

Test Report on the Safety of Electrical Equipment

For

Descartes Systems (USA) LLC

On

COREInsight BLE Beacon tag, Model: PLT003



Report No. DESC0009-R0

18th October 2022

EMT form STRF62368-1D 1.0



TEST REPORT EN 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	DESC0009-R0
Date of issue	2022-10-18
Total number of pages	83
Name of Testing Laboratory preparing the Report	Element Materials Technology (Brooklyn Park) 9349 W Broadway Ave Brooklyn Park, MN 55445, United States of America
Applicant's name	Descartes Systems Group Inc.
Address	105 Trafalgar Street, Floor 2, Nelson, Tasman 7011 New Zealand
Test specification: Standard..... : IEC 62368-1:2014 Test procedure	
SF-SSP-023	
Non-standard test method	
N/A	
TRF template used..... : IECEE OD-2020-F1:2020, Ed.1.3	
Test Report Form No. : IEC62368_1D (EMT form STRF62368-1D)	
Test Report Form(s) Originator .. : UL(US)	
Master TRF..... : Dated 2021-02-04	
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General disclaimer: 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	Bluetooth Low Energy device	
Trade Mark(s)	COREInsight® BLE Beacon tag	
Manufacturer	Descartes Systems Group	
Model/Type reference	PLT003	
Ratings	3V DC via battery. Power Consumption - Max: <7.6mA, Power Consumption - Sleep: 3 uA	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input type="checkbox"/> Testing Laboratory:	Element Materials Technology (Brooklyn Park)	
Testing location/ address	Element Materials Technology 9349 W Broadway Ave Brooklyn Park, MN 55445, United States	
Tested by (name, function, signature)	Bin Marahatta Sr. Product Safety Test Engineer – Safety Division	
Approved by (name, function, signature)	Thomas Hunter Product Safety Department Manager – Safety Division	
Testing procedure: CTF Stage 1:		
<input type="checkbox"/> Testing procedure: CTF Stage 1:	-	
Testing location/ address	-	
Tested by (name, function, signature)	-	-
Approved by (name, function, signature)	-	-
Testing procedure: CTF Stage 2:		
<input type="checkbox"/> Testing procedure: CTF Stage 2:	-	
Testing location/ address	-	
Tested by (name, function, signature)	-	-
Witnessed by (name, function, signature)	-	-
Approved by (name, function, signature)	-	-
Testing procedure: CTF Stage 3 :		
<input type="checkbox"/> Testing procedure: CTF Stage 3 :	-	
Testing procedure: CTF Stage 4:		
<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)	-	-

List of Attachments (including a total number of pages in each attachment):

Attachment	Description	Pages
Attachment 1	Test equipment used	1 page
Attachment 2	EN National Differences	11 pages
Attachment 3	CA and US National Differences	6 pages
Attachment 4	Items submitted for assessment	1 page
Attachment 5	Photographs of the equipment and Manual	11 pages

Summary of testing:	
Tests performed (name of test and test clause): 4. General requirements 5. Electrically caused injury 6. Electrically caused fire 8. Mechanically caused injury 9. Thermal burn injury Annex B Normal operating condition tests, Abnormal operating condition tests and single fault condition tests Annex F Equipment markings, instructions and instructional safeguards Annex G Components Annex M Equipment containing batteries and their circuits Annex T Mechanical strength tests Annex V Determination of accessible parts	Testing location: Element Materials Technology (Brooklyn Park) 9349 W Broadway Ave Brooklyn Park, MN 55445, United States of America

Summary of compliance with National Differences (List of countries addressed):

List of countries addressed:

AU ☐ CA ☒ JP ☐ NZ ☐ US ☒

EU Group Differences (*note 1*) ☒

EU Special National Conditions (SNC) (*note 2*) ☒

EU A-Deviations (*note 2*) ☒

EU Individual countries (SNC and A-Deviations) (*note 3*):

AT ☐ CH ☐ DE ☐ DK ☐ ES ☐ FI ☐ GB ☐
IE ☐ IT ☐ NO ☐ SE ☐ SI ☐ TR ☐

By virtue of the national differences applied above, the product fulfils the full requirements of the following national standard:

☒ EN 62368-1:2014+A11:2017 (*note 2*).

Note 1 – CENELEC Common Modifications (Group Differences) to the IEC standard have been applied.

Note 2 – All of the declared national differences (SNC and A-Deviations) have been applied for all of the EU countries.

Note 3 – A limited set of declared national differences (SNC and A-Deviations) have been applied for individual EU countries.

Statement concerning the uncertainty of the measurement systems used for the tests

☐ Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

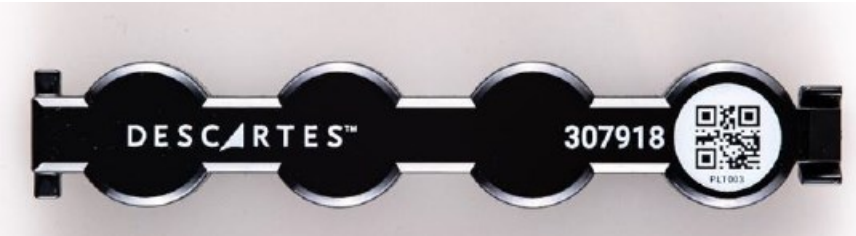
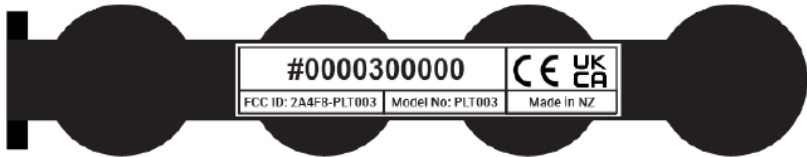
☒ Statement not required by the standard used for type testing

Copy of marking plate:

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

COREInsight[®]

#0000301653		CE UK CA
FCC ID: 2A4F8-PLT003	Model No: PLT003	Made in NZ



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.....: 2022-08-15 and 2022-09-02 Date (s) of performance of tests : 2022-09-06 to 2022-09-07	
General remarks "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. Statement concerning the uncertainty of the measurement systems used for the tests <input checked="" type="checkbox"/> Internal procedure used for type testing through which traceability of the measuring uncertainty has been established: SF-OP 002 Measurement Uncertainty Version 8.0 2021-05-07 The decision rule for compliance is not inherent within the specification. As requested by the customer all tests reported in this document are required to have a statement of conformity. Measurement uncertainty has been accounted for in determining compliance according to Procedure 1 of IEC Guide 115:2007 Element Certification Reference: DESC0009-R0	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:	
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.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies).....:	Quick Circuit 44 Clarence Street South Addington Christchurch, 8024 New Zealand

General product information and other remarks:**Product Description –**

1. The equipment tested was a PLT003 COREInsight® BLE Beacon tag. It was an active BLE beacon which utilises the Nordic nRF5810 module encased in a housing. The PLT003 tag advertises at an optimal interval of 7 times every 60seconds. The beacon message is sent on the advertisement channels for BLE: 37 (2402 MHz), 38 (2426 MHz) and 39 (2480 MHz). Production versions of the tag come in a sealed case with the batteries installed. They are already powered on and ready for installation. The tags pass through a quality assurance phase to ensure they are fit for purpose. This includes a range test to ensure the tag performs well at a distance.
The PLT003 COREInsight BLE Beacon tag is an active BLE beacon. See the manual for using and installing instruction. The commercial/industrial/domestic applications is at -20°C to +40°C and PLT003 tag advertises at an interval of 7 times every 60seconds. COREInsight® Readers listen for special (custom) adverts from the Beacon Tag and when it is in range (approx. 60 meters), the Reader collects these detections. Please maintain at least a 20 cm spacing from the antenna and device. The tag is already powered on and ready to install. Simply insert the tag into the rail on the pallet. Ensure that the tag is sitting flush with the pallet rail. It will make an audible click when installed correctly. Once it has been installed, assign the tag into the CORE system.
The maximum radio-frequency power transmitted in the frequency band(s) in which the radio equipment operates is BLE, 1 Mbps, GFSK.
2. The equipment was assessed using the following documentation references:
Circuit diagrams: PLT003 Core Beacon PALLET schematic, 2022-05-17
PCB layouts: PLT003 Core Beacon PALLET, 2022-05-17
Bill of Materials: PLT003 Core Beacon PALLET REV1-3 TUNEDANT
User/installation guide: PLT003 User manual.pdf, Revision 1.5, 2022-07-01
3. Secondary circuits were considered as inaccessible and ES1 and were separated by reinforced insulation from primary circuits. See isolation diagram below.
4. This product is constructed using plastic enclosure at the bottom and side of PWB. It has glued together using Epoxy material at top of the unit. 3 x 3VDC battery power inserted into PCB board top side with no vent opening but filled with Epoxy materials. Refer to tables and photographs below for the detail of the construction.
5. Classification of some polymeric materials has been verified using data supplied by the client. In this case no testing has been conducted under this project for this polymeric material.
6. Where approval or product certification documentation has been used to verify suitability of safety critical components then limited testing only has been conducted under this project. Responsibility for compliance of such items remains with the issuing authority.
7. No mains supply cable / cord-set was assessed under this submission for this battery powered DC unit. It is stand-alone battery powered unit which does not require any cable / cord-sets in accordance with the regulations of the country it is used in.
8. The operating temperature range of the apparatus was -20 °C to 40 °C
9. This class III equipment has no high voltage involved parts. It is only 3 x 3 VDC coin Cell battery powered stand-alone unit. Unit assessed were tested together with reader show that tag advertises at an interval of 7 times every 60 seconds to simulate the maximum normal load described by the manufacturer.

