



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: E252145-A6016-CB-1

Date of issue: 2024-06-05

Total number of pages: 71

Name of Testing Laboratory
preparing the Report: UL-CCIC Company Limited

Applicant's name: WEIHAI DAEWOO ELECTRONICS CO LTD
Address: ECONOMIC & TECHNICAL DEVELOPMENT ZONE
26 HONGKONG RD
WEIHAI
Shandong Sheng 264205 CHINA

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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General disclaimer:

The test results presented in this report relate only to the object tested.

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The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item Description	Security LED Monitor	
Trade Mark(s)	None	
Manufacturer	WEIHAI DAEWOO ELECTRONICS CO LTD ECONOMIC & TECHNICAL DEVELOPMENT ZONE 26 HONGKONG RD WEIHAI Shandong Sheng 264205 CHINA	
Model/Type reference	SMT-43*****(*=a-z, A-Z, 0-9 , - , / , \ or blank)	
Ratings	100-240Vac, 50/60Hz, 1.0A	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ CB Testing Laboratory:		
Testing location/ address	UL-CCIC Company Limited No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China	
Tested by (name, function, signature)..... :	Zack Wu / Project Handler	<i>Zack Wu</i>
Approved by (name, function, signature) .. :	Coco Zhu / Reviewer	<i>Coco Zhu</i>
☐ 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 (36 pages)

Enclosures (34 pages)

Summary of testing:**Tests performed (name of test and test clause):**

4.4.3.2, T.5 – STEADY FORCE TEST, 250 N

4.4.3.4, T.6 - IMPACT TEST

4.4.3.7, T.9 – GLASS FIXATION TEST

4.4.3.8, T.8 – STRESS RELIEF TEST

5.2.2.1-5.2.2.6 – CLASSIFICATION OF
ELECTRICAL ENERGY SOURCES5.4.1.3 – TEST FOR HYGROSCOPIC
MATERIALS5.4.1.8 – DETERMINATION OF WORKING
VOLTAGE

5.4.4.6.2 – SEPARABLE THIN SHEET MATERIAL

5.4.9.1 – ELECTRIC STRENGTH TEST – TYPE
TESTING OF SOLID INSULATION5.5.2.2 – CAPACITOR DISCHARGE AFTER
DISCONNECTION OF A CONNECTOR5.6.6.2 – RESISTANCE OF THE PROTECTIVE
BONDING SYSTEM5.7.4 – TOUCH VOLTAGE AND TOUCH
CURRENT MEASUREMENT – UNEARTHED
ACCESSIBLE PARTS5.7.5 – TOUCH CURRENT MEASUREMENT –
EARTHED ACCESSIBLE CONDUCTIVE PARTS
– SINGLE-PHASE EQUIPMENT ON IT SYSTEM8.7 – WALL, CEILING, OR OTHER STRUCTURE
MOUNTING TESTS

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
MEASUREMENTB.3 – SIMULATED ABNORMAL OPERATING
CONDITIONS

B.4 – SIMULATED SINGLE FAULT CONDITIONS

G.5.3.3 – TRANSFORMER OVERLOAD

Q.1 – LIMITED POWER SOURCE

Testing Location:Unless otherwise noted, test are all conducted in
CBTL: UL-CCIC Company LimitedNo. 2, Chengwan Road, Suzhou Industrial Park,
Suzhou 215122, China

T.2, 5.4.2.6, 5.4.3.2, G.15.2.6 – STEADY FORCE TEST, 10 N

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 AS/NZS 62368.1:2022;**

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)

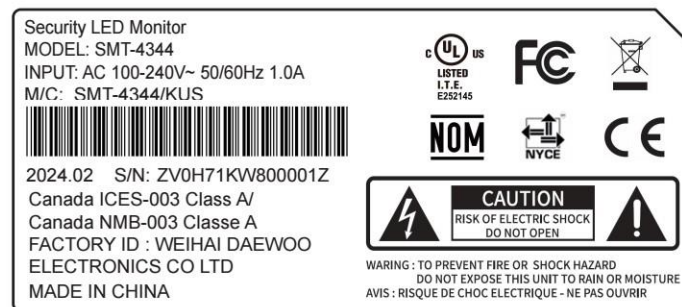
Information on uncertainty of measurement:

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 Children likely to be present
Supply Connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection – type	pluggable equipment type A - appliance coupler
Considered current rating of protective device	20 for USA and Canada, 16 for most countries A; Location: building
Equipment mobility	movable wall/ceiling-mounted
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	40
IP protection class	IPX0
Power systems	TN
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	Display:8.31kg Bracket: 2.49kg
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	2024-04-02, 2024-04-18
Date (s) of performance of tests	2024-04-13 to 2024-05-21
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 IEC 60335-1:	

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	☐ Yes ☒ Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) WEIHAI DAEWOO ELECTRONICS CO LTD ECONOMIC & TECHNICAL DEVELOPMENT ZONE 26 HONGKONG RD WEIHAI Shandong Sheng 264205 CHINA	
General product information and other remarks:	
Product Description The equipment under tests is a 43 inch LED Monitor with internal non-certified power supply for use in general office environment. The built-in power supply models WDL3353C09 is non-approved component, which was manufactured by Qingdao Ticon Electronics Co.,Ltd. see appended table 4.1.2 for the detail information. And wall-Mounting evaluated. The unit has the following features: 1. The internal metal chassis which covering building-in switching power supply. 2. The external plastic enclosure is regarded as fire enclosure, electrical enclosure, mechanical enclosure. 3. The unit is configured with TFT-LCD panel (with LED backlight). 4. The unit is configured with DP port, HDMI port.	
Model Differences N/A	
Additional Information N/A	
Technical Considerations • The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 40°C • The product is intended for use on the following power systems : TN • Considered current rating of protective device as part of the building installation (A) : 20 for USA and Canada, 16 for most countries • Mains supply tolerance (%) or absolute mains supply : +10%/-10% . • The equipment disconnect device is considered to be : Appliance inlet • The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : All output terminals • 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.	

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
ES3: All circuit except output circuits of power supply board	Ordinary person	N/A	N/A	Enclosure provided. See 5.4.2, 5.4.3, 5.5.3 and 5.5.4.
ES3: X capacitor connected between L and N	Ordinary person	N/A	N/A	See 5.5.2.2
ES1: Secondary output of power supply board (CN2 port)	Ordinary person	N/A	N/A	N/A
ES1: The circuits of mainboard	Ordinary person	N/A	N/A	N/A
ES2: CN3 port of power supply board	Ordinary person	N/A	N/A	Enclosure provided
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS3 circuit	Enclosure	See clause 6.3	See 6.4.5 and 6.4.6	See 6.4.8
PS3 circuit	PCB	See clause 6.3	See 6.4.5 and 6.4.6	See 6.4.8
PS3 circuit	Internal/external wiring	See clause 6.3	See clause 6.5	N/A
PS3 circuit	The other components/materials	See clause 6.3	See 6.4.5 and 6.4.6	See 6.4.8
PS2 circuit	HDMI Port and VGA port	See clause 6.3	See 6.4.5 and 6.4.6	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 (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Equipment mass	Ordinary person	N/A	N/A	N/A
MS1: Sharp edges and corners	Ordinary person	N/A	N/A	N/A

MS3: Wall Mounting	Ordinary person	N/A	N/A	See 8.7 Equipment mounted to a wall, ceiling or other structure evaluated
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: External plastic enclosure, accessible key, accessible metal chassis and accessible output terminals	Ordinary person	N/A	N/A	N/A
TS3: Internal components	Ordinary person	N/A	N/A	Enclosure provided
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LCD Panel (LED Backlight)	Ordinary person	N/A	N/A	N/A
RS1: LED Indicator	Ordinary person	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. (3) No ignition and measure temperature < 300 degree C. (4) PIS on all PCB boards are within PS3 circuit, fire enclosure provided.				

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

Refer to Energy Source identification and classification table for details.

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		Pass
4.1.3	Equipment design and construction		Pass
4.1.4	Specified ambient temperature for outdoor use (°C):		N/A
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	(See Annex T.5)	Pass
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	(See Annex T.6)	Pass
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests	Laminated glass	N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)	Except for PS3, without other Class 3 energy sources in panel.	N/A
	Push/pull test (10 N)	(See Annex T.9)	N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	Pass
4.4.3.9	Air comprising a safeguard	(See Annex T)	Pass
4.4.3.10	Accessibility, glass, safeguard effectiveness	Class 3 energy sources do not become accessible and all other safeguards do remain effective.	Pass
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
4.5	Explosion		Pass
4.5.1	General		Pass
4.5.2	No explosion during normal/abnormal operating condition	See B.2 & B.3	Pass
	No harm by explosion during single fault conditions	See B.4	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6	Fixing of conductors		Pass
	Fix conductors not to defeat a safeguard		Pass
	Compliance is checked by test..... :	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	Pass
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 battery.	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		Pass
4.10	Component requirements		Pass
4.10.1	Disconnect Device	AC Inlet (CN1) provided	Pass
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		Pass
5.2.2.2	Steady-state voltage and current limits	(See appended table 5.2)	Pass
5.2.2.3	Capacitance limits	(See appended table 5.2)	Pass
5.2.2.4	Single pulse limits		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringing signals		N/A
5.2.2.7	Audio signals		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		Pass
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	Only ES1 circuit can be accessed for this product.	Pass
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		Pass
	Test with test probe from Annex V	Test probe V.1, V.2 applied.	—
5.3.2.2 a)	Air gap – electric strength test potential (V)	(See appended table 5.4.9)	N/A
5.3.2.2 b)	Air gap – distance (mm)		N/A
5.3.2.3	Compliance		Pass
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	(See sub-clause 5.4.8)	Pass
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	Pass
5.4.1.5	Pollution degrees	PD2.	N/A
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	(See appended table 5.4.1.8)	Pass
5.4.1.9	Insulating surfaces		Pass
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Certified AC Inlet. And Phenolic material of Filter (LF101) used without further test.	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.2	Vicat test.....:		N/A
5.4.1.10.3	Ball pressure test		N/A
5.4.2	Clearances		Pass
5.4.2.1	General requirements		N/A
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		Pass
	Temporary overvoltage		—
5.4.2.3	Procedure 2 for determining clearance		Pass
5.4.2.3.2.2	a.c. mains transient voltage	2500 Vpeak.	—
5.4.2.3.2.3	d.c. mains transient voltage	-	—
5.4.2.3.2.4	External circuit transient voltage.....:	-	—
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	(See appended table 5.4.2)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages:	1.48.	Pass
5.4.2.6	Clearance measurement	(See appended table 5.4.2)	Pass
5.4.3	Creepage distances	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	Pass
5.4.3.1	General		Pass
5.4.3.3	Material group	IIIb.	—
5.4.3.4	Creepage distances measurement	(See appended table 5.4.3)	Pass
5.4.4	Solid insulation		Pass
5.4.4.1	General requirements	UL Certified Photocoupler and Mylar used.	Pass
5.4.4.2	Minimum distance through insulation	See table 5.4.4.2, 5.4.4.5 c), 5.4.4.9	Pass
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices	UL Certified Photocoupler used.	Pass
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		Pass
5.4.4.6.1	General requirements		Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.2	Separable thin sheet material	(See appended Table 5.4.9)	Pass
	Number of layers (pcs) :	2 layers min.	Pass
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		Pass
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P , K_R , d , V_{PW} (V) :	(See appended Table 5.4.9)	Pass
	Alternative by electric strength test, tested voltage (V), K_R :	(See appended Tables 5.4.4.9 and 5.4.9)	Pass
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance ($M\Omega$) :		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		Pass
	Relative humidity (%), temperature ($^{\circ}C$), duration (h)..... :	93%, 40 $^{\circ}C$, 120H.	—
5.4.9	Electric strength test	(See appended table 5.4.9)	Pass
5.4.9.1	Test procedure for type test of solid insulation..... :	immediately following the temperature test in 5.4.1.4	Pass
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.3	Steady-state test..... :		N/A
5.4.10.3	Verification for insulation breakdown for impulse test :		N/A
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		Pass
5.5.1	General		Pass
5.5.2	Capacitors and RC units		Pass
5.5.2.1	General requirement		Pass
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector :	(See appended table 5.5.2.2)	Pass
5.5.3	Transformers	(See Annex G.5.3)	Pass
5.5.4	Optocouplers	(See sub-clause 5.4)	Pass
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		N/A
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	RCD rated residual operating current (mA) :		—
5.6	Protective conductor		Pass
5.6.2	Requirement for protective conductors		Pass
5.6.2.1	General requirements		Pass
5.6.2.2	Colour of insulation		Pass
5.6.3	Requirement for protective earthing conductors	Approved AC inlet used	Pass
	Protective earthing conductor size (mm ²) :	Min. 0.5mm 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		Pass
5.6.4.1	Protective bonding conductors		Pass
	Protective bonding conductor size (mm ²). :	Min. 0.5mm ²	—
5.6.4.2	Protective current rating (A)..... :	20 A (for US) (for building); 1.2A (for equipment)	Pass
5.6.5	Terminals for protective conductors		Pass
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Certified AC Inlet provided.	Pass
	Terminal size for connecting protective bonding conductors (mm) :	Certified AC Inlet provided.	Pass
5.6.5.2	Corrosion	the potential difference between any two different metals is less than 0.6 V	Pass
5.6.6	Resistance of the protective bonding system		Pass
5.6.6.1	Requirements		Pass
5.6.6.2	Test Method..... :	(See appended table 5.6.6)	Pass
5.6.6.3	Resistance (Ω) or voltage drop..... :	(See appended table 5.6.6)	Pass
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
	Appliance inlet cl & cr (mm) :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7	Prospective touch voltage, touch current and protective conductor current		Pass
5.7.2	Measuring devices and networks		Pass
5.7.2.1	Measurement of touch current	(See appended table 5.7.2.2, 5.7.4)	Pass
5.7.2.2	Measurement of voltage		Pass
5.7.3	Equipment set-up, supply connections and earth connections		Pass
5.7.4	Unearthed accessible parts	(See appended table 5.7.4)	Pass
5.7.5	Earthed accessible conductive parts	(See appended table 5.7.5)	Pass
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	All conductors and devices are considered as PIS.	Pass
6.2.3.1	Arcing PIS	Power board	Pass
6.2.3.2	Resistive PIS	Main board	Pass

