ACCREDITED Certificate # 2951.01

Test Report No.:	**LD200323N020-R1**
Applicant's name :	Particle Industries, Inc
Address :	126 Post St, 4th floor, San Francisco, CA 94108 USA
Test item description:	B SOM
Model/Type reference :	B524,B523
Testing laboratory	
Name :	Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch
Address :	No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province, 523942, People's Republic of China
Test specification	
Standard :	☐ IEC 62368-1:2014 (Second Edition) ☒ EN 62368-1:2014 + A11: 2017 ☒ BS EN 62368-1:2014+A11:2017
Test Result :	**The sample satisfies to the clauses examined.**
Prepared By :	2021-07-15 Date Scar Li Engineer / Safety Department
Approved By:	2021-07-15 Date Jetter Yang Senior Engineer / Safety Department

This test report replaces and cancels the previous test report No: LD200323N020 dated on May 07, 2020

TEST REPORT

Report Number :	LD200323N020-R1
Date of issue :	2021-07-15
Total number of pages :	63
Testing laboratory :	Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch
Test location/Address :	No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province, 523942, People's Republic of China
Applicant's name :	Particle Industries, Inc
Address :	126 Post St, 4th floor, San Francisco, CA 94108 USA
Test specification:	
Standard :	☐ IEC 62368-1:2014 (Second Edition) ☒ EN 62368-1:2014 + A11: 2017 ☒ BS EN 62368-1:2014+A11:2017
Non-standard test method :	N/A
Test Report Form No. :	IEC/EN 62368-1(ed. 2.0)_DG_V202102
Test Report Form(s) Originator :	BV_DG
Master TRF :	Dated 2021-02
Manufacturer :	Particle Industries, Inc
Address :	126 Post St, 4th floor, San Francisco, CA 94108 USA
Factory :	ABO ELECTRONICS (SHEN ZHEN) CO., LTD.
Address :	Building J, Shengguang Ind Park, No.152 Donghuan Road, Shajing, Baoan , Shenzhen , Guangdong
Test item description :	B SOM
Trade Mark :	Particle
Model/Type reference :	B523,B524
Ratings :	For Quectel EG91-E cellular module VCC: 3.8Vdc For system: 3.3Vdc

Copy of marking plate:

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

Note: The instruction sheet and marking should be translated to the language where the product will be sold.

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 (manufacturer declares)
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..... :	___--___ 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: DC supply
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 :	75°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) ..... :	☒ Approx. 0.009kg

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 .....:	March 23, 2020
Date (s) of performance of tests .....:	March 23, 2020 to April 14, 2020

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

1. The equipment under test (EUT) has been evaluated at maximum ambient (Tma) of +75°C according to the manufacturer's declaration.
2. The equipment is a "B SOM" which is intended to be used with information technology equipment covered by the scope of this standard.
3. The EUT is a building-in unit.
4. Physical Size: approx. 42.0mm x 30.1mm x 4.8mm

Report history	
LD200323N20-R1 (Project no.: AKZS-WDG-P21060213)	
Remark 1	This test report replaces and cancels the previous test report No: LD200323N020 dated on May 07, 2020
Remark 2	**The modifications applied on this reports are:** -Added standard "BS EN62368-1:2014+A11:2017" -Update the unit label -Changed the model "B520" to "B524" -Update the factory address
Remark 3	For the above "Remark 2" described change, no test need to revaluate

Model Differences

Model B523 and B524 are identical except E_SIM's manufacturer, model B524 was selected as representative model for test.

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

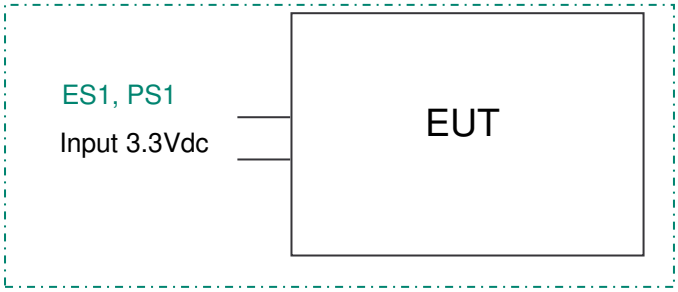
All tests were measured under the following case and the load conditions declared by manufacturer:

- The EUT was operated under normal conditions.

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)**
The unit (3.3Vdc input)	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
Input of EUT	PS1(declared)
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**
N/A	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)**
N/A	N/A
N/A	N/A
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
Evaluated in the end product	Evaluated in the end product
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
N/A	N/A

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below

☒ ES ☒ PS ☐ MS ☐ TS ☐ RS



ES1 for all electrical circuits of equipment
PS1 for all electrical circuits of equipment