All other results and general product information remain as per the original assessment.

Report History

Report No.:	Report date:	Reason for issue:
DESC0009-R0	2022-09-28	Original Report

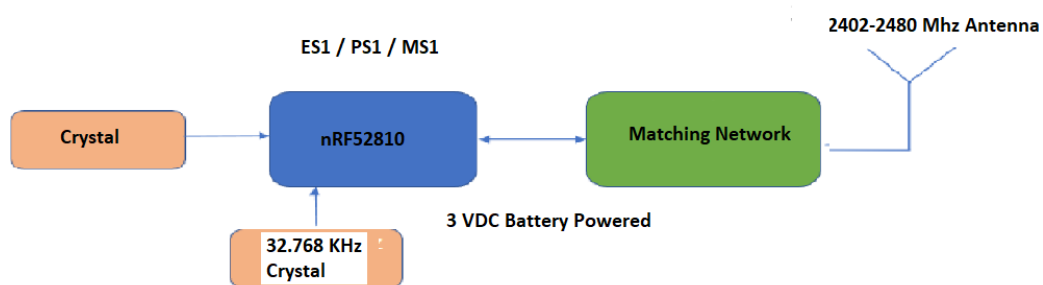
Model Differences –

N/A

Additional application considerations – (Considerations used to test a component or sub-assembly) –

Hot surface marking is required at the enclosure if touch surface temperature or Enclosure temperature exceed 48 °C. Instruction at manual and Hot surface marking at unit shall be maintained.

Safety Isolation Diagram –

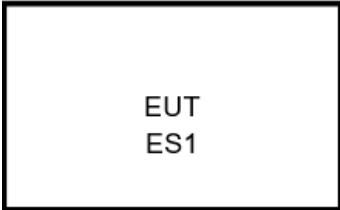


ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite 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)
Power Input (3 VDC, <7.6mA via. battery)	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)
Power Input less than 15 watt	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
	Glycol
Source of hazardous substances	Corresponding chemical
No source of Hazardous substance	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)
Equipment mass less than 1 Kg	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)
Source of thermal Energy at 40°C Ambient. External surfaces up to 94°C that need not be touched to operate the equipment less than 1 second.	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
	RS1
Type of radiation	Corresponding classification (RS)
NO LED INDICATOR	N/A

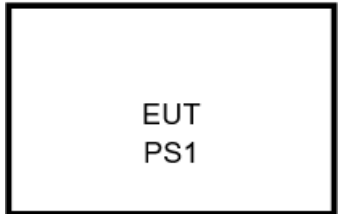
ENERGY SOURCE DIAGRAM

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

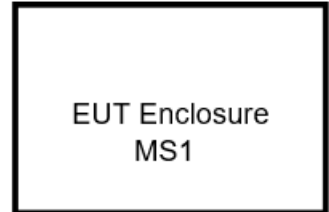
☒ ES ☐ PS ☐ MS ☐ TS ☐ RS



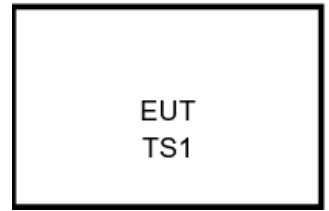
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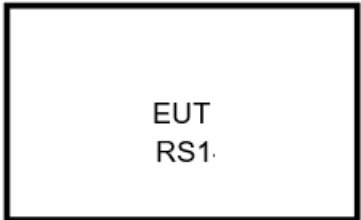
☐ ES ☐ PS ☒ MS ☐ TS ☐ RS



☐ ES ☐ PS ☐ MS ☒ TS ☐ RS



☐ ES ☐ PS ☐ MS ☐ TS ☐ RS



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
ES1- Ordinary body part	3 VDC Via. Battery source	P	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
Input Power	PS1	P	N/A	N/A
Polymeric Enclosure	PS1 less than 15 watt	P	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
None	No hazardous material	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: No moving parts, no sharp edge	P	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: temperature of enclosure not exceeds at 40°C ambient. External surfaces up to 94°C that need not be touched to operate the equipment less than 1 second.	P	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
LED indicator as a Radiation source	No LED indicators	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		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness		N/A
4.4.4.2	Steady force tests.....:	(See Annex T.4, T.5)	P
4.4.4.3	Drop tests.....:	(See Annex T.7)	P
4.4.4.4	Impact tests.....:	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	(See Annex T.3)	N/A
4.4.4.6	Glass Impact tests.....:	(See Annex T.9, Annex U)	N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:	(See Annex T)	N/A
4.4.4.9	Accessibility and safeguard effectiveness		N/A
4.5	Explosion	No risk of explosion	N/A
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to.....:		N/A
4.7	Equipment for direct insertion into mains socket - outlets	No mains socket outlets	N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm).....:		N/A
4.8	Products containing coin/button cell batteries	3 VDC coin/button cells batteries with protection	P
4.8.2	Instructional safeguard	Not replaceable batteries shielded with Epoxy materials	P
4.8.3	Battery Compartment Construction		P
	Means to reduce the possibility of children removing the battery.....:	Not reachable to children	—
4.8.4	Battery Compartment Mechanical Tests.....:	(See Table 4.8.4)	P
4.8.5	Battery Accessibility	No accessibility. Unit is encapsulated using epoxy material.	N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	(See Annex P)	N/A

