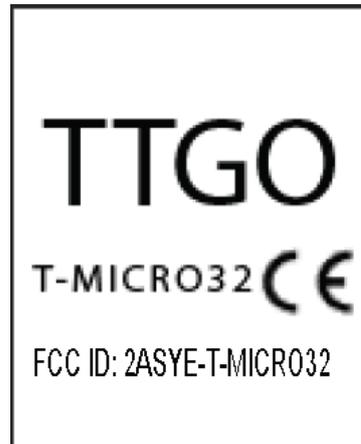


<b>TEST REPORT</b> <b>EN 62368-1</b> <b>Audio/video, information and communication technology equipment</b> <b>Part 1-Safety requirements</b>	
Report reference No .....	RSZ190325004-SF
Compiled by (+ signature) .....	Danny Chen <i>Danny Chen</i>
Approved by (+ signature) .....	Safety Engineer: Jeanne Han <i>Jeanne Han</i>
Date of issue .....	2019-04-10
Testing laboratory .....	Bay Area Compliance Laboratories Corp. (Shenzhen)
Address .....	6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China
Testing location .....	As above
Applicant's name .....	Shenzhen Xin Yuan Electronic Technology Co., Ltd.
Address.....	401 4F Bldg. building B. No.5, 1st Rd Bantianshangxue Technology Park, Bantian St, Longgang Dist., Shenzhen Guangdong China
Factory's name .....	Shenzhen Xin Yuan Electronic Technology Co., Ltd.
Address.....	401 4F Bldg. building B. No.5, 1st Rd Bantianshangxue Technology Park, Bantian St, Longgang Dist., Shenzhen Guangdong China
Standard .....	EN 62368-1:2014+A11:2017
Test sample(s) received .....	2019-03-26
Test in period .....	2019-04-03 to 2019-04-09
Procedure deviation .....	N.A.
Non-standard test method .....	N.A.
<p>This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Shenzhen).</p>	
Type of test object .....	Module
Trademark .....	TTGO
Test Model .....	T-MICRO32
Multiple models.....	---
Manufacturer .....	Same as application
Rating .....	+2.3~+3.6Vdc

Copy of marking plate:



Note:

- The above label is a representative label.
- The CE marking and WEEE symbol (if any) should be at least 5.0mm and 7.0mm respectively in height.
- Manufacturers shall ensure that the equipment bears a type, batch or serial number or other element allowing its identification.
- Manufacturers shall indicate on the electrical equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted.
- Importers shall indicate on the electrical equipment their name, registered trade name or registered trade mark and the postal address at which they can be contacted.
- Received samples comply with the requirements
- The decision rule of the conformity determination of this test report does not consider the measurement uncertainty.



**General remarks:**

"(see remark #)" refers to a remark appended to the report.

(see appended table)" refers to a table appended to the report.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

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

**General product information:**

- The product under test is supplied by SELV source, it is classified as class III equipment.
- Maximum operating ambient temperature: 85°C
- Module is only PCB board.
- The product under test, is connected to PC.

<b>ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:</b>	
<p>(Note 1: Identify the following six (6) energy source for 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.)</p>	
<p><b>Electrically-caused injury (Clause 5):</b>            (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)            Example: +5 V dc input</p>	
	ES1
<b>Source of electrical energy</b>	<b>Corresponding classification (ES)</b>
Rated input: +2.3~+3.6Vdc	ES1
<p><b>Electrically-caused fire (Clause 6):</b>            (Note: List sub-assembly or circuit designation and corresponding energy source classification)            Example: Battery pack (maximum 85 watts):</p>	
	PS2
<b>Source of power or PIS</b>	<b>Corresponding classification (PS)</b>
External power supply: +2.3~+3.6Vdc	PS3
<p><b>Injury caused by hazardous substances (Clause 7)</b>            (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)            Example: Liquid in filled component</p>	
	Glycol
<b>Source of hazardous substances</b>	<b>Corresponding chemical</b>
<p><b>Mechanically-caused injury (Clause 8)</b>            (Note: List moving part(s), fan, special installations, etc. &amp; corresponding MS classification based on Table 35.)            Example: Wall mount unit</p>	
	MS2
<b>Source of kinetic/mechanical energy</b>	<b>Corresponding classification (MS)</b>
Equipment mass <7kg	MS1
<p><b>Thermal burn injury (Clause 9)</b>            (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</p>	
	TS1
<b>Source of thermal energy</b>	<b>Corresponding classification (TS)</b>
--	--
<p><b>Radiation (Clause 10)</b>            (Note: List the types of radiation present in the product and the corresponding energy source classification.)            Example: DVD – Class 1 Laser Product</p>	
	RS1
<b>Type of radiation</b>	<b>Corresponding classification (RS)</b>
--	--

<b>ENERGY SOURCE DIAGRAM</b>
Indicate which energy sources are included in the energy source diagram. Insert diagram below
<input checked="" type="checkbox"/> ES <input checked="" type="checkbox"/> PS <input checked="" type="checkbox"/> MS <input checked="" type="checkbox"/> TS <input checked="" type="checkbox"/> 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	Supplementa ry	Reinforced (Enclosure)
Ordinary	ES1: +2.3~+3.6Vdc input	---	---	---
--				
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100Watt circuit)	Safeguards		
		Basic	Supplementa ry	Reinforced
Enclosure	PS3 circuit	Metal	--	--
PCB	PS3 circuit	See 6.3	See 6.4.6	N/A
The other components /materials	PS3: circuit	See 6.3	See 6.4.6	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementa ry	Reinforced
---	---	---	---	---
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementa ry	Reinforced (Enclosure)
Ordinary	MS1:Equipment mass	---	---	---
--				
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementa ry	Reinforced
Ordinary	TS1: PCB and component	---	---	---
--				
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementa ry	Reinforced
---	---	---	---	---
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies	(see appended table 4.1.2)	P
4.1.2	Use of components	Components comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant IEC component standards. (see appended table 4.1.2)	P
4.1.3	Equipment design and construction	Compliance shall be evaluated in the end product	N
4.1.15	Markings and instructions.....:	(see Annex F)	P
4.4.4	Safeguard robustness	Building-in equipment, it should be evaluated in end product.	N
4.4.4.2	Steady force tests.....:	Building-in equipment, it should be evaluated in end product.	N
4.4.4.3	Drop tests.....:	Building-in equipment, it should be evaluated in end product.	N
4.4.4.4	Impact tests.....:	Building-in equipment, it should be evaluated in end product.	N
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	Building-in equipment, it should be evaluated in end product.	N
4.4.4.6	Glass Impact tests.....:		N
4.4.4.7	Thermoplastic material tests.....:		N
4.4.4.8	Air comprising a safeguard.....:		N
4.4.4.9	Accessibility and safeguard effectiveness		N
4.5	Explosion	No explosion observed during normal/ abnormal/ single fault conditions.	P
4.6	Fixing of conductors	The fixing of the conductors do not defeat the safeguard	P
4.6.1	Fix conductors not to defeat a safeguard	See above	P
4.6.2	10 N force test applied to.....:	10 N applied to all internal components. See appended table T.2	P
4.7	Equipment for direct insertion into mains socket - outlets	Not connected to the mains	N
4.7.2	Mains plug part complies with the relevant standard.....:	See above	N
4.7.3	Torque (Nm).....:		N
4.8	Products containing coin/button cell batteries	No coin/button cell batteries	N
4.8.2	Instructional safeguard		N
4.8.3	Battery Compartment Construction		N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
	Means to reduce the possibility of children removing the battery .....		—
4.8.4	Battery Compartment Mechanical Tests .....		N
4.8.5	Battery Accessibility		N
4.9	Likelihood of fire or shock due to entry of conductive object.....	Building-in equipment, it should be evaluated in end product.	N

