Test Report issued under the responsibility of:

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

Report Number ..... :	**C22IA012-M1A0**
Date of issue ..... :	2023-03-27
Total number of pages ..... :	20
Name of Testing Laboratory preparing the Report ..... :	CTK Co., Ltd.
Applicant's name ..... :	Hanwha Vision Co., Ltd
Address ..... :	6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
Test specification:	
Standard ..... :	IEC 62368-1:2014
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_1D
Test Report Form(s) Originator .. :	UL(US)
Master TRF ..... :	Dated 2022-04-14

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 ..... :	Network Video Recorder	
Trade Mark(s) ..... :	Hanwha Vision	
Manufacturer..... :	Hanwha Vision Co., Ltd 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA	
Model/Type reference ..... :	QRN-1630S, XRN-815S	
Ratings ..... :	Input : AC 100-240 V~, 50/60 Hz, 2.2 A for model QRN-1630S AC 100-240 V~, 50/60 Hz, 1.7 A for model XRN-815S	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ **CB Testing Laboratory:**	CTK Co., Ltd.	
Testing location/ address.....:	(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF	
Tested by (name, function, signature) .....:	SuHwan Kim, Project handler	
Approved by (name, function, signature).....:	JungKyu Yang, 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):
Attachment 1 : 37 pages (National differences as CB bulletin)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
N/A	N/A

Summary of compliance with National Differences (List of countries addressed):
Australia, New Zealand, Canada, United States, Denmark, Italy, Japan and European group differences and national differences

☒ **The product fulfils the requirements of EN 62368-1:2014+A11:2017, AS/NZS 62368.1:2018, CSA/UL 62368-1:2014, DS/EN 62368-1:2014, CEI EN 62368-1:2016 and J62368-1 (2020).**

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.

Hanwha Vision

NETWORK VIDEO RECORDER
MODEL: QRN-1630S
AC 100-240V~ 50/60Hz 2.2A
M/C: QRN-1630S/VUS Fac. ID: V
DATE
S/N: Serial No.
MAC ADDRESS 1: XX-XX-XX-XX-XX-01
MAC ADDRESS 2: XX-XX-XX-XX-XX-02
CAN ICES-3(A)/NMB-3(A)
Engineered in Korea Made in Vietnam
Hanwha Vision Co., Ltd.

NETWORK VIDEO RECORDER
MODEL: XRN-815S
AC 100-240V~ 50/60Hz 1.7A
M/C: XRN-815S/VUS Fac. ID: V
DATE
S/N: Serial No.
MAC ADDRESS 1: XX-XX-XX-XX-XX-01
MAC ADDRESS 2: XX-XX-XX-XX-XX-02
CAN ICES-3(A)/NMB-3(A)
Engineered in Korea Made in Vietnam
Hanwha Vision Co., Ltd.

TEST ITEM PARTICULARS:	
Classification of use by :	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☒ Children likely to be present
Supply Connection :	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance :	☒ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☐ None
Supply Connection – Type :	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:_____
Considered current rating of protective device as part of building or equipment installation :	16 A or 20 A; Installation location: ☒ building; ☐ equipment
Equipment mobility :	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment :	☒ Class I ☐ Class II ☐ Class III ☐ Class II with functional earthing ☐ Not classifed
Access location :	☐ restricted access area ☒ N/A
Pollution degree (PD) :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	40 °C
IP protection class :	☒ IPX0 ☐ IP___
Power Systems :	☒ TN ☐ TT ☐ IT - ____ $V_{L-L;}$ ☐ dc mains ☐ N/A
Altitude during operation (m) :	☒ 2000 m or less ☐ _____ m
Altitude of test laboratory (m) :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) :	☒ 2.9 kg (4.4 kg with HDD)

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.** ☐ **This Test Report Form contains requirements according to IEC/ISO …... Standard dated ….. and includes** Corrigendum dated ……. (Note: The above text maybe removed if not applicable)	
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).....:	1. Hanwha Vision Co., Ltd 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA 2. D-TECH CO LTD 173-25 Saneop-ro Gwonseon-gu, Suwon-si, Gyeonggi-do, 16648, Republic of Korea. 3. HANWHA VISION VIETNAM COMPANY LIMITED Lot O-2 Que Vo Industrial Zone extended area Nam Son Ward, Bac Ninh, Vietnam.

General product information and other remarks:

Product Description –

1. This product is Network Video Recorder.
2. Test samples are pre-production without serial number.
3. Maximum Specified ambient temperature is 40 °C.
4. The model QRN-1630S was tested and it is the representative of the other model.
5. The model XRN-815S is identical to basic model QRN-1630S except for PoE port, Rear USB port, Ratings. (See below model differences)

Amendment 1 Report

The original test Report Ref. No. C22IA012-M0A0, dated 2022-04-11 was modified on 2023-03-27 to include the following changes and/or additions, which were considered technical amendments:

1. Change of 'Summary of compliance with National Differences' information.

Before	After
The product fulfils the requirements of EN 62368-1:2014+A11:2017	The product fulfils the requirements of EN 62368-1:2014+A11:2017, AS/NZS 62368.1:2018, CSA/UL 62368-1:2014, DS/EN 62368-1:2014, CEI EN 62368-1:2016 and J62368-1 (2020).

2. Addition of national difference (AUSTRALIA / NEW ZEALAND)
3. Change of trademark due to change of manufacturer's name.
4. Change of 'Copy of marking plate'.
5. Change of applicant's name. From Hanwha Techwin Co., Ltd. to Hanwha Vision Co., Ltd.
6. Change of manufacturer's name. From Hanwha Techwin Co., Ltd. to Hanwha Vision Co., Ltd.
7. Change of factories' name.
   From 'Hanwha Techwin Co., Ltd.' and 'Hanwha Techwin Security Vietnam Co Ltd' to 'Hanwha Vision Co., Ltd.' and 'HANWHA VISION VIETNAM COMPANY LIMITED'.
8. Add one alternate DC FAN (Model no.: HA40101V4-1(Y); Manufacturer: SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD)
9. Correction of DC FAN Technical data due to typos. (Model no.: HTD-040D12M, Manufacturer: HUI TONG ELECTRONIC CO LTD)
10. Add and modify Source of kinetic/mechanical energy to 'ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE'.

Model Differences –

	Model name	PoE port	USB port	Ratings
Basic model	QRN-1630S	PoE 1-16 port (16 EA, Total Max. 2.5 A)	Front USB port (2 EA)	AC 100-240 V~, 50/60 Hz, 2.2 A
Derivation model	XRN-815S	PoE 1-8 port (8 EA, Total Max. 1.9 A)	Front USB port (2 EA), Rear USB port (1 EA)	AC 100-240 V~, 50/60 Hz, 1.7 A

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

Note1) Evaluation was conducted based on the ordinary person.