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

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 :	(See appended table 5.2)	N/A
5.2.2.4	Single pulse limits :	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses :	(See appended table 5.2)	N/A
5.2.2.6	Ringing signals :	(See Annex H)	N/A
5.2.2.7	Audio signals :	No Audio signal	N/A
5.3	Protection against electrical energy sources	Class III / ES1 / PS1 / MS1 device	N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	No accessible electrical parts. Unit is encapsulated using epoxy material and plastic enclosure.	N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V :		N/A
	b) Electric strength test potential (V) :		N/A
	c) Air gap (mm) :		N/A
5.3.2.4	Terminals for connecting stripped wire	No stripped wire type terminals	N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning :	No humidity required for class III device	N/A
5.4.1.4	Maximum operating temperature for insulating materials :	None required	N/A
5.4.1.5	Pollution degree :		—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses	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..... :	No Vicat softening material	N/A
5.4.1.10.3	Ball pressure :	No ball pressure for Class III / ES1 / PS1 device	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage	Class III device- none required	N/A
5.4.2.3	Determining clearance using required withstand voltage	None required	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	None required	N/A
5.4.2.5	Multiplication factors for clearances and test voltages		N/A
5.4.3	Creepage distances	None required	N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation	No solid insulation required	N/A
5.4.4.2	Minimum distance through insulation	See above	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	No Cemented joints	N/A
5.4.4.6	Thin sheet material	No thin sheet material	N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material	Non-separable thin sheet	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material	(See appended Table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	No wound components	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz	(See appended Table 5.4.4.9)	N/A
5.4.5	Antenna terminal insulation	No antenna	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test	None required	N/A
	Insulation resistance (MΩ).....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard	No wires	N/A
5.4.7	Tests for semiconductor components and for cemented joints	No cemented joints	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.8	Humidity conditioning	No hygroscopic insulation	N/A
	Relative humidity (%).....:		—
	Temperature (°C)		—
	Duration (h)		—
5.4.9	Electric strength test.....:	None required for Class III device	N/A
5.4.9.1	Test procedure for a solid insulation type test	See above	N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits	No external circuits	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test	None required for Class III device	N/A
5.4.10.2.3	Steady-state test.....:	See above	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	Class III / ES1 / PS1 / MS1 device	N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V).....:	3 VDC	—
	Nominal voltage U_{peak} (V).....:	3.19 VDC	—
	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		N/A
5.5.1	General		N/A
5.5.2	Capacitors and RC units	No Capacitors and RC units	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	None required for the Class III device	N/A
5.5.3	Transformers	No Transformer	N/A
5.5.4	Optocouplers	No Optocouplers	N/A
5.5.5	Relays	No Relays	N/A
5.5.6	Resistors	No SPD's	N/A
5.5.7	SPD's	See above	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable	No coaxial cable	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No protective conductors	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation	No colours of insulation	N/A
5.6.3	Requirement for protective earthing conductors	None required	N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors	None required	N/A
5.6.4.1	Protective bonding conductors	No 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	No bonding conductors	N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....	(See appended table 5.6.6.2)	N/A
5.6.7	Reliable earthing	None required	N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current	Class III device	N/A
5.7.2.2	Measurement of prospective touch voltage	No 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	No accessible parts at Class III device	N/A
5.7.5	Protective conductor current	No Protective conductor current	N/A
	Supply Voltage (V).....		—
	Measured current (mA).....		—
	Instructional Safeguard.....	None required	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.6	Prospective touch voltage and touch current due to external circuits	No external circuits	N/A
5.7.6.1	Touch current from coaxial cables	No coaxial cables	N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits	No external circuits	N/A
5.7.7	Summation of touch currents from external circuits	No external circuits	N/A
	a) Equipment with earthed external circuits Measured current (mA).....:	Class III / ES1 / PS1 / MS1 device	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	Less than 1 Watt -PS1	P
6.2.2.1	General		N/A
6.2.2.2	Power measurement for worst-case load fault ... :		N/A
6.2.2.3	Power measurement for worst-case power source fault :		N/A
6.2.2.4	PS1 :	(See appended table 6.2.2)	P
6.2.2.5	PS2 :	No PS2	N/A
6.2.2.6	PS3 :		N/A
6.2.3	Classification of potential ignition sources		N/A
6.2.3.1	Arcing PIS :	No arcing PIS	N/A
6.2.3.2	Resistive PIS :	No resistive PIS	N/A
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 :	None required	N/A
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		N/A
6.4.1	Safeguard Method	Control the fire spread	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards	None required	N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions :	(See appended table 6.4.3)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Special conditions for temperature limited by fuse	No fuse at Class III device	N/A
6.4.4	Control of fire spread in PS1 circuits	PCB's UL94 V-0, Plastic Enclosure plus Epoxy material at top of the 3 VDC unit.	P
6.4.5	Control of fire spread in PS2 circuits	PS1	N/A
6.4.5.2	Supplementary safeguards	None required	N/A
6.4.6	Control of fire spread in PS3 circuit	PS1	N/A
6.4.7	Separation of combustible materials from a PIS	No PIS	N/A
6.4.7.1	General.....	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Extra Low voltage Class III unit	P
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier	None required	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		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating		N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements	PCB mounted SMD components	N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring	No building wiring involved	N/A
6.6	Safeguards against fire due to connection to additional equipment	See above	N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances	No hazardous substances	N/A
7.3	Ozone exposure	No ozone exposure	N/A
7.4	Use of personal safeguards (PPE)	No use of PPE	N/A
	Personal safeguards and instructions :	None required	—
7.5	Use of instructional safeguards and instructions	No safeguard required for 3VDC batteries operating Class III device.	N/A
	Instructional safeguard (ISO 7010):		—
7.6	Batteries.....:	(See Annex M)	P

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	MS1- Unit weight 0.015 kg	P
8.2	Mechanical energy source classifications	MS1	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	No sharp edges or corners	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	MS1	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:	No safeguard and safety interlocks	N/A
8.5.4.2.2	Instructional safeguards against moving parts	No safety interlocks	N/A
	Instructional Safeguard:		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N):		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....:	None required	N/A
8.6	Stability	See above	N/A
8.6.1	Product classification		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructional Safeguard		—
8.6.2	Static stability	No stability required for MS1	N/A
8.6.2.2	Static stability test	See above	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	None required	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 wall or ceiling mounted	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 castors	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	Not a cart	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—
8.10.6	Thermoplastic temperature stability (°C).....		N/A
8.11	Mounting means for rack mounted equipment	Not slide rail mounted	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No Telescoping or rod antennas	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Button/Ball diameter (mm).....:		—


9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	TS1 limit- External surfaces up to 94°C that need not be touched to operate the equipment less than 1 second.	P
9.3	Safeguard against thermal energy sources	No Safeguard required up to 40°C ambient	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard	Hot Surface marking and touch at surface less than 1 second	N/A
9.4.2	Instructional safeguard	No Safeguard required up to 40°C ambient	N/A

10	RADIATION		N/A
10.2	Radiation energy source classification	No RS source	N/A
10.2.1	General classification	No safeguards required	N/A
10.3	Protection against laser radiation	Low power LED only	N/A
	Laser radiation that exists in the equipment:	No laser	—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation	No visible, infrared or UV radiation	N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard.....:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 ..:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions	(See appended table B.3 & B.4)	N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:	No UV	N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....:		N/A
10.4.2	Instructional safeguard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.5	Protection against x-radiation	No X-radiation sources	N/A
10.5.1	X- radiation energy source that exists equipment :	See above	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 :	None required	N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	No acoustic energy sources	N/A
10.6.1	General	See above	N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :	No acoustic output	N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)	No listening devices	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	No corded listening devices	N/A
	Maximum dB(A)..... :		—
10.6.5.3	Cordless listening device	No cordless listening device	N/A
	Maximum dB(A)..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers :	No audio amplifier present	N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :	(See appended table B.3)	P
B.3.2	Covering of ventilation openings	No ventilation openings	N/A
B.3.3	D.C. mains polarity test	No DC mains polarity test	N/A
B.3.4	Setting of voltage selector :	No voltage setting devices	N/A
B.3.5	Maximum load at output terminals :		N/A
B.3.6	Reverse battery polarity	Unit not functional if reverse	P
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No audio amplifiers	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		N/A
B.4	Simulated single fault conditions		N/A
B.4.2	Temperature controlling device open or short-circuited :	No Temperature controlling device	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		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		N/A
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		N/A
B.4.9	Battery charging under single fault conditions ... :	(See Annex M)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	No UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test	None required	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	No test required	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
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	English	—
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		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification		—
F.3.2.2	Model identification	PLT003	—
F.3.3	Equipment rating markings	3 VDC, Max: <7.6mA	P
F.3.3.1	Equipment with direct connection to mains	No direct connections	N/A
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....	Battery Operated Class III device	—
F.3.3.4	Rated voltage	3 VDC	—
F.3.3.5	Rated frequency	None	—

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.6	Rated current or rated power	Max: <7.6mA	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device	No voltage setting devices	N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking	No switches	N/A
F.3.5.3	Replacement fuse identification and rating markings	No replaceable fuses	N/A
F.3.5.4	Replacement battery identification marking	No replacement option for the batteries	N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	IPX0. For IP67 proof of rating required from the manufacturer.	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	No children present	N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		P
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A

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Clause	Requirement + Test		Verdict
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		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	No switches	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	No relays	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	No thermal cut-offs	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω). :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	No overcurrent protection devices	N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....	(See appended Table B.4)	P
G.4	Connectors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.1	Spacings	No connectors	N/A
G.4.2	Mains connector configuration		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....	No wound components	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....	No transformers	N/A
	Position		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....		—
G.5.3.3	Overload test	(See appended table B.3)	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 motors	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)		—

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Clause	Requirement + Test	Result - Remark	Verdict
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
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	No wire Insulation	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non- detachable power supply cords		N/A
G.7.3.2	Cord strain relief	No cord	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	No cord	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)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	See above	N/A
G.8.3.3	Temporary overvoltage	None required	N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements	No resistors	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 Capacitors and RC units	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 safety critical Optocouplers	N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.13.1	General requirements	UL certified PCB's- UL 94 V-0 rated	P
G.13.2	Uncoated printed boards	See above	P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	No coatings and no terminals	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No pressurised liquid filled components	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 sc 5.4.8 – 120 hours	No capacitor discharge functions	N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No ringing signals	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements	(See separate test report)	N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No safety interlocks	N/A
K.2	Components of safety interlock safeguard mechanism	See above	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe	None required	N/A
	Compliance	See above	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	None required	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	No parts remain energised	N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices	No switches	N/A
L.7	Plugs as disconnect devices	No plugs as disconnect device	N/A
L.8	Multiple power sources	No multiple Power sources	N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements	3 X 3 VDC coin cell batteries	P
M.2	Safety of batteries and their cells	Batteries is encapsulated with Plastic and Epoxy materials	P
M.2.1	Requirements	UL approved batteries	P
M.2.2	Compliance and test method (identify method) .. :		P
M.3	Protection circuits	Batteries data available for UL approved batteries. Unit has protection circuits. No test necessary.	N/A
M.3.1	Requirements	UL approved batteries with protection circuits at the unit.	P
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery	Not likely to overcharged	N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery	Manufacturer installed and non-replaceable batteries	N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance	Manufacturer installed batteries at the unit and shielded using epoxy materials	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery	Not a secondary lithium battery	N/A
M.4.1	General		N/A
M.4.2	Charging safeguards	No charging required.	N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature	(See Annex M.4)	—
M.4.2.2 b)	Single faults in charging circuitry	(See Annex B.4)	—
M.4.3	Fire Enclosure	3 VDC, 0.2 mA device with battery protection.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4	Endurance of equipment containing a secondary lithium battery	Only coin cell batteries with protection for this Class III device	N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current	Class III device power by 3 VDC coin cell battery	P
M.6.1	Short circuits	Battery short across polarity but unit not functional during the short	P
M.6.1.1	General requirements		P
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)	No leakage current likely	N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A