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	ES1: all parts of unit	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
All combustible materials around all circuit within unit	PS1: all circuit	N/A	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	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)
N/A	N/A	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Evaluated in the end product	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
N/A	N/A	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		**P**
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.1.3	Equipment design and construction	No accessible part which could cause injury	P
4.1.15	Markings and instructions ..... :	(See Annex F)	P
4.4.4	Safeguard robustness	Building-in equipment, it shall be evaluated in the end product.	N/A
4.4.4.2	Steady force tests ..... :		N/A
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 ..... :	No such part	N/A
4.4.4.6	Glass Impact tests ..... :	No such part	N/A
4.4.4.7	Thermoplastic material tests ..... :		N/A
4.4.4.8	Air comprising a safeguard ..... :		N/A
4.4.4.9	Accessibility and safeguard effectiveness		N/A
4.5	Explosion	No such part would cause explosion	N/A
4.6	Fixing of conductors	Building-in equipment, it shall be evaluated in the end product.	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	Building-in equipment, it shall be evaluated in the end product.	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 battery	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.2	Instructional safeguard	No such battery	N/A
4.8.3	Battery Compartment Construction	No such battery	N/A
	Means to reduce the possibility of children removing the battery ..... :		—
4.8.4	Battery Compartment Mechanical Tests..... :	No such battery	N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object ..... :	Only PS1, ES1 parts are existed inside the EUT	N/A
5	**ELECTRICALLY-CAUSED INJURY**		**P**
5.2.1	Electrical energy source classifications .....:	All parts complied with ES1	P
5.2.2	ES1, ES2 and ES3 limits	All parts complied with ES1	P
5.2.2.2	Steady-state voltage and current .....:	(See appended table 5.2)	P
5.2.2.3	Capacitance limits.....:	No such capacitance	N/A
5.2.2.4	Single pulse limits .....:	No such pulse	N/A
5.2.2.5	Limits for repetitive pulses.....:	No such pulse	N/A
5.2.2.6	Ringing signals .....:	No such ringing signal	N/A
5.2.2.7	Audio signals .....:		N/A
5.3	Protection against electrical energy sources	See below	N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Only ES1 parts are existed inside the EUT	N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 parts are existed inside the EUT	N/A
5.3.2.2	Contact requirements	Only ES1 parts are existed inside the EUT	N/A
	a) Test with test probe from Annex V .....:	Only ES1 parts are existed inside the EUT	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 part	N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material	Class III equipment, only ES1 parts are existed inside the EUT	N/A
5.4.1.3	Humidity conditioning ..... :	No hygroscopic material used	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.4	Maximum operating temperature for insulating materials .....:	No electrical insulation system (EIS)	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	No such device	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such device	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such pulse occurred	N/A
5.4.1.8	Determination of working voltage	Class III equipment, only ES1 parts are existed inside the EUT	N/A
5.4.1.9	Insulating surfaces	No such construction	N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	No such part	N/A
5.4.1.10.2	Vicat softening temperature .....:	No such part	N/A
5.4.1.10.3	Ball pressure .....:	No such part	N/A
5.4.2	Clearances	Class III equipment and all electrical circuits of EUT are ES1, only the functional insulation inside the EUT	N/A
5.4.2.2	Determining clearance using peak working voltage	See appended table 5.4.2.2	N/A
5.4.2.3	Determining clearance using required withstand voltage .....:	Class III equipment and all electrical circuits of EUT are ES1, and there is no critical insulation.	N/A
	a) a.c. mains transient voltage.....:	The equipment does not intend to connected to a.c. mains	—
	b) d.c. mains transient voltage .....:	The equipment does not intend to connected to d.c. mains	—
	c) external circuit transient voltage .....:	ES1 electrical energy source used	—
	d) transient voltage determined by measurement...:	ES1 electrical energy source used	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Not used	N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....:	Not used	N/A
5.4.3	Creepage distances.....:	Class III equipment and all electrical circuits of EUT are ES1, only the functional insulation inside the EUT	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.3.1	General	Class III equipment and all electrical circuits of EUT are ES1, only the functional insulation inside the EUT	N/A
5.4.3.3	Material Group .....:	Group IIIb considered	—
5.4.4	Solid insulation	Class III equipment and all electrical circuits of EUT are ES1, and there is no critical insulation.	N/A
5.4.4.2	Minimum distance through insulation .....:	No such part	N/A
5.4.4.3	Insulation compound forming solid insulation	No such part	N/A
5.4.4.4	Solid insulation in semiconductor devices	No such part	N/A
5.4.4.5	Cemented joints	No such part	N/A
5.4.4.6	Thin sheet material	No such part	N/A
5.4.4.6.1	General requirements	No such part	N/A
5.4.4.6.2	Separable thin sheet material	No such part	N/A
	Number of layers (pcs) .....:	No such part	N/A
5.4.4.6.3	Non-separable thin sheet material	No such part	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....:	No such part	N/A
5.4.4.6.5	Mandrel test	No such part	N/A
5.4.4.7	Solid insulation in wound components	No such part	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz .....:	No such part	N/A
5.4.5	Antenna terminal insulation	No such device	N/A
5.4.5.1	General	No such device	N/A
5.4.5.2	Voltage surge test	No such device	N/A
	Insulation resistance (MΩ) .....:	No such device	—
5.4.6	Insulation of internal wire as part of supplementary safeguard.....:	Class III equipment and all electrical circuits of EUT are ES1, only the functional insulation inside the EUT	N/A
5.4.7	Tests for semiconductor components and for cemented joints	No semiconductor components and for cemented joints	N/A
5.4.8	Humidity conditioning	Class III equipment and all electrical circuits of EUT are ES1, only the functional insulation inside the EUT	N/A
	Relative humidity (%) .....:		—

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Temperature (°C) ..... :		—
	Duration (h) ..... :		—
5.4.9	Electric strength test ..... :	Class III equipment and all electrical circuits of EUT are ES1, only the functional insulation inside the EUT	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	The EUT does not intend to be connected directly such external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test ..... :	No transient voltage from the external circuit	N/A
5.4.10.2.3	Steady-state test ..... :	No transient voltage from the external circuit	N/A
5.4.11	Insulation between external circuits and earthed circuitry ..... :	The EUT does not intend to be connected directly such external circuits	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	The EUT does not intend to be connected directly such external circuits	N/A
5.4.11.2	Requirements	No SPD used	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		N/A
5.5.1	General	See below	N/A
5.5.2	Capacitors and RC units	No such component	N/A
5.5.2.1	General requirement	No such component	N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector ..... :	No such component	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.3	Transformers	No such component	N/A
5.5.4	Optocouplers	No such component	N/A
5.5.5	Relays	No such component	N/A
5.5.6	Resistors	No such component	N/A
5.5.7	SPD's	No such component	N/A
5.5.7.1	Use of an SPD connected to reliable earthing	No such component	N/A
5.5.7.2	Use of an SPD between mains and protective earth	No such component	N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	No such device	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No such device	N/A
5.6.2.1	General requirements	No such device	N/A
5.6.2.2	Colour of insulation	No such device	N/A
5.6.3	Requirement for protective earthing conductors	No such device	N/A
	Protective earthing conductor size (mm^2) .....:		—
5.6.4	Requirement for protective bonding conductors	No such device	N/A
5.6.4.1	Protective bonding conductors	No such device	N/A
	Protective bonding conductor size (mm^2).....:		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices	No such device	N/A
5.6.5	Terminals for protective conductors	No such device	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	No such device	N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω) .....:		N/A
5.6.7	Reliable earthing	No such device	N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	Supplied by ES1 electrical energy source	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	Supplied by ES1 electrical energy source	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.....:	Supplied by ES1 electrical energy source	N/A
5.7.5	Protective conductor current	No protective conductor	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		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits	The equipment does not intend to be connected to such external circuit	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	PS1 for all parts	P
6.2.2.1	General		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

