# TEST REPORT

Report No.: BCTC2110520159S

Applicant: SANWAY AUDIO EQUIPMENT CO LIMITED.

Product Name: Class-D Amplifier Plate Module

Product Type: D3

Tested Date: 2021-12-21 to 2022-06-09

Issued Date: 2022-06-21

**Shenzhen BCTC Testing Co., Ltd.**

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

| | |
|---|---|
| **Report Number..... :** | **BCTC2110520159S** |
| Date of issue..... : | 2022-06-21 |
| Total number of pages..... : | 73 |
| **Testing Laboratory. ..... :** | **Shenzhen BCTC Testing Co., Ltd.** |
| Address ..... : | 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China |
| **Applicant's name ..... :** | **SANWAY AUDIO EQUIPMENT CO LIMITED.** |
| Address..... : | 901 HUITONG APARTMENT, YONGFA ROAD, HUADU DISTRICT 510800, GUANGZHOU, GUANGDONG, CHINA. |
| **Test specification:** | |
| Standard ..... : | IEC 62368-1:2014 (Second Edition)<br>EN 62368-1:2014+A11:2017 |
| Test procedure..... : | Test report |
| Non-standard test method ..... : | N/A |
| **Test Report Form No. ..... :** | IEC62368_1B |
| Test Report Form(s) Originator ..... : | UL(US) |
| Master TRF..... : | 2014-03 |

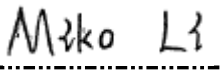
**Copyright © 2014 Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), Geneva, Switzerland. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

**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.**

| | |
|---|---|
| Test Item description .....: | Class-D Amplifier Plate Module |
| Trade Mark .....: | |
| Manufacturer.....: | ZHAOQING SANWAY AUDIO CO., LIMITED.<br>C40 WANYANG CROAD INNOVATION PARK, NO.41 DAWANG AVENUE, ZIP:526238 ZHAOQING NATIONAL HIGH-TECH ZONE, GUANGDONG, CHINA. |
| Model/Type reference .....: | D3<br>D3-215, D3-2CH, D3-2.1, D2-825, D2L-825, D1-150W, D1-450W, D1S-450D, D1-450D, D1-650W, D1S-650D, D1-650D, D1-800W, D1S-800D, D1-800D, D1-1K, D1-1KD, D2S-250D, D103S-2CH, D103-2, D133S-2CH, D133-2, D155S-2CH, D155-2, D2S, D2S-SUB8, D2S-8, D2S-SUB4, D2S-4, D2L, D2L-SUB8, D2L-8, D2L-SUB4, D2L-4, D2450, D450-2, D2650, D650-2, D2800, D800-2 |
| Ratings .....: | Input: 230V~, 50Hz<br>Output power: 1500W+500W+300W@8Ω;<br>1800W+900W+900W@4Ω |

## Testing procedure and testing location:

| | |
|---|---|
| **Testing Laboratory ..... :** | **Shenzhen BCTC Testing Co., Ltd.** |
| Address..... : | 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China |
| **Tested by (name, function, signature)..... :** | Miko Li (Project Handler)  |
| **Approved by (name, function, signature)... :** | Seven Zheng (Reviewer)  |

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

-- Attachment I : 11 pages for EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

-- Attachment II: 5 pages for Photo documentation.

## Summary of testing:

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| -- EN 62368-1:2014+A11:2017,<br><br>The submitted samples were found to comply with the requirements of above specification. | **Shenzhen BCTC Testing Co., Ltd.**<br><br>1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China |

## Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Class-D Amplifier Plate Module

Model: D3

Input: 230V~, 50Hz

Output power: 1500W+500W+300W@8Ω;

1800W+900W+900W@4Ω






Importer: XXXXXX

Address: XXXXXX

Made in China

Note:

1. Note: The height dimension of CE mark should not less than 5mm, the height dimension of WEEE symbol should not less than 7mm.
2. The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
3. The marking plates of other models in this report are identical with above except model name.
4. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

| TEST ITEM PARTICULARS: | |
|---|---|
| Classification of use by: | ☒Ordinary person<br>☐Instructed person<br>☐Skilled person<br>☒Children likely to be present |
| Supply Connection: | ☒AC Mains ☐DC Mains<br>☐External Circuit – not Mains connected<br>-☐ES1 ☐ES2 ☐ES3 |
| Supply % Tolerance: | ☒+10%/-10%<br>☐+20%/-15%<br>☐+____%/ -_____%<br>☐ None |
| Supply Connection – Type : | ·☒ pluggable equipment type A -<br>☐ non-detachable supply cord<br>☒ appliance coupler<br>☐ direct plug-in<br>☐ mating connector<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector<br>☐ other: not directly connected to the mains |
| Considered current rating of protective device as part of building or equipment installation: | 16A<br>Installation location: ☒ building, ☐equipment |
| Equipment mobility: | ☒movable ☐ hand-held ☐transportable<br>☐ stationary ☐ for building-in ☐direct plug-in<br>☐ rack-mounting ☐ wall-mounted |
| Over voltage category (OVC) : | ☐ OVC I ☒ OVC II ☐ OVC III<br>☐ OVC IV ☐other: not directly connected to the mains |
| Class of equipment : | ☒ Class I ☐ Class II ☐ Class III |
| Access location : | ☐ restricted access location ☒ N/A |
| Pollution degree (PD) : | ☐PD 1 ☒ PD 2 ☐ PD 3 |
| Manufacturer's specified maxium operating ambient: | ___25__°C |
| IP protection class : | ☒ IPX0 ☐ IP___ |
| Power Systems : | ☒ TN ☐ TT ☐ IT – 230 V $_{L-L}$ |
| Altitude during operation (m) : | ☒ 2000 m or less ☐5000 m<br>☐ other: not directly connected to the mains |
| Altitude of test laboratory (m) : | ☒ 2000 m or less ☐ _____ m |
| Mass of equipment (kg) : | ☒17.3Kg |
| | |
| **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..... : | 2021-10-29 |
| Date (s) of performance of tests..... : | 2021-12-21 to 2022-06-09 |
| | |
| **GENERAL REMARKS:** | |
| **"(See Enclosure #)" refers to additional information appended to the report.**<br>**"(See appended table)" refers to a table appended to the report.**<br><br>**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**<br>☒**Not applicable** |
| **When differences exist, they shall be identified in the General product information section.** | |
| **Name and address of factory (ies) ..... :** | Same as manufacturer |
| **GENERAL PRODUCT INFORMATION:** | |
| **Product Description:**<br>1. The apparatus is a Class I Class-D Amplifier Plate Module, used for information and communication technology equipment.<br>2. The specified Max. ambient temperature is 25℃<br>3. All tests were conducted at the model of D3. | |
| **Model Differences –**<br>All models have same schematic diagram, PCB Layout except models name. | |
| **Additional application considerations – (Considerations used to test a component or sub-assembly) –**<br>N/A | |

| ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE: | |
|---|---|
| (Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)<br>(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):**<br>(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)<br>Example: +18 V dc input ES1 | |
| **Source of electrical energy** | **Corresponding classification (ES)** |
| X capacitor connected between L and N | ES3 |
| Primary circuit of power supply | ES3 |
| Output port | ES1 |
| **Electrically-caused fire (Clause 6):**<br>(Note: List sub-assembly or circuit designation and corresponding energy source classification)<br>Example: Battery pack (maximum 85 watts): PS2 | |
| **Source of power or PIS** | **Corresponding classification (PS)** |
| All internal circuit | PS3, Arching PIS, Resistive PIS |
| Output port | PS3 |
| **Injury caused by hazardous substances (Clause 7)**<br>(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)<br>Example: Liquid in filled component Glycol | |
| **Source of hazardous substances** | **Corresponding chemical** |
| N/A | N/A |
| **Mechanically-caused injury (Clause 8)**<br>(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)<br>Example: Wall mount unit MS2 | |
| **Source of kinetic/mechanical energy** | **Corresponding classification (MS)** |
| Equipment mass | MS1 |
| Sharp edges and corners | MS1 |
| **Thermal burn injury (Clause 9)**<br>(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.)<br>Example: Hand-held scanner – thermoplastic enclosure TS1 | |
| **Source of thermal energy** | **Corresponding classification (TS)** |
| Accessible surface | TS1 |
| **Radiation (Clause 10)**<br>(Note: List the types of radiation present in the product and the corresponding energy source classification.)<br>Example: DVD – Class 1 Laser Product RS1 | |
| **Type of radiation** | **Corresponding classification (RS)** |
| Indicating lights | RS1 |

| ENERGY SOURCE DIAGRAM |
| --- |
| Indicate which energy sources are included in the energy source diagram. Insert diagram below |
| **SEE ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE**<br><br>☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☒ **RS** |

| OVERVIEW OF EMPLOYEDSAFEGUARDS | | | | |
|---|---|---|---|---|
| **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 | Enclosure See 5.4.2, 5.4.3, 5.4.4, 5.5.3 and 5.5.4 |
| Ordinary | ES3: Line and Neutral （Stored energy in X-Capacitor） | N/A | N/A | See 5.5.2.2 |
| Ordinary | ES1: Output port | 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 |
| Enclosure | PS3 circuit | See 6.3 | V-0 | N/A |
| PCB | PS3 circuit | See 6.3 | V-1 or better | N/A |
| Internal wire | PS3 circuit | See 6.3 | VW-1 or better | N/A |
| The other components/materials | PS3 circuit | See 6.3 | See 6.4.5, 6.4.6 | 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) |
| Ordinary | MS1: Sharp edges and corners | N/A | N/A | N/A |
| Ordinary | MS2: Equipment mass | N/A | N/A | N/A |
| 9.1 | Thermal Burn | | | |
| Body Part (e.g., Ordinary) | Energy Source (TS2) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Ordinary | TS1: Accessible surface | N/A | N/A | N/A |
| 10.1 | Radiation | | | |
| Body Part | Energy Source | Safeguards | | |

