



**APPLICATION FOR LOW VOLTAGE DIRECTIVE**

**On Behalf of**

**Meteca SA**

**For**

**MBC-WB**

**Model No.: MBC-WB01**

**Prepared for :** **Meteca SA**  
**Via alla Torre 2, 6850 Mendrisio ,Switzerland**

**Prepared By :** **Shenzhen STL Testing Technology Co., Ltd.**  
**Unit C, 4F, Building A, ShengHengji Industrial Park, No. 137 FuYuan 1 Road,**  
**Heping Community, Fuyong Street, Baoan District, Shenzhen, China**

**Date of Test:** **Mar.28-Apr.28 .2019**

**Date of Report:** **Apr.28 .2019**

**Report Number:** **STL2019E032672-S1**

# TEST REPORT

## EN 62368-1

### Audio/video, information and communication technology equipment -

#### Part 1: Safety requirement

**Report reference No** ..... : STL2019E032672-S1

**Tested by** (printed name and signature) ..... : Sunny

**Approved by** (printed name and signature) ..... : Barry

**Date of issue** ..... : Apr.28 .2019

**Contents** ..... : 46 pages



**Testing Laboratory Name** ..... : Shenzhen STL Testing Technology Co., Ltd.

**Address** ..... : Unit C, 4F, Building A, ShengHengji Industrial Park, No. 137 FuYuan 1 Road, Heping Community, Fuyong Street, Baoan District, Shenzhen, China

**Testing location** ..... : Same as above

**Applicant's Name** ..... : Meteca SA

**Address** ..... : Via alla Torre 2, 6850 Mendrisio ,Switzerland

#### Test specification

**Standard**..... : EN 62368-1:2014/A11:2017

**Test procedure** ..... : LVD Scheme

**Procedure deviation** ..... : N/A

**Non-standard test method** ..... : N/A

**Test item description** ..... : MBC-WB

**Trademark** ..... : N/A

**Model and/or type reference** ..... : MBC-WB01

**Manufacture**..... : Meteca SA

**Address**..... : Via alla Torre 2, 6850 Mendrisio ,Switzerland

**Rating(s)**..... : Input:: 3.3V== 1A

**Particulars: test item vs. test requirements**

Equipment mobility..... : moveable Equipment

Operating condition..... : Continuous operation

Mains supply tolerance (%)..... : N.A.

Tested for IT power systems..... : N.A.

IT testing, phase-phase voltage (V)..... : N.A.

Class of equipment..... : Class III

Mass of equipment (Kg)..... : N.A.

Protection against ingress of water..... : IPX0

**Test case verdicts**

Test case does not apply to the test object..... : N(A.)

Test item does meet the requirement..... : P(ass)

Test item does not meet the requirement..... : F(ail)

**Testing**

Date of receipt of test item ..... : Mar.28 .2019

Date(s) of performance of test..... : Mar.28-Apr.28 .2019

**General remarks**

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

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

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

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

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

## Copy of marking plate (s):

**MBC-WB**

Model No.: MBC-WB01

Input: 3.3V $\pm$  1A

Meteca SA



EN 62368-1			
Cl.	Requirement – Test	Result	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components	See appended table 4.1.2	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions	See Annex F	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests .....		P
4.4.4.3	Drop tests .....	1000 mm	P
4.4.4.4	Impact tests .....		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests .....	No such enclosure and barrier	N/A
4.4.4.6	Glass Impact tests .....	No glass used	N/A
4.4.4.7	Thermoplastic material tests.....		P
4.4.4.8	Air comprising a safeguard .....	Considered, but no such barrier or enclosure provided	N/A
4.4.4.9	Accessibility and safeguard effectiveness	All safeguards remain effective.	P
4.5	Explosion	No explosion	P
4.6	Fixing of conductors	No fixing of conductors	N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to .....		P
4.7	Equipment for direct insertion into mains socket - outlets	No such apparatus	N/A
4.7.2	Mains plug part complies with the relevant standard .....		N/A
4.7.3	Torque (Nm) .....		N/A
4.8	Products containing coin/button cell batteries	No such batteries	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
4.8.4	Means to reduce the possibility of children removing the battery .....		N/A
4.8.5	Battery Compartment Mechanical Tests .....		N/A
4.9	Likelihood of fire or shock due to entry of conductive object .....		P

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Cl.	Requirement – Test	Result	Verdict

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		N/A
5.2.1	Electrical energy source classifications		N/A
5.2.2	ES1, ES2 and ES3 limits		N/A
5.2.2.2	Steady-state voltage and current .....		N/A
5.2.2.3	Capacitance limits .....		N/A
5.2.2.4	Single pulses 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	Ring signals .....	No means for connection to telephone network and no ringing signal generated	N/A
5.2.2.7	Audio signals .....		N/A
5.3	Protection against electrical energy sources	No energy hazards in operator access area.	N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements	No openings on enclosures as received and after mechanical test.	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		P
5.4.1.3	Humidity conditioning	No hygroscopic insulation	N/A
5.4.1.4	Maximum operating temperature for insulating materials .....	See appended table 5.4.1.5	P
5.4.1.5	Pollution degree.....	Pollution degree 2 considered	—
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		P
5.4.1.9	Insulating surfaces		P