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
5.2.1	Electrical energy source classifications .....	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits	ES1	P
5.2.2.2	Steady-state voltage and current.....	(See appended table 5.2)	P
5.2.2.3	Capacitance limits .....		N
5.2.2.4	Single pulse limits .....		N
5.2.2.5	Limits for repetitive pulses.....		N
5.2.2.6	Ringling signals .....	The EUT is not an analogue telephone	N
5.2.2.7	Audio signals .....		N
5.3	Protection against electrical energy sources	All parts are ES1 only.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	No protection requirements for ES1	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	All parts are ES1 only	N
5.3.2.2	Contact requirements		N
	a) Test with test probe from Annex V .....		N
	b) Electric strength test potential (V).....		N
	c) Air gap (mm) .....		N
5.3.2.4	Terminals for connecting stripped wire	No such part	N
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		N
5.4.1.3	Humidity conditioning .....	No hygroscopic insulation	N
5.4.1.4	Maximum operating temperature for insulating materials .....	(see appended table 5.4.1.4)	P
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
5.4.1.5.3	Thermal cycling		N
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer used	N
5.4.1.7	Insulation in circuits generating starting pulses	No such circuit	N
5.4.1.8	Determination of working voltage	Class III equipment	N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.9	Insulating surfaces	Class III equipment	N
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	No such part used	N
5.4.1.10.2	Vicat softening temperature .....		N
5.4.1.10.3	Ball pressure .....		N
5.4.2	Clearances	Class III equipment	N
5.4.2.2	Determining clearance using peak working voltage		N
5.4.2.3	Determining clearance using required withstand voltage .....		N
	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
5.4.2.5	Multiplication factors for clearances and test voltages.....		N
5.4.3	Creepage distances.....	Class III equipment	N
5.4.3.1	General		N
5.4.3.3	Material Group .....		—
5.4.4	Solid insulation		N
5.4.4.2	Minimum distance through insulation .....		N
5.4.4.3	Insulation compound forming solid insulation		N
5.4.4.4	Solid insulation in semiconductor devices		N
5.4.4.5	Cemented joints	No such part used	N
5.4.4.6	Thin sheet material	No such part used	N
5.4.4.6.1	General requirements		N
5.4.4.6.2	Separable thin sheet material		N
	Number of layers (pcs) .....		N
5.4.4.6.3	Non-separable thin sheet material		N
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....		N
5.4.4.6.5	Mandrel test		N
5.4.4.7	Solid insulation in wound components	No such device used	N
5.4.4.9	Solid insulation at frequencies >30 kHz .....		N
5.4.5	Antenna terminal insulation	No such device used	N
5.4.5.1	General		N
5.4.5.2	Voltage surge test		N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation resistance (MΩ) .....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard .....	No such part	N
5.4.7	Tests for semiconductor components and for cemented joints	No such part	N
5.4.8	Humidity conditioning		N
	Relative humidity (%) .....		—
	Temperature (°C) .....		—
	Duration (h) .....		—
5.4.9	Electric strength test .....		N
5.4.9.1	Test procedure for a solid insulation type test		N
5.4.9.2	Test procedure for routine tests		N
5.4.10	Protection against transient voltages between external circuit		N
5.4.10.1	Parts and circuits separated from external circuits		N
5.4.10.2	Test methods		N
5.4.10.2.1	General		N
5.4.10.2.2	Impulse test .....		N
5.4.10.2.3	Steady-state test .....		N
5.4.11	Insulation between external circuits and earthed circuitry .....	Class III equipment.	N
5.4.11.1	Exceptions to separation between external circuits and earth		N
5.4.11.2	Requirements		N
	Rated operating voltage $U_{op}$ (V) .....		—
	Nominal voltage $U_{peak}$ (V) .....		—
	Max increase due to variation $U_{sp}$ .....		—
	Max increase due to ageing $\Delta U_{sa}$ .....		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....		—
5.5	Components as safeguards		
5.5.1	General	See below	N
5.5.2	Capacitors and RC units	No such component used	N
5.5.2.1	General requirement		N
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....		N
5.5.3	Transformers	No such component used	N
5.5.4	Optocouplers	No such component used	N
5.5.5	Relays	No such component used	N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	Resistors	No such component used	N
5.5.7	SPD's	No such component used	N
5.5.7.1	Use of an SPD connected to reliable earthing		N
5.5.7.2	Use of an SPD between mains and protective earth		N
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable..... :	No such part	N
5.6	Protective conductor		N
5.6.2	Requirement for protective conductors	Class III equipment	N
5.6.2.1	General requirements		N
5.6.2.2	Colour of insulation		N
5.6.3	Requirement for protective earthing conductors		N
	Protective earthing conductor size (mm <sup>2</sup> ) ..... :		—
5.6.4	Requirement for protective bonding conductors		N
5.6.4.1	Protective bonding conductors		N
	Protective bonding conductor size (mm <sup>2</sup> ). ..... :		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N
5.6.5	Terminals for protective conductors	Class III equipment, no such part.	N
5.6.5.1	Requirement		N
	Conductor size (mm <sup>2</sup> ), nominal thread diameter (mm). ..... :		N
5.6.5.2	Corrosion		N
5.6.6	Resistance of the protective system	No such component used	N
5.6.6.1	Requirements		N
5.6.6.2	Test Method Resistance (Ω) ..... :		N
5.6.7	Reliable earthing	No such construction	N
5.7	Prospective touch voltage, touch current and protective conductor current		N
5.7.2	Measuring devices and networks	Class III equipment	N
5.7.2.1	Measurement of touch current ..... :		N
5.7.2.2	Measurement of prospective touch voltage		N
5.7.3	Equipment set-up, supply connections and earth connections	Class III equipment	N
	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..... :	Class III equipment	N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	Protective conductor current	Class III equipment	N
	Supply Voltage (V) .....		—
	Measured current (mA) .....		—
	Instructional Safeguard .....		N
5.7.6	Prospective touch voltage and touch current due to external circuits	Class III equipment	N
5.7.6.1	Touch current from coaxial cables		N
5.7.6.2	Prospective touch voltage and touch current from external circuits		N
5.7.7	Summation of touch currents from external circuits	Class III equipment	N
	a) Equipment with earthed external circuits Measured current (mA) .....		N
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....		N

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General	See below	P
6.2.2.2	Power measurement for worst-case load fault ... :	(see appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault .....	(see appended table 6.2.2)	P
6.2.2.4	PS1 .....		N
6.2.2.5	PS2 .....		N
6.2.2.6	PS3 .....	(see appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....		N
6.2.3.2	Resistive PIS .....	(See appended table 6.3.2.2)	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.....	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6) No ignition occurred, and no part of the equipment attained a temperature value greater than 300 °C.	P
6.3.1 (b)	Combustible materials outside fire enclosure		N
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	The method for control fire spread is used	P

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N
6.4.3.1	General		N
6.4.3.2	Supplementary Safeguards		N
	Special conditions if conductors on printed boards are opened or peeled		N
6.4.3.3	Single Fault Conditions ..... :	(see appended table)	P
	Special conditions for temperature limited by fuse		N
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		N
6.4.5.2	Supplementary safeguards ..... :		N
6.4.6	Control of fire spread in PS3 circuit	Building-in equipment, it should be evaluated in end product.	N
6.4.7	Separation of combustible materials from a PIS	Building-in equipment, it should be evaluated in end product.	N
6.4.7.1	General ..... :		N
6.4.7.2	Separation by distance		N
6.4.7.3	Separation by a fire barrier		N
6.4.8	Fire enclosures and fire barriers	Fire enclosures request, building-in equipment, it should be evaluated in end product.	N
6.4.8.1	Fire enclosure and fire barrier material properties		N
6.4.8.2.1	Requirements for a fire barrier		N
6.4.8.2.2	Requirements for a fire enclosure		N
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N
6.4.8.3.1	Fire enclosure and fire barrier openings		N
6.4.8.3.2	Fire barrier dimensions		N
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) ..... :		N
	Needle Flame test		N
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) ..... :		N
	Flammability tests for the bottom of a fire enclosure ..... :		N
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)..... :		N
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating ..... :		N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
6.5	Internal and external wiring		N
6.5.1	Requirements		N
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....		—
6.5.3	Requirements for interconnection to building wiring.....		N
6.6	Safeguards against fire due to connection to additional equipment		N
	External port limited to PS2 or complies with Clause Q.1		P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals	N
7.3	Ozone exposure	No ozone production	N
7.4	Use of personal safeguards (PPE)		N
	Personal safeguards and instructions.....		—
7.5	Use of instructional safeguards and instructions		N
	Instructional safeguard (ISO 7010).....		—
7.6	Batteries .....	No batteries used	N