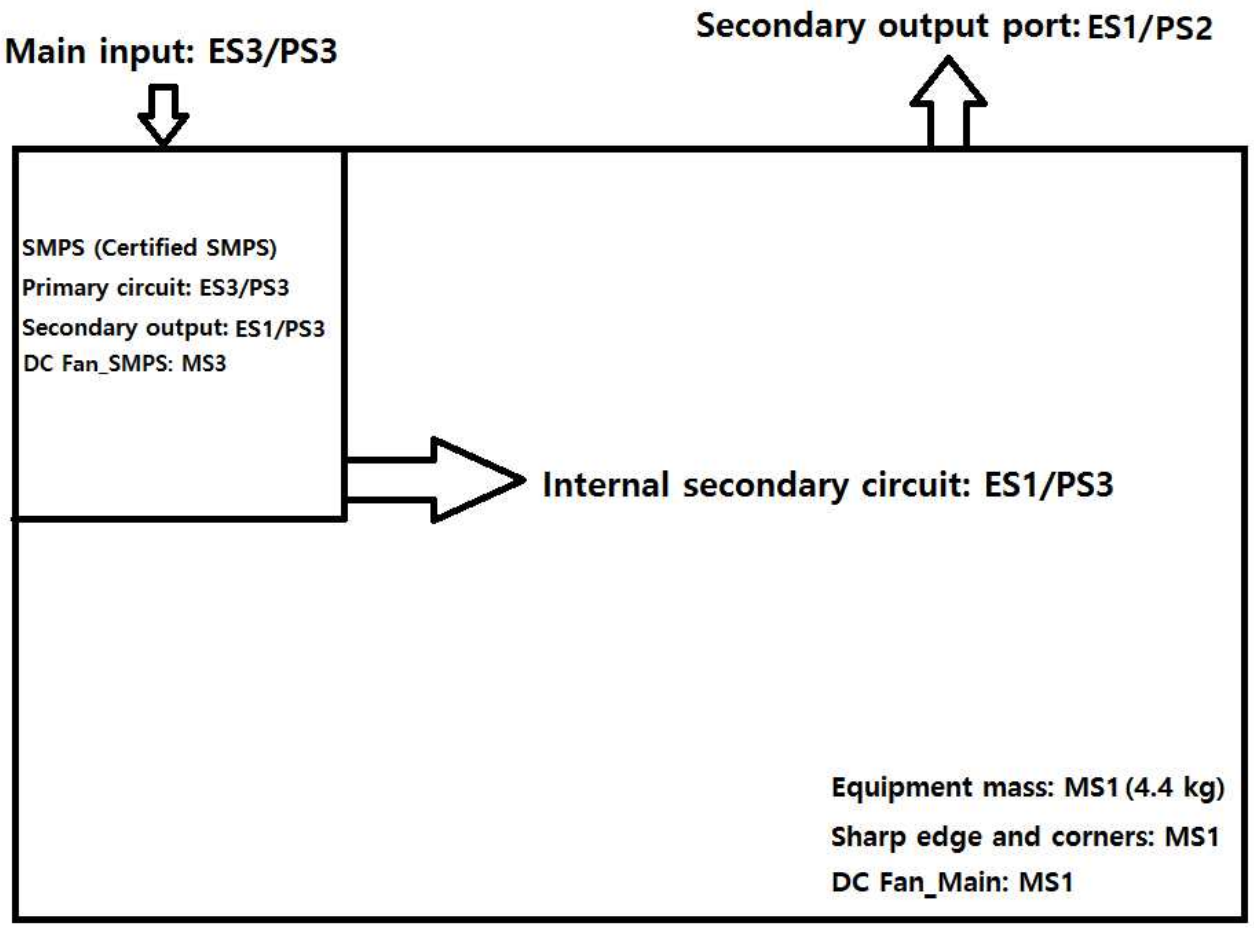
- Max. Normal Load for model QRN-1630S: Continuous operation and connected HDD (2 EA) connected, Front USB port: 0.5 A each (2 EA), PoE port: 0.57 A each, Full load (16 EA, Total Max. 2.5 A)
- Max. Normal Load for model XRN-815S: Continuous operation and connected HDD (2 EA) connected, Front USB port: 0.5 A each (2 EA), Rear USB port: 1.0 A (1 EA), PoE port: 0.57 A each, Full load (8 EA, Total Max. 1.9 A)
- Certified Internal SMPS. (DPS-200PB-185 C).

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
Primary circuit	ES3
Internal secondary circuit	ES1
Secondary output port	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
Internal primary circuit	PS3
Internal secondary circuit	PS3
Secondary output port	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
Lithium Battery (CN1)	Lithium/manganese dioxide (Coin)
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Equipment Mass (4.4 kg)	MS1
Sharp edge and corners	MS1
DC Fan_Main board(type: HTD-04010D12M) (N/15000+K/2400 = 0.26672<1)	MS1
DC Fan_Main board (type: HA40101V4-1(Y)) (N/15000+K/2400 = 0.36550<1)	MS1
DC Fan_SMPS	MS3
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
External enclosure	TS1

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
N/A	N/A

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

☒ ES ☒ PS ☒ MS ☒ TS ☐ RS



OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	ES3: Input circuit	N/A	N/A	Reinforced insulation (Metal enclosure)
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Input circuit	PS3	No ignition	Control of fire spread method: All PCBs min. V-1 rated	Fire enclosure (Metal, V-0)
Internal secondary circuit	PS3	No ignition	Control of fire spread method: All PCBs min. V-1 rated	Fire enclosure (Metal, V-0)
Secondary output port	PS2	No ignition	Complied with Annex Q	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	Coin Battery (CN1)	Encapsuled with metal enclosure.	instructional safeguard : user manual provide	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Mass (4.4 kg)	N/A	N/A	N/A
Ordinary	MS1: Sharp edge and corners	N/A	N/A	N/A
Ordinary	MS1: DC Fan_Main	N/A	N/A	N/A
Ordinary	MS3: DC Fan_SMPS	N/A	N/A	Fan guard & Instructional safeguard
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: External enclosure	N/A	N/A	N/A

10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	(See appended table 4.1.2).	P
4.1.2	Use of components	(See appended table 4.1.2).	P
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General		P
8.2	Mechanical energy source classifications	See Energy source identification and classification table.	P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners	Accessible edges and corners of the equipment are rounded and are Classified as MS1.	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	DC Fan_SMPS: MS3, DC Fan_Main: MS1, DC Fan (moving part), can't accessible by test probes from outside.	P
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	Not accessible.	N/A
8.5.2	Instructional Safeguard..... :	Provided of an instructional safeguard.	—

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1]**
-Description:					
Power Supply	Delta Electronics, Inc.	DPS-200PB-185 C	Rated Input: 100-240 V~/3.5 A, 47 Hz - 63 Hz, Output: DC +12 V / 5 A (MAX), +52 V / 2.5 A (MAX)	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 62368-1	TÜV Rheinland (JPTUV-084195-M2) UL (E131881)
Power cord set (US type)	LONGWELL	LP-30B +SVT 18AWG X 3C+LS-13	Detachable, Min. 1.5 m, Max. 4.5 m long, rated 125 V, 10 A, 18/3 AWG, 60 ºC, SVT type flexible cord. One end with NEMA 5-15P other end with appliance coupler.	UL 817	UL (E55349)
(Alternate)	KOREA KDK CO LTD	KKP-30 + SVT 3/18AWG + KKS-16A	Detachable, Min. 1.5 m, Max. 4.5 m long, rated 125 V, 7 A, 18/3 AWG, 105 ºC, SVT type flexible cord. One end with NEMA 1-15 other end with appliance coupler.	UL 817	UL (E58075)
(Alternate)	CHANGZHOU HONG CHANG ELECTRONICS CO LTD	DTII-3P-11+UL SVT 18AWG/3C +DTII-3P-04	Detachable, Min. 1.5 m, Max. 4.5 m long, rated 125 V, 10 A, 18/3 AWG, 105 ºC, SVT type flexible cord. One end with NEMA 5-15P other end with appliance coupler.	UL 817	UL (E205766)

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Clause	Requirement + Test	Result - Remark	Verdict

(Alternate)	WEIHAI HONG LIN ELECTRONIC CO LTD	HL-002S + SVT 18AWG X 3C + HL-004	Detachable, Min 1.5 m, Max. 4.5 m long, rated 125 V, 10 A, 18/3 AWG, 105 ºC, SVT type flexible cord. One end with NEMA 5-15P other end with appliance coupler.	UL 817	UL (E254927)
Power cord set (KR type)	Longwell Company	LP-34AN, H05VV-F, LS-13G	16 A, 250 V~, 3 x 0.75 mm^2, 10 A,250 V~	IEC 60884-1:2002/AMD1:2006 IEC 60227-5:2011 IEC 60320-1:2001/AMD1:2007	KC (SU01001-8001G)
(Alternate)	Changzhou Hong Chang Electronics Co. Ltd.	DTIII-2P-05, H05VVH2-F, DTII-3P-04	16 A, 250 V~, 3 x 0.75 mm^2, 10 A, 250 V~	IEC 60884-1:2002/AMD1:2006 IEC 60227-5:2011 IEC 60320-1:2001/AMD1:2007	KC (HU01021-16006A)
(Alternate)	KOREA KDK Co., Ltd.	KKP-4819KD, H05VV-F, KKS-16A	10 A,250 V~, 3G x 0.75 mm^2, 10 A, 250 V~	IEC 60884-1:2002/AMD1:2006 IEC 60227-5:2011 IEC 60320-1:2001/AMD1:2007	KC (SJ01003-10001C)
(Alternate)	Weihai Honglin Electronic Co., Ltd.	HL-014 , H05VV-F, HL-026	10 A,250 V~, 3G x 0.75 mm^2, 10 A, 250 V~	IEC 60884-1:2002/AMD1:2006 IEC 60227-5:2011 IEC 60320-1:2001/AMD1:2007	KC (SU01054-11002B)
Power cord set (Plug, Cable, Connector) (EU type)	Longwell Company	LP-34AN , H05VV-F 3 x 0.75 mm^2, LS-13G	16 A, 250 V~, 3 x 0.75 mm^2, 10 A, 250 V~	IEC 60884-1:2002/AMD1:2006/AMD2:2013 EN 50525-2-11:2012 EN 60320-1:2015	DEKRA VDE ENEC