IEC 62368-1			
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 table B.1.5 and B.3)	Pass
	Combustible materials outside fire enclosure :	Combustible materials outside fire enclosure are at least HB	Pass
6.4	Safeguards against fire under single fault conditions		Pass
6.4.1	Safeguard method	Control of fire spread was 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	(See appended tables 4.1.2 and Annex G) - Printed boards are rated minimum V-1. - All components and combustible materials other than small parts are either rated at least V-2 or mounted on material with rating minimum V-1.	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.6	Control of fire spread in PS3 circuits	(See appended tables 4.1.2 and Annex G) - Printed boards are rated minimum V-1. - All components and combustible materials other than small parts are either rated at least V-2 or mounted on material with rating minimum V-1. - Wire insulation and tubing complied with clause 6.5. - Fire enclosure is made of metal enclosure used.	Pass
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		Pass
6.4.8.2	Fire enclosure and fire barrier material properties		Pass
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		Pass
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		Pass
6.4.8.3.1	Fire enclosure and fire barrier openings		Pass
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		Pass
	Openings dimensions (mm) :	Less than 5mm.	Pass
6.4.8.3.4	Bottom openings and properties		Pass
	Openings dimensions (mm) :	Less than 3mm.	Pass
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard :		N/A
6.4.8.3.5	Side openings and properties		Pass
	Openings dimensions (mm) :	no side openings falls within the area indicated by the 5 degree angle in Figure 44	Pass
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating	The internal metal chassis which covering building-in switching power supply is considered as a fire enclosure	Pass
6.4.9	Flammability of insulating liquid.....		N/A
6.5	Internal and external wiring		Pass
6.5.1	General requirements	Internal wirings or external wirings with VW-1 rating are considered to meet IEC TS 60695-11-21 requirements.	Pass
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		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards	No Safeguard required	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		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test		N/A
8.5.5.3	Glass particles dimensions (mm)		N/A
8.6	Stability of equipment		Pass
8.6.1	General	MS1	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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.....:	MS3: Wall Mounting	Pass
8.7.2	Test methods		Pass
	Test 1, additional downwards force (N).....:		N/A
	Test 2, number of attachment points and test force (N).....:	82N	Pass
	Test 3 Nominal diameter (mm) and applied torque (Nm).....:	1.2Nm	Pass
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
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)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	(See appended table)	Pass
9.3.2	Test method and compliance		Pass
9.4	Safeguards against thermal energy sources		Pass
9.5	Requirements for safeguards		Pass
9.5.1	Equipment safeguard		Pass
9.5.2	Instructional safeguard		N/A
9.6	Requirements for wireless power transmitters		N/A
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	RS1: LCD Panel (LED Backlight) radiation is broadband visible and IR-A radiation and the luminance	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
		of the source does not exceed 10000 cd/m2. RS1: Led indicator. Indicator LEDs are low power for indication only	
	Lasers		—
	Lamps and lamp systems		—
	Image projectors		—
	X-Ray		—
	Personal music player		—
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)		N/A
10.4.1	General requirements		N/A
	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
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	(See Test Item Particulars and appended test tables)	Pass
	Audio Amplifiers and equipment with audio amplifiers		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
B.3.1	General	(See appended table B.3)	Pass
B.3.2	Covering of ventilation openings		Pass
	Instructional safeguard		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.3	DC mains polarity test		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..... :	(See appended table B.3)	Pass
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		N/A
B.4.4	Functional insulation		Pass
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	Pass
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	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	(See appended table B.4)	Pass
B.4.7	Continuous operation of components		Pass
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
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
C.2.4	Xenon-arc light-exposure test		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	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	Letter symbols comply with IEC 60027-1.	Pass
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphic symbols comply with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	Pass
F.3	Equipment markings		Pass
F.3.1	Equipment marking locations	Outside enclosure.	Pass
F.3.2	Equipment identification markings		Pass
F.3.2.1	Manufacturer identification :	See copy of marking plate.	Pass
F.3.2.2	Model identification :	See "Models and Ratings".	Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		Pass
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage	See "Models and Ratings".	Pass
F.3.3.4	Rated voltage	See "Models and Ratings".	Pass
F.3.3.5	Rated frequency	See "Models and Ratings".	Pass
F.3.3.6	Rated current or rated power	See "Models and Ratings".	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		Pass
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	Current fuse F1 used, marking provided on PWB body	Pass
	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		Pass
F.3.6.1	Class I equipment		Pass
F.3.6.1.1	Protective earthing conductor terminal	the symbol Graphic, IEC 60417-5019 (2006-08)	Pass
F.3.6.1.2	Protective bonding conductor terminals	the symbol Graphic, IEC 60417-5019 (2006-08)	Pass
F.3.6.2	Equipment class marking		N/A
F.3.6.3	Functional earthing terminal marking		N/A
F.3.7	Equipment IP rating marking		N/A
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	All markings provided are UL Recognized Component labels suitable for surface, and they are considered to meet the durability test.	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		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		Pass
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		Pass
	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		N/A
F.5	Instructional safeguards		Pass
G	COMPONENTS		Pass
G.1	Switches		N/A
G.1.1	General		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.3	Protective devices		Pass
G.3.1	Thermal cut-offs		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		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		N/A
G.3.4	Overcurrent protection devices	Approved fuse link used as over current protection device in power supply boards. See appended table 4.1.2 for details.	Pass
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		Pass
G.4.1	Spacings		Pass
G.4.2	Mains connector configuration.....	Appliance inlet complied with IEC 60320-1.	Pass
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound components		Pass
G.5.1	Wire insulation in wound components	Approved triple insulated wires used for secondary winding of transformer	Pass
G.5.1.2	Protection against mechanical stress		Pass
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
G.5.3	Transformers		Pass
G.5.3.1	Compliance method..... :	Meet the requirements in G.5.3.2 and G.5.3.3.	Pass
	Position :	T1	Pass
	Method of protection :	Overcurrent protection.	Pass
G.5.3.2	Insulation		Pass
	Protection from displacement of windings :	(See appended table B.3)	—
G.5.3.3	Transformer overload tests		Pass
G.5.3.3.1	Test conditions	Switch mode transformer tested in the complete equipment. Load applied to the output of the transformer secondary part.	Pass
G.5.3.3.2	Winding temperatures		Pass
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
	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		Pass
G.6.1	General	Triple insulated wire used in T1 primary windings used as reinforced safeguard in the isolating transformer that has separately	Pass
G.6.2	Enamelled winding wire insulation		N/A
G.7	Mains supply cords		Pass
G.7.1	General requirements		Pass
	Type :	SVT, SPT-2 or NISPT-2	—
G.7.2	Cross sectional area (mm ² or AWG) :	Min. 18 AWG	Pass
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		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		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		Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.11.1	General requirements	UL Certified X, Y capacitors used.	Pass
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		Pass
	Optocouplers comply with IEC 60747-5-5 with specifics		Pass
	Type test voltage $V_{ini,a}$:	UL Certified optocouplers used.	—
	Routine test voltage, $V_{ini,b}$:	UL Certified optocouplers used.	—
G.13	Printed boards		Pass
G.13.1	General requirements		Pass
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

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
	Instructional safeguard		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
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		Pass
L.1	General requirements		Pass
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single-phase equipment		Pass
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

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

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
N	ELECTROCHEMICAL POTENTIALS		Pass
	Material(s) used	Metal alloy utilized and electrochemical potentials is less than 0.6V.	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		Pass
	Value of X (mm)	1.0mm	—
P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		Pass
P.1	General		Pass
P.2	Safeguards against entry or consequences of entry of a foreign object		Pass
P.2.1	General		Pass
P.2.2	Safeguards against entry of a foreign object		Pass
	Location and Dimensions (mm)	Less than 5mm.	—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
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	Metalized coatings and adhesives securing parts		Pass
P.4.1	General		Pass
P.4.2	Tests		Pass
	Conditioning, T _c (°C)	100	—
	Duration (weeks)	one week	—
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		Pass
Q.1	Limited power sources		Pass
Q.1.1	Requirements		Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Inherently limited output		Pass
	b) Impedance limited output		Pass
	c) Regulating network limited output		Pass
	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 table 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
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 :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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)		—
T	MECHANICAL STRENGTH TESTS		Pass
T.1	General		Pass
T.2	Steady force test, 10 N	(See appended table T.2, T.3, T.4, T.5)	Pass
T.3	Steady force test, 30 N	(See appended table T.2, T.3, T.4, T.5)	N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.5)	Pass
T.6	Enclosure impact test	(See appended table T.6)	Pass
	Fall test		Pass
	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	(See appended table T.9)	Pass
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General		N/A
	Instructional safeguard		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		Pass
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
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		N/A
Y.1	General		N/A
Y.2	Resistance to UV radiation		N/A
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		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Y.4.3	Tensile strength and elongation tests		N/A
	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		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	Mechanical strength of enclosures		N/A
Y.6.1	General		N/A
Y.6.2	Impact test		N/A

IEC 62368-1			
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⁾	
264Vac/60Hz	12V+ to GND	Normal	12.8Vdc	--	SS	DC	ES1
		Abnormal	--	--	--		
		Single Fault (R127 short)	12.8Vdc	--	SS	DC	ES1
		Single Fault (C144 short)	0	--	SS	DC	ES1
		Single Fault (C141 short)	745mVpk	--	SS	1.41Hz	ES1
		Single Fault (D107 short)	712.3mVpk	--	SS	1.42Hz	ES1
		Single Fault (D106 short)	763.3mVpk	--	SS	1.37Hz	ES1
		Single Fault (D105 short)	780.2mVpk	--	SS	1.41Hz	ES1
		Single Fault (OP1 pin3-4 short)	4.8Vdc	--	SS	DC	ES1
		Single Fault (OP1 pin1-2 short)	21.64Vpk	--	SS	1.3Hz	ES1
		Single Fault (OP1 pin1 open)	24.23Vdc	--	SS	DC	ES1
		Single Fault (OP1 pin3 open)	24.0Vdc	--	SS	DC	ES1
		Single Fault (OP2 pin3-4 short)	12.8Vdc	--	SS	DC	ES1
		Single Fault (OP2 pin1-2 short)	12.8Vdc	--	SS	DC	ES1
		Single Fault (OP2 pin1 open)	12.8Vdc	--	SS	DC	ES1
		Single Fault	12.8Vdc	--	SS	DC	ES1

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
		(OP2 pin3 open)					
264Vac/60Hz	LED+ to LED-	Normal	45.6Vdc	--	SS	DC	ES1
		Abnormal	--	--	--		
		Single Fault (R127 short)	45.6Vdc	--	SS	DC	ES1
		Single Fault (C144 short)	0	--	SS	DC	ES1
		Single Fault (C141 short)	30.8Vdc	--	SS	DC	ES1
		Single Fault (D107 short)	0	--	SS	DC	ES1
		Single Fault (D106 short)	30Vdc	--	SS	DC	ES1
		Single Fault (D105 short)	32Vdc	--	SS	DC	ES1
		Single Fault (OP1 pin3-4 short)	30Vdc	--	SS	DC	ES1
		Single Fault (OP1 pin1-2 short)	67.66Vdc	--	SS	DC	ES2
		Single Fault (OP1 pin1 open)	67.20Vdc	--	SS	DC	ES2
		Single Fault (OP2 pin3-4 short)	48Vdc	--	SS	DC	ES1
		Single Fault (OP2 pin1-2 short)	48Vdc	--	SS	DC	ES1
		Single Fault (OP2 pin1 open)	48Vdc	--	SS	DC	ES1
		Single Fault (OP2 pin3 open)	48Vdc	--	SS	DC	ES1
264Vac/60Hz	Output LED+ to GND	Normal	68Vdc	Fig 4 (U2, V): 16.58Vpk	SS	DC	ES2/E S3

IEC 62368-1							
Clause	Requirement + Test			Result - Remark		Verdict	
				Fig 4 (U2/500, mA):33.16 mApk			
		Abnormal	--	--	--	--	
		Single Fault (CY3 short)	--	Fig 4 (U2, mV): 138.3mVpk Fig 4 (U2/500, mA): 0.2766mA pk	SS	--	ES1
264Vac/60Hz	Output LED- to GND	Normal	--	Fig 4 (U2, mV): 16.56mVpk Fig 4 (U2/500, mA): 0.0331mA pk	SS	--	ES1
		Abnormal	--	--	--	--	
		Single Fault (CY3 short)	--	Fig 4 (U2, mV): 1.77mVpk Fig 4 (U2/500, mA): 0.0035mA pk	SS	--	ES1
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.							
2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.							

5.4.1.8	TABLE: Working voltage measurement				Pass
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
T1 pin 5 to pin 12	181.5	351.4	118.4k		
T1 pin 5 to pin 11	197.1	378.8	112.6k		
T1 pin 5 to pin 10	197.4	379.9	117.8k		
T1 pin 5 to pin 8	203.4	391.6	112.3k		
T1 pin 5 to pin 9	202.6	389.7	112.4k		

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
T1 pin 5 to pin 6	210.3	404.0	119.6k	
T1 pin 5 to pin 7	232.2	404.7	113.8k	
T1 pin 5 to pin 13	246.8	427.7	116.8k	Max RMS &Peak voltage
T1 pin 5 to earth	220.5	387.2	118.1k	
--				
T1 pin 4 to pin 12	161.9	291.5	120.2k	
T1 pin 4 to pin 11	157.1	263.0	118.2k	
T1 pin 4 to pin 10	159.1	265.4	119k	
T1 pin 4 to pin 8	159.0	271.3	120.5k	
T1 pin 4 to pin 9	156.8	252.1	122.2k	
T1 pin 4 to pin 6	155.3	242.1	122.5k	
T1 pin 4 to pin 7	155.7	246.3	117.3k	
T1 pin 4 to pin 13	155.0	256.5	121.3k	
T1 pin 4 to earth	156.6	252.5	119k	
--				
T1 pin 2 to pin 12	168.9	357.5	118.3k	
T1 pin 2 to pin 11	168.7	349.7	121.9k	
T1 pin 2 to pin 10	168.7	350.6	119.4k	
T1 pin 2 to pin 8	169.4	361.3	119.4k	
T1 pin 2 to pin 9	168.8	360.8	119.4k	
T1 pin 2 to pin 6	170.7	372.7	120k	
T1 pin 2 to pin 7	170.6	372.5	120k	
T1 pin 2 to pin 13	176.8	399.3	120k	
T1 pin 2 to earth	168.5	357.6	119.4k	
--				
T1 pin 1 to pin 12	171.6	376.3	120.9k	
T1 pin 1 to pin 11	168.1	348.7	120.9k	
T1 pin 1 to pin 10	168.3	349.5	120.9k	
T1 pin 1 to pin 8	167.9	337.7	119.4k	
T1 pin 1 to pin 9	166.5	335.0	119.4k	
T1 pin 1 to pin 6	166.7	347.3	119.4k	
T1 pin 1 to pin 7	166.8	346.5	119.4k	

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
T1 pin 1 to pin 13	169.2	370.1	120.5k	
T1 pin 1 to earth	164.6	331.1	120.5k	
--				
OP1 pin1 to pin3	171.3	341.5	59.99	
OP1 pin1 to pin4	167.3	336.6	59.99	
OP1 pin2 to pin3	170.5	340.9	59.98	
OP1 pin2 to pin4	166.7	333.9	60.01	
--				
OP2 pin1 to pin3	170.7	340.6	60.02	
OP2 pin1 to pin4	166.6	334.5	60.02	
OP2 pin2 to pin3	170.9	340.8	60.01	
OP2 pin2 to pin4	166.6	334.4	59.92	
CY3 Primary to Secondary	166.2	337.6	60.02	
Supplementary information:				
The following terminals were connected to earth: V-				

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							Pass
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)

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
L/N to PE	420	240	60Hz	1.5	3.0	--	2.4	3.0
Under CY3	337.6	166.2	60Hz	3.0	5.1		3.34	5.1
C101 to metal chassis	420	240	60Hz	1.5	2.75	--	2.4	2.75
OP1 Primary pin to secondary pin	341.5	171.3	60Hz	3.0	8.42	--	3.44	8.42
OP1 primary trace to secondary trace	341.5	171.3	60Hz	3.0	6.51	--	3.44	6.51
Nearest primary trace to secondary trace	420	240	60Hz	3.0	7.76	--	4.8	7.76
T1 Primary pin to Secondary pin	427.7	246.8	116.8kHz	3.0	56.5	--	5.0	56.5
T1 Primary coil to Secondary pin	427.7	246.8	116.8kHz	3.0	28.18	--	5.0	28.18
T1 Primary core to Secondary pin	427.7	246.8	116.8kHz	3.0	18.35	--	5.0	18.35
Supplementary information:								
1) Only for frequency above 30 kHz								
2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								
3) Provide Material Group								

