pass
Supply voltage (V) .....:	264Vac/60Hz			—
Phase(s) .....:	single phase			
Power Distribution System .....:	TN			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Metal enclosure	1	For PSU SFXA1251A Normal:1.02 mApk Reverse:0.96 mApk For PSUHK350-48PP Normal:0.55 mApk Reverse:0.89 mApk	--	

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Clause	Requirement + Test	Result - Remark	Verdict

Metal enclosure	2*	For PSU SFXA1251A Normal:1.56 mApk Reverse:0.004mApk For PSU HK350-48PP Normal:0.98 mApk Reverse:0.007mApk	--
Supplementary Information:			
--			

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:						

6.2.2	**TABLE: Power source circuit classifications**					Pass
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
A	-	-	-	-	3	-
A	-	-	-	-	5	-
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	**TABLE: Determination of Arcing PIS**			Pass
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
-	-	-	-	-
Supplementary information:				
An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (Vp) and normal operating condition rms current (Irms) is greater than 15.				

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	**Table: Determination of Resistive PIS**		Pass
Location	Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes/No
-	-	-	-
Supplementary Information:			
Abbreviation: SC= short circuit; OC= open circuit			

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

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

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**				Pass
Supply voltage (V) .....:	See below	See below	See below	See below	—
Ambient temperature during test T_{amb} (°C) .....:	See below	See below	See below	See below	—
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)
Model: iDS-9664NXI-I16X in construction 1	--	--	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Normal condition	--	--	--	--	--
With PSU DPS-200AB-101 B	90V/60Hz	90V/60Hz	264V/60Hz	264V/60Hz	--
For PSU	--	--	--	--	--
1.T501 coil	42.6	74.4	42.7	74.5	110
2.T501 core	40.7	72.5	40.9	72.7	110
3.T901 coil	30.3	62.1	30.3	62.1	110
4.T901 core	31.4	63.2	31.1	62.9	110
5.FL2 coil	46.7	78.5	36.7	68.5	130
6.CY6	40.5	72.3	33.8	65.6	125
7.CX2	46.1	77.9	35.5	67.3	100
8.PCB under BD1	39.2	71.0	33.6	65.4	105
9.C2 Body	29.4	61.2	28.2	60.0	85
For NVR	--	--	--	--	--
10.BT1	25.3	57.1	25.1	56.9	100
11.PWB near BT1	26.2	58	25.9	57.7	105
12.PWB near U1	33.8	65.6	33	64.8	105
13.PWB near heatsink	32.9	64.7	30.4	62.2	105
14.PWB bottom Center	35.6	67.4	34.8	66.6	105
15.PWB Center for HDD board	29.0	60.8	29.4	61.2	105
16.PWB Center for sensor board	24.7	56.5	24.9	56.7	105
17.Plastic enclosure inside near sensor board	23.8	55.6	24.1	55.9	60
18.Ambient	23.2	55.0	23.2	55.0	--
19.Metal enclosure outside near PSU	26.3	28.1	26.2	28.0	70
20.Metal enclosure outside near mainboard	25.5	27.3	25.4	27.2	70
21.Metal enclosure outside near USB3.0 port	25.1	26.9	24.9	26.7	70
22.Plastic enclosure outside near sensor board	23.2	25.0	23.2	25.0	94
23.Front plastic button	22.7	24.5	22.9	24.7	77
24.AC Inlet	28.2	30	28.4	30.2	70
25.Ambient	23.2	25.0	23.2	25.0	--
Abnormal condition	--	--	--	--	--
With PSU DPS-200AB-101 B	Openings Cover	Openings Cover	USB2.0 Overload	USB2.0 Overload	--
For PSU	--	--	--	--	--
T501 coil	45.6	77	45.9	76.9	110
T501 core	42.8	74.2	42.6	73.6	110

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Clause	Requirement + Test	Result - Remark	Verdict

T901 coil	32.1	63.5	33.3	64.3	110
T901 core	33.1	64.5	33.4	64.4	110
FL2 coil	38.9	70.3	38.9	69.9	130
CY6	35.8	67.2	35.4	66.4	125
CX2	37.5	68.9	37.3	68.3	100
PCB under BD1	35.4	66.8	34.7	65.7	300
C2 Body	29.8	61.2	29.2	60.2	85
For NVR	--	--	--	--	--
BT1	31.9	63.3	29.7	60.7	100
PWB near BT1	32.8	64.2	36.6	67.6	300
PWB near U1	38.2	69.6	36.7	67.7	300
PWB near heatsink	39.1	70.5	34.8	65.8	300
PWB bottom Center	41.1	72.5	38.4	69.4	300
PWB Center for HDD board	37.6	69	30.6	61.6	300
PWB Center for sensor board	28.3	59.7	25.2	56.2	300
Plastic enclosure inside near sensor board	26.9	58.3	24.2	55.2	300
Ambient	23.6	55	24.0	55	--
Metal enclosure outside near PSU	30.5	31.9	30.0	31.0	80
Metal enclosure outside near mainboard	30.6	32.0	29.6	30.6	80
Metal enclosure outside near USB3.0 port	30.5	31.9	29.8	30.8	80
Plastic enclosure outside near sensor board	25.7	27.1	24.2	25.2	104
Front plastic button	26.2	27.6	24.0	25.0	87
AC Inlet	31.1	32.5	30.6	31.6	80
Ambient	23.6	25.0	24.0	25.0	--
With PSU DPS-200AB-101 B	USB2.0 SC	USB2.0 SC	USB3.0 SC	USB3.0 SC	--
For PSU	--	--	--	--	--
T501 coil	45.5	76.7	44.2	76.4	110
T501 core	42.6	73.8	41.7	73.9	110
T901 coil	34.6	65.8	31.3	63.5	110
T901 core	33.9	65.1	32.5	64.7	110
FL2 coil	38.9	70.1	37.5	69.7	130
CY6	35.5	66.7	34.7	66.9	125
CX2	37.2	68.4	36.6	68.8	100
PCB under BD1	34.8	66	34.4	66.6	105
C2 Body	31.6	62.8	28.5	60.7	85

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Clause	Requirement + Test	Result - Remark	Verdict

For NVR	--	--	--	--	--
BT1	30.1	61.3	25.3	57.5	100
PWB near BT1	36.9	68.1	26.5	58.7	300
PWB near U1	36.7	67.9	34.0	66.2	300
PWB near heatsink	34.6	65.8	33.0	65.2	300
PWB bottom Center	38.6	69.8	36.6	68.8	300
PWB Center for HDD board	32.2	63.4	30.2	62.4	300
PWB Center for sensor board	26.6	57.8	24.9	57.1	300
Plastic enclosure inside near sensor board	25.8	57	24.4	56.6	300
Ambient	23.8	55	22.8	55	--
Metal enclosure outside near PSU	29.6	30.8	27.8	30.0	80
Metal enclosure outside near mainboard	28.9	30.1	27.8	30.0	80
Metal enclosure outside near USB3.0 port	29.0	30.2	28.4	30.6	80
Plastic enclosure outside near sensor board	24.9	26.1	23.8	26.0	104
Front plastic button	24.6	25.8	24.2	26.4	87
AC Inlet	30.7	31.9	28.4	30.6	80
Ambient	23.8	25.0	22.8	25.0	--
With PSU DPS-200AB-101 B	USB3.0 Overload	USB3.0 Overload	--	--	--
For PSU	--	--	--	--	--
T501 coil	44.6	77	--	--	110
T501 core	42.0	74.4	--	--	110
T901 coil	32.7	65.1	--	--	110
T901 core	32.6	65	--	--	110
FL2 coil	37.8	70.2	--	--	130
CY6	34.9	67.3	--	--	125
CX2	36.8	69.2	--	--	100
PCB under BD1	34.5	66.9	--	--	105
C2 Body	28.6	61	--	--	85
For NVR	--	--	--	--	--
BT1	26.1	58.5	--	--	100
PWB near BT1	26.4	58.8	--	--	300
PWB near U1	33.3	65.7	--	--	300
PWB near heatsink	32.8	65.2	--	--	300
PWB bottom Center	35.8	68.2	--	--	300
PWB Center for HDD board	30.2	62.6	--	--	300

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Clause	Requirement + Test	Result - Remark	Verdict

PWB Center for sensor board	24.6	57	--	--	300
Plastic enclosure inside near sensor board	24.0	56.4	--	--	300
Ambient	22.6	55	--	--	--
Metal enclosure outside near PSU	27.9	30.3	--	--	80
Metal enclosure outside near mainboard	27.7	30.1	--	--	80
Metal enclosure outside near USB3.0 port	28.2	30.6	--	--	80
Plastic enclosure outside near sensor board	23.8	26.2	--	--	104
Front plastic button	24.1	26.5	--	--	87
AC Inlet	28.7	31.1	--	--	80
Ambient	22.6	25.0	--	--	--
Single fault condition	--	--	--	--	--
With PSU DPS-200AB-101 B	System fan Blocked	System fan Blocked	Mainboard fan Blocked	Mainboard fan Blocked	--
Metal enclosure outside near PSU	37.9	39.9	30.2	32.2	80
Metal enclosure outside near mainboard	37.8	39.8	28.2	30.2	80
Metal enclosure outside near USB3.0 port	37.8	39.8	29.0	31.0	80
Plastic enclosure outside near sensor board	29.6	31.6	24.5	26.5	104
AC Inlet	36.1	38.1	30.2	32.2	80
Ambient	23.0	25.0	23.0	25.0	--
With PSU DPS-200AB-101 B	Power fan Blocked	Power fan Blocked	--	--	--
Metal enclosure outside near PSU	26.8	29.3	--	--	80
Metal enclosure outside near mainboard	27.3	29.8	--	--	80
Metal enclosure outside near USB3.0 port	26.5	29.0	--	--	80
Plastic enclosure outside near sensor board	23.5	26.0	--	--	104
Front plastic button	23.4	25.9	--	--	87
AC Inlet	28.4	30.9	--	--	80
Ambient	22.5	25.0	--	--	--
For models DS-9664NI-M16 in construction 2, Normal condition	--	--	--	--	--
With PSU SFXA1251A	90Vac/60Hz	90Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	46.6	79.4	45.1	77.9	110
2 T1 core	41.5	74.3	39.8	72.6	110
3 CN1	26.2	59.0	24.7	57.5	85

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Clause	Requirement + Test	Result - Remark	Verdict

4 AC Inlet inside	25.5	58.3	24.2	57.0	70
5 PCB under Q11	43.2	76.0	34.4	67.2	130
6 C5(X)	32.6	65.4	27.5	60.3	100
7 C1(Y)	31.0	63.8	27.2	60.0	125
8 LC1 coil	33.3	66.1	27.2	60.0	130
9 L3 coil	46.9	79.7	33.4	66.2	130
10 Output wire(+)	28.0	60.8	27.1	59.9	80
11 Enclosure outside near T1 Top	26.0	58.8	25.0	57.8	REF.
For NVR	--	--	--	--	--
12 BT1	27.5	60.3	26.9	59.7	100
13 PWB near BT1	29.1	61.9	28.5	61.3	105
14 PWB near ICS	36.6	69.4	36.1	68.9	105
15 PWB near heatsink	35.3	68.1	34.7	67.5	105
16 PWB bottom center	37.5	70.3	36.7	69.5	105
17 PWB center for front panel board	24.1	56.9	23.7	56.5	105
18 PWB center for HDD board	37.1	69.9	37.0	69.8	105
19 PWB center for alarm board	24.5	57.3	24.0	56.8	105
20 HDD surface	26.7	59.5	26.2	59.0	REF.
Ambient	22.2	Shift to 55	22.2	55	--
21 Metal enclosure outside near PSU	23.6	26.4	23.0	25.8	70
22 Metal enclosure outside near USB 3.0 port	24.4	27.2	23.7	26.5	70
23 Metal enclosure outside near 12V_DC port	23.6	26.4	23.0	25.8	70
24 Plastic enclosure outside near front board	23.7	26.5	23.0	25.8	94
25 Front plastic button	23.4	26.2	22.7	25.5	77
26 Back power button	23.3	26.1	22.6	25.4	77
Ambient	22.2	Shift to 25	22.2	Shift to 25	--
With PSU HK350-48PP	90Vac/60 Hz	90Vac/60 Hz	264Vac/60Hz	264Vac/60 Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	44.6	77.4	43.1	75.8	110
2 T1 core	33.4	66.2	31.9	64.6	110
3 CX1 body	29.1	61.9	27.9	60.6	85
4 AC inlet	30.3	63.1	28.2	60.9	70
5 CY4 body	33.9	66.7	26.7	59.4	85
6 LF1 coil	39.2	72.0	30.5	63.2	130
7 CX2 body	29.4	62.2	28.6	61.3	105

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Clause	Requirement + Test	Result - Remark	Verdict

8 PCB under RT1	47.9	80.7	32.7	65.4	105
9 DC wire(+12V)	28.4	61.2	27.5	60.2	80
10 Enclosure outside near T1 Top	25.3	58.1	24.8	57.5	REF.
For NVR	--	--	--	--	--
11 BT1	27.1	59.9	27.1	59.8	100
12 PWB near BT1	28.6	61.4	28.6	61.3	105
13 PWB near ICs	35.7	68.5	35.7	68.4	105
14 PWB near heatsink	34.4	67.2	34.6	67.3	105
15 PWB bottom center	36.3	69.1	36.6	69.3	105
16 PWB center for front panel board	23.0	55.8	23.4	56.1	105
17 PWB center for HDD board	34.9	67.7	35.2	67.9	105
18 PWB center for alarm board	24.4	57.2	24.2	56.9	105
19 HDD surface	24.0	56.8	24.1	56.8	REF.
Ambient	22.2	Shift to 55	22.3	Shift to 55	--
20 Metal enclosure outside near PSU	23.2	26.0	23.2	25.9	70
21 Metal enclosure outside near USB 3.0 port	23.9	26.7	24.0	26.7	70
22 Metal enclosure outside near 12V_DC port	23.4	26.2	23.3	26.0	70
23 Plastic enclosure outside near front board	22.9	25.7	23.0	25.7	94
24 Front plastic button	22.7	25.5	22.6	25.3	77
25 Back power button	24.4	27.2	24.0	26.7	77
Ambient	22.2	Shift to 25	22.3	Shift to 25	--
For models DS-9664NI-M16 in construction 2, abnormal condition	Openings Cover	Openings Cover	USB2.0 OL	USB2.0 OL	--
With PSU SFXA1251A	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	43.3	76.6	46.7	78.5	150
2 T1 core	39.7	73.0	41.9	73.7	150
3 CN1	25.8	59.1	25.9	57.7	300
4 AC Inlet inside	25.4	58.7	25.6	57.4	300
5 PCB under Q11	34.3	67.6	36.0	67.8	300
6 C5(X)	28.8	62.1	29.2	61.0	300
7 C1(Y)	28.1	61.4	28.7	60.5	300
8 LC1 coil	28.2	61.5	28.7	60.5	300
9 L3 coil	34.0	67.3	35.2	67.0	300
10 Output wire(+)	28.1	61.4	28.1	59.9	300

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

11 Enclosure outside near T1 Top	25.7	59.0	26.1	57.9	300
For NVR	--	--	--	--	--
12 BT1	28.9	62.2	28.6	60.4	300
13 PWB near BT1	30.2	63.5	30.6	62.4	300
14 PWB near ICS	38.1	71.4	36.9	68.7	300
15 PWB near heatsink	35.9	69.2	35.9	67.7	300
16 PWB bottom center	37.9	71.2	37.4	69.2	300
17PWB center for front panel board	24.8	58.1	24.8	56.6	300
18PWB center for HDD board	36.9	70.2	38.0	69.8	300
19PWB center for alarm board	25.0	58.3	25.5	57.3	300
20 HDD surface	26.3	59.6	27.7	59.5	300
Ambient	21.7	55	23.2	55	--
21 Metal enclosure outside near PSU	24.2	27.5	24.8	26.6	80
22 Metal enclosure outside near USB 3.0 port	25.7	29.0	25.7	27.5	80
23 Metal enclosure outside near 12V_DC port	25.0	28.3	25.0	26.8	80
24 Plastic enclosure outside near front board	25.0	28.3	24.8	26.6	104
25 Front plastic button	25.0	28.3	24.6	26.4	87
26 Back power button	24.6	27.9	24.3	26.1	87
Ambient	21.7	25	23.2	25	--
With PSU HK350-48PP	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	43.7	76.2	45.3	77.0	150
2 T1 core	31.5	64.0	33.3	65.0	150
3 CX1 body	26.2	58.7	29.1	60.8	300
4 AC inlet	27.6	60.1	29.1	60.8	300
5 CY4 body	27.4	59.9	29.1	60.8	300
6 LF1 coil	29.1	61.6	31.1	62.8	300
7 CX2 body	29.0	61.5	25.7	57.4	300
8 PCB under RT1	32.8	65.3	34.8	66.5	300
9 DC wire(+12V)	27.6	60.1	29.2	60.9	300
10 Enclosure outside near T1 Top	25.2	57.7	26.4	58.1	300
For NVR	--	--	--	--	--
11 BT1	28.1	60.6	29.5	61.2	100
12 PWB near BT1	29.5	62.0	31.4	63.1	300
13 PWB near ICs	39.3	71.8	38.3	70.0	300

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
14 PWB near heatsink	36.7	69.2	36.9	68.6	300
15 PWB bottom center	38.7	71.2	38.2	69.9	300
16 PWB center for front panel board	27.1	59.6	25.2	56.9	300
17 PWB center for HDD board	40.1	72.6	37.9	69.6	300
18 PWB center for alarm board	25.2	57.7	25.9	57.6	300
19 HDD surface	27.6	60.1	26.0	57.7	300
Ambient	22.5	55	23.3	55	--
20 Metal enclosure outside near PSU	24.5	27.0	25.1	26.8	80
21 Metal enclosure outside near USB 3.0 port	25.4	27.9	26.1	27.8	80
22 Metal enclosure outside near 12V_DC port	24.7	27.2	25.2	26.9	80
23 Plastic enclosure outside near front board	25.4	27.9	25.4	27.1	104
24 Front plastic button	24.9	27.4	25.2	26.9	87
25 Back power button	24.9	27.4	25.7	27.4	87
Ambient	22.5	25	23.3	25	--
For models DS-9664NI-M16 in construction 2, Abnormal condition	HDMI OL	HDMI OL	USB3.0 OL	USB3.0 OL	--
With PSU SFXA1251A	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	48.2	79.7	46.2	78.5	150
2 T1 core	43.3	74.8	41.1	73.4	150
3 CN1	27.2	58.7	26.0	58.3	300
4 AC Inlet inside	26.8	58.3	25.5	57.8	300
5 PCB under Q11	37.5	69.0	35.6	67.9	300
6 C5(X)	30.4	61.9	28.8	61.1	300
7 C1(Y)	30.0	61.5	28.6	60.9	300
8 LC1 coil	30.0	61.5	28.4	60.7	300
9 L3 coil	36.6	68.1	34.5	66.8	300
10 Output wire(+)	29.4	60.9	28.4	60.7	300
11 Enclosure outside near T1 Top	27.1	58.6	26.3	58.6	300
For NVR	--	--	--	--	--
12 BT1	29.0	60.5	28.5	60.8	100
13 PWB near BT1	30.6	62.1	30.0	62.3	300
14 PWB near ICS	37.8	69.3	37.6	69.9	300
15 PWB near heatsink	36.7	68.2	36.5	68.8	300
16 PWB bottom center	38.4	69.9	38.4	70.7	300

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
17PWB center for front panel board	25.7	57.2	24.6	56.9	300
18PWB center for HDD board	39.0	70.5	37.6	69.9	300
19PWB center for alarm board	26.6	58.1	25.4	57.7	300
20 HDD surface	28.8	60.3	27.4	59.7	300
Ambient	23.5	55	22.7	55	--
21 Metal enclosure outside near PSU	25.7	27.2	24.3	26.6	80
22 Metal enclosure outside near USB 3.0 port	26.5	28.0	25.4	27.7	80
23 Metal enclosure outside near 12V_DC port	25.9	27.4	24.7	27.0	80
24 Plastic enclosure outside near front board	25.6	27.1	24.6	26.9	104
25 Front plastic button	25.5	27.0	24.6	26.9	87
26 Back power button	25.3	26.8	24.2	26.5	87
Ambient	23.5	25	22.7	25	--
With PSU HK350-48PP	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	45.8	77.5	44.9	77.3	150
2 T1 core	33.8	65.5	33.4	65.8	150
3 CX1 body	29.3	61.0	28.9	61.3	300
4 AC inlet	29.4	61.1	29.1	61.5	300
5 CY4 body	29.3	61.0	28.6	61.0	300
6 LF1 coil	31.4	63.1	31.4	63.8	300
7 CX2 body	25.7	57.4	29.5	61.9	300
8 PCB under RT1	35.1	66.8	34.3	66.7	300
9 DC wire(+12V)	29.4	61.1	28.5	60.9	300
10 Enclosure outside near T1 Top	26.6	58.3	25.6	58.0	300
11 BT1	29.2	60.9	28.1	60.5	100
12 PWB near BT1	30.8	62.5	29.5	61.9	300
13 PWB near ICs	38.2	69.9	37.2	69.6	300
14 PWB near heatsink	37.1	68.8	36.5	68.9	300
15 PWB bottom center	38.2	69.9	38.3	70.7	300
16 PWB center for front panel board	25.4	57.1	24.0	56.4	300
17 PWB center for HDD board	38.0	69.7	36.0	68.4	300
18 PWB center for alarm board	26.1	57.8	25.0	57.4	300
19 HDD surface	26.4	58.1	25.1	57.5	300
Ambient	23.3	55	22.6	55	--
20 Metal enclosure outside near PSU	25.2	26.9	24.1	26.5	80

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
21 Metal enclosure outside near USB 3.0 port	26.1	27.8	25.0	27.4	80
22 Metal enclosure outside near 12V_DC port	25.4	27.1	24.2	26.6	80
23 Plastic enclosure outside near front board	25.3	27.0	24.0	26.4	104
24 Front plastic button	25.2	26.9	23.9	26.3	87
25 Back power button	25.9	27.6	25.1	27.5	87
Ambient	23.3	25	22.6	25	--
For models DS-9664NI-M16 in construction 2, abnormal condition	12V_ctrl OL	12V_ctrl OL	12V_DC OL	12V_DC OL	--
With PSU SFXA1251A	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	48.6	80.8	47.0	79.4	150
2 T1 core	43.0	75.2	41.8	74.2	150
3 CN1	27.4	59.6	26.5	58.9	300
4 AC Inlet inside	26.9	59.1	26.1	58.5	300
5 PCB under Q11	37.4	69.6	36.2	68.6	300
6 C5(X)	30.3	62.5	29.0	61.4	300
7 C1(Y)	30.0	62.2	28.8	61.2	300
8 LC1 coil	30.0	62.2	28.7	61.1	300
9 L3 coil	36.3	68.5	35.0	67.4	300
10 Output wire(+)	30.0	62.2	28.8	61.2	300
11 Enclosure outside near T1 Top	27.7	59.9	26.9	59.3	300
For NVR	--	--	--	--	--
12 BT1	29.8	62.0	29.1	61.5	100
13 PWB near BT1	31.3	63.5	30.6	63.0	300
14 PWB near ICS	39.2	71.4	38.2	70.6	300
15 PWB near heatsink	37.9	70.1	37.1	69.5	300
16 PWB bottom center	39.8	72.0	38.9	71.3	300
17PWB center for front panel board	26.1	58.3	25.3	57.7	300
18PWB center for HDD board	39.0	71.2	38.2	70.6	300
19PWB center for alarm board	26.7	58.9	26.0	58.4	300
20 HDD surface	28.8	61.0	28.0	60.4	300
Ambient	22.8	55	22.6	55	--
21 Metal enclosure outside near PSU	25.7	27.9	25.0	27.4	80
22 Metal enclosure outside near USB 3.0 port	26.7	28.9	26.1	28.5	80
23 Metal enclosure outside near 12V_DC port	25.9	28.1	25.3	27.7	80

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

24 Plastic enclosure outside near front board	25.9	28.1	25.2	27.6	104
25 Front plastic button	25.7	27.9	25.0	27.4	87
26 Back power button	25.6	27.8	24.9	27.3	87
Ambient	22.8	25	22.6	25	--
With PSU HK350-48PP	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	45.4	77.7	45.5	77.9	150
2 T1 core	33.3	65.6	33.4	65.8	150
3 CX1 body	29.2	61.5	29.0	61.4	300
4 AC inlet	29.4	61.7	29.2	61.6	300
5 CY4 body	29.0	61.3	28.9	61.3	300
6 LF1 coil	31.7	64.0	31.5	63.9	300
7 CX2 body	30.2	62.5	29.9	62.3	300
8 PCB under RT1	34.6	66.9	34.6	67.0	300
9 DC wire(+12V)	29.1	61.4	28.9	61.3	300
10 Enclosure outside near T1 Top	26.4	58.7	26.1	58.5	300
For NVR	--	--	--	--	--
11 BT1	28.7	61.0	28.5	60.9	100
12 PWB near BT1	30.2	62.5	30.0	62.4	300
13 PWB near ICs	37.5	69.8	37.1	69.5	300
14 PWB near heatsink	36.8	69.1	36.5	68.9	300
15 PWB bottom center	38.3	70.6	37.8	70.2	300
16 PWB center for front panel board	24.7	57.0	24.4	56.8	300
17 PWB center for HDD board	36.7	69.0	36.4	68.8	300
18 PWB center for alarm board	25.7	58.0	25.5	57.9	300
19 HDD surface	25.9	58.2	25.5	57.9	300
Ambient	22.7	55	22.6	55	--
20 Metal enclosure outside near PSU	24.8	27.1	24.6	27.0	80
21 Metal enclosure outside near USB 3.0 port	25.7	28.0	25.4	27.8	80
22 Metal enclosure outside near 12V_DC port	25.1	27.4	24.8	27.2	80
23 Plastic enclosure outside near front board	24.9	27.2	24.7	27.1	104
24 Front plastic button	24.7	27.0	24.5	26.9	87
25 Back power button	25.7	28.0	25.5	27.9	87
Ambient	22.7	25	22.6	25	--

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

For models DS-9664NI-M16 in construction 2, single fault condition	System Fan blocked	System Fan blocked	power Fan blocked	power Fan blocked	--
With PSU SFXA1251A	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
For PSU	--	--	--	--	--
1 T1 Coil	49.8	82.1	41.5	73.3	150
2 T1 core	44.6	76.9	38.8	70.6	150
3 CN1	34.2	66.5	27.3	59.1	300
4 AC Inlet inside	33.3	65.6	26.8	58.6	300
5 PCB under Q11	38.3	70.6	32.4	64.2	300
6 C5(X)	39.2	71.5	32.1	63.9	300
7 C1(Y)	37.6	69.9	31.2	63.0	300
8 LC1 coil	37.4	69.7	30.1	61.9	300
9 L3 coil	40.7	73.0	33.8	65.6	300
10 Output wire(+)	38.5	70.8	27.9	59.7	300
11 Enclosure outside near T1 Top	34.8	67.1	26.7	58.5	300
For NVR	--	--	--	--	--
12 BT1	30.2	62.5	29.7	61.5	100
13 PWB near BT1	32.7	65.0	31.3	63.1	300
14 PWB near ICS	51.2	83.5	38.1	69.9	300
15 PWB near heatsink	48.4	80.7	37.1	68.9	300
16 PWB bottom center	50.4	82.7	38.7	70.5	300
17PWB center for front panel board	30.4	62.7	26.2	58.0	300
18PWB center for HDD board	57.4	89.7	39.0	70.8	300
19PWB center for alarm board	33.3	65.6	26.9	58.7	300
20 HDD surface	59.4	91.7	27.4	59.2	300
Ambient	22.7	55	23.2	55	--
21 Metal enclosure outside near PSU	28.8	31.1	26.0	27.8	80
22 Metal enclosure outside near USB 3.0 port	30.3	32.6	26.9	28.7	80
23 Metal enclosure outside near 12V_DC port	30.1	32.4	26.3	28.1	80
24 Plastic enclosure outside near front board	27.2	29.5	26.0	27.8	104
25 Front plastic button	26.8	29.1	25.9	27.7	87
26 Back power button	28.8	31.1	25.9	27.7	87
Ambient	22.7	25	23.2	25	--
With PSU HK350-48PP	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--

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

For PSU	--	--	--	--	--
1 T1 Coil	47.6	80.5	44.4	77.2	150
2 T1 core	42.3	75.2	33.0	65.8	150
3 CX1 body	35.8	68.7	24.8	57.6	300
4 AC inlet	35.4	68.3	27.6	60.4	300
5 CY4 body	41.9	74.8	27.1	59.9	300
6 LF1 coil	37.3	70.2	30.2	63.0	300
7 CX2 body	37.7	70.6	26.5	59.3	300
8 PCB under RT1	44.1	77.0	30.9	63.7	300
9 DC wire(+12V)	36.5	69.4	28.2	61.0	300
10 Enclosure outside near T1 Top	33.9	66.8	24.7	57.5	300
11 BT1	30.0	62.9	27.9	60.7	100
12 PWB near BT1	32.8	65.7	29.4	62.2	300
13 PWB near ICs	51.6	84.5	35.7	68.5	300
14 PWB near heatsink	47.7	80.6	35.2	68.0	300
15 PWB bottom center	50.5	83.4	36.5	69.3	300
16 PWB center for front panel board	29.5	62.4	24.3	57.1	300
17 PWB center for HDD board	57.5	90.4	37.6	70.4	300
18 PWB center for alarm board	33.8	66.7	24.7	57.5	300
19 HDD surface	60.0	92.9	25.2	58.0	300
Ambient	22.1	55	22.2	55	--
20 Metal enclosure outside near PSU	28.9	31.8	23.9	26.7	80
21 Metal enclosure outside near USB 3.0 port	30.1	33.0	24.6	27.4	80
22 Metal enclosure outside near 12V_DC port	30.5	33.4	24.0	26.8	80
23 Plastic enclosure outside near front board	27.1	30.0	23.9	26.7	104
24 Front plastic button	26.7	29.6	23.7	26.5	87
25 Back power button	32.5	35.4	24.6	27.4	87
Ambient	22.1	25	22.2	25	--
Model iDS-9664NXI-M16/X in construction 3	--	--	--	--	--
Normal condition	--	--	--	--	--
Switching Power Supply: SFXA1251A	90 Vac / 60 Hz	90 Vac / 60 Hz	264 Vac / 60 Hz	264 Vac / 60 Hz	--
Ambient	23.0	shift to 55.0	23.6	shift to 55.0	--
PSU：	--	--	--	--	--
1.T1 coil	39.4	71.4	44.2	75.6	110