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

(Alternate)	Changzhou Hong Chang Electronics Co..Ltd.	DTIII-2P-05 , H05VV-F 3 x 0.75 mm2, DTII-3P-04	16 A, 250 V~, 3 x 0.75 mm^2, 10 A, 250 V~	VDE 0620-2-1/AMD1:2017 EN 50525-2-11:2012 IEC/EN 60320-1:2015	VDE
(Alternate)	Weihai Honglin Electronic Co., Ltd.	HL-014 , H05VV-F 3 x 0.75 mm2, HL-026	16 A, 250 V~, 3 x 0.75 mm^2, 10 A, 250 V~	VDE 0620-2-1:2013 EN 50525-2-11:2012 IEC/EN 60320-1:2015	VDE
(Alternate)	KOREA KDK Co., Ltd.	KKP-4819D, H05VV-F 3 x 0.75 mm2, KKS-16A	16 A, 250 V~, 3 x 0.75 mm^2, 10 A, 250 V~	VDE 0620-2-1/AMD1:2017 EN 50525-2-11:2012 IEC/EN 60320-1/AMD1:2007	VDE SEMKO
Case-Top (Metal)	Interchangeable	Interchangeable	SECC, approximately 370.0 by 320.0 by 44.0 mm, Min. 0.6 mm thickness	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 62368-1	Tested in equipment
Case-Bottom (Metal)	Interchangeable	Interchangeable	SECC, approximately 370.0 by 320.7 by 44.0 mm, Min. 0.8 mm thickness	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 62368-1	Tested in equipment
Case-Front (Plastic)	LOTTE ADVANCED MATERIALS CO LTD	HN-1068(+)(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 ºC	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL746, UL94	Tested in equipment UL (E115797)
Internal Plastic Part Materials	Interchangeable	Interchangeable	Rated Min. V-2	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL94, UL746C	Tested in equipment UL
USB Protection IC (U12, U25) - for model QRN-1630S	Texas Instruments Inc	TPS2062	Rated 2.7–5.5 Vdc, Continuous current: 1 A, Protection current: 5 A	IEC 60950-1:2005/AMD2:2013 UL 2367	UL (US-27819-UL) UL (E169910)

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

USB Protection IC (U12, U25, U16) - for model XRN-815S	Texas Instruments Inc	TPS2062	Rated 2.7–5.5 Vdc, Continuous current: 1 A, Protection current: 5 A	IEC 60950-1:2005/AMD2:2013 UL 2367	UL (US-27819-UL) UL (E169910)
Line filter (T3) in main board	TNC CO.,LTD	CV650050SKA	Rated 5.0 mH, 130 ºC	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 62368-1	Tested in equipment
Lithium Battery (CN1)	WUHAN LIXING (TORCH) POWER SOURCE CO LTD	CR2032	Lithium/manganese dioxide (Coin), Max Abnormal Charging Current: 10 mA, Max Abnormal Charging Voltage: 5.0 Vdc, Non-rechargeable battery, Rated 3.0 Vdc, 220 mAh	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 1642	Tested in equipment UL (MH26236)
Reverse Current Protection Circuit for Lithium Coin Battery (CN1)	Interchangeable	Interchangeable	Diode (D5, 30 V, 1 A) and resistor (R17, 1 kohm) in series.	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 62368-1	Tested in equipment
DC FAN (Main board)	HUI TONG ELECTRONIC CO LTD	HTD-040D12M	**Rated voltage: DC 12 V, Rated current: 0.06 A, speed: 4 000±15 % RPM**	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 507	Tested in equipment UL (E311396)
DC FAN (Main board) _Alternate	**SUNONWEALTH ELECTRIC MACHINE INDUSTRY CO LTD**	**HA40101V4-1(Y)**	**Rated voltage: DC 12 V, Rated current: 0.038 A, speed: 5 000±15 % RPM**	**IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 507**	**Tested in equipment UL (E77551)**
Hard Disk Driver (HDD) – 2 EA _Optional	Interchangeable	Interchangeable	5 Vdc, max 0.7 A, 12 Vdc, max 0.9 A	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 62368-1	Tested in equipment
Internal Wiring (Secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 ºC	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 758	Tested in equipment UL

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

Cable	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 ºC	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 758	Tested in equipment UL
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 1977	Tested in equipment UL
FFC cable	FAT CO LTD	20861	Min. VW-1, 105 ºC, 60 V	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 758	Tested in equipment UL (E363546)
(Alternate)	Interchangeable	Interchangeable	Min. VW-1, 105 ºC, 60 V	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 758	Tested in equipment UL
PCB	KI JOO INDUSTRIAL CO LTD	KJ3-V-0-1	Min. V-0, 130 ºC	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 796	Tested in equipment UL (E111636)
(Alternate)	Interchangeable	Interchangeable	Min. V-0, 130 ºC	IEC 62368-1:2014 EN 62368-1:2014+A11:2017 UL 796	Tested in equipment UL
Supplementary information: [1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.
Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

Clause	Measurement / testing	Testing / measuring equipment / material used, (Equipment ID)	Range used	Last Calibration date	Calibration due date

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1
(AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES
(**Audio/video, information andcommunication technology equipment**)

Differences according to ..... :	AS/NZS 62368.1:2018
TRF template used:.....:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No. ..... :	AU_NZ_ND_IEC62368_1D
Attachment Originator..... :	JAS-ANZ
Master Attachment..... :	2022-05-01

	National Differences		P
Appendix ZZ	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		P
2	*Add* the following to the list of normative references: The following normative documents are referenced in Appendix ZZ: -AS/NZS 3112, *Approval and test specification—Plugs and socket-outlets* -AS/NZS 3123, *Approval and test specification—Plugs, socket-outlets and couplers for general industrial application* -AS/NZS 3191, *Electric flexible cords* -AS/NZS 60065, *Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)* -AS/NZS 60320.1, *Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)* -AS/NZS 60320.2.2, *Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)* -AS/NZS 60695.2.11, *Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products* -AS/NZS 60695.11.5, *Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance* -AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods*		P

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	-AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* -AS/NZS 60950.1:2015, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)* IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification* -AS/NZS 61558.1:2008 (including Amendment 2:2015), *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)* -AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.*		
4.1.1	**Application of requirements and acceptance of materials, components and subassemblies** 1*Replace* the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'. 2 *Replace* the text 'IEC 60065' with 'AS/NZS 60065'.		P
4.7	**Equipment for direct insertion into mains socket-outlets**		N/A
4.7.2	**Requirements** *Delete* the text of the second paragraph and *replace* with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirementsin AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.		N/A
4.7.3	**Compliance Criteria** *Delete* the first paragraph and Note 1 and Note 2 and *replace* with the following: *Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.*		N/A
4.8	*Delete* existing clause title and *replace* with the following: **4.8 Products containing coin/button cell batteries**		P

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.1	**General** 1 Second dashed point, *delete* the text and *replace* with the following: – include coin/button cell batteries with a diameter of 32 mm or less. 2 After the second dashed point, *insert* the following Note: NOTE 1: Batteries are specified in IEC 60086-2. 3 After the third dashed point, *renumber* the existing Note as 'NOTE 2'. 4 Fifth dashed point, *delete* the word 'lithium'.		P
4.8.2	**Instructional Safeguard** First line, *delete* the word 'lithium'.		P
4.8.3	**Construction** First line, after the word 'Equipment' *insert* the words 'containing one or more coin/button batteries and'		N/A
4.8.5	**Compliance criteria** *Delete* the first paragraph and *replace* with the following: *Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the batterycompartment door/cover by a rigid test finger according to test probe 11 ofIEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.*		N/A
5.4.10.2	**Test methods**		N/A
5.4.10.2.1	**General** *Delete* the first paragraph and *replace* with the following: In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test ofeither Clause 5.4.10.2.2 or Clause 5.4.10.2.3.		N/A
Table 29	*Replace* the table with the following:		N/A

Parts	Impulse test		Steady state test	
	New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) [a]	2.5 kV 10/700 µs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) [b]	1.5 kV 10/700 µs [c]		1.0 kV	1.5 kV

[a] Surge suppressors shall not be removed.
[b] Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment.
[c] During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	After the first paragraph, *insert* new Notes 201 and 202 as follows: NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen toensure the adequacy of the insulation concerned and does not necessarily simulatelikely overvoltages.		N/A
5.4.10.2.3	After the first paragraph, *insert* new Notes 201 and 202 as follows: NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values for Australia have been determinedconsidering the low frequency induced voltages from the power supply distributionsystem.		N/A
6	**Electrically-caused fire**		P
6.1	**General** After the first paragraph, *insert* the following new paragraph: Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to befulfilled if the equipment complies with the requirements of Clause 6.202		P
6.6	After Clause 6.6, *add* the new Clauses 6.201 and 6.202 as follows: **6.201 External power supplies, docking stations and other similar devices** and **6.202 Resistance to fire—Alternative tests** (see special national conditions)		P
8.5.4	**Special categories of equipment comprising moving parts**		N/A
8.5.4.1	**Large data storage equipment** In the first dashed row and the second dashed rows *replace* 'IEC 60950-1:2005'with 'AS/NZS 60950.1:2015'.		N/A
8.6	**Stability of equipment**		N/A

