

<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 .....	RDG191021006-SF
Compiled by (+ signature) .....	Engineer: Jane Tao
Approved by (+ signature) .....	Team Leader: Robin He
Date of issue .....	2019-10-24
Testing laboratory .....	Bay Area Compliance Laboratories Corp. (Dongguan)
Address .....	No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China
Testing location .....	See above
Applicant's name :	Shenzhen Sonoff Technologies Co.,Ltd.
Address.....	Room 1001, 10F, Building 8, Lianhua Industrial Park, Longyuan Road, Longhua District, Shenzhen, GD, China
Manufacturer's name.....	Shenzhen Sonoff Technologies Co.,Ltd.
Address.....	Room 1001, 10F, Building 8, Lianhua Industrial Park, Longyuan Road, Longhua District, Shenzhen, GD, China
Factory's name .....	N/A
Address.....	N/A
Standard .....	EN 62368-1:2014+A11:2017
Test sample(s) received .....	2019-10-21
Test in period.....	2019-10-21 to 2019-10-23
Procedure deviation .....	N/A
Non-standard test method .....	N/A

Type of test object ..... : USB Smart Adapter  
Trademark ..... : **SONOFF**  
Tested model ..... : Micro  
Manufacturer ..... : Shenzhen Sonoff Technologies Co.,Ltd.  
Rating..... : EUT input: 5V $\text{---}$   
USB output: 5V $\text{---}$  2.5A

Copy of marking plate:



The CE marking and WEEE symbol (if any) should be at least 5.0mm and 7.0mm respectively in height.

<b>Test item particulars.....:</b>	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection.....:	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input checked="" type="checkbox"/> External Circuit - not directly connected to the mains <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance.....:	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + ___%/- ___% <input checked="" type="checkbox"/> None
Supply Connection - Type .....	<input type="checkbox"/> pluggable equipment type A – <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B – <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: <u>not directly connected to the mains</u>
Considered current rating of protective device as part of building or equipment installation.....:	___A; Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility.....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-hel <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC) .....	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: <u>not directly connected to the mains</u>
Class of equipment.....:	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
Access location.....:	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD) .....	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maxium operating ambient.....:	40°C
IP protection class .....	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IPX7
Power Systems .....	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ___ V <sub>L-L</sub>
Altitude during operation (m) .....	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ___ m

Altitude of test laboratory (m) .....	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> _____ m
Mass of equipment (kg).....	<input checked="" type="checkbox"/> 0.017kg	
<b>Possible test case verdicts.....:</b>		
- test case does not apply to the test object.....:	N(N/A)	
- test object does meet the requirement.....:	P(ass)	
- test object does not meet the requirement.....:	F(ail)	
<b>General remarks:</b>		
”(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 <input type="checkbox"/> comma/ <input checked="" type="checkbox"/> point is used as the decimal separator.		

<b>Summary of testing:</b>
All tests were performed at the worst case and all test results complied with the standard on the cover page.
<b>General product information:</b>
1. The EUT is designed as information and communication technology equipment, for indoor use only.
2. The EUT is a USB Smart Adapter, supplied by 5Vdc from certificated USB ports. And the USB output load 5V $\pm$ 2.5A.

<b>ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:</b>	
<p>(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.)</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 <span style="float: right;">ES1</span></p>	
<b>Source of electrical energy</b>	<b>Corresponding classification (ES)</b>
All circuits	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): <span style="float: right;">PS2</span></p>	
<b>Source of power or PIS</b>	<b>Corresponding classification (PS)</b>
5Vdc input	PS3
USB output	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 <span style="float: right;">Glycol</span></p>	
<b>Source of hazardous substances</b>	<b>Corresponding chemical</b>
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<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 <span style="float: right;">MS2</span></p>	
<b>Source of kinetic/mechanical energy</b>	<b>Corresponding classification (MS)</b>
Sharp edges and corners do not cause pain or injury	MS1
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 <span style="float: right;">TS1</span></p>	
<b>Source of thermal energy</b>	<b>Corresponding classification (TS)</b>
Thermoplastic enclosure	TS1
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ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
<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 <span style="float: right;">RS1</span>	
Type of radiation	Corresponding classification (RS)
Indicator light	RS1
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ENERGY SOURCE DIAGRAM
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	Supplementary	Reinforced (Enclosure)
Ordinary	ES1: All circuits	--	--	--
--	--	--	--	--
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3: 5Vdc input	See clause 6.3	See clause 6.4	--
--	--	--	--	--
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
--	--	--	--	--
--	--	--	--	--
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced

				(Enclosure)
Ordinary	MS1: Equipment mass	--	--	--
Ordinary	MS1: Sharp edges and corners	--	--	--
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1	--	--	--
--	--	--	--	--
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: Indicator light	--	--	--
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Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault.				

