CERTIFICATE OF CONFORMITY

Equipment:	**Fanless AI Computing System**
Brand Name:	**Vecow or Vecow**
Test Model No.:	**EVS-2010-MXM1050, EVS-2XXX-XXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)**
Applicant:	**Vecow Co., Ltd.**
Test Report No.:	**LDBDBO-WTW-P21050463**

We, **Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch, Lin Kou Laboratories,** declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards, in accordance with the Directive 2014/35/EU. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

EN 62368-1:2014+A11:2017

Bureau Veritas Consumer Products Services

數位簽署者：Bureau Veritas Consumer Products Services
日期：2021.10.19 12:20:05 +08'00'

Joseph Tsai / Manager
2021-10-15

No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City,
TAIWAN. Tel: 886-3-3183232 Fax: 886-3-3270892
http://www.bureauveritas-adt.com / E-Mail: service.adt@tw.bureauveritas.com

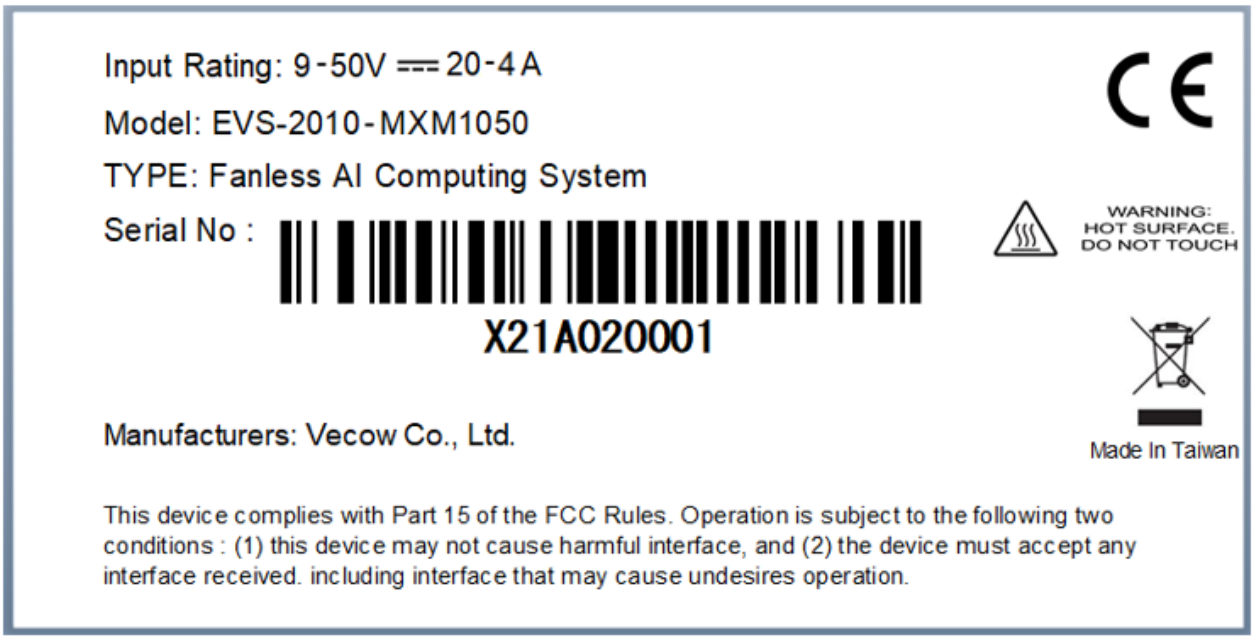
Test Report No.:	**LDBDBO-WTW-P21050463**
Client	
Name :	**Vecow Co., Ltd.**
Address :	**3F., No.10, Jiankang Rd., Zhonghe Dist., New Taipei City 23586, Taiwan**
Test Item :	**Fanless AI Computing System**
Identification :	**EVS-2010-MXM1050, EVS-2XXX-XXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)**
Testing laboratory	
Name :	**Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch**
Address :	**No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan**
Test specification	
Standard :	**EN 62368-1:2014+A11:2017**
Test Result :	The test item passed.
Prepared By :	Ryder Chang Signature Ryder Chang Project Handler 2021-10-15 Date
Approved By:	Bill Lin Signature Bill Lin Reviewer 2021-10-15 Date

This report should not be used by the client to claim product certification, approval, or endorsement by TAF, NVLAP, NIST or any government agencies.

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

Report	
Reference No.	LDBO-WTW-P21050463
Compiled by (+ signature)	See cover sheet
Approved by (+ signature)	See cover sheet
Date of issue	2021-10-15
Total number of pages	85
Testing laboratory	
Name	Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch
Address	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Testing location	Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch
Address	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City, Taiwan
Client	
Name	Vecow Co., Ltd.
Address	3F., No.10, Jiankang Rd., Zhonghe Dist., New Taipei City 23586, Taiwan
Test specification	
Standard	EN 62368-1:2014+A11:2017
Test procedure	CE Marking Service in LVD
Non-standard test method	N/A
Test Report Form No. .....:	IEC62368_1B
Test Report Form(s) Originator.....:	UL(US)
Master TRF .....:	2014-03
Test item	
Description	Fanless AI Computing System
Trademark	Vecow or Vecow
Model and/or type reference	EVS-2010-MXM1050, EVS-2XXX-XXXXXXXXXXX (“X” can be 0-9, A-Z or blank for marketing purpose)
Manufacturer	Vecow Co., Ltd.
Rating(s)	9-50Vdc, 20-4A

Copy of marking plate and summary of test results (information/comments):



TEST ITEM PARTICULARS:	
Classification of use by..... :	☐ Ordinary person ☒ Instructed person ☒ Skilled person ☐ Children likely to be present
Supply Connection ..... :	☐ AC Mains ☐ DC Mains ☒ External Circuit - not Mains connected - ☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance ..... :	☐ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☒ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☒ mating connector ☒ other: DC supply
Considered current rating of protective device as part of building or equipment installation..... :	N/A; Installation location: ☐ building; ☐ equipment
Equipment mobility..... :	☐ movable ☐ hand-held ☐ transportable ☐ stationary ☒ for building-in ☐ direct plug-in ☐ rack-mounting ☒ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☒ other: Not directly connected to mains
Class of equipment ..... :	☐ Class I ☐ Class II ☒ Class III
Access location ..... :	☐ restricted access location ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	55°C
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☐ TN ☐ TT ☐ IT - ____ V L-L
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ _____ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) ..... :	☒ 4.9kg

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 ..... :	2021-09-03
Date (s) of performance of tests ..... :	2021-09-30 to 2021-10-08

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.

GENERAL PRODUCT INFORMATION:

Product Description –

The equipment is an Industrial PC which is intended to be used with information technology equipment covered by the scope of this standard.

Model Differences –

All models are identical to each other except for model designation for different marketing.

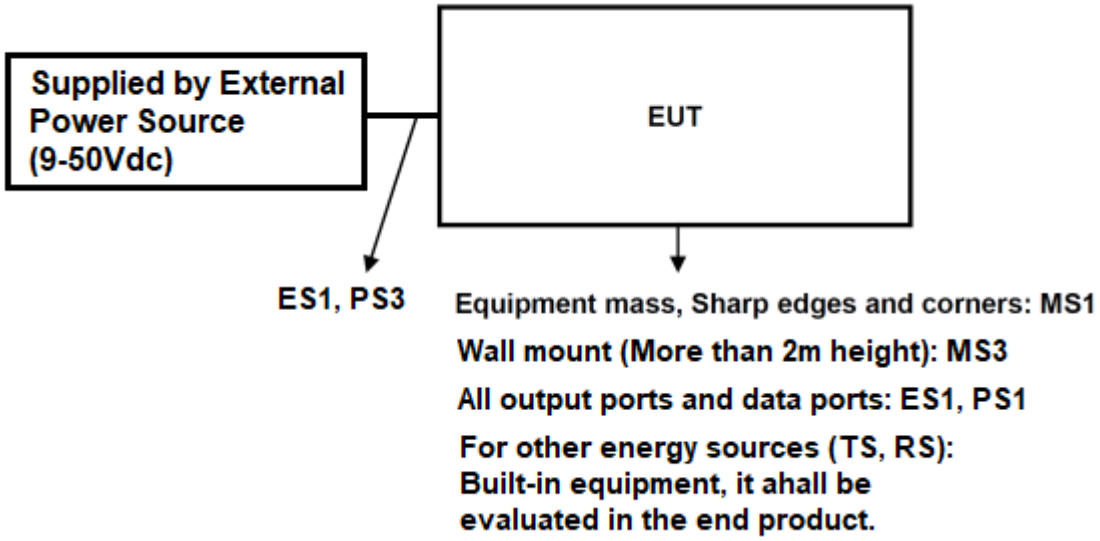
Additional application considerations – (Considerations used to test a component or sub-assembly) –

