Test Report issued under the responsibility of:

UL Solutions

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number .....:	E513139-A6065-CB-1
Date of issue .....:	2024-02-29 ; Amendment 2 : 2024-10-01
Total number of pages .....:	10
Name of Testing Laboratory preparing the Report .....:	UL India Pvt. Ltd.
Applicant's name .....:	**CAMBIUM NETWORKS PRIVATE LIMITED**
Address .....:	**5TH FLOOR, QUADRANT 1 UMIYA BUSINESS BAY, TOWER 2 OUTER RING ROAD, KADUBISENAHALLI, VARTHUR HOBLI ROAD BANGALORE KARNATAKA 560037 INDIA**
Test specification:	
Standard .....:	IEC 62368-1: 2018
Test procedure .....:	CB Scheme
Non-standard test method .....:	N/A
TRF template used .....:	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. .....:	IEC62368_1E
Test Report Form(s) Originator ...:	UL(US)
Master TRF .....:	Dated 2022-04-14

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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 :	Point-Multi-Point (PMP) Fixed Outdoor Transceiver System
Trade Mark(s) .....:	Cambium Networks
Manufacturer .....:	Cambium Networks private limited 5th Floor, Quadrant 1 Umiya Business Bay, Tower 2 Outer Ring Road, Kadubisenahalli, Varthur Hobli road Bangalore Karnataka 560037 INDIA
Model/Type reference .....:	6084HH
Ratings .....:	Vin: 56V DC, Imax: 1.43A(Optional)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ **CB Testing Laboratory:**		
Testing location/ address .....:	UL India Pvt. Ltd. Kalyani Platina Campus, Survey No. 129/4 EPIP Zone, Phase II IN-560 066, Whitefield, Bangalore India	
Tested by (name, function, signature).....:	Arun Kumar S / Project Handler	
Approved by (name, function, signature) ..:	ByeongUk Lee / Reviewer	
☐ **Testing procedure: CTF Stage 1:**		
Testing location/ address .....:		
Tested by (name, function, signature).....:		
Approved by (name, function, signature) ..:		
☐ **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:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

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

National Differences (0 pages)
Enclosures (0 pages)

Summary of testing:

Tests performed (name of test and test clause): **None**	**Testing Location: None**

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

Australia - AU, New Zealand - NZ, EU Group Differences, United States of America - US, Canada - CA

☒ **The product fulfils the requirements of** EN IEC 62368-1:2020+A11:2020, CSA/UL 62368-1:2019, AS/NZS 62368.1:2022

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

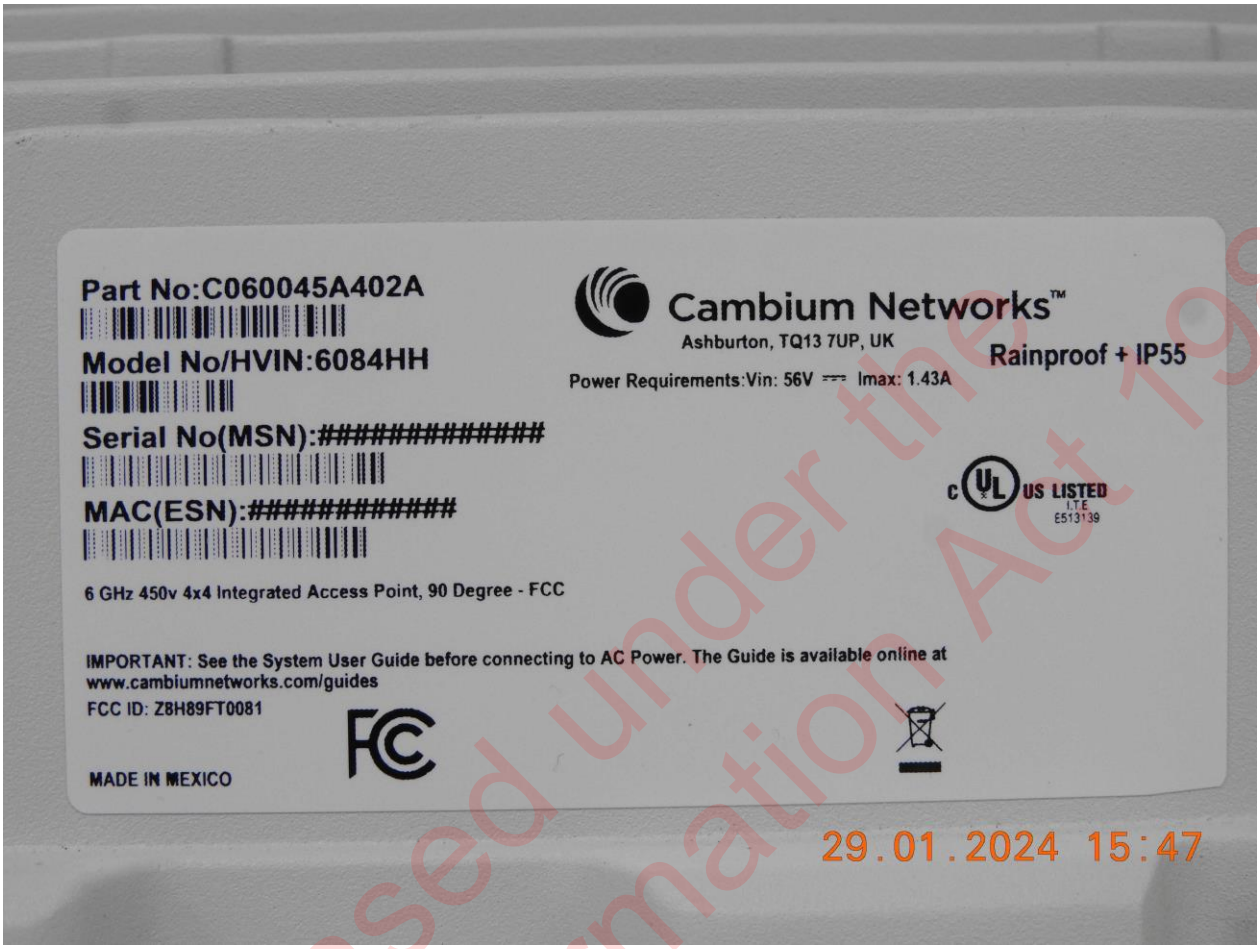
Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

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



Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

Test item particulars:	
Product group	end product
Classification of use by	Ordinary person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	RJ-45 connector
Considered current rating of protective device	N/A
Equipment mobility	stationary Pole Mounted
Over voltage category (OVC)	OVC II
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	60 Outdoor: minimum -40
IP protection class	IP 55
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	6.92 Kg
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 .....:	N/A
Date (s) of performance of tests .....:	N/A
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 ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	

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 ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	Flex Ltd MX Guadalajara South Bldg 3 Prolongación Av. Lopez Mateos Sur #2915, La Tijera 45645 Tlajomulco de Zuñiga Jalisco MEXICO

General product information and other remarks:

The original report was modified on 2024-10-01 to include the following changes/additions:

The original report was modified to include the following changes/additions:

-This Amendment test Report shall be read in conjunction with the original/Amendment Report No.:

(1) E513139-A6065-CB-1, issue date 2024-02-29 with CB Certificate No. DK-150779-UL, issue date 2024-02-29. and

(2)E513139-A6065-CB-1 amendment 1:2024-06-19 with DK-150779-M1-UL issue date 2024-06-19

- This test report has been amended (Technical Amendment), due to:

Addition of publication year for the standard in CCL table 4.1.2

- No test was deemed necessary based on the previous tests.

Product Description

Product is a outdoor wireless communication system consisting of an enclosure, PWB with RF circuitry. Unit is intended to be powered via a PoE supplied by an external UL listed and IEC certified power supply. The power supply is not investigated under this application.

Model Differences

N/A

Additional Information

-This Amendment test Report shall be read in conjunction with the original/Amendment Report No.:

(1) E513139-A6065-CB-1, issue date 2024-02-29 with CB Certificate No. DK-150779-UL, issue date 2024-02-29.

- This test report has been amended (Technical Amendment), due to:

Addition of AUS/NZ national differences without testing.

- No test was deemed necessary based on the previous tests.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60°C
- The product is intended for use on the following power systems : No direct connection
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : RJ 45 Port and SFP Port
- The following were investigated as part of the protective earthing/bonding : Main PoE ethernet connector shield to Protective earthing , (Refer to enclosure- protective earth instruction)
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standard : EN IEC 62368-1:2020+A11:2020
- The long-term characteristics or the possible physiological effects of radio frequency (RF) electromagnetic fields associated with this equipment have not been investigated
- This product is intended to be supplied by a UL Listed and IEC certified PoE Power supply marked "LPS" or "PS2" complied acc. to UL/IEC 60950-1 latest ed. or UL/IEC 62368-1.