8	MECHANICALLY-CAUSED INJURY		P
8.1	General		P
8.2	Mechanical energy source classifications	MS1: Equipment mass	P
8.3	Safeguards against mechanical energy sources	No safeguard is required to be interposed between MS1 and ordinary persons.	N
8.4	Safeguards against parts with sharp edges and corners	No sharp edges and corners	N
8.4.1	Safeguards		N
8.5	Safeguards against moving parts	No such moving parts	N
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N
8.5.2	Instructional Safeguard :		—
8.5.4	Special categories of equipment comprising moving parts		N
8.5.4.1	Large data storage equipment		N
8.5.4.2	Equipment having electromechanical device for destruction of media		N
8.5.4.2.1	Safeguards and Safety Interlocks.....		N
8.5.4.2.2	Instructional safeguards against moving parts		N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructional Safeguard .....		—
8.5.4.2.3	Disconnection from the supply		N
8.5.4.2.4	Probe type and force (N).....		N
8.5.5	High Pressure Lamps	No such device	N
8.5.5.1	Energy Source Classification		N
8.5.5.2	High Pressure Lamp Explosion Test .....		N
8.6	Stability	MS1, Mass<7kg, no stability requirements	N
8.6.1	Product classification		N
	Instructional Safeguard .....		—
8.6.2	Static stability		N
8.6.2.2	Static stability test		N
	Applied Force .....		—
8.6.2.3	Downward Force Test		N
8.6.3	Relocation stability test		N
	Unit configuration during 10° tilt .....		—
8.6.4	Glass slide test		N
8.6.5	Horizontal force test (Applied Force) .....		N
	Position of feet or movable parts .....		—
8.7	Equipment mounted to wall or ceiling	Not wall or ceiling mounted	N
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....		N
8.7.2	Direction and applied force .....		N
8.8	Handles strength	No handles used	N
8.8.1	Classification		N
8.8.2	Applied Force .....		N
8.9	Wheels or casters attachment requirements	No wheels or casters used	N
8.9.1	Classification		N
8.9.2	Applied force.....		—
8.10	Carts, stands and similar carriers	No such device	N
8.10.1	General		N
8.10.2	Marking and instructions		N
	Instructional Safeguard .....		—
8.10.3	Cart, stand or carrier loading test and compliance		N
	Applied force.....		—
8.10.4	Cart, stand or carrier impact test		N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
8.10.5	Mechanical stability		N
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C)..... :		N
8.11	Mounting means for rack mounted equipment	No such device	N
8.11.1	General		N
8.11.2	Product Classification		N
8.11.3	Mechanical strength test, variable <i>N</i> ..... :		N
8.11.4	Mechanical strength test 250N, including end stops		N
8.12	Telescoping or rod antennas.....	No such device	N
	Button/Ball diameter (mm)..... :		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
9.2	Thermal energy source classifications	See appended table 9.0. All touch temperatures are measured to classified as TS1. No safeguard is required.	P
9.3	Safeguard against thermal energy sources	Measured temperature for external enclosure does not exceed TS1 limit.	N
9.4	Requirements for safeguards		N
9.4.1	Equipment safeguard		N
9.4.2	Instructional safeguard..... :		N

<b>10</b>	<b>RADIATION</b>		N
10.2	Radiation energy source classification		N
10.2.1	General classification		N
10.3	Protection against laser radiation		N
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :		N
	Instructional safeguard..... :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		N
10.4.1	General		N
10.4.1.a)	RS3 for Ordinary and instructed persons..... :		N
10.4.1.b)	RS3 accessible to a skilled person..... :		N
	Personal safeguard (PPE) instructional safeguard..... : ...		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1...:		N
10.4.1.d)	Normal, abnormal, single-fault conditions .....		N
10.4.1.e)	Enclosure material employed as safeguard is opaque ..... :		N
10.4.1.f)	UV attenuation ..... :		N
10.4.1.g)	Materials resistant to degradation UV..... :		N
10.4.1.h)	Enclosure containment of optical radiation ..... :		N
10.4.1.i)	Exempt Group under normal operating conditions ..... :		N
10.4.2	Instructional safeguard ..... :		N
10.5	Protection against x-radiation	No x-radiation within the EUT	N
10.5.1	X- radiation energy source that exists equipment .....:		N
	Normal, abnormal, single fault conditions		N
	Equipment safeguards .....		N
	Instructional safeguard for skilled person .....		N
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition.....:		N
	Maximum radiation (pA/kg) .....		N
10.6	Protection against acoustic energy sources	No headphones provided	N
10.6.1	General		N
10.6.2	Classification		N
	Acoustic output, dB(A) .....		N
	Output voltage, unweighted r.m.s. ....		N
10.6.4	Protection of persons		N
	Instructional safeguards .....		N
	Equipment safeguard prevent ordinary person to RS2 .....		—
	Means to actively inform user of increase sound pressure .....		—
	Equipment safeguard prevent ordinary person to		—

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Clause	Requirement + Test	Result - Remark	Verdict
	RS2..... :		
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N
10.6.5.1	Corded passive listening devices with analog input		N
	Input voltage with 94 dB(A) $L_{Aeq}$ acoustic pressure output .....		—
10.6.5.2	Corded listening devices with digital input		N
	Maximum dB(A) .....		—
10.6.5.3	Cordless listening device		N
	Maximum dB(A) .....		—
10.6.5.4	Measurement method		N
	Measurements shall be made in accordance with EN 50332-2 as applicable		N

<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements .....	See below	P
	Audio Amplifiers and equipment with audio amplifiers..... :		N
B.2.3	Supply voltage and tolerances		N
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 appended table B.3)	P
B.3.2	Covering of ventilation openings	Building-in equipment, it should be evaluated in end product.	N
B.3.3	D.C. mains polarity test	No connection to the d.c. mains	N
B.3.4	Setting of voltage selector..... :	No such voltage selector used	N
B.3.5	Maximum load at output terminals .....	(See appended table)	P
B.3.6	Reverse battery polarity	No battery used	N
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N
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 are remained effective. After restoration of normal operating conditions, all safeguards are compliant with applicable requiremen	P
B.4	Simulated single fault conditions		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.2	Temperature controlling device open or short-circuited.....:	No such component	N
B.4.3	Motor tests		N
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature .....	(see appended table)	N
B.4.4	Short circuit of functional insulation		N
B.4.4.1	Short circuit of clearances for functional insulation		N
B.4.4.2	Short circuit of creepage distances for functional insulation		N
B.4.4.3	Short circuit of functional insulation on coated printed boards		N
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(see appended table B.3 and B.4)	P
B.4.6	Short circuit or disconnect of passive components	(see appended table B.3 and B.4)	P
B.4.7	Continuous operation of components	No such component	N
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	During and after single fault conditions, accessible parts do not exceed the relevant energy class and no flame and ignition inside the equipment.	P
B.4.9	Battery charging under single fault conditions .....	No battery used	N
<b>C</b>	<b>UV RADIATION</b>		N
C.1	Protection of materials in equipment from UV radiation		N
C.1.2	Requirements		N
C.1.3	Test method		N
C.2	UV light conditioning test		N
C.2.1	Test apparatus		N
C.2.2	Mounting of test samples		N
C.2.3	Carbon-arc light-exposure apparatus		N
C.2.4	Xenon-arc light exposure apparatus		N
<b>D</b>	<b>TEST GENERATORS</b>		N
D.1	Impulse test generators		N
D.2	Antenna interface test generator		N
D.3	Electronic pulse generator		N
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N
E.1	Audio amplifier normal operating conditions		N
	Audio signal voltage (V).....:		—
	Rated load impedance ( $\Omega$ ) .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
E.2	Audio amplifier abnormal operating conditions		N
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
F.1	General requirements	Equipment is provided with operator instructions.	P
	Instructions – Language .....	English version evaluated.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		N
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols placed on the equipment are in accordance with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment markings are located near or adjacent to the part or region that is the subject of the marking	P
F.3.2	Equipment identification markings	See below	P
F.3.2.1	Manufacturer identification .....	See copy of marking plate	—
F.3.2.2	Model identification .....	See copy of marking plate	—
F.3.3	Equipment rating markings	See below	P
F.3.3.1	Equipment with direct connection to mains	Not direct connection to the mains	N
F.3.3.2	Equipment without direct connection to mains	See copy of marking plate	N
F.3.3.3	Nature of supply voltage .....	Not direct connection to the mains	—
F.3.3.4	Rated voltage .....		—
F.3.3.5	Rated frequency.....	Not direct connection to mains	—
F.3.3.6	Rated current or rated power .....		—
F.3.3.7	Equipment with multiple supply connections	No multiple supply connection	N
F.3.4	Voltage setting device	No such device	N
F.3.5	Terminals and operating devices		N
F.3.5.1	Mains appliance outlet and socket-outlet markings.....	No such device used	N
F.3.5.2	Switch position identification marking .....	No such device used	N
F.3.5.3	Replacement fuse identification and rating markings.....	No such device used	N
F.3.5.4	Replacement battery identification marking .....	Not such battery used	N
F.3.5.5	Terminal marking location		N

