




TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number:	393152
Date of issue	May 7, 2020
Total number of pages:	50
Applicant's name:	Texas Instruments Incorporated
Address:	12500 TI Boulevard MS D2000, Dallas, TX, 75243, United States
Test specification:	
Standard.....	IEC 62368-1:2014 (Second Edition)
Test procedure.....	Based on above standard including all listed National Differences
Non-standard test method.....	N/A
Test Report Form No. : IEC62368_1B	
Test Report Form(s) Originator... : UL(US)	
Master TRF..... : 2014-03	
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The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	
Test Item description	Evaluation board
Trade Mark	
Manufacturer.....	Same as Applicant
Model/Type reference	IWR6843AOPEVM
Ratings	5 Vdc, 3 A, Class III (No marking required)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Nemko USA, Inc.
Testing location/ address		2210 Faraday Ave., Suite 150, Carlsbad, CA 92008, USA
Tested by (name, function, signature) .:		Jungju Kim (Project Handler)
Approved by (name, function, signature) :		Jeff Busch (Verifier)
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature) .:		
Approved by (name, function, signature) :		
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....:		
Witnessed by (name, function, signature):		
Approved by (name, function, signature) :		
<hr/>		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature) .:		
Witnessed by (name, function, signature):		
Approved by (name, function, signature) :		
Supervised by (name, function, signature)		

<p>List of Attachments (including a total number of pages in each attachment):</p> <p>Attachment 1: Photographs (2 pages)</p> <p>Attachment 2: EU/Group National Differences according to EN 62368-1:2014 +A11:2017 (9 pages).</p> <p>Attachment 3: Australia / New Zealand National Differences according to AS/NZS 62368.1:2018 (11 pages).</p> <p>Attachment 4: Italy National Differences according to CEI EN 62368-1:2016 (2 pages).</p> <p>Attachment 5: Japan National Differences according to J62368-1 (H30) (5 pages).</p> <p>Attachment 6: USA and Canada National Differences according to CSA/UL 62368-1:2014 (5 pages).</p>									
<p>Summary of testing:</p> <table> <tr> <td>General</td><td>All testing was performed with the device mounted on MMWAVEICBOOST board, see appended pictures. The equipment under test is class III open frame, evaluation board for building-in which can be used alone or can be mounted on the manufacturer designated MMWAVEICBOOST evaluation board which is used for the manufacturer's IWR6843 mmWave sensing device.</td></tr> <tr> <td>Safety instructions.</td><td>EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.</td></tr> <tr> <td>6.3 Safeguards against fire under normal operating and abnormal operating conditions</td><td>EUT is class III open frame, evaluation board for building-in. The fire enclosure requirements must be evaluated in end use.</td></tr> <tr> <td>6.4 Safeguards against fire under single fault conditions</td><td></td></tr> </table>		General	All testing was performed with the device mounted on MMWAVEICBOOST board, see appended pictures. The equipment under test is class III open frame, evaluation board for building-in which can be used alone or can be mounted on the manufacturer designated MMWAVEICBOOST evaluation board which is used for the manufacturer's IWR6843 mmWave sensing device.	Safety instructions.	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	6.3 Safeguards against fire under normal operating and abnormal operating conditions	EUT is class III open frame, evaluation board for building-in. The fire enclosure requirements must be evaluated in end use.	6.4 Safeguards against fire under single fault conditions	
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Safety instructions.	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.								
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6.4 Safeguards against fire under single fault conditions									
<p>Tests performed (name of test and test clause):</p> <p>5.2 Classification of electrical energy sources</p> <p>5.4.1.4, 6.3.2, 9.0, B.2.6 Temperature measurements</p> <p>6.2.2 Electrical Power Sources</p> <p>6.2.3 Determination of Potential Ignition Sources</p> <p>B.2.5 Input test</p> <p>Annex Q.1 Circuits intended for interconnection with building wiring (LPS)</p>	<p>Testing location:</p> <p>See page 2.</p>								
<p>Summary of compliance with National Differences:</p> <p>List of countries addressed</p> <p>The list of countries recognizing the CB Scheme is actively updated on the iecee.org website.</p> <p>All CENELEC members according to EN 62368-1:2014.</p> <p>All National Differences listed in the IECEE Online Bulletin are covered by the Common Modifications, Special National Conditions, National Differences, and the National Requirements noted above except for the following Countries which are documented in National Differences Appendixes attached to this report.</p> <p>Australia / New Zealand, Italy, Japan, USA and Canada</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of IEC/EN 62368-1:2014 +A11:2017.</p>									

Copy of marking plate:

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



Note: Additional characters to the base model will be included to differentiate customer specific features or programs. These additional characters do not indicate differences that impact safety.

Calibration	<p>All instruments used in the tests given in this test report are calibrated and traceable to national or international standards.</p> <p>Further information about traceability will be given on request.</p>
Measurement uncertainty	<p>Measurement uncertainties are calculated for all instruments and instrument set-ups given in this report. Calculations are based on the principles given in the standard EA-4/02 (Dec. 1999), IEC Guide 115:2007 and other relevant internal Nemko-procedures.</p> <p>Further information about measurement uncertainties will be given on request.</p>
Evaluation of results	<p>If not explicitly stated otherwise in the standard, the test is passed if the measured value is equal to or below (above) the limit line, regardless of the measurement uncertainty. If the measured value is above (below) the limit line, the test is not passed - ref IEC Guide 115:2007. The instrumentation accuracy is within limits agreed by IECEE-CTL.</p>

TEST ITEM PARTICULARS:	
Classification of use by.....:	<input type="checkbox"/> Ordinary person <input checked="" type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection.....:	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input checked="" type="checkbox"/> External Circuit - not Mains connected - <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input checked="" type="checkbox"/> None
Supply Connection – Type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: Class III open frame, evaluation board for building-in
Considered current rating of protective device as part of building or equipment installation	N/A – Class III equipment Installation location: <input type="checkbox"/> building; <input checked="" type="checkbox"/> equipment
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: Class III for building-in
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	60 °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP20_
Power Systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V L-L N/A – Class III for building-in
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> Up to 5000 m
Altitude of test laboratory (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> 90 m
Mass of equipment (kg)	11 g Dimensions: Approximately 88 mm (W) x 12.5 mm (H) x 27 mm (L)

POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement.....	F (Fail)
TESTING:	
Date of receipt of test item	April 2020
Date (s) of performance of tests	April 2020
<p>The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable</p> <p>When differences exist; they shall be identified in the General product information section.</p>	
Name and address of factory (ies).....	Texas Instruments Incorporated 12500 TI Boulevard MS D2000, Dallas, TX, 75243, United States

GENERAL PRODUCT INFORMATION:**Product Description**

The equipment under test is class III open frame, evaluation board for building-in which can be used alone or can be mounted on the manufacturer designated MMWAVEICBOOST evaluation board which is used for the manufacturer's IWR6843 mmWave sensing device.

The device is intended to be used in isolated secondary DC circuits meeting ES1 requirements.