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

4.1.2	TABLE: Critical components information				Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Plastic Enclosure (Bottom cap)	CHI MEI CORPORATION	PW-957(+)(f1)	Min. thickness 1.5 mm, HB	UL 94 (Edition 6) ; IEC 60695-11-10 (Edition 2)	UL E56070 , - -
Plastic Enclosure (AP antenna)	CHI MEI CORPORATION	PC-110U(f1)(a)	Min Thickness: 2.3 mm, V-2.	UL 94 (Edition 6) ; IEC 60695-11-10 (Edition 2)	UL E56070 , - -
PCB board	Shengyi Electronics Co Ltd	M13	V-0, max operating temp: 130°C	UL 796 (12th edition:2020)	UL E117942 , -
PCB board	TAIWAN UNION TECHNOLOGY CORP	TU-1300	V-0, max operating temp: 130°C	UL 796 (12th edition:2020)	UL E189572 , -
PCB board (Alternate)	Interchangeable	Interchangeable	min. V-1, max operating temp: 105°C	UL 796 (12th edition:2020)	UL , -
Marking Label	Brady Worldwide Inc	B483A	Rated to 80°C Maximum, suitable for appllied surface ABS, Polycarbonate	UL 969 (4th edition:1995) Further investigated with equipment (IEC 62368-1 3rd edition)	UL MH10939 , --
RJ45 Connector plastic interior	POLYPLASTICS CO LTD	E130i(dd)(e)(f1)	Metal housing, interior V-0 rated, max operating temp: 130°C	UL 94 (6th edition:2013)	UL E106764 , --
Metal Enclosure	Tong Da General Holdings (HK) Ltd	--	Aluminum	Tested in Unit (IEC 62368-1 3rd edition)	-- , --
Gasket	Nolato Silikonteknik AB	Nolato 1540	Max temp 125 degree C	UL 50E: 2020	UL MH60440 , --
RJ 45 Connector	E I DUPONT DE NEMOURS & CO INC	FR7025V0F(+)	Min Thickness 0.40mm, V-0, 130°C	UL 94 (6th edition:2013)	UL E41938 , - -
MOUNTING BRACKET	NINGBO VPOINT QINGSHENG	A005279	--	Tested in Unit	-- , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
	TECHNOLOGY CO., LTD			(IEC/UL 62368-1 3rd edition)	
PoE Transformer (T301)	WURTH ELEKTRONIK	750313095	Operating temperature: -40 up to +125 °C Insulation test voltage2400 Vdc (N1,3 to N2)	Tested in Unit (IEC/UL 62368-1 3rd edition)	UL , --
Transformer(T101)	Pulse Electronics	PA2001NL	Operating temperature: -40 up to +130 °C Insulation test voltage:1500Vrms	Tested in Unit (IEC/UL 62368-1 3rd edition)	UL , --
Lan Ethernet Transformer(T100)	Link-PP intl Technology	LP6096ANL	Operating temperature: -- 40 TO + 85℃	Tested in Unit (IEC/UL 62368-1 3rd edition)	UL , --
Optocoupler (U301)	Vishay Semiconductors	VOM617A-9T	Operating temperature: -55 up to +110 °C Isolation test voltage, 3750 VRMS	UL 1577:2014 EN IEC 60747-5-5:2020	UL E52744 , VDE 40034600
Optocoupler U303 & U304	Toshiba Electronic Devices	TLP185(SE	Operating temperature: -55°C to 110°C, 3750 VRMS	UL 1577:2014 IEC 60747-5-5 (VDE 0884-5):2021-10;	UL E67349 , VDE 40009347
Supplementary information: The CBTL has verified the component information.					

Test Report issued under the responsibility of:

UL Solutions

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number .....:	E513139-A6065-CB-1
Date of issue .....:	2024-02-29
Total number of pages .....:	58
Name of Testing Laboratory preparing the Report .....:	UL India Pvt. Ltd.
Applicant's name .....:	**CAMBIUM NETWORKS PRIVATE LIMITED**
Address .....:	**5TH FLOOR, QUADRANT 1 UMIYA BUSINESS BAY, TOWER 2 OUTER RING ROAD, KADUBISENAHALLI, VARTHUR HOBLI ROAD BANGALORE KARNATAKA 560037 INDIA**
Test specification:	
Standard .....:	IEC 62368-1: 2018
Test procedure .....:	CB Scheme
Non-standard test method .....:	N/A
TRF template used .....:	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. .....:	IEC62368_1E
Test Report Form(s) Originator ...:	UL(US)
Master TRF .....:	Dated 2022-04-14

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Test Item Description ..... :	Point-Multi-Point (PMP) Fixed Outdoor Transceiver System
Trade Mark(s) ..... :	Cambium Networks Cambium Networks™
Manufacturer ..... :	Cambium Networks private limited 5th Floor, Quadrant 1 Umiya Business Bay, Tower 2 Outer Ring Road, Kadubisenahalli, Varthur Hobli road Bangalore Karnataka 560037 INDIA
Model/Type reference ..... :	6084HH
Ratings ..... :	Vin: 56V DC, Imax: 1.43A(Optional)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ **CB Testing Laboratory:**		
Testing location/ address ..... :	UL India Pvt. Ltd. Kalyani Platina Campus, Survey No. 129/4 EPIP Zone, Phase II IN-560 066, Whitefield, Bangalore India	
Tested by (name, function, signature)..... :	INDUBABU P N / Project Handler	
Approved by (name, function, signature) .. :	Uwe Hohmann / Reviewer	
☐ **Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature) .. :		
☐ **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:**		
☐ **Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :		
Tested by (name, function, signature)..... :		

Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

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

National Differences (28 pages)
Enclosures (13 pages)

Summary of testing:

Tests performed (name of test and test clause):	**Testing Location:** **CBTL: UL India Pvt. Ltd.** **Kalyani Platina Campus, Survey No. 129/4 EPIP Zone, Phase II IN-560 066, Whitefield, Bangalore India**
4.4.3.2, T.5 – STEADY FORCE TEST, 250 N	
4.4.3.8, T.8 – STRESS RELIEF TEST	
5.2.2.1-5.2.2.6 – CLASSIFICATION OF ELECTRICAL ENERGY SOURCES	
5.4.10, 5.4.10.2.2 – SAFEGUARDS AGAINST TRANSIENT VOLTAGES FROM EXTERNAL CIRCUITS: IMPULSE TEST	
8.7 – WALL, CEILING, OR OTHER STRUCTURE MOUNTING TESTS	
8.8 – HANDLE STRENGTH	
B.2.5 – INPUT TEST: SINGLE PHASE	
B.2.6, 5.4.1.4, 6.3, 9.3, B.1.5 – NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT	
B.4 – SIMULATED SINGLE FAULT CONDITIONS	
F.3.10 – TEST FOR THE PERMANENCE OF MARKINGS	
Q.1 – LIMITED POWER SOURCE	
Y.5.3 - WATER SPRAY TEST	Underwriters Laboratories Taiwan Co., Ltd, 4th Fl., 260, Da Yeh Road, Peitou, Taipei City Test Carried under project number 4791041239.2
Y.5.5 - PROTECTION FROM EXCESSIVE DUST	Underwriters Laboratories Taiwan Co., Ltd., 1F., No.2, Wenming 1st St., Guishan, Taoyuan City 333, Taiwan (R.O.C.) Test Carried under project number 4791041239.2
Y.6.2 - POLYMERIC OUTDOOR ENCLOSURE IMPACT	

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

EU Group Differences, United States of America - US, Canada - CA

☒ **The product fulfils the requirements of** EN IEC 62368-1:2020+A11:2020, CSA/UL 62368-1:2019

