






TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number..... :	REP003706
Date of issue	2023-02-27
Total number of pages	88 pages, refer to page 4 for attachments.
Name of Testing Laboratory preparing the Report	Nemko Shanghai Ltd. Shenzhen Branch
Applicant's name	GlobTek, Inc.
Address	186 Veterans Dr. 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
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Test item description	ICT/ITE POWER SUPPLY
Trade Mark(s)	
Manufacturer	Same as Applicant
Model/Type reference	<p>GTM91099-WWVV-X.X-AB*</p> <p>("M" can be "M" or "-" for market identification and not related to safety;</p> <p>"WW" is the rated output wattage designation, with a maximum value of "60";</p> <p>"VV" is the standard rated output voltage designation, with a value of "09" "15" "24" and "48";</p> <p>"-X.X" can be any number to denote the optional voltage deviation subtracted from standard rated output voltage in 0.1 volt increments, or blank to indicate the no voltage difference;</p> <p>"VV-X.X" together denotes the voltage range 5V to 48V;</p> <p>"A": T is External/Desktop model;</p> <p>"B": When A=T, B can be 3, 3A, 2 or 2A, 3 means C14 inlet type, 3A means C6 inlet type, 2 means C8 inlet type, 2A means C8 inlet type.</p> <p>The last "*" denote any six character, which can be 0-9 or A-Z or () [] or – or blank for marketing purposes.)</p>
Ratings	<p>INPUT: 100-240V~, 50-60Hz or 50/60Hz, 1.5A</p> <p>OUTPUT: Refer to General product information</p>

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Nemko Shanghai Ltd. Shenzhen Branch
Testing location/ address		Unit CD, Floor 2 & Floor 10, Tower 2, Kefa Road 8#, Hi-Technology Park, Nanshan District, Shenzhen, Guangdong, China
Tested by (name, function, signature)		Ada Yan (Project Handler) 
Approved by (name, function, signature) ..		Jane Sun (Verifier) 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) .		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) .		
Approved by (name, function, signature) ..		
Supervised by (name, function, signature) :		

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

1. Photos (15 pages)
2. PCB layout (2 pages)
3. Transformer specification (14 pages)
4. European Deviation (22 pages)
5. US and Canada differences (7 pages)
6. Australian / New Zealand differences (8 pages) (Required by manufacturer)
7. Singapore (3 pages)
8. Japanese differences (4 pages)
9. China differences (5 pages)
10. SAUDI ARABIA differences (1 pages)

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

Clause	Test(s)
4	General Requirements
5	Electrically-caused injury
6	Electrically-caused fire
9	Thermal burn injury
B	Normal operating condition tests, abnormal operating condition tests and single fault condition tests
F	Equipment markings, instructions, and instructional safeguards
G	Components
L	Disconnect devices
N	Electrochemical potentials
O	Measurement of creepage distances and clearances
T	Mechanical strength tests
V	Determination of accessible parts

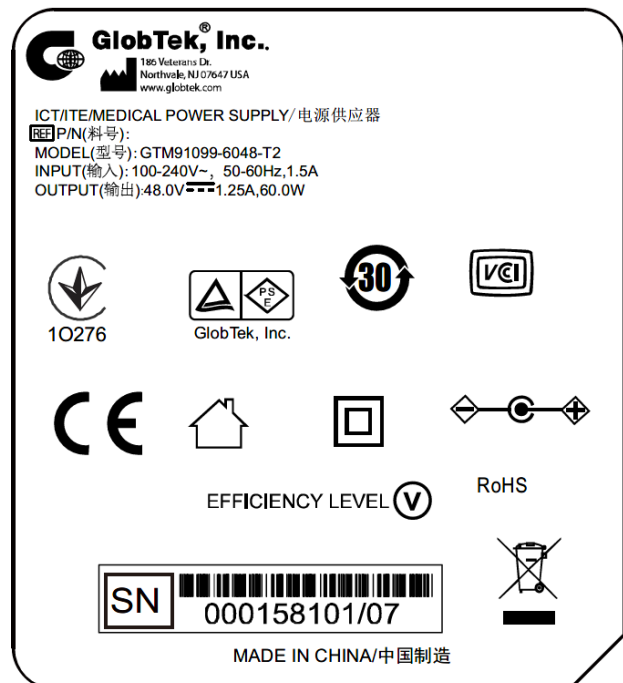
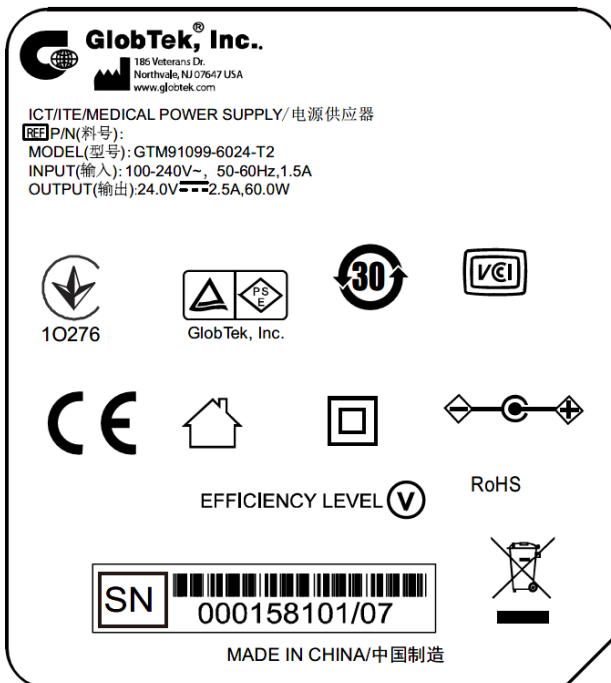
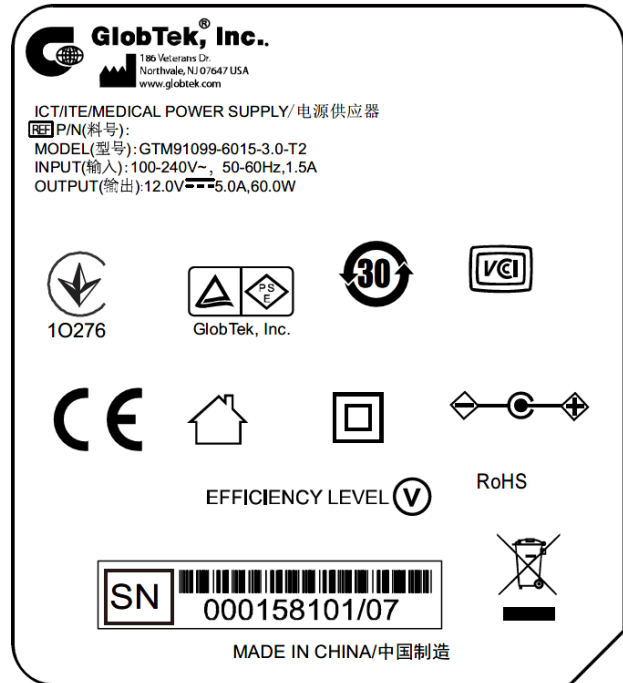
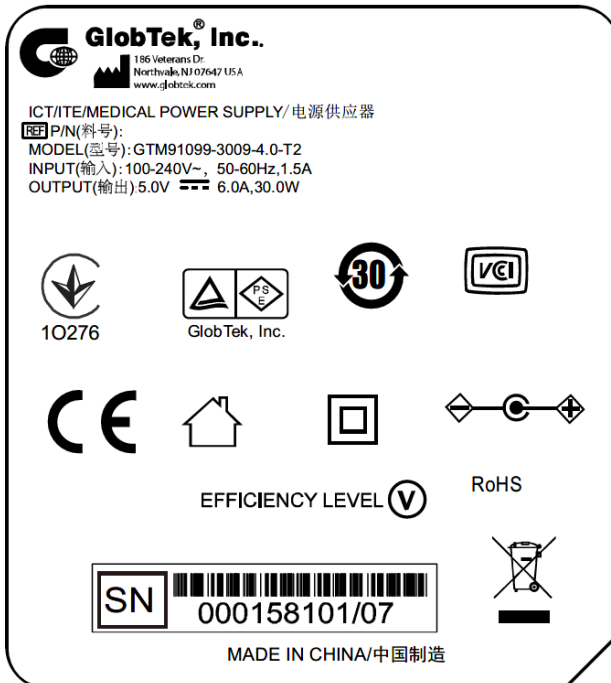
Testing location:

Refer to page 3

4.1, G.7 Power supply cord set	Power supply cord is not provided with the equipment, should be considered when market to relevant country.
4.1.15 Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.	<p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord."</p> <p>For Class I equipment, the manufacture confirmed the text must be applied on Class I equipment when market to these country.</p>
<p>Summary of compliance with National Differences (List of countries addressed):</p> <p>- Europe, US and Canada, Australian / New Zealand, Singapore, Japan, SAUDI ARABIA, and CHINA.</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of IEC 62368-1: 2018 (Third Edition) and EN IEC 62368-1: 2020+A11:2020</p>	
<p>Use of uncertainty of measurement for decisions on conformity (decision rule) :</p> <p><input checked="" type="checkbox"/> No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").</p> <p><input type="checkbox"/> Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)</p> <p>Information on uncertainty of measurement:</p> <p>The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.</p> <p>IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.</p> <p>Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.</p>	

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.

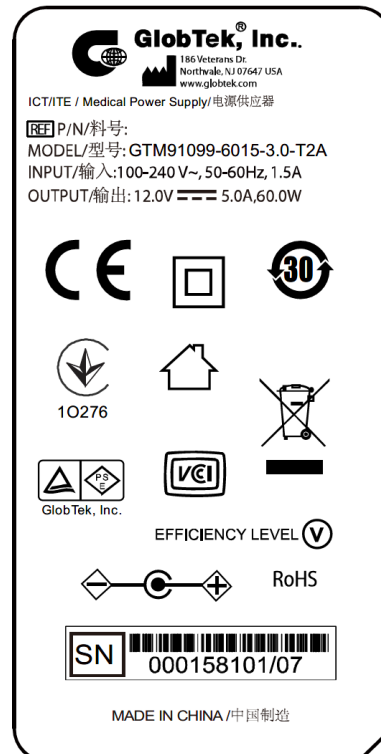
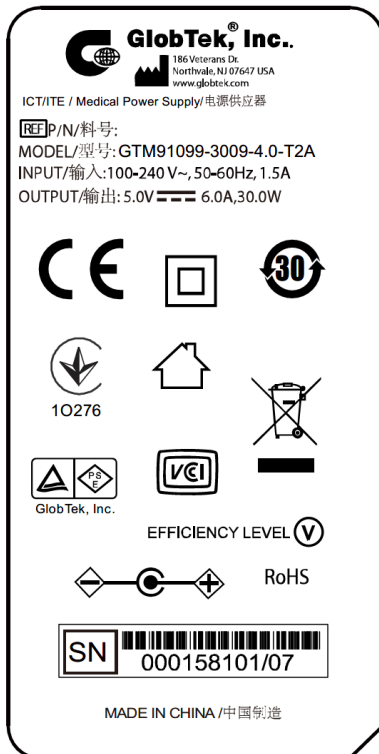
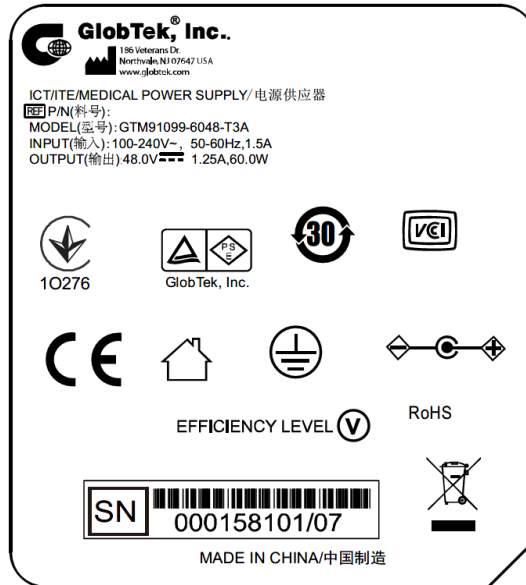


Note:

All models' rating labels are in the same design except for type designation. Above labels are representing the other models.

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:

All models' rating labels are in the same design except for type designation. Above labels are representing the other models.

Test item particulars:	
Product group	<input checked="" type="checkbox"/> end product <input type="checkbox"/> built-in component
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input checked="" type="checkbox"/> Children likely present <input checked="" type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person
Supply connection.....	<input checked="" type="checkbox"/> AC mains <input type="checkbox"/> DC mains <input type="checkbox"/> not mains connected: <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + %/ - % <input type="checkbox"/> None
Supply connection – type	<input checked="" type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input checked="" type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other:
Considered current rating of protective device.....	<input checked="" type="checkbox"/> 16A (20A for Canada and US); Location: <input checked="" type="checkbox"/> building <input type="checkbox"/> equipment <input type="checkbox"/> N/A
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> direct plug-in <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> wall/ceiling-mounted <input type="checkbox"/> SRME/rack-mounted <input type="checkbox"/> other:
Overvoltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Class of equipment	<input checked="" type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified <input type="checkbox"/>
Special installation location	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> restricted access area <input type="checkbox"/> outdoor location <input type="checkbox"/>
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified T _{ma}	40°C <input type="checkbox"/> Outdoor: minimum °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP___
Power systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input checked="" type="checkbox"/> IT - 230 V _{L-L} <input type="checkbox"/> not AC mains
Altitude during operation (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> Up to 5000m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> m
Mass of equipment (kg)	Weight Approx.: 0.25kg; Dimensions Approx.: 116.5x53x35 mm

Possible test case verdicts: - test case does not apply to the test object: N/A - test object does meet the requirement.....: P (Pass) - test object does not meet the requirement.....: F (Fail)	
Testing: Date of receipt of test item: 2022-12-06 Date (s) of performance of tests: 2022-12-08 to 2023-02-08	
General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 62368-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) : <div style="margin-left: 20px;"> GlobTek, Inc. 186 Veterans Dr. Northvale, NJ 07647 USA GlobTek (Suzhou) Co., Ltd Building 4, No. 76, Jin Ling East Rd., Suzhou Industrial Park, Suzhou, JiangSu 215021, China </div>	

General product information and other remarks:

The equipment under tests is Class I or Class II POWER SUPPLY.

External enclosure is plastic material of V-0 or better grade and totally enclosed with ultrasonic welding.

Output of the equipment is PS3, fire enclosure must be considered for all equipment supplied from this equipment.

Explanation for model GTM91099-WWVV-X.X-AB*:

“M” can be “M” or “-” for market identification and not related to safety;

“WW” is the rated output wattage designation, with a maximum value of “60”;

“VV” is the standard rated output voltage designation, with a value of “09” “15” “24” and “48”;

“-X.X” can be any number to denote the optional voltage deviation subtracted from standard rated output voltage in 0.1 volt increments, or blank to indicate the no voltage difference;

“VV-X.X” together denotes the voltage range 5V to 48V;

“A”: T is External/Desktop model;

“B”: When A=T, B can be 3, 3A, 2 or 2A, 3 means C14 inlet type, 3A means C6 inlet type, 2 means C8 inlet type, 2A means C8 inlet type.

The last “*” denote any six character, which can be 0-9 or A-Z or () [] or – or blank for marketing purposes.

Model list for testing as below:

Model	Max.Output Voltage	Max.Output current	Max.Output power	Transformer model (voltage range) *)
GTM91099-3009-4.0-T2	5V	6.0A	30W	XF00794 (5V-9V)
GTM91099-6015-3.0-T2	12V	5.0A	60W	XF00694 (9.1V-15V)
GTM91099-6024-6.0-T2	18V	3.33A	60W	XF00695 (15.1V-24V)
GTM91099-6048-T2	48V	1.25A	60W	XF00731 (24.1V-48V)
GTM91099-6048-T3A 1)				
*) All transformer models have same construction, refer to transformer specification. 1) Class I equipment.				

All models are same except for below list, some non-critical components and the secondary winding of transformer.

Item	Type		Remark
Enclosure	Type 1	Type 2	Type 1 and Type 2 enclosure shape have the same dimensions and interior space, detail refer to photos.
PCB Layout	Type A	Type B	Type A and Type B are same, only FS1 and FS2 PCB trace have minor difference, detail refer to photos.

General product information and other remarks: (Cont.)

Normal load: Load with rated output value.

If not specified, the models in table "Model list for testing" on previous page are representing the worst condition for testing (Output with Max. Voltage, Max. Current and Max. Power have been selected).

For Class I equipment, the model GTM91099-6048-T3A is representing the worst condition for testing.

Maximum recommended ambient (T_{mra}): 40°C.

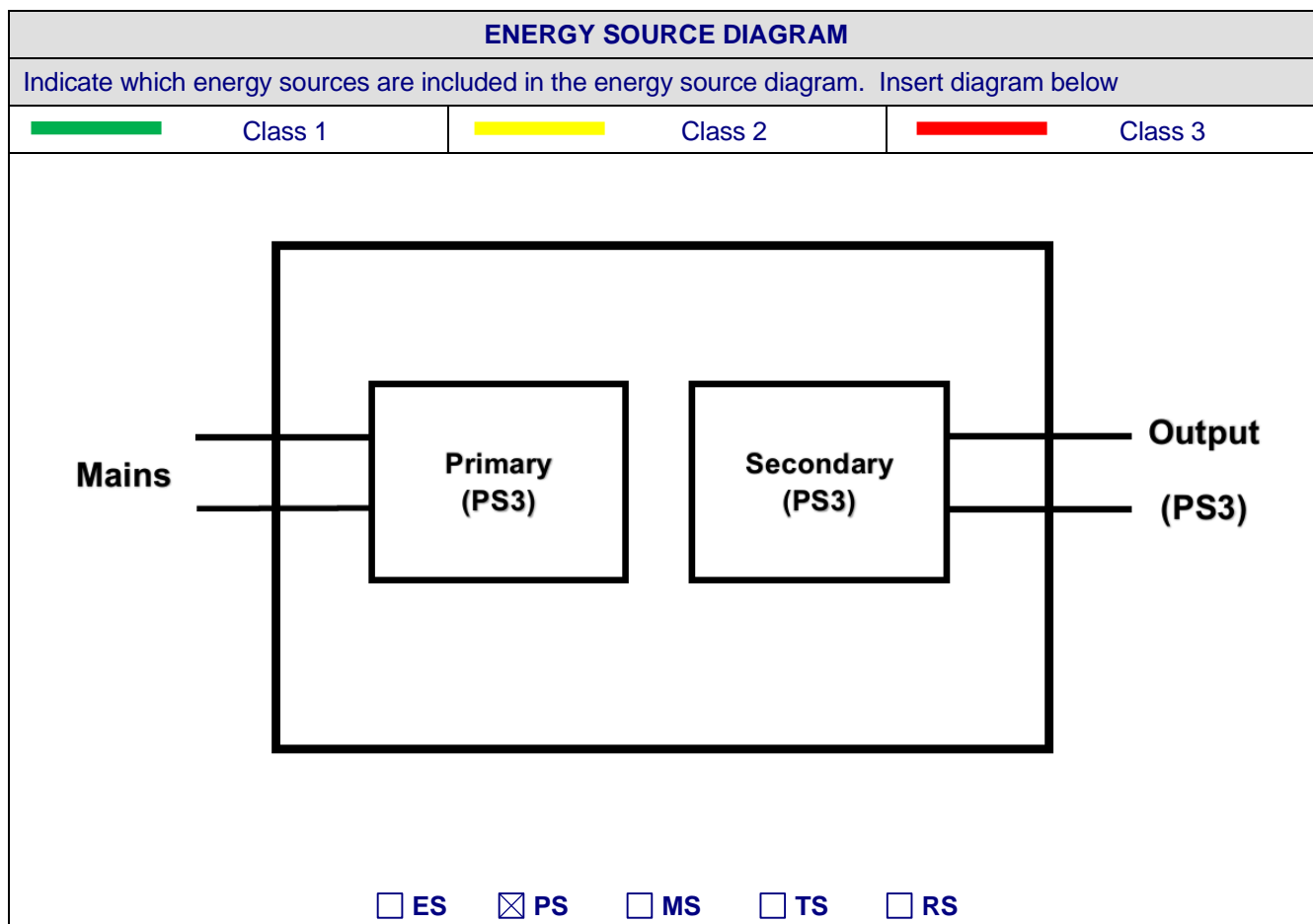
For equipment is intended to be operated under altitude up to 5000m, so the clearance is multiplied by the altitude correction factor (1.48 linear interpolation used), specified in table 16, IEC 62368-1.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Primary circuit	Ordinary	N/A	N/A	Enclosure: Annex T, No openings
ES3: Primary Circuit	Ordinary	N/A	N/A	Cl. & Cr. Distance comply 5.4.2 & 5.4.3; Dielectric Strength Test 5.4.9; Component comply Annex G
ES3: Primary Circuit (X-cap)	Ordinary	N/A	N/A	Approved bleeder resistors, Voltage: according to 5.5.2.2
ES2: Secondary circuit (before output)	Ordinary	Single fault between ES2 and ES1	N/A	N/A
ES1: Output	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	1 st S	2 nd S
PS3: Internal circuit	Entry of foreign objects	N/A	N/A	Enclosure: Annex T, No openings
PS3: Internal circuit	Internal combustible material	1)	Min. V-1 PCB, Min. V-0 Enclosure	N/A
PS3: Internal circuit	Combustible material -Internal wire	1)	6.5.1 Complied with 60695- 11-21 or equivalent	N/A
PS3: DC output	Combustible material -Output wire	1)	6.5.1 Complied with 60695- 11-21 or equivalent	N/A
1) No ignition, Components inside of fire enclosure which measured temperature <300°C during normal and abnormal operating conditions test, refer to table 5.4.1.4, 6.3.2, 9.0, B.2.6 and B.3. Note: Arcing and resistive PIS are within PS3 circuit, fire enclosure provided.				
7		Injury caused by hazardous substances		
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	Ordinary	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 (none)	Ordinary	N/A	N/A	N/A
MS1: Equipment mass less than 7kg	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 (Contact time $1s < t < 10s$)	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: LED indicator light is diffusive type	Ordinary	N/A	N/A	N/A
Supplementary Information:				
“B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM		
Indicate which energy sources are included in the energy source diagram. Insert diagram below		
<div></div> Class 1	<div></div> Class 2	<div></div> Class 3
<div><div><div><div>Mains</div><div><div>Primary (ES3)</div><div>Secondary (ES2)</div></div><div>Output (ES1)</div></div></div></div> <div><input checked="" type="checkbox"/> ES <input type="checkbox"/> PS <input type="checkbox"/> MS <input type="checkbox"/> TS <input type="checkbox"/> RS</div>		