5.4.4.2	TABLE: Minimum distance through insulation				Pass
Distance through insulation (DTI) at/of:	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
Mylar	427.7	Basic insulation	--	0.4	
Plastic enclosure	427.7	Reinforced insulation	0.4	2.0	
Insulation tape for T1	427.7	Reinforced insulation	Min. 2 layers	2 layers	
Optocoupler	341.5	Reinforced insulation	0.4	See table 4.1.2	
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)	
--	--	--	--	--	--	--	

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

Supplementary information:

Mylar(Basic insulation): $1.2 \times 432.5/0.35=1482.86$ VpeakInsulation tape for T1(Reinforced insulation): $1.2 \times 2 \times 432.5/0.35=2965.71$ Vpeak

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
L/N to Accessible metal enclosure (L/N to GND)		DC	2500	No
Mylar (Insulation sheet between primary trace and metal chassis)		DC	4000	No
L/N to Secondary output ports		DC	4000	No
L/N to Plastic enclosure		DC	4000	No
L/N to Panel		DC	4000	No
T1 Insulation tape		DC	4000	No
T1 Primary pin to Secondary pin		DC	4000	No
T1 Primary core to Secondary pin		DC	4000	No
Supplementary information:				
--				

5.5.2.2	TABLE: Stored discharge on capacitors				Pass
Location	Supply Voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class
Line-to-Neutral	264Vac, 60Hz	Normal	--	<10Vpk	ES1
Line-to-Neutral	264Vac, 60Hz	S (R101 open)	--	<10Vpk	ES1
Line-to-Neutral	264Vac, 60Hz	S (R104 open)	--	<10Vpk	ES1
Line-to-Neutral	264Vac, 60Hz	S (BD101 open)	--	48Vpk	ES1
Supplementary information:					
X-capacitors installed for testing:					
[x] bleeding resistor rating: R101=R102= R103=R104=R105=R106=2 MΩ					
[] ICX:					
1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit					

5.6.6	TABLE: Resistance of protective conductors and terminations				Pass
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Earth pin of AC Inlet to metal enclosure farthest	40	2	0.72	0.018	

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
Earth pin of AC Inlet to metal enclosure farthest	32	2	0.69	0.021
Supplementary information:				
--				

5.7.4	TABLE: Unearthed accessible parts					Pass
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)	
Plastic enclosure	Normal	264Vac/ 60Hz	213.5mVpk	0.427mA _{pk}	59.96	ES1
Panel	Normal	264Vac/ 60Hz	7.12mVpk	0.014mA _{pk}	59.96	ES1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit see table 5.2						

5.7.5	TABLE: Earthed accessible conductive part			Pass
Supply voltage (V):	264Vac			—
Phase(s):	[x] Single Phase; [] Three Phase; [] Delta; [] Wye			
Power Distribution System:	[x] TN [] TT [] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Accessible Metal enclosure	Fault 1, Fig 5, N	U3, mV: 253.3mVpk U3/500, mA: 0.5066mA _{pk}	ES1	
Accessible Metal enclosure	Fault 1, Fig 5, R	U3, mV: 238.9mVpk U3/500, mA:0.4778mA _{pk}	ES1	
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:						

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

Abbreviation: SC= short circuit, OC= open circuit

6.2.2	TABLE: Power source circuit classifications					N/A
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power ¹⁾ (W)	Time (S)	PS class
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						
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:					
All connectors used within equipment are considered as arcing PIS.					

6.2.3.2	Table: Determination of Resistive PIS			N/A
Location		Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes/No
---		--	-- / --	--
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)			—

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
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	
	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)	See below	See below	See below	See below	—
Ambient temperature during test T_{amb} (°C)	See below	See below	See below	See below	—
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)
For model: SMT-4344 Normal condition:	90Vac/50 Hz	90Vac/50 Hz	264Vac/60 Hz	264Vac/60 Hz	
For Power Supply Unit	--	--	--	--	--
1.AC inlet	37.5	55.3	34.3	52.7	70
2.CY1 body	45.8	63.6	38.4	56.8	125
3.CY2 body	47.6	65.4	39.3	57.7	125
4.CY3 body	53.8	71.6	46.8	65.2	125
5.LF101 coil	60.0	77.8	42.8	61.2	130
6.LF102 coil	61.8	79.6	43.5	61.9	130
7.L103 coil	67.9	85.7	49.9	68.3	130
8.L104 coil	73.3	91.1	55.0	73.4	130
9.T1 coil	69.7	87.5	62.3	80.7	110
10.T1 core	71.0	88.8	63.2	81.6	110
11.PWB near Q101 and Q102	75.1	92.9	62.5	80.9	105
12.PWB near BD101 and C151	64.6	82.4	46.4	64.8	105
13.CX101 body	50.4	68.2	40.9	59.3	110
14.C101 body	60.2	78.0	49.3	67.7	105
15.OP1 body	69.6	87.4	63.0	81.4	100
16.OP2 body	70.3	88.1	62.7	81.1	100
17.PWB near D107	75.8	93.6	72.1	90.5	105

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
18.Mylar	60.6	78.4	53.1	71.5	80
19.PWB near TH101	57.3	75.1	43.3	61.7	105
For Equipment SMT-4344	--	--	--	--	--
20.PWB center on mainboard	48.3	66.1	47.8	66.2	105
21.PWB center on board 1	69.7	87.5	68.3	86.7	105
22.Inside plastic enclosure near PSU	38.3	56.1	34.5	52.9	60
23.Inside metal enclosure near PSU	40.2	58.0	35.7	54.1	--
Ambient	22.2	40.0	21.6	40.0	--
24.Plastic enclosure outside near T1	34.6	37.4	33.0	36.4	60
25.Metal enclosure outside near output port	34.4	37.2	32.4	35.8	51
26.Button	24.2	27.0	23.0	26.4	60
27.Panel	28.5	31.3	27.5	30.9	60
Ambient	22.2	25.0	21.6	25.0	--
--	--	--	--	--	--
Abnormal condition : Opening Cover	90Vac/50 Hz	90Vac/50 Hz	--	--	--
1.AC inlet	38.0	56.1	--	--	300
2.CY1 body	46.3	64.4	--	--	300
3.CY2 body	48.0	66.1	--	--	300
4.CY3 body	54.3	72.4	--	--	300
5.LF101 coil	60.1	78.2	--	--	300
6.LF102 coil	61.9	80.0	--	--	300
7.L103 coil	68.1	86.2	--	--	300
8.L104 coil	73.5	91.6	--	--	300
9.T1 coil	69.9	88.0	--	--	175
10.T1 core	71.3	89.4	--	--	175
11.PWB near Q101 and Q102	75.8	93.9	--	--	300
12.PWB near BD101 and C151	65.0	83.1	--	--	300
13.CX101 body	51.1	69.2	--	--	300
14.C101 body	60.5	78.6	--	--	300
15.OP1 body	70.0	88.1	--	--	300
16.OP2 body	70.9	89.0	--	--	300
17.PWB near D107	76.1	94.2	--	--	300
18.Mylar	60.8	78.9	--	--	300
19.PWB near TH101	57.4	75.5	--	--	300
For Equipment SMT-4344	--	--	--	--	--

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
20.PWB center on mainboard	48.7	66.8	--	--	300
21.PWB center on board 1	70.1	88.2	--	--	300
22.Inside plastic enclosure near PSU	38.7	56.8	--	--	--
23.Inside metal enclosure near PSU	40.6	58.7	--	--	--
Ambient	21.9	40.0	--	--	--
24.Plastic enclosure outside near T1	35.0	38.1	--	--	70
25.Metal enclosure outside near output port	34.8	37.9	--	--	61
26.Button	23.9	27.0	--	--	70
27.Panel	28.2	31.3	--	--	70
Ambient	21.9	25.0	--	--	--
Transformer Overload :	T1 pin 11 to pin 12 (After D107)	T1 pin 11 to pin 12 (After D107)	T1 pin 10 to pin 8 (After D106)	T1 pin 10 to pin 8 (After D106)	--
--	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	264Vac/60Hz	--
1.AC inlet	40.5	58.7	39.1	57.3	300
2.CY1 body	52.9	71.1	53.7	71.9	300
3.CY2 body	54.7	72.9	56.1	74.3	300
4.CY3 body	61.8	80.0	58.6	76.8	300
5.LF101 coil	77.8	96.0	92.5	110.7	300
6.LF102 coil	82.8	101.0	94.1	112.3	300
7.L103 coil	91.7	109.9	91.3	109.5	300
8.L104 coil	104.0	122.2	108.5	126.7	300
9.T1 coil	86.7	104.9	88.1	106.3	175
10.T1 core	89.5	107.7	89.8	108.0	175
11.PWB near Q101 and Q102	107.7	125.9	117.1	135.3	300
12.PWB near BD101 and C151	78.0	96.2	80.9	99.1	300
13.CX101 body	59.9	78.1	57.9	76.1	300
14.C101 body	79.4	97.6	78.5	96.7	300
15.OP1 body	92.2	110.4	102.3	120.5	300
16.OP2 body	95.0	113.2	108.4	126.6	300
17.PWB near D107	83.6	101.8	81.6	99.8	300
18.Mylar	77.0	95.2	82.5	100.7	300
19.PWB near TH101	68.1	86.3	70.2	88.4	300
For Equipment SMT-4344	--	--			--
20.PWB center on mainboard	48.7	66.9	47.4	65.6	300

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
21.PWB center on board 1	70.4	88.6	71.6	89.8	300		
22.Inside plastic enclosure near PSU	45.3	63.5	45.8	64.0	--		
23.Inside metal enclosure near PSU	45.0	63.2	47.6	65.8	--		
Ambient	21.8	40.0	21.8	40.0	--		
24.Plastic enclosure outside near T1	37.6	40.8	37.9	41.1	70		
25.Metal enclosure outside near output port	37.0	40.2	37.0	40.2	61		
26.Button	23.3	26.5	23.0	26.2	70		
27.Panel	29.0	32.2	29.5	32.7	70		
Ambient	21.8	25.0	21.8	25.0	--		
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:							
Tamb = The thermal steady state temperature measurement of the ambient air.							
T = The thermal steady state temperature measurement.							
Tmax = The limit of the thermal steady state temperature measurement.							

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	
--	--	--	--	--	--	--	--	HDMI mode	
90Va c	50Hz	0.925	--	81.92	--	F1	0.927	Max normal load	
90Va c	60Hz	0.921	--	81.41	--	F1	0.921	Max normal load	
100V ac	50Hz	0.829	1.0	81.37	--	F1	0.829	Max normal load	
100V ac	60Hz	0.821	1.0	80.71	--	F1	0.821	Max normal load	
240V ac	50Hz	0.356	1.0	77.92	--	F1	0.356	Max normal load	
240V ac	60Hz	0.356	1.0	77.64	--	F1	0.356	Max normal load	
264V ac	50Hz	0.332	--	77.67	--	F1	0.332	Max normal load	
264V ac	60Hz	0.333	--	77.44	--	F1	0.333	Max normal load	
--	--	--	--	--	--	--	--	DP mode	
90Va c	50Hz	0.922	--	81.53	--	F1	0.922	Max normal load	

IEC 62368-1								
Clause		Requirement + Test				Result - Remark		Verdict
90Vac	60Hz	0.921	--	81.74	--	F1	0.921	Max normal load
100Vac	50Hz	0.824	1.0	80.71	--	F1	0.824	Max normal load
100Vac	60Hz	0.827	1.0	81.25	--	F1	0.827	Max normal load
240Vac	50Hz	0.355	1.0	77.59	--	F1	0.355	Max normal load
240Vac	60Hz	0.356	1.0	77.73	--	F1	0.356	Max normal load
264Vac	50Hz	0.331	--	77.41	--	F1	0.331	Max normal load
264Vac	60Hz	0.333	--	77.61	--	F1	0.333	Max normal load
Supplementary information:								
Maximum Normal Load: Work continuously with the 'Three vertical bar signal' shall be used as defined in 3.2.1.3 of IEC 60107-1:1997, and maximum brightness and contrast.								

B.3, B.4		TABLE: Abnormal operating and fault condition tests					Pass
Ambient temperature T_{amb} (°C)						See below	—
Power source for EUT: Manufacturer, model/type, output rating .:						--	—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
All openings	Cover	90V50Hz	1h41min	F1	0.925	Unit can work until temperature stabilized. NF,NC,NCD,NT,NB.	
BD101	SC	264Vac/60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.	
C101	SC	264Vac/60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.	
C102	SC	264Vac/60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.	

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	
Q101 G to S	SC	264Vac/ 60Hz	5min	F1	0.0545	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
Q101 G to D	SC	264Vac/ 60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.
Q101 S to D	SC	264Vac/ 60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.
Q102 G to S	SC	264Vac/ 60Hz	5min	F1	0.0546	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
Q102 G to D	SC	264Vac/ 60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.
Q102 S to D	SC	264Vac/ 60Hz	1s	F1	0	Fuse open. Unit shutdown immediately. NF,NC,NT,NB. Fuse 392 has the same phenomenon.
R111	SC	264Vac/ 60Hz	5min	F1	0.333	Unit normal operation. NF,NC,NCD,NT,NB.
R112	SC	264Vac/ 60Hz	5min	F1	0.333	Unit normal operation. NF,NC,NCD,NT,NB.
D105	SC	264Vac/ 60Hz	5min	F1	0.0488~0 .0894	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
D106	SC	264Vac/ 60Hz	5min	F1	0.0488~0 .0894	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
D107	SC	264Vac/ 60Hz	5min	F1	0.0488~0 .0894	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
OP1 pin 1 to 2	SC	264Vac/ 60Hz	5min	F1	0.047	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	
OP1 pin 3 to 4	SC	264Vac/ 60Hz	5min	F1	0.047	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
OP1 pin 1	open	264Vac/ 60Hz	5min	F1	0.047	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
OP1 pin 3	open	264Vac/ 60Hz	5min	F1	0.051~0. 071	Unit shutdown immediately. Recoverable. NF,NC,NCD,NT,NB.
OP2 pin 1 to 2	SC	264Vac/ 60Hz	5min	F1	0.333	Unit normal operation. NF,NC,NCD,NT,NB.
OP2 pin 3 to 4	SC	264Vac/ 60Hz	5min	F1	0.333	Unit normal operation. NF,NC,NCD,NT,NB.
OP2 pin 1	open	264Vac/ 60Hz	5min	F1	0.333	Unit normal operation. NF,NC,NCD,NT,NB.
OP2 pin 3	open	264Vac/ 60Hz	5min	F1	0.333	Unit normal operation. NF,NC,NCD,NT,NB.
Single LED	Overload	3Vdc	--	--	--	Unit was damage when supply voltage was 8.53Vdc. NF
Speaker	SC	264Vac/ 60Hz	5min	F1	0.318	Unit can normal operation. NF,NC,NCD,NT,NB.
Supplementary information:						
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.						