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

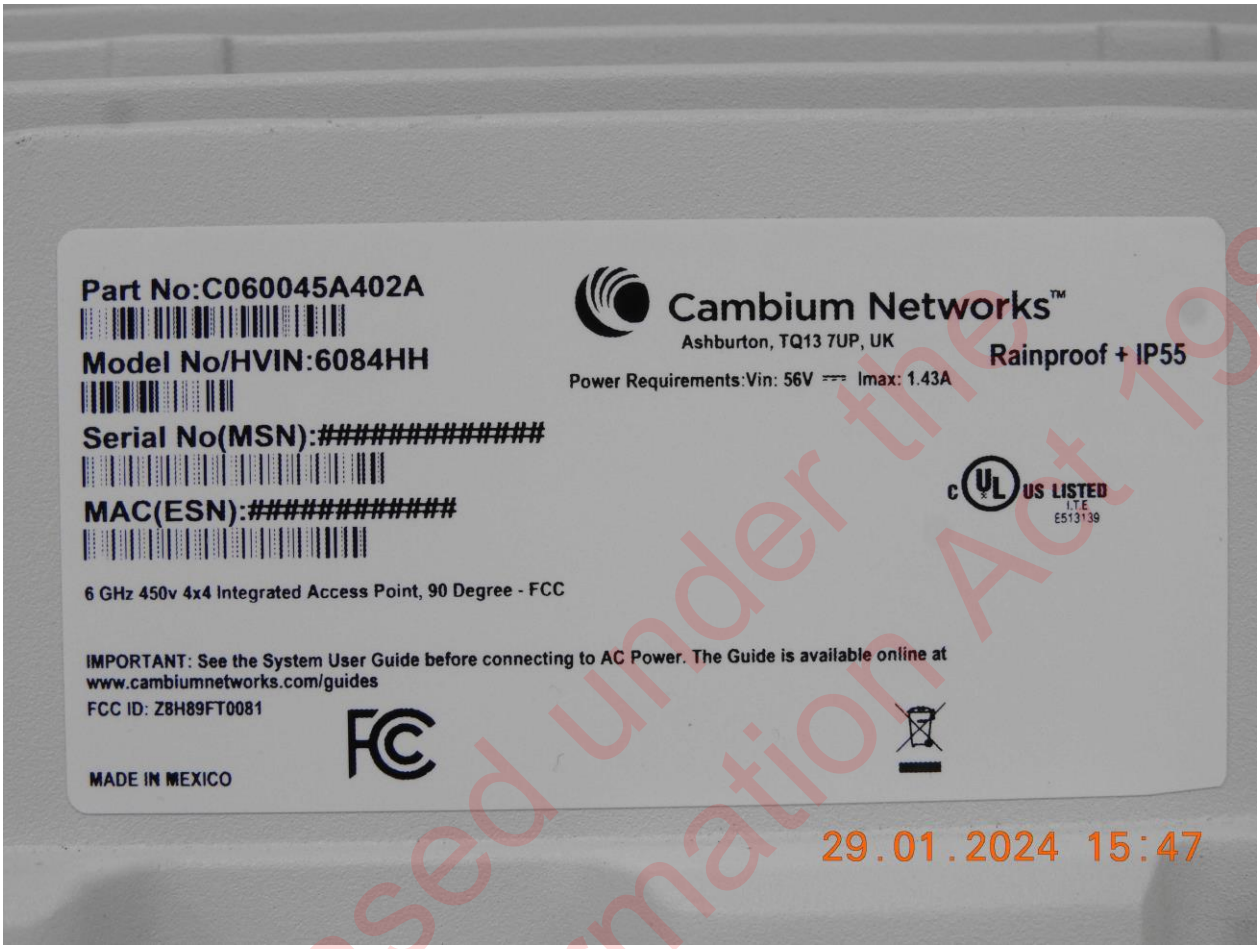
Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE. IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

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



Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

Test item particulars:	
Product group	end product
Classification of use by	Ordinary person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	RJ-45 connector
Considered current rating of protective device	N/A
Equipment mobility	stationary Pole Mounted
Over voltage category (OVC)	OVC II
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	60 Outdoor: minimum -40
IP protection class	IP 55
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	6.92 Kg
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 .....:	2023-10-18
Date (s) of performance of tests .....:	2023-11-15 to 2023-12-22
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 ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	

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 ..... :	☐ **Yes** ☒ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	Flex Ltd MX Guadalajara South Bldg 3 Prolongación Av. Lopez Mateos Sur #2915, La Tijera 45645 Tlajomulco de Zuñiga Jalisco MEXICO

General product information and other remarks:

Product Description

Product is a outdoor wireless communication system consisting of an enclosure, PWB with RF circuitry. Unit is intended to be powered via a PoE supplied by an external UL listed and IEC certified power supply. The power supply is not investigated under this application.

Model Differences

N/A

Additional Information

According to IEEE 802.3at:2009, input power to EUT via PoE power supply was considered as PS2.

Maximum Normal Load: Configure IP Address of PC Ethernet port to static IP address 192.168.0.1. Unit was connected to PC via RJ45 to operated continuously with I/P ports transmitting.

IP 5X test according to IEC 60529 conducted at below location

Underwriters Laboratories Taiwan Co., Ltd.

No.2, Wenming 1st St. Guishan, Taoyuan City

TW-333 Taiwan Chinese Taipei

IP X5 test according to IEC 60529 conducted at below location

Underwriters Laboratories Taiwan Co., Ltd.

260 Da-Yeh Road, TW-112 Peitou Taipei City,

Chinese Taipei

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60°C
- The product is intended for use on the following power systems : No direct connection
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : RJ 45 Port and SFP Port
- The following were investigated as part of the protective earthing/bonding : Main PoE ethernet connector shield to Protective earthing , (Refer to enclosure- protective earth instruction)
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standard : EN IEC 62368-1:2020+A11:2020
- The long-term characteristics or the possible physiological effects of radio frequency (RF) electromagnetic fields associated with this equipment have not been investigated
- This product is intended to be supplied by a UL Listed and IEC certified PoE Power supply marked "LPS" or "PS2" complied acc. to UL/IEC 60950-1 latest ed. or UL/IEC 62368-1.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES1: All circuits	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS2 Circuit	External enclosure	Materials do not exceed 90% of spontaneous ignition temperature and do not ignite during test, min. HB considered. See clause 6.3.	See clause 6.4.5	N/A
PS2 Circuit	All components inside enclosure	Materials do not exceed 90% of spontaneous ignition temperature and do not ignite during test, min. HB considered. See clause 6.3.	Control of fire spread method: All PWBs min. V-1 rated	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source	Body Part	Safeguards		

(e.g. MS3: Plastic fan blades)	(e.g. Ordinary)	B	S	R
MS3: Mounted>2m	Ordinary	N/A	N/A	Comply with clause 8.7
MS1: Sharp edges and corners	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1 (Accessible parts)	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
Exempt Group: Indicating LEDs	Ordinary	N/A	N/A	N/A
Supplementary Information:				
"B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard (1) See attached energy source diagram for additional details. (2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

ENERGY SOURCE DIAGRAM
Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems. Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings

☒ ES ☒ PS ☒ MS ☐ TS ☐ RS

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		Pass
4.1.1	Acceptance of materials, components and subassemblies		Pass
4.1.2	Use of components	See Table 4.1.2.	Pass
4.1.3	Equipment design and construction		Pass
4.1.4	Specified ambient temperature for outdoor use (°C) .....:	-40-°C to 60°C	Pass
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)		N/A
4.1.15	Markings and instructions	See Annex F	Pass
4.4.3	Safeguard robustness		Pass
4.4.3.1	General		Pass
4.4.3.2	Steady force tests	Not accessible by the user	N/A
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	Tested for outdoor requirements. See table for results acc. to cl. Y.6.2.	Pass
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests	No such glass enclosure used	N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	See Annex T.8	Pass
4.4.3.9	Air comprising a safeguard	No such safeguard used	N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	Complied	Pass
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
4.5	**Explosion**		N/A
4.5.1	General		N/A
4.5.2	No explosion during normal/abnormal operating condition		N/A
	No harm by explosion during single fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.6	**Fixing of conductors**		N/A
	Fix conductors not to defeat a safeguard		N/A
	Compliance is checked by test ..... :		N/A
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard .. :		N/A
4.7.3	Torque (Nm) ..... :		N/A
4.8	**Equipment containing coin/button cell batteries**		N/A
4.8.1	General	No such coin/button cell batteries used	N/A
4.8.2	Instructional safeguard ..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**	See Annex P	Pass
4.10	**Component requirements**		N/A
4.10.1	Disconnect Device		N/A
4.10.2	Switches and relays		N/A

