



TEST REPORT

Reference No. : WTF21D09097221Y
Applicant : Mid Ocean Brands B.V.
Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer : 116266
Address : --
Product : Wireless speaker limestone
Model(s) : MO9916
Total pages : 58 pages and 4 pages of photo.
Standards : EN 62368-1:2014+A11:2017
Audio/video, information and communication technology equipment-
Part 1: Safety requirements
Date of Receipt sample : 2021-09-18
Date of Test : 2021-09-18 to 2021-09-27
Date of Issue : 2021-11-29
Test Result : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Testing Group Co., Ltd.

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City,
Guangdong, China
Tel: +86-769-2267 6998
Fax: +86-769-2267 6828

Compiled by:

Lucas Cao / Project Engineer

Approved by:

Sam Qi / Designated Reviewer



Test item description : Wireless speaker limestone

Trademark : **MOB**

Model and/or type reference : MO9916

Rating(s) : Input: 5Vd.c.(Supplied by micro USB port)
Internal lithium-ion Battery: 3.7Vdc

Remark:

Whether parts of tests for the product have been subcontracted to other labs:

Yes No

If Yes, list the related test items and lab information:

Test items: --

Lab information: --

Summary of testing:

Tests performed (name of test and test clause):

- EN 62368-1:2014+A11:2017

The submitted samples were found to comply with the requirements of above specification.

Testing location:

No. 77, Houjie Section, Guantai Road,
Houjie Town, Dongguan City, Guangdong, China

Summary of compliance with National Differences:

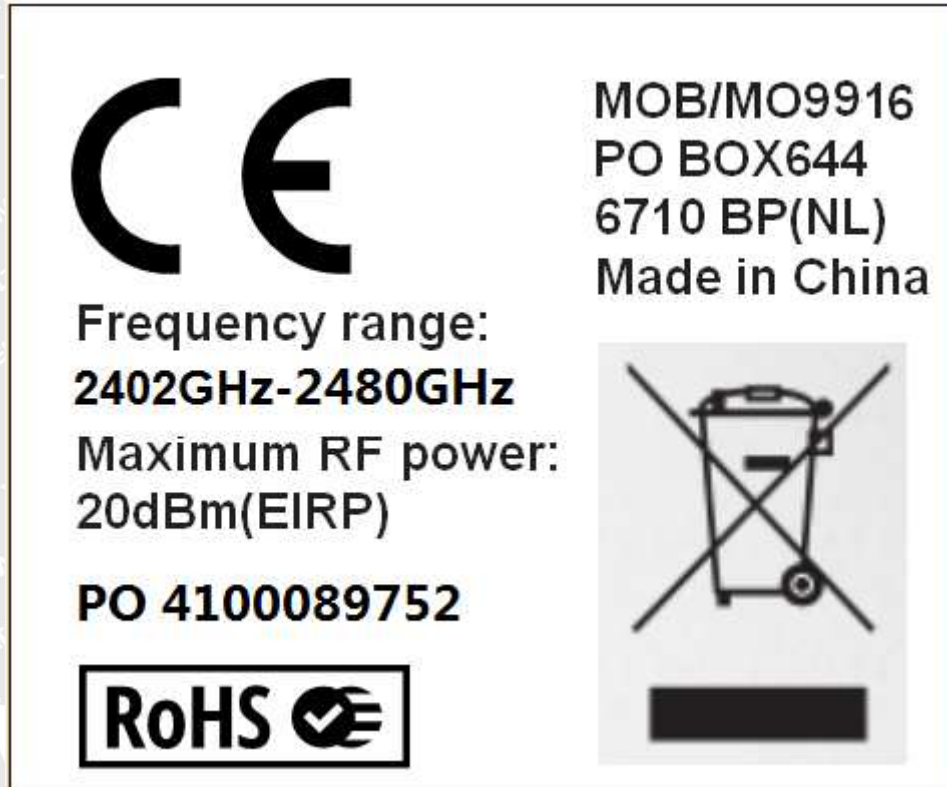
List of countries addressed: National Differences and Group Differences for CENELEC countries were checked.

The report fulfils the requirement of EN 62368-1:2014+A11:2017

WALTEK

**Copy of marking plate:**

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

**Remark:**

1. The above markings are the minimum requirements required by the safety standard. For the final production, the additional markings which donot give rise to misunderstanding may be added.
2. The CE marking and WEEE symbol should be at least 5.0mm and 7.0mm respectively in height.
3. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.