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

2.T1 core	40.5	72.5	44.6	76.0	110
3.CN1	34.1	66.1	34.1	65.5	85
4.AC Inlet inside	29.3	61.3	28.6	60.0	70
5.PCB under Q11	47.4	79.4	43.9	75.3	130
6.C5(X)	43.9	75.9	40.1	71.5	100
7.C1(Y)	37.1	69.1	36.2	67.6	125
8.LC1 coil	36.5	68.5	37.5	68.9	130
9.L3 coil	50.3	72.3	46.7	78.1	130
10.Output wire(+)	31.4	63.4	31.6	63.0	80
11.Enclosure outside near T1 Top	38.3	70.3	40.4	71.8	REF.
NVR：	--	--	--	--	--
12.BT1	35.7	67.7	36.3	67.7	100
13.PWB near U1(DS-80505)	46.8	78.8	46.0	77.4	105
14.PWB near U1(DS-8281)	30.6	62.6	31.2	62.6	105
15.PWB near U46(DS-8294)	30.3	52.3	30.7	62.1	105
16.HDD surface	35.2	67.2	35.9	67.3	REF.
17.Plastic enclosure(internal)	27.3	59.3	27.7	59.1	REF.
Touch temperature	--	--		--	--
18.Plastic enclosure(Faceplate near USB)	26.4	28.4	26.7	28.1	77
19.Bottom metal enclosure near internal power supply	31.5	33.5	32.1	33.5	60
Ambient	23.0	shift to 25	23.6	shift to 25	--
Switching Power Supply: HK350-48PP	90 Vac / 60 Hz	90 Vac / 60 Hz	264 Vac / 60 Hz	264 Vac / 60 Hz	--
Ambient	22.5	shift to 55.0	20.4	shift to 55.0	--
PSU：	--	--	--	--	--
1.T1 coil	39.9	72.4	37.7	72.3	110
2.T1 core	38.0	70.5	37.2	71.8	110
3.CX1 body	35.6	68.1	32.4	67.0	85
4.AC Inlet	29.9	62.4	29.0	63.6	70
5.CY4 body	42.8	75.3	36.3	70.9	85
6.LF1 coil	55.3	87.8	37.8	72.4	130
7.CX2 body	36.3	68.8	31.0	65.6	105
8.PCB under RT1	54.2	86.7	36.6	71.2	105

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
9.DC wire(+12V)		44.6	77.1	35.5	70.1	80
10.Enclosure outside near T1 Top		45.3	77.8	43.4	78.0	REF.
NVR：		--	--	--	--	--
11.BT1		35.9	68.4	35.5	70.1	100
12.PWB near U1(DS-80505)		41.2	73.7	40.9	75.5	105
13.PWB near U1(DS-8281)		36.8	69.3	36.4	71.0	105
14.PWB near U46(DS-8294)		38.2	70.7	37.7	72.3	105
15.HDD surface		35.8	68.3	34.2	68.8	REF.
16.Plastic enclosure(internal)		26.9	59.4	25.1	59.7	REF.
Touch temperature		--	--	--	--	--
17.Plastic enclosure(Faceplate near USB)		27.4	29.9	27.9	32.5	77
18.Bottom metal enclosure near internal power supply		32.6	35.1	32.6	37.2	60
Ambient		22.5	shift to 25	20.4	shift to 25	--
For PSU SFXA1251A		--	--	--	--	--
Abnormal condition		Openings covered	Openings covered	--	--	--
Ambient		24.2	shift to 55.0	--	--	--
PSU：		--	--	--	--	--
1.T1 coil		45.9	76.7	--	--	175
2.T1 core		46.3	77.1	--	--	175
3.CN1		35.8	66.6	--	--	300
4.AC Inlet inside		30.3	61.1	--	--	300
5.PCB under Q11		45.6	76.4	--	--	300
6.C5(X)		41.8	72.6	--	--	300
7.C1(Y)		37.9	68.7	--	--	300
8.LC1 coil		39.2	70.0	--	--	300
9.L3 coil		48.4	79.2	--	--	300
10.Output wire(+)		33.3	64.1	--	--	300
11.Enclosure outside near T1 Top		42.1	72.9	--	--	300
NVR：		--	--	--	--	--
12.BT1		38	68.8	--	--	100
13.PWB near U1(DS-80505)		47.7	78.5	--	--	300
14.PWB near U1(DS-8281)		32.9	63.7	--	--	300
15.PWB near U46(DS-8294)		32.4	63.2	--	--	300

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

16.HDD surface	37.6	68.4	--	--	300
17.Plastic enclosure(internal)	29.4	60.2	--	--	--
Touch temperature	--	--	--	--	--
18.Plastic enclosure(Faceplate near USB)	28.4	29.2	--	--	104
19.Bottom metal enclosure near internal power supply	33.8	34.6	--	--	80
Ambient	24.2	shift to 25	--	--	--
Abnormal condition	12V_Ctrl overload	12V_Ctrl overload	--	--	--
Ambient	23.4	shift to 55.0	--	--	--
PSU：	--	--	--	--	--
1.T1 coil	49.1	80.7	--	--	175
2.T1 core	51.5	83.1	--	--	175
3.CN1	38.9	70.5	--	--	300
4.AC Inlet inside	35.4	67.0	--	--	300
5.PCB under Q11	37.4	69.0	--	--	300
6.C5(X)	38.9	70.5	--	--	300
7.C1(Y)	42.2	73.8	--	--	300
8.LC1 coil	47.6	79.2	--	--	300
9.L3 coil	58.0	89.6	--	--	300
10.Output wire(+)	44.8	76.4	--	--	300
11.Enclosure outside near T1 Top	40.0	71.6	--	--	300
NVR：	--	--	--	--	--
12.BT1	45.4	77.0	--	--	100
13.PWB near U1(DS-80505)	43.1	74.7	--	--	300
14.PWB near U1(DS-8281)	41.4	73.0	--	--	300
15.PWB near U46(DS-8294)	39.6	71.2	--	--	300
16.HDD surface	40.9	72.5	--	--	300
17.Plastic enclosure(internal)	29.8	61.4	--	--	--
Touch temperature	--	--	--	--	--
18.Plastic enclosure(Faceplate near USB)	29.3	30.9	--	--	104
19.Bottom metal enclosure near internal power supply	35.7	37.3	--	--	80
Ambient	23.4	shift to 25	--	--	--
For PSU HK350-48PP	--	--	--	--	--

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

Abnormal condition	Openings covered	Openings covered	--	--	--
Ambient	20.3	shift to 55.0	--	--	--
PSU：	--	--	--	--	--
1.T1 coil	41.0	75.7	--	--	175
2.T1 core	40.5	75.2	--	--	175
3.CX1 body	35.7	70.4	--	--	300
4.AC Inlet	32.3	67.0	--	--	300
5.CY4 body	39.6	74.3	--	--	300
6.LF1 coil	41.1	75.8	--	--	300
7.CX2 body	34.3	69.0	--	--	300
8.PCB under RT1	39.9	74.6	--	--	300
9.DC wire(+12V)	38.8	73.5	--	--	300
10.Enclosure outside near T1 Top	46.7	81.4	--	--	300
NVR：	--	--	--	--	--
11.BT1	38.8	73.5	--	--	100
12.PWB near U1(DS-80505)	44.2	78.9	--	--	300
13.PWB near U1(DS-8281)	39.7	74.4	--	--	300
14.PWB near U46(DS-8294)	41.0	75.7	--	--	300
15.HDD surface	37.5	72.2	--	--	300
16.Plastic enclosure(internal)	31.2	65.9	--	--	--
Touch temperature	--	--	--	--	--
17.Plastic enclosure(Faceplate near USB)	28.4	33.1	--	--	104
18.Bottom metal enclosure near internal power supply	35.9	40.6	--	--	80
Ambient	20.3	shift to 25	--	--	--
Abnormal condition	12V_Ctrl overload	12V_Ctrl overload	--	--	--
Ambient	22.8	shift to 55.0	--	--	--
PSU：	--	--	--	--	--
1.T1 coil	51.4	83.6	--	--	175
2.T1 core	53.8	86.0	--	--	175
3.CX1 body	42.3	74.5	--	--	300
4.AC Inlet	39.7	71.9	--	--	300

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
5.CY4 body	47.1	79.3	--	--	300
6.LF1 coil	60.3	92.5	--	--	300
7.CX2 body	41.2	73.4	--	--	300
8.PCB under RT1	49.9	82.1	--	--	300
9.DC wire(+12V)	44.5	76.7	--	--	300
10.Enclosure outside near T1 Top	41.2	73.4	--	--	300
NVR：	--	--	--	--	--
11.BT1	37.7	69.9	--	--	100
12.PWB near U1(DS-80505)	47.7	79.9	--	--	300
13.PWB near U1(DS-8281)	45.4	77.6	--	--	300
14.PWB near U46(DS-8294)	43.7	75.9	--	--	300
15.HDD surface	43.2	75.4	--	--	300
16.Plastic enclosure(internal)	38.0	70.2	--	--	--
Touch temperature	--	--	--	--	--
17.Plastic enclosure(Faceplate near USB)	32.1	34.3	--	--	104
18.Bottom metal enclosure near internal power supply	41.9	44.1	--	--	80
Ambient	22.8	shift to 25	--	--	--
For PSU SFXA1251A	--	--	--	--	--
Single Fault Condition	Fans stalled	Fans stalled	--	--	--
Ambient	23.3	shift to 55.0	--	--	--
PSU：	--	--	--	--	--
1.T1 coil	48.3	80.0	--	--	175
2.T1 core	48.7	80.4	--	--	175
3.CN1	38.2	69.9	--	--	--
4.AC Inlet inside	32.7	64.4	--	--	--
5.PCB under Q11	48.0	79.7	--	--	--
6.C5(X)	44.2	75.9	--	--	--
7.C1(Y)	40.3	72.0	--	--	--
8.LC1 coil	41.6	73.3	--	--	--
9.L3 coil	50.8	82.5	--	--	--
10.Output wire(+)	35.7	67.4	--	--	--
11.Enclosure outside near T1 Top	44.5	76.2	--	--	--
NVR：	--	--	--	--	--

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

12.BT1	40.4	72.1	--	--	--
13.PWB near U1(DS-80505)	50.1	81.8	--	--	--
14.PWB near U1(DS-8281)	35.3	67.0	--	--	--
15.PWB near U46(DS-8294)	34.8	66.5	--	--	--
16.HDD surface	40.0	71.7	--	--	--
17.Plastic enclosure(internal)	31.8	63.5	--	--	--
Touch temperature	--	--	--	--	--
18.Plastic enclosure(Faceplate near USB)	30.8	32.5	--	--	104
19.Bottom metal enclosure near internal power supply	36.2	37.9	--	--	80
Ambient	23.3	shift to 25	--	--	--
For HK350-48PP	--	--	--	--	--
Single Fault Condition	Fans stalled	Fans stalled	--	--	--
Ambient	20.0	shift to 55.0	--	--	--
PSU：	--	--	--	--	--
1.T1 coil	42.4	77.4	--	--	175
2.T1 core	41.9	76.9	--	--	175
3.CX1 body	37.1	72.1	--	--	300
4.AC Inlet	33.7	68.7	--	--	--
5.CY4 body	41.0	76.0	--	--	--
6.LF1 coil	42.5	77.5	--	--	--
7.CX2 body	35.7	70.7	--	--	--
8.PCB under RT1	41.3	76.3	--	--	--
9.DC wire(+12V)	40.2	75.2	--	--	--
10.Enclosure outside near T1 Top	48.1	83.1	--	--	--
NVR：	--	--	--	--	--
11.BT1	40.2	75.2	--	--	--
12.PWB near U1(DS-80505)	45.6	80.6	--	--	--
13.PWB near U1(DS-8281)	41.1	76.1	--	--	--
14.PWB near U46(DS-8294)	42.4	77.4	--	--	--
15.HDD surface	38.9	73.9	--	--	--
16.Plastic enclosure(internal)	32.6	67.6	--	--	--
Touch temperature	--	--	--	--	--
17.Plastic enclosure(Faceplate near USB)	29.8	34.8	--	--	104

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

18.Bottom metal enclosure near internal power supply	37.3	42.3	--	--	80
Ambient	20.0	shift to 25	--	--	--

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:

Tamb = The thermal steady state temperature measurement of the ambient air.

T = The thermal steady state temperature measurement.

Tmax = The limit of the thermal steady state temperature measurement.

B.2.5	**TABLE: Input test**							Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Model: iDS-9664NXI-I16X	--	--	--	--	--	--	--	--
For PSU: DPS-200AB-101B	--	--	--	--	--	--	--	--
90V/50Hz	--	1.13	--	101.70	--	F1	1.13	Max normal load
90V/60Hz	--	1.14	--	102.60	--	F1	1.14	Max normal load
100V/50Hz	--	1.02	3.50	102.00	--	F1	1.02	Max normal load
100V/60Hz	--	1.03	3.50	103.00	--	F1	1.03	Max normal load
240V/50Hz	--	0.47	3.50	99.88	--	F1	0.47	Max normal load
240V/60Hz	--	0.48	3.50	99.85	--	F1	0.48	Max normal load
264V/50Hz	--	0.45	--	99.82	--	F1	0.45	Max normal load
264V/60Hz	--	0.46	--	99.48	--	F1	0.46	Max normal load
For models	--	--	--	--	--	--	--	--

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

DS-9664 NI-M16 in construction 2								
For PSU SFXA1251A	--	--	--	--	--	--	--	--
90Vac	50	1.36	--	120.5	--	F1	1.36	Max normal load
90Vac	60	1.35	--	120.5	--	F1	1.35	Max normal load
100Vac	50	1.22	3.50	120.0	--	F1	1.22	Max normal load
100Vac	60	1.21	3.50	119.8	--	F1	1.21	Max normal load
240Vac	50	0.52	3.50	116.8	--	F1	0.52	Max normal load
240Vac	60	0.54	3.50	117.1	--	F1	0.54	Max normal load
264Vac	50	0.49	--	116.6	--	F1	0.49	Max normal load
264Vac	60	0.51	--	116.8	--	F1	0.51	Max normal load
For PSU: HK350-48PP	--	--	--	--	--	--	--	--
90Vac	50	1.35	--	120.2	--	F1	1.35	Max normal load
90Vac	60	1.36	--	120.6	--	F1	1.36	Max normal load
100Vac	50	1.21	3.50	119.7	--	F1	1.21	Max normal load
100Vac	60	1.21	3.50	120.0	--	F1	1.21	Max normal load
240Vac	50	0.51	3.50	117.0	--	F1	0.51	Max normal load
240Vac	60	0.52	3.50	117.1	--	F1	0.52	Max normal load

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

264V ac	50	0.49	--	116.6	--	F1	0.49	Max normal load
264V ac	60	0.50	--	116.8	--	F1	0.50	Max normal load
Model iDS-9664 NXI-M16/X in construction 3	--	--	--	--	--	--	--	--
PSU: SFXA1251A	--	--	--	--	--	--	--	--
90	50	1.43	--	127.95	--	F1	1.43	Max normal load
90	60	1.44	--	128.13	--	F1	1.44	Max normal load
100	50	1.28	3.5	127.34	--	F1	1.28	Max normal load
100	60	1.29	3.5	128.02	--	F1	1.29	Max normal load
240	50	0.56	3.5	124.01	--	F1	0.56	Max normal load
240	60	0.57	3.5	124.03	--	F1	0.57	Max normal load
264	50	0.52	--	123.61	--	F1	0.52	Max normal load
264	60	0.53	--	123.66	--	F1	0.53	Max normal load
PSU: HK350-48PP	--	--	--	--	--	--	--	--
90	50	1.43	--	127.78	--	F1	1.43	Max normal load
90	60	1.44	--	128.03	--	F1	1.44	Max normal load
100	50	1.28	3.5	127.19	--	F1	1.28	Max normal load
100	60	1.28	3.5	127.82	--	F1	1.28	Max normal load
240	50	0.56	3.5	123.91	--	F1	0.56	Max normal load
240	60	0.56	3.5	123.93	--	F1	0.56	Max normal load
264	50	0.52	--	123.53	--	F1	0.52	Max normal load
264	60	0.53	--	123.56	--	F1	0.53	Max normal load

Supplementary information:

Maximum normal load: Work continuously, with 16 HDDs, each USB 2.0 loaded 0.5A, each USB 3.0 loaded 0.9A.

Work continuously, with 16 HDDs, each USB 2.0 loaded 0.5A, each USB 3.0 loaded 0.9A,12V_ctrl load 1A, 12V_DC load 1A.

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

For construction 3: Powered by listed power supply and continuously operated in normal working mode.HDD 8Tx16, USB2.0 load 0.5A, USB3.0 load 0.9A, 12V_ctrl load 1A, 12V_DC load 1A.

B.3, B.4	**TABLE: Abnormal operating and fault condition tests**					Pass
Ambient temperature T_{amb} (°C) ..... :				Se below		—
Power source for EUT: Manufacturer, model/type, output rating . :				--		—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Model: iDS-9664NXI-I16X	--	--	--	--	--	--
For PSU: DPS-200AB-101 B	--	--	--	--	--	--
Openings	Cover	100Vac/ 60Hz	1h12min	F1	0.46 to 0.46	Unit normal operated NC,NT,NB
USB3.0	SC	100Vac/ 60Hz	53min	F1	0.50to0.49	Unit normal operated NC,NT,NB
USB3.0	Overload	100Vac/ 60Hz	1h5min	F1	0.50to0.51to0.49	Unit normal operated ,and shutdown with load 1.60A NC,NT,NB
USB2.0	SC	100Vac/ 60Hz	48min	F1	0.50to0.48	Unit normal operated NC,NT,NB
USB2.0	Overload	100Vac/ 60Hz	2h5min	F1	0.50to0.53To0.49	Unit normal operated ,and shutdown with load 2.70A NC,NT,NB
Model: iDS-9664NXI-I16X	--	--	--	--	--	--
For PSU: DPS-200AB-101 B	--	--	--	--	--	--
System fan	Blocked	100Vac/ 60Hz	3h4min	F1	0.50 to 0.50	Unit normally operated NC,NT,NB
Mainboard fan	Blocked	100Vac/ 60Hz	1h47min	F1	0.50 to 0.50	Unit normally operated NC,NT,NB
Power fan	Blocked	100Vac/ 60Hz	2h2min	F1	0.45to 0.46	Unit normally operated NC,NT,NB
For models DS-9664NI-M16 in construction 2	--	--	--	--	--	--
With PSU SFXA1251A	--	--	--	--	--	--
Openings	Cover	264Vac/ 60Hz	57min	--	0.48	Unit can work. NB,NF

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
USB3.0	OL	264Vac/ 60Hz	2h18mi n	--	0.48-> 0.50-> 0.45	Unit can work. 3.0 USB port shutdown immediately at load1.56A. NB,NF
USB3.0	SC	264Vac/ 60Hz	5min	--	0.45	Unit can work. The input current decreases. NB,NF
USB2.0	OL	264Vac/ 60Hz	2h26mi n	--	0.48-> 0.49-> 0.47	Unit can work. 2.0USB port shutdown immediately at load0.98A. NB,NF
USB2.0	SC	264Vac/ 60Hz	5min	--	0.47	Unit can work. The input current decreases. NB,NF
HDMI	OL	264Vac/ 60Hz	2h24mi n	--	0.48-> 0.49-> 0.48	Unit can work. HDMI port shutdown immediately at load0.71A. NB,NF
HDMI	SC	264Vac/ 60Hz	5min	--	0.48	Unit normal work. NB,NF
12V_ctrl	OL	264Vac/ 60Hz	2h15mi n	--	0.48-> 0.50-> 0.44	Unit can work. 12DC ctrl port shutdown immediately at load1.51A NB,NF
12V_ctrl	SC	264Vac/ 60Hz	5min	--	0.44	Unit can work. The input current decreases. NB,NF
12V_DC outport	OL	264Vac/ 60Hz	2h32mi n	--	0.48-> 0.50-> 0.44	Unit can work. 12DC port shutdown immediately at load1.46A NB,NF
12V_DC outport	SC	264Vac/ 60Hz	5min	--	0.44	Unit can work. The input current decreases. NB,NF
With PSU HK350-48PP	--	--	--	--	--	--

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

Openings	Cover	264Vac/ 60Hz	1h25min	--	0.47	Unit can work. NB,NF
USB3.0	OL	264Vac/ 60Hz	2h19min	--	0.47-> 0.48-> 0.44	Unit can work. 3.0 USB port shutdown immediately at load1.54A. NB,NF
USB3.0	SC	264Vac/ 60Hz	5min	--	0.45	Unit can work. The input current decreases. NB,NF
USB2.0	OL	264Vac/ 60Hz	2h54min	--	0.47-> 0.48-> 0.45	Unit can work. 2.0 USB port shutdown immediately at load0.96A. NB,NF
USB2.0	SC	264Vac/ 60Hz	5min	--	0.46	Unit can work. The input current decreases. NB,NF
HDMI	OL	264Vac/ 60Hz	2h32min	--	0.47-> 0.48-> 0.47	Unit can work. HDMI port shutdown immediately at load0.71A. NB,NF
HDMI	SC	264Vac/ 60Hz	5min	--	0.47	Unit normal work. NB,NF
12V_ctrl	OL	264Vac/ 60Hz	2h22min	--	0.47-> 0.49-> 0.43	Unit can work. 12DC ctrl port shutdown immediately at load1.51A NB,NF
12V_ctrl	SC	264V/60 Hz	5min	--	0.41	Unit can work. The input current decreases. NB,NF
12V_DC outport	OL	264V/60 Hz	1h58min	--	0.47-> 0.49-> 0.42	Unit can work. 12DC port shutdown immediately at load1.45A NB,NF
12V_DC outport	SC	264V/60 Hz	5min	--	0.41	Unit can work. The input current decreases. NB,NF

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Clause	Requirement + Test			Result - Remark		Verdict
For models DS-9664NI-M16 in construction 2, single fault	--	--	--	--	--	--
With PSU SFXA1251A	--	--	--	--	--	--
System fan	Blocked	264Vac/ 60Hz	2h23min	--	0.47	Blocked two system fans,unit can work. NB,NF
Power fan	Blocked	264Vac/ 60Hz	1h37min	--	0.48	Blocked one power fan,unit can work. NB,NF
With PSU HK350-48PP	--	--	--	--	--	--
System fan	Blocked	264Vac/ 60Hz	2h45min	--	0.46	Blocked two system fans,unit can work. NB,NF
Power fan	Blocked	264Vac/ 60Hz	1h33min	--	0.47	Blocked one power fan,unit can work. NB,NF
Model iDS-9664NXI-M16/X in construction 3	--	--	--	--	--	--
For PSU SFXA1251A	--	--	--	--	--	--
OPENINGS	COVERED	264V/60 Hz	180min	--	0.53	EUT normal work,No fire,no explosion,no emit molten metal,no hazardous. See the table below
12V_Ctrl	OVERLOAD	264V/60 Hz	180min	--	0.53→0.55→0.49	EUT normal work, when 12V_Ctrl Port load 1.49A, 12V_Ctrl Port shutdown immediately,No fire,no explosion,no emit molten metal,no hazardous. See the table below
Fans	Blocked	264V/60 Hz	180min	F1	0.53	EUT normal work,No fire,no explosion,no emit molten metal,no hazardous. See the table below
For PSU HK350-48PP	--	--	--	--	--	--
OPENINGS	COVERED	264V/60 Hz	180min	--	0.53	EUT normal work,No fire,no explosion,no emit molten metal,no hazardous. See the table below
12V_Ctrl	OVERLOAD	264V/60 Hz	180min	--	0.53→0.55→0.48	EUT normal work, when 12V_Ctrl Port load 1.49A, 12V_Ctrl Port shutdown immediately,No fire,no

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Clause	Requirement + Test	Result - Remark	Verdict

						explosion,no emit molten metal,no hazardous. See the table below
12V_Ctrl	SC	264V/60 Hz	10 min	--	0.48	12V_Ctrl Port shutdown immediately, No damage,no hazard.
Fans	Blocked	264V/60 Hz	180min	F1	0.53	EUT normal work,No fire,no explosion,no emit molten metal,no hazardous. See the table below
Supplementary information:						
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4. See clause B.4						

M.3	**TABLE: Protection circuits for batteries provided within the equipment**						Pass
Is it possible to install the battery in a reverse polarity position? .....:				-			—
Equipment Specification	Charging						
	Voltage (V)			Current (A)			
	-			-			
Manufacturer/type	Battery specification						
	Non-rechargeable batteries		Rechargeable batteries				
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
-	-	-	-	-	-	-	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C) .....:				-			

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
-	-	-	-	-	-	-	-
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal. Due to engineering judgement, double protection, the reverse current will not exceed the limits of the RTC battery							

M.4.2	**TABLE: Charging safeguards for equipment containing a secondary lithium battery**	N/A

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

Maximum specified charging voltage (V) ..... :		—
Maximum specified charging current (A) ..... :		—
Highest specified charging temperature (°C) ..... :		
Lowest specified charging temperature (°C) ..... :		

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

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						Pass
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
Model: iDS-9664NXI-I16X	--	--	--	--	--	--	--
USB2.0(1)	USB2.0(1)	5.05	60	2.51	8	9.41	100
USB2.0(2)	USB2.0(2)	5.05	60	2.51	8	9.40	100
RJ 45(1)	RJ 45(1)	0	60	0	8	0	100
RJ 45(2)	RJ 45(2)	0	60	0	8	0	100
LINE IN	LINE IN	0	60	0	8	0	100
AUDIO OUT1	AUDIO OUT1	0	60	0	8	0	100
AUDIO OUT2	AUDIO OUT2	0	60	0	8	0	100
HDMI1	HDMI1	4.82	60	0	8	0	100
HDMI2	HDMI2	4.82	60	0	8	0	100
VGA1	VGA1	0	60	0	8	0	100
VGA2	VGA2	0	60	0	8	0	100
RS-232	RS-232	0	60	0	8	0	100
USB3.0	USB3.0	5.04	60	1.61	8	6.95	100
eSATA	eSATA	0	60	0	8	0	100
ALARM OUT	ALARM OUT	0	60	0	8	0	100
RS-485	RS-485	5.03	60	0	8	0	100

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
ALARM IN	ALARM IN	4.85	60	0	8	0	100
KB Port	KB Port	0	60	0	8	0	100
For models DS-9664NI-M16 in construction 2	--	--	--	--	--	--	--
USB2.0	Normal	4.93	60	0.97	8	4.34	100
USB2.0	UL4 PIN1&PIN 3 SC	5.04	60	6.80	8	9.13	100
Lan1	Normal	0	60	0	8	0	100
Lan 2	Normal	0	60	0	8	0	100
AUDIO OUT1	Normal	1.51	60	0	8	0	100
AUDIO OUT2	Normal	1.56	60	0	8	0	100
VIDEO OUT	Normal	0.91	60	0	8	0	100
HDMI	Normal	4.96	60	0.68	8	2.38	100
VGA1	Normal	0	60	0	8	0	100
VGA2	Normal	0	60	0	8	0	100
RS-232	Normal	5.47	60	0	8	0	100
USB3.0	Normal	4.93	60	1.53	8	6.97	100
USB3.0	UL3 PIN1&PIN 3 SC	5.04	60	6.05	8	20.65	100
eSATA	Normal	0	60	0	8	0	100
ALARM OUT all port	Normal	0	60	0	8	0	100
RS-485	Normal	0	60	0	8	0	100
ALARM IN	Normal	0	60	0	8	0	100
Ctrl 12V	Normal	11.97	60	1.48	8	16.95	100
Ctrl 12V	RL50 SC	12.00	60	0.15	8	1.51	100
DC12V	Normal	12.06	60	1.46	8	16.64	100
DC12V	UV1 PIN4&PIN5 SC	12.10	60	1.47	8	16.88	100
Model iDS-9664NXI-M16/X in construction 3	--	--	--	--	--	--	