5	**ELECTRICALLY-CAUSED INJURY**		Pass
5.2	**Classification and limits of electrical energy sources**		Pass
5.2.2	ES1, ES2 and ES3 limits	See appended table 5.2	Pass
5.2.2.2	Steady-state voltage and current limits .....:	See appended table 5.2	Pass
5.2.2.3	Capacitance limits .....:		N/A
5.2.2.4	Single pulse limits .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.5	Limits for repetitive pulses .....:		N/A
5.2.2.6	Ringing signals	No ringing signals used	N/A
5.2.2.7	Audio signals	No audio signals used	N/A
5.3	**Protection against electrical energy sources**		Pass
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		Pass
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		Pass
	Accessibility to outdoor equipment bare parts	No bare parts or connectors which can be accessible and exceed the voltage limits for outdoor locations.	Pass
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V) .....:		N/A
5.3.2.2 b)	Air gap – distance (mm) .....:		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		Pass
5.4.1.2	Properties of insulating material		Pass
5.4.1.3	Material is non-hygroscopic		N/A
5.4.1.4	Maximum operating temperature for insulating materials .....:		N/A
5.4.1.5	Pollution degrees .....:	PD2	Pass
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 test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage .....:	With ES1 limit	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 test.....:		N/A
5.4.1.10.3	Ball pressure test .....:		N/A
5.4.2	Clearances		N/A
5.4.2.1	General requirements	Functional Insulation	N/A
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage .....:		—
5.4.2.3	Procedure 2 for determining clearance		N/A
5.4.2.3.2.2	a.c. mains transient voltage .....:		—
5.4.2.3.2.3	d.c. mains transient voltage .....:		—
5.4.2.3.2.4	External circuit transient voltage.....:	ID1 on PoE circuitry	—
5.4.2.3.2.5	Transient voltage determined by measurement .....:		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....:		N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....:		N/A
5.4.2.6	Clearance measurement .....:		N/A
5.4.3	Creepage distances	Functional Insulation	N/A
5.4.3.1	General		N/A
5.4.3.3	Material group .....:		—
5.4.3.4	Creepage distances measurement .....:		N/A
5.4.4	Solid insulation		N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation .....:		N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....:		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V) .....:		N/A
	Alternative by electric strength test, tested voltage (V), K_R .....:		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General	No antenna terminal insulation used	N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ).....:		N/A
	Electric strength test.....:		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C), duration (h).....:		—
5.4.9	Electric strength test		Pass
5.4.9.1	Test procedure for type test of solid insulation.....:	See appended table for test results acc. to 5.4.10.2.2 test.	Pass
5.4.9.2	Test procedure for routine test		Pass
5.4.10	Safeguards against transient voltages from external circuits		Pass
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		Pass
5.4.10.2.1	General		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	Impulse test ..... :	Ten impulses applied of alternate polarity with 1.5kV impulse test voltage	Pass
5.4.10.2.3	Steady-state test ..... :		N/A
5.4.10.3	Verification for insulation breakdown for impulse test ..... :	No breakdown	Pass
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V) ..... :		—
	Nominal voltage U_{peak} (V) ..... :		—
	Max increase due to variation ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
5.4.11.3	Test method and compliance ..... :		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid ..... :		N/A
5.4.12.3	Compatibility of an insulating liquid ..... :		N/A
5.4.12.4	Container for insulating liquid ..... :		N/A
5.5	**Components as safeguards**		N/A
5.5.1	General		N/A
5.5.2	Capacitors and RC units	No such capacitors and RC units used	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector ..... :		N/A
5.5.3	Transformers	No such transformer used	N/A
5.5.4	Optocouplers	No optocouplers used	N/A
5.5.5	Relays	No such relay used	N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable ..... :		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) ..... :		—
5.6	**Protective conductor**		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) ..... :		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). ..... :		—
5.6.4.2	Protective current rating (A)..... :		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :		N/A
	Terminal size for connecting protective bonding conductors (mm) .....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method..... :		N/A
5.6.6.3	Resistance (Ω) or voltage drop..... :		N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2)..... :		N/A
	Class II with functional earthing marking ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliance inlet cl & cr (mm) ..... :		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts ..... :		N/A
5.7.5	Earthed accessible conductive parts ..... :		N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA) ..... :		N/A
	Instructional Safeguard ..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA) ..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA) ..... :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES ..... :		N/A
	Air gap (mm) ..... :		N/A
6	**ELECTRICALLY- CAUSED FIRE**		Pass
6.2	**Classification of PS and PIS**		Pass
6.2.2	Power source circuit classifications ..... :	See appended table 6.2.2	Pass
6.2.3	Classification of potential ignition sources		Pass
6.2.3.1	Arcing PIS ..... :		N/A
6.2.3.2	Resistive PIS ..... :	All circuits are assumed as Resistive PIS	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		Pass
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... :	See appended temperature measurement table	Pass
	Combustible materials outside fire enclosure .....:	All unit considered	Pass
6.4	**Safeguards against fire under single fault conditions**		Pass
6.4.1	Safeguard method	Method of control fire spread is used	Pass
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		Pass
6.4.5.2	Supplementary safeguards	All parts and components are mounted on the minimum V-1 PWB (board)	Pass
6.4.6	Control of fire spread in PS3 circuits		N/A
6.4.7	Separation of combustible materials from a PIS		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	PS2 circuit	N/A
6.4.8.2	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Openings dimensions (mm) ..... :		N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm) ..... :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard ..... :		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm) ..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) ..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :		N/A
6.4.9	Flammability of insulating liquid ..... :		N/A
6.5	**Internal and external wiring**		N/A
6.5.1	General requirements	no wiring	N/A
6.5.2	Requirements for interconnection to building wiring ..... :		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets ..... :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		Pass
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	**Reduction of exposure to hazardous substances**		N/A
7.3	**Ozone exposure**		N/A
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		N/A
	Personal safeguards and instructions ..... :		—
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010) ..... :		—
7.6	**Batteries and their protection circuits**		N/A
8	**MECHANICALLY-CAUSED INJURY**		Pass
8.2	**Mechanical energy source classifications**		Pass
8.3	**Safeguards against mechanical energy sources**		Pass
8.4	**Safeguards against parts with sharp edges and corners**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.4.1	Safeguards	No sharp edges and corners (MS1)	N/A
	Instructional Safeguard .....:		N/A
8.4.2	Sharp edges or corners		N/A
8.5	**Safeguards against moving parts**		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving parts used	N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm) .....:		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly .....:		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts.....:		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps	No high pressure lamps used	N/A
	Explosion test.....:		N/A
8.5.5.3	Glass particles dimensions (mm) .....:		N/A
8.6	**Stability of equipment**		N/A
8.6.1	General		N/A
	Instructional safeguard.....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test.....:		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm).....:		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test .....:		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		Pass
8.7.1	Mount means type.....:	Equipment mounting means with Clamp as pole mounting	Pass
8.7.2	Test methods		Pass
	Test 1, additional downwards force (N).....:	Downwards 204N N for 1 min. Horizontal force applied 50N for 60s.	Pass
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm).....:		N/A
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N) .....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions .....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) .....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) .....:		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard .....:		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....:		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	**Telescoping or rod antennas**		N/A
	Button/ball diameter (mm) .....:		—
9	**THERMAL BURN INJURY**		Pass
9.2	**Thermal energy source classifications**		Pass
9.3	**Touch temperature limits**		Pass
9.3.1	Touch temperatures of accessible parts .....:	Refer appended table 5.4.1.4, 6.3.2, 9.0, B.2.6	Pass
9.3.2	Test method and compliance		Pass
9.4	**Safeguards against thermal energy sources**		N/A
9.5	**Requirements for safeguards**		N/A
9.5.1	Equipment safeguard	Not exceeded the limit	N/A
9.5.2	Instructional safeguard.....:		N/A
9.6	**Requirements for wireless power transmitters**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance .....:		N/A
10	**RADIATION**		Pass
10.2	**Radiation energy source classification**		Pass
10.2.1	General classification		Pass
	Lasers .....:	N/A	—
	Lamps and lamp systems .....:	Exempt group considered for Indicating LED	—
	Image projectors .....:	N/A	—
	X-Ray .....:	N/A	—
	Personal music player .....:	N/A	—
10.3	**Safeguards against laser radiation**		N/A
	The standard(s) equipment containing laser(s) comply .....:		N/A
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		Pass
10.4.1	General requirements	Exempt group considered for Indicating LED	Pass
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location .....:		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure .....:		N/A
10.4.3	Instructional safeguard .....:		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons .....:		—
10.5.3	Maximum radiation (pA/kg).....:		—
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A) ..... :		N/A
	Unweighted RMS output voltage (mV) ..... :		N/A
	Digital output signal (dBFS) ..... :		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30) ..... :		N/A
	Warning for MEL ≥ 100 dB(A) ..... :		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards ..... :		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV) ..... :		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) ..... :		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) ..... :		N/A

