Prüfbericht-Nr.: *Test report no.:*	**CN2291L1 001**	**Auftrags-Nr.:** *Order no.*:	**180247340**	Seite 1 von 85 *Page 1 of 85*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2022-11-22	
Auftraggeber: *Client:*	Ninghai Yingjiao Electrical Co., Ltd. Cuijia Village, Xidian Town, Ninghai County, Ningbo,315613 Zhejiang, P.R. China			
Prüfgegenstand: *Test item:*	Power supply			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	YSD15S-xxxyyyy (xxx=050 to 480, in step of 1, yyyy=0100 to 2500, in step of 10)			
Auftrags-Inhalt: *Order content*:	CE LVD			
Prüfgrundlage: *Test specification:*	EN 62368-1:2014+A11:2017			

Wareneingangsdatum: *Date of sample receipt:*	2022-11-23
Prüfmuster-Nr.: *Test sample no:*	A003379779
Prüfzeitraum: *Testing period:*	2022-11-23 – 2022-12-12
Ort der Prüfung: *Place of testing:*	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass



geprüft von: *tested by:*	Bonnie Xu Signed by: Bonnie Xu	**genehmigt von:** authorized by:	Kevin Su Signed by: Kevin Su
Datum: *Date: 2023-02-13*		**Datum:** *Date: 2023-02-13*	
Stellung / *Position:*	Project Engineer	**Stellung** / *Position:*	Authorizer

Sonstiges / *Other:* CE LVD

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* *Legend:*	*P(ass) = passed a.m test specification(s)*	*F(ail) = failed a.m test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

TUV Rheinland / CCIC (Ningbo) Co., Ltd. 3F, building C13, R&D Park, No.32 Lane 299 Guanghua Road National Hi-Tech Zone, Ningbo 315048, P.R. China
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TÜVRheinland®

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

Report Number .....:	**CN2291L1 001**
Date of issue .....:	See cover page
Total number of pages.....:	See cover page
Name of Testing Laboratory preparing the Report .....:	TÜV Rheinland/CCIC (Ningbo) Co., Ltd 3F, Building C13, R&D Park, No. 32, Lane 299, Guanghua Road, National Hi-Tech Zone, Ningbo 315048, China
Applicant's name .....:	Ninghai Yingjiao Electrical Co., Ltd.
Address .....:	Cuijia Village, Xidian Town, Ninghai County, Ningbo,315613 Zhejiang, P.R. China
Test specification:	
Standard .....:	IEC 62368-1:2014
Test procedure .....:	CE LVD
Non-standard test method.....:	N/A
TRF template used.....:	IECEE OD-2020-F1:2020, Ed.1.3
Test Report Form No.....:	IEC62368_1D
Test Report Form(s) Originator..:	UL(US)
Master TRF.....:	Dated 2021-02-04

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

General disclaimer:

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

Test Item description .....:		Power supply	
Trade Mark(s) .....:		YINGJIAO®	
Manufacturer.....:		Same as applicant	
Model/Type reference .....:		YSD15S-xxxyyyy (xxx=050 to 480, in step of 1, yyyy=0100 to 2500, in step of 10)	
Ratings .....:		Input : AC 100-240V, 50/60 Hz, Max.0.6A Output: 5-48VDC, 100-2500mA, Max.15W	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	TÜV Rheinland/CCIC (Ningbo) Co., Ltd	
Testing location/ address.....:		3F, Building C13, R&D Park, No. 32, Lane 299, Guanghua Road, National Hi-Tech Zone, Ningbo 315048, China	
Tested by (name, function, signature) .....:		See cover page	
Approved by (name, function, signature).....:		See cover page	
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address..... :			
Tested by (name, function, signature) .....:			
Approved by (name, function, signature).....:			
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address.....:			
Tested by (name, function, signature) .....:			
Witnessed by (name, function, signature).....:			
Approved by (name, function, signature).....:			
☐	**Testing procedure: CTF Stage 3 :**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
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):
None

Summary of testing:

Tests performed (name of test and test clause):

All applicable tests as described in Test Case and Measurement Sections were performed.

- The test samples are pre-production without serial numbers.
- Unless otherwise specified, all tests were performed on model YSD15S-0602500 with output voltage 7V and YSD15S-4800310 with output voltage 49V represent the max. current and voltage.
- The EUT passed the below all tests.

5.2	Electrical energy source classifications
5.4.1.4, 6.3.2, 9.0, B.2.6	Maximum operating temperatures for materials, components and systems
5.4.1.8	Determination of working voltage
5.4.1.10.3	Ball pressure test
5.4.2.2, 5.4.2.4 & 5.4.3	Minimum Clearances/Creepage distance
5.4.8	Humidity conditioning
5.4.9	Electric strength test
6.2.2	Electrical power sources (PS) measurements for classification
B.2.5	Input tests
B.3	Simulated Abnormal operating condition tests
B.4	Simulated single fault conditions
F.3.9	Durability, legibility and permanence of markings
G.5.3.3	Transformer overload
Q.1.2	Limited power sources
T.2	Steady force test, 10N
T.5	Steady force test, 250N
T.6	Impact test

Testing location:

TÜV Rheinland/CCIC (Ningbo) Co., Ltd
3F, Building C13, R&D Park, No. 32, Lane 299, Guanghua Road, National Hi-Tech Zone, Ningbo 315048, China

	Stress relief test

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

☒ **The product fulfils the requirements of** __EN 62368-1:2014+A11:2017

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

(may be required by the product standard or client)

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

Procedure number, issue date and title:

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

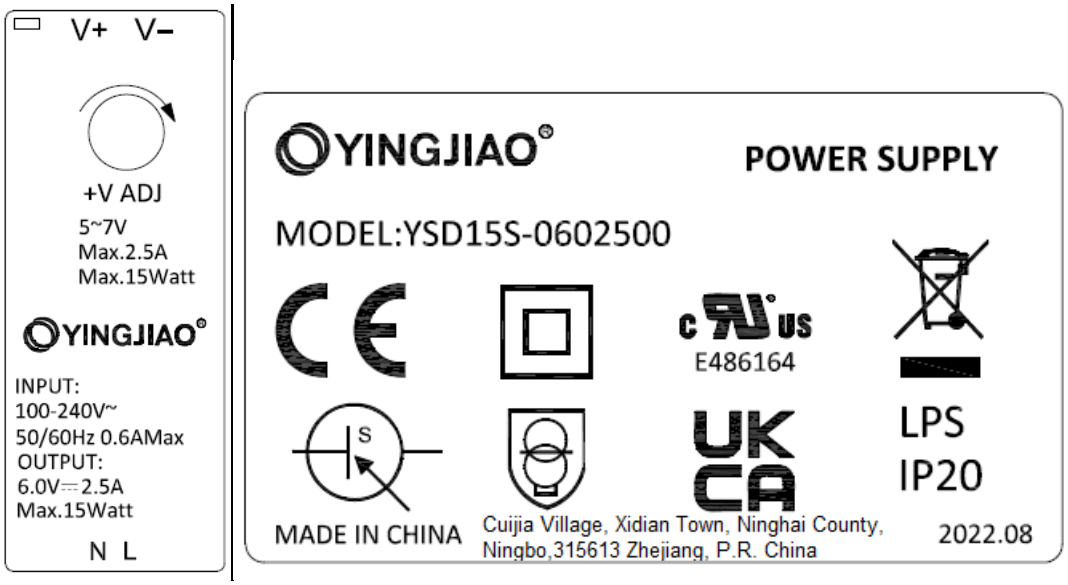
MS-0007539/Nov 27, 2020/Evaluation of Measurement Uncertainty in Laboratory and Decision Rule.

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

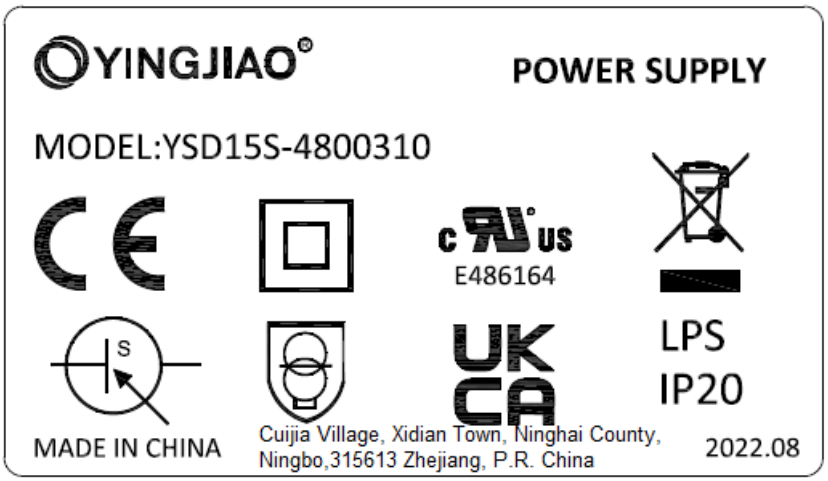
When determining for test conclusion, measurement uncertainty of tests has been considered.

The determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

Copy of marking plate:







Remark:

1) the making plate of other models are same as above except for model name and output rating.

2) Manufacture or/and his importer shall ensure product bears label requirements in article 6 and article 8 of the 2014/35/EU relate to name, batch number, post address prior place the product into EU market.

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☐ Ordinary person ☒ Instructed person ☒ Skilled person ☐ Children likely to be present
Supply Connection ..... :	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☐ ES3
Supply %Tolerance ..... :	☒ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☐ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☒ permanent connection ☐ mating connector ☐ other:_____
Considered current rating of protective device as part of building or equipment installation ..... :	___ ___ A; Installation location: ☐ building; ☐ equipment
Equipment mobility ..... :	☐ movable ☐ hand-held ☐ transportable ☐ stationary ☒ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment ..... :	☐ Class I ☒ Class II ☐ Class III ☐ Class II with functional earthing ☐ Not classifed
Access location ..... :	☐ restricted access area ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient ..... :	__40___°C
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☒ TN ☐ TT ☐ IT - ____ $V_{L-L;}$ ☐ dc mains ☐ N/A
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ _____ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) ..... :	☒ YSD15S-0602500: 70g YSD15S-4800310: 71g

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..... : See cover page

Date (s) of performance of tests..... : See cover page

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

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

Name and address of factory (ies)..... :	Ninghai Yingjiao Electrical Co., Ltd. Cuijia Village, Xidian Town, Ninghai County, Ningbo,315613 Zhejiang, P.R. China

General product information and other remarks:

Product Description –

1. The equipment is built-in power supply which built-in information technology equipment.
2. The equipment is installed in an enclosure providing protection against electrical, mechanical and fire hazards.
3. The bottom enclosure is secured to top enclosure by clip-on.
4. The max. ambient temperature permitted by the manufacturer is 40°C.
5. The equipment was evaluated for a maximum operating altitude up to 2000m.
6. All models are identical to each other except for different secondary winding of transformer and different output rating.

Model Differences –

Type Designation: YSD15S-xxxyyyy

Definition of variables:

Variable:	Range of variable:	Content:

xxx	xxx=050 to 480, in step of 1	Three digits indicating output voltage in Volt. E.g. 050indicates 5Vdc, 480 indicates 48Vdc, in step of 0.1 V.
yyyy	yyyy=0100 to 2500, in step of 10	Four digits indicating the output current in mA. E.g. 0100 indicates 100mA, 2500 indicates 2500mA. in step of 0.01A.

Electric Rating:

Model Name	Input voltage (Vac)	Frequency (Hz)	Max. Input current (A)	Max. Output power (W)	Output Voltage (Vdc)	Output Current (A)
YSD15S-xxxyyyy	100-240	50/60	0.6	15	5-48	0.1-2.5

Model list:

Models:	Output Voltage (Vdc)	Output Current (A)	Output Power (Max. W)	Transformer
YSD15S-xxxyyyy	5-11.9	0.1-2.5	15	PQ2058-6V
	12-14.9	0.1-1.25	15	PQ2058-12V
	15-23.9	0.1-1.0	15	PQ2058-15V
	24-47.9	0.1-0.63	15	PQ2058-24V
	48	0.1-0.31	15	PQ2058-48V

Remark: The minimum rising step of output voltage is 0.1V; the minimum rising step of output current is 0.01A. Output voltage multiplied with output current are only tested and certified up to the max. output power.

The above transformers are identical to each other except diameter and turns of secondary winding.

Model difference

Model (output voltage)	Components						
	C3	C4	R19	R18	R18A	D3	T1
5-11.9	330uF-3300uF, 16V	100uF-2200uF, 10V	10K -820K 0805	2K-750K 0805	2K-750K 0805	10A/100V	PQ2058-6V Primary winding : N1(1-H): 0.27x38TS N2(2-N): 0.15x3Px6TS N4(3-2): 0.13x2Px9TS N5(H-4): 0.27x9TS Secondary winding : N3(7-6):0.4x2Px3TS
12-14.9	330uF-3300uF, 16V	100uF-1000uF,25V	10K -820K 0805	2K-750K 0805	2K-750K 0805	10A/100V	PQ2058-12V Primary winding : N1(1-H): 0.27x38TS N2(2-N): 0.15x3Px6TS N4(3-2): 0.13x2Px9TS

							N5(H-4): 0.27x9TS Secondary winding : N3(7-6):0.4x2Px6TS
15-23.9	330uF-2200uF,25V	100uF-680uF,35V	10K -820K 0805	2K-750K 0805	2K-750K 0805	10A/100V	PQ2058-15V Primary winding : N1(1-H): 0.27x38TS N2(2-N): 0.15x3Px6TS N4(3-2): 0.13x2Px8TS N5(H-4): 0.27x9TS Secondary winding : N3(7-6):0.3x2Px7TS
24-47.9	330uF-1500uF,35V	100uF-680uF,35V	10K -820K 0805	2K-750K 0805	2K-750K 0805	10A/150V	PQ2058-24V Primary winding : N1(1-H): 0.27x38TS N2(2-N): 0.15x3Px6TS N4(3-2): 0.13x2Px9TS N5(H-4): 0.27x9TS Secondary winding : N3(7-6):0.4x12TS
48	100uF-1000uF,63V	10UF-100uF,100V	10K -1M 0805	2K-750K 0805	2K-750K 0805	2A/400V	PQ2058-48V Primary winding : N1(1-H): 0.27x38TS N2(2-N): 0.15x3Px6TS N4(3-2): 0.13x2Px9TS N5(H-4): 0.27x9TS Secondary winding : N3(7-6):0.25x24TS

Additional application considerations – (Considerations used to test a component or sub-assembly) –
None

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
Primary circuit	ES3
Secondary circuit after Transformer secondary	ES2
Output terminal	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
Primary circuit	PS3
Output terminal	PS2
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Mass of the unit	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
Enclosure	TS3
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
N/A	N/A

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
Details see "**ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE"** ☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☐ **RS**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: Primary circuit	N/A	N/A	Plastic enclosure, Transformer, PCB distance
Ordinary	ES1: Output terminal	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Combustible materials within equipment fire enclosure	PS3: All primary components/circuit	Equipment safeguards (no ignition occurs and no such temp. attained)	Equipment safeguards (e.g. min rated V-0 PWB, combustible material rated V-2 min, V-0 Enclosure)	N/A
Output connector	PS2: Secondary components/circuit	Equipment safeguards (no ignition occurs and no such temp. attained)	Equipment safeguards (e.g. min rated V-0 PWB, combustible material rated V-2 min, V-0 Enclosure)	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Skilled	MS1: Mass of the unit	N/A	N/A	N/A
9.1	Thermal Burn			

Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Skilled	TS3: enclosure	N/A	N/A	Shall be considered in end system
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				
(1) See attached energy source diagram for additional details. (2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	See below	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See appended table 4.1.2	P
4.1.3	Equipment design and construction	No accessible part which could cause injury.	P
4.1.15	Markings and instructions ..... :	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests..... :	(See Annexes T.2 and T.5)	P
4.4.4.3	Drop tests ..... :		N/A
4.4.4.4	Impact tests..... :	(See Annexes T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests ..... :	No internal enclosure or internal accessible part.	N/A
4.4.4.6	Glass Impact tests..... :	No such glass is used.	N/A
4.4.4.7	Thermoplastic material tests..... :	(See Annex T.8).	P
4.4.4.8	Air comprising a safeguard..... :	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	No damage. Except for PS3, class 3 energy sources cannot become accessible to an ordinary person or to an instructed person, and all other safeguards remain effective during and after above tests.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions.	P
4.6	Fixing of conductors	See below.	P
4.6.1	Fix conductors not to defeat a safeguard	Compliance checked.	P
4.6.2	10 N force test applied to ..... :	10 N applied to all components other than the parts serving as an enclosure (See appended table 5.4.2.2, 5.4.2.4 and 5.4.3).	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard..... :		N/A
4.7.3	Torque (Nm)..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8	Products containing coin/button cell batteries	No lithium coin/button batteries are used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery ..... :		—
4.8.4	Battery Compartment Mechanical Tests..... :	(See Table 4.8.4)	N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object..... :	(See Annex P)	P
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications ..... :	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current ..... :	See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :		P
5.2.2.4	Single pulse limits..... :	No single pulse generated within equipment	N/A
5.2.2.5	Limits for repetitive pulses ..... :	No repetitive pulses generated within equipment.	N/A
5.2.2.6	Ringing signals ..... :	No ringing signals within equipment	N/A
5.2.2.7	Audio signals ..... :	No audio signals within equipment	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.2.1	Accessibility to electrical energy sources and safeguards	ES3 source cannot become accessible to ordinary persons. Double safeguard is provided between ES3 and ordinary persons.	P
5.3.2.2	Contact requirements	Built-in power supply evaluated in end product	N/A
	a) Test with test probe from Annex V..... :		N/A
	b) Electric strength test potential (V)..... :		N/A
	c) Air gap (mm) ..... :		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning..... :	(See sub-clause 5.4.8)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree ..... :	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied.	N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformers within equipment.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such circuits within equipment	N/A
5.4.1.8	Determination of working voltage	See appended table 5.4.1.8 for working voltage measurement.	P
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature..... :		N/A
5.4.1.10.3	Ball pressure ..... :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage ..... :	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage ..... :	2500Vpeak	—
	b) d.c. mains transient voltage ..... :		—
	c) external circuit transient voltage ..... :		—
	d) transient voltage determined by measurement.. :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages ..... :	Up to 2000m no multiplication factor require	N/A
5.4.3	Creepage distances..... :	(See appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group ..... :	Material group IIIb is assumed.	—
5.4.4	Solid insulation		P
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6	Thin sheet material	Approved triple insulated wire is used in secondary windings of transformer. See subclauses G.5 and G.6 specified.	P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) ..... :	Min. 2 layers	P
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :	(See appended Table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz ..... :	(See appended Table 5.4.4.9)	N/A
5.4.5	Antenna terminal insulation	No antenna terminal within equipment	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ)..... :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard..... :	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%)..... :	93	—
	Temperature (°C) ..... :	25	—
	Duration (h) ..... :	48	—
5.4.9	Electric strength test..... :	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test	Compliance was checked by test immediately following temperature test in subclause 5.4.1.4.	P
5.4.9.2	Test procedure for routine tests	No routine tests under consideration this report.	N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	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..... :	(See appended table 5.4.9)	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.3	Steady-state test..... :	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry..... :	(See appended table 5.4.9)	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V) ..... :		—
	Max increase due to variation U_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa}..... :		—
	$U_{op}= U_{peak} + \Delta U_{sp} + \Delta U_{sa}$..... :		—
5.5	Components as safeguards		P
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	Approved optocouplers used	P
5.5.5	Relays	No relays within equipment	N/A
5.5.6	Resistors	No such resistors within equipment	N/A
5.5.7	SPD's	Approved varistor used	P
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable ..... :	(See Annex G.10.3)	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) .....:		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm).....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....:	(See appended table 5.6.6.2)	N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current .....:	(See appended table 5.2.2.2)	P
5.7.2.2	Measurement of prospective touch voltage	(See appended table 5.2.2.2)	P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:1999 applied.	P
	System of interconnected equipment (separate connections/single connection) .....:		—
	Multiple connections to mains (one connection at a time/simultaneous connections).....:		—
5.7.4	Earthed conductive accessible parts .....:	(See appended Table 5.7.4)	N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....:		—
	Measured current (mA).....:		—
	Instructional Safeguard.....:	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA).....:		-

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		-

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figure 34 and Figure 35 for load and power source circuits.	P
6.2.2.1	General	See the following details.	P
6.2.2.2	Power measurement for worst-case load fault.. :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault ..... :	(See appended table 6.2.2)	P
6.2.2.4	PS1 ..... :	(See appended table 6.2.2)	N/A
6.2.2.5	PS2 ..... :	(See appended table 6.2.2)	P
6.2.2.6	PS3 ..... :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	All parts in circuits inside enclosure is considered as Arcing PIS (See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS ..... :	All parts in circuits and components inside enclosure considered as 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 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... :	No ignition and such temperature attained within the plastic fire enclosure (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6).	P
6.3.1 (b)	Combustible materials outside fire enclosure	Refer to relevant clause as indicated below	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control fire spread. See subclause 6.4.6.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards	Equipment by plastic fire enclosure.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Special conditions if conductors on printed boards are opened or peeled	No such case happened.	N/A
6.4.3.3	Single Fault Conditions..... :	(See appended table 6.4.3)	P
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards ..... :	(See appended tables 4.1.2 and Annex G)	N/A
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: − Printed board: rated min. V-0 class material. − All other components: at least V-2 class material except for mounted on min. V-0 class material or small parts of combustible material. - Isolating transformer: complying with G.5.3. - Built-in power supply, fire enclosure evaluated in end product.	P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General..... :	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Built-in power supply, fire enclosure evaluated in end product	N/A
6.4.8.1	Fire enclosure and fire barrier material properties	Equipment enclosure is evaluated as a fire enclosure.	N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Equipment enclosure made of min. V-0 class material.	N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....:	No openings are provided at all	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....:	No bottom openings are provided at all.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Flammability tests for the bottom of a fire enclosure .....:	No such consideration.	N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) ..... :	No such door or cover can be opened by ordinary persons.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....:	Built-in power supply, fire enclosure evaluated in end product	N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements	No wire used.	N/A
6.5.2	Cross-sectional area (mm^2) .....:		—
6.5.3	Requirements for interconnection to building wiring.....:	(See Annex Q.)	N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1	Output connector limited to PS2.	P
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	N/A
7.3	Ozone exposure	No ozone production within the equipment.	N/A
7.4	Use of personal safeguards (PPE)	No such consideration.	N/A
	Personal safeguards and instructions..... :	See above.	—
7.5	Use of instructional safeguards and instructions	No chemical-caused injuries, the instruction safeguard was not required.	N/A
	Instructional safeguard (ISO 7010) .....:		—
7.6	Batteries ..... :	(See Annex M)	N/A
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General	Built-in power supply evaluated in the end product	P
8.2	Mechanical energy source classifications	MS1: mass of unit	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard..... :		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks ..... :	(See Annex F.4 and Annex K)	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)..... :		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :	(See appended table 8.5.5.2)	N/A
8.6	Stability	Classification MS1 according to table 35, line 5 and no stability requirements.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force.....:		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....:		N/A
8.7.2	Direction and applied force .....:		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.8.2	Applied Force .....:		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force.....:		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force.....:		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N) .....:		—
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N* ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	(See Annex T)	N/A
	Button/Ball diameter (mm)..... :		—

9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	TS3: enclosure	P
9.3	Safeguard against thermal energy sources	Built-in power supply, shall be considered in end system	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....:		N/A