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

USB2.0	Normal	4.93 Vdc	60	0.97	8	4.34	100
USB2.0	UL4 Pin1-3 SC	5.04 Vdc	60	6.80	8	9.13	100
Lan1	Normal	0	60	0	8	0	100
Lan2	Normal	0	60	0	8	0	100
AUDIO OUT1	Normal	1.51 Vdc	60	0	8	0	100
AUDIO OUT2	Normal	1.56 Vdc	60	0	8	0	100
VIDEO OUT	Normal	0.91 Vdc	60	0	8	0	100
HDMI	Normal	4.96 Vdc	60	0.68	8	2.38	100
VGA1	Normal	0	60	0	8	0	100
VGA2	Normal	0	60	0	8	0	100
RS-232	Normal	5.47 Vdc	60	0	8	0	100
USB3.0	Normal	4.93 Vdc	60	1.53	8	6.97	100
USB2.0	UL3 Pin1-3 SC	5.04 Vdc	60	6.05	8	20.65	100
eSATA	Normal	0	60	0	8	0	100
ALARM OUT all port	Normal	0	60	0	8	0	100
RS-485	Normal	0	60	0	8	0	100
ALARM IN	Normal	0	60	0	8	0	100
Ctrl 12V	Normal	11.97 Vdc	60	1.48	8	16.95	100
Ctrl 12V	RL50 SC	12.00 Vdc	60	0.15	8	1.51	100
DC12V	Normal	12.06 Vdc	60	1.46	8	16.64	100
DC12V	UV1 Pin4-5 SC	12.10 Vdc	60	1.47	8	16.88	100
Supplementary Information:							
SC=Short circuit, OC=Open circuit							

T.2, T.3, T.4, T.5	**TABLE: Steady force test**	Pass

Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Model: iDS-9664NXI-I16X	--	--	--	--	--	--
Top side near PSU	Metal	1	-	250	5	No damage

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

Bottom side near PSU	Metal	1	-	250	5	No damage
Sides near PSU	Metal	1	-	250	5	No damage
Front plastic panel	Plastic	2.5	-	250	5	No damage
Top side near mainboard	Metal	1	-	250	5	No damage
Model iDS-9664NXI-M16/X in construction 3	--	--	--	--	--	--
Plastic Faceplate	Plastic	2.5	--	250	5	Intact
Supplementary information:						
Plastic: NINGBO LG YONGXING CHEMICAL CO LTD, FR-500						

T.6, T.9	**TABLE: Impact test**			Pass
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Model: iDS-9664NXI-I16X	--	--	--	--
Top side near PSU	Metal	1.0	1300	A pit, No damage
Bottom side near PSU	Metal	1.0	1300	A pit, No damage
Sides near PSU	Metal	1.0	1300	A pit, No damage
Front plastic panel	Plastic	2.5	1300	No damage
Top side near mainboard	Metal	1.0	1300	A pit, No damage
Model iDS-9664NXI-M16/X in construction 3	--	--	--	--
Plastic Faceplate	Plastic	2.5	1300	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**				Pass
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation

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

Model: iDS-9664NXI-I16X	--	--	--	--	--
Front plastic enclosure	Plastic	2.5	70	7	No damage
Model iDS-9664NXI-M16/X in construction 3	--	--	--	--	--
Plastic Faceplate	Plastic	2.5	70	7	Intact
Supplementary information:					
-					

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

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

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

4.1.2	**TABLE: Critical components information**	Pass

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
1. Metal Enclosure part	--	--	Metal, min. 1mm thick, details see enclosure 4-01 for details	--	-- , --
2. Front Plastic Enclosure part	NINGBO LG YONGXING CHEMICAL CO LTD	FR-500	V-0, min. 2.5mm thick, details see enclosure 4-01 for details	UL94, UL746C	UL , -
2a. Front Plastic Enclosure part for construction 3-USB2.0 Module Upper Cover	KINGFA SCI & TECH CO LTD	FRABS-518	2.5 mm,V-0, see enclosure 4-01 for details	UL94, UL746C	UL , -
2b. Front Plastic Enclosure part for construction 3	Covestro Deutschland AG [PC Resins]	FR3010	1.94 mm,V-0, see enclosure 4-01 for details	UL94, UL746C	UL , -
3-01. Internal Power Supply for construction 1	Delta Electronic, Inc.	DPS-250AB-101 B	Input: 100-240Vac, 6.0A, 47Hz-63Hz. Output: +3.3V, 10A(MAX). +5V, 15A(MAX). +12V, 15A(MAX). +5Vsb, 2.0A(MAX). CONTINUE MAX POWER 250W	IEC 60950-1 2nd, UL 60950-1, UL 62368-1	UL , CB by TUV (Certificate No. JPTUV-068384 for IEC 60950-1).
3-02. Internal Power Supply for construction 2&3	ACBEL POLYTECH INC	SFXA1251A	I/P:100-240V, 50/60Hz, 4.0A O/P: +12.0V/20.8A, total power 250W max	IEC/UL 62368-1	UL E131875 , CB by TUV (Certificate No. JPTUV-126670).
3-02a. Internal Power Supply for construction 2&3(Alternate)	SHENZHEN HUNTKEY ELECTRIC CO LTD	HK350-48PP	AC Input: 100-240Vac, 50-60Hz, 4A DC Output: +12V, 20.8A; Max. Output power:250W	IEC/UL 62368-1	UL E181356 , CB by UL (Certificate No. DK-120446-UL).

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
4. Internal wiring, secondary	Interchangeable	Interchangeable	Rated VW-1, 80 degree C	UL758	UL , --
5. Interconnecting Cable (Optional)	Interchangeable	Interchangeable	Minimum 80 degree C, maximum 3.05m long, jacketed, marked "VW-1"	UL 758	UL , --
5a. Interconnecting Cable -Alternate (Optional)	Interchangeable	Interchangeable	Type CM	UL 444	UL , --
6.Connectors and Receptacles (secondary circuits)	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated V-2 minimum	UL94, UL746C	UL , --
6a. Connectors and Receptacles (secondary circuits) (Alternate)	Interchangeable	Interchangeable	Metal/Plastic	UL498, UL1977	UL , --
7. Label	Interchangeable	Interchangeable	Minimum 60 degree C, suitable for surface applied.	UL969	UL , --
8. Printed wiring board	Interchangeable	Interchangeable	Minimum V-1, minimum 105 degree C	UL796	UL , --
9. Internal Plastic (Optional)	Interchangeable	Interchangeable	V-2 minimum.	UL 94, UL 746C	UL , --
10. System fan (Two provided)	SUNON Wealth Electric Machine Industry Co., Ltd	EE92251B3-000C-A99	12Vdc, 0.091A, 39.5CFM	UL507, EN60950-1	UL , --
10a. System fan (Two provided) (Alternate)	YEN SUN TECHNOLOGY CORPORATION	FD129225MB(2N5)	12Vdc, 0.22A, 53.1CFM	UL507, EN60950-1	UL , --
10b. System fan (Two provided) (Alternate)	PROTECHNIC ELECTRIC	MGA9212SB-O25	12Vdc, 0.105A, 44.34CFM	UL507, EN60950-1	UL , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
10c. System fan (Two provided) (Alternate)	ASIA VITAL COMPONENTS CO LTD	DAZA0925B2L-006	12Vdc, 0.08A, 41.2CFM	UL507, EN60950-1	UL , --
11. Mainboard fan (One provided) for construction 1	DONGGUAN PROTECHNIC ELECTRIC CO LTD	MGA4012LB-O15	12Vdc, 0.09A, 6.15CFM	UL507, EN60950-1	UL , --
12.RTC battery	GUANGZHOU TIANQIU ENTERPRISE CO LTD	CR1220	Max Abnormal Charging Current 2.5ma, Max Abnormal Charging Voltage 3.5V dc.	UL1642	UL , --
13.Power Supply Cord (Optional)	Interchangeable	Interchangeable	0.75mm^2 or 18AWG minimum. Detachable, minimum 1.5m, maximum 2.4m long, Type SVT or SJT or SPT-2 flexible cord, rated minimum 125 V if one end terminated in NEMA 5-15P grounding type attachment plug; rated 277 V or minimum 250 V if one end terminated in NEMA 6-15P grounding type attachment plug, the other end in an appliance coupler	UL 62, UL 498, UL 817	UL , --
14.H.D.D (Max. 16 Provided) (Optional)	Interchangeable	Interchangeable	12Vdc, maximum 0.1A. 5Vdc, maximum 0.3A	UL 60950-1 2nd, UL 62368-1	UL , --
14a.H.D.D (Max. 16 Provided)	Interchangeable	Interchangeable	12Vdc, maximum 0.59A.	UL 60950-1 2nd, UL 62368-1	UL , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
(Optional) for construction 3			5Vdc, maximum 0.77A		
15. Protective IC for USB2.0 port	DIODES INC	AP2822GKBTR-G1	Rated Voltage: 2.7-5.5Vdc, Cont. Current 2.0A, Prot. Current 3.2A, 70 degree C	UL2367, IEC 62368-1: 2014	UL , CB Cert No.:US-34501-UL
15a. Protective IC for USB2.0 port for construction 3	DIODES INC	AP2822CKBTR-G1	Rated Voltage: 2.7-5.5Vdc, Cont. Current 1.0A, Prot. Current 2.1A, 70 degree C	UL2367, IEC 62368-1: 2014	UL , CB Cert No.:US-34501-UL
15b. Protective IC for USB2.0 port for construction 3	RICHTEK TECHNOLOGY CORP	RT9701GB	2.6-6.0VDC, 1.1A, Protective current 2.0A	UL2367	UL , --
16. Protective IC for USB3.0 port	DIODES INC	AP2822GKBTR-G1	Rated Voltage: 2.7-5.5Vdc, Cont. Current 2.0A, Prot. Current 3.2A, 70 degree C	UL2367, IEC 62368-1: 2014	UL , CB Cert No.:US-34501-UL
17-01.Heatsink-01 for construction 1	--	--	Aluminum, See enclosure 4-02 for details.	--	-- , --
17-02.Heatsink-02 for construction 1	--	--	Aluminum, See enclosure 4-03 for details	--	-- , --
18-01.Heatsink for construction 2&3	--	--	Aluminum, See enclosure 4-04 for details	--	-- , --
19. PTC of HDMI for construction 2&3	Wayon Electronics Co Ltd	LP-TSM020(*)(XX)	9V, Im=0.2A, It=0.5A	UL 1434, UL 60730-1,	UL E202125 , --
20. Power Distribution Switch for 12V out port for construction 3	SG Micro Corp	SGM2521YS8G/TR	Input Voltage Range: 4.5Vdc to 24Vdc	UL 60950-1, IEC 60950-1	UL , CB BY UL(DK-82510-UL)

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]

Supplementary information:

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

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

3) The CBTL has verified the component information

4) License available upon request

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.
Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

Clause	Measurement / testing	Testing / measuring equipment / material used, (Equipment ID)	Range used	Last Calibration date	Calibration due date

Enclosure
National Differences

Australia / New Zealand
EU Group and National Differences
Singapore
USA / Canada

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT **IEC 62368-1** (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (**Audio/video, information and communication technology equipment**)	
Differences according to ……..:	AS/NZS 62368.1:2022
TRF template used: ……..:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No. ……..:	AU_NZ_ND_IEC62368_1E
Attachment Originator ……..:	JAS-ANZ
Master Attachment ……..:	2022-07-01

	National Differences		
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand		Pass
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0)		Pass
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		Pass
2	After the first paragraph, *add* the following: The Australian or Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC normative references and are required for the application of this Standard. All references in the source text to those IEC normative references shall be replaced by references to the corresponding Australian or Australian/New Zealand Standards. Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably -AS/NZS 3112, *Approval and test specification—Plugs and socket-outlets* -AS/NZS 3123, *Approval and test specification—Plugs, socket-outlets and couplers for general industrial application* -AS/NZS 3191, *Electric flexible cords* *-AS/NZS 60884.1.Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* *-IEC 60086-2 Primary batteries — Part 2: Physical and electrical specifications* -AS/NZS 60065, *Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)* -AS/NZS 60320.1, *Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)*		Pass

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	-AS/NZS 60320.2.2, *Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)* -AS/NZS 60695.2.11*, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products* -AS/NZS 60695.11.5, *Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance* -AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods* -AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* -AS/NZS 60950.1, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)* IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification* -AS/NZS 61558.1, *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)* -AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.*		
4.7.2	**Requirements** *Delete* the text of the second paragraph and *replace* with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet conforming to AS/NZS 3112, shall conform to the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112. NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements Note Additional AS/NZS 3112 Appendix J,TRF is appended to end of this TRF.		N/A
4.7.3	**Compliance Criteria** *Delete* this clause		N/A

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.1	**General** After second list, *add* the following: NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia..		N/A
5.4.10.2.1	**General** *Delete* the first paragraph and *replace* with the following: In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3..		N/A
Table 28	*Delete* Table 28 and *replace* with the following:		N/A
5.4.10.2.2	*Delete* "NOTE" and *replace* with "NOTE 1". After NOTE 1, *add* the following: NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		N/A
5.4.10.2.3	*Delete* "NOTE" and *replace* with "NOTE 1". After NOTE 1, *add* the following: NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 3: The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A
6	**Electrically-caused fire**		
6.6	After Clause 6.6, *add* the new Clauses 6.201 as follows: **6.201 External power supplies, docking stations and other similar devices** (see special national conditions)		N/A
8.6	**Stability of equipment**		
Table 36	Footnote [a], after first sentence, *add* the following:		N/A

Parts	Impulse test		Steady state test	
	New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) [a]	2.5 kV	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) [b]	1.5 kV [c]		1.0 kV	1.5 kV

[a] Surge suppressors shall not be removed.
[b] Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment.
[c] During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Equipment having displays with moving images shall include “television sets and display devices”.		
8.6.1	After Clause 8.6.1 *add* the following new clauses: **8.6.201 Restraining Device fixing point** (see special national conditions) **8.6.202 Restraining device** (see special national conditions)		N/A
Annex F **Paragraph F.3.3.4**	**Rated Voltage** *Delete* “NOTE” and *replace* with NOTE1” After NOTE 1, *add* the following Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with: (a) A rated voltage of: • 230 V for single phase equipment • 400 V for poly phase equipment Or (b) A rated voltage range that includes: • 230 V for single phase equipment • 400 V for poly phase equipment NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or new Zealand.		N/A
Annex F.3.3.5	After the list, *add* the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz		N/A
Annex F.3.8	After “The DC output of an external power supply”, insert ”or docking stations and other similar external devices”		N/A
Annex G **Paragraph G.4.2**	**Mains connectors** 1 After “IEC 60320”, insert “or AS/NZS 60320 series”. 2 After “IEC 60906-1”, insert”or AS/NZS 3123” 3 *After* first paragraph *add* the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.		N/A
Paragraph G.5.3.1	**Transformers, General** 1 Third dashed point *replace* ‘IEC 61558-1 and the relevant parts of IEC 61558-2’ with ‘AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2’ 2 Fourth dashed point *replace* ‘IEC 61558-2-16’ with ‘AS/NZS 61558.2.16’.		N/A

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex G.7.1	**Mains supply cords, General** Fourth dashed paragraph, *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Table G.7	**Sizes of conductors** 1 First column, second row, *delete* "6" and *replace* with "7.5" 2 Second column, second row, *delete* '0,75' and *replace* with '0.75[b] 3 *Delete* NOTE 1. 4 *Replace* 'NOTE 2' with 'NOTE:'. 5 *Delete* 'Footnote b' and *replace* with the following: [b] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm^2 three-core supply flexible cords are not permitted; see AS/NZS 3191). 6 Footnote c *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' 7 Footnote d *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M M 2.1	*Add* "IEC 60086-2" to the list		N/A
Annex M Paragraph M.3.2	**Test method** Delete"NOTE" and replace with "NOTE 1" After NOTE 1 *add* the following: NOTE 2: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of ES1 may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		N/A
	Special national conditions (if any)		
6.201	**External power supplies, docking stations and other similar devices** For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— (a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a singlefault condition and after 3 s of introducing abnormal operating conditions; and (b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	output rated voltage under normal operating conditions, whichever is higher, measured after3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, *TC 108, Standards Interpretation Panel Question 15 — Output voltage*, in relation to similar requirements in IEC 62368-3:2017. Conformity shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single fault conditions of Annex B.4.		
8.6.201	**Restraining device fixing point** Freestanding-capable MS2 and MS3 television sets and display devices shall be provided with a fixing point to facilitate the anchoring of the equipment from toppling The fixing point shall conform to Clause 8.7 where the fixing point uses a wall, ceiling or other structure mount. Alternatively, the fixing point shall be capable of withstanding a pull equal to the mass of the equipment in all directions without damage Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point		N/A
8.6.202	**Restraining device** MS2 and MS3 television sets and display devices shall be provided with a restraining device and associated hardware to attach to the television set or display device. The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions. Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT **AS_NZS_3112:2017_+A1:2021 Appendix J** **AUSTRALIAN / NEW ZEALAND NATIONAL DIFFERENCES** **(Approval and test specification—Plugs and socket-outlets)**		
Differences according to ……..: AS_NZS_3112:2017_Amendment 1:2021_Appendix J		
TRF template used: ……..: IECEE OD-2020-F3, Ed. 1.1		
Attachment Form No. ……..: AS_NZS_3112:2017_Appendix J **Attachment Originator ……..**: JAS-ANZ **Master Attachment** ……..: 2022-06		
	Note: AS/NZS 3112 is NOT covered by IECEE Accreditation for Testing / Reporting **Please State Laboratory Accreditation for this Standard**	
	Accreditation	
	Accreditation Stamp	

J1 SCOPE	General: This Appendix specifies additional dimensional and constructional requirements for detachable plug portions, or equipment incorporating integral supply pins or equipment incorporating detachable plug portions. This Appendix shall be read in conjunction with Section 2 of this Standard. For the purposes of this Appendix, where the term ‘plug’ is used in Section 2 it shall be taken to mean the plug portion of equipment or the detachable plug portion. The equipment shall comply with the relevant product Standard. The tests and requirements specified in this Appendix are in addition to any test and requirements of the relevant product Standard for the equipment. (AS/NZS 3112:2017/A1:2021)	N/A

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)		
	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".		
	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		
1	**Modification to Clause 3 .**		
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*		Pass
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.		Pass
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.		Pass

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	$E = \int_0^T p(t)^2 \, \mathrm{d}t$		
3.3.19.4	**sound exposure level, *SEL*** logarithmic measure of sound exposure relative to a reference value, *E0*, 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.		Pass
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.		Pass
2	**Modification to Clause 10**		
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 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– 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		

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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		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** 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.		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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)** 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.		N/A
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**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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.		
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.** 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.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 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.		N/A
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 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.		
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

<table>
<tr><th colspan="4">IEC62368_1E – ATTACHMENT</th></tr>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td>10.6.6.3</td><td>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 LAeq,T acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.</td><td></td><td>N/A</td></tr>
<tr><td>10.6.6.4</td><td>Measurement method

Measurements shall be made in accordance with EN 50332-2 as applicable.</td><td></td><td>N/A</td></tr>
<tr><td>3</td><td colspan="2">Modification to the whole document</td><td></td></tr>
<tr><td></td><td colspan="2">Delete all the “country” notes in the reference document according to the following list:

<table>
<tr><td>0.2.1</td><td>Note 1 and 2</td><td>1</td><td>Note 4 and 5</td><td>3.3.8.1</td><td>Note 2</td></tr>
<tr><td>3.3.8.3</td><td>Note 1</td><td>4.1.15</td><td>Note</td><td>4.7.3</td><td>Note 1 and 2</td></tr>
<tr><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 12</td><td>Note c</td><td>5.4.2.3.2.4</td><td>Note 1 and 3</td></tr>
<tr><td>5.4.2.3.2.4 Table 13</td><td>Note 2</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr>
<tr><td>5.4.10.2.1</td><td>Note</td><td>5.4.10.2.2</td><td>Note</td><td>5.4.10.2.3</td><td>Note</td></tr>
<tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3 and 4</td></tr>
<tr><td>5.6.8</td><td>Note 2</td><td>5.7.6</td><td>Note</td><td>5.7.7.1</td><td>Note 1 and Note 2</td></tr>
<tr><td>8.5.4.2.3</td><td>Note</td><td>10.2.1 Table 39</td><td>Note 3 and 4 and 5</td><td>10.5.3</td><td>Note 2</td></tr>
<tr><td><s>10.6.1</s></td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td><td>Y.4.1</td><td>Note</td></tr>
<tr><td>Y.4.5</td><td>Note</td><td></td><td></td><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td>4</td><td colspan="2">Modification to Clause 1</td><td></td></tr>
<tr><td>1</td><td>Add the following note:</td><td></td><td>N/A</td></tr>
</table>

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		
5	**Modification to 4.Z1**		
4.Z1	***Add** the following new subclause after 4.9:* To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N/A
6	**Modification to 5.4.2.3.2.4**		
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**		
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A
8	**Modification to 10.5.1**		
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 cm², at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		
9	**Modification to G.7.1**		
G.7.1	***Add** the following note:* NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
10	**Modification to Bibliography**		
	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.		
11	**ADDITION OF ANNEXES**		

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	• 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. 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).		N/A
5.5.6	**Finland, Norway** and **Sweden**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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.		
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.4.2.1	**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:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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.		
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet." Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.".		
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
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		
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
ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)**		

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Clause	Requirement + Test	Result - Remark	Verdict

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

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT **IEC 62368-1** **SINGAPORE NATIONAL DIFFERENCES** Audio/video, information and communication technology equipment - Part 1: Safety requirements	
Differences according to…….:	Special National Conditions
TRF template used: ……:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No. …….:	SG_ND_IEC62368_1E
Attachment Originator ……:	Intertek Testing Services (Singapore) Pte Ltd
Master Attachment …….:	2022-07-08

	National Differences		
	Not Applicable		N/A
Chapter 4.2	**Special national conditions (if any)** Controlled goods under the Consumer Protection (Safety Requirements) Registration Scheme (CPS) are required to be tested to additional requirements stipulated by the Consumer Product Safety Office (CPSO) of Enterprise Singapore in Chapter 7 of the CPS information booklet. The CPS information booklet is updated on an ongoing basis. At the point of testing, refer to the latest copy of the CPS information booklet for the minimum edition of standard to apply for testing of products under the CPS scheme and any new requirements. Link to CPS information booklet: https://www.consumerproductsafety.gov.sg/files/cps-info-booklet.pdf		P
Clause 1	All appliances must be tested to 230 VAC, 50 Hz.		N/A
4	Appliance fitted with voltage selector shall be tested as follows: Connect appliance to 230 VAC mains with voltage selector switch to settings not suitable for operation at 230 VAC.		N/A
5	All appliances (with tropical test requirements in applicable Standards) shall comply with the tropical condition test as stated in the relevant IEC Standards.		N/A
7	All Class I appliances must be fitted with 3-pin mains plugs that are registered with the CPSO.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8	a) All Class II appliances must be fitted with 2-pin mains plug complying with EN 50075. b) Class II appliances that are fitted with 3-pin mains plugs must use plugs that are registered with the CPSO.		N/A
9	Detachable power cord set must be listed in the test report critical component list.		N/A
14	AC Adaptor incorporated with 13A socket-outlet to be tested to additional tests clauses 13, 17 and 18 of SS 145 Part 3: 2020.		N/A
15	Supplier who is supplying AC adaptors with detachable interchangeable plug pins must include with its products, written instructions to inform customer on the type of detachable interchangeable plug pins that are approved and suitable to use in Singapore. These instructions are to be submitted to the Conformity Assessment Body for verification when applying for Certificate of Conformity.		N/A
16	For AC Adaptors supplied together with Personal Mobility Devices: 1. Registered Supplier to declare the model of the AC adaptor that is to be used with/ bundled together with the PMDs; 2. Registered Supplier to provide valid IEC 60950-1 or IEC 62368-1 test reports for certification and registration of the declared AC adaptor under the CPS scheme; and 3. Registered Supplier to provide the UL 2272 test report as supporting document, showing that the listed AC adaptor in the UL 2272 test report is the model declared to be used with/ bundled together with the PMDs.		N/A
18	CD/ DVD ROMs (used in personal computers) to have test certificate showing that CD/DVD ROM drive has complied with IEC 60825- 1.		N/A
19	Modem card incorporated in the personal computer must be tested at set level (sub-clauses 5.1 & 6 of IEC 60950) or at component level.		N/A
20	Powerline Ethernet Adaptor incorporated with 13A socket-outlet, to be tested to additional test clauses 13, 17 & 18 of SS 145 Part 3: 2020.		N/A
	Other additional requirements which may be included in Chapter 7 of the information booklet in ongoing basis at the time of testing.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT **IEC 62368-1** **U.S.A. AND CANADA NATIONAL DIFFERENCES** (Audio/video, information and communication technology equipment – Part 1: Safety requirements)	
Differences according to……:	CSA/UL 62368-1:2019
TRF template used……...:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No……...:	US_CA_ND_IEC62368_1E
Attachment Originator……:	UL(US)
Master Attachment……..:	Dated 2022-03-04

IEC 62368-1 - US and Canadian National Differences **Special National Conditions based on Regulations and Other National Differences**			
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		N/A
1 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits (≤ 200V per conductor to earth).		N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (1DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.1 (4.1.17)	For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		N/A
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked “W.”		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m^2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.”		N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted disconnect switches and circuit breakers with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.		N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centers, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		N/A
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm^2) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		N/A
Annex DVH (DVH.5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

Enclosures

Type	Supplement Id	Description
Photographs	03-01	Overall view-01
Photographs	03-02	Overall view-02
Photographs	03-03	Overall view-03
Photographs	03-04	Overall view-04
Photographs	03-05	Overall view-05
Photographs	03-06	Internal view-01
Photographs	03-07	Internal view-02
Photographs	03-08	Top side view of mainboard
Photographs	03-09	Bottom side view of mainboard
Photographs	03-10	Top side view of HDD board
Photographs	03-11	Bottom side view of HDD board
Photographs	03-12	Top side view of sensor board
Photographs	03-13	Bottom side view of sensor board
Photographs	03-14	Top side view of sensor board-01
Photographs	03-15	Bottom side view of sensor board-01
Photographs	03-16	Top side view of sensor board-02
Photographs	03-17	Top side view of system fan
Photographs	03-18	Top side view of mainboard fan
Photographs	03-19	Top side view of heatsink-01
Photographs	03-20	Top view For models DS-9664NI-M16 in construction 2
Photographs	03-21	bottom view For models DS-9664NI-M16 in construction 2
Photographs	03-22	front view For models DS-9664NI-M16 in construction 2
Photographs	03-23	back view For models DS-9664NI-M16 in construction 2
Photographs	03-24	side view-1 For models DS-9664NI-M16 in construction 2
Photographs	03-25	side view-2 For models DS-9664NI-M16 in construction 2
Photographs	03-26	internal view-1 For models DS-9664NI-M16 in construction 2
Photographs	03-27	Internal view-2 For models DS-9664NI-M16 in construction 2
Photographs	03-28	internal view-3 For models DS-9664NI-M16 in construction 2
Photographs	03-29	top view of mainboard For models DS-9664NI-M16 in construction 2
Photographs	03-30	Bottom view of mainboard For models DS-9664NI-M16 in construction 2

Enclosures

Photographs	03-31	top view of alarm board For models DS-9664NI-M16 in construction 2
Photographs	03-32	Bottom view of alarm board For models DS-9664NI-M16 in construction 2
Photographs	03-33	top view of HDDboard For models DS-9664NI-M16 in construction 2
Photographs	03-34	bottom view of HDDboard For models DS-9664NI-M16 in construction 2
Photographs	03-35	Overall view for iDS-9664NXI-M16/X in construction 3
Photographs	03-36	Internal view for iDS-9664NXI-M16/X in construction 3
Photographs	03-37	Top view of mainboard for iDS-9664NXI-M16/X in construction 3
Photographs	03-38	Bottom view of mainboard for iDS-9664NXI-M16/X in construction 3
Photographs	03-39	Top view of board 8294 for iDS-9664NXI-M16/X in construction 3
Photographs	03-40	Bottom view of board 8294 for iDS-9664NXI-M16/X in construction 3
Photographs	03-41	Top view of board 8281 for iDS-9664NXI-M16/X in construction 3
Photographs	03-42	Bottom view of board 8281 for iDS-9664NXI-M16/X in construction 3
Diagrams	04-01	Enclosure spec.
Diagrams	04-02	Heatsink-01
Diagrams	04-03	Heatsink-02
Diagrams	04-04	Heatsink-01 for construction 2
Diagrams	04-05	Enclosure Spec for construction 3
Manuals	06-01	Manual
Manuals	06-02	battery caution
Miscellaneous	07-01	Factory declaration
Miscellaneous	07-02	Power supply certificate
Miscellaneous	07-04	Test equipment