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6	Equipment markings related to equipment classification	See below	N
F.3.6.1	Class I Equipment	Class III equipment	N
F.3.6.1.1	Protective earthing conductor terminal		N
F.3.6.1.2	Neutral conductor terminal		N
F.3.6.1.3	Protective bonding conductor terminals		N
F.3.6.2	Class II equipment (IEC60417-5172)	Class III equipment	N
F.3.6.2.1	Class II equipment with or without functional earth		N
F.3.6.2.2	Class II equipment with functional earth terminal marking		N
F.3.7	Equipment IP rating marking .....		—
F.3.8	External power supply output marking		N
F.3.9	Durability, legibility and permanence of marking	The markings on the equipment is durable and legible, and shall be easily discernable under normal lighting conditions	P
F.3.10	Test for permanence of markings	Rubbing the marking by hand for 15 s with piece of cloth soaked with water and, at a different place for on a second sample. For 15 s with a piece of cloth soaked with petroleum spirit .after this test, marking is legible and can not be easily possible to remove marking and show no curling .	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N
	b) Instructions given for installation or initial use	See see appendix B-user's manual	P
	c) Equipment intended to be fastened in place		N
	d) Equipment intended for use only in restricted access area		N
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N
	f) Protective earthing employed as safeguard		N
	g) Protective earthing conductor current exceeding ES 2 limits		N
	h) Symbols used on equipment		N
	i) Permanently connected equipment not provided with all-pole mains switch		N

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Clause	Requirement + Test	Result - Remark	Verdict
	j) Replaceable components or modules providing safeguard function		N
F.5	Instructional safeguards		N
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N
G.1.1	General requirements		N
G.1.2	Ratings, endurance, spacing, maximum load		N
<b>G.2</b>	<b>Relays</b>		N
G.2.1	General requirements	No such component used	N
G.2.2	Overload test		N
G.2.3	Relay controlling connectors supply power		N
G.2.4	Mains relay, modified as stated in G.2		N
<b>G.3</b>	<b>Protection Devices</b>		N
G.3.1	Thermal cut-offs	No such device used	N
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N
G.3.1.2	Thermal cut-off connections maintained and secure		N
G.3.2	Thermal links		N
G.3.2.1a)	Thermal links separately tested with IEC 60691	No such component used	N
G.3.2.1b)	Thermal links tested as part of the equipment		N
	Aging hours (H).....:		—
	Single Fault Condition.....:		—
	Test Voltage (V) and Insulation Resistance ( $\Omega$ ) ..:		—
G.3.3	PTC Thermistors		N
G.3.4	Overcurrent protection devices	No such component used	N
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N
G.3.5.1	Non-resettable devices suitably rated and marking provided		N
G.3.5.2	Single faults conditions .....		N
<b>G.4</b>	<b>Connectors</b>		N
G.4.1	Spacings	No such component used	N
G.4.2	Mains connector configuration .....		N

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N
<b>G.5</b>	<b>Wound Components</b>		N
G.5.1	Wire insulation in wound components .....		N
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N
G.5.1.2 b)	Construction subject to routine testing		N
G.5.2	Endurance test on wound components		N
G.5.2.1	General test requirements		N
G.5.2.2	Heat run test		N
	Time (s) .....		—
	Temperature (°C) .....		—
G.5.2.3	Wound Components supplied by mains		N
<b>G.5.3</b>	<b>Transformers</b>		N
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....		N
	Position .....		—
	Method of protection .....		—
G.5.3.2	Insulation		N
	Protection from displacement of windings .....		—
G.5.3.3	Overload test.....		N
G.5.3.3.1	Test conditions		N
G.5.3.3.2	Winding Temperatures testing in the unit		N
G.5.3.3.3	Winding Temperatures - Alternative test method		N
<b>G.5.4</b>	<b>Motors</b>		N
G.5.4.1	General requirements		N
	Position .....		—
G.5.4.2	Test conditions		N
G.5.4.3	Running overload test		N
G.5.4.4	Locked-rotor overload test		N
	Test duration (days) .....		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N
G.5.4.5.2	Tested in the unit		N
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....		N
	Electric strength test (V).....		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N
G.5.4.6.2	Tested in the unit		N
	Maximum Temperature .....		N
	Electric strength test (V) .....		N
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....		N
	Electric strength test (V).....		N
G.5.4.7	Motors with capacitors		N
G.5.4.8	Three-phase motors		N
G.5.4.9	Series motors		N
	Operating voltage .....		—
<b>G.6</b>	<b>Wire Insulation</b>		N
G.6.1	General		N
G.6.2	Solvent-based enamel wiring insulation		N
<b>G.7</b>	<b>Mains supply cords</b>		N
G.7.1	General requirements		N
	Type .....		—
	Rated current (A) .....		—
	Cross-sectional area (mm <sup>2</sup> ), (AWG) .....		—
G.7.2	Compliance and test method		N
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N
G.7.3.2	Cord strain relief		N
G.7.3.2.1	Requirements		N
	Strain relief test force (N) .....		—
G.7.3.2.2	Strain relief mechanism failure		N
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ... :		—
G.7.3.2.4	Strain relief comprised of polymeric material		N
G.7.4	Cord Entry .....		N
G.7.5	Non-detachable cord bend protection		N
G.7.5.1	Requirements		N
G.7.5.2	Mass (g) .....		—
	Diameter (m) .....		—
	Temperature (°C) .....		—
G.7.6	Supply wiring space		N
G.7.6.2	Stranded wire		N

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.6.2.1	Test with 8 mm strand		N
<b>G.8</b>	<b>Varistors</b>		N
G.8.1	General requirements	No such component used	N
G.8.2	Safeguard against shock		N
G.8.3	Safeguard against fire		N
G.8.3.2	Varistor overload test .....		N
G.8.3.3	Temporary overvoltage .....		N
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		N
G.9.1 a)	Manufacturer defines limit at max. 5A.		N
G.9.1 b)	Limiters do not have manual operator or reset		N
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
G.9.3	Test Program 2		N
G.9.4	Test Program 3		N
<b>G.10</b>	<b>Resistors</b>		N
G.10.1	General requirements		N
G.10.2	Resistor test		N
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N
G.10.3.1	General requirements		N
G.10.3.2	Voltage surge test		N
G.10.3.3	Impulse test		N
<b>G.11</b>	<b>Capacitor and RC units</b>		N
G.11.1	General requirements		N
G.11.2	Conditioning of capacitors and RC units		N
G.11.3	Rules for selecting capacitors		N
<b>G.12</b>	<b>Optocouplers</b>		N
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) .....	No such component used	N
	Type test voltage Vini .....		—
	Routine test voltage, Vini,b .....		—
<b>G.13</b>	<b>Printed boards</b>		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		N