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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 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	See below.	P
4.4.4.2	Steady force tests..... :	(See Annex T.5)	N
4.4.4.3	Drop tests..... :		N
4.4.4.4	Impact tests..... :	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests..... :		N
4.4.4.6	Glass Impact tests..... :		N
4.4.4.7	Thermoplastic material tests..... :	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard..... :		N
4.4.4.9	Accessibility and safeguard effectiveness	All safeguards remain effective.	P
4.5	Explosion		N
4.6	Fixing of conductors		N
4.6.1	Fix conductors not to defeat a safeguard		N
4.6.2	10 N force test applied to..... :		N
4.7	Equipment for direct insertion into mains socket - outlets		N
4.7.2	Mains plug part complies with the relevant standard..... :		N
4.7.3	Torque (Nm)..... :		N
4.8	Products containing coin/button cell batteries	No such components.	N
4.8.2	Instructional safeguard		N
4.8.3	Battery Compartment Construction		N
	Means to reduce the possibility of children removing the battery..... :		—
4.8.4	Battery Compartment Mechanical Tests..... :		N
4.8.5	Battery Accessibility		N



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Clause	Requirement + Test	Result - Remark	Verdict

4.9	Likelihood of fire or shock due to entry of conductive object..... :		N
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<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	Ringing signals .....		N
5.2.2.7	Audio signals .....		N
5.3	Protection against electrical energy sources	Only the ES1 exist for the EUT, no need any safeguard for ES1.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		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		N
5.4	Insulation materials and requirements		N
5.4.1.2	Properties of insulating material		N
5.4.1.3	Humidity conditioning .....		N
5.4.1.4	Maximum operating temperature for insulating materials .....		N
5.4.1.5	Pollution degree .....		—
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		N
5.4.1.7	Insulation in circuits generating starting pulses		N
5.4.1.8	Determination of working voltage		N
5.4.1.9	Insulating surfaces		N

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N
5.4.1.10.2	Vicat softening temperature .....		N
5.4.1.10.3	Ball pressure .....		N
5.4.2	Clearances		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.....		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		N
5.4.4.6	Thin sheet material		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		N
5.4.4.9	Solid insulation at frequencies >30 kHz .....		N
5.4.5	Antenna terminal insulation		N

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.5.1	General		N
5.4.5.2	Voltage surge test		N
	Insulation resistance (MΩ) .....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard .....		N
5.4.7	Tests for semiconductor components and for cemented joints		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 .....		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		N
5.5.2	Capacitors and RC units		N
5.5.2.1	General requirement		N

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :		N
5.5.3	Transformers		N
5.5.4	Optocouplers		N
5.5.5	Relays		N
5.5.6	Resistors		N
5.5.7	SPD's		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..... :		N
5.6	Protective conductor		N
5.6.2	Requirement for protective conductors		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		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		N
5.6.6.1	Requirements		N
5.6.6.2	Test Method Resistance (Ω) .....		N
5.6.7	Reliable earthing		N
5.7	Prospective touch voltage, touch current and protective conductor current		N
5.7.2	Measuring devices and networks		N
5.7.2.1	Measurement of touch current .....		N

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.2	Measurement of prospective touch voltage		N
5.7.3	Equipment set-up, supply connections and earth connections		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 .....		N
5.7.5	Protective conductor current		N
	Supply Voltage (V) .....		—
	Measured current (mA) .....		—
	Instructional Safeguard .....		N
5.7.6	Prospective touch voltage and touch current due to external circuits		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		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	PS3	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	N
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 6.2.3.2	P

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Clause	Requirement + Test	Result - Remark	Verdict
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, no temperature more than 300 °C	P
6.3.1 (b)	Combustible materials outside fire enclosure	No such material.	N
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N
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 .....		N
	Special conditions for temperature limited by fuse		N
6.4.4	Control of fire spread in PS1 circuits		N
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	Min V-1 PCB and Min.V-1plastic enclosure used.	P
6.4.7	Separation of combustible materials from a PIS		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	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	Min.V-1plastic enclosure used.	P
6.4.8.2.1	Requirements for a fire barrier		N
6.4.8.2.2	Requirements for a fire enclosure	Min.V-1plastic enclosure used.	P
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

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Clause	Requirement + Test	Result - Remark	Verdict
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.....	V-0 plastic enclosure used.	P
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	See below	N
	External port limited to PS2 or complies with Clause Q.1	USB output not complies with LPS or limited to PS2, so additional equipment shall complies clause 6.	N

<b>7</b>	<b>INJURY CAUSED BY HAZARDOUS SUBSTANCES</b>		N
7.2	Reduction of exposure to hazardous substances		N
7.3	Ozone exposure		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 .....		N

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
8.1	General	See below.	P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources		N
8.4	Safeguards against parts with sharp edges and corners	MS1: no sharp edges and corners.	P
8.4.1	Safeguards		N
8.5	Safeguards against moving parts		N