1) Dimension: 280.0mm x 215.0mm x 79.1mm.
2) The equipment's top enclosure to the bottom enclosure by screw.
3) Instruction and equipment marking related to safety shall be in a language which is acceptable in the country in which the equipment is to be installed.
4) The EUT can be supplied by the Supplied by External Power Source. For acceptance of the EPS, the EPS's output of rating shall be (9-50Vdc, 20-4A min.), with maximum operation temperature 55°C min. it output also shall comply with the requirement of ES1 of IEC 62368-1.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
Supplied by External Power Source (9-50Vdc)	ES1
Internal circuits	ES1
All output ports and data ports	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
Source of power or PIS	**Corresponding classification (PS)**
Supplied by External Power Source	PS3
Internal Wiring	PS3
All output ports and data ports	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
Built-in equipment, it shall be evaluated in the end product.	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Equipment mass	MS1
Sharp edges and corners	MS1
Wall mount (More than 2m height)	MS3
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
Source of thermal energy	**Corresponding classification (TS)**
Built-in equipment, it shall be evaluated in the end product.	N/A

Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
Type of radiation	**Corresponding classification (RS)**
Built-in equipment, it shall be evaluated in the end product.	N/A

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



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES1: Supplied by External Power Source (9-50Vdc)	N/A	N/A	N/A
Ordinary	ES1: Internal circuits	N/A	N/A	N/A
Ordinary	ES1: All I/O ports	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Internal Circuits/Components	PS3: Supplied by External Power Source	See Clause 6.3	Equipment safeguards (metal enclosure)	N/A
Internal Wiring	PS2: Supplied by External Power Adapter output	See Clause 6.3	Equipment safeguards (metal enclosure)	N/A
All output ports and data ports	PS1: Under 15W	N/A	See appended table 6.2.2	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed person, Skilled person	Built-in equipment, it shall be evaluated in the end product.	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Instructed person, Skilled person	MS1: Equipment Mass	N/A	N/A	N/A
Instructed person, Skilled person	MS1: Sharp edges and corners	N/A	N/A	N/A
Instructed person, Skilled person	MS3: Wall mount (More than 2m height)	N/A	N/A	Refer to clause 8.7.
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed person, Skilled person	Built-in equipment, it shall be evaluated in the end product.	N/A	N/A	N/A
10.1	Radiation			

Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed person, Skilled person	Built-in equipment, it shall be evaluated in the end product.	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**General Requirements**		P
4.1.1	Acceptance of materials, components and subassemblies	Components, which were found to affect safety aspects, are conformed to the relevant IEC component standards and/or comply with the requirements of this standard.	P
4.1.2	Use of components	(See appended table 4.1.2)	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests .....:	(See Annex T.2)	P
4.4.4.3	Drop tests .....:		N/A
4.4.4.4	Impact tests .....:		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:		N/A
4.4.4.6	Glass Impact tests .....:		N/A
4.4.4.7	Thermoplastic material tests.....:		N/A
4.4.4.8	Air comprising a safeguard.....:	No such parts.	N/A
4.4.4.9	Accessibility and safeguard effectiveness	All safeguards remain effective.	P
4.5	Explosion		N/A
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to .....:		N/A
4.7	Equipment for direct insertion into mains socket - outlets	No such construction.	N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm) .....:		N/A
4.8	Products containing coin/button cell batteries	No such component.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—
4.8.4	Battery Compartment Mechanical Tests .....:		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications.....:	See below.	P
5.2.2	ES1, ES2 and ES3 limits	See Energy source identification and classification table.	P
5.2.2.2	Steady-state voltage and current.....:		P
5.2.2.3	Capacitance limits.....:		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 .....:	No ringing signal.	N/A
5.2.2.7	Audio signals .....:	No such construction.	N/A
5.3	Protection against electrical energy sources	See below.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Only ES1 circuits.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuits.	P
5.3.2.2	Contact requirements	Only ES1 circuits.	N/A
	a) Test with test probe from Annex V.....:		N/A
	b) Electric strength test potential (V) .....:		N/A
	c) Air gap (mm) .....:		N/A
5.3.2.4	Terminals for connecting stripped wire	No such construction.	N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material	Only ES1 circuits.	N/A
5.4.1.3	Humidity conditioning.....:		N/A
5.4.1.4	Maximum operating temperature for insulating materials .....:		N/A
5.4.1.5	Pollution degree .....:	Pollution degree 2.	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		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 softening temperature.....:		N/A
5.4.1.10.3	Ball pressure .....:		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.3	Determining clearance using required withstand voltage .....:		N/A
	a) a.c. mains transient voltage .....:		—
	b) d.c. mains transient voltage .....:		—
	c) external circuit transient voltage .....:		—
	d) transient voltage determined by measurement .:		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....:		N/A
5.4.3	Creepage distances.....:		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group .....:		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation .....:		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		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
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.....:		N/A
5.4.5	Antenna terminal insulation	No such construction.	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....:		—
5.4.6	Insulation of internal wire as part of supplementary safeguard .....:		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	No critical insulation.	N/A
	Relative humidity (%).....:		—
	Temperature (°C) .....:		—

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Duration (h) .....:		—
5.4.9	Electric strength test .....:		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	No such construction.	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test .....:		N/A
5.4.10.2.3	Steady-state test.....:		N/A
5.4.11	Insulation between external circuits and earthed circuitry .....:		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V) .....:		—
	Nominal voltage U_{peak} (V).....:		—
	Max increase due to variation U_{sp} .....:		—
	Max increase due to ageing ΔU_{sa} .....:		—
	$U_{op}= U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....:		—
5.5	Components as safeguards		
5.5.1	General	Only ES1 circuits.	N/A
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		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Class III equipment.	N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) .....:		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2).....:		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm). .....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....:		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	Only ES1 circuits.	N/A
5.7.2.1	Measurement of touch current.....:		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection) .....:		—
	Multiple connections to mains (one connection at a time/simultaneous connections) .....:		—
5.7.4	Earthed conductive accessible parts .....:		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....:		—
	Measured current (mA).....:		—
	Instructional Safeguard.....:		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	See below.	N/A
5.7.6.1	Touch current from coaxial cables	No such construction.	N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits	Only ES1 circuits connection.	N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.7	Summation of touch currents from external circuits	No such construction.	N/A
	a) Equipment with earthed external circuits Measured current (mA).....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA) .....:		N/A
6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	See Energy source identification and classification table.	P
6.2.2.1	General	See below.	P
6.2.2.2	Power measurement for worst-case load fault.....:		P
6.2.2.3	Power measurement for worst-case power source fault.....:		P
6.2.2.4	PS1 .....:	(See appended table 6.2.2)	P
6.2.2.5	PS2 .....:		N/A
6.2.2.6	PS3 .....:	Supplied by External Power Source	P
6.2.3	Classification of potential ignition sources	See below.	P
6.2.3.1	Arcing PIS .....:	All internal circuits are considered not arcing PIS for they are supplied by external power supply whose open voltage is less than 50V.	N/A
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....:	Measured temperature < 300°C (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	The equipment is a building-in type and evaluation is to be made during the final system approval	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control fire spread. However, the build-in equipment shall be evaluated in final system assembly.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	See above.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See above.	N/A
6.4.3.1	General	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.3.2	Supplementary Safeguards	See above.	N/A
	Special conditions if conductors on printed boards are opened or peeled	See above.	N/A
6.4.3.3	Single Fault Conditions ..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	PS3 circuits inside.	P
6.4.5	Control of fire spread in PS2 circuits	See below.	P
6.4.5.2	Supplementary safeguards .....:	- Printed board is rated min. V-1. - All components and combustible materials other than small parts are either rated at least V-2 or mounted on material with rating min. V-1. - Wire insulation and tubing shall comply with IEC 60332-1-2, IEC 60332-1-3, IEC 60332-2-2 or IEC/TS 60695-11-21.	P
6.4.6	Control of fire spread in PS3 circuit	- By providing a fire enclosure. - All combustible materials not part of a PS2 or PS3 circuits are at least V-2. - Wire insulation and tubing shall comply with IEC 60332-1-2, IEC 60332-1-3, IEC 60332-2-2 or IEC/TS 60695-11-21. The equipment is for building-in and shall be evaluated for the final system.	P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General.....:		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	The equipment is a building-in type and evaluation is to be made during the final system approval.	N/A
6.4.8.1	Fire enclosure and fire barrier material properties	See below.	P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.1	Fire enclosure and fire barrier openings	The fire enclosure is made of metal.	P
6.4.8.3.2	Fire barrier dimensions	See below.	N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) ..... :	No openings	P
	Needle Flame test	See below.	N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) ..... :	No bottom openings.	P
	Flammability tests for the bottom of a fire enclosure ..... :		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) ..... :		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating ..... :		N/A
6.5	Internal and external wiring		P
6.5.1	Requirements	The used wiring comply with the requirement of IEC 60332 and IEC/TS 60695-11-21 with rated VW-1/FT-1.	P
6.5.2	Cross-sectional area (mm^2) ..... :		—
6.5.3	Requirements for interconnection to building wiring ……..:	No such interconnection to building wiring.	N/A
6.6	Safeguards against fire due to connection to additional equipment	No such connection to additional equipment.	N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		P
7.2	Reduction of exposure to hazardous substances	No hazardous substances.	N/A
7.3	Ozone exposure	No ozone.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions..... :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	Batteries.....:	See Annex M.	P