Photographs ID 03-01

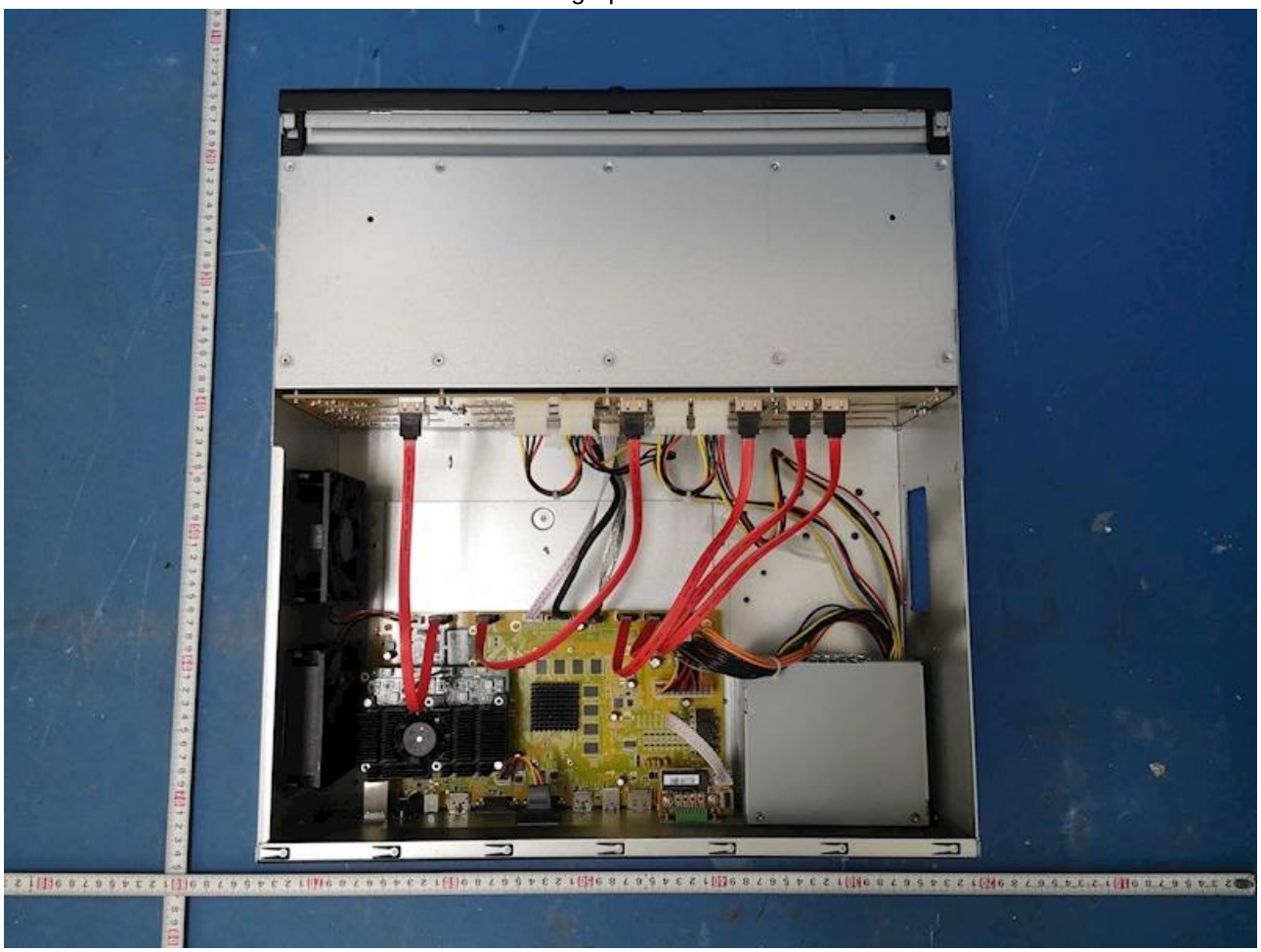
Photographs ID 03-02

Photographs ID 03-03

Photographs ID 03-04

Photographs ID 03-05

Photographs ID 03-06



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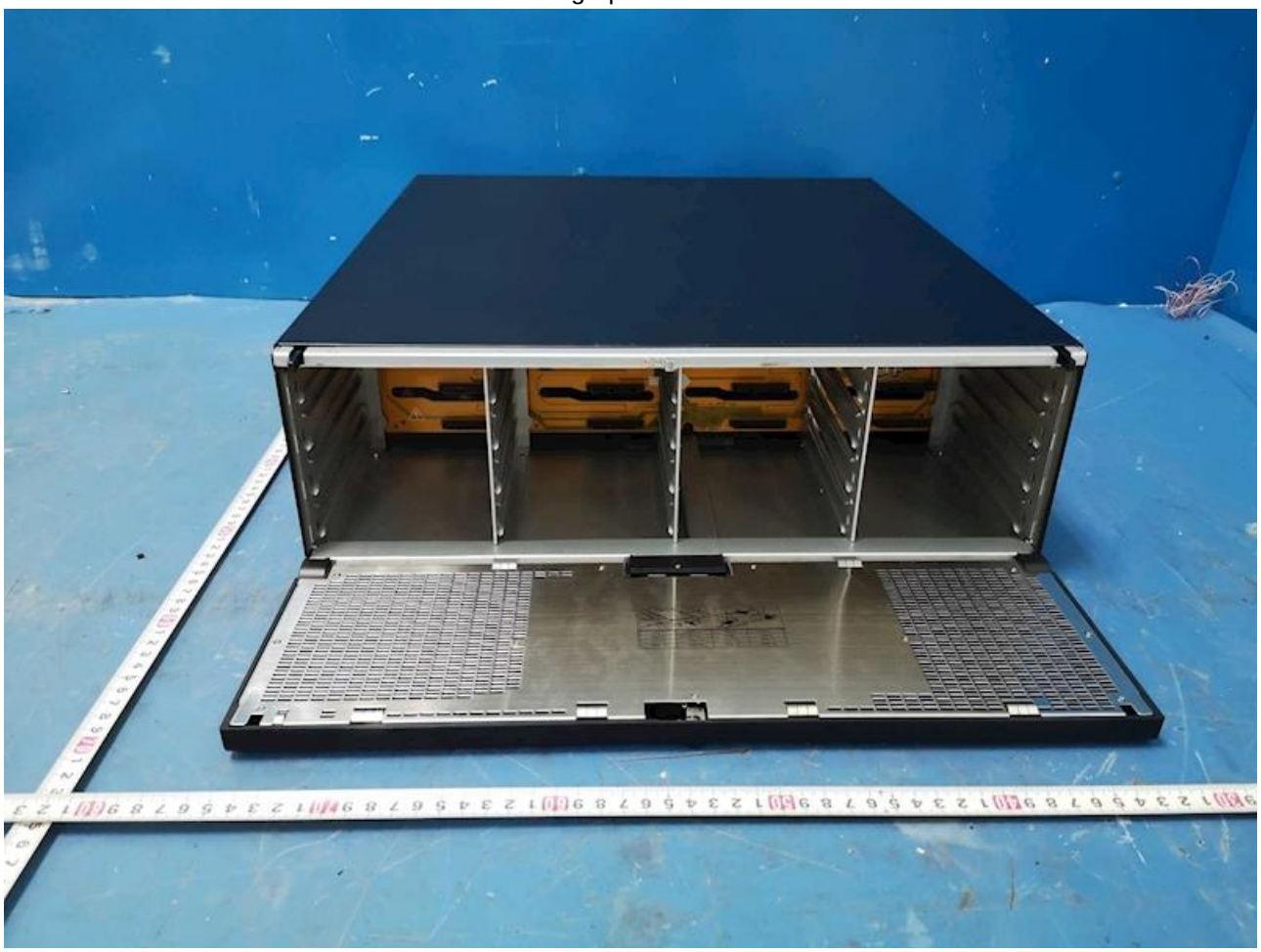

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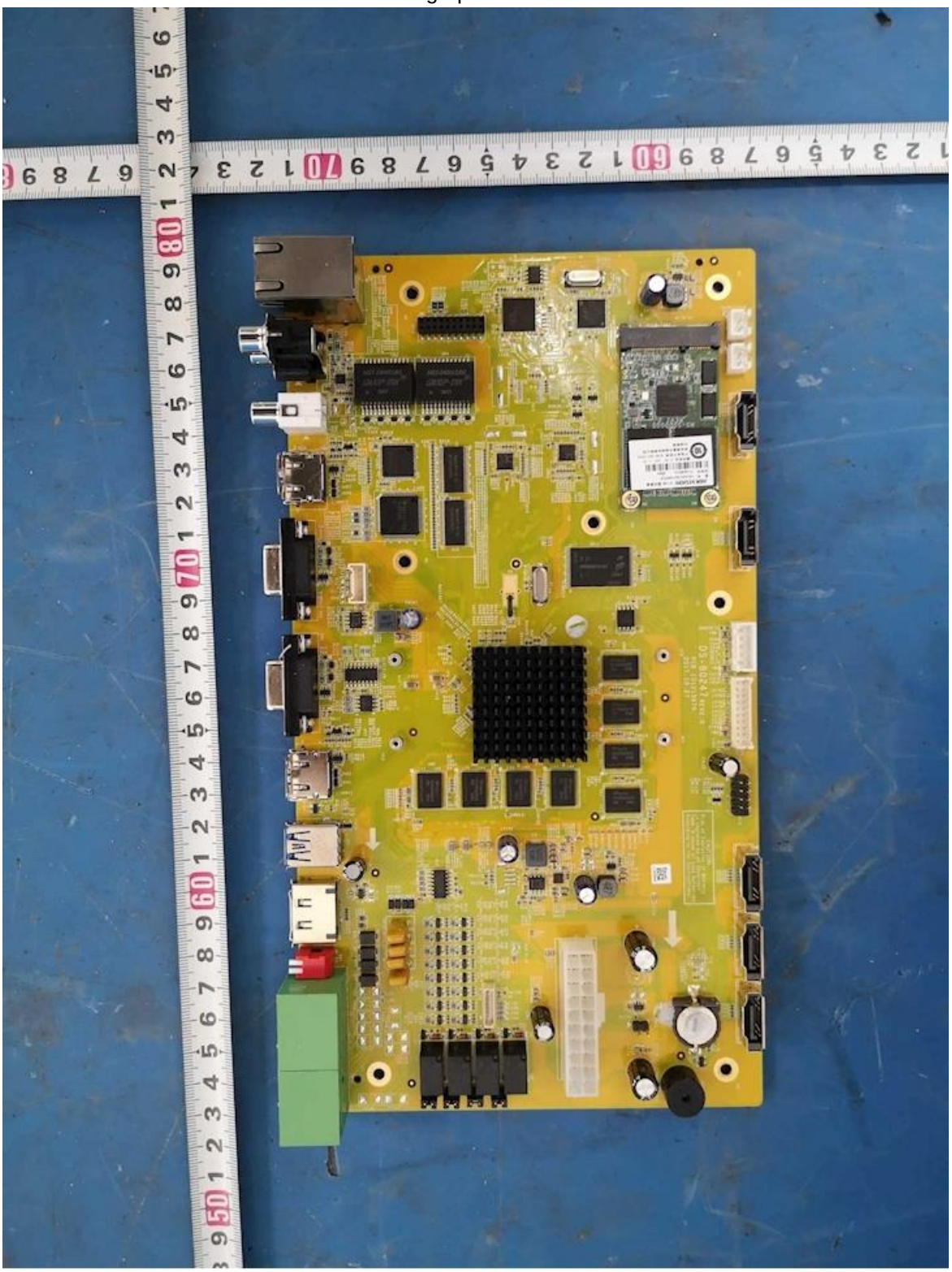

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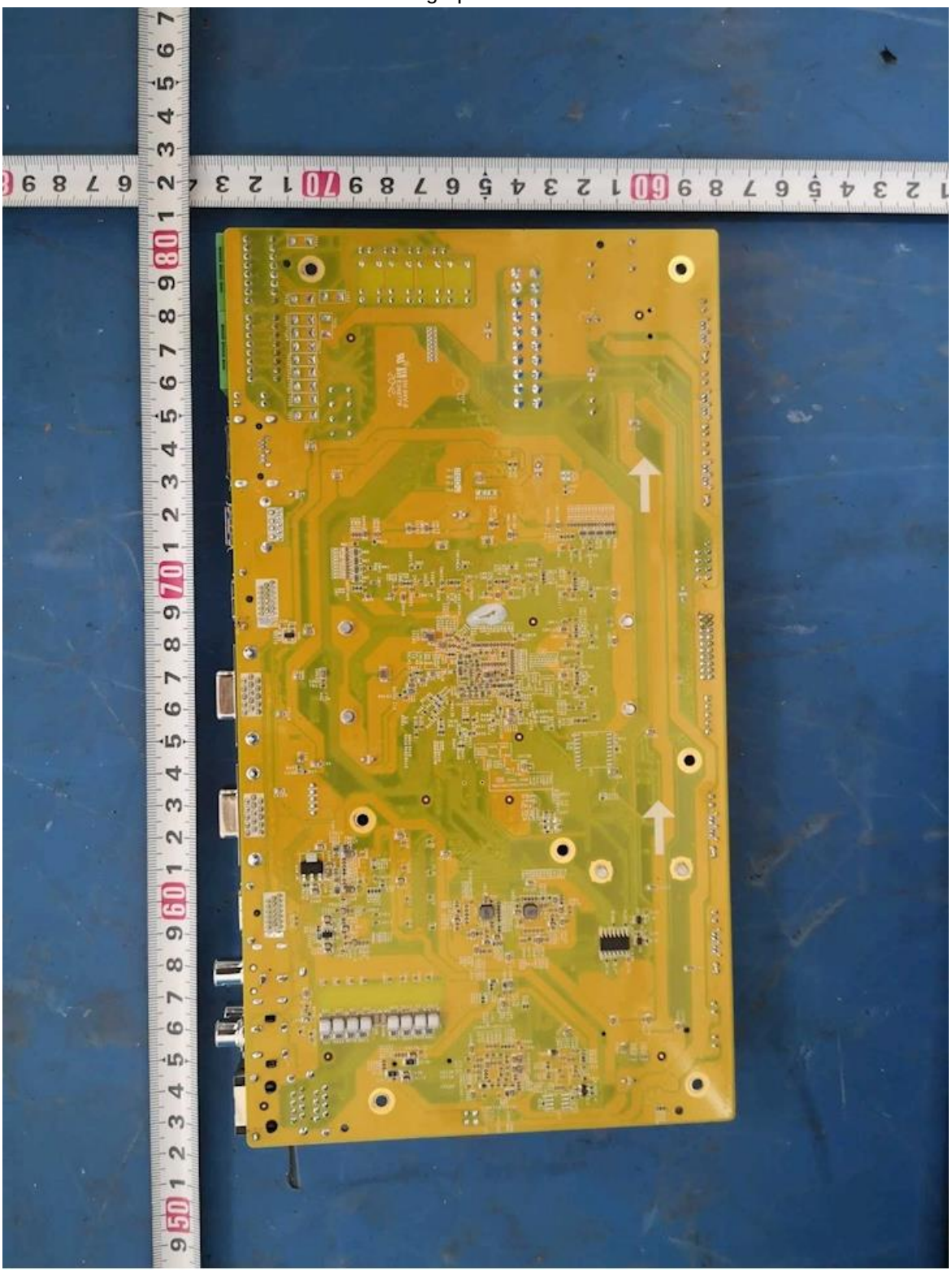

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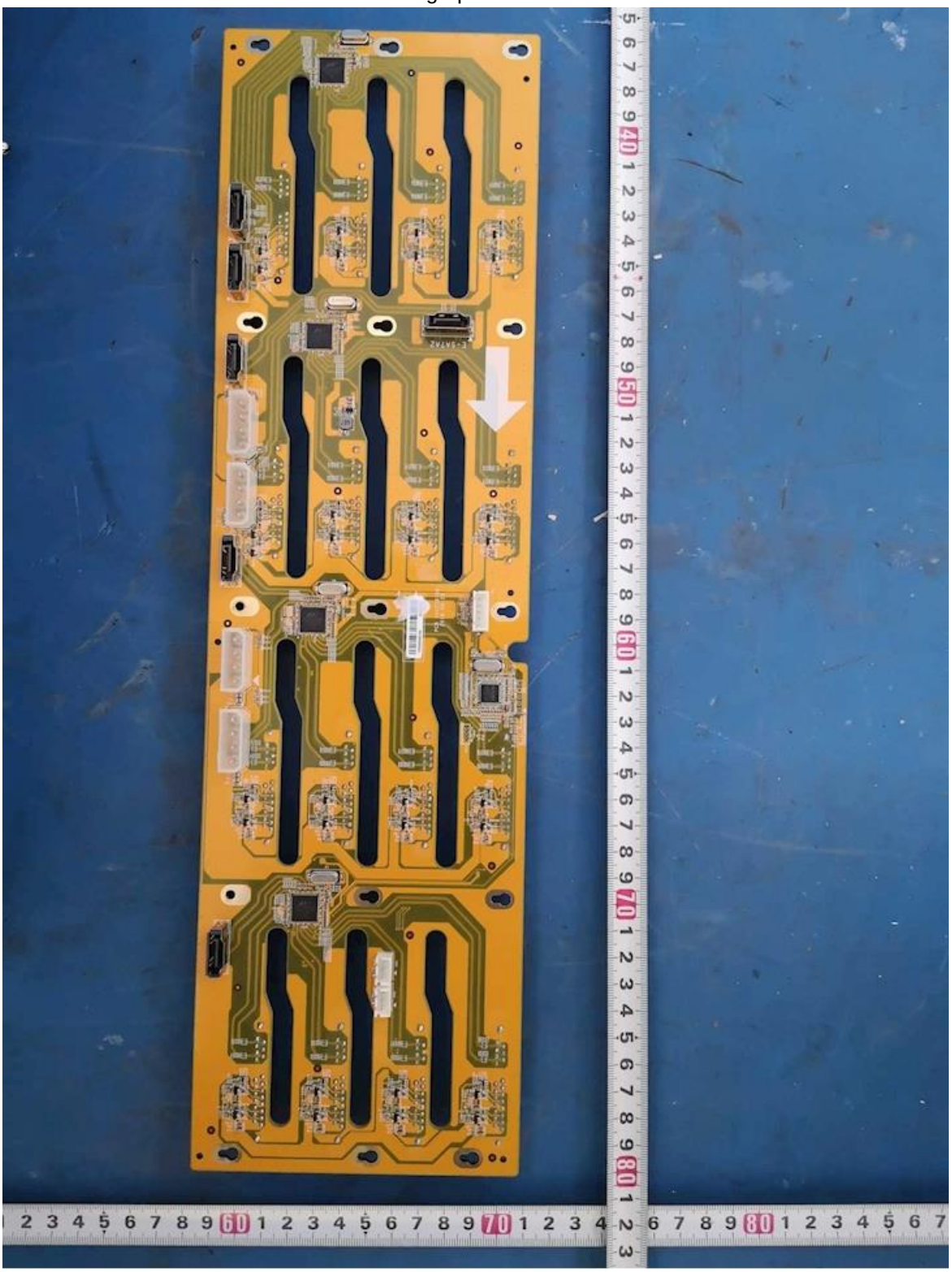
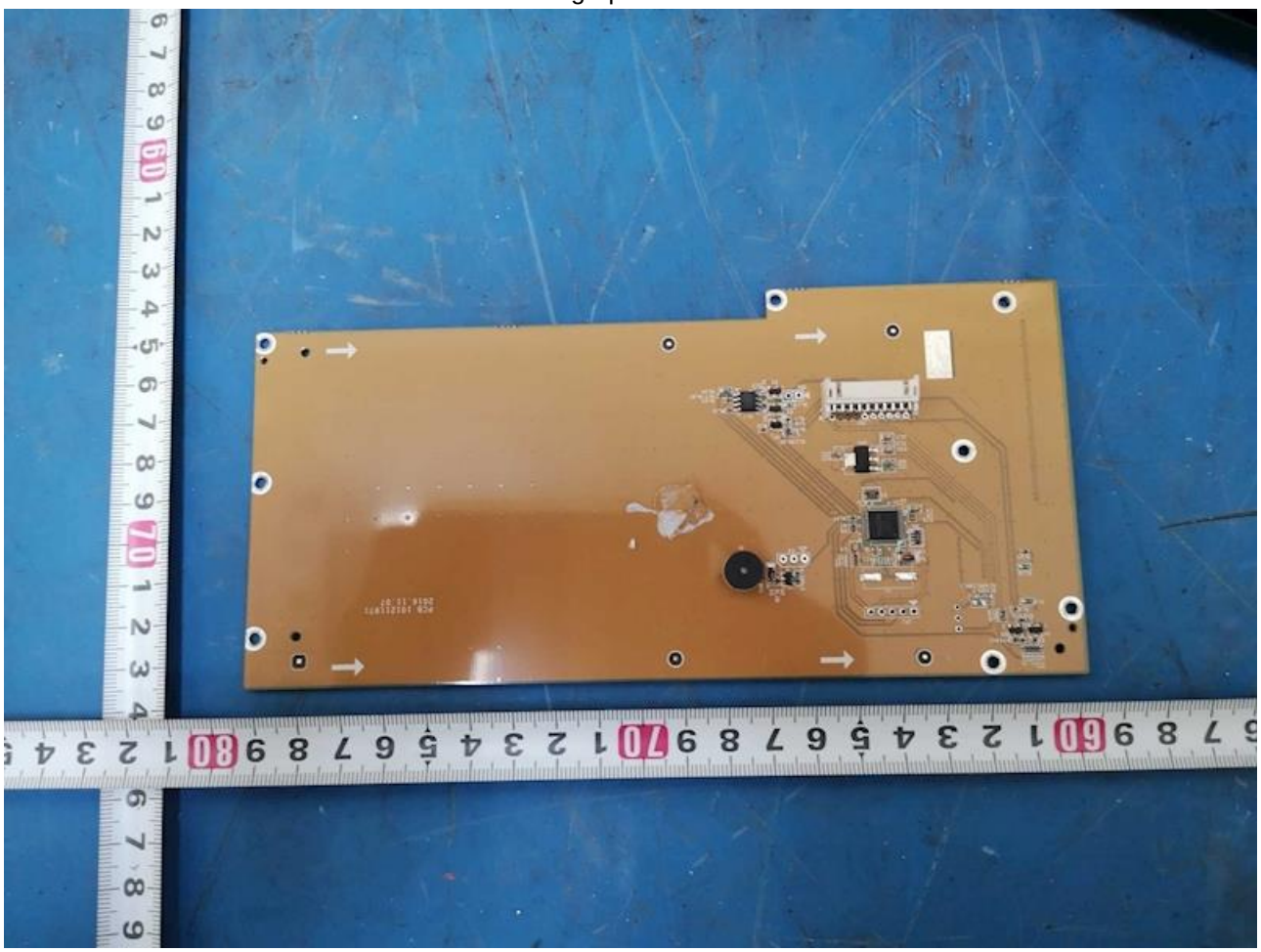


Enclosures

Photographs ID 03-11

Enclosures

Photographs ID 03-12



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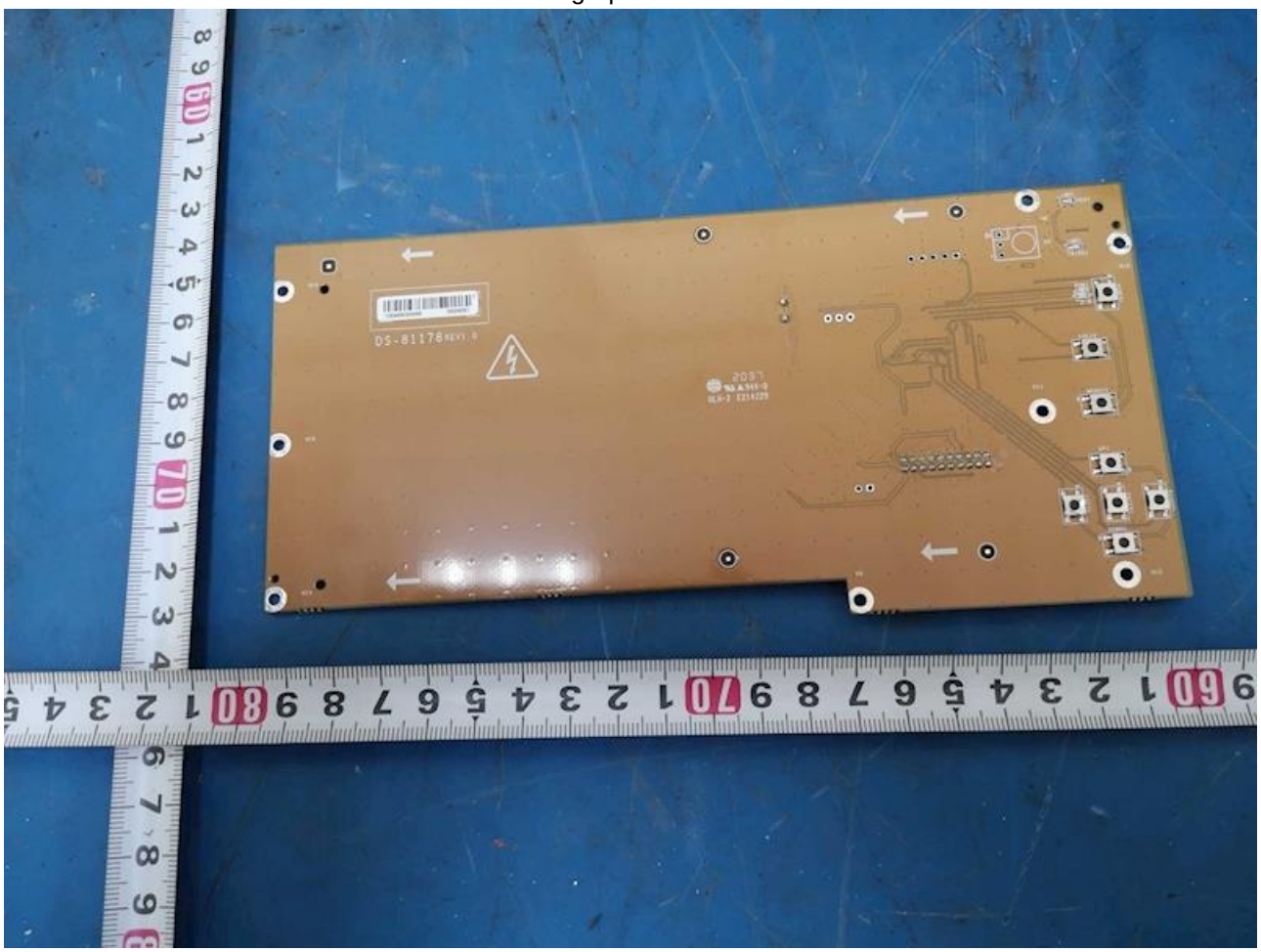

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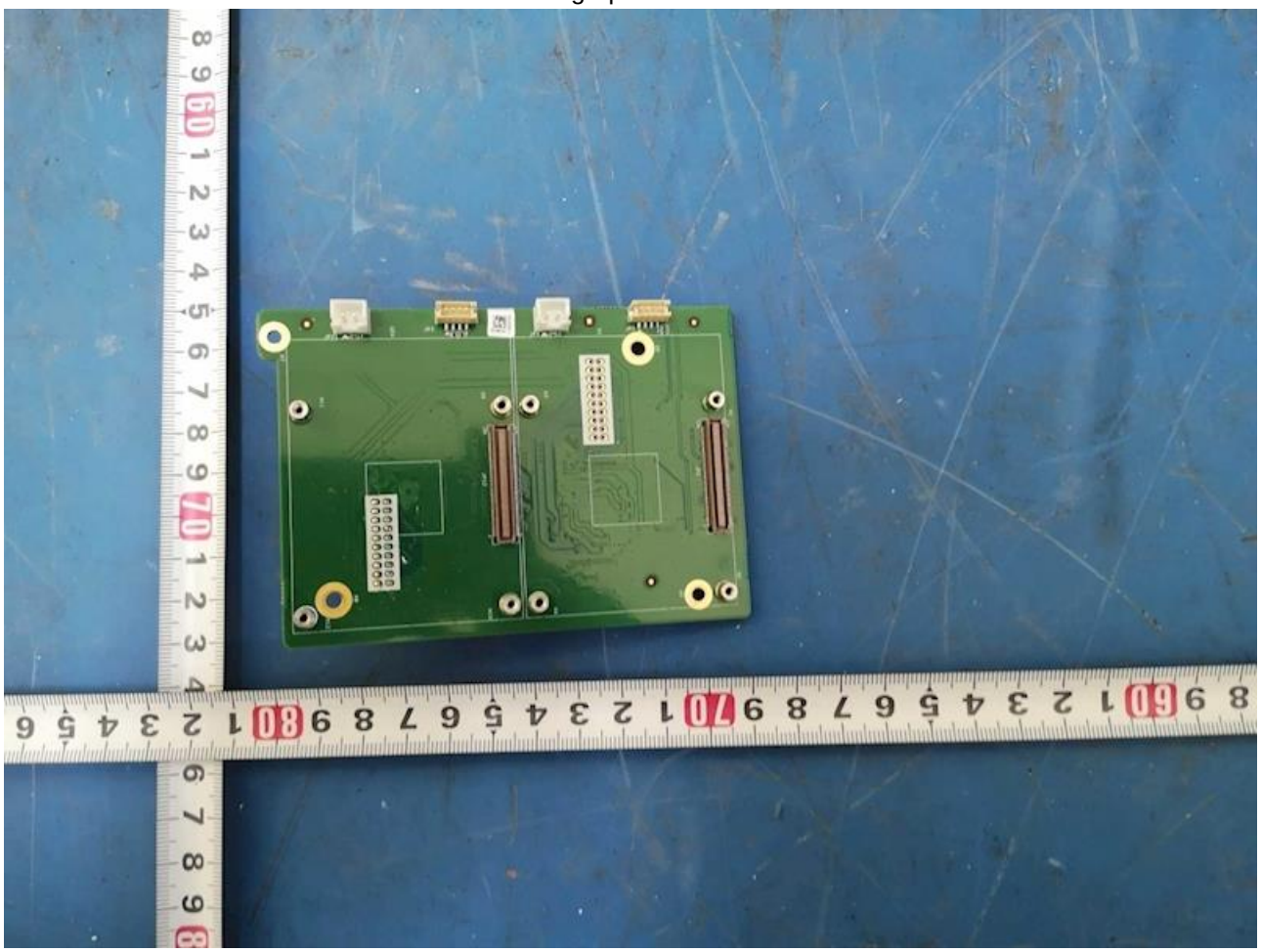
Photographs ID 03-15