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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
	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		N
8.5.5.1	Energy Source Classification		N
8.5.5.2	High Pressure Lamp Explosion Test .....		N
8.6	Stability		P
8.6.1	Product classification	MS1, Mass<7kg, no stability requirements	P
	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		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		N
8.8.1	Classification		N
8.8.2	Applied Force .....		N



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Clause	Requirement + Test	Result - Remark	Verdict
8.9	Wheels or casters attachment requirements		N
8.9.1	Classification		N
8.9.2	Applied force .....		—
8.10	Carts, stands and similar carriers		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
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		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.....		N
	Button/Ball diameter (mm) .....		—
<b>9</b>	<b>THERMAL BURN INJURY</b>		P
9.2	Thermal energy source classifications	The EUT considered be as TS1, refer to the appended table 5.4.1.5, 6.3.2, 9.0, B.2.6, B.2.7 and B3, B4	P
9.3	Safeguard against thermal energy sources	TS1 no need to use any protection for the EUT.	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>		P
10.2	Radiation energy source classification	See below	P
10.2.1	General classification	RS1	P
10.3	Protection against laser radiation		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault .....		N
	Instructional safeguard .....		—
	Tool.....		—
10.4	Protection against visible, infrared, and UV radiation	Indicator light: RS1	P
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.....		—
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		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		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

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

<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 Test Item Particulars and appended test tables)	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		N
B.3.3	D.C. mains polarity test		N
B.3.4	Setting of voltage selector.....		N
B.3.5	Maximum load at output terminals .....	(See appended table B.3)	P
B.3.6	Reverse battery polarity		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	(See appended table B.3)	P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited .....	No such components	N
B.4.3	Motor tests		N
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature .....		N
B.4.4	Short circuit of functional insulation	See below.	P
B.4.4.1	Short circuit of clearances for functional insulation	The functional insulation was short-circuited. See appended table B.4	P
B.4.4.2	Short circuit of creepage distances for functional insulation	The functional insulation was short-circuited. See appended table B.4	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	See appended table B.4	P
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	See appended table B.4	P
B.4.6	Short circuit or disconnect of passive components	See appended table B.4	P
B.4.7	Continuous operation of components		N
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 .....		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

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio signal voltage (V) .....		—
	Rated load impedance ( $\Omega$ ) .....		—
E.2	Audio amplifier abnormal operating conditions		N
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
F.1	General requirements	See below.	P
	Instructions – Language .....	English	—
F.2	Letter symbols and graphical symbols	Complied	P
F.2.1	Letter symbols according to IEC 60027-1	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	Complied	P
F.3.2	Equipment identification markings	See below.	P
F.3.2.1	Manufacturer identification .....	See marking plate.	—
F.3.2.2	Model identification .....	See marking plate.	—
F.3.3	Equipment rating markings	See below.	P
F.3.3.1	Equipment with direct connection to mains		N
F.3.3.2	Equipment without direct connection to mains	Not directly connected to the mains	P
F.3.3.3	Nature of supply voltage .....	—	—
F.3.3.4	Rated voltage .....	5V	—
F.3.3.4	Rated frequency .....		—
F.3.3.6	Rated current or rated power .....		—
F.3.3.7	Equipment with multiple supply connections		N
F.3.4	Voltage setting device		N
F.3.5	Terminals and operating devices		N
F.3.5.1	Mains appliance outlet and socket-outlet markings .....		N
F.3.5.2	Switch position identification marking .....		N
F.3.5.3	Replacement fuse identification and rating markings .....		N
F.3.5.4	Replacement battery identification marking .....		N
F.3.5.5	Terminal marking location		N
F.3.6	Equipment markings related to equipment classification		N
F.3.6.1	Class I Equipment		N

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Clause	Requirement + Test	Result - Remark	Verdict
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 (IEC 60417-5172)		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		P
F.3.10	Test for permanence of markings		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		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		P
	i) Permanently connected equipment not provided with all-pole mains switch		N
	j) Replaceable components or modules providing safeguard function		N
F.5	Instructional safeguards	Considered	P
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	See user manual and label.	P
<b>G</b>	<b>COMPONENTS</b>		N
<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

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.1	General requirements		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		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		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		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		N
G.4.2	Mains connector configuration .....		N
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



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



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Clause	Requirement + Test	Result - Remark	Verdict
	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
G.7.6.2.1	Test with 8 mm strand		N
<b>G.8</b>	<b>Varistors</b>		N
G.8.1	General requirements		N
G.8.2	Safeguard against shock		N

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Clause	Requirement + Test	Result - Remark	Verdict
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).....		N
	Type test voltage Vini .....		—
	Routine test voltage, Vini,b .....		—
<b>G.13</b>	<b>Printed boards</b>		N
G.13.1	General requirements		N
G.13.2	Uncoated printed boards		N
G.13.3	Coated printed boards		N

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Clause	Requirement + Test	Result - Remark	Verdict
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 $U_c = t_o$ 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