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Clause	Requirement + Test	Result - Remark	Verdict
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General	See below.	P
8.2	Mechanical energy source classifications	See Energy source identification and classification table.	P
8.3	Safeguards against mechanical energy sources	See overview of employed safeguards.	P
8.4	Safeguards against parts with sharp edges and corners	Accessible edges and corners of the equipment are rounded and are classified as MS1.	P
8.4.1	Safeguards	Edges and corners of the enclosure are rounded.	P
8.5	Safeguards against moving parts	No such construction.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard ..... :		—
8.5.4	Special categories of equipment comprising moving parts	No such construction.	N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks..... :		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard ..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N) ..... :		N/A
8.5.5	High Pressure Lamps	No such construction.	N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability	Equipment mass is MS1.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard ..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force ..... :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt..... :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force) ..... :		N/A
	Position of feet or movable parts ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.7	Equipment mounted to wall or ceiling	See below	P
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) ..... :	According to the installation, the EUT can be mounted on the wall by screws. And mounting surface of EUT is metal.	P
8.7.2	Direction and applied force ..... :	Test 1 considered, 1 min; 1. additional downward force: 145N (4.9kg x 3 times x 9.8 = 144.06N); 2. a horizontal force: 50N Test 3 considered: The screw is tightened with a torque 0.6Nm. During the test, the equipment and mounting means mechanically intact and did not become dislodged.	P
8.8	Handles strength	No handles.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force ..... :		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters.	N/A
8.9.1	Classification		N/A
8.9.2	Applied force ..... :		—
8.10	Carts, stands and similar carriers	No carts, stands and similar carriers.	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard ..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force ..... :		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N) ..... :		—
8.10.6	Thermoplastic temperature stability (°C) ..... :		N/A
8.11	Mounting means for rack mounted equipment	Not for rack mounted.	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N* ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No telescoping or rod antennas.	N/A
	Button/Ball diameter (mm) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
9	**THERMAL BURN INJURY**		N/A
9.2	Thermal energy source classifications	Built-in equipment, it shall be evaluated in the end product. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	N/A
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard ..... :		N/A

10	**RADIATION**		P
10.2	Radiation energy source classification	See below.	P
10.2.1	General classification	See Energy source identification and classification table.	P
10.3	Protection against laser radiation	No laser radiation.	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :		N/A
	Instructional safeguard ..... :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation	See below.	P
10.4.1	General	See Energy source identification and classification table.	P
10.4.1.a)	RS3 for Ordinary and instructed persons …….:		N/A
10.4.1.b)	RS3 accessible to a skilled person ……..:		N/A
	Personal safeguard (PPE) instructional safeguard.....:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1.. :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions ..... :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque ……..:		N/A
10.4.1.f)	UV attenuation ……..:		N/A
10.4.1.g)	Materials resistant to degradation UV.....:		N/A
10.4.1.h)	Enclosure containment of optical radiation …….:		N/A
10.4.1.i)	Exempt Group under normal operating conditions ……..:		N/A
10.4.2	Instructional safeguard ……...:		N/A
10.5	Protection against x-radiation	No x-radiation.	N/A
10.5.1	X- radiation energy source that exists equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	..... :		
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person ..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation ..... :		—
	Abnormal and single-fault condition..... :		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	Not a personal music player.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A) ..... :		N/A
	Output voltage, unweighted r.m.s. ..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards..... :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2 ..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)..... :		—

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions	See below.	P
B.2.1	General requirements..... :	(See Test Item and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	No audio amplifiers.	N/A
B.2.3	Supply voltage and tolerances	Not directly connected to mains. No tolerance is considered.	P

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Clause	Requirement + Test	Result - Remark	Verdict
B.2.5	Input test ..... :	(See appended table B.2.5.)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements ..... :	See below.	P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
B.3.3	D.C. mains polarity test	No such construction.	N/A
B.3.4	Setting of voltage selector ..... :	No such construction.	N/A
B.3.5	Maximum load at output terminals..... :	(See appended table B.3)	P
B.3.6	Reverse battery polarity	No battery provided.	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No such construction.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	During an abnormal operating condition that does not lead to a single fault condition, all safeguards shall remain effective. After restoration of normal operating conditions, all safeguards shall comply with applicable requirements.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited ..... :	No such construction.	N/A
B.4.3	Motor tests	No such construction.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :		N/A
B.4.4	Short circuit of functional insulation	Functional insulation failure will not cause defeat of safeguard.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No such construction.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	No such construction.	N/A
B.4.6	Short circuit or disconnect of passive components	No such construction.	N/A
B.4.7	Continuous operation of components	No such construction.	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	During and after a single fault condition, an accessible part is not exceed the relevant energy class as specified in this standard for the related person depending on the hazard involved. And no flame inside the equipment.	P
B.4.9	Battery charging under single fault conditions .... :	No such construction.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV radiation exposure.	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators	Not used.	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	Audio amplifier normal operating conditions	No audio amplifier.	N/A
	Audio signal voltage (V).....:		—
	Rated load impedance (Ω) .....:		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements	See below.	P
	Instructions – Language .....:	Safety related information in English has been evaluated. The language of the countries where the product will be distributed.	—
F.2	Letter symbols and graphical symbols	See below.	P
F.2.1	Letter symbols according to IEC60027-1	Not use.	N/A
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Considered.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	On the exterior of the bottom. Provided the location of the marking is given in the instructions.	P
F.3.2	Equipment identification markings	See below.	P
F.3.2.1	Manufacturer identification .....:	Manufacturer: Vecow Co., Ltd.	—

