

SAFETY TEST REPORT IEC 62368-1:2014 (Second Edition) and/or EN 62368-1:2014+A11:2017 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Reference No.	L010337L049-A1
Compiled by (+ signature)	Rick Lin Project Engineer
Approved by (+ signature)	Hans Hsieh Reviewer
Date of Issue	2020-05-27
Testing laboratory	Sporton International Inc.(Safety Lab.)
Address	14 Fl-2, No. 186, Jianyi Road, Zhonghe District, New Taipei City
Testing location	Taiwan
Applicant	Laird Connectivity Limited
Address	3F-1, No. 145, Xianzheng 9th Rd., Zhubei City, Hsinchu County 30251, Taiwan
Standard	IEC 62368-1:2014 (Second Edition); and/or EN 62368-1:2014/A11:2017
Test Report Form No.	EN 62368-1
Test procedure	Sporton Safety type test approval
Procedure deviation.....	N/A
Non-standard test method.....	N/A
Type of test object	Sentrius™ IG60 Serial & Wi-Fi Gateway
Trademark	Laird Connectivity
Model/type reference.....	Sentrius™ IG60-SERIAL
Manufacturer	Same as applicant
Rating.....	9-36 Vdc, 2-1 A

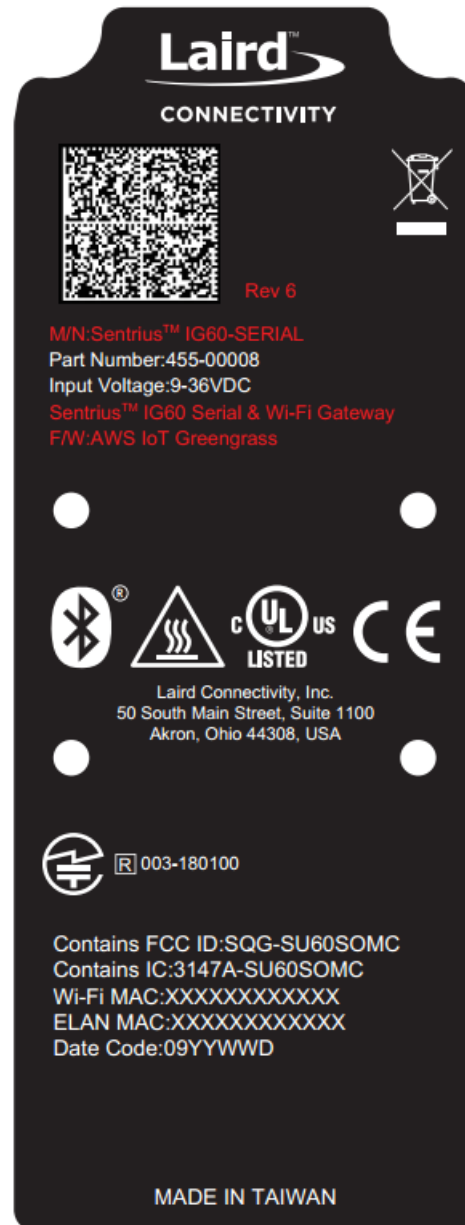
Test item particulars:

Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" type="checkbox"/> Children likely to be present
Supply Connection	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input checked="" type="checkbox"/> External Circuit - not 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"/> + ____ %/ - ____ % <input checked="" type="checkbox"/> 0% (Declared by the manufacturer)
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 directly connected to AC or DC mains.
Considered current rating of protective device as part of building or equipment installation	N/A
Equipment mobility	Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment <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 checked="" 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 directly connected to AC or DC mains
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
Access location	<input checked="" type="checkbox"/> restricted access location <input 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	70 or 85 °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> _
Power Systems.....	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V _{L-L}
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Mass of equipment (Kg)	<input checked="" type="checkbox"/> 0.348 kg

Test case verdicts

Test case does not apply to the test object.....: N/A
Test item does meet the requirement: P (Pass)
Test item does not meet the requirement: F (Fail)
Testing: - Date of receipt of test item: 2019-08 - Date(s) of performance of test: 2019-08
General remarks: The test result presented in this report relate only to the object(s) tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see appended table)" refers to a table appended to the report. Throughout this report a comma (point) is used as the decimal separator.
Comments: The test results are true for the test sample(s) only. A part of this test report or certificate should not be duplicated in any way; however, the duplication of the whole document is allowed. This test-report includes the following documents: Test report - (52 pages) Appendix - Photo (5 pages)
General product information: The equipment is a Gateway which intended use with audio/video, information and communication technology equipment. The enclosures are secured together by screws. The equipment was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 70 °C (The adapter may be included in the package); 85 °C (The adapter is not included in the package.). The max. ambient temperature of Power Adaptor, Model: F48L-120400SPAU by Chenzhou Frecom electronics Co., Ltd. is 45 °C. It has been tested and evaluated in this report and complied with the requirement of maximum ambient temperature 70 °C. The max. ambient temperature of Power Adaptor, Model: F30L2-120250SPACP by Shenzhen Frecom Electronics Co Ltd. is 45 °C. It has been tested and evaluated in this report and complied with the requirement of maximum ambient temperature 70 °C. The external Power Supply is not evaluated in this report. However, Based upon the equipment specification provided by the manufacturer, this equipment is intended to be powered by an IEC 62368-1 certified power supply suitable for use at the Tma (maximum ambient temperature) is minimum 85 °C which the output meets ES1, and is rated 9-36 Vdc, 2-1 A minimum. Determining the Pass / Fail results according to relating standard requirement. Please note that the measurement uncertainty are provided for informational purpose only and are not used in determining the Pass / Fail results.