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		Pass
B.1	**General**		Pass
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	Pass
B.2	**Normal operating conditions**		Pass
B.2.1	General requirements ..... :	Complies B.2.5	Pass
	Audio Amplifiers and equipment with audio amplifiers ..... :	No audio amplifier used	N/A
B.2.3	Supply voltage and tolerances		Pass
B.2.5	Input test ..... :	See appended table B.2.5	Pass
B.3	**Simulated abnormal operating conditions**		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.1	General		N/A
B.3.2	Covering of ventilation openings		N/A
	Instructional safeguard ..... :		N/A
B.3.3	DC mains polarity test	No dc mains used	N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions..... :		N/A
B.4	**Simulated single fault conditions**		Pass
B.4.1	General		Pass
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	No motor used	N/A
B.4.4	Functional insulation		Pass
B.4.4.1	Short circuit of clearances for functional insulation		Pass
B.4.4.2	Short circuit of creepage distances for functional insulation		Pass
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		Pass
B.4.6	Short circuit or disconnection of passive components		Pass
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions ..... :	(See appended table B.3, B.4)	Pass
B.4.9	Battery charging and discharging under single fault conditions		N/A
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C.2.1	Test apparatus ..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	**TEST GENERATORS**		Pass
D.1	**Impulse test generators**		Pass
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	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W) ..... :		—
	Rated load impedance (Ω) ..... :		—
	Open-circuit output voltage (V) ..... :		—
	Instructional safeguard ..... :		—
E.2	**Audio amplifier normal operating conditions**		N/A
	Audio signal source type ..... :		—
	Audio output power (W) ..... :		—
	Audio output voltage (V) ..... :		—
	Rated load impedance (Ω) ..... :		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		Pass
F.1	**General**		Pass
	Language ..... :	English	—
F.2	**Letter symbols and graphical symbols**		Pass
F.2.1	Letter symbols according to IEC60027-1		Pass
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		Pass
F.3	**Equipment markings**		Pass
F.3.1	Equipment marking locations		Pass
F.3.2	Equipment identification markings		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.2.1	Manufacturer identification ..... :	CAMBIUM NETWORKS	Pass
F.3.2.2	Model identification ..... :	6084HH	Pass
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		Pass
F.3.3.3	Nature of the supply voltage ..... :	DC symbol used	Pass
F.3.3.4	Rated voltage ..... :	56V DC	Pass
F.3.3.5	Rated frequency ..... :	DC supplied	N/A
F.3.3.6	Rated current or rated power ..... :	1.43A	Pass
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :		N/A
F.3.5.2	Switch position identification marking ..... :		N/A
F.3.5.3	Replacement fuse identification and rating markings ..... :	No such replaceable fuse used	N/A
	Instructional safeguards for neutral fuse ..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification	Class III equipment	Pass
F.3.6.1	Class I equipment		Pass
F.3.6.1.1	Protective earthing conductor terminal ..... :	PE terminal provided and marked with symbol IEC 60417-5019 (2006-08)	Pass
F.3.6.1.2	Protective bonding conductor terminals ..... :		N/A
F.3.6.2	Equipment class marking ..... :	Class III equipment	N/A
F.3.6.3	Functional earthing terminal marking ..... :		N/A
F.3.7	Equipment IP rating marking ..... :	IP 55	Pass
F.3.8	External power supply output marking ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.9	Durability, legibility and permanence of marking	Marking is durable and legible. No curling observed.	Pass
F.3.10	Test for permanence of markings		Pass
F.4	**Instructions**		Pass
	a) Information prior to installation and initial use		Pass
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		Pass
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		Pass
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		N/A
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		N/A
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		Pass
F.5	Instructional safeguards		N/A
G	**COMPONENTS**		Pass
G.1	**Switches**		N/A
G.1.1	General	No switches used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
G.2	**Relays**		N/A
G.2.1	Requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	**Protective devices**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.1	Thermal cut-offs	No thermal cut-offs used	N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics	No thermal links used	N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors	No PTC thermistors used	N/A
G.3.4	Overcurrent protection devices	No such overcurrent protections used	N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions ..... :		N/A
G.4	**Connectors**		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration ..... :		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound components**		N/A
G.5.1	Wire insulation in wound components	No such wound components used	N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) ..... :		—
	Test temperature (°C) ..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3	Transformers		N/A
G.5.3.1	Compliance method ..... :		N/A
	Position ..... :		N/A
	Method of protection ..... :		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings ..... :		—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter ..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation ..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Maximum Temperature ..... :		N/A
G.5.4.6.3	Alternative method		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 such wire insulation used	N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements	No mains supply cord used	N/A
	Type ..... :		—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, *D* (mm)..... :		—
	Radius of curvature after test (mm) ..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements	No varistor used	N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	**Resistors**		N/A
G.10.1	General	No such resistor used	N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	**Capacitors and RC units**		N/A
G.11.1	General requirements	No such capacitor and RC unit used	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 with specifics	No optocoupler used	N/A
	Type test voltage $V_{ini,a}$..... :		—
	Routine test voltage, $V_{ini,b}$..... :		—
G.13	**Printed boards**		Pass
G.13.1	General requirements		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.2	Uncoated printed boards		Pass
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation ..... :		N/A
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :		N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test ..... :		—
	Mains voltage that impulses to be superimposed on ..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.16.3	Capacitor discharge test ..... :		N/A
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A
H.3.1	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		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)..... :		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
J.1	**General**		N/A
	Winding wire insulation ..... :		—
	Solid round winding wire, diameter (mm) ..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2) ..... :		N/A
J.2/J.3	Tests and Manufacturing		—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard ..... :	No safety interlock used	N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
K.6.1	Endurance requirement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.6.2	Test method and compliance ..... :		N/A
K.7	**Interlock circuit isolation**		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm)..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm)..... :		N/A
	Electric strength test before and after the test of K.7.2..... :		N/A
K.7.2	Overload test, Current (A)..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	**General requirements**		N/A
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**		N/A
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	**General requirements**		N/A
M.2	**Safety of batteries and their cells**		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :		N/A
M.3	**Protection circuits for batteries provided within the equipment**		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance		N/A
M.4	**Additional safeguards for equipment containing a portable secondary lithium battery**		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance ..... :		N/A
M.4.3	Fire enclosure ..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	**Safeguards against short-circuits**		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		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
	Calculated hydrogen generation rate ..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m^3/h) ..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Hydrogen gas concentration (%) ..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate ..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.4	Marking ..... :		N/A
M.8	**Protection against internal ignition from external spark sources of batteries with aqueous electrolyte**		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		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		N/A
	Instructional safeguard ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Material(s) used ..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Value of *X* (mm)..... :		—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		Pass
P.1	**General**	No such openings which can create hazards	Pass
P.2	**Safeguards against entry or consequences of entry of a foreign object**		N/A
P.2.1	General		N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguards against the consequences of entry of a foreign object	Within ES1 limit	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
P.3	**Safeguards against spillage of internal liquids**		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) ..... :		—
	Duration (weeks)..... :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		Pass
Q.1	**Limited power sources**		Pass
Q.1.1	Requirements		Pass
	a) Inherently limited output	(See appended table Annex Q.1)	Pass
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance ..... :	(See appended table Annex Q.1)	Pass
	Current rating of overcurrent protective device (A) ..... :		N/A
Q.2	**Test for external circuits – paired conductor cable**		N/A
	Maximum output current (A) ..... :		N/A
	Current limiting method..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
R.2	**Test setup**		N/A
	Overcurrent protective device for test..... :		—
R.3	**Test method**		N/A
	Cord/cable used for test..... :		—
R.4	**Compliance**		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	**Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples ..... :		—
	Wall thickness (mm) ..... :		—
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
T	**MECHANICAL STRENGTH TESTS**		Pass
T.1	**General**		Pass
T.2	**Steady force test, 10 N ..... :**		N/A
T.3	**Steady force test, 30 N ..... :**		N/A
T.4	**Steady force test, 100 N ..... :**		N/A
T.5	**Steady force test, 250 N ..... :**	See table T.5 for test results	Pass
T.6	**Enclosure impact test**	Tested for outdoor requirements. See table for results acc. to cl. Y.6.2.	Pass
	Fall test		N/A
	Swing test		N/A
T.7	**Drop test ..... :**		N/A
T.8	**Stress relief test..... :**	See appended table T.8	Pass
T.9	**Glass Impact Test ..... :**		N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted..... :		N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) ..... :		N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard ..... :	No CRT used	N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A
U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		Pass
V.1	**Accessible parts of equipment**		Pass
V.1.1	General		Pass
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
V.1.6	Terminals tested with rigid test wire		N/A
V.2	**Accessible part criterion**		Pass
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		N/A
	Clearance .....:		N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		Pass
Y.1	**General**		Pass
Y.2	**Resistance to UV radiation**	See appended table 4.1.2	Pass
Y.3	**Resistance to corrosion**		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		Pass
Y.4.1	General	See Below	Pass
Y.4.2	Gasket tests	Certified gasket used. see appended table 4.1.2	Pass
Y.4.3	Tensile strength and elongation tests	Certified gasket used. see appended table 4.1.2	Pass
	Alternative test methods ..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
Y.5	**Protection of equipment within an outdoor enclosure**		Pass
Y.5.1	General		Pass
Y.5.2	Protection from moisture		Pass
	Relevant tests of IEC 60529 or Y.5.3 ..... :	IP55 tests conducted acc. to IEC 60529.	Pass
Y.5.3	Water spray test	Water not entered the enclosure	Pass
Y.5.4	Protection from plants and vermin		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.5	Protection from excessive dust		Pass
Y.5.5.1	General		Pass
Y.5.5.2	IP5X equipment	The talcum powder not accumulated in a quantity or location such that, as with any other kind of dust, it could interfere with the correct operation of the equipment or impair safety.	Pass
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		Pass
Y.6.1	General		Pass
Y.6.2	Impact test ..... :	There was no damage which could affect the ingress of dust and moisture	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Classification of electrical energy sources						Pass
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
56V DC	AUX Port Output	Normal	56.8 Vdc	--	SS	--	ES1
56V DC	AUX Port Output	Single fault T301 (pin 7 and pin 11)	2.8 Vdc	--	SS	--	ES1
56V DC	AUX Port Output	Single fault U301(pin1 and 3)	56.8 Vdc	--	SS	--	ES1
Supplementary information:							
SC : Short circuit							

5.4.1.8	TABLE: Working voltage measurement				N/A
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
Supplementary information:					

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

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

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U_{rms} (V)	Freq [1] (kHz)	Required cl (mm)	cl (mm)	E.S. [2] (V)	Required cr (mm)	cr (mm)
Supplementary information:								
1) Only for frequency above 30 kHz 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								

5.4.4.2	TABLE: Minimum distance through insulation			N/A
Distance through insulation (DTI) at/of:	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)
Supplementary information:				

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					N/A
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
Supplementary information:						

5.4.9	TABLE: Electric strength tests			Pass
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No	
RJ45 port to enclosure	Impulse 10/700 µs	1.5 kV AC	No	
Supplementary information:				
Test result based on 5.4.10.2.2 requirements.				