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Cl.	Requirement – Test	Result	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 (°C)..... :		N/A
5.4.1.10.3	Ball pressure	See appended table 5.4.1.11.3	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 ..... :	(See appended table 5.4.2.3)	N/A
	a) a.c. mains transient voltage ..... :	No such transient voltage	—
	b) d.c. mains transient voltage ..... :	No such transient voltage	—
	c) external circuit transient voltage ..... :	No such transient voltage	—
	d) transient voltage determined by measurement...	No need to conduct this test	—
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		P
5.4.3.1	General		P
5.4.3.2.2	Material Group ..... :	Material group IIIb is assumed to be used	—
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	Semiconductor solid insulation		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



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Cl.	Requirement – Test	Result	Verdict
5.4.5.2	Antenna Terminal connections		N/A
	Insulation resistance (MΩ).....:		—
5.4.6	Insulation of internal wire as part of supplementary insulation		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%) .....:	95 %.	—
	Temperature (°C) .....:	25°C	—
	Duration (h) .....:	48h	—
5.4.9	Electric strength test .....:	See appended table 5.4.9	N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	No transient voltage from 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 $U_{pea}$ (V).....:		—
	Max increase due to variation $U_{sp}$ .....:		—
	Max increase due to ageing $U_{sa}$ .....:		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....:		—
5.5	Components as safeguards		N/A
5.5.1	General		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



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Cl.	Requirement – Test	Result	Verdict
5.5.4	Optocouplers		N/A
5.5.5	Relay		N/A
5.5.6	Resistors		N/A
5.5.7	SPD as basic safeguard		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		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	Class III equipment	N/A
	Protective earthing conductor size (mm <sup>2</sup> ) ..... :		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size .....:		—
	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 <sup>2</sup> ), 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)..... :		—

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Cl.	Requirement – Test	Result	Verdict
	Multiple connections to mains (one connection at a time/simultaneous connections).....:		—
5.7.4	Earthed conductive accessible parts .....		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....:		—
	Measured current (mA).....:		—
	Instructional Safeguard	See Annex F.4 and F.5	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

<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		N/A
6.2.2.1	General		N/A
6.2.2.2	Power measurement for worst-case load fault		N/A
6.2.2.3	Power measurement for worst-case power source fault		N/A
6.2.2.4	PS1		N/A
6.2.2.5	PS2	See appended table 6.2.2	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
	Component, location .....		—
6.2.3.2	Resistive PIS		N/A
	Component, location .....		—
6.3	Safeguards against fire under normal operating and abnormal operating conditions		
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.2	Combustible materials outside fire enclosure		P

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Cl.	Requirement – Test	Result	Verdict
6.4	Safeguards against fire under single fault conditions		N/A
6.4.1	Safeguard Method		N/A
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
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		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards .....		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	Plastic enclosure	N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	V-1 or better	N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Fire Enclosure dimensions, top openings (mm) ...:		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c): dimensions (mm) .....		N/A
	Flammability tests for the bottom of a fire enclosure .....		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c): dimensions (mm) .....		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....:		N/A
6.5	Internal and external wiring		N/A
6.5.1	General	See appended table 6.5	N/A

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Cl.	Requirement – Test	Result	Verdict
6.5.2	Cross-sectional area (mm <sup>2</sup> ) .....		N/A
6.5.3	Requirements for interconnection to building wiring	See Annex Q	N/A
6.6	Safeguards against fire due to connection to secondary equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

<b>7</b>	<b>CHEMICALLY-CAUSED INJURY</b>		P
7.2	Reduction of exposure to hazardous chemicals	No such hazardous substances	N/A
7.3	Ozone exposure	No ozone production	N/A
7.4	Use of PPE		N/A
	Personal safeguards and instructions .....		—
7.5	Use of instructional safeguards and instructions		N/A
	Instruction Safeguard (ISO 7010)	See Annex F	P
7.6	Batteries	See Annex M	N/A

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		N/A
8.1	General		N/A
8.2	Mechanical energy source classifications		N/A
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	See appended table 8.5	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	“Do not touch moving wheels”	N/A
8.5.2	Instructional Safeguard.....	“Keep body parts away from moving parts”	—
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	See Annex F.4 and Annex K	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....		—
8.5.4.2.3	Disconnection from the supply		N/A

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Cl.	Requirement – Test	Result	Verdict
8.5.4.2.4	Probe type and force (N)..... :		N/A
8.5.5	High Pressure Lamps	Not 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		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard..... :		—
8.6.2	Static stability for floor standing equipment		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		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..... :		N/A
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
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)..... :		—