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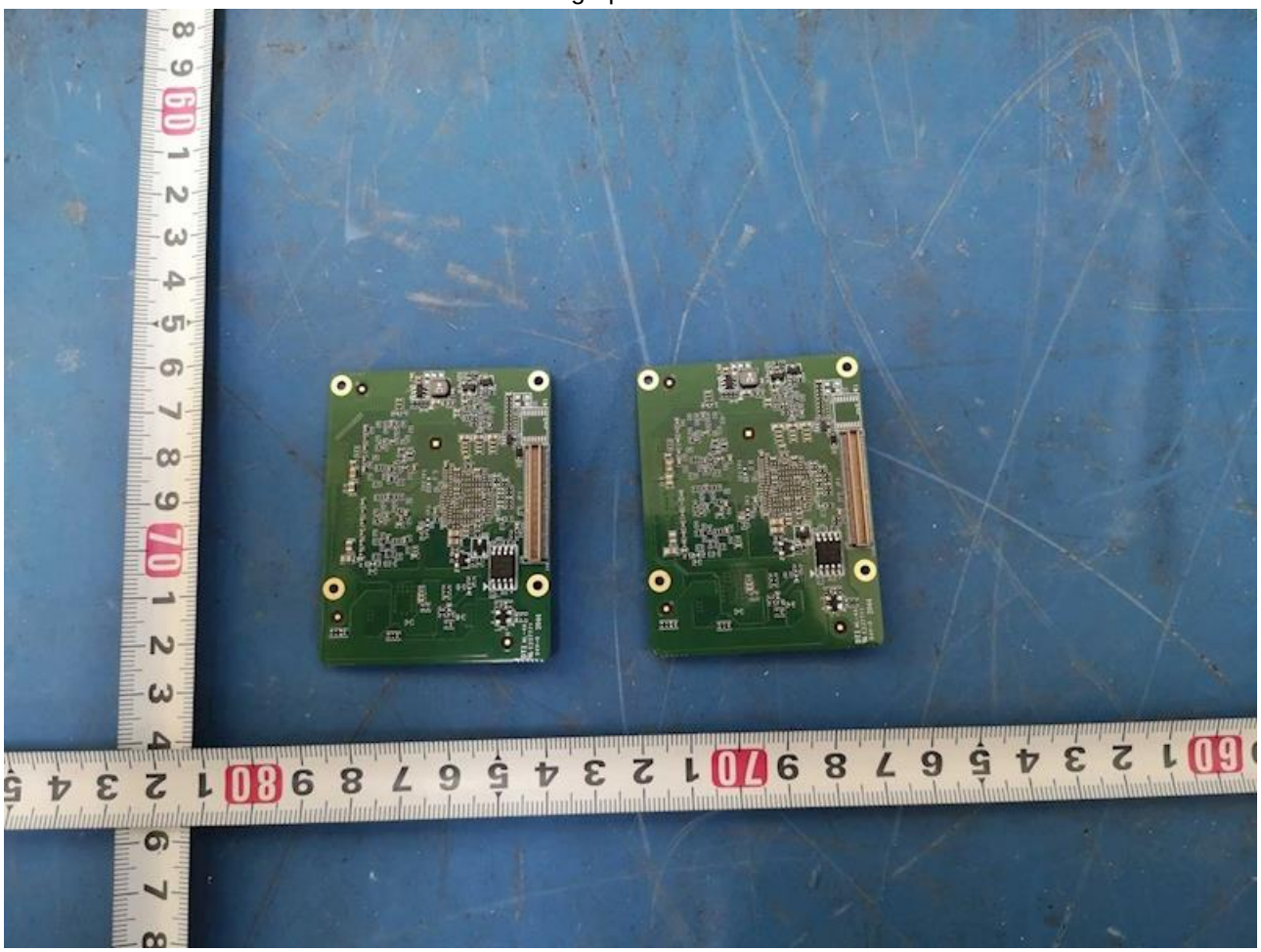

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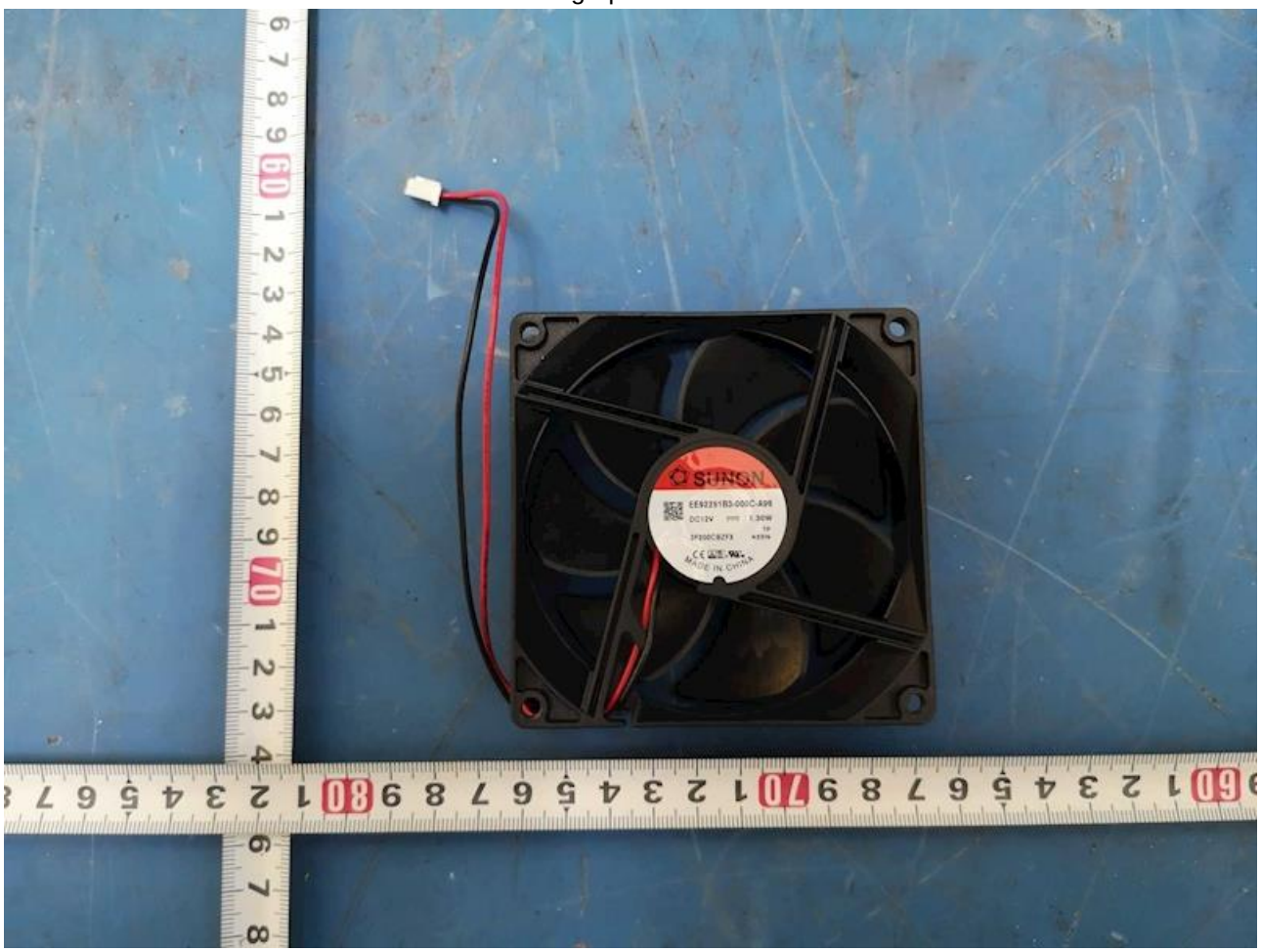

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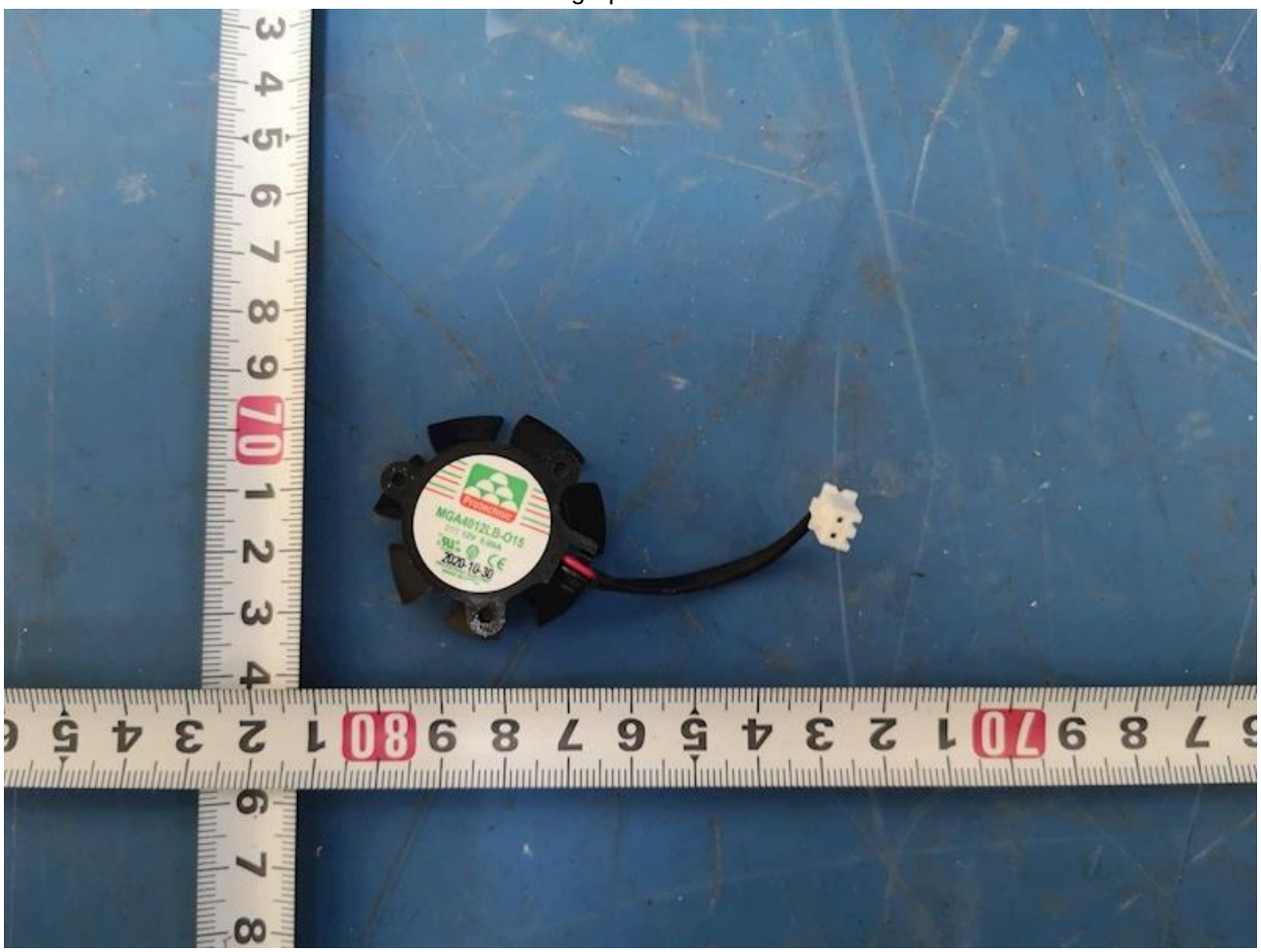

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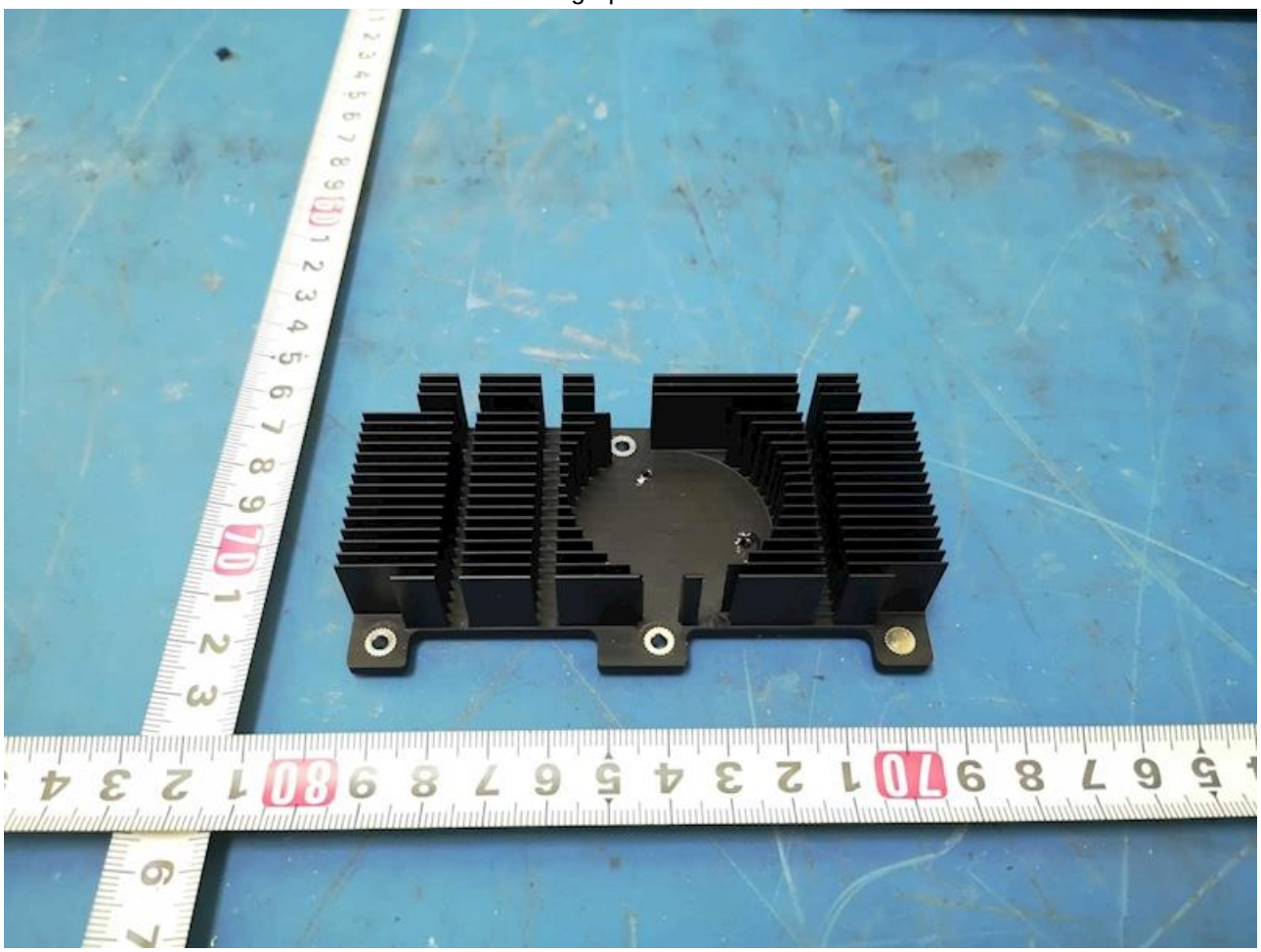

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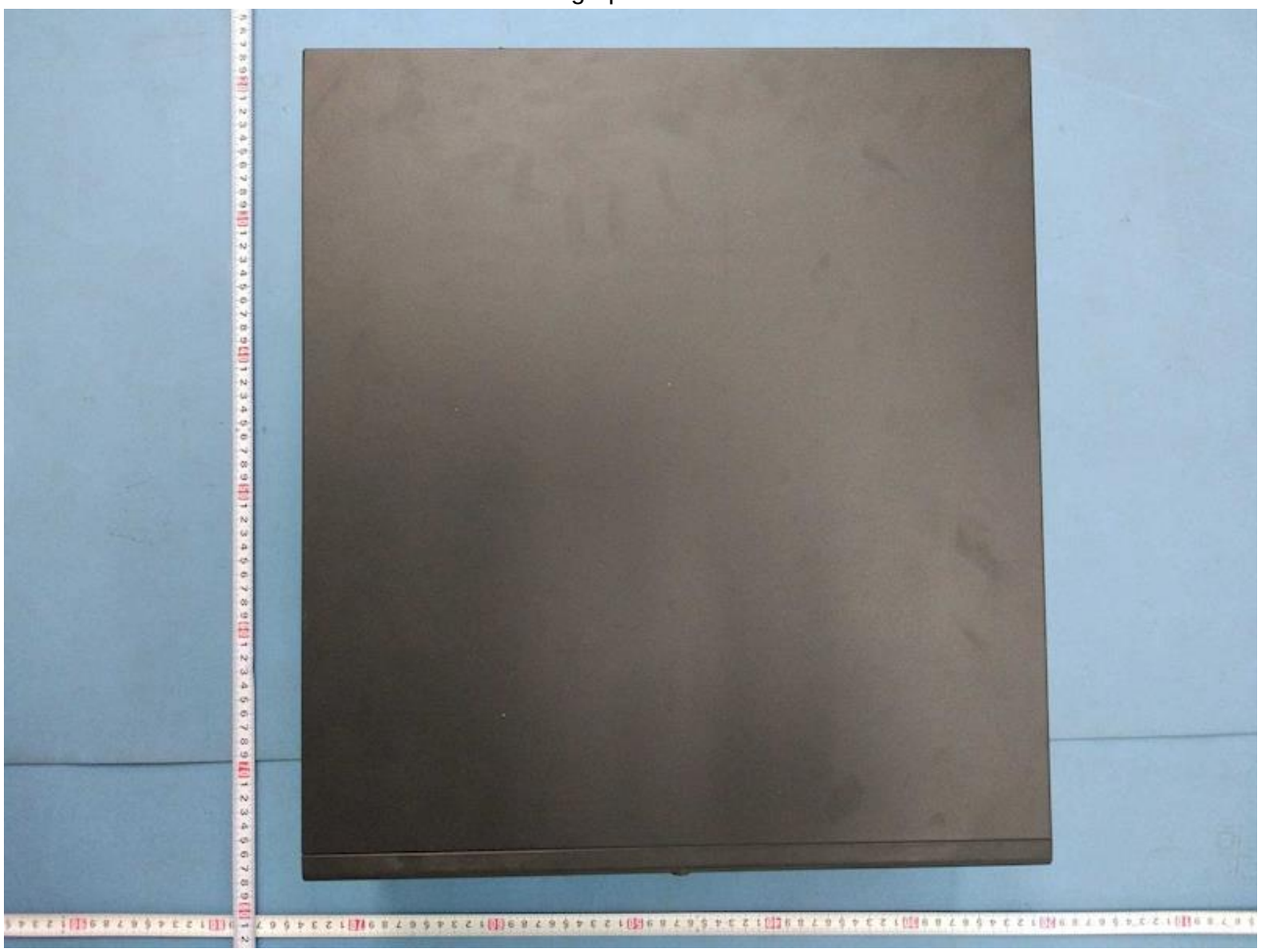

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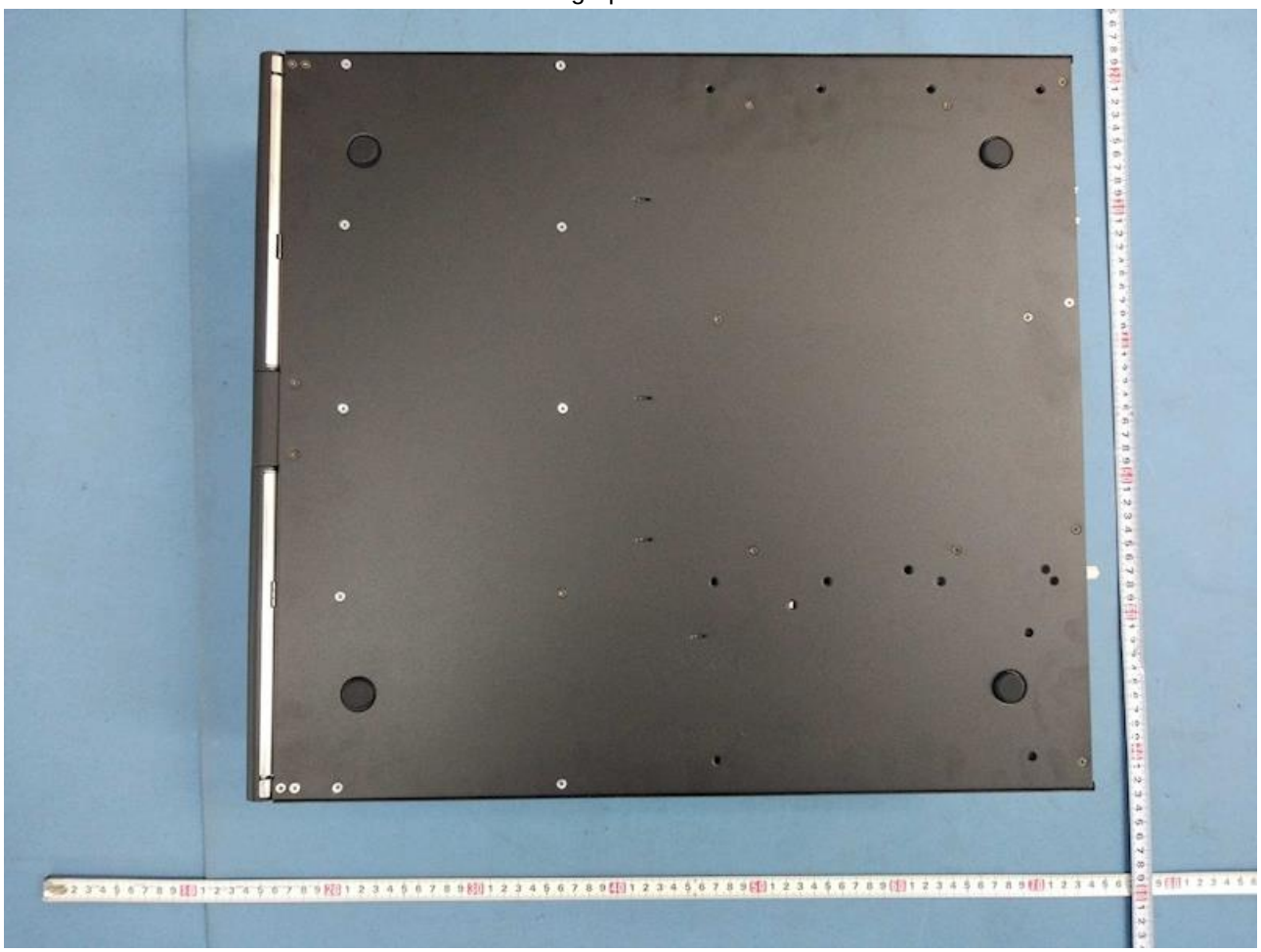

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Photographs ID 03-23

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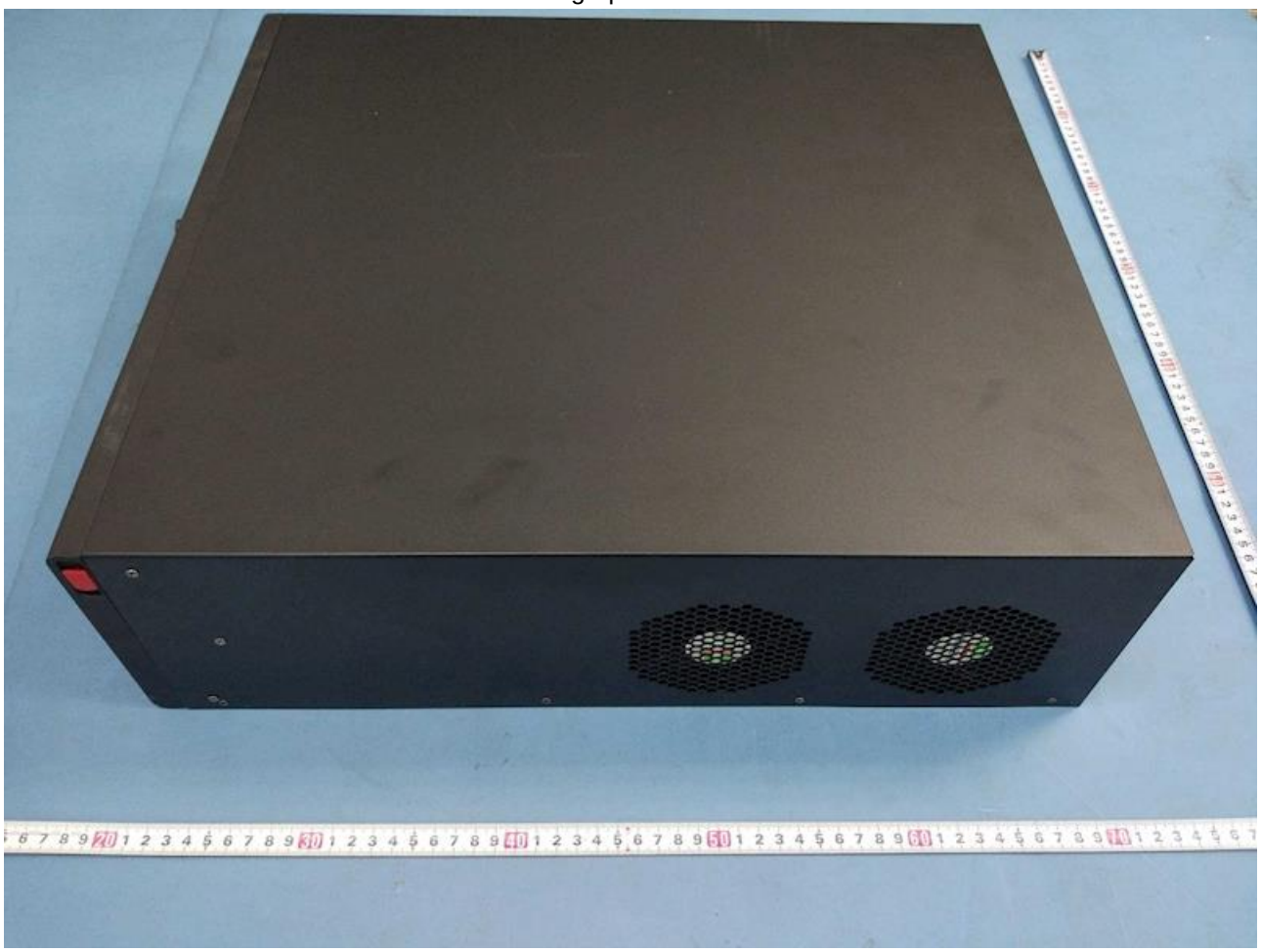

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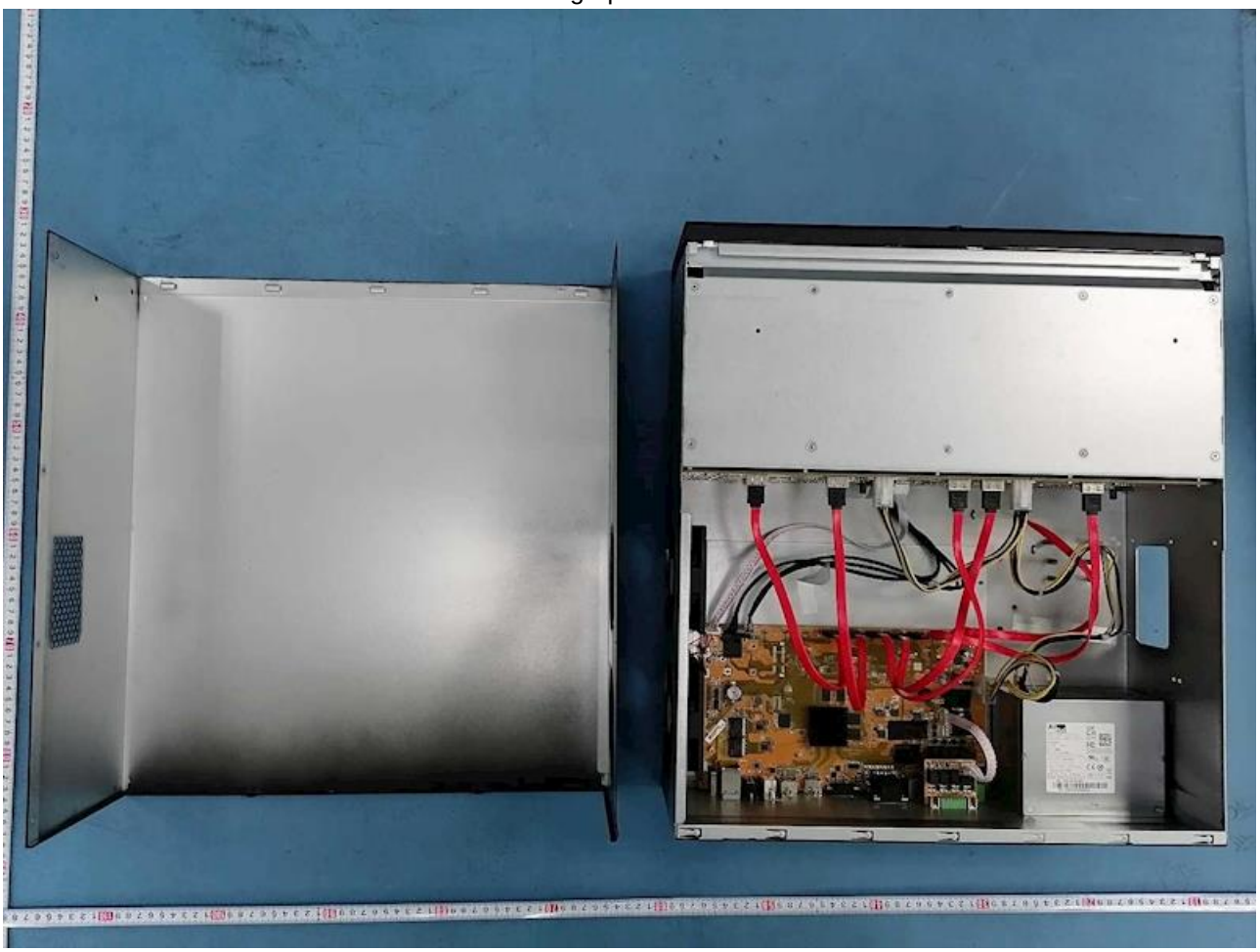