10	**RADIATION**		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation	No laser radiation within equipment	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Laser radiation that exists in the equipment:		—
	Normal, abnormal, single-fault..... :	(See attached laser test report)	N/A
	Instructional safeguard..... :		—
	Tool ..... :		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons..... :		N/A
10.4.1.b)	RS3 accessible to a skilled person ..... :		N/A
	Personal safeguard (PPE) instructional safeguard ..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions ..... :	(See appended table B.3 & B.4)	N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation ..... :		N/A
10.4.1.g)	Materials resistant to degradation UV ..... :		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard ..... :		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment:	(See appended table B.3 & B.4)	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards ..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation ..... :		—
	Abnormal and single-fault condition..... :	(See appended table B.3 & B.4)	N/A
	Maximum radiation (pA/kg) ..... :		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s. ..... :		N/A
10.6.4	Protection of persons		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructional safeguards ..... :		N/A
	Equipment safeguard prevent ordinary person to RS2 ..... :		—
	Means to actively inform user of increase sound pressure ..... :		—
	Equipment safeguard prevent ordinary person to RS2 ..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output ..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A) ..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A) ..... :		—
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		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 ..... :	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances	Rated voltage ± 10 %.	P
B.2.5	Input test ..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements ..... :	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		P
B.3.3	D.C. mains polarity test	The equipment is not connected to a D.C. mains.	N/A
B.3.4	Setting of voltage selector ..... :	No setting of voltage selector within the equipment.	N/A
B.3.5	Maximum load at output terminals ..... :	(See appended table B.3)	P
B.3.6	Reverse battery polarity	No battery within the equipment.	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effectively.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited..... :		N/A
B.4.3	Motor tests	No motors within equipment	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :	(See Clause G.5)	N/A
B.4.4	Short circuit of functional insulation	For traces before fuse, comply with the clearances and creepage distances for basic insulation, others are considered to perform short-circuited during the tests. See the following details.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the equipment.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	The equipment is continuous operating type and no such components intended for short time operation or intermittent operation.	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	(See appended table B.4)	P
B.4.9	Battery charging under single fault conditions .. :	No battery involved in the equipment.	N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV generated from the equipment	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 apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V)……:		—
	Rated load impedance (Ω) ……:		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements	See the following details.	P
	Instructions – Language ……:	English. The other languages will be provided during the national approval.	—
F.2	Letter symbols and graphical symbols	See the following details.	P
F.2.1	Letter symbols according to IEC60027-1	No letter symbols are used.	N/A
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment marking is located on the exterior surface and is easily visible.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification ……:	See copy of marking plate.	—
F.3.2.2	Model identification ……:	See copy of marking plate.	—
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains	Built-in equipment, evaluated in the end product.	P
F.3.3.3	Nature of supply voltage ……:	AC	—
F.3.3.4	Rated voltage……:	See copy of marking plate.	—
F.3.3.5	Rated frequency……:	See copy of marking plate.	—
F.3.3.6	Rated current or rated power……:	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	No such devices within the equipment.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :	No such devices within the equipment.	N/A
F.3.5.2	Switch position identification marking ..... :	No such switch within the equipment.	N/A
F.3.5.3	Replacement fuse identification and rating markings..... :	The fuse resister is located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse marking is marked on PCB: F1 250VAC, T2.0A	P
F.3.5.4	Replacement battery identification marking ..... :	No such battery within the equipment.	N/A
F.3.5.5	Terminal marking location	See markings specified in F.3.6.1 and F.3.6.2.2 are not placed on removable parts such as screws.	P
F.3.6	Equipment markings related to equipment classification	See the following details.	P
F.3.6.1	Class I Equipment	The equipment is Class II equipment.	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal	The equipment is not permanently connected equipment.	N/A
F.3.6.1.3	Protective bonding conductor terminals	The equipment is Class II equipment.	N/A
F.3.6.2	Class II equipment (IEC60417-5172)	The symbol "⧈" is provided.	P
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking	No such earth terminal marking is used.	N/A
F.3.7	Equipment IP rating marking .....:	This equipment is classified as IPX0.	—
F.3.8	External power supply output marking	See copy of marking plate.	N/A
F.3.9	Durability, legibility and permanence of marking	See the following details.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	The marking plate was subjected to the permanence of marking test. The marking plate was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After each test, there was no damage to the marking plate. The marking on the label did not fade. There was no curling of the marking plate and removed by hand.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	The accessibility of equipment was evaluated by using test probe of Figure V.1.	N/A
	b) Instructions given for installation or initial use	Relevant safety caution texts and installation instruction are available, see in manual.	P
	c) Equipment intended to be fastened in place	No such consideration.	N/A
	d) Equipment intended for use only in restricted access area	The equipment is not such type equipment.	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	Not such equipment.	N/A
	f) Protective earthing employed as safeguard	The equipment is Class II equipment and no protective earth within the equipment.	N/A
	g) Protective earthing conductor current exceeding ES 2 limits	See above.	N/A
	h) Symbols used on equipment	No such consideration.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	The equipment is not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No such component.	N/A
F.5	Instructional safeguards	No instructional safeguard is considered as necessary.	N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	No instructional safeguard required in the equipment.	N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements	No switch within equipment	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.2	**Relays**		N/A
G.2.1	General requirements	No relay within equipment	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H) ..... :		—
	Single Fault Condition..... :		—
	Test Voltage (V) and Insulation Resistance (Ω) :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	Fuse used as overcurrent protection devices	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....:	(See appended Table B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration .....:		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound Components**		P
G.5.1	Wire insulation in wound components.....	The insulation tape is provided for all winding, and teflon tubing is provided for secondary windings of transformer to protect against mechanical stress.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components	Approved triple insulated wire is used in secondary windings of transformer.	N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)..... :		—
	Temperature (°C)..... :		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) ..... :	The transformer meets the requirements given in subcaluses G.5.3.2 and G.5.3.3.	P
	Position ..... :	T1	—
	Method of protection ..... :	See above and appended tables B.3 and B.4.	—
G.5.3.2	Insulation	Primary windings and secondary windings are isolated by double/reinforced insulation (The core is considered as primary).	P
	Protection from displacement of windings ..... :	The end-turn of each winding is fixed by insulating tape.	—
G.5.3.3	Overload test ..... :	(See appended table B.3)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended tables B.3 and B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements		N/A
	Position ..... :		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V) .....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V) .....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V) .....:		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	The triple insulated wire is used as reinforced safeguard in the isolating transformer (T1) that complied with Annex J.	P
G.6.2	Solvent-based enamel wiring insulation	Insulation is not relied on solvent-based enamel.	N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements	Built-in power supply	N/A
	Type .....:		—
	Rated current (A).....:		—
	Cross-sectional area (mm^2), (AWG) ..... :		—
G.7.2	Compliance and test method		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) .....:		—
G.7.3.2.2	Strain relief mechanism failure		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.3	Cord sheath or jacket position, distance (mm)... :		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry..... :	(See appended table 5.4.11.1)	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) ..... :		—
	Diameter (m)..... :		—
	Temperature (°C)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements	Approved varistors	P
G.8.2	Safeguard against shock		P
G.8.3	Safeguard against fire		P
G.8.3.2	Varistor overload test.....:		P
G.8.3.3	Temporary overvoltage .....:		P
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....:		—
G.9.1 d)	IC limiter output current (max. 5A).....:		—
G.9.1 e)	Manufacturers' defined drift .....:		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.11	**Capacitor and RC units**		P
G.11.1	General requirements	The X and Y Capacitor are used as safeguard and complied with IEC/EN 60384-14:2013 (See appended table 4.1.2).	P
G.11.2	Conditioning of capacitors and RC units	All capacitors complied as environmental category at least 25/125/21 (21 days humidity).	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) .....:	Approved optocouplers	P
	Type test voltage Vini .....:	4000V	—
	Routine test voltage, Vini,b .....:	4000V	—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board is complied with the minimum clearance and creepage distance requirements.	P
G.13.3	Coated printed boards	No coated printed board is provided within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction) .....:		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:	(See appended table 5.4.4.5)	N/A
	Number of insulation layers (pcs) .....:		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :	(See G.13)	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.15	**Liquid filled components**		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc 5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....:		—
D3)	Resistance .....:		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General	No telephone ringing singnals within equipment	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....:		—
H.3.1.2	Voltage (V) .....:		—
H.3.1.3	Cadence; time (s) and voltage (V) .....:		—
H.3.1.4	Single fault current (mA):.....:		—
H.3.2	Tripping device and monitoring voltage .....:		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....:		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		P
	General requirements	The triple insulated wire is used as reinforced safeguard in the isolating transformer (T1) that had been evaluated with Annex J.	P
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements	No safety interlocks used.	N/A
K.2	Components of safety interlock safeguard mechanism	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance.....:	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method .....:		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....:		N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....:	(See appended table 5.4.9)	N/A
L	**DISCONNECT DEVICES**		N/A
L.1	General requirements	Built-in power supply, evaluated in the end product	N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements	No batteries within equipment	N/A
M.2	Safety of batteries and their cells		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) . :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance .....:	(See appended Tables and Annex M.3 and M.4)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature.....:	(See Annex M.4)	—
M.4.2.2 b)	Single faults in charging circuitry .....:	(See Annex B.4)	—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) ..... :		N/A
M.6.2	Leakage current (mA) ..... :		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
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (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 (Determination of compliance: inspection, data review; or abnormal testing) ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used ..... :	Pollution degree considered	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied..... :		—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements	Built-in power supply, evaluated in the end product.	N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) ..... :		—
	Tr (°C)..... :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing ..... :	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing ..... :	(See Annex T)	N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	Limited power sources	The output connector complied with the limited power source and built-in power supply, fire enclosure evaluated in the end product.	P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) ..... :		—
	Current limiting method..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.3	Test method Supply voltage (V) and short-circuit current (A)). ..... :		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	~~Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W~~ Flammability test for fire enclosure materials of equipment with a steady-state power exceeding 4000 W		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (test condition), (°C)..... :		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements		P
T.2	Steady force test, 10 N .....:	(See appended table T.2)	P
T.3	Steady force test, 30 N .....:	(See appended table T.3)	N/A
T.4	Steady force test, 100 N .....:	(See appended table T.4)	N/A
T.5	Steady force test, 250 N .....:	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test .....:	(See appended table T.7)	N/A
T.8	Stress relief test.....:	(See appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J) .....:		—
	Height (m) .....:		—
T.10	Glass fragmentation test.....:	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) .....:		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No CRT is provided within the equipment.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen ..... :	(See Annex T)	N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		N/A
V.1	Accessible parts of equipment	Built-in power supply, evaluated in the end product.	N/A
V.2	Accessible part criterion		N/A

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

4.1.2	TABLE: List of critical components				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1]**
Terminal	Cixi Kaifeng Electronic Co., Ltd.	KF 128V-5.0	250VAC,18A, 105°C	IEC/EN 60998-2-1 IEC/EN 60998-1	VDE (40037253)
Alternative	NINGBO MAX ELECTRONIC TECHNOLOGY CO LTD	MX128-5.0 MX128V-5.0	250VAC,18A, 105°C	IEC/EN 60998-2-1 IEC/EN 60998-1	TUV (B004887 0001)
Alternative	Degson Electronics Co., Ltd.	DG128-5.0	250VAC,18A, rated connecting capacity: 2.5mm^2 min. cross-sectional: 0.2mm^2, 105°C	IEC/EN 60998-2-1 IEC/EN 60998-1	VDE (40022088)
Alternative	Cixi Wanjie Electronic Co., Ltd	WJ128-5.0	250VAC, 20A, rated connecting capacity: 2.5mm^2 min. cross-sectional: 0.2mm^2, 105°C	IEC/EN 60998-2-1 IEC/EN 60998-1	VDE (40035117)
Alternative	TIANLI ELECTRICAL MACHINERY. (NINGBO) Co., Ltd	TL206-series	250VAC, 12A, rated connecting capacity: 2.5mm^2 min. cross-sectional: 0.5mm^2, 105°C	IEC/EN 60998-2-1 IEC/EN 60998-1	VDE (40025612)
Plastic enclosure	SABIC INNOVATIVE PLASTICS B V	940(f1)(gg*)	V-0, 120°C, min. thickness: 1.5mm	IEC/EN 62368-1	UL (E45329) + tested with appliance
NTC	Guangdong Hongzhi Electronic Technology Co., Ltd	5D-7	5Ω at 25°C, 2A, 150°C	IEC/EN 60539-1	TUV (B 001617 0001)
Alternative	Thinking Electronic Industrial Co., Ltd.	SCK-052	5Ω at 25°C, 2A, 150°C	IEC/EN 60539-1	TUV (R 50050155)
X-capacitor (CX1)	DAIN ELECTRONICS CO LTD	MEX/NPX/MPX	X2 type, 0.15µF, 275VAC , 40/110/21	IEC/EN 60384-14	VDE (40018798)
Alternative	JYH HSU (JEC) ELECTRONICS LTD	MPX	X2 type, 0.15µF, min.250VAC, 40/110/56	IEC/EN 60384-14	VDE (40044985)
Alternative	CHANGZHOU JIAGUAN ELECTRONICS CO., LTD.	MKP	X2 type, 0.15µF max, 275/300VAC, 40/110/21	IEC/EN60384-14	VDE (40037250)