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

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
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:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

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:						
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature						

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
HDMI-1	normal	4.91Vdc	60	0	8	0	100
HDMI-2	normal	4.91Vdc	60	0	8	0	100
DP	normal	3.28Vdc	60	0	8	0	100
Audio out	normal	0	60	0	8	0	100
Supplementary Information:							
--							

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
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 plastic enclosure	Plastic	2.0	30 mm circular plane surface	250	5	No damage, No cracking
Side plastic enclosure	Plastic	2.0	30 mm circular plane surface	250	5	No damage, No cracking
Bottom plastic enclosure	Plastic	2.0	30 mm circular plane surface	250	5	No damage, No cracking
Metal enclosure near output ports	Metal	0.8	30 mm circular plane surface	250	5	No damage, No cracking
Supplementary information:						

T.6, T.9	TABLE: Impact test				Pass
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Top plastic enclosure	Plastic	2.0	1300	No damage, No cracking	
Side plastic enclosure	Plastic	2.0	1300	No damage, No cracking	
Bottom plastic enclosure	Plastic	2.0	1300	No damage, No cracking	
Metal enclosure near output ports	Metal	0.8	1300	No damage, No cracking	
Supplementary information:					
1) Refer to table 4.1.2 for details.					

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

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

T.8	TABLE: Stress relief test					Pass
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Plastic enclosure (back cover)	Plastic	2.0	70	7	No damage, No cracking	
Plastic enclosure (frame part)	Plastic	2.0	70	7	No damage, No cracking	
Supplementary information:						
See table 4.1.2						

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:					

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⁾	
01. Label	Interchangeable	Interchangeable	Minimum 60 degree C, suitable for affixed material.	UL969	UL , --	
02. Internal Wirings (Secondary Circuits)	Interchangeable	Interchangeable	Marked or rated VW-1, min. 30 V, min. 60 degree C, routed away from primary un-insulated live parts and primary circuit wiring.	UL758	UL , --	
03. Insulating Tubing/Sleeving	Interchangeable	Interchangeable	Marked or rated VW-1, min. 105 degree C, min. 300 V.	UL224	UL , --	
04. Connectors and Receptacles (Secondary Circuits)	Interchangeable	Metal/Plastic	Copper alloy pins housed in bodies of plastic rated min. V-2.	UL94	UL , --	
04a. Connectors and Receptacles (Secondary Circuits) (Alternate)	Interchangeable	Interchangeable	--	UL1977	UL , --	
05. Internal Plastic Part Materials	Interchangeable	Interchangeable	Rated min. V-2.	UL94	UL , --	
06. Interconnecting Cable (Optional) (Detachable)	Interchangeable	Interchangeable	Min. 30V, 60 degree C, maximum 3.05m long, suitable for external use. Marked VW-1 or better.	UL758	UL , --	
06a. Interconnecting Cable, (Optional) (Detachable) (Alternate)	Interchangeable	Interchangeable	Suitable for external use. Type CMP, CMR, CMG, or CM.	UL444	UL , --	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
			For type CMX, or CMUC, maximum 3.05m long.		
07. Power Supply Cord (Optional)	Interchangeable	Interchangeable	Detachable, Type SVT, SPT-2 or NISPT-2, min. 250 Vac, min. 18 AWG, min. 1.5 m and max. 2.4 m long, one end with grounding type NEMA 5-15P, the other end with appliance coupler.	UL62, UL498 or UL817	UL , --
07a. Power Supply Cord (Optional)(alterna te)	Interchangeable	Interchangeable	Detachable, Type SVT or NISPT-2, min. 250 Vac, min. 18 AWG, min. 1.5 m and max. 2.4 m long, marked VW- 1, one end with grounding type NEMA 6-15P, the other end with appliance coupler.	UL817	UL , --
08. Printed Wiring Boards	Interchangeable	Interchangeable	Rated V-0, 105 degree C.	UL796	UL , --
10. LCD Panel with LED backlight	SHENZHEN TONGLIANGCAI PHOTO ELECTRIC TECHNOLOGY CO.,LTD.	DW430E	43 inch, TFT LCD Module.	--	-- , --
11. Plastic enclosure-frame part and back cover	CHI MEI CORPORATION	PA-757(+)	ABS, 80°C, HB min. 2.0mm	UL 94	UL (E56070)
11-01. Metal enclosure	--	--	Metal Min 0.8mm thickness.	--	-- , --
12. Mylar sheet (under power board)	Sichuan dongfang insulating material co.,ltd	DFR116ECOB	V-0, min. 0.40mm thickness.	UL 746	UL (E199019)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
13. Power Board	Qingdao Ticon Electronics Co., Ltd	WDL3353C09	Input: 100-240Vac, 50/60Hz Output: 5Vdc/12Vdc.	--	-- , --
13-01. AC-Inlet (CN1)	Yueqing yanhui electronic co ltd	DB-14	250Vac, 15A, Configuration C14.	UL 60320-1; IEC 60320-1:2015	UL (E334847) , VDE 40032008
13-01a. AC-Inlet (CN1) (Alternate)	LECI Electronics Co., LTD	DB-14	250Vac, 15A. (UL); 10A,250Vac (VDE), 70°C.	UL 60320-1; IEC 60320-1:2015	UL (E302229) , VDE 40032137
13-02. Fuse (F1)	Conquer Electronics Co., Ltd.	MST	T3.15A, AC 250V, standard sheet 4.	UL248, IEC 60127	UL (E82636) , UL, VDE 40017118
13-02a. Fuse (F1) (Alternate)	Littelfuse Inc.	392	T3.15A, AC 250V, standard sheet 4.	UL248, IEC 60127	UL , UL, VDE 126983
13-02b. Fuse (F1) (Alternate)	Interchangeable	Interchangeable	T3.15A, AC 250V, standard sheet 4.	UL248, IEC 60127	UL , --
13-03. NTC (TH101)	Interchangeable	Interchangeable	NTC 5D20, rated 5Ω at 25 degree C.	--	-- , --
13-04. Bleeder resistors (R101,R102,R103, R104,R105,R106)	Interchangeable	Interchangeable	Max.2MΩ, Min.1/4W.	--	-- , --
13-05. X2- capacitor (CX101)	COWELL FASHION CO LTD	PCX2 337	0.22uF, Min.275Vac,X2 type, min.110°C	UL 60384-14, EN 60384-14, IEC 60384-14	UL (E165646) , ==
13-05a. X2- capacitor (CX101)- (Alternate)	Nantong City Haimen Yinyan Electronic Co.,Ltd	MKPX2	0.22uF, Min.275Vac,X2 type, min.100°C	UL 60384-14, EN 60384-14, IEC 60384-14	UL (E354597)
13-06. BD101	Interchangeable	Interchangeable	800V/10A	--	-- , --

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
13-07. Filter (LF101&LF102)	Qingdao taikong electric co.,ltd.	TKSQ1918- 10mH	Min. 130 degree C, see 04-04 for dimension details.	--	-- , --
13-07-01. Filter (LF101&LF102) - core	Interchangeable	Interchangeable	FEERITE	--	-- , --
13-07-02. Filter (LF101&LF102) - Wire	Interchangeable	Interchangeable	Min. 130 degree C	UL1446	UL , --
13-07-03. Filter (LF101&LF102) - bobbin	Interchangeable	Interchangeable	Phenolic, Min. 130 degree C	UL94, UL746C	UL , --
13-07-04. Filter (LF101&LF102) - varnish	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	Min. 130 degree C	UL1446	UL , --
13-08. Electrolytic Capacitor (C101)	Interchangeable	Interchangeable	Min.105 degree C, Min.450V, Max.82uF	--	-- , --
13-09. MOSFET (Q101)	Interchangeable	Interchangeable	Min 650V, 10A	--	-- , --
13-10. Printed Wiring Boards	Interchangeable	Interchangeable	V-0, 130 degree C.	UL796	UL , --
13-11. Y1- Capacitor (CY1, CY2, CY3)	Yinan Don's Electronic Component Co.,Ltd.	CT81	CY1 =470pF, CY2=470pF, CY3=2.2nF, AC 250V min., 125°C, Y1 Type	UL 60384-14, IEC 60384-14:2013	UL (E145038) , VDE 135256
13-11a. Y1- Capacitor (CY1, CY2, CY3)- (Alternate)	Xiamen Sino Faith Electronic Technology Co., Ltd.	HCY	CY1 =470pF, CY2=1nF, CY3=2.2nF, AC 250V min., 125°C, Y1 Type	UL 60384-14, IEC 60384-14:2013	UL (E328673) , VDE 40034792
13-12. Photocoupler (OP1)	LITE-ON Technology Corporation	LTV-817	115°C, reinforced insulation, 5300V	UL 1577, IEC 60747-5- 5:2007	UL (E113898) , VDE 40015248

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
13-12a. Photocoupler (OP1)-(Alternate)	Changzhou Galaxy Century Micro- Electronics Co., Ltd.	BL817	100°C, reinforced insulation, 5000V.	UL 1577, IEC 60747-5- 5:2007	UL (E340048) , VDE 40034140
13-13. Transformer (T1)	DEZHOU SANHE ELECTRONIC CO. LTD	EE42-1	See Enclosure 04- 05 for details.	--	-- , --
13-13-01. Insulation system of Transformer (T1)	DEZHOU SANHE ELECTRIC CO LTD	SH130B	Class B Insulation System	UL 1446	UL , --
13-13-02. Transformer (T1)- Core	Interchangeable	Interchangeable	Ferrite	--	-- , --
13-13-03. Transformer (T1)- Bobbin	SUMITOMO BAKELITE CO.,LTD	PM-9820	V-0, 150 degree C, Phenolic	UL94, UL746C	UL , --
13-13-04. Transformer (T1)- insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130 degree C	UL510	UL , --
13-13-05. Transformer (T1)- WIRE	Interchangeable	Interchangeable	130 degree C, MW75-C	UL1446	UL , --
13-13-05a. Transformer (T1)- WIRE(alternate)	Interchangeable	Interchangeable	155 degree C, MW79-C	UL1446	UL , --
13-13-06. Transformer (T1)- TRIPLE INSULATED WIRE	FURUKAWAELEC TRONIC CO LTD	TEX-E	130 degree C	UL 2353	UL , --
13-13-06a. Transformer (T1)- Tube	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-L	200 degree C	UL224	UL , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
13-13-07. Transformer (T1)- VARNISH	SUZHOU TAIHU ELECTRONIC ADVANCED MATERIAL CO LTD	T-4260(a)	130 degree C	UL1446	UL , --
13-14. Protective Bonding Wiring	Interchangeable	Interchangeable	Green/Yellow, minimum 18AWG, one end mechanically secured then soldered to earthing terminal of inlet, the other end connected with metal ring terminal and secured to enclosure by metal stand, star washer and screw (min 3.5mm).	UL758	UL , --
13-15. Heat- shrink tube	Interchangeable	Interchangeable	VW-1, 125 Degree C, 600V	UL1441, UL224	UL , --
13-16. Current Sensor resistor	Interchangeable	Interchangeable	Max.0.47Ω, Min.2W	--	-- , --
13-17. Filter (L103&L104)	Qingdao taikong electric co.,ltd.	EQ25-1	Min. 130 degree C, see 04-12 for dimension details.	--	-- , --
13-17. Filter (L103&L104) - core	Interchangeable	Interchangeable	FEERITE	--	-- , --
13-17. Filter (L103&L104) - Wire	Interchangeable	Interchangeable	Min. 130 degree C	UL1446	UL , --
13-17. Filter (L103&L104) - bobbin	Interchangeable	Interchangeable	Phenolic, Min. 130 degree C	UL94, UL746C	UL , --
13-17. Filter (L103&L104) - varnish	KYOCERA Corporation	TVB2180T*(a)	Min. 155 degree C	UL1446	UL , --

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
14. Internal tape and Glue	Interchangeable	Interchangeable	Less than 4g	--	-- , --
15. Adhesive for aluminium foil pasted around internal metal chassis (CN2,CN3, CN4 Port)	Kunshan Rich&Crown Electronic Materials CO.,LTD	FAP-3875	120 degree C, refer to enclosure 03-14 for details.	--	Test with equipment, comply with P.4.2 , --
16. Base (Optional)	Interchangeable	Interchangeable	HB or better	UL94, UL746C	UL , --

Supplementary information:

- 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.
- 2) The CBTL has verified the component information.
- 3) License available upon request.

Enclosure
National Differences

Australia / New Zealand
EU Group and National Differences
USA / Canada

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)	
Differences according to	AS/NZS 62368.1:2022
TRF template used:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No.	AU_NZ_ND_IEC62368_1E
Attachment Originator	JAS-ANZ
Master Attachment	2022-07-01
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	National Differences		
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand		Pass
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0)		Pass
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		Pass
2	After the first paragraph, <i>add</i> the following: The Australian or Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC normative references and are required for the application of this Standard. All references in the source text to those IEC normative references shall be replaced by references to the corresponding Australian or Australian/New Zealand Standards. Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably -AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i> -AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i> -AS/NZS 3191, <i>Electric flexible cords</i> -AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i> -IEC 60086-2 <i>Primary batteries — Part 2: Physical and electrical specifications</i> -AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i> -AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes,</i>		Pass

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<i>Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i> <i>-AS/NZS 60320.2.2, Appliance couplers for household and similar general purposes</i> <i>Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i> <i>-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</i> <i>-AS/NZS 60695.11.5, Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i> <i>-AS/NZS 60695.11.10, Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i> <i>-AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i> <i>-AS/NZS 60950.1, Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i> <i>IEC 61032:1997, Protection of persons and equipment by enclosures—Probes for verification</i> <i>-AS/NZS 61558.1, Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)</i> <i>-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.</i>		
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 conforming to AS/NZS 3112, shall conform to the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112. NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements Note Additional AS/NZS 3112 Appendix J, TRF is appended to end of this TRF.		N/A

IEC 62368_1E ATTACHMENT																							
Clause	Requirement + Test	Result - Remark		Verdict																			
4.7.3	Compliance Criteria <i>Delete</i> this clause			N/A																			
4.8.1	General After second list, <i>add</i> the following: NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia..			N/A																			
5.4.10.2.1	General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3..			N/A																			
Table 28	<i>Delete</i> Table 28 and <i>replace</i> with the following: <table><tr><th rowspan="2">Parts</th><th colspan="2">Impulse test</th><th colspan="2">Steady state test</th></tr><tr><th>New Zealand</th><th>Australia</th><th>New Zealand</th><th>Australia</th></tr><tr><td>Parts indicated in Clause 5.4.10.1 a) *</td><td>2.5 kV</td><td>7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.</td><td>1.5 kV</td><td>3 kV</td></tr><tr><td>Parts indicated in Clause 5.4.10.1 b) and c) *</td><td colspan="2">1.5 kV *</td><td>1.0 kV</td><td>1.5 kV</td></tr></table> * Surge suppressors shall not be removed. * 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. * During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.			Parts	Impulse test		Steady state test		New Zealand	Australia	New Zealand	Australia	Parts indicated in Clause 5.4.10.1 a) *	2.5 kV	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.	1.5 kV	3 kV	Parts indicated in Clause 5.4.10.1 b) and c) *	1.5 kV *		1.0 kV	1.5 kV	N/A
Parts	Impulse test		Steady state test																				
	New Zealand	Australia	New Zealand	Australia																			
Parts indicated in Clause 5.4.10.1 a) *	2.5 kV	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.	1.5 kV	3 kV																			
Parts indicated in Clause 5.4.10.1 b) and c) *	1.5 kV *		1.0 kV	1.5 kV																			
5.4.10.2.2	<i>Delete</i> “NOTE” and <i>replace</i> with “NOTE 1”. After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.			N/A																			
5.4.10.2.3	<i>Delete</i> “NOTE” and <i>replace</i> with “NOTE 1”. After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 3: The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.			N/A																			
6	Electrically-caused fire																						
6.6	After Clause 6.6, <i>add</i> the new Clauses 6.201 as follows: 6.201 External power supplies, docking stations and other similar devices (see special national conditions)			N/A																			
8.6	Stability of equipment																						