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.6	PS3 .....:		N/A
6.2.3	Classification of potential ignition sources	Class III equipment, only PS1 circuits are existed inside the EUT	N.A
6.2.3.1	Arcing PIS .....:		N/A
6.2.3.2	Resistive PIS .....:		N/A
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.....:	No ignition and attainable such temperature value	P
6.3.1 (b)	Combustible materials outside fire enclosure	No such materials used	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Reduce the likelihood of ignition used	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	Class III equipment, only PS1 circuits are existed inside the EUT	P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	Class III equipment, only PS1 circuits are existed inside the EUT	N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :	Class III equipment, only PS1 circuits are existed inside the EUT	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	Reduce the likelihood of ignition used	N/A
6.4.5	Control of fire spread in PS2 circuits	Reduce the likelihood of ignition used	N/A
6.4.5.2	Supplementary safeguards .....:	Reduce the likelihood of ignition used	N/A
6.4.6	Control of fire spread in PS3 circuit	Reduce the likelihood of ignition used	N/A
6.4.7	Separation of combustible materials from a PIS	Only PS1 circuits are existed inside the EUT, no such required	N/A
6.4.7.1	General .....:		N/A
6.4.7.2	Separation by distance		N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Only PS1 circuits are existed inside the EUT, no such required	N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
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		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....:		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....:		N/A
	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		N/A
6.5.1	Requirements	Only PS1 circuits are existed inside the EUT, no such required	N/A
6.5.2	Cross-sectional area (mm^2) .....:	--	—
6.5.3	Requirements for interconnection to building wiring.....:	Only PS1 circuits are existed inside the EUT, no such required	N/A
6.6	Safeguards against fire due to 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 exposure.	P

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Clause	Requirement + Test	Result - Remark	Verdict
7.3	Ozone exposure	The equipment doesn't produces ozone	N/A
7.4	Use of personal safeguards (PPE)	The equipment doesn't produces hazardous substance	N/A
	Personal safeguards and instructions.....:	The equipment doesn't produces hazardous substance	—
7.5	Use of instructional safeguards and instructions	The equipment doesn't produces hazardous substance	N/A
	Instructional safeguard (ISO 7010).....:	The equipment doesn't produces hazardous substance	—
7.6	Batteries ..... :	No such battery	N/A

8	MECHANICALLY-CAUSED INJURY		N/A
8.1	General		N/A
8.2	Mechanical energy source classifications	Evaluated in the end product	N/A
8.3	Safeguards against mechanical energy sources	Evaluated in the end product	N/A
8.4	Safeguards against parts with sharp edges and corners	Evaluated in the end product	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	Evaluated in the end product	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		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		N/A
8.5.5.1	Energy Source Classification		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5.2	High Pressure Lamp Explosion Test .....:		N/A
8.6	Stability	Evaluated in the end product	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard .....:		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force..... :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt ..... :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force) ..... :		N/A
	Position of feet or movable parts ..... :		—
8.7	Equipment mounted to wall or ceiling	Evaluated in the end product	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) ..... :		N/A
8.7.2	Direction and applied force..... :		N/A
8.8	Handles strength	Evaluated in the end product	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force ..... :		N/A
8.9	Wheels or casters attachment requirements	Evaluated in the end product	N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—
8.10	Carts, stands and similar carriers	Evaluated in the end product	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)..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.6	Thermoplastic temperature stability (°C) ..... :		N/A
8.11	Mounting means for rack mounted equipment	Evaluated in the end product	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.....	Evaluated in the end product	N/A
	Button/Ball diameter (mm).....:		—
9	**THERMAL BURN INJURY**		**N/A**
9.2	Thermal energy source classifications	Evaluated in the end product.	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**		**N/A**
10.2	Radiation energy source classification	See below	N/A
10.2.1	General classification	No such component	N/A
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	Evaluated in the end product	N/A
10.4.1	General		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	:		
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 such radiation generated from the equipment.	N/A
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards .....:		N/A
	Instructional safeguard for skilled person .....:		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation.....:		—
	Abnormal and single-fault condition.....:		N/A
	Maximum radiation (pA/kg) .....:		N/A
10.6	Protection against acoustic energy sources	No such part	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.)	Not such equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Not such equipment	N/A
	Maximum dB(A).....:		—
10.6.5.3	Cordless listening device	Not such equipment	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..... :	According to the standard	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	Not such equipment	N/A
B.2.3	Supply voltage and tolerances	3.3Vdc	P
B.2.5	Input test..... :	Built-in equipment. It shall be evaluated in the end product.	N/A
B.3	Simulated abnormal operating conditions		N/A
B.3.1	General requirements..... :	See below	N/A
B.3.2	Covering of ventilation openings	Built-in equipment. It shall be evaluated in the end product.	N/A
B.3.3	D.C. mains polarity test	The EUT is not directly connected to mains	N/A
B.3.4	Setting of voltage selector ..... :	No such device	N/A
B.3.5	Maximum load at output terminals .....:	No such output terminal	N/A
B.3.6	Reverse battery polarity	No such battery used	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Not such equipment	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	No such safeguards required	N/A
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited ..... :	No such device	N/A
B.4.3	Motor tests		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :	No motor used	N/A
B.4.4	Short circuit of functional insulation	(See appended table B.4)	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 part	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	No such part	N/A
B.4.6	Short circuit or disconnect of passive components	No such part	N/A
B.4.7	Continuous operation of components	No such device	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	(See appended table B.4)	P
B.4.9	Battery charging under single fault conditions ... :	No such battery used	N/A
C	**UV RADIATION**		**N/A**
C.1	Protection of materials in equipment from UV radiation	No UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		**N/A**
D.1	Impulse test generators	Not such equipment	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	Not such equipment	N/A
	Audio signal voltage (V) ..... :		—
	Rated load impedance (Ω) ..... :		