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Cl.	Requirement – Test	Result	Verdict
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)..... :		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
9.2	Thermal energy source classifications		P
9.3	Protection against thermal energy sources		P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		P
9.4.2	Instructional safeguard ..... :		P

<b>10</b>	<b>RADIATION</b>		N/A
10.2	Radiation energy source classifications		N/A
	General classification		N/A
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	Detail see table 10.4	N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons ..... :		N/A
10.4.1.b)	RS3 accessible to a skilled person ..... :		N/A
	Personal safeguard (PPE) instructional safeguard ..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 . :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions ..... :		N/A



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Cl.	Requirement – Test	Result	Verdict
10.4.1.e)	Enclosure material employed as safeguard is opaque .....		N/A
10.4.1.f)	UV attenuation .....		N/A
10.4.1.g)	Materials resistant to degradation UV .....		N/A
10.4.1.h)	Enclosure containment of optical radiation .....		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....		N/A
10.4.2	Instructional safeguard .....		N/A
10.5	Protection against x-radiation		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 .....		—
	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) LAeq acoustic pressure output .....		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A) .....		—



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Cl.	Requirement – Test	Result	Verdict
	Cordless listening device		N/A
	Maximum dB(A) ..... :		—

<b>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements	See Test Item Particulars and appended test tables	P
	Audio Amplifiers and equipment with audio amplifiers		N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test	See appended table B.2.5	P
B.3	Simulated abnormal operating conditions		N/A
B.3.1	General requirements		N/A
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector.....:	No such voltage selector	N/A
B.3.5	Maximum load at output terminals.....:	No such voltage terminals	N/A
B.3.6	Reverse battery polarity	Complied with annex M	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		N/A
B.4	Simulated single fault conditions		N/A
B.4.2	Temperature controlling device open or short-circuited		N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature	See Clause G.5.4	N/A
B.4.4	Short circuit of functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		N/A

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Cl.	Requirement – Test	Result	Verdict
B.4.7	Continuous operation of components	Not intermittent or short-time operation equipment	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		N/A
B.4.9	Battery charging under single fault conditions	See Annex M	N/A

<b>C</b>	<b>UV RADIATION</b>		N/A
C.1	Protection of materials in equipment from UV radiation	No UV radiation within the EUT.	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A

<b>D</b>	<b>TEST GENERATORS</b>		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A

<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V).....:		—
E.2	Audio amplifier abnormal operating conditions		N/A

<b>F</b>	<b>ANNEX F, EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		P
F.1	General requirements		P
	Instructions – Language .....	English version checked	—
F.2	Letter symbols and graphical symbols		P
	Letter symbols .....		P
	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P

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Cl.	Requirement – Test	Result	Verdict
F.3.1	Equipment marking locations	Located on the external enclosure surface	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification.....:	See the copy of marking plate for detail.	—
F.3.2.2	Model identification.....:	See the copy of marking plate for detail.	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment without direct connection to mains		N/A
F.3.3.2	Nature of supply voltage.....:		N/A
F.3.3.3	Rated voltage.....:	See the copy of marking plate for detail.	P
F.3.3.4	Rated frequency.....:		N/A
F.3.3.5	Rated current or rated power.....:	See the copy of marking plate for detail.	P
F.3.3.6	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device	No such 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.....:		N/A
	Language.....:		—
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment	Class III equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
	-Complete equipment (IEC60417-5017)		N/A
	-Sub-assembly/component (IEC60417-5017 or – 5019)		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.1.4	Terminal marking location		N/A
F.3.6.2	Class II equipment (IEC60417-5172)	Class III equipment	N/A
F.3.7	Equipment IP rating marking.....:	IPX0	N/A
F.3.8	External power supply output marking		P
F.3.9	Durability, legibility and permanence of markings		P

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Cl.	Requirement – Test	Result	Verdict
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		P
	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		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		P
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		P

<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
<b>G.2</b>	<b>Relay</b>		N/A
G.2.1	General requirements	No relays 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
<b>G.3</b>	<b>Protection Devices</b>		N/A
G.3.1	Thermal cut-offs	No thermal cut-offs used	N/A
G.3.1 a), b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A

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Cl.	Requirement – Test	Result	Verdict
G.3.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2a)	Thermal links separately tested with IEC 60691		N/A
G.3.2b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)..... :		—
	Single Fault Condition ..... :		—
	Test Voltage (V) and Insulation Resistance ( $\Omega$ )..... :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Protective devices not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.1	Single faults conditions ..... :		N/A
<b>G.5</b>	<b>Connectors</b>		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration ..... :		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
<b>G.5</b>	<b>Wound Components</b>		N/A
G.5.1	Wire insulation in wound components ..... :		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
<b>G.5.3</b>	<b>Transformers</b>		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) ..... :		N/A
	Position..... :		—
	Method of protection..... :		—