Copy of marking plate:



Note: The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.

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: +12 V and +48 V dc input ES1

Source of electrical energy

Corresponding classification (ES)

Output of certified power supply	ES1
Internal circuit	ES1
Output port(s)	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	Corresponding classification (PS)
Internal circuit	PS3
Output port(s)	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	Corresponding chemical
--	--
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Equipment mass	MS1
Sharp edges and corners	MS1
The heights for mounting > 2 m	MS3
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	Corresponding classification (TS)
Accessible surfaces	TS1
Inner component surfaces	TS3
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	Corresponding classification (RS)
LED indicator	RS1

OVERVIEW OF EMPLOYED SAFEGUARDS		
Clause	Possible Hazard	
5.1	Electrically-caused injury	
Body Part	Energy Source	Safeguards

(e.g. Ordinary)	(ES3: Primary Filter circuit)	Basic	Supplementary	Reinforced (Enclosure)
N/A	N/A	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3	See 6.3	made of metal	N/A
PWB	PS3	See 6.3	V-1 or better	N/A
All other components/materials	PS3	See 6.3	See 6.4.5, 6.4.6	N/A
external wiring	PS2	N/A	N/A	See 6.5
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	MS3: Equipment in wall mount mode	N/A	N/A	See 8.7
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS3: Inner component surfaces	N/A	N/A	Enclosure
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
--	--	--	--	--
Supplementary Information:				
(1) See attached energy source diagram for additional details.				
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

Clause	Requirement - Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness		N/A
4.4.4.2	Steady force tests:	(See Annex T.5)	P
4.4.4.3	Drop tests		P
4.4.4.4	Impact tests	(See Annex T.6)	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		N/A
4.4.4.8	Air comprising a safeguard		N/A
4.4.4.9	Accessibility and safeguard effectiveness		N/A
4.5	Explosion		N/A
4.6	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		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	No such component.	N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object	No openings.	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	Complies with ES1 limits.	P
5.2.2.2	Steady-state voltage and current		N/A
5.2.2.3	Capacitance limits		N/A
5.2.2.4	Single pulse limits.....		N/A
5.2.2.5	Limits for repetitive pulses.....		N/A
5.2.2.6	Ring signals		N/A
5.2.2.7	Audio signals		N/A
5.3	Protection against electrical energy sources		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		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		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning		N/A
5.4.1.4	Maximum operating temperature for insulating materials		N/A
5.4.1.5	Pollution degree	Pollution degree 2.	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		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
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)		—
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		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
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		
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		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)		—
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	See below.	P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault.... :	See 6.2.2	N/A
6.2.2.3	Power measurement for worst-case power source fault..... :	See 6.2.2	N/A
6.2.2.4	PS1		N/A
6.2.2.5	PS2	See 6.2.2	P
6.2.2.6	PS3	See 6.2.2	P
6.2.3	Classification of potential ignition sources	All conductors and devices are considered as PIS.	P
6.2.3.1	Arcing PIS		N/A
6.2.3.2	Resistive PIS	See 6.2.3	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... :	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	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	Method by control of fire spread applied. See 6.4.5.	P
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	See below.	P

6.4.5.2	Supplementary safeguards	Components other than PCB and wires are: - mounted on PCB rated V-1 or better, or - made of V-2/VTM-2 or better. (See appended tables 4.1.2)	P
6.4.6	Control of fire spread in PS3 circuit		P
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		P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating		N/A
6.5	Internal and external wiring		P
6.5.1	Requirements	VW-1 or FT-1 wires used, which considered to equivalent to IEC/TS 60695-11-21.	P
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1	See Annex Q.	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		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..... :		N/A

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See below.	P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against 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.....:		—
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		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		P
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)	Safety instructions are provided in user's manual.	P

8.7.2	Direction and applied force	<p>Test 1: Applied a force 11 N (3 times the weight of equipment) in addition to the weight of the equipment is applied downwards through the center of gravity of the equipment, for 1 min.</p> <p>A horizontal force of 50 N is applied laterally for 60 s.</p> <p>Test 2: applied 4 N for each point (4 times the weight of equipment divided by 4 points of Wall mounting plate), each point in the mounting system shall be subjected to a shear force perpendicular to its center axis for 1 min. The force shall be applied in four directions, one direction at a time, separated by 90°.</p> <p>Each point in the mounting system, one at a time, shall be subjected to an inward directed push force parallel to its center axis for 1 min.</p> <p>Each point in the mounting system, one at a time, shall be subjected to an outward directed pull force parallel to its center axis for 1 min.</p> <p>Test 3: Four metal screws (Ø 2.5 mm, Length 7 mm) for attachment of the mounting means. Each threaded part subjected to 0.4 N-m and repeat 5 times. The each threaded part not become dislodged and remain mechanically intact and secure during the test.</p>	P
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		—
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)		—
8.10.6	Thermoplastic temperature stability (°C)		N/A
8.11	Mounting means for rack mounted equipment	Not 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	No telescoping or rod antennas.	N/A
	Button/Ball diameter (mm)		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	Accessible part: TS1. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6).	P
9.3	Safeguard against thermal energy sources	Accessible part: TS1. No safeguard required.	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		P
9.4.2	Instructional safeguard		N/A