TEST ITEM PARTICULARS:	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input 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 Mains connected - <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"/> +6%/ -10% <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: not Mains connected
Considered current rating of protective device as part of building or equipment installation	\leq A; Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <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: not Mains connected
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Class II with functional earthing <input type="checkbox"/> Not classified
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 maximum operating ambient:	25°C
IP protection class	<input type="checkbox"/> IPX0 <input checked="" type="checkbox"/> IP20
Power Systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT – V _{L-L} <input checked="" type="checkbox"/> not Mains connected
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> 5000 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"/> 0.28kg



POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
TESTING:	
Date of receipt of test item	2021-09-18
Date (s) of performance of tests	2021-09-18 to 2021-09-27
GENERAL REMARKS:	
<p>”(see Enclosure #)” refers to additional information appended to the report. “(see appended table)” refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
GENERAL PRODUCT INFORMATION:	
Product Description	
<ol style="list-style-type: none"> 1. The EUT covered by this report is a Wireless speaker limestone used as audio apparatus. It is supplied by external power supply or by internal lithium ion battery, indoor use only. 2. The manufacturer specified maximum ambient temperature is 25°C. The specified altitude is up to and including 2000 m above sea level. 3. The EUT including below parts: - The user manual specified the relevant information for installation instruction. 	
Model Differences	
N/A	
Additional application considerations – (Considerations used to test a component or sub-assembly)	
N/A	



ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input, ES1	
Source of electrical energy	Corresponding classification (ES)
Input micro USB connector +5 V dc	ES1
All internal circuit	ES1
Battery circuit	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
Source of power or PIS	Corresponding classification (PS)
All internal circuit	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled componentGlycol	
Source of hazardous substances	Corresponding chemical
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unitMS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Edges and corners of enclosure	MS1
Mass of the unit	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
Source of thermal energy	Corresponding classification (TS)
All accessible parts	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
Type of radiation	Corresponding classification (RS)
LED indicating	RS1



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	ES1: All internal circuit	N/A	N/A	N/A
Ordinary person	ES1: Lithium battery output	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure and PCB	PS1	N/A	N/A	N/A
Battery	PS1	N/A	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS1: Edges and corners	N/A	N/A	N/A
Ordinary person	MS1: Mass of the unit	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS1)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	TS1: All accessible parts	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	RS1: LED indicating	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions..... :	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests..... :	(See Annex T.2 T.5)	P
4.4.4.3	Drop tests..... :	(See Annex T.7)	P
4.4.4.4	Impact tests..... :		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests..... :		N/A
4.4.4.6	Glass Impact tests..... :		N/A
4.4.4.7	Thermoplastic material tests..... :	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard..... :		N/A
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion	No explosion	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to..... :		N/A
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard..... :		N/A
4.7.3	Torque (Nm)..... :		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery..... :		—
4.8.4	Battery Compartment Mechanical Tests..... :		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	No likelihood of conductive object entry into enclosure.	P

5	ELECTRICALLY-CAUSED INJURY		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		N/A
5.2.2.3	Capacitance limits	No electrical energy source is a capacitor	N/A
5.2.2.4	Single pulse limits.....:	No single pulse introduced	N/A
5.2.2.5	Limits for repetitive pulses.....:	No repetitive pulses introduced	N/A
5.2.2.6	Ringling signals	No ringling signal generated	N/A
5.2.2.7	Audio signals	No audio signal	P
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	All internal circuit was ES1	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	All internal circuit was ES1	P
5.3.2.2	Contact requirements	All internal circuit was ES1	N/A
	a) Test with test probe from Annex V		N/A
	b) Electric strength test potential (V).....:		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	No insulation as a safeguard.	N/A
5.4.1.3	Humidity conditioning		N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.1.4)	P
5.4.1.5	Pollution degree.....:		—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage		N/A
	a) a.c. mains transient voltage.....		—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement...		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....		N/A
5.4.3	Creepage distances		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 KHz		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ)		—



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



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



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.7.4	Earthed conductive accessible parts.....:		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....:		—
	Measured current (mA)		—
	Instructional Safeguard		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA)		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS1	P
6.2.2.1	General		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	(See appended table 6.2.2)	P
6.2.2.5	PS2		N/A
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources		N/A
6.2.3.1	Arcing PIS		N/A
6.2.3.2	Resistive PIS		N/A
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
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		P



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards :	(See appended tables 4.1.2 and Annex G)	N/A
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General..... :		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions	No fire barrier used.	N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) :	No openings	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) :	No openings	N/A
	Flammability tests for the bottom of a fire enclosure :		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) :		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating..... :		N/A
6.5	Internal and external wiring		P
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm ²) :		



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
6.5.3	Requirements for interconnection to building wiring	(See Annex Q.)	N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure	No ozone production within the equipment.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries	Rechargeable Li-ion battery used	P

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See the following details.	P
8.2	Mechanical energy source classifications	1) Sharp edges and corners, classified as MS1. 2) Equipment mass: 0.18kg classified as MS1.	P
8.3	Safeguards against mechanical energy sources	See below.	P
8.4	Safeguards against parts with sharp edges and corners	Accessible edges and corners of the equipment are rounded and are classified as MS1.	P
8.4.1	Safeguards	See above.	P
8.5	Safeguards against moving parts	No moving parts.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks.....		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)..... :		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability	Classification MS1 according to table 35, line 5 and no stability requirements.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt..... :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)..... :		N/A
	Position of feet or movable parts :		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) :		N/A
8.7.2	Direction and applied force :		N/A
8.8	Handles strength	No handles used.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force :		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force..... :		—
8.10.4	Cart, stand or carrier impact test		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—
8.10.6	Thermoplastic temperature stability (°C)		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....		N/A
	Button/Ball diameter (mm)		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	No part considered to be accessible other than enclosure. The equipment evaluated by temperature test (see table 5.4.1.4).	P
9.3	Safeguard against thermal energy sources	Temperature of enclosure classed as TS1.	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.4.2	Instructional safeguard	Instructional safeguard is not required.	N/A

