Test Report issued under the responsibility of:

intertek
Total Quality. Assured.

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

Report Number..... :	230501954SHA-001
Date of issue ..... :	2023-08-18
Total number of pages ..... :	125 pages
Name of Testing Laboratory preparing the Report ..... :	Intertek Testing Services Shanghai
Applicant's name ..... :	GlobTek, Inc.
Address ..... :	186 Veterans Drive Northvale NJ 07647, USA
Test specification:	
Standard ..... :	IEC 62368-1:2018
Test procedure..... :	CB Scheme
Non-standard test method..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62368_1E
Test Report Form(s) Originator.... :	UL(US)
Master TRF ..... :	Dated 2022-04-14

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

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

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:	ICT/ITE Power Supply
Trade Mark(s) .....:	GlobTek, Inc.
Manufacturer.....:	Same as applicant
Model/Type reference .....:	GT-43004P***-T* (Refer to Model difference for details.)
Ratings .....:	Input: 100-240V~, 50-60Hz, 2.0A; Output: Refer to Model difference for details.

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	Intertek Testing Services Shanghai	
Testing location/ address ..... :		Building No. 86, 1198 Qinzhou Road (North) 200233 Shanghai CHINA	
Tested by (name, function, signature) ..... :		Jerry Hu (Engineer)	
Approved by (name, function, signature) .. :		Jacky Shu (Mandated Reviewer)	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name, function, signature)			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature). :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

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

Summary of testing:

All tests are performed and the most disadvantageous results are recorded. We conclude that the appliances comply with this standard.

Tests performed (name of test and test clause):	**Testing location:**
5.2, Classification of electrical energy sources 5.3.2, Accessibility to electrical energy sources and safeguards (Accessibility test) 5.4.1.4, 6.3, 6.4, 9.0, B.2.6, B.3, B.4, Annex G.5.3, G.5.4, Heating test and abnormal &fault condition test 5.4.1.8, Determination of working voltage 5.4.2, 5.4.3, Annex X, Measurement of Clearance and Creepage Distances 5.4.8, Humidity test 5.4.9, Electric strength test 5.5.2.2, Safeguards against capacitance discharge test 5.6.6.2, Resistance of the protective bonding system (Ground continuity test) 5.7.2.1, Measurement of touch current 5.7.4, 5.7.5, Earthed accessible conductive part test 6.2.2, Electrical Power Source (PS) measurements for classification 6.2.3.1, Determination of Potential Ignition Sources (Arcing PIS) 6.2.3.2, Determination of Potential Ignition Sources (Resistive PIS) B.2.5, Input test B.3, B.4, Simulated abnormal operating and single fault Conditions Annex F.3.10, Durability, legibility and permanence of markings T.2, T.5, Steady force test, 10N, 250N T.6, Enclosure impact test T.7, Drop test T.8, Stress relief test The equipment under test (EUT) fulfilled the test requirement according to the standard IEC 62368-1:2018, EN IEC 62368-1:2020 + A11:2020 and BS EN IEC 62368-1:2020 + A11:2020	Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North), 200233 Shanghai, China

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

The group and national differences for the CENELEC countries have been checked.

The national differences for USA, Canada, Australia, New Zealand and Singapore have been checked according to IEC 62368-1:2018.

☒ **The product fulfils the requirements of IEC 62368-1:2018 , EN IEC 62368-1:2020 + A11:2020 and BS EN IEC 62368-1:2020 + A11:2020.**

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

(may be required by the product standard or client)

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

Procedure number, issue date and title:

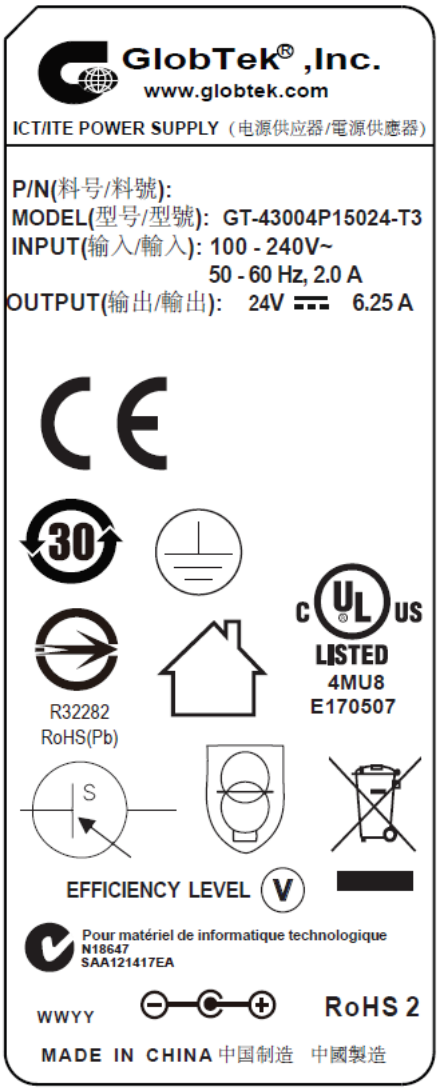
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

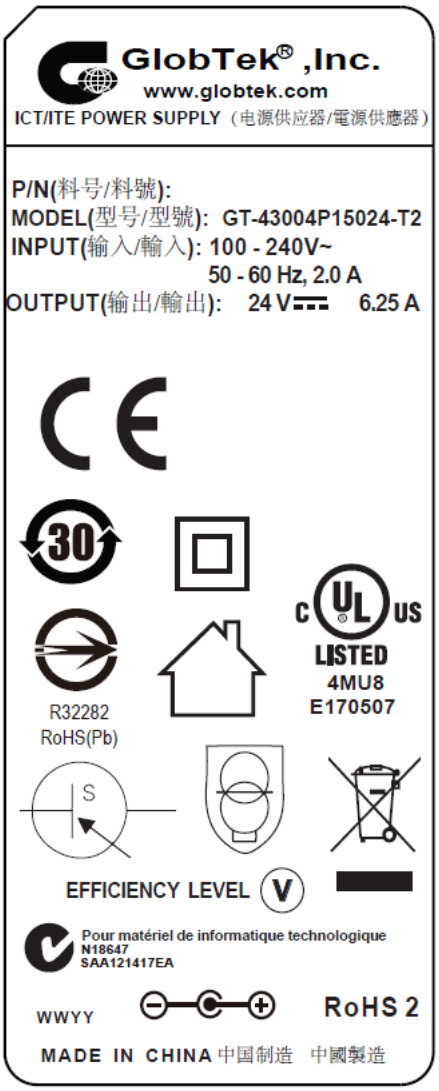
☒ **Statement not required by the standard used for type testing**

(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

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: For other models, marking plates are the same except for model name and output ratings.

Test item particulars:	
Product group .....:	☒ end product ☐ built-in component
Classification of use by .....:	☒ Ordinary person ☒ Children likely present ☐ Instructed person ☐ Skilled person
Supply connection.....:	☒ AC mains ☐ DC mains ☐ not mains connected: ☐ ES1 ☐ ES2 ☐ ES3
Supply tolerance .....:	☒ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☐ None
Supply connection – type .....:	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:
Considered current rating of protective device.....:	☒ 16A or 20A; Location: ☒ building ☐ equipment ☐ N/A
Equipment mobility .....:	☒ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☐ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC) .....:	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment .....:	☒ Class I (See 'Model Differences' for details) ☒ Class II (See 'Model Differences' for details) ☐ Class III ☒ Not classified (For building-in model series) ☐
Special installation location .....:	☒ N/A ☐ restricted access area ☐ outdoor location☐
Pollution degree (PD) .....:	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}.....:	40 °C ☐ Outdoor:
IP protection class .....:	☒ IPX0 ☐ IP___
Power systems .....:	☒ TN ☐ TT ☐ IT - ___V $_{L-L}$ ☐ not AC mains
Altitude during operation (m) .....:	☐ 2000m or less ☒ 4000m
Altitude of test laboratory (m) .....:	☒ 2000m or less ☐ m
Mass of equipment (kg) .....:	Less than 1kg

Possible test case verdicts:	
- test case does not apply to the test object.... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ... :	F (Fail)
Testing:	
Date of receipt of test item ..... :	2023-05-30
Date (s) of performance of tests..... :	2023-05-30 to 2023-08-15
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.** **Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.** This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. The samples submitted from for evaluation are representative of the products from each factory.	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☒ **Yes** ☐ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	1, GlobTek, Inc. 186 Veterans Drive Northvale NJ 07647, USA 2, GlobTek (Suzhou) Co., Ltd Building 4, No. 76 JinLing East Road, Suzhou Industrial Park, Suzhou, JiangSu, 215021, China

General product information and other remarks:

The equipment is a switching power adaptor for ITE and indoor use only. The appliance coupler is considered as the disconnect device, and the equipment is considered as movable equipment.
The equipment was submitted and evaluated for maximum manufacturer's recommended ambient of 40 °C.
The equipment intended to be used in tropical conditions.
The enclosures fixed together by four screws. All the types are designed for continuous operation.
All models are identical except the model name and output rating.

Only the connected part with fire enclosure complied with the requirement of IEC/EN 62368-1 is accepted according to user manual.

Model Differences

GT-43004P***-T*
The 1st "*" part denotes the rated output wattage designation, which can be "001" to "150", with interval of 1.
The 2nd "*" part denotes the standard rated output voltage designation, which can be "12", "16", "19", "24" .
The 3rd "*" part is optional, which can be "-0.1" to "-4.9" with interval of 0.1 to denote voltage deviation or blank to indicate no voltage different. The result by subtracting the deviation value from the standard rated output voltage denotes the rated output voltage, with a range of 12-24volts.
The 4th "*" part can be '2' to denote Class II model with standard sheet C8 appliance inlet, or '3' and '3A' to denote two types of Class I models with standard sheet C14 or standard sheet C6 appliance inlets .
All tests are performed on models GT-43004P12012-T3, GT-43004P12016-1.0-T3, GT-43004P12019-T3 and GT-43004P15024-T3.

Model list

Model	Rated output voltage range	Max. rated output current	Max. rated output power
GT-43004P*12*-T*	12V	10A	120W
GT-43004P*16*-T*	12.1-16V	10A	120W
GT-43004P*19*-T*	16.1-19V	7.45A	120W
GT-43004P*24*-T*	19.1-24V	7.85A	150W

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

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: Primary circuit before transformer	Ordinary	N/A	N/A	Plastic enclosure
ES1: Secondary circuit after transformer	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS3: All circuits	All combustible materials	Ignition not occur	Fire enclosure	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: Sharp edges and corners	Ordinary	N/A	N/A	N/A
MS1: Equipment mass	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Accessible parts	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: Indicating lights	Ordinary	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

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** See “Source of electrical energy” and “Source of power or PIS” on previous page for details.

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

4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2.	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.1.3	Equipment design and construction	No accessible part which could cause injury.	P
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		P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests		P
4.4.3.3	Drop tests	See Annex T.	P
4.4.3.4	Impact tests	See Annex T.	N/A
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	See Annex T.	P
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	Compliance checked.	P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
4.5	**Explosion**		P
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.5.2	No explosion during normal/abnormal operating condition		N/A
	No harm by explosion during single fault conditions		N/A
4.6	**Fixing of conductors**		P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test ..... :	(See Clause T.2)	P
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard .. :	Not direct plug-in plug	N/A
4.7.3	Torque (Nm) ..... :		N/A
4.8	**Equipment containing coin/button cell batteries**		N/A
4.8.1	General		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**		P
4.10	**Component requirements**		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays	(See Annex G)	N/A

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits .....:	(See appended table 5.2)	P
5.2.2.3	Capacitance limits .....:	(See appended table 5.2)	P
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**		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES2 or ES3 source cannot accessed by ordinary persons and ES3 source cannot accessed by instructed persons. Double or reinforced safeguard is provided between ES2 or ES3 and ordinary persons	P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements	See below	P
	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)	P
5.3.2.2 b)	Air gap – distance (mm) .....:	No openings on enclosures as received and after mechanical test	N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material	Hygroscopic materials are not used for insulating material.	P
5.4.1.3	Material is non-hygroscopic	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials.....:	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degrees .....:	Pollution degree 2	P
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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)	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Bobbin materials of all transformers are Phenolic that is accepted without further tests.	P
5.4.1.10.2	Vicat test.....:		N/A
5.4.1.10.3	Ball pressure test .....:	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	P
5.4.2.2	Procedure 1 for determining clearance	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
	Temporary overvoltage .....:	2000V	—
5.4.2.3	Procedure 2 for determining clearance	(See appended table 5.4.2.3)	P
5.4.2.3.2.2	a.c. mains transient voltage.....:	2500V peak	—
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)	P
5.4.2.5	Multiplication factors for clearances and test voltages .....:	Multiplication factor is 1.29 for altitude up to 4000m.	P
5.4.2.6	Clearance measurement .....:	(See appended table 5.4.2)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group .....:	Material group IIIb assumed.	—
5.4.3.4	Creepage distances measurement .....:	(See appended table 5.4.3)	P
5.4.4	Solid insulation		P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation .....:	(See appended table 5.4.4.2)	P
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material	Reinforced insulation.	P
	Number of layers (pcs) .....:	2	P
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) ..... :		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material ..... :		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V) ..... :	(See appended Table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), K_R ..... :		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ)..... :		N/A
	Electric strength test .....:		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%), temperature (°C), duration (h) ..... :	Performed at 40 °C, 95% R.H. for 120h.	—
5.4.9	Electric strength test		P
5.4.9.1	Test procedure for type test of solid insulation.....:	(See appended table 5.4.9)	P
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	Impulse test ..... :		N/A
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**		P
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See sub-clause 5.4 or Clause G.12)	P
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**		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements	Class I AC inlet used for class I equipment	P
5.6.2.2	Colour of insulation	Green-and-yellow wire used. For class I equipment	P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm^2) ..... :	Approved inlet used	—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). ..... :		—
5.6.4.2	Protective current rating (A)..... :		N/A
5.6.5	Terminals for protective conductors	AC inlet direct connect to protective bonding wire	P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Approved inlet used	P
	Terminal size for connecting protective bonding conductors (mm) .....:		N/A
5.6.5.2	Corrosion	Complied.	P
5.6.6	Resistance of the protective bonding system	See below.	N/A
5.6.6.1	Requirements	See below.	N/A
5.6.6.2	Test Method..... :	(See appended table 5.6.6)	N/A
5.6.6.3	Resistance (Ω) or voltage drop..... :	(See appended table 5.6.6)	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2)..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm)..... :		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		P
5.7.2	Measuring devices and networks		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.1	Measurement of touch current		P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	P
5.7.5	Earthed accessible conductive parts ..... :	(See appended table 5.7.5)	N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA)..... :		N/A
	Instructional Safeguard..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA) ..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA) ..... :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES.....:	(See appended table 5.8)	N/A
	Air gap (mm).....:		N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	**Classification of PS and PIS**		P
6.2.2	Power source circuit classifications.....:	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	P
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P
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)	P
	Combustible materials outside fire enclosure :		N/A