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.2.2	Model identification .....:	EVS-2010-MXM1050, EVS-2XXX-XXXXXXXXXXX (“X” can be 0-9, A-Z or blank for marketing purpose)	—
F.3.3	Equipment rating markings	See below.	P
F.3.3.1	Equipment with direct connection to mains	No direct connection to mains.	N/A
F.3.3.2	Equipment without direct connection to mains	Supplied by External Power Source	P
F.3.3.3	Nature of supply voltage .....:		—
F.3.3.4	Rated voltage.....:	9-50Vdc	—
F.3.3.4	Rated frequency .....:	The EUT is supplied by DC.	—
F.3.3.6	Rated current or rated power.....:	20-4A	—
F.3.3.7	Equipment with multiple supply connections	No such construction.	N/A
F.3.4	Voltage setting device	No such construction.	N/A
F.3.5	Terminals and operating devices	No such construction.	N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :		N/A
F.3.5.2	Switch position identification marking..... :		N/A
F.3.5.3	Replacement fuse identification and rating markings..... :	Class III equipment.	N/A
F.3.5.4	Replacement battery identification marking..... :	No such construction.	N/A
F.3.5.5	Terminal marking location	No such construction.	N/A
F.3.6	Equipment markings related to equipment classification	Class III equipment.	N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking .....:	No such construction.	—
F.3.8	External power supply output marking	Not apply for	N/A
F.3.9	Durability, legibility and permanence of marking	Complied.	P
F.3.10	Test for permanence of markings	After this test there was no damage to the label. The marking on the label did not fade. There was no curling or lifting on the label edge.	P
F.4	Instructions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		N/A
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area	Not apply for.	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such construction.	N/A
	f) Protective earthing employed as safeguard	Class III equipment.	N/A
	g) Protective earthing conductor current exceeding ES 2 limits	Class III equipment.	N/A
	h) Symbols used on equipment	No symbol used as an instructional safeguard.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	No such construction.	N/A
j)	j) Replaceable components or modules providing safeguard function	No such construction.	N/A
F.5	Instructional safeguards	Not required.	N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	**COMPONENTS**		N/A
G.1	Switches		N/A
G.1.1	General requirements	Not such component.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	Not such component.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	Not such component.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	Not use.	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Aging hours (H)..... :		—
	Single Fault Condition..... :		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors	Not use.	N/A
G.3.4	Overcurrent protection devices	Not use.	N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided	Not use.	N/A
G.3.5.2	Single faults conditions .....:		N/A
G.4	Connectors		N/A
G.4.1	Spacings	No such parts.	N/A
G.4.2	Mains connector configuration .....:	No such parts.	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No such parts.	N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....	Not use.	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s) .....:		—
	Temperature (°C).....:		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....:	Not use.	N/A
	Position .....:		—
	Method of protection .....:		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....:		—
G.5.3.3	Overload test ..... :		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	Not use.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Position .....:		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V) .....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V) .....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h).....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....:		—
G.6	Wire Insulation		N/A
G.6.1	General	Not use.	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	Not use.	N/A
	Type..... :		—
	Rated current (A) ..... :		—
	Cross-sectional area (mm^2), (AWG) ..... :		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....:		—
G.7.3.2.2	Strain relief mechanism failure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ....:		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry..... :		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) ..... :		—
	Diameter (m)..... :		—
	Temperature (°C)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements	Not use.	N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test..... :		N/A
G.8.3.3	Temporary overvoltage..... :		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	Not use.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA ..... :		—
G.9.1 d)	IC limiter output current (max. 5A)..... :		—
G.9.1 e)	Manufacturers' defined drift ..... :		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements	Resistors are not used as a safeguard.	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.11.1	General requirements	Capacitors are not used as a safeguard.	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 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) ..... :	Not use.	N/A
	Type test voltage Vini .....:		—
	Routine test voltage, Vini,b .....:		—
G.13	Printed boards		N/A
G.13.1	General requirements	Printed boards are not used as basic insulation, supplementary insulation, reinforced insulation and double insulation.	N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction) .....:		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation ..... :		N/A
	Number of insulation layers (pcs) .....:		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements ..... :	Not use.	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	Not use.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	Not use.	N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....:		—
D3)	Resistance .....:		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General	No such construction.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....:		—
H.3.1.2	Voltage (V) .....:		—
H.3.1.3	Cadence; time (s) and voltage (V) .....:		—
H.3.1.4	Single fault current (mA):.....:		—
H.3.2	Tripping device and monitoring voltage.....:		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....:		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
	General requirements	Not use.	N/A
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements	Not use.	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
	Compliance ..... :		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method ..... :		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) ..... :		N/A
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test ..... :		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	General requirements	Class III equipment, supplied by Supplied by External Power Sourc.	N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		P
M.1	General requirements	Instructional safeguard has provided in user manual and see below.	P
M.2	Safety of batteries and their cells	See below.	P
M.2.1	Requirements	See append table 4.1.2 for details.	P
M.2.2	Compliance and test method (identify method)... :	See append table 4.1.2 for details.	P
M.3	Protection circuits	See below.	P
M.3.1	Requirements	Complied.	P
M.3.2	Tests	See below.	P
	- Overcharging of a rechargeable battery	The used RTC battery is not a rechargeable battery.	N/A
	- Unintentional charging of a non-rechargeable battery	See appended table annex M.	P
	- Reverse charging of a rechargeable battery	The used RTC battery is not a rechargeable battery.	N/A
	- Excessive discharging rate for any battery	See appended table annex M.	P
M.3.3	Compliance .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature..... :		—
M.4.2.2 b)	Single faults in charging circuitry..... :		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....:		N/A
M.6.2	Leakage current (mA) .....:		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s) .....:		—
M.8.2.3	Correction factors .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		P
	Metal(s) used..... :	No such construction.	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied ..... :	Considered.	—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		P
P.1	General requirements	See below.	P
P.2.2	Safeguards against entry of foreign object	See below.	P
	Location and Dimensions (mm) ..... :	See clause 6.4.8.3.3 and 6.4.8.3.4.	—
P.2.3	Safeguard against the consequences of entry of foreign object	Refer to P.2.2	N/A
P.2.3.1	Safeguards against the entry of a foreign object	Not transportable equipment.	N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :	Not transportable equipment.	N/A
P.3	Safeguards against spillage of internal liquids	No such parts.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such parts.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) ..... :		—
	Tr (°C)..... :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing ..... :		N/A
P.4.2 c)	Mechanical strength testing..... :		N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	Limited power sources	See below.	P

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

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Clause	Requirement + Test	Result - Remark	Verdict
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power ~~does not~~ exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (test condition), (°C) .....:		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements	See below.	P
T.2	Steady force test, 10 N ..... :	(See appended table T.2, T.3, T.4, T.5)	P
T.3	Steady force test, 30 N ..... :		N/A
T.4	Steady force test, 100 N ..... :		N/A
T.5	Steady force test, 250 N ..... :		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test ..... :		N/A
T.8	Stress relief test..... :		N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....:		—
	Height (m) .....:		—
T.10	Glass fragmentation test .....:		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) ..... :		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No such construction.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A

EN 62368-1			
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”.		P
	Add the following annexes: Annex ZA (normative) — Normative references to international publications with their corresponding European publications Annex ZB (normative) — Special national conditions Annex ZC (informative) — A-deviations Annex ZD (informative) — IEC and CENELEC code designations for flexible cords		P
1	**Modification to Clause 3 .**		N/A
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*		N/A
3.3.19.1	**momentary exposure level, MEL** metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.3	**sound exposure, *E*** A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa^2 s. $E = \int_0^T p(t)^2 \, dt$		N/A
3.3.19.4	**sound exposure level, *SEL*** logarithmic measure of sound exposure relative to a reference value, *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.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	**Modification to Clause 10**		
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:		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	– is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. – a player while connected to an external amplifier that does not allow the user to walk around 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.		

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Clause	Requirement + Test	Result - Remark	Verdict
	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.**	Not such equipment	N/A
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3. For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		N/A
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)**		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	RS1 is a class 1 acoustic energy source that does not exceed the following: **– for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 85 dB when playing the fixed "programme simulation noise" described in EN 50332-1.** **– for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.** **– The RS1 limits will be updated for all devices as per 10.6.3.2.**		
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** **RS2 is a class 2 acoustic energy source that does not exceed the following:** **– for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the LAeq,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**		N/A

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	exceeds RS2 limits.		
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

EN 62368-1			
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. 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		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
10.6.6.3	**Cordless listening devices** In cordless mode, – with any playing and transmitting device playing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		P
	Delete all the "country" notes in the reference document according to the following list:		

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

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

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Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	***Add*** *the following new subclause after 4.9:* To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.	Class III appliance.	N/A
6	**Modification to 5.4.2.3.2.4**		N/A
5.4.2.3.2.4	***Add*** *the following to the end of this subclause:* The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.	Not such equipment	N/A
7	**Modification to 10.2.1**		P
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.	RS1 for the LED indicators.	P
8	**Modification to 10.5.1**		P

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Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	***Add*** *the following after the first paragraph:* For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm^2, at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.	RS1 for the LED indicator.	P
9	**Modification to G.7.1**		N/A
G.7.1	***Add*** *the following note:* NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.	No mains supply cord used.	N/A
10	**Modification to Bibliography**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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.		N/A
11	**ADDITION OF ANNEXES**		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
	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).	Class III appliance.	N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.	Class III appliance.	N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Class III appliance.	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.	Class III appliance.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: – in certain cases, the **protective current rating** of the circuit supplied from the mains is taken as 20 A instead of 16 A.	Class III appliance.	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.	Class III appliance.	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.	Class III appliance.	N/A
5.7.6	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	Class III appliance.	N/A
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 .	Class III appliance.	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	Not connected to television distribution system.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		
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