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.3	Coated printed boards		N
G.13.4	Insulation between conductors on the same inner surface		N
	Compliance with cemented joint requirements (Specify construction) .....		—
G.13.5	Insulation between conductors on different surfaces		N
	Distance through insulation .....		N
	Number of insulation layers (pcs) .....		—
G.13.6	Tests on coated printed boards		N
G.13.6.1	Sample preparation and preliminary inspection		N
G.13.6.2a)	Thermal conditioning		N
G.13.6.2b)	Electric strength test		N
G.13.6.2c)	Abrasion resistance test		N
<b>G.14</b>	<b>Coating on components terminals</b>		N
G.14.1	Requirements .....		N
<b>G.15</b>	<b>Liquid filled components</b>		N
G.15.1	General requirements		N
G.15.2	Requirements		N
G.15.3	Compliance and test methods		N
G.15.3.1	Hydrostatic pressure test		N
G.15.3.2	Creep resistance test		N
G.15.3.3	Tubing and fittings compatibility test		N
G.15.3.4	Vibration test		N
G.15.3.5	Thermal cycling test		N
G.15.3.6	Force test		N
G.15.4	Compliance		N
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage .....		N
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N
C2)	Test voltage .....		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N
D2)	Capacitance .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
D3)	Resistance .....		—
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N
H.1	General	Not connected to telephone line	N
H.2	Method A		N
H.3	Method B		N
H.3.1	Ringling signal		N
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
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N
H.3.2.2	Tripping device		N
H.3.2.3	Monitoring voltage (V).....		—
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		N
	General requirements		N
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N
K.1	General requirements		N
K.2	Components of safety interlock safeguard mechanism .....		N
K.3	Inadvertent change of operating mode		N
K.4	Interlock safeguard override		N
K.5	Fail-safe		N
	Compliance .....		N
K.6	Mechanically operated safety interlocks		N
K.6.1	Endurance requirement		N
K.6.2	Compliance and Test method.....		N
K.7	Interlock circuit isolation		N
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....		N
K.7.2	Overload test, Current (A).....		N
K.7.3	Endurance test		N
K.7.4	Electric strength test .....		N
<b>L</b>	<b>DISCONNECT DEVICES</b>		N
L.1	General requirements	Not directly connected to the mains	N

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Clause	Requirement + Test	Result - Remark	Verdict
L.2	Permanently connected equipment		N
L.3	Parts that remain energized		N
L.4	Single phase equipment		N
L.5	Three-phase equipment		N
L.6	Switches as disconnect devices		N
L.7	Plugs as disconnect devices		N
L.8	Multiple power sources		N
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N
M.1	General requirements		N
M.2	Safety of batteries and their cells		N
M.2.1	Requirements		N
M.2.2	Compliance and test method (identify method)....:		N
M.3	Protection circuits		N
M.3.1	Requirements		N
M.3.2	Tests		N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
M.3.3	Compliance ..... :		N
M.4	Additional safeguards for equipment containing secondary lithium battery		N
M.4.1	General		N
M.4.2	Charging safeguards		N
M.4.2.1	Charging operating limits		N
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
M.4.4	Endurance of equipment containing a secondary lithium battery		N
M.4.4.2	Preparation		N
M.4.4.3	Drop and charge/discharge function tests		N
	Drop		N
	Charge		N
	Discharge		N
M.4.4.4	Charge-discharge cycle test		N

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.5	Result of charge-discharge cycle test		N
M.5	Risk of burn due to short circuit during carrying		N
M.5.1	Requirement		N
M.5.2	Compliance and Test Method (Test of P.2.3)		N
M.6	Prevention of short circuits and protection from other effects of electric current		N
M.6.1	Short circuits		N
M.6.1.1	General requirements		N
M.6.1.2	Test method to simulate an internal fault		N
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....		N
M.6.2	Leakage current (mA) .....		N
M.7	Risk of explosion from lead acid and NiCd batteries		N
M.7.1	Ventilation preventing explosive gas concentration		N
M.7.2	Compliance and test method		N
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N
M.8.1	General requirements		N
M.8.2	Test method		N
M.8.2.1	General requirements		N
M.8.2.2	Estimation of hypothetical volume $V_z$ (m <sup>3</sup> /s) .....		—
M.8.2.3	Correction factors .....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
M.9	Preventing electrolyte spillage		N
M.9.1	Protection from electrolyte spillage		N
M.9.2	Tray for preventing electrolyte spillage		N
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....		N
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N
	Metal(s) used .....		—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		N
	Figures O.1 to O.20 of this Annex applied.....		—
<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS</b>		N
P.1	General requirements	Building-in equipment, it should be evaluated in end product.	N

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.2	Safeguards against entry of foreign object		N
	Location and Dimensions (mm) .....		—
P.2.3	Safeguard against the consequences of entry of foreign object		N
P.2.3.1	Safeguards against the entry of a foreign object		N
	Openings in transportable equipment		N
	Transportable equipment with metalized plastic parts .....		N
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) .....		N
P.3	Safeguards against spillage of internal liquids		N
P.3.1	General requirements		N
P.3.2	Determination of spillage consequences		N
P.3.3	Spillage safeguards		N
P.3.4	Safeguards effectiveness		N
P.4	Metallized coatings and adhesive securing parts		N
P.4.2 a)	Conditioning testing		N
	Tc (°C) .....		—
	Tr (°C) .....		—
	Ta (°C) .....		—
P.4.2 b)	Abrasion testing .....		N
P.4.2 c)	Mechanical strength testing .....		N
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		<b>P</b>
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		N
Q.1.1 b)	Impedance limited output		N
	- Regulating network limited output under normal operating and simulated single fault condition		N
Q.1.1 c)	Overcurrent protective device limited output		N
Q.1.1 d)	IC current limiter complying with G.9		N
Q.1.2	Compliance and test method		N
Q.2	Test for external circuits – paired conductor cable		N
	Maximum output current (A) .....		—
	Current limiting method .....		—
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		<b>N</b>
R.1	General requirements		N

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Clause	Requirement + Test	Result - Remark	Verdict
R.2	Determination of the overcurrent protective device and circuit		N
R.3	Test method Supply voltage (V) and short-circuit current (A)). .....		N
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		<b>N</b>
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
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N
	- Material not consumed completely		N
	- Material extinguishes within 30s		N
	- No burning of layer or wrapping tissue		N
S.2	Flammability test for fire enclosure and fire barrier integrity		N
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N
	Test specimen does not show any additional hole		N
S.3	Flammability test for the bottom of a fire enclosure		N
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Cheesecloth did not ignite		N
S.4	Flammability classification of materials		N
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
	Samples, material .....		—
	Wall thickness (mm) .....		—
	Conditioning (test condition), (°C).....		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N
	After every test specimen was not consumed completely		N

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Clause	Requirement + Test	Result - Remark	Verdict
	After fifth flame application, flame extinguished within 1 min		N
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		<b>P</b>
T.1	General requirements		P
T.2	Steady force test, 10 N .....	(see appended table T.2)	P
T.3	Steady force test, 30 N .....		N
T.4	Steady force test, 100 N .....	Building-in equipment, it should be evaluated in end product.	N
T.5	Steady force test, 250 N .....	Building-in equipment, it should be evaluated in end product.	N
T.6	Enclosure impact test	Building-in equipment, it should be evaluated in end product.	N
	Fall test		N
	Swing test		N
T.7	Drop test .....	Building-in equipment, it should be evaluated in end product.	N
T.8	Stress relief test .....	Building-in equipment, it should be evaluated in end product.	N
T.9	Impact Test (glass)		N
T.9.1	General requirements		N
T.9.2	Impact test and compliance		N
	Impact energy (J) .....		—
	Height (m) .....		—
T.10	Glass fragmentation test .....		N
T.11	Test for telescoping or rod antennas		N
	Torque value (Nm) .....		—
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		<b>N</b>
U.1	General requirements	No such components	N
U.2	Compliance and test method for non-intrinsically protected CRTs		N
U.3	Protective Screen .....		N
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		<b>N</b>
V.1	Accessible parts of equipment	Class III equipment	N
V.2	Accessible part criterion		N