10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification		P
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault		N/A
	Instructional safeguard		—
	Tool		—
10.4	Protection against visible, infrared, and UV radiation		P
10.4.1	General	LED indication light: Classed as RS1 (Exempt Group)	P



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.4.1.a)	RS3 for Ordinary and instructed persons.....:		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1.....:	The LED only used for indicating which considered as low power & inherently exempt group according to IEC 62471.	P
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....:		P
10.4.2	Instructional safeguard.....:		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards		N/A
	Instructional safeguard for skilled person		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation.....:		—
	Abnormal and single-fault condition.....:		N/A
	Maximum radiation (pA/kg)		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)		N/A
	Output voltage, unweighted r.m.s.....		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2		—
	Means to actively inform user of increase sound pressure		—
	Equipment safeguard prevent ordinary person to RS2.....		—
10.6.5	Requirements for listening devices		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	(headphones, earphones, etc.)		
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements..... :	(See summary of testing & appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	(See appended table B.2.5)	P
B.2.3	Supply voltage and tolerances	Rated input 5Vd.c.	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :		P
B.3.2	Covering of ventilation openings	No ventilation openings	N/A
B.3.3	D.C. mains polarity test	The EUT is not connected to a D.C. mains	N/A
B.3.4	Setting of voltage selector	No such selector	N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	(See appended table B.3)	P
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	NTC used on battery protective board. The test is carried out for three times, no failure. See appended table B.4 for details	P
B.4.3	Motor tests	No motors used.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	(See appended table B.4)	P



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4 for faults on electronic components)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	No exceed the relevant energy class. No hazard involved.	P
B.4.9	Battery charging under single fault conditions ... :	See annex M	P
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	No UV generated from the equipment.	N/A
C.1.2	Requirements	See above.	N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		P
E.1	Audio amplifier normal operating conditions	1/8 of max. non-clipped output power	P
	Audio signal voltage (V)	0.9 Vrms	—
	Rated load impedance (Ω)	Min. 4Ω	—
E.2	Audio amplifier abnormal operating conditions	100% of max. non-clipped output power	P



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	On the external enclosure	P
F.3.2	Equipment identification markings	See copy of marking plate.	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 copy of marking plate.	P
F.3.3.1	Equipment with direct connection to mains	Supplying by 5Vd.c.	N/A
F.3.3.2	Equipment without direct connection to mains	See above.	P
F.3.3.3	Nature of supply voltage	See copy of marking plate.	—
F.3.3.4	Rated voltage	See copy of marking plate.	—
F.3.3.4	Rated frequency	DC supply	—
F.3.3.6	Rated current or rated power	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection provided.	N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking		N/A
F.3.5.3	Replacement fuse identification and rating markings		N/A
F.3.5.4	Replacement battery identification marking	No such battery	N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification	Class III equipment	N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	Only IP20 equipment for whole equipment	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec, with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		P
	b) Instructions given for installation or initial use		N/A
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch	Not such equipment	N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements	No switch used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	No relay used	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	No such component	N/A
G.3.1.a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No such component	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors	No such component	N/A
G.3.4	Overcurrent protection devices	No such component	N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided	No such component	N/A
G.3.5.2	Single faults conditions.....:		N/A
G.4	Connectors		N/A
G.4.1	Spacings	No such component	N/A
G.4.2	Mains connector configuration	No such connector	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No such connector	N/A
G.5	Wound Components		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.5.1	Wire insulation in wound components.....	No such component	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C).....		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	No such component	N/A
	Position.....		—
	Method of protection		—
G.5.3.2	Insulation		
	Protection from displacement of windings		—
G.5.3.3	Overload test		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No such component	N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V).....		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General	Only ES1 existed	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....:		N/A
G.8.3.3	Temporary overvoltage.....:		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....:		N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		P
G.13.1	General requirements	Only need to comply with functional insulation, see only B.4.4.	P



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction).....:		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No telephone ringing signal generated within the equipment.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A).....		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements	Rechargeable Li-ion battery used	P
M.2	Safety of batteries and their cells		P
M.2.1	Requirements	Approved battery pack used	P
M.2.2	Compliance and test method (identify method) .. :		P
M.3	Protection circuits		P
M.3.1	Requirements		P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery	(See appended table Annex M)	P
	- Unintentional charging of a non-rechargeable battery	No such battery used	N/A
	- Reverse charging of a rechargeable battery	Built-in battery used, reverse charging is prevented	N/A
	- Excessive discharging rate for any battery	(see appended table Annex M)	P
M.3.3	Compliance	No chemical leakage, no spillage of liquid, no explosion of the battery, no emission of flame or expulsion of molten metal	P
M.4	Additional safeguards for equipment containing secondary lithium battery		P
M.4.1	General		P
M.4.2	Charging safeguards		P
M.4.2.1	Charging operating limits		P
M.4.2.2a)	Charging voltage, current and temperature	(See appended table Annex M.4)	—
M.4.2.2 b)	Single faults in charging circuitry	(See appended table Annex M.4)	—