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

6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method		P
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 ..... :	(See appended table B.4)	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		N/A
6.4.5.2	Supplementary safeguards		P
6.4.6	Control of fire spread in PS3 circuits	Providing fire enclosure for PS3 circuit.	P
6.4.7	Separation of combustible materials from a PIS	Providing fire enclosure for PS3 circuit.	P
6.4.7.2	Separation by distance	See above.	P
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.2	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier	Plastic enclosure served as fire enclosure.	P
6.4.8.2.2	Requirements for a fire enclosure	See above	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		P
	Openings dimensions (mm)..... :	No opening	P
6.4.8.3.4	Bottom openings and properties		P
	Openings dimensions (mm)..... :	No opening	P
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard.....:		N/A
6.4.8.3.5	Side openings and properties		P
	Openings dimensions (mm)..... :	No opening	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) ..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :	plastic enclosure: V-0.	P
6.4.9	Flammability of insulating liquid.....:		N/A
6.5	**Internal and external wiring**		P
6.5.1	General requirements		P
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**		P
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**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		P
8.4	**Safeguards against parts with sharp edges and corners**		P
8.4.1	Safeguards		P
	Instructional Safeguard.....:		N/A
8.4.2	Sharp edges or corners		P
8.5	**Safeguards against moving parts**		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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**		N/A
8.6.1	General		N/A
	Instructional safeguard.....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test .....:		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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**		N/A
8.7.1	Mount means type .....:	See below.	N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N).....:		N/A
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm).....:		N/A
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N) .....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions.....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) .....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) .....:		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A

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

	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**		P
9.2	**Thermal energy source classifications**		P
9.3	**Touch temperature limits**		P
9.3.1	Touch temperatures of accessible parts .....:	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.4	**Safeguards against thermal energy sources**		N/A
9.5	**Requirements for safeguards**		N/A
9.5.1	Equipment safeguard		N/A
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 .....:	(See appended table 9.6)	N/A

10	**RADIATION**		P
10.2	**Radiation energy source classification**		P
10.2.1	General classification	RS1, Indicating lights only	P
	Lasers ..... :		—
	Lamps and lamp systems ..... :		—
	Image projectors ..... :		—
	X-Ray ..... :		—
	Personal music player ..... :		—

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

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)..... :	(See appended tables B.3 & B.4)	—
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
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,		N/A

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

	earphones, etc.)		
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**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	**Normal operating conditions**		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :		N/A
B.2.3	Supply voltage and tolerances	±10%	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		N/A
	Instructional safeguard ..... :		N/A
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	(See appended table B.3)	P
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)	P
B.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
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		P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions ..... :	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	(See Annex M)	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
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 ..... :	See Clause F.5	—
E.2	**Audio amplifier normal operating conditions**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Audio signal source type ..... :		—
	Audio output power (W)..... :		—
	Audio output voltage (V) ..... :		—
	Rated load impedance (Ω) ..... :		—
	Requirements for temperature measurement	(See Table B.1.5)	N/A
E.3	Audio amplifier abnormal operating conditions	(See Table B.3, B.4)	N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language ..... :	English.	—
F.2	**Letter symbols and graphical symbols**		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
F.3	**Equipment markings**		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification ..... :	See copy of marking plate.	P
F.3.2.2	Model identification ..... :	See copy of marking plate.	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage..... :	See copy of marking plate	P
F.3.3.4	Rated voltage ..... :	See copy of marking plate	P
F.3.3.5	Rated frequency ..... :	See copy of marking plate	P
F.3.3.6	Rated current or rated power..... :	See copy of marking plate	P
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		P
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :		N/A
F.3.5.2	Switch position identification marking..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.3	Replacement fuse identification and rating markings ..... :	The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse is marked with FS1: T4A 250V	P
	Instructional safeguards for neutral fuse ..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :		N/A
F.3.5.5	Neutral conductor terminal		P
F.3.5.6	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment	For class I equipment	P
F.3.6.1.1	Protective earthing conductor terminal..... :	For class I models	P
F.3.6.1.2	Protective bonding conductor terminals ..... :		N/A
F.3.6.2	Equipment class marking ..... :	The symbol ⧈ on the label.	P
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 ..... :	See copy of marking plate	P
F.3.9	Durability, legibility and permanence of marking	See below	P
F.3.10	Test for permanence of markings	Marking is durable and legible. The marking plate has no curling and is not able to be removed easily.	P
F.4	**Instructions**		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present	Provided in user manual.	P
	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		P
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
G	**COMPONENTS**		P
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
G.3	**Protective devices**		P
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		P
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.3.5.2	Single faults conditions ..... :	(See appended table B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings	The appliance inlet complied with IEC 60320-1.	P
G.4.2	Mains connector configuration ..... :	The appliance inlet complied with IEC 60320-1.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	**Wound components**		P
G.5.1	Wire insulation in wound components	Approved TIW used for primary and secondary winding of transformer.	P
G.5.1.2	Protection against mechanical stress		P
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) ..... :		—
	Test temperature (°C) ..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers		P
G.5.3.1	Compliance method..... :	Meet the requirements in G.5.3.2 and G.5.3.3.	P
	Position ..... :	T1	P
	Method of protection..... :	TIW used.	P
G.5.3.2	Insulation		P
	Protection from displacement of windings..... :	Primary windings and secondary windings are separated by Reinforced insulation (The core is considered as primary part as it is not isolated from Primary)	P
G.5.3.3	Transformer overload tests	(See appended table B.3 & B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding temperatures	(See appended table B.3 & B.4)	P
G.5.3.3.3	Winding temperatures - alternative test method		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter..... :		N/A
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :	Meet the requirements	P
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	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**		P
G.6.1	General	Triple insulated winding in T1 secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J. See Appended table 4.1.2. No other wires used in the EUT.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type ..... :		—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, *D* (mm) ..... :		—
	Radius of curvature after test (mm)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements	Approve components, see table 4.1.2 for the details.	P
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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**		P
G.11.1	General requirements	X-Capacitors and Y-Capacitors used as safeguard and complied with IEC/EN 60384-14. (See appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5 with specifics	The optocouplers used in the equipment are complied with IEC/EN 60747-5-5. (See appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$ ..... :	See above.	—
	Routine test voltage, $V_{ini,b}$ ..... :	See above.	—
G.13	**Printed boards**		P
G.13.1	General requirements	See below.	P
G.13.2	Uncoated printed boards	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 ..... :	(See Clause G.13)	N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on ..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test ..... :		—
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) ..... :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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**		P
J.1	**General**		P
	Winding wire insulation ..... :	Approved TRIPLE INSULATION WIRE	—
	Solid round winding wire, diameter (mm) ..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2)..... :		N/A
J.2/J.3	Tests and Manufacturing		—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard ..... :		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		P
L.1	**General requirements**	Appliance Inlet as disconnect device.	P
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**	When the power cord is removed from the inlet no remaining parts with hazardous voltage in the equipment.	P
L.4	**Single-phase equipment**	The disconnect device disconnects both poles simultaneously.	P
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	**General requirements**		N/A
M.2	**Safety of batteries and their cells**		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :		N/A
M.3	**Protection circuits for batteries provided within the equipment**		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance	(See appended table M.3)	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance..... :	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	**Safeguards against short-circuits**		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
M.7	**Risk of explosion from lead acid and NiCd batteries**		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate ..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, *Q* (m^3/h)..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_Z (m^3/s) ..... :		—
M.8.2.3	Correction factors ..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	**Preventing electrolyte spillage**		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		P
	Material(s) used ..... :	Considered	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Value of *X* (mm)..... :	Considered	—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		P
P.1	**General**		P
P.2	**Safeguards against entry or consequences of entry of a foreign object**		P
P.2.1	General	No opening.	P
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguards against the consequences of entry of a foreign object		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

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

P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) ..... :		—
	Duration (weeks) ..... :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	**Limited power sources**	Fire enclosure is provided for connected parts according to user manual.	N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output	(See appended table Annex Q.1)	N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance ..... :	(See appended table Q.1)	N/A
	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) ..... :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples ..... :		—
	Wall thickness (mm) ..... :		—
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N ..... :**	(See appended table T.2)	P
T.3	**Steady force test, 30 N ..... :**	(See appended table T.3)	N/A
T.4	**Steady force test, 100 N ..... :**	(See appended table T.4)	N/A
T.5	**Steady force test, 250 N ..... :**	(See appended table T.5)	P
T.6	**Enclosure impact test**	(See appended table T.6)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	**Drop test ..... :**	(See appended table T.7)	P
T.8	**Stress relief test..... :**	(See appended table T.8)	P

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

T.9	**Glass Impact Test .....:**	(See appended table T.9)	N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted.....:		N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) ..... :		N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard **:**		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**		P
V.1	**Accessible parts of equipment**		P
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
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**		N/A
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 .....:	(See appended table X)	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	**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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
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	(See Annex P.4)	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 ..... :	(See Table T.6)	N/A

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

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
264V,60Hz	Primary circuit (for all models)	Normal	264	--	--	--	ES3
		Abnormal	264	--	--	--	
		Single fault – SC/OC	264	--	--	--	
Model: GT-43004P12012-T3							
264V,60Hz	Sec. output + to -	Normal	12.07Vdc	--	SS	--	ES1
		Abnormal	12.07Vdc	--	SS	--	
		Single fault – T1 sec. (SC)	0.02Vdc	--	SS	--	
Model: GT-43004P12016-1.0-T3							
264V,60Hz	Sec. output + to -	Normal	15.01Vdc	--	SS	--	ES1
		Abnormal	15.01Vdc	--	SS	--	
		Single fault – T1 sec. (SC)	0.02Vdc	--	SS	--	
Model: GT-43004P12019-T3							
264V,60Hz	Sec. output + to -	Normal	19.05Vdc	--	SS	--	ES1
		Abnormal	19.05Vdc	--	SS	--	
		Single fault – T1 sec. (SC)	0.02Vdc	--	SS	--	
Model: GT-43004P15024-T3							
264V,60Hz	Sec. output + to -	Normal	24.01Vdc	--	SS	--	ES1
		Abnormal – output (OL)	24.01Vdc	--	SS	--	
		Single fault –T1 sec. (SC)	0.02Vdc	--	SS	--	
5.2.2.3 - Capacitance Limits							
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			Capacitance, nF		Upk (V)		
264V,60Hz	C11	Normal	--		Max. 26.02Vdc		ES1
		Abnormal – output (OL)	--		Max. 26.02Vdc		

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

		Single fault - SC	--	0.02Vdc	

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.
Note: Max. values are recorded in this report.

5.4.1.8	**TABLE: Working voltage measurement**				P
Location		RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments
T1 pin 1 / pin P1		500	345	--	
T1 pin 1 / pin P2		572	368	--	Max. Vp / Vrms
T1 pin 1 / pin 10		556	334	--	
T1 pin 2 / pin P1		400	294	--	
T1 pin 2 / pin P2		476	302	--	
T1 pin 2 / pin 10		496	300	--	
T1 pin 3 / pin P1		448	291	--	
T1 pin 3 / pin P2		468	301	--	
T1 pin 3 / pin 10		400	290	--	
T1 pin 4 / pin P1		504	297	--	
T1 pin 4 / pin P2		360	174	--	
T1 pin 4 / pin P10		432	185	--	
T1 pin 5 / pin P1		380	179	--	
T1 pin 5 / pin P2		368	182	--	
T1 pin 5 / pin P10		444	193	--	
US3 Pin 3 to Pin 1		392	199	--	
US3 Pin 3 to Pin 2		392	198	--	
US3 Pin 4 to Pin 1		392	198	--	
US3 Pin 4 to Pin 2		392	197	--	
CY1		360	176	--	

Supplementary information:

Note: Max. values are recorded in this report.

The maximum working voltage is measured when Model GT-43004P15024-T3 is chosen as EUT.

5.4.1.10.2	**TABLE: Vicat softening temperature of thermoplastics**	N/A

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

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			P
Allowed impression diameter (mm).....:		≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)
Transformer bobbin (T375J)	CHANG CHUN PLASTICS	3.0	125	1.2
Transformer bobbin (T375HF)	CHANG CHUN PLASTICS	3.0	125	1.2
Transformer bobbin (PM-9820)	SUMITOMO BAKELITE	3.0	125	1.1
Transformer bobbin (CP-J-8800)	HITACHI CHEMICAL	3.0	125	1.2
Supplementary information:				

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq [1)] (Hz)	Required cl (mm)	cl (mm)	E.S. [2)] (V)	Required cr (mm)	cr (mm)
Line and Neutral before current fuse (BI)	340	240	--	2.0	2.5	--	2.4	2.5
Two ends of the current fuse (BI)	340	240	--	2.0	2.5	--	2.4	2.5
Primary to earthed parts (Class I)(BI)	340	240	--	2.0	5.6	--	2.4	5.6
Primary circuits to accessible screws	340	240	--	4.0	6.2	--	4.8	6.2
Two ends of CY1(RI)	360	240	--	4.0	6.5	--	4.8	6.5

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

Primary and secondary (two sides of US3) (RI)	392	240	--	4.0	5.2	--	4.8	7.0*
Transformer Primary circuits to secondary circuits (RI)	572	368	--	4.0	Min 10.0	--	7.4	Min 10.0
Primary winding to secondary winding(RI)	572	368	--	4.0	7.5	--	7.4	7.5
Secondary winding to core(RI)	340	240	--	4.0	8.5	--	7.4	8.5
Supplementary information:								
Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group FI: Function insulation; BI: Basic insulation; RI: Reinforced insulation With the equipment to be operated at 4000m above sea level max. the minimum clearances is multiplied by the factor 1.29. * There is a slot wide > 1 mm under components								

5.4.4.2	**TABLE: Minimum distance through insulation**			P
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)
Enclosure	2000	Reinforced	0.4	Min. 1.5
Bobbin of T1	2000	Reinforced	0.4	Min. 0.45
Insulation tape on T1	2000	Reinforced	2 layers	3 layers
Insulation sheet	2000	Reinforced	0.4	Min. 0.4
Supplementary information:				

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

5.4.9	**TABLE: Electric strength tests**			P
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No	

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

Basic/supplementary:			
Line to Neutral (with fuse disconnect)	DC	2500V	No
Primary circuit to earth parts	DC	2500V	No
Reinforced:			
Primary circuit to body (RI)	DC	4000V	No
Primary circuit to secondary circuit (RI)	DC	4000V	No
Primary winding to secondary winding of T1 (RI)	DC	4000V	No
Secondary winding to core (RI)	DC	4000V	No
Insulation tape around transformer per layer (RI)	DC	4000V	No
Insulation sheet (RI)	DC	4000V	No
Supplementary information:			
Note: The tests mentioned above were performed after humidity test.			