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Location	Supply Voltage (V)	Operating and fault condition [1]	Switch position	Measured voltage (Vpk)	ES Class
Supplementary information:					

5.6.6	TABLE: Resistance of protective conductors and terminations	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
Supplementary information:				

5.7.4	TABLE: Unearthed accessible parts					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
Supplementary information:						

5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V) .....:				—
Phase(s) .....:				
Power Distribution System .....:				
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Supplementary Information:				

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
Supplementary information:						

6.2.2	TABLE: Power source circuit classifications					Pass
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1] (W)	Time (S)	PS class
All unit supplied from	--	--	--	--	5	PS2

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Clause	Requirement + Test	Result - Remark	Verdict

PS2/LPS source						
Supplementary information:						
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	TABLE: Determination of Arcing PIS			N/A
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
Supplementary information:				

6.2.3.2	Table: Determination of Resistive PIS		Pass
Location	Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes/No
--	--	--	All circuits are assumed as Resistive PIS
Supplementary Information:			
Abbreviation: SC= short circuit; OC= open circuit			

8.5.5	TABLE: High Pressure Lamp			N/A
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No?
Supplementary information:				

9.6	TABLE: Temperature measurements for wireless power transmitters				N/A
Supply voltage (V) ..... :					—
Max. transmit power of transmitter (W) ..... :					—
Foreign objects	w/o receiver and direct contact	with receiver and direct contact	with receiver and at distance of 2 mm	with receiver and at distance of 5 mm	

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Clause	Requirement + Test	Result - Remark	Verdict

	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)

Supplementary information:

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements				Pass
Supply voltage (V) .....:	56V DC	56V DC	--	--	—
Ambient temperature during test T_{amb} (°C).....:	22.4	Extrapolated to 55°C	--	--	—
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)
PCB near POE IN port	35.7	73.3	--	--	130
PCB near J1201 connector	36.3	73.9	--	--	130
Bulk capacitor body c336	38.8	76.4	--	--	130
PCB near U206	34.5	72.1	--	--	130
T301 body	40.0	77.6	--	--	130
PCB near P1060	40.0	77.6	--	--	130
PCB near J1203	36.5	74.1	--	--	130
PCB near U600	38.4	76.0	--	--	130
PCB near 1200	41.7	79.3	--	--	130
PCB near L611	38.4	76.0	--	--	130
PCB near Bottom near diode	35.0	72.6	--	--	130
Ambient	22.4	60.0	--	--	130
Duration	0:56:33	0:56:33	--	--	130
Supply voltage (V) :	56V DC	56V DC	--	--	--
Ambient temperature during test Tamb (C):	23.2	Extrapolated to 25°C	--	--	--
Touch Temperature Measurement "N"	--	--	--	--	--
Front plastic enclosure near antenna	24.0	26.6	--	--	94
Side plastic enclosure near antenna	24.9	27.5	--	--	94
Antenna Top metal enclosure	23.1	25.7	--	--	94
Antenna Bottom metal enclosure	22.7	25.3	--	--	94
Metal enclosure near Input	31.0	33.6	--	--	94

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Clause	Requirement + Test	Result - Remark			Verdict
Side metal enclosure	31.5	34.1	--	--	70
Left side metal enclosure	30.3	32.9	--	--	70
Top metal enclosure	31.0	33.6	--	--	70
Metal Handle	27.8	30.4	--	--	60
Ambient	22.4	--	--	--	--
Duration	0:56:33	--	--	--	--
Supply voltage (V) :	56V DC	56V DC	--	--	--
Ambient temperature during test Tamb (C):	23.8	Extrapolated to 25°C	--	--	--
Touch Temperature Measurement "S1"	--	--	--	--	--
Front plastic enclosure near antenna	24.5	27.6	--	--	104
Side plastic enclosure near antenna	26.3	29.4	--	--	104
Antenna Top metal enclosure	23.8	26.9	--	--	104
Antenna Bottom metal enclosure	22.3	25.4	--	--	104
Metal enclosure near Input	27.6	30.7	--	--	104
Side metal enclosure	27.3	30.4	--	--	80
Left side metal enclosure	26.3	29.4	--	--	80
Top metal enclosure	27.5	30.6	--	--	80
Metal Handle	24.2	27.3	--	--	70
Ambient	21.9	25	--	--	--
Duration	0:51:19	--	--	--	--
Supply voltage (V) :	56V DC	56V DC	--	--	--
Ambient temperature during test Tamb (C):	24.3	Extrapolated to 25°C	--	--	--
Touch Temperature Measurement "S2"	--	--	--	--	--
Front plastic enclosure near antenna	25.0	25.7	--	--	104
Side plastic enclosure near antenna	24.9	25.6	--	--	104
Antenna Top metal enclosure	24.8	25.5	--	--	80
Antenna Bottom metal enclosure	24.6	25.3	--	--	80
Metal enclosure near Input	24.8	25.5	--	--	80
Side metal enclosure	25.2	25.9	--	--	80
Left side metal enclosure	25.0	25.7	--	--	80
Top metal enclosure	25.1	25.8	--	--	80
Metal Handle	24.8	25.5	--	--	70
Ambient	24.3	25.0	--	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Duration	00:30:00	--	--	--	--
Supply voltage (V) :	56V DC	56V DC	--	--	--
Ambient temperature during test Tamb (C):	25.1	Extrapolated to 25°C	--	--	--
Touch Temperature Measurement "S3"	--	--	--	--	--
Front plastic enclosure near antenna	29.2	29.2	--	--	104
Side plastic enclosure near antenna	30.9	30.9	--	--	104
Antenna Top metal enclosure	27.5	27.5	--	--	80
Antenna Bottom metal enclosure	28.6	28.6	--	--	80
Metal enclosure near Input	28.6	28.6	--	--	80
Side metal enclosure	29.5	29.5	--	--	80
Left side metal enclosure	29.2	29.2	--	--	80
Top metal enclosure	29.1	29.1	--	--	80
Metal Handle	28.4	28.4	--	--	70
Ambient	25.2	25.2	--	--	--
Duration	0:59:35	--	--	--	--
Supply voltage (V) :	56V DC	56V DC	--	--	--

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:

"N" Normal Condition

S-1: AUX OUTPUT Short
S-2: T301 output short
S-3: U301(pin1 and 3) short

B.2.5	TABLE: Input test							Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
56V	DC	0.59	1.43	32.63	--	--	--	MNL #1

Supplementary information:

MNL #1: Configure IP Address of PC Ethernet port to static IP address 192.168.188.253 Unit connected to PC via RJ45 to operate continuously and I/P ports transmitting continuously.

B.3, B.4	TABLE: Abnormal operating and fault condition tests	Pass
Ambient temperature T_{amb} (°C) ..... :	See Below	—

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Clause	Requirement + Test	Result - Remark	Verdict

Power source for EUT: Manufacturer, model/type, output rating . :					56Vdc, 1.43A	—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
AUX Output	Short Circuit	56 Vdc	0:51:19	-	-	After fault EUT working normally, No hazardous observed. NF, NC, TT Ambient: 21.9°C
T301 output short (7&8 to 11& 12)	Short Circuit	56 Vdc	00:30:00	-	-	EUT Shutdown immediately, No hazardous observed. NF, NC, TT Ambient: 24.3°C
U301(pin1 and 3)	Short Circuit	56 Vdc	0:59:35	-	-	After fault EUT working normally, No hazardous observed. NF, NC, TT Ambient: 25.2°C
C367	Short Circuit	56 Vdc	00:30:02	-	-	EUT shutdown immediately, No hazardous observed. NC,NT

Supplementary information:

The following key and corresponding comments may be used to describe the final results.

NB: No indication of dielectric breakdown
YB: Dielectric breakdown (indicate time and location)
NC: Cheesecloth remained intact (Annex G)
YC: Cheesecloth charred or flamed (Annex G)
NT: Wrapping tissue remained intact (Annex G)
YT: Wrapping tissue charred or flamed (Annex G)
IP: Internal protection operated (list component)
NCD: No components damaged
CD: Components damaged (list component)
S-1 : C356 Short circuit
S-2 : U37 PIN (6 & 2) Short circuit
S-3 : R436 Short circuit
S-4 : USB Short circuit
A-1 : USB Overloaded

TW: Transformer winding opened
CT: Constant temperatures were obtained
TT: See temperature measurements table 5.4.1.4
NF: No Flame
DF: Flame distinguished within 10s (indicate time)
STF: Sustained flaming above 10s (indicate time)
PTV: Prospective Touch Voltage (V)
TC: Touch Current (mA)

M.3	**TABLE: Protection circuits for batteries provided within the equipment**	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Is it possible to install the battery in a reverse polarity position? .....:		—

Equipment Specification	Charging	
	Voltage (V)	Current (A)

Manufacturer/type	Battery specification					
	Non-rechargeable batteries		Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)
			Voltage (V)	Current (A)		

Note: The tests of M.3.2 are applicable only when above appropriate data is not available.		
Specified battery temperature (°C) ..... :		

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation

Supplementary information:

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery	N/A
Maximum specified charging voltage (V) ..... :		—
Maximum specified charging current (A) ..... :		—
Highest specified charging temperature (°C) ..... :		
Lowest specified charging temperature (°C) ..... :		

Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	

Supplementary information:

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						Pass
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit

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Clause	Requirement + Test	Result - Remark	Verdict

AUX Output	Normal	0.0	5	0.0	8	0.0	100

Supplementary Information:

--

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

Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Top enclosure	Aluminum	2.3	30 mm circular plane surface	250	60	No damage observed.
Bottom enclosure	Aluminum	2.3	30 mm circular plane surface	250	60	No damage observed.
Side enclosure	Aluminum	2.3	30 mm circular plane surface	250	60	No damage observed.