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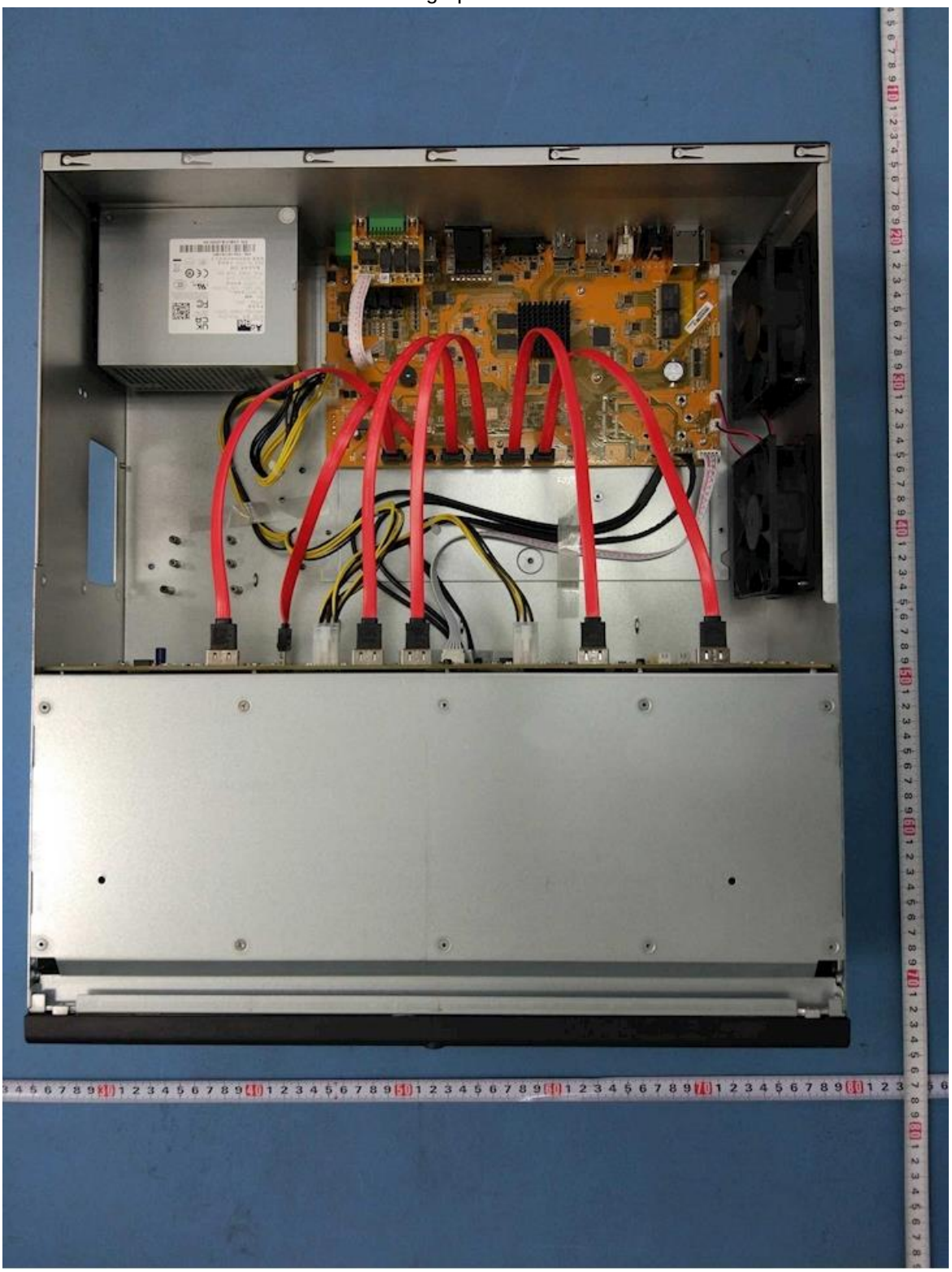

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Enclosures

Photographs ID 03-29

Enclosures

Photographs ID 03-30

Enclosures

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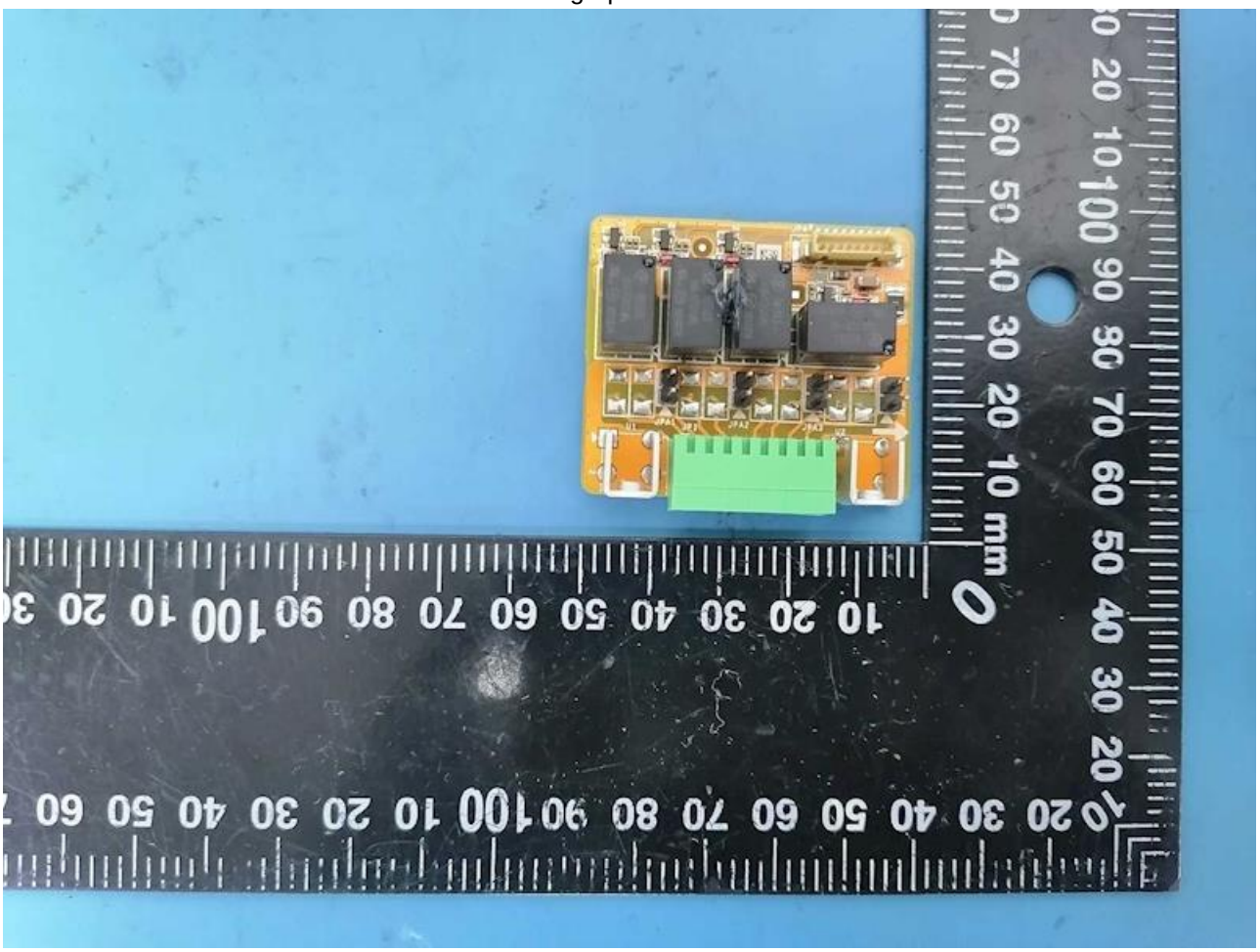

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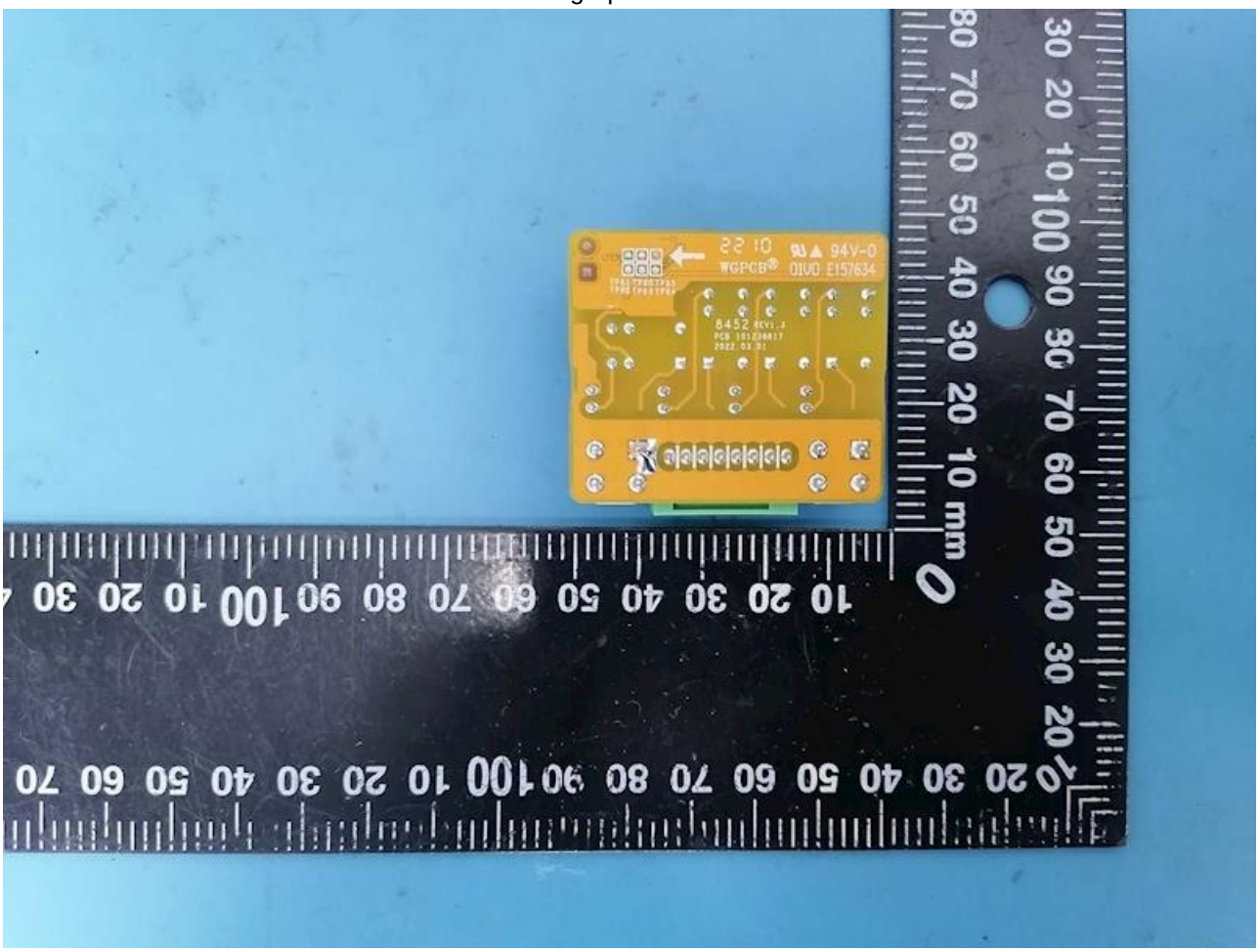

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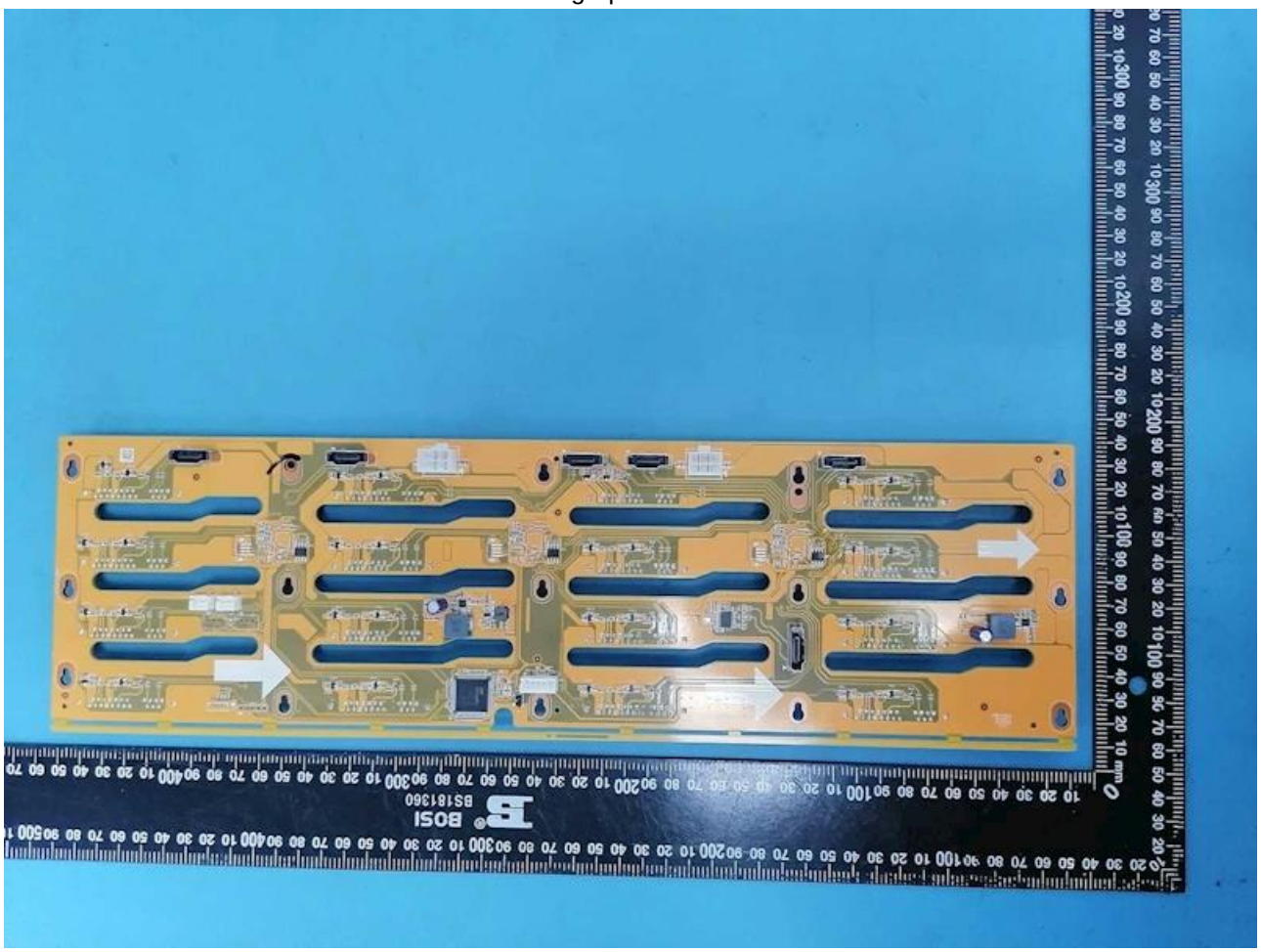

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Photographs ID 03-34

Enclosures

Photographs ID 03-35

Photographs ID 03-36

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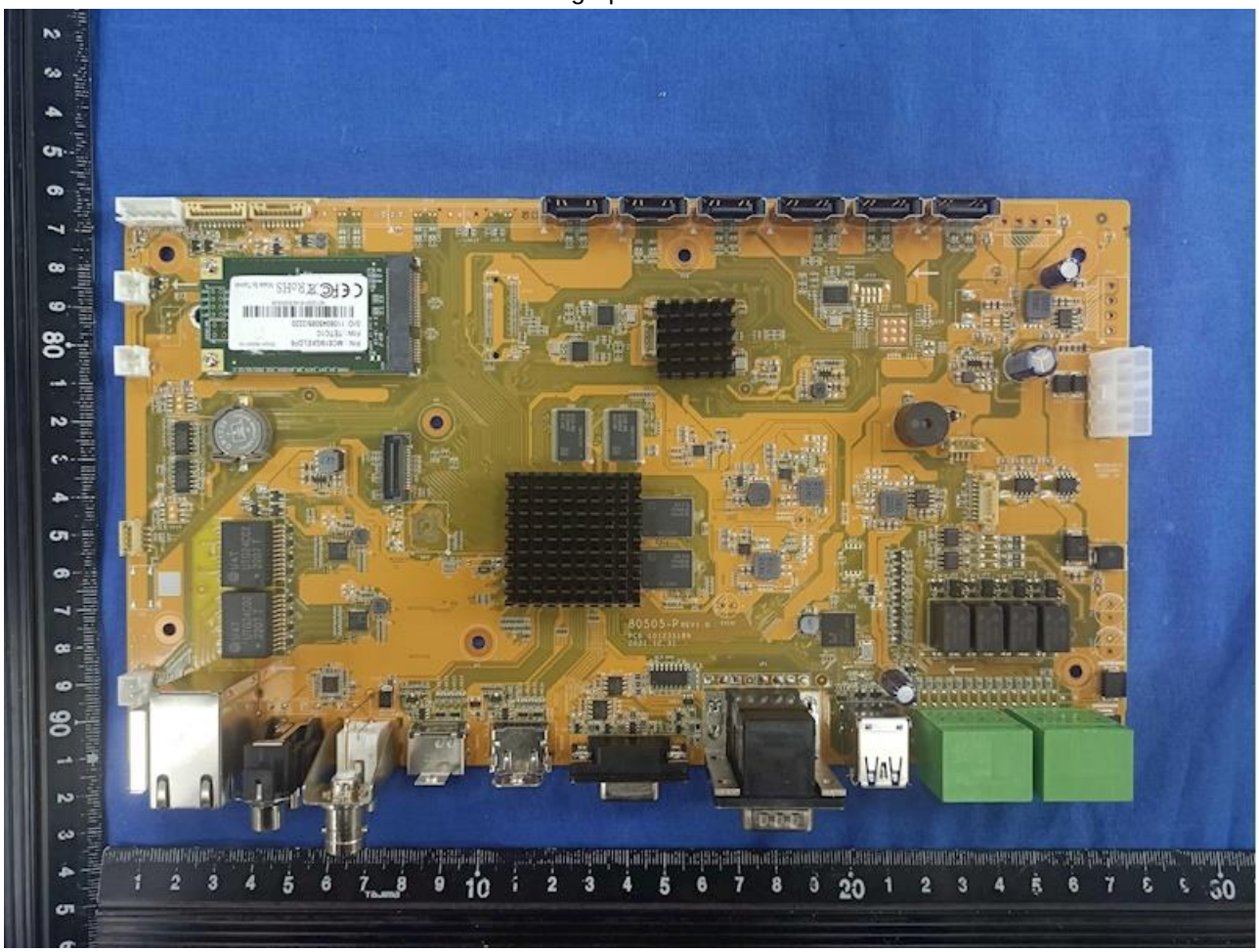
Photographs ID 03-37



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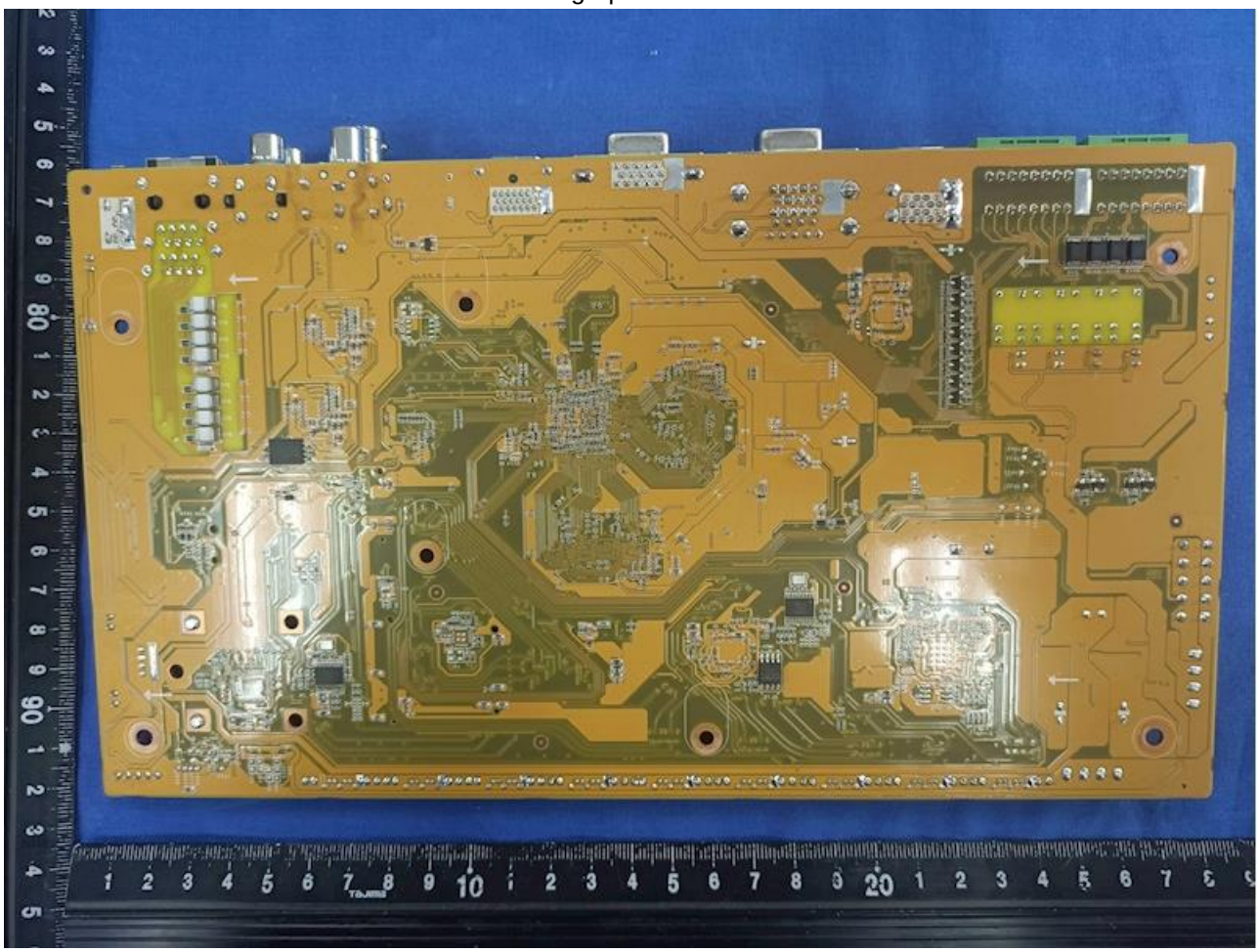

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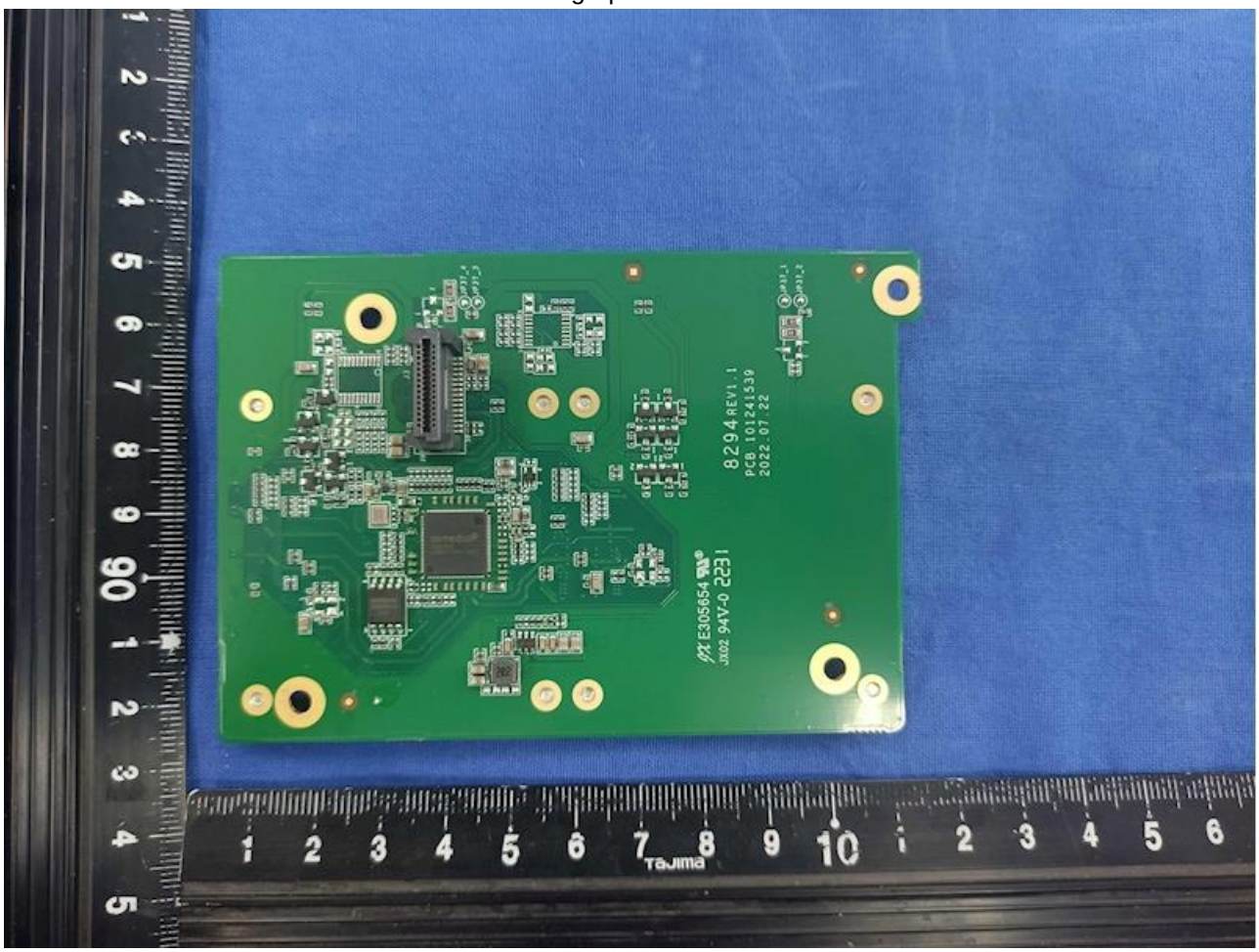

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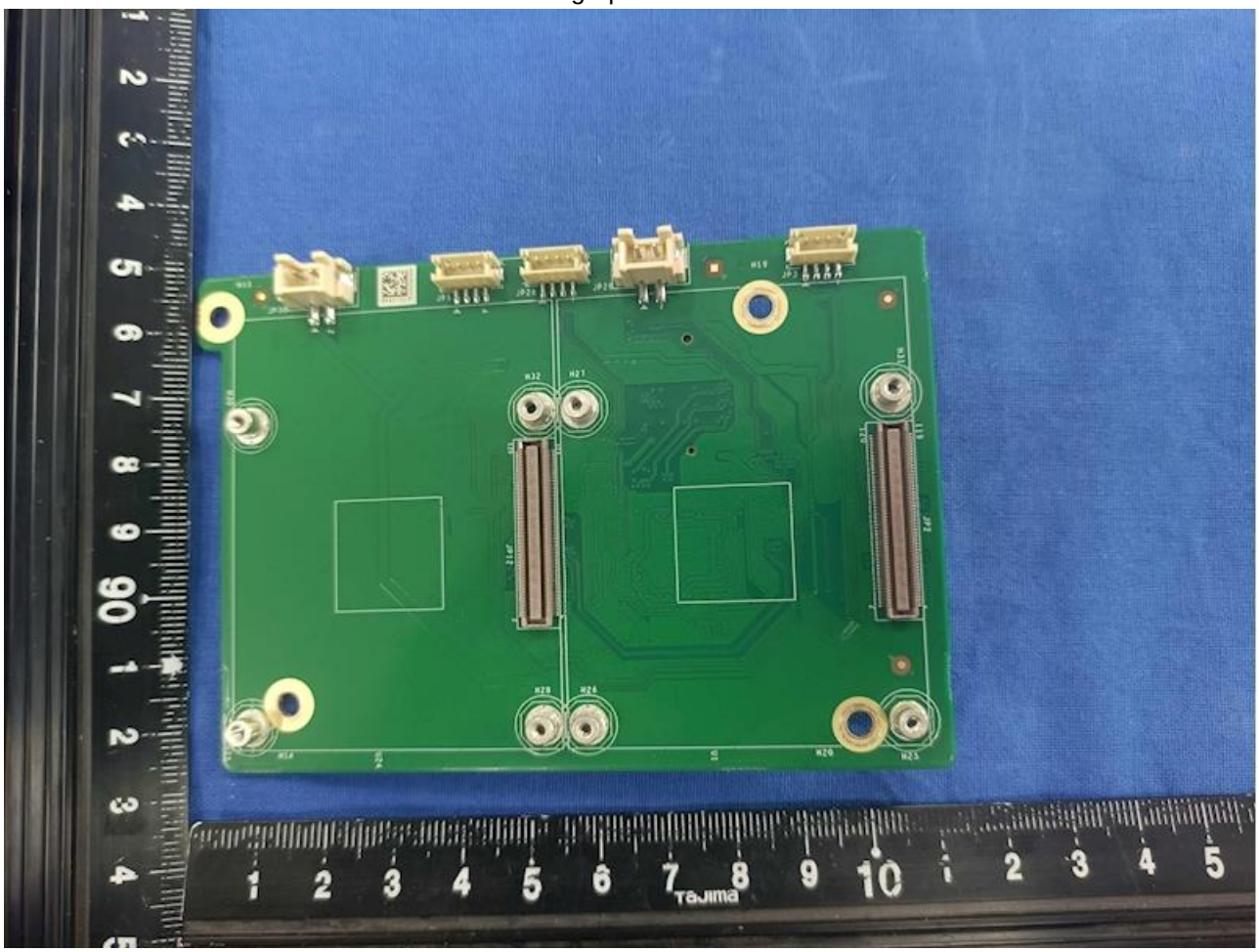