EN 62368-1+A11			
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)	
<b>Differences according to</b> .....	EN 62368-1:2014+A11:2017
<b>Attachment Form No.</b> .....	EU_GD_IEC62368_1B
<b>Attachment Originator</b> .....	Intertek Semko AB
<b>Master Attachment</b> .....	Date (2015-08)
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	<b>GENELEC COMMON MODIFICATIONS (EN)</b>		<b>N</b>
1	NOTE Z1		N
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N
	a) Included as parts of the equipment		N
	b) For components in series with the mains; by devices in the building installation		N
	c) For pluggable type B or permanently connected; by devices in the building installation		N
5.4.2.3.2.4	Interconnection with external circuit		N
10.2.1	Additional requirements in 10.5.1		N
10.5.1	RS1 compliance measurement conditions		N
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N
G.7.1	NOTE Z1		N

<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		<b>N</b>
4.1.15	<b>Denmark, Finland, Norway and Sweden:</b> Class I pluggable equipment type A marking		N
4.7.3	<b>United Kingdom:</b> Torque test socket-outlet BS 1363, and the plug part BS 1363.		N
5.2.2.2	<b>Denmark:</b> Warning for high touchcurrent		N
5.4.11.1 and Annex G	<b>Finland and Sweden:</b> Separation of the telecommunication network from earth		N
5.5.2.1	<b>Norway:</b> Capacitors rated for the applicable line-to-line voltage (230 V).		N
5.5.6	<b>Finland, Norway and Sweden:</b> Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N
5.6.1	<b>Denmark:</b> Protection for pluggable equipment type A; integral part of the equipment		N
5.6.4.2.1	<b>Ireland and United Kingdom:</b> The protective current rating is taken to be 13 A		N
5.6.5.1	<b>Ireland and United Kingdom:</b> Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	<b>Denmark:</b> The installation instruction affixed to the equipment if high protective conductor current		N
5.7.6.1	<b>Norway and Sweden:</b> Television distribution system isolation text in user manual		N
5.7.6.2	<b>Denmark:</b> Warning for high touch current		N
B.3.1 and B.4	<b>Ireland and United Kingdom:</b> Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N
G.4.2	<b>Denmark:</b> Appliances rated $\leq 13$ A provided with a plug according to DS 60884-2-D1:2011.		N
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N
	If a single-phase equipment having rated $>13$ A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.		N
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N
	Mains socket-outlets with earth 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		N
G.4.2	<b>United Kingdom:</b> The plug part of direct plug-in equipment assessed to BS 1363		N
G.7.1	<b>United Kingdom:</b> Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N
G.7.1	<b>Ireland:</b> Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N
G.7.2	<b>Ireland and United Kingdom:</b> A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N
<b>ZC</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		<b>N</b>
10.5.2	<b>Germany:</b> Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
PCB	Interchangeable	Interchangeable	Min. V-1, 130°C, Min. Thk: 0.9mm	UL94, UL796	UL
- Description <sup>2)</sup> :					
Supplementary information:					

FINAL

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

4.8.4.2	TABLE: Stress Relief test	N
---------	---------------------------	---

Part	Material	Oven Temperature (°C)	Comments
--			

4.8.4.3	TABLE: Battery replacement test	N
---------	---------------------------------	---

Battery part no. ....	See below	--
-----------------------	-----------	----

Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	
	2	
	3	
	4	
	5	
	6	
	8	
	9	
	10	

4.8.4.4	TABLE: Drop test	N
---------	------------------	---

Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	

4.8.4.5	TABLE: Impact	N
---------	---------------	---

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)

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Clause	Requirement + Test	Result - Remark	Verdict

<b>4.8.4, 4.8.5</b>	<b>TABLE: Lithium coin/button cell batteries mechanical tests</b>		<b>N</b>
<b>(The following mechanical tests are conducted in the sequence noted.)</b>			
Supplementary information: /			

<b>4.8.5</b>	<b>TABLE: Lithium coin/button cell batteries mechanical test result</b>			<b>N</b>
Test position	Surface tested	Force (N)	Duration force applied (s)	
Supplementary information: /				

<b>5.2</b>	<b>Table: Classification of electrical energy sources</b>						<b>P</b>
<b>5.2.2.2 – Steady State Voltage and Current conditions</b>							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	3.6V DC	Input power	Normal	3.6V DC	---	---	ES1
			Abnormal	3.6V DC	---	---	
			Single fault – SC/OC	3.6V DC	---	---	
<b>5.2.2.3 - Capacitance Limits</b>							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
---	---	---	Normal	---	---	---	
			Abnormal	---	---		
			Single fault – SC/OC	---	---		
<b>5.2.2.4 - Single Pulses</b>							
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	---	---	---	

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Clause	Requirement + Test	Result - Remark	Verdict

5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	l <sub>pk</sub> (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).....:	Supplied by external power supply		--		---		
	Ambient T <sub>min</sub> (°C).....:	--	--	--	--	---		
	Ambient T <sub>max</sub> (°C).....:	--	--	--	--	---		
	T <sub>ma</sub> (°C).....:	See below	Shift to T <sub>ma</sub>	--	--	---		
Maximum measured temperature T of part/at:		T (°C)				Allowed T <sub>max</sub> (°C)		
Ambient		28.4	85.0	--	--	--		
Cover surface		47.5	104.1	--	--	130		
PCB surface		43.8	100.4	--	--	130		
SMD chip Antenna		41.0	97.6			Ref		
Accessible part T <sub>ma</sub> is 85°C								
Ambient		--	--	--	--	--		
--		--	--	--	--	--		
Temperature T of winding:		t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--								
Supplementary information: Note 1: T <sub>ma</sub> should be considered as directed by applicable requirement, T <sub>ma</sub> is 85°C Note 2: PC power supply.								

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict

<b>5.4.1.10.2</b>	<b>TABLE: Vicat softening temperature of thermoplastics</b>		N
Penetration (mm).....			—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)	
--			
Supplementary information: /			

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

<b>5.4.2.2, 5.4.2.4 and 5.4.3</b>	<b>TABLE: Minimum Clearances/Creepage distance</b>						N
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) <sup>1</sup>	Required cl (mm)	cl (mm) <sup>2</sup>	Required <sup>3</sup> 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 IIIb							

<b>5.4.2.3</b>	<b>TABLE: Minimum Clearances distances using required withstand voltage</b>				N
<b>Overvoltage Category (OV):</b>				II	
<b>Pollution Degree:</b>				2	
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)		
--					
Supplementary information: /					

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

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict

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

<b>5.4.9</b>	<b>TABLE: Electric strength tests</b>			<b>N</b>
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No	
Functional:				
--				
Basic/supplementary:				
--				
Supplementary information: /				

<b>5.5.2.2</b>	<b>TABLE: Stored discharge on capacitors</b>					<b>N</b>
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:						
<input type="checkbox"/> bleeding resistor rating:						
<input type="checkbox"/> 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						

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

<b>5.7.2.2,</b>	<b>TABLE: Earthed accessible conductive part</b>	<b>N</b>
-----------------	--	----------

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict

<b>5.7.4</b>		
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	
<p>Supplementary Information:</p> <p>Notes:</p> <p>[1] Supply voltage is the anticipated maximum Touch Voltage</p> <p>[2] Earthed neutral conductor [Voltage differences less than 1% or more]</p> <p>[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3</p> <p>[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.</p> <p>[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.</p>		

<b>6.2.2</b>	<b>Table: Electrical power sources (PS) measurements for classification</b>				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s <sup>*)</sup>	PS Classification
External power supply (Test with PC supply)	Output	Power (W) :	--	--	PS3
		V <sub>A</sub> (V) :	3.3	--	
		I <sub>A</sub> (A) :	0.554	--	
<p>Supplementary Information:</p> <p>(*) Measurement taken only when limits at 3 seconds exceed PS1 limits.</p>					

<b>6.2.3.1</b>	<b>Table: Determination of Potential Ignition Sources (Arcing PIS)</b>				N
Location	Open circuit voltage After 3 s (V <sub>p</sub> )	Measured r.m.s current (I <sub>rms</sub> )	Calculated value (V <sub>p</sub> x I <sub>rms</sub> )	Arcing PIS? Yes / No	
--	--	--	--	--	

EN 62368-1+A11			
Clause	Requirement + Test	Result - Remark	Verdict

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.