Supplementary information:

-

T.6, T.9	TABLE: Impact test	Pass

Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Rear Enclosure	Plastic	1.5	1300	No damage observed
Side Enclosure	Plastic	1.5	1300	No damage observed

Supplementary information:

-

T.7	TABLE: Drop test	N/A

Location/Part	Material	Thickness (mm)	Height (mm)	Observation

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

Supplementary information:

T.8	TABLE: Stress relief test					Pass
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Full sample	Chi Mei; PW-957	1.5	72.5	7	No shrinkage and No damage observed.	
Supplementary information:						
--						

X	TABLE: Alternative method for determining minimum clearances distances			N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: Critical components information				Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Plastic Enclosure (Bottom cap)	CHI MEI CORPORATION	PW-957(+)(f1)	Min. thickness 1.5 mm, HB	UL 94 (Edition 6) ; IEC 60695-11-10 (Edition 2)	UL E56070 , - -
Plastic Enclosure (AP antenna)	CHI MEI CORPORATION	PC-110U(f1)(a)	Min Thickness: 2.3 mm, V-2.	UL 94 (Edition 6) ; IEC 60695-11-10 (Edition 2)	UL E56070 , - -
PCB board	Shengyi Electronics Co Ltd	M13	V-0, max operating temp: 130°C	UL 796 (12th edition:2020)	UL E117942 , -
PCB board	TAIWAN UNION TECHNOLOGY CORP	TU-1300	V-0, max operating temp: 130°C	UL 796 (12th edition:2020)	UL E189572 , -
PCB board (Alternate)	Interchangeable	Interchangeable	min. V-1, max operating temp: 105°C	UL 796 (12th edition:2020)	UL , -
Marking Label	Brady Worldwide Inc	B483A	Rated to 80°C Maximum, suitable for appllied surface ABS, Polycarbonate	UL 969 (4th edition:1995) Further investigated with equipment (IEC 62368-1 3rd edition)	UL MH10939 , --
RJ45 Connector plastic interior	POLYPLASTICS CO LTD	E130i(dd)(e)(f1)	Metal housing, interior V-0 rated, max operating temp: 130°C	UL 94 (6th edition:2013)	UL E106764 , --
Metal Enclosure	Tong Da General Holdings (HK) Ltd	--	Aluminum	Tested in Unit (IEC 62368-1 3rd edition)	-- , --
Gasket	Nolato Silikonteknik AB	Nolato 1540	Max temp 125 degree C	UL 50E	UL MH60440 , --
RJ 45 Connector	E I DUPONT DE NEMOURS & CO INC	FR7025V0F(+)	Min Thickness 0.40mm, V-0, 130°C	UL 94 (6th edition:2013)	UL E41938 , - -
MOUNTING BRACKET	NINGBO VPOINT QINGSHENG	A005279	--	Tested in Unit	-- , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
	TECHNOLOGY CO., LTD			(IEC/UL 62368-1 3rd edition)	
PoE Transformer (T301)	WURTH ELEKTRONIK	750313095	Operating temperature: -40 up to +125 °C Insulation test voltage2400 Vdc (N1,3 to N2)	Tested in Unit (IEC/UL 62368-1 3rd edition)	UL , --
Transformer(T101)	Pulse Electronics	PA2001NL	Operating temperature: -40 up to +130 °C Insulation test voltage:1500Vrms	Tested in Unit (IEC/UL 62368-1 3rd edition)	UL , --
Lan Ethernet Transformer(T100)	Link-PP intl Technology	LP6096ANL	Operating temperature: -- 40 TO + 85℃	Tested in Unit (IEC/UL 62368-1 3rd edition)	UL , --
Optocoupler (U301)	Vishay Semiconductors	VOM617A-9T	Operating temperature: -55 up to +110 °C Isolation test voltage, 3750 VRMS	UL 1577 EN IEC 60747-5-5:2020	UL E52744 , VDE 40034600
Optocoupler U303 & U304	Toshiba Electronic Devices	TLP185(SE	Operating temperature: -55°C to 110°C, 3750 VRMS	UL 1577 IEC 60747-5-5 (VDE 0884-5):2021-10;	UL E67349 , VDE 40009347
Supplementary information: The CBTL has verified the component information.					

Enclosure
National Differences

EU Group and National Differences
USA / Canada

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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

Differences according to .....:	EN IEC 62368-1:2020+A11:2020
Attachment Form No. .....:	EU_GD_IEC62368_1E
Attachment Originator .....:	UL(Demko)
Master Attachment ..... :	2021-02-04

	CENELEC COMMON MODIFICATIONS (EN)		
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed "Z".		
	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		
1	**Modification to Clause 3 .**		
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*		N/A
3.3.19.1	**momentary exposure level, MEL** metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.		N/A
3.3.19.3	**sound exposure, *E*** A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa^2 s.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	$E = \int_0^T p(t)^2 \, dt$		
3.3.19.4	**sound exposure level, *SEL*** logarithmic measure of sound exposure relative to a reference value, *E0*, typically the 1 kHz threshold of hearing in humans. Note 1 to entry: *SEL* is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0}\right)$ dB Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	**Modification to Clause 10**		
10.6	**Safeguards against acoustic energy sources** Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	– has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. – a player while connected to an external amplifier that does not allow the user to walk around		

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Clause	Requirement + Test	Result - Remark	Verdict
	while in use. For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	**Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.		N/A
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3. For classifying the acoustic output *L*Aeq,*T* , measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term *L*Aeq,*T*) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, *T* becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term *L*Aeq,*T*) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the *L*Aeq,*T* acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2.		N/A
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the *L*Aeq,*T* acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.		N/A
10.6.3.2	**RS1 limits (new)** RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the *L*Aeq,*T* acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		N/A
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.		N/A
10.6.4	**Requirements for maximum sound exposure**		N/A
10.6.4.1	**Measurement methods**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered a **safeguard.** Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows: – element 1a: the symbol  , IEC 60417-6044 (2011-01) – element 2: “High sound pressure” or equivalent wording – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		N/A
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % *CSD* is reached, and at least at every 100 % further increase of *CSD*, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1. The warning shall at least clearly indicate that listening above 100 % *CSD* leads to the risk of hearing damage or loss.		N/A
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster. Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		
10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB *L*Aeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.6.3	**Cordless listening devices** In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		
	Delete all the "country" notes in the reference document according to the following list:		

0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4
5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
~~10.6.1~~	Note 3	F.3.3.6	Note 3	Y.4.1	Note
Y.4.5	Note				

4	**Modification to Clause 1**		
1	***Add** the following note:*		**Pass**

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		
5	**Modification to 4.Z1**		
4.Z1	***Add** the following new subclause after 4.9:* To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): 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; 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; 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. 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.		N/A
6	**Modification to 5.4.2.3.2.4**		
5.4.2.3.2.4	***Add** the following to the end of this subclause:* The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
7	**Modification to 10.2.1**		
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A
8	**Modification to 10.5.1**		
10.5.1	***Add** the following after the first paragraph:* For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	internal adjustments or pre-sets 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. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. 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. 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. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		
9	**Modification to G.7.1**		
G.7.1	***Add** the following note:* NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
10	**Modification to Bibliography**		
	Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		
11	**ADDITION OF ANNEXES**		

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. 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 • 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 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • 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; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden**		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		
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. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		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.		N/A
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: – in certain cases, the **protective current rating** of the circuit supplied from the mains is taken as 20 A instead of 16 A.		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
5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	**Denmark** To the end of the subclause the following is added:		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
5.7.7.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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." Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.".		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added:		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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		
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.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		
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. *Justification*: 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		N/A
ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)**		

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H
Cords insulated and sheathed with halogen-free thermoplastic compounds		
Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT **IEC 62368-1** **U.S.A. AND CANADA NATIONAL DIFFERENCES** (Audio/video, information and communication technology equipment – Part 1: Safety requirements)	
Differences according to……:	CSA/UL 62368-1:2019
TRF template used……...:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No……...:	US_CA_ND_IEC62368_1E
Attachment Originator……:	UL(US)
Master Attachment……...:	Dated 2022-03-04

IEC 62368-1 - US and Canadian National Differences **Special National Conditions based on Regulations and Other National Differences**			
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	Considered	Pass
1 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits (≤ 200V per conductor to earth).	Not considered	N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1 (1DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
4.1 (4.1.17)	For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		N/A
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.	Appropriate evaluation was performed. Applicable tests were waived due to considering the test results of IEC 60529 Dust Test and	Pass

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
		Water Spray test show compliance. There was no water inside the product, therefore it is considered suitable and marked with wording "Rainproof".	
Annex G (G.7)	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
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
	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
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked “W.”		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.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.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.		N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to 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. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	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 is required to comply 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) are required to 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 minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet 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)	Equipment that produces ionizing radiation is required to comply 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.3.3.4)	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 that are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.”		N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted disconnect switches and circuit breakers with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		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
	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.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.		N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		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).		N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		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 are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centers, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		Pass
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm^2) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	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.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		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, is required to comply with special earthing, wiring, marking and installation instruction requirements.		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.		N/A