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
M.4.3	Fire Enclosure		P
M.4.4	Endurance of equipment containing a secondary lithium battery		P
M.4.4.2	Preparation		P
M.4.4.3	Drop and charge/discharge function tests		P
	Drop	After test, the voltage difference less than 5% in the 24H	P
	Charge	Charging normally	P
	Discharge	Discharging normally	P
M.4.4.4	Charge-discharge cycle test		P
M.4.4.5	Result of charge-discharge cycle test		P
M.5	Risk of burn due to short circuit during carrying		P
M.5.1	Requirement	No bare conductive terminal used	P
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current	The battery complied with IEC/EN 62133-2 which considered the internal fault tests. No such explosion or fire likely to result from short circuits.	P
M.6.1	Short circuits		P
M.6.1.1	General requirements		P
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries	No such battery used	N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m^3/s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance d (mm)		—



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		P
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used	Pollution degree considered	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See below	P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm)	No opening.	—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metalized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C).....		—
	Ta (°C).....		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A
		
	:		



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



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (test condition), (°C).....		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test.....		P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m).....		—
T.10	Glass fragmentation test.....		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen :		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A

WALTEK



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

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)	
Differences according to.....	EN 62368-1:2014+A11:2017
Attachment Form No.....	EU_GD_IEC62368_1D_II
Attachment Originator.....	Nemko AS
Master Attachment.....	Date 2021-02-04
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	CENELEC COMMON MODIFICATIONS (EN)																																					
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	--																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P																																				
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list: <table border="1" data-bbox="379 1160 1342 1608"> <tbody> <tr> <td>0.2.1</td> <td>Note</td> <td>1</td> <td>Note 3</td> <td>4.1.15</td> <td>Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </tbody> </table>	0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																	
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c																																	
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note																																	
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3																																	
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4																																	
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																	
	For special national conditions, see Annex ZB.	P																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.	P																																				



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.Z1	<p>Add the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	Not directly connected to the mains	N/A
5.4.2.3.2.4	<p>Add the following to the end of this subclause: The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	No external circuits.	N/A
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39: For additional requirements, see 10.5.1.</p>	No laser radiation used	N/A
10.5.1	<p>Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i></p> <p><i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i></p> <p><i>For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.6.1	Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.	No such X-radiation generated from the equipment.	N/A
10.Z1	Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566	Added. Should be evaluated during national approval	N/A
G.7.1	Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.	Not directly connected to the mains	N/A
Bibliography	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:	Not directly connected to the mains	N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In Finland: "Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		N/A
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high touch current.	N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; 	No such external circuits.	N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	Norway After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.	No such resistors.	N/A
5.6.1	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Added.	N/A
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A , the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug .	Added.	N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm ² to 1,5 mm ² in cross-sectional area.	Added.	N/A
5.7.5	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.1	Norway and Sweden To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country	Not directly connected to the mains	N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkøpelt utstyr – og er tilkøpelt et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”</p>		
5.7.6.2	<p>Denmark To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5mA</p>	See for 5.7.5 above.	N/A
B.3.1 and B.4	<p>Ireland and United Kingdom The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>	Not direct plug-in equipment	N/A
G.4.2	<p>Denmark To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets</p>	Not directly connected to the mains	N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	Not direct plug-in equipment	N/A
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	Not directly connected to the mains	N/A
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N/A
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added:</p>	Not directly connected to	N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	A power supply cord with a conductor of 1,25 mm ² is allowed for equipment which is rated over 10 A and up to and including 13 A.	the mains	
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		
10.5.2	<p>Germany</p> <p>The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de</p>	No CRT within the equipment.	N/A

WALTEK



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

ATTACHMENT TO TEST REPORT IEC 62368-1 DENMARK NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to:	DS/EN 62368-1:2014
Attachment Form No.:	DK_ND_IEC62368_1D
Attachment Originator:	UL (Demko)
Master Attachment:	2021-02-04
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	National Differences		
4.1.15	To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.”	Not directly connected to the mains	N/A
5.2.2.2	After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	No high touch current.	N/A
5.6.1	Add to the end of the subclause: Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Added.	N/A
5.7.5	To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.2	To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA.	See for 5.7.5 above.	N/A



IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.4.2	<p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a Justification: Heavy Current Regulations, Section 6c</p>	Not directly connected to the mains	N/A



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

ATTACHMENT TO TEST REPORT
IEC 62368-1
ITALY NATIONAL DIFFERENCES
 (Audio/video, information and communication technology equipment – Part 1: Safety requirements)

Differences according to: CEI EN 62368-1:2016

Attachment Form No.: IT_ND_IEC62368_1D

Attachment Originator: IMQ S.p.A.

Master Attachment: Date 2021-02-04

Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.