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Cl.	Requirement – Test	Result	Verdict
G.5.3.2	Insulation		N/A
	Protection from displacement of windings..... :		N/A
G.5.3.3	Overload test	See appended table B.4	N/A
G.5.3.1	Test conditions		N/A
G.5.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3	Winding Temperatures - Alternative test method		N/A
<b>G.5.4</b>	<b>Motors</b>		N/A
G.5.4.1	General requirements		N/A
	Position..... :	Used in the wheels	—
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
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)..... :		N/A
G.5.4.5.4	Electric strength test (V)..... :		N/A
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.9	Three-phase motors		N/A
G.5.4.10	Series motors		N/A
	Operating voltage..... :		—
<b>G.6</b>	<b>Wire Insulation</b>		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
<b>G.7</b>	<b>Mains supply cords</b>		N/A
G.7.1	General requirements		N/A
	Type..... :		—
	Rated current (A) .....		—
	Cross-sectional area (mm <sup>2</sup> ), (AWG) .....		—



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Cl.	Requirement – Test	Result	Verdict
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.7.3.1	General requirements		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	See appended table 5.4.11.1	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) .....		—
	Diameter (m)..... :		—
	Temperature (°C) .....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
<b>G.8</b>	<b>Varistors</b>		N/A
G.8.1	General requirements		N/A
G.8.2	Basic safeguard		N/A
G.8.3	Supplementary safeguard		N/A
G.8.3.2	Sudden failure		N/A
G.8.3.3	Gradual failure		N/A
<b>G.9</b>	<b>Integrated Circuit (IC) Current Limiters</b>		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
<b>G.10</b>	<b>Resistors</b>		N/A
G.10.1	General requirements	No such resistors used	N/A



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Cl.	Requirement – Test	Result	Verdict
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
<b>G.11</b>	<b>Capacitor and RC units</b>		N/A
	General requirements		N/A
	Conditioning of capacitors and RC units		N/A
	Rules for selecting capacitors		N/A
<b>G.12</b>	<b>Optocouplers</b>		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 V <sub>ini</sub> .....		—
	Routine test voltage, V <sub>ini,b</sub> .....		—
<b>G.13</b>	<b>Printed boards</b>		N/A
G.13.1	General requirements		N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction).....		N/A
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.13.6.2 a)	Thermal conditioning		N/A
G.13.6.2 b)	Electric strength test		N/A
G.13.6.2 c)	Abrasion resistance test		N/A
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements	(See G.13)	N/A
<b>G.15</b>	<b>Liquid filled components</b>		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A

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Cl.	Requirement – Test	Result	Verdict
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
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		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 .....		—
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 .....		—

<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
H.1	General requirements		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....		—
H.3.1.2	Voltage (V) .....		—
H.3.1.3	Cadence; time (s) and voltage (V) .....		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage.....		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....		—



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Cl.	Requirement – Test	Result	Verdict

<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		N/A
	General requirements	See separate test report	—

<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
K.1	General requirements	No safety interlocks inside the EUT	N/A
K.2	Components of safety interlock safeguard mechanism	See Annex G	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance	See appended table B.4	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....:		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type & circuit location) ..... :		N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test	See appended table 5.4.11.1	N/A

<b>L</b>	<b>DISCONNECT DEVICES</b>		N/A
L.1	General requirements		N/A
L.1.1	General		N/A
L.1.2	Permanently connected equipment		N/A
L.1.3	Parts that remain energized		N/A
L.1.4	Single phase equipment		N/A
L.1.5	Three-phase equipment		N/A
L.1.6	Switches as disconnect devices		N/A
L.1.7	Plugs as disconnect devices		N/A
L.1.8	Multiple power sources		N/A

<b>M</b>	<b>BATTERIES AND FUEL CELLS</b>		N/A
M.1	General requirements		N/A
M.2	Safety of battery cells and batteries		N/A
M.2.1	Requirements		N/A



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Cl.	Requirement – Test	Result	Verdict
M.2.2	Compliance and test method (identify method) ...:		N/A
M.3	Protection in battery circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature ..... :		—
M.4.2.2 b)	Single faults in charging circuitry ..... :		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) ..... :		N/A
M.6.2	Leakage current (mA)..... :		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A

EN 62368-1			
Cl.	Requirement – Test	Result	Verdict
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 <sup>3</sup> /s) :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance $d$ (mm) :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) .....		N/A

<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Metal(s) used..... :		—

<b>P</b>	<b>SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS, FOREIGN LIQUIDS, AND SPILLAGE OF INTERNAL LIQUIDS</b>		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of solid foreign objects		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids		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

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Cl.	Requirement – Test	Result	Verdict
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) .....		N/A
	Tc (°C) .....		N/A
	Tc (°C) .....		N/A
P.4.2 b)	Abrasion testing .....		N/A
P.4.2 c)	Mechanical strength testing .....		N/A

<b>Q</b>	<b>INTERCONNECTION WITH BUILDING WIRING</b>		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 .....		N/A

<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		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

<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		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