<b>6.2.3.2</b>	<b>Table: Determination of Potential Ignition Sources (Resistive PIS)</b>				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
All the circuits	--	--	--	--	Yes

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.

<b>8.5.5</b>	<b>TABLE: High Pressure Lamp</b>			N
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>B.2.5</b>	<b>TABLE: Input test</b>						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
DC 2.3V	0.769	--	1.77	--	--	--	Max. normal load

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Clause	Requirement + Test			Result - Remark			Verdict
DC 3.3V	0.554	--	1.83	--	--	--	Max. normal load
DC 3.6V	0.500	--	1.80	--	--	--	Max. normal load
Supplementary information: 1. PC supply;							

B.3 and B.4 TABLE: Abnormal operating and fault condition tests								P
Ambient temperature (°C) .....						25.0°C		—
Power source for EUT: Manufacturer, model/type, output rating ..						---		—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current (mA)	T-couple	Temp. (°C)	Observation
C37	S-C	3.3Vdc	10mins	--	--	--	--	NCD, NFG, NHT.
C11	S-C	3.3Vdc	10mins	--	--	--	--	NCD, NFG, NHT.
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. NHT: No High Temperature; NCD: No Component Damage; NFG no flammability gas; S-C: Short circuit								

Annex M		TABLE: Batteries								N
The tests of Annex M are applicable only when appropriate battery data is not available										N
Is it possible to install the battery in a reverse polarity position? .....										N
	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
- Explosion of the battery										N
- Emission of flame or expulsion of molten metal										N
- Electric strength tests of equipment after completion of tests										N

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Clause	Requirement + Test	Result - Remark	Verdict

<b>Annex M</b>	<b>TABLE: Batteries</b>								N
The tests of Annex M are applicable only when appropriate battery data is not available									N
Is it possible to install the battery in a reverse polarity position? .....									N
	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.
Supplementary information:									

<b>Annex M.4</b>	<b>Table: Additional safeguards for equipment containing secondary lithium batteries</b>						N
Battery/Cell No.	Test conditions			Measurements			Observation
				U	I (A)	Temp (C)	
--	Normal						
	Abnormal						
	Single fault						
Supplementary Information: SC = Short Circuit;							
Battery identification	Charging at T <sub>lowest</sub> (°C)	Observation		Charging at T <sub>highest</sub> (°C)	Observation		
--	--	--		--	--		
Supplementary Information: /							

<b>Annex Q.1</b>	<b>TABLE: Circuits intended for interconnection with building wiring (LPS)</b>					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	(3V3,GND) S-C	3.3	0.064	8	0.21	100
Supplementary Information: SC=Short circuit, OC=Open circuit						

<b>T.2, T.3, T.4, T.5</b>	<b>TABLE: Steady force test</b>					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	

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Clause	Requirement + Test	Result - Remark	Verdict

Internal components	--	--	10	5	No hazard as a result of the test.
Supplementary information: /					

<b>T.6, T.9</b>	<b>TABLE: Impact tests</b>				<b>N</b>
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
--					
Supplementary information: /					

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

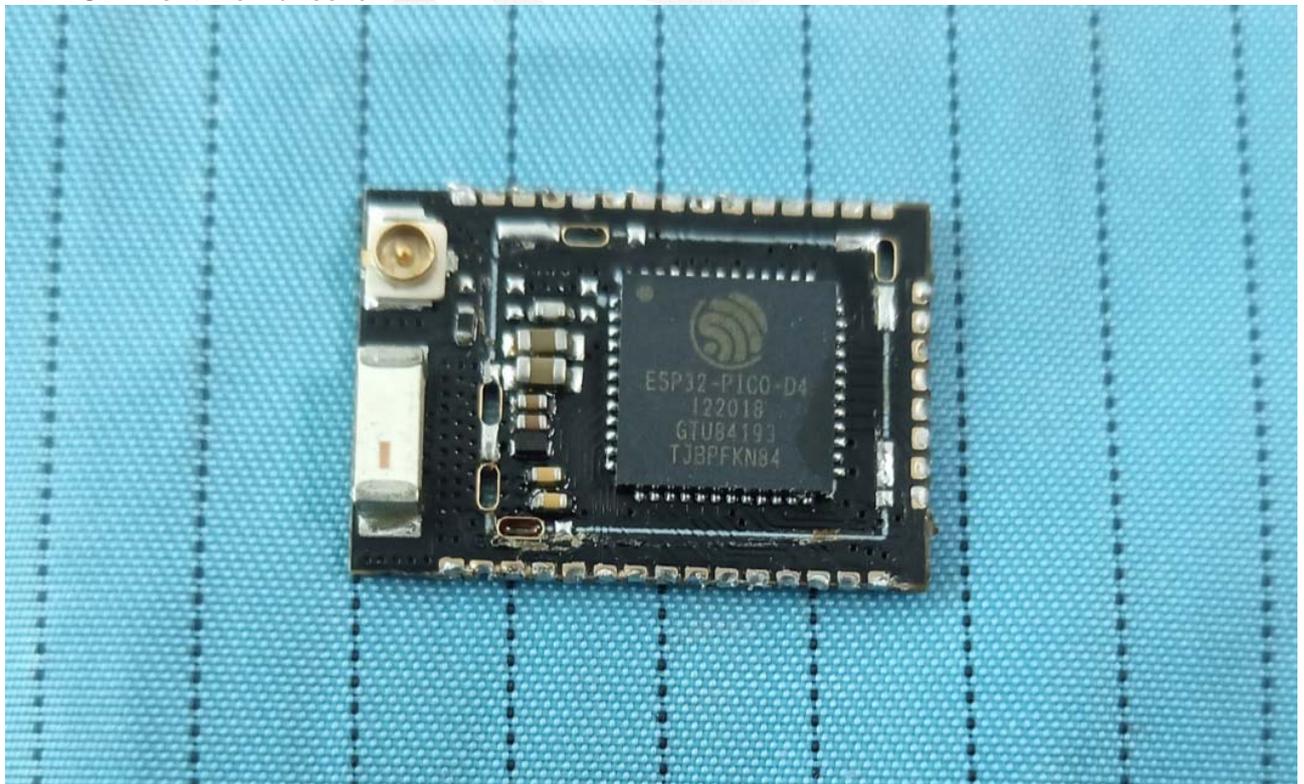
<b>T.8</b>	<b>TABLE: Stress relief test</b>					<b>N</b>
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
--						
Supplementary information: /						