10	RADIATION		P
10.2	Radiation energy source classification	See below.	P
10.2.1	General classification	RS1	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		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
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.....		—
10.6.5	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) 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	See below.	P
B.2.1	General requirements	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	No 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		P
B.3.1	General requirements	(See appended table B.3)	P
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.....		N/A
B.3.5	Maximum load at output terminals.....	(See appended table B.3)	P
B.3.6	Reverse battery polarity		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		P
B.4	Simulated single fault conditions		P
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		N/A
B.4.4	Short circuit of functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
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
B.4.7	Continuous operation of components		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		N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See below.	P
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment marking is located on the equipment surface and is easily visible.	P
F.3.2	Equipment identification markings	See below.	P
F.3.2.1	Manufacturer identification	See copy of marking plate	—
F.3.2.2	Model identification	See copy of marking plate	—
F.3.3	Equipment rating markings	See below.	P
F.3.3.1	Equipment with direct connection to mains		N/A

F.3.3.2	Equipment without direct connection to mains	Not direct connection to the mains, it need not be marked with any electrical rating.	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 Supplied.	—
F.3.3.6	Rated current or rated power	See copy of marking plate	—
F.3.3.7	Equipment with multiple supply connections		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		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		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
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	This equipment is classified as IPX0.	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	Instructions guide have state that correct and safe installation.	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		P
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
j)	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A
	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		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements		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		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		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		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A

G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions		N/A
G.4	Connectors		P
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		P
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components	No 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
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....		N/A
	Position		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	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		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
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)	ES1 circuit.	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		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
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 V _{ini}		—
	Routine test voltage, V _{ini,b}		—
G.13	Printed boards		P

G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
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 :		—

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		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
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		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance:		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.2.3)		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
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) :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used.....:		—

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		P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm):	No any openings provided.	—
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
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
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		P
Q.1.1 b)	Impedance limited output		P

	- Regulating network limited output under normal operating and simulated single fault condition	(see appended tables Annex Q.1)	P
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		P
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
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		N/A
T.2	Steady force test, 10 N		N/A
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	See appended table T.5.	P
T.6	Enclosure impact test		P
	Fall test	See appended table T.6.	P
	Swing test		N/A
T.7	Drop test		N/A
T.8	Stress relief test		N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test.....		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
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)		P
V.1	Accessible parts of equipment		P



V.2	Accessible part criterion		P
-----	---------------------------	--	---

4.1.2		TABLE: list of critical components				Pass
Object / part No.	Manufacturer / trademark	Type / model	technical data	Standard (Edition / year)	mark(s) of conformity	
Power Adaptor (Optional)	Chenzhou Frecom electronics Co., Ltd.	F48L-120400SPAV	I/P: 100-240 Vac, 50/60 Hz, 1.4 A, Class II; O/P: 12 Vdc, 4 A, 45 °C (Evaluated to 70 °C)	IEC 62368-1:2014 (Also evaluated to EN 62368-1:2014+A11:2017)	CB issued by UL certificate No. DK-85093-UL	
(Alternate)	Shenzhen Frecom Electronics Co Ltd	F30L2-120250SPA CP	I/P: 100-240 Vac, 50/60 Hz, 0.8 A, Class II; O/P: 12 Vdc, 2.5 A, 45 °C (Evaluated to 70 °C)	IEC 60950-1:2005+A1:2009+A2:2013	CB issued by TUV certificate No. SG PSB-OF-02 275	
Metal enclosure	Interchangeable	Interchangeable	Metallic, min. 2.0 mm thickness.	--	--	
PWB	Interchangeable	Interchangeable	V-1 or better, min. 105 °C.	UL 796	UL	
LED Lightpipe	SABIC INNOVATIVE PLASTICS US LLC	943X(GG)(X)	V-0, 110 °C, thickness 1.5 mm min.	UL 94, UL 746C	UL	
Wall Bracket (Optional)	Interchangeable	Interchangeable	Metallic, min. 2.0 mm thickness.	--	--	
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) Description line content is optional. Main line description needs to clearly detail the component used for testing						

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

Supplementary information:			

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

5.2	Table: Classification of electrical energy sources						N/A
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (A _{pk} or A _{rms})	Hz	
			Normal				
			Abnormal				
			Single fault –SC/OC				
			Normal				
			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 Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ip _k (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	

			Single fault – SC/OC				
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
Test Conditions: Normal – Abnormal - Supplementary information: SC=Short Circuit, OC=Short Circuit							