1.1.2 - Additional requirements:

Exposure to extreme temperatures, excessive dust, moisture or vibration; to flammable gases; to corrosive or explosive atmospheres: This equipment is intended to operate in a "normal" environment (offices and homes).

Electromedical equipment connected to the patient: This equipment is not an electromedical equipment intended to be physically connected to a patient.

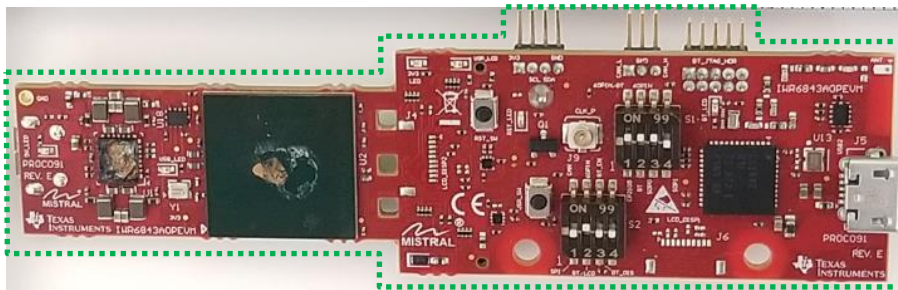
Equipment used in vehicles, ships or aircrafts, in tropical countries, or at elevations > 2000m:
This equipment is intended to operate in a "normal" environment (offices and homes).

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
ES1	
Source of electrical energy	Corresponding classification (ES)
Entire input/output circuitry of EUT (Maximum 5 Vdc)	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)
Micro USB power input port (J5) and 60-pin Samtec connector	PS3 (declared), Note 1)
Emulator micro USB port, J1 (Data communication only)	PS1
Note 1): External DC PSU is not provided with the equipment. Therefore, internal circuitry and components are declared as PS3.	
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
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Mass of equipment	MS1: 11 g
Sharp edges and corners	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
TS1	
Source of thermal energy	Corresponding classification (TS)
N/A	N/A
EUT is class III open frame, evaluation board for building-in. Touch Temperatures (Clause 9) requirements must be evaluated in end use.	
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)
N/A	N/A

ENERGY SOURCE DIAGRAM

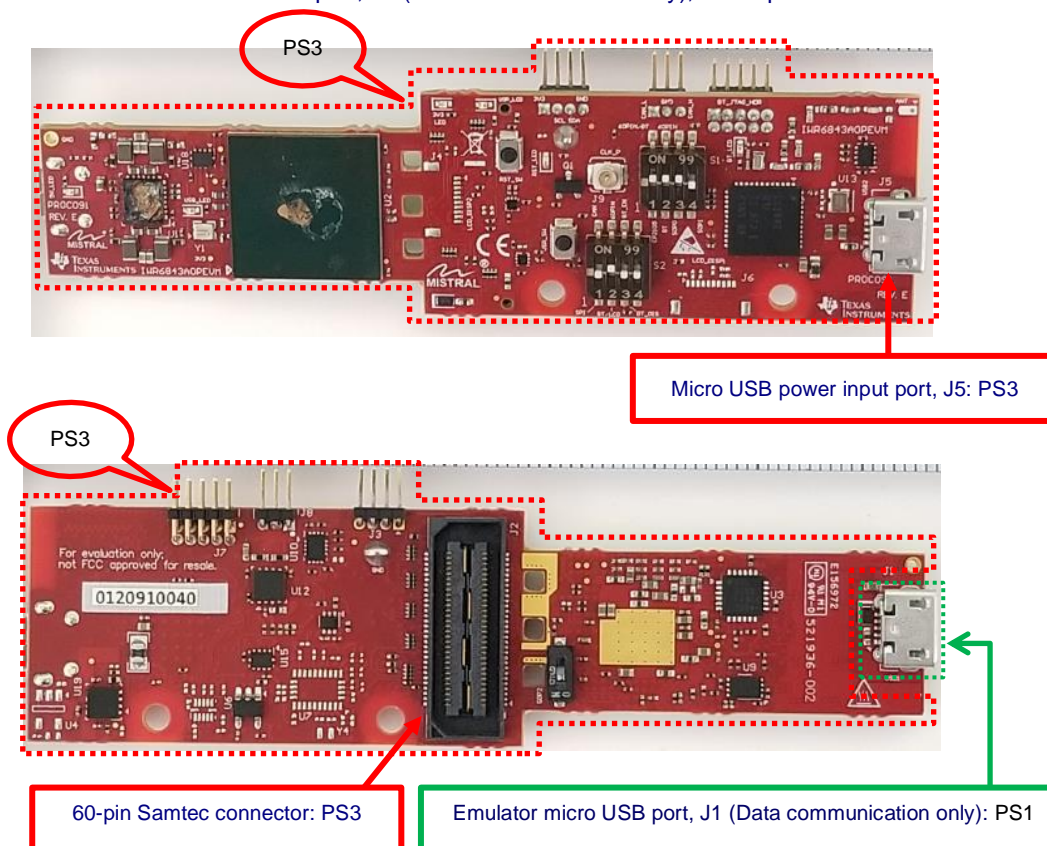
Indicate which energy sources are included in the energy source diagram. Insert diagram below

☒ ES1 ☐ PS ☒ MS1 ☐ TS ☐ RS



☐ ES1 ☒ PS ☐ MS ☐ TS ☐ RS

Note: Other than the emulator micro USB port, J1 (Data communication only), entire part of EUT is declared as PS3