ENERGY SOURCE DIAGRAM		
Indicate which energy sources are included in the energy source diagram. Insert diagram below		
<div style="width: 20px; height: 10px; background-color: green; margin: 0 auto;"></div> Class 1	<div style="width: 20px; height: 10px; background-color: yellow; margin: 0 auto;"></div> Class 2	<div style="width: 20px; height: 10px; background-color: red; margin: 0 auto;"></div> Class 3
<p>For MS</p> <p>1) Sharp edges and corners (none): MS1</p> <p>2) Mass of equipment: MS1</p> <p>For TS</p> <p>Accessible parts (Contact time $1s < t < 10s$): TS1</p> <p>For RS</p> <p>LED indicator light is diffusive type: RS1</p>		
<div style="display: flex; justify-content: space-around; align-items: center;"> <div><input type="checkbox"/> ES</div> <div><input type="checkbox"/> PS</div> <div><input checked="" type="checkbox"/> MS</div> <div><input checked="" type="checkbox"/> TS</div> <div><input checked="" type="checkbox"/> RS</div> </div>		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	Refer to summary of testing and appended table 4.1.2.	P
4.1.2	Use of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 62368-1.	P
4.1.3	Equipment design and construction	Equipment is adequately designed and constructed.	P
4.1.4	Specified ambient temperature for outdoor use (°C) :	Not for outdoor use.	N/A
4.1.5	Constructions and components not specifically covered	No such part.	N/A
4.1.8	Liquids and liquid filled components (LFC)	No LFC.	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness	See below:	P
4.4.3.1	General	(See below)	P
4.4.3.2	Steady force tests	(See Clause T.2, T.4)	P
4.4.3.3	Drop tests	(See Clause T.7)	P
4.4.3.4	Impact tests	(See Clause T.6)	P
4.4.3.5	Internal accessible safeguard tests	Internal part was not accessible.	P
4.4.3.6	Glass impact tests	No glass.	N/A
4.4.3.7	Glass fixation tests	No laminated glass.	N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	P
4.4.3.9	Air comprising a safeguard	(See Annex T.2)	P
4.4.3.10	Accessibility, glass, safeguard effectiveness	All safeguards remain effective.	P
4.4.4	Displacement of a safeguard by an insulating liquid	No insulating liquid used.	N/A
4.4.5	Safety interlocks	No interlock.	N/A
4.5	Explosion		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.5.1	General		P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions		N/A
4.6	Fixing of conductors	See below:	P
	Fix conductors not to defeat a safeguard	There is no possibility that can reducing clearances or creepage distances.	P
	Compliance is checked by test..... :	(See appended table 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 directed plug-in equipment	—
4.7.3	Torque (Nm) :		N/A
4.8	Equipment containing coin/button cell batteries		N/A
4.8.1	General	No such battery.	N/A
4.8.2	Instructional safeguard :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		P
4.10	Component requirements		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays	No such component used.	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	See below:	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 :	No single pulses generated.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.5	Limits for repetitive pulses	No repetitive pulses generated.	N/A
5.2.2.6	Ring signals	Not used an analogue telephone network ringing signal in the equipment.	N/A
5.2.2.7	Audio signals	No audio signal.	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Sufficient safeguard was provided between energy source and ordinary, instructed and skilled persons.	P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits	Reinforced safeguard was provided between energy source and ordinary, instructed and skilled persons.	P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES3 parts are not accessible to ordinary persons.	P
	Accessibility to outdoor equipment bare parts	Not intend to outdoor used.	N/A
5.3.2.2	Contact requirements	No openings in the enclosure.	N/A
	Test with test probe from Annex V		N/A
5.3.2.2 a)	Air gap – electric strength test potential (V)		N/A
5.3.2.2 b)	Air gap – distance (mm)		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminal.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	Insulating material complied with cl. 5 and Annex T. No hygroscopic material.	P
5.4.1.3	Material is non-hygroscopic	See clause 5.4.8 and 5.4.9	P
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6) Transformer insulation system is certified by UL.	P
5.4.1.5	Pollution degrees	2	—
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	No such part.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such part.	N/A
5.4.1.8	Determination of working voltage	(See appended table 5.4.1.8)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Bobbin of T1. Others adequate material used.	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	See below	P
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance	The highest voltage is temporary overvoltage.	P
	Temporary overvoltage	2000V peak	—
5.4.2.3	Procedure 2 for determining clearance	See below:	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	Not used.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages	Multiplication factor 1.48 for clearance is used. (<5000m)	P
5.4.2.6	Clearance measurement	(See appended table 5.4.2)	P
5.4.3	Creepage distances	(See appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material group	IIIb	—
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	See below:	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	Evaluated with cl. 5.4.4.4	P
5.4.4.4	Solid insulation in semiconductor devices	Approved Optocouplers comply with 5.4.4.2 and 5.4.1.5.2. (See appended table 4.1.2)	P
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material	(See appended table 5.4.4.2)	P
5.4.4.6.1	General requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) :	(See appended table 5.4.4.2)	P
5.4.4.6.3	Non-separable thin sheet material	No such part.	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	Insulation on winding wire complies with G.6.	P
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)	P
	Alternative by electric strength test, tested voltage (V), K_R :	(See appended Tables 5.4.4.9 and 5.4.9)	P
5.4.5	Antenna terminal insulation	No Antenna terminal used.	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (M Ω) :		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	For equipment and all source transformers	P
	Relative humidity (%), temperature (°C), duration (h) :	95% r.h., 40°C, 120hr	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for type test of solid insulation..... :	Test voltage based on transient voltages. (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
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

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.11	Separation between external circuits and earth	The equipment not intended to connect to external circuits.	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	See below:	P
5.5.2.1	General requirement	X capacitors complied with IEC 60384-14. Y capacitors complied with IEC 60384-14.	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	T1 (See Annex G.5.3)	P
5.5.4	Optocouplers	U1 (See Annex G.12)	P
5.5.5	Relays	No such component used.	N/A
5.5.6	Resistors	Approved Bleeder resistors (RS1, RS2) served as a safeguard, but not bridging Basic, Supplementary or Reinforced insulation. (See appended table 4.1.2)	P
5.5.7	SPDs	MOV1 (See Annex G.8)	P
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	Not for outdoor used.	N/A
	RCD rated residual operating current (mA)		—

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Clause	Requirement + Test	Result - Remark	Verdict
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6	Protective conductor	For models with Class I equipment.	P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements	Certified AC inlet used.	P
5.6.2.2	Colour of insulation	Green-and-yellow colour.	P
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors	See below:	P
	Protective bonding conductor size (mm ²).	Min. 20AWG.	—
5.6.4.2	Protective current rating (A).....	Input rated current: 1.5A	—
5.6.5	Terminals for protective conductors		P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm).....	Certified AC inlet used.	P
	Terminal size for connecting protective bonding conductors (mm)	Certified AC inlet used.	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective bonding system		P
5.6.6.1	Requirements	Certified AC inlet does not have excessive resistance.	P
5.6.6.2	Test Method	(See appended table 5.6.6)	P
5.6.6.3	Resistance (Ω) or voltage drop.....	(See appended table 5.6.6)	P
5.6.7	Reliable connection of a protective earthing conductor	Not permanently connected equipment.	N/A
5.6.8	Functional earthing	No such application.	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
5.7.2.1	Measurement of touch current	(See appended table 5.7.4)	P
5.7.2.2	Measurement of voltage		P

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Clause	Requirement + Test	Result - Remark	Verdict
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)	P
5.7.6	Requirements when touch current exceeds ES2 limits	Touch current is within ES1.	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	The equipment not intended connect to external circuits.	N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA)		N/A
	b) Equipment connected to unearthed external circuits, current (mA)		N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
	Mains terminal ES		N/A
	Air gap (mm)		N/A

6	ELECTRICALLY- CAUSED FIRE		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	See below	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 5.4.1.4, 9.3, B.1.5, B.2.6, and table B.3, B.4)	P
	Combustible materials outside fire enclosure	No combustible material outside fire enclosure.	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard method	Control fire spread was used.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	LED indicator is PS1. (See appended table 6.2.2)	P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuits	(See appended tables 4.1.2 and Annex G) Fire enclosure used.	P
6.4.7	Separation of combustible materials from a PIS	Varistor (MOV1) is arcing PIS and All circuit are resistive PIS. Fire enclosure is made by V-0 material. Components complied with requirement, detail refer to table 6.2.3.1 and 6.2.3.2	P
6.4.7.2	Separation by distance	All components are within PIS fire cone, refer to table 6.2.3.2.	P
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	See below:	P
6.4.8.2	Fire enclosure and fire barrier material properties	Fire enclosure is made of V-0 material.	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier.	N/A
6.4.8.2.2	Requirements for a fire enclosure	Available power <4000W. Fire enclosure is made of V-0 material.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	No openings in the fire enclosure.	N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)	No such part used	N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating	Fire enclosure is made of V-0 material.	P
6.4.9	Flammability of insulating liquid.....	No such part.	N/A
6.5	Internal and external wiring		P
6.5.1	General requirements	Internal primary wires and secondary wire complied with IEC 60695-11-21. The test method described in IEC 60695-11-21 is considered equivalent to that test wiring materials which bearing VW-1 rating (according to UL758).	P
6.5.2	Requirements for interconnection to building wiring	Equipment is not intended to provide power over the wiring system.	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		N/A
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	No hazardous substances.	—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010).....	No hazardous substances.	—
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	MS1: No sharp edges or corners.	P
	Instructional Safeguard		N/A
8.4.2	Sharp edges or corners		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving parts.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm)		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N).....:		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test.....:		N/A
8.5.5.3	Glass particles dimensions (mm)		N/A
8.6	Stability of equipment		N/A
8.6.1	General	MS1.	N/A
	Instructional safeguard.....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A

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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		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
	Instructional Safeguard.....		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 9.3)	P
9.3.2	Test method and compliance		P
9.4	Safeguards against thermal energy sources		P
9.5	Requirements for safeguards		P
9.5.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.5.2	Instructional safeguard.....	Instructional safeguard is not required.	N/A
9.6	Requirements for wireless power transmitters		N/A
9.6.1	General	Not applicable.	N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance		N/A

10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification	LED indicator light is diffusive type, classified RS1.	P
	Lasers		—
	Lamps and lamp systems		—
	Image projectors		—
	X-Ray		—
	Personal music player		—
10.3	Safeguards against laser radiation		N/A
	The standard(s) equipment containing laser(s) comply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	No UV radiation.	N/A
10.4.3	Instructional safeguard		N/A
10.5	Safeguards against X-radiation		N/A
10.5.1	Requirements	Not X-radiation.	N/A
	Instructional safeguard for skilled persons		—
10.5.3	Maximum radiation (pA/kg)		—
10.6	Safeguards against acoustic energy sources		N/A
10.6.1	General	Not personal music player.	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, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV)		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)		N/A
10.6.6.3	Cordless listening devices		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Max. acoustic output $L_{Aeq,T}$, dB(A)		N/A
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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% / -10% (264V / 90V)	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, B.4)	P
B.3.2	Covering of ventilation openings	No openings in enclosure.	N/A
	Instructional safeguard		N/A
B.3.3	DC mains polarity test	AC mains supplied.	N/A
B.3.4	Setting of voltage selector	No voltage selector.	N/A
B.3.5	Maximum load at output terminals	(See appended table B.3, B.4)	P
B.3.6	Reverse battery polarity	No battery.	N/A
B.3.7	Audio amplifier abnormal operating conditions	No audio amplifier.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions.....	All safeguards remain effective. (See appended table B.3, B.4)	P
B.4	Simulated single fault conditions		P
B.4.1	General		P
B.4.2	Temperature controlling device	No such device.	N/A
B.4.3	Blocked motor test	No motor.	N/A
B.4.4	Functional insulation	See below	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated PCB used.	N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3, B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3, B.4)	P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.7	Continuous operation of components	No component intended for short-time operation or intermittent operation.	N/A
B.4.8	Compliance during and after single fault conditions :	Enclosure limited to TS1 during and after single fault conditions. Accessible output terminal limited to ES1 and TS1 during and after single fault conditions. No flame during and after single fault condition. (See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	No battery.	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 :		—
E.2	Audio amplifier normal operating conditions		N/A
	Audio signal source type..... :		—
	Audio output power (W)..... :		—
	Audio output voltage (V) :		—
	Rated load impedance (Ω) :		—
	Requirements for temperature measurement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
E.3	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	Language :	English verified.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	A, V, Hz	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	AC symbol (IEC 60417-5032), DC symbol (IEC 60417-5031).	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The required marking is located on the external enclosure of the equipment.	P
F.3.2	Equipment identification markings	Refer below.	P
F.3.2.1	Manufacturer identification :	See page 2.	—
F.3.2.2	Model identification :	See page 2.	—
F.3.3	Equipment rating markings	Refer below.	P
F.3.3.1	Equipment with direct connection to mains	Refer F.3.3.3 – F.3.3.6	P
F.3.3.2	Equipment without direct connection to mains	Direct connection to mains.	N/A
F.3.3.3	Nature of the supply voltage :	See page 2.	—
F.3.3.4	Rated voltage..... :	See page 2.	—
F.3.3.5	Rated frequency :	See page 2.	—
F.3.3.6	Rated current or rated power..... :	See page 2.	—
F.3.3.7	Equipment with multiple supply connections	Single supply connection.	N/A
F.3.4	Voltage setting device	No voltage selector. Auto ranging used.	N/A
F.3.5	Terminals and operating devices	Refer below.	N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings :	No mains outlet.	N/A
F.3.5.2	Switch position identification marking :	No switch.	N/A
F.3.5.3	Replacement fuse identification and rating markings :	The primary fuses are located in Live phase and Neutral phase and marked adjacent to the fuse on PCB: FS1 T3.15A/250V; FS2 T3.15A/250V	P
	Instructional safeguards for neutral fuse :		N/A
F.3.5.4	Replacement battery identification marking..... :	No battery.	N/A
F.3.5.5	Neutral conductor terminal	Not permanently connected equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.6	Terminal marking location	No such terminals.	N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment		P
F.3.6.1.1	Protective earthing conductor terminal	Certified appliance inlet used.	N/A
F.3.6.1.2	Protective bonding conductor terminals		N/A
F.3.6.2	Equipment class marking.....		P
F.3.6.3	Functional earthing terminal marking		N/A
F.3.7	Equipment IP rating marking	No IP rating.	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	Marking comply with the requirements.	P
F.3.10	Test for permanence of markings	Markings withstand the required test.	P
F.4	Instructions		P
	a) Information prior to installation and initial use		N/A
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		P
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		N/A
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		N/A
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General	No such component used.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.1.3	Test method and compliance		N/A
G.2	Relays		N/A
G.2.1	Requirements	No such component used.	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	FS1, FS2 complied with IEC 60127.	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
G.3.5.2	Single faults conditions		N/A
G.4	Connectors		P
G.4.1	Spacings	Certified inlet used.	P
G.4.2	Mains connector configuration.....	Certified inlet used.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	The output terminal is unlikely insertion into mains socket-outlets or appliance coupler.	P
G.5	Wound components		P
G.5.1	Wire insulation in wound components	(See Annex J)	P
G.5.1.2	Protection against mechanical stress	Protection against mechanical stress is provided by insulation tape or tube.	P
G.5.2	Endurance test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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..... :	IEC 62368-1 cl.G.5.3.2 & G.5.3.3.	P
	Position :	T1	P
	Method of protection :	Inherent.	P
G.5.3.2	Insulation	Reinforced.	P
	Protection from displacement of windings :	Refer to transformer specification.	—
G.5.3.3	Transformer overload tests	(See appended table B.3, B.4)	P
G.5.3.3.1	Test conditions	Switch mode transformers tested in the complete equipment. Load applied to the output of the power supply unit.	P
G.5.3.3.2	Winding temperatures	Current limiting transformer, Class 130. Temperature limit: 175°C.	P
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW	FIW not used.	N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No motor.	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	<p>Peak working voltage is ES3. Not under mechanical stress. Basic insulation is required.</p> <p>Triple insulated wire in transformers, Peak working voltage is ES3. Reinforced insulation is required. IEC 62368-1 certified component.</p>	P
G.6.2	Enamelled winding wire insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	Mains supply cords is not covered in this report.	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

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Clause	Requirement + Test	Result - Remark	Verdict
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	Approved varistor used.	P
G.8.2	Safeguards against fire	The fire enclosure V-0 provided. Overload test conducted.	P
G.8.2.1	General		P
G.8.2.2	Varistor overload test	For model TFV8S471K and TFV10S471K, when series resistor with 960Ω, the circuit opened, the varistor is intact, without showing any risk of fire and equipment safeguard still remain. For model 10D621K and TVR10621, finally series resistor introducing 0ohm to test. Until the temperature is stable. the varistor is intact, the circuit is not opened, without showing any risk of fire and equipment safeguard still remain.	P
G.8.2.3	Temporary overvoltage test		N/A
G.9	Integrated circuit (IC) current limiters		N/A
G.9.1	Requirements	No such component used.	N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	Resistors		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.1	General	Approved bleeder resistors (RS1, RS2) are in series and located after fuse, served as a safeguard, but not bridging Basic, Supplementary or Reinforced insulation. (See appended table 4.1.2)	P
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	X1 or X2 and Y1 capacitors are certified according to IEC 60384-14.	P
G.11.2	Conditioning of capacitors and RC units	Capacitors complied with IEC 60384-14.	P
G.11.3	Rules for selecting capacitors	X1 or X2 and Y1 capacitors are certified according to IEC 60384-14.	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5 with specifics	Approved Optocoupler used and comply with requirement. (See appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$:		—
	Routine test voltage, $V_{ini,b}$:		—
G.13	Printed boards	See below:	P
G.13.1	General requirements	Primary and secondary circuits are not insulated by PCB layers.	P
G.13.2	Uncoated printed boards	Safeguard complied cl.5.4.2 & 5.4.3.	P
G.13.3	Coated printed boards	Not used.	N/A
G.13.4	Insulation between conductors on the same inner surface	Inner surface not used with cemented joint requirements.	N/A
G.13.5	Insulation between conductors on different surfaces	Basic insulation. No thickness requirement.	N/A
	Distance through insulation :		N/A
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.6.2	Test method and compliance		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Pressurized liquid filled components		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16.1	Condition for fault tested is not required	No such component used.	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	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 :	Triple insulated wire used in transformers are separately approved.	—
	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
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		P
L.1	General requirements	Both phases conductors were interrupted by appliance inlet.	P
L.2	Permanently connected equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
L.3	Parts that remain energized	No parts remain energized, refer to cl.5.5.2.2.	N/A
L.4	Single-phase equipment	Both poles were disconnected simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices	Not used.	N/A
L.7	Plugs as disconnect devices	Appliance inlet was used as disconnect device.	N/A
L.8	Multiple power sources	Single power source.	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	No battery.	N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing a portable secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance		N/A
M.4.3	Fire enclosure		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%):		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
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

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Clause	Requirement + Test	Result - Remark	Verdict
N	ELECTROCHEMICAL POTENTIALS		P
	Material(s) used		—
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		N/A
P.2.1	General	No openings.	N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm)		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Consequence of entry test.....		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	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		N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Q.1.2	Test method and compliance		N/A
	Current rating of overcurrent protective device (A)		N/A
Q.2	Test for external circuits – paired conductor cable	Not connect to external circuits.	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	Fire enclosure is made from V-0 material. No testing required.	—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
S.3	Flammability test for the bottom of a fire enclosure		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples		—
	Wall thickness (mm)		—
S.4	Flammability classification of materials		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
T.4	Steady force test, 100 N	(See appended table T.4)	P
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test.....	(See appended table T.8)	P
T.9	Glass Impact Test		N/A
T.10	Glass fragmentation test		N/A
	Number of particles counted.....		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		N/A
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General		N/A
	Instructional safeguard :		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	See below:	P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes	No opening.	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		P

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Clause	Requirement + Test	Result - Remark	Verdict
V.2	Accessible part criterion		P
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	Not intended for outdoor used.	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
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		N/A
Y.5	Protection of equipment within an outdoor enclosure		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	Mechanical strength of enclosures		N/A
Y.6.1	General		N/A
Y.6.2	Impact test		N/A

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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⁾	
264Vac	Primary	Normal	N/A	N/A	N/A	N/A	ES3
		Abnormal	N/A	N/A	N/A	N/A	
		Single fault – SC/OC	N/A	N/A	N/A	N/A	
Test on model GTM91099-3009-4.0-T2 (With output: 5VDC/6.0A)							
264Vac	Secondary, T1 Pin (A-B)	Normal	26.4Vpk	N/A	N/A	65.7K	ES1
264Vac	5V DC Output	Normal	5.2V	N/A	N/A	DC	ES1
		Abnormal	5.2V	N/A	N/A	DC	ES1
		Single fault: RS17, SC	5.2V	N/A	N/A	DC	ES1
		Single fault: CS9, SC	5.2V	N/A	N/A	DC	ES1
		Single fault: D3, SC	0	N/A	N/A	DC	ES1
		Single fault: L1, SC	5.2V	N/A	N/A	DC	ES1
Test on model GTM91099-6015-3.0-T2 (With output: 12VDC/5.0A)							
264Vac	Secondary, T1 Pin (A-B)	Normal	34.0Vpk	N/A	N/A	65.7K	ES1
264Vac	12V DC Output	Normal	12.1V	N/A	N/A	DC	ES1
		Abnormal	12.1V	N/A	N/A	DC	ES1
		Single fault: RS17, SC	12.1V	N/A	N/A	DC	ES1
		Single fault: CS9, SC	12.1V	N/A	N/A	DC	ES1
		Single fault: D3, SC	0	N/A	N/A	DC	ES1
		Single fault: L1, SC	12.1V	N/A	N/A	DC	ES1

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Clause	Requirement + Test	Result - Remark	Verdict