IEC 62368-1			
Clause	Requirement + Test		Verdict
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used	Pollution degree considered	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	Completely sealed unit	P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment	Completely sealed unit	N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids	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		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C).....		—
	Tr (°C)		—
	Ta (°C).....		—
P.4.2 b)	Abrasion testing	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing	(See Annex T)	N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)).		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity	Class III device	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 Flammability test for fire enclosure materials of equipment with a steady-state power exceeding 4000 W		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	N/A
T.3	Steady force test, 30 N	(See appended table T.3)	P
T.4	Steady force test, 100 N	(See appended table T.4)	P
T.5	Steady force test, 250 N	See above	N/A
T.6	Enclosure impact test	None required	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test	(See appended table T.8)	P
T.9	Impact Test (glass)	None required	N/A
T.9.1	General requirements	See above	N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test	No Glass	N/A
T.11	Test for telescoping or rod antennas	No telescopic or rod antennas	N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements	No CRT's	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen	No Protective Screen	N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Shielded Enclosure (Length 106.33 mm x Width 19.3 mm x thickness 8.5 mm)	DESCARTES	Plastic	UL 94, V-2 minimum	UL-94	Tested with application	
PCB / PLT003 Rev 1.3	Shenzhen Uniwell Circuits Co Ltd	2I356025B0	FR-4, 0.1 mm min thickness, V-0 min, 130°C max	UL796	E314500	
Epoxy (Polyurethane) material	Electrolube	UR5041 Polyurethane Resin	125°C max (Cured temperature), A85 hardness, Resin 1.17 and Hardner 1.24 (Polyurethane)	—	Tested with application	
Coin Cell Battery	MuRata	CR1632	3V, 70°C, 1.9 g, 16mm diameter, 3.2 mm height	UL1642	MH12566	
—	—	—	—	—	—	
Supplementary information						
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			P
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
DESCRITES Serial no. 308410		Plastic /Epoxy material	70	No deformation
4.8.4.3	TABLE: Battery replacement test			—
Battery part no.:		CR1632		—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
		1		Non-replaceable batteries
		2		-
		3		-
		4		-
		5		-
		6		-
		8		-
		9		-
		10		-
4.8.4.4	TABLE: Drop test			P
Impact Area		Drop Distance	Drop No.	Observations
Top		1000 mm	1	Unit functional after the test and no broken parts
Bottom		1000 mm	2	Unit functional after the test and no broken parts
Side 1		1000 mm	3	Unit functional after the test and no broken parts
Side 2		1000 mm	4	Unit functional after the test and no broken parts
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
Three impacts		Top	2	No deformation
Three impacts		Bottom	2	No deformation
Three impacts		Side	2	No deformation
4.8.4.6	TABLE: Crush test			P

Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
Top	Horizontal	333	10
Side	Horizontal	333	10
Supplementary information:			

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result			P
Test position	Surface tested	Force (N)	Duration force applied (s)	
Top	Horizontal	30	10	
Bottom	Horizontal	30	10	
Side	Horizontal	30	10	
Supplementary information: Unit tested outside of the Plastic enclosure/ Epoxy material's at top side				

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	3 VDC	Power Input	Normal	3.2	25 mA	—	ES1
			Abnormal	2.96	30 mA	—	
			Single fault – SC/OC	0	0		
—	—	—	Normal	—	—	—	—
			Abnormal	—	—	—	
			Single fault – SC/OC	—	—	—	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
—	—	—	Normal	—	—	—	
			Abnormal	—	—		
			Single fault – SC/OC	—	—		
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	lpk (mA)	
			Normal				—
			Abnormal				
			Single fault – SC/OC				
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	lpk (mA)	
—	—	—	Normal	—	—	—	—

			Abnormal	—	—	—	
			Single fault – SC/OC	—	—	—	
Test Conditions: No repetitive pulses likely Normal – Abnormal - Supplementary information: SC=Short Circuit, OC=Short Circuit							

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P	
	Supply voltage (V) :	3 VDC	3 VDC	*3 VDC	**3 VDC	—	
	Ambient T _{min} (°C) :	21.8	58.6	22. 1	60	—	
	Ambient T _{max} (°C) :	23.2	60	23.5	60	—	
	Tma (°C) :	21	—	22.1	—	—	
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)	
1. Ambient		23.2	60.0	23.5	60.0	40	
2. Plastic Enclosure		21.8	58.6	21.9	58.4	***48 / 94	
3. 3 V Battery case inside		21.9	58.7	22.3	58.8	70	
4. Battery Enclosure outside surface		22.0	58.8	22.2	58.7	***48 / 94	
5. PCB surface near input / diode		22.4	59.2	22.6	59.1	130	
6. PCB surface at bottom of Coin cell battery		22.2	59.0	22.4	58.9	130	
7. Epoxy material		22.0	58.8	22.6	59.1	105	
8. Above PWB Components		21.9	58.7	22.2	58.7	130	
Supplementary information: Test conducted supplying 3.19 VDC via Batteries, 0.025 A measured across diode input. Reader is reading PLT003 data at normal condition. *Abnormal heating covering unit with Cheese cloth at ambient and ** Abnormal heating covering unit with Cheese cloth at calculated 60°C ambient. ***48 °C limit when surface touch less than 10 seconds and 70°C limit when surface touch less than 1 second to be considered at final application by the end user.							
Values within brackets are calculated to manufacturer’s maximum temperature. Details of loading conditions above.							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
—	—	—	—	—	—	—	—
Supplementary information:							
Note 1: Tma should be considered as directed by applicable requirement							
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)							

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

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: No ball pressure test required				

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: ES1/ PS1 / MS1								
Note 1: Only for frequency above 30 kHz								
Note 2: See table 5.4.2.4 if this is based on electric strength test								
Note 3: Provide Material Group								

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

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

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: No insulation measurement required						

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: No Electric strength tests required				

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: No capacitor discharge

X-capacitors installed for testing are:

[] bleeding resistor rating:

[] ICX:

Notes:

A. Test Location:

Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

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

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		1	—
		2*	—
		3	—
		4	—
		5	—
		6	—
		8	—
Supplementary Information: Class III device			
Notes:			
[1] Supply voltage is the anticipated maximum Touch Voltage			
[2] Earthed neutral conductor [Voltage differences less than 1% or more]			
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3			
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.			
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.			

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification
A	Main Power Input via Coin Cell batteries	Power (W) :	0.26	0.26	PS1
		V _A (V) :	3.19 VDC	3 VDC	
		I _A (A) :	25 mA	25 mA	
B		Power (W) :	—	—	—
		V _A (V) :	—	—	
		I _A (A) :	—	—	
C		Power (W) :			—
		V _A (V) :			
		I _A (A) :			
D		Power (W) :	—	—	—
		V _A (V) :	—	—	
		I _A (A) :	—	—	
Supplementary Information: (*) Measurement taken only when limits at 3 seconds exceed PS1 limits					

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

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

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

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

B.2.5		TABLE: Input test						P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
3.19 VDC		25 mA	7.6 mA	0.26	—	—	—	Pass
—	—	—	—	—	—	—	—	—
Supplementary information:								

B.3		TABLE: Abnormal operating condition tests						P
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
PLT003	Input short	3.19 VDC	1 sec	—	1 A	—	23.6	No hazard noted. Unit not operational during the short. Unit ran normally after short removed.
CR2332	Battery polarity short	3.19 VDC	1 sec	—	1 A	—	23.6	No hazard noted. Unit not operational during the short. Unit ran normally after short removed.
—	—	—	—	—	—	—	—	—
Supplementary information: No voltage and current noted while unit shorted.								
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.								