5.5.2.2	**TABLE: Stored discharge on capacitors**				P
Location	Supply voltage (V)	Operating and fault condition 1)	Switch position	Measured voltage (Vpk)	ES Class
Line-Neutral	264V	N	--	53.6V	ES1
Line-Neutral	264V	S(RS2 open)	--	55.8V	ES1
Supplementary information:					
X-capacitors installed for testing: CX1: 0.47uF [] bleeding resistor rating: [ ] ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit All models have been considered and the maximum value has been recorded.					

5.6.6	**TABLE: Resistance of protective conductors and terminations**			P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
PE terminal of AC inlet to the farthest earthing parts	40	2	0.39	0.010
Supplementary information:				

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

5.7.4	TABLE: Unearthed accessible parts					P
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)	
All unearthed accessible conductive parts (plastic enclosure /output port)	(See table B.2, B.3, B.4 for details, maximum result recorded)	264V,60Hz	--	0.150mApk		ES1
			--	0.150mApk		
			--	0.150mApk		
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V) ..... :				—
Phase(s) ..... :	[] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System ..... :	[] TN [ ]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Supplementary Information:				
Tested with normal, abnormal and single-fault condition, and maximum value was recorded.				

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

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
all circuits	--	--	--	--	--	PS3(declared)
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. Note: The maximum power is measured under abnormal condition.						

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

6.2.3.1	TABLE: Determination of Arcing PIS			P
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
*	*	*	*	Yes
Supplementary information:				
An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15. (*) All components located within the power board are considered as arcing PIS.				

6.2.3.2	TABLE: Determination of resistive PIS		P
Location	Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
*	*	*	Yes
Supplementary information:			
Abbreviation: SC= short circuit; OC= open circuit A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault. (*) All circuits are regarded as Resistive PIS.			

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:				

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

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

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

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**				P
Supply voltage (V)..... :	90V, 60Hz	90V, 60Hz	264V, 60Hz	264V, 60Hz	—
Ambient temperature during test T_{amb} (°C) .... :	40.0	24.8	40.0	24.9	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Model: GT-43004P12012-T3 (Label on top)					
T1 coil	100.7	--	92.5	--	110*
T1 core	94.0	--	85.9	--	--
LF1 coil	82.2	--	68.7	--	130
LF2 coil	86.9	--	69.4	--	130
L1 coil	89.1	--	73.6	--	130
L2 coil	91.1	--	75.7	--	130
MOV1 body	78.1	--	69.0	--	85
CX1 body	80.9	--	69.0	--	100
CY1 body	89.8	--	81.4	--	125
CY2 body	82.6	--	68.4	--	125
PCB under D1	84.9	--	73.7	--	130
PCB under Q5	87.6	--	80.2	--	130
PCB under Q6	84.3	--	77.6	--	130
PCB under Q1	86.4	--	74.6	--	130
PCB under Q2	85.2	--	75.9	--	130
AC inlet	60.8	--	54.4	--	70
Internal wire	72.1	--	65.6	--	80
Output wire	79.8	--	75.0	--	90
Plastic enclosure inside near transformer	67.7	--	66.3	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	52.3	--	46.9	77
Model: GT-43004P12012-T3 (Label on bottom)					
T1 coil	103.2	--	94.6	--	110*
T1 core	96.7	--	88.4	--	--
LF1 coil	82.8	--	69.4	--	130

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

LF2 coil	89.1	--	71.2	--	130
L1 coil	91.6	--	75.7	--	130
L2 coil	93.3	--	77.5	--	130
MOV1 body	79.6	--	70.2	--	85
CX1 body	82.9	--	70.7	--	100
CY1 body	91.9	--	82.8	--	125
CY2 body	83.2	--	69.8	--	125
PCB under D1	87.7	--	75.6	--	130
PCB under Q5	91.0	--	82.7	--	130
PCB under Q6	87.8	--	80.1	--	130
PCB under Q1	89.2	--	76.6	--	130
PCB under Q2	88.2	--	78.1	--	130
AC inlet	61.1	--	54.8	--	70
Internal wire	74.4	--	67.3	--	80
Output wire	82.1	--	77.0	--	90
Plastic enclosure inside near transformer	62.5	--	58.4	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	46.6	--	41.9	77
Model: GT-43004P12016-T3 (Label on top)					
T1 coil	96.6	--	87.9	--	110*
T1 core	90.8	--	82.0	--	--
LF1 coil	83.3	--	69.9	--	130
LF2 coil	89.6	--	70.9	--	130
L1 coil	90.8	--	74.3	--	130
L2 coil	91.4	--	76.1	--	130
MOV1 body	79.8	--	70.2	--	85
CX1 body	82.7	--	69.9	--	100
CY1 body	88.6	--	79.3	--	125
CY2 body	81.8	--	68.7	--	125
PCB under D1	86.0	--	75.4	--	130
PCB under Q5	87.3	--	80.4	--	130
PCB under Q6	83.3	--	77.2	--	130
PCB under Q1	88.8	--	76.9	--	130

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

PCB under Q2	85.6	--	76.3	--	130
AC inlet	58.3	--	52.7	--	70
Internal wire	74.9	--	66.5	--	80
Output wire	75.4	--	70.4	--	90
Plastic enclosure inside near transformer	71.9	--	66.4	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	54.6	--	48.5	77
Model: GT-43004P12016-T3 (Label on bottom)					
T1 coil	97.3	--	88.5	--	110*
T1 core	91.5	--	82.7	--	--
LF1 coil	82.1	--	69.2	--	130
LF2 coil	90.3	--	71.3	--	130
L1 coil	91.9	--	74.9	--	130
L2 coil	92.4	--	76.7	--	130
MOV1 body	79.1	--	70.3	--	85
CX1 body	83.5	--	70.5	--	100
CY1 body	89.5	--	79.8	--	125
CY2 body	82.1	--	68.4	--	125
PCB under D1	87.4	--	76.2	--	130
PCB under Q5	88.6	--	81.0	--	130
PCB under Q6	84.2	--	77.4	--	130
PCB under Q1	90.2	--	77.4	--	130
PCB under Q2	87.0	--	76.9	--	130
AC inlet	56.8	--	51.4	--	70
Internal wire	74.7	--	66.8	--	80
Output wire	74.0	--	69.2	--	90
Plastic enclosure inside near transformer	69.3	--	64.5	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	52.5	--	46.8	77
Model: GT-43004P12019-T3 (Label on top)					
T1 coil	98.3	--	87.5	--	110*
T1 core	91.5	--	81.8	--	--
LF1 coil	85.7	--	70.8	--	130

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

LF2 coil	91.5	--	72.2	--	130
L1 coil	92.4	--	75.4	--	130
L2 coil	94.1	--	77.2	--	130
MOV1 body	79.4	--	71.3	--	85
CX1 body	85.5	--	71.4	--	100
CY1 body	90.6	--	80.2	--	125
CY2 body	89.1	--	71.5	--	125
PCB under D1	89.6	--	76.5	--	130
PCB under Q5	89.5	--	81.4	--	130
PCB under Q6	86.5	--	79.0	--	130
PCB under Q1	91.4	--	77.8	--	130
PCB under Q2	88.8	--	78.1	--	130
AC inlet	60.5	--	53.3	--	70
Internal wire	74.3	--	67.4	--	80
Output wire	76.8	--	70.6	--	90
Plastic enclosure inside near transformer	73.7	--	67.7	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	56.3	--	49.8	77
Model: GT-43004P12019-T3 (Label on bottom)					
T1 coil	96.6	--	88.7	--	110*
T1 core	91.5	--	83.0	--	--
LF1 coil	83.1	--	70.7	--	130
LF2 coil	91.0	--	73.1	--	130
L1 coil	91.9	--	76.5	--	130
L2 coil	93.7	--	78.3	--	130
MOV1 body	79.0	--	71.9	--	85
CX1 body	84.9	--	72.3	--	100
CY1 body	89.7	--	81.0	--	125
CY2 body	86.6	--	71.8	--	125
PCB under D1	88.4	--	76.6	--	130
PCB under Q5	88.1	--	81.6	--	130
PCB under Q6	84.4	--	78.4	--	130
PCB under Q1	90.3	--	77.9	--	130

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

PCB under Q2	88.1	--	78.4	--	130
AC inlet	57.7	--	52.9	--	70
Internal wire	74.0	--	68.1	--	80
Output wire	75.2	--	70.8	--	90
Plastic enclosure inside near transformer	72.5	--	67.4	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	53.8	--	48.3	77
Model: GT-43004P15024-T3 (Label on top)					
T1 coil	108.8	--	102.2	--	110*
T1 core	92.6	--	85.2	--	--
LF1 coil	84.3	--	70.9	--	130
LF2 coil	91.5	--	72.6	--	130
L1 coil	89.8	--	76.6	--	130
L2 coil	93.0	--	78.5	--	130
MOV1 body	79.9	--	70.8	--	85
CX1 body	82.8	--	71.3	--	100
CY1 body	93.2	--	85.8	--	125
CY2 body	79.1	--	68.1	--	125
PCB under D1	86.4	--	76.8	--	130
PCB under Q5	94.3	--	89.2	--	130
PCB under Q6	91.2	--	86.5	--	130
PCB under Q1	89.0	--	79.5	--	130
PCB under Q2	85.4	--	76.8	--	130
AC inlet	54.0	--	50.1	--	70
Internal wire	74.7	--	66.9	--	80
Output wire	70.6	--	66.8	--	90
Plastic enclosure inside near transformer	74.3	--	69.2	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	56.7	--	51.5	77
Model: GT-43004P15024-T3 (Label on bottom)					
T1 coil	106.5	--	100.1	--	110*
T1 core	89.9	--	82.9	--	--
LF1 coil	81.9	--	69.2	--	130

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

LF2 coil	90.1	--	71.4	--	130
L1 coil	87.7	--	74.9	--	130
L2 coil	90.5	--	76.6	--	130
MOV1 body	79.8	--	69.6	--	85
CX1 body	81.5	--	70.2	--	100
CY1 body	90.5	--	83.6	--	125
CY2 body	77.5	--	67.1	--	125
PCB under D1	84.1	--	74.9	--	130
PCB under Q5	90.8	--	86.5	--	130
PCB under Q6	87.1	--	83.2	--	130
PCB under Q1	86.9	--	77.7	--	130
PCB under Q2	83.0	--	74.9	--	130
AC inlet	56.8	--	52.0	--	70
Internal wire	74.9	--	66.1	--	80
Output wire	66.0	--	62.8	--	90
Plastic enclosure inside near transformer	71.2	--	67.4	--	90
Below temperatures are adjusted to ambient of 25 °C.					
Plastic enclosure outside near transformer	--	53.1	--	50.9	77

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:							
* indicated thermocouple method was used to measure the winding, so the limit value reduced 10K. Note 1: Tma should be considered as directed by appliable requirement Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9) Note 3: Test was repeated for three times as the temperature of T1 winding was close to limited value.							

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
Model: GT-43004P12012-T3								
90	50/60	1.54	--	136	--	FS1	1.54	Max. normal load
100	50/60	1.37	2.0	135	--	FS1	1.37	
240	50/60	0.60	2.0	132	--	FS1	0.60	
264	50/60	0.55	--	132	--	FS1	0.55	

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

Model: GT-43004P12016-1.0-T3								
90	50/60	1.50	--	132	--	FS1	1.50	Max. normal load
100	50/60	1.34	2.0	131	--	FS1	1.34	
240	50/60	0.59	2.0	129	--	FS1	0.59	
264	50/60	0.54	--	129	--	FS1	0.54	
Model: GT-43004P12019-T3								
90	50/60	1.51	--	133	--	FS1	1.51	Max. normal load
100	50/60	1.35	2.0	133	--	FS1	1.35	
240	50/60	0.59	2.0	130	--	FS1	0.59	
264	50/60	0.54	--	130	--	FS1	0.54	
Model: GT-43004P15024-T3								
90	50/60	1.68	--	163	--	FS1	1.68	Max. normal load
100	50/60	1.50	2.0	162	--	FS1	1.50	
240	50/60	0.71	2.0	159	--	FS1	0.71	
264	50/60	0.65	--	159	--	FS1	0.65	
Supplementary information:								
The maximum measured current under rated voltage did not exceed 110% of the rated current.								

B.3, B.4	**TABLE: Abnormal operating and fault condition tests**	**P**
Ambient temperature T_{amb} (°C)..... :	25.0, if not stated below.	—
Power source for EUT: Manufacturer, model/type, outputrating .. :	Chroma, 61512, 18kVA	—

Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Tested on model: GT-43004P15024-T3						
C1	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
BD1	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
R1	SC	264	30 min.	FS1	0.65→ 0.65	Observation: Unit protected. No hazards.
R2	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
Q5	SC	264	30 min.	FS1	0.65→	Observation: Unit protected. No hazards.

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

					0.01	
Q6	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US1 Pin 1-2	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US1 Pin 2-3	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US1 Pin 2-16	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US1 Pin 3-16	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US1 Pin 12-13	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US1 Pin 9-10	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US2 pin 1-5	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US2 pin 5-8	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
US2 Pin 1-8	SC	264	10 min.	FS1	0.65	Observation: Unit operated normally. No hazards.
US2 Pin 2-5	SC	264	10 min.	FS1	0.65	Observation: Unit operated normally. No hazards.
U1 Pin 1-2	SC	264	10 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
U1 Pin 3-4	SC	264	10 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
U1 Pin 1	OC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
U1 Pin 3	OC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.

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

U2 Pin R to A	SC	264	60 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
U2 Pin A to C	SC	264	60 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
U2 Pin R to C	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
Q1(G-D)	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
Q1(D-S)	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
Q1(G-S)	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
Q2(G-D)	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
Q2(D-S)	SC	264	<1s	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
Q2(G-S)	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
T1 Pin P1 to P2	SC	264	30 min.	FS1	1.7→ 0.01	Observation: Fuse (FS1) opened. No hazards.
T1 Pin 7-10	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
T1 Pin 1-3	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
T1 Pin 4-5	SC	264	30 min.	FS1	0.65→ 0.01	Observation: Unit protected. No hazards.
EUT Output	SC	264	30 min.	FS1	0.54→ 0.01	Observation: Unit protected. No hazards.
EUT Output	O-L	264	Stead y state	FS1	0.54→ 0.85	Total testing duration: 9.1 hours. No hazard. Normal operation at output overload to max. 7.65 A, then Unit protected. Temp: T1 coil: 134.9°C,T1 core: 118.1°C, U1 body:

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

						125.1°C.Max. Voltage: 23.54 V
T1 Pin P1 to P2 (after Q6)	SC	264	30 min.	FS1	0.54→ 0.01	Observation: Unit protected. No hazards.
T1 Pin P1 to P2 (after Q6)	O-L	264	Stead y state	FS1	0.54→ 0.85	Total testing duration: 9.1 hours. No hazard. Normal operation at output overload to max. 7.85 A, then Unit protected. Temp: T1 coil: 135.2°C,T1 core: 116.8°C, U1 body: 124.1°C.Max. Voltage: 23.54 V
Model: GT-43004P12019-T3						
EUT Output	SC	264	30 min.	FS1	0.54→ 0.01	Observation: Unit protected. No hazards.
EUT Output	O-L	264	Stead y state	FS1	0.54→ 0.83	Total testing duration: 8.7 hours. No hazard. Normal operation at output overload to max. 10.2 A, then Unit protected. Temp: T1 coil: 120.4°C,T1 core:113.4°C, U1 body: 113.9°C.Max. Voltage: 19.08 V
T1 Pin P1 to P2 (after Q6)	SC	264	30 min.	FS1	0.54→ 0.01	Observation: Unit protected. No hazards.
T1 Pin P1 to P2 (after Q6)	O-L	264	Stead y state	FS1	0.54→ 0.83	Total testing duration: 8.7 hours. No hazard. Normal operation at output overload to max. 10.3 A, then Unit protected. Temp: T1 coil: 120.6°C,T1 core:110.8°C, U1 body: 114.4°C.Max. Voltage: 19.08 V
Model: GT-43004P12016-1.0-T3						
EUT Output	SC	264	30 min.	FS1	0.54→ 0.01	Observation: Unit protected. No hazards.
EUT Output	O-L	264	Stead y state	FS1	0.54→ 0.73	Total testing duration: 8.9 hours. No hazard. Normal operation at output overload to max. 11.2 A, then Unit protected.