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Instructed and skilled person	ES1: Entire input/output circuitry of EUT (Maximum 5 Vdc)	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
Entire input circuitry of EUT	PS3 (declared)	Note 1)	Note 1)	Note 1)
Emulator micro USB port, J1 (Data communication only)	PS1	N/A	N/A	N/A
Note 1): EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.				
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)
Instructed and skilled person	MS1: 11 g	N/A	N/A	N/A
Instructed and skilled person	MS1: Sharp edges and corners	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed and skilled person	N/A	N/A	N/A	N/A
EUT is class III open frame, evaluation board for building-in. Touch Temperatures (Clause 9) requirements must be evaluated in end use.				
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Instructed and skilled person	N/A	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended Table 4.1.2.	P
4.1.2	Use of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.</p> <p>Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 62368-1 and the relevant component standard.</p> <p>Components, for which no relevant IEC-standard exists has been tested under the conditions occurring in the equipment, using applicable parts of IEC 62368-1. (See appended Table 4.1.2.)</p>	P
4.1.3	Equipment design and construction	Equipment is adequately designed and constructed.	P
4.1.15	Markings and instructions	Suitable markings and instructions are provided. (See Annex F)	P
4.4.4	Safeguard robustness	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
4.4.4.2	Steady force tests.....	See above.	N/A
4.4.4.3	Drop tests.....	See above.	N/A
4.4.4.4	Impact tests.....	See above.	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests	See above.	N/A
4.4.4.6	Glass Impact tests	No glass.	N/A
4.4.4.7	Thermoplastic material tests	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
4.4.4.8	Air comprising a safeguard	See above.	N/A
4.4.4.9	Accessibility and safeguard effectiveness	See above.	N/A
4.5	Explosion	No explosions.	N/A
4.6	Fixing of conductors	Class III equipment.	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	Equipment for direct insertion into mains socket - outlets	Not for connection to mains socket-outlet.	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 battery in the equipment.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object	No opening. (See Annex P)	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits	ES1	P
5.2.2.2	Steady-state voltage and current	(See appended table 5.2)	P
5.2.2.3	Capacitance limits	No capacitors as electrical energy source.	N/A
5.2.2.4	Single pulse limits	No single pulses generated	N/A
5.2.2.5	Limits for repetitive pulses	No repetitive pulses generated	N/A
5.2.2.6	Ringing signals	No ringing signal in the equipment.	N/A
5.2.2.7	Audio signals	No audio signals.	N/A
5.3	Protection against electrical energy sources	All circuitry or parts are considered as ES1. Safeguards are not required.	N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	ES1 circuits only.	N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES1 circuits only.	N/A
5.3.2.2	Contact requirements	ES1 circuits only.	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	No such terminals.	N/A
5.4	Insulation materials and requirements		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.2	Properties of insulating material	Class III equipment, evaluated for functional insulation only. Suitable materials provided. (See appended table 4.1.2)	P
5.4.1.3	Humidity conditioning	Class III equipment.	N/A
5.4.1.4	Maximum operating temperature for insulating materials	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
5.4.1.5	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	No 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	Class III equipment, ES1 circuits, evaluated for functional insulation only.	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	Class III equipment, ES1 circuits, evaluated for functional insulation only.	N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.2	Minimum distance through insulation :	Class III equipment, ES1 circuits, evaluated for functional insulation only.	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	Not relied on for safety.	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) :		—
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	No antennas	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 :	Class III equipment, ES1 circuits, evaluated for functional insulation only.	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Class III equipment, ES1 circuits, evaluated for functional insulation only.	N/A
	Relative humidity (%)..... :		—
	Temperature (°C) :		—
	Duration (h) :		—
5.4.9	Electric strength test..... :	Class III equipment.	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	Class III equipment.	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	All components comply with the applicable requirements for that safeguard and used within its rating.	P
5.5.2	Capacitors and RC units	Class III equipment.	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector :	Class III equipment.	N/A
5.5.3	Transformers	No transformers in the equipment.	N/A
5.5.4	Optocouplers	No optocouplers in the equipment.	N/A
5.5.5	Relays	No relays in the equipment.	N/A
5.5.6	Resistors	No resistors used as safeguard.	N/A
5.5.7	SPD's	No SPD's in the equipment.	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 :	The equipment is not intended for connection to a coaxial cable.	N/A
5.6	Protective conductor		
5.6.2	Requirement for protective conductors	Class III equipment.	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Class III equipment.	N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).		—
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	Class III equipment.	N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	Class III equipment.	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	Class III equipment.	N/A
5.7.5	Protective conductor current	Class III equipment.	N/A
	Supply Voltage (V)		—
	Measured current (mA)		—
	Instructional Safeguard		—
5.7.6	Prospective touch voltage and touch current due to external circuits	See below.	N/A
5.7.6.1	Touch current from coaxial cables	The equipment is not intended for connection to a coaxial cable.	N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 appended table 6.2.2)	P
6.2.2.1	General	See below.	P
6.2.2.2	Power measurement for worst-case load fault... :	Not relevant.	N/A
6.2.2.3	Power measurement for worst-case power source fault..... :	Considered.	P
6.2.2.4	PS1 :	(See appended table 6.2.2)	P
6.2.2.5	PS2 :		N/A
6.2.2.6	PS3 :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS :	No parts exceeding 50V under normal operating condition.	N/A
6.2.3.2	Resistive PIS :	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		N/A
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 :	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
6.3.1 (b)	Combustible materials outside fire enclosure	See above.	N/A
6.4	Safeguards against fire under single fault conditions		N/A
6.4.1	Safeguard Method	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	See above.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See above.	N/A
6.4.3.1	General	See above.	N/A
6.4.3.2	Supplementary Safeguards	See above.	N/A
	Special conditions if conductors on printed boards are opened or peeled	See above.	N/A
6.4.3.3	Single Fault Conditions :	See above.	N/A
	Special conditions for temperature limited by fuse	See above.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.4	Control of fire spread in PS1 circuits	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
6.4.5	Control of fire spread in PS2 circuits	See above.	N/A
6.4.5.2	Supplementary safeguards :	See above.	N/A
6.4.6	Control of fire spread in PS3 circuit	See above.	N/A
6.4.7	Separation of combustible materials from a PIS	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
6.4.7.1	General :	See above.	N/A
6.4.7.2	Separation by distance	See above.	N/A
6.4.7.3	Separation by a fire barrier	See above.	N/A
6.4.8	Fire enclosures and fire barriers	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
6.4.8.1	Fire enclosure and fire barrier material properties	See above.	N/A
6.4.8.2.1	Requirements for a fire barrier	See above.	N/A
6.4.8.2.2	Requirements for a fire enclosure	See above.	N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See above.	N/A
6.4.8.3.1	Fire enclosure and fire barrier openings	See above.	N/A
6.4.8.3.2	Fire barrier dimensions	See above.	N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) :	See above.	N/A
	Needle Flame test	See above.	N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) :	See above.	N/A
	Flammability tests for the bottom of a fire enclosure :	See above.	N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) :	No doors or covers in the fire enclosure.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating :	See above.	N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
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	See below.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	External port limited to PS2 or complies with Clause Q.1	(See Annex Q.1)	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure	The equipment does not generate ozone.	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	Line 1 in Table 35): All edges and corners are rounded and/or smoothed, classified as MS1. Line 5 in Table 35): 11 g, classified as MS1	P
8.3	Safeguards against mechanical energy sources	Classified as MS1, additional safeguard is not required.	N/A
8.4	Safeguards against parts with sharp edges and corners	Classified as MS1, additional safeguard is not required.	N/A
8.4.1	Safeguards	See above.	N/A
8.5	Safeguards against moving parts	No moving part.	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		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps	No High-Pressure Lamps in the equipment.	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	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
8.6.1	Product classification	See above.	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	Not intended for wall or ceiling mounting.	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force		N/A
8.8	Handles strength	No handles.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters.	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	No carts, stands, and similar carriers in the equipment.	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		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 in the equipment	N/A
	Button/Ball diameter (mm)		—

9	THERMAL BURN INJURY		N/A
9.2	Thermal energy source classifications	EUT is class III open frame, evaluation board for building-in. Touch Temperatures (Clause 9) requirements must be evaluated in end use.	N/A
9.3	Safeguard against thermal energy sources	See above.	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
9.4.2	Instructional safeguard	See above.	N/A

10	RADIATION		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation	No laser source in the equipment.	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	The equipment does not generate other types of radiation.	N/A
10.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1		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	No UV radiation.	N/A
10.5	Protection against x-radiation	See below.	N/A
10.5.1	X- radiation energy source that exists equipment :	No X-Radiation.	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	Not a personal music player.	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.....		—