B.4	TABLE: Fault condition tests							P
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-couple	Temp. (°C)	Observation
DC input	Shorted at input diode	3.1 VDC	1	—	—	—	23.6	No hazard noted. Thermal stability.
Battery Polarity short	Short + and – of battery while unit operating	3.1 VDC	1	—	—	—	23.1	Unit stopped operating. No hazard noted.
—	—	—	—	—	—	—	—	—
Supplementary information:								

Annex M.3	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available									N/A	
Is it possible to install the battery in a reverse polarity position?..... :							No		—	
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition	—	—	—	—	—	—	—	—	—	
Max. current during fault condition	—	—	—	—	—	—	—	—	—	
Test results:									Verdict	
- Chemical leaks							No Leaks		—	
- Explosion of the battery							No explosion		—	
- Emission of flame or expulsion of molten metal							No flame or molten materials		—	
- Electric strength tests of equipment after completion of tests							—		—	

Annex M.3	TABLE: Batteries								N/A		
The tests of Annex M are applicable only when appropriate battery data is not available									N/A		
Is it possible to install the battery in a reverse polarity position?..... :									No		—
	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.		

Supplementary information: Batteries data available. UL approved three coin cell batteries rated 3 VDC, 0.2 mA at class III equipment installed by the manufacturer with built in protection circuits (See below). No test will be required.

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	—	—	—	—
	Normal	—	—	—	—
	Abnormal	—	—	—	—
	Single fault – SC/OC	—	—	—	—
Supplementary Information:					
Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at T_{highest} (°C)	Observation	
—	—	—	—	—	
—	—	—	—	—	
—	—	—	—	—	
Supplementary Information: No Lithium batteries. UL approved Coin cell batteries with protection circuits.					

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
Supplementary Information: No building wiring SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Enclosure Top	Plastic	8.5	100	5	No deformation.	
Battery case bottom	Epoxy	8.5	100	5	No deformation.	
Side	Plastic	8.5	100	5	No deformation.	
Supplementary information: Unit operates normally after the test						

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				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Top of PLT003	Plastic	8.5	1000	Dropped on each side separately but no hazard / broken parts. Unit operates normally after the test.	
Bottom of PLT003	Epoxy material	8.5	1000	Dropped on each side separately but no hazard / broken parts. Unit operates normally after the test.	
Side of PLT003	Plastic	8.5	1000	Dropped on each side separately but no hazard / broken parts. Unit operates normally after the test.	
Supplementary information:					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
PLT003	Plastic / Epoxy		70	7 hr	No abnormal noted. Unit operate normally after the test.	
Supplementary information: Tested unit while reader is detecting Bluetooth signals continuously. Temperature maintained at 70°C, 23.3 %RH and 988.8 hPa inside the chamber for 7 hours.						

Attachment 1 – Test Equipment Used

Clause	Measurement / testing	Testing / measuring equipment / material used, (Equipment ID)	Range used	Last Calibration date	Calibration due date
MTW	Ambient	MTW	—	2022-02-21	2023-02-21
MUQ	Ambient	MUQ	—	2022-02-21	2023-02-21
MUO	Stopwatch	MUO	—	2022-02-24	2023-02-24
MTB	360AFX power supply	MTB	—	—	—
MTV	Multimeter	MTV	—	2022-02-23	2023-02-23
MTY	Multimeter	MTV	—	2022-02-23	2023-02-23
MTD	High voltage	MTD	—	2022-02-24	2023-02-24
Distilled water	Distilled water	W20525-4000	—	—	
MUI	Hexane	Cas #92112-69-1	—	2022-06-24	2027-06-24
MTR	Cheese cloth ACC-01	C12521844	—	2021-12-16	2022-12-16
MUA	Thermometer	MUA	—	2022-02-23	2023-02-23
MTL	Digital Force gauge	MTL	—	2021-09-13	2023-09-13
MTKD	Digital Caliper Probe	MTKD	—	2022-06-20	2022-06-20
MUF	Switch Multimeter	MUF	—	2022-01-27	2023-01-27
MTX	Data logger	MTX	—	2022-01-27	2023-01-27
MUG	Digital Scale	MUG	—	2022-02-14	2023-02-14
TBF	Humidity / Heating chamber	Cincinnati Sub Zero (CSZ) ZPH-32-3.5-SCT/AC	—	2022-01-30	2023-01-30

Note: Equipment used was within calibration date at time of testing and has since been calibrated where shown as elapsed.

Attachment 2 – EN National Differences

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment - Part 1: Safety requirements)																																										
Differences according to : EN 62368-1:2014+A11:2017																																										
Attachment Form No. : EU_GD_IEC62368_1D_II																																										
Attachment Originator : Nemko AS																																										
Master Attachment : Date 2021-02-04																																										
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.																																										
	CENELEC COMMON MODIFICATIONS (EN)					P																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".					P																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					P																																				
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list: <table border="1" data-bbox="343 1142 1332 1601"> <tbody> <tr> <td>0.2.1</td> <td>Note</td> <td>1</td> <td>Note 3</td> <td>4.1.15</td> <td>Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </tbody> </table>					0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																					
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c																																					
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note																																					
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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.					P																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.				P																																					

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>	3 VDC via battery power	P
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>		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: <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>		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>		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>		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>		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>		N/A
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 device	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 device	N/A
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following:</p> <p>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>		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:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>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 device	N/A
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>	No IT power system used at this Class III device	N/A
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>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.</p>	Class III	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 device	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.	No mains plug exist. Class III device.	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.		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.	No conductor at this stand alone class III device	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>	Noted	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>	Noted	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>	No Direct plug in equipment.	N/A
F.1	<p>Italy</p> <p>The following requirements shall be fulfilled:</p> <ul style="list-style-type: none"> • The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). <p>Note: <i>EN 60555-2 has since been replaced by IEC 60107-1:1997.</i></p> <ul style="list-style-type: none"> • TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. • Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. • The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: <p><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></p> <ul style="list-style-type: none"> • 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: <p>D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for Teletext pT for retrofitable teletext</p> <p><i>Justification:</i></p> <p>Ministerial Decree of 26 March 1992 : National rules for television receivers trade.</p> <p>NOTE/: Ministerial decree above contains additional, but not safety relevant requirements</p>	Not a TV receiver 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>	Unit is Class III device	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>	Not a direct plug-in equipment	N/A
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>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.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	Class III device	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	No flexible cable or cord	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.	No Power supply cord exist	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	No cathode ray tube	N/A

Attachment 3 – CA and US National Differences

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed.**USA/CANADA NATIONAL DIFFERENCES**

Audio/video, information and communication technology equipment – Part 1: Safety requirements

Differences according to : CSA/UL 62368-1:2014

TRF template used: : IECEE OD-2020-F3, Ed. 1.1

Attachment Form No...... : US_CA_ND_IEC62368_1D**Attachment Originator** : UL(US)**Master Attachment**..... : Dated 2021-02-04**Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.**

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.	Class III device	N/A
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.	No external interconnecting flexible cord and cable	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.	No modified special constructions and performance requirement	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		N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		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
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.		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.		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.	No Power supply cord	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.		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.		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.	See above	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.	No battery packs. Unit is Class III device	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.		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.		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 designed for children	N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A

Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		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).		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).		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."		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	No switches	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.		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 device	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.		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.		N/A

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 Motor control device	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.		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 wiring 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.		N/A
Annex DVC (1)	Additional requirements apply for equipment 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.		N/A
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	Not Equipment for permanent connection to the mains supply	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.		N/A
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.	No terminals for permanent wiring, including protective earthing terminals	N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A

Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		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 device	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.		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.	No equipment connected to a telecommunication and cable distribution networks	N/A

Attachment 4 - Items Submitted for assessment

The following test items were submitted for assessment: -

Sample Number	Test Item	Serial number	Date of receipt of test item
1.	Descrates 303983 (Model PLT003) - BLE Beacon Tag	0000303983	2022-08-15
2.	Descrates 308410 (Model PLT003)	0000308410	2022-08-15
3.	PLT003 Rev 1.3 Bare PCB board with heat shrink (CR1632)	N/A	2022-08-22