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

EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.	Class III appliance.	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.	Class III appliance.	N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard	Class III appliance.	N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.	Class III appliance.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de	No such devices	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Metal enclosure	Interchangeable	Interchangeable	Measured thickness 1.2 mm min.	IEC 62368-1	Tested in this report
RTC battery (For JBAT1 connector)	Tohoku Murata Manufacturing Co., Ltd.	CR2032*	3Vdc, abnormal charging current 10mA	UL 1642	UL (MH12566)
- Alternate use	Interchangeable	Interchangeable	3Vdc, abnormal charging current 10mA	UL 1642, IEC 60086-4	UL, Notify Body of CB Scheme or CENELEC or equivalent
- Description:	Interchangeable based on standardized dimensions and specified rating.				
SSD (One provided)	Innodisk Corporation	DES25-A28M41BW1DC	5Vdc, 160mA	IEC 62368-1	CB (issued by UL Certif. No.: DK-68597-M1-UL)
- Alternate use	Interchangeable	Interchangeable	5Vdc, 160mA	IEC 62368-1, EN 62368-1	CB or other National Certification Bodies registered in IECEE
- Description:	Interchangeable based on standardized dimensions and specified rating.				
Polyswitch (F3, F4) (For DVI-D Port, DVI-VGA1A); (For VGA Port, DVI-VGA1B)	Polytronics Technology Corp.	SMD1206P200TF	6Vdc, Ih:2.0A, Itrip: 3.5A	EN 62319-1-1: 2005, IEC 62319-1-1: 2005, EN 62319-1: 2005, IEC 62319-1: 2005,	TÜV Rheinland Certif. No.: R 50099121)
Polyswitch (F1, F2,F6, F7) (For DP Port, DP1, DP2, DP4,DP5)	Fuzetec Technology Co., Ltd.	FSMD300R	DC 6V, Trip: 5.0A, Hold: 3.0A	EN 60738-1, EN 60738-1-1	TÜV Rheinland Certif. No.: R 50090556
Component IC Current Limiter (U89, U92, U93, U94, U95) (For USB port, (USB31_CON1, USB31_CON2, USB31_CON3)	Texas Instruments Incorporated	TPS2069CDBVR	DC 4.5-5V, max. 2.7A	IEC 62368-1	CB (issued by UL Certif. No.: US-34988-UL)

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Clause	Requirement + Test	Result - Remark	Verdict

PWB	Eiso	Enterprise co Ltd	V-0 min, 130°C min.	UL 796	UL (E162061)
- Alternate use	Interchangeable	Interchangeable	V-1 min, 130°C min.	UL 796	UL
- Description[2)]:	Interchangeable based on standardized dimensions and specified rating.				

Supplementary information:

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	N/A

(The following mechanical tests are conducted in the sequence noted.)

4.8.4.2	**TABLE: Stress Relief test**		—
Part	**Material**	**Oven Temperature (°C)**	**Comments**

4.8.4.3	**TABLE: Battery replacement test**	—
Battery part no.		—
Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	
	2	
	3	
	4	
	5	
	6	
	8	
	9	
	10	

4.8.4.4	**Table: Drop test**		**—**
Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	

4.8.4.5	**TABLE: Impact**		—
Impacts per surface	Surface tested	Impact energy (Nm)	Comments

4.8.4.6	**TABLE: Crush test**		—
Test position	Surface tested	Crushing Force (N)	Duration force applied (s)

Supplementary information:

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

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	**Table: Classification of electrical energy sources**							N/A
5.2.2.2 – Steady State Voltage and Current conditions								
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz		
			Normal					
			Abnormal					
			Single fault – SC/OC					
5.2.2.3 - Capacitance Limits								
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
				Capacitance, nF		Upk (V)		
			Normal					
			Abnormal					
			Single fault – SC/OC					
5.2.2.4 - Single Pulses								
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
				Duration (ms)	Upk (V)	Ipk (mA)		
			Normal					
			Abnormal					
			Single fault – SC/OC					
5.2.2.5 - Repetitive Pulses								
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
				Off time (ms)	Upk (V)	Ipk (mA)		
			Normal					
			Abnormal					
			Single fault – SC/OC					
Test Conditions: Normal – Abnormal - Supplementary information: SC=Short Circuit, OC=Short Circuit								

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**								P
	Supply voltage (V) ……:	9Vdc		50Vdc		50Vdc			—
	Ambient T_{min} (°C) ……:	24.5		22.8		24.8			—
	Ambient T_{max} (°C) ……:	24.5		22.8		24.8			—
	Tma (°C) .....:	55.0	25.0	55.0	25.0	55.0	25.0		—
Maximum measured temperature T of part/at:		T (°C)							Allowed T_{max} (°C)
Test position:		Mount (DC IN to downward)		Mount (DC IN to downward)		Mount (DC IN to upward)			--
PWB near CPU		115.8	--	117.0	--	115.6	--		130
PWB near PCH1		113.0	--	115.1	--	113.9	--		130
PWB near G1		110.7	--	112.7	--	110.1	--		130
PWB near Memory		103.7	--	105.7	--	113.4	--		130
L13 coil		106.2	--	117.9	--	121.9	--		130
RTC body		104.6	--	106.1	--	93.7	--		--
SSD body		90.1	--	90.8	--	82.3	--		--
Metal enclosure outside near top		--	63.4	--	64.2	--	65.5		--
	Supply voltage (V) ……:	9Vdc		9Vdc		50Vdc			—
	Ambient T_{min} (°C) ……:	24.6		24.8		24.8			—
	Ambient T_{max} (°C) ……:	24.6		24.8		24.8			—
	Tma (°C) .....:	55.0	25.0	55.0	—	55.0	25.0		—
Maximum measured temperature T of part/at:		T (°C)							Allowed T_{max} (°C)
Test position:		Mount (DC IN to upward)		Desktop		Desktop			--
PWB near CPU		113.1	--	118.5	--	120.8	--		130
PWB near PCH1		110.2	--	115.6	--	119.1	--		130
PWB near G1		105.8	--	111.2	--	115.2	--		130
PWB near Memory		109.5	--	114.9	--	118.6	--		130
L13 coil		107.0	--	112.4	--	127.1	--		130
RTC body		91.6	--	97.0	--	98.9	--		--
SSD body		80.6	--	86.0	--	87.5	--		--
Metal enclosure outside near top		--	62.0	--	67.4	--	67.4		--
Supplementary information:									
Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)		Insulation class	

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Clause	Requirement + Test	Result - Remark	Verdict

--	--	--	--	--	--	--	--

Supplementary information:

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

Built-in equipment, it shall be evaluated in the end product again.

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

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

Supplementary information:

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

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

Supplementary information:

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

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) [1)]	Required cl (mm)	cl (mm) [2)]	Required [3)] cr (mm)	cr (mm)

Supplementary information:

Note 1: Only for frequency above 30 kHz

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

Note 3: Provide Material Group

5.4.2.3	**TABLE: Minimum Clearances distances using required withstand voltage**	N/A
	Overvoltage Category (OV) .....:	
	Pollution Degree .....:	

Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

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

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

5.4.9	**TABLE: Electric strength tests**		N/A
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:			
Basic/supplementary:			
Reinforced:			
Routine Tests:			
Supplementary information:			

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

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

Supplementary information:

X-capacitors installed for testing are:

☐ bleeding resistor rating:

☐ ICX:

Notes:

A. Test Location:

Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	TABLE: Resistance of protective conductors and terminations				N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	

Supplementary information:

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

5.7.2.2, 5.7.4	**TABLE: Earthed accessible conductive part**		N/A
Supply voltage .....:			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		1	
		2*	
		3	
		4	
		5	
		6	
		8	