	National Differences		
F.1	<p>Italy</p> <p>The following requirements shall be fulfilled:</p> <ul style="list-style-type: none"> • The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). <p>Note: <i>EN 60555-2 has since been replaced by IEC 60107-1:1997.</i></p> <ul style="list-style-type: none"> • TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. • Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. • The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: <i>Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M.</i> • The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for Teletext pT for retrofitable teletext <p><i>Justification:</i> Ministerial Decree of 26 March 1992: National rules for television receivers trade.</p> <p><i>NOTE: Ministerial decree above contains additional, but not safety relevant requirements</i></p>	Not such equipment	N/A



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

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Enclosure	CHI MEI CORPORATION	PA-765B+	Min. HB	UL 94	UL E56070	
PCB	SHENZHEN UNIWELL CIRCUITS CO LTD	UW01	V-0, 130 °C	UL94, UL796	UL E314500	
Battery	Dongguan Vanderwaalsforces li-ion battery Technology Co., Ltd	503035	3.7V, 500mAh, 1.85Wh	IEC 62133-2	Reference report No.SA19082 21L 02001	
Speaker	Shenzhen Yuna Sound Technology Co., Ltd	4020	4Ω/3W	IEC/EN 62368-1	Test with appliance	

Supplementary information:

¹⁾ License available upon request. Provided evidence ensures the agreed level of compliance. See OD-CB2039.

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

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

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

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

4.8.4.4	TABLE: Drop test			—
Impact Area	Drop Distance	Drop No.	Observations	
—	—	1	No damaged	
—	—	2	No damaged	
—	—	3	No damaged	



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

4.8.4.5	TABLE: Impact			—
Impacts per surface	Surface tested	Impact energy (J)	Comments	
—	—	—	No damaged	
4.8.4.6	TABLE: Crush test			—
Test position	Surface tested	Crushing Force (N)	Duration force applied (s)	
—	—	—	—	
Supplementary information:				

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

5.2	Table: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions ¹⁾	Parameters			ES Class
				U (Vrms or Vpk)	I (A _{pk} or Arms)	Hz	
1	5.0Vdc	The EUT is designed to be supplied by micro USB port	Normal	<60Vdc	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
2	4.2Vdc	The EUT is designed to be supplied by Internal Li-ion battery	Normal	<60Vdc	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
--	--	--	Normal	--	--	--	
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.4 - Single Pulses							
No.	Supply	Location (e.g.)	Test conditions	Parameters		ES Class	



IEC/EN 62368-1			
Clause	Requirement – Test		Result – Remark

	Voltage	circuit designation)		Duration (ms)	Upk (V)	lpk (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)	lpk (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)	See below	See below	—	—	
Ambient T _{min} (°C)	—	—	—	—	
Ambient T _{max} (°C)	—	—	—	—	
T _{ma} (°C)	—	—	—	—	
Maximum measured temperature T of part/at:	T (°C)			Allowed T _{max} (°C)	
	Condition 1: (5Vdc):	Condition 2 (4.2Vdc):	—		
Internal surface of enclosure	35.4	28.0	—	Ref	
Surface of battery wire	36.2	28.2	—	85	
Surface of PCB U1	43.9	31.2	—	130	
Surface of PCB U4	42.4	31.7	—	130	
Surface of battery	36.7	28.9	—	Ref.	
Surface of USB connector	35.3	29.5	—	Ref.	
External surface of enclosure	33.8	27.4	—	77	
Ambient	25.0	25.0	—	--	



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

Supplementary information:
 Note 1: T_{ma} should be considered as directed by applicable requirement
 Note 2: T_{ma} is not included in assessment of Touch Temperatures (Clause 9)

Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

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

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

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

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



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

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

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

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No	
Supplementary information:				

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

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

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage			—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7		Touch current (mA)
	1		
	2		
Supplementary Information: Class III equipment			



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

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s [*]	PS Classification
Battery	Output pin + to -	Power (W) :	11.2	--	PS1
		V _A (V) :	3.5	--	
		I _A (A) :	3.2	--	
Battery	Output pin + to -(NTC SC)	Power (W) :	0*	--	PS1
		V _A (V) :	0*	--	
		I _A (A) :	0*	--	

Supplementary Information: * Unit shutdown immediately, recoverable, no hazard

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			N/A
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No

Supplementary information:

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

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



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

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

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Condition 1: Only discharge mode with internal battery fully charged							
4.2Vdc ²⁾	0.52	--	2.18	--	--	--	1/8 of max. non-clipped output power with 1KHz signal
Condition 2: Charge while working mode with internal empty battery							
5.0Vdc ¹⁾	0.41	--	2.05	--	--	--	1/8 of max. non-clipped output power with 1KHz signal
Supplementary information: ¹⁾ Supply by external DC source, ²⁾ Measured battery voltage and current.							