| (e.g., Ordinary) | (Output from audio port) | Basic | Supplementary | Reinforced |
|---|---|---|---|---|
| Ordinary | RS1:indicating lights | N/A | N/A | N/A |
| Supplementary Information:<br>(1) See attached energy source diagram for additional details.<br>(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 | | P |
| 4.1.2 | Use of components | | P |
| 4.1.3 | Equipment design and construction | | P |
| 4.1.15 | Markings and instructions..... : | (See Annex F) | P |
| 4.4.4 | Safeguard robustness | | P |
| 4.4.4.2 | Steady force tests..... : | (See Annex T.2, T.5) | P |
| 4.4.4.3 | Drop tests ..... : | (See Annex T.7) | N/A |
| 4.4.4.4 | Impact tests ..... : | (See Annex T.6) | P |
| 4.4.4.5 | Internal accessible safeguard enclosure and barrier tests..... : | | N/A |
| 4.4.4.6 | Glass Impact tests..... : | | N/A |
| 4.4.4.7 | Thermoplastic material tests ..... : | | N/A |
| 4.4.4.8 | Air comprising a safeguard..... : | (See Annex T) | N/A |
| 4.4.4.9 | Accessibility and safeguard effectiveness | | P |
| 4.5 | Explosion | | P |
| 4.6 | Fixing of conductors | | P |
| 4.6.1 | Fix conductors not to defeat a safeguard | | P |
| 4.6.2 | 10 N force test applied to ..... : | 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 |
| 4.8 | Products containing coin/button cell batteries | No such battery | 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 ..... : | | 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **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..... : | (See appended table 5.2) | P |
| 5.2.2.4 | Single pulse limits ..... : | | N/A |
| 5.2.2.5 | Limits for repetitive pulses ..... : | | N/A |
| 5.2.2.6 | Ringing signals ..... : | | N/A |
| 5.2.2.7 | Audio signals ..... : | See clause E.1 | P |
| 5.3 | Protection against electrical energy sources | | P |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | See only 4.3 and 5.3 to 5.6 which applies to protection between the accessible parts and hazardous parts of other circuits. | P |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | Only ES1 circuit can be accessed for this product. | P |
| 5.3.2.2 | Contact requirements | No opening of enclosure, no access with test probe to any ES3 circuit or parts. | P |
| | a) Test with test probe from Annex V..... : | (See 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 ..... : | Hygroscopic material used as Sound-deadening material.<br>Not used as an Insulation Material.<br>The whole product complies with humidity treatment test clause 5.4.8 and electric strength test clause 5.4.9 | P |
| 5.4.1.4 | Maximum operating temperature for insulating materials ..... : | (See appended table 5.4.1.4) | P |
| 5.4.1.5 | Pollution degree ..... : | PD2 | — |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | | N/A |
| 5.4.1.5.3 | Thermal cycling | | N/A |
| 5.4.1.6 | Insulation in transformers with varying dimensions | | N/A |
| 5.4.1.7 | Insulation in circuits generating starting pulses | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.1.8 | Determination of working voltage | (See appended table 5.4.1.8) | P |
| 5.4.1.9 | Insulating surfaces | Considered for accessible surface of enclosure. | P |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | Phenolic material used in transformer without further test.<br>AC in connector considered. | P |
| 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 | | P |
| 5.4.2.3 | Determining clearance using required withstand voltage ..... : | | P |
| | a) a.c. mains transient voltage..... : | 2500V for Over voltage category II | — |
| | b) d.c. mains transient voltage ..... : | No such transient voltage | — |
| | c) external circuit transient voltage..... : | No such transient voltage | — |
| | d) transient voltage determined by measurement ..... : | | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test | Using procedure 2 to determine the clearance according to 5.4.2.3. | P |
| 5.4.2.5 | Multiplication factors for clearances and test voltages..... : | 1.0(Up to 2000m) | P |
| 5.4.3 | Creepage distances..... : | (See appended table 5.4.2.2, 5.4.2.4 and 5.4.3) | P |
| 5.4.3.1 | General | | P |
| 5.4.3.3 | Material Group ..... : | Material Group IIIb | — |
| 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 |
| 5.4.4.6 | Thin sheet material | | P |
| 5.4.4.6.1 | General requirements | | P |
| 5.4.4.6.2 | Separable thin sheet material | (See appended Table 5.4.9) | P |
| | Number of layers (pcs)..... : | 2 layers min. | 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..... : | | N/A |
| 5.4.4.6.5 | Mandrel test | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.4.7 | Solid insulation in wound components | | P |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz ..... : | (See appended Table 5.4.9) | P |
| 5.4.5 | Antenna terminal insulation | | 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..... : | | 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) ..... : | 30°C | — |
| | Duration (h)..... : | 48h | — |
| 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 | | N/A |
| 5.4.9.2 | Test procedure for routine tests | | 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 | | N/A |
| 5.4.10.2 | Test methods | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test..... : | | N/A |
| 5.4.10.2.3 | Steady-state test ..... : | | N/A |
| 5.4.11 | Insulation between external circuits and earthed circuitry ..... : | | 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 $\Delta U_{sa}$..... : | | — |
| | $U_{op}= U_{peak}+ \Delta U_{sp}+\Delta U_{sa}$..... : | | — |
| 5.5 | Components as safeguards | | |
| 5.5.1 | General | | P |
| 5.5.2 | Capacitors and RC units | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.5.2.1 | General requirement | | P |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector.....: | (See appended table 5.5.2.2) | P |
| 5.5.3 | Transformers | (See Annex G.5.3) | P |
| 5.5.4 | Optocouplers | (See Annex G.12) | P |
| 5.5.5 | Relays | | N/A |
| 5.5.6 | Resistors | | N/A |
| 5.5.7 | SPD's | (See Annex G.8) | N/A |
| 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.....: | | N/A |
| 5.6 | Protective conductor | | P |
| 5.6.2 | Requirement for protective conductors | | P |
| 5.6.2.1 | General requirements | | P |
| 5.6.2.2 | Colour of insulation | | P |
| 5.6.3 | Requirement for protective earthing conductors | | P |
| | Protective earthing conductor size ($mm^2$) .....: | (See appended table 4.1.2) | — |
| 5.6.4 | Requirement for protective bonding conductors | | N/A |
| 5.6.4.1 | Protective bonding conductors | | N/A |
| | Protective bonding conductor size ($mm^2$).....: | | — |
| | Protective current rating (A) ..... : | | — |
| 5.6.4.3 | Current limiting and overcurrent protective devices | | N/A |
| 5.6.5 | Terminals for protective conductors | | P |
| 5.6.5.1 | Requirement | | P |
| | Conductor size ($mm^2$), nominal thread diameter (mm). .....: | | P |
| 5.6.5.2 | Corrosion | | N/A |
| 5.6.6 | Resistance of the protective system | | P |
| 5.6.6.1 | Requirements | | P |
| 5.6.6.2 | Test Method Resistance (Ω) .....: | | P |
| 5.6.7 | Reliable earthing | | P |
| 5.7 | Prospective touch voltage, touch current and protective conductor current | | P |
| 5.7.2 | Measuring devices and networks | | P |
| 5.7.2.1 | Measurement of touch current .....: | (See appended table 5.2) | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.2.2 | Measurement of prospective touch voltage | | 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) .....: | Single connection. | — |
| | Multiple connections to mains (one connection at a time/simultaneous connections) .....: | Single connection to mains | — |
| 5.7.4 | Earthed conductive accessible parts.....: | (See appended table 5.2) | P |
| 5.7.5 | Protective conductor current | | P |
| | Supply Voltage (V) .....: | 253 | — |
| | Measured current (mA) .....: | 0.12 | — |
| | Instructional Safeguard .....: | | 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) .....: | | N/A |
| | b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....: | | N/A |

| | | | |
|---|---|---|---|
| **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 | | P |
| 6.2.2.1 | General | | 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) | P |
| 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 ..... : | (See appended table 6.2.3.1) | P |
| 6.2.3.2 | Resistive PIS ..... : | (See appended table 6.2.3.2) | P |
| 6.3 | Safeguards against fire under normal operating and abnormal operating conditions | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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 ..... : | (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 | | P |
| 6.4 | Safeguards against fire under single fault conditions | | P |
| 6.4.1 | Safeguard Method | Control of fire spread | 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 | | N/A |
| | Special conditions if conductors on printed boards are opened or peeled | | N/A |
| 6.4.3.3 | Single Fault Conditions..... : | | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | P |
| 6.4.5 | Control of fire spread in PS2 circuits | | P |
| 6.4.5.2 | Supplementary safeguards ..... : | Compliance detailed as follows:<br>– Printed board: rated min. V-0<br>– All other components: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material (with mass less than 4g) or components complying to relevant IEC standard.<br>– Isolating transformer: complying with G.5.3.<br>– Parts as in 6.4.5 above including wiring<br>Fire enclosure rated V-0 used. | P |
| 6.4.6 | Control of fire spread in PS3 circuit | Compliance detailed as follows:<br>- see 6.4.5.2<br>- Fire enclosure rated V-0 used. | P |
| 6.4.7 | Separation of combustible materials from a PIS | | N/A |
| 6.4.7.1 | General..... : | | 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 | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.8.1 | Fire enclosure and fire barrier material properties | | P |
| 6.4.8.2.1 | Requirements for a fire barrier | | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure | | P |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | P |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | No 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. | 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 openings. | N/A |
| | Flammability tests for the bottom of a fire enclosure .....: | | N/A |
| 6.4.8.3.5 | Integrity of the fire enclosure, condition met: a), b) or c) .....: | | N/A |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....: | Enclosure is V-0 material. | P |
| 6.5 | Internal and external wiring | | P |
| 6.5.1 | Requirements | Approved VW-1 internal and external wiring used. | P |
| 6.5.2 | Cross-sectional area ($mm^2$) .....: | (See appended table 4.1.2) | — |
| 6.5.3 | Requirements for interconnection to building wiring .....: | | N/A |
| 6.6 | Safeguards against fire due to connection to additional equipment | | P |
| | External port limited to PS2 or complies with Clause Q.1 | Output comply with Annex Q.1 | P |

| | | | |
|---|---|---|---|
| **7** | **INJURY CAUSED BY HAZARDOUS SUBSTANCES** | | N/A |
| 7.2 | Reduction of exposure to hazardous substances | | N/A |
| 7.3 | Ozone exposure | | N/A |
| 7.4 | Use of personal safeguards (PPE) | | N/A |
| | Personal safeguards and instructions .....: | | — |
| 7.5 | Use of instructional safeguards and instructions | | N/A |
| | Instructional safeguard (ISO 7010) .....: | | — |
| 7.6 | Batteries .....: | See Annex M | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **8** | **MECHANICALLY-CAUSED INJURY** | | P |
| 8.1 | General | | P |
| 8.2 | Mechanical energy source classifications | MS1 | P |
| 8.3 | Safeguards against mechanical energy sources | No additional safeguards is needed to 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 |
| 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 .....: | | 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.....: | | N/A |
| 8.6 | Stability | | N/A |
| 8.6.1 | Product classification | MS1 | 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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) ..... : | MS1 | N/A |
| 8.7.2 | Direction and applied force..... : | | N/A |
| 8.8 | Handles strength | | N/A |
| 8.8.1 | Classification | | N/A |
| 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..... | | N/A |
| | Button/Ball diameter (mm)..... : | | — |