Test on model GTM91099-6024-6.0-T2 (With output:18VDC/3.33A)							
264Vac	Secondary, T1 Pin (A-B)	Normal	65.0 Vpk	N/A	N/A	65.7K	ES1
264Vac	18V DC Output	Normal	18.3V	N/A	N/A	DC	ES1
		Abnormal	18.3V	N/A	N/A	DC	ES1
		Single fault: RS17, SC	18.3V	N/A	N/A	DC	ES1
		Single fault: CS9, SC	18.3V	N/A	N/A	DC	ES1
		Single fault: D3, SC	0	N/A	N/A	DC	ES1
		Single fault: L1, SC	18.3V	N/A	N/A	DC	ES1
Test on model GTM91099-6048-T2 (With output: 48VDC/1.25A)							
264Vac	Secondary, T1 Pin (A-B)	Normal	79.0Vpk	N/A	N/A	65.7K	ES2
264Vac	48V DC Output	Normal	48.1V	N/A	N/A	DC	ES1
		Abnormal	48.1V	N/A	N/A	DC	ES1
		Single fault: RS17, SC	48.1V	N/A	N/A	DC	ES1
		Single fault: CS9, SC	48.1V	N/A	N/A	DC	ES1
		Single fault: D3, SC	0	N/A	N/A	DC	ES1
		Single fault: L1, SC	48.1V	N/A	N/A	DC	ES1
264Vac	CX1	Normal	374V	N/A	CP	Total 0.33uF Max.	ES3
		Abnormal	374V	N/A	CP	Total 0.33uF Max.	ES3
		Single fault – SC/OC	N/A	N/A	N/A	N/A	ES3
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. SC=Short Circuit.							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.8	TABLE: Working voltage measurement				P
Location		Peak voltage (V)	RMS voltage (V)	Frequency (Hz)	Comments
Test on model GTM91099-3009-4.0-T2 (With output: 5VDC/6.0A)					
T1 Pin 1 – Pin A		512	242	65.7K	--
T1 Pin 3 – Pin A		376	205	65.7K	--
T1 Pin 4 – Pin A		360	216	65.7K	--
T1 Pin 5 – Pin A		352	215	65.7K	--
T1 Pin 1 – Pin B		528	248	65.7K	--
T1 Pin 3 – Pin B		336	211	65.7K	--
T1 Pin 4 – Pin B		344	217	65.7K	--
T1 Pin 5 – Pin B		384	219	65.7K	--
U1 Pin 1 – Pin 3		352	220	65.7K	--
U1 Pin 1 – Pin 4		360	219	65.7K	--
U1 Pin 2 – Pin 3		354	220	65.7K	--
U1 Pin 2 – Pin 4		352	221	65.7K	--
CY1 Pin 1 – CY2 Pin 2		344	216	65.7K	--
Test on model GTM91099-6015-3.0-T2 (With output: 12VDC/5.0A)					
T1 Pin 1 – Pin A		512	252	65.7K	--
T1 Pin 3 – Pin A		376	212	65.7K	--
T1 Pin 4 – Pin A		360	215	65.7K	--
T1 Pin 5 – Pin A		352	214	65.7K	--
T1 Pin 1 – Pin B		528	254	65.7K	--
T1 Pin 3 – Pin B		336	210	65.7K	--
T1 Pin 4 – Pin B		344	214	65.7K	--
T1 Pin 5 – Pin B		384	215	65.7K	--
U1 Pin 1 – Pin 3		352	223	65.7K	--
U1 Pin 1 – Pin 4		360	224	65.7K	--
U1 Pin 2 – Pin 3		354	221	65.7K	--
U1 Pin 2 – Pin 4		352	223	65.7K	--
CY1 Pin 1 – CY2 Pin 2		344	215	65.7K	--
Test on model GTM91099-6024-6.0-T2 (With output:18VDC/3.33A)					
T1 Pin 1 – Pin A		524	270	65.7K	--
T1 Pin 3 – Pin A		392	223	65.7K	--
T1 Pin 4 – Pin A		376	206	65.7K	--

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Clause	Requirement + Test		Result - Remark	Verdict
T1 Pin 5 – Pin A	364	202	65.7K	--
T1 Pin 1 – Pin B	540	294	65.7K	T1 Max. Vp & Vrms
T1 Pin 3 – Pin B	344	225	65.7K	--
T1 Pin 4 – Pin B	352	199	65.7K	--
T1 Pin 5 – Pin B	396	201	65.7K	--
U1 Pin 1 – Pin 3	372	213	65.7K	--
U1 Pin 1 – Pin 4	368	214	65.7K	--
U1 Pin 2 – Pin 3	372	214	65.7K	--
U1 Pin 2 – Pin 4	372	213	65.7K	--
CY1 Pin 1 – CY2 Pin 2	352	199	65.7K	--
Test on model GTM91099-6048-T2 (With output: 48VDC/1.25A)				
T1 Pin 1 – Pin A	456	232	65.7K	--
T1 Pin 3 – Pin A	456	219	65.7K	--
T1 Pin 4 – Pin A	394	222	65.7K	--
T1 Pin 5 – Pin A	374	218	65.7K	--
T1 Pin 1 – Pin B	528	259	65.7K	--
T1 Pin 3 – Pin B	336	210	65.7K	--
T1 Pin 4 – Pin B	346	216	65.7K	--
T1 Pin 5 – Pin B	394	217	65.7K	--
U1 Pin 1 – Pin 3	365	231	65.7K	--
U1 Pin 1 – Pin 4	365	230	65.7K	--
U1 Pin 2 – Pin 3	365	230	65.7K	--
U1 Pin 2 – Pin 4	365	230	65.7K	--
CY1 Pin 1 – CY2 Pin 2	346	215	65.7K	--
Supplementary information:				
Vin=240Vac/60Hz The highest measured working voltages in transformer are indicated with bold characters.				

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics				N/A
Method.....:			ISO 306 / B50		—
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)	
Base of T1: 4130	CHANG CHUN PLASTICS CO LTD	3.0	125	1.1	
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⁾ (kHz)	Required cl (mm))	cl (mm)	E.S. ²⁾ (V)	Required cr (mm) ³⁾	cr (mm)
Basic/Supplementary:								
Live – Neutral before fuse (on PCB)	340	240	N/A	2.3	5.2	N/A	2.5	5.2
FS1 / FS2 pad 1 to pad 2 (on PCB)	340	240	N/A	2.3	2.7	N/A	2.5	2.7
FS1 / FS2 pad 1 to pad 2 (on Component)	340	240	N/A	2.3	4.2	N/A	2.5	4.2
LF2 coil to earthing Pin on AC inlet (on Component)	340	240	N/A	2.3	5.2	N/A	2.5	5.2
Live/Neutral Pin to earthing Pin on AC inlet (on PCB) (For Class I equipment)	340	240	N/A	2.3	2.7	N/A	2.5	2.7
Live/Neutral Pin to earthing Pin on AC inlet (on Component) (For Class I equipment)	340	240	N/A	2.3	3.0	N/A	2.5	3.0
CY1 primary to CY1 secondary (on PCB)	540	294	N/A	2.3	5.2	N/A	3.0	5.2

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Clause	Requirement + Test			Result - Remark				Verdict
CY2 primary to CY2 secondary 1) (on PCB)	540	294	N/A	2.3	4.4	N/A	3.0	5.0
Reinforced:								
CY1 primary to CY2 secondary (on PCB)	540	294	N/A	4.5	9.6	N/A	6.0	10.2
CY1 primary to RS29 secondary 1) (on PCB)	540	294	N/A	4.5	10.0	N/A	6.0	12.4
T1 primary to RS22 secondary (on PCB)	540	294	N/A	4.5	>10	N/A	6.0	>10
U1 primary to U1 secondary 1) (on PCB)	540	294	N/A	4.5	6.9	N/A	6.0	>10
U1 primary to HS1 secondary (on Component)	540	294	N/A	4.5	8.5	N/A	6.0	>10
T1 Core primary to LED secondary (on Component)	540	294	N/A	4.5	5.0	N/A	6.0	>10
BD1 primary to enclosure external accessible part (on Component)	540	294	N/A	4.5	7.0	N/A	6.0	7.0
Below measured on transformer T1 body:								
Reinforced: T1 primary to secondary	540	294	65.7K	4.5	>10	N/A	6.0	>10
Reinforced: T1 core to secondary	540	294	65.7K	4.5	6.5	N/A	6.0	8.5
Supplementary information:								
<p>1) Only for frequency above 30 kHz</p> <p>2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)</p> <p>Limit considered by cl.5.4.2.3.4 with required withstand voltage (2500V). Procedure 2 is used.</p> <p>1) with >1mm gap.</p> <p>*) A multiplier factor (1.48) was used to consider the additional altitude requirement for clearance as described under General product information.</p> <p>Heat-shrinkable tubing wrapped on HS2, detail refer to photos.</p> <p>The following component is tested with 10N force: AC Inlet, BD1, LF2, C1, HS1, CY1, CY2, LED, C2, C3, Internal wire.</p> <p>Glues are added on AC Inlet, LF2, CX1, MOV1, LF1, C1, D1, C6, D2, U1, C2, C3, LED, C4.</p>								

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

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		540	Reinforced	0.4mm	Min. 2.0mm
Heat-shrinkable tubing wrapped on HS2		540	Reinforced	0.4mm	Min. 0.4mm
Insulation tape: Outside of T1; Wrapped on T1 Core		540	Reinforced	2 layers	Min. 2 layers
Bobbin of T1		540	Reinforced	0.4mm	Min. 0.4mm
Supplementary information:					
Test voltage 4000Vdc for Reinforced insulation. No flash over or insulation breakdown after test. All sources considered.					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					P
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
Insulation tape: Outside of T1; Wrapped on T1 core All sources 1)	--	65.7K	0.46	Min. 2 layers	Reinforced	540
Supplementary information:						
1) According to clause 5.4.4.9 alternative method: Highest working frequency: 65.7K For the Insulation materials (Reinforced): $K_R=0.46$, $V_{pw}=540V_p$. Required electric strength test voltage: $1.2 \times 2 \times 540 / 0.46 = 2818V_{peak}$. The insulation tape can pass the 2818Vp Hi-pot testing.						

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

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V) 1)	Breakdown Yes / No
Basic/Supplementary:				
Live – Neutral (disconnected fuse)		DC	2500V	No
L&N – Earthing wire (For Class I equipment)		DC	2500V	No
Reinforced:				
Primary – Output terminals		DC	4000V	No
Primary – Enclosure (wrapped with foil)		DC	4000V	No
T1 Primary – Secondary		DC	4000 V	No
T1 Primary – Core 2)		DC	4000 V	No
Enclosure		DC	4000V	No
Heat-shrinkable tubing wrapped on HS2		DC	4000V	No
Insulation tape: Outside of T1; Wrapped on T1 Core (1 layer test)		DC	4000V	No
Bobbin of T1		DC	4000V	No
Supplementary information:				
1) Method of transient voltage considered. 2) T1 core is considered as secondary. No flash over or insulation breakdown after test. All source of the Insulation materials and Transformers (see list of critical components) were tested separately. Tested on all test models list in General product information.				

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

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	
L/N	264Vac/60Hz	N	N/A	10	ES1	
Supplementary information:						
X-capacitors installed for testing: CX1=Max. 0.33uF.						
<input checked="" type="checkbox"/> bleeding resistor rating: RS1=RS2=470KΩ.						
<input type="checkbox"/> ICX:						
¹⁾ Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit						

5.6.6	TABLE: Resistance of protective conductors and terminations				P
Location		Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
Appliance inlet GND to the earthing wire GND		32	2	0.58	18mΩ
Appliance inlet GND to the earthing wire GND		40	2	0.80	20mΩ
Supplementary information:					
For Class I equipment.					

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 (I_{rms} or I_{pk})	Freq. (Hz)	
DC output	Normal	264	N/A	0.180mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, output shutdown)	264	N/A	0.180mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, fuse open)	264	N/A	0.192mA _{pk}	60	ES1 *)
Accessible Enclosure (with metal foil)	Normal	264	N/A	0.016mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, output shutdown)	264	N/A	0.016mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, fuse open)	264	N/A	0.018mA _{pk}	60	ES1 *)
Supplementary information:						
Vin= 264Vac, 60Hz. *) Test with IEC 60990 figure 4. CY1=CY2=2200pF, CY1 and CY2 are in series.						

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)	
Test equipment remove CY2, consider CY2 optional.						
DC output	Normal	264	N/A	0.372mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, output shutdown)	264	N/A	0.372mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, fuse open)	264	N/A	0.396mA _{pk}	60	ES1 *)
Accessible Enclosure (with metal foil)	Normal	264	N/A	0.018mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, output shutdown)	264	N/A	0.018mA _{pk}	60	ES1 *)
	Fault (Refer to fault condition on table B.3, B.4, fuse open)	264	N/A	0.020mA _{pk}	60	ES1 *)
Supplementary information:						
Vin= 264Vac, 60Hz. *) Test with IEC 60990 figure 4. CY1=2200pF, removed CY2, consider CY2 is optional.						

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

5.7.5	TABLE: Earthed accessible conductive part			P
Supply voltage (V)	264			—
Phase(s)	[X] Single Phase; [] Three Phase: [] Delta [] Wye			
Power Distribution System	[X] TN [] TT [X] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
GND Pin of AC Inlet	1	Line-GND: 0.188mA peak Neutral-GND: 0.188mA peak	N/A	
	2(*)	N/A	N/A	
	3	1)	N/A	
	4	N/A	N/A	
	5	2)	N/A	
	6	N/A	N/A	
	8	N/A	N/A	
Supplementary Information:				
<p>[1] Supply voltage is the anticipated maximum Touch Voltage</p> <p>[2] Earthed neutral conductor [Voltage differences less than 1% or more]</p> <p>[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3</p> <p>[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.</p> <p>[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.</p> <p>1) Norway IT power system Line fault condition was evaluated, which is as same as TN, TT system earthing conductor fault condition, other IT power system is not evaluated.</p> <p>2) Not applicable, Single-phase equipment.</p> <p>For Class I equipment.</p> <p>CY1=CY2=2200pF, CY1 and CY2 are in series.</p>				

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

5.7.5	TABLE: Earthed accessible conductive part			P
Supply voltage (V)	264			—
Phase(s)	[X] Single Phase; [] Three Phase: [] Delta [] Wye			
Power Distribution System	[X] TN [] TT [X] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
GND Pin of AC Inlet	1	Line-GND: 0.380mA peak Neutral-GND: 0.380mA peak	N/A	
	2(*)	N/A	N/A	
	3	1)	N/A	
	4	N/A	N/A	
	5	2)	N/A	
	6	N/A	N/A	
	8	N/A	N/A	
Supplementary Information:				
<p>[1] Supply voltage is the anticipated maximum Touch Voltage</p> <p>[2] Earthed neutral conductor [Voltage differences less than 1% or more]</p> <p>[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3</p> <p>[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.</p> <p>[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.</p> <p>1) Norway IT power system Line fault condition was evaluated, which is as same as TN, TT system earthing conductor fault condition, other IT power system is not evaluated.</p> <p>2) Not applicable, Single-phase equipment.</p> <p>For Class I equipment.</p> <p>CY1=2200pF, removed CY2, consider CY2 is optional.</p>				

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:						
Abbreviation: SC= short circuit, OC= open circuit						

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Clause	Requirement + Test	Result - Remark	Verdict

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
Primary circuit	N/A	N/A	N/A	N/A	N/A	PS3
Secondary circuit	N/A	N/A	N/A	N/A	N/A	PS3
Test on model GTM91099-3009-4.0-T2 (With output: 5VDC/6.0A)						
Output	Normal	5.20	9.40	42.0	5	PS2 (comply with Annex Q)
Output	Fault condition: U1 Pin 1-2, SC	0	0	0	5	
Output	Fault condition: U1 Pin 3-4, SC	0	0	0	5	
Output	Fault condition: U1 Pin 1, OC	0	0	0	5	
Output	Fault condition: U1 Pin 3, OC	0	0	0	5	
Output	Fault condition: R1, SC	0	0	0	5	
Test on model GTM91099-6015-3.0-T2 (With output: 12VDC/5.0A)						
Output	Normal	12.10	6.55	74.8	5	PS2 (comply with Annex Q)
Output	Fault condition: U1 Pin 1-2, SC	0	0	0	5	
Output	Fault condition: U1 Pin 3-4, SC	0	0	0	5	
Output	Fault condition: U1 Pin 1, OC	0	0	0	5	
Output	Fault condition: U1 Pin 3, OC	0	0	0	5	
Output	Fault condition: R1, SC	0	0	0	5	
Test on model GTM91099-6024-6.0-T2 (With output:18VDC/3.33A)						
Output	Normal	18.3	3.83	68.5	5	PS2 (comply with Annex Q)
Output	Fault condition: U1 Pin 1-2, SC	0	0	0	5	
Output	Fault condition: U1 Pin 3-4, SC	0	0	0	5	
Output	Fault condition: U1 Pin 1, OC	0	0	0	5	
Output	Fault condition: U1 Pin 3, OC	0	0	0	5	

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Clause	Requirement + Test	Result - Remark				Verdict
Output	Fault condition: R1, SC	0	0	0	5	
Test on model GTM91099-6048-T2 (With output: 48VDC/1.25A)						
Output	Normal	48.1	3.08	147.7	5	PS3
Output	Fault condition: U1 Pin 1-2, SC	0	0	0	5	
Output	Fault condition: U1 Pin 3-4, SC	0	0	0	5	
Output	Fault condition: U1 Pin 1, OC	0	0	0	5	
Output	Fault condition: U1 Pin 3, OC	0	0	0	5	
Output	Fault condition: R1, SC	0	0	0	5	
For all models						
LED	Normal	1)	1)	1)	N/A	PS1
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.						
The above measurements are the maximum values (max. V and max. A obtained at the same time). For reference only.						
1) LED status indicator is considered as PS1 as specified in the specifications.						

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	
Varistor (MOV1)	N/A	N/A	N/A	Yes *)	
Supplementary information:					
*) The arcing PIS is covered by the fire enclosure.					

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	TABLE: Determination of resistive PIS			P
Location		Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
All Circuits		N/A	N/A	Yes *)
Supplementary information:				
Abbreviation: SC= short circuit; OC= open circuit				
*) Output measurement > 15W in normal condition and all other circuit is assumed as PS3, therefore all circuits are resistive PIS and covered by fire enclosure.				

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

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

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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 1)	90V 2)	264V 1)	264V 2)	—		
Ambient temperature during test T_{amb} (°C) :	--	--	--	--	—		
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)		
Test on model GTM91099-6015-3.0-T2 (With output: 12VDC/5.0A)							
1. AC Inlet near pin L	58.3	59.8	53.7	51.6	70		
2. MOV1 body	96.7	95.6	84.4	77.5	105		
3. PCB under BD1	98.2	100.6	79.7	74.8	130		
4. CX1 body	99.4	99.2	87.3	78.1	100		
5. LF2 coil	106.1	106.4	88.0	79.5	120 *		
6. C1 body	104.0	103.5	90.6	81.7	105		
7. PCB under Q1	91.7	92.7	80.7	77.8	130		
8. T1 coil	98.4	99.7	87.4	84.7	110 *		
9. T1 core	96.7	98.2	86.1	83.9	110 *		
10. U1 body	96.9	95.3	88.2	84.6	110		
11. CY1 body	87.4	88.1	78.8	76.5	125		
12. PCB under D4	97.6	95.2	89.7	86.0	130		
13. C2 body	87.9	86.4	80.6	77.9	105		
14. Output wire internal	60.3	60.7	57.5	57.2	80		
15. Plastic enclosure inside near T1 top	77.8	82.1	68.9	69.8	--		
16. Plastic enclosure inside near T1 bottom of PCB trace side	76.9	68.2	71.8	62.9	--		
17. Ambient	40.2	40.3	40.2	40.3	--		
Touch Temperatures							
1. Plastic enclosure outside near T1 top	56.1	70.0	50.8	55.8	77 (TS1)		
2. Plastic enclosure outside near T1 bottom of PCB trace side	62.2	54.7	55.0	49.2	77 (TS1)		
3. Output wire	31.9	31.5	29.7	31.0	77 (TS1)		
4. Output terminal	40.8	43.3	41.0	40.3	77 (TS1)		
5. Ambient	25.0	25.0	25.5	25.0	--		
Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
<p>Having a specified maximum ambient temperature of 40°C. If no limit is stated, temperature is for reference only. *) Temperature limits of winding include less 10°C for thermocouple measurement method. Load with rated output. 1) Label downward. 2) Label upward.</p>

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements					P
Supply voltage (V) :	90V 1)	90V 2)	264V 1)	264V 2)	—	
Ambient temperature during test T_{amb} (°C) :	--	--	--	--	—	
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)	
Test on model GTM91099-6048-T2 (With output: 48VDC/1.25A)						
1. AC Inlet near pin L	65.3	66.6	53.4	55.6	70	
2. MOV1 body	92.0	93.9	72.1	74.3	105	
3. PCB under BD1	91.0	93.4	68.2	70.1	130	
4. CX1 body	98.7	99.7	75.5	77.1	100	
5. LF2 coil	112.0	112.8	78.5	80.3	120 *	
6. C1 body	96.0	97.5	76.0	81.8	105	
7. PCB under Q1	101.3	103.0	80.7	82.7	130	
8. T1 coil	98.4	99.5	84.4	86.1	110 *	
9. T1 core	90.6	90.4	77.7	78.4	110 *	
10. U1 body	95.4	96.5	81.6	83.1	110	
11. CY1 body	84.8	87.8	72.9	75.6	125	
12. PCB under D4	90.9	92.2	79.4	81.0	130	
13. C2 body	73.8	74.8	66.2	67.2	105	
14. Output wire internal	65.0	66.8	59.1	61.0	80	
15. Plastic enclosure inside near T1 top	84.7	87.7	70.6	73.4	--	
16. Plastic enclosure inside near T1 bottom of PCB trace side	80.7	76.9	72.0	69.8	--	
17. Ambient	40.3	40.4	40.3	40.0	--	
Touch Temperatures						
1. Plastic enclosure outside near T1 top	56.7	65.1	49.0	51.3	77 (TS1)	
2. Plastic enclosure outside near T1 bottom of PCB trace side	56.1	48.2	50.5	43.6	77 (TS1)	

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Clause	Requirement + Test			Result - Remark			Verdict
3. Output wire			32.1	31.2	30.1	30.1	77 (TS1)
4. Output terminal			37.0	38.4	34.6	35.2	77 (TS1)
5. Ambient			25.0	25.0	25.3	25.0	--
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
Supplementary information:							
Having a specified maximum ambient temperature of 40°C. If no limit is stated, temperature is for reference only. *) Temperature limits of winding include less 10°C for thermocouple measurement method. Load with rated output. 1) Label downward. 2) Label upward.							