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Clause	Requirement + Test	Result - Remark	Verdict
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		**P**
F.1	General requirements		P
	Instructions – Language .....:	English version provided	—
F.2	Letter symbols and graphical symbols	See below for the details.	P
F.2.1	Letter symbols according to IEC60027-1	Complied	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Complied	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Marked on the outside of equipment	P
F.3.2	Equipment identification markings	See below	P
F.3.2.1	Manufacturer identification .....:	Trademark: Particle	—
F.3.2.2	Model identification .....:	Model: B523,B524	—
F.3.3	Equipment rating markings		N/A
F.3.3.1	Equipment with direct connection to mains	The EUT is not directly connected to mains	N/A
F.3.3.2	Equipment without direct connection to mains	The EUT is not directly connected to mains	N/A
F.3.3.3	Nature of supply voltage .....:	--	—
F.3.3.4	Rated voltage .....:	--	—
F.3.3.4	Rated frequency .....:	--	—
F.3.3.6	Rated current or rated power ..... :	--	—
F.3.3.7	Equipment with multiple supply connections	Not such equipment	N/A
F.3.4	Voltage setting device	No such device	N/A
F.3.5	Terminals and operating devices	No such device	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..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :	No such battery used	N/A
F.3.5.5	Terminal marking location	No such terminal	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6	Equipment markings related to equipment classification	See below	N/A
F.3.6.1	Class I Equipment	Class III 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	Class III equipment	N/A
F.3.7	Equipment IP rating marking .....:	IPX0	—
F.3.8	External power supply output marking	Not such equipment	N/A
F.3.9	Durability, legibility and permanence of marking	The marking is durable and legible, and can be easily discernible under normal lighting conditions.	P
F.3.10	Test for permanence of markings	Evaluated in the end product	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	Not such equipment	N/A
	b) Instructions given for installation or initial use	Relevant safety caution texts and installation instruction are available.	P
	c) Equipment intended to be fastened in place	Not such equipment	N/A
	d) Equipment intended for use only in restricted access area	Not such equipment	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	Not such equipment	N/A
	f) Protective earthing employed as safeguard	Not such equipment	N/A
	g) Protective earthing conductor current exceeding ES2 limits	Not such equipment	N/A
	h) Symbols used on equipment	Explained in the user manual	P
	i) Permanently connected equipment not provided with all-pole mains switch	Not such equipment	N/A
	j) Replaceable components or modules providing safeguard function	No such part	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.5	Instructional safeguards	See below	N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	Not the requirement	N/A
G	**COMPONENTS**		**N/A**
G.1	**Switches**		**N/A**
G.1.1	General requirements	No switch used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		**N/A**
G.2.1	General requirements	No relay used	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	No such device used	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	No such device used	N/A
G.3.2.1b)	Thermal links tested as part of the equipment	No such device used	N/A
	Aging hours (H) ..... :		—
	Single Fault Condition ..... :		—
	Test Voltage (V) and Insulation Resistance (Ω). :		—
G.3.3	PTC Thermistors	No such device	N/A
G.3.4	Overcurrent protection devices	No such device	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		N/A
G.3.5.2	Single faults conditions.....:		N/A
G.4	**Connectors**		**N/A**

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.1	Spacings	No connector used	N/A
G.4.2	Mains connector configuration .....:		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound Components**		**N/A**
G.5.1	Wire insulation in wound components.....	No such part used	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) .....:	No such device used	N/A
	Position.....:	No such device used	—
	Method of protection .....:	No such device used	—
G.5.3.2	Insulation	No such device used	N/A
	Protection from displacement of windings .....:	No such device used	—
G.5.3.3	Overload test ..... :	No such device used	N/A
G.5.3.3.1	Test conditions	No such device used	N/A
G.5.3.3.2	Winding Temperatures testing in the unit	No such device used	N/A
G.5.3.3.3	Winding Temperatures - Alternative test method	No such device used	N/A
G.5.4	**Motors**		**N/A**
G.5.4.1	General requirements	No motor used	N/A
	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) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
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	Only ES1 circuit existed in the EUT	N/A
G.6.2	Solvent-based enamel wiring insulation	No such part used for insulation	N/A
G.7	**Mains supply cords**		**N/A**
G.7.1	General requirements	Class III equipment, no such part	N/A
	Type.....:		—
	Rated current (A).....:		—
	Cross-sectional area (mm^2), (AWG) ..... :		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N) .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.2	Strain relief mechanism failure		N/A
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 ..... :	(See appended table 5.4.11.1)	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	No varistor used	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 .....:	(See appended table B.3)	N/A
G.8.3.3	Temporary overvoltage .....:	(See appended table B.3)	N/A
G.9	**Integrated Circuit (IC) Current Limiters**		**N/A**
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such device used	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	No such component	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