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Cl.	Requirement – Test	Result	Verdict
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	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		N/A
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	Height 1000mm, No energy or other hazardous.	P



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Cl.	Requirement – Test	Result	Verdict
T.8	Stress relief test		N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J) :		—
	Height (m) ..... :		—
T.10	Glass fragmentation test ..... :		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) :		—

<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		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

<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)</b>		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A



EN 62368-1			
Cl.	Requirement – Test	Result	Verdict

<p align="center"><b>ATTACHMENT TO TEST REPORT IEC 62368-1</b></p> <p align="center"><b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b></p> <p align="center">(Audio/video, information and communication technology equipment Part 1: Safety requirements)</p>			
<p><b>Differences according to</b> ..... : EN 62368-1:2014/A11:2017</p> <p><b>Attachment Form No.</b> ..... : EU_GD_IEC62368_1B</p> <p><b>Attachment Originator</b> ..... : Intertek Semko AB</p> <p><b>Master Attachment</b>..... : Date (2015-08)</p>			
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	<b>CENELEC COMMON MODIFICATIONS (EN)</b>		
	NOTE Z1		N/A
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a)..... included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A
5.4.2.3.2.4	Interconnection with external circuit		N/A
10.2.1	Additional requirements in 10.5.1		N/A
10.5.1	RS1 compliance measurement conditions		N/A
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N/A
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N/A
G.7.1	NOTE Z1		N/A

<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		
4.1.15	<b>Denmark, Finland, Norway and Sweden:</b> Class I pluggable equipment type A marking		N/A
4.7.3	<b>United Kingdom:</b> Torque test socket-outlet BS 1363, and the plug part BS 1363.		N/A
5.2.2.2	<b>Denmark:</b> Warning for high touch current		N/A



EN 62368-1			
Cl.	Requirement – Test	Result	Verdict
5.4.11.1 and Annex G	<b>Finland and Sweden:</b> Separation of the telecommunication network from earth		N/A
5.5.2.1	<b>Norway:</b> Capacitors rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	<b>Finland, Norway and Sweden:</b> Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N/A
5.6.1	<b>Denmark:</b> Protection for pluggable equipment type A; integral part of the equipment		N/A
5.6.4.2.1	<b>Ireland and United Kingdom:</b> The protective current rating is taken to be 13 A		N/A
5.6.5.1	<b>Ireland and United Kingdom:</b> Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N/A
5.7.5	<b>Denmark:</b> The installation instruction affixed to the equipment if high protective conductor current		N/A
5.7.6.1	<b>Norway and Sweden:</b> Television distribution system isolation text in user manual		N/A
5.7.6.2	<b>Denmark:</b> Warning for high touch current		N/A
B.3.1 and B.4	<b>Ireland and United Kingdom:</b> Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N/A
G.4.2	<b>Denmark:</b> Appliances rated $\leq 13$ A provided with a plug according to DS 60884-2-D1:2011.		N/A
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N/A
	If a single-phase equipment having rated $> 13$ A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N/A
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a .		N/A

EN 62368-1			
Cl.	Requirement – Test	Result	Verdict
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N/A
	Mains socket-outlets with earth in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a		N/A
G.4.2	<b>United Kingdom:</b> The plug part of direct plug-in equipment assessed to BS 1363 G.4.2		N/A
G.7.1	<b>United Kingdom:</b> Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N/A
G.7.1	<b>Ireland:</b> Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N/A
G.7.2	<b>Ireland and United Kingdom:</b> A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		
10.5.2	<b>Germany:</b> Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N/A
F.1	<b>Italy:</b> The power consumption in Watts (W) indicated on TV receiver and in instruction for use		N/A
	TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.		N/A
	Marking for controls and terminals in Italian language.		N/A
	Conformity declaration according to the above requirements in the instruction manual		N/A
	First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover.		N/A

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1</sup>	
PCB	GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD	GDM-C3, ILM- C3	V-0 or better,130°C  Minimum.	UL 94, UL 796	UL E330731	
Enclosure	Various	Various	V-1	UL 94	UL	
Supplementary information:						
1) Provided evidence ensures the agreed level of compliance.						
2) Description line content is optional. Main line description needs to clearly detail the component used for testing						

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: Battery replacement test			—
Battery part no. .... :				—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
—		1		—
—		2		—
—		3		—
—		4		—
—		5		—
—		6		—
—		7		—
—		8		—
—		9		—
—		10		—
4.8.4.4	TABLE: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
—		—	1	—
—		—	2	—
—		—	3	—
4.8.4.5	TABLE: Impact			—
Impact Area		Drop Distance	Impact energy (Nm)	Comments

—	—	—	—
<b>4.8.4.6</b>	<b>TABLE: Crush test</b>		
Impact Area	Drop Distance	Crushing Force (N)	Duration force applied (s)
—	—	—	—
Supplementary information:			

<b>4.8.5</b>	<b>TABLE: Lithium coin/button cell batteries mechanical test result</b>			N/A
Impact Area	Drop Distance	Force (N)	Duration force applied (s)	
—	—	—	—	
Supplementary information:				