Attachment 5 - Photographs of the equipment and Manual

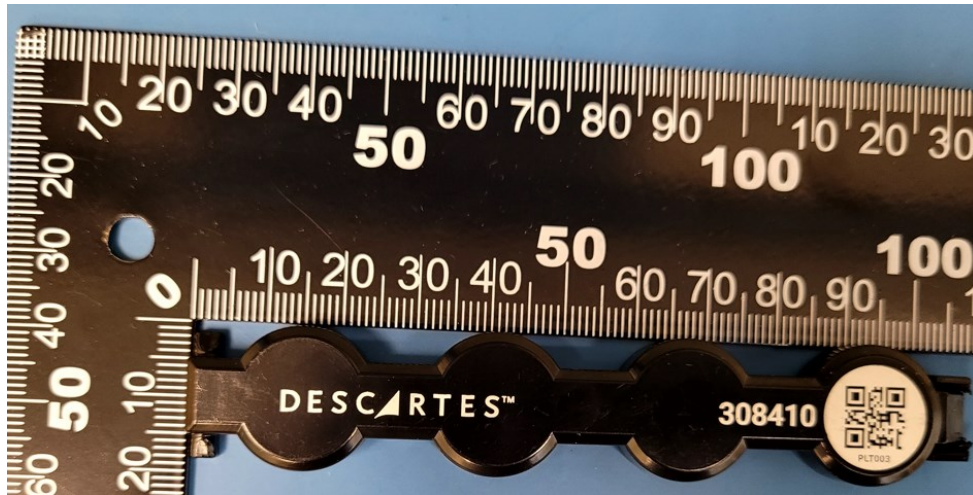


Top of the Tag



Bottom of the Tag

Attachment 5 - Photographs of the equipment and Manual

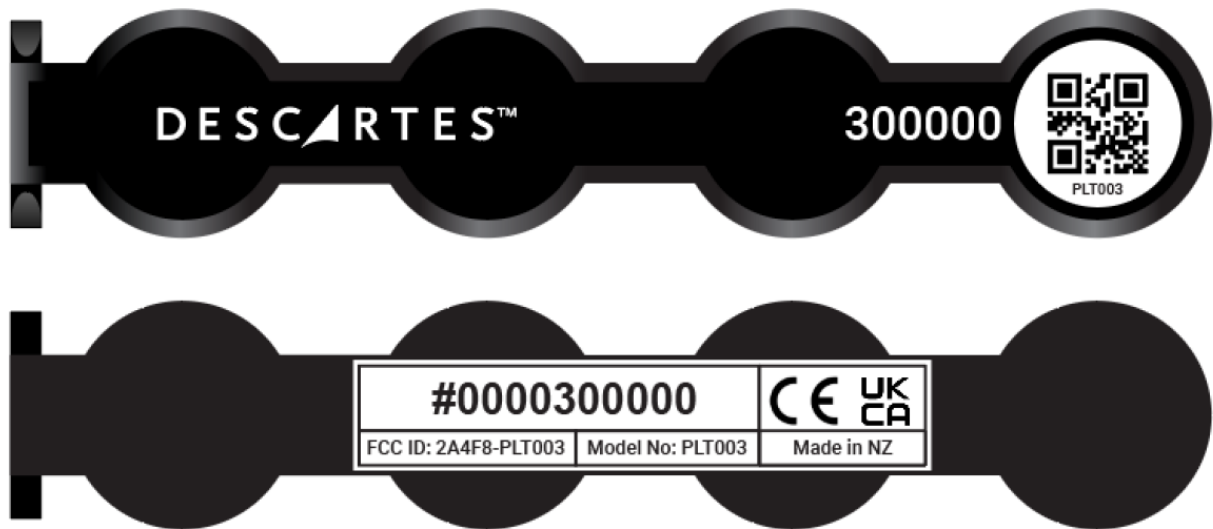


Top of the Tag



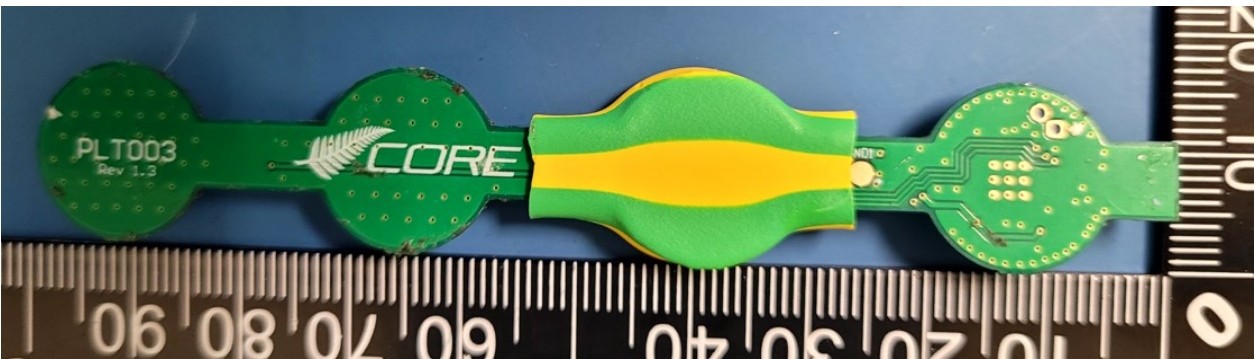
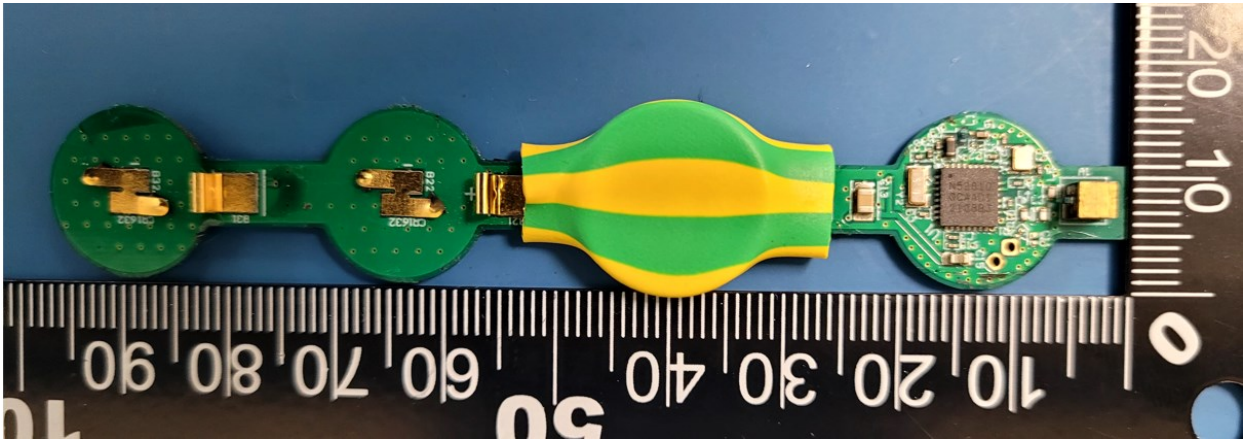
Bottom of the Tag

Attachment 5 - Photographs of the equipment and Manual



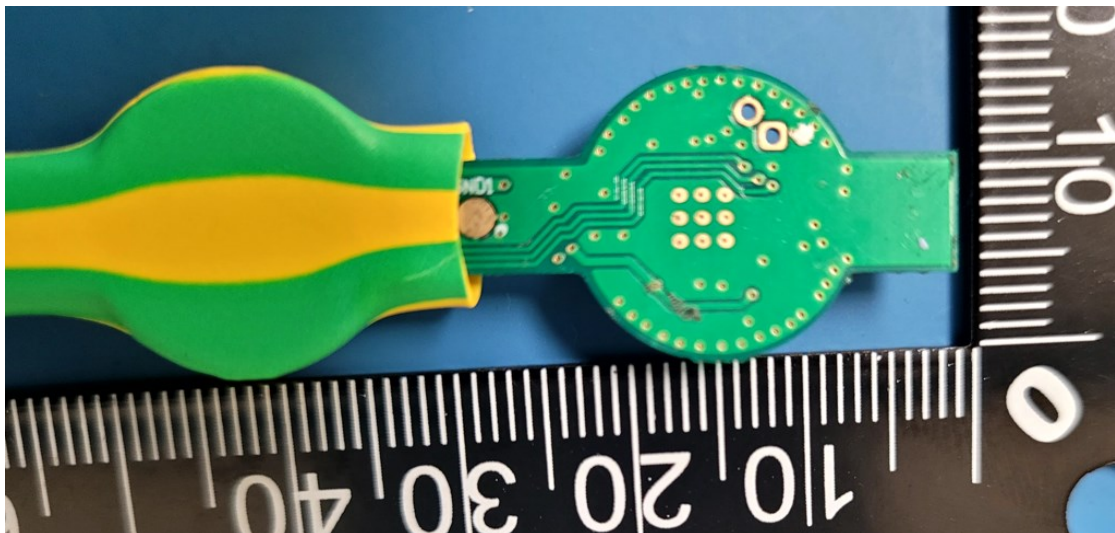
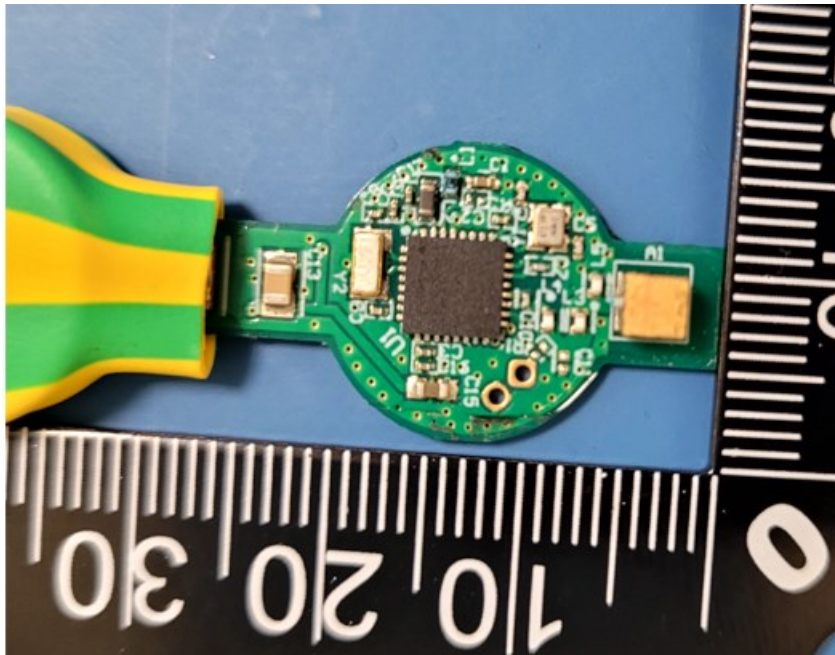
Unit's RFID tag and Label example