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	
Test on model GTM91099-3009-4.0-T2 (With output: 5VDC/6.0A)									
90	50	0.694	--	38.20	--	FS1, FS2	0.694	Max. normal load	
90	60	0.698	--	38.15	--	FS1, FS2	0.698	Max. normal load	
100	50	0.634	1.5	37.60	--	FS1, FS2	0.634	Max. normal load	
100	60	0.617	1.5	37.60	--	FS1, FS2	0.617	Max. normal load	
240	50	0.318	1.5	37.57	--	FS1, FS2	0.318	Max. normal load	
240	60	0.311	1.5	37.58	--	FS1, FS2	0.311	Max. normal load	
264	50	0.292	--	37.85	--	FS1, FS2	0.292	Max. normal load	
264	60	0.295	--	37.84	--	FS1, FS2	0.295	Max. normal load	
Test on model GTM91099-6015-3.0-T2 (With output: 12VDC/5.0A)									
90	50	1.389	--	73.55	--	FS1, FS2	1.389	Max. normal load	
90	60	1.227	--	73.19	--	FS1, FS2	1.227	Max. normal load	
100	50	1.194	1.5	72.65	--	FS1, FS2	1.194	Max. normal load	
100	60	1.134	1.5	72.62	--	FS1, FS2	1.134	Max. normal load	
240	50	0.601	1.5	70.47	--	FS1, FS2	0.601	Max. normal load	
240	60	0.577	1.5	70.52	--	FS1, FS2	0.577	Max. normal load	
264	50	0.550	--	70.41	--	FS1, FS2	0.550	Max. normal load	
264	60	0.540	--	70.89	--	FS1, FS2	0.540	Max. normal load	
Test on model GTM91099-6024-6.0-T2 (With output:18VDC/3.33A)									
90	50	1.260	--	69.71	--	FS1, FS2	1.260	Max. normal load	
90	60	1.248	--	70.43	--	FS1, FS2	1.248	Max. normal load	

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Clause	Requirement + Test					Result - Remark		Verdict
100	50	1.154	1.5	70.67	--	FS1, FS2	1.154	Max. normal load
100	60	1.131	1.5	70.39	--	FS1, FS2	1.131	Max. normal load
240	50	0.570	1.5	69.04	--	FS1, FS2	0.570	Max. normal load
240	60	0.572	1.5	69.29	--	FS1, FS2	0.572	Max. normal load
264	50	0.547	--	69.58	--	FS1, FS2	0.547	Max. normal load
264	60	0.523	--	69.65	--	FS1, FS2	0.523	Max. normal load
Test on model GTM91099-6048-T2 (With output: 48VDC/1.25A)								
90	50	1.246	--	70.48	--	FS1, FS2	1.246	Max. normal load
90	60	1.219	--	69.71	--	FS1, FS2	1.219	Max. normal load
100	50	1.147	1.5	68.93	--	FS1, FS2	1.147	Max. normal load
100	60	1.083	1.5	68.84	--	FS1, FS2	1.083	Max. normal load
240	50	0.576	1.5	67.45	--	FS1, FS2	0.576	Max. normal load
240	60	0.565	1.5	67.49	--	FS1, FS2	0.565	Max. normal load
264	50	0.510	--	67.41	--	FS1, FS2	0.510	Max. normal load
264	60	0.518	--	67.66	--	FS1, FS2	0.518	Max. normal load
Supplementary information:								
Load with rated output.								

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Clause	Requirement + Test	Result - Remark	Verdict

B.3, B.4		TABLE: Abnormal operating and fault condition tests				P
Ambient temperature T_{amb} (°C).....		25°C, if not specify the ambient temperature.				—
Power source for EUT: Manufacturer, model/type, outputrating ..		--				—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Test on model GTM91099-6015-3.0-T2 (With output: 12VDC/5.0A)						
Output +12V	O-L	264	4hrs 22mins	FS1, FS2	0.550→ 0.607→ 0.680→ (0.687↔ 0.033)→ (0.675↔ 0.033)→ 0.033	Temperature was stable when the output loaded to 6.55A, unit hiccup when loaded to 7.0A, unit shutdown when load to 8.0A. No damage, no hazard. Max. temperature on: 1. T1 coil: 107.0°C 2. T1 core: 102.6°C 3. Plastic enclosure outside near T1 top: 57.5°C 4. Plastic enclosure outside near T1 bottom of PCB trace side: 66.7°C 5. Output wire: 38.8°C 6. Output terminal: 46.0°C 10. Ambient: 24.0°C
BD1	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately. BD1 damaged, no hazards.
C1	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately. BD1 damaged, no hazards.
T1 Pin 1-3	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
T1 Pin 4-5	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
T1 Pin (A-B)	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
D4	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.

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Clause	Requirement + Test			Result - Remark		Verdict
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
R1	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 3-4	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 2-1	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 1	O-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 3	O-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Q1 Pin G-S	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Q1 Pin D-S	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately. BD1, R1 damaged, no hazards.
Q1 Pin D-G	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately, R1, Q1, RS11, US1 damaged, no hazards.
US1 Pin 3-2	S-C	264	10min	FS1, FS2	0.550	Unit normal operation. No damaged. no hazards.
US1 Pin 8-2	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Output +12V	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Test on model GTM91099-6048-T2 (With output: 48VDC/1.25A)						

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Clause	Requirement + Test			Result - Remark		Verdict
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Output +48V	O-L	264	4hrs 53mins	FS1, FS2	0.518→ 0.667→ 0.776→ (0.790↔ 0.033)→ (0.840↔ 0.033)→ (0.780↔ 0.033)→ (0.825↔ 0.033)→ 0.033	Temperature was stable when the output loaded to 1.93A, unit hiccup when loaded to 1.96A, unit shutdown when load to 5.0A. No damage, no hazard. Max. temperature on: 1. T1 coil: 126.5°C 2. T1 core: 115.1°C 3. Plastic enclosure outside near T1 top: 70.8°C 4. Plastic enclosure outside near T1 bottom of PCB trace side: 69.0°C 5. Output wire: 33.6°C 6. Output terminal: 42.6°C 10. Ambient: 24.0°C
BD1	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately. BD1 damaged, no hazards.
C1	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately. BD1 damaged, no hazards.
T1 Pin 1-3	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
T1 Pin 4-5	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
T1 Pin (A-B)	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
D4	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
R1	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 3-4	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.

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Clause	Requirement + Test			Result - Remark		Verdict
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
U1 Pin 2-1	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 1	O-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
U1 Pin 3	O-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Q1 Pin G-S	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Q1 Pin D-S	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately. BD1, R1 damaged, no hazards.
Q1 Pin D-G	S-C	264	1s	FS1, FS2	*)	Fuse FS1, FS2 opened immediately, R1, Q1, RS11, US1 damaged, no hazards.
US1 Pin 3-2	S-C	264	10min	FS1, FS2	0.518	Unit normal operation. No damaged. no hazards.
US1 Pin 8-2	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Output +48V	S-C	264	10min	FS1, FS2	0.033	Unit shutdown immediately. Recoverable when fault remove. No damaged. no hazards.
Supplementary information:						
<p>O-L=overload, S-C=Short circuit, O-C=Open circuit. Transforer overload same as output overload. * Fuse current is more than fuse rating times 2.1, repeated the test with each source of fuse and same result come out. After the fault condition tests, all output comply with ES1 limit. Electric strength tests conducted after each fault condition, no flash over or insulation breakdown.</p>						

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Clause	Requirement + Test	Result - Remark	Verdict

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.							

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Clause	Requirement + Test	Result - Remark	Verdict

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery				N/A
Maximum specified charging voltage (V)					—
Maximum specified charging current (A)					—
Highest specified charging temperature (°C)					
Lowest specified charging temperature (°C)					
Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	
Supplementary information:					
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature					

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Output Circuit	Condition	U _{oc} (V)	Time (s)	I _{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
Supplementary Information:							

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Clause	Requirement + Test	Result - Remark	Verdict

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
AC Inlet, BD1, LF2, C1, HS1, CY1, CY2, LED, C2, C3, Internal wire	N/A	N/A	N/A	10N	5s	Safeguards remained effective
Enclosure	Thermoplastic	Min. 2.0mm	Circular Plane surface 30mm in diameter	100N	5sec	Safeguards remained effective
Supplementary information:						

T.6, T.9	TABLE: Impact test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Enclosure	Thermoplastic	Min. 2.0mm	1300	Safeguards remained effective	
Supplementary information:					

T.7	TABLE: Drop test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Enclosure	Thermoplastic	Min. 2.0mm	1000	Safeguards remained effective	
Supplementary information:					

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

T.8	TABLE: Stress relief test					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	Thermoplastic	Min. 2.0mm	98	7	No risk of shrinkage or distortion on material	
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 conformity ¹⁾	
Plastic Enclosure (all parts)	SABIC INNOVATIVE PLASTI Alt. use CS B V	C2950	Min. V-0, 75°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E45329)	
(Alt.)	SABIC INNOVATIVE PLASTICS B V	CX7211(GG)	Min. V-0, 90°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E45329)	
(Alt.)	SABIC INNOVATIVE PLASTICS B V	945(GG)	Min. V-0, 120°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E45329)	
(Alt.)	SABIC INNOVATIVE PLASTICS B V	HF500R(f2)	Min. V-0, 125°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E45329)	
(Alt.)	SABIC JAPAN L L C	C2950(GG)(C)	Min. V-0, 75°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E207780)	
(Alt.)	SABIC JAPAN L L C	CX7211(GG)	Min. V-0, 90°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E207780)	
(Alt.)	SABIC JAPAN L L C	945(GG)	Min. V-0, 120°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E207780)	
(Alt.)	TEIJIN LIMITED RESIN AND PLASTIC	LN-1250G(#)(*)	Min. V-0, 115°C Min. 2.0mm thickness.	UL 94, UL 746	UL (E50075)	
Output Cord	Interchangeable	Interchangeable	Min. VW-1, Min. 80°C, Min. 24AWG	UL 758, UL 1581	UL	
Appliance Inlet (CN1) Class I units (C6 type)	LECI Electronics Co., Ltd	DB-6-Serie(s)	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40032465) UL (E30222)	
(Alt.)	Tecx-Unions Technology Corp	TU-333	250Vac, 2.5A	IEC/EN 60320-1 UL 498	ENEC-01933 UL (E220004)	
(Alt.)	Rich Bay Co., Ltd.	R-30790, R-307	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40030381) UL (E184638)	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	Sun Fair Electric Wire & Cable (HK) Co. Ltd.	S-02	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40034448)
(Alt.)	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A04-002	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40016045) UL (E225980)
(Alt.)	Rong Feng Industrial Co., Ltd.	RF-190-Serie(s)	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40030379) UL (E102641)
Appliance inlet (CN1) Class I units (C14 type)	LECI Electronics Co., Ltd	DB-14-Serie(s)	250Vac, 10A	IEC/EN 60320-1 UL 498	VDE (40032137) UL (E302229)
(Alt.)	Tecx-Unions Technology Corp	TU-301-S, TU-301-SP	250Vac, 10A	IEC/EN 60320-1 UL 498	ENEC-01898-M1 UL (E220004)
(Alt.)	Rich Bay Co., Ltd.	R-301SN	250Vac, 10A	IEC/EN 60320-1 UL 498	VDE (40030228) UL (E184638)
(Alt.)	Sun Fair Electric Wire & Cable (HK) Co. Ltd.	S-03	250Vac, 10A	IEC/EN 60320-1 UL 498	VDE (40034447) UL (E226643)
(Alt.)	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A01-003J	250Vac, 10A	IEC/EN 60320-1 UL 498	VDE (40013388) UL (E225980)
(Alt.)	Rong Feng Industrial Co., Ltd.	SS-120	250Vac, 10A	IEC/EN 60320-1 UL 498	VDE (40028101) UL (E102641)
Appliance inlet (CN1) Class II units (C8 type)	LECI Electronics Co., Ltd	DB-8-Serie(s)	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40032028) UL (E302229)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	Kunshan DLK Electronics Technology Co., Ltd	CDJ-8	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40025531) UL (E217394)
(Alt.)	Rich Bay Co., Ltd.	R-201SN90	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40030384) UL (E184638)
(Alt.)	Sun Fair Electric Wire & Cable (HK) Co. Ltd.	S-01	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40034449) UL (E226643)
(Alt.)	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A03-005	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40014833) UL (E225980)
(Alt.)	Rong Feng Industrial Co., Ltd.	RF-180-Serie(s)	250Vac, 2.5A	IEC/EN 60320-1 UL 498	VDE (40030168) UL (E102641)
(Alt.)	Tecx-Unions	SO-222	250Vac, 2.5A	IEC/EN 60320-1 UL 498	ENEC-02099 UL (E220004)
PCB	Interchangeable	Interchangeable	Min. V-0, Min. 130°C	UL 796	UL
Fuse (FS1, FS2) (FS2 is optional)	Conquer Electronics Co., Ltd.	MST	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40017118) UL (E82636)
(Alt.)	Suzhou Walter Electronic Co. Ltd.	2010	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40018781) UL (E56092)
(Alt.)	Bel Fuse Ltd.	RST	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40011144) UL (E20624)
(Alt.)	Cooper Bussmann LLC	SS-5	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40015513) UL (E19180)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	Dongguan Better Electronics Technology Co., Ltd.	932	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40033369) UL (E3000003)
(Alt.)	Shenzhen Lanson Electronics Co. Ltd.	SMT T3,15A250V	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40012592) UL (E221465)
(Alt.)	Conquer Electronics Co., Ltd.	MET	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40017157) UL (E82636)
(Alt.)	Sunny East Enterprise Co. Ltd.	CFD	T3.15A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE (40030246)
X capacitor (CX1) (Optional)	Cheng Tung Industrial Co., Ltd.	CTX	Max. 0.33µF, Min. 300V, Min. 110°C, X1 or X2	IEC/EN 60384-14 UL 60384-14	ENEC-02671 UL (E193049)
(Alt.)	Tenta Electric Industrial Co. Ltd.	MEX	Max. 0.33µF, Min. 250V, Min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (119119) UL (E222911)
(Alt.)	Joey Electronics (Dong Guan) Co., Ltd.	MPX	Max. 0.33µF, Min. 250V, Min. 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40032481) UL (E216807)
(Alt.)	Ultra Tech Xiphi Enterprise Co. Ltd.	HQX	Max. 0.33µF, Min. 250V, Min. 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40015608) UL (E183780)
(Alt.)	Yuan Yu Electronics Co. Ltd.	MPX	Max. 0.33µF, Min. 250V, Min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40032392) UL (E200119)
(Alt.)	Sinhua Electronics (Huzhou) Co., Ltd	MPX	Max. 0.33µF, Min. 300V, Min. 110°C, X1 type	IEC/EN 60384-14 UL 60384-14	VDE (40014686) UL (E237560)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	Jiangsu Xinghua Huayu Electronics Co., Ltd.	MPX - Series	Max. 0.33μF, Min. 275V, Min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40022417) UL (E311166)
(Alt.)	Dain Electronics Co., Ltd.	MEX, MPX, NPX	Max. 0.33μF, Min. 275V, Min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40018798) UL (E147776)
(Alt.)	Shenzhen Jinghao Capacitor Co., Ltd.	CBB62B	Max. 0.33μF, Min. 250V, Min. 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40018690) UL (E252286)
(Alt.)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	Max. 0.33μF, Min. 275V, Min. 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE (40034679) UL (E208107)
(Alt.)	HUA JUNG COMPONENTS CO LTD	MKP	Max. 0.33μF, Min. 250V, Min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	SE-ENEC- 2002895R2 UL E149075
Y capacitor (CY1, CY2) (CY2 is optional)	TDK Corporation	CD	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40029780) UL (E37861)
(Alt.)	Success Electronics Co., Ltd.	SE	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40037211) (40020002) UL (E114280)
(Alt.)	Success Electronics Co., Ltd.	SB	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40037221) (40020001) UL E114280
(Alt.)	Murata Mfg. Co., Ltd.	KX	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40002831) UL (E37921)
(Alt.)	Walsin Technology Corp.	AH	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40001804) UL (E146544)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	Haohua Electronic Co.	CT7	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40003902) UL (E233106)
(Alt.)	JYA-NAY CO., LTD.	JN	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	EN 60384-14 UL 60384-14	TUV (R 50232059) UL (E201384)
(Alt.)	Jyh Chung Electronic Co., Ltd.	JD	Max. 2200pF, Min. 400Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (137027) UL (E187963)
(Alt.)	Welson Industrial Co., Ltd.	WD	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40016157) UL (E104572)
(Alt.)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD-Series	Max. 2200pF, Min. 250Vac, Min. 125°C, Min. Y1 type	IEC/EN 60384-14 UL 60384-14	VDE (40025754) UL (E208107)
Varistor (MOV / MOV1) (Optional))	Xiamen Set Electronics Co., Ltd.	TFV8S471K	Max. Continuous voltage: Min. 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: Min. 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)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	10D621K	Max. Continuous voltage: Min. 385Vac(rms), Min. 125°C, (tested by UL for 6KV/3KA combination pulse), The coating is Min. V-0	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	VDE (40023049), UL
(Alt.)	Thinking Electronic Industrial Co., Ltd.	TVR10621	Max. Continuous voltage: Min. 395Vac(rms), Min. 125°C, (tested by UL for 6KV/3KA combination pulse), The coating is Min. V-0	IEC/EN 61051-1 IEC/EN 61051-2 UL1449	VDE (005944), UL
Photo coupler (U1)	Everlight Electronics Co., Ltd.	EL817	Ext. Dcr&Cl: ≥7.6mm, DTI: ≥0.4mm, Thermal cycling test, Min. 110°C	IEC/EN 60747-5-5, IEC/EN 62368-1, UL 1577	VDE (132249) UL
(Alt.)	COSMO ELECTRONICS CORP	K1010	Ext. Dcr&Cl: ≥8.0mm, DTI: ≥0.4mm, Thermal cycling test, Min. 115°C	IEC/EN 60747-5-5, IEC/EN 60950-1, UL 1577	VDE (101347) UL
(Alt.)	COSMO Electronics Corporation	KP1010	Ext. Dcr&Cl: ≥8.0mm, DTI: ≥0.4mm, Thermal cycling test, Min. 115°C	IEC/EN 60747-5-5, IEC/EN 60950-1, UL 1577	VDE (101347) UL
(Alt.)	Lite-On Technology Corporation	LTV-817	Ext. Dcr&Cl: ≥7.0mm, DTI: ≥0.4mm, Thermal cycling test, Min. 115°C	IEC/EN 60747-5-5, IEC/EN 62368-1, UL 1577	VDE (40015248) UL

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	Fairchild Semiconductor Pte Ltd	H11A817B	Ext. Dcr&Cl: ≥7.0mm, DTI: ≥0.4mm, Thermal cycling test, Min. 115°C	IEC/EN 60747-5-5, IEC/EN 62368-1, UL 1577	VDE (40026857) UL
(Alt.)	Fairchild Semiconductor Pte Ltd	FOD817B	Ext. Dcr&Cl: ≥7.0mm, DTI: ≥0.4mm, Thermal cycling test, Min. 115°C	IEC/EN 60747-5-5, IEC/EN 62368-1, UL 1577	VDE (40026857) UL
(Alt.)	Bright Led Electronics Corp.	BPC-817 A/B/C/D/L, BPC-817 M, BPC-817 S	Ext. Dcr&Cl: ≥7.6mm, DTI: ≥0.4mm, Thermal cycling test, Min. 110°C	IEC/EN 60747-5-5, IEC/EN 62368-1, UL 1577	VDE (40007240) UL
Earthing wire (For Class I)	Interchangeable	Interchangeable	Min. 80°C, Min. 20AWG, Min. VW-1, Min. 300V	UL 758	UL
Heat-shrinkable tubing wrapped on HS2	SHENZHEN WOER HEAT SHRINKABLE MATERIAL CO LTD	RSFR-H, RSFR, RSFR-HPF	Min. VW-1, Min. 125°C, Min. 0.40 mm thickness	UL 224	UL
(Alt.)	QIFURUI ELECTRONICS CO	QFR-h	Min. VW-1, Min. 125°C, Min. 0.40 mm thickness	UL 224	UL
(Alt.)	DONGGUAN SALIPT CO LTD	SALIPT S-901-300, SALIPT S-901-600	Min. VW-1, Min. 125°C, Min. 0.40 mm thickness	UL 224	UL
(Alt.)	GUANGZHOU KAIHENG ENTERPRISE GROUP	K-2, K-2 (CB)	Min. VW-1, Min. 125°C, Min. 0.40 mm thickness	UL 224	UL
(Alt.)	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-HFT	Min. VW-1, Min. 125°C, Min. 0.40 mm thickness	UL 224	UL
Line filter (LF1) (No bobbin) 1)	GlobTek / HAOPUWEI / HEJIA / BOAM / ENG	GTM91099-LF1	Min. 130°C	IEC/EN IEC 62368-1	Test in the equipment