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.1 and Table 36	**Requirements** 1. Table 36, *insert* Footnote c at the end of the 'Glass slide' heading, and *add* a new Footnote c after the text of Footnote b in the last row of Table 36 as follows: [c] The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display. 2. Table 36, fifth row, *insert* '201' at the end of 'No stability requirements' 3. Table 36, ninth row, *insert* '201' at the end of 'No stability requirements' 4. Table 36, *add* the following new footnote: 201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall,ceiling or equipment rack, are not subjected to stability requirements only if theinstructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass sliderequirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply. 5. Second paragraph beneath Table 36, *delete* the words 'MS2 and MS3 television sets' and *replace* with 'MS2 and MS3 television sets and display devices'		N/A
8.6.1	After Clause 8.6.1 *add* the following new clauses: **8.6.1.201 Instructional safeguard for fixed-mount television sets** (see special national conditions)		N/A
Annex F **Paragraph F.3.5.1**	**Mains appliance outlet and socket-outlet markings** *Replace* 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.		N/A
Annex G **Paragraph G.4.2**	**Mains connectors** 1 In the second line *insert* 'or AS/NZS 3123' after 'IEC 60906-1'. 2 In the second line *insert* 'or AS/NZS 60320 series' after 'IEC 60320 series' 3 *Add* the following new paragraph: 10 A or 15 A 250 V flat pin plugs for the connection of equipment tomains-powered socket-outlets for household or similar general use shallcomply with AS/NZS 3112 or AS/NZS 60884.1.		N/A
Paragraph G.5.3.1	**Transformers, General** 1 In the third dashed point *replace* 'IEC 61558-1 and the relevant parts ofIEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS61558.2' 2 In the fourth dashed point *replace* 'IEC 61558-2-16' with 'AS/NZS61558.2.16'.	Certified Internal SMPS. (See table 4.1.2)	P
Paragraph G.7.1	**Mains supply cords, General** In the fourth dashed paragraph, *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Table G.5	**Sizes of conductors** 1 In the second row, first column, *delete* '6' and *replace* with '7.5' 2 In the second row, second column, *delete* '0,75' and *replace* with '0.75[b] 3 *Delete* Note 1. 4 *Replace* 'NOTE 2' with 'NOTE:'. 5*Delete* the text of 'Footnote b' and *replace* with the following: [b] This nominal cross-sectional area is only allowed for Class II appliances if the length ofthe power supply cord, measured between the point where the cord, or cord guard,enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm2 three-coresupply flexible cords are not permitted; see AS/NZS 3191). 6 In Footnote c *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' 7 In Footnote d *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M **Paragraph M.3.2**	**Protection circuits for batteries provided within the equipment, Test method** After the first dashed point *add* the following Note: NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possiblesingle fault conditions in the unassociated equipment. If the power source is unknownthen it should be assumed that the maximum limit of SELV may be applied to thesource input under assumed single fault conditions in the source when assessing thecharging circuit in the equipment under test.		N/A
	Special national conditions (if any)		

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.201	**External power supplies, docking stations and other similar devices** For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— – at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and – of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whicheveris higher. For equipment with multiple rated output voltages, the requirements apply withthe equipment configured for each rated output voltage in turn. NOTE: This is intended to reduce the possibility of battery fire or explosion inattached equipment or accessories when charging secondary lithium batteries. *Compliance shall be checked by measurement, taking into account the abnormal* *operating conditions of Annex B.3 and the simulated single-fault conditions ofAnnex B.4*		P
6.202	**Resistance to fire—Alternative tests**		N/A
6.202.1	**General** Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other partsunlikely to be ignited or to propagate flames from inside the equipment, or thefollowing: a) Components that are contained in an enclosure having a flammabilitycategory of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and forventilation not exceeding 1 mm in width regardless of length. b) The following parts which would contribute negligible fuel to a fire: – small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; – small electrical components, such as capacitors with a volume not exceeding 1 750 mm3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material offlammability category V-1, or better, according toAS/NZS 60695.11.10. NOTE: In considering how to minimize propagation of fire and what ‘small parts’ are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.		N/A

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4. For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5. The tests shall be carried out on parts of non-metallic material which have beenremoved from the equipment. When the glow-wire test is carried out, the partsshall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.		N/A
6.202.2	**Testing of non-metallic materials** Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.		N/A
6.202.3	**Testing of insulating materials** Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE: Contacts in components such as switch contacts are considered to be connections		N/A
	For parts which withstand the glow-wire test but produce a flame, other partsabove the connection within the envelope of a vertical cylinder having a diameterof 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test need notbe tested		N/A
	The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications: **Clause of AS/NZS 60695.11.5** — Change **9 Test procedure** **9.2 Application of needle-flame** — *Delete* the first and second paragraphs and *replace* with the following: The specimen shall be arranged so that the flame can be		N/A

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner. The duration of application of the test flame shall be 30 s 1 s.		
	9.3 Number of test specimens *Replace* with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.		
	11 Evaluation of test results *Replace* with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.		
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part isnot thinner than the sample tested.		
6.202.4	**Testing in the event of non-extinguishing material** If parts, other than enclosures, do not withstand the glow wire tests ofClause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwiretip, the needle-flame test detailed in Clause 6.202.3 shall be made on allparts of non-metallic material which are within a distance of 50 mm or which arelikely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not betested. NOTE 1: If the enclosure does not withstand the glow-wire test the equipment isconsidered to have failed to meet the requirements of Clause 6.202 without the needfor consequential testing. NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissuepaper and if this indicates that burning or		N/A

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	glowing particles can fall onto an externalsurface underneath the equipment, the equipment is considered to have failed to meetthe requirements of Clause 6.202 without the need for consequential testing. NOTE 3: Parts likely to be impinged upon by the flame are considered to be thosewithin the envelope of a vertical cylinder having a radius of 10 mm and a height equalto the height of the flame, positioned above the point of the material supporting, incontact with, or in close proximity to, connections.		
6.202.5	**Testing of printed boards** The base material of printed boards shall be subjected to the needle-flame test ofClause 6.202.3. The flame shall be applied to the edge of the board where the heatsink effect is lowest when the board is positioned as in normal use. The flameshall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source. The test is not carried out if— – the printed board does not carry any potential ignition source; – the base material of printed boards, on which the available apparent powerat a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operatingconditions, is of flammability category V-1 or better according toAS/NZS 60695.11.10, or the printed boards are protected by an enclosuremeeting the flammability category V-0 according toAS/NZS 60695.11.10, or made of metal, having openings only forconnecting wires which fill the openings completely; or – the base material of printed boards, on which the available equipmentpower at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and basematerial of printed boards supporting spark gaps which providesprotection against overvoltages, is of flammability category V-0according to AS/NZS 60695.11.10 or the printed boards are contained in ametal enclosure, having openings only for connecting wires which fill theopenings completely. *Conformance shall be determined using the smallest thickness of the material.* NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.		N/A
6.202.6	**For open circuit voltages greater than 4 kV** Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. ord.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.		N/A

Attachment 1 – National differences as CB bulletin

IEC 62368_1D ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.1.201	**8.6.1.201 Instructional safeguard for fixed-mount television sets** MS2 and MS3 television sets and display devices designed only for fixedmounting to a wall of ceiling or equipment rack shall, where required in Table 36,footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions orequivalent document accompanying the equipment. The elements of the instructional safeguard shall be as follows: – element 1a: not available; – element 2: 'Stability Hazard' or equivalent wording; – element 3: 'The television set may fall, causing serious personal injury ordeath' or equivalent text; – element 4: the following or equivalent text: To prevent injury, this television set must be securely attached to thefloor/wall in accordance with the installation instructions		N/A
8.6.1.202	**Restraining device** MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point tofacilitate restraining the equipment from toppling forward. The restraining deviceshall be capable of withstanding a pull of 100 N in all directions without damage. Where a restraining device is provided,instructions shall be provided in theinstructions for installation or instructions for use to ensure correct and safeinstallation.		N/A

Attachment 1 – National differences as CB bulletin

AS/NZS 3112:2017 Appendix J			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

AS_NZS_3112:2017_+A1:2021 Appendix J
AUSTRALIAN / NEW ZEALAND NATIONAL DIFFERENCES
(Approval and test specification—Plugs and socket-outlets)