| | | | |
|---|---|---|---|
| **9** | **THERMAL BURN INJURY** | | P |
| 9.2 | Thermal energy source classifications | Outer enclosure is classified as TS1.<br>Internal parts are claimed as TS3. | P |
| 9.3 | Safeguard against thermal energy sources | Enclosure is used as safeguard. | P |
| 9.4 | Requirements for safeguards | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 9.4.1 | Equipment safeguard | Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions. | P |
| 9.4.2 | Instructional safeguard .....: | | N/A |

| | | | |
|---|---|---|---|
| **10** | **RADIATION** | | P |
| 10.2 | Radiation energy source classification | | P |
| 10.2.1 | General classification | RS1:indicator lights | P |
| 10.3 | Protection against laser radiation | | N/A |
| | Laser radiation that exists equipment: | | — |
| | Normal, abnormal, single-fault ..... : | | N/A |
| | Instructional safeguard ..... : | | — |
| | Tool..... : | | — |
| 10.4 | Protection against visible, infrared, and UV radiation | | P |
| 10.4.1 | General | indicator lights,exempt group | P |
| 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 ..... : | | 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 .....: | | P |
| 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: | | 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 | | — |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | maximum radiation .....: | | |
| | Abnormal and single-fault condition ..... : | | 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, unweightedr.m.s. ..... : | | N/A |
| 10.6.4 | Protection of persons | | N/A |
| | 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 (Bluetooth Headset with AM/FM Radio, Bluetooth Headset with AM/FM Radio, 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) | P |
| B.2.3 | Supply voltage and tolerances | | 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.3.2 | Covering of ventilation openings | | N/A |
| B.3.3 | D.C. mains polarity test | | N/A |
| B.3.4 | Setting of voltage selector.....: | | N/A |
| B.3.5 | Maximum load at output terminals .....: | (See appended table B.3) | P |
| B.3.6 | Reverse battery polarity | No battery used | N/A |
| B.3.7 | Abnormal operating conditions as specified in Clause E.2. | (See appended table B.3) | P |
| B.3.8 | Safeguards functional during and after abnormal operating conditions | | 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 | | N/A |
| B.4.3.1 | Motor blocked or rotor locked increasing the internal ambient temperature .....: | | N/A |
| B.4.4 | Short circuit of functional insulation | | P |
| B.4.4.1 | Short circuit of clearances for functional insulation | | P |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | | P |
| B.4.4.3 | Short circuit of functional insulation on coated printed boards | | N/A |
| B.4.5 | Short circuit and interruption of electrodes in tubes and semiconductors | (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 | | 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 ....: | (See Annex M) | N/A |
| **C** | **UV RADIATION** | | N/A |
| C.1 | Protection of materials in equipment from UV radiation | | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method | | N/A |
| C.2 | UV light conditioning test | | N/A |
| C.2.1 | Test apparatus | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure 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** | | P |
| E.1 | Audio amplifier normal operating conditions | | P |
| | 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 | | P |
| | Instructions – Language ..... : | English | — |
| F.2 | Letter symbols and graphical symbols | | P |
| F.2.1 | Letter symbols according to IEC60027-1 | | P |
| F.2.2 | Graphic symbols IEC, ISO or manufacturer specific | | P |
| F.3 | Equipment markings | | P |
| F.3.1 | Equipment marking locations | | P |
| F.3.2 | Equipment identification markings | | P |
| F.3.2.1 | Manufacturer identification ..... : | See copy of marking plate | — |
| F.3.2.2 | Model identification ..... : | See copy of marking plate | — |
| F.3.3 | Equipment rating markings | | P |
| F.3.3.1 | Equipment with direct connection to mains | | P |
| F.3.3.2 | Equipment without direct connection to mains | | N/A |
| F.3.3.3 | Nature of supply voltage ..... : | See copy of marking plate | — |
| F.3.3.4 | Rated voltage ..... : | See copy of marking plate | — |
| F.3.3.4 | 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 | | N/A |
| F.3.4 | Voltage setting device | | N/A |
| F.3.5 | Terminals and operating devices | | P |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings..... : | | N/A |
| F.3.5.2 | Switch position identification marking ..... : | In accordance with IEC 60417 | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.5.3 | Replacement fuse identification and rating markings.....: | Fuse is not replaceable by ordinary person, however fuse marking on PCB adjacent to fuse:<br>F1 T2A 250V | P |
| F.3.5.4 | Replacement battery identification marking .....: | No such battery | N/A |
| F.3.5.5 | Terminal marking location | | P |
| F.3.6 | Equipment markings related to equipment classification | | P |
| F.3.6.1 | Class I Equipment | | P |
| F.3.6.1.1 | Protective earthing conductor terminal | | P |
| F.3.6.1.2 | Neutral conductor terminal | | P |
| F.3.6.1.3 | Protective bonding conductor terminals | | N/A |
| F.3.6.2 | Class II equipment (IEC60417-5172) | | P |
| F.3.6.2.1 | Class II equipment with or without functional earth | | P |
| F.3.6.2.2 | Class II equipment with functional earth terminal marking | | N/A |
| F.3.7 | Equipment IP rating marking .....: | IPX0. | — |
| F.3.8 | External power supply output marking | | N/A |
| F.3.9 | Durability, legibility and permanence of marking | Marking label is tested in appliance | P |
| F.3.10 | Test for permanence of markings | After the test, the marking remains legible. | P |
| F.4 | Instructions | | P |
| | a) Equipment for use in locations where children not likely to be present – marking | The accessibility of equipment isevaluated using the test probe of Figure V.1 | N/A |
| | b) Instructions given for installation or initial use | The equipment is intended to be used for information technology equipment or audio/video equipment. | P |
| | c) Equipment intended to be fastened in place | | P |
| | d) Equipment intended for use only in restricted access area | | N/A |
| | e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1 | | N/A |
| | f) Protective earthing employed as safeguard | | N/A |
| | g) Protective earthing conductor current exceeding ES 2 limits | | N/A |
| | h) Symbols used on equipment | | N/A |
| | i) Permanently connected equipment not provided with all-pole mains switch | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | j) Replaceable components or modules providing safeguard function | | N/A |
| F.5 | Instructional safeguards | | N/A |
| | Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction | | N/A |
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches** | | P |
| G.1.1 | General requirements | | P |
| G.1.2 | Ratings, endurance, spacing, maximum load | Approved switch used<br>(See appended Table 4.1.2) | P |
| **G.2** | **Relays** | | P |
| G.2.1 | General requirements | | 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 | Approved fuse used | 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 .....: | | N/A |
| **G.4** | **Connectors** | | P |
| G.4.1 | Spacings | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.2 | Mains connector configuration .....: | | P |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | | P |
| **G.5** | **Wound Components** | | P |
| G.5.1 | Wire insulation in wound components ..... | (See Annex J) | P |
| G.5.1.2 a) | Two wires in contact inside wound component, angle between 45° and 90° | Separated by insulation tube | P |
| G.5.1.2 b) | Construction subject to routine testing | | N/A |
| G.5.2 | Endurance test on wound components | | 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 transformers meet the requirements given in G.5.3.2 and G.5.3.3. | P |
| | Position.....: | T1 | — |
| | Method of protection .....: | See G.5.3.3. | — |
| G.5.3.2 | Insulation | Primary windings and secondary windings are separated by Reinforced insulation (The core is considered as primary part as it is not isolated from Primary) | P |
| | Protection from displacement of windings .....: | The end-turn of each winding is fixed by insulation tape | — |
| G.5.3.3 | Overload test.....: | (See appended tables B.3) | P |
| G.5.3.3.1 | Test conditions | | P |
| G.5.3.3.2 | Winding Temperatures testing in the unit | | P |
| G.5.3.3.3 | Winding Temperatures – Alternative test method | | 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 | Triple insulated winding in transformer secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J. | P |
| G.6.2 | Solvent-based enamel wiring insulation | | N/A |
| **G.7** | **Mains supply cords** | | P |
| G.7.1 | General requirements | | P |
| | Type ..... : | See appended table 4.1.2 | — |
| | Rated current (A)..... : | See appended table 4.1.2 | — |
| | Cross-sectional area ($mm^2$), (AWG) ..... : | See appended table 4.1.2 | — |
| G.7.2 | Compliance and test method | | P |
| G.7.3 | Cord anchorages and strain relief for non-detachable power supply cords | Detachable power supply cords used | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements | | N/A |
| | Strain relief test force (N) ..... : | | — |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| 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 .....: | | 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** | | N/A |
| G.8.1 | General requirements | | N/A |
| G.8.2 | Safeguard against shock | | N/A |
| G.8.3 | Safeguard against fire | | N/A |
| G.8.3.2 | Varistor overload test .....: | | N/A |
| G.8.3.3 | Temporary overvoltage .....: | | N/A |
| **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 | Approved X2 and Y1 capacitors used | P |
| G.11.2 | Conditioning of capacitors and RC units | | P |
| G.11.3 | Rules for selecting capacitors | | P |
| **G.12** | **Optocouplers** | | P |
| | Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....: | approved optocoupler used. | P |
| | Type test voltage Vini.....: | | — |
| | Routine test voltage, Vini,b .....: | | — |
| **G.13** | **Printed boards** | | P |
| G.13.1 | General requirements | | P |
| G.13.2 | Uncoated printed boards | | P |
| G.13.3 | Coated printed boards | | 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.....: | | 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 .....: | | N/A |
| **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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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 sc5.4.8 – 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 | | 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 |
| 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 | | P |
| **K** | **SAFETY INTERLOCKS** | | N/A |
| K.1 | General requirements | | N/A |
| K.2 | Components of safety interlock safeguard mechanism ..... | | N/A |
| K.3 | Inadvertent change of operating mode | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| K.4 | Interlock safeguard override | | N/A |
| K.5 | Fail-safe | | N/A |
| | Compliance .....: | | 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 .....: | | N/A |
| **L** | **DISCONNECT DEVICES** | | P |
| L.1 | General requirements | Appliance coupler as disconnect devices. | P |
| L.2 | Permanently connected equipment | | N/A |
| L.3 | Parts that remain energized | The ACCESSIBLE voltage measured 2 s after disconnection of the plug comply with the ES1 limits of Table 5 under NORMAL/ SINGLE FAULT OPERATING CONDITIONS for an ORDINARY PERSON. | P |
| L.4 | Single phase equipment | | P |
| L.5 | Three-phase equipment | | N/A |
| L.6 | Switches as disconnect devices | | P |
| 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 | | N/A |
| M.2 | Safety of batteries and their cells | | N/A |
| M.2.1 | Requirements | The battery pack and its cell complied with IEC 62133 (See append table 4.1.2) | 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - Unintentional charging of a non-rechargeable battery | No such battery used | N/A |
| | - Reverse charging of a rechargeable battery | | N/A |
| | - Excessive discharging rate for any battery | (See append table Annex M.3) | N/A |
| M.3.3 | Compliance ..... : | (See append table Annex M.3) | 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 append table Annex M.4) | — |
| M.4.2.2 b) | Single faults in charging circuitry ..... : | (See append table Annex M.4) | — |
| M.4.3 | Fire Enclosure | PS1 | 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 |
| M.6.1.2 | Test method to simulate an internal fault | Component cell complied with IEC62133 2nd. And UL1642 approved component and complied with Impact test. whose test condition and criteria can cover those in IEC62281 Impact test. | 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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) ..... : | Mentioned in user manual. | N/A |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | N/A |
| | Metal(s) used ..... : | | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | P |
| | Figures O.1 to O.20 of this Annex applied..... : | Considered | — |
| **P** | **SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS** | | P |
| P.1 | General requirements | No opening | P |
| P.2.2 | Safeguards against entry of foreign object | | P |
| | Location and Dimensions (mm) ..... : | No opening | — |
| 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 |
| | Transportable equipment with metalized plastic parts ..... : | | N/A |
| P.2.3.2 | Openings in transportable equipment in relation to 35etalized 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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 ..... : | | N/A |
| P.4.2 c) | Mechanical strength testing ..... : | | N/A |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | N/A |
| Q.1 | Limited power sources | | N/A |
| 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 | | N/A |
| 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 | See appended table Annex Q.1 | 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 |
| 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 |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - 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 | | 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 |
| | 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 .....: | | N/A |
| T.4 | Steady force test, 100 N .....: | | 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 | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| T.7 | Drop test .....: | (See appended table T.7) | N/A |
| T.8 | Stress relief test .....: | | N/A |
| 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 .....: | | 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 | | N/A |
| U.2 | Compliance and test method for non-intrinsically protected CRTs | | N/A |
| U.3 | Protective Screen .....: | | N/A |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)** | | P |
| V.1 | Accessible parts of equipment | | P |
| V.2 | Accessible part criterion | | P |