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Line filter (LF2) (No bobbin) 2)	GlobTek / HAOPUWEI / HEJIA / BOAM / ENG	NF00031	Min. 130°C	IEC/EN IEC 62368-1	Test in the equipment
Transformer (T1) 3)	GlobTek / BOAM / HAOPUWEI / ENG	XF00794(5V-9V), XF00694(9.1V-15V), XF00695(15.1V-24V), XF00731(24.1V-48V)	Class B	IEC/EN IEC 62368-1	Test in the equipment
- Insulation system	GLOBTEK INC	GTX-130-TM	Class 130(B)	UL 1446	UL (E243347)
- Insulation system (Alt.)	SHAN DONG BOAM ELECTRIC CO LTD	BOAM-01, B1	Class 130(B)	UL 1446	UL (E252329)
- Insulation system (Alt.)	WUXI HAOPUWEI ELECTRONICS CO LTD	ZT-130	Class 130(B)	UL 1446	UL (E315275)
- Insulation system (Alt.)	ENG ELECTRIC CO LTD	ENG130-1	Class 130(B)	UL 1446	UL (E308897)
- Triple insulated wire	Great Leoflon Industrial Co., Ltd.	TRW (B) Serie(s)	Class B, Reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE (136581) UL (E211989)
- Triple insulated wire (Alt.)	KBI COSMOLINK CO., LTD.	TIW-M Serie(s)	Class B, Reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE (138053) UL (E213764)
- Triple insulated wire (Alt.)	Furukawa Electric Co., Ltd.	TEX-E	Class B, Reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE (006735) UL (E206440)
- Triple insulated wire (Alt.)	Totoku Electric Co. Ltd.	TIW-2	Class B, Reinforced insulation	IEC/EN 61558-1 UL 2353 UL 60601-1	VDE (40044910) UL (E166483)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
- Triple insulated wire (Alt.)	E&B Technology Co., Ltd.	E&B-XXXB, E&B-XXXB-1	Class B, Reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE (40023473) UL (E315265)
- Triple insulated wire (Alt.)	SHENZHEN JIUDING NEW MATERIAL CO., LTD.	DTFW-B, DTFW-F	Class B, Reinforced insulation	IEC/EN 62368-1 UL 2353 UL 60601-1	VDE (40037495) UL (E357999)
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375J, T375HF	Phenolic, V-0, 150°C. Min. 0.45mm thickness.	UL 94 UL 746	UL (E59481)
- Bobbin (Alt.)	CHANG CHUN PLASTICS CO LTD	4130	PBT, V-0, 150°C. Min. 0.74mm thickness.	UL 94 UL 746	UL (E59481)
- Bobbin (Alt.)	SUMITOMO BAKELITE CO LTD	PM-9820, PM-9823	Phenolic, V-0, 150°C. Min. 0.45mm thickness.	UL 94 UL 746	UL (E41429)
- Insulating tape	3M COMPANY	1350F-1, 1350T-1, 44	Min. 130°C	UL 510	UL (E17385)
- Insulating tape (Alt.)	BONDTEC PACIFIC CO LTD	370S (b)	Min. 130°C	UL 510	UL (E175868)
- Insulating tape (Alt.)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ, CT, WF	Min. 130°C	UL 510	UL (E165111)
- Insulating tape (Alt.)	HUIZHOU YAHUA ELECTRONIC TECHNOLOGY CO LTD	CT	Min. 130°C	UL 510	UL (E495875)
- Insulating tape (Alt.)	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A (b)	Min. 130°C	UL 510	UL (E246950)
- Insulating tape (Alt.)	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX*	Min. 130°C	UL 510	UL (E246820)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
- Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFT, TFS	Min. 300V, Min. 200°C	UL 224	UL (E156256)
- Tube (Alt.)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	WF	Min. 600V, Min. 200°C	UL 224	UL (E203950)
- Tube (Alt.)	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-T, CB-TT-S	Min. 300V, Min. 200°C	UL 224	UL (E180908)
Bleeder Resistor (RS1, RS2)	Yageo Corporation	RV series	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-108482-UL)
(Alt.)	Ralec Electronic Corp	RTV series	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-66106-M1-UL)
(Alt.)	Guangdong Fenghua Advanced Technology Holding Co.,Ltd.	RVS series	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	Nemko CB (NO109708)
(Alt.)	Viking Tech Corporation Kaoshiung Branch	HVRC12	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-121748-UL)
(Alt.)	TZAI YUAN ENTERPRISE CO LTD	HSMD, SMD	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-29431-A1-M1-UL)
(Alt.)	WALSIN TECHNOLOGY CORP	WF12N	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-119162-UL)
(Alt.)	Yageo Corporation	AH series	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-110207-UL)

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
(Alt.)	PDC	FVS03, FVS05, FVS06, FVS20, TF25V, TF06V, TF08V, TF12V, TF20V, FVS25	RS1=RS2= Max. 470KΩ, Min. 1/4W (RS1 and RS2 are in series)	IEC/EN 62368-1	UL CB (Cert. No.: DK-101615-UL)
Bridge Rectifier (BD1)	Interchangeable	Interchangeable	Min. 600V, Min. 4A	IEC/EN IEC 62368-1	Test in the equipment
Thermistor (THR1)	Interchangeable	Interchangeable	10Ω at 25°C	IEC/EN IEC 62368-1	Test in the equipment
Electrolytic Capacitor (C1)	Interchangeable	Interchangeable	Max. 120uF, Min. 400V, Min. 105°C	IEC/EN IEC 62368-1	Test in the equipment
MOSFETs (Q1)	Interchangeable	Interchangeable	Min: 6A, Min: 600V	IEC/EN IEC 62368-1	Test in the equipment
Supplementary information:					
<p>1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.</p> <p>*) Varistor complied with UL1449 3rd Ed. which cover the required 15 combination pulses 6KV(1.2/50us) / 3KA (8/20us) test, this is more strict than table I group 1 of IEC 61051-2.</p> <p>1) All Line filter (LF1) have same construction.</p> <p>2) All Line filter (LF2) have same construction.</p> <p>3) All Transformer (T1) have same construction.</p>					

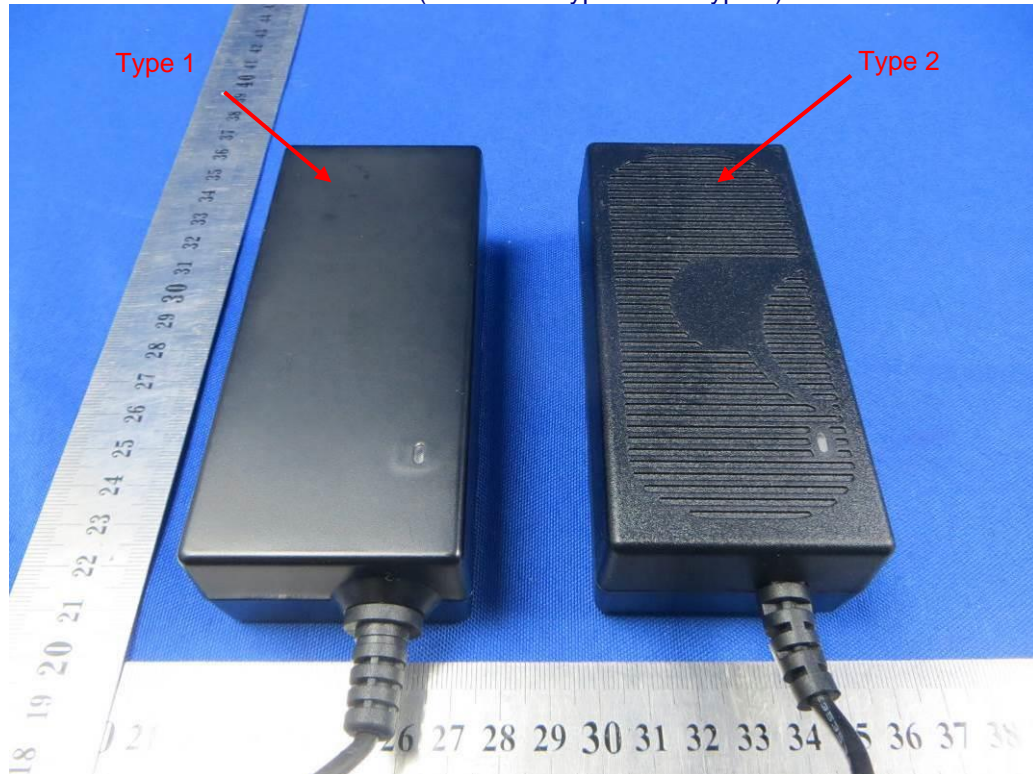
— End of the report —

Photos

Overall view (Enclosure Type 1 and Type 2)



Overall view (Enclosure Type 1 and Type 2)



Photos

Overall view (Enclosure Type 1)

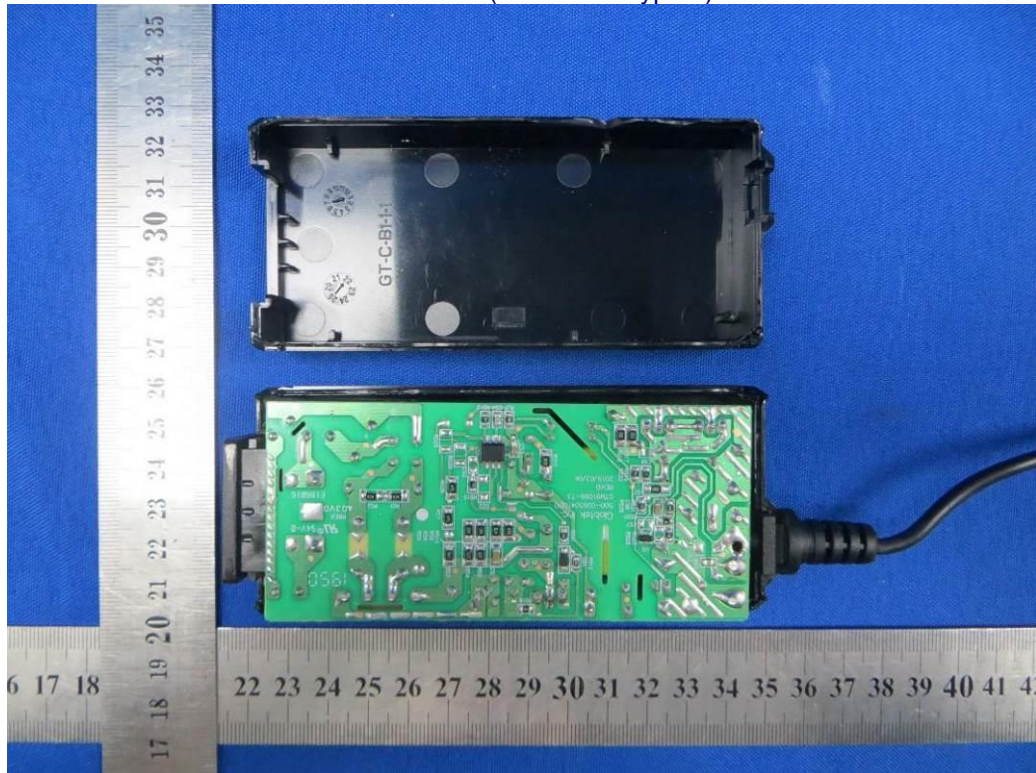


Overall view (Enclosure Type 1)

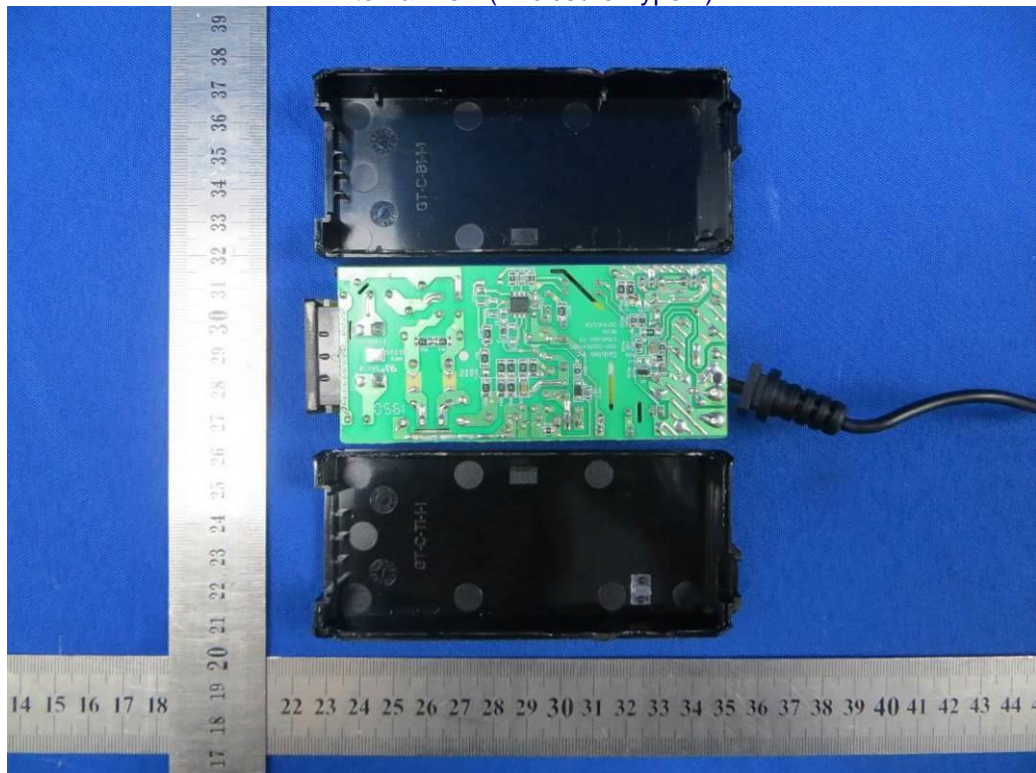


Photos

Internal view (Enclosure Type 1)



Internal view (Enclosure Type 1)



Photos

Overall view (Enclosure Type 2)

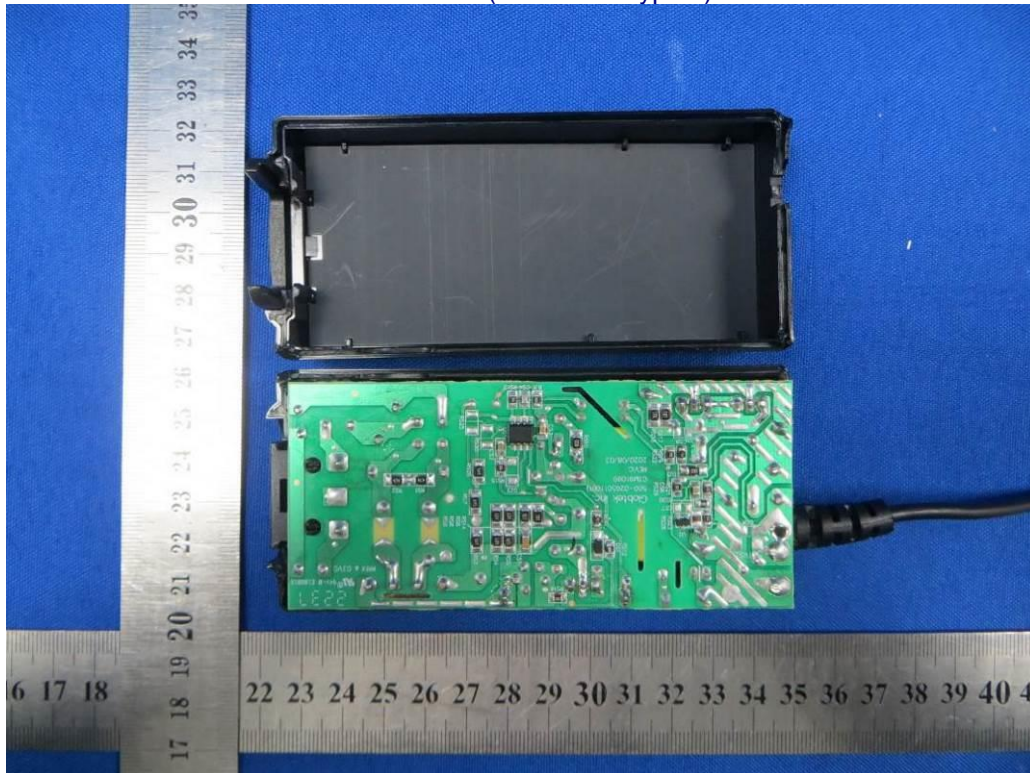


Overall view (Enclosure Type 2)

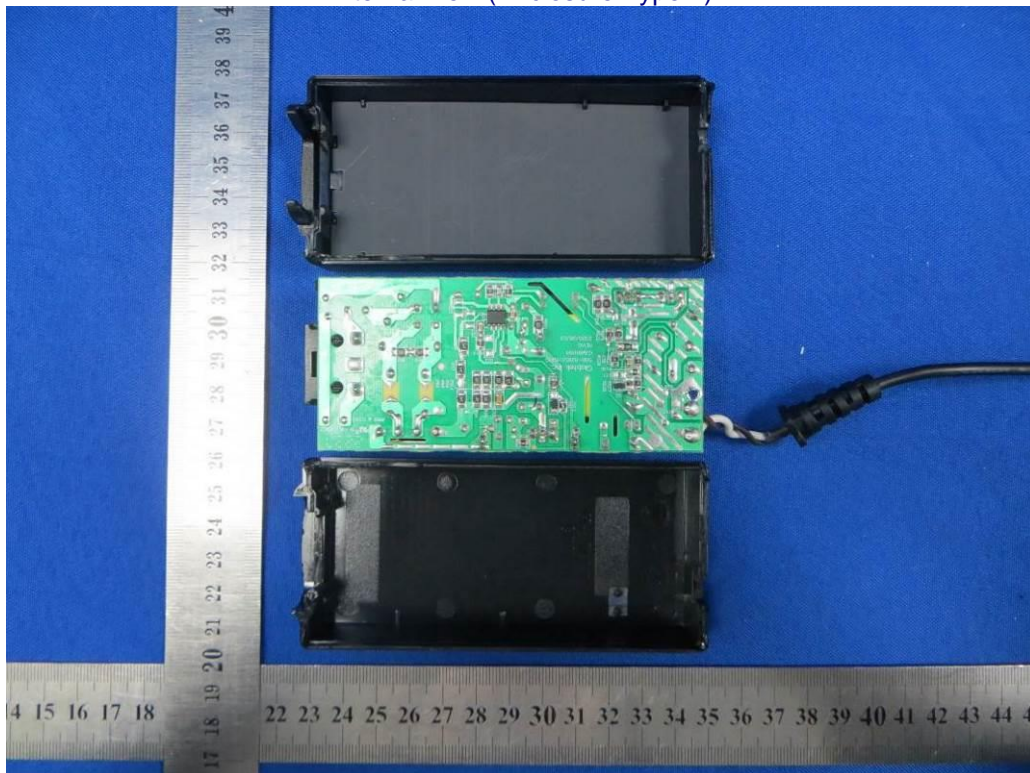


Photos

Internal view (Enclosure Type 2)

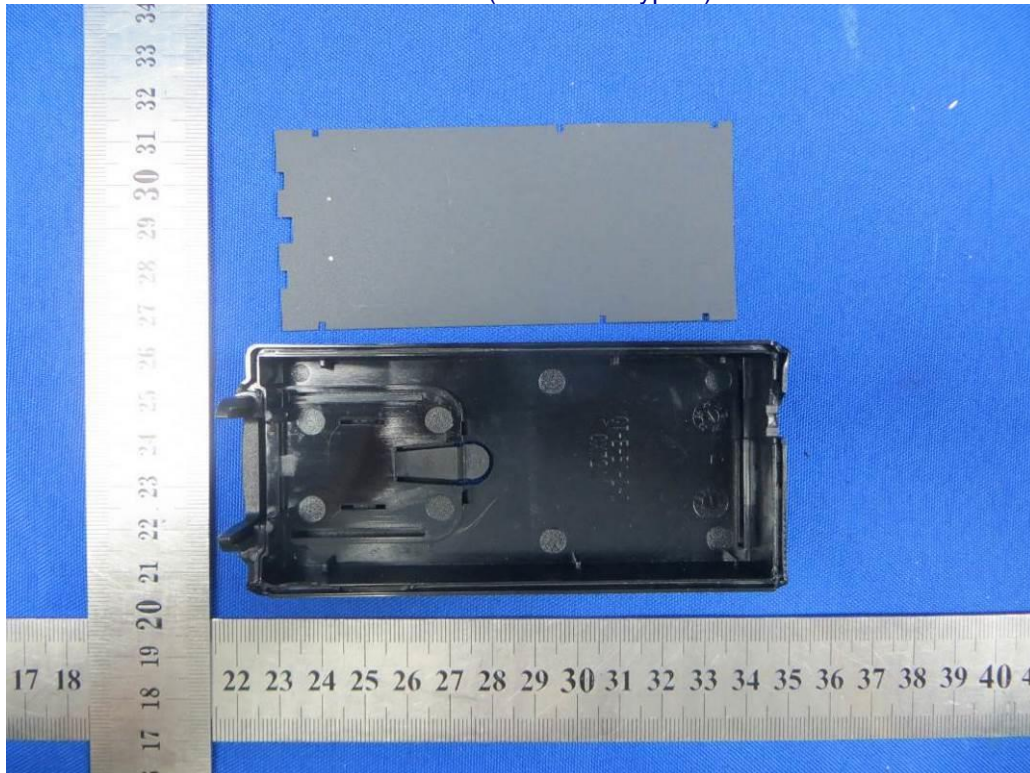


Internal view (Enclosure Type 2)



Photos

Internal view (Enclosure Type 2)

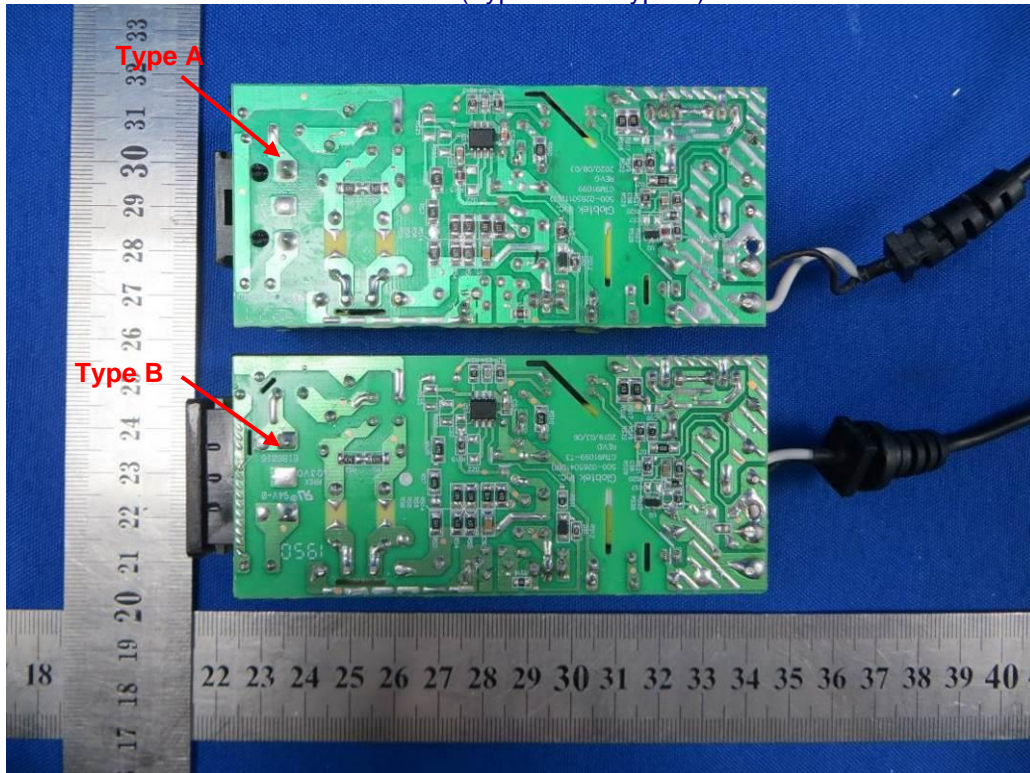


Internal view (Enclosure Type 2)