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					Pass
	Supply voltage (V) :	9 Vdc	36 Vdc	9 Vdc	36 Vdc	—
	Ambient T _{min} (°C) :	--	--	--	--	—
	Ambient T _{max} (°C) :	--	--	--	--	—
	Tma (°C) :	--	--	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
For normal condition:						
Test condition		Desktop	Desktop	Wall Mount	Wall Mount	--
Actual ambient		82.9	82.9	83.2	83.2	--
Tma		85.0	85.0	85.0	85.0	--
CMF1 coil		95.8	96.0	97.4	97.4	105
PCB near U7		101.1	102.3	100.5	101.5	105
PCB near wireless module		101.3	102.4	100.1	100.9	105
PCB near U5		100.2	101.2	99.3	99.9	105
PCB near U4		98.2	99.3	96.7	97.2	105
TRFM1 coil		101.5	102.8	100.1	100.7	105
Following parts located on enclosure surface (accessible parts)		--	--	--	--	--
Actual ambient		23.0	23.0	22.5	22.7	--
Room ambient		25.0	25.0	25.0	25.0	--
Metal enclosure outside near U7		31.9	33.0	31.5	32.2	60

For Power Adaptor with model F48L-120400SPAV	--	--	--	--	--
Supply voltage (V)	90 Vac/60 Hz	90 Vac/60 Hz	264 Vac/60 Hz	264 Vac/60 Hz	--
Test Condition	Vertical	Horizontal	Vertical	Horizontal	--
Actual ambient	21.9	23.2	22.3	22.7	--
Tma	70.0	70.0	70.0	70.0	--
Plug holder	72.3	72.8	73.1	73.3	120
Input wire	75.0	75.4	76.6	76.6	105
MOV1 body	76.0	76.5	77.8	78.0	85
PCB near NTC1	77.0	77.5	78.8	79.2	130
CX1 body	77.5	78.1	79.8	80.1	100
LF1 coil	76.0	76.5	78.2	78.4	130
LF2 coil	77.2	78.1	79.6	80.1	130
PCB near BD1	77.1	78.0	78.6	79.2	130
PCB near HS1	77.2	78.4	80.7	81.6	130
EC1 body	78.3	79.3	81	81.8	105
PCB near Q1	77.2	78.3	81.1	82.0	130
T1 coil	78.6	79.6	83.2	84.0	110
T1 core	77.5	78.5	81.4	82.1	110
CY1 body	77.5	78.6	81.8	82.8	125
IC2 body	76.1	76.9	79.0	79.7	100
PCB near Q2	76.9	77.9	81.1	82.0	130
EC4 body	76.7	77.6	81.5	82.3	105
LF3 coil	75.6	76.3	79.2	79.8	105
Output wire	74.1	74.7	76.4	77.0	80
Mylar sheet	76.6	77.8	80.1	81.1	125
Shielding case	76.5	77.6	79.9	80.8	--
Plastic enclosure inside near T1	75.4	76.6	78.3	79.3	120
Actual ambient	21.9	23.2	22.3	22.7	--
Room ambient	25.0	25.0	25.0	25.0	--
Plastic enclosure outside near T1	28.8	29.7	30.8	31.5	77
Output cord	25.3	25.4	25.6	25.4	77
For Power Adaptor with model F30L2-120250SPACP	--	--	--	--	--
Supply voltage (V)	90 Vac/60 Hz	90 Vac/60 Hz	264 Vac/60 Hz	264 Vac/60 Hz	--

Test Condition	Vertical	Horizontal	Vertical	Horizontal	--
Actual ambient	23.1	22.7	23.4	22.6	--
Tma	70.0	70.0	70.0	70.0	--
Plug holder	72.6	71.4	72.5	72.2	Stress relief
Input wire	77.8	77.4	78.4	78.8	105
MOV1 body	80.0	79.1	79.5	79.5	85
CX1 body	79.8	79.1	80.1	80.0	100
LF1 coil	80.4	80.0	80.3	80.6	130
EC1 body	80.3	79.9	80.2	80.5	105
PCB near Q1	80.1	79.4	81.6	81.7	130
PCB near BD1	80.4	79.8	79.6	79.7	130
EC2 body	77.6	76.9	78.5	78.6	105
IC2 body	77.2	76.6	78.0	78.3	100
T1 coil	82.4	82.4	83.7	84.5	110
T1 core	80.6	80.8	81.8	82.7	110
CY1 body	81.3	81.1	82.4	83.0	125
PCB near D5	81.7	81.5	83.2	84.0	130
EC4 body	77.1	77.0	77.9	78.8	105
LF2 coil	75.0	74.7	75.5	76.1	130
Output wire	73.6	73.1	74.0	74.4	80
Plastic enclosure inside near T1 (Top)	78.8	78.9	79.7	80.7	Stress relief
Plastic enclosure inside near T1 (Bottom)	78.7	78.3	79.5	80.0	Stress relief
NTC1 body	80.3	79.6	81.3	81.2	Stress relief
Actual ambient	23.1	22.7	22.3	22.7	--
Room ambient	25.0	25.0	25.0	25.0	--
Plastic enclosure outside near T1 (Top)	30.6	30.6	31.1	32.2	48
Plastic enclosure outside near T1 (Bottom)	30.6	30.1	31.2	31.4	48
For abnormal operating and fault condition:					
Abnormal operating condition: Maximum load at output terminals	USB port overload	Micro SD port overload	--	--	--
Test condition:	Desktop	Desktop	--	--	--
Actual ambient	24.0	23.8	--	--	--
Tma	85.0	85.0	--	--	--
CMF1 coil	110.0	125.9	--	--	300