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Table 36	Footnote ^a , after first sentence, <i>add</i> the following: Equipment having displays with moving images shall include “television sets and display devices”.		N/A
8.6.1	After Clause 8.6.1 <i>add</i> the following new clauses: 8.6.201 Restraining Device fixing point (see special national conditions) 8.6.202 Restraining device (see special national conditions)		N/A
Annex F Paragraph F.3.3.4	Rated Voltage <i>Delete</i> “NOTE” and <i>replace</i> with NOTE1” After NOTE 1, <i>add</i> the following Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with: (a) A rated voltage of: • 230 V for single phase equipment • 400 V for poly phase equipment Or (b) A rated voltage range that includes: • 230 V for single phase equipment • 400 V for poly phase equipment NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or new Zealand.		N/A
Annex F.3.3.5	After the list, <i>add</i> the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz		N/A
Annex F.3.8	After “The DC output of an external power supply”, insert “or docking stations and other similar external devices”		N/A
Annex G Paragraph G.4.2	Mains connectors 1 After “IEC 60320”, insert “or AS/NZS 60320 series”. 2 After “IEC 60906-1”, insert “or AS/NZS 3123” 3 <i>After</i> first paragraph <i>add</i> the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.		N/A
Paragraph G.5.3.1	Transformers, General 1 Third dashed point <i>replace</i> ‘IEC 61558-1 and the relevant parts of IEC 61558-2’ with ‘AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2’		N/A

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	2 Fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.		
Annex G.7.1	Mains supply cords, General Fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Table G.7	Sizes of conductors 1 First column, second row, <i>delete</i> "6" and <i>replace</i> with "7.5" 2 Second column, second row, <i>delete</i> '0,75' and <i>replace</i> with '0.75 ^b 3 <i>Delete</i> NOTE 1. 4 <i>Replace</i> 'NOTE 2' with 'NOTE:'. 5 <i>Delete</i> 'Footnote b' and <i>replace</i> with the following: ^b This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191). 6 Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M M 2.1	<i>Add</i> "IEC 60086-2" to the list		N/A
Annex M Paragraph M.3.2	Test method <i>Delete</i> "NOTE" and <i>replace</i> with "NOTE 1" After NOTE 1 <i>add</i> the following: NOTE 2: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of ES1 may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		N/A
	Special national conditions (if any)		
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— (a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a single fault condition and		N/A

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	after 3 s of introducing abnormal operating conditions; and (b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the output rated voltage under normal operating conditions, whichever is higher, measured after 3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, <i>TC 108, Standards Interpretation Panel Question 15 — Output voltage</i>, in relation to similar requirements in IEC 62368-3:2017. Conformity shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single fault conditions of Annex B.4.		
8.6.201	Restraining device fixing point Freestanding-capable MS2 and MS3 television sets and display devices shall be provided with a fixing point to facilitate the anchoring of the equipment from toppling The fixing point shall conform to Clause 8.7 where the fixing point uses a wall, ceiling or other structure mount. Alternatively, the fixing point shall be capable of withstanding a pull equal to the mass of the equipment in all directions without damage Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point		N/A
8.6.202	Restraining device MS2 and MS3 television sets and display devices shall be provided with a restraining device and associated hardware to attach to the television set or display device. The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions.		N/A

IEC 62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point		

IEC 62368_1E ATTACHMENT			
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			
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	Note: AS/NZS 3112 is NOT covered by IECEE Accreditation for Testing / Reporting Please State Laboratory Accreditation for this Standard		
	Accreditation		
	Accreditation Stamp		

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 2 of 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
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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
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	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 <i>Replace 3.3.19 of IEC 62368-1 with the following definitions:</i>		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 (<i>p</i>) squared and integrated over a stated period of time, <i>T</i> Note 1 to entry: The SI unit is Pa² 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, E_0, typically the 1 kHz threshold of hearing in humans. Note 1 to entry: <i>SEL</i> is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0} \right) \text{ dB}$ 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		

IEC62368_1E – ATTACHMENT			
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 $LA_{eq,T}$, 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 $LA_{eq,T}$) 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 $LA_{eq,T}$) 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

IEC62368_1E – ATTACHMENT			
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

IEC62368_1E – ATTACHMENT			
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

IEC62368_1E – ATTACHMENT			
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 % <i>CSD</i> is reached, and at least at every 100 % further increase of <i>CSD</i>, 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 % <i>CSD</i> 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

IEC62368_1E – ATTACHMENT			
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 LAeq 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 LAeq,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 <i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i>					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
	10.6.4	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:					N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<i>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</i>		
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

IEC62368_1E – ATTACHMENT			
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. <i>Justification:</i> 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 mm² to 1,5 mm² 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 tilkople 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 <i>Justification:</i> 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. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de		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
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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 ($\leq 200V$ per conductor to earth).		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.		Pass
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.		Pass
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.		Pass
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.		N/A
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

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		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
	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

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		Pass
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.		Pass
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
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

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.		Pass
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
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 are 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		N/A

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	installation in general patient care areas of health care facilities.		
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
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

IEC62368_1E – ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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

Enclosures

Type	Supplement Id	Description
Photographs	03-01	Overall view-1
Photographs	03-02	Overall view-2
Photographs	03-03	Overall view-3
Photographs	03-04	Overall view-4
Photographs	03-05	Overall view-5
Photographs	03-09	Overall view-6
Photographs	03-10	Internal view-1
Photographs	03-11	Internal view-2
Photographs	03-12	Powerboard veiw 1
Photographs	03-13	Powerboard veiw 2
Photographs	03-14	Mainboard veiw 1
Photographs	03-15	Mainboard veiw 2
Diagrams	04-01	Dimension of product enclosure
Diagrams	04-03	Dimension of mylar (cover power board)
Diagrams	04-04	Line chock spec LF101&LF102
Diagrams	04-05	Transformer Spec for EE42-1
Diagrams	04-12	Line chock spec L103&L104
Schematics + PWB	05-01	Power board layout-1
Schematics + PWB	05-02	Power board layout-2
Manuals	06-01	Install Manual