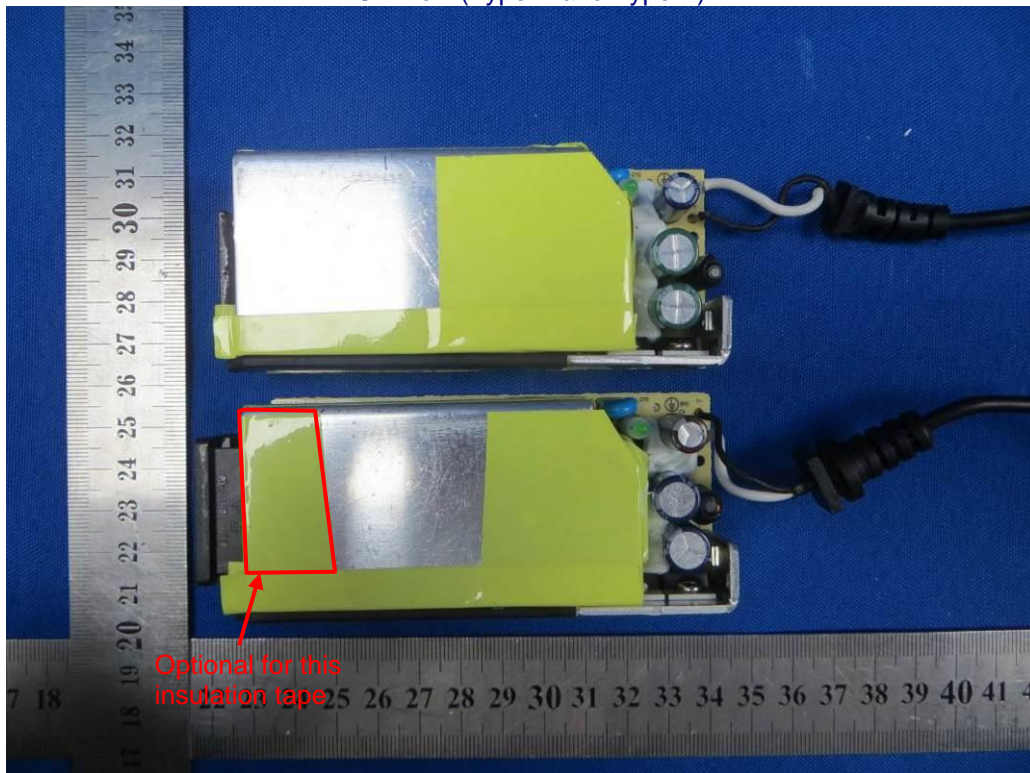


Photos

PCB view (Type A and Type B)

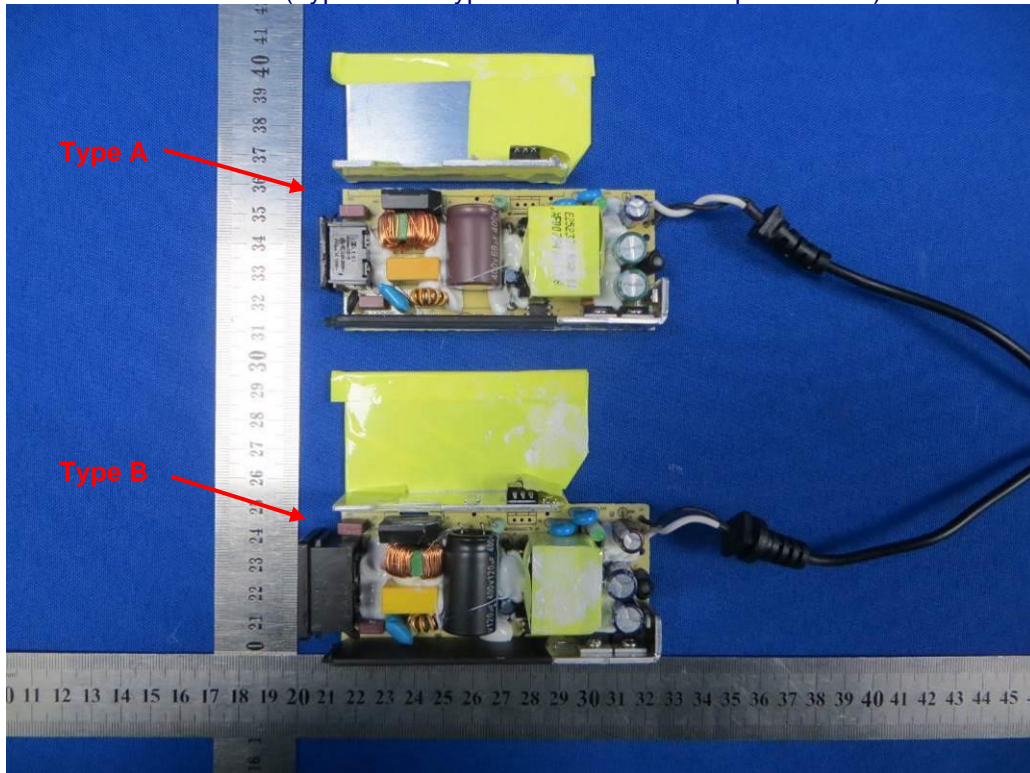


PCB view (Type A and Type B)

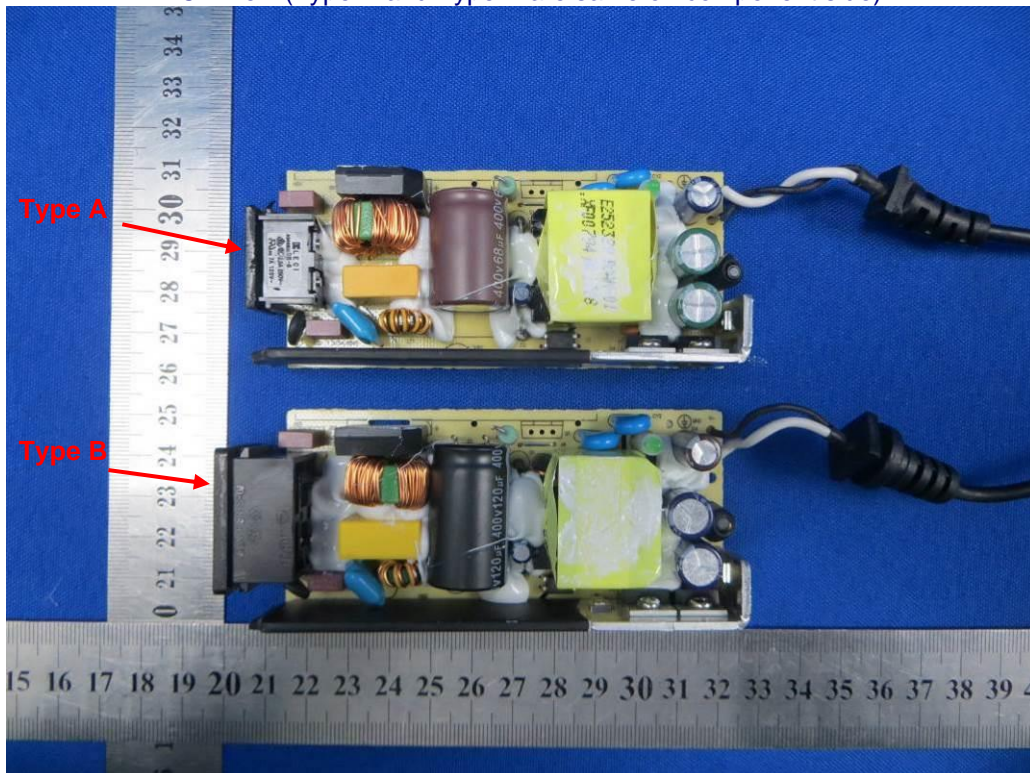


Photos

PCB view (Type A and Type B are same on component side)

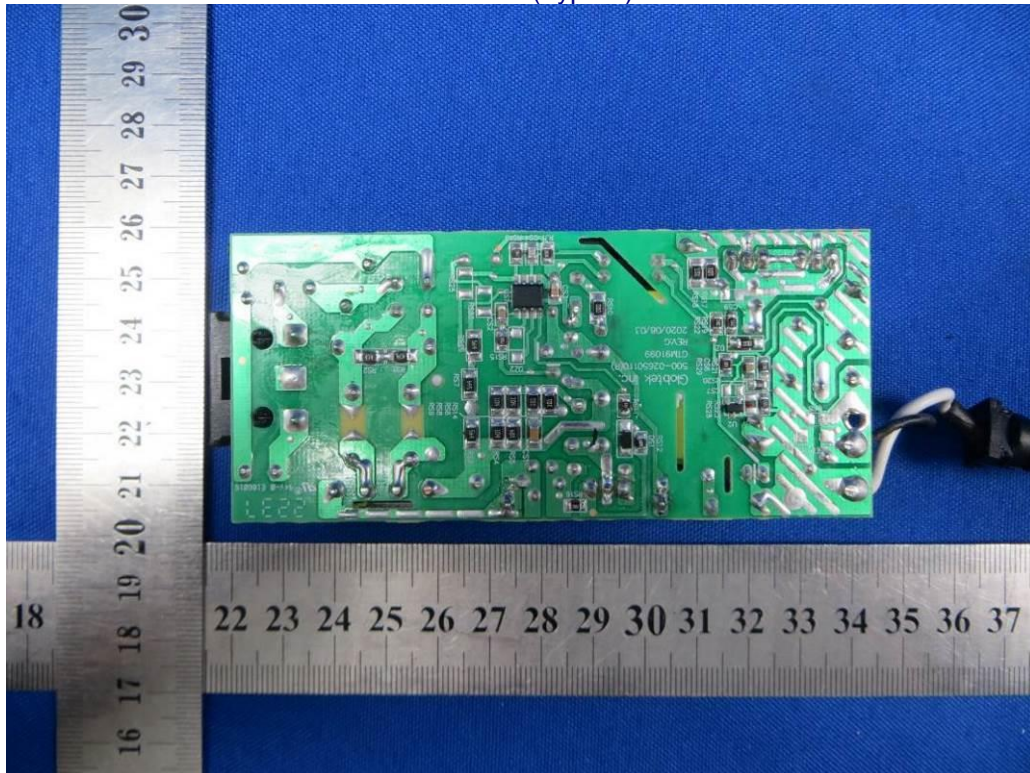


PCB view (Type A and Type B are same on component side)

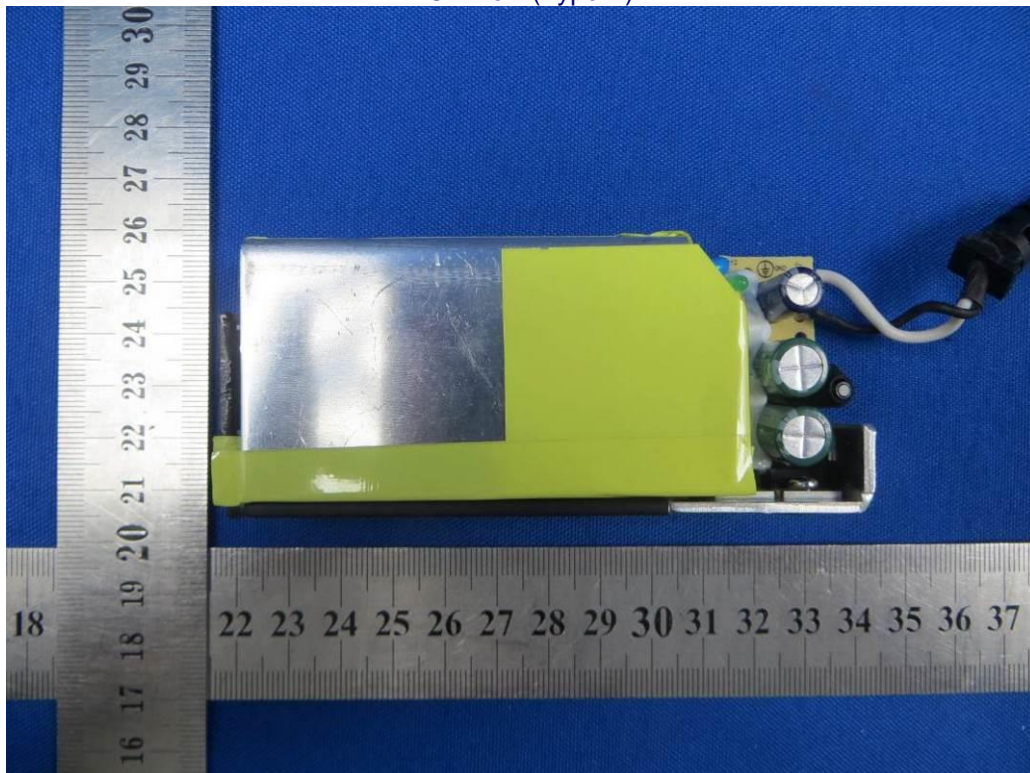


Photos

PCB view (Type A)

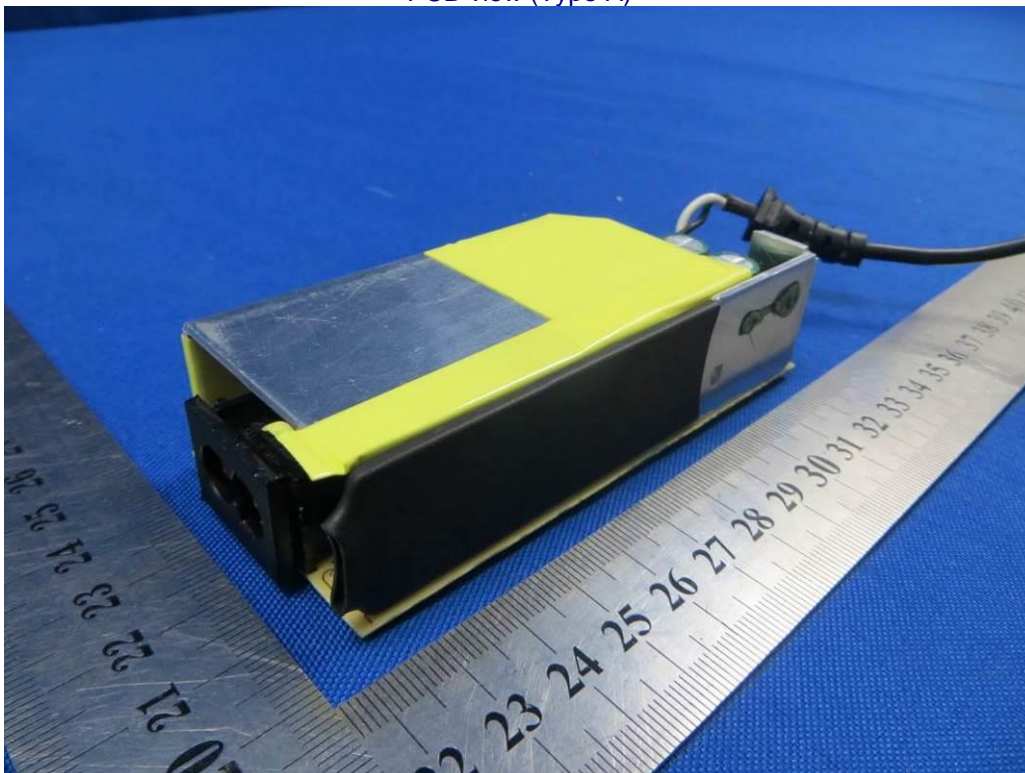


PCB view (Type A)

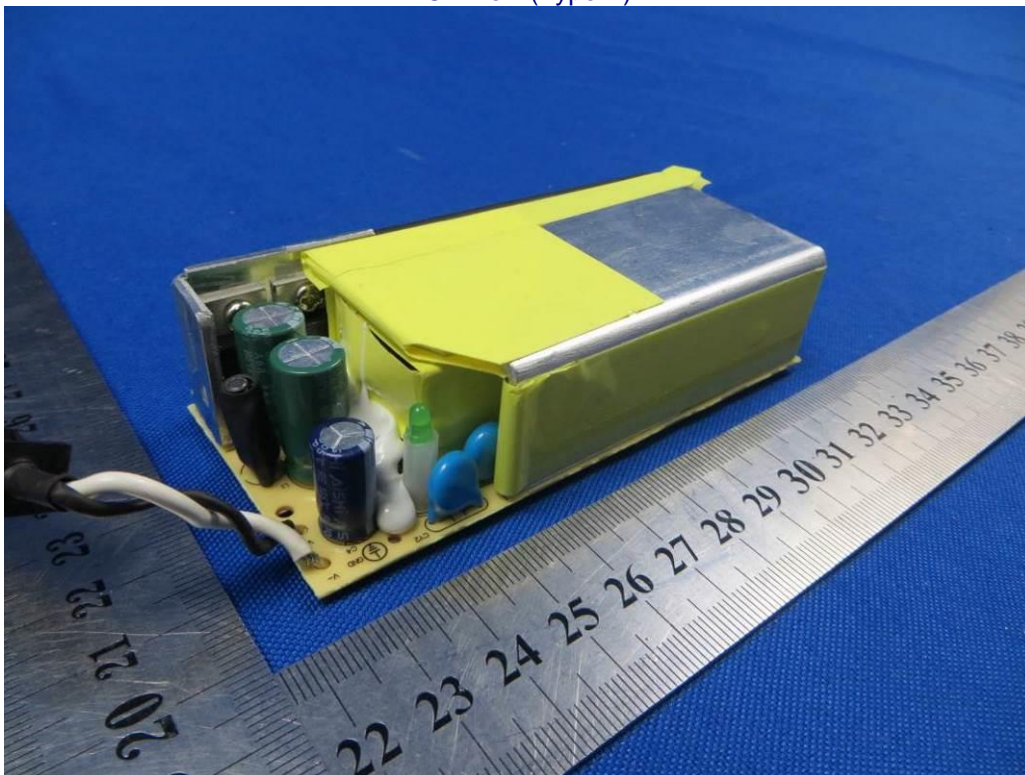


Photos

PCB view (Type A)

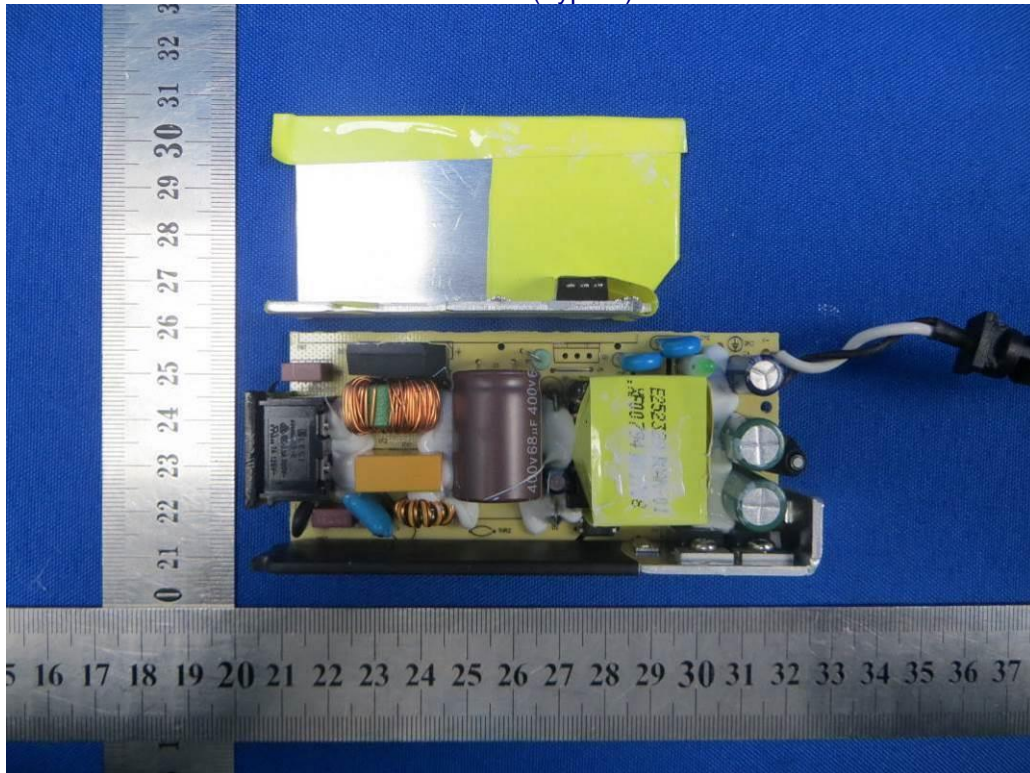


PCB view (Type A)