| 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]** |
| Power cord | Guangdong Hongshanchuan Electronic Technology Co., Ltd. | H03VVH2-F<br>H05VVH2-F | 2 x 0.5mm²<br>2 x 0.75mm² | EN50525-2-11（VDE 0285-525-2-11）：2012-01；EN50525-2-11：2011 | VDE 40037206 |
| (Alternative) | Shenzhen Henglide Industry Co., Ltd. | H03VVH2-F<br>H05VVH2-F | 2 x 0.5mm²<br>2 x 0.75mm² | EN50525-2-1（VDE 0285-525-2-11）：2012-01；EN50525-2-11：2011 | VDE 40047119 |
| Power plug | Guangdong Hongshanchuan Electronic Technology Co., Ltd | HSC-401 | 2.5A, AC 250V | EN50075:1990 | VDE 40020005 |
| (Alternative) | SHENZHEN HONG YUN ELECTRON CO LTD | HYP-201 | 2.5A, AC 250V | EN50075:1990 | VDE 40021944 |
| AC Inlet | Yueqing Lihe Electronics Co.,Ltd., | LH-8 | AC 250V,2.5A | IEC 60320-1:2015 | VDE 40048401 |
| Power switch | Yueqing Weite Electronico., Ltd | KCD1 | 6A 250VAC 10A 125VAC | EN 61058 | VDE 40029666 |
| Internal wire | SHENZHEN JIAHUIDA ELECTRONICS CO LTD | 1007 | Rated 80°C, 300V, Min.28AWG, VW-1 | UL758 | UL E361915 |
| -Alternative | ZI LI ELECTRONIC | 2468 | Rated 105°C, 300V, Min.28AWG, VW-1 | UL758 | UL E254016 |
| -Alternative | Interchangeable | Interchangeable | Rated 105°C, 300V, Min.28AWG, VW-1 | UL 758 | UL |
| PCB | ZHUHAI DUOQIAN ELECTRONIC CO LTD | XJ-M | V-0, 130℃ | UL796 | UL E489133 |
| (Alternative) | Interchangeable | Interchangeable | V-0, 130°C | UL 796 | UL |
| Fuse (FUSE1) | Littelfuse, Inc. | 392 | T2A250 VAC | IEC/EN60127-1<br>IEC/EN60127-3 | VDE 126983 |

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

| | | | | | |
|---|---|---|---|---|---|
| X-capacitor (C13) | Tenta Electric Industrial Co. Ltd. | MEX | 0,22 µF, 275VAC, 40/100/21B, X2 | IEC 60384-14 EN 60384-14 | VDE 119119 |
| (Alternative) | SHENZHEN WEIDY INDUSTRIAL DEVELOPMENT CO., LTD. | MKP | 0.22UF K310VAC X2 40/110 | EN/IEC:60384-14 | UL E334332 |
| Y-cap (C11) | Jyh Chung Electronic Co., Ltd. | JD | Max:2200 pF, Min:250VAC, 40/125/21C, Y1 | IEC 60384-14 EN 60384-14 | VDE 137027 |
| (Alternative) | JYA-NAY CO., LTD. | JN | Max:2200 pF Min:250VAC 25/125/21C, Y1 | EN 60384-14 | TUV R50232059 UL E201384 |
| Optocoupler (U2) | Zhuhai Dapeng Electronics Technology Co. Ltd. | DPC-817C | Int. Cr / Ext. Cr / Dti. ≥7,6 mm / ≥7,6 mm / ≥0,4 mm, 110 °C | IEC 60747-5-5 EN 60747-5-5 | VDE 40038417 |
| (Alternative) | COSMO Electronics Corporation | KPC817 | Int. CR / Ext. CR / Dti. ≥5,2 mm / ≥5,2 mm / ≥0,4 mm, 110 °C | IEC 60747-5-5 EN 60747-5-5 | VDE 101347 |
| (Alternative) | Hubei Kento Electronic Stock Corporation | JC817 (A,B,C,D) | Int. Cr / Ext. Cr / Dti. ≥5,0 mm / ≥5,0 mm / ≥0,4 mm, 110 °C | IEC 60747-5-5 EN 60747-5-5 | VDE 40037109 |
| Material of pluggable connector | ZHEJIANGJINDA ELECTRONICS CO LTD | VH-3A | 250VAC,7A | IEC/EN 62368-1 | UL E237523 |
| Line filter (FL1) | SHENZHEN PIN ZHENG WANG ELECTRONIC CO., LTD | T9*5*3 800uH | N1 (1-4): 0,35 mm x 1P 14,5Ts, N2 (2-3): 0,30 mm x 1P 14,5Ts | EN 60065 | Tested with appliance |
| - Wire | DONG GUAN YIDA INDUSTRIAL CO LTD | xUEW/130 | 130°C | UL 1446 | UL E344055 |
| - Triple insulated wire | SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD | TIW-B | 130°C, reinforced insulation | UL 2353 | UL E357240 |

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

| | | | | | |
|---|---|---|---|---|---|
| Line filter (FL2) | SHENZHEN HAO FENG DA ELECTRONIC CO., LTD | SQ1212 15mH | N1 (1-4): 0,1 mm x 1,0 52Ts, N2 (2-3): 0,1 mm x 1,0 52Ts, | EN 60065 | Tested with appliance |
| -Wire | WUXI JUFENG COMPOUND LINE CO LTD | xUEW155 | 155°C | UL 1446 | UL E206882 |
| - Bobbin | CHANG CHUN PLASTICS CO LTD | T375HF | Phenolic, V-0, Min. 150°C, min. 0.75mm | UL 746, UL 94 | UL E59481 |
| Bleed resistor R20,R21,R28,R26 | Interchangeable | Interchangeable | resistance：1.5MΩ POWER：0.125W | IEC/EN 62368-1 | Tested in equipment |
| Electrolytic Capacitor (C1) | Interchangeable | Interchangeable | Max.33μF~68uF, Min.105°C, Min. 400V | IEC/EN 62368-1 | Tested in equipment |
| Transformer (T1) | SHAN TOU XIN KE ELECTRONIC CO., LTD | PZW-H80C EC2820-P2620 | Class B | IEC62368-1 | Tested with appliance |
| - Magnet wire | SHENZHEN CHENGWEI INDUSTRY CO LTD | (x)UEW-E-(&)-(*) | 130°C | UL | UL E227475 |
| -Triple insulated wire | Suzhou Yusheng Electronic Co., Ltd. | TIW-B | Min. 130°C | IEC62368-1 Annex J, UL 60950-1 | UL E332529 VDE 40033527 |
| -BOBBIN | CHANG CHUN PLASTICS CO.,LTD | T373J/T375J | Phenolic:V-0, Min 150°C | UL94, UL746 | UL E59481 |
| -Insulating Tape | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD | PZ* (b) | 130°C/ YELLOW | UL510A | UL E165111 |
| -Tube | SHENZHEN WOER HEAT SHRINKABLE MATERIAL CO LTD | WF | 200°C, VW-1 | UL 224 | UL E203950 |
| -Varnish | HANG CHEUNG COATINGS (HUIYANG) LTD | 8562* | 155°C | UL 1446 | UL E200154 |
| Glue | Interchangeable | Interchangeable | Min. V-2 | UL 94 | UL |

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

| 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.)**

| **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** | | — |
|---|---|---|---|
| **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:

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

| 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 | 253V/50Hz | All primary circuit components and parts | Normal | 253Vrms | -- | 50 | ES1 |
| | | | Abnormal--over-load | -- | -- | 50 | |
| | | | Single fault – SC/OC | -- | -- | 50 | |
| 2 | 253V/50Hz | Power supply output + to - | Normal | 26.13V | -- | DC | ES1 |
| | | | Abnormal – Output overload | 26.13V | -- | DC | |
| | | | Single fault –U2 pin1-2 ,SC | 0 | -- | DC | |
| | | | Single fault –U2 pin2-3 ,SC | 0 | -- | DC | |
| | | | Single fault –U2 pin1 ,OC | 0 | -- | DC | |
| | | | Single fault –U2 pin3,OC | 0 | -- | DC | |
| | | | Single fault –U1 pin2-5,SC | 0 | -- | DC | |
| | | | Single fault –U1 pin1-5,SC | 0 | -- | DC | |
| | | | Single fault – C9,SC | 0 | -- | DC | |
| 3 | 253V/50Hz | Plastic enclosure to earth | Normal | -- | 0.179mApk | 50 | ES1 |
| | | | Abnormal – Output overload | -- | 0.179mApk | 50 | |
| | | | Single fault –U2 pin1-2 ,SC | -- | 0.179mApk | 50 | |
| | | | Single fault –U2 pin2-3 ,SC | -- | 0.179mApk | 50 | |
| | | | Single fault –U2 | -- | 0.179mApk | 50 | |

| IEC 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | Result - Remark | | | Verdict |
| | | | pin1 ,OC | | | | |
| | | | Single fault –U2 pin3,OC | -- | 0.179mApk | 50 | |
| | | | Single fault –U1 pin2-5,SC | -- | 0.179mApk | 50 | |
| | | | Single fault –U1 pin1-5,SC | -- | 0.179mApk | 50 | |
| | | | Single fault – C9,SC | -- | 0.179mApk | 50 | |
| 4 | 253V/50Hz | USB “+”, “-” to earth | Normal | -- | 0.05mApk | 50 | ES1 |
| | | | Abnormal – Output overload | -- | 0.05mApk | 50 | |
| | | | Single fault –U2 pin1-2 ,SC | -- | 0.05mApk | 50 | |
| | | | Single fault –U2 pin2-3 ,SC | -- | 0.05mApk | 50 | |
| | | | Single fault –U2 pin1 ,OC | -- | 0.05mApk | 50 | |
| | | | Single fault –U2 pin3,OC | -- | 0.05mApk | 50 | |
| | | | Single fault –U1 pin2-5,SC | -- | 0.05mApk | 50 | |
| | | | Single fault –U1 pin1-5,SC | -- | 0.05mApk | 50 | |
| | | | Single fault – C9,SC | -- | 0.05mApk | 50 | |