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

Alternative	Guangdong JURCC electronics Co., LTD.	MPX/MKP	X2 type, 0.15µF, min.275VAC, 40/110/56	IEC/EN60384-14	VDE (40034920)
Alternative	Dongguan Weiqing Electronic Co., Ltd.	MPX	X2 type, 0.15µF, min.275VAC, 40/110/56	IEC/EN 60384-14	VDE (40040406)
Alternative	Dongguan Champion Electronic, Technology Co., Ltd	MPX	X2 type, 0.15µF, min.275VAC, 40/110/56	IEC/EN 60384-14	VDE (40044148)
Alternative	Dongguan QNC Electronics Co., Ltd	MPX/MKP Series	X2 type, 0.15µF, min.275VAC, 40/110/56	IEC/EN 60384-14	VDE (40053305)
Alternative	DONG GUAN AJC INDUSTRIAL CO.,LTD	MPX/MKP	X2 type, 0.15µF, min.275VAC, 40/110/56	IEC/EN 60384-14	VDE (40045532)
Alternative	Sichuan Sincerity Technology Co., Ltd.	MPX/MKP	X2 type, 0.15µF, min.275VAC, 40/110/56	IEC/EN 60384-14	VDE (4028812)
Alternative	Tenta Electric Industrial Co., Ltd.	MEX	X2 type, 0.15µF max.275VAC, 40/100/21	IEC/EN 60384-14	VDE (119119)
Varistor (MOV1)	Brightking (Shenzhen) Co., Ltd	07D471K/471 KD07	300Vac, 385Vdc 40/85/56	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE (40027827)
Alternative	BestBright Electronics Co. Ltd	07D471K/471 KD07	300Vac, 385Vdc 40/85/56	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE (40050493)
Alternative	Thinking Electronic Industrial Co., Ltd.	TVR07471	300Vac, 385Vdc 40/85/56	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE (005944)
Alternative	CERGLASS MFG INC	07D471k	300Vac, 385Vdc 40/85/21	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE (40028836)
Alternative	Dongguan City Dafu Electronics Co. Ltd.	07D471k	300Vac, 385Vdc 40/85/21	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE (40050909)
Alternative	Guangdong Huiwan Electronics Technology Co.,LTD.	V-471K-07 DEH	300Vac, 385Vdc, 40/85/21	IEC/EN 61051-1 IEC/EN 61051-2 IEC/EN 61051-2-2	VDE (40043880)

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

Voltage select switch VR1	NINGBO SHUANGJIAWEI PLASTIC CO., LTD.	ABS	V-1, min. thickness: 1.5mm	IEC/EN 62368-1	Tested with appliance
Fuse (F1)	Shanghai Fullness Electrical Co. Ltd.	TDP	250 Vac, T2.0A	IEC/EN 60127-1 IEC/EN 60127-3	TUV (R 50510065)
Alternative	ZHONG SHAN LANBAO ELECTRICAL APPLIANCES CO LTD	RTI-20	250 Vac, T2.0A	IEC/EN 60127-1 IEC/EN 60127-3	VDE (40012120)
Alternative	Dongguan Chevron Electronic Technology Co., Ltd.	3GT	250 Vac, T2.0A	IEC/EN 60127-1 IEC/EN 60127-3	VDE (40036523)
Transformer (T1)	NINGHAI YINGJIAO ELECTRICAL CO., LTD.	PQ2058-6V	Class B	IEC/EN 62368-1	tested with appliance
Transformer (T1)	NINGHAI YINGJIAO ELECTRICAL CO., LTD.	PQ2058-12V	Class B	IEC/EN 62368-1	tested with appliance
Transformer (T1)	NINGHAI YINGJIAO ELECTRICAL CO., LTD.	PQ2058-15V	Class B	IEC/EN 62368-1	tested with appliance
Transformer (T1)	NINGHAI YINGJIAO ELECTRICAL CO., LTD.	PQ2058-24V	Class B	IEC/EN 62368-1	tested with appliance
Transformer (T1)	NINGHAI YINGJIAO ELECTRICAL CO., LTD.	PQ2058-48V	Class B	IEC/EN 62368-1	tested with appliance
-Bobbin	Chang Chun Plastics Co., Ltd	T375J(G5)(G6)	Phenolic, V-0, 150°C, Min thickness: 0.8mm	IEC/EN 62368-1	UL (59481) + tested with appliance
-Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ* (b)	130°C	IEC/EN 62368-1	UL (E165111) + tested with appliance
Alternative	JINGJIANG FUWEI ADHESIVE PRODUCT CO LTD	WF101	130°C	IEC/EN 62368-1	UL (E302608) + tested with appliance

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

Alternative	JINGJIANG JINGYANG INSULATING PRODUCT CO LTD	JY-133	130°C	IEC/EN 62368-1	UL (E309872) + tested with appliance
Alternative	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT *(b)(g)	130°C	IEC/EN 62368-1	UL (E165111) + tested with appliance
-Magnet Wire	ZHEJIANG HONGBO TECHNOLOGY CO LTD	xUEW/130, QA-x/130	130°C	IEC/EN 62368-1	UL(E221719) + tested with appliance
Alternative	HUZHOU HUIFENG ELECTRICIAN TECHNOLOGY CO LTD	QA/155	155°C	IEC/EN 62368-1	UL(E499393) + tested with appliance
Alternative	NINGBO JINTIAN NEW MATERIAL CO LTD	xUEWN/155, QA/X-x/155	155°C	IEC/EN 62368-1	UL(E227047) + tested with appliance
-Triple Insulation Wire	Great Leoflon Industrial Co., Ltd.	TRW(B)-M	130°C	IEC/EN 62368-1	VDE (136581)
Alternative	Hangzhou Fuyang Youheng Cable Co., Ltd	GY-F	155°C	IEC/EN 62368-1	VDE (40041248)
-Tube	DONGGUAN CITY CHANGJIE METALS &PLASTIC PRODUCTS CO LTD	CJ-TT-T	300V 200°C	IEC/EN 62368-1	UL (E338209) + tested with appliance
Alternative	FLUO TECH INDUSTRIES CO LTD	TFT	300V, 200°C	IEC/EN 62368-1	UL (E175982) +tested with appliance
-Varnish	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	IEC/EN 62368-1	UL (E335405) + tested with appliance
-Alternative	JOHN C DOLPH CO	BC-359	155°C	IEC/EN 62368-1	UL (E317427) + tested with appliance
-Alternative	HANG CHEUNG COATINGS (HUIYANG) LTD	8562(a)	155°C	IEC/EN 62368-1	UL (E200154) + tested with appliance

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

Y capacitor (CY1,CY2)	Jya-Nay Co., Ltd.	JN	Y1 type, 250Vac min, 1000pF, 25/125/21	IEC/EN 60384-14	TUV (R 50232059)
Alternative	Jyh HSU(JEC) Electronic Co., Ltd.	JD	Y1 type, 250Vac min, 1000pF, 40/125/21	IEC/EN 60384-14	VDE (40038642)
Alternative	Dongguan City Dafu Electronics Co. Ltd.	CT7 Y1 Series	Y1 type, 250Vac min, 1000pF, 25/125/21	IEC/EN 60384-14	VDE (40041523)
Alternative	Guangdong Huiwan Electronics Technology Co.,LTD.	AR	Y1 type, 500Vac min, 1000pF, 40/125/21	IEC/EN 60384-14	VDE (40043989)
Alternative	Shenzhen Teruixiang Electronic Co, Ltd.	TY-Series	Y1 type, 400Vac min, 1000pF, 25/125/21	IEC/EN 60384-14	VDE (40031733)
Optocoupler (U1A)	Everlight Electronics Co., Ltd.	EL817	Cr>=7.6 mm Cl>=7.6mm dti>=0.4mm UIOTM =6000V Vini.a=4000V=Vini.b, 55/110/21	IEC/EN 60747-5-5	VDE (132249)
Alternative	Shenzhen Orient Components Co. Ltd.	OR817	Cr>=7.6 mm Cl>=7.6mm dti>=0.4mm UIOTM =6000V Vini.a=4000V=Vini.b, 55/110/21	IEC/EN 60747-5-5	VDE (40029733)
Alternative	FUJIAN LIGHTNING OPTOELECTRONIC CO., LTD	TD817XN	Cr>=7.6mm Cl>=7.6mm dti>=0.4mm UIOTM =8000V Vini.a=6000V=Vini.b, 55/110/21	IEC/EN 60747-5-5	VDE (40048885)
PCB	CHENGHUIXING ELECTRONICS (HUIZHOU) CO., LTD.	FG-109, FG-115, FG-114	V-0, 130°C	IEC/EN 62368-1	UL (E78769) + tested with appliance
Alternative	DONGGUAN ZHIHAN ELECTRONIC CO LTD	ZH-M, ZH-D	V-0, 130°C	IEC/EN 62368-1	UL (E485751) + tested with appliance
Alternative	GOLDWAN Circuit Limited	GW8081	V-0, 130°C	IEC/EN 62368-1	UL (E156176) + tested with appliance