Enclosures

Photographs ID 03-01



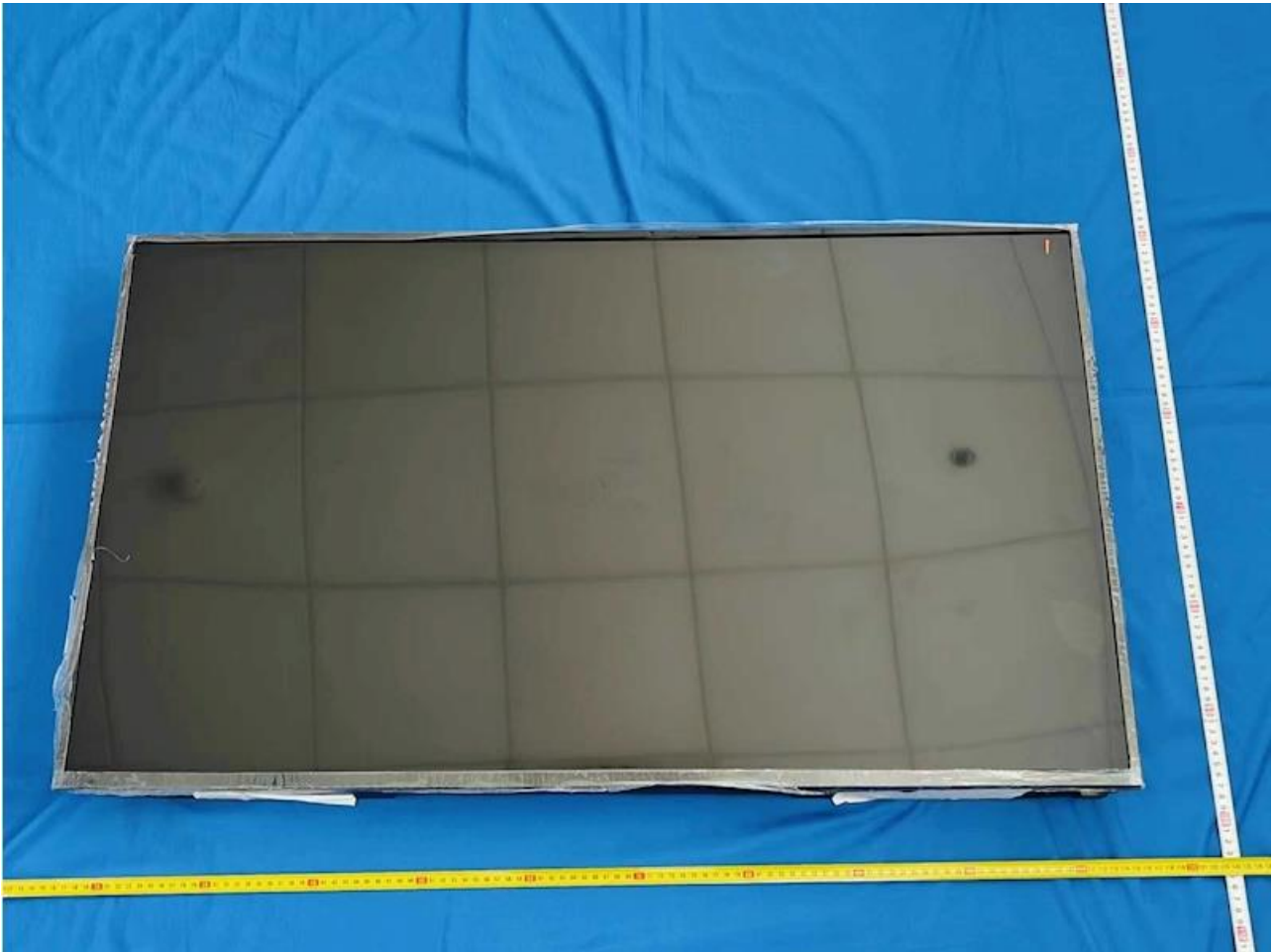
Enclosures

Photographs ID 03-02



Enclosures

Photographs ID 03-03



Enclosures

Photographs ID 03-04



Enclosures

Photographs ID 03-05



Enclosures

Photographs ID 03-09



Enclosures

Photographs ID 03-10



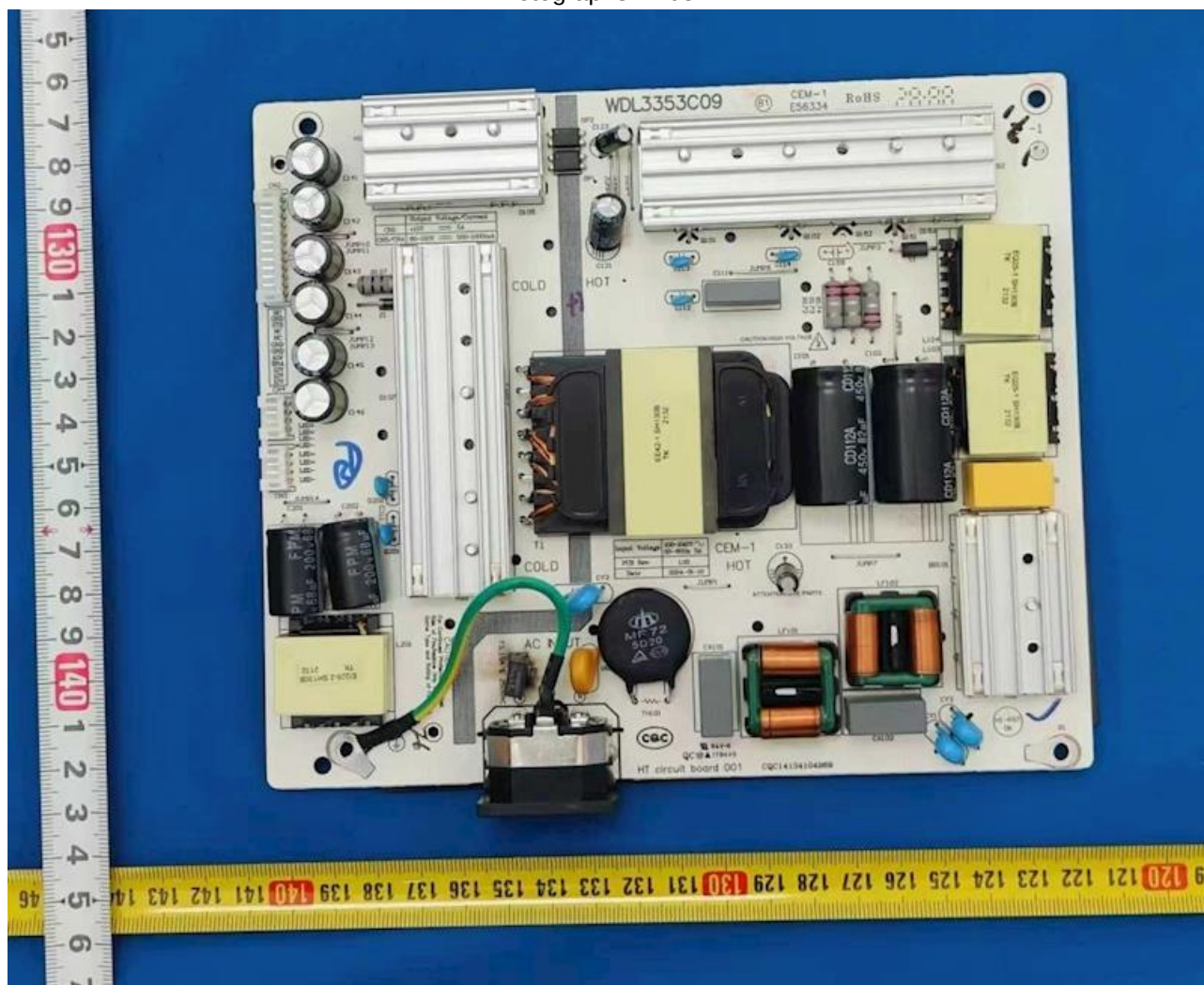
Enclosures

Photographs ID 03-11



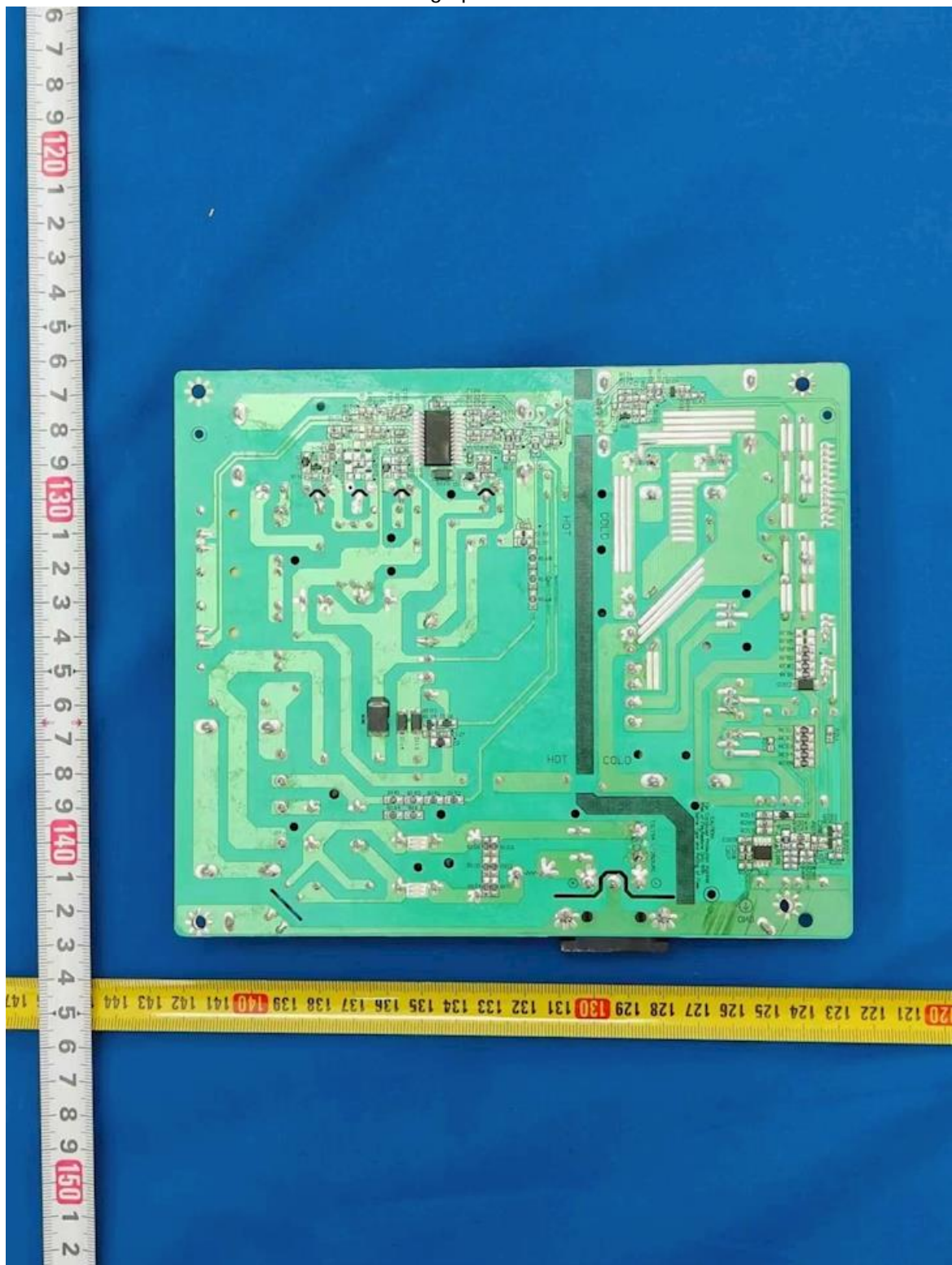
Enclosures

Photographs ID 03-12



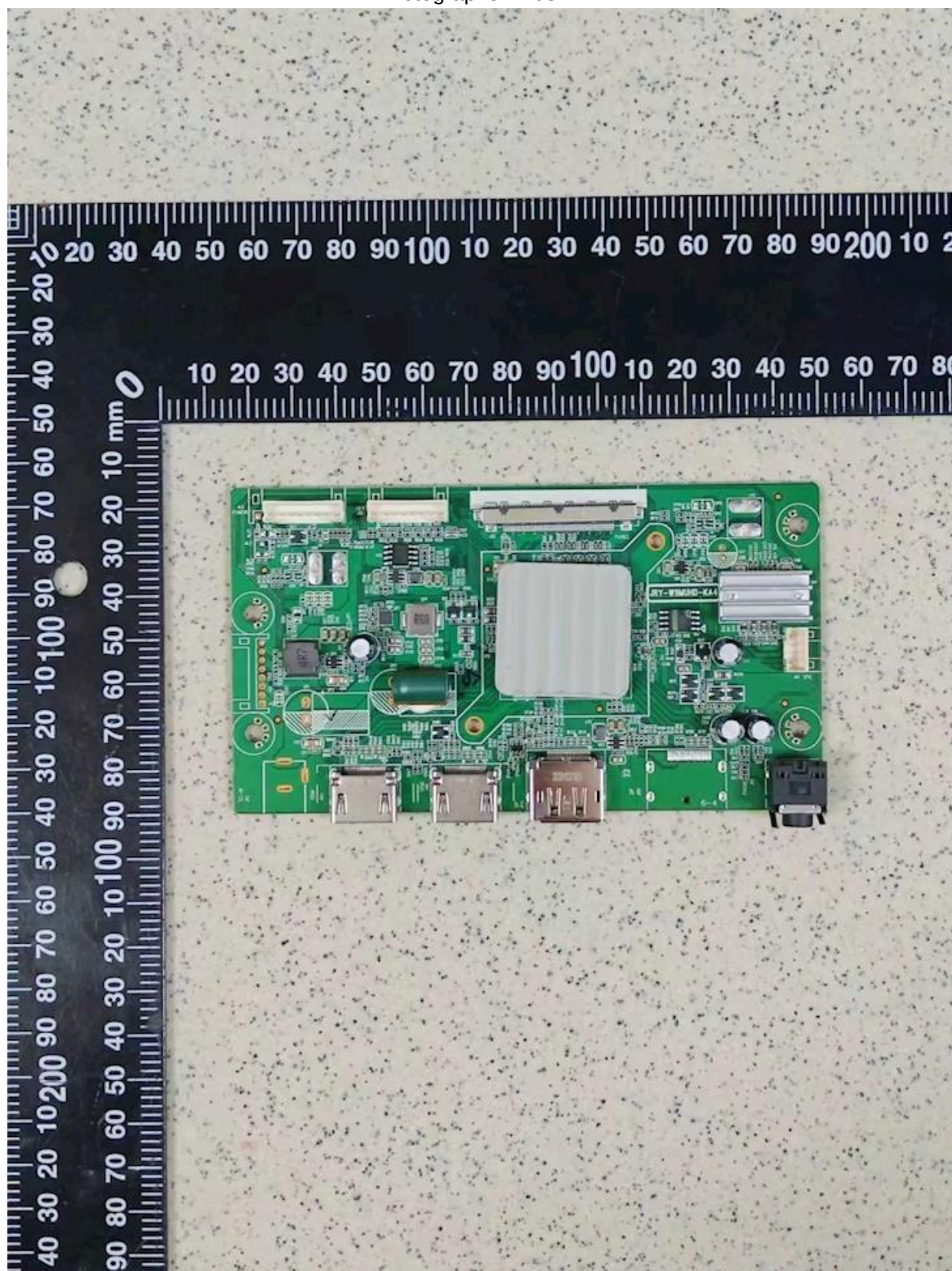
Enclosures

Photographs ID 03-13



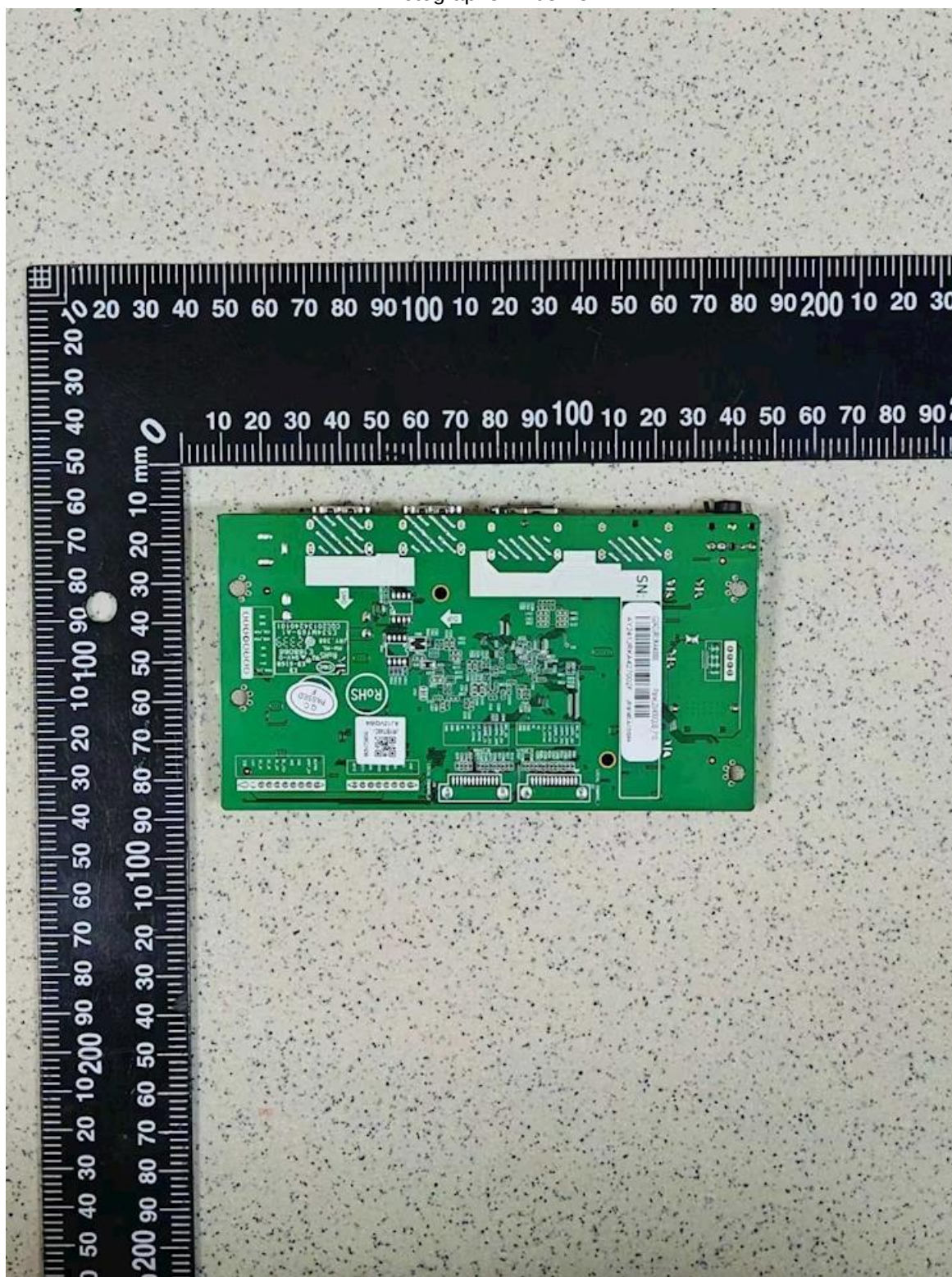
Enclosures

Photographs ID 03-14



Enclosures

Photographs ID 03-15



Enclosures

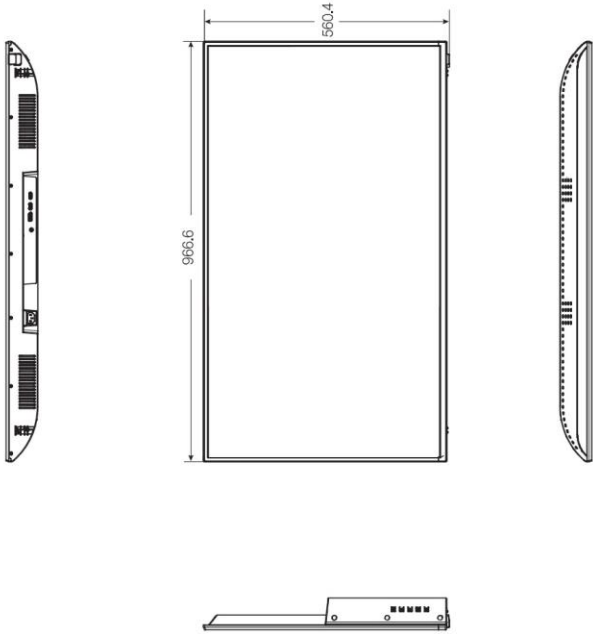
Diagrams ID 04-01

● APPENDIX

Unit : mm

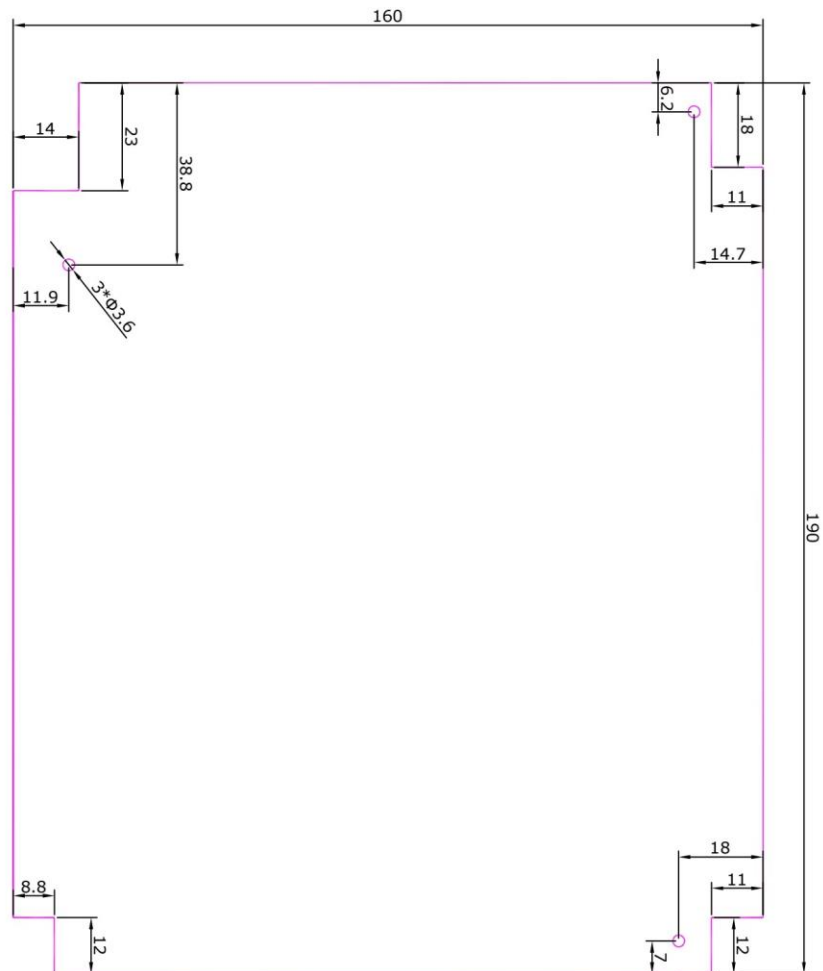
English _15

appendix
PRODUCT OVERVIEW



Enclosures

Diagrams ID 04-03



Diagrams ID 04-04

青 岛 钛 空 电 子 有 限 公 司

QINGDAO TAIKONG ELECTRIC CO.,LTD

产品承认书

SPECIFICATION FOR APPROVAL

客户名称/CUST NAME:大宇

物料编号/PART NO.:SQ1918-10mH

品名规格/PART NAME:SQ 卧式 2+2 共模电感

承认书编号/FILE NO.:TKSQ1918-10mH

版 本 号/VER NO.:1.0

发行日期/ISSUE DATE.:2019.03.15

收到承认书请回签！

供应商确认			客户确认: ☐ 通过 ☐ 不通过		
拟 制	审 核	核 准	拟 制	审 核	核 准
DESIGN	CHECKED	APPROVED	DESIGN	CHECKED	APPROVED
吴兵	陈青松	解本山			