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Clause	Requirement + Test	Result - Remark	Verdict
D2)	Capacitance .....		—
D3)	Resistance .....		—
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N
H.1	General		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

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Clause	Requirement + Test	Result - Remark	Verdict

<b>L</b>	<b>DISCONNECT DEVICES</b>		<b>N</b>
L.1	General requirements		N
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>		<b>N</b>
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



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Clause	Requirement + Test	Result - Remark	Verdict
	Drop		N
	Charge		N
	Discharge		N
M.4.4.4	Charge-discharge cycle test		N
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 Vz (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 .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		<b>N</b>
	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>		<b>N</b>
P.1	General requirements		N
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>N</b>
Q.1	Limited power sources		N
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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



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Clause	Requirement + Test	Result - Remark	Verdict
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
	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 .....		N
T.3	Steady force test, 30 N .....		N
T.4	Steady force test, 100 N .....		N
T.5	Steady force test, 250 N .....	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test .....		N
T.8	Stress relief test .....	(See appended table T.8)	P
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		N
U.2	Compliance and test method for non-intrinsically protected CRTs		N



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Clause	Requirement + Test	Result - Remark	Verdict
U.3	Protective Screen .....		N
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		N
V.1	Accessible parts of equipment		N
V.2	Accessible part criterion		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>	
Plastic enclosure	SABIC INNOVATIVE PLASTICS US L L C	940(f1)	V-0, 80°C Min. thickness: 1.5mm	UL 94 UL 746	UL E121562	
PCB	HUIZHOU LINGHANGDA TECHNOLOGY CO LTD	LH-1	V-0, 130°C	UL 796	UL E316475	
(Alt.)	Interchangeable	Interchangeable	V-1 or better, Min. 105°C	UL 796	UL	
Supplementary information:						

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N
(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	
		--	--	
		--	--	
		--	--	
		--	--	
		--	--	
		--	--	
		--	--	
		--	--	
		--	--	
4.8.4.4	TABLE: Drop test			—
Impact Area	Drop Distance	Drop No.	Observations	
--	--	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		<b>N</b>
-----------------	--	--	----------

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

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

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		<b>N</b>
-------	--	--	----------

Test position	Surface tested	Force (N)	Duration force applied (s)
--	--	--	--

5.2	Table: Classification of electrical energy sources		<b>P</b>
-----	--	--	----------

5.2.2.2 - Steady State Voltage and Current conditions

No.	Supply	Location	Test conditions	Parameters	ES Class

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Clause	Requirement + Test	Result - Remark	Verdict

	Voltage	(e.g. circuit designation)		U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	5Vdc	5Vdc input	Normal	5.0Vdc	--	--	ES1
			Abnormal	5.0Vdc	--	--	
			Single fault	--	--	--	
2	5Vdc	USB output	Normal	5.0Vdc	--	--	ES1
			Abnormal	5.0Vdc	--	--	
			Single fault –U3 pin1 to pin8 short circuit	5.0Vdc	--	--	

#### 5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
--	--	--	Normal	--	--	--
			Abnormal	--	--	
			Single fault – SC/OC	--	--	

#### 5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	l <sub>pk</sub> (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)	l <sub>pk</sub> (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions: Normal – Abnormal -

Supplementary information:

--

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Clause	Requirement + Test	Result - Remark	Verdict

<b>5.4.1.4, 6.3.2, 9.0, B.2.6</b>	<b>TABLE: Temperature measurements</b>					<b>P</b>		
	Supply voltage (V) .....	5Vdc		--		—		
	Ambient Tmin (°C) .....	22.9	Adjust to 40.0°C	--	--	—		
	Ambient Tmax (°C) .....	23.3		--		—		
	Tma (°C) .....	40.0		--		—		
Maximum measured temperature T of part/at:		T (°C)				Allowed T <sub>max</sub> (°C)		
Ambient		23.2	40.0	--	--	--		
PCB near U2		47.4	64.2	--	--	105		
PCB near U3		48.6	65.4	--	--	105		
PCB near J1		49.1	65.9	--	--	105		
PCB near J2		50.9	67.7	--	--	105		
Internal surface of plastic		43.6	60.4	--	--	80		
Supplementary information:								
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:								

<b>5.4.1.4, 6.3.2, 9.0, B.2.6</b>	<b>TABLE: Temperature measurements</b>					<b>P</b>		
	Supply voltage (V) .....	5Vdc		--		—		
	Ambient Tmin (°C) .....	22.9	Adjust to 25.0°C	--	--	—		
	Ambient Tmax (°C) .....	23.3		--		—		
	Tma (°C) .....	--		--		—		
Maximum measured temperature T of part/at:		T (°C)				Allowed T <sub>max</sub> (°C)		
Ambient		23.2	25.0	--	--	--		
Plastic enclosure		39.9	41.7	--	--	77		
Supplementary information:								
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