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

Alternative	Wenzhou Juyi Electronic Technology Co., Ltd.	JY-D	V-0, 130°C	IEC/EN 62368-1	UL (E492597) + tested with appliance
Alternative	Dongguan Shuanghe Electronics Co., Ltd	SH108, SH808, SH908	V-0, 130°C	IEC/EN 62368-1	UL (E528144) + tested with appliance
Alternative	interchangeable	interchangeable	V-0, 130°C	UL	UL
Bleeder resistor(R1, R2, R1A, R2A)	interchangeable	interchangeable	2Mohm, 1/4W	--	--
Primary Ripple capacitor (C1)	interchangeable	interchangeable	6.8µF, Min. 400V, Min. 105°C	--	--
BD1	interchangeable	interchangeable	1A,1000V	--	--
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) Components license available upon request.					

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	N/A
(The following mechanical tests are conducted in the sequence noted.)		
4.8.4.2	**TABLE: Stress Relief test**	—

Part	Material	Oven Temperature (°C)	Comments

4.8.4.3	**TABLE: Battery replacement test**	—
Battery part no.....:		—

Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	
	2	
	3	
	4	
	5	
	6	
	8	
	9	
	10	

4.8.4.4	**TABLE: Drop test**	—

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

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	N/A

(The following mechanical tests are conducted in the sequence noted.)

Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	

4.8.4.5	**TABLE: Impact**	—

Impacts per surface	Surface tested	Impact energy (Nm)	Comments

4.8.4.6	**TABLE: Crush test**	—

Test position	Surface tested	Crushing Force (N)	Duration force applied (s)

Supplementary information:

4.8.5	**TABLE: Lithium coin/button cell batteries mechanical test result**	N/A

Test position	Surface tested	Force (N)	Duration force applied (s)

Supplementary information:

5.2	**Table: Classification of electrical energy sources**	P

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264V, 60Hz	Primary circuits supplied by	Normal	264Vrms	--	--	ES3
			Abnormal	--	--	--	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
		a.c. mains supply	Single fault – SC/OC	--	--	--	
YSD15S-4800310							
2	264V, 60Hz	Transformer secondary pin 6-7	Normal	260Vpk/ 68.7Vrms	--	67.57k	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
3	264V, 60Hz	Transformer secondary pin 6-after C8	Normal	49.1V	--	DC	ES1
			Single fault –SC D3	0	--	DC	
			Single fault –SC C8	0	--	DC	
			Single fault –SC R21	48.4V	--	DC	
4	264V, 60Hz	Output + to -	Normal	48.4V	0.408mApeak	DC	ES1
			Abnormal - overload	48.4V	0.408mApeak	DC	
			Single fault –SC R21	48.4V	0.428mApeak	DC	
			Single fault –SC R19	27.6V	0.406mApeak	DC	
			Single fault –SC C7	28.2V	0.417mApeak	DC	
			Single fault –SC R7	0	0.30mApeak	DC	
5	264V, 60Hz	Plastic enclosure to GND	Normal	--	0.037mApeak	--	ES1
YSD15S-0602500							
6	264V, 60Hz	Transformer secondary pin 6-7	Normal	25.2Vpk/ 9.17Vrms	--	65.36k	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
7	264V, 60Hz	Output + to -	Normal	6.90V	0.435mApeak	DC	ES1
			Abnormal - overload	6.96V	0.435mApeak	DC	
			Single fault –SC R21	6.87V	0.369mApeak	DC	

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

			Single fault –SC R19	2.89V	0.412mApeak	DC	
			Single fault –SC C7	2.98V	0.425mApeak	DC	
			Single fault –SC R23	0	0.371mApeak	DC	
			Single fault –SC D3	0	0.409mApeak	DC	
8	264V, 60Hz	Plastic enclosure to GND	Normal	--	0.042mApeak	--	ES1

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1	264V	CX1	Normal	Normal	100	60
			Abnormal	Abnormal	--	--
			Single fault – SC/OC	Single fault – SC/OC	100	120

5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

Test Conditions:
Normal –
Abnormal -
Supplementary information: SC=Short Circuit, OC=Short Circuit

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

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements			P
	Supply voltage (V) :	264V 50Hz	90V, 60Hz	—
	Ambient T_{min} (°C) :	See below	See below	—
	Ambient T_{max} (°C) :	See below	See below	—
	Tma (°C) :	See below	See below	—
Maximum measured temperature T of part/at:		T (°C)		Allowed T_{max} (°C)
YSD15S-4800310				
Input terminal		48.4	51.1	105
CX1		53.2	59.0	110
MOV1		58.5	66.9	85
RT1		63.4	79.2	150
LF1 winding		63.8	84.3	120
LF1 bobbin		65.1	84.0	120
C1		71.0	71.3	105
U1A		67.1	71.0	100
CY2		70.6	73.5	125
T1 winding		84.6	87.6	110
T1 bobbin		79.8	82.3	110
CY1		78.5	82.3	125
L3 winding		65.5	66.1	120
C3		72.2	72.6	105
Output terminal		55.3	55.5	105
PCB		68.9	70.2	130
VR1		62.6	64.0	90
Enclosure inside		78.9	81.4	120
Enclosure outside		70.9	72.9	--
Ambient		40.0	40.0	--
YSD15S-0602500				
Input terminal		47.9	50.8	105

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

CX1	54.3	60.4	110
MOV1	62.7	71.8	85
RT1	68.7	85.5	150
LF1 winding	72.3	100.6	120
LF1 bobbin	73.0	96.1	120
C1	83.5	96.8	105
U1A	77.2	81.2	100
CY2	84.2	87.5	125
T1 winding	104.3	107.4	110
T1 bobbin	100.4	103.1	110
CY1	96.7	100.1	125
L3 winding	90.7	91.9	120
C3	98.7	99.8	105
Output terminal	67.5	67.5	105
PCB	94.5	96.2	130
VR1	71.7	73.7	90
Enclosure inside	93.8	96.4	120
Enclosure outside	82.7	84.3	--
Ambient	40.0	40.0	--

Supplementary information:

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:

Supplementary information:
Note 1: Tma should be considered as directed by appliable requirement
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)
Note 3: Model YSD15S-4800310 loaded: 49VDC, 0.31A
Model YSD15S-0602500 loaded: 7VDC, 2.5A

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

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm) ..... :			—
Object/ Part No./Material		Manufacturer/trademark	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	Test temperature (°C)	Impression diameter (mm)
PCB	See table 4.1.2	125	0.6
Bobbin	See table 4.1.2	125	0.7
Enclosure	See table 4.1.2	125	1.12
Supplementary information:			

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
L to N before F1(F)	420	250	<30	1.5	3.1	2.5	3.1
Different pole of fuse F1(F)	420	250	<30	1.5	2.4	2.5	3.7
Primary to secondary of Y1-capacitor (R)	420	250	<30	3.0	7.3	5.0	7.3
Primary to secondary of U1A (R)	420	250	<30	3.0	6.8	5.0	6.8
Primary to secondary of transformer T1(R)	650	250	>30	3.0	6.8	5.0	6.8
Input terminal(F)	420	250	>30	1.5	4.0	2.5	4.0
Supplementary information:							
Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group 1) Two layers of insulation tape wrapped around external transformer core.							

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

2) Triple insulation wire used as secondary windings of T1. Core is considered as primary part.

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
Note		--	--	--
Supplementary information:				
Refer to table 5.4.2.2, 5.4.2.4 and 5.4.3.				