青岛钛空电子有限公司

地址:青岛市南区软件园

电 话 :0532 -81818089 13310663808 传 真 :0532-81729123 86511577

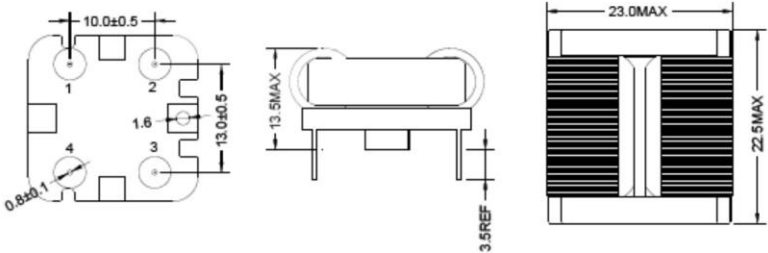
EMAIL:xiebenshan1999@126.com ; tsingtaoticon@163.com

Diagrams ID 04-04

[illegible]

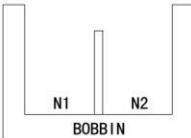
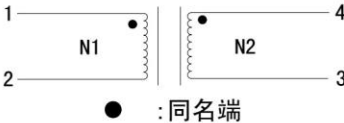
Diagrams ID 04-04

SPECIFICATION FOR APPROVAL

客户代码 CUST CODE	大字	客户型号 CUST P/N	SQ1918-10mH	P/N	P2/5
品 名 PART NO.	共模电感	产品规格 SPEC.	SQ1918	DATE	2019. 03. 15
1. MECHANICAL & ASSEMBLY (UNIT:mm)					
					
备注:					
1. 真空浸漆烘干;					
DRAWN	CHECHED	APPROVED	ISSUE NO	1. 0	
吴兵	陈青松	解本山	DRAW NO	A/0	
			TYPE		

Diagrams ID 04-04

SPECIFICATION FOR APPROVAL

客户代码 CUST CODE	大字	客户型号 CUST P/N	SQ1918-10mH	P/N	P3/5			
品 名 PART NO.	共模电感	产品规格 SPEC.	SQ1918	DATE	2019. 03. 15			
2. WINDING: (剖面图)								
								
3. SCHEMATIC: (线路图)								
 ● :同名端								
4. WINDNG TABLE: (绕线结构)								
序号 NO	起头 S	收尾 F	漆包线 WIRE	圈数 TURNS	套管 TUBE	挡墙 MARGIN TAPE	胶带 TAPE	绕制方式
N1	1	2	0.20*1.0mm(扁平 UEW 线)	51 REF			/	密绕
N2	4	3	0.20*1.0mm(扁平 UEW 线)	51 REF			/	密绕
备注:圈数仅供参考,以电感达到为准;								
DRAWN			CHECHED		APPROVED		ISSUE NO	
吴兵			陈青松		解本山		DRAW NO	
							TYPE	
							1. 0	
							A/0	

Diagrams ID 04-04

SPECIFICATION FOR APPROVAL

客户代码 CUST CODE		大字		客户型号 CUST P/N		SQ1918-10mH		P/N		P4/5	
品 名 PART NO.		共模电感		产品规格 SPEC.		SQ1918		DATE		2019. 03. 15	
5. ELECTRIC CHARACTERICS (电气参数):											
NO.	ITEM 项目	TEST PIN 测试脚位	SPECIFICATION 测试规格	TEST CONDITION 测试条件				TEST APPARATUS 测试仪器			
1	INDUCTANCE 电感	1-2 4-3	10mH MIN	1. 0KHz, 0. 25Vrms				CH1062 OR EQU			
2	DCR 直流电阻	1-2 4-3	155mΩ MAX	AT 20℃				CH502A OR EQU			
3	HI-POT 高压测试	COIL-COIL	NO BROKEN 无击穿	AC1. 0KV/5mA/50Hz/3Sec				CH19073 OR EQU			
		COIL-CORE	NO BROKEN 无击穿	AC0. 50KV/5mA/50Hz/3Sec				CH19073 OR EQU			
4	INSULATION RESISTANCE 绝缘电阻	COIL-COIL:	100MΩ MIN	DC500V				CH19073 OR EQU			
		COIL-COIL:									
* TEST CONDITION: TEMPERATURE 20℃±5℃, HUMIDITY 65%±20%.											
DRAWN		CHECHED		APPROVED		ISSUE NO		1. 0			
吴兵		陈青松		解本山		DRAW NO		A/0			

Diagrams ID 04-04

SPECIFICATION FOR APPROVAL

客户代码 CUST CODE	大字	客户型号 CUST P/N	SQ1918-10mH	P/N	P5/5
品 名 PART NO.	共模电感	产品规格 SPEC.	SQ1918	DATE	2019.03.15
6. MATERIAL LIST:					
NO.	P/N	DESCRIPTION	MATERIAL	MANUFACTURER	TEMP 认证
1	CORE	FEERITE	R12K	HENGDIAN GROUP DMEGC MAGNETICS CO.,LTD	N/A N/A
2	WIRE	POLYURETHANE	UEW	WELL ASCENT ELECTRONIC(GANZHOU) CO LTD	130℃ E318511
3	BOBBIN	PHENOLIC	T375HF	CHANG CHUN PLASTICS CO LTD	130℃ E59481
4	VARNISH	EPOXY RESIN ALKYD	E962	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	130℃ E335405
DRAWN		CHECHED	APPROVED	ISSUE NO	1.0
吴兵		陈青松	解本山	DRAW NO	A/0
				TYPE	

Diagrams ID 04-05



德州三和电器有限公司

DEZHOU SANHE ELECTRIC CO., LTD

客户承认书

SPECIFICATION

CUSTOMER NAME/客户名称: 青岛钛空
PRODUCT NAME/产品名称: TRANSFORMER
CUSTOMER P/N./客户料号: EE42-1
SANHE P/N./三和型号: SANHE-42-434
S.W NO./编码:

AUTHORIZED SIGNATURE&COMPANY CHOP	
客户认可签回。(盖章)	

DESIGN/拟制	陈明	CHECK/审核	任岳	APPROVAL/批准	闫洪俊
PAGE/页码	1/6	EDITION/版本	01	DATE/日期	209. 03. 04

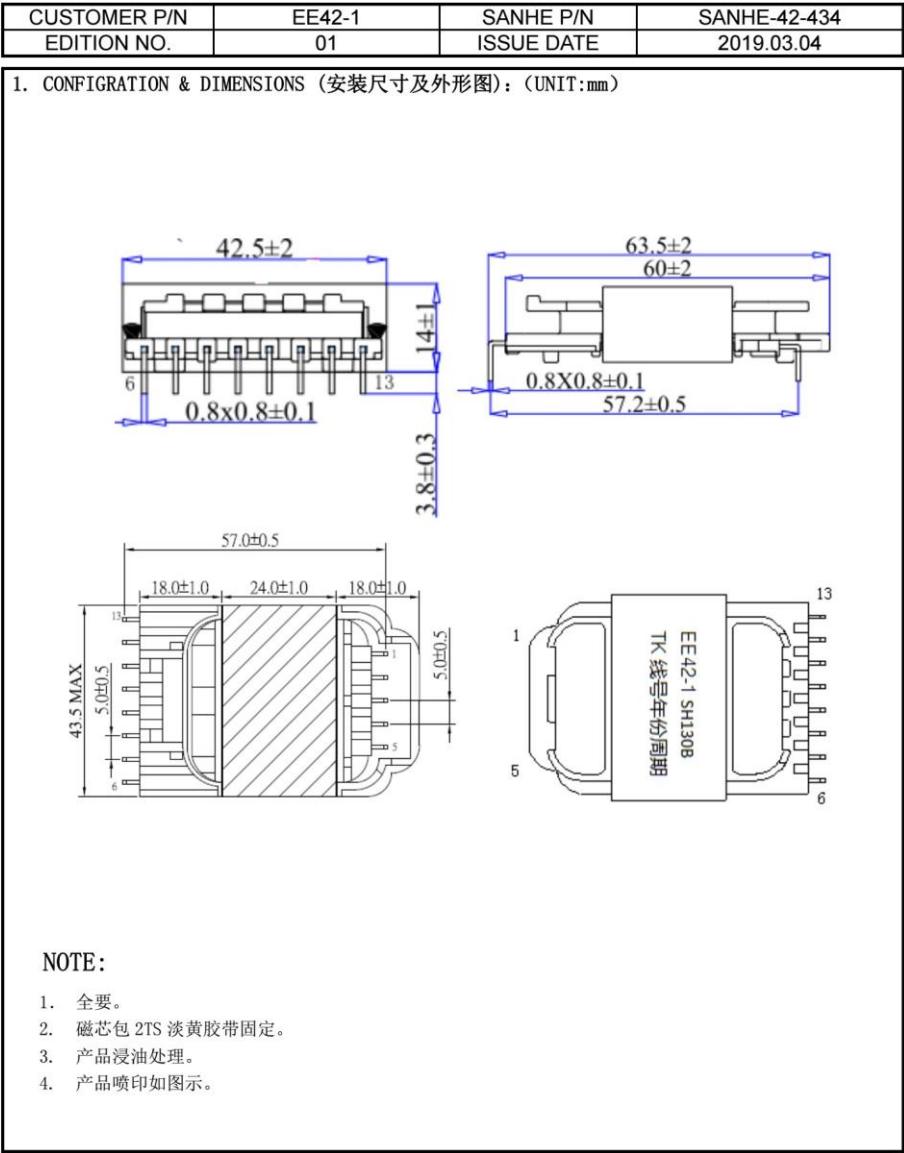
Add: No.1227 Jinghua Road,Dezhou,Economic Development Zone,Shandong,China.
地址: 中国山东省德州市经济开发区晶华大道1227号.
Tel: 0534-2552182 Postcode: 253034
Fax: 0534-2552182 http://www.sanhe-china.com

Diagrams ID 04-05

CUSTOMER P/N	EE42-1	SANHE P/N	SANHE-42-434	
EDITION NO.	01	ISSUE DATE	2019.03.04	

APPLICATION 申请	青岛钛空			
MANUFACTURER 制造厂商	德州三和电器有限公司 DEZHOU SANHE ELECTRIC CO.,LTD			
EDITION NO. 版次	CHANGING REASON 变更原因	CHANGING CONTENT 变更内容	DATE 实施日期	CHECKING 确认签名

Diagrams ID 04-05



Diagrams ID 04-05

CUSTOMER P/N	EE42-1	SANHE P/N	SANHE-42-434
EDITION NO.	01	ISSUE DATE	2019.03.04

2. SCHEMATIC(原理图):

3. WINDING CONSTRUCTION(绕组结构图):

4. WINDING DATA(绕组数据):

绕组 WINDING	脚位/PIN		线材 WIRE	圈数 TURNS	绕线方式 WI D M O E	绝缘胶带 IN ULATION TAP
	起始	结束				
N1	5	4	UEW $\Phi 0.1 \times 20$	51	密绕	1TS
N2	2	1	TEX-E $\Phi 0.2$	6	密绕	1TS
N3	12	8	UEW $\Phi 0.1 \times 30$	10	并密绕	
N4	9	13	UEW $\Phi 0.1 \times 30$	10		
N5	10	8	UEW $\Phi 0.1 \times 50$	3	并密绕	2TS
N6	9	6	UEW $\Phi 0.1 \times 50$	3		

备注: 6,7 钉在 PCB 板上为同一焊盘; 8,9 钉在 PCB 板上为同一焊盘; 10,11 钉在 PCB 板上为同一焊盘;
变压器本身同一焊盘两钉之间可焊连也可不焊连

Diagrams ID 04-05

CUSTOMER P/N		EE42-1		SANHE P/N		SANHE-42-434		
EDITION NO.		01		ISSUE DATE		2019.03.04		
5. ELECTRIC CHARACTERICS (AT 电气参数:AT 25℃±5℃, 60±5%RH)								
NO.	ITEM 项目	TEST PIN 测试脚位	SPECIFICATION 测试规格		TEST CONDITION 测试条件	TEST APPARATUS 测试仪器		
1	INDUCTANCE 电感	5-4	700uH±10%		10KHz, 0. 3Vrms	HP4284A OR EQU		
2	LEAKAGE INDUCTANCE 漏感	5-4 (SEC SHORT)	160μH±10%					
3	DC RESISTENCE 直流电阻	5-4	550m Ω MAX		T=25℃	CH-502A		
4	HI-POT 高压测试	PRI-SEC	NO BROKEN 无击穿		AC3. 75KV/5mA/50Hz/3S	CH19073 OR EQU		
		PRI-CORE			AC2. 0KV/5mA/50Hz/3			
		SEC-CORE			AC0. 5KV/5mA/50Hz/3S			
5	INSULATION RESISTANCE 绝缘电阻	PRI-SEC	100M Ω MIN		DC500V			
		PRI-CORE						
		SEC-CORE						
6. MATERIAL LIST (材料清单)								
NO. 序号	PARTS NAME 材料名称	MATERIAL 材质	SPEC/规格		MANUFACTURER 供应商	UL NO. 安规号		
			℃	UL94				
1	CORE	EE42 PC40 同等	N/A	N/A	ZAOZHUANG YIYUANG ELECTRONICS CO.,LTD ZAOZHUANG JUHENG ELECTRONICS CO.,LTD ZHAOTIAN ELECTRONICS CO.,LTD	N/A		
2	BOBBIN	PM-9820	150℃	V-0	SUMITOMO BAKELITE CO LTD	E41429		
3	POLYESTER TAPE	CT* (c) (g)	130℃	N/A	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111		
4	WIRE	*UEW/130	130℃	N/A	SHANDONG SAINT ELECTRIC CO LTD	E194410		
5	SOLDER	SN-CU-NI			TIANJIN QINGHE SCIENCE-TECH DEVELOPMENT CO.,LTD			
6	TUBE	TFL	200℃	VW-1	GREAT HOLDING INDUSTRIAL CO LTD	E156256		
7	VARNISH	TVB2180T*(a)	155℃		KYOCERA CHEMICAL CORP	E83702		
8	TRIPLE INSULATION WIRE	TEX-E			FURUKAWA ELECTRIC CO LTD	E206440		

Diagrams ID 04-12



德州三和电器有限公司

DEZHOU SANHE ELECTRIC CO., LTD

客户承认书

SPECIFICATION

CUSTOMER NAME/客户名称: 青岛钛空
PRODUCT NAME/产品名称: TRANSFORMER
CUSTOMER P/N./客户料号: EQ25-1
SANHE P/N./三和型号: SANHE-28-541
S.W NO./编码:

AUTHORIZED SIGNATURE&COMPANY CHOP	
客户认可签回. (盖章)	