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

						Temp: T1 coil: 103.6°C,T1 core:95.1°C, U1 body: 98.7°C. Max. Voltage: 14.89 V
T1 Pin P1 to P2 (after Q6)	SC	264	30 min.	FS1	0.54→ 0.01	Observation: Unit protected. No hazards.
T1 Pin P1 to P2 (after Q6)	O-L	264	Stead y state	FS1	0.54→ 0.72	Total testing duration: 8.9 hours. No hazard. Normal operation at output overload to max. 11.1 A, then Unit protected. Temp: T1 coil: 102.3°C,T1 core:92.1°C, U1 body: 95.0°C. Max. Voltage: 14.89 V
Model: GT-43004P12012-T3						
EUT Output	SC	264	30 min.	FS1	0.55→ 0.01	Observation: Unit protected. No hazards.
EUT Output	O-L	264	Stead y state	FS1	0.55→ 0.68	Total testing duration: 8.9 hours.No hazard. Normal operation at output overload to max. 12.3 A, then Unit protected. Temp: T1 coil: 118.4°C,T1 core:101.0°C, U1 body: 107.9°C.Max. Voltage: 12.07 V
T1 Pin P1 to P2 (after Q6)	SC	264	30 min.	FS1	0.55→ 0.01	Observation: Unit protected. No hazards.
T1 Pin P1 to P2 (after Q6)	O-L	264	Stead y state	FS1	0.55→ 0.66	Total testing duration: 8.9 hours. No hazard. Normal operation at output overload to max. 12.5 A, then Unit protected. Temp: T1 coil: 132.0°C,T1 core:114.9°C, U1 body: 118.3°C.Max. Voltage: 12.07 V
Supplementary information:						
Abbreviation: S-C= short circuit; O/L = overload NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal. 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.						

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

1) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
2) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
3) The overloaded condition is applied according to annex G.5.3.3. Winding Limit for T1: 175-10=165°C

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)			
--	--	--	--	--	--	--	
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)	
--	--	--	--	--	--

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

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)**							N/A
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)		
				Meas.	Limit	Meas.	Limit	
Supplementary Information:								
Abbreviation: SC= short circuit; O/L = overload; OC=Open circuit								

T.2, T.3, T.4, T.5	**TABLE: Steady force test**						P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
Internal components	--	--	Figure V.1	10	5	The clearance and creepage distances do not be reduced below the required values.	
External plastic enclosure	plastic	1.5	Figure V.1	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:							

T.6, T.9	**TABLE: Impact test**				N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
--	--	--	--	--	
Supplementary information:					

T.7	**TABLE: Drop test**				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	

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

External plastic enclosure	plastic	1.5	1300	All safeguards remained effective.
Supplementary information:				

T.8	**TABLE: Stress relief test**					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
External plastic enclosure	plastic	1.5	70	7	All safeguards remained effective.	
Supplementary information:						

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

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

4.1.2	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity1
AC inlet for Class I model	LECI Electronics Co., Ltd.	DB-6	2.5A, 250Vac Standard sheet: C6	IEC/EN 60320-1 UL 498	VDE 40032465 UL E302229
Alt.	Rich Bay Co., Ltd.	R-30790	2.5A, 250Vac Standard sheet: C6	IEC/EN 60320-1 UL 498	VDE 40030381 UL E184638
Alt.	Sun Fair Electric Wire & Cable (HK)Co. Ltd	S-02	2.5A, 250Vac Standard sheet: C6	IEC/EN 60320-1 UL 498	VDE 40034448 UL E226643
Alt.	TECX-UNIONS Technology Corporation	TU-333 series	2.5A, 250Vac Standard sheet: C6	IEC/EN 60320-1 UL 498	ENEC-01933 UL E100004
Alt.	Rong Feng Industrial Co., Ltd.	RF-190	2.5A, 250Vac Standard sheet: C6	IEC/EN 60320-1 UL 498	VDE 40030379 UL E102641
Alt.	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A04-001, ST-A04-002	2.5A, 250Vac Standard sheet: C6	IEC/EN 60320-1 UL 498	VDE 40016045 UL E225980
Alt.	LECI Electronics Co., Ltd.	DB-14	10A, 250Vac Standard sheet: C14	IEC/EN 60320-1 UL 498	VDE 40032137 UL E302229
Alt.	Rich Bay Co., Ltd.	R-301SN	10A, 250Vac Standard sheet: C14	IEC/EN 60320-1 UL 498	VDE 40030228 UL E184638
Alt.	Sun Fair Electric Wire & Cable (HK)Co. Ltd.	S-03	10A, 250Vac Standard sheet: C14	IEC/EN 60320-1 UL 498	VDE 40034447 UL E226643
Alt.	TECX-UNIONS Technology Corporation	TU-301-S, TU-301-SP	10A, 250Vac Standard sheet: C14	IEC/EN 60320-1 UL 498	ENEC-01898-M1 UL E220004
Alt.	Rong Feng Industrial Co., Ltd.	SS-120	10A, 250Vac Standard sheet: C14	IEC/EN 60320-1 UL 498	VDE 40028101 UL E102641

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

Alt.	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A01-001L ST-A01-002L ST-A01-003J ST-A01-003K	10A, 250Vac Standard sheet: C14	IEC/EN 60320-1 UL 498	VDE40013388 UL E225980
Appliance inlet for Class II model	LECI Electronics Co., Ltd.	DB-8	2.5A, 250Vac Standard sheet: C8	IEC/EN 60320-1 UL 498	VDE 40032028 UL E302229
Alt.	Rich Bay Co., Ltd.	R-201SN90	2.5A, 250Vac Standard sheet: C8	IEC/EN 60320-1 UL 498	VDE 40030384 UL E184638
Alt.	Sun Fair Electric Wire & Cable (HK)Co. Ltd.	S-01	2.5A, 250Vac Standard sheet: C8	IEC/EN 60320-1 UL 498	VDE 40034449 UL E226643
Alt.	TECX-UNIONS Technology Corporation	SO-222 series	2.5A, 250Vac Standard sheet: C8	IEC/EN 60320-1 UL 498	ENEC-02099 UL E220004
Alt.	Rong Feng Industrial Co., Ltd.	RF-180	2.5A, 250Vac Standard sheet: C8	IEC/EN 60320-1 UL 498	VDE 40030168 UL E102641
Alt	ZHE JIANG BEI ER JIA ELECTRONIC CO LTD	ST-A03-008B, ST-A03-005	2.5A, 250Vac Standard sheet: C8	IEC/EN 60320-1 UL 498	ENEC-01508-M1 UL E225980
PCB	WALEX ELECTRONIC (WUXI) CO LTD	T2A, T2B, T4, T2	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 62368-1 UL 796	UL E154355 Tested with appliance
Alt.	Guangdong Hetong Technology Co Ltd	CEM1, 2V0, FR4	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 62368-1 UL 796	UL E243157 Tested with appliance
Alt.	Dafeng Arex Electronics Technology Co Ltd	02V0, 04V0	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 62368-1 UL 796	UL E186016 Tested with appliance
Alt.	KUOTIANG ENT LTD	C-2, C-2A	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 62368-1 UL 796	UL E227299 Tested with appliance

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

Alt.	SHENZHEN TONGCHUANG XIN ELECTRONICS CO LTD	TCX	Min 1.6 mm thickness, min.V-0, 130°C	IEC/EN 62368-1 UL 796	UL E250336 Tested with appliance
Alt.	SHENZHEN JINDIAN PRECISION CIRCUIT CO LTD	JD-1, JD-1A	Min 1.6 mm thickness, min.V-0,130°C	IEC/EN 62368-1 UL 796	E347010 Tested with appliance
Alt.	KINGBOARD LAMINATES HOLDINGS LTD	KB-3151C, KB-5150	Min 1.6 mm thickness, min.V-0,130°C	IEC/EN 62368-1 UL 796	E123995 Tested with appliance
Alt.	Interchangeable	Interchangeable	Min. V-0, min 1.6 mm thickness, 130°C	UL 796	UL Approved.
Insulating tape wrapping around the heatsink	3M COMPANY	1350F-1, 1350T-1	130°C	IEC/EN 60950-1 UL 510	UL E17385 Tested with appliance
Alt.	BONDTEC PACIFIC CO LTD	370S	130°C	IEC/EN 60950-1 UL 510	UL E175868 Tested with appliance
Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ, CT	130°C	IEC/EN 60950-1 UL 510	UL E165111 Tested with appliance
Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A	130°C	IEC/EN 60950-1 UL 510	UL E246950 Tested with appliance
Alt.	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	130°C	IEC/EN 60950-1 UL 510	UL E246820 Tested with appliance
Fuse (FS1)	Conquer Electronics Co., Ltd.	MST	T4A, 250V	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40017118 UL E82636

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

Alt.	Suzhou Walter Electronic Co., Ltd.	2010	T4A, 250V	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40018781 UL E220181
Alt.	DONGGUAN BETTER ELECTRONICS TECHNOLOGY CO LTD	932	T4A,250V	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE40033369 UL E300003
X capacitor (CX1) (optional)	Cheng Tung Industrial Co., Ltd.	CTX	X1 or X2, AC310V, Max. 0.47µF, 40/110/21/C	IEC/EN 60384-14 UL 1414	ENEC-02671 UL E193049
Alt.	Tenta Electric Industrial Co. Ltd.	MEX	X1 or X2, AC275V, Max. 0.47µF, 40/100/21/C	IEC/EN 60384-14 UL 1414	VDE 119119 UL E222911
Alt.	Ultra Tech Xiphi Enterprise Co. Ltd.	HQX	X1 or X2, AC275V, Max. 0.47µF, 40/100/21/C	IEC/EN 60384-14 UL 1414	VDE 40024534 UL E183780
Alt.	Dain Electronics Co., Ltd.	MPX, MEX, NPX	X1 or X2, AC275V, Max. 0.47µF, 40/100/21/C	IEC/EN 60384-14 UL 1414	VDE 40018798 UL E147776
Alt.	JOEY ELECTRONICS (DONG GUAN) CO LTD	MPX	X1 or X2, AC275V, Max. 0.47µF, 40/100/21/C	IEC/EN 60384-14 UL 1414	VDE40024103 VDE40032481 UL E216807
Alt.	DONGGUAN EASY-GATHER ELECTRONIC CO LTD	MKP or MKP-X2	X2, AC300V, Max. 0.47µF, 40/105/26/C or B	IEC/EN 60384-14 UL 1414	VDE40022258 UL E252221
Varistor (MOV1) (optional)	JOYIN CO LTD	10N471K, 14N471K	Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56,V-1	IEC 61051-2 UL 1449	VDE 005937 UL E325508
Alt.	CENTRA SCIENCE CORP	10D471K, 14D471K	Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56,V-1	IEC 61051-2 UL 1449	VDE 40008220 UL E316325

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

Alt.	THINKING ELECTRONIC INDUSTRIAL CO LTD	TVR10471K, TVR14471K	Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56,V-1	IEC 61051-2 UL 1449	VDE 005944 UL E314979
Alt.	SUCCESS ELECTRONICS CO LTD	SVR10D471K , SVR14D471K	Max continuous voltage: 300VAC, 6kV/3kA, 40/85/56,V-1	IEC 61051-2 UL 1449	VDE 40030401 UL E330256
Alt.	Xiamen Set Electronics Co.,Ltd	TFV8S471K	Max. Continuous voltage: 300Vac(rms), Min. 105°C, The coating is Min. V-0	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, IEC 62368-1:2018 Annex G.8.1 and G.8.2	TUV-RH (J 50554061)
Alt.	Xiamen Set Electronics Co.,Ltd	TFV10S471K	Max. Continuous voltage: 300Vac(rms), Min. 105°C, The coating is Min. V-0	IEC 61051-1, IEC 61051-2, IEC 61051-2-2, IEC 62368-1:2018 Annex G.8.1 and G.8.2	TUV-RH (J 50554091)
Alt.	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	10D621K	Max. Continuous voltage: 385Vac(rms), Min. 125 C, The coating is Min. V-0	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	VDE 40023049
Alt.	Guangdong Huiwan Electronics Technology Co.Ltd.	V-621K-10 DEH	Max. Continuous voltage: 385Vac(rms), Min. 125 C, The coating is Min. V-0	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	VDE 40043880
Alt.	Thinking Electronic Industrial Co., Ltd.	TVR10621	Max. Continuous voltage: 385Vac(rms), Min. 125 C, The coating is Min. V-0	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	VDE005944