Differences according to ..... :	AS_NZS_3112:2017_Amendment 1:2021_Appendix J
TRF template used: .....:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No. ..... :	AS_NZS_3112:2017_Appendix J
Attachment Originator ..... :	JAS-ANZ
Master Attachment..... :	2022-06

	Note: AS/NZS 3112 is NOT covered by IECEE Accreditation for Testing / Reporting **Please State Laboratory Accreditation for this Standard**		N/A
	Accreditation		N/A

J1 SCOPE	General: This Appendix specifies additional dimensional and constructional requirements for detachable plug portions, or equipment incorporating integral supply pins or equipment incorporating detachable plug portions. This Appendix shall be read in conjunction with Section 2of this Standard. For the purposes of this Appendix, where the term 'plug' is used in Section 2 it shall be taken to mean the plug portion of equipment or the detachable plug portion. The equipment shall comply with the relevant product Standard. The tests and requirements specified in this Appendix are in addition to any test and requirements of the relevant product Standard for the equipment. (AS/NZS 3112:2017/A1:2021)	N/A

J2	DEFINITION	N/A
J2.1	Detachable plug portion A plug portion that is detachable from the equipment and with connections including the following standardized outputs and other contacts (a) Type A (see Figure J1): A detachable plug portion with a connection intended for plugging directly into equipment. The connection being via the equipment group 1 appliance inlet within the scope of AS/NZS 60320.1. (b) Type B (see Figure J2):	N/A

Attachment 1 – National differences as CB bulletin

AS/NZS 3112:2017 Appendix J			
Clause	Requirement + Test	Result - Remark	Verdict
	A detachable plug portion with a non-standardized connection intended for plugging directly into equipment (c) Type C (see Figure J3): A detachable plug portion with a connection intended for use with an adaptor connected to a flexible cord so as to replicate a supply plug and flexible cord configuration. The connection being via a group 1 appliance outlet within scope of AS/NZS 60320.2.2, which is integral with the plug portion (AS/NZS 3112:2017)		
J2.2	Integral plug portion A plug portion that is integral to the equipment enclosure and is not detachable (AS/NZS 3112:2017)		N/A
J2.3	Plug portion A plug portion is that portion of equipment with pins for insertion into a socket-outlet, including the plug pins, terminals of the plug pins, external dimensions of the 'maximum projection' and any connections of a detachable plug portion. (AS/NZS 3112:2017/A1:2021)		N/A
J3	**REQUIREMENTS FOR THE PLUG PORTION**		N/A
J3.1	General The following provisions apply to the dimensional and constructional requirements of plug portions of equipment and any detachable connection between the plug portion and the equipment:		N/A
(a)	For detachable plug portions intended for connection to the equipment in multiple orientations, the relevant tests are performed in the most onerous orientation.		N/A
(b)	For Type A detachable plug portion, the relevant requirements of AS/NZS 3105:2014 are applicable, in addition to conformance with relevant clauses of this Appendix		N/A
(c)	For Type B detachable plug portions, the conformance is shown by the relevant clauses of this Appendix.		N/A
(d)	For Type C detachable plug portions, conformance is shown by assessment to Section 2 of this Standard (plugs) and relevant clauses of this Appendix		N/A

Attachment 1 – National differences as CB bulletin

AS/NZS 3112:2017 Appendix J			
Clause	Requirement + Test	Result - Remark	Verdict
	(AS/NZS 3112:2017)		
J3.2	**Plug pins of plug portions** The requirements of Clause 2.2 are applicable for plug pins.		N/A
2.2	PLUG PINS		N/A
2.2.1	Current carrying parts of plug pins of metal having sufficient mechanical strength, electrical conductivity and resistance to corrosion adequate for the intended use		N/A
	Plug pin material?		N/A
2.2.3	Plug pins adequately proportioned throughout and portion adjacent to the connection designed to not introduce a stress concentration which may lead to a fracture of the pin, and suitably shaped to prevent abrasion or cutting of conductor strands due to flexure in normal use		N/A
	Exposed ends of plug pins have a lead-in, bevel or radius to facilitate entry into socket-outlets and to operate shutters		N/A
	Flat-pins with the following profile are deemed to comply:		N/A
(a)	Flat-pins with a radius on the end with side bevels may have a width and thickness profile as specified in Figure 2.1(h)		N/A
(b)	Flat-pins square on the end with corner and side bevels may have a width and thickness profile as specified in Figure 2.1(i)		N/A
(c)	Flat-pins square on the end with corner bevels and a radius on the sides may have a width and thickness profile as specified in Figure 2.1(j)		N/A
	Contact portion of the pins smooth and free from openings or indentations		N/A
	Flat pin plugs having a longitudinal seam or opening in the contact portion of one face; width not exceeding 0.3 mm and		N/A
	Thickness not exceeding 1.58 mm		N/A
	Exposed portion of earthing pins and pins other than insulated pins free from any non-metallic coverings or coatings (AS/NZS 3112:2017)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.2.4	Live parts of insulated pin plugs not exposed when plug is partially or fully engaged with associated socket		N/A
	Compliance by measurement to Figure 2.4		N/A
	Lacquer, enamel or sprayed insulating coating not considered to be insulation material		N/A
	All live pins on low voltage plugs except for those shown in Figure 2.1 (a2), (b) and (g) of the insulated pin type		N/A
	Colour green or green / yellow not used for insulation of insulated pins (AS/NZS 3112:2017)		N/A
J3.3	**Ratings and dimensions for low-voltage plug portions** Requirements of clauses 2.8.1 and 2.8.4 apply for rating and dimensions		N/A
2.8	Ratings and Dimensions of Low Voltage Plugs		N/A
2.8.1	Plugs with ratings up to and including 20A; shall conform to the appropriate dimensions shown in Figure 2.1		N/A
	Rating of plug	___A	N/A
	Nominal dimensions covering disposition of pins checked by gauge of Appendix A		N/A
	Distance between live pin and edge of moulding to not less than 9 mm		N/A
	Measured distance	___mm	N/A
	No point on plug face protrudes more than 0.5 mm		N/A
	Measured protrusion	___mm	N/A
	Dimensional requirements of Figure 2.1(e2) did not applied to plugs with greater than three pins (AS/NZS 3112:2017)		N/A
2.8.4	Low voltage plugs comply with dimensions of Figure 2.1		N/A
	Disposition of pins checked by gauge complying with Appendix A, B or F as appropriate		N/A
	Low voltage plug having rating up to 15A and of the Figure 2.1 (a1), (c), (d), (f) or (g) type; comply with dimensional requirements of Figure 2.1 (e1 and e2)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	20A plug of Figure 2.1(a2) type complies with dimensional requirements of Figure 2.1 (e2)		N/A
	Plugs with insulated pins need not comply with dimension R20.0 ± 1 mm requirement of Figure 2.1 (e3) provided there is at least 9mm from the edge of the live pins to the edge of the plug face Figure 2.1(e3). (AS/NZS 3112:2017)		N/A
J3.4	**Internal connections for plug portions** Requirements of clause 2.9 apply for internal connections, unlessrequirements contained in the relevant product standard (AS/NZS 3112:2017)		N/A
2.9	INTERNAL CONNECTIONS		N/A
	Plug provided with earthing connections designed and constructed so that when plug is correctly wired and assembled:		N/A
(a)	Loose terminal screw or conductive material cannot bridge any live or earthed parts		N/A
(b)	Earthing parts effectively isolated from contact with live conductor which may become detached		N/A
(c)	Live parts effectively isolated from contact with any earthing conductor which may become detached		N/A
	Any connections for auxiliary devices comply with above requirements (AS/NZS 3112:2017)		N/A
J3.5	**Arrangement of earthing connections for plug portions** Requirements of clause 2.10 apply for arrangement of earthing connections		N/A
2.10	Arrangement of earthing connections		N/A
	Earthing pin radial to the circle embracing the pins (AS/NZS 3112:2017)		N/A
J3.6	**Configuration of plug portions** Requirements of clause 2.12.6 apply for configuration of the plug portion (AS/NZS 3112:2017)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.12	Marking		N/A
2.12.6	Configuration of plugs		N/A
	Pins disposed so that configuration, as viewed from the pins, is earth, neutral and active in a clockwise direction		N/A
	Where there is no earthing pin; live pins conform to this configuration (AS/NZS 3112:2017)		N/A
J4	**Tests**		N/A
J4.1	General Plug portions of equipment shall be subjected to the following tests and unless stated otherwise, shall comply with the requirements specified in Section 2for each test. The number of test samples shall be in accordance with Table J1 For equipment with a detachable plug portion, the assessment(s) of Table J1 tests 2, 3, 5, 10 and 11 shall be conducted on the— (a) assembled equipment with the detachable plug portion connected; and (b) the detachable plug portion after it has been separated from the equipment (AS/NZS 3112:2017/A1:2021)		N/A
J4.2	**High voltage test** The requirements of Clause 2.13.3are applicable unless requirements are contained in the relevant product standard (AS/NZS 3112:2017)		N/A
2.13.3	Test No.1 - High voltage test		N/A
	Plug withstands without failure electric strength test as specified (AS/NZS 3112:2017)	(see appended table)	N/A
J4.3	**Mechanical strength**		N/A
J4.3.1	**Tumbling barrel test**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The tumbling barrel test is applied to determine the mechanical strength of the plug portions and equipment having integral or detachable plug portions. For equipment with a detachable plug portion, the detachable plug portion may become detached during the test. If this occurs the detachable plug portion shall be reassembled with the equipment when the pins are straightened as per (a) and (b) below. Three samples (Samples BCD in Table J1) that have not been subjected to any previous test are tested as specified inClause 2.13.7.1, however the test is modified as follows:		
	They are tested in a tumbling barrel as described in AS 60068.2.32 or test Free fall repeated – Procedure 2 in IEC 60068-2.31. The samples shall be dropped from a height of 500 mm onto a steel plate, 3 mm thick. The barrel shall be turned at a rate of 5 r/min, to yield 10 falls per minute. Only one sample shall be tested at a time. A sample is dropped— (a) 500 times if the mass of the specimen does not exceed 250 g. The pins being straightened after each 100 drops and at the completion of the test to pass through the appropriate gauge of Figure A1, Figure B1 or Figure F1; and (b) 250 times if the mass of the specimen exceeds 250 g. The pins being straightened after each 25 drops and at the completion of the test to pass through the appropriate gauge of Figures A1, Figure B1 or Figure F1. (AS/NZS 3112:2017/A1:2021)		N/A
	Mass of sample	_____Grams	N/A
	Number of drops	500 / 250	N/A
	Compliance shall be checked by Paragraph J4.3.3	(See appended table)	N/A