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Clause	Requirement + Test	Result - Remark	Verdict
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	Not considered. EUT is class III open frame, evaluation board for building-in, not connected to mains. However, input test has been performed.	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.....	The equipment under test is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
B.3.2	Covering of ventilation openings	No opening.	N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector	No voltage selector in the equipment	N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity	No battery in the equipment.	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

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.2	Temperature controlling device open or short-circuited	No temperature controlling device in the equipment.	N/A
B.4.3	Motor tests	No motor.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature	See above.	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	No coated printed board in the equipment.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	No electrodes in the equipment.	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	No battery in the equipment.	N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	The equipment does not produce significant 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	No audio amplifiers.	N/A
	Audio signal voltage (V).....		—
	Rated load impedance (Ω)		
E.2	Audio amplifier abnormal operating conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See below:	P
	Instructions – Language	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	—
F.2	Letter symbols and graphical symbols		N/A
F.2.1	Letter symbols according to IEC60027-1		N/A
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		N/A
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The required marking is located on the outside surface of the device.	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	Class III equipment, not connected to mains. No marking required.	N/A
F.3.3.1	Equipment with direct connection to mains	See above.	N/A
F.3.3.2	Equipment without direct connection to mains	See above.	N/A
F.3.3.3	Nature of supply voltage.....	See above.	—
F.3.3.4	Rated voltage.....	See above.	—
F.3.3.4	Rated frequency.....	See above.	—
F.3.3.6	Rated current or rated power.....	See above.	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	No voltage setting device in the equipment.	N/A
F.3.5	Terminals and operating devices	Class III equipment.	N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings	No mains appliance outlet or socket-outlet in the equipment.	N/A
F.3.5.2	Switch position identification marking	No disconnect switch in the equipment.	N/A
F.3.5.3	Replacement fuse identification and rating markings.....	No fuse.	N/A
F.3.5.4	Replacement battery identification marking.....	No battery in the equipment.	N/A
F.3.5.5	Terminal marking location	Class III equipment.	N/A
F.3.6	Equipment markings related to equipment classification	See below:	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

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Clause	Requirement + Test	Result - Remark	Verdict
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)	Class III equipment.	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 :		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking	(See Annex F.3.10)	P
F.3.10	Test for permanence of markings	The marking withstands required tests.	P
F.4	Instructions		N/A
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		N/A
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No audio equipment terminals classified as ES3.	N/A
	f) Protective earthing employed as safeguard	Class III equipment.	N/A
	g) Protective earthing conductor current exceeding ES 2 limits	Class III equipment.	N/A
	h) Symbols used on equipment	No safety symbols used.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
j)	j) Replaceable components or modules providing safeguard function	No such part in the equipment.	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	Class III equipment. No switch is not relied on as a safeguard.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	No relays in the equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	No thermal cut-offs in the equipment.	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	No thermal links in the equipment.	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		
G.3.5.1	Non-resettable devices suitably rated and marking provided		
G.3.5.2	Single faults conditions.....		N/A
G.4	Connectors		P
G.4.1	Spacings	Not relied on as a safeguard.	N/A
G.4.2	Mains connector configuration	Not for mains connection.	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....	No wound components in the equipment.	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

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Clause	Requirement + Test	Result - Remark	Verdict
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	No transformers in the equipment.	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	No motor.	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)		N/A
G.5.4.7	Motors with capacitors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Class III equipment.	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	No varistors.	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

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Clause	Requirement + Test	Result - Remark	Verdict
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	No resistors serving as safeguard in the equipment.	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	No capacitor and RC unit serving as safeguard in the equipment.	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).....	No optocouplers in the equipment.	N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		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)		—

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Clause	Requirement + Test	Result - Remark	Verdict
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	No coatings in the equipment.	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No liquid filled components in the equipment.	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	None used.	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	No ringing signals.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No safety interlocks.	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	Class III equipment.	N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	No battery in the equipment.	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	No battery in the equipment.	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

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Clause	Requirement + Test	Result - Remark	Verdict
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	No battery in the equipment.	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	No battery in the equipment.	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	See below.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
P.2.2	Safeguards against entry of foreign object	No such opening.	P
	Location and Dimensions (mm) :		—
P.2.3	Safeguard against the consequences of entry of foreign object	No opening.	N/A
P.2.3.1	Safeguards against the entry of a foreign object	No opening.	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) :	No opening.	N/A
P.3	Safeguards against spillage of internal liquids	No 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	None used.	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	See below.	P
Q.1.1 a)	Inherently limited output	See appended table Annex Q.1.	P
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	See appended table Annex Q.1.	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
T.1	General requirements	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	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		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	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	No 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	No CRTs.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment	EUT is class III open frame, evaluation board for building-in. It must be evaluated in end use.	N/A
V.2	Accessible part criterion	.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
60-pin Samtec connector	Samtec Inc.	QSH-030-01-L-D-A-K-TR	2 A, 175 V, V-0, 125 °C	UL 1977	UL (E111594)	
60-pin Samtec connector (Alternate)	Interchangeable	Interchangeable	Min. 2 A, min. 175 V, min. V-0, min. 125 °C	UL 1977	UL	
PCB	Hi-Q Electronics PVT Ltd	M1	V-0, 130°C	UL 94	UL (E42956)	
PCB (Alternate)	Interchangeable	Interchangeable	Min. V-1, Min. 130°C	UL 94	UL	
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.						

IEC 62368-1			
Clause	Requirement + Test		Verdict
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)
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.
			1
			2
			3
4.8.4.5	TABLE: Impact		—
	Impacts per surface	Surface tested	Impact energy (Nm)
4.8.4.6	TABLE: Crush test		—
	Test position	Surface tested	Crushing Force (N)
			Duration force applied (s)
Supplementary information:			

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A
Test position	Surface tested	Force (N)	Duration force applied (s)
—	—	—	—
Supplementary information:			

5.2	Table: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	Maximum 5 Vdc	Entire input/output circuitry of EUT	Normal	Max. 5 Vdc	—	DC	ES1
			Abnormal	—	—	—	
			Single fault – SC/OC	—	—	—	

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
—	—	—	Normal	—	—	—	N/A
			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	—	—	—	N/A
			Abnormal	—	—	—	
			Single fault – SC/OC	—	—	—	

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements						P
	Supply voltage (V)	5.0	5.0	—	—	—	
	Ambient T _{min} (°C)	21	60	—	—	—	
	Ambient T _{max} (°C)	21	60	—	—	—	
	T _{ma} (°C)	60	60	—	—	—	
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)	
U1 body on the PCB		52	80	—	—	130	
U2 body on the PCB		56	82	—	—	130	
Supplementary information:							
Note 1: T _{ma} should be considered as directed by applicable requirement							
Note 2: T _{ma} is not included in assessment of Touch Temperatures (Clause 9)							
Temperatures of the equipment was measured at room ambient of 21 °C and was measured at 60 °C in the environmental chamber.							
The equipment under test is class III open frame, evaluation board for building-in. Touch Temperatures (Clause 9) requirements must be evaluated in end use.							
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:							

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

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

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
—	—	—	—	—	—	—	—
Supplementary information: 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 Class III equipment, evaluated for Functional Insulation only							

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: Class III equipment, evaluated for Functional Insulation only					

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: Class III equipment, evaluated for Functional Insulation only				

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: Class III equipment, evaluated for Functional Insulation only.						