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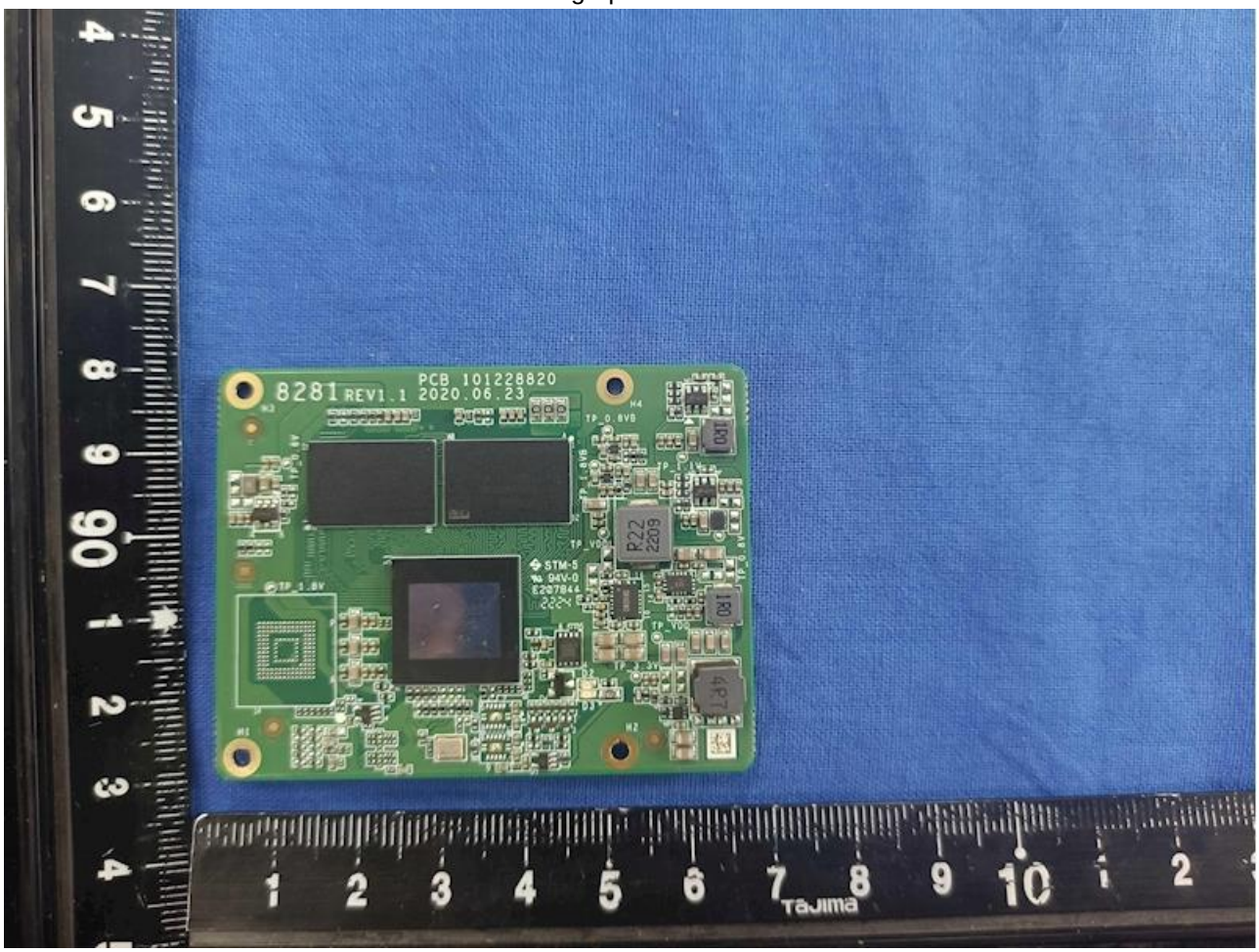

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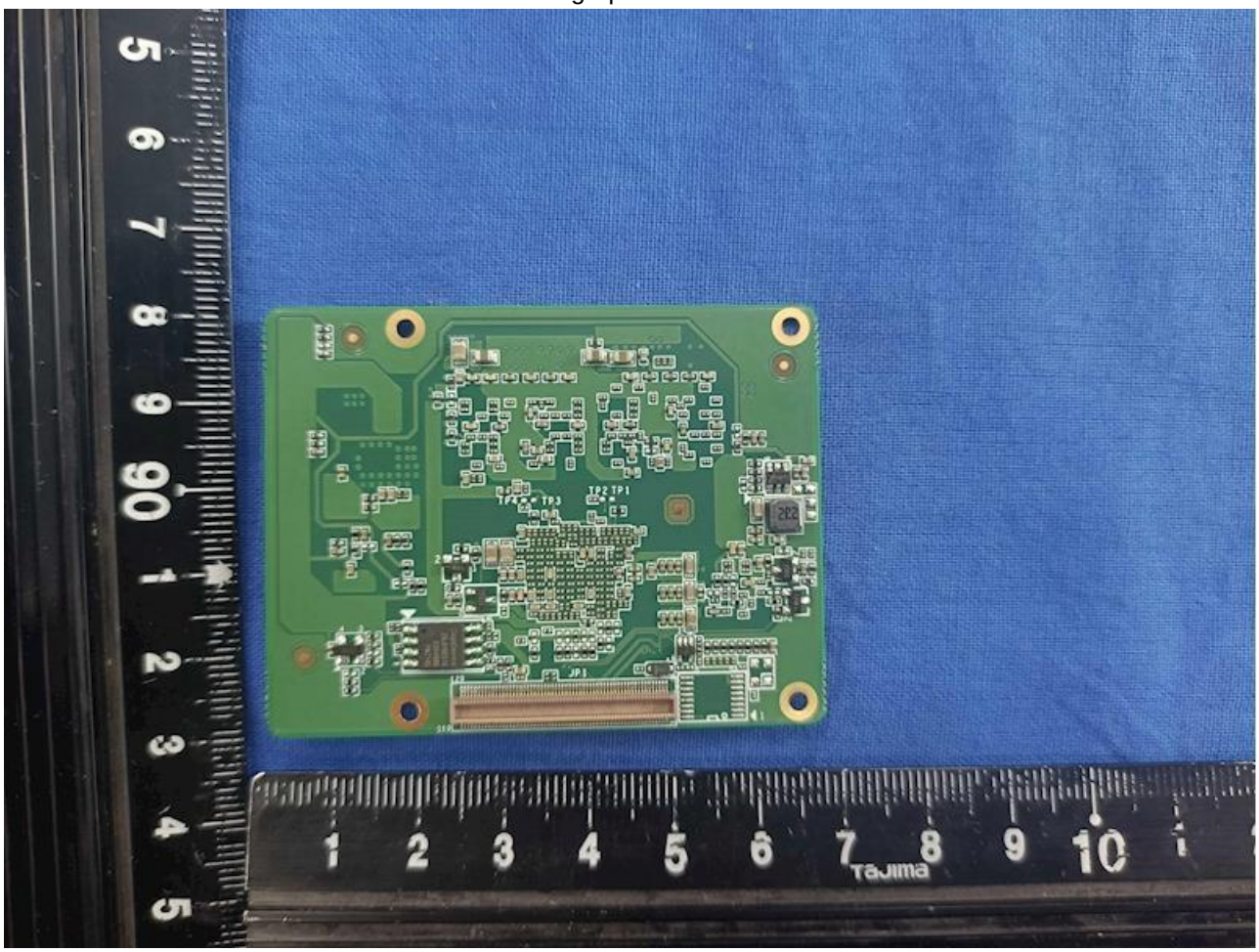
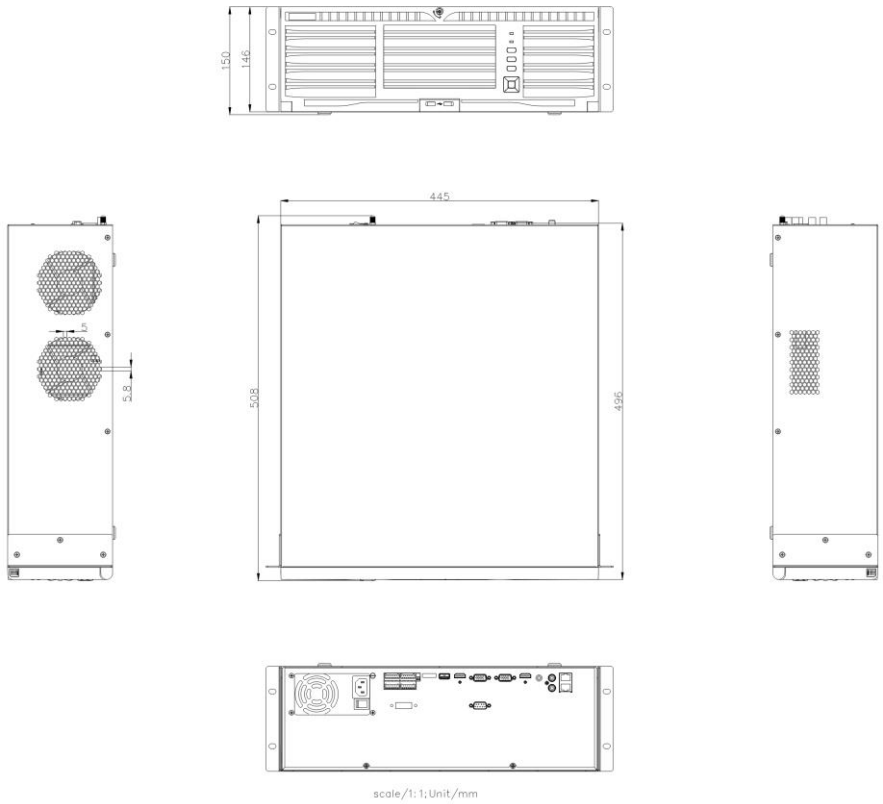


Enclosures

Diagrams ID 04-01



Enclosures

Diagrams ID 04-02

Product Data Sheets

Customer : HIKVISION

Part No. : 10180XXXX

CoolerMaster Model No. : PC-06443-01-GP3

Edition: A1

Issued Date: 2020/10/28

Revision History :		
Date of Release	Revision No.	Description
A1	2020/10/28	• 初版
		•
		•
		•
		•
		•

Customer	CoolerMaster		
	Sales	Checked by	Drafted by
	Mark_Du Date: 2020/10/28	Zhouhh Date: 2020/10/28	Fang_Ai Date: 2020/10/28

Enclosures

Diagrams ID 04-02

Cooler Master Co., Ltd.

www.coolermaster.com

1. Contents

Enclosures

Diagrams ID 04-02

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2. Component List

3	A250205A	風扇螺絲	AISI1018	1	鍍黑鎳
2	A010087A-GP	風扇	PC 黑色	1	MGA4012LB-015
1	S060XXXX	鋁合半成品	AL6063+SAE1215	1	陽極 黑色
序號	料 號	名 稱	材 質	數量	備 注

Enclosures

Diagrams ID 04-02

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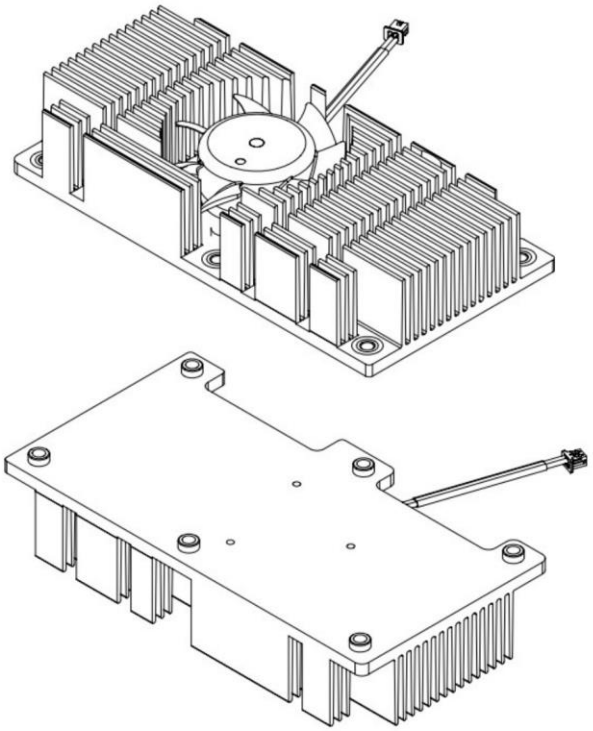
3. Specification

3.01 SAMPLE PHOTO



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Diagrams ID 04-02

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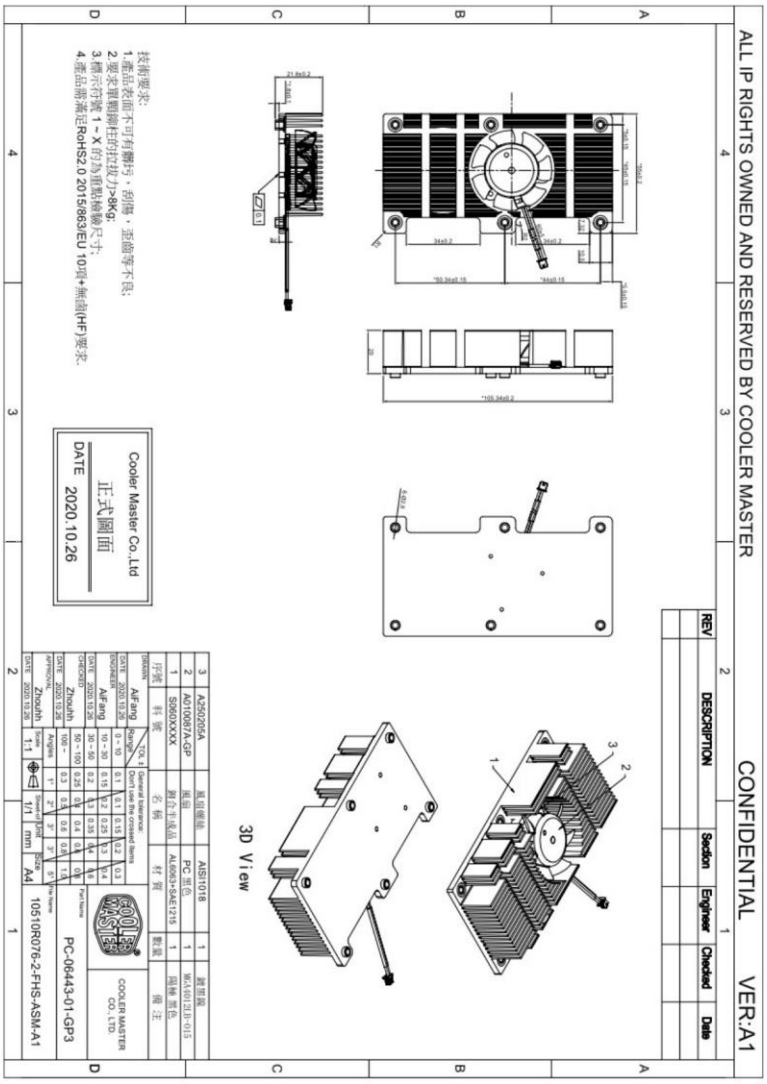
3.02 Cooler Assembly



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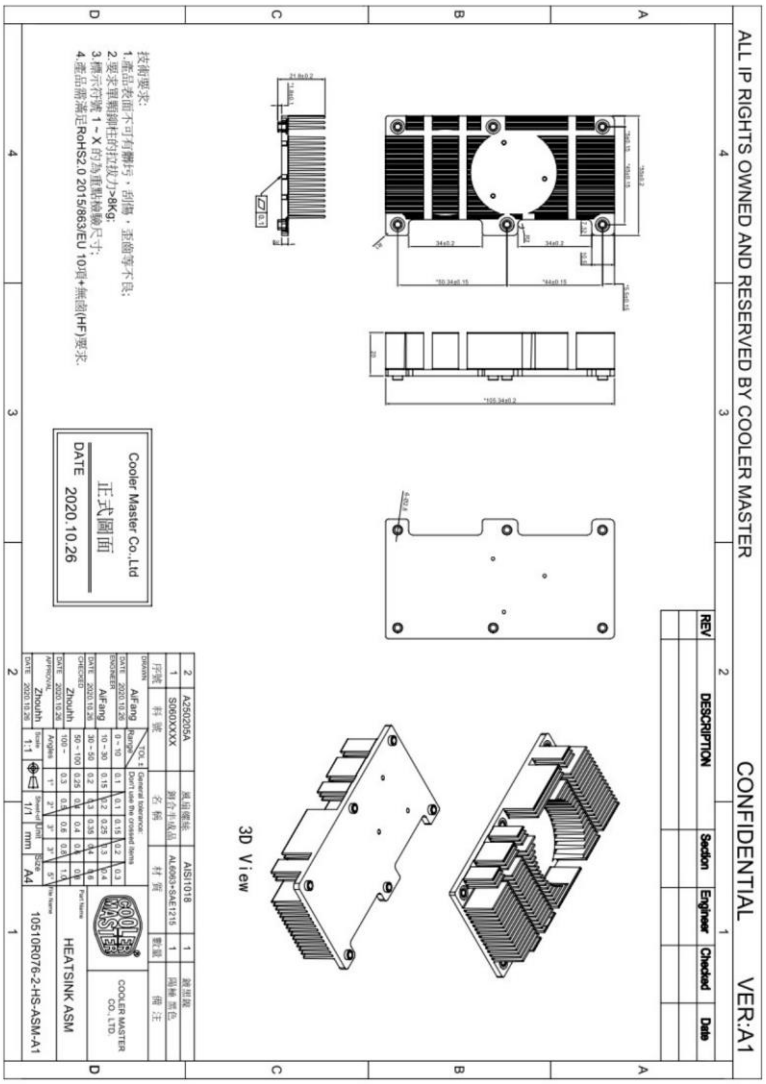
3.03 HEATSINK ASM



Enclosures

Diagrams ID 04-02

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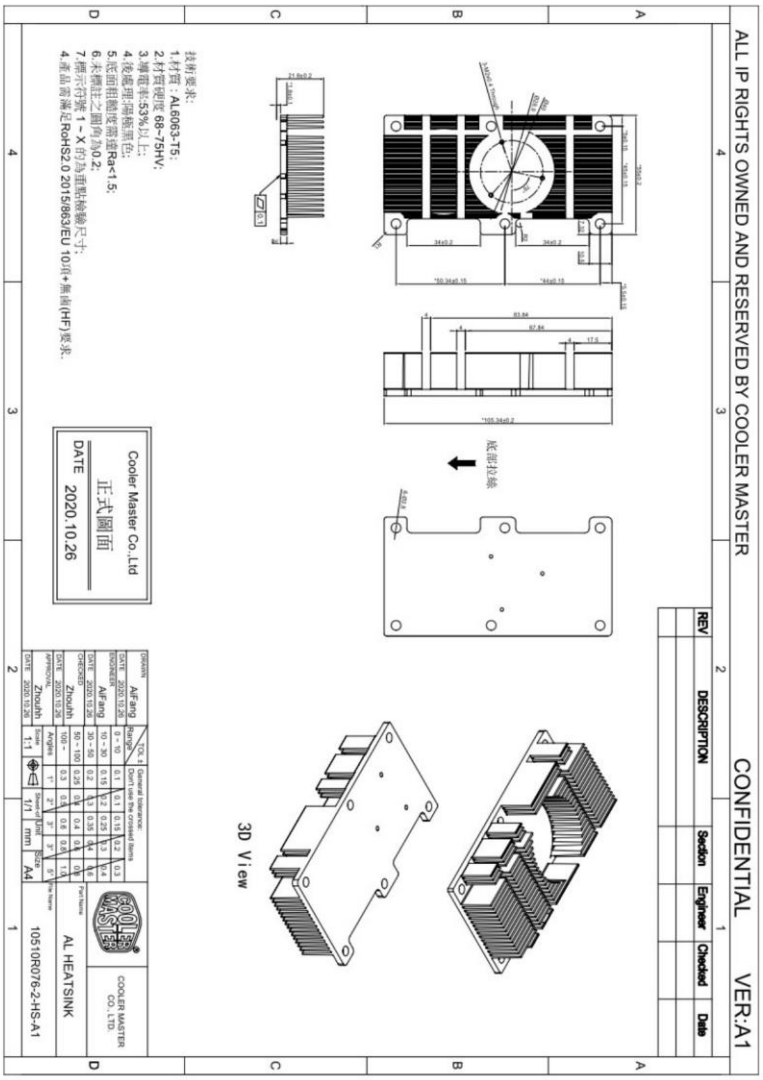
3.04 HEATSINK



Enclosures

Diagrams ID 04-02

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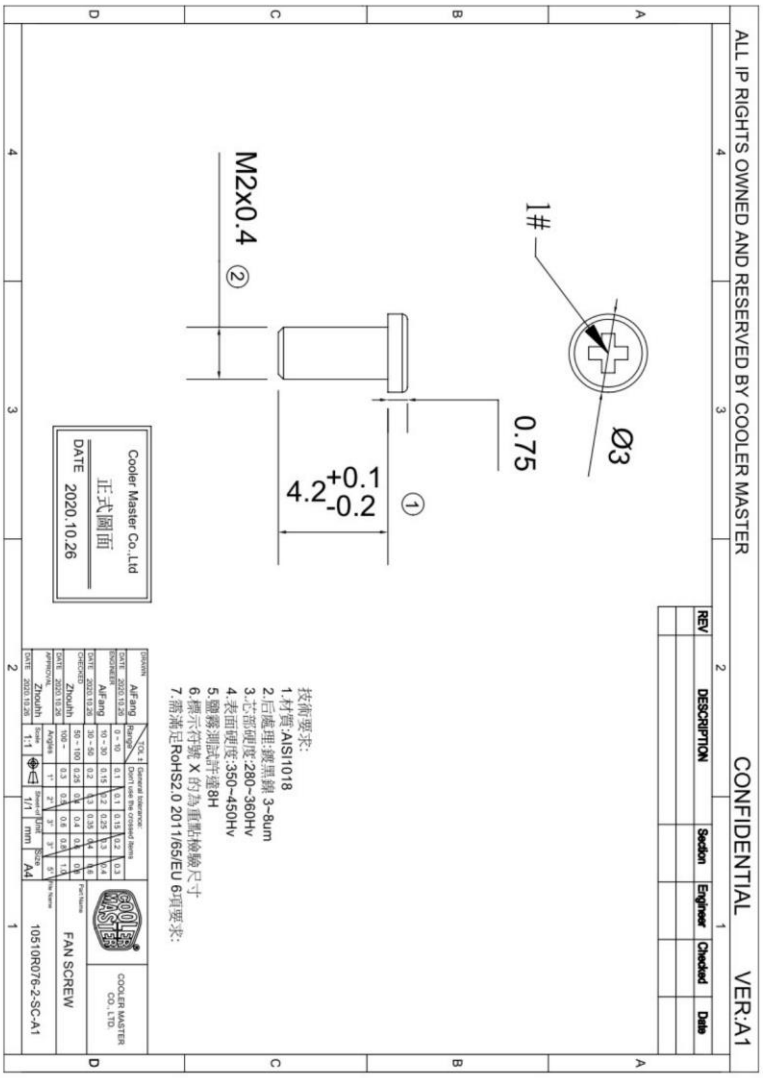
3.5 FAN SCREW



Enclosures

Diagrams ID 04-02

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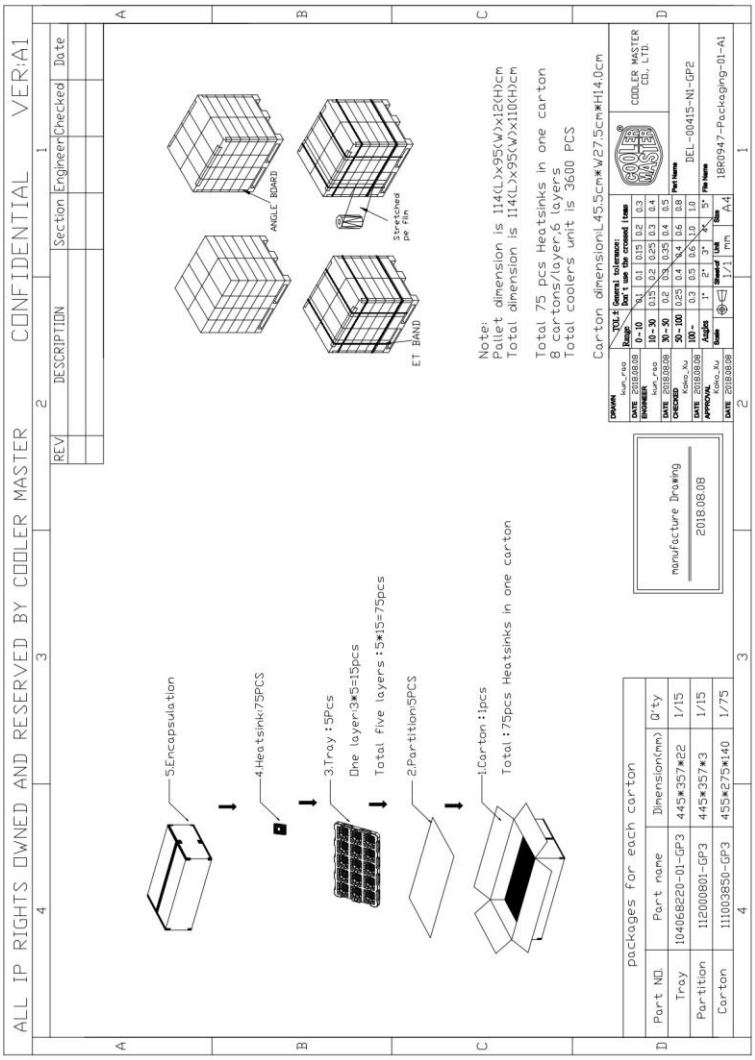
4. PACKAGE



Enclosures

Diagrams ID 04-02

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5. FAN SPEC

Serial NO.16328

⚠ PRODUCT SAFETY

1. Protechnic will not guarantee this product if it is used in conditions other than the parameters outlined in this specifications.
2. Please contact Protechnic to confirm any customer requirements not specified in the specification.
3. Please handle fans carefully. Damage may result from pressure to the impeller, carrying by the lead wires, or dropping fans on a hard surface.
4. The introduction of power, dust water insects or other erosion elements into the hub will result in safety problems or product failure, except in products designed for special environments.
5. Items 1-4, mentioned above, are generally pertinent to our products, and should be a first point of reference.
6. It is very important to establish the correct polarity before connecting the fan to the power source, Positive (+) and Negative (-). Damage may be cause by connecting with reverse polarity.
7. Avoid operating Protechnic products in environments where poisonous or corrosive elements are present (organic, silicon, cyanogens, formal in phenol, H_2S, SO_2, NO_2, Cl_2, etc)
8. Please ensure that fans are stored according to the storage temperature specified. Do not store in a high humidity environment. If fans are stored for more than 6 months, Protechnic recommends testing of fans before using.
9. Not all series fans are provided with the lock rotor protection feature. Damage or failure will result from operating fans without this feature, if the impeller for the fan is in any way hindered or impaired.
10. Install fans carefully. Incorrect mounting or installation may result in excessive resonance, vibration and subsequent noise.
11. Safety is a top priority. Please utilize guard accessories to prevent injury to personnel.
12. Unless otherwise noted, all tests are conducted at 25°C ambient temperature, and 65% relative humidity.
13. When using multiple fans in parallel, connect an 'over 4.7μF 'capacitor externally to the fan to prevent abnormity resulting from unstable power.
14. Any change to the parameters specified in this specification will be determined by mutual agreement between both parties. Parameters not specified will be identical to the final sample approved by your company.