J4.3.2	Test No.3 **Impact test.** Plug portions and equipment having integral plug portions or detachable plug portions shall withstand lateral impact forces. All samples that were subjected to the tests in Paragraph J4.3.1(Samples BCD in Table J1) shall be tested as follows:		N/A
	(a) The sample shall be positioned at the centre of a steel plate with a thickness of at least 6 mm. Apertures in the steel plate for the plug pins to pass through shall conform to the corresponding socket Standard. The sample shall be held against the steel plate by clamping all the pins.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	(b) Samples shall be subjected to blows, with an impact energy of 1.0 ± 0.05 J by any means having the same performance as the spring-operated impact-test apparatus of AS/NZS 3100.		N/A
	(c) Three blows shall be applied to every point that is most likely to directly or indirectly stress the enclosure joints of the sample		N/A
	Compliance shall be checked by Paragraph J4.3.3		N/A
J4.3.3	**Specific compliance criteria** This Paragraph provides the common compliance assessment criteria for tests specified in Paragraphs J4.3.1 and J4.3.2.		N/A
	Following each test, the samples shall comply with Clause 2.13.7.1		N/A
(a)	**assembled equipment with the detachable plug portion connected;**		N/A
	After the test, samples show no damage	(See appended table)	N/A
(b)	**the detachable plug portion after it has been separated from the equipment**.		N/A
	After the test, samples show no damage	(See appended table)	N/A
4.3.4	**Pin bending test** The pins of the plug portion of three samples (Samples EFG in Table J1) not subjected to any previous tests shall be tested for compliance with the pin bending test of Clause 2.13.7.2 (AS/NZS 3112:2017/A1:2021)		N/A
2.13.7.2	Test No.4 – Pin bending test		N/A
	All flat–pin plugs rated up to and including 15 A shall be subjected to the pin bending test		N/A
	Three samples are subjected by clamping the plug in a rigid holding block and applying the bending force as specified		N/A
	After the test the pins shall not be broken off. (AS/NZS 3112:2017)		N/A
J4.8.3	Test No.5 **Plug portion detachment requirements**		N/A
	For all Type B or C devices and for Type A devices		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	where the outlet of the detachable plug portion is parallel to the plug supply pins, disengagement of the detachable plug portion from the equipment shall require at least two simultaneous independent actions or the use of a tool.		
	The plug portion and the equipment/adaptor shall be connected and disconnected 50 times (100 strokes).		N/A
	Compliance is verified by the plugging test,a force which, over a period of 10 s, shall be increased steadily to 60 ±0.6 N and held at this value for a further 10 s, shall be applied evenly at the connecting equipment in a direction parallel to the pins. This procedure shall be conducted three times on the same plug portion, at intervals of 5 min, without disturbing the plug portions between tests		N/A
	During the test the plug portion shall not separate		N/A
	The test of AS/NZS 3112 'temperature rise test' for plugs shall be conducted immediately after the above test without disturbing the sample. Test No 6 Temperature Rise test J4.4 (AS/NZS 3112:2017/A1:2021)		N/A
J4.4	**Temperature rise test** The relevant requirements of Clause 2.13.8 are applicable for the temperature rise test, except that the test current shall be that specified in the relevant product standard		N/A
	The temperature rise of the pins shall not exceed 45 K irrespective of the temperature rise of parts specified in end-product standards.		N/A
	For detachable plug portions the temperature rise of terminals and contacts shall not exceed 45 K. (AS/NZS 3112:2017)		N/A
2.13.8	Test No.6 – **Temperature rise test**		N/A
	Plug tested in draught free environment as specified using clamping units as specified in Figure 2.10		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test Current Relevant Product Standard	_____ Amps _____ (Standard?)	N/A
	Temperature of terminals and contacts of detachable plug portion not exceeding 45 K (AS/NZS 3112:2017)	(see appended table)	N/A
J4.5	**Securement of pins of the plug portion** The requirements of Clause 2.13.9 are applicable for the securement of pins. (AS/NZS 3112:2017)		N/A
2.13.9	Test No.7. **Securement of pins**		N/A
2.13.9.1	Movement of pins		N/A
	Plug pins clamped 5 ± 0.5 mm from pin face; test equipment and sample pre-conditioning for 1 h at 40 ± 1°C		N/A
	Force of 18 ± 1 N applied to pin 14 ± 0.5 mm from plug face; applied gradually over 10 s and maintained for 10 s; applied in four directions		N/A
	Maximum deflection during test not exceeding 2.0 mm	(see appended results)	N/A
	Any distortion 5 minutes after test does not prevent insertion of plug into standard gauge(s) (AS/NZS 3112:2017 + A1:2021)		N/A
2.13.9.2	**Fixing of pins**		N/A
	Plug heated to 50 ± 2°C for 1h		N/A
	Force of 60 ± 0.6 N applied to each pin over 10 s and maintained for 10 minutes; applied in two directions along length of pin		N/A
	Maximum displacement during test not exceeding 2.4 mm		N/A
	Maximum measured displacement		N/A
	Pin returns to within 0.8 mm of nominal length within 5 minutes of removal of test force (AS/NZS 3112:2017)		N/A
J4.6	**Tests on the insulation material of insulated pin-plug portions** The requirements of Clause 2.13.13 are applicable for insulating material of		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	insulated plug pins. (AS/NZS 3112:2017)		
2.13.13	Test No.8 **Tests for insulation material of insulated pin plugs**		N/A
2.13.13.1	Material of pin-insulation resistant to stresses at temperature likely to occur		N/A
2.13.13.2	Pressure test at high temperature		N/A
	Specimen tested as per Figure 2.5 with force of 2.5 N applied as specified; maintained for 2 h at 160 ± 5°C; removed and cooled by immersion in water within 10 s		N/A
	Thickness of insulation at point of impression not reduced by more than 50%		N/A
	Initial thickness	mm	N/A
	Thickness after test	mm	N/A
	No visible cracks on insulation material		N/A
	Dimension of insulating material not below minimum size in Figure 2.4 (AS/NZS 3112:2017)		N/A
2.13.13.3	**Static damp heat test**		N/A
	Specimen subjected to two damp heat cycles in accordance with IEC 60068-2-30; Db (12 + 12h), 95% RH, 25 ± 3°C; 40°C		N/A
	After this treatment and recovery to room temperature; specimen subjected to:		N/A
(a)	Insulation resistance test in accordance with clause 2.13.2 (e)	(see appended table)	N/A
(b)	High voltage test in accordance with clause 2.13.3	(see appended table)	N/A
(c)	Abrasion test in accordance with clause 2.13.13.6		N/A
2.13.13.4	**Low temperature test**		N/A
	Plug maintained at –15 ± 2°C for minimum of 24 h and returned to room temperature; after which specimen subjected to:		N/A
(a)	Insulation resistance test in accordance with clause 2.13.2 (e)	(see appended table)	N/A
(b)	High voltage test in accordance with clause 2.13.3	(see appended table)	N/A
(c)	Abrasion test in accordance with clause 2.13.13.6		N/A
2.13.13.5	**Impact test at low temperature**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Specimen maintained at –15 ± 2°C for 24 h		N/A
	Specimen placed in position and subjected to impact test as per Figure 2.6; mass of 100 ±1 g falling through 100 mm		N/A
	Four impacts applied; specimen rotated through 90° between impacts		N/A
	After return to room temperature; no visible cracks of insulating material		N/A
2.13.13.6	**Abrasion test**		N/A
	Plug held in clamp and tested as per Figure 2.7; pin loaded at 4 N; 20 000 movements		N/A
	After test; pins show no damage affecting safety or impairing further use of the plug		N/A
	Insulating sleeve not punctured or rucked up (AS/NZS 3112:2017)		N/A
J4.7	Test no.9 **Equipment with a plug portion intended to be supported by the contacts of a socket-outlet**		N/A
	Equipment with pins intended to be introduced into fixed socket-outlets not imposing undue strain on socket-outlet		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Measured torque (AS/NZS 3112:2017)	____Nm	N/A
J4.8	**Additional requirements for detachable plug portions**		N/A
J4.8.1	Test no.10 **Access to live parts**		N/A
	Small test finger of Figure 13 of IEC 61032 was not possible to contact live parts with the force of 20N		N/A
	incorrectly assemble the plug portion was not possible (AS/NZS 3112:2017)		N/A
J4.8.2	Test No.11 **Construction of detachable contacts where the input current of the equipment exceeds 0.2 A**		N/A
	Contacts of the equipment shall be such that they make and maintain, under normal service conditions, satisfactory electrical and mechanical contact with the corresponding contact of the detachable plug portion.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For connections intended to accommodate pins, contact shall be made on two surfaces diametrically opposite, except if a single spring-assisted contact is used. (AS/NZS 3112:2017/A1:2021)		N/A
	Contacts shall not rely exclusively on the resilience of the contact material and shall have an opposite face of material other than thermoplastic or resilient insulating material. (AS/NZS 3112:2017/ A1:2021)		N/A
	The alignment and contact-making properties of contacts shall be independent of terminal screws		N/A
	The effectiveness of the contacts shall be independent of pressure from any thermoplastic or resilient moulding.		N/A
	A visual inspection is conducted to determine the existence of interference between the metal contacts and the thermoplastic or resilient moulding to provide supplementary contact pressure to the metal contacts.		N/A
	Conformance of the effectiveness of the contacts is checked by inspection and bythe inspection and tests in J4.8.3 (AS/NZS 3112:2017)		N/A
J4.8.4	**Resistance of insulating material to heat and fire**		N/A
J4.8.4.1	Test no.12 **Resistance to heat** For Type B detachable plug portions parts of non-metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary insulation or reinforced insulation, shall be sufficiently resistant to heat if their deterioration could cause the appliance to fail to comply with this Standard.		N/A
	Ball pressure test conducted in accordance with IEC 60695-10-2		N/A
(a)	75°C ± 2°C, for external parts;		N/A
(b)	125°C ± 2°C, for parts supporting live parts.		N/A
J4.8.4.2	Test no.13 **Resistance to fire**		N/A
	Plug portions comply with resistance to fire requirements of AS/NZS 3100 Annex Aas follows:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The glow wire test temperature 'T' for 'retaining parts' of fixed socket outlets shall be 750 C (AS/NZS 3112:2017)		N/A