Enclosures

Type	Supplement Id	Description
Photographs	03-01	6084HH Front View
Photographs	03-02	6084HH Rear View
Photographs	03-03	6084HH Bottom View
Photographs	03-04	6084HH Side View
Photographs	03-05	6084HH Internal view
Photographs	03-06	6084HH Internal view2
Photographs	03-07	6084HH Main board Top view
Photographs	03-08	6084HH Main board bottom view
Photographs	03-09	Antenna Top View
Photographs	03-10	Antenna Bottom View
Schematics + PWB	05-01	protective earth instruction
Miscellaneous	07-01	Letter of Assurance

Enclosures

Photographs ID 03-01

Photographs ID 03-02

Photographs ID 03-03

Enclosures

Photographs ID 03-04

Enclosures

Photographs ID 03-05

Enclosures

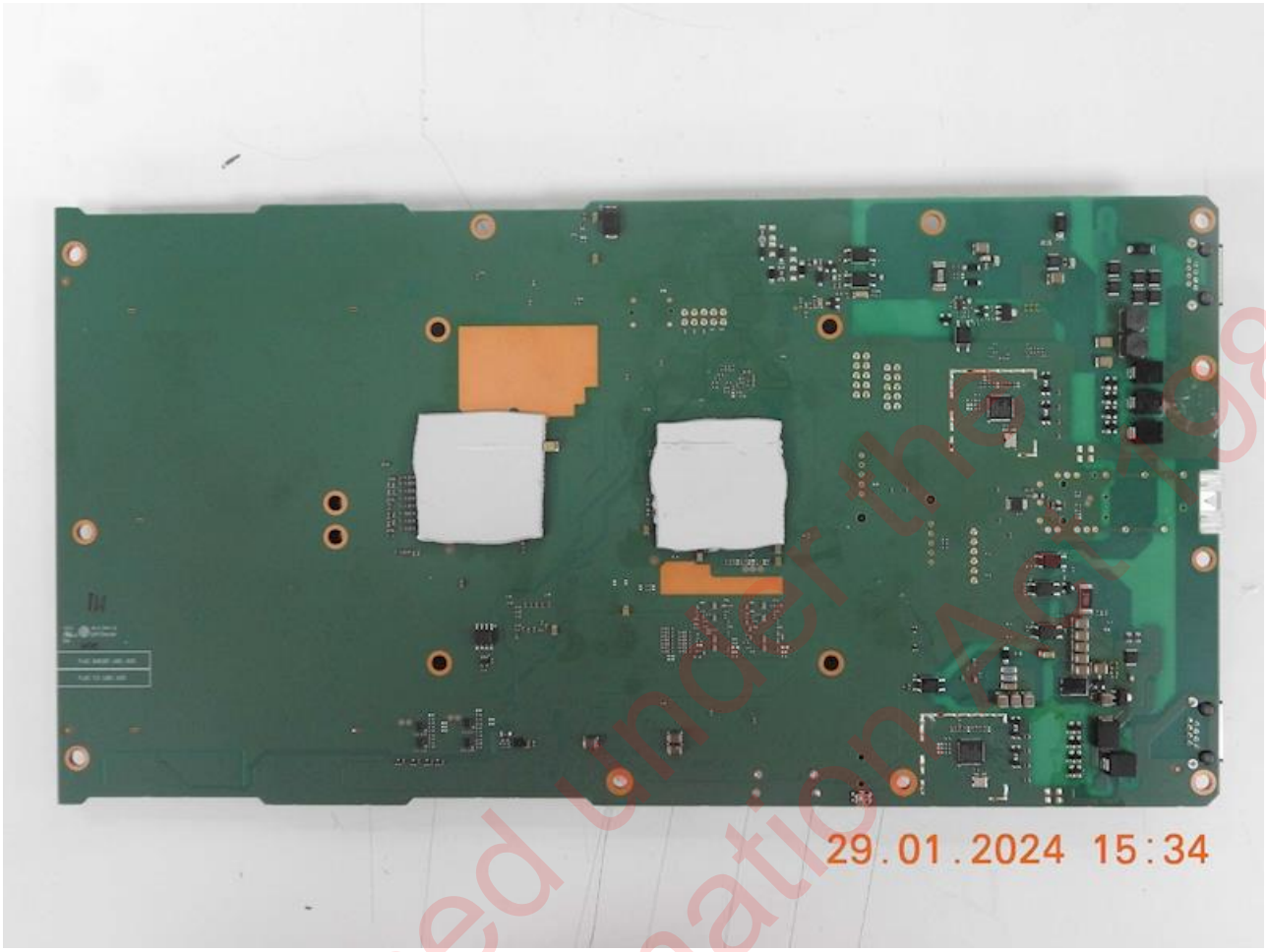
Photographs ID 03-06

Enclosures

Photographs ID 03-07

Enclosures

Photographs ID 03-08



Enclosures

Photographs ID 03-09

Enclosures

Photographs ID 03-10

Enclosures

Schematics + PWB ID 05-01

Grounding and protective earth

The Outdoor Unit (ODU) must be properly grounded to protect against lightning. It is the user's responsibility to install the equipment in accordance with national regulations. In the USA follow the requirements of the National Electrical code NFPA 70-2005 and 780-2004 Installation of Lightning Protection Systems. In Canada, follow Section 54 of the Canadian Electrical Code. These codes describe correct installation procedures for grounding the outdoor unit, mast, lead-in wire and discharge unit, size of grounding conductors and connection requirements for grounding electrodes. Other regulations may apply in different countries and therefore it is recommended that installation of the outdoor unit be contracted to a professional installer.

Thermal Safety

The ODU enclosure may be hot to the touch when in operation. The ODU must not be operated in ambient temperatures exceeding 40°C unless mounted in a Restricted Access Location. For more information, see ODU ambient temperature limits.

Warning

Do not install the ODU in a location where the ambient temperature could exceed 40°C unless this is a Restricted Access Location as defined by EN 60950-1.

Warning

L'unité externe ne doit pas être installée dans un endroit où la température ambiante est supérieure à 40C à moins que l'accès soit limité au personnel autorisé.

Preparing for installation

ODU pre-configuration

It is common practice to pre-configure the units during staging before site installation by performing the following tasks as explained in *Configuration Guide*.

- Connecting to the unit
- Configuring IP and Ethernet interfaces
- Upgrading the software version and using CNUT
- General configuration
- Configuring security
- Configuring radio parameters

Enclosures

Miscellaneous ID 07-01

Letter of Assurance

(COMPANY LETTERHEAD optional)

To:
Fax/email:
Subject: Letter of Assurance, Dual Language Marking requirements for C-UL /ULC Marks for **E513139-A6065**

Hereby **Cambium Networks private limited** confirms that the following markings will be provided both in English and French languages:

Markings and Instructions	
Clause Title (Clause No.)	Marking or Instruction Details
F.3.2.1 Equipment identification marking – Manufacturer identification	CAMBIUM NETWORKS
F.3.2.2 Equipment identification marking – model identification	6084HH
F.3.3 Equipment rating marking –ratings	Vin: 56V DC, Imax: 1.43A
F.3.6.1.1 Class I equipment - Terminal for main protective earthing	Provided adjacent to the main protective earthing terminal ⏚ (IEC 60417-5019)
F.3.7DV Outdoor enclosure type	"Rainproof" Enclosure.
Installation Instructions	Installation Instructions include the following statement or equivalent: "This product is intended to be supplied by a UL Listed Power Supply marked "LPS" or "PS2" complied.

Steve M Payne
(Company Representative Signature)

RADIO SPECTRUM MANAGEMENT

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Supplier's Declaration of Conformity

Section 134 (1) (g) of the New Zealand Radiocommunications Act 1989

Note | This completed form remains with the supplier as part of the documentation required for the "Compliance folder"

1. Supplier details

Name (of manufacturer, importer or authorised agent): Telco2 Limited	New Zealand physical address: s 9(2)a
New Zealand contact information: Telephone: s 9(2)a Mobile: Fax: Email:	New Zealand postal address (if different):
(New Zealand) Company number or GST number: s 9(2)a	Supplier number (include "E" or "Z"):

2. Product details

Brand name:	Cambium	
Model, lot, batch or serial number:	PMP 450v Access Point (6084HH)	
Description and function:	Fixed wireless access base station	
If radio product:	Frequency or frequency range (MHz): 5150-6875 MHz	Radiated power e.i.r.p (dBW): 6
Applicable standard title, number & edition:	FCC CFR Title 47 Part 15	
Test report number or other identifier:	F(X)380235-XX	

3. Declaration

I hereby declare that the product to which this declaration of conformity relates complies with the mentioned standard(s), and all products supplied under this Declaration will be identical to the sample identified in this Declaration.

Signature of supplier/agent:	Print name: Jonathan Brewer
Date: 01-01-2025	Position in organisation: Director

RADIO SPECTRUM MANAGEMENT

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Supplier's Declaration of Conformity

Section 134 (1) (g) of the New Zealand Radiocommunications Act 1989

Note | This completed form remains with the supplier as part of the documentation required for the "Compliance folder"

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