PCB near U7	116.6	137.2	--	--	300		
PCB near wireless module	116.3	136.8	--	--	300		
PCB near U5	113.4	133.6	--	--	300		
PCB near U4	98.8	114.8	--	--	300		
TRFM1 coil	115.6	132.9	--	--	300		
Following parts located on enclosure surface (accessible parts)	--	--	--	--	--		
Actual ambient	24.0	23.8	--	--	--		
Room ambient	25.0	25.0	--	--	--		
Metal enclosure outside near U7	37.2	46.4	--	--	70		
Metal enclosure outside near USB port	37.2	--	--	--	70		
Metal enclosure outside near Micro SD port	--	39.6	--	--	70		
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							
Note 1: Tma should be considered as directed by applicable requirement							
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)							

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

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

5.4.2.2, 5.4.2.4	TABLE: Minimum Clearances/Creepage distance	N/A
-------------------------	--	------------

and 5.4.3							
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Supplementary information: Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group							

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

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

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

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

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

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

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*	
	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.		

6.2.2	Table: Electrical power sources (PS) measurements for classification				N/A
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification
		Power (W) :	--	--	
		V _A (V) :	--	--	
		I _A (A) :	--	--	
		Power (W) :	--	--	
		V _A (V) :	--	--	
		I _A (A) :	--	--	
Supplementary Information:					
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits					

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			N/A
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p × I _{rms})	Arcing PIS? Yes / No
Supplementary information: An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V _p) and normal operating condition rms current (I _{rms}) is greater than 15.				

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)					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, <u>or</u> (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.</p>						

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						Pass
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
9 Vdc	0.68	2	6.12	--	--	--	Maximum Normal load
36 Vdc	0.17	1	6.12	--	--	--	Maximum Normal load

B.2.5		TABLE: Input test						Pass
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
<p>Supplementary information:</p> <p>Equipment may be have rated current or rated power or both. Both should be measured.</p> <p>The Max. normal load was defined as below:</p> <p>The equipment communicated with other device via LAN port and wireless, USB 2.0 port loaded 2.5 W (0.5 A) then operated continuously.</p>								

B.3		TABLE: Abnormal operating condition tests						P
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
USB port pin 1 to RTN (load to 1.4 A)	Overload	36 Vdc	1 h 30 min	--	--	--	--	Unit normal operation. NC, NT, ASRE.
USB port pin 1 to RTN	Short	36 Vdc	20 min	--	--	--	--	USB output port shutdown. NC, NT, ASRE.
Micro SD port pin 4 to RTN (load to 1.9 A)	Overload	36 Vdc	1 h 30 min	--	--	--	--	Unit normal operation. NC, NT, ASRE.
Micro SD port pin 4 to RTN	Short	36 Vdc	20 min	--	--	--	--	Micro SD output port shutdown. NC, NT, ASRE.

B.3		TABLE: Abnormal operating condition tests							P
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>Results Key:</p> <p>NC: Cheesecloth remain intact</p> <p>NT: Tissue paper remains intact</p> <p>NB: No indication of dielectric breakdown</p> <p>IP: Internal protection operated (list component see table 4.1.2) repeat all fuse, result were same</p> <p>CT: Constant temperatures were obtained</p> <p>CD: Components damaged (list damaged components)</p> <p>ASRE: All safeguards remained effectively</p> <p>RP2: Repeat two times, results were the same</p> <p>OV: Output voltage</p> <p>All temperature measurement refer to appended table 5.4.1.4</p>									

B.4		TABLE: Fault condition tests							N/A
Ambient temperature (°C)									—
Power source for EUT: Manufacturer, model/type, output rating									—
Component No.	Fault Condition	Supply voltage, (Vdc)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Supplementary information:									

Annex M	TABLE: Batteries								N/A		
The tests of Annex M are applicable only when appropriate battery data is not available									N/A		
Is it possible to install the battery in a reverse polarity position?								--		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											
- Explosion of the battery											
- Emission of flame or expulsion of molten metal											
- 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 _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation		
Supplementary Information:						

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected: see below.						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Circuit output tested: Serial port						
Pin 1 - 9 to RTN	Normal	0	0	8	0	100
Circuit output tested: USB port						
Pin 1 to RTN	Normal	5.11	1.4	8	6.55	100
Pin 1 to RTN	U15 pin 2, 3 to pin 6, 7, 8 SC	5.11	5.0	8	14.95	100
Pin 2 - 4 to RTN	Normal	0	0	8	0	100
Circuit output tested: Micro SD port						
Pin 4 to RTN	Normal	3.29	2.10	8	3.44	100
Pin 4 to RTN	U2 pin 2 to pin 7, 8 SC	5.05	3.10	8	5.42	100
Pin 1, 2, 7, 8 to RTN	Normal	3.29	0	8	0	100
Pin 3 to RTN	Normal	3.22	0	8	0	100
Pin 5, 6, 9 to RTN	Normal	0	0	8	0	100
Circuit output tested: LAN1 port						
Pin 1 - 8 to RTN	Normal	0	0	8	0	100
Circuit output tested: LAN2 port						
Pin 1 - 8 to RTN	Normal	0	0	8	0	100
Supplementary Information: SC=Short circuit, OC=Open circuit, NC=Normal condition.						