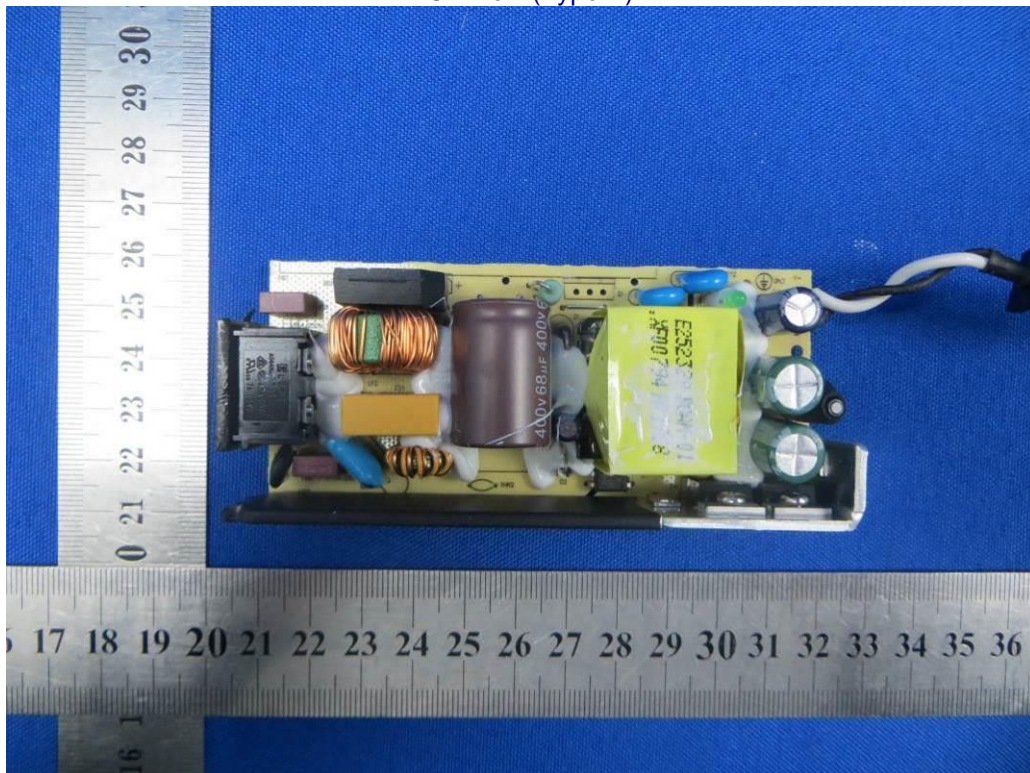


Photos

PCB view (Type A)

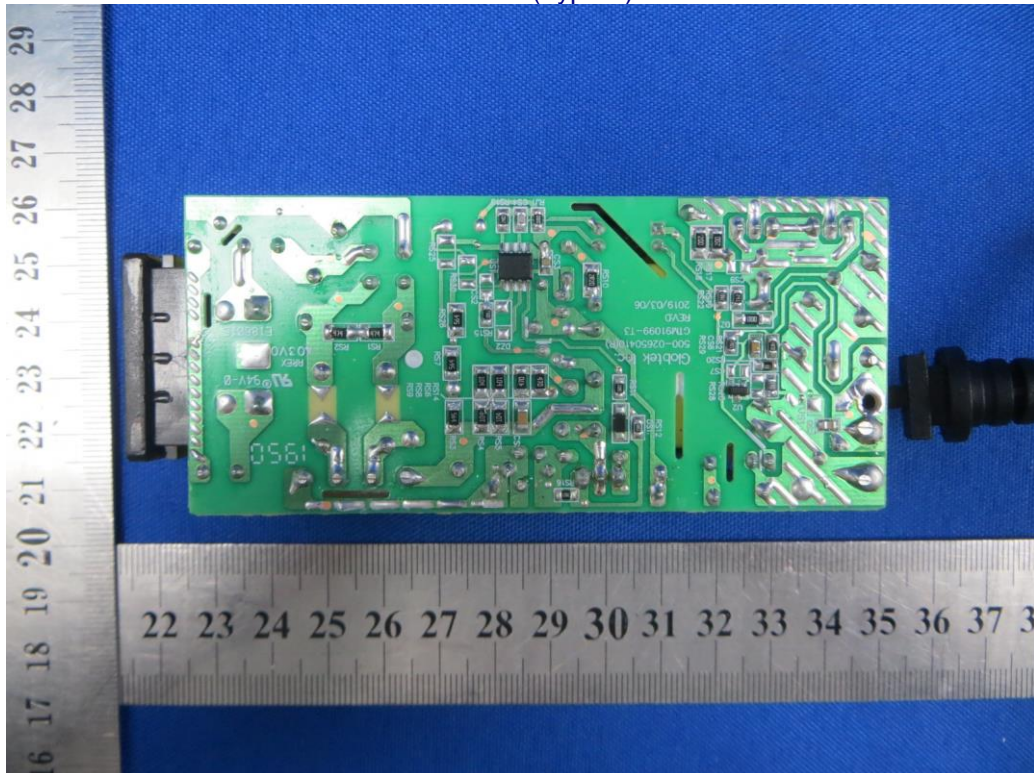


PCB view (Type A)

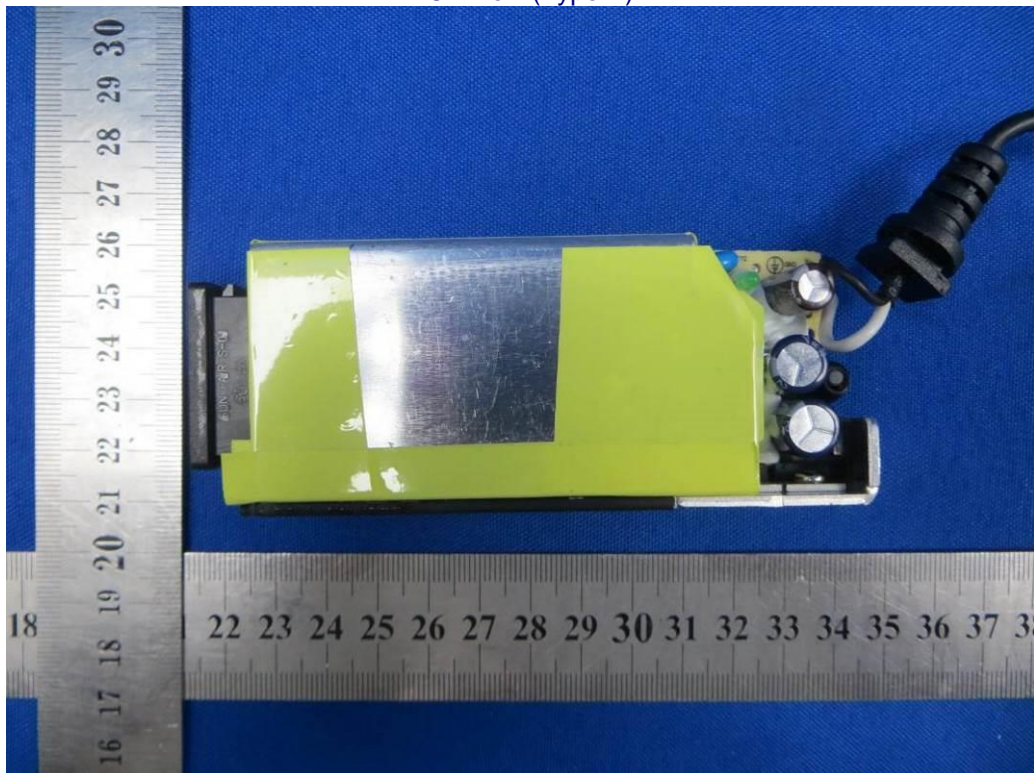


Photos

PCB view (Type B)

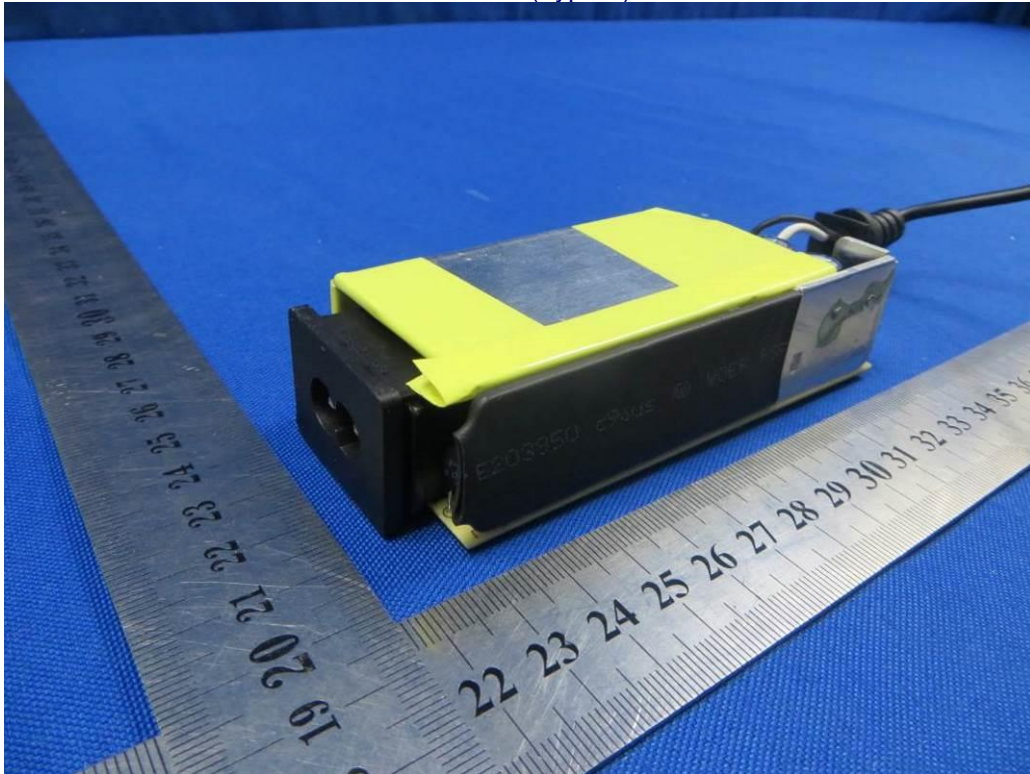


PCB view (Type B)

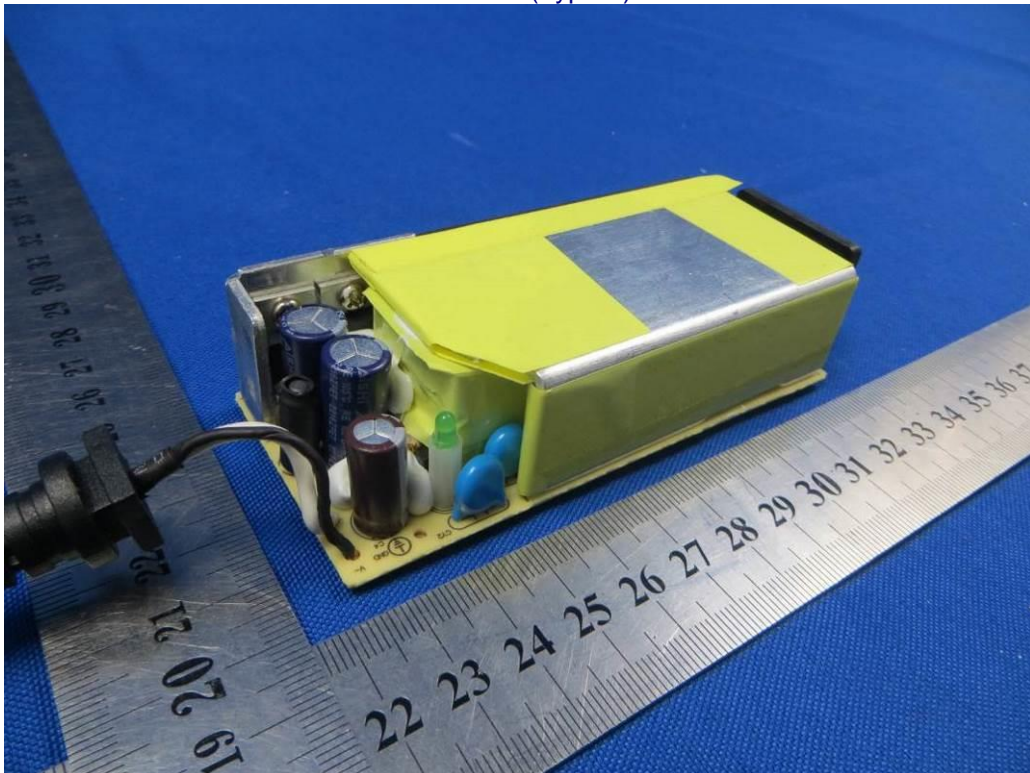


Photos

PCB view (Type B)

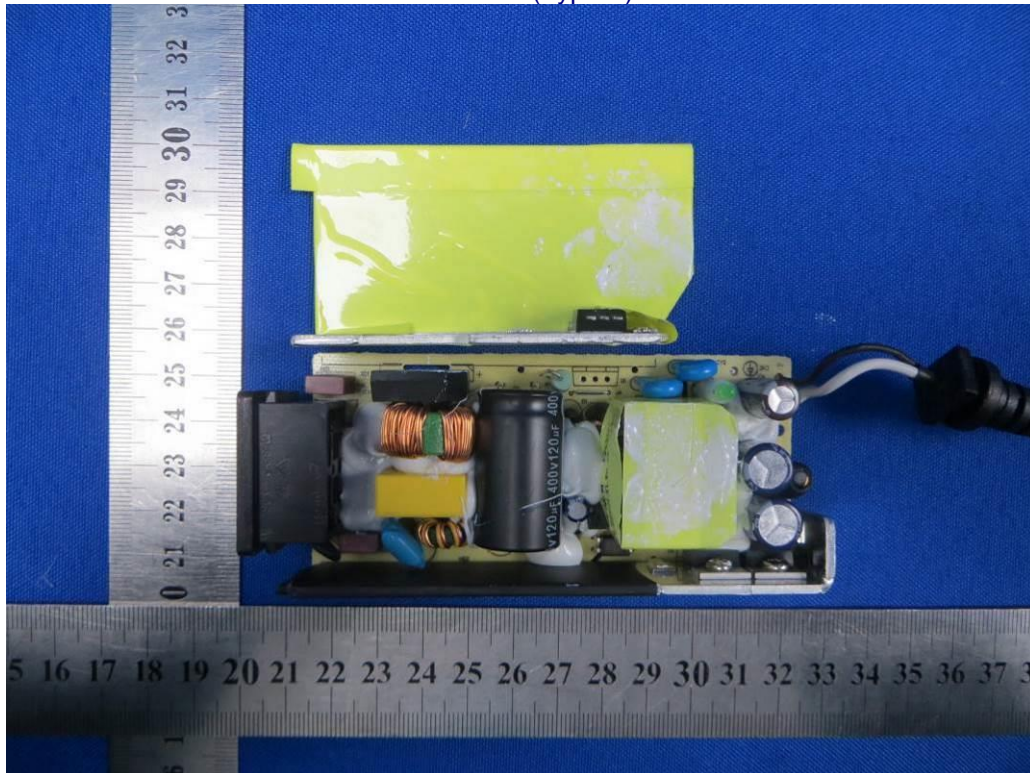


PCB view (Type B)

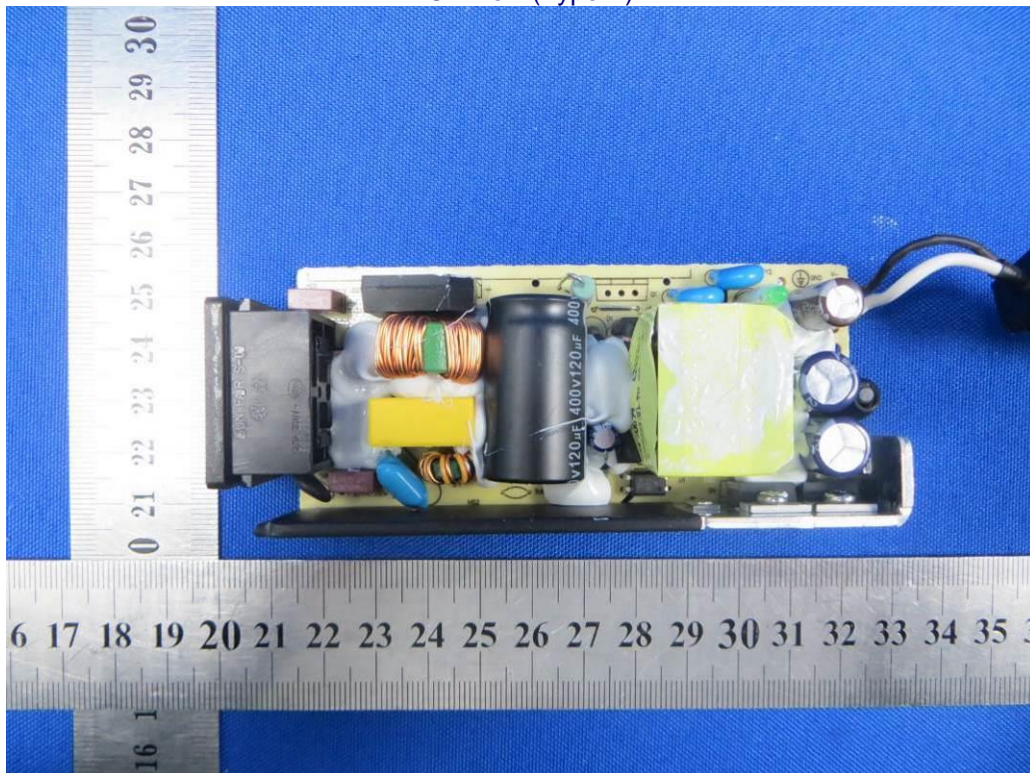


Photos

PCB view (Type B)

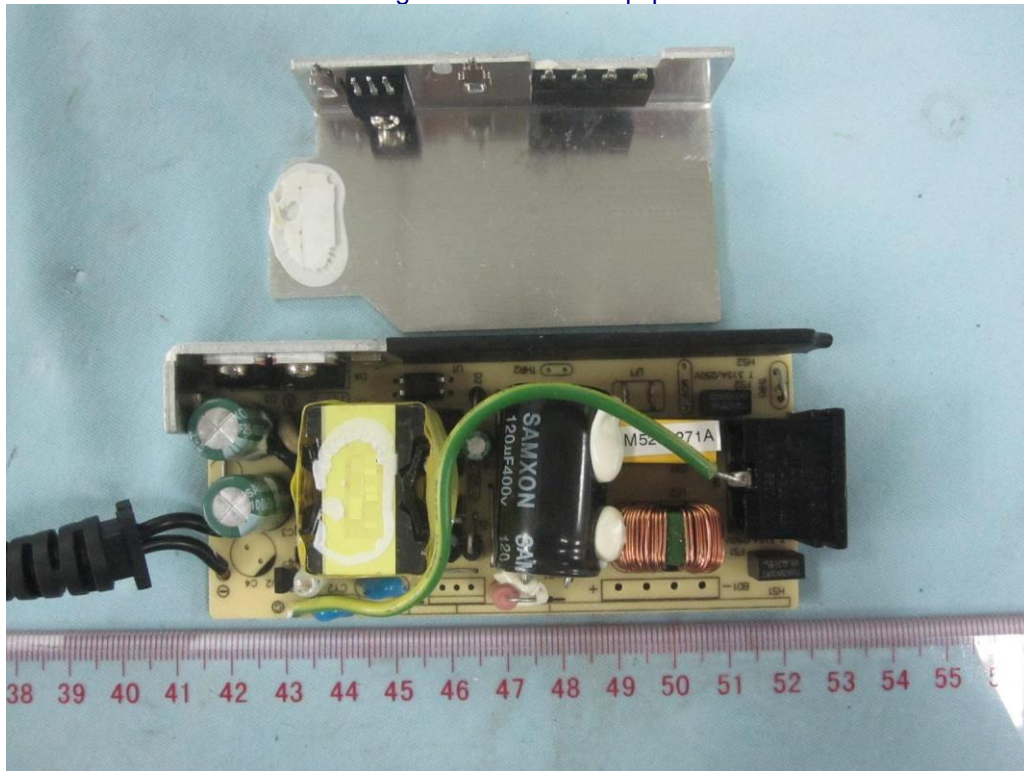


PCB view (Type B)



Photos

Earthing wire for Class I equipment



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

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS)		
Differences according to: EN IEC 62368-1:2020+A11:2020		
Attachment Form No.: EU_GD_IEC62368_1E		
Attachment Originator: UL(Demko)		
Master Attachment: 2021-02-04		
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.		
	CENELEC COMMON MODIFICATIONS (EN)	P
	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 .	N/A
3.3.19	Sound exposure <i>Replace 3.3.19 of IEC 62368-1 with the following definitions:</i>	N/A



IEC 62368-1E - ATTACHMENT			
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.	Not personal music player.	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 $\text{Pa}^2 \text{ s}$. $E = \int_0^T p(t)^2 dt$		N/A
3.3.19.4	sound exposure level, SEL logarithmic measure of sound exposure relative to a reference value, E_0 , typically the 1 kHz threshold of hearing in humans. Note 1 to entry: SEL is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0} \right) \text{ dB}$ Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	digital signal level relative to full scale, dBFS levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	Modification to Clause 10		N/A
10.6	Safeguards against acoustic energy sources Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	Introduction Safeguard requirements for protection against	Not personal music player.	N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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:</p> <ul style="list-style-type: none"> – 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.). <p>EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.</p> <p>Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.</p> <p>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.</p> <p>Listening devices sold separately shall comply with the requirements of 10.6.6.</p> <p>These requirements are valid for music or video mode only.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – professional equipment; <p>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.</p> <ul style="list-style-type: none"> – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: <ul style="list-style-type: none"> • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; <p>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.</p>		