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Enclosure	420	0.6	1)	0.4	Min.1.5	
Optocoupler	420	0.6	1)	0.4	Min.0.4	
Supplementary information:						
1) see appended table 4.1.2.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
L to N (with fuse resister F1 opened)		DC	2500	No
Basic/supplementary:				

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

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Reinforced:		DC	4000	No
Unit: primary(L/N) to secondary(Output)		DC	4000	No
Unit: primary(L/N) to plastic enclosure wrapped with metal foil		DC	4000	No
Transformer (T1): primary windings to secondary windings		DC	4000	No
Transformer (T1): core to secondary windings		DC	4000	No
One layer insulation tape used in transformer T1		DC	4000	No
Routine Tests:				
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors					P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
264V 50Hz	No load/Inlet pins (L-N)	N	--	24	ES1	
264V 50Hz	No load/Inlet pins (L-N)	S (R1 OC)	--	38	ES1	
264V 50Hz	No load/Inlet pins (L-N)	S (R1 SC)	--	20	ES1	
Supplementary information:						
X-capacitors installed for testing are: 0.15uF [x] bleeding resistor rating: R1=R1A=R2=R2A=2MΩ [ ] ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						

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

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

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

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage ..... :			—
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
		1	
		2*	
		3	
		4	
		5	
		6	
		8	
Supplementary Information:			
Notes: [1] Supply voltage is the anticipated maximum Touch Voltage [2] Earthed neutral conductor [Voltage differences less than 1% or more] [3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3 [4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable. [5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.			

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
A	Input	Power (W) :	--	--	PS3(declare)
		V_A (V) :	--	--	
		I_A (A) :	--	--	
YSD15S-4800310					
B	Output	Power (W) :	--	21.71	PS2

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
	Overload	V_A (V) :	--	48.72	
		I_A (A) :	--	0.45	
C	Output R21 SC	Power (W) :	14.64	--	PS1
		V_A (V) :	48.03	--	
		I_A (A) :	0.31	--	
D	Output C7 SC	Power (W) :	8.68	--	PS1
		V_A (V) :	28.51	--	
		I_A (A) :	0.304	--	
E	Output R7 SC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
F	Output R19 SC	Power (W) :	8.38	--	PS1
		V_A (V) :	27.52	--	
		I_A (A) :	0.304	--	
YSD15S-0602500					
G	Output Overload	Power (W) :	--	20.36	PS2
		V_A (V) :	--	6.5	
		I_A (A) :	--	3.136	
H	Output R21 SC	Power (W) :	14.98	--	PS1
		V_A (V) :	6.01	--	
		I_A (A) :	2.5	--	
I	Output C7 SC	Power (W) :	11.97	--	PS1
		V_A (V) :	4.8	--	
		I_A (A) :	2.5	--	
J	Output R7 SC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
K	Output R19 SC	Power (W) :	7.94	--	PS1
		V_A (V) :	3.18	--	
		I_A (A) :	2.5	--	
Supplementary Information:					
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits					

6.2.3.1	**Table: Determination of Potential Ignition Sources (Arcing PIS)**	P

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

Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
See below	--	--	--	--

Supplementary information:

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

All primary circuit/components were considered as arcing PIS, the open circuit of all secondary components/ circuit were not exceeded 50V.

Different soldering pins of input wires connected to PCB, primary components on PCB having soldered pins in mains circuit (>50V peak) are considered as arcing PIS.

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
See below	--	--	--	--	--

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

All power dissipating components more than 15 W, measured after 30 s of normal operation considered as resistive PIS.

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type ..... :			—
Manufacturer..... :			—
Cat no..... :			—
Pressure (cold) (MPa)..... :			MS_
Pressure (operating) (MPa)..... :			MS_
Operating time (minutes)..... :			—
Explosion method ..... :			—
Max particle length escaping enclosure (mm). :			MS_

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

Max particle length beyond 1 m (mm)……:		MS_
Overall result ……:		
Supplementary information:		

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
YSD15S-4800310								
90V	50	0.309	--	17.20	--	F1	0.309	Load: 49V, 0.31A
90V	60	0.312	--	17.16	--	F1	0.312	Load: 49V, 0.31A
100V	50	0.283	0.6	16.98	--	F1	0.283	Load: 49V, 0.31A
100V	60	0.286	0.6	16.96	--	F1	0.286	Load: 49V, 0.31A
240V	50	0.129	0.6	16.46	--	F1	0.129	Load: 49V, 0.31A
240V	60	0.126	0.6	16.45	--	F1	0.126	Load: 49V, 0.31A
264V	50	0.120	--	16.51	--	F1	0.120	Load: 49V, 0.31A
264V	60	0.117	--	16.50	--	F1	0.117	Load: 49V, 0.31A
YSD15S-0602500								
90V	50	0.335	--	18.81	--	F1	0.335	Load: 7V, 2.5A
90V	60	0.338	--	18.74	--	F1	0.338	Load: 7V, 2.5A
100V	50	0.306	0.6	18.53	--	F1	0.306	Load: 7V, 2.5A
100V	60	0.308	0.6	18.49	--	F1	0.308	Load: 7V, 2.5A
240V	50	0.139	0.6	17.99	--	F1	0.139	Load: 7V, 2.5A
240V	60	0.136	0.6	17.98	--	F1	0.136	Load: 7V, 2.5A
264V	50	0.130	--	18.05	--	F1	0.130	Load: 7V, 2.5A
264V	60	0.127	--	18.04	--	F1	0.127	Load: 7V, 2.5A
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								

B.3	TABLE: Abnormal operating condition tests	P

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

Ambient temperature (°C) .....:				40ºC				—
Power source for EUT: Manufacturer, model/type, output rating .:				See below				—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
YSD15S-4800310								
Output	OL	90V	6H	F1	0.31A→0.38A→0.44A →0.48A	K	Input terminal measured: 64.8°C max LF1 winding measured: 127.5°C max T1 winding measured: 126.3°C max Output terminal measured: 68.3°C max PCB measured: 119.5°C max Enclosure outside measured: 97.3°C max	Observation: Protection no hazard. Overload to 0.484A HV test pass
output	SC	90V	2H	F1	0.060	--	--	The unit shutdown, recoverable, no hazard HV test pass

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
Ventilation opening	blocked	90V	2H	F1	0.335	K	Input terminal measured: 58.0°C max LF1 winding measured: 93.5°C max T1 winding measured: 96.5°C max Output terminal measured: 59.5°C max PCB measured: 92.9°C max Enclosure outside measured: 78.5°C max	The unit normal operation, no hazard HV test pass
YSD15S-0602500								
Output	OL	90V	6H	F1	2.56A→2.62A→2.97A →3.17A	K	Input terminal measured: 58.8°C max LF1 winding measured: 122.0°C max T1 winding measured: 135.9°C max Output terminal measured: 81.0°C max PCB measured: 124.0°C max Enclosure outside measured: 118.2°C max	Observation: Protection no hazard. Overload to 3.174A HV test pass

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
output	SC	90V	2H	F1	0.081	--	--	The unit shutdown, recoverable, no hazard HV test pass
Ventilation opening	blocked	90V	2H	F1	0.344	K	Input terminal measured: 54.7°C max LF1 winding measured: 98.7°C max T1 winding measured: 111.0°C max Output terminal measured: 69.3°C max PCB measured: 101.9°C max Enclosure outside measured: 97.0°C max	The unit normal operation, no hazard HV test pass
Supplementary information:								
Test table is provided to record abnormal conditions for all applicable energy sources including Thermal burn injury. 1) SC: Short-circuited; OL: Overloaded. 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions. 3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition. 4) The overloaded condition is according to annex G.5.3.3. Winding Limit for T1 winding: 175 °C								

B.4	TABLE: Fault condition tests	P

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

Ambient temperature (°C) .....:	25°C	—
Power source for EUT: Manufacturer, model/type, output rating .:	See below	—

Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
YSD15S-4800310								
BD1	SC	264	1S	F1	--	--	--	F1 open, no hazard HV test pass
C1	SC	264	1S	F1	--	--	--	F1 open, no hazard HV test pass
C10	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
Q1	SC	264	1S	F1	--	--	--	F1 open, no hazard HV test pass
U1 5-1	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
D1	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
D2	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
C8	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
U1A 1-2	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
UA1 3-4	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
T1 1-4	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
T1 2-3	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
T1 6-7	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
YSD15S-0602500								
U1A 1-2	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
UA1 3-4	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
T1 1-4	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
T1 2-3	SC	264	1S	F1	0.012	--	--	The unit shutdown, no hazard HV test pass
T1 6-7	SC	264	1S	F1	0.013	--	--	The unit shutdown, no hazard HV test pass
Supplementary information:								

Supplementary information:
Test table is provided to record fault conditions for all applicable energy sources including Thermal burn injury.

1) SC: Short-circuited; OC: Open-circuited.
2) The test result shown all safeguards remained effective, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
4) For fuse opened condition, carried out for all sources and ratings of fuse.
5) The test result no Class 1 or 2 energy source become Class 3 level during and after single faultcondition.