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

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

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

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
A	LAN port (LAN1)	Power (W) ...:	0	--	PS1
		V_A (V) .....:	0Vdc	--	
		I_A (A) .....:	0	--	
B	LAN port (LAN2)	Power (W) ...:	0	--	PS1
		V_A (V) .....:	0Vdc	--	
		I_A (A) .....:	0	--	
C	Mic-in port, Line-out port (CN6)	Power (W) ...:	0	--	PS1
		V_A (V) .....:	0Vdc	--	
		I_A (A) .....:	0	--	
D	Type-A USB 3.0 port Top (USB31_CON1) 1)	Power (W) ...:	9.35	--	PS1
		V_A (V) .....:	4.25Vdc	--	
		I_A (A) .....:	2.2	--	
	Type-A USB 3.0 port Down (USB31_CON1) 1)	Power (W) ...:	9.35	--	PS1
		V_A (V) .....:	4.25Vdc	--	
		I_A (A) .....:	2.2	--	
E	Type-A USB 3.0 port Top (USB31_CON2) 1)	Power (W) ...:	9.284	--	PS1
		V_A (V) .....:	4.22Vdc	--	
		I_A (A) .....:	2.2	--	
	Type-A USB 3.0 port Down (USB31_CON2) 1)	Power (W) ...:	9.284	--	PS1
		V_A (V) .....:	4.22Vdc	--	
		I_A (A) .....:	2.2	--	
F	Type-A USB 3.0 port Top (USB31_CON3) 1)	Power (W) ...:	9.306	--	PS1
		V_A (V) .....:	4.23Vdc	--	
		I_A (A) .....:	2.2	--	
	Type-A USB 3.0 port Down (USB31_CON3) 1)	Power (W) ...:	9.306	--	PS1
		V_A (V) .....:	4.23Vdc	--	
		I_A (A) .....:	2.2	--	
G	DP port (DP1A_Top) 2)	Power (W) ...:	6.96	--	PS1
		V_A (V) .....:	1.20Vdc	--	
		I_A (A) .....:	5.8	--	
	DP port (DP1B_Down) 2)	Power (W) ...:	6.96	--	PS1
		V_A (V) .....:	1.20Vdc	--	
		I_A (A) .....:	5.8	--	
H	DP port (DP2A_Top) 2)	Power (W) ...:	7.08	--	PS1
		V_A (V) .....:	1.20Vdc	--	
		I_A (A) .....:	5.9	--	
	DP port (DP2B_Down) 2)	Power (W) ...:	7.08	--	PS1
		V_A (V) .....:	1.20Vdc	--	
		I_A (A) .....:	5.9	--	

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Clause	Requirement + Test	Result - Remark	Verdict

I	DP port (DP4) 2)	Power (W) ...:	6.96	--	PS1
		V_A (V) .....:	1.18Vdc	--	
		I_A (A) .....:	5.9	--	
J	DP port (DP5) 2)	Power (W) ...:	6.96	--	PS1
		V_A (V) .....:	1.18Vdc	--	
		I_A (A) .....:	5.9	--	
K	VGA port (DVI-VGA1A) 2)	Power (W) ...:	8.97	--	PS1
		V_A (V) .....:	3.90Vdc	--	
		I_A (A) .....:	0	--	
L	DVI port (DVI-VGA1B) 2)	Power (W) ...:	8.14	--	PS1
		V_A (V) .....:	3.70Vdc	--	
		I_A (A) .....:	2.2	--	
I	IGN port	Power (W) ...:	0	--	PS1
		V_A (V) .....:	0Vdc	--	
		I_A (A) .....:	0	--	
J	DIO ports (CN3, CN4)	Power (W) ...:	0	--	PS1
		V_A (V) .....:	0Vdc	--	
		I_A (A) .....:	0	--	
K	COM1,COM2,COM3 port	Power (W) ...:	0	--	PS1
		V_A (V) .....:	0Vdc	--	
		I_A (A) .....:	0	--	

Supplementary Information:

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

1) Protectors IC used.
2) Polyswitch used.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)	N/A

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

Supplementary information:

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

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
1)	--	--	--	--	--

Supplementary Information: 1) All conductors and devices are considered as PIS.

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

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

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

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

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
9dc	12.2	20	109.8	--	--	--	Maximum normal load
50Vdc	2.21	4	110.5	--	--	--	Maximum normal load

Supplementary information:

Equipment may be have rated current or rated power or both. Both should be measured

- USB Type-A port was loaded at 0.9A.

- Poe ports each 25W, The maximum total power is 100W.

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Clause	Requirement + Test	Result - Remark	Verdict

B.3	**TABLE: Abnormal operating condition tests**		P
Ambient temperature (°C) .....:		23, if not specified.	—
Power source for EUT: Manufacturer, model/type, output rating ....:		--	—

Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
LAN ports (LAN1, LAN2)	O/L	9Vdc / 50Vdc	30 mins	--	--	--		Circuit measures 0 Volts, No hazard, No damage.
	SC	9Vdc / 50Vdc	30 mins	--	--	--		No hazard, No damage.
Type-A USB 3.0 port Top (USB31_CON1)	O/L	9Vdc / 50Vdc	1hr	--	--	--		Output voltage: 5.0Vdc; Maximum available current: 2.1A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--		Unit shutdown, No hazard, No damage.
Type-A USB 3.0 port Down (USB31_CON1)	O/L	9Vdc / 50Vdc	1hr	--	--	--		Output voltage: 5.0Vdc; Maximum available current: 2.1A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--		Unit shutdown, No hazard, No damage.
Type-A USB 3.0 port Top (USB31_CON2) *1)*	O/L	9Vdc / 50Vdc	1hr	--	--	--		Output voltage: 5.0Vdc; Maximum available current: 2.1A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--		Unit shutdown, No hazard, No damage.
Type-A USB 3.0 port Down (USB31_CON2) *1)*	O/L	9Vdc / 50Vdc	1hr	--	--	--		Output voltage: 5.0Vdc; Maximum available current: 2.1A, No hazard, No damage.

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Clause	Requirement + Test	Result - Remark	Verdict

	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
Type-A USB 3.0 port Top (USB31_CON3)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 5.0Vdc; Maximum available current: 2.1A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
Type-A USB 3.0 port Down (USB31_CON3)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 5.0Vdc; Maximum available current: 2.1A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DP port (DP1A_Top)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 5.7A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DP port (DP1B_Down)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 5.7A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DP port (DP2_Top) [2)]	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 5.5A, No hazard, No damage.

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Clause	Requirement + Test	Result - Remark	Verdict

	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DP port (DP2_Down)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 5.5A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DP port (DP4)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 5.5A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DP port (DP5)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 5.5A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
VGA port (DVI-VGA1)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 2.2A, No hazard, No damage.
	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
DVI port (DVI-VGA1B)	O/L	9Vdc / 50Vdc	1hr	--	--	--	Output voltage: 3.30Vdc; Maximum available current: 2.0A, No hazard, No damage.

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Clause	Requirement + Test	Result - Remark	Verdict

	SC	9Vdc / 50Vdc	30mins	--	--	--	Unit shutdown, No hazard, No damage.
Mic-in port, Line-out port (CN6)	O/L	9Vdc / 50Vdc	30 mins	--	--	--	Circuit measures 0 Volts, No hazard, No damage.
	SC	9Vdc / 50Vdc	30 mins	--	--	--	No hazard, No damage.
IGN port	O/L	9Vdc / 50Vdc	30 mins	--	--	--	Circuit measures 0 Volts, No hazard, No damage.
	SC	9Vdc / 50Vdc	30 mins	--	--	--	No hazard, No damage.
COM1, COM2, COM3 port	O/L	9Vdc / 50Vdc	30 mins	--	--	--	Circuit measures 0 Volts, No hazard, No damage.
	SC	9Vdc / 50Vdc	30 mins	--	--	--	No hazard, No damage.
SIM Card SD Card (SD_SIM1, SIM2)	O/L	9Vdc / 50Vdc	30 mins	--	--	--	Circuit measures 0 Volts, No hazard, No damage.
	SC	9Vdc / 50Vdc	30 mins	--	--	--	No hazard, No damage.
DIO ports (CN3, CN4)	O/L	9Vdc / 50Vdc	30 mins	--	--	--	Circuit measures 0 Volts, No hazard, No damage.
	SC	9Vdc / 50Vdc	30 mins	--	--	--	No hazard, No damage.

Supplementary information: SC=Short circuit; O/L: Overloaded

Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.