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– a player while connected to an external amplifier that does not allow the user to walk around while in use.</p> <p>For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.</p> <p>The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		
10.6.1.2	<p>Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.</p>		N/A
10.6.2	Classification of devices without the capacity to estimate sound dose		N/A
10.6.2.1	<p>General</p> <p>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.</p> <p>For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period.</p> <p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song.</p> <p>NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be 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</p>	Not personal music player.	N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	song is not above the basic limit of 85 dB.		
10.6.2.2	<p>RS1 limits (to be superseded, see 10.6.3.2)</p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – 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	<p>RS2 limits (to be superseded, see 10.6.3.3)</p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – 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	<p>RS3 limits</p> <p>RS3 is a class 3 acoustic energy source that exceeds RS2 limits.</p>		N/A
10.6.3	Classification of devices (new)		N/A
10.6.3.1	<p>General</p> <p>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</p>		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	below.		
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. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		N/A
10.6.4.2	Protection of persons Except as given below, protection requirements for parts accessible to ordinary persons, instructed		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>persons and skilled persons are given in 4.3.</p> <p>NOTE 1 Volume control is not considered a safeguard.</p> <p>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.</p> <p>Alternatively, the instructional safeguard may be given through the equipment display during use.</p> <p>The elements of the instructional safeguard shall be as follows:</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> – 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 <p>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.</p> <p>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.</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.</p> <p>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.</p> <p>A skilled person shall not be unintentionally exposed to RS3.</p>		
10.6.5	Requirements for dose-based systems		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	<p>General requirements</p> <p>Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause.</p> <p>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.</p> <p>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.</p>		N/A
10.6.5.2	<p>Dose-based warning and requirements</p> <p>When a dose of 100 % <i>CSD</i> is reached, and at least at every 100 % further increase of <i>CSD</i>, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1.</p> <p>The warning shall at least clearly indicate that listening above 100 % <i>CSD</i> leads to the risk of hearing damage or loss.</p>		N/A
10.6.5.3	<p>Exposure-based requirements</p> <p>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.</p> <p>The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster.</p>		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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.</p> <p>NOTE In case the source is known not to be music (or test signal), the EL may be disabled.</p>		

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Not listening device.	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 output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	Measurement method <i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i>		N/A
3	Modification to the whole document		N/A

IEC 62368-1E - ATTACHMENT							
Clause	Requirement + Test			Result - Remark		Verdict	
	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
	10.6.4	Note 3	F.3.3.6	Note 3	Y.4.1		Note
	Y.4.5	Note					
4	Modification to Clause 1					P	
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.			Considered.		P	

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Clause	Requirement + Test	Result - Remark	Verdict
5	Modification to 4.Z1		P
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	The equipment is provided with fuse FS1, FS2 inside equipment.	P
6	Modification to 5.4.2.3.2.4		N/A
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>		N/A
7	Modification to 10.2.1		N/A
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8	Modification to 10.5.1		N/A
10.5.1	<p>Add the following after the first paragraph:</p> <p>For RS 1 compliance is checked by measurement under the following conditions:</p> <p>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.</p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>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.</p> <p>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.</p> <p>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
9	Modification to G.7.1		N/A
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>	Not cover in this report.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10	Modification to Bibliography		P
	<p>Add the following notes for the standards indicated:</p> <p>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>		P
11	ADDITION OF ANNEXES		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	<p>For Class I equipment, the manufacture confirmed the text must be applied on Class I equipment when market to these country.</p>	—

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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		N/A
5.2.2.2	Denmark After the 2 nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	Finland and Sweden To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. 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 <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and <ul style="list-style-type: none"> • 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,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>		N/A
5.6.1	<p>Denmark</p> <p>Add to the end of the subclause</p> <p>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.</p> <p>Justification:</p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>	Fuse is integrated in the equipment.	P
5.6.4.2.1	<p>Ireland and United Kingdom</p> <p>After the indent for pluggable equipment type A, the following is added:</p> <p>– the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.</p>		P
5.6.4.2.1	<p>France</p> <p>After the indent for pluggable equipment type A,</p>		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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.		
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.	Power cord not provided, see summary of testing.	N/A
5.6.8	Norway To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as class I equipment . See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	Denmark To the end of the subclause the following is added: 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.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>Denmark</p> <p>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 .</p>		N/A
5.7.7.1	<p>Norway and Sweden</p> <p>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.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkøp utstyr – og er tilkøp et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkøp av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV</p>	Not TV.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>nettets."</p> <p>Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet."</p>		
8.5.4.2.3	<p>United Kingdom</p> <p>Add the following after the 2nd dash bullet in 3rd paragraph:</p> <p>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.</p>		N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>	Not direct plug-in equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a 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.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>	Power cord not provided, see summary of testing.	N/A
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains</p>	Power cord not provided, see summary of testing.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added:</p> <p>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</p>		N/A
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>	Power cord not provided, see summary of testing.	N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>Germany</p> <p>The following requirement applies:</p> <p>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.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de</p>	Not CRT.	N/A
ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)		N/A

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

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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: : IECCE OD-2020-F3, Ed. 1.1			
Attachment Form No. : US_CA_ND_IEC62368_1E			
Attachment Originator : UL(US)			
Master Attachment : Dated 2022-03-04			
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		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.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits ($\leq 200V$ per conductor to earth).		N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.1 (4.1.17)	<i>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.</i>	AC inlet used; no power supply cord provided.	N/A
	<i>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.</i>	AC inlet used; no power supply cord provided.	N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.	No battery.	N/A
5.4.2.3.2 (5.4.2.3.2.1)	<i>Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.</i>		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		P
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.	Max. output rating is listed on the product.	P

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Clause	Requirement + Test	Result - Remark	Verdict
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection.	N/A
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	AC inlet used; no power supply cord 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.	AC inlet used; no power supply cord provided.	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.	AC inlet used; no power supply cord provided.	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."	Not 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.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	See main report.	P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	One phase.	N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted disconnect switches and circuit breakers with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard outlet.	N/A
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.	No isolated ground.	N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix "W" marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 are required to be marked with the voltage rating and "Class 2" or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, 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.	Critical components are IEC or UL certified. See list of critical components in main CB report (§4.1.2).	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm ²) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	P
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Not permanently connected equipment.	N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

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

ATTACHMENT TO TEST REPORT IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)			
Differences according to : AS/NZS 62368.1:2022			
TRF template used: : IEC 62368-1:2018 (ED. 3.0)			
Attachment Form No. : AU_NZ_ND_IEC62368_1E			
Attachment Originator : JAS-ANZ			
Master Attachment : 2022-07-01			
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	National Differences		
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand		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	<p>After the first paragraph, <i>add</i> the following:</p> <p>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</p> <p>-AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i></p> <p>-AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i></p> <p>-AS/NZS 3191, <i>Electric flexible cords</i></p> <p>-AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p>-IEC 60086-2 <i>Primary batteries — Part 2: Physical and electrical specifications</i></p> <p>-AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i></p> <p>-AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes,</i></p>		P

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><i>Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i></p> <p><i>-AS/NZS 60320.2.2, Appliance couplers for household and similar general purposes</i></p> <p><i>Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i></p> <p><i>-AS/NZS 60695.2.11, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i></p> <p><i>-AS/NZS 60695.11.5, Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i></p> <p><i>-AS/NZS 60695.11.10, Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <p><i>-AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p><i>-AS/NZS 60950.1, Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p><i>IEC 61032:1997, Protection of persons and equipment by enclosures—Probes for verification</i></p> <p><i>-AS/NZS 61558.1, Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)</i></p> <p><i>-AS/NZS 61558.2.16, Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p>		
4.7.2	<p>Requirements</p> <p><i>Delete the text of the second paragraph and replace with the following:</i></p> <p>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.</p> <p>Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</p> <p>NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements</p> <p>Note Additional AS/NZS 3112 Appendix J,TRF is appended to end of this TRF.</p>		N/A

IEC 62368-1E - ATTACHMENT					
Clause	Requirement + Test		Result - Remark	Verdict	
4.7.3	Compliance Criteria <i>Delete</i> this clause			N/A	
4.8.1	General After second list, <i>add</i> the following: NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia.. 		No such battery.	N/A	
5.4.10.2.1	General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3.. 			N/A	
Table 28	<i>Delete</i> Table 28 and <i>replace</i> with the following:			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	<i>Delete</i> “NOTE” and <i>replace</i> with “NOTE 1”. After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.				N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.3	<p>Delete "NOTE" and <i>replace</i> with "NOTE 1".</p> <p>After NOTE 1, <i>add</i> the following:</p> <p>NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>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.</p>		N/A
6	Electrically-caused fire		N/A
6.6	<p>After Clause 6.6, <i>add</i> the new Clauses 6.201 as follows:</p> <p>6.201 External power supplies, docking stations and other similar devices (see special national conditions)</p>		—
8.6	Stability of equipment		N/A
Table 36	<p>Footnote ^a, after first sentence, <i>add</i> the following:</p> <p>Equipment having displays with moving images shall include "television sets and display devices".</p>		N/A
8.6.1	<p>After Clause 8.6.1 <i>add</i> the following new clauses:</p> <p>8.6.201 Restraining Device fixing point (see special national conditions)</p> <p>8.6.202 Restraining device (see special national conditions)</p>		N/A
Annex F Paragraph F.3.3.4	<p>Rated Voltage</p> <p>Delete "NOTE" and <i>replace</i> with NOTE1"</p> <p>After NOTE 1, <i>add</i> the following</p> <p>Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with:</p> <p>(a) A rated voltage of:</p> <ul style="list-style-type: none"> • 230 V for single phase equipment • 400 V for poly phase equipment <p>Or</p> <p>(b) A rated voltage range that includes:</p> <ul style="list-style-type: none"> • 230 V for single phase equipment • 400 V for poly phase equipment <p>NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or new Zealand.</p>		P

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex F.3.3.5	After the list, <i>add</i> the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz		P
Annex F.3.8	After "The DC output of an external power supply", insert "or docking stations and other similar external devices"		—
Annex G Paragraph G.4.2	Mains connectors 1 After "IEC 60320", insert "or AS/NZS 60320 series". 2 After "IEC 60906-1", insert "or AS/NZS 3123" 3 <i>After</i> first paragraph <i>add</i> the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.		P
Paragraph G.5.3.1	Transformers, General 1 Third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2' 2 Fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.		N/A
Annex G.7.1	Mains supply cords, General Fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'	Mains supply cords is not covered in this report.	N/A

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

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.201	<p>External power supplies, docking stations and other similar devices</p> <p>For external power supplies, docking stations and other similar devices, during</p> <p>and after abnormal operating conditions and during single fault conditions the output voltage—</p> <ul style="list-style-type: none"> (a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a single fault condition and after 3 s of introducing abnormal operating conditions; and (b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the output rated voltage under normal operating conditions, whichever is higher, measured after 3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions <p>For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, <i>TC 108, Standards Interpretation Panel Question 15 — Output voltage</i>, in relation to similar requirements in IEC 62368-3:2017.</p> <p>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>	Must be checked when market to the country.	—

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6.201	<p>Restraining device fixing point</p> <p>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</p> <p>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</p> <p>Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point</p>		N/A
8.6.202	<p>Restraining device</p> <p>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.</p> <p>The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions.</p> <p>Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point</p> <p>.</p>		N/A

IEC 62368-1E - ATTACHMENT			
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: 2022-07-08			
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	National Differences		—
	Not Applicable		—
Chapter 4.2	Special national conditions (if any) Controlled goods under the Consumer Protection (Safety Requirements) Registration Scheme (CPS) are required to be tested to additional requirements stipulated by the Consumer Product Safety Office (CPSO) of 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.consumerproductsafety.gov.sg/files/cps-info-booklet.pdf		—
<u>Clause</u> 1	All appliances must be tested to 230 VAC, 50 Hz.	AC Input: Tested within the range.	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.	No voltage selector	N/A

IEC 62368-1E - ATTACHMENT			
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.	Must be considered when marketing in Singapore.	—
7	All Class I appliances must be fitted with 3-pin mains plugs that are registered with the CPSO.	Must be considered when marketing in Singapore.	—
8	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 are registered with the CPSO.		N/A
9	Detachable power cord set must be listed in the test report critical component list.	Must be considered when marketing in Singapore.	—
14	AC Adaptor incorporated with 13A socket-outlet to be tested to additional tests clauses 13, 17 and 18 of SS 145 Part 3: 2020.	Not such equipment.	N/A
15	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.	Not such equipment.	N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
16	<p>For AC Adaptors supplied together with Personal Mobility Devices:</p> <ol style="list-style-type: none"> 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 3. 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
18	CD/ DVD ROMs (used in personal computers) to have test certificate showing that CD/DVD ROM drive has complied with IEC 60825- 1.		N/A
19	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.	The equipment does not consist of Modem Card.	N/A
20	Powerline Ethernet Adaptor incorporated with 13A socket-outlet, to be tested to additional test clauses 13, 17 & 18 of SS 145 Part 3: 2020.	Not used.	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

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

ATTACHMENT TO TEST REPORT IEC 62368-1 (JAPAN) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
Differences according to : J62368-1 (2020)			
TRF template used: : IEC62368-1, Ed. 1.1			
Attachment Form No. : JP_ND_IEC62368_1D			
Attachment Originator : UL (JP)			
Master Attachment : Date 2021-02-04			
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	National Differences		—
4.1.2	Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these.	The component fulfils the relevant IEC standard.	P
5.6.1	Mains socket-outlet and appliance outlet shall comply with Clause G.4.2A if they are incorporated as part of the equipment.	No socket-outlets provided.	N/A
5.6.2.1	Mains connection of class 0I equipment: Instructional safeguard in accordance with Clause F.3.6.1A; Mains plug having a lead wire for protective earthing connection of class 0I equipment; Independent main protective earthing terminal installed by ordinary person.		N/A
5.6.2.2	This requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector.	No applicable.	N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.3	<p>In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following:</p> <ul style="list-style-type: none"> – use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire – single core cord or single core cable with 1.25 mm² or more cross-sectional area 		N/A
5.7.3	<p>For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series or JIS C 8303, or otherwise being considered to comply with relevant regulations, or that is provided with mains appliance outlet as specified in JIS C 8283-2-2 for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains.</p>		N/A
5.7.4	<p>In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990.</p>		N/A
6.4.3.3	<p>A fuse complying with JIS C 6575 series or a fuse having equivalent characteristics shall open within 1 s.</p> <p>For Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”.</p> <p>A fuse not complying with JIS C 6575 series shall be tested with the breaking capacity taken into account.</p>		N/A
8.5.4.2.1	<p>Only three-phase stationary equipment rated more than 200 V ac can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4.</p>		N/A
8.5.4.2.2	<p>For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2.4	The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part.		N/A
8.5.4.2.5	The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts.	Not applicable.	N/A
9.2.6, Table 38	Handles, Knobs, grips, etc. and external surfaces either held, touched or worn against the body in normal use (> 1 min) ^{b,c}		N/A
F.3.5.1	Instructional safeguard of class 0I equipment in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8303 or relevant regulation to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons.		N/A
F.3.5.3	If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic.	See main report	P
F.3.6.1A	Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.3 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions and instructional safeguard shall be provided regarding the earthing connection.		N/A
F.3.6.2.1	Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment.		N/A
F.4	Instruction for audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A. Installation instruction for the protective earthing connection for class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment.		N/A



IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.3.2.1	The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that.		N/A
G.3.4	Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the relevant part of JIS C 6575 (corresponding to IEC60127) or shall have equivalent characteristics. If there are no applicable IEC standards, overcurrent protective devices used as a safeguard shall comply with their applicable IEC standards.		N/A
G.4.1	This requirement is not applicable to Clauses G.4.2 and G.4.2A.		N/A
G.4.2	Mains connector shall comply with JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series. Mains plugs and socket-outlets shall comply with JIS C 8282 series, JIS C 8303, IEC 60309 series, or have equivalent or better performance. A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286. Construction preventing mechanical stress not to transmit to the soldering part of inlet terminal. Consideration for an equipment rated not more than 125 V provided with Type C14 and C18 appliance coupler complying with JIS C 8283 series.		N/A
G.4.2A	Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively.		N/A
G.7.1	A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor.		N/A
G.8.3.3	Withstand $1,71 \times 1.1 \times U_0$ for 5 s.		N/A

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

ATTACHMENT TO TEST REPORT IEC 62368-1 CHINA NATIONAL DIFFERENCES (AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT -PART 1: SAFETY REQUIREMENTS)			
Differences according to : GB 4943.1-2022			
TRF template used: : IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No. : CN_ND_IEC62368_1E			
Attachment Originator : CQC			
Master Attachment : Dated 2022-12-01			
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	National Differences		P
4.1.2	Use of components Add a paragraph: A component used shall comply with related requirements corresponding altitude of the equipment.		P
4.11	Add clause 4.11,as follows: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except the device shall meet the all requirement of Fault conditions. If pluggable equipment type B or permanently connected equipment depends on protective devices outside the equipment for protection, this shall be stated in the installation instructions of the equipment, with requirements for short-circuit protection, over-current protection ,or both if necessary.		P
5.3.2.2	Contact requirements Amend the 2 nd paragraph of table 8 to be: For equipment intended to be used at altitude of 2000m to 5000m, the values in this table are multiplied by the multiplication factor corresponding altitude of 5000m.	5000m considered.	P

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.5	<p>Multiplication factors for altitudes higher than 2 000 m above sea level</p> <p>Amend the 1st paragraph to be:</p> <p>For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE in tables 10,11 and 14, and resistance test voltages required in table 15, shall meet the requirements of 5000 m above sea level, This is multiplied by the multiplication factor corresponding altitude of 5000m in table 16.</p> <p>For equipment to be used at equal or less than 2000 m above sea level, the minimum CLEARANCE in tables 10, 11 and 14, and resistance test voltages required in table 15, shall meet the requirements of 2000 m above sea level. This is multiplied by the multiplication factor corresponding altitude of 2000m in table 16.</p> <p>Delete note 2 of Clause 5.4.2.5.</p>	Comply with altitude 5000m.	P
5.4.5.1	<p>General</p> <p>Delete the 2nd paragraph of Clause 5.4.5.1: This test does not apply to equipment where one antenna terminal on the equipment is connected to earth in accordance with 5.6.7.</p> <p>Add the following:</p> <p>The Insulation resistance between CATV antenna coaxial sockets and protective earth of apparatus shall comply with BASIC INSULATION. If it's possible that CLASS II apparatus with CATV antenna coaxial sockets connect with protective earth of another CLASS I apparatus by other terminals, the insulation resistance between them shall comply with BASIC INSULATION as well.</p> <p>If antenna cable separated from the protective earth before connection to the apparatus, there is no requirements of Insulation resistance between them but F.4 requirements shall be meet.</p> <p>Delete "NOTE" of Clause 5.4.5.1</p>	Considered. See main report.	P

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.8	<p>Humidity conditioning</p> <p>Amend clause 5.4.8 as follows :</p> <p>The humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature (40±2) °C and a relative humidity of (93±3)%. During this conditioning, the component or subassembly is not energized.</p> <p>For equipment not to be operated at tropical climatic conditions, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of (93±3) %. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur.</p> <p>Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.</p> <p>Pre-processing conditions and requirements below 2000m can be used until additional data is available.</p>	Considered. See main report.	P
6.4.9 Y.4.3	Delete references to ASTM and NEMA.		N/A
6.5.1	<p>General requirements</p> <p>Delete the text of the Note "Wire complying with UL 2556 VW-1 is considered to comply with these requirements".</p>		N/A
F.1	Amend the second paragraph of annex F.1 to be: Unless symbols are used or otherwise specified, safety related equipment markings, instructions, and instructional safeguards shall be in normative Chinese.	Must be considered when market to the country.	—

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.2.2	<p>After the first paragraph of annex F.2.2 ,add the following:</p> <p>For apparatus intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol shown below shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>For apparatus intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol shown below shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The statements above shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p>	Considered.	P
F.3.3.4	<p>After the last paragraph, Added:</p> <p>...for single rated voltage, "220 V" or three-phase "380V" shall be marked only. For a rating voltage range, 220 V or three-phase 380V shall be covered. For multiple rated voltages, one of them shall be 220 V or three-phase 380V and which default setting from manufacture shall be 220 V or three-phase 380V as well.</p>	100-240V~	P
F.3.3.5	<p>After the last paragraph, Added:</p> <p>Rated frequency shall be 50Hz or frequency range shall cover 50Hz.</p>	50-60Hz or 50/60Hz	P
F.4	<p>Instructions</p> <p>Added:</p> <ul style="list-style-type: none"> For apparatus incorporating antenna coaxial sockets which is non-separated with CATV network, a warning wording or a similar shall be given in the instruction manual: "A CATV cable intended to be connected to apparatus shall be separated with the protective earth of the apparatus, otherwise fire hazard might be caused." 		N/A
F.5	<p>Instructional safeguards</p> <p>In table F.2 , change 230V to 220V, change 400Y/230V 3Ø to 380 Y/220 V 3Ø</p>		N/A

IEC 62368-1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>Amend clause G.4.2 as follows :</p> <p>Plugs connected to the MAINS in apparatus shall comply with GB/T 1002,GB/T 1003,GB/T 2099.1 or GB/T11918 (All parts) series.</p> <p>Appliance coupler shall comply with GB/T 17465 (All parts) series or GB/T 11918 (All parts) series.</p>	Must be checked when market to the country.	—
	Special national conditions (if any)		
0.12	<p>Add clause 0.12</p> <p>Description of relevant information.</p>		P
1	<p>GB 4943.1-2022 applies to equipment used at altitudes not exceeding 5000m above sea level,</p> <p>For apparatus intended to be used at altitude not exceeding 2000m, The requirements can be appropriately reduced, but warning instructions shall be provided..</p> <p>Revise the sixth paragraph of 1 as:</p> <p>In addition to specified by the manufacturer, this document assumes a maximum altitude of 5000m</p>	5000m	P
B.2.6.1	<p>Amend T_{ma} as follows:</p> <p>T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater.</p> <p>Add note 1: For equipment not to be operated at tropical climatic conditions, T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater.</p> <p>Add note 2: For equipment to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration. temperature test conditions and temperature limits below 2000m can be used until additional data is available.</p>	40°C	P
Annex Z (normative)	<p>Added annex Z:</p> <p>Instructions of the new safety warning labels.</p>	Must be considered when market to the country.	—
Annex AA (informative)	<p>Added annex AA:</p> <p>Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighur.</p>	Must be considered when market to the country.	—

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

ATTACHMENT TO TEST REPORT IEC 62368-1:2018 SAUDI ARABIA NATIONAL DIFFERENCES (AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT PART 1: SAFETY REQUIREMENTS)			
Differences according to : National standard SASO-IEC 62368-1:2020			
TRF template used:..... : IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No. : SA_ND_IEC62368_1E			
Attachment Originator : SASO			
Master Attachment..... : 2022-12-22			
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	National Differences		_____
	Plugs used for pluggable equipment comply with standard SASO-2203.	Must be checked when market into the country.	_____
--	Frequency (Hz)		P
	60 Hz	Tested within the range.	P
--	Rated voltage (V)		P
	Single phase 230 V Three phase 400 V	Tested within the range. (100-240V)	P