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

Optocoupler (U1)	LITE-ON Technology Corporation	LTV-817, LTV-817M, LTV-817S	Ext. Cr: min. 8.0 mm; DTI: min. 0.6 mm; Thermal cycling test. Max. operating temp.: 115°C	IEC/EN 60747-5-2 IEC/EN 62368-1 UL 1577	VDE 40015248 UL E113898
Alt.	Everlight Electronics Co., Ltd.	EL817	Ext. Cr: min. 7.7 mm; DTI: min. 0.5 mm; Thermal cycling test. Max. operating temp.: 110°C	IEC/EN 60747-5-2 IEC/EN 62368-1 UL 1577	VDE 132249 UL E214129
Alt.	Bright Led Electronics Corp.	BPC-817, BPC-817 M, BPC-817 S	Ext. Cr: min. 7.0 mm; DTI: min. 0.4 mm; Thermal cycling test. Max. operating temp.: 100°C	IEC/EN 60747-5-2 IEC/EN 62368-1 UL 1577	VDE 40007240 UL E236324
Alt.	COSMO ELECTRONICS CORP	K1010, KP1010	Dti=0.6mm Int.dcr=4.0mm, Ext.dcr=5.0mm, thermal cycling test,115°C	IEC/EN 60747-5-2 IEC/EN 62368-1 UL 1577	VDE101347 UL E169586
Alt.	SHENZHEN ORIENT COMPONENTS CO LTD	ORPC-817Mx, ORPC-817Sx, ORPC-817x	Ext. Cr: min. 7.6 mm; DTI: min. 0.6 mm; Thermal cycling test. Max. operating temp.: 110°C	IEC/EN 60747-5-2 IEC/EN 62368-1 UL 1577	VDE40029733 UL E323844
Inductor (LF1) (Optional)	GlobTek/HAOPU WEI/HEJIA/BOAM /ENG	NF00109, RC00088	130°C	IEC/EN 62368-1	Tested with appliance
Choke (LF2) (Optional)	GlobTek/HAOPU WEI/HEJIA/BOAM /ENG	RC00150	130°C	IEC/EN 62368-1	Tested with appliance
Choke (L1)	GlobTek/HAOPU WEI/HEJIA/BOAM /ENG	RC00085	130°C	IEC/EN 62368-1	Tested with appliance

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

Choke (L2)	GlobTek/HAOPUWEI/HEJIA/BOAM/ENG	XF00730	130°C, with bobbin material as T1 transformer.	IEC/EN 62368-1	Tested with appliance
Transformer (T1)	GlobTek/HAOPUWEI/BOAM/ENG	XF00735 for 12-14.9V, XF00734 for 15-17.9V, XF00738 for 18-20V, XF00722 for 20.1-24V	Class B, with insulation system and critical component listed below	IEC/EN 62368-1	Tested with appliance
-Insulation system	GLOBTEK INC	GTX-130-TM	Class 130(B)	IEC/EN 62368-1 UL 1446	UL E243347 Tested with appliance
-Alt.	WUXI HAOPUWEI ELECTRONICS CO LTD	ZT-130	Class 130(B)	IEC/EN 62368-1 UL 1446	UL E315275 Tested with appliance
-Alt.	SHAN DONG BOAM ELECTRIC CO LTD	BOAM-01	Class 130(B)	IEC/EN 62368-1 UL 1446	UL E252329 Tested with appliance
-Alt.	ENG ELECTRIC CO LTD	ENG130-1	Class 130(B)	IEC/EN 62368-1 UL 1446	UL E308897 Tested with appliance
-Magnet wire (Primary)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U	130°C	IEC/EN 62368-1 UL 1446	UL E201757 Tested with appliance
-Alt.	JUNG SHING WIRE CO LTD	UEW-4, UEY-2	130°C	IEC/EN 62368-1 UL 1446	UL E174837 Tested with appliance
-Alt.	JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD	2UEW/130	130°C	IEC/EN 62368-1 UL 1446	UL E335065 Tested with appliance

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

-Alt.	WUXI JUFENG COMPOUND LINE CO LTD	2UEWB	130°C	IEC/EN 62368-1 UL 1446	UL E206882 Tested with appliance
-Alt.	JIANGSU DARTONG M & E CO LTD	UEW	130°C	IEC/EN 62368-1 UL 1446	UL E237377 Tested with appliance
-Alt.	SHANDONG SAINT ELECTRIC CO LTD	UEW/130	130°C	IEC/EN 62368-1 UL 1446	UL E194410 Tested with appliance
-Alt.	ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD	UEW	130°C	IEC/EN 62368-1 UL 1446	UL E222214 Tested with appliance
-Triple-insulated wire (Secondary)	GREAT LEOFLON INDUSTRIAL CO LTD	TRW(B)	Min.130°C	IEC/EN 60950-1 UL 2353	UL E211989 Tested with appliance
-Alt.	KBI COSMOLINK CO LTD	TIW-M	Min.130°C	IEC/EN 60950-1 UL 2353	UL E213764 Tested with appliance
-Alt.	FURUKAWA ELECTRIC CO LTD	TEX-E	Min.130°C	IEC/EN 60950-1 UL 2353	UL E206440 Tested with appliance
-Alt.	TOTOKU INC.	TIW-2	Min.130°C	IEC/EN 60950-1 UL 2353	UL E166483 Tested with appliance
-Alt.	E&B TECHNOLOGY CO LTD	E&B-XXXB, E&B-XXXB-1	Min.130°C	IEC/EN 60950-1 UL 2353	UL E315265 Tested with appliance
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J, T375HF	V-0, 150°C, thickness 0.45 mm min.	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E59481 Tested with appliance
-Alt.	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, 150°C, thickness 0.45 mm min.	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E41429 Tested with appliance

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

-Alt.	Resonac Corporation	CP-J-8800	V-0, 150°C, thickness 0.45 mm min.	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E42956 Tested with appliance
-Insulating tape	3M COMPANY	1350F-1, 1350T-1, 44	Min.130°C	IEC/EN 60950-1 UL 510	UL E17385 Tested with appliance
-Alt.	BONDTEC PACIFIC CO LTD	370S	Min.130°C	IEC/EN 60950-1 UL 510	UL E175868 Tested with appliance
-Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ, CT, WF	Min.130°C	IEC/EN 60950-1 UL 510	UL E165111 Tested with appliance
-Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A	Min.130°C	IEC/EN 60950-1 UL 510	UL E246950 Tested with appliance
-Alt.	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	Min.130°C	IEC/EN 60950-1 UL 510	UL E246820 Tested with appliance
Insulating tube for HS3, HS4 alternate wrapping material	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR, RSFR-H, RSFR-HPF, WF	600V, 125°C	IEC/EN 60950-1 UL 224	UL E203950 Tested with appliance
Alt.	QIFURUI ELECTRONICS CO	QFR-h	600V, 125°C	IEC/EN 60950-1 UL 224	UL E225897 Tested with appliance
Alt.	DONGGUAN SALIPT CO LTD	SALIPT S-901-300, SALIPT S-901-600	Min. 300V, 125°C	IEC/EN 60950-1 UL 224	UL E209436 Tested with appliance

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

Alt.	GUANGZHOU KAIHENG ENTERPRISE GROUP	K-2 (+), K-2 (CB)	Min. 300V, 125°C	IEC/EN 60950-1 UL 224	UL E214175 Tested with appliance
Alt.	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-HFT CB-TT-T, CB-TT-S	Min. 300V, 125°C	IEC/EN 60950-1 UL 224	UL E180908 Tested with appliance
Insulating sheet	FORMEX,DIV OF IL TOOL WORKS INC, FRMRLY FASTEX, DIV OF IL TOOL WORKS INC	FORMEX GK series	V-0, min. 0.4 mm thickness, 115°C	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E121855 Tested with appliance
Alt.	SK MICROWORKS CO LTD	SH71S	VTM-2, min. 0.4 mm thickness, 105°C	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E74359 Tested with appliance
Alt.	TORAY INDUSTRIES INC	Lumirror H10	VTM-2, min. 0.4 mm thickness, 105°C	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E86511 Tested with appliance
Alt.	SABIC INNOVATIVE PLASTICS US L LC	FR60 series, FR63 series, FR65 series, FR7 series, FR700 series	V-0, min. 0.4 mm thickness, 130°C	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E121562 Tested with appliance
Alt.	Sichuan LONGHUA FILM CO LTD	PP-BK-20, PP-BK-17, PP-BK-18	VTM-0, min. 0.4 mm thickness, 80°C	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E254551 Tested with appliance
Alt.	ITW Materials Technology (Shanghai) Co.,LTD	FORMEX-18, FORMEX-17	V-0, min. 0.4 mm thickness, 100°C	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	UL E256266 Tested with appliance
Enclosure	SABIC JAPAN L L C	945(GG)	Min.V-0 at 1.5mm thickness	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	UL E207780 Tested with appliance
Alt.	SABIC INNOVATIVE PLASTICS US L L C	915R(GG)	Min.V-0 at 1.5mm thickness	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	E121562 Tested with appliance

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

Alt.	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD	LUPOY EF-1006F(m)	Min.V-0 at 1.5mm thickness	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	E248280 Tested with appliance
Alt.	COVESTRO DEUTSCHLAND AG [PC RESINS]	FR6005 + (z)	Min.V-0 at 1.5mm thickness	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	E41613 Tested with appliance
Alt.	SILVER AGE ENGINEERING PLASTICS (DONGGUAN) CO LTD	PC2330	Min.V-0 at 1.5mm thickness	IEC/EN 62368-1 UL 94 UL 746 A/B/C/D	E225348 Tested with appliance
Earthing wire for Class I model	KUNSHAN NEW ZHICHENG ELECTRONICS TECHNOLOGIE S CO LTD	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	UL E237831 Tested with appliance
Alt.	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	UL E333601 Tested with appliance
Alt.	YONG HAO ELECTRICAL INDUSTRY CO LTD	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	UL E240426 Tested with appliance
Alt.	Suzhou Jiahuishu Electronic Co Ltd	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	UL E353532 Tested with appliance
Alt.	DONG GUAN FU SHEN ELECTRIC WIRE FACTORY	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	UL E218170 Tested with appliance
Alt.	Dongguan Genshuo electronic wiring Co., Ltd	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	E526170 Tested with appliance
Alt.	JHI WEI ELECTRIC WIRE & CABLE CO LTD	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	E157717 Tested with appliance

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

Alt.	ZHONGSHAN MONITRONICS CO LTD	1815, 1015, 1007	Min. 18 AWG, Min. 300V, Min. 80°C	IEC/EN 62368-1 UL 758	E306307 Tested with appliance
Y-Capacitor (CY1)	SUCCESS ELECTRONICS CO LTD	SE, SB	CY1: max. 2200pF type Y1	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40020001 VDE40020002 UL E114280
Alt.	MURATA MFG CO LTD	KX	CY1: max. 2200pF type Y1	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40002831 VDE 40002790 UL E37921
Alt.	TDK CORP	CD	CY1: max. 2200pF type Y1	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40029780 UL E37861
Alt.	JUSUN (TAISHAN) ELECTRONICS LTD	JB	CY1: max. 2200pF type Y1	IEC/EN 60384-14 UL 60384-14 UL 1414	ENEC-01320-M2 UL E253194
Alt.	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	YO-series	CY1: max. 2200pF type Y1	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE40036880 UL E319473
Alt.	DONGGUAN EASY-GATHER ELECTRONIC CO LTD	DCF	CY1: max. 2200pF type Y1	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE40022942 ULE252221
Y-Capacitor (CY2 for Class I) (optional)	SUCCESS ELECTRONICS CO LTD	SF, SE, SB	CY1: max. 2200pF type Y1; CY2 : max. 3300pF, type Y1 or Y2. min. 250V. 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE40020001 VDE40020002 VDE40019457 UL E114280
Alt.	MURATA MFG CO LTD	KX, KH	CY1: max. 2200pF type Y1; CY2 : max. 3300pF, type Y1 or Y2. min. 250V. 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40002831 VDE 40002790 UL E37921

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

Alt.	TDK CORP	CD, CS	CY1: max. 2200pF type Y1; CY2 : max. 3300pF, type Y1 or Y2. min. 250V. 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40029780 VDE 40029781 UL E37861
Alt.	JUSUN (TAISHAN) ELECTRONICS LTD	JB JA	CY1: max. 2200pF type Y1; CY2 : max. 3300pF, type Y1 or Y2. min. 250V. 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	ENEC-01320-M2 ENEC-01805-M2 UL E253194
Alt.	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD	YO-series YT Series	CY1: max. 2200pF type Y1; CY2 : max. 3300pF, type Y1 or Y2. min. 250V. 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE40036880 VDE40044114 UL E319473
Alt.	DONGGUAN EASY-GATHER ELECTRONIC CO LTD	DCF	CY1: max. 2200pF type Y1; CY2 : max. 3300pF, type Y1 or Y2. min. 250V. 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE40022942 VDE40015758 ULE252221
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. For all transformers under all manufacturers.					

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

Attachment for transformer as below:

Product Model	Voltage range	Transformer model	Pri. Turns	Sec. Turns	Aux. Turns	Construction type
GT-43004P***-T* series	12-14.9V	XF00735	36T	4T	7T	--
	15-17.9V	XF00734	36T	5T	7T	
	18-20V	XF00738	36T	5T	6T	
	20.1-24V	XF00722	36T	6T	6T	

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

ATTACHMENT TO TEST REPORT **IEC 62368-1** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** (AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS)		
Differences according to.....:	EN IEC 62368-1:2020+A11:2020	
Attachment Form No.....:	EU_GD_IEC62368_1E	
Attachment Originator .....:	UL(Demko)	
Master Attachment.....:	2021-02-04	
	CENELEC COMMON MODIFICATIONS (EN)	
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed “Z”.	P
	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
1	**Modification to Clause 3 .**	
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Considered.	N/A
3.3.19.3	**sound exposure, *E*** A-weighted sound pressure (*p*) squared and integrated over a stated period of time, *T* Note 1 to entry: The SI unit is Pa^2 s. $E = \int_0^T p(t)^2 \, dt$		N/A
3.3.19.4	**sound exposure level, *SEL*** logarithmic measure of sound exposure relative to a reference value, *E0*, typically the 1 kHz threshold of hearing in humans. Note 1 to entry: *SEL* is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0}\right)$ dB Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	**Modification to Clause 10**		
10.6	**Safeguards against acoustic energy sources** Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	**Introduction**		N/A

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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 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 LAeq,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 LAeq,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 LAeq,T) which is much lower than the average programme simulation noise. Therefore, if		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be 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		N/A

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

	exceeds RS2 limits.		
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** All volume controls shall be turned to maximum during tests.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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. 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.		N/A

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

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

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

	faster. Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		

10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB *L*Aeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
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		N/A

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

	output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		
	Delete all the "country" notes in the reference document according to the following list:		P

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

4	**Modification to Clause 1**		
1	***Add** the following note:* *NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.*		P

5	**Modification to 4.Z1**	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Replaced.	P
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.	Added.	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.	No such radiation from the equipment.	N/A

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

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 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.	LED indicator used.	N/A
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.		P

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

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.		P
11	**ADDITION OF ANNEXES**		
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”	The equipment is Class I equipment. The marking text must be provided when marketed in applicable countries.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	The equipment is not direct plug-in equipment.	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.	No high touch current.	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 • 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:	No TNV circuits.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	• 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).	Considered.	P
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.	No such resistors.	N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Considered.	P
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.	Considered.	P
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.	Considered.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.	See above.	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.	Considered.	P
5.7.6	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	No high protective conductor current.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 .	No external circuits.	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 utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish:	Not such system.	N/A

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

	”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	The equipment is not direct plug-in equipment.	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 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		N/A

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

	compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.	The equipment is not direct plug-in equipment.	N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a ‘standard plug’ in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de	No CRT within the equipment.	N/A

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

ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)	
		N/A

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

IEC 62368-1			
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 2021-02-04

IEC 62368-1 - US and Canadian National Differences
Special National Conditions based on Regulations and Other National Differences