TABLES OF RESULTS

2.2.4	TABLE: Dimensions of insulation on insulated pin plugs		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase pin			8.7 ± 0.5
Neutral pin			8.7 ± 0.5

2.8.1	TABLE: Dimensions of plugs- 10A (a1)		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase and neutral pin width (A)			6.35 ± 0.15
Earth pin width (B)			6.35 ± 0.15
Pin thickness (C)			1.63 + 0.15, -0.05
Pin disposition (D)			checked by test gauge
Pin disposition (E)			checked by test gauge
Phase and neutral pin length (F)			17.06 ± 0.4
Earth pin length (G)			19.94 ± 0.8
Pin boss radius - maximum			21.0 max
Pin boss height			8.6 min

2.8.1	TABLE: Dimensions of plugs- 15A (a1)		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase and neutral pin width (A)			6.35 ± 0.15
Earth pin width (B)			9.08 ± 0.15
Pin thickness (C)			1.63 + 0.15, -0.05
Pin disposition (D)			checked by test gauge
Pin disposition (E)			checked by test gauge
Phase and neutral pin length (F)			17.06 ± 0.4
Earth pin length (G)			19.94 ± 0.8
Pin boss radius - maximum			21.0 max
Pin boss height			8.6 min

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Clause	Requirement + Test	Result - Remark	Verdict

2.8.1	TABLE: Dimensions of plugs-20A (a2)		N/A
Dimension (Figure 2.1 designation)		Measured (mm)	Allowed (mm)
Phase and neutral pin width (A)			9.08 ± 0.15
Earth pin width (B)			9.08 ± 0.15
Pin thickness (C)			1.63 + 0.15, -0.05
Pin disposition (D)			checked by test gauge
Pin disposition (E)			checked by test gauge
Phase and neutral pin length (F)			17.06 ± 0.4
Earth pin length (G)			19.94 ± 0.8
Pin boss radius - maximum			21.0 max
Pin boss height			8.6 min

2.8.1	TABLE: Projection from plug face centroid		N/A
Direction of projection		Measured (mm)	Allowed (mm)
Left			≤ 21.9 or ≥ 27.0
Right			≤ 21.9 or ≥ 27.0
Up			≤ 21.9 or ≥ 27.0
Down			≤ 21.9 or ≥ 27.0

2.13.3	TABLE: Test No. 1 – High voltage test		N/A
Test voltage applied between:		Test voltage (V)	Breakdown
All poles of the plug; taken in pairs		1000	Yes / No
Live poles of the plug and any external metal		3500	Yes / No
Live poles of the plug and the earthing terminal		1000	Yes / No
Live poles of the plug and a flexible electrode		3500	Yes / No
Live poles and metal foil applied around insulation on pins		1250	Yes / No

2.13.7.1	**Test No.2 – Tumbling barrel test**		N/A
	Following the test, the samples shall comply with Clause 2.13.7.1(a..e)		N/A
	(a) Live parts shall not have become exposed to the standard test finger		N/A
	For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained. AS/NZS 3100 Cl 8.5 The resistance shall not exceed 0.1 Ω	___ Ω.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	(c) Any other function affecting safety shall not be impaired		N/A
	(d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created (see Clause 2.9)		N/A
	(e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking		N/A

	Test No.**3** **Impact test for assembled equipment with the detachable plug portion connected and for equipment with an integral plug portion.**		N/A
	Following the test, the samples shall comply with Clause 2.13.7.1 (a..e) as follows:		N/A
	(a) Live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	(b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained so that the resistance between the earthing terminal of any socket-outlet provided with an earthing contact and the earthing terminal of the plug used for testing shall be of a low resistance. Compliance is by the test of earthing connection in AS/NZS 3100 Clause 8.5. The resistance shall not exceed 0.1 Ω	___ Ω.	N/A
	(c) Any other function affecting safety shall not be impaired		N/A
	(d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created		N/A
	(e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may beremoved if necessary. Pins shall not be broken or show cracking.		N/A
	Following the test, the samples shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100:2015 cl 5.1 as follows:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Except for equipment intended for use only in a position not accessible to unauthorized persons, all equipment shall be so designed and constructed that, when the equipment is standing, supported, or fixed, in a normal manner, no person can inadvertently come into contact with any live part		N/A
	If a hole giving access to preset controls is marked as such on the enclosure or reference made to it in the instructions and the setting of this control requires a screwdriver or other tool, the adjustment of the control shall not allow contact with any live parts. A metal test pin having a diameter of 2 mm and a length of 100 mm shall not become live when it is inserted through the hole in every position with a force of 10 N.		N/A
	In addition, the opening or removal of any cover or component, with or without tools, where such opening or removal is necessary as a normal operation of the equipment as distinct from maintenance, repairs, or adjustment, shall not expose live parts to inadvertent personal contact.		N/A
	Any metal cover or casing enclosing live parts shall be of a strength sufficient to ensure that it cannot be deformed readily so as to come into contact with live parts.		N/A
	Compliance is checked by inspection, test and checking that live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Class II equipment and class II constructions shall be constructed and enclosed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only.		N/A
	It shall only be possible to touch parts which are separated from live parts by double insulation or reinforced insulation.		N/A
	Compliance is checked by application of the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Following the test, the samples shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100.Cl 5.2.2 as follows:		N/A
	The support and insulation of every live part shall be such as will ensure that no live part can make contact with any non-current-carrying conductive part exposed to personal contact.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	In respect of terminals of components such as switches, adequate clearances shall be maintained or insulation shall be provided to prevent contact of the terminals, or loose strands of flexible cords intended to be terminated therein, with exposed conductive parts. Where necessary, provision shall be made to ensure that conductors protruding through terminals, when normally connected, will not contact exposed conductive parts.		N/A
	Compliance is checked by inspection.		N/A