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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: Class III equipment. Provided with Functional Insulation only.			

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: Class III equipment. 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: Class III equipment.					

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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: Class III equipment. 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.			

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification					P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification	
A	Entire input circuitry of EUT	Power (W) :	Note 1)	Note 1)	PS3 (Declared)	
		V _A (V) :	5	5		
		I _A (A) :	Note 1)	Note 1)		
B	Emulator micro USB port, J1 (Data communication only)	Power (W) :	—	0.01	PS1	
		V _A (V) :	—	1.20		
		I _A (A) :	—	0.01		

Supplementary Information:
Note 1): External DC PSU is not provided with the equipment. Therefore, internal circuitry and components are declared as PS3.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				P
Location		Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No
Entire input/output circuitry of EUT (Maximum 5 Vdc)		< 50 Vpk	—	> 15	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. No voltages above 50Vp					

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
Entire input/output circuitry of EUT (Maximum 5 Vdc)	Normal	Note 1)	Note 1)	No	Yes
Supplementary Information:					
A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.					
If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.					
A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <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.					
Note 1): External DC PSU is not provided with the equipment. Therefore, internal circuitry and components are declared as PS3.					

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:			

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
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
5.0	0.42	2.0	2.1	—	—	—	Maximum normal load
Supplementary information:							

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. The equipment under test is class III open frame, evaluation board for building-in. It must be evaluated in end use.								

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, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-cpl	Temp. (°C)	Observation
—	—	—	—	—	—	—	—	—
Supplementary information: Class III equipment, no ES3 energy sources in the equipment.								

IEC 62368-1										
Clause	Requirement + Test			Result - Remark				Verdict		
Annex M	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available								—		
Is it possible to install the battery in a reverse polarity position?..... :								—		
	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)		
—	Normal	—	—	—	—	
—	Abnormal	—	—	—	—	
—	Single fault –SC/OC	—	—	—	—	
Supplementary Information:						
Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation		
—	—	—	—	—		
Supplementary Information:						

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Emulator micro USB port, J1 (Data communication only)	inherently limited	1.20	0.01	≤ 8	0.01	≤ 100
Supplementary Information: SC=Short circuit, OC=Open circuit						

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:						

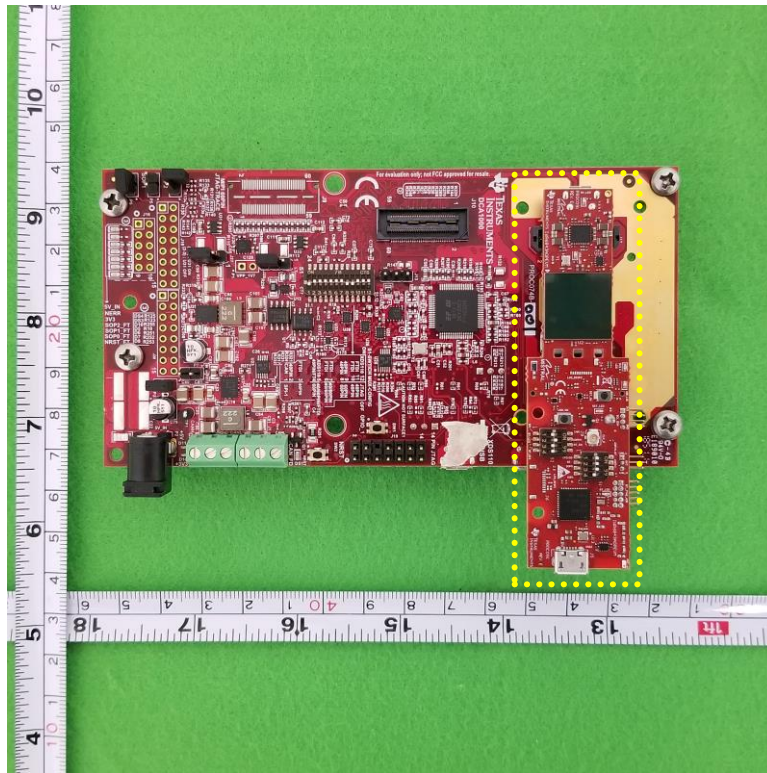
T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
—	—	—	—	—	
Supplementary information:					

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

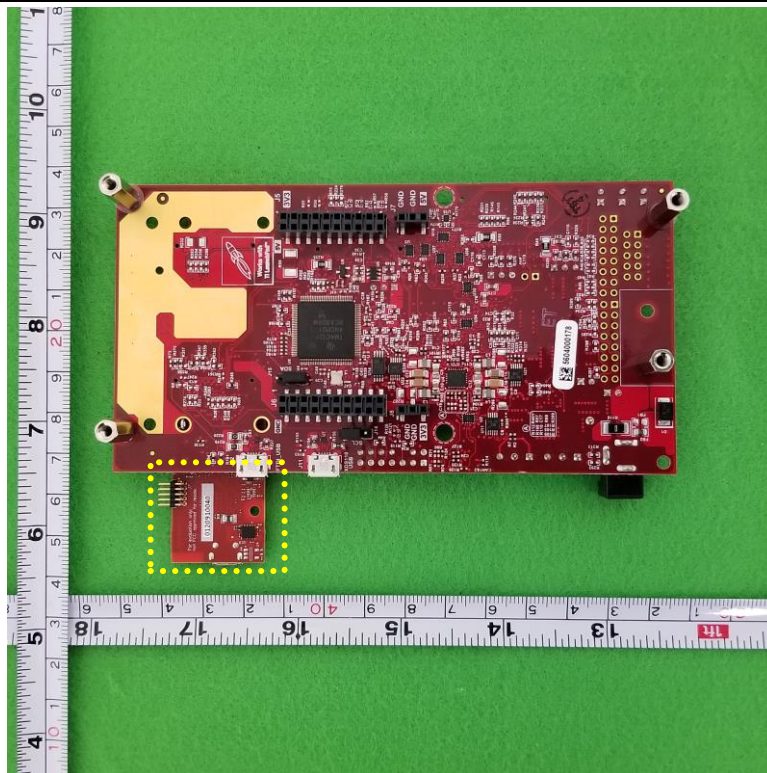
T.8	TABLE: Stress relief test					N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
—	—	—	—	—	—	
Supplementary information:						

ATTACHMENT No. 1

Photographs of the equipment under test (EUT)