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Clause	Requirement + Test	Result - Remark	Verdict

B.4	**TABLE: Fault condition tests**		P
Ambient temperature (°C) .....:		23, if not specified.	—
Power source for EUT: Manufacturer, model/type, output rating .....:		--	—

Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
PU6 pin 35 to 39	SC	9Vdc / 50Vdc	30mins	--	--	--		Unit shutdown, No hazard, No damage.
PU7 pin 35 to 39	SC	9Vdc / 50Vdc	30mins	--	--	--		Unit shutdown, No hazard, No damage.
PU9 pin 35 to 39	SC	9Vdc / 50Vdc	30mins	--	--	--		Unit shutdown, No hazard, No damage.
Supplementary information: SC=Short circuit								

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Clause	Requirement + Test	Result - Remark	Verdict

Annex M	**TABLE: Batteries**	P
The tests of Annex M are applicable only when appropriate battery data is not available		P
Is it possible to install the battery in a reverse polarity position? .....:	For the RTC battery, there is no hazard after the reverse polarity position.	P

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	0A	--	--	--	--	--	--
Max. current during fault condition (D2) Pin 2 to 3 Shorted	--	--	3.2mA	--	--	--	--	--	--
Max. current during fault condition (R186) Shorted	--	--	0	--	--	--	--	--	--

Test results:		Verdict
- Chemical leaks	No chemical leaks.	P
- Explosion of the battery	No explosion of the battery.	P
- Emission of flame or expulsion of molten metal	No such conditions.	P
- Electric strength tests of equipment after completion of tests	Only functional insulation inside the EUT.	N/A

Supplementary information:

The RTC battery (JBAT1) is protected by the Diode (D2) in series with a resister (R186), 1k ohm.

The maximum charging current refer to table 4.1.2.

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

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**	P

Note: Measured UOC (V) with all load circuits disconnected: See below.

Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
LAN port (LAN1)	Normal	0Vdc	0	≤ 8.0	0	≤ 100
LAN port (LAN2)	Normal	0Vdc	0	≤ 8.0	0	≤ 100
Mic-in port, Line-out port (CN6)	Normal	0Vdc	0	≤ 8.0	0	≤ 100
Type-A USB 3.0 port Top (USB31_CON1)1)	Normal	5.0Vdc	2.2	≤ 8.0	9.35 (4.25Vdc x 2.2A)	≤ 100
Type-A USB 3.0 port Down (USB31_CON1) 1)	Normal	5.0Vdc	2.2	≤ 8.0	9.35 (4.25Vdc x 2.2A)	≤ 100
Type-A USB 3.0 port Top (USB31_CON2) 1)	Normal	5.0Vdc	2.2	≤ 8.0	9.284 (4.22Vdc x 2.2A)	≤ 100
Type-A USB 3.0 port Down (USB31_CON2) 1)	Normal	5.0Vdc	2.2	≤ 8.0	9.284 (4.22Vdc x 2.2A)	≤ 100
Type-A USB 3.0 port Top (USB31_CON3) 1)	Normal	5.0Vdc	2.2	≤ 8.0	9.306 (4.23Vdc x 2.2A)	≤ 100
Type-A USB 3.0 port Down (USB31_CON3) 1)	Normal	5.0Vdc	2.2	≤ 8.0	9.306 (4.23Vdc x 2.2A)	≤ 100
DP port (DP1A_Top)2)	Normal	3.30Vdc	2.2	≤ 8.0	6.96 (1.20Vdc x 5.8A)	≤ 100
DP port (DP1B_Down) 2)	Normal	3.30Vdc	2.2	≤ 8.0	6.96 (1.20Vdc x 5.8A)	≤ 100
DP port (DP2_Top) 2)	Normal	3.30Vdc	5.9	≤ 8.0	7.08 (1.20Vdc x 5.9A)	≤ 100
DP port (DP2_Down) 2)	Normal	3.30Vdc	5.9	≤ 8.0	7.08 (1.20Vdc x 5.9A)	≤ 100
DP port (DP4) 2)	Normal	3.30Vdc	5.9	≤ 8.0	6.96 (1.18Vdc x 5.9A)	≤ 100
DP port (DP5) 2)	Normal	3.30Vdc	5.9	≤ 8.0	6.96 (1.18Vdc x 5.9A)	≤ 100

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VGA port (DVI-VGA1A) 2)	Normal	5.0Vdc	2.3	≤ 8.0	8.97 (3.90Vdc x 2.3A)	≤ 100
DVI port (DVI-VGA1B) 2)	Normal	5.0Vdc	2.2	≤ 8.0	8.14 (3.70Vdc x 2.2A)	≤ 100
IGN port	Normal	0Vdc	0	≤ 8.0	0	≤ 100
DIO ports (CN3, CN4)	Normal	0Vdc	0	≤ 8.0	0	≤ 100
COM1,COM2, COM3 port	Normal	0Vdc	0	≤ 8.0	0	≤ 100
Mic-in port, Line-out port (CN6)	Normal	0Vdc	0	≤ 8.0	0	≤ 100
SIM Card SD Card (SD_SIM1,SIM2)	Normal	0Vdc	0	≤ 8.0	0	≤ 100
Supplementary Information: SC=Short circuit, OC=Open circuit 1) Protectors IC used. 2) Polyswitch used.						

T.2, T.3, T.4, T.5	**TABLE: Steady force test**				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Internal components	--	--	10	5	1)
Supplementary information: 1) No cracking, class 3 energy sources did not become accessible and all safeguards remain effective.					

T.6, T.9	**TABLE: Impact tests**			N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Supplementary information:				

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

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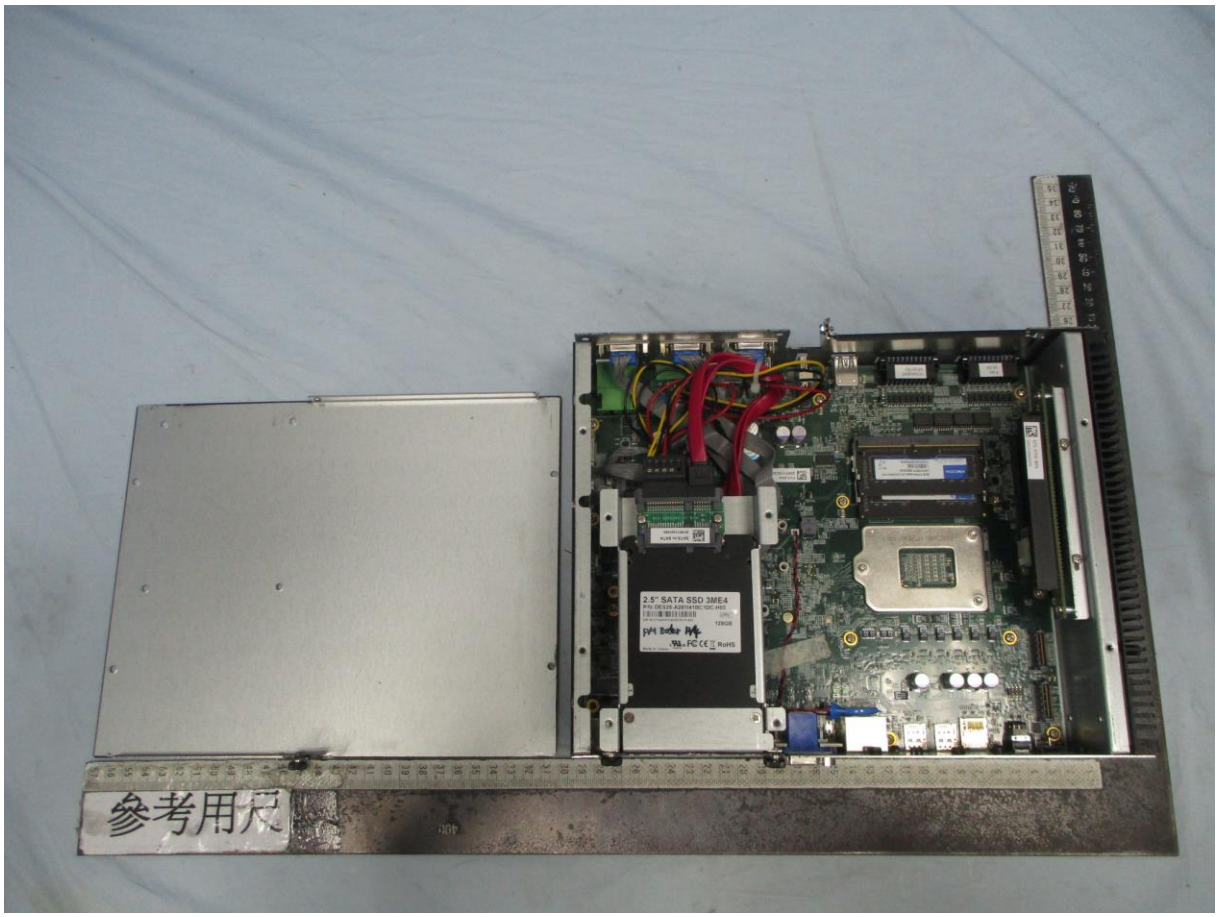
Clause	Requirement + Test	Result - Remark	Verdict