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

#### 5.2.2.2 – Steady State Voltage and Current conditions

Source	Location (e.g., circuit designation)	Description (e.g., steady state, single pulse, etc.)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault	--	--	--	

#### 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	--	--	

#### 5.2.2.4 – Single Pulses

Source	Location (e.g., circuit designation)	Description (e.g., steady state, single pulse, etc.)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	---
			Abnormal	--	--	--	
			Single fault	--	--	--	

#### 5.2.2.5 – Repetitive Pulses

Source	Location (e.g., circuit designation)	Description (e.g., steady state, single pulse, etc.)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	---



			Abnormal	--	--	--	
			Single fault	--	--	--	
Normal – Abnormal - Supplementary information: SC=Short Circuit, OC=Short Circuit							

5.4.1.5, 6.3.2, 9.0, B.2.6	TABLE: Thermal requirements				P		
	Supply voltage (V) ..... :	3.3Vdc		--	—		
	Ambient T <sub>min</sub> (°C) ..... :	See below		--	—		
	Ambient T <sub>max</sub> (°C) ..... :			--	—		
Maximum measured temperature T of part/at::		T (°C)			Allowed T <sub>max</sub> (°C)		
DC inlet		46.1		--	70		
PCB		60.4		--	130		
Enclosure outside		42.2		--	95		
Ambient		40.0		--	--		
Supplementary information:							
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary information:							

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
	Penetration (mm) ..... :			—
Part		Test temperature (°C)	T softening (°C)	
--		--	--	
--		--	--	
Supplementary information:				



5.4.1.11.3	TABLE: Ball pressure test of thermoplastics			N/A
	Allowed impression diameter (mm) ..... : ≤ 2 mm			—
Part		Test temperature (°C)	Impression diameter (mm)	
--		--	--	
--		--	--	
Supplementary information:				

<b>5.4.2.2, 5.4.2.4 and 5.4.3</b>	<b>TABLE: Minimum Clearances/Creepage distance</b>						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) <sup>1)</sup>	Required cl (mm)	cl (mm) <sup>2)</sup>	Required <sup>3)</sup> cr (mm)	cr (mm)
Input + and -	--	3.3	--	0.2	>1.0	0.4	>1.0
Supplementary information:							
Note 1: Only for frequency above 30 kHz							
Note 2: See table 5.4.2.8 if this is based on electric strength test (5.4.2.8)							
Note 3: Provide Material Group							
Note 4: BI: basic insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation.							

<b>5.4.2.3</b>	<b>TABLE: Minimum Clearances distances using required withstand voltage</b>			N/A
	<b>Overvoltage Category (OV):</b>			
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
--		--	--	--
--		--	--	--
Supplementary information:				
1. BI: basic insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation;				

<b>5.4.2.4</b>	<b>TABLE: Clearances based on electric strength test</b>			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
--		--	--	--
Supplementary information:				
1. BI: basic insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation;				

<b>5.4.4.2, 5.4.4.5 c), 5.4.4.9</b>	<b>TABLE Distance through insulation measurements</b>					N/A
Distance through insulation di at/of:		Up (V)	Frequency (Hz)	Material	Required DI (mm)	DI (mm)
--		--	--	--	--	--

--	--	--	--	--	--
Supplementary information:					

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

<b>5.5.2.2</b>	<b>TABLE: Stored discharge on capacitors</b>				<b>N/A</b>
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
--	--	--	--	--	--
Supplementary information: X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition *: Open-circuited bleeder resistor R1 inside power supply unit.					

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:

<b>5.7.2.2, 5.7.4</b>	<b>TABLE: Earthed accessible conductive part</b>		N/A
Unearthed accessible part, at which the prospective touch voltage exceeds the ES2 limits	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)	
Measured to protective earthing terminal	1	--	
	2	--	
	3	--	
	4	--	
	5	--	
	6	--	
	8	--	

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

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

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

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

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

N: Normal condition, R: Reverse condition.

<b>6.2.2</b>	<b>Table: Electrical power sources (PS) measurements for classification</b>					N/A
Source	Description	Measurement	Max Power during the first 3 s	Max Power after 3 s	Max Power after 5 s <sup>*)</sup>	PS Classification
--	--	Power (W) :	--	--	--	--
		V <sub>A</sub> (V) :	--	--	--	
		I <sub>A</sub> (A) :	--	--	--	

Supplementary Information:

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

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

Supplementary Information:

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V<sub>p</sub>) and normal operating condition rms current (I<sub>rms</sub>) is greater than 15.