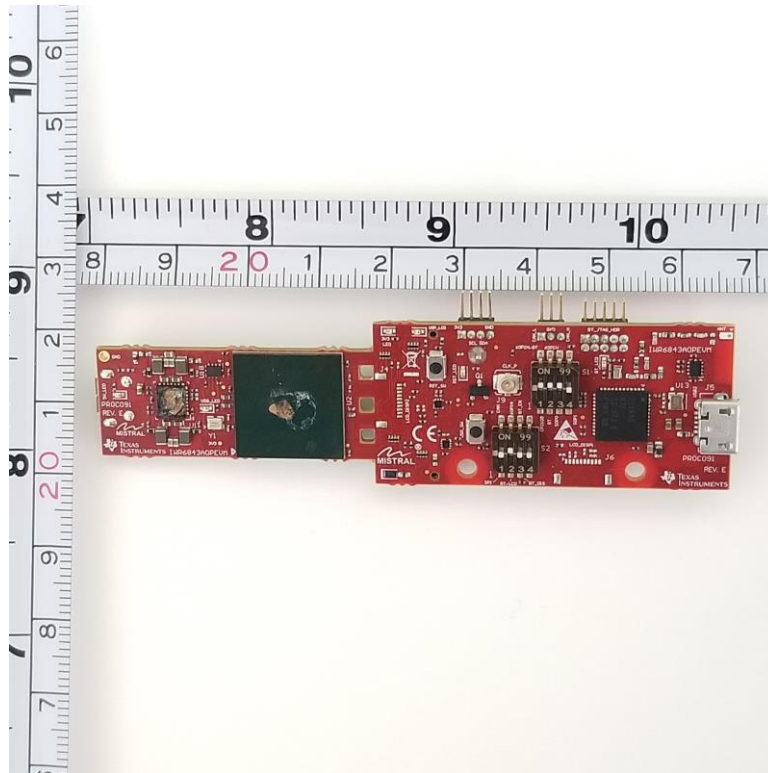
1. Top view after EUT is mounted on MMWAVEICBOOST board



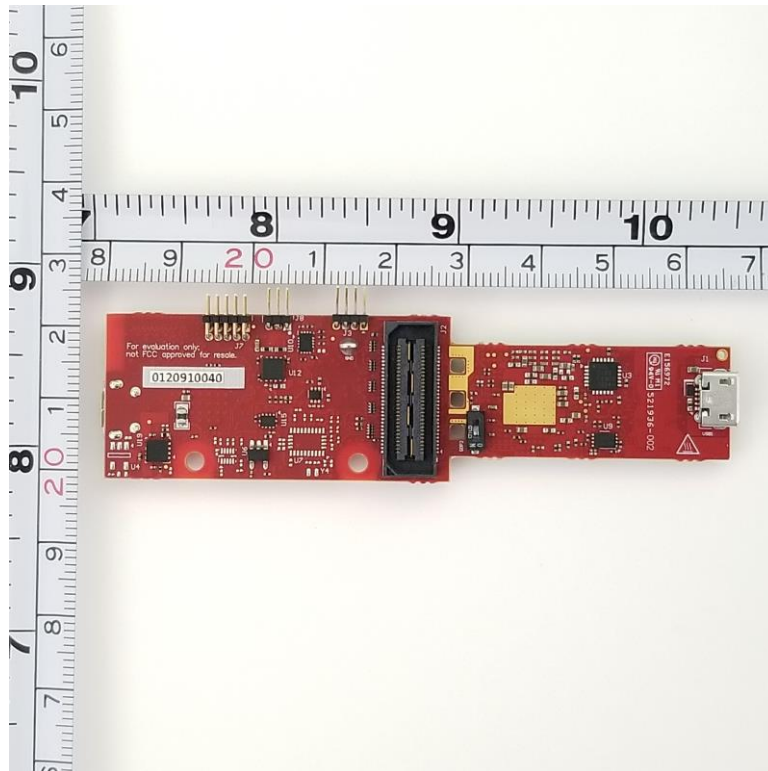
2. Bottom view after EUT is mounted on MMWAVEICBOOST board

ATTACHMENT No. 1

Photographs of the equipment under test (EUT)



3. Top view of EUT



4. Bottom view of EUT

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IEC62368_1B - ATTACHMENT																																									
Clause	Requirement + Test	Result - Remark		Verdict																																					
ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment - Part 1: Safety requirements)																																									
Differences according to : EN 62368-1:2014+A11:2017																																									
Attachment Form No : EU_GD_IEC62368_1B_II																																									
Attachment Originator : Nemko AS																																									
Master Attachment : Date 2017-09-22																																									
Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.																																									
	CENELEC COMMON MODIFICATIONS (EN)				P																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".				—																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords				—																																				
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 15%;">0.2.1</td> <td style="width: 15%;">Note</td> <td style="width: 15%;">1</td> <td style="width: 15%;">Note 3</td> <td style="width: 15%;">4.1.15</td> <td style="width: 15%;">Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </table>				0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	—
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5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4																																				
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																				
	For special national conditions, see Annex ZB.				—																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.				P																																				

4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	Class III equipment.	N/A
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	See main report.	N/A
10.2.1	<p>Add the following to c) and d) in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A

10.5.1	<p>Add the following after the first paragraph:</p> <p><i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i></p> <p><i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i></p> <p><i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>	No such radiation.	N/A
10.6.1	<p>Add the following paragraph to the end of the subclause:</p> <p>EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>	No such radiation.	N/A
10.Z1	<p>Add the following new subclause after 10.6.5.</p> <p>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>	No such radiation.	N/A
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>	Class III equipment.	N/A

Bibliography	<p>Add the following standards:</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		—
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	Class III equipment.	N/A
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>	Class III equipment.	N/A

5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	Class III equipment.	N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>	Class III equipment.	N/A
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>	Class III equipment.	N/A

5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.	Class III equipment.	N/A
5.6.1	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Class III equipment.	N/A
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A , the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.	Class III equipment.	N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm ² to 1,5 mm ² in cross-sectional area.	Class III equipment.	N/A
5.7.5	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	Class III equipment.	N/A

5.7.6.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>“Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>	Class III equipment.	N/A
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>	Class III equipment.	N/A

B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>	Class III equipment.	N/A
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>	Class III equipment.	N/A
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	Class III equipment.	N/A

G.7.1	United Kingdom To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	Class III equipment.	N/A
G.7.1	Ireland To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard	Class III equipment.	N/A
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm ² is allowed for equipment which is rated over 10 A and up to and including 13 A.	Class III equipment.	N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	Germany The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de	Class III equipment.	N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)			
Differences according to: AS/NZS 62368.1:2018			
Attachment Form No.....: AU_NZ_ND_IEC62368_1B			
Attachment Originator: JAS-ANZ			
Master Attachment.....: 2019-02-04			
Copyright © 2019 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
	National Differences		P
Appendix ZZ	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		P
2	Add the following to the list of normative references: The following normative documents are referenced in Appendix ZZ: -AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i> -AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i> -AS/NZS 3191, <i>Electric flexible cords</i> -AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i> -AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i> -AS/NZS 60320.2.2, <i>Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i> -AS/NZS 60695.2.11, <i>Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i> -AS/NZS 60695.11.5, <i>Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i> -AS/NZS 60695.11.10, <i>Fire hazard testing, Part</i>	Considered.	P