Attachment 5 - Photographs of the equipment and Manual



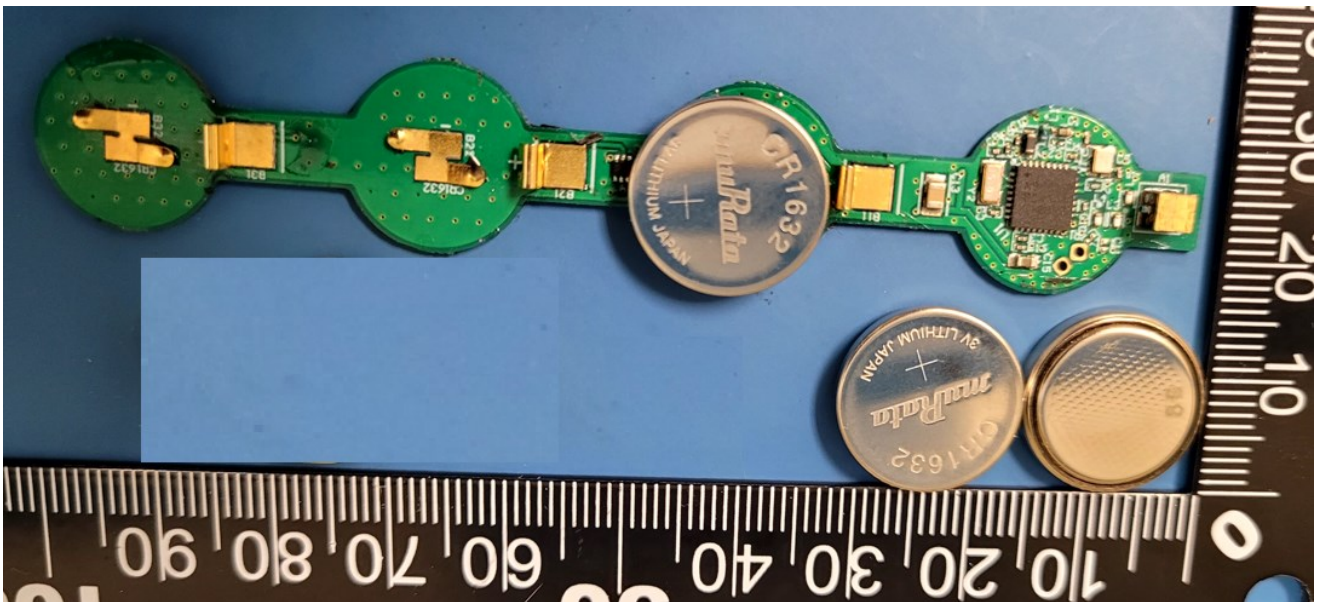
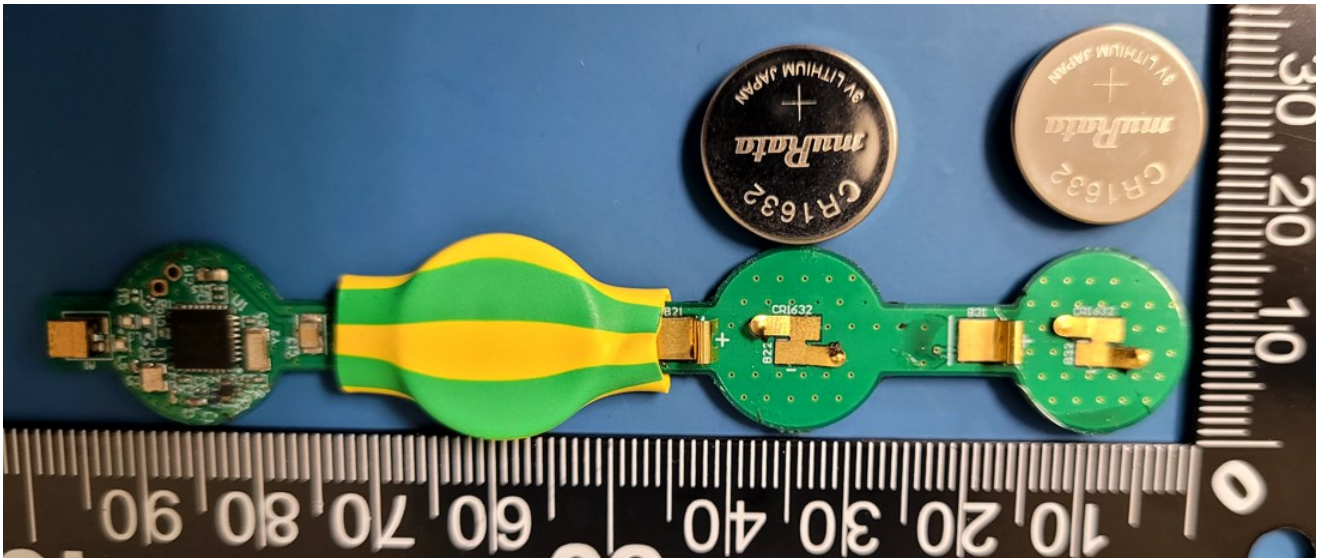
Unit's PCB front and back without Epoxy materials and Enclosure

Attachment 5 - Photographs of the equipment and Manual



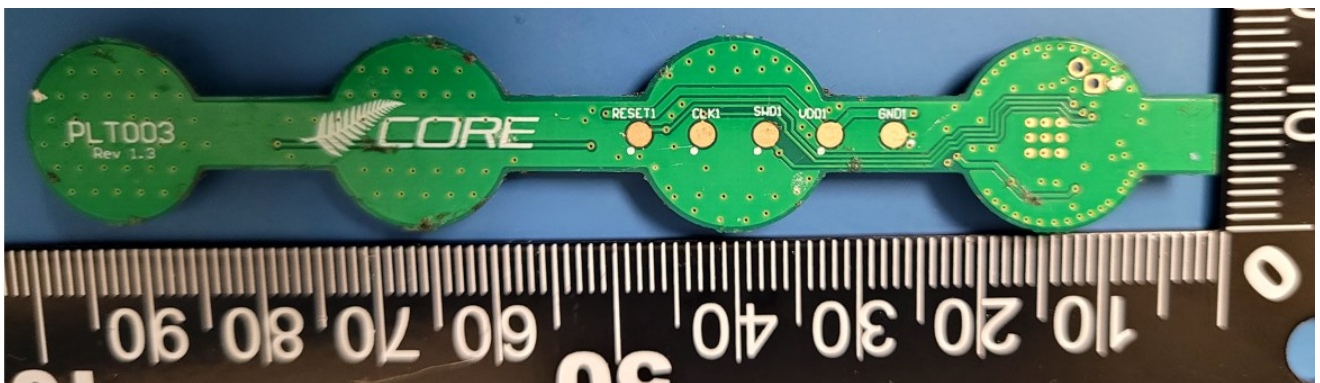
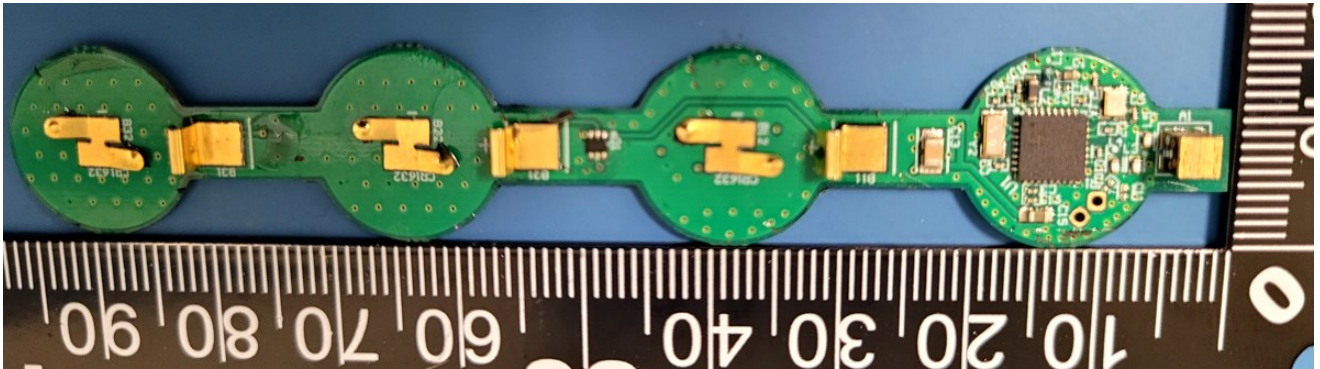
Unit's PCB components close-up front and back without Epoxy materials, heat shrink (Yellow green stripe) and without the plastic Enclosure