**Appendix A EUT PHOTOS**

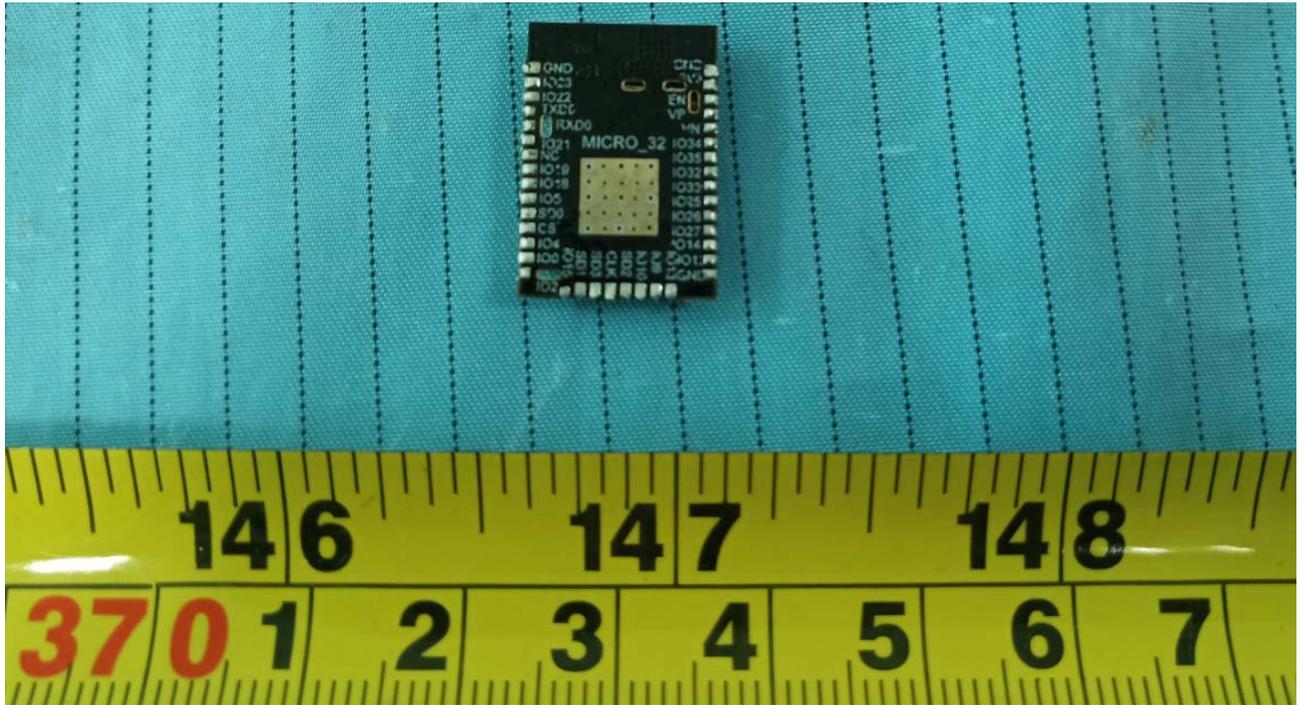
**A.1 EUT- Front View**



**A.2 EUT- Front View uncover**



**A.3 EUT- Back View**



**A.3 EUT- Label View**



**Appendix B – Instruction Manual(representative)**

***Important Safety Instructions***

Recycle your device



The WEEE logo (shown at the left) appears on the product to indicate that this product must not be disposed off or dumped with your other household wastes. You are liable to dispose of all your electronic or electrical waste equipment by relocating over to the specified collection point for recycling. of such hazardous waste.

Tma is 85°C

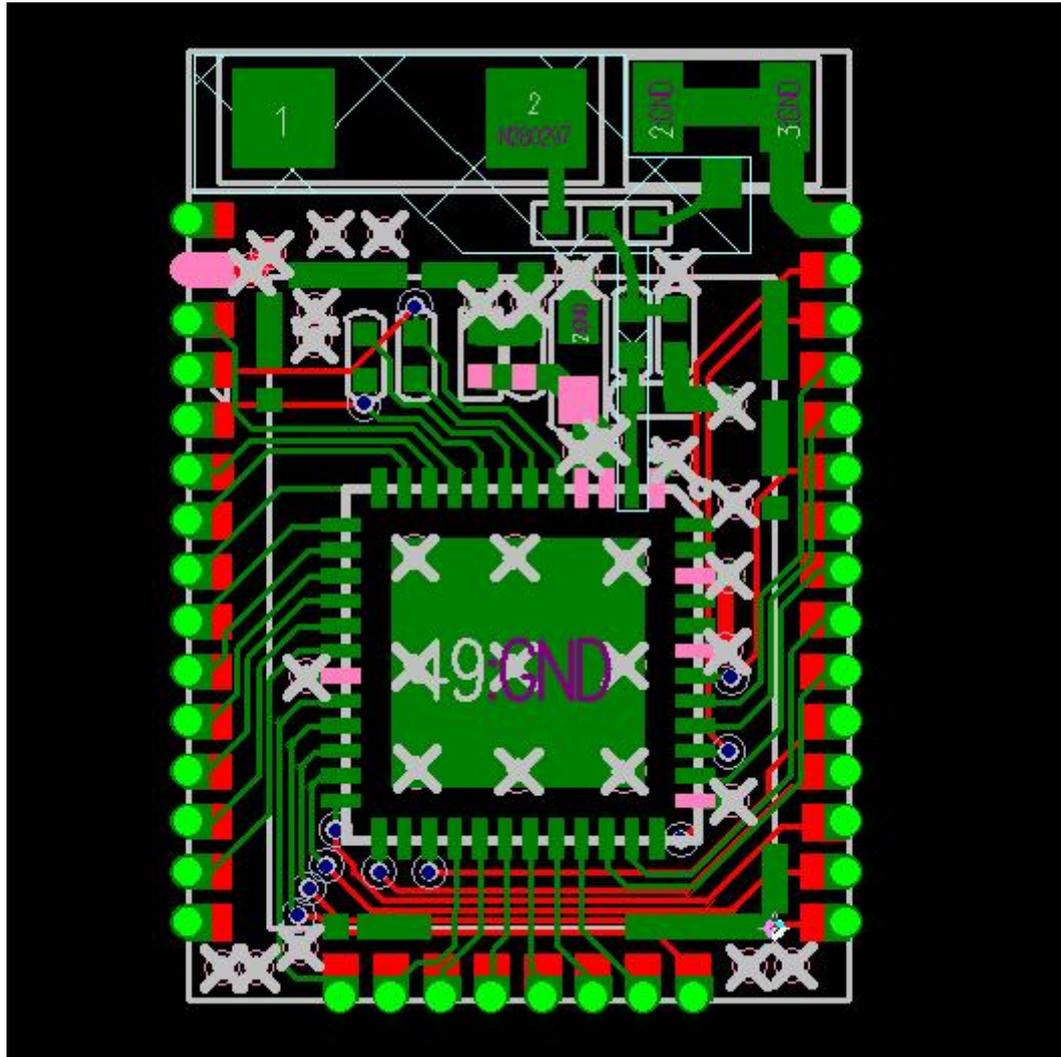
While the Module is used building in the end products, the enclosure material of the end products should be complied with corresponding fire rating class material.

**SAVE THESE INSTRUCTIONS**

FEMVA



Appendix D – PCB layout diagram



**Appendix E -Test Equipments**

NO.	The Name of Equipment	Model	S/N	Calibration Date	Due Date	Capability Range	Manufacturer
T-03-SF132	Electronic Load	3710A	A06BG04009	2018-10-15	2019-10-15	0-360V, 0-30A, 0-300W	Array Electronic
T-03-SF378	Temperature & Humidity Meter	T218A	M/A	2019-2-28	2020-2-28	0-50°C	Color card store
T-03-SF208	Data acquisition instrument	34970A	N/A	2018-4-12	2019-4-11	0-200°C	Agilent
T-03-SF210	Digital multimeter	17B	16284529	2018-4-12	2019-4-11	0-1000V AC/DC, 0-10A AC/DC, 0-40Mohm	Fluke
T-03-SF021	Push & Pull Tester	SN-500	2601050032	2018-4-12	2019-4-11	0-50kg	SUNDOO
T-03-SF183	Stopwatch	PC396	N/A	2018-4-12	2019-4-11	0-3600s/3.0s/d	TianFu
T-03-CH137	Electronic analytical balance	JM-B30002	273	2018-10-15	2019-10-15	N/A	N/A

\*\*\*END OF REPORT\*\*\*