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>11.10: Test flames—50 W horizontal and vertical flame test methods</p> <p>-AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</p> <p>-AS/NZS 60950.1:2015, Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</p> <p>IEC 61032:1997, Protection of persons and equipment by enclosures—Probes for verification</p> <p>-AS/NZS 61558.1:2008 (including Amendment 2:2015), Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)</p> <p>-AS/NZS 61558.2.16, Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</p>		
4.1.1	<p>Application of requirements and acceptance of materials, components and subassemblies</p> <p>1 Replace the text ‘IEC 60950-1’ with ‘AS/NZS 60950.1:2015’.</p> <p>2 Replace the text ‘IEC 60065’ with ‘AS/NZS 60065’.</p>	Considered.	P
4.7	Equipment for direct insertion into mains socket-outlets		N/A
4.7.2	<p>Requirements</p> <p>Delete the text of the second paragraph and replace with the following:</p> <p>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>	Class III equipment.	N/A
4.7.3	<p>Compliance Criteria</p> <p>Delete the first paragraph and Note 1 and Note 2 and replace with the following:</p> <p>Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</p>	Class III equipment	N/A
4.8	<p>Delete existing clause title and replace with the following:</p> <p>4.8 Products containing coin/button cell batteries</p>		N/A

IEC 62368_1B ATTACHMENT					
Clause	Requirement + Test		Result - Remark	Verdict	
4.8.1	General 1 Second dashed point, <i>delete</i> the text and <i>replace</i> with the following: – include coin/button cell batteries with a diameter of 32 mm or less. 2 After the second dashed point, <i>insert</i> the following Note: NOTE 1: Batteries are specified in IEC 60086-2. 3 After the third dashed point, <i>renumber</i> the existing Note as 'NOTE 2'. 4 Fifth dashed point, <i>delete</i> the word 'lithium'.		Considered.	N/A	
4.8.2	Instructional Safeguard First line, <i>delete</i> the word 'lithium'.			N/A	
4.8.3	Construction First line, after the word 'Equipment' <i>insert</i> the words 'containing one or more coin/button batteries and'			N/A	
4.8.5	Compliance criteria <i>Delete</i> the first paragraph and <i>replace</i> with the following: <i>Compliance is checked by applying a force of 30 N +/- 1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.</i>			N/A	
5.4.10.2	Test methods			N/A	
5.4.10.2.1	General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3.		Class III equipment	N/A	
Table 29	Replace the table with the following:			P	
Parts		Impulse test		Steady state test	
		New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) ^a		2.5 kV 10/700 µs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) ^b		1.5 kV 10/700 µs ^c		1.0 kV	1.5 kV
^a Surge suppressors shall not be removed. ^b Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. ^c During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.					

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.	Class III equipment	N/A
5.4.10.2.3	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.	Class III equipment	N/A
6	Electrically-caused fire		N/A
6.1	General After the first paragraph, <i>insert</i> the following new paragraph: Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202	No alternative test.	N/A
6.6	After Clause 6.6, <i>add</i> the new Clauses 6.201 and 6.202 as follows: 6.201 External power supplies, docking stations and other similar devices and 6.202 Resistance to fire—Alternative tests (see special national conditions)		N/A
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment In the first dashed row and the second dashed rows <i>replace</i> 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'.	No such parts	N/A
8.6	Stability of equipment		

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.1 and Table 36	Requirements 1. Table 36, <i>insert</i> Footnote c at the end of the 'Glass slide' heading, and <i>add</i> a new Footnote c after the text of Footnote b in the last row of Table 36 as follows: ^c The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display. 2. Table 36, fifth row, <i>insert</i> ²⁰¹ at the end of 'No stability requirements' 3. Table 36, ninth row, <i>insert</i> ²⁰¹ at the end of 'No stability requirements' 4. Table 36, <i>add</i> the following new footnote: ²⁰¹ MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply. 5. Second paragraph beneath Table 36, <i>delete</i> the words 'MS2 and MS3 television sets' and <i>replace</i> with 'MS2 and MS3 television sets and display devices'	Considered	N/A
8.6.1	After Clause 8.6.1 <i>add</i> the following new clauses: 8.6.1.201 Instructional safeguard for fixed-mount television sets (see special national conditions)	Not a television	N/A
Annex F Paragraph F.3.5.1	Mains appliance outlet and socket-outlet markings <i>Replace</i> 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.	No such parts	N/A
Annex G Paragraph G.4.2	Mains connectors 1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'. 2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series' 3 <i>Add</i> the following new paragraph: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.	Class III equipment	N/A
Paragraph G.5.3.1	Transformers, General 1 In the third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2' 2 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.	Class III equipment	N/A
Paragraph G.7.1	Mains supply cords, General In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'	Class III equipment	N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Table G.5	Sizes of conductors 1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5' 2 In the second row, second column, <i>delete</i> '0,75' and <i>replace</i> with '0.75 ^b 3 <i>Delete</i> Note 1. 4 <i>Replace</i> 'NOTE 2' with 'NOTE:'. 5 <i>Delete</i> the text of 'Footnote b' and <i>replace</i> with the following: ^b This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191). 6 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'	Class III equipment	N/A
Annex M Paragraph M.3.2	Protection circuits for batteries provided within the equipment, Test method After the first dashed point <i>add</i> the following Note: NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.	No battery.	N/A
	Special national conditions (if any)		

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.201	<p>External power supplies, docking stations and other similar devices</p> <p>For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage—</p> <ul style="list-style-type: none"> – at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and – of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher. <p>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.</p> <p><i>Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4</i></p>	External power supply not evaluated	N/A
6.202	Resistance to fire—Alternative tests	No alternative test.	N/A
6.202.1	<p>General</p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:</p> <p>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.</p> <p>b) The following parts which would contribute negligible fuel to a fire:</p> <ul style="list-style-type: none"> – small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; – small electrical components, such as capacitors with a volume not exceeding 1 750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10. <p>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other</p>		N/A

IEC 62368_1B ATTACHMENT									
Clause	Requirement + Test	Result - Remark	Verdict						
	for the possible effect of propagating the fire from one part to another.								
	<i>Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.</i> For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5. The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.		N/A						
6.202.2	Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.		N/A						
6.202.3	Testing of insulating materials Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE: Contacts in components such as switch contacts are considered to be connections		N/A						
	For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test need not be tested		N/A						
	<div>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</div> <table><tr><td>Clause of AS/NZS 60695.11.5</td><td>Change</td></tr><tr><td>9 Test procedure</td><td></td></tr><tr><td>9.2 Application of</td><td>Delete the first and second paragraphs</td></tr></table>	Clause of AS/NZS 60695.11.5	Change	9 Test procedure		9.2 Application of	Delete the first and second paragraphs		N/A
Clause of AS/NZS 60695.11.5	Change								
9 Test procedure									
9.2 Application of	Delete the first and second paragraphs								