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.	Considered.	P
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.*	Not exceeding 3.05 m.	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.	Overall acceptance has to be evaluated during the national approval process.	N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.	No such parts.	N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.	No such parts.	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.*	No such parts.	N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.	No outdoor equipment.	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.	An appliance inlet provided that is connected by an approved appliance coupler serves as main protective earthing terminal. No power supply cord is provided.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	No TNV circuits within the equipment.	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.	No such parts.	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.	No DC output connector is provided.	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.	No outdoor equipment.	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.	The equipment is not permanent connection equipment.	N/A
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	No power supply cord is provided.	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.	See above.	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.	See above.	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.”	No outdoor equipment.	N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	No TNV circuits within the equipment.	N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits within the equipment.	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.	The equipment not intended to be used within such environments.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	The equipment not intended to be used within such environments.	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.	The equipment not intended to be used within such environments.	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.	Not such equipment.	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.	The equipment is not for children used.	N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a 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.	Not such equipment.	N/A
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquids within the equipment.	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.	No such application.	N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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).	No such parts.	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.”	Single phase only.	N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.	Not such application.	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.	No such parts.	N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard supply outlets, receptacles, medium-base or smaller lampholders are provided.	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.	No such parts.	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.	No such parts.	N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.	No such parts.	N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No such parts.	N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).	No such parts.	N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord.	No such parts.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Not such application.	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 maximum current, or maximum voltage and nominal current output for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.	Not applicable for the equipment.	N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring.	Not applicable for the equipment.	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.	No outdoor equipment.	N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.	Not such application.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	Not such application.	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.	UL approved components are used. Refer to table 4.1.2 of IEC 62368-1 test report for details.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	The equipment is not permanently connected equipment.	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.	The equipment is pluggable equipment type A.	N/A
Annex DVH (DVH.3.2)	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.	No terminals for permanent wiring.	N/A
	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).	No wire binding screws.	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	The equipment is not permanently connected equipment.	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.	The equipment not connected to a centralized d.c. power system.	N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No TNV circuits within the equipment.	N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	No TNV circuits within the equipment.	N/A

IEC 62368-1			
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. ..... : **Attachment Originator.....** : **Master Attachment**..... :	AU_NZ_ND_IEC62368_1E JAS-ANZ 2022-07-01	
Copyright © 2020 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.		
	National Differences	
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand	P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0)	P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:	-
2	After the first paragraph, *add* 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, *Approval and test specification—Plugs and socket-outlets* -AS/NZS 3123, *Approval and test specification—Plugs, socket-outlets and couplers for general industrial application* -AS/NZS 3191, *Electric flexible cords* *-AS/NZS 60884.1.Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* *-IEC 60086-2 Primary batteries — Part 2: Physical and electrical specifications* -AS/NZS 60065, *Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)* -AS/NZS 60320.1, *Appliance couplers for household and similar general purposes,*	-

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD) -AS/NZS 60320.2.2, *Appliance couplers for household and similar general purposes* *Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)* -AS/NZS 60695.2.11*, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products* -AS/NZS 60695.11.5, *Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance* -AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods* -AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* -AS/NZS 60950.1, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)* IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification* -AS/NZS 61558.1, *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)* -AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.*		
4.7.2	**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 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.7.3	**Compliance Criteria** *Delete* this clause		N/A
4.8.1	**General** After second list, *add* 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** *Delete* the first paragraph and *replace* 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	*Delete* Table 28 and *replace* with the following:		N/A

Parts	Impulse test		Steady state test	
	New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) [a]	2.5 kV	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) [b]	1.5 kV [c]		1.0 kV	1.5 kV

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

5.4.10.2.2	*Delete* “NOTE” and *replace* with “NOTE 1”. After NOTE 1, *add* 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	*Delete* “NOTE” and *replace* with “NOTE 1”. After NOTE 1, *add* 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

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

6	**Electrically-caused fire**		P
6.6	After Clause 6.6, *add* 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**		N/A
Table 36	Footnote [a], after first sentence, *add* the following: Equipment having displays with moving images shall include “television sets and display devices”.		
8.6.1	After Clause 8.6.1 *add* 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** *Delete* “NOTE” and *replace* with NOTE1” After NOTE 1, *add* 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, *add* 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

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

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 *After* first paragraph *add* 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 *replace* ‘IEC 61558-1 and the relevant parts of IEC 61558-2’ with ‘AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2’ 2 Fourth dashed point *replace* ‘IEC 61558-2-16’ with ‘AS/NZS 61558.2.16’.		N/A
Annex **G.7.1**	**Mains supply cords, General** Fourth dashed paragraph, *replace* ‘IEC 60320-1’ with ‘AS/NZS 60320.1’		N/A
Table G.7	**Sizes of conductors** 1 First column, second row, *delete* “6” and *replace* with “7.5” 2 Second column, second row, *delete* ‘0,75’ and *replace* with ‘0.75[b] 3 *Delete* NOTE 1. 4 *Replace* ‘NOTE 2’ with ‘NOTE:’. 5 *Delete* ‘Footnote b’ and *replace* 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 *replace* ‘IEC 60320-1’ with ‘AS/NZS 60320.1’ 7 Footnote d *replace* ‘IEC 60320-1’ with ‘AS/NZS 60320.1’		N/A
Annex M **M 2.1**	*Add* “IEC 60086-2” to the list		N/A

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

Annex M **Paragraph M.3.2**	**Test method** Delete"NOTE" and replace with "NOTE 1" After NOTE 1 *add* 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
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 singlefault condition and 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 after3 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, *TC 108, Standards Interpretation Panel Question 15 — Output voltage*, 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.		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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. Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point .		N/A

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

ATTACHMENT TO TEST REPORT

IEC 62368-1
SINGAPORE NATIONAL DIFFERENCES
AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS

Differences according to ..... : Special National Conditions

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

Attachment Form No. ..... : SG_ND_IEC62368_1E

Attachment Originator..... : Intertek Testing Services (Singapore) Pte Ltd

Master Attachment..... : 2021-05-03

	National Differences		P
	Not Applicable		-
Chapter 7	**Special national conditions (if any)** Controlled goods under Consumer Protection (Safety Requirements) Registration Scheme (CPS) are required to be tested to additional requirements stipulated by Enterprise Singapore in Chapter 7 of the CPS information booklet. The CPS information booklet is updated on an ongoing basis. At the point of testing, refer to the latest copy of the CPS information booklet for the minimum edition of standard to apply for testing of products under the CPS scheme and any new requirements. Link to CPS information booklet: https://www.enterprisesg.gov.sg/-/media/esg/files/quality-and-standards/consumer-protection/for-suppliers/cpsr/cps_infobooklet.pdf?la=en		N/A
3	All appliances must be tested to 230 VAC, 50 Hz.		P
4	Appliance fitted with voltage selector shall be tested as follows: Connect appliance to 230 VAC mains with voltage selector switch to settings not suitable for operation at 230 VAC.		P

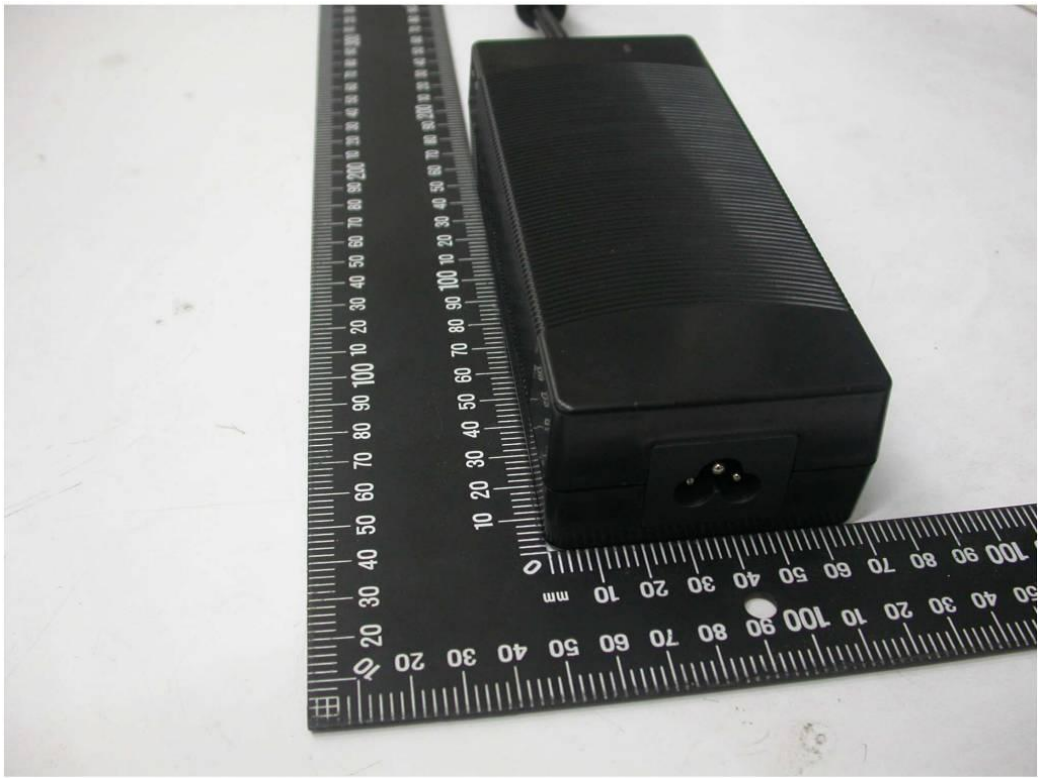
IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	All appliances (with tropical test requirements in applicable Standards) shall comply with the tropical condition test as stated in the relevant IEC Standards.		P
6	All Class I appliances (3-pin mains plug) must be fitted with 3-pin mains plugs complying with SS 145/SS 472 that are registered with the Authority.		N/A
7	a) All Class II appliances must be fitted with 2-pin mains plug complying with EN 50075. b) Class II appliances that are fitted with 3-pin mains plugs must use plugs that comply with SS 145 and registered with the Authority.		N/A
9	Detachable power cord set must be listed in the test report critical component list.		N/A
18	AC Adaptor incorporated with 13A socket-outlet to be tested to additional tests clauses 13, 17 and 18 of SS 246 (till 25/10/2021), or clauses 12.1 & 12.3 of SS 145 Part 3: 2020.		N/A
19	Supplier who is supplying AC adaptors with detachable interchangeable plug pins must include with its products, written instructions to inform customer on the type of detachable interchangeable plug pins that are approved and suitable to use in Singapore. These instructions are to be submitted to the Conformity Assessment Body for verification when applying for Certificate of Conformity.		N/A
20	For AC Adaptors supplied together with Personal Mobility Devices: 1. Registered Supplier to declare the model of the AC adaptor that is to be used with/ bundled together with the PMDs; 2. Registered Supplier to provide valid IEC 60950-1 or IEC 62368-1 test reports for certification and registration of the declared AC adaptor under the CPS scheme; and Registered Supplier to provide the UL 2272 test report as supporting document, showing that the listed AC adaptor in the UL 2272 test report is the model declared to be used with/ bundled together with the PMDs.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
21	CD/ DVD ROMs (used in personal computers) to have test certificate showing that CD/DVD ROM has complied with IEC 60825- 1.		N/A
22	Modem card incorporated in the personal computer must be tested at set level (sub-clauses 5.1 & 6 of IEC 60950) or at component level.		N/A
23	Powerline Ethernet Adaptor incorporated with 13A socket-outlet, to be tested to additional test clauses 13, 17 & 18 of SS 246 (till 25/10/2021), or clauses 13, 17 & 18 of SS 145 Part 3: 2020.		N/A
	Other additional requirements which may be included in Chapter 7 of the information booklet in ongoing basis at the time of testing.		N/A

Photograph of the Equipment under test (EUT)

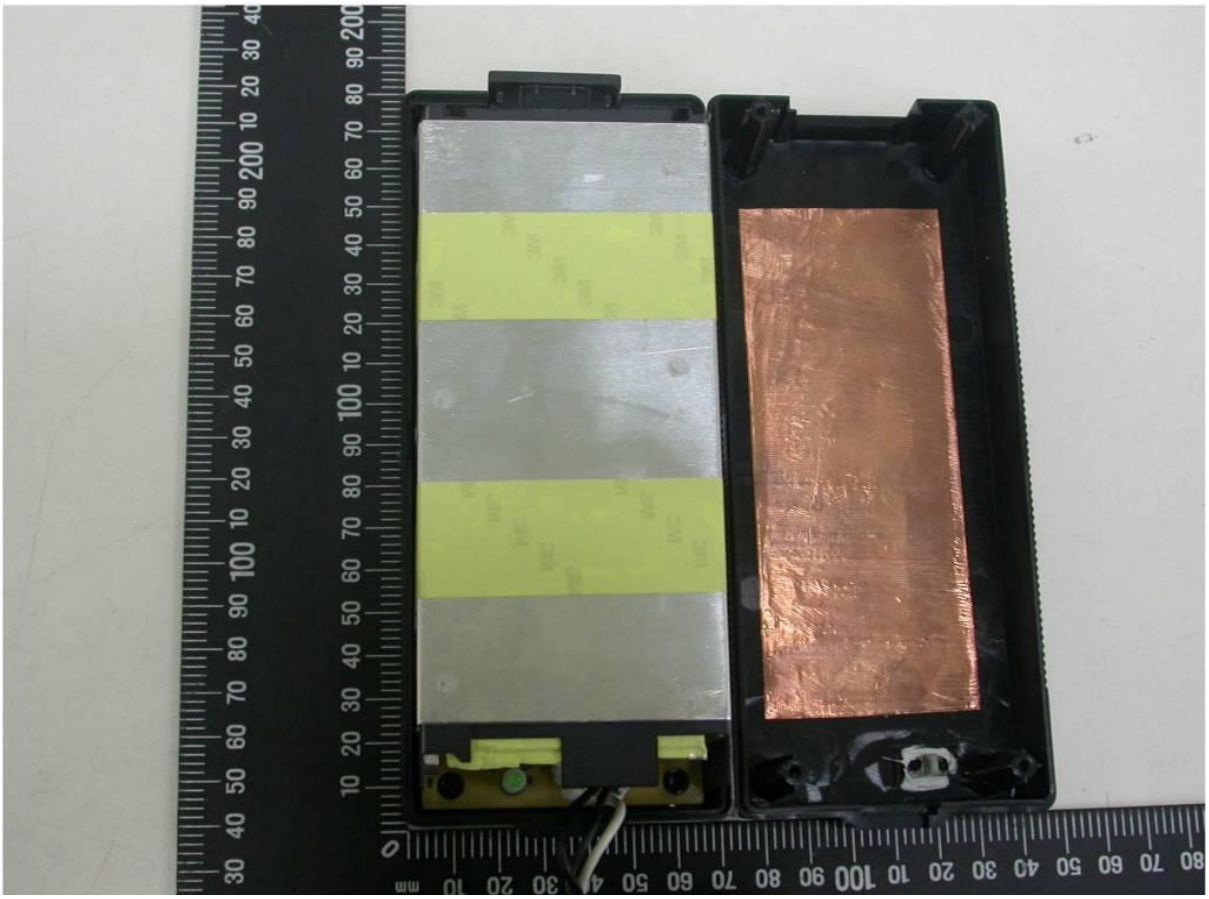
External view - EUT with appliance inlet complied with standard sheet C14 of IEC 60320