T.2, T.3, T.4, T.5	TABLE: Steady force test					Pass
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Enclosure / Top near U7	See appended table 4.1.2	See appended table 4.1.2	250 N	5	¹⁾	

Enclosure / Side near U7	See appended table 4.1.2	See appended table 4.1.2	250 N	5	¹⁾
Enclosure / Bottom near U7	See appended table 4.1.2	See appended table 4.1.2	250 N	5	¹⁾
Supplementary information:					
1) No cracking, class 3 energy sources did not become accessible and all safeguards remain effective.					

T.6, T.9	TABLE: Impact tests				Pass
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure / Top near U7	See appended table 4.1.2	See appended table 4.1.2	1300	1)	
Enclosure / Side near U7	See appended table 4.1.2	See appended table 4.1.2	1300	1)	
Enclosure / Bottom near U7	See appended table 4.1.2	See appended table 4.1.2	1300	1)	
Supplementary information:					
1) No cracking, class 3 energy sources did not become accessible and all safeguards remain effective.					

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

T.8	TABLE: Stress relief test				N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Supplementary information:					
1) No shrinkage, warpage, or other distortion, class 3 energy sources did not become accessible. All safeguards remain effective.					

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_1B_II
Attachment Originator	Intertek Semko AB
Master Attachment	Date (2017-09-22)
Copyright © 2015 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE)	

	CENELEC COMMON MODIFICATIONS (EN)		P
1	NOTE Z1	Added.	P
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:	Certified IEC 60950-1 AC adapter used. Not applicable.	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	Added.	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

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
4.1.15	Denmark, Finland, Norway and Sweden: Class I pluggable equipment type A marking	Class III equipment.	N/A
4.7.3	United Kingdom: Torque test socket-outlet BS 1363, and the plug part BS 1363.	Class III equipment.	N/A
5.2.2.2	Denmark: Warning for high touchcurrent	Class III equipment.	N/A
5.4.11.1 and Annex G	Finland and Sweden: Separation of the telecommunication network from earth	No telecommunication network.	N/A
5.5.2.1	Norway: Capacitors rated for the applicable line-to-line voltage (230 V).	Class III equipment.	N/A

5.5.6	Finland, Norway and Sweden: Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.	Class III equipment.	N/A
5.6.1	Denmark: Protection for pluggable equipment type A; integral part of the equipment	Class III equipment.	N/A
5.6.4.2.1	Ireland and United Kingdom: The protective current rating is taken to be 13 A	Class III equipment.	N/A
5.6.5.1	Ireland and United Kingdom: Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A	Class III equipment.	N/A
5.7.5	Denmark: The installation instruction affixed to the equipment if high protective conductor current	Class III equipment.	N/A
5.7.6.1	Norway and Sweden: Television distribution system isolation text in user manual	Not Television distribution system.	N/A
5.7.6.2	Denmark: Warning for high touch current	No external circuits.	N/A
B.3.1 and B.4	Ireland and United Kingdom: Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment	Not direct plug-in equipment.	N/A
G.4.2	Denmark: Appliances rated ≤ 13 A provided with a plug according to DS 60884-2-D1:2011.	Class III equipment.	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.	Class III equipment.	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.	Class III equipment.	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.	Class III equipment.	N/A
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.	Class III equipment.	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	Class III equipment.	N/A
G.4.2	United Kingdom: The plug part of direct plug-in equipment assessed to BS 1363	Class III equipment.	N/A
G.7.1	United Kingdom: Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768	Class III equipment.	N/A