5.2.2.3 - Capacitance Limits

| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | ES Class |
|---|---|---|---|---|---|---|
| | | | | Capacitance, nF | Upk (V) | |
| 1 | 264 Vac | L-N (CX) | Normal | 0.22uF±10% | 310 | ES3 |

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 | -- | -- | -- | |

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

| 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:<br>Normal –<br>Abnormal -<br>Supplementary information: | | | | | | | |
| SC=Short Circuit, OC=Short Circuit. | | | | | | | |

| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Temperature measurements** | | | | | P |
|---|---|---|---|---|---|---|
| | Supply voltage (V) ..... | 207V/50Hz | 253V/50Hz | -- | -- | — |
| | Ambient $T_{min}$ (°C) ..... | -- | -- | -- | -- | — |
| | Ambient $T_{max}$ (°C) ..... | -- | -- | -- | -- | — |
| | Tma (°C) ..... | See below | See below | -- | -- | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | Allowed $T_{max}$ (°C) |
| Internal wire | | 54.4 | 69.7 | -- | -- | 105 |
| AC connector(*) | | 59.9 | 63.4 | -- | -- | 70 |
| LF1 Winding(*) | | 73.5 | 98.6 | -- | -- | 130 |
| LF2 Winding(*) | | 73.0 | 86.5 | -- | -- | 130 |
| C13 body(*) | | 68.0 | 83.7 | -- | -- | 100 |
| C1 body(*) | | 88.9 | 94.0 | -- | -- | 105 |
| PCB near U1(*) | | 103.8 | 112.5 | -- | -- | 130 |
| PCB near U3(*) | | 108.0 | 115.6 | -- | -- | 130 |
| T1 coil(*) | | 88.8 | 100.9 | -- | -- | 110 |
| T1 core(*) | | 77.4 | 89.7 | -- | -- | Ref. |
| U2 body(*) | | 85.7 | 97.3 | -- | -- | 100 |
| PCB near U2(#) | | 114.7 | 126.8 | -- | -- | 130 |
| C1 body (#) | | 88.4 | 98.5 | -- | -- | 105 |
| Metal inside enclosure | | 80.3 | 88.4 | -- | -- | Ref. |
| Metal outside enclosure | | 55.4 | 57.2 | -- | -- | 60 |

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

| | | | | | |
|---|---|---|---|---|---|
| Ambient | 25.0 | 25.0 | -- | -- | -- |

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:
Note 1: Tma should be considered as directed by appliable requirement
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

| 5.4.1.10.2 | TABLE: Vicatsoftening 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) .....: | 2mm | | — |
| Object/Part No./Material | Manufacturer/trademark | Test temperature (°C) | Impression diameter (mm) |
| AC inlet | See table 4.1.2 | 125 | 1.0 |

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) |
| Line to neutral before fuse(FUSE1) (BI) | 420 | 240 | 60Hz | 1.27 | 4.2 | 2.4 | 4.2 |
| Different polarity of fuse (FUSE1)(BI) | 420 | 240 | 60Hz | 1.27 | 3.2 | 2.4 | 3.2 |
| Primary trace to secondary trace across C11 on PCB (RI) | 420 | 240 | 60Hz | 2.54 | 7.4 | 4.8 | 7.4 |
| Primary trace to secondary trace of U2 (RI) | 420 | 240 | 60Hz | 2.54 | 6.4 | 4.8 | 6.4 |

| IEC 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | Result - Remark | | | Verdict |
| Primary trace to secondary trace of T1 (RI) | 468 | 248 | 104.1kHz | 2.54 | 14.9 | 5.0 | 14.9 |
| Primary winding to secondary pins of T1 (RI) | 468 | 248 | 104.1kHz | 2.54 | 13.2 | 5.0 | 13.2 |
| Secondary pins to core of T1 (RI) | 468 | 248 | 104.1kHz | 2.54 | 12.6 | 5.0 | 12.6 |
| Supplementary information:<br>F= Functional insulation, B= Basic insulation, S= Supplementary insulation, R= Reinforced insulation. | | | | | | | |

| **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) |
| Functional insulation<br>(See table 5.4.2.2, 5.4.2.4 and 5.4.3) | | 2500Vdc | 1.5 | See table 5.4.2.2, 5.4.2.4 and 5.4.3 |
| Reinforced insulation<br>(See table 5.4.2.2, 5.4.2.4 and 5.4.3) | | 2500Vdc | 3.0 | See table 5.4.2.2, 5.4.2.4 and 5.4.3 |
| Supplementary information: | | | | |

| **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) | |
| Bobbin of T1 | 468 | 104.1kHz | SeeTable 4.1.2 | Min.0.4 | Min. 0.51mm | |
| Insulation tape | 468 | 104.1kHz | See Table 4.1.2 | 2 layers min. | 2 layers min. | |
| Supplementary information:<br>Note 1: Electric strength tests are also conducted after sub-clause 5.4.8 for all sources. | | | | | | |

| **5.4.9** | **TABLE: Electric strength tests** | P |
|---|---|---|

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

| Test voltage applied between: | Voltage shape (AC, DC) | Test voltage (V) | Breakdown Yes / No |
|---|---|---|---|
| Functional: | | | |
| Line and neutral after current fuse opened | DC | 2500 | No |
| L/N to metal enclosure with metal foil | DC | 2500 | No |
| Basic/supplementary: | | | |
| -- | -- | -- | -- |
| Reinforced: | | | |
| Primary winding to secondary winding of T1 | DC | 4000 | No |
| Core to secondary winding of T1 | DC | 4000 | No |
| One layer insulation tape of T1 | DC | 4000 | No |
| Routine Tests: | | | |
| -- | -- | -- | -- |
| Supplementary information:<br>1. Core of transformers T1 is considered as primary part.<br>2. Above test performed immediately after the humidity test.<br>3. All materials listed in table 4.1.2 are tested.<br>4. For the unit, test performed immediately following temperature test in 5.4.1.4<br>5. The DC voltage source was performed on all testing once in forward and once in reverse. | | | |

| **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 |
| 253V, 50Hz | Phase to Neutral | N | On | 16V | ES1 |
| 253V, 50Hz | Phase to Neutral | N | off | 16V | ES1 |
| 253V, 50Hz | Phase to Neutral | S (R28 opened) | On | 18V | ES1 |
| 253V, 50Hz | Phase to Neutral | S (R28 opened) | off | 18V | ES1 |
| Supplementary information: | | | | | |

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

X-capacitors installed for testing are: CX=0.22μF±10%

[X ] bleeding resistor rating: R20= R21= R26= R28=1.5MΩ

[ ] 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 |
|---|---|---|---|---|---|
| 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) |
| Line/Neutral to metal enclosure | 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.

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

| 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 |
| All primarily circuits components and parts | Worst-case fault | Power (W) : | -- | -- | PS3(declare) |
| | | $V_A$ (V) : | -- | -- | |
| | | $I_A$ (A) : | -- | -- | |
| Supplementary Information:<br>(*) Measurement taken only when limits at 3 seconds exceed PS1 limits.<br>(**) For worst case power source fault results are shut down.<br>SC=Short circuit, OC=Open circuit | | | | | |

| 6.2.3.1 | Table: Determination of Potential Ignition Sources (Arcing PIS) | | | P |
|---|---|---|---|---|
| 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 |
| All internal primary circuits and components | -- | -- | -- | Yes |
| Supplementary information:<br><br>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. | | | | |

| 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 |
| All internal primary circuits and components | -- | -- | -- | -- | Yes |
| Supplementary Information:<br><br>A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.<br>If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.<br>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. | | | | | |

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

| 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_ |
| Max particle length beyond 1 m (mm).....: | | | MS_ |
| Overall result .....: | | | |
| Supplementary information: | | | |

| B.2.5 | TABLE: Input test | | | | | | P |
|---|---|---|---|---|---|---|---|
| U (V) | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status |
| 207V/50Hz | 4.19 | -- | 660.9 | -- | F1 | 4.19 | Normal operation, 1kHz signal adjusted to 1/8 max. available output power. |
| 230V/50Hz | 3.85 | -- | 668.2 | -- | F1 | 3.85 | |
| 253V/50Hz | 3.45 | -- | 659.8 | -- | F1 | 3.45 | |
| Supplementary information:<br>Equipment may be have rated current or rated power or both. Both should be measured. | | | | | | | |

| B.3 | TABLE: Abnormal operating condition tests | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) .....: | | | | | | See below | | — |
| Power source for EUT: Manufacturer, model/type, output rating .: | | | | | | -- | | — |
| Component No. | Abnormal Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| Speaker | Maximum available output power | 253V/50Hz | 2h50mins | FUSE1 | 0.109A → 0.312A | -- | -- | Normal operation, no damaged, no hazard.<br>Touch current: 0.179mApeak |