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		**N/A**
G.11.1	General requirements	No such component	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).....:	No such component	N/A
	Type test voltage Vini .....:		—
	Routine test voltage, Vini,b .....:		—
G.13	**Printed boards**		**N/A**
G.13.1	General requirements	No such part used	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.....:	(See appended table 5.4.4.5)	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 .....:	No such coating used	N/A
G.15	**Liquid filled components**		**N/A**
G.15.1	General requirements	No such component used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		**N/A**
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such component used	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 ringing signal	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....:		—
H.3.1.2	Voltage (V) .....:		—
H.3.1.3	Cadence; time (s) and voltage (V) .....:		—
H.3.1.4	Single fault current (mA): .....:		—
H.3.2	Tripping device and monitoring voltage .....:		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	No such part used	N/A
K	**SAFETY INTERLOCKS**		**N/A**
K.1	General requirements	No such device	N/A
K.2	Components of safety interlock safeguard mechanism	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance .....:	(See appended table B.4)	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 .....:	(See appended table 5.4.11)	N/A
L	**DISCONNECT DEVICES**		**N/A**
L.1	General requirements	No such device used	N/A
L.2	Permanently connected equipment	The EUT is not directly connected to mains	N/A
L.3	Parts that remain energized	The EUT is not directly connected to mains	N/A
L.4	Single phase equipment	Not such equipment	N/A
L.5	Three-phase equipment	No such device	N/A
L.6	Switches as disconnect devices	The EUT is not directly connected to mains	N/A
L.7	Plugs as disconnect devices	The EUT is not directly connected to mains	N/A
L.8	Multiple power sources	The EUT is not directly connected to mains	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		**N/A**
M.1	General requirements	No battery used	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance .....:	No such battery used	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery	No such battery used	N/A
M.4.1	General	No such battery used	N/A
M.4.2	Charging safeguards	No such battery used	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	No such battery used	N/A
M.4.4	Endurance of equipment containing a secondary lithium battery	No such battery used	N/A
M.4.4.2	Preparation	No such battery used	N/A
M.4.4.3	Drop and charge/discharge function tests	No such battery used	N/A
	Drop	No such battery used	N/A
	Charge	No such battery used	N/A
	Discharge	No such battery used	N/A
M.4.4.4	Charge-discharge cycle test	No such battery used	N/A
M.4.4.5	Result of charge-discharge cycle test	No such battery used	N/A
M.4.4.6	Compliance criteria	No such battery used	N/A
M.5	Risk of burn due to short circuit during carrying	No such battery used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.5.1	Requirement	No such battery used	N/A
M.5.2	Compliance and Test Method (Test of P.2.3)	No such battery used	N/A
M.6	Prevention of short circuits and protection from other effects of electric current	No such battery used	N/A
M.6.1	Short circuits	No such battery used	N/A
M.6.1.1	General requirements	No such battery used	N/A
M.6.1.2	Test method to simulate an internal fault	No such battery used	N/A
M.6.2	Leakage current (mA) ..... :	No such battery used	N/A
M.7	Risk of explosion from lead acid and NiCd batteries	No such battery used	N/A
M.7.1	Ventilation preventing explosive gas concentration	No such battery used	N/A
M.7.2	Compliance and test method	No such battery used	N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	No such battery used	N/A
M.8.1	General requirements	No such battery used	N/A
M.8.2	Test method	No such battery used	N/A
M.8.2.1	General requirements	No such battery used	N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		**N/A**
	Metal(s) used ..... :	Pollution degree considered	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		**N/A**
	Figures O.1 to O.20 of this Annex applied..... :		—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		**N/A**
P.1	General requirements	Only PS1 circuit	N/A
P.2.2	Safeguards against entry of foreign object		N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Location and Dimensions (mm) .....:		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts .....:		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) .....:		N/A
P.3	Safeguards against spillage of internal liquids	No liquid used in the equipment	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 part	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C).....:		—
	Tr (°C) .....:		—
	Ta (°C).....:		—
P.4.2 b)	Abrasion testing .....:	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing .....:	(See Annex T)	N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		**N/A**
Q.1	Limited power sources	See below	N/A
Q.1.1 a)	Inherently limited output	No such part	N/A
Q.1.1 b)	Impedance limited output	No such part	N/A
	- Regulating network limited output under normal operating and simulated single fault condition	No such part	N/A
Q.1.1 c)	Overcurrent protective device limited output	No such part	N/A
Q.1.1 d)	IC current limiter complying with G.9	No such part	N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) .....:	(See appended table Annex Q.1)	—
	Current limiting method.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
R	**LIMITED SHORT CIRCUIT TEST**		**N/A**
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). .....:		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		**N/A**
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
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 .....:		—

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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**		**N/A**
T.1	General requirements	Evaluated in the end product	N/A
T.2	Steady force test, 10 N....:		N/A
T.3	Steady force test, 30 N....:		N/A
T.4	Steady force test, 100 N....:		N/A
T.5	Steady force test, 250 N....:		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....:	No such part	N/A
T.11	Test for telescoping or rod antennas	No such part	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 cathode ray tube used	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen....:	(See Annex T)	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		**N/A**
V.1	Accessible parts of equipment	Class III equipment and all electrical circuits of EUT are ES1	N/A
V.2	Accessible part criterion	Class III equipment and all electrical circuits of EUT are ES1	N/A

IEC/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 62368-1:2014+A11:2017

Attachment Form No. ..... : EU_GD_IEC62368_1D_II

Attachment Originator..... : Nemko AS

Master Attachment..... : Date 2017-09-22

	CENELEC COMMON MODIFICATIONS (EN)	**P**
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
Contents	**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
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P
	For special national conditions, see Annex ZB.	P

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Added	N/A
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.	The equipment does not intend to connected to mains	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.	No such interconnection	N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.	Added	N/A

IEC/EN 62368-1			
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 presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.	Added	N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.	Added	N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 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	No such radiation	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
Bibliography	**Add** the following standards: **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
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		**N/A**