External view - EUT with appliance inlet complied with standard sheet C6 of IEC 60320

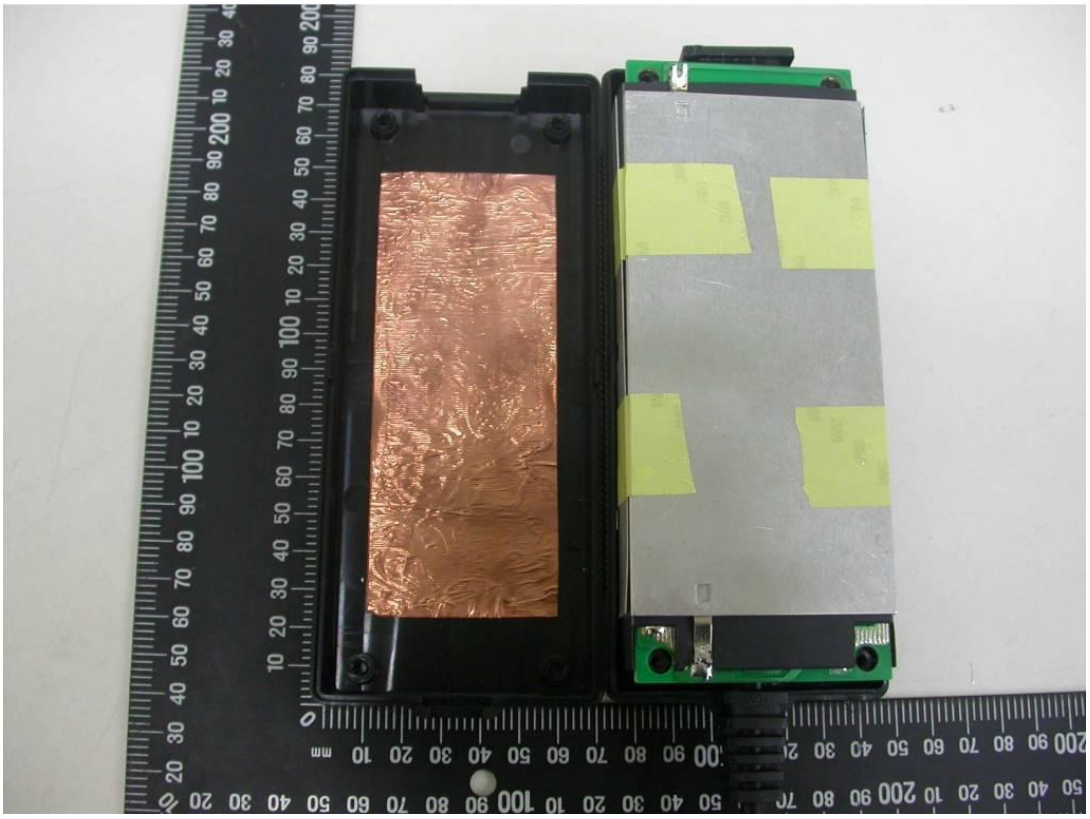


External view of EUT with appliance inlet complied with standard sheet C8 of IEC 60320

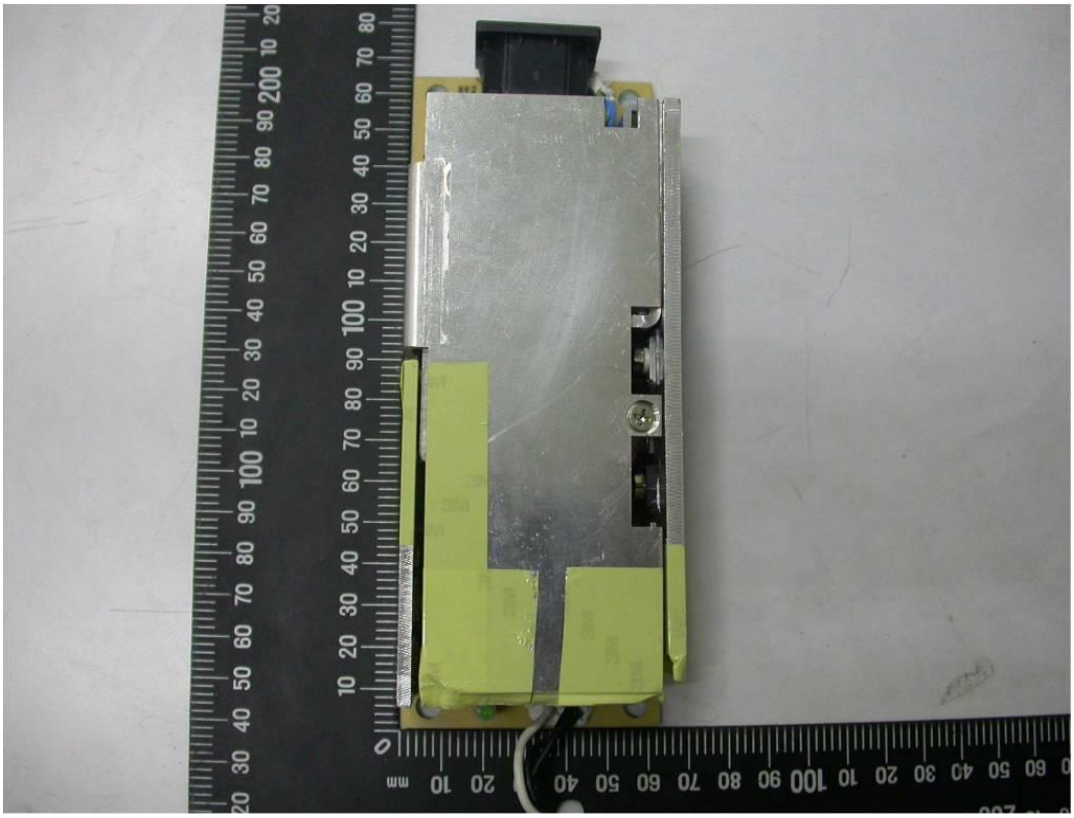
Internal view



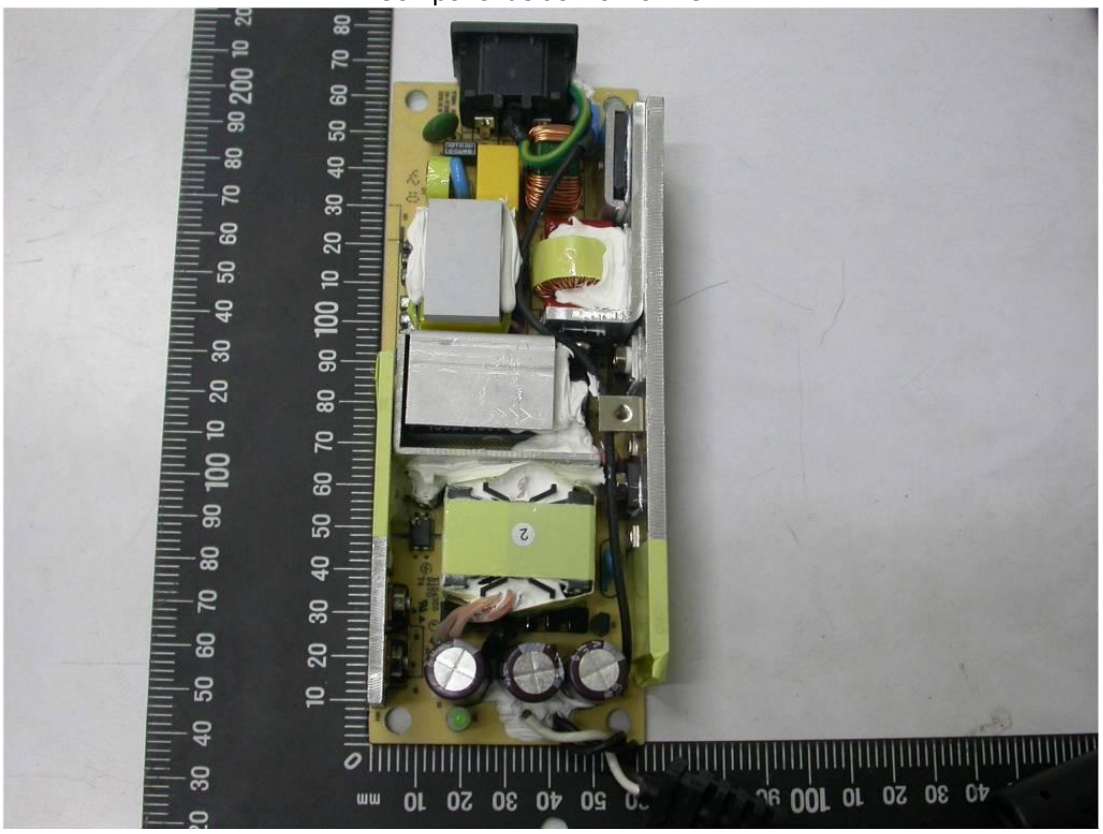
Internal view



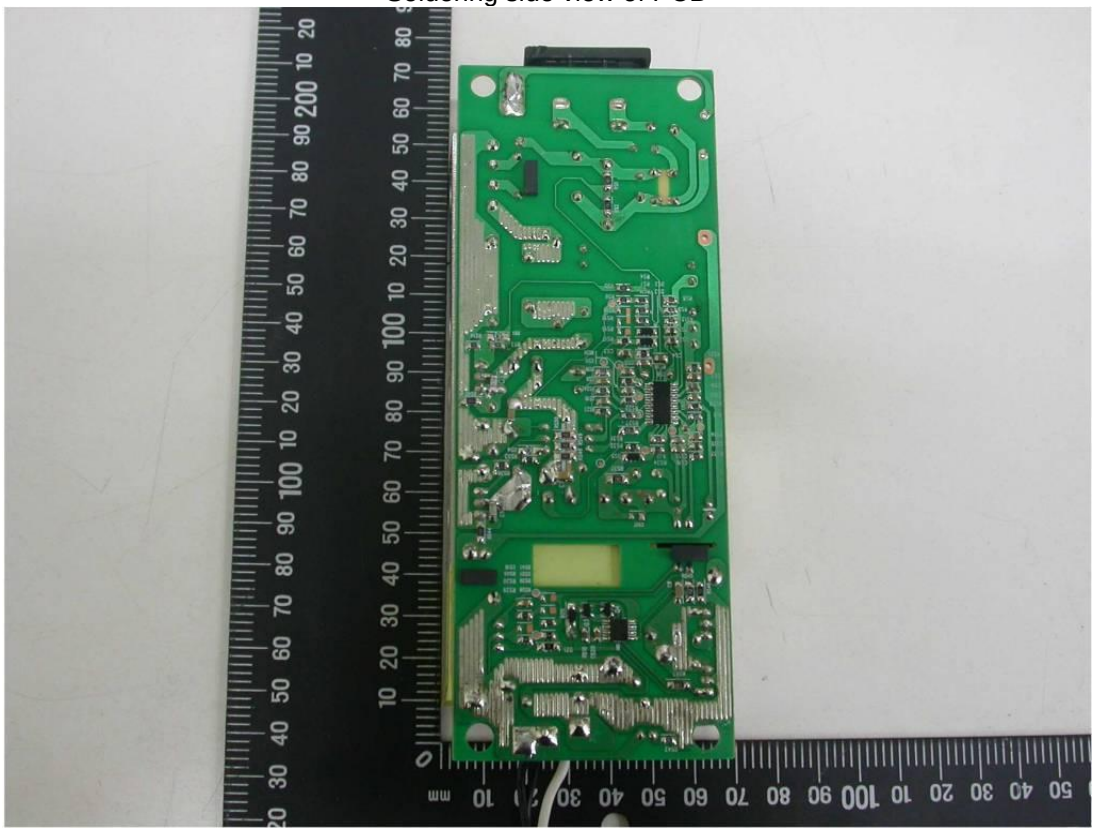
Internal view



Component side view of PCB

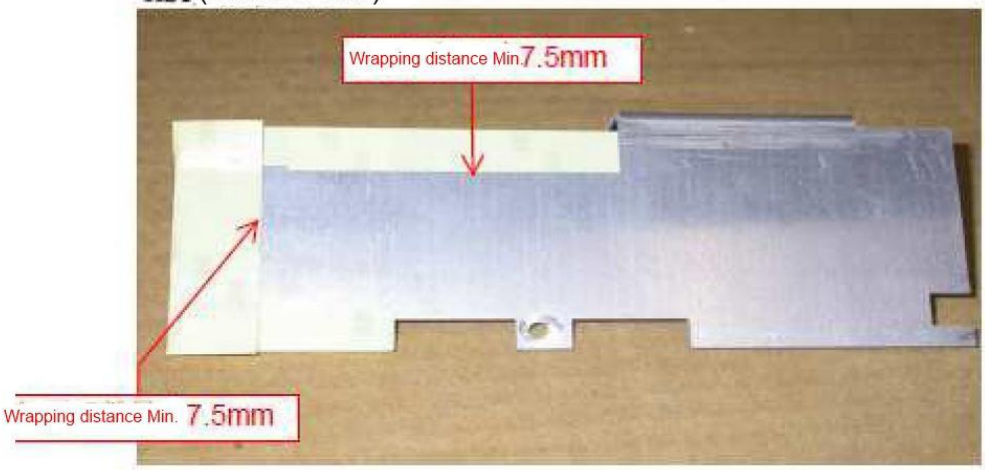


Soldering side view of PCB

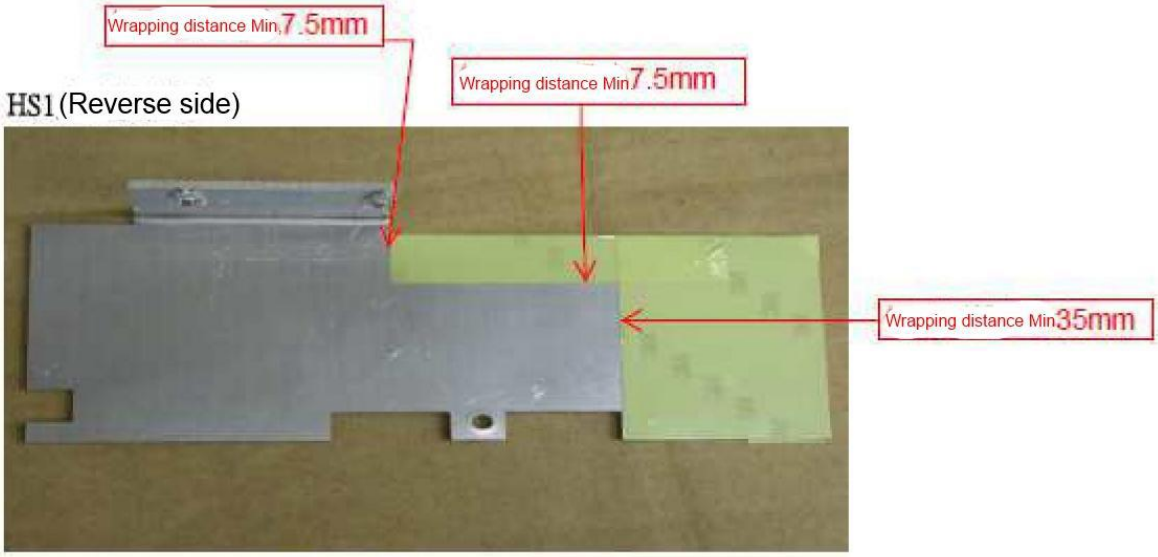


Dimension figure of insulation tape wrapped on heatsink

HS1 (Obverse side)