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

| B.3 | TABLE: Abnormal operating condition tests | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) .....: | | | | See below | | | | — |
| Power source for EUT: Manufacturer, model/type, output rating .: | | | | -- | | | | — |
| Component No. | Abnormal Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| Speaker | SC | 253V/50Hz | 2h50mins | FUS E1 | 0.109A → 0.110A | -- | -- | Normal operation, no damaged, no hazard. Touch current: 0.179mApeak |
| Transformer (T1) output after C8 | Overload | 253V/50Hz | 5h50mins | FUS E1 | 0.109A → 0.378A→ 0.674A→ 0.767A→ 0.002A | -- | -- | Unit shut down and can recoverable, no damaged, no hazard. Touch current: 0.179mApk |
| Supplementary information: | | | | | | | | |
| Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4. [x] During single fault operating condition test, the output voltage did not increase by more than 3V or 10% which one is higher of its rated output voltage under normal operating condition (For USB outlet or connector), [] During single fault operating condition test, the output voltage did not increase by more than 10% of its rated output voltage under normal operating condition (For other outlet or connector at ES1) | | | | | | | | |

| B.4 | TABLE: Fault condition tests | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) .....: | | | | -- | | | | — |
| Power source for EUT: Manufacturer, model/type, output rating .: | | | | -- | | | | — |
| Component No. | Fault Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| D1 pin AC to“+” | SC | 253V/50Hz | 1s | FUS E1 | 0.109 →0 | -- | -- | F1 opened immediately, no hazard. Touch current: 0.179mApk |
| C1 | SC | 253V/50Hz | 1s | FUS E1 | 0.109 →0 | -- | -- | F1 opened immediately, no hazard. |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Touch current: 0.179mApk |
| U1 pin2-5 | SC | 253V/50Hz | 1s | FUSE1 | 0.109 →0 | -- | -- | F1 opened immediately, no hazard. Touch current: 0.179mApk |
| U1 pin1-5 | SC | 253V/50Hz | 1s | FUSE1 | 0.109 →0 | -- | -- | F1 opened immediately, no hazard. Touch current: 0.179mApk |
| Q1 pin G-D | SC | 253V/50Hz | 1s | FUSE1 | 0.109 →0 | -- | -- | F1 opened immediately, no hazard. Touch current: 0.179mApk |
| Q1 pin S-D | SC | 253V/50Hz | 1s | FUSE1 | 0.109 →0 | -- | -- | F1 opened immediately, no hazard. Touch current: 0.179mApk |
| Q1 pin G-S | SC | 253V/50Hz | 1s | FUSE1 | 0.109 →0.002 | -- | -- | Unit shutdown immediately, no damage, no hazard. Touch current: 0.179mApk |
| U2 pin1-2 | SC | 253V/50Hz | 10mins | FUSE1 | 0.109 →0.002 | -- | -- | Unit shutdown immediately, no damage, no hazard. Touch current: 0.179mApk |
| U2 pin2-3 | SC | 253V/50Hz | 10mins | FUSE1 | 0.109 →0.002 | -- | -- | Unit shutdown immediately, no damage, no hazard. Touch current: 0.179mApk |
| U2 pin1 | SC | 253V/50Hz | 10mins | FUSE1 | 0.109 →0.002 | -- | -- | Unit shutdown immediately, no damage, no hazard. Touch current: 0.179mApk |
| U2 pin3 | SC | | 10mins | FUSE1 | 0.109 | -- | -- | Unit shutdown immediately, no |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 253V/50Hz | | | →0.002 | | | damage, no hazard.<br>Touch current: 0.179mApk |
| C9 | SC | 253V/50Hz | 10mins | FUS E1 | 0.109<br>→0.002 | -- | -- | Unit shutdown immediately, no damage, no hazard.<br>Touch current: 0.179mApk |

Supplementary information:

1. After each of above test, unit can pass the dielectric strength test specified in table 5.4.9.
2. Alternate fuse was tested for each fault if the fuse is operated, the same results.
3. No ignition during and after all tests.
4. Output voltage comply with ES1 during and after all tests.
5. S-C=Short Circuit, O-C=Open Circuit.

[x] During single fault operating condition test, the output voltage did not increase by more than 3V or 10% which one is higher of its rated output voltage under normal operating condition (For USB outlet or connector),

[] During single fault operating condition test, the output voltage did not increase by more than 10% of its rated output voltage under normal operating condition (For other outlet or connector at ES1)

| **Annex M** | **TABLE: Batteries** | | N/A |
|---|---|---|---|
| The tests of Annex M are applicable only when appropriate battery data is not available | | | N/A |
| Is it possible to install the battery in a reverse polarity position?.....: | | No | N/A |

| | 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 | -- | N/A |
| - Explosion of the battery | -- | N/A |
| - Emission of flame or expulsion of molten metal | -- | N/A |
| - Electric strength tests of equipment after completion of tests | No | N/A |

Supplementary information:

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

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

| Battery/Cell No. | Test conditions | Measurements | | | Observation |
|---|---|---|---|---|---|
| | | U (V) | I (A) | Temp (C) | |
| -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- |

Supplementary Information:

| 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)** | N/A |
|---|---|---|

Note: Measured UOC (V) with all load circuits disconnected:

| Output Circuit | Components | $U_{oc}$ (V) | $I_{sc}$ (A) | | S (VA) | |
|---|---|---|---|---|---|---|
| | | | Meas. | Limit | Meas. | Limit |
| | | | | 8 | | 100 |
| | | | | 8 | | 100 |

Supplementary Information:

| **T.2, T.3, T.4, T.5** | **TABLE: Steady force test** | P |
|---|---|---|

| Part/Location | Material | Thickness (mm) | Force (N) | Test Duration (sec) | Observation |
|---|---|---|---|---|---|
| Internal component or part | -- | -- | 10 | 5 | No damage, no hazard |
| Enclosure (Top) | See table 4.1.2 | Min.1.5 | 250 | 5 | No damage,no hazard |
| Enclosure (Bottom) | See table 4.1.2 | Min.1.5 | 250 | 5 | No damage, no hazard |

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

| | | | | | |
|---|---|---|---|---|---|
| Enclosure (side) | See table 4.1.2 | Min.1.5 | 250 | 5 | No damage, no hazard |
| Supplementary information:N/A. | | | | | |

| T.6, T.9 | TABLE: Impact tests | | | P |
|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Vertical distance (mm) | Observation |
| Plastic enclosure (Top) | See appended table 4.1.2 | 1.5 | 1300 | All safeguards remain effective. |
| Plastic enclosure (Side) | See appended table 4.1.2 | 1.5 | 1300 | All safeguards remain effective. |
| Plastic enclosure (Bottom) | See appended table 4.1.2 | 1.5 | 1300 | All safeguards remain effective. |
| Supplementary information:N/A | | | | |

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

| T.8 | TABLE: Stress relief test | | | | P |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation |
| Enclosure | See appended table 4.1.2 | Min.1.5 | 70 | 7 | No damage, no hazard |
| Supplementary information:N/A. | | | | | |

| IEC 62368-1 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_1B_II |
| **Attachment Originator .....**: | Nemko AS |
| **Master Attachment** .....: | Date 2017-09-22 |

**Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.**

| | | |
|---|---|---|
| | **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:<br>Annex ZA (normative) Normative references to international publications with their corresponding European publications<br>Annex ZB (normative) Special national conditions<br>Annex ZC (informative) A-deviations<br>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.** | | -- |
| 1 | **Add** the following note:<br>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU. | | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.Z1 | **Add** the following new subclause after 4.9:<br>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):<br>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,<br>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,<br>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.<br>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | | P |
| 5.4.2.3.2.4 | **Add** the following to the end of this subclause:<br>The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009. | No connection to external circuit. | N/A |
| 10.2.1 | Add the following to [c] and [d] in table 39:<br>For additional requirements, see 10.5.1. | No radiation. | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.5.1 | **Add** the following after the first paragraph:<br>*For RS 1 compliance is checked by measurement under the following conditions:*<br>*In addition to the normal operating conditions, all controls Bluetooth headphonefrom 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.*<br>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.<br>*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.*<br>*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.*<br>*For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.*<br>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996. | Added. | N/A |
| 10.6.1 | **Add** the following paragraph to the end of the subclause:<br>EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply. | Added. | N/A |
| 10.Z1 | **Add** the following new subclause after 10.6.5.<br>**10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz**<br>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).<br>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:<br>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD. | Added. | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Bibliography | **Add** the following standards:<br>**Add** the following notes for the standards indicated:<br>IEC 60130-9 NOTE Harmonized as EN 60130-9.<br>IEC 60269-2 NOTE Harmonized as HD 60269-2.<br>IEC 60309-1 NOTE Harmonized as EN 60309-1.<br>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.<br>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.<br>IEC 60664-5 NOTE Harmonized as EN 60664-5.<br>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).<br>IEC 61508-1 NOTE Harmonized as EN 61508-1.<br>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.<br>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.<br>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.<br>IEC 61643-1 NOTE Harmonized as EN 61643-1.<br>IEC 61643-21 NOTE Harmonized as EN 61643-21.<br>IEC 61643-311 NOTE Harmonized as EN 61643-311.<br>IEC 61643-321 NOTE Harmonized as EN 61643-321.<br>IEC 61643-331 NOTE Harmonized as EN 61643-331. | | N/A |
| **ZB** | **ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)** | | -- |
| 4.1.15 | **Denmark, Finland, Norway** and **Sweden**<br>To the end of the subclause the following is added:<br>**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.<br>The marking text in the applicable countries shall be as follows:<br>In **Denmark**: “Apparatetsstikpropskaltilsluttes en stikkontakt med jordsom giver forbindelsetilstikproppensjord.”<br>In **Finland**: "Laite on liitettäväsuojakoskettimillavarustettuunpistorasiaan"<br>In **Norway**: “Apparatetmåtilkoplesjordetstikkontakt”<br>In **Sweden**: “Apparatenskallanslutas till jordatuttag” | Class III equipment. | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3 | **United Kingdom**<br>To the end of the subclause the following is added:<br>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**<br>After the 2nd paragraph add the following:<br>A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | No high touch currentmeasured. | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.11.1 and Annex G | **Finland and Sweden**<br>To the end of the subclause the following is added:<br>For separation of the telecommunication network from earth the following is applicable:<br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br>• two layers of thin sheet material, each of which shall pass the electric strength test below, or<br>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br>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<br>• 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<br>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.<br>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.<br>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:<br>• 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,<br>• the additional testing shall be performed on all the test specimens as described in EN 60384-14,<br>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. | No connection to such network. | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.5.2.1 | **Norway**<br>After the 3rd paragraph the following is added:<br>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**<br>To the end of the subclause the following is added:<br>Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipmenttype A** shall comply with G.10.1 and the test of G.10.2. | No such resistor used. | N/A |
| 5.6.1 | **Denmark**<br>**Add** to the end of the subclause<br>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.<br>*Justification:*<br>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse. | Added. | N/A |
| 5.6.4.2.1 | **Ireland and United Kingdom**<br>After the indent for **pluggable equipment type A**, the following is added:<br>– the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug. | Added. | N/A |
| 5.6.5.1 | To the second paragraph the following is added:<br>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:<br>1,25 $mm^2$ to 1,5 $mm^2$ in cross-sectional area. | | N/A |
| 5.7.5 | **Denmark**<br>To the end of the subclause the following is added:<br>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 |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.6.1 | **Norway and Sweden**<br>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)”<br>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):<br>“Apparatersomerkoplettilbeskyttelsesjord via nettpluggog/eller via annetjordtilkopletutstyr – ogertilkoplet et koaksialbasertkabel-TV nett, kanforårsakebrannfare. For å unngådetteskaldetvedtilkoplingavapparatertilk abel-TV nettinstalleres en galvanisk isolator mellomapparatetogkabel-TV nettet.”Translation toSwedish:”Apparatersomärkopplad till skyddsjord via jordatvägguttagoch/eller via annanutrustningochsamtidigtärkopplad till kabel-TV nätkan i vissa fall medföra risk för brand. Förattundvikadettaskall vid anslutningavapparaten till kabel-TV nätgalvanisk isolator finnasmellanapparatenochkabel-TV nätet.”. | | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.6.2 | **Denmark**<br>To the end of the subclause the following is added:<br>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**<br>The following is applicable:<br>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**<br>To the end of the subclause the following is added:<br>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.<br>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.<br>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.<br>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.<br>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.<br>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<br>*Justification:*<br>Heavy Current Regulations, Section 6c | | N/A |

| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.2 | **United Kingdom**<br>To the end of the subclause the following is added:<br>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**<br>To the first paragraph the following is added:<br>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.<br>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**<br>To the first paragraph the following is added:<br>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**<br>To the first paragraph the following is added:<br>A power supply cord with a conductor of 1,25 $mm^2$ is allowed for equipment which is rated over 10 A and up to and including 13 A. | | N/A |
| **ZC** | **ANNEX ZC, NATIONAL DEVIATIONS (EN)** | | -- |

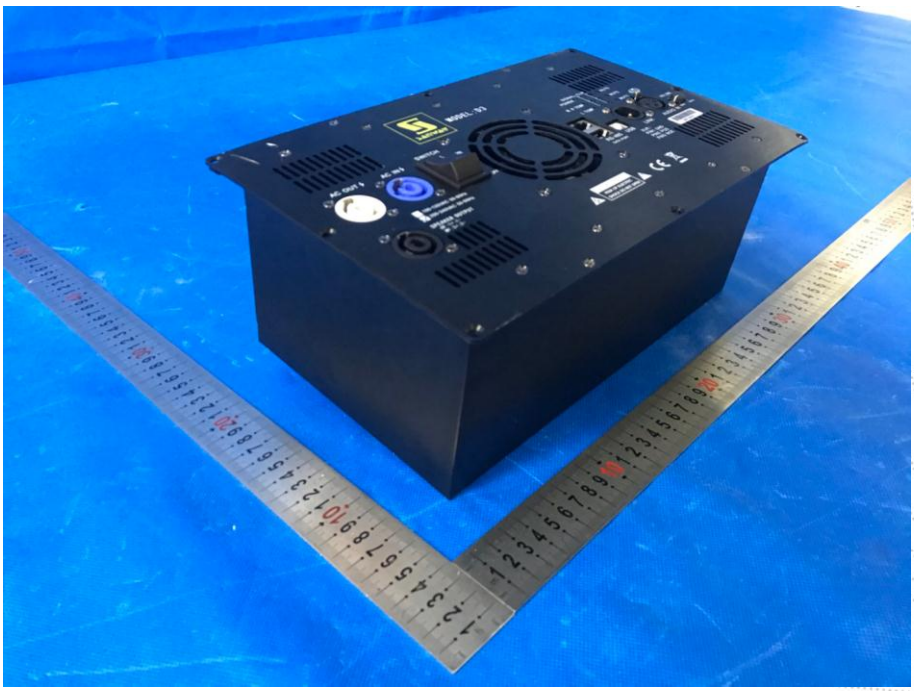
| IEC 62368-1 Attachment | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.5.2 | **Germany**<br>The following requirement applies:<br>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.<br>*Justification:*<br>German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.<br>**NOTE** Contact address:<br>Physikalisch-TechnischeBundesanstalt, Bundesallee 100,<br>D-38116 Braunschweig,<br>Tel.: Int +49-531-592-6320,<br>Internet: http://www.ptb.de | Not such equipment. | N/A |