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

B.3		TABLE: Abnormal operating condition tests						P
Ambient temperature (°C)		25°C, if not specified						—
Power source for EUT: Manufacturer, model/type, output rating ..		--						—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Condition 1: Only discharge mode with internal battery fully charged								
Speaker	100% of max. non-clipped output power	4.2Vdc ²⁾	1hrs 04mins	--	--	Type J	PCB near U4: 37.4 C Surface of Battery: 34.3 C; External surface of enclosure:29.5 C; Ambient:25.0 C.	Unit working normally. No damage, no hazard. No higher temperature rise exceeding its limit occurred. Battery discharge current(A): 0.530
Ventilation openings	blocked	4.2Vdc ²⁾	1hour0 6min	--	--	Type J	PCB near U4: 33.3°C Surface of Battery: 31.2 °C; External surface of enclosure:28.6°C; Ambient:25.0°C.	Speaker has no output. No damage, no hazard. Recoverable. No higher temperature rise exceeding its limit occurred. Battery discharge current(A): 0.52
Speaker	s-c	4.2Vdc ²⁾	10mins	--	--	Type J	PCB near U4: 29.4 C Surface of Battery: 28.2 C; External surface of enclosure:26.9 C; Ambient:25.0 C.	Speaker has no output. No damage, no hazard. Recoverable. No higher temperature rise exceeding its limit occurred. Battery discharge current(A): 0.52→0.027



IEC/EN 62368-1									
Clause		Requirement – Test					Result – Remark		Verdict
Battery	Short circuit	4.2VDC	10min	--	--	J type	--	Unit shut down, no damaged, no hazard. Battery discharge current(A): 0	
Condition 3: Charge while working mode with internal empty battery									
Speaker	100% of max. non-clipped output power	5.0Vdc ¹⁾	1hrs 17mins	--	--	Type J	PCB near U1: 45.7°C Surface of Battery: 39.6 °C; External surface of enclosure:34.2°C; Ambient:25.0°C.	Unit working normally. No damage, no hazard. No higher temperature rise exceeding its limit occurred. Battery charge current(A): 0.520	
Speaker	s-c	5.0Vdc ¹⁾	10mins	--	--	Type J	PCB near U1: 40.4°C Surface of Battery: 35.9°C; External surface of enclosure:30.5°C; Ambient:25.0°C.	Speaker has no output. No damage, no hazard. Recoverable. No higher temperature rise exceeding its limit occurred. Battery charge :0.52A	
Supplementary information: ¹⁾ Supply by external DC source, ²⁾ Measured battery voltage and current. Test table is provided to record abnormal conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal" Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test.									



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

B.4 TABLE: Fault condition tests								P
Ambient temperature (°C)							25°C, if not specified	—
Power source for EUT: Manufacturer, model/type, output rating ...							--	—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Condition 1: Only charge with internal empty battery								
U1	s-c	5Vdc ¹⁾	10min	--	--	Type J	--	Unit shut down immediately. No damage, no hazard. Recoverable. Battery charge current(A): 0
U4	s-c	5Vdc ¹⁾	7hrs	--	--	Type J	--	Unit normally working. No damage, no hazard. Recoverable. Battery charge current(A):0
Condition 2: Only discharge mode with internal battery fully charged								
U1	s-c	5Vdc ¹⁾	10min	--	--	Type J	--	Unit shut down immediately. No damage, no hazard. Recoverable. Battery charge current(A): 0
U4	s-c	5Vdc ¹⁾	7hrs	--	--	Type J	--	Unit normally working. No damage, no hazard. Recoverable. Battery charge current(A):0
Supplementary information: ¹⁾ Supply by external DC source, ²⁾ Measured battery voltage and current. Test table is provided to record fault conditions for all applicable energy sources including Thermal burn injury. Column "Fault." Specify if test condition by indicating "Single Fault" then the condition for Clause B.4. 1) s-c: Short-circuited. 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.								



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

Annex M	TABLE: Batteries									P	
The tests of Annex M are applicable only when appropriate battery data is not available										P	
Is it possible to install the battery in a reverse polarity position?										No	N/A
	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.		
1) I_{max} in normal condition	--	--	--	240mA	500mA	100mA	500mA	--	--		
2) I_{max} in fault <u>Max.non-clipped output power</u>	--	--	--	238mA	500mA	520mA	500mA	--	--		
3) I_{max} in fault <u>Ventilation openings blocked</u>	--	--	--	240mA	500mA	100mA	500mA	--	--		
4) I_{max} in fault <u>Speaker short circuit</u>	--	--	--	284mA	500mA	27mA	500mA	--	--		
5) I_{max} in fault <u>B- to P+</u>	--	--	--	215mA	500mA	--	--	--	--		
6) I_{max} in fault <u>B- to P-</u>	--	--	--	--	--	116mA	500mA	--	--		
7) I_{max} in fault <u>battery short circuit</u>	--	--	--	0mA	500mA	0mA	500mA	--	--		
Supplementary information: The data of abnormal charge and discharge current refer to table B.3 & B.4.											