6.2.3.2		Table: Electrical power sources (PS) measurements for classification				N/A
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 )	
--	--	--	--	--	--	
<p>Supplementary Information:</p> <p>A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.</p> <p>If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.</p> <p>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</p>						

8.5	TABLE: Fan Blade Classification		N/A
Variable		Value	
Mass, m		kg	
Fan blade radius, r		mm	
Rotational speed, N		rpm	
K factor (figure 47), K			
Classification formula	$\square \frac{N}{15,000} + \frac{K}{2,400} \leq 1$	$\square \frac{N}{22,000} + \frac{K}{3,600} \leq 1$	
Classification calculation			
Classification: MS .....			
Supplementary information:			

8.5.5	<b>TABLE: High Pressure Lamp</b>		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:			

Table 10.4		Emission limits for risk groups of continuous wave lamps(Base on IEC 62471:2006)						N/A	
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

<b>Table 10.4</b>	Emission limits for risk groups of continuous wave lamps(Base on IEC 62471:2006)								N/A
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

Remark:

Angular subtense of apparent source,  $\alpha = \theta / r$  mrad

\*Small source defined as one with  $0 < 0,011$  radian. Averaging field of view at 10000 s is 0,1 radian.

\*\* .....Involves evaluation of non-GLS source

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	
3.3	0.96	1	3.16	--	--	--	Max non-clipped output	

Supplementary information:

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

B.3	TABLE: Abnormal operating condition tests								N/A
Ambient temperature (°C) .....									---
Power source for EUT: Manufacturer, model/type, output rating ..									---
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
--	--	--	--	--	--	--	--	--	

Supplementary information:

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

S-C: short circuit, O-L: overload, O-C: open circuit; CD: Components damaged;

The Hi-pot test conducted successfully after the completion of fault condition test.

B.4	TABLE: Fault condition tests								N/A
Ambient temperature (°C) .....					See below				---
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	
--	--	--	--	--	--	--	--	--	

--	--	--	--	--	--	--	--	--
<p>Supplementary information:</p> <p>Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.</p> <p>S-C: short circuit, O-L: overload, O-C: open circuit; CD: Components damaged;</p> <p>The Hi-pot test conducted successfully after the completion of fault condition test.</p>								

Annex M	TABLE: Batteries								N/A
The tests of Annex M are applicable only when appropriate battery data is not available									N/A
Is it possible to install the battery in a reverse polarity position?						--			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.
Max. current during normal condition	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--
Test results:									Verdict
- Chemical leaks						No leaks			---
- Explosion of the battery						No explosion			---
- Emission of flame or expulsion of molten metal						No emission			---
- Electric strength tests of equipment after completion of tests						---			---
Supplementary information:									

Annex M.4	TABLE: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp (C)		
--	--	--	--	--	--	
--	--	--	--	--	--	
--	--	--	--	--	--	
Supplementary information:						





Battery identification	Charging at $T_{\text{lowest}} (^{\circ}\text{C})$	Observation	Charging at $T_{\text{highest}} (^{\circ}\text{C})$	Observation
--	--	--	--	--
Supplementary information:				

Annex Q1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U <sub>oc</sub> (V)	I <sub>sc</sub> (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
Supplementary information:						

T.2, T.3, T.4, T.5	TABLE:Steady Force Test					N/A
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
--	--	--	--	--	--	
Supplementary information:						

T.6, T9	TABLE: Impact Test				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
--	--	--	--	--	
Supplementary information:					

T.7	TABLE: Drop Test				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Unit	--	--	1000	No damaged, No hazard	
Supplementary information:					