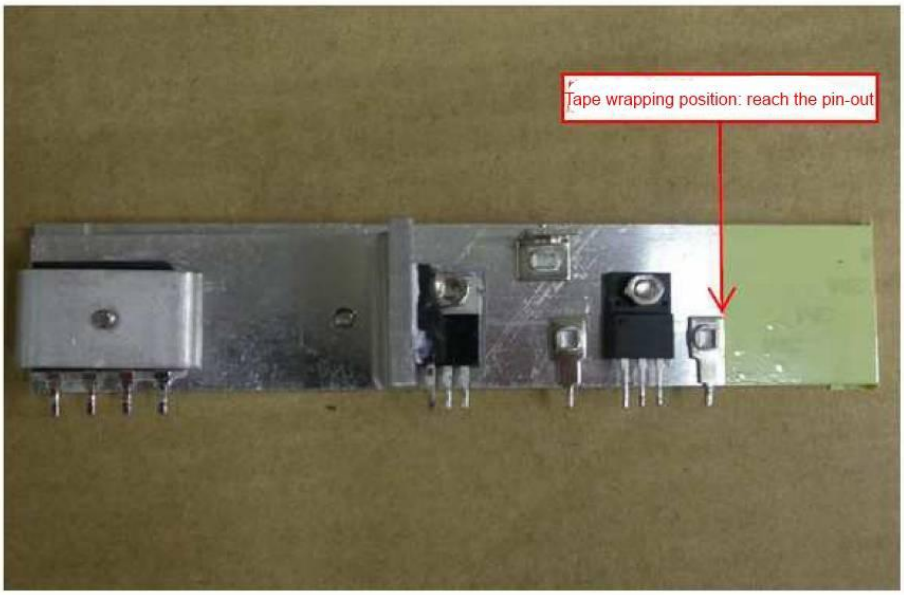


HS1 (Reverse side)

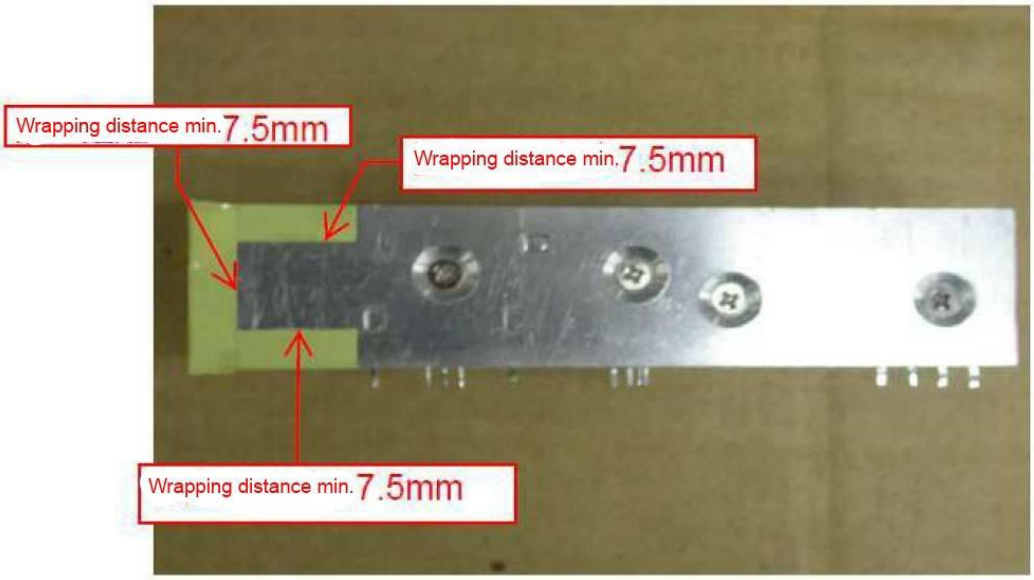


Dimension figure of insulation tape wrapped on heatsink (Cont.)

HS3 Obverse side

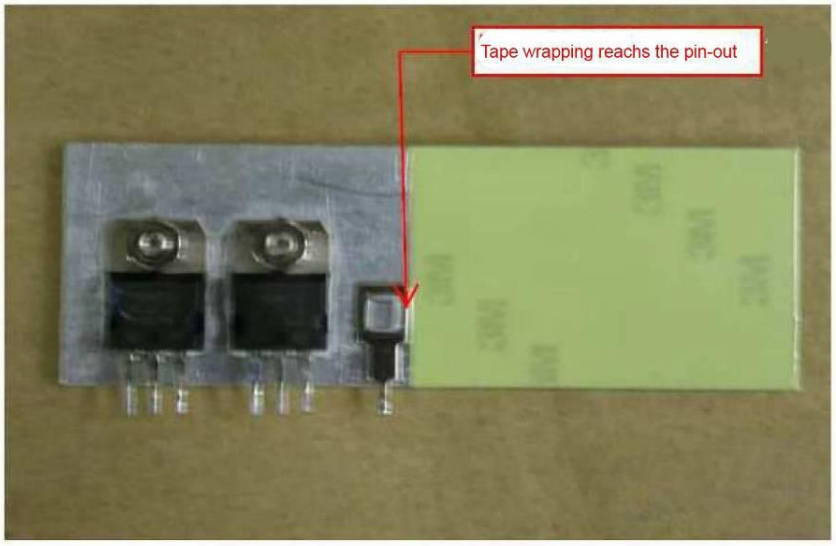


HS3 Reverse side

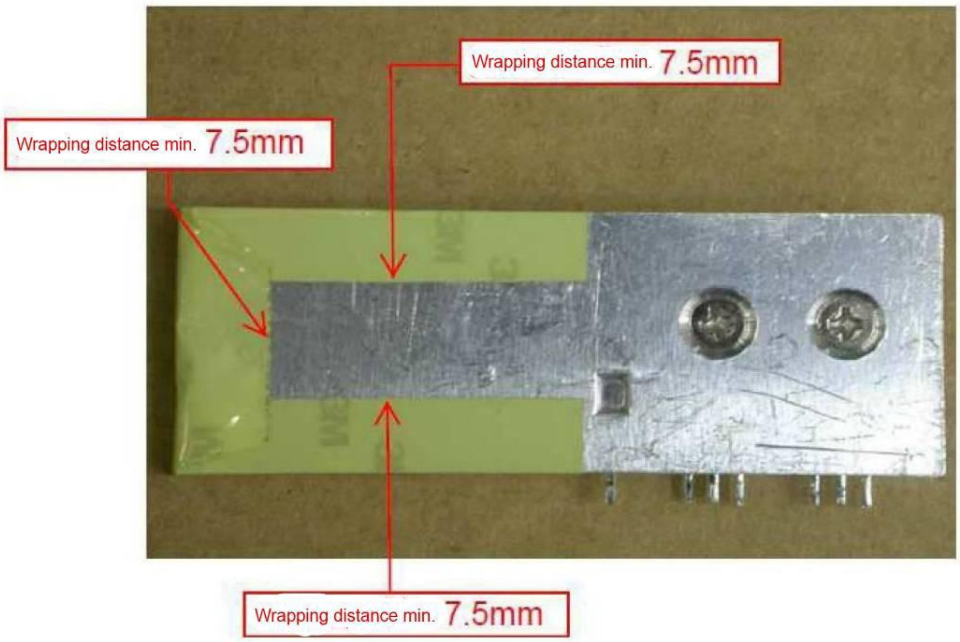


Dimension figure of insulation tape wrapped on heatsink (Cont.)

HS4 Obverse side

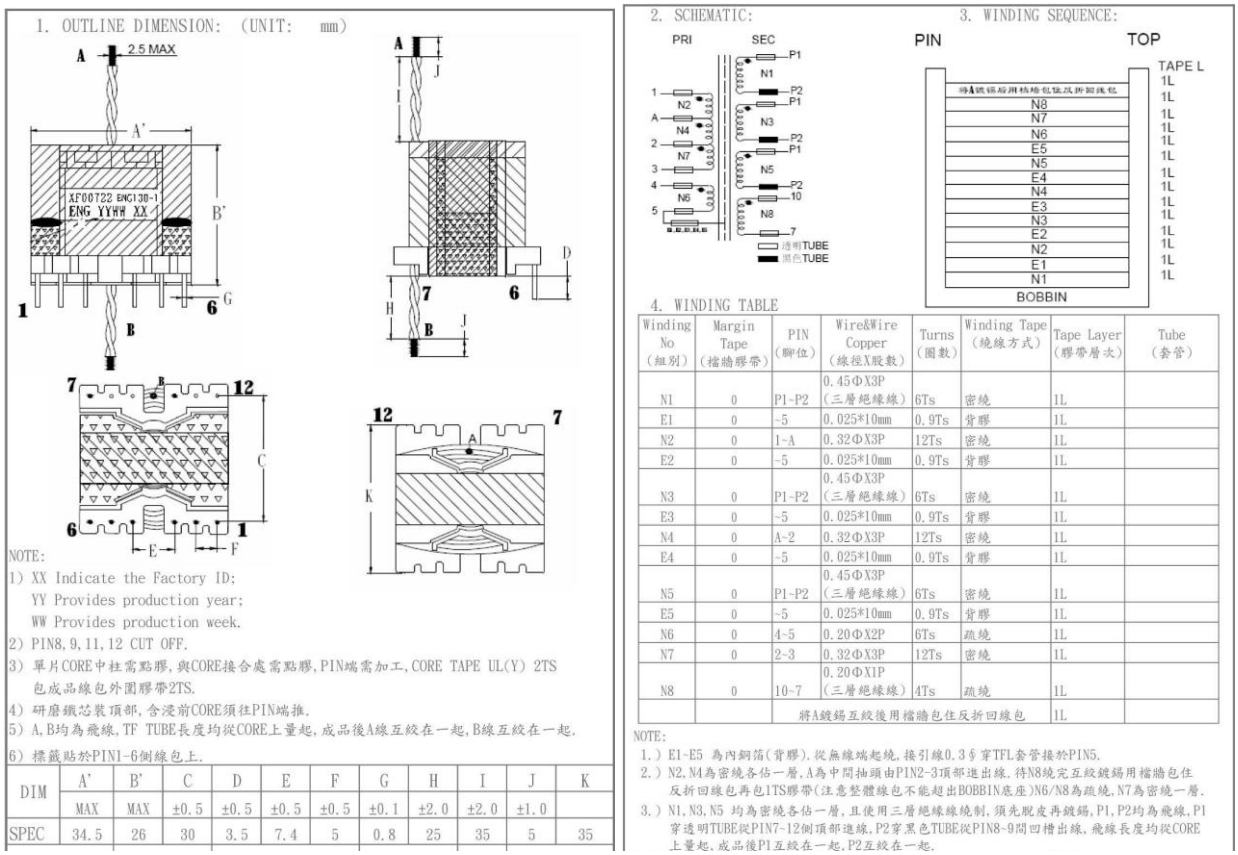


HS4 Reverse side



G.5.3.2	TABLE: Transformers	P
Construction details:		
Transformer T1		
Mfr.: see table 4.1.2		
Type: see table 4.1.2		
Recurring peak voltage	572V	
Required clearance insulation		
For Reinforced	4.0mm	
Effective voltage rms	368V	
Required creepage insulation		
For Reinforced	7.4mm	
Measured min. clearances		
Pri. winding –sec winding (Reinforced)	7.5mm min.	
Sec. winding -core (Reinforced)	8.5mm min.	
Measured min. creepages		
Pri. winding –sec winding (Reinforced)	7.5mm min.	
Sec. winding -core (Reinforced)	8.5mm min.	
Note: 1) All transformers have the same construction, they are identical except for manufacturer and type. 2) With the equipment to be operated at 4000m above sea level max. the minimum clearances is multiplied by the factor 1.29.		

Construction:



DIM	A'	B'	C	D	E	F	G	H	I	J	K
	MAX	MAX	±0.5	±0.5	±0.5	±0.5	±0.1	±2.0	±2.0	±1.0	
SPEC	34.5	26	30	3.5	7.4	5	0.8	25	35	5	35

Winding No (組別)	Margin Tape (檔牆膠帶)	PIN (腳位)	Wire&Wire Copper (線徑X股數)	Turns (圈數)	Winding Tape (繞線方式)	Tape Layer (膠帶層次)	Tube (套管)
N1	0	P1~P2	0.45ΦX3P (三層絕緣線)	6Ts	密繞	1L	
E1	0	~5	0.025*10mm	0.9Ts	背膠	1L	
N2	0	1~A	0.32ΦX3P	12Ts	密繞	1L	
E2	0	~5	0.025*10mm	0.9Ts	背膠	1L	
N3	0	P1~P2	0.45ΦX3P (三層絕緣線)	6Ts	密繞	1L	
E3	0	~5	0.025*10mm	0.9Ts	背膠	1L	
N4	0	A~2	0.32ΦX3P	12Ts	密繞	1L	
E4	0	~5	0.025*10mm	0.9Ts	背膠	1L	
N5	0	P1~P2	0.45ΦX3P (三層絕緣線)	6Ts	密繞	1L	
E5	0	~5	0.025*10mm	0.9Ts	背膠	1L	
N6	0	4~5	0.20ΦX2P	6Ts	疏繞	1L	
N7	0	2~3	0.32ΦX3P	12Ts	密繞	1L	
N8	0	10~7	0.20ΦX1P (三層絕緣線)	4Ts	疏繞	1L	
		將A鍍錫互絞後用檔牆包住反折回線包				1L	

Concentric windings on bobbin, 2 layers insulation tapes between primary and secondary windings. Secondary windings used triple insulated wire. Core is considered as danger part.

Pin numbers:	
Prim.	1-2-3- 4-5, A
Sec.	P1-P2, 7-10
Bobbin:	
Material	Refer to table 4.1.2
Thickness	Min. 0.45mm
Electric strength test	
With DC 4000V after humidity treatment	
Result	Pass