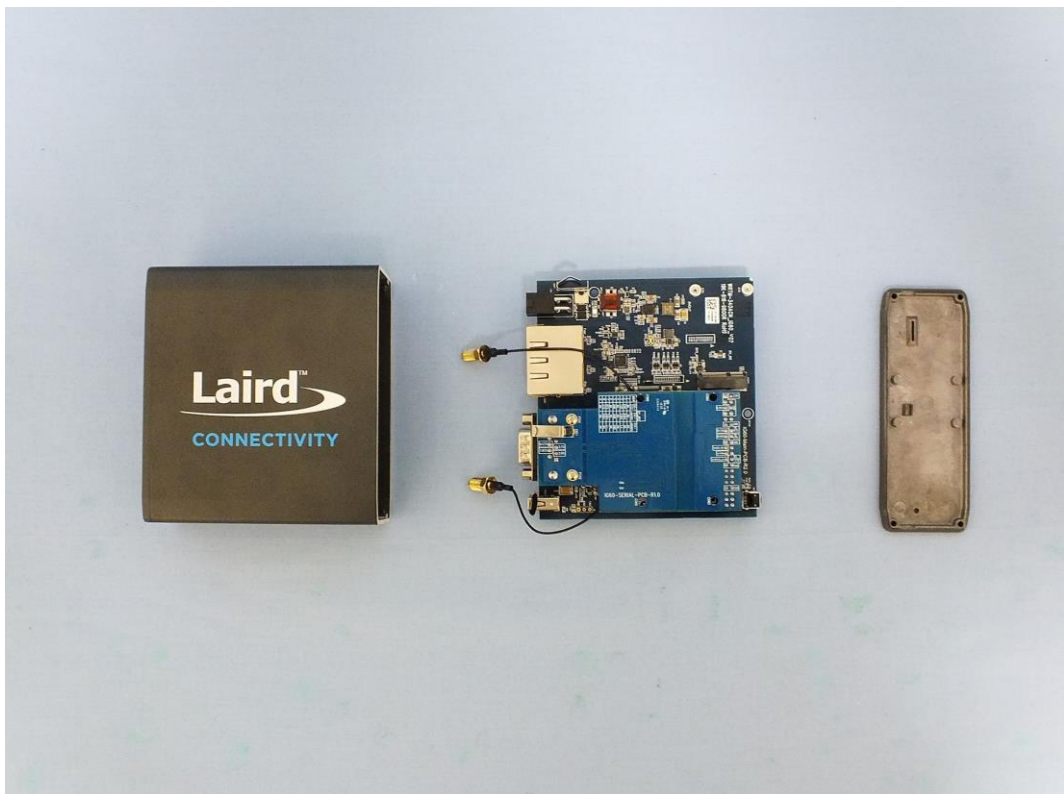
G.7.1	Ireland: Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use"	Class III equipment.	N/A
G.7.2	Ireland and United Kingdom: A power supply cord for equipment which is rated over 10 A and up to and including 13 A.	Class III equipment.	N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	Germany: Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.	No cathode ray tube.	N/A

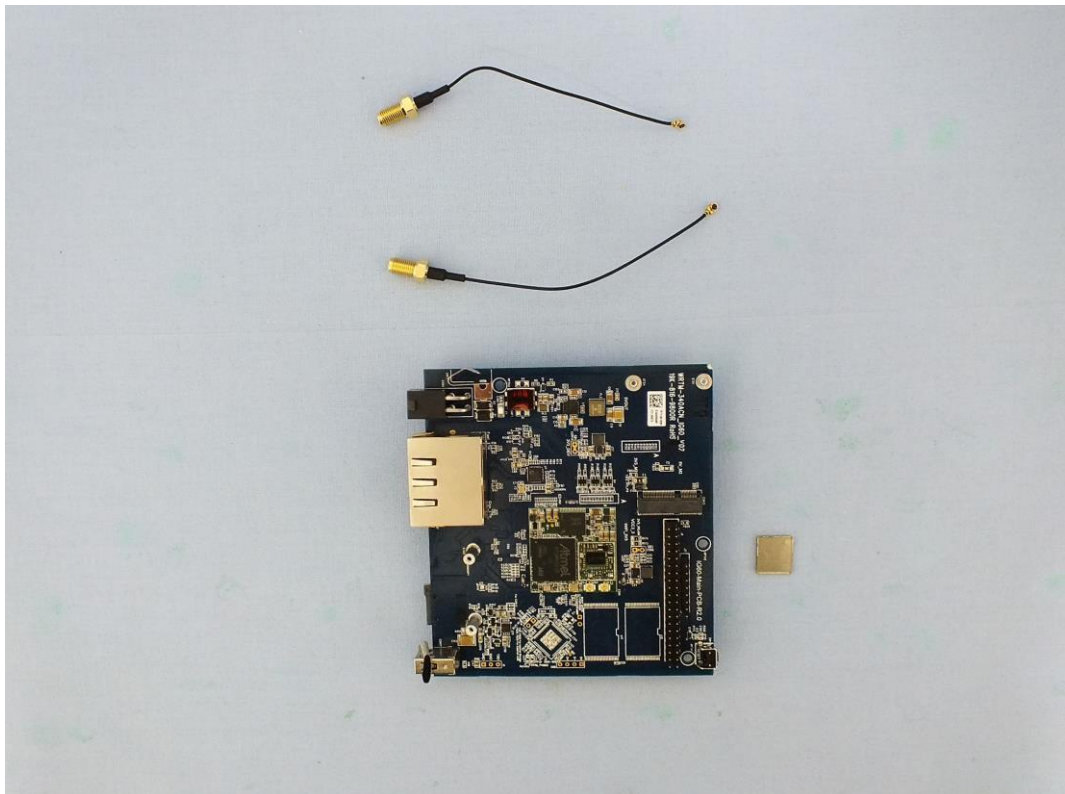
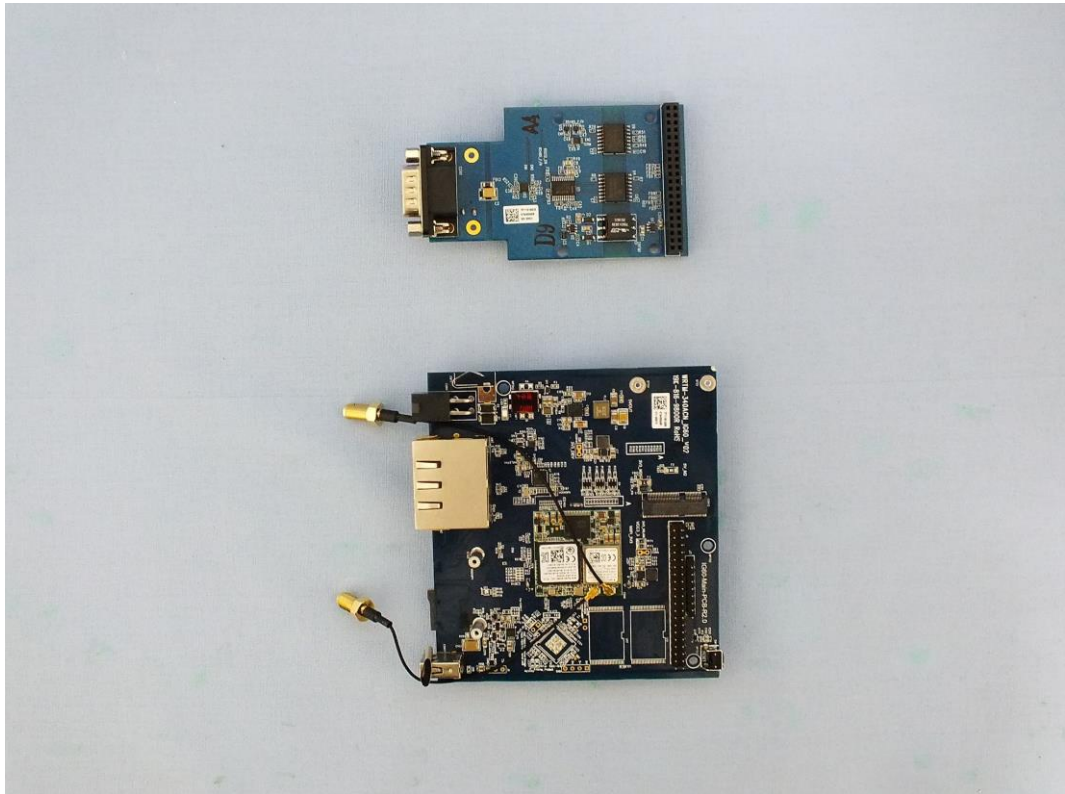
Appendix - Photo