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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”	Class III equipment, no such part	N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex	Class III equipment, no such part	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 equipment	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.	No telecommunication network	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 equipment	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.	No such resistor used	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 equipment, no such part	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 equipment, no such part	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 equipment, no such part	N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	Class III equipment, no such part	N/A

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

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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.”		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 equipment	N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met	Class III equipment, no such part	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. 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 equipment, no such part	N/A
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.	Class III equipment, no such part	N/A

IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	Class III equipment, no such part	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 equipment, no such part	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 equipment, no such part	N/A
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 cathode ray tube used	N/A

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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]
PCB material	JIANMEN BENLID A PCB FACTORY	BLD4	V-0, 130°C	UL 796	UL
Or	--	--	V-1 min., 105°C	UL 796	UL
-Description[2]:	Interchangeability based on 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					

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	--

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

--	--	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: --			

5.2	**Table: Classification of electrical energy sources**	**P**

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	3.3Vdc	Input of main unit	Normal	3.3Vdc	--	--	ES1
			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

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

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

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**					**P**
--	Supply voltage (V) ..... :	3.3Vdc		--		—
	Ambient T_{min} (°C)..... :	--	--	--	--	—
	Ambient T_{max} (°C) ..... :	--	--	--	--	—
	Tma (°C) ..... :	--	--	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
Calculated value for Tma:		--	75.0	--	--	--
Ambient temperature during test (Tamb):		21.9	--	--	--	--
PCB near U6		23.3	76.4	--	--	105
PCB near U1		23.5	76.6	--	--	105
PCB near U2		23.2	76.3	--	--	105
PCB near U7		23.4	76.5	--	--	105

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

Supplementary information: --

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

Supplementary information:
Note 1: Tma should be considered as directed by appliable requirement
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

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)……..:	--			—
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:	2

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Clause	Requirement + Test	Result - Remark	Verdict

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

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: --				

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

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Clause	Requirement + Test	Result - Remark	Verdict

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

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: --

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	N/A
	2*	N/A
	3	N/A
	4	N/A

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
Input of the unit	Normal	Power (W) :	9.3	--	PS1
		V_A (V) :	2.82	--	
		I_A (A) :	3.33	--	
	C76 shorted	Power (W) :	0.7	--	PS1
		V_A (V) :	3.25	--	
		I_A (A) :	0.23	--	
Supplementary Information: (*) Measurement taken only when limits at 3 seconds exceed PS1 limits					

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.				

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

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Clause	Requirement + Test	Result - Remark	Verdict

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						N/A
U (V)	I (mA)	I rated (mA)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
--	--	--	--	--	--	--	--
Supplementary information:--							

B.3	TABLE: Abnormal operating condition tests							N/A
Ambient temperature (°C) ..... :		--						—
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
--	--	--	--	--	--	--	--	--
Supplementary information: Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.								

B.4	TABLE: Fault condition tests	P

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Clause	Requirement + Test	Result - Remark	Verdict

Ambient temperature (°C) :						25.0°C if no otherwise 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
U3 pin1-4	Shorted	3.3Vdc	30 minutes	--	--	--	--	The unit work normally, no hazards, no damage.
U4 pin13-14	Shorted	3.3Vdc	30 minutes	--	--	--	--	The unit work normally, no hazards, no damage.
C38	Shorted	3.3Vdc	30 minutes	--	--	--	--	The unit work normally, no hazards, no damage.
Supplementary information: --								

Annex M	**TABLE: Batteries**								**N/A**
The tests of Annex M are applicable only when appropriate battery data is not available									N/A
Is it possible to install the battery in a reverse polarity position? ..... :						No			--
	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	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--
Test results:						--			Verdict
- Chemical leaks						--			N/A
- Explosion of the battery						--			N/A

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Clause	Requirement + Test	Result - Remark	Verdict

- Emission of flame or expulsion of molten metal	--	N/A
- Electric strength tests of equipment after completion of tests	--	N/A
Supplementary information: --		

Annex M.4	**Table: Additional safeguards for equipment containing secondary lithium batteries**	**N/A**

Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (mA)	Temp (C)	
--	--	--	--	--	--
Supplementary Information:--					

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

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

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

Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	≤8.0	--	≤100

Supplementary Information:
SC=Short circuit, OC=Open circuit

T.2, T.3, T.4, T.5	**TABLE: Steady force test**	**N/A**

Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
--	--	--	--	--	--
Supplementary information: Evaluated in the end product					

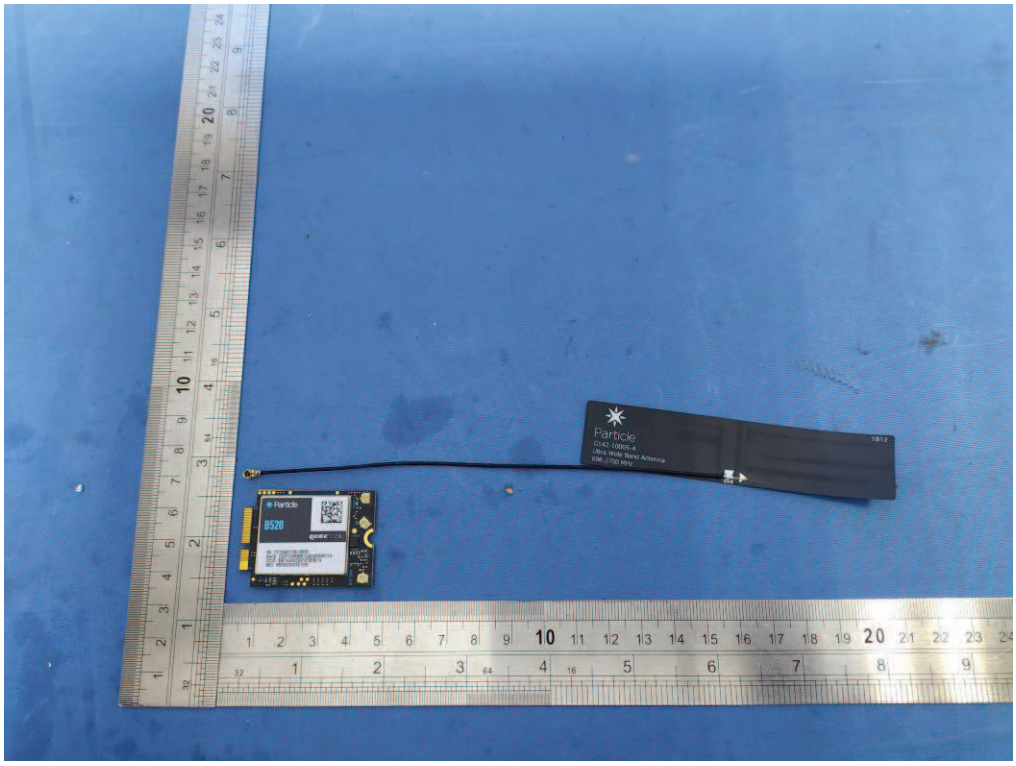
IEC/EN 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