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Clause	Requirement + Test			Result - Remark			Verdict
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary information:							

5.4.1.8	Table: working voltage measurement				N
Location	RMS voltage (V)	Peak voltage (V)	Comments		
--	--	--	--		
--	--	--	--		
supplementary information:					

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N
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
Allowed impression diameter (mm) .....	≤ 2 mm			—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	
Supplementary information:				

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

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Clause	Requirement + Test	Result - Remark	Verdict

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

<b>5.4.2.3</b>	<b>TABLE: Minimum Clearances distances using required withstand voltage</b>			<b>N</b>
	<b>Overvoltage Category (OV):</b>			I
	<b>Pollution Degree:</b>			
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>			<b>N</b>
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
Supplementary information:				

<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:				
--		--	--	--
Reinforced:				
--		--	--	--



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Clause	Requirement + Test	Result - Remark	Verdict

<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
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:

- 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

<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, 5.7.4</b>	<b>TABLE: Earthed accessible conductive part</b>		<b>N</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		--

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Clause	Requirement + Test	Result - Remark	Verdict

		4	--
		5	--
		6	--

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.

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 <sup>*</sup> )	PS Classification
A	USB output (Normal condition)	Power (W) :	--	--	Consider as PS3
		V <sub>A</sub> (V) :	--	--	
		I <sub>A</sub> (A) :	--	--	
B	USB output (U3 pin1 to pin8 short circuit)	Power (W) :	--	--	Consider as PS3
		V <sub>A</sub> (V) :	--	--	
		I <sub>A</sub> (A) :	--	--	
C	5Vdc input	Power (W) :	--	--	Consider as PS3
		V <sub>A</sub> (V) :	--	--	
		I <sub>A</sub> (A) :	--	--	

Supplementary Information:

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

2. 5Vdc input not has been classified, consider as PS3. USB output (Normal condition) and USB output(U3 pin1 to pin8 short circuit) power both equal to 5Vdc input, So USB output consider as PS3.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			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
--	--	--	--	--
--	--	--	--	--

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<sub>p</sub>) and normal operating condition rms current (I<sub>rms</sub>) is greater than 15.

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Clause	Requirement + Test	Result - Remark	Verdict

<b>6.2.3.2</b>	<b>Table: Determination of Potential Ignition Sources (Resistive PIS)</b>				<b>P</b>
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
--	--	--	--	--	--
	--	--	--	--	--

Supplementary Information: 5Vdc input consider as PS3, has resistive PIS.

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

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

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

<b>8.5.5</b>	<b>TABLE: High Pressure Lamp</b>				<b>N</b>
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>						<b>P</b>
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5Vdc	2.579	--	--	--	--	--	Max. normal operating condition. USB output load 2.5A .
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

--

B.3 & B.4		TABLE: Abnormal operating and fault condition tests						P
Ambient temperature (°C) :							28.6	—
Power source for EUT: Manufacturer, model/type, output rating :							See page 2.	—
Component No.	Abnormal Condition	Supply voltage (V)	Test time (ms)	Fuse No.	Fuse current (A)	T-couple	Temp. (°C)	Observation
USB output(J2)	Short circuit	5.0Vdc	1hrs	--	--	--	--	The USB output shutdown. After test 1hrs, the Max. steady temperature : PCB near U3:36.2°C PCB near J1:34.3°C Plastic enclosure:30.8°C Ambient: 23.4°C After test, no hazards.
D3 of PCB	Short circuit	5.0Vdc	30mins	--	--	--	--	Unit shut down immediately, no molten metal dropped, no fire occurred, no hazard.
U3 pin1-8 of PCB	Short circuit	5.0Vdc	30mins	--	--	--	--	Unit working normally, no hazards.
U1 pin 2-3 of PCB	Short circuit	5.0Vdc	30mins	--	--	--	--	Unit shut down immediately, no molten metal dropped, no fire occurred, no hazard.
C5 of PCB	Short circuit	5.0Vdc	30mins	--	--	--	--	Unit shut down immediately, no molten metal dropped, no fire occurred, no hazard.
R3 of PCB	Short circuit	5.0Vdc	30mins	--	--	--	--	Unit working normally, no hazards.
R7 of PCB	Short circuit	5.0Vdc	30mins	--	--	--	--	Unit working normally, no hazards.

Note: USB output equal to 5.0Vdc input, so don't need overload test.

**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.

- 1) SC: Short-circuited; OC: Open-circuited; OL: Overloaded; BL: Blocked.
- 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.