Product photos

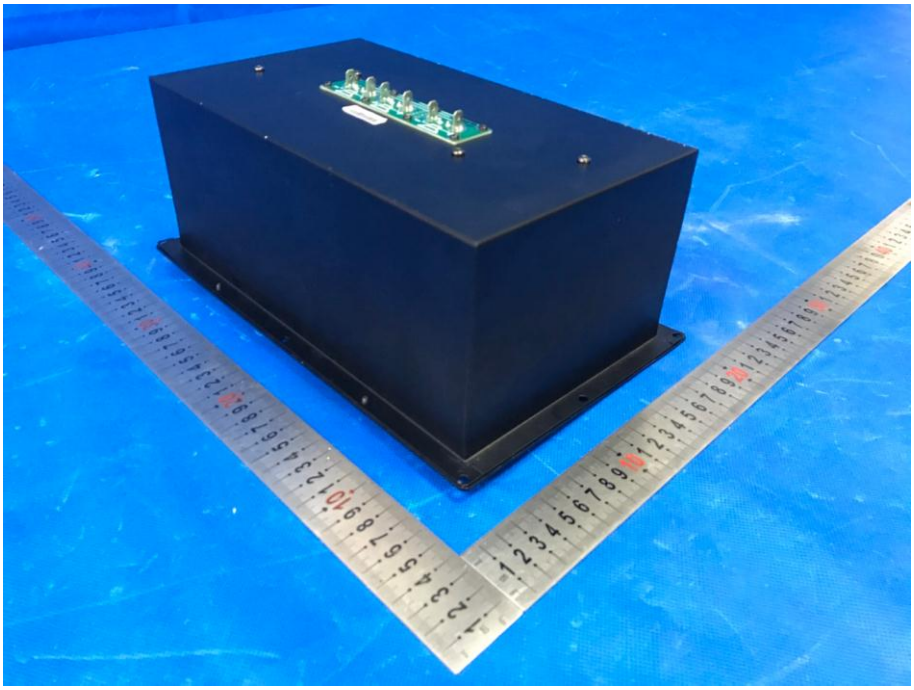
**EUT PHOTO 1**



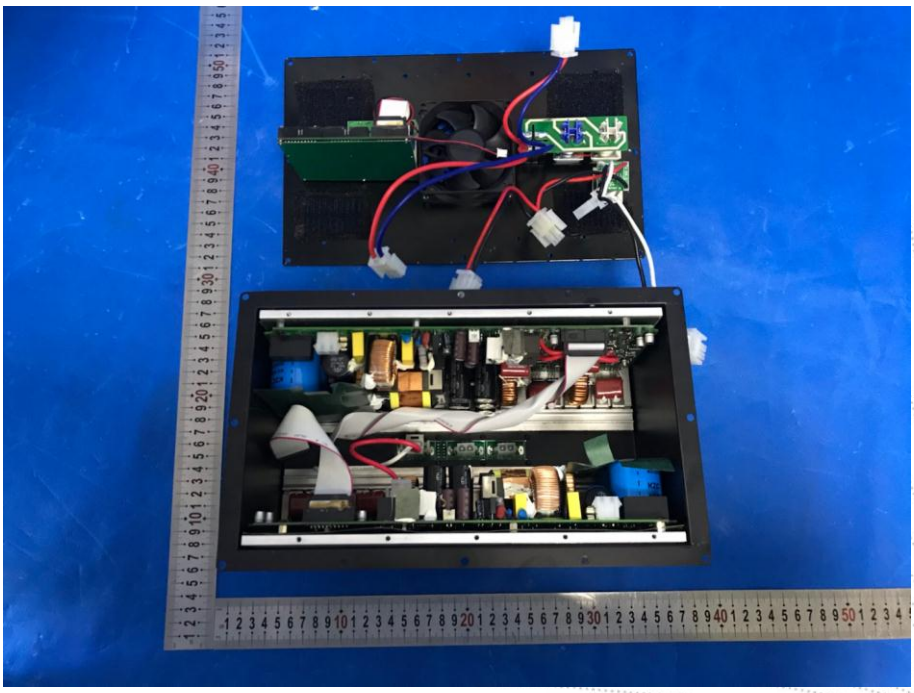

**EUT PHOTO 2**



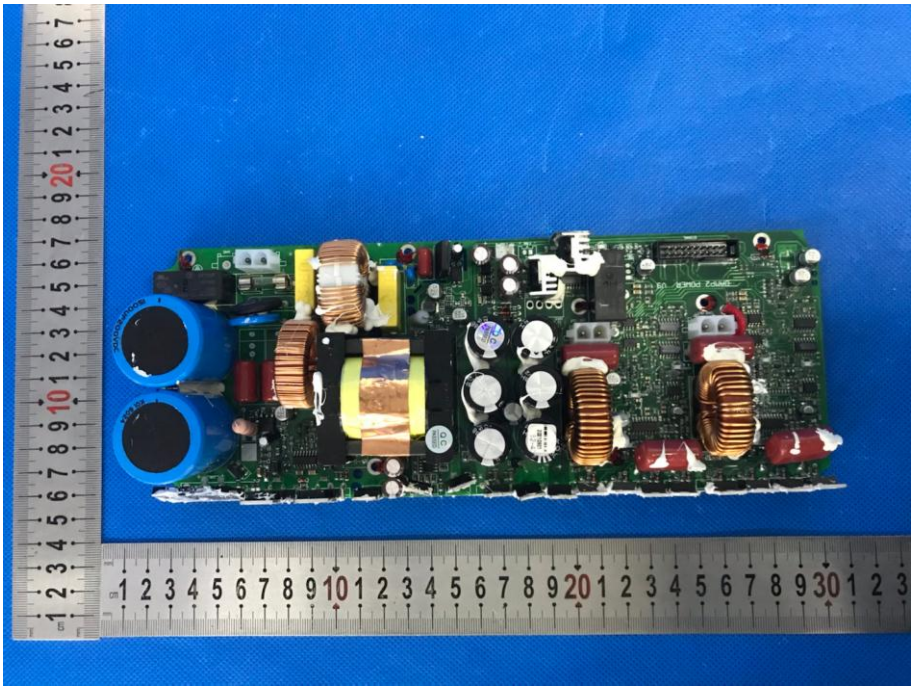
**EUT PHOTO 3**



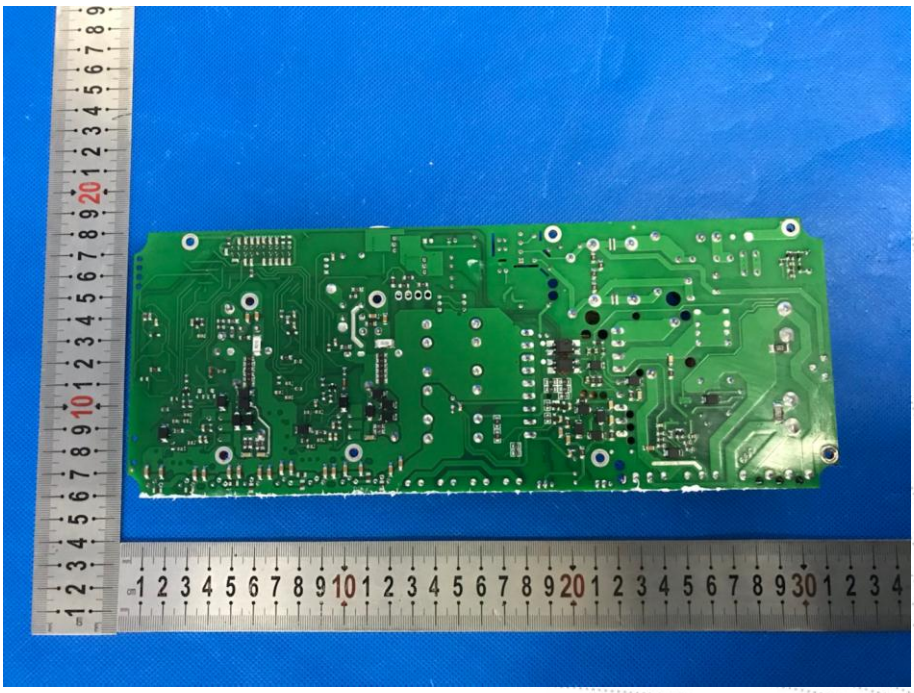
**EUT PHOTO 4**



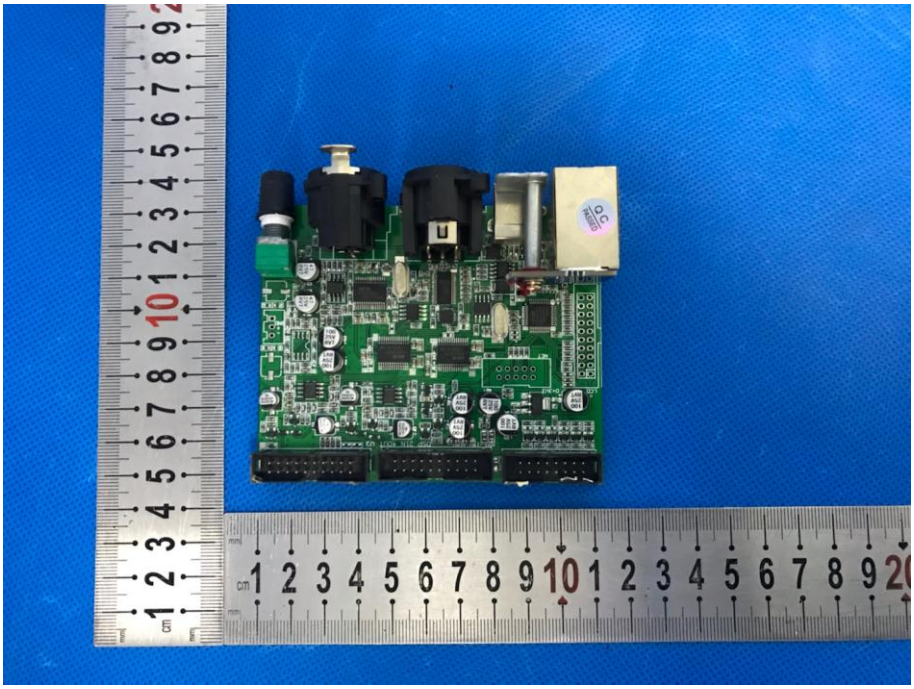
**EUT PHOTO 5**



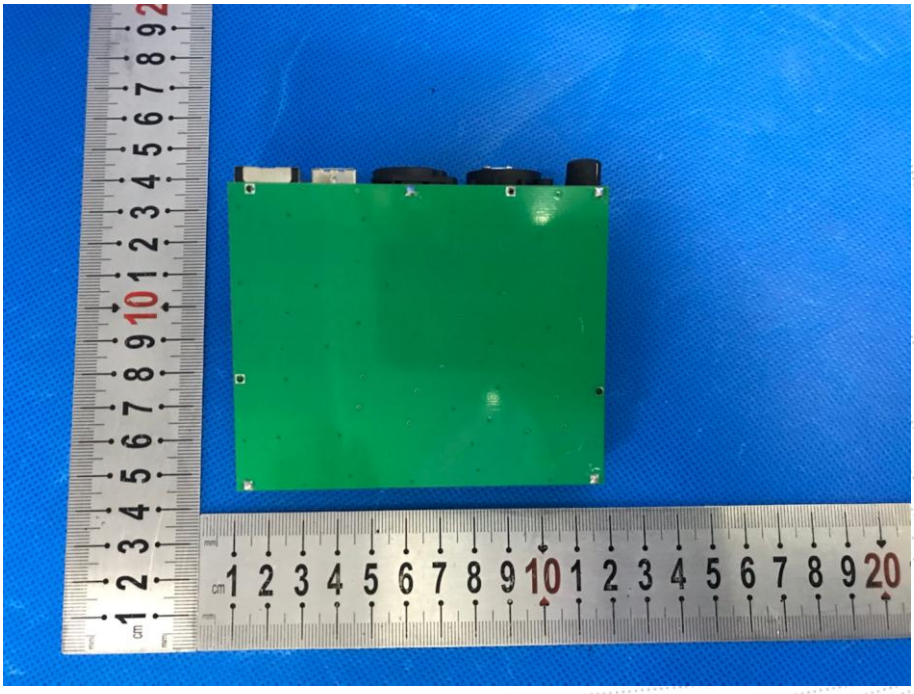
**EUT PHOTO 6**



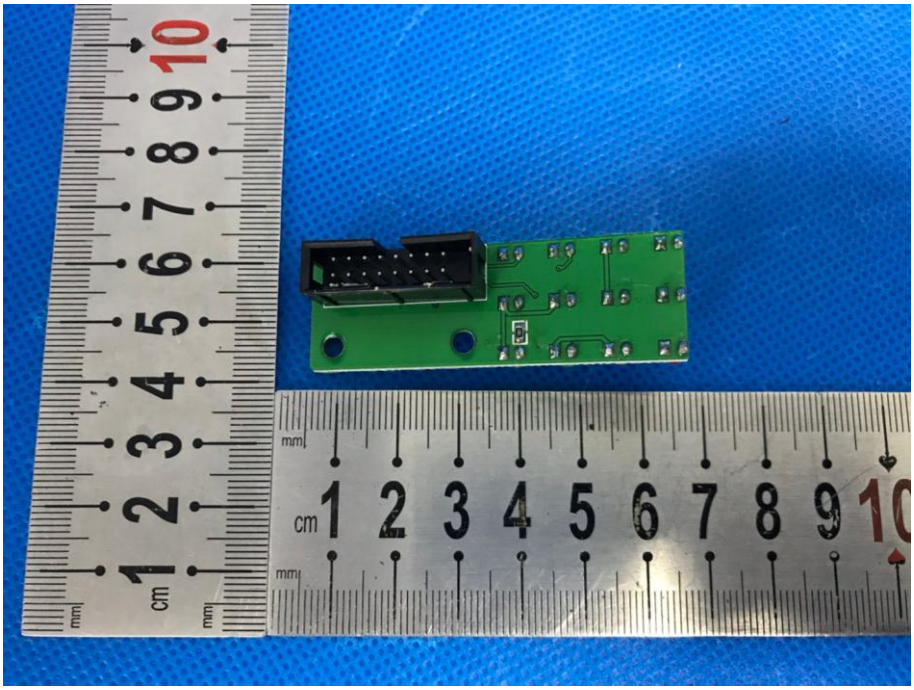
**EUT PHOTO 7**



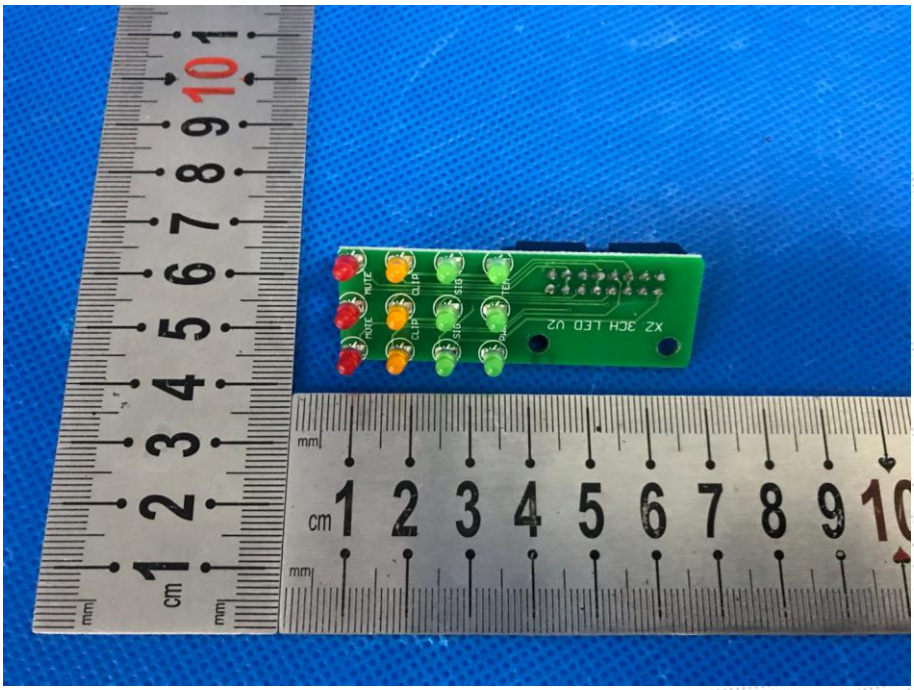
**EUT PHOTO 8**



**EUT PHOTO 9**



**EUT PHOTO 10**



# STATEMENT

1.The equipment lists are traceable to the national reference standards.

2.The test report can not be partially copied unless prior written approval is issued from our lab.

3.The test report is invalid without stamp of laboratory.

4.The test report is invalid without signature of person(s) testing and authorizing.

5.The test process and test result is only related to the Unit Under Test.

6.The quality system of our laboratory is in accordance with ISO/IEC17025.

7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:
1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL：400-788-9558

P. C.: 518103

FAX：0755-33229357

Website：http://www.chnbctc.com

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※