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

Photos


SD / SIM1 / SIM2
RST
DP
DP
DVI-D
VGA
LAN 2
LAN 1


DC-IN 9-50V
IGN
On / Off
DP
DP
DP
DP
Isolated DIO
Isolated DIO
COM 1
COM 2
COM 3


2.5" SATA SSD 3ME4
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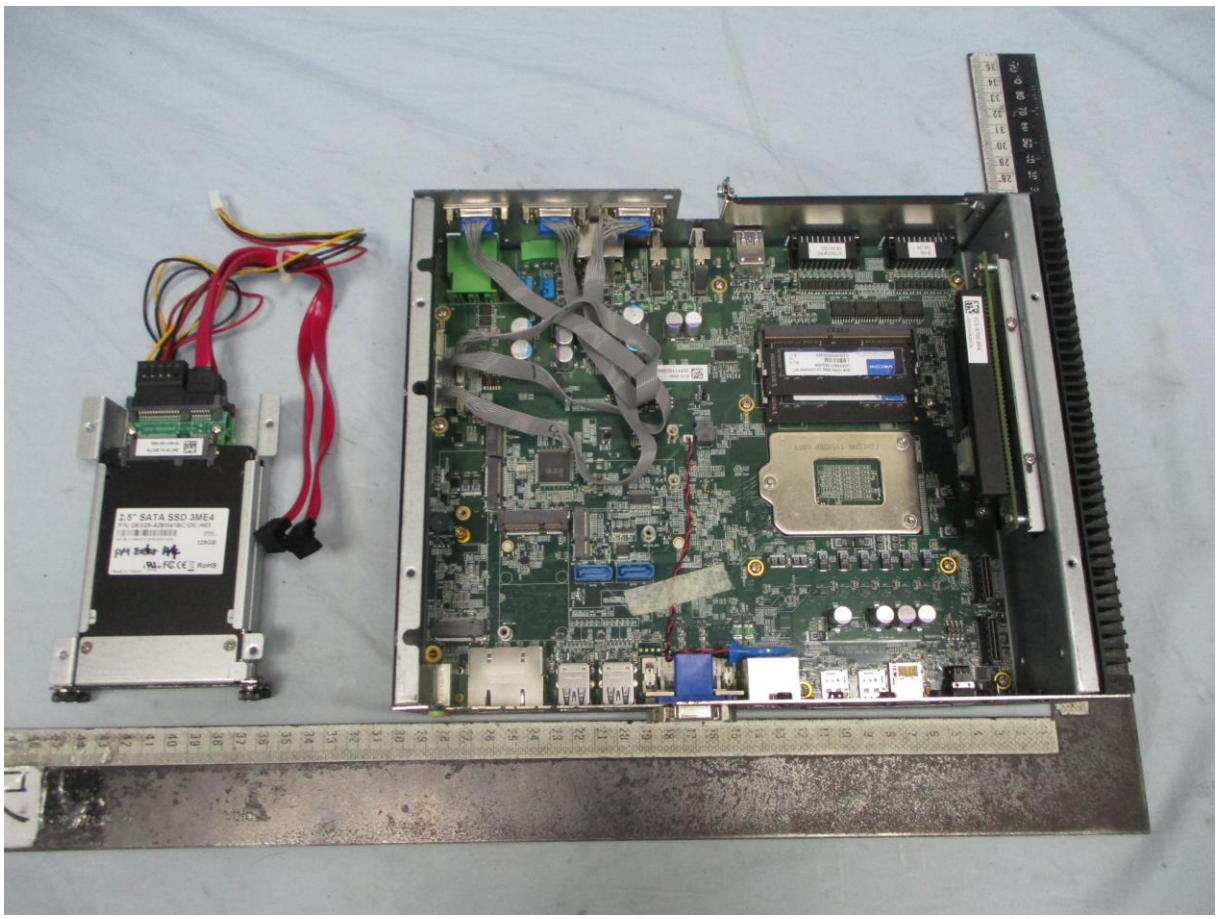
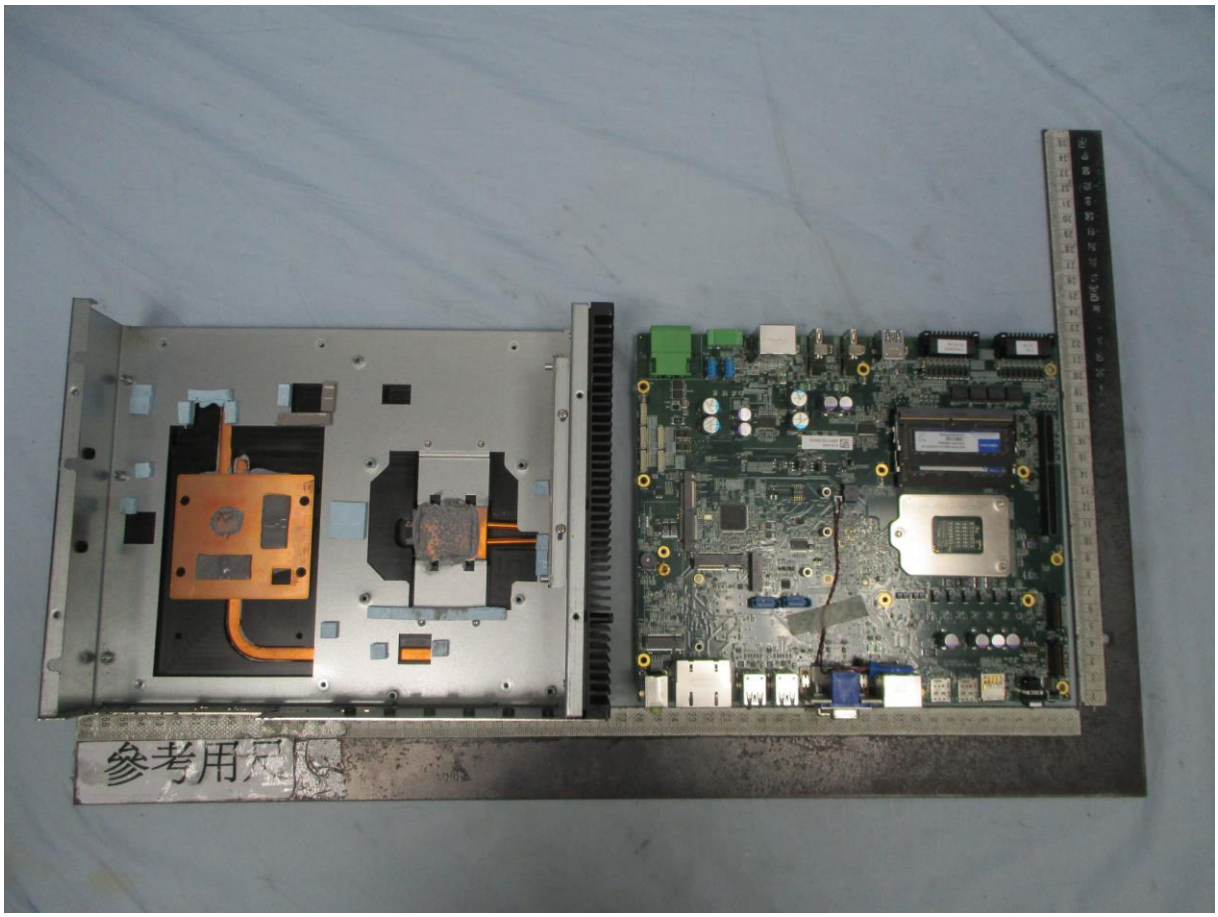

2.5" SATA SSD 3ME4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