Annex M.3	**TABLE: Batteries**	N/A
The tests of Annex M are applicable only when appropriate battery data is not available		

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

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

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									

Test results:		Verdict
- Chemical leaks		
- Explosion of the battery		
- Emission of flame or expulsion of molten metal		
- Electric strength tests of equipment after completion of tests		
Supplementary information:		

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries	N/A

Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				
	Normal				
	Abnormal				
	Single fault – SC/OC				
Supplementary Information:					

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

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation
Supplementary Information:				

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
YSD15S-4800310						
Output	Overload	48.92	0.45	8	21.7	100
Output	R21 SC	49.03	0.461	8	21.98	100
Output	C7 SC	28.51	0.454	8	13.12	100
Output	R7 SC	0	0	8	0	100
Output	R19 SC	27.52	0.456	8	12.63	100
YSD15S-0602500						
Output	Overload	6.504	3.141	8	20.36	100
Output	R21 SC	6.521	3.162	8	20.72	100
Output	C7 SC	4.8	3.151	8	15.22	100
Output	R7 SC	0	0	8	0	100
Output	R19 SC	3.18	3.164	8	10.16	100
Supplementary Information:						
SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5	**TABLE: Steady force test**				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation

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

Top side(T.5)	Plastic	Min.1.5	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3. No insulation breakdown.
Flank sides(T.5)	Plastic	Min.1.5	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3. No insulation breakdown.
Bottom side(T.5)	Plastic	Min.1.5	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3. No insulation breakdown.
Internal components (T.2)	--	--	10	5	Enclosure remained intact, no crack/ opening developed. Internal ES3. No insulation breakdown.
Supplementary information:					

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure(T.6)	Plastic	Min.1.5	1300	No damaged.	
Supplementary information:					

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

T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Enclosure	Plastic	Min.1.5	107.0	7	No damaged, the hazardous live parts cannot be touched.
Supplementary information:					

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

5.4.1.8	TABLE: Working voltage measurement				P
Location		RMS voltage (V)	Peak voltage (V)	Frequency (KHz)	Comments
YSD15S-4800310					
T1 1	6	**243**	530	58.55kHz	The max. rms value
T1 1	7	212	470	57.21kHz	--
T1 2	6	207	380	60Hz	--
T1 2	7	238	440	60.1kHz	--
T1 3	6	220	480	60.24kHz	--
T1 3	7	231	420	59.81kHz	--
T1 4	6	217	380	60Hz	--
T1 4	7	206	**650**	59.52kHz	The max. peak value
CY1 pri	Sec.	201	380	60Hz	--
CY2 pri.	Sec.	259	390	60Hz	--
U1A 1	3	201	380	60Hz	--
U1A 1	4	201	380	60Hz	--
U1A 2	3	201	380	60Hz	--
U1A 2	4	201	380	60Hz	--
YSD15S-0602500					
T1 1	6	**237**	**580**	64.94kHz	The max. rms and peak value
T1 1	7	229	570	66.14kHz	--
T1 2	6	194	390	60	--
T1 2	7	213	390	64.31kHz	--
T1 3	6	198	460	64.10kHz	--
T1 3	7	201	430	63.94kHz	--
T1 4	6	194	390	60	--
T1 4	7	198	410	62.34kHz	--
CY1 pri	Sec.	220	385	60Hz	--
CY2 pri.	Sec.	259	390	60Hz	--
U1A 1	3	217	380	60Hz	--

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

U1A 1	4	216	380	60Hz	--
U1A 2	3	217	380	60Hz	--
U1A 2	4	217	380	60Hz	--
Supplementary information:					
Test voltage 240Vac, 60Hz					

6.4.8.3.3, 6.4.8.3.4, P.2	TABLE: Top and bottom openings in fire or electrical enclosure	N/A

Location	Dimension (mm)	Comments
--	--	--
--	--	--
--	--	--
Supplementary information:		

G.5.3	TABLE: transformers						P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2.2)	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4.6)
Primary to secondary	RI	650	243	4000Vdc	3.0	5.0	Min. 2 layers
Secondary to core	RI	650	243	4000Vdc	3.0	5.0	Min. 2 layers
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
Secondary soldering pin to primary winding	Reinforced insulation			4000Vdc	9.2	9.2	2 layers of tape and TIW
Secondary soldering pin to core	Reinforced insulation			4000Vdc	5.6	5.6	2 layers of tape and TIW
Concentric windings on single bobbin. The core was considered as primary part. Two layers of insulation tape between primary and secondary windings; Magnet wire used as primary winding, triple insulation wire used as secondary winding. At least 0.5mm gap or margin tap used to separate primary winding and secondary winding where they are crossing, see photo document for details. The primary and secondary windings' lead outs were soldered to the lead pins which directly moulded in bobbin.							

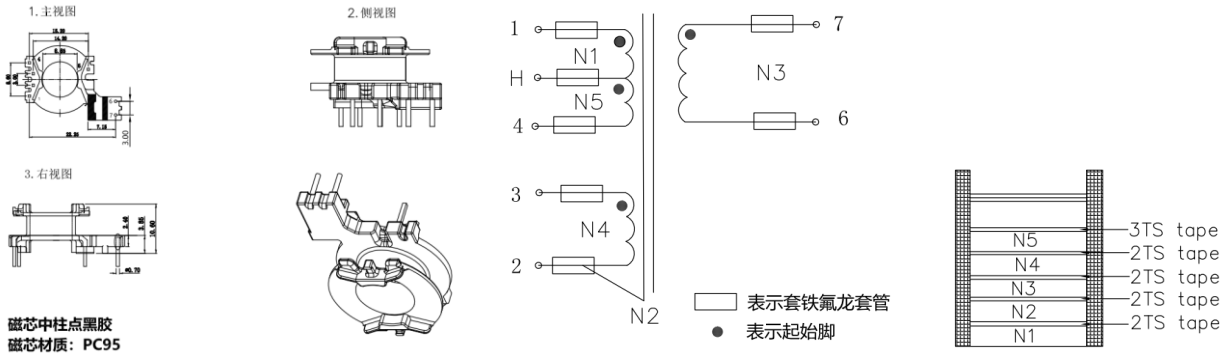
IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

G.5.3	TABLE: transformers	P

Transformer T1:

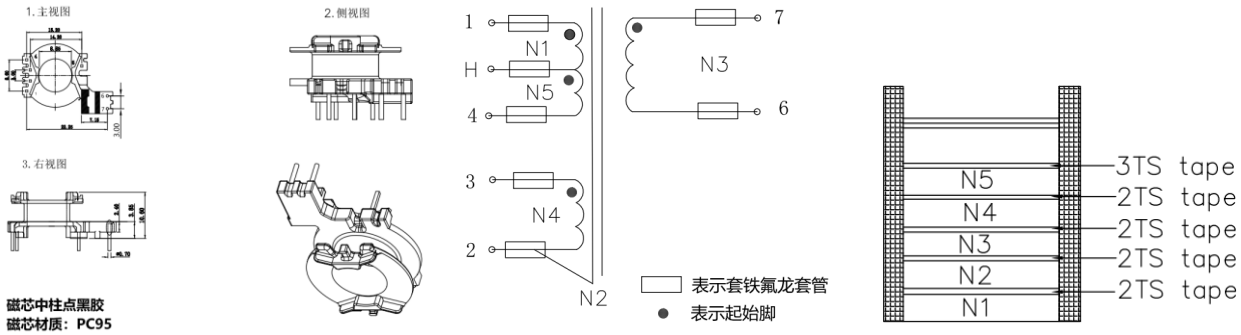
Concentric windings on phenolic type bobbin. Three layers insulation tape wrapped around external of transformer T1 as reinforced insulation. Triple insulated wires used as secondary winding. Core considered as primary part. Tube used where primary windings and secondary triple insulated wires contact.

Transformer PQ2058-5V



层次	漆包线	起始脚	完成脚	圈数	胶带圈数	玛拉胶带	套管	备注
N1	QA0.27漆包线	1	H	38TS	2TS	4mm	加套管	密绕
N2	QA0.15*3漆包线	2	N	6TS	2TS	4mm	加套管	
N3	TEX-0.4*2 三层绝缘线	7	6	3TS	2TS	4mm	加套管	密绕
N4	QA0.13*2漆包线	3	2	9TS	2TS	4mm	加套管	
N5	QA0.27漆包线	H	4	9TS	3TS	4mm	加套管	密绕

Transformer PQ2058-48V



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

层次	漆包线	起始脚	完成脚	圈数	胶带圈数	玛拉胶带	套管	备注
N1	QA0.27漆包线	1	H	38TS	2TS	4.5mm	加套管	密绕
N2	QA0.15*3漆包线	2	N	6TS	2TS	4.5mm	加套管	
N3	TEX-0.25 三层绝缘线	7	6	24TS	2TS	4.5mm	加套管	密绕
N4	QA0.13*2漆包线	3	2	9TS	2TS	4.5mm	加套管	
N5	QA0.27漆包线	H	4	9TS	3TS	4.5mm	加套管	密绕

IEC62368_1D - 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 62368-1:2014+A11:2017

Attachment Form No.....: EU_GD_IEC62368_1D_II

Attachment Originator .....: Nemko AS

Master Attachment .....: Date 2021-02-04

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	CENELEC COMMON MODIFICATIONS (EN)	
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
CONTENTS	**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
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

	For special national conditions, see Annex ZB.		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.		P

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		N/A
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		P
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A

IEC62368_1D - ATTACHMENT			
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 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**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

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”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.”.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

IEC62368_1D - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	*ANNEX ZC, NATIONAL DEVIATIONS (EN)*		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

<End of report>