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

Annex M.4 Table: Additional safeguards for equipment containing secondary lithium batteries					P
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (°C)	
503035	Normal	4.20	0.110	32.4°C (under 25.0°C ambient)	The charging voltage does not exceed 4.20V and the charging current does not exceed 0.5A
503035	Abnormal speaker SC	4.20	0.027	32.2°C (under 25.0°C ambient)	The charging voltage does not exceed 4.20V and the charging current does not exceed 0.5A
503035	Single fault –Capacitor SC/OC	4.20	0.001	--	Unit shut down, no damaged, No hazard.The charging voltage does not exceed 4.20V and the charging current does not exceed 0.5A
Supplementary Information:					

Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation
Highest specified charging temperature: 50°C; Lowest specified charging temperature: 0°C	0°C	The battery charging current 0.310A under normal and abnormal conditions	45°C	The battery charging circuit stop charging under normal and abnormal conditions
Supplementary Information: /				

Annex Q.1 TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A	
Note: Measured U _{oc} (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Output	Normal operation	--	--	8	--	100
Output	Single fault	--	--	8	--	100
Supplementary Information:						



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

T.2, T.3, T.4, T.5	TABLE: Steady force test				P
---------------------------	---------------------------------	--	--	--	---

Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Internal components / parts(T.2)	--	--	10	5	No reduction the clearances and creepage distances
Enclosure top(T.5)	Plastic*	1)	250	5	Enclosure remained intact, no crack/ opening developed
Enclosure side(T.5)	Plastic*	1)	250	5	Enclosure remained intact, no crack/ opening developed
Enclosure rear (T.5)	Plastic*	1)	250	5	Enclosure remained intact, no crack/ opening developed

Supplementary information: *Test was performed on product with each source listed in table 4.1.2.

T.6, T.9	TABLE: Impact tests				N/A
-----------------	----------------------------	--	--	--	-----

Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

Supplementary information: *Test was performed on product with each source listed in table 4.1.2.

T.7	TABLE: Drop tests				P
------------	--------------------------	--	--	--	---

Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Enclosure Top/Side	Plastic*	1)	1000	Enclosure remained intact, no crack/ opening developed. No hazards.
Enclosure Bottom	Plastic*	1)	1000	Enclosure remained intact, no crack/ opening developed. No hazards.
Enclosure Rear	Plastic*	1)	1000	Enclosure remained intact, no crack/ opening developed. No hazards.

Supplementary information: *Test was performed on product with each source listed in table 4.1.2.

T.8	TABLE: Stress relief test				P
------------	----------------------------------	--	--	--	---

Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	Plastics	1)	70	7	No damage, no hazard

Supplementary information:



Photo Documentation

Reference No.: WTF21D09097221Y



Photo 1 External view



Photo 2 External view



Photo Documentation

Reference No.: WTF21D09097221Y



Photo 3 Internal view



Photo 4 Internal view

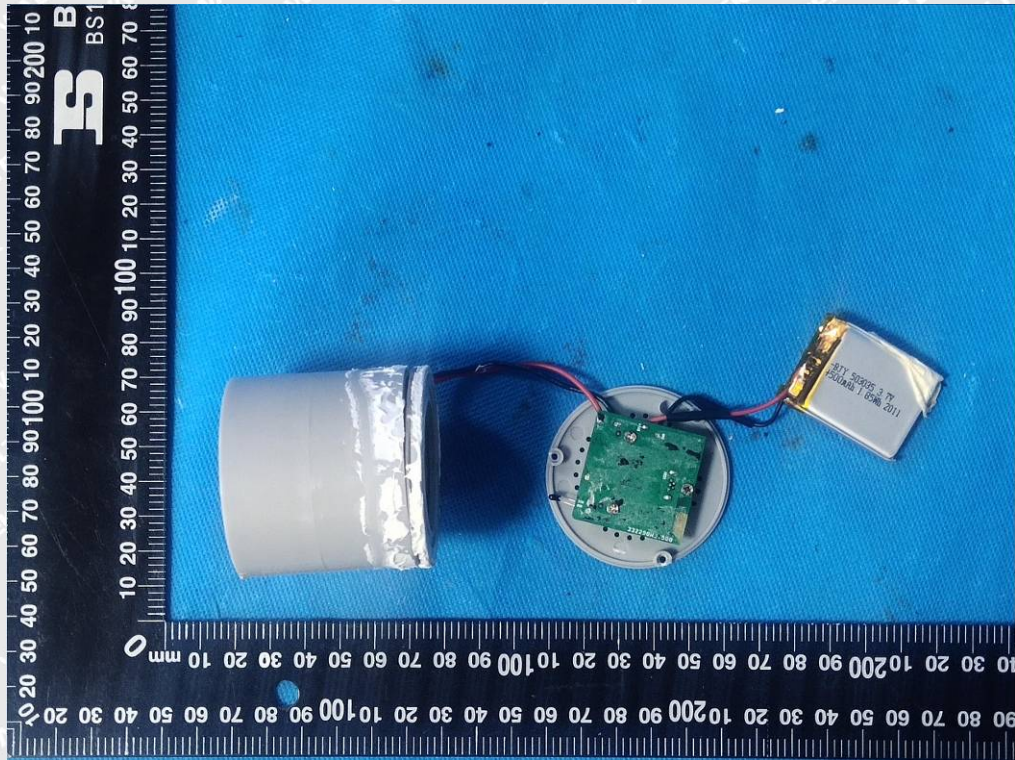


Photo 5 Internal view



Photo 6 Battery view



Photo Documentation

Reference No.: WTF21D09097221Y

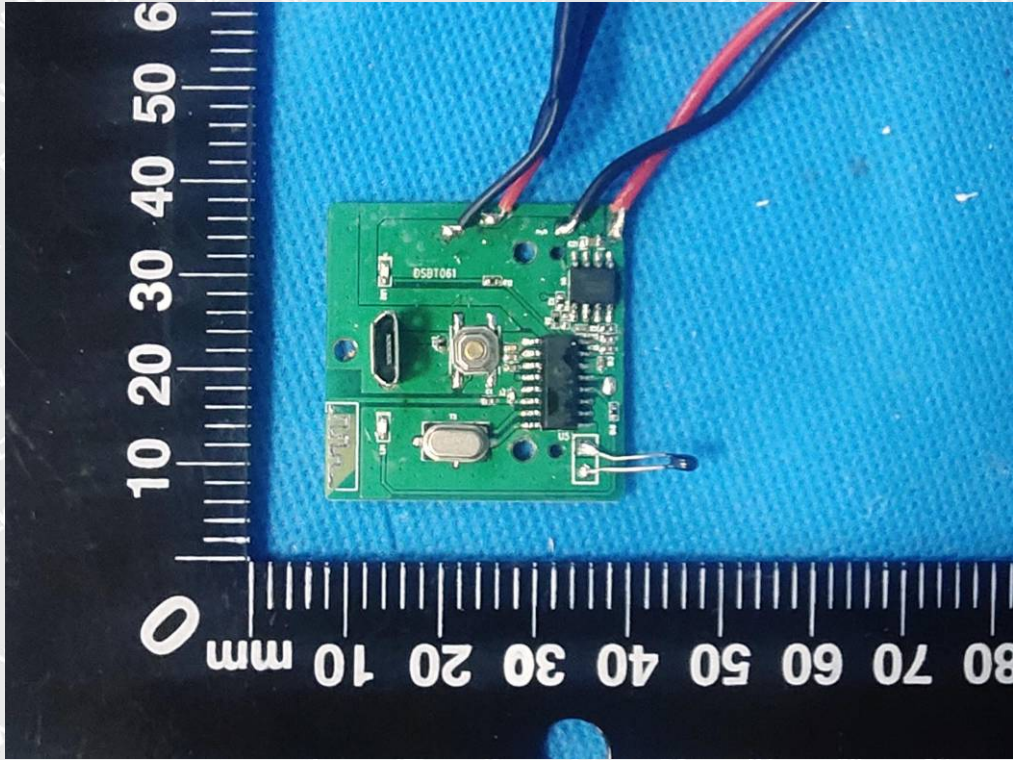


Photo 7 PCB view

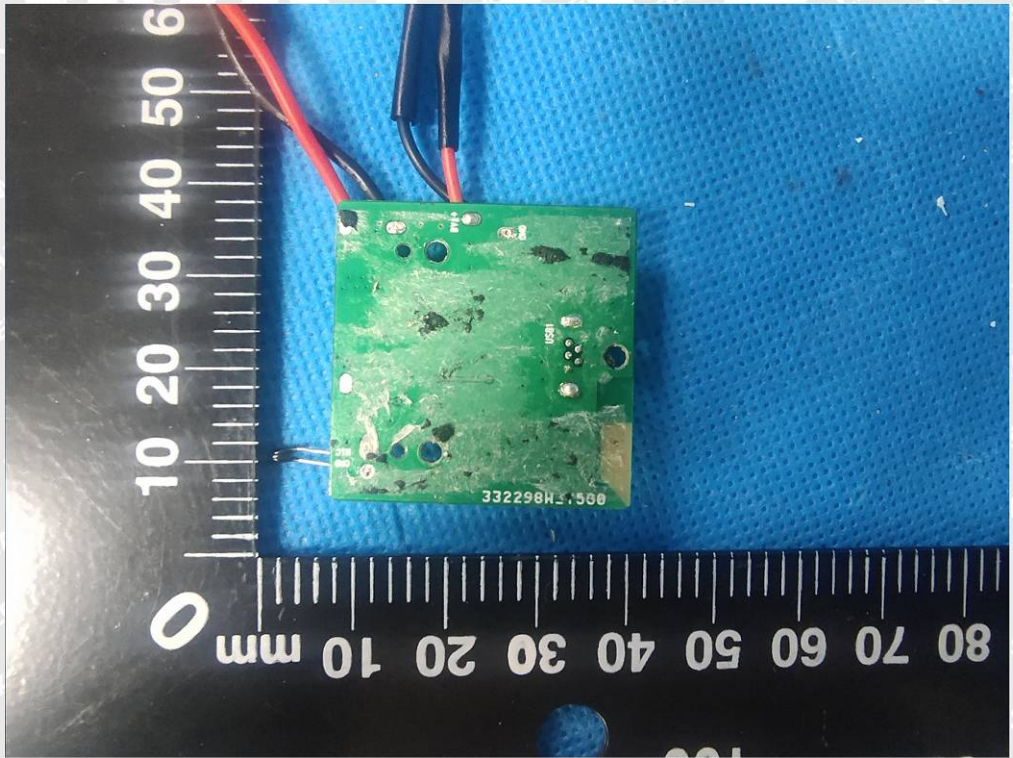


Photo 8 PCB view

==== End of Report ====