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

Appendix A  
Photo documentation

Figure 1

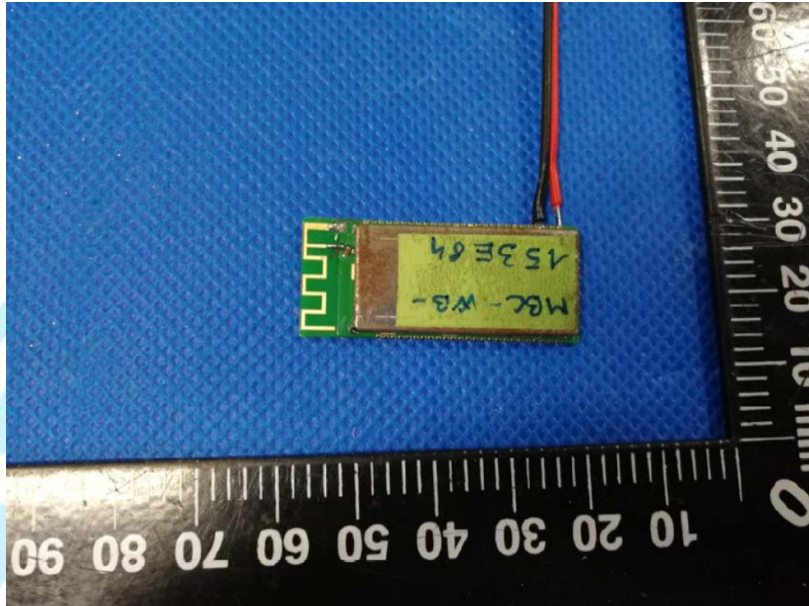


Figure 2

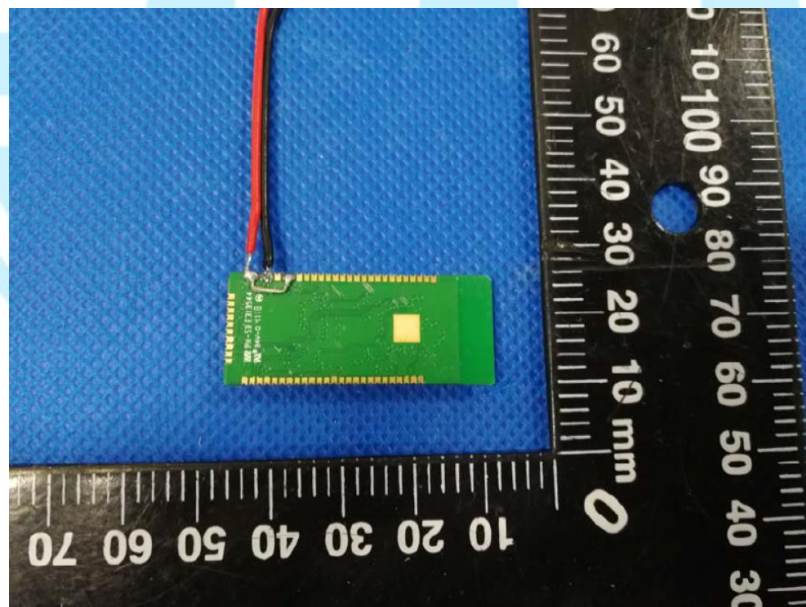


Figure 3

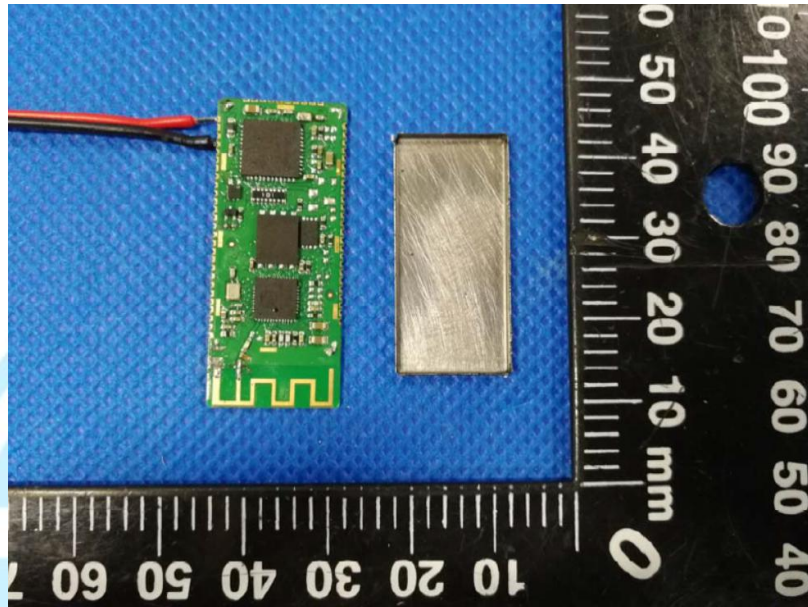
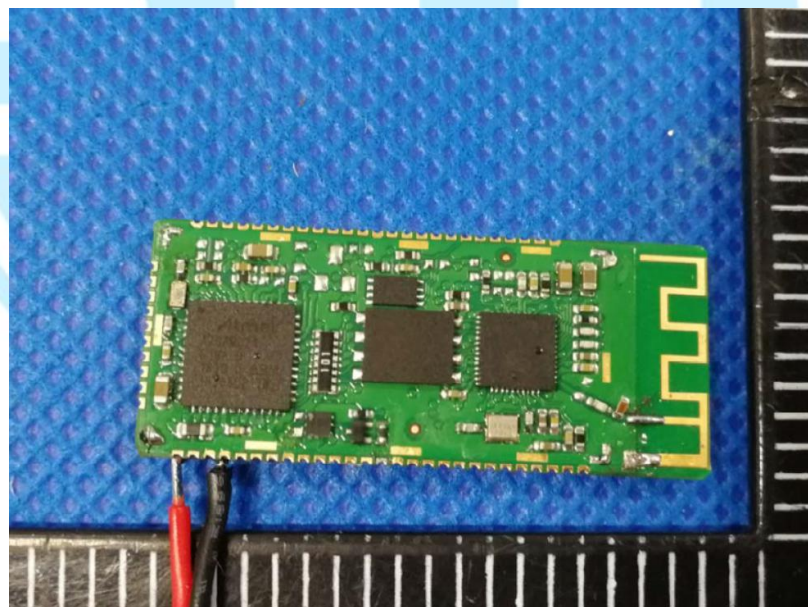


Figure 4



\*\*\*\*\*End of report\*\*\*\*\*