R-RD-046R2.1-2/4

Enclosures

Diagrams ID 04-02

Cooler Master Co., Ltd.

www.coolermaster.com

ITEMS	DESCRIPTION
Rated Voltage	D.C. 12.0V
Operating voltage	D.C.5.0V~13.8V
Start up voltage	D.C.5.0V (At 25℃ Power ON/OFF)
Current	0.09A
Power	1.08W
Speed	4,500±15%rpm (At 25℃ To record speed after fan running normal. This time about 3~5minutes)
Air flow (at zero static pressure)	N/A
Air pressure (at zero air flow)	N/A
Acoustical noise	22.1dB(A) Max:25.1dB(A)
Life expectancy	70,000hrs continuous at 40℃, 15~65% relative humidity
Insulation resistance	Min 10Meg Ohm between internal stator and lead wire (+) at 500VDC
Dielectric strength	5mA max at 600VAC 50Hz 1 second between frame and (+) terminal
Operating temperature and humidity	-10℃ to 70℃ ,5% to 90% RH
Storage temperature and humidity	-40℃ to 70℃ ,5% to 95% RH
Lock rotor protection	Yes

Noise Test: (ISO10302)

1.Measurement within anechoic chamber under free air condition

2.Microphone is placed at a distance of 1m on the axis of air intake side

3.Chamber background noise max 6.7dB(A)

4.Using microphone: G.R.A.S ½ inch measure system 40AE+26CA or 1 inch low measure system 40HF

5.Test system: National Instrument NI-4474 data acquisition system

6.Acoustical noise at rated speed

PQ curve: (Rated Voltage or rated voltage at 100%PWM if applied)

Serial NO.16328

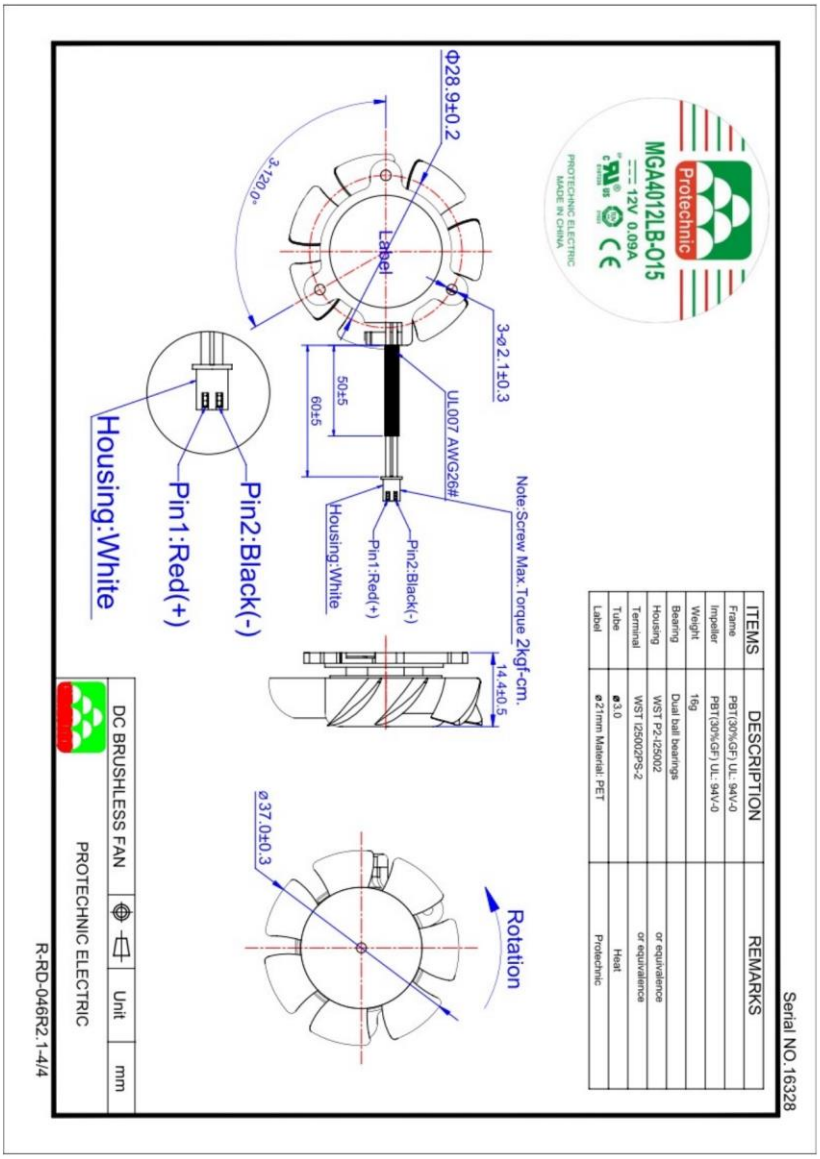
R-RD-046R2.1-3/4

Enclosures

Diagrams ID 04-02

Cooler Master Co., Ltd.

www.coolermaster.com



Enclosures

Diagrams ID 04-02

Cooler Master Co., Ltd.

www.coolermaster.com

6. ROHS 2.0

關于相關物料符合 RoHS2.0 的申明

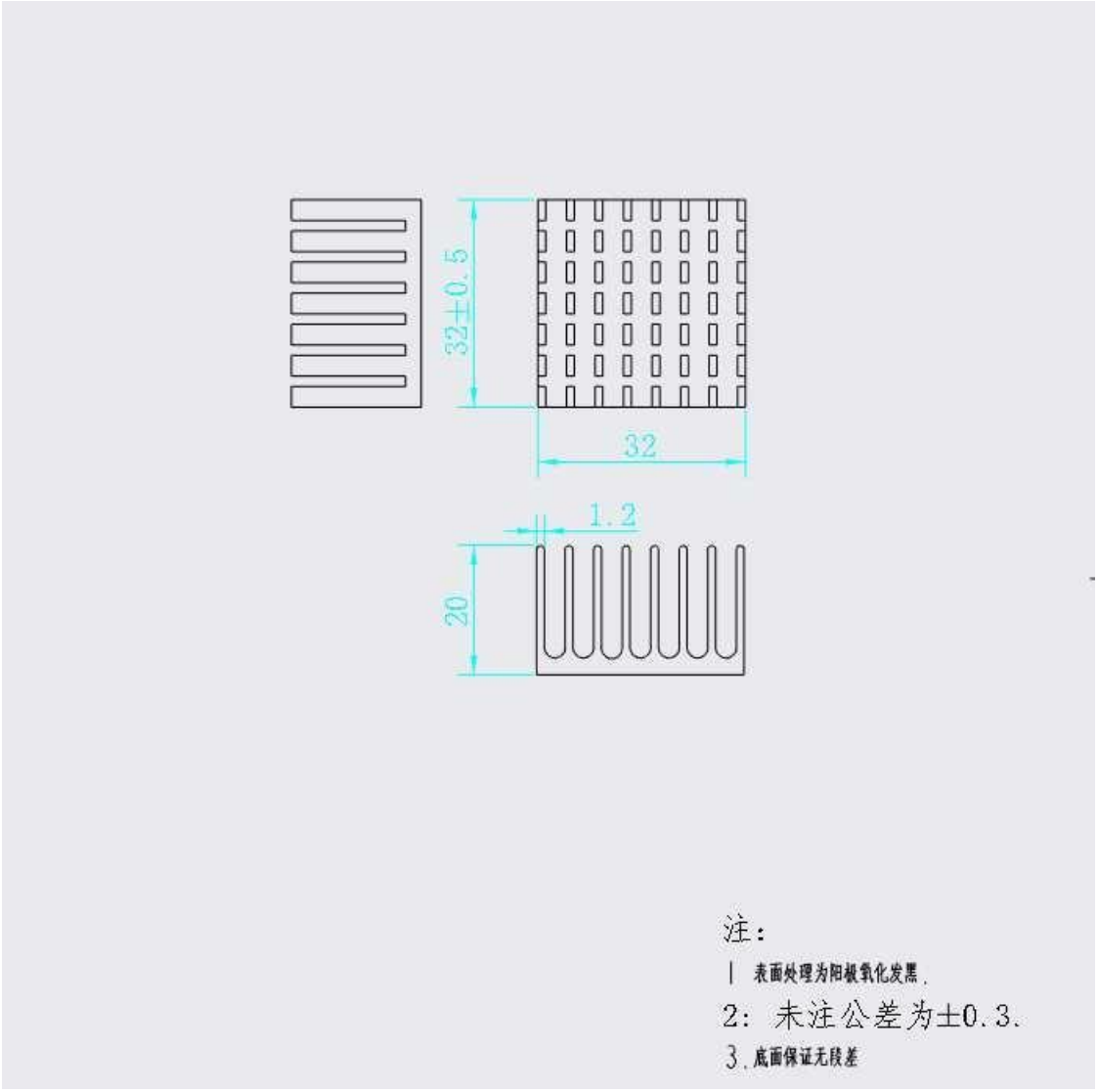
公司嚴格依據《RoHS 指令》要求，在原料采購管理以及生產、包裝、運輸等環節對鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚 <0.1%(1000ppm)，鎘<0.1%(100 ppm) DBP、BBP、DEHP、DIBP 各 <0.1%(1000ppm)等有毒有害物質在指令要求的范圍內，保證提供給杭州海康威視數字技術股份有限公司的所有物料符合 RoHS2.0 要求。特此申明。

訊強電子（惠州）有限公司

2018-01-10

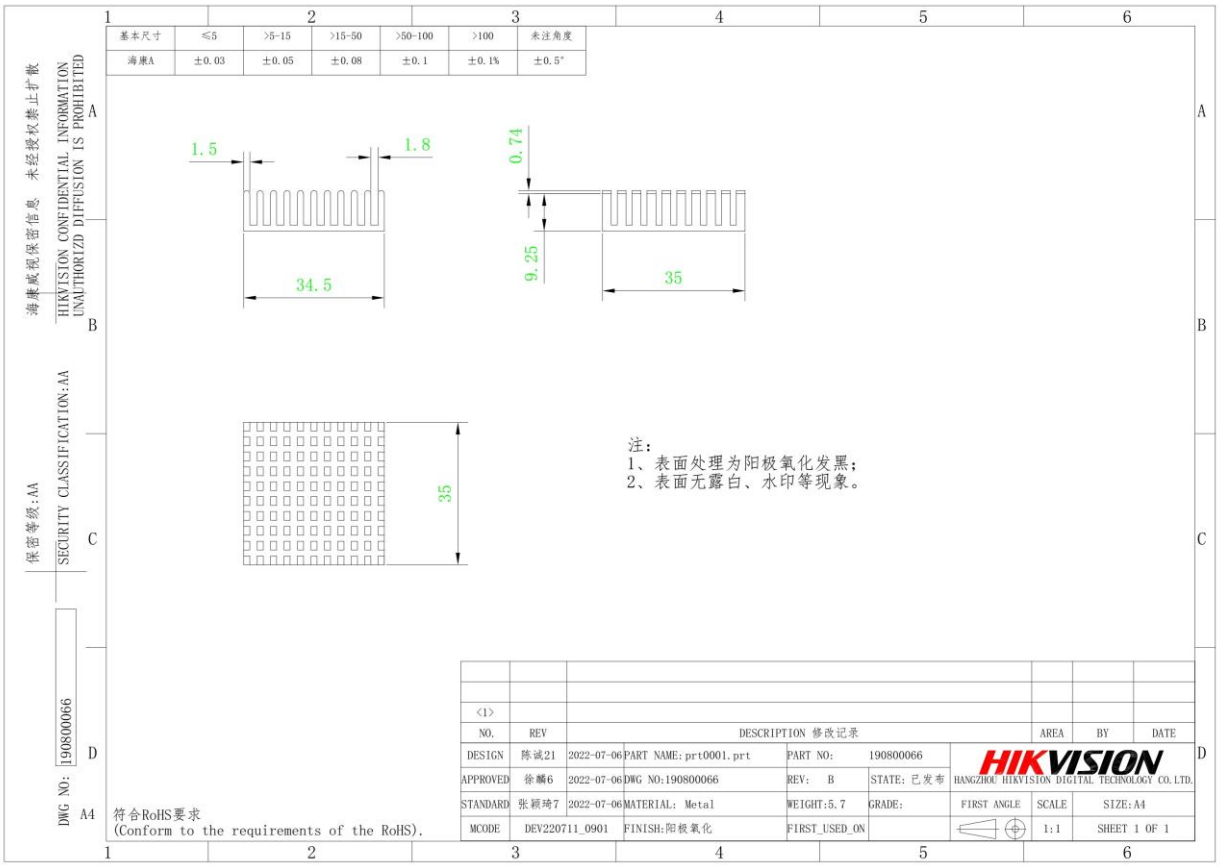
Enclosures

Diagrams ID 04-03



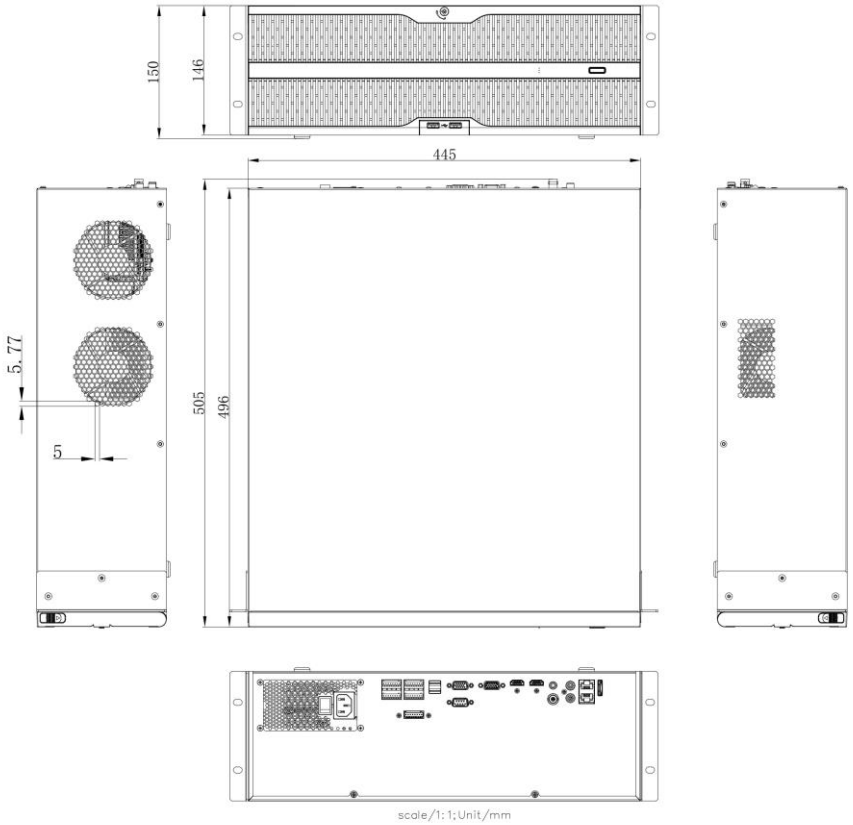
Enclosures

Diagrams ID 04-04



Enclosures

Diagrams ID 04-05



Enclosures

Manuals ID 06-01

Network/Digital Video Recorder

Quick Start Guide

Enclosures

Manuals ID 06-01

HIKVISION

English

Legal Information

Trademarks Acknowledgement

HIKVISION and other Hikvision's trademarks and logos are the properties of Hikvision in various jurisdictions. Other trademarks and logos mentioned below are the properties of their respective owners.

HDMI : The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.

Legal Disclaimer

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS MANUAL AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKVISION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKVISION BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF HIKVISION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS.

YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND HIKVISION SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKVISION WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.

YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES.

IN THE EVENT OF ANY CONFLICTS BETWEEN THIS MANUAL AND THE APPLICABLE LAW, THE LATER PREVAILS.

Regulatory Information

FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC compliance: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

CE

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 LVD Directive 2014/35/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: 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: www.recyclethis.info

Industry Canada ICES-003 Compliance

Enclosures

Manuals ID 06-01

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This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

Conformité Industrie Canada ICES-003

Ce dispositif répond aux exigences des normes CAN ICES-3 (A)/NMB-3(A).

Safety Instructions

- Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.
- Firmly connect the plug to the power socket. Do not connect several devices to one power adapter. Power off the device before connecting and disconnecting accessories and peripherals.
- 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 IEC60950-1.
- 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.

Preventive and Cautionary Tips

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

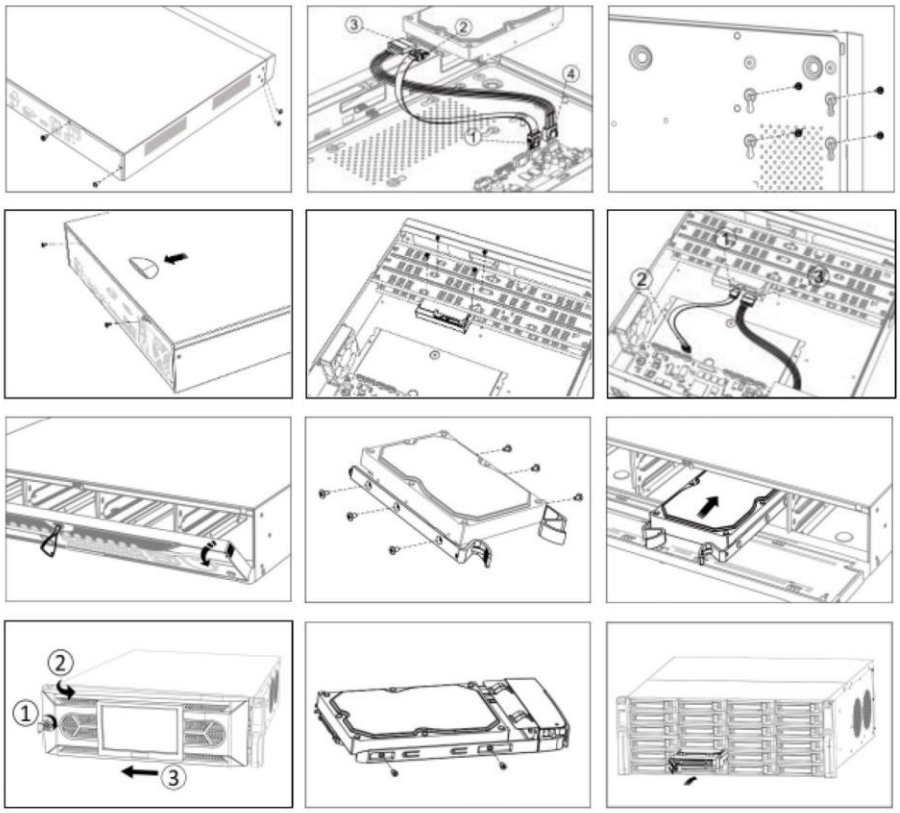
- The device is designed for indoor use only. Install it in a well-ventilated, dust-free environment without liquids.
- Ensure recorder is properly secured to a rack or shelf. Major shocks or jolts to the recorder as a result of dropping it may cause damage to the sensitive electronics within the recorder.
- 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.

Manuals ID 06-01

HIKVISION

- For certain models, the equipment has been designed, when required, modified for connection to an IT power distribution system.
- Use only power supplies listed in the user manual or user instruction.

HDD Installation



Startup

Proper startup is crucial to expand the life of NVR/DVR.

Step 1 Plug power supply into an electrical outlet.

Step 2 Press the power button (certain models may have power button on the front or rear panel). The device begins to start.

Activate Your Device

No operation is allowed before activation. For the first-time access, it requires to set an admin password for device activation. You can also activate the device via web browser, SADP or client software.

Step 1 Enter the same password in **Create New Password** and **Confirm New Password**.

Step 2 Optionally, set reserved email, Hik-Connect, security questions, or export GUID for password resetting in the future.

Step 3 Set the password to activate the network camera(s) connected to the device.

Step 4 Click **OK** to save the password and activate the device.

Enclosures

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- 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.

Enclosures

Miscellaneous ID 07-01

DRAFT CB TEST CERTIFICATE INFORMATION

Generated by BlueBox Publisher on: 2022/10/21

Product	Network Video Recorder
Name and address of the Applicant	HANGZHOU HIKVISION DIGITAL TECHNOLOGY CO LTD NO 555 QIANMO RD BINJIANG DISTRICT HANGZHOU ZHEJIANG 310052 CHINA
Name and address of the Manufacturer	HANGZHOU HIKVISION DIGITAL TECHNOLOGY CO LTD NO 555 QIANMO RD BINJIANG DISTRICT HANGZHOU ZHEJIANG 310052 CHINA
Name and address of the Factory(ies)	Hangzhou Hikvision Technology Co., Ltd. No.700,Dongliu Road, Binjiang District, Hangzhou , Zhejiang, 310052, China; Hangzhou Hikvision Electronics Co., Ltd. No.299,Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou,Zhejiang,311500,China Chongqing Hikvision technology Co.,LTD NO.118.Haikang Road,Area C,Jianqiao Industrial Park,Dadukou District,Chongqing,China.
Rating and principal characteristics	100-240V~, 50/60Hz, 3.5A MAX
Trademarks (if any)	HIKVISION
Model / Type ref.	Construction 1: iDS-9664NXI-I16/X, iDS-9664NXI-I16/X/S,iDS-9664NXI-I16/X/SUHK,iDS-9664NXI-I16/X/SCKV, iDS-9664NXI-I16/X/SUVS, iDS-9664NXI-I16/X/SKVO, iDS-9664NXI-I16/X/SHUN *DS-96***N*I-I16********** *: 0-9 or A-Z or a-z or "-" or "/" or "(" or ")" or blank Construction 2: DS-9664NI-M16, DS-9664NI-M16/RTA, DS-9664NI-M16/RTB, DS-9664NI-M16/RTC, DS-9664NI-M16/RTD, DS-9664NI-M16/RTE, DS-9664NI-M16/RTF, DS-9664NI-M16/RTG, DS-9664NI-M16/RTH, DS-9664NI-M16/RTI, DS-9664NI-M16/RTJ, DS-9664NI-M16/YD, DS-9664NI-M16/ZC, DS-9632NI-M16/RTA, DS-9632NI-M16/RTB, DS-9632NI-M16/RTC, DS-9632NI-M16/RTD, DS-9632NI-M16/RTE, DS-9632NI-M16/RTF, DS-9632NI-M16/RTG, DS-9632NI-M16/RTH, DS-9632NI-M16/RTI, DS-9632NI-M16/RTJ, DS-9632NI-M16/YD, DS-9632NI-M16/ZC, DS-9616NI-M16/RTA, DS-9616NI-M16/RTB, DS-9616NI-M16/RTC, DS-9616NI-M16/RTD, DS-9616NI-M16/RTE, DS-9616NI-M16/RTF, DS-9616NI-M16/RTG, DS-9616NI-M16/RTH, DS-

Enclosures

Miscellaneous ID 07-01

	9616NI-M16/RTI, DS-9616NI-M16/RTJ, DS-9616NI-M16/YD, DS-9616NI-M16/ZC , DS-9632NI-M16, DS-9616NI-M16 DS-9664NI-M16/DX, DS-9632NI-M16/DX, DS-9616NI-M16/DX, X can be 0-9, a-z, A-Z, (,), -, /, or blank *DS-96***N*I-I16********** *can be 0-9 or A-Z or a-z or "-" or "/" or "(" or ")" or blank Construction 3: iDS-9632NXI-M16/X;iDS-9632NXI-M16/XUHK;iDS-9632NXI-M16/XCKV;iDS-9632NXI-M16/XUVS;iDS-9632NXI-M16/XKVO;iDS-9632NXI-M16/XHUN;iDS-9632NXI-M16/X/EDU;iDS-9632NXI-M16/X/RTL;iDS-9632NXI-M16/X/NRG;iDS-9632NXI-M16/X/LGX;iDS-9632NXI-M16/X/MFG;iDS-9632NXI-M16/X/RMS; iDS-9664NXI-M16/X;iDS-9664NXI-M16/XUHK;iDS-9664NXI-M16/XCKV;iDS-9664NXI-M16/XUVS;iDS-9664NXI-M16/XKVO;iDS-9664NXI-M16/XHUN;iDS-9664NXI-M16/X/EDU;iDS-9664NXI-M16/X/RTL;iDS-9664NXI-M16/X/NRG;iDS-9664NXI-M16/X/LGX;iDS-9664NXI-M16/X/MFG;iDS-9664NXI-M16/X/RMS; DS-96128NI-M16,DS-96128NI-M16on,DS-96128NI-M16UHK,DS-96128NI-M16CKV,DS-96128NI-M16UVS,DS-96128NI-M16KVO,DS-96128NI-M16HUN
Additional information (if necessary)	
A sample of the product was tested and found to be in conformity with	IEC 62368-1:2018 (Third Edition)
As shown in the Test Report Ref. No. which forms part of this Certificate	E307937-A6119

Client Representative	Sunhe
Client email (or fax)	sunhe7@hikvision.com

This form is to acknowledge that the above information has been reviewed and the material has been found to be accurate as stated. This is also to record client's confirmation that above factories manufacture product(s) that are equal to those submitted for testing and certification. (Refer to IECEE 02, Sub-clause 4.2.5: "When the application covers more than one factory, the address of each factory shall be stated in the CB Test Certificate and the NCB shall take steps to ensure that the products from all the factories are equal. That shall be confirmed in the Test Report.")

Signed: _____ **Dated:** _____

***Definitions** per IECEE 02 (http://www.iecee.com/cbscheme/pdf/IECEE02.pdf):
Applicant: A firm or a person who applies to an NCB for obtaining a CB Test Certificate.
Manufacturer: An organization, situated at a stated location or locations, that carries out or controls such stages in the manufacture, assessment, handling and storage of a product that enables it to accept responsibility for continued compliance of the product with the relevant requirements and undertakes all obligations in that connection.

Enclosures

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Factory: The location(s) at which the product is produced or assembled and follow-up service is established by the NCB.

Enclosures

Miscellaneous ID 07-02

TÜV Rheinland (China) Ltd.
Member of TÜV Rheinland Group

TÜVRheinland®
Precisely Right.

Acbel Polytech Inc.
Mr. Howard Lin, Safety Engineer
Safety. DQ Dept.
No. 159, Sec. 3, Danjin Rd.,
Tamsui Dist., New Taipei City 251
Taiwan

Date : 30.01.2019
Our ref. : BEZ GZ
Your ref.: 174097638

Ref : CB Certificate Japan

Type of Equipment : Switching Power Supply (Built-in type)
Model Designation : See Certificate
Certificate No. : JPTUV-094245
Report No. : 50216000 001

Dear Mr. Howard Lin,

Thank you very much for your interest in our services.

Please find enclosed your certification documents.

We appreciate your support and would like to offer our assistance in the approval of your future products through our extensive range of technical services.

Please feel free to contact us whatever your requirements may be.

With kind regards,

Certification Body

Martin Wang

Enclosure

TÜV Rheinland (China) Ltd.
莱茵检测认证服务（中国）有限公司
Unit 707, AVIC Bldg., No. 10B, Central Road, East 3rd Ring Road, Chaoyang District, Beijing, 100022, P.R.China
北京市朝阳区东三环中路乙10号艾维克大厦707室
邮编：100022
Tel: (8610)6566 6660
Fax: (8610)6566 6667
e-mail: info@bj.chn.tuv.com
Internet: http://www.chn.tuv.com

Enclosures

Miscellaneous ID 07-02

Ref. Certif. No.
JPTUV-094245

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product Produit	Switching Power Supply (Built-in type)
Name and address of the applicant Nom et adresse du demandeur	Acbel Polytech Inc. No. 159, Sec. 3, Danjin Rd., Tamsui Dist., New Taipei City 251 Taiwan
Name and address of the manufacturer Nom et adresse du fabricant	Acbel Polytech Inc. No. 159, Sec. 3, Danjin Rd., Tamsui Dist., New Taipei City 251 Taiwan
Name and address of the factory Nom et adresse de l'usine	See additional page(s)
Ratings and principal characteristics Valeurs nominales et charactéristiques principales	Input : AC 100-240V, 50/60Hz, 6A; Class I Output: DC +3.3V/10A, +5V/15A, +12V/15A, +5Vsb/2A. +5V & +3.3V total power output 90W max. All output total power 250W max.
Trademark (if any) Marque de fabrique (si elle existe)	AcBel(logo)
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	N/A
Model / Type Ref. Ref. de type	SFXA4251A
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page)	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60950-1:2005+A1+A2 See Test Report for National Differences
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	50216000 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 30.01.2019

Signature: Martin Wang

10/081 CB 05.12

Enclosures

Miscellaneous ID 07-02

IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-094245

PAGE 2 OF 2

1. Acbel Electronic (Dong Guan) Co., Ltd.
No. 17-28, Horng Yeh Road, Horng Yeh Ind. District, Tang Xia Town
Dongguan, Guangdong 523710, P. R. China

2. Acbel Polytech Inc.
No. 159, Sec. 3, Danjin Rd.,
Tamsui Dist., New Taipei City 251
Taiwan

3. AcTel Electronic (Dong Guan) Co., Ltd.
No. 13-16, Hong Yeh 11Rd.
Hong Yeh Industrial District
Tang Xia Town Dong Guan City,
Guang Dong, P. R. China

4. ACBEL ELECTRONIC (WUHAN) CO., LTD
No. 1, DuTai North Road
Economic Development Zone
XianTao City, HuBei Province
P. R. China

5. Acbel Polytech(Philippines) INC.
No. 2 Tagaytay Ridge Drive,
Carmelray Industrial Park II,
Km. 54 National Highway,
Calamba City, Laguna 4027, Philippines

Additional information (if necessary)
Information complémentaire (si nécessaire)

Report Ref. No.: 50216000 001

Date: 30.01.2019 Signature: Martin Wang

10/061a 8.06

Enclosures

Miscellaneous ID 07-04

Instr. Code	Instrument I.D.	Instrument Type	Range Used Or ***	Make and Model **	Calibration Date	
					Last	Due
	hkvs-clsb170014A	Data Acquisition	-100~400℃	34972A	2022-02-23	2023-02-22
	ag0001	power meter	0-600V 0-20A	PA310	2022-01-13	2023-01-12
	hkvs-yq160015M	Digital platform balance	0-30kg	2AM-30A	2022-05-13	2023-05-12
	hkvs-gj12001	Handy Push Pull Gauge	0-1000N	HP-1K	2022-03-14	2023-03-13
	hkvs-sys1001	Electronic stopwatch	0-24h	PC396	2022-06-21	2023-06-20
	ag0004	DC electronic load	0-120V 0-30A 0-250W	IT8812	2022-01-19	2023-01-18
	hkvs-clsb180156A	High temperature oven	RT+10℃～300℃	FED 260 E3.1	2022-05-13	2023-05-12
	hkvs-qt3939	Steel Ball impact test rig	500g±25g	YJ-8625	2021-07-28	2023-07-27
	JP-11-40	30mm round test surface	30mm	–	–	–