	Test No.3 **Impact test for the detachable plug portion after it has been separated from the equipment**		N/A
	Following the test, the samples shall comply with Clause 2.13.7.1 (a..e)		N/A
	(a) Live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	(b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained so that the resistance between the earthing terminal of any socket-outlet provided with an earthing contact and the earthing terminal of the plug used for testing shall be of a low resistance. Compliance is by the test of earthing connection in AS/NZS 3100 Clause 8.5. The resistance shall not exceed 0.1 Ω	___ Ω.	N/A
	(c) Any other function affecting safety shall not be impaired		N/A
	(d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created		N/A
	(e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may beremoved if necessary. Pins shall not be broken or show cracking.		N/A
	Following the test, the samples shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100:2015 cl 5.1 as follows:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Except for equipment intended for use only in a position not accessible to unauthorized persons, all equipment shall be so designed and constructed that, when the equipment is standing, supported, or fixed, in a normal manner, no person can inadvertently come into contact with any live part		N/A
	If a hole giving access to preset controls is marked as such on the enclosure or reference made to it in the instructions and the setting of this control requires a screwdriver or other tool, the adjustment of the control shall not allow contact with any live parts. A metal test pin having a diameter of 2 mm and a length of 100 mm shall not become live when it is inserted through the hole in every position with a force of 10 N.		N/A
	In addition, the opening or removal of any cover or component, with or without tools, where such opening or removal is necessary as a normal operation of the equipment as distinct from maintenance, repairs, or adjustment, shall not expose live parts to inadvertent personal contact.		N/A
	Any metal cover or casing enclosing live parts shall be of a strength sufficient to ensure that it cannot be deformed readily so as to come into contact with live parts.		N/A
	Compliance is checked by inspection, test and checking that live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A
	Class II equipment and class II constructions shall be constructed and enclosed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only.		N/A
	It shall only be possible to touch parts which are separated from live parts by double insulation or reinforced insulation.		N/A
	Compliance is checked by application of the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Following the test, the samples shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100.Cl 5.2.2 as follows:		N/A
	The support and insulation of every live part shall be such as will ensure that no live part can make contact with any non-current-carrying conductive part exposed to personal contact.		N/A
	In respect of terminals of components such as switches, adequate clearances shall be maintained or insulation shall be provided to prevent contact of the terminals, or loose strands of flexible cords intended to be terminated therein, with exposed conductive parts. Where necessary, provision shall be made to ensure that conductors protruding through terminals, when normally connected, will not contact exposed conductive parts.		N/A
	Compliance is checked by inspection.		N/A

2.13.8	TABLE: Test No. 6 - Temperature rise test		N/A
	Ambient temperature	°C	
	Test current	A	

Measured part	dT measured (K)	dT allowed (K)
Active (phase) terminal		45
Neutral terminal		45
Earthing terminal		45

2.13.9.1	TABLE: Movement of pins	N/A
	Earth and neutral pins clamped – phase pin loaded	

Force direction	Measured deflection (mm)	Allowed deflection (mm)
Force towards neutral plane parallel to pin plane		2.0
Force from neutral plane parallel to pin plane		2.0
Force outwards at 90° to pin plane		2.0
Force inwards at 90° to pin plane		2.0

2.13.9.1	TABLE: Movement of pins	N/A

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	Phase and neutral pins clamped – earth pin loaded	

Force direction	Measured deflection (mm)	Allowed deflection (mm)
Force inwards parallel to pin plane		2.0
Force outwards parallel to pin plane		2.0
Force towards neutral		2.0
Force towards phase		2.0

2.13.9.1	TABLE: Movement of pins	N/A
	Phase and earth pins clamped – neutral pin loaded	

Force direction	Measured deflection (mm)	Allowed deflection (mm)
Force towards phase plane parallel to pin plane		2.0
Force from phase plane parallel to pin plane		2.0
Force outwards at 90° to pin plane		2.0
Force inwards at 90° to pin plane		2.0

2.13.13.3	TABLE: Test No.13(b) – Insulation resistance test after static damp heat test	N/A

Applied between:	Insulation resistance (MΩ)	Minimum required (MΩ)
Live poles and metal foil applied around insulation on pins		5

2.13.13.3	TABLE: Test No.1 – High voltage test after static damp heat test	N/A

Test voltage applied between:	Test voltage (V)	Breakdown
Live poles and metal foil applied around insulation on pins	1250	Yes / No

2.13.13.4	TABLE: Test No.1 – Insulation resistance test after low temperature test	N/A

Applied between:	Insulation resistance (MΩ)	Minimum required (MΩ)
Live poles and metal foil applied around insulation on pins		5

2.13.13.4	TABLE: Test No.1 – High voltage test after low temperature test	N/A

Test voltage applied between:	Test voltage (V)	Breakdown
Live poles and metal foil applied around insulation on pins	1250	Yes / No

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Clause	Requirement + Test	Result - Remark	Verdict

J4.8.4.1	TABLE: Test no.12 Resistance to heat		N/A
Component tested		Temperature (°C)	Diameter of impression (mm)

Conformance is checked by subjecting the relevant part to the ball pressure test of IEC 60695-10-2.

J4.8.4.2	TABLE: Test no.13 Resistance to Fire	N/A
	Plug portions shall comply with the requirements for resistance to fire in accordance with AS/NZS 3100:2017 Annex A. The glow-wire test temperature 'T' shall be 750°C.	

Glow-wire testing was conducted in accordance with IEC 60695-2-11.

Test specimens arranged so that the surface in contact with the tip of the glow-wire was vertical and glow wire tip applied to surface of the specimen likely to be subjected to thermal stresses in normal use.

A layer of white pine board and wrapping tissue was placed beneath the sample at 200mm ± 5mm distance.

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Clause	Requirement + Test	Result - Remark	Verdict

SPECIMEN NUMBER	1	2	3	4	5	6	7	8
SPECIMEN DESCRIPTION								
Material								
Colour								
Test specimen								
Glow wire tip temperature (°C)	750	750	750	750	750	750	750	750
Duration of glow wire application (t_a) (s)	30	30	30	30	30	30	30	30
OBSERVATIONS								
Duration from beginning of glow-wire tip application to ignition of specimen or layer (t_i) (s)								
Duration from beginning of glow-wire tip application to when flames extinguish (t_e) (s)								
Maximum height of flames after initial 1s (to nearest 5 mm) (mm)								
Flame impingement on other parts								
Degree of tip penetration								
Degree of specimen distortion								
Scorching of pinewood board								

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Clause	Requirement + Test	Result - Remark	Verdict

EVALUATION CRITERIA								
Visible flame or sustained glowing								
Visible Flame Duration in Seconds during test.								
Duration of flaming or glowing after tip removal (max. allowable 30 s) (s)								
Surrounding parts burned away completely (not permitted)								
Ignition of wrapping tissue layer (not permitted)								
RESULTS If parts tested withstand the glow-wire test, but during the test produce a flame that persists for longer than 2 s, then the consequential needle flame test of AS/NZS 3100:2017 Annex A 6.1.5 applies.								

LEGEND:

CE	Complete Equipment	SA	Sub Assembly	SE	Self Extinguished
EBD	Emitted Burning Droplets	SBD	Specimen Burned and Distorted	SMD	Specimen Melted and Distorted
ME	Manually Extinguished	SC	Separate Component	SS	Specimen Scorched
NA	Not Applicable	SCC	Specimen Completely Consumed	WPNI	Wall Penetrated but no Ignition
NI	No Ignition	X	Flame Appeared for an Instant		

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	TABLE: Needle- flame test (NFT)				N/A
Object/ Part No./ Material	**Manufacturer/ trademark**	**Duration of application of test flame (ta); (s)**	**Ignition of specified layer Yes/No**	**Duration of burning (tb) (s)**	**Verdict**
Supplementary information: - NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1 - NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0					

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Clause	Requirement + Test	Result - Remark	Verdict

	PHOTOGRAPHS	