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Clause	Requirement + Test	Result - Remark	Verdict

<b>Annex M</b>	<b>TABLE: Batteries</b>								<b>N</b>
The tests of Annex M are applicable only when appropriate battery data is not available									No
Is it possible to install the battery in a reverse polarity position?									No
Conditions	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. Current (A)	Manuf. Specs. (A)	Meas. Current (A)	Manuf. Specs. (A)	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
Supplementary information:									

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

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<b>Annex Q.1</b>	<b>TABLE: Circuits intended for interconnection with building wiring (LPS)</b>				<b>N</b>	
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
--	Normal condition	--	--	8	--	100
	Fault condition	--	--	8	--	100
Supplementary information:						

<b>T.2, T.3, T.4, T.5</b>	<b>TABLE: Steady force test</b>				<b>P</b>
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
External enclosure (side)	Plastic	1.5mm Min.	250	5s	Safeguards remained effective
External enclosure (rear)	Plastic	1.5mm Min.	250	5s	Safeguards remained effective
External enclosure (top)	Plastic	1.5mm Min.	250	5s	Safeguards remained effective
Supplementary information:					

<b>T.6, T.9</b>	<b>TABLE: Impact tests</b>				<b>P</b>
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Top side of enclosure	Plastic	1.5mm Min.	1300	Safeguards remained effective	
Vertical side of enclosure	Plastic	1.5mm Min.	1300	Safeguards remained effective	
Supplementary information:					

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



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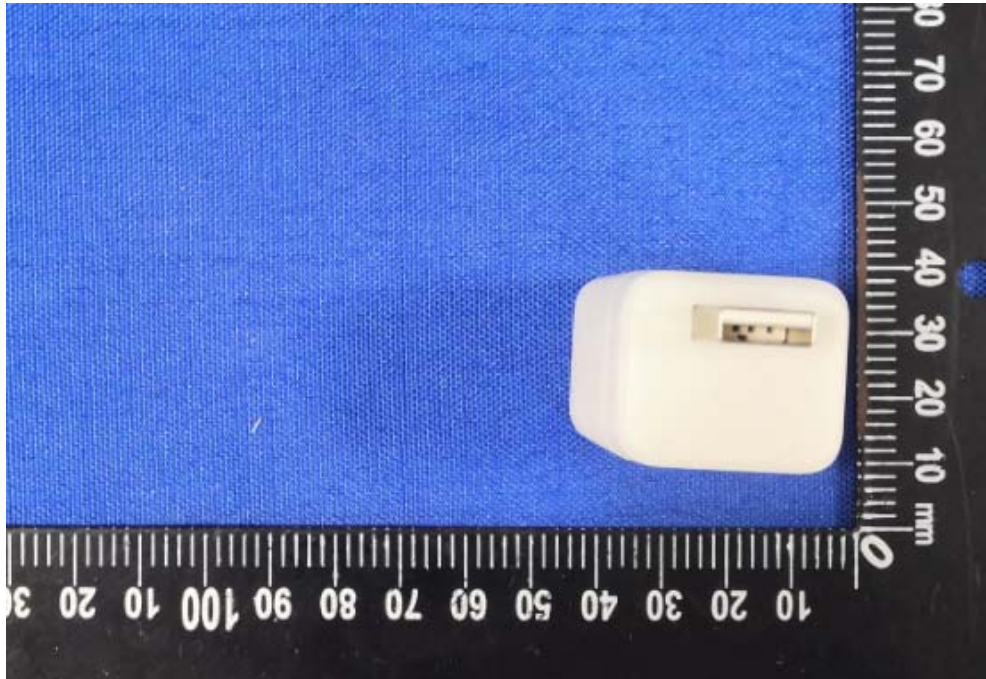
Supplementary information:

<b>T.8</b>	<b>TABLE: Stress relief test</b>					<b>P</b>
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Plastic enclosure	Plastic	1.5mm Min.	70.4	7hrs	No risk of shrinkage or distortion on material	
Supplementary information:						