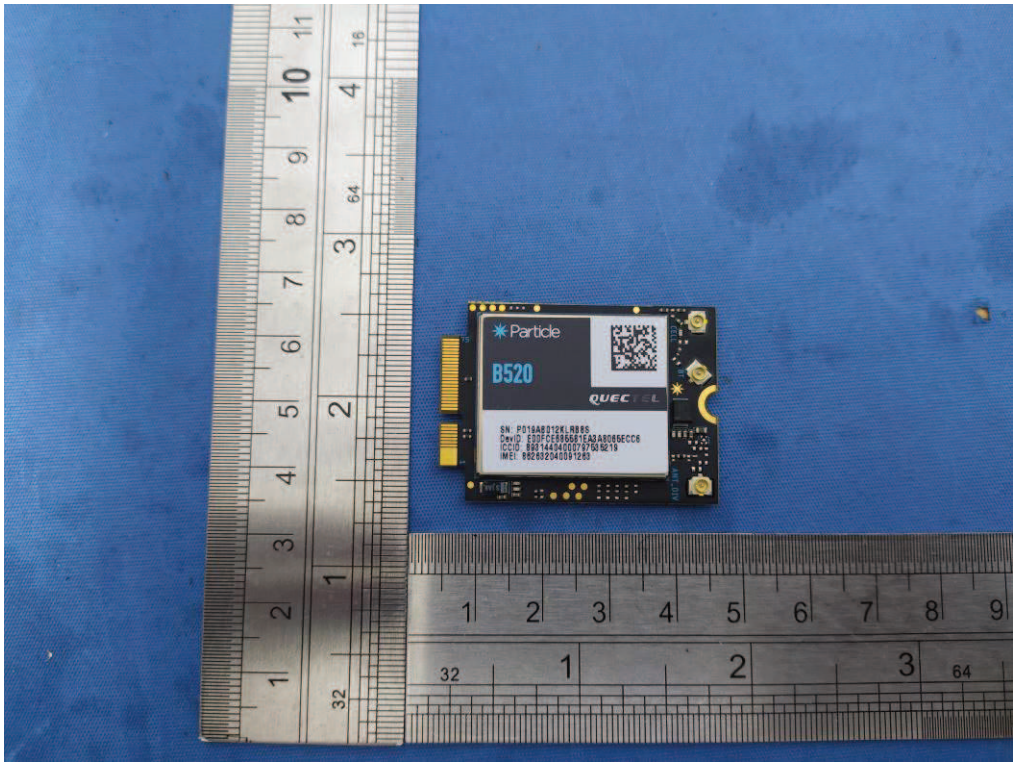
T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
--	--	--	--	--	
Supplementary information: Evaluated in the end product					

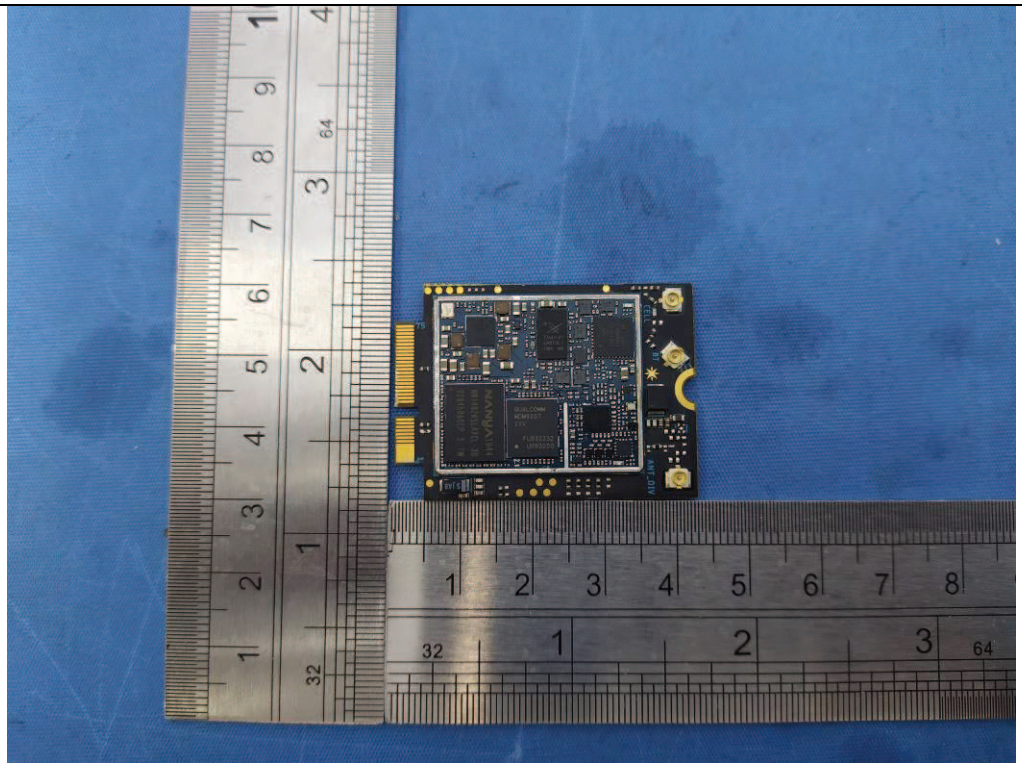
T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
--	--	--	--	--	
Supplementary information: Evaluated in the end product					