IEC 62368_1B ATTACHMENT				
Clause	Requirement + Test		Result - Remark	Verdict
	needle-flame	and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner. The duration of application of the test flame shall be 30 s □ 1 s.		
	9.3 Number of test specimens	<i>Replace</i> with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		
	11 Evaluation of test results	<i>Replace</i> with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.		
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested.			
6.202.4	Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by			N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.</p> <p>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.</p>		
6.202.5	<p>Testing of printed boards</p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.</p> <p>The test is not carried out if—</p> <ul style="list-style-type: none"> – the printed board does not carry any potential ignition source; – the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or – the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. <p><i>Conformance shall be determined using the smallest thickness of the material.</i></p> <p>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a</p>		N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.		
6.202.6	For open circuit voltages greater than 4 kV Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.	ES1 equipment	N/A
8.6.1.201	8.6.1.201 Instructional safeguard for fixed-mount television sets MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment. The elements of the instructional safeguard shall be as follows: – element 1a: not available; – element 2: 'Stability Hazard' or equivalent wording; – element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text; – element 4: the following or equivalent text: To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions	Not a television	N/A
8.6.1.202	Restraining device MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage. Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation.	Not a television	N/A

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62368-1 ITALY NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
Differences according to.....: CEI EN 62368-1:2016			
Attachment Form No.....: IT_ND_IEC62368_1B			
Attachment Originator: IMQ S.p.A.			
Master Attachment.....: Date 2020-01-31			
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	National Differences		
F.1	Italy The following requirements shall be fulfilled: • The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). Note: <i>EN 60555-2 has since been replaced by IEC 60107-1:1997.</i> • TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. • Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. • The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: <i>Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M.</i> • The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT	Not a TV receiver.	N/A

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>S for stereo T for Teletext pT for retrofitable teletext</p> <p><i>Justification:</i> Ministerial Decree of 26 March 1992 : National rules for television receivers trade.</p> <p><i>NOTE/: Ministerial decree above contains additional, but not safety relevant requirements</i></p>		

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62368-1 (JAPAN) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
Differences according to : J62368-1 (H30)			
Attachment Form No : JP_ND_IEC62368_1B			
Attachment Originator : UL (JP)			
Master Attachment : Date 2018-11-22			
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	National Differences		—
4.1.2	Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these.	Considered	P
5.6.1	Mains socket-outlet and appliance outlet shall comply with Clause G.4.2A if they are incorporated as part of the equipment.	Class III equipment	N/A
5.6.2.1	Mains connection of class 0I equipment: Instructional safeguard in accordance with Clause F.3.6.1A; Mains plug having a lead wire for protective earthing connection of class 0I equipment; Independent main protective earthing terminal installed by ordinary person.	Class III equipment	N/A
5.6.2.2	This requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector.	Class III equipment	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.3	<p>In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following:</p> <ul style="list-style-type: none"> – use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire – single core cord or single core cable with 1.25 mm² or more cross-sectional area 	Class III equipment	N/A
5.7.3	For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series or JIS C 8303, or otherwise being considered to comply with relevant regulations, or that is provided with mains appliance outlet as specified in JIS C 8283-2-2 for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains.	Class III equipment	N/A
5.7.4	In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990.	Class III equipment	N/A
6.4.3.3	<p>A fuse complying with JIS C 6575 series or a fuse having equivalent characteristics shall open within 1 s.</p> <p>For Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”. A fuse not complying with JIS C 6575 series shall be tested with the breaking capacity taken into account.</p>	Class III equipment	N/A
8.5.4.2.1	Only three-phase stationary equipment rated more than 200 V ac can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4.	Class III equipment	N/A
8.5.4.2.2	For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional.	Considered	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2.4	The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part.	Not a shredder	N/A
8.5.4.2.5	The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts.	Not a shredder	N/A
9.2.6, Table 38	Handles, Knobs, grips, etc. and external surfaces either held, touched or worn against the body in normal use (> 1 min) ^{b,c}	No such surfaces	N/A
F.3.5.1	Instructional safeguard of class 0I equipment in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8303 or relevant regulation to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons.	Class III equipment	N/A
F.3.5.3	If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic.	Class III equipment	N/A
F.3.6.1A	Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.3 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions and instructional safeguard shall be provided regarding the earthing connection.	Class III equipment	N/A
F.3.6.2.1	Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment.	Class III equipment	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.4	<p>Instruction for audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A.</p> <p>Installation instruction for the protective earthing connection for class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment.</p>	Not audio equipment	N/A
G.3.2.1	The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that.	No such parts	N/A
G.3.4	<p>Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the relevant part of JIS C 6575 (corresponding to IEC60127) or shall have equivalent characteristics.</p> <p>If there are no applicable IEC standards, overcurrent protective devices used as a safeguard shall comply with their applicable IEC standards.</p>	Class III equipment	N/A
G.4.1	This requirement is not applicable to Clauses G.4.2 and G.4.2A.	Class III equipment	N/A
G.4.2	<p>Mains connector shall comply with JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series.</p> <p>Mains plugs and socket-outlets shall comply with JIS C 8282 series, JIS C 8303, IEC 60309 series, or have equivalent or better performance.</p> <p>A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286.</p> <p>Construction preventing mechanical stress not to transmit to the soldering part of inlet terminal. Consideration for an equipment rated not more than 125 V provided with Type C14 and C18 appliance coupler complying with JIS C 8283 series.</p>	Class III equipment	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2A	Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively.	Class III equipment	N/A
G.7.1	A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor.	Class III equipment	N/A
G.8.3.3	Withstand $1,71 \times 1.1 \times U_0$ for 5 s.	Class III equipment	N/A

<p align="center">ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed. U.S.A. NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements</p>	
Differences according to..... :	CSA/UL 62368-1:2014
Attachment Form No..... :	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment..... :	Date 2015-06
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Clause	Requirement + Test	Result - Remark	Verdict
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	Considered.	P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.	Considered.	N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment	Class III equipment.	N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.	No ringing signals.	N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A

Clause	Requirement + Test	Result - Remark	Verdict
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.	No such terminals.	N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Class III equipment and not permanently connected.	N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Class III equipment.	N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	Class III equipment.	N/A
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.	Class III equipment.	N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No ringing signals.	N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No ringing signals.	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.	Single coin-cell battery provided.	N/A
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.	Not for use in plenums or air-handling spaces.	N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	The equipment has no combustible area greater than 27 cubic feet.	N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.	Not intended for use by children.	N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a baby monitor.	N/A

Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Class III equipment.	N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No liquids.	N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No lasers.	N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	Equipment is not a television receiver, Cold-cathode GDT, Diagnostic X-Ray or Cabinet X-Ray system, Radiographic, Fluoroscopic or Computed tomography equipment.	N/A
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	Class III equipment.	N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current	.	N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position	Class III equipment.	N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	Class III equipment.	N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).	Class III equipment.	N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.	No such fuses.	N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No such transformers.	N/A

Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).	No such motors.	N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.	No such batteries.	N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.	No such terminals.	N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.	Equipment not intended for installation in general patient care areas.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	Not intended for mounting under kitchen cabinets.	N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.	Refer to main test report.	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	Class III equipment and not permanently connected.	N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.	Class III equipment and not permanently connected.	N/A

Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.	Class III equipment and not permanently connected.	N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	No such screws.	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Class III equipment and not permanently connected.	N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.	Class III equipment and not for centralized d.c. power system.	N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No connection to external circuits.	N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	Equipment without earphone jack connection.	N/A

----- END OF REPORT -----