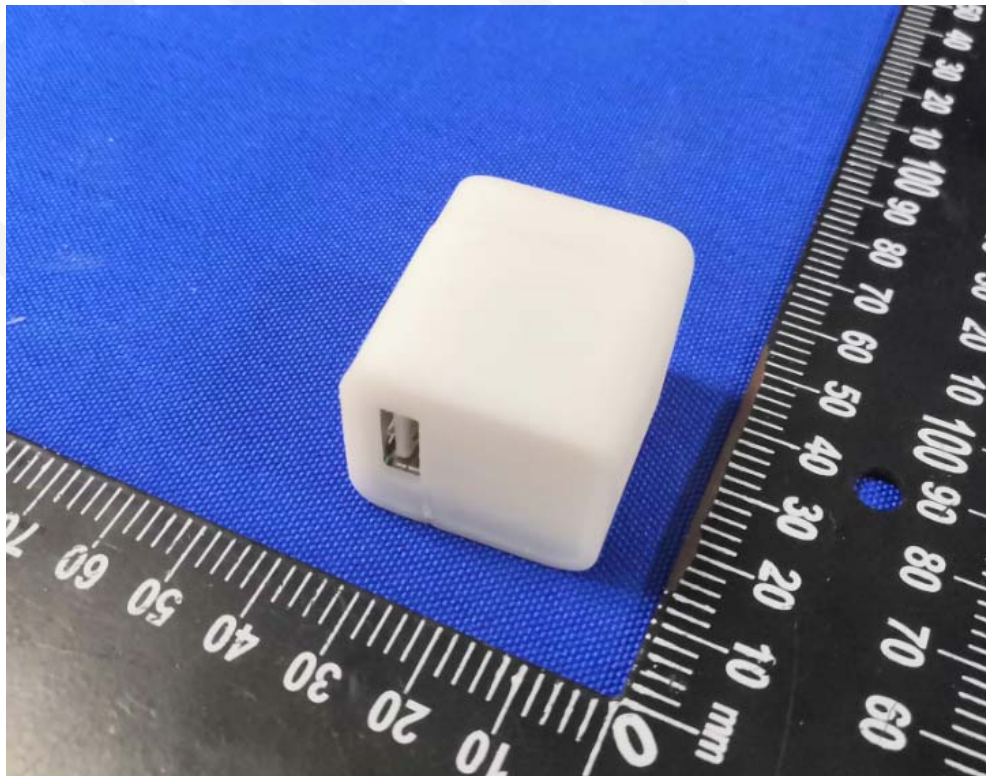


**Appendix A - EUT PHOTOS**

**EUT-Top view**

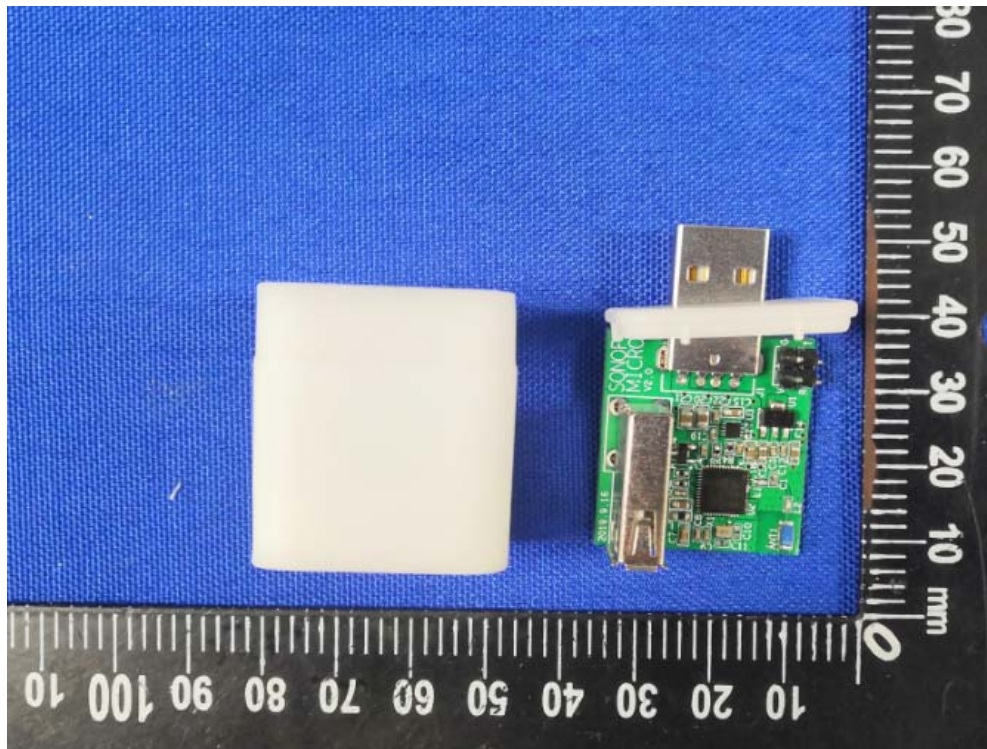


**EUT-Side view**

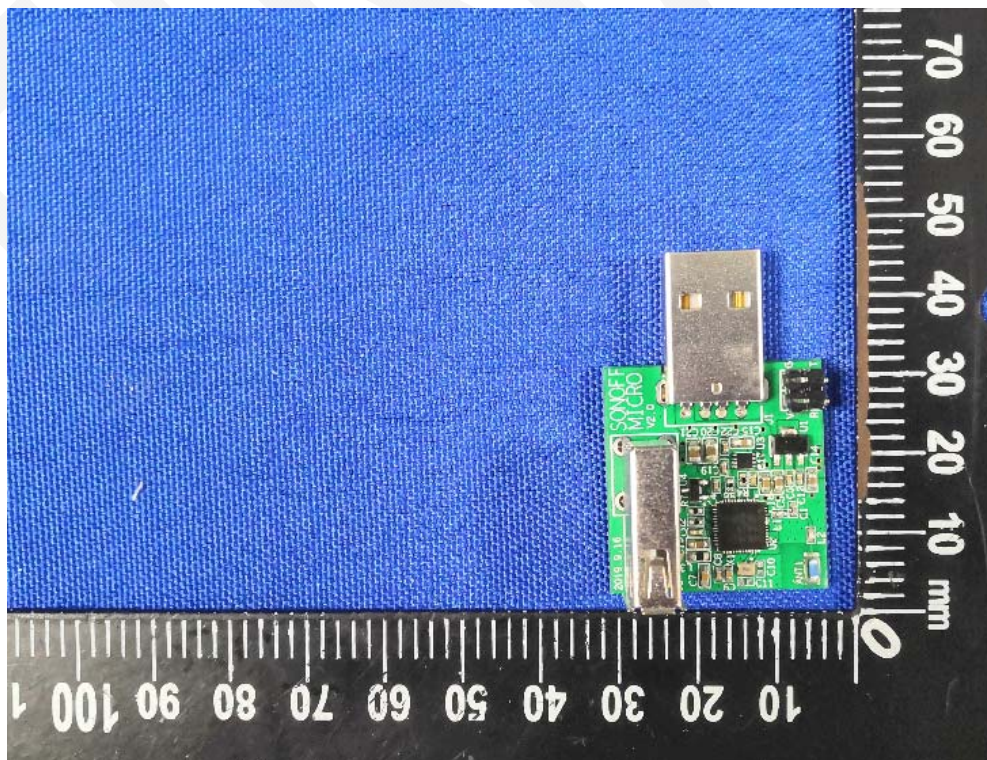




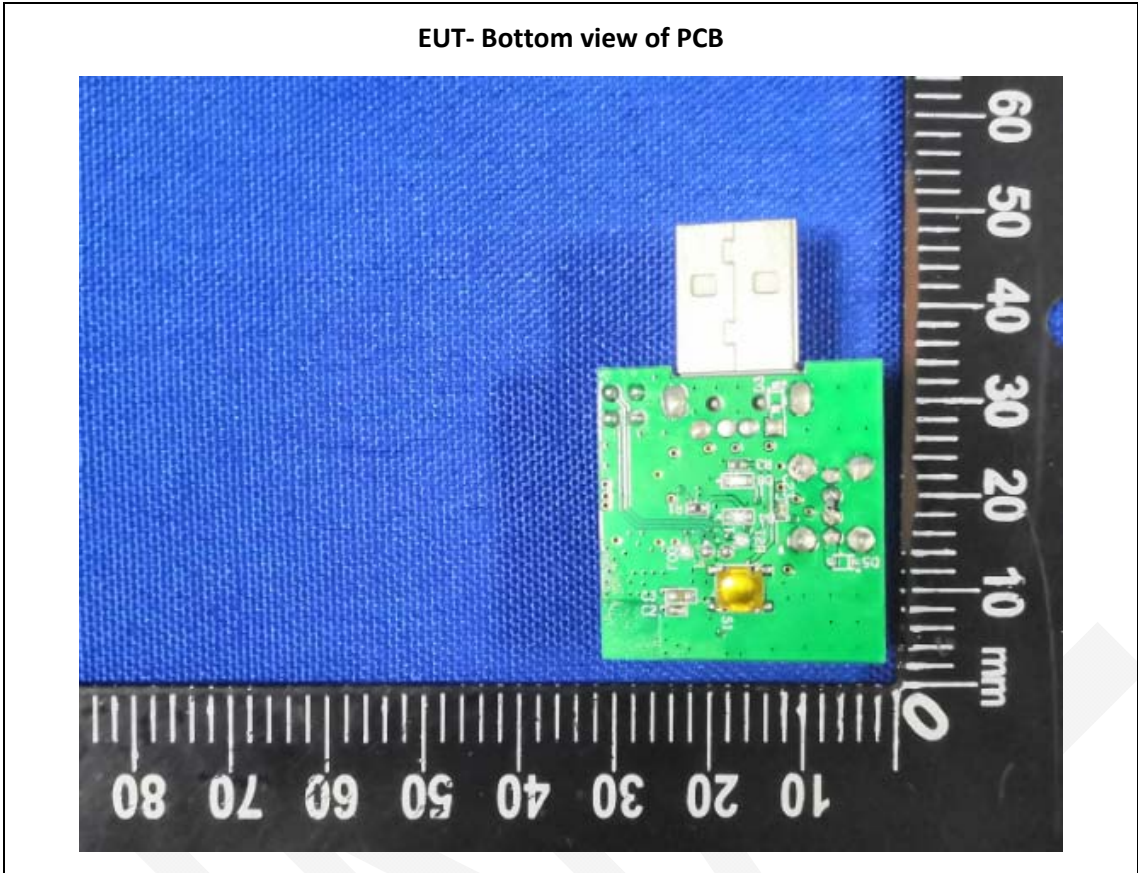
EUT-Uncover view



EUT- Top view of PCB



EUT- Bottom view of PCB



**Directions**

1. The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
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**\*\*\*End of Report\*\*\***