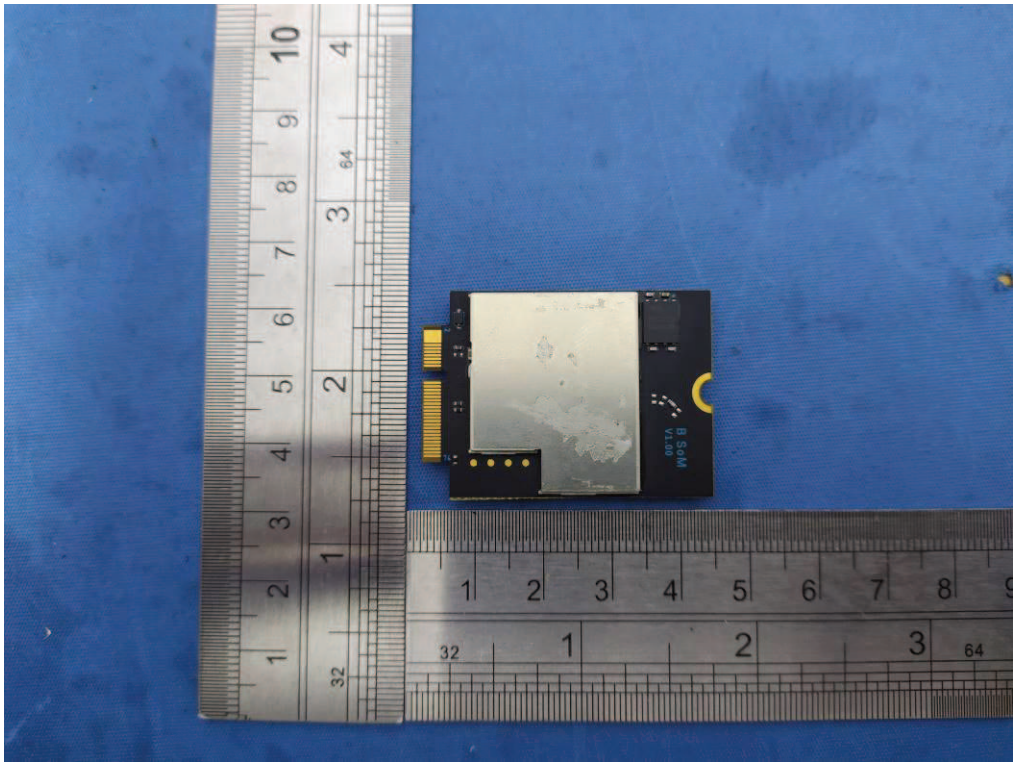
T.8	TABLE: Stress relief test					N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
--	--	--	--	--	--	
Supplementary information: Evaluated in the end product						

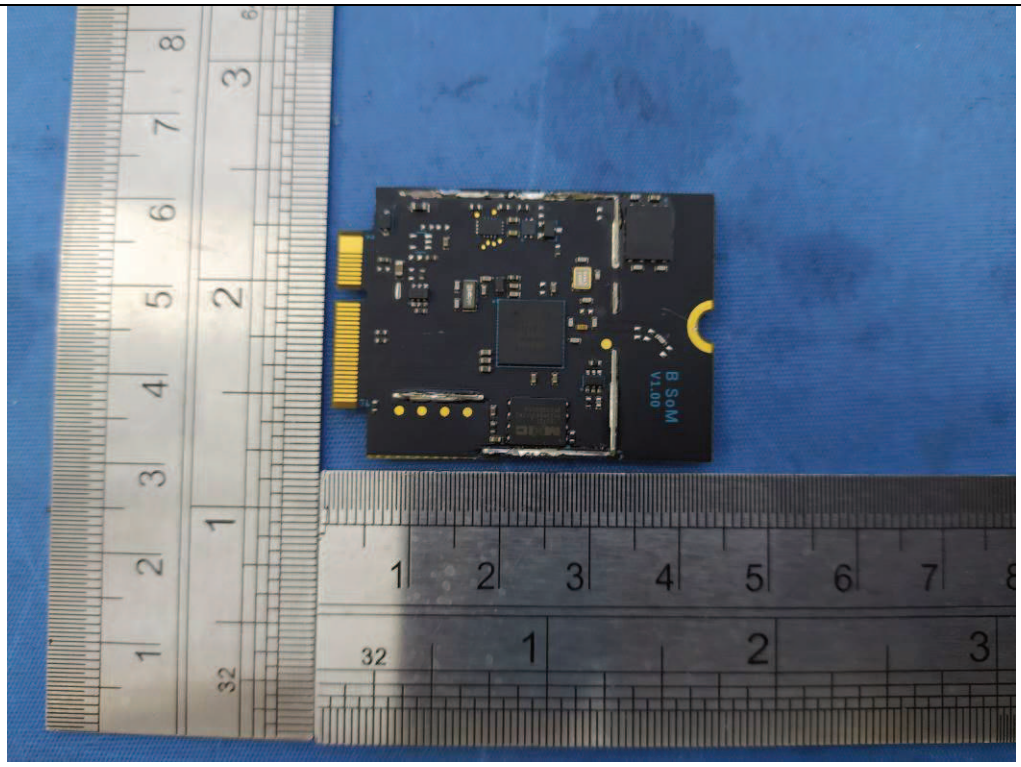
Product photos







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