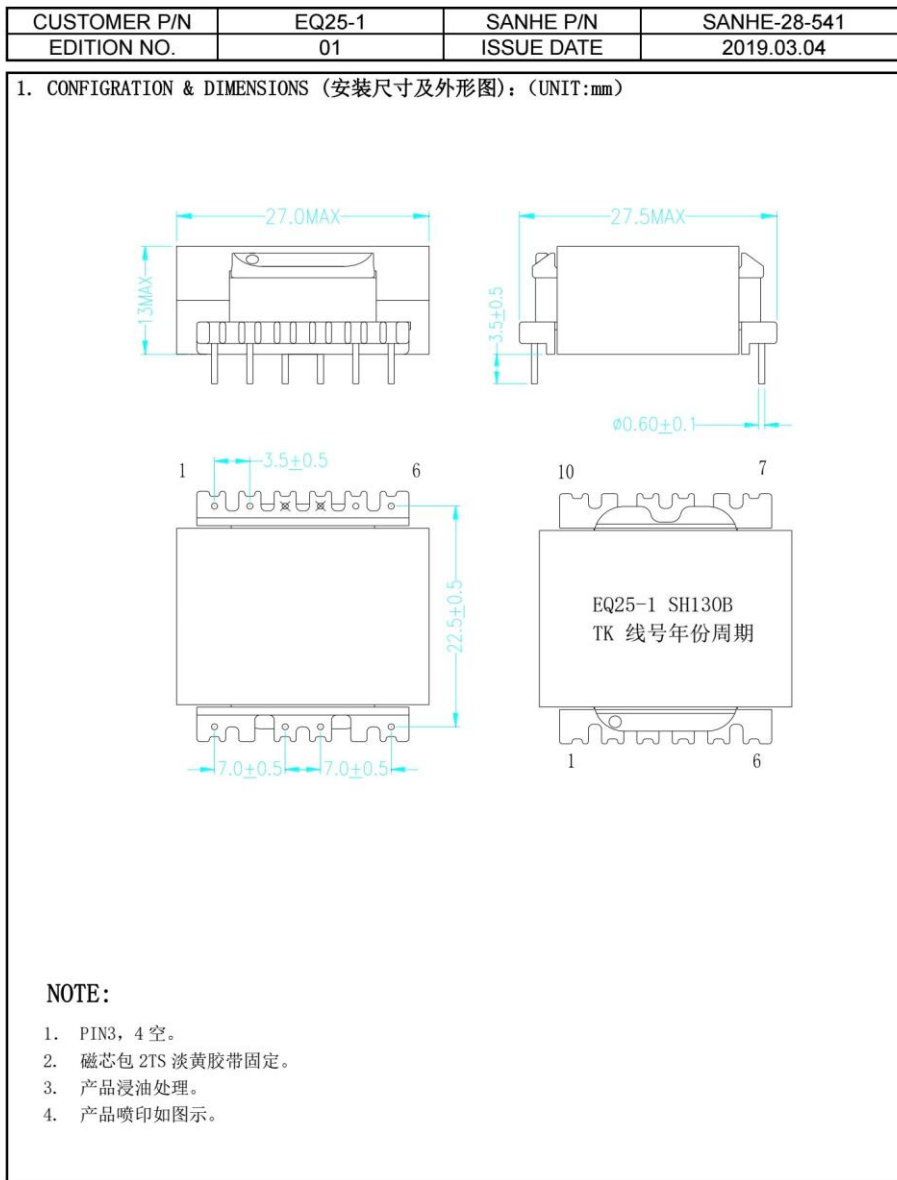
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PAGE/页码	1/6	EDITION/版本	01	DATE/日期	2019. 03. 04

Add: No. 1227 Jinghua Road, Dezhou, Economic Development Zone, Shandong, China.
地址: 中国山东省德州市经济开发区晶华大道 1227 号.
Tel: 0534-2552182 Postcode: 253034
Fax: 0534-2552182 <http://www.sanhe-china.com>

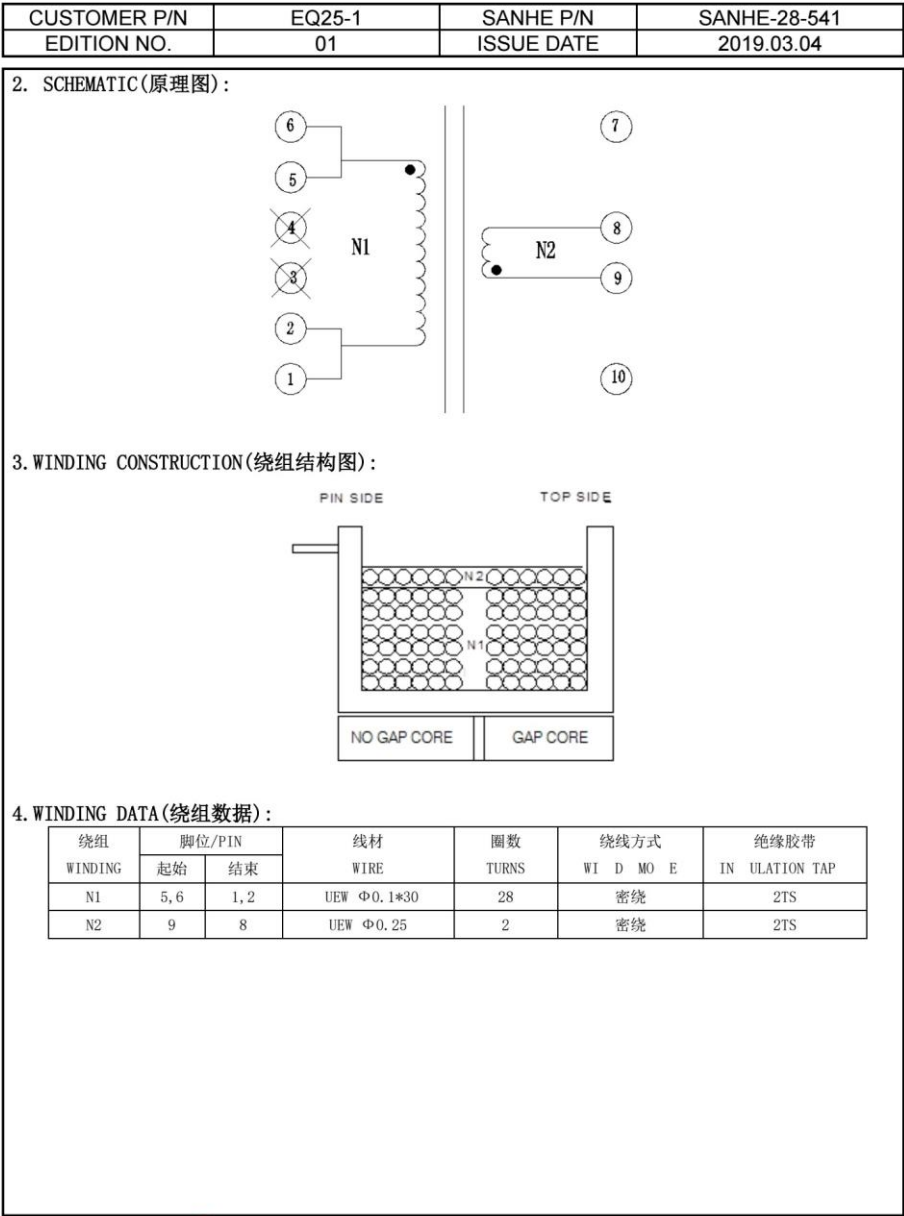
Diagrams ID 04-12

CUSTOMER P/N	EQ25-1	SANHE P/N	SANHE-28-541	
EDITION NO.	01	ISSUE DATE	2019.03.04	
APPLICATION 申请	青岛钛空			
MANUFACTURER 制造厂商	德州三和电器有限公司 DEZHOU SANHE ELECTRIC CO.,LTD			
EDITION NO. 版次	CHANGING REASON 变更原因	CHANGING CONTENT 变更内容	DATE 实施日期	CHECKING 确认签名

Diagrams ID 04-12



Diagrams ID 04-12

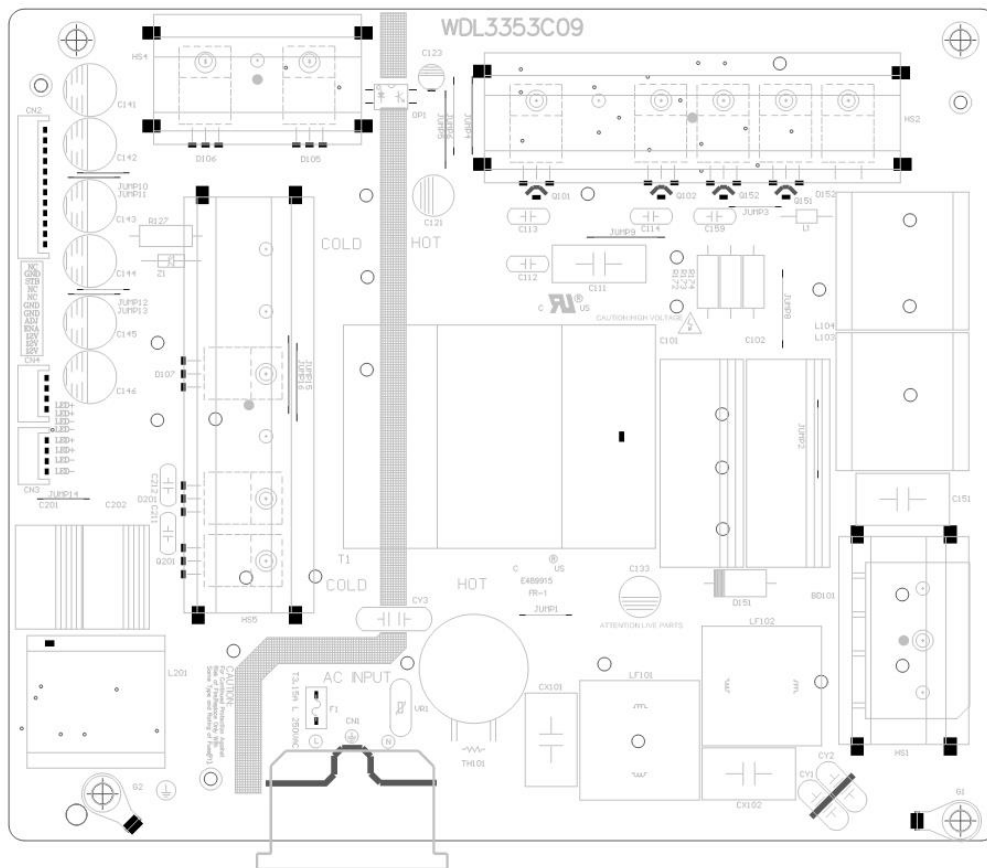


Diagrams ID 04-12

CUSTOMER P/N		EQ25-1		SANHE P/N		SANHE-28-541	
EDITION NO.		01		ISSUE DATE		2019.03.04	
5. ELECTRIC CHARACTERICS (AT 电气参数:AT 25℃±5℃, 60±5%RH)							
NO.	ITEM 项目	TEST PIN 测试脚位	SPECIFICATION 测试规格	TEST CONDITION 测试条件		TEST APPARATUS 测试仪器	
1	INDUCTANCE 电感	5, 6-1, 2	110uH±10%	10KHz, 0. 3Vrms		HP4284A OR EQU	
3	DC RESISTENCE 直流电阻	5, 6-1, 2	130m Ω MAX	T=25℃		CH-502A	
4	HI-POT 高压测试	COIL-COIL	NO BROKEN 无击穿	AC1. 0KV/5mA/50Hz/3S		CH19073 OR EQU	
		CORE-CORE		AC0. 5KV/5mA/50Hz/3			
5	INSULATION RESISTANCE 绝缘电阻	COIL-COIL	100M Ω MIN	DC500V			
		CORE-CORE					
6. MATERIAL LIST(材料清单)							
NO. 序号	PARTS NAME 材料名称	MATERIAL 材质	SPEC/规格		MANUFACTURER 供应商	UL NO. 安规号	
			℃	UL94			
1	CORE	EQ25 PC40 同等	N/A	N/A	ZAOZHUANG YIYUANG ELECTRONICS CO.,LTD ZAOZHUANG JUHENG ELECTRONICS CO.,LTD ZHAOTIAN ELECTRONICS CO.,LTD	N/A	
2	BOBBIN	PM-9820	150℃	V-0	SUMITOMO BAKELITE CO LTD	E41429	
3	POLYESTER TAPE	CT* (c) (g)	130℃	N/A	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	E165111	
4	WIRE	*UEW/130	130℃	N/A	SHANDONG SAINT ELECTRIC CO LTD	E194410	
5	SOLDER	SN-CU-NI			TIANJIN QINGHE SCIENCE-TECH DEVELOPMENT CO.,LTD		
6	VARNISH	TVB2180T*(a)	155℃		KYOCERA CHEMICAL CORP	E83702	

Enclosures

Schematics + PWB ID 05-01



Manuals ID 06-01

installation

Please take note of the followings before using this product.

- Do not use the product outdoor.
- Do not spill water or liquid in the connection part of the product.
- Do not impose the system to excessive shock or force.
- Do not pull out the power plug forcefully.
- Do not disassemble the product on your own.
- Do not exceed the rated input/output range.
- Use a certified power cord only.
- For the product with an input ground, use a grounded power plug.

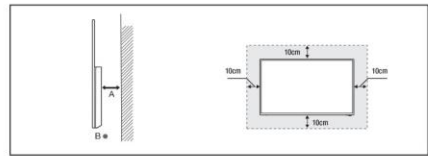
BEFORE INSTALLING THE PRODUCT

Ventilation requirement

Installing the product in an environment where the air does not circulate well could cause product damage due to increased temperature. Make sure to secure enough space around the product for proper air ventilation.

Vertical wall mount condition

- A. Minimum 40 mm
- B. Ambient temperature Measuring point <35℃



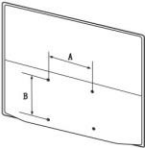
INSTALLING WALL MOUNT PARTS

Installing Wall Mount Kits

The wall mount kit (sold separately) allows you to hang the product on a wall. For more information on wall mounting, refer to the owner's manual supplied with the wall mount parts. When installing the wall mount, seek the help of a technician. Hanwha Techwin is not responsible for any damage to the product or injury to the user or others caused by any accident due to a user's attempt to install the product.

Wall Mount Kit Specifications (VESA)

- 1. Install the wall mount kit on a solid wall perpendicular to the floor.
- 2. Please refer to the nearest store when installing on other materials.
- 3. Installing on an inclined wall may cause the product to fall, which can result in serious injury.
- 4. When using a VESA mount, select a product that can hold 4 times the weight of the monitor.



- When you purchase our wall mount kit, you will find a detailed installation guide and all parts required for assembly.
- Do not use screws that are longer than the standard dimensions or that do not conform to the VESA standard screw specifications. Using screws that are too long may damage the inside of the product.
- For wall mount parts that do not conform to the VESA standard screw specifications, the screw length may vary depending on the wall mount specifications.
- Do not over-tighten the screws. The product may be damaged, or may fall, resulting in injury. Hanwha Techwin is not responsible for any damage to the product or injury to the user or others caused by any accident due to a user's attempt to install the product.
- Hanwha Techwin is not responsible for damage to the product or injury to the user caused by using non-compliant or non-VESA wall mount parts, or by the customer not following the product installation instructions.
- When hanging on a wall, two people should always lift the product.
- The standard dimensions of the wall mount kit are shown in the table below. [Unit: mm]

Model name	VESA dimensions (A * B)	Standard screws	Quantity
SMT-4344	100 x 100 / 400 x 200	M4/L12	4

- 1. Do not install the wall mount kit with the product turned on. This may lead to injury due to electric shock.