Attachment 5 - Photographs of the equipment and Manual



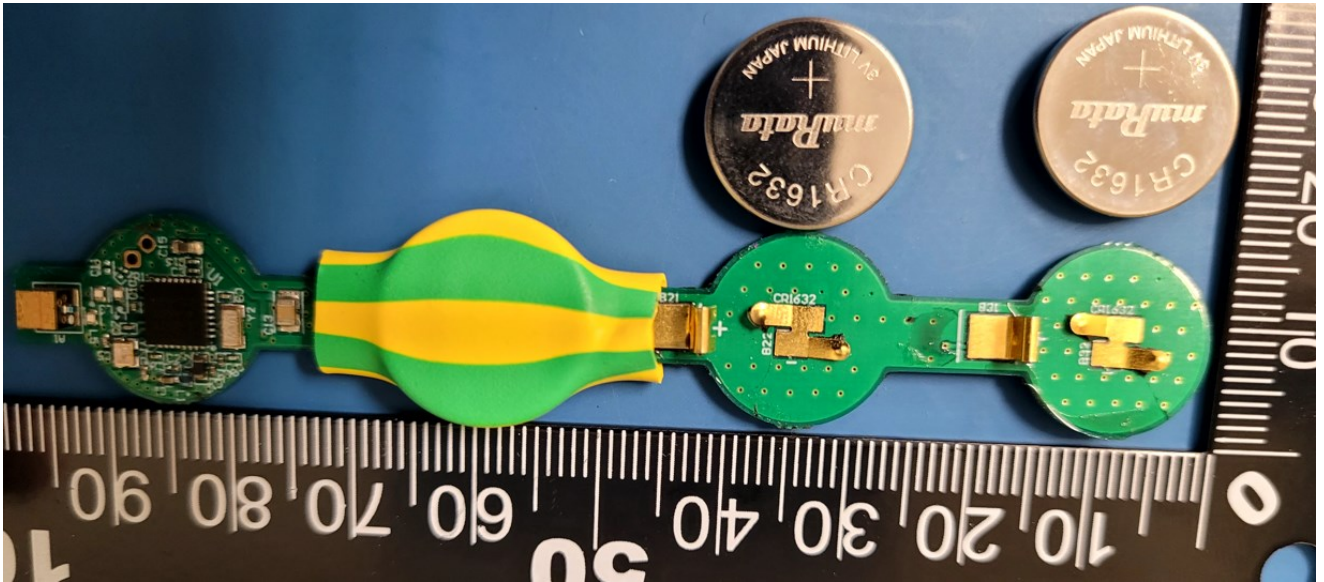
Unit's PCB close-up front and back without Epoxy materials, heat shrink (Yellow green stripe) and three coin-cell Batteries CR1632

Attachment 5 - Photographs of the equipment and Manual



Unit's bare PCB close-up front and back views

Attachment 5 - Photographs of the equipment and Manual



Unit's PCB close-up front plus battery insertion example and coin-cell Batteries insert location

Attachment 5 - Photographs of the equipment and Manual



PLT003 User Manual

Specifications, device installation, compliance and safety information

Updated: 2022-07-01

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Attachment 5 - Photographs of the equipment and Manual

Revision History

Name	Date	Description	Version
RORIE	2022/01/18	Create document	1.0
RORIE	2022/02/01	Compliance section	1.1
RORIE	2022/02/02	Specifications	1.2
RORIE	2022/02/15	Add FCC ID	1.3
RORIE	2022/06/29	CE, UK, Safety info, instructions	1.4
RORIE	2022/07/01	RF transmit power: 1.8 dBm EIRP	1.5

Introduction

The PLT003 COREInsight® BLE Beacon tag is an active BLE beacon which utilises the Nordic nRF5810 module encased in a housing. This document explains how to use the PLT003 tag in a production setting. The PLT003 tag advertises at an optimal interval of 7 times every 60seconds. The beacon message is sent on the advertisement channels for BLE: 37 (2402 MHz), 38 (2426 MHz) and 39 (2480 MHz).

The tag has a Theoretical lifetime of 5 years.

Specifications

FCC ID	2A4F8-PLT003
RF specification operating frequency	2402 MHz (low), 2426 MHz (medium), 2480 MHz (high)
Type of modulation	GFSK
RF transmit power	1.8 dBm EIRP
Number of channels	3 channels
Antenna type	Pillar
Antenna gain	-0.4dBi
Specialty	Bluetooth Low Energy
Function	Bluetooth Low Energy
Power supply	N/A
Power cord	N/A
Battery	Three CR1632 lithium metal cell batteries rated at 140mAh each. Total 420mAh
Size:	3.7" x .76" x .35" (94.2mm x 19.2mm x 9mm)
Lifetime	5 years
Temperature Range:	-20°C to +40°C
Weight	15 grams
Bluetooth Sensitivity:	-95dBm
Transportation:	Meets IATA Dangerous Goods Regulations 2015-2016 Edition (UN3091) Exemption Requirements PI 970 Section 2. Less than 4 lithium metal cells encased in equipment. No declaration required.
Power Consumption - Max:	<7.6mA
Power Consumption - Sleep:	3 uA

Attachment 5 - Photographs of the equipment and Manual

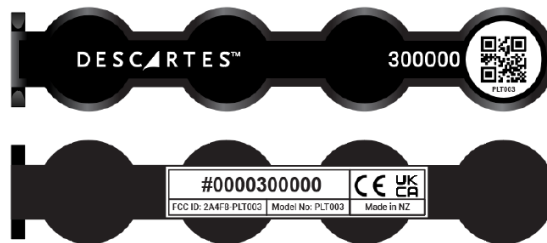
Compliance

Manufacturer

Descartes Systems Group Inc.
 Address: 105 Trafalgar Street, Floor 2, 7011, Nelson, New Zealand
 Telephone number: +64 (3) 547-8205 (New Zealand)
 E-Mail address: ServiceDesk@descartes.com

Markings

Rear side of the device shows the CE, UKCA, FCC ID, model number and serial number. Front side of the device also has the serial number and a QR code to read the serial number. This information can be used to derive the manufacturing batch number.



FCC

FCC covers certification regulations for the United States of America.

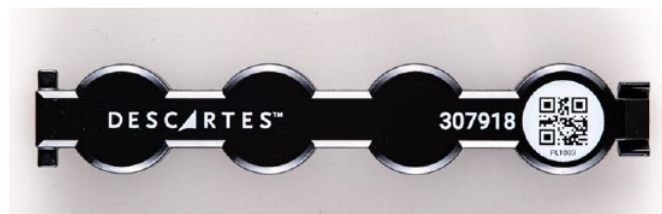
Per FCC 15.19(a)(3) and (a)(4): This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Per FCC 15.21: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Our beacon device falls under FCC rules part 15.247 as it transmits within 2400-2483.5 MHz.

CE: Radio Equipment Directive (RED)

CE covers certification regulations for the European Economic Area (EEA), Turkey and countries that are part of the EU's single market. This includes EU countries, Iceland, Liechtenstein, Norway and Switzerland.



The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Radio Equipment Directive 2014/53/EU
 RoHS 2011/65/EU

The following harmonised standards and technical specifications have been applied:

ETSI EN 300 328 V2.2.2:2019-07
 ETSI EN 301 489-1 v2.2.3:2019-11
 ETSI EN 301 489-17 V3.2.4:2020-09

EN IEC 62311
 EN IEC 61326-1:2021
 EN 60950-1:2005/A2:2013