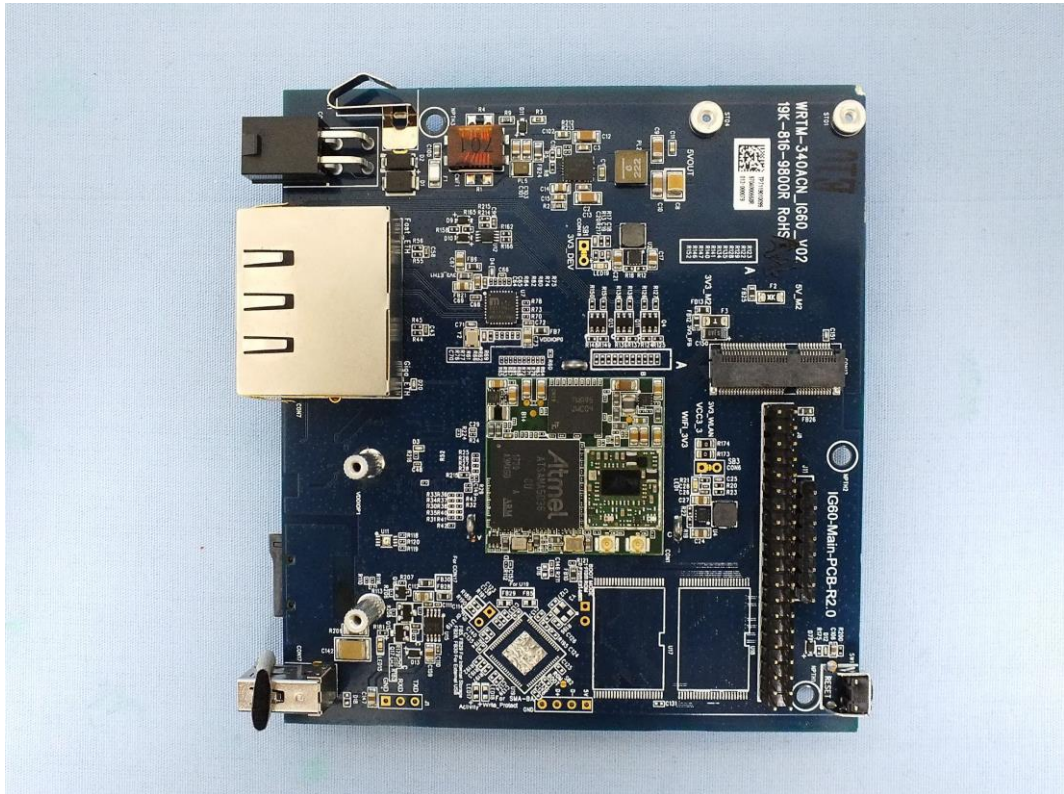
Appendix – Photo



Appendix – Photo



Appendix – Photo



Appendix – Photo

