# LVD Test Report

| | | |
|---|---|---|
| **Application No.** | : | HX211102016852 |
| **Applicant** | : | Maxtop Technology Industrial Company Limited. |
| **Equipment Under Test (EUT)** | | |
| **EUT Name** | : | Outdoor P5 LED Display |
| **Model No.** | : | Outdoor P5 |
| **Serial No.** | : | P1.56, P1.953, P2.604, P3.076, P3.91, P4.81, P6.67, P8, P10 |
| **Trademark** | : | N/A |
| **Receipt Date** | : | 2021-11-15 |
| **Test Date** | : | 2021-11-15 to 2021-11-19 |
| **Issue Date** | : | 2021-11-19 |
| **Standards** | : | EN IEC 62368-1: 2020/A11: 2020 |
| **Conclusions** | : | **PASS** |

This report shows that the product technically complies with the Council LVD Directive **2014/35/EU** requirements.

:

**Test/Witness Engineer**

**Approved & Authorized** :

This test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

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

| | |
|---|---|
| **Applicant's name**..... : | Maxtop Technology Industrial Company Limited. |
| Address..... : | Room 401, No.126, Industrial Blvd, Fucheng' Ao Community, Pinghu Sub_District, Longgang District, Shenzhen City, China |

**Test specification:**

| | |
|---|---|
| Standard..... : | EN IEC 62368-1: 2020/A11: 2020 |
| Test procedure..... : | IEC/EN Test Report |
| Non-standard test method..... : | N/A |

| | |
|---|---|
| **Test Report Form No.....:** | IEC62368_1B |
| Test Report Form(s) Originator..... : | UL(US) |
| Master TRF..... : | 2015-06 |



| | |
|---|---|
| Test Item description..... : | Outdoor P5 LED Display |
| Trade Mark..... : | N/A |
| Manufacturer..... : | Maxtop Technology Industrial Company Limited. |
| Address..... : | Room 401, No.126, Industrial Blvd, Fucheng' Ao Community, Pinghu Sub_District, Longgang District, Shenzhen City, China |
| Model/Type reference..... : | Outdoor P5 |
| Serial No..... : | P1.56, P1.953, P2.604, P3.076, P3.91, P4.81, P6.67, P8, P10 |
| Rating..... : | Input: AC 100-230V, 960W, 50/60Hz |

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

1. **Attachment 1: EN IEC 62368-1: 2020/A11: 2020 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**
2. **Attachment 2: Photos**

**Summary of testing:**

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| See Report for details. | Shenzhen HX Detect Certification Co., Ltd.<br>2/F, bostai, building 22, Tangxi Yongli Industrial Zone, guxing community, Xixiang street, Bao'an District, Shenzhen |

**Summary of compliance with National Differences:**

**List of countries addressed**

**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**

☒ **The product fulfils the requirements of ____ EN IEC 62368-1: 2020/A11: 2020____**

**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.

Outdoor P5 LED Display

Model:Outdoor P5

Input: AC 100-230V, 960W, 50/60Hz

Maxtop Technology Industrial Company Limited.

CE

Note:

Al testing on model: Outdoor P5

The above marking are the minimum requirements required by the safety standard. For the final production sample, the marking which do not give rise to misunderstanding may be add.

- The height dimension of CE mark should not less than 5mm, the height dimension of WEEE symbol should not less than 7mm.

- As declared by the applicant the authorized EEA representative or importer was not decided at the time of application, but will be marked on the products before placing them on the 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 ☐ other:_____ |
| Considered current rating of protective device as part of building or equipment installation.....: | ___3___ A;<br>Installation location: ☒ building; ☐ equipment |
| Equipment mobility.....: | ☐ movable ☐ hand-held ☐ transportable<br>☐ stationary ☐ for building-in ☒ direct plug-in ☐ rack-mounting ☐ wall-mounted |
| Over voltage category (OVC) .....: | ☐ OVC I ☒ OVC II ☐ OVC III<br>☐ OVC IV ☐ other: _____ |
| 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 maximum operating ambient.....: | __45__°C |
| IP protection class .....: | ☐ IPX0 ☒ IP_20__ |
| Power Systems .....: | ☒ TN ☐ TT ☐ IT - ____ $V_{L-L}$ |
| Altitude during operation (m) .....: | ☒ 2000 m or less ☐ __5000__ m |
| Altitude of test laboratory (m) .....: | ☒ 2000 m or less ☐ _____ m |
| Mass of equipment (Kg) .....: | ☒ ___28____Kg |
| | |
| **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) |

**GENERAL REMARKS:**

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

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

This Test Report covers test results for EN IEC 62368-1: 2020/A11: 2020, and additional results for IEC 60065: 2014 (Eighth Edition) and/or IEC 60950-1: 2005 (Second Edition) + Am 1: 2009 + Am 2: 2013.

Where a requirement in IEC 62368-1 addresses the same requirement/principle in IEC 60065 and/or IEC 60950-1, compliance with the IEC 62368-1 requirements covers compliance with the same requirement/principle in IEC 60065 and/or IEC 6095-1, as indicated.

The complete background/rationale behind the considerations in this TRF is outlined in **108/575/INF,** IEC TC 108 position related to TRFs associated with the transition of IEC 60065 and IEC 60950-1 to IEC 62368-1. Use of this TRF is intended to allow for a smooth transition from the legacy standards, IEC 60065 and IEC 60950-1, to the state-of-art requirements for safety of audio/video, information and communication technology equipment, IEC 62368-1.

**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)..... :** | Maxtop Technology Industrial Company Limited.<br>Room 401, No.126, Industrial Blvd, Fucheng' Ao Community, Pinghu Sub_District, Longgang District, Shenzhen City, China |

**GENERAL PRODUCT INFORMATION:**

**Product Description:**

1. The equipment under tests is Outdoor P5 LED Display.
2. Circuit characteristics: primary and secondary (SELV) circuit and limited current circuit.
3. Maximum operation ambient temperature Tma: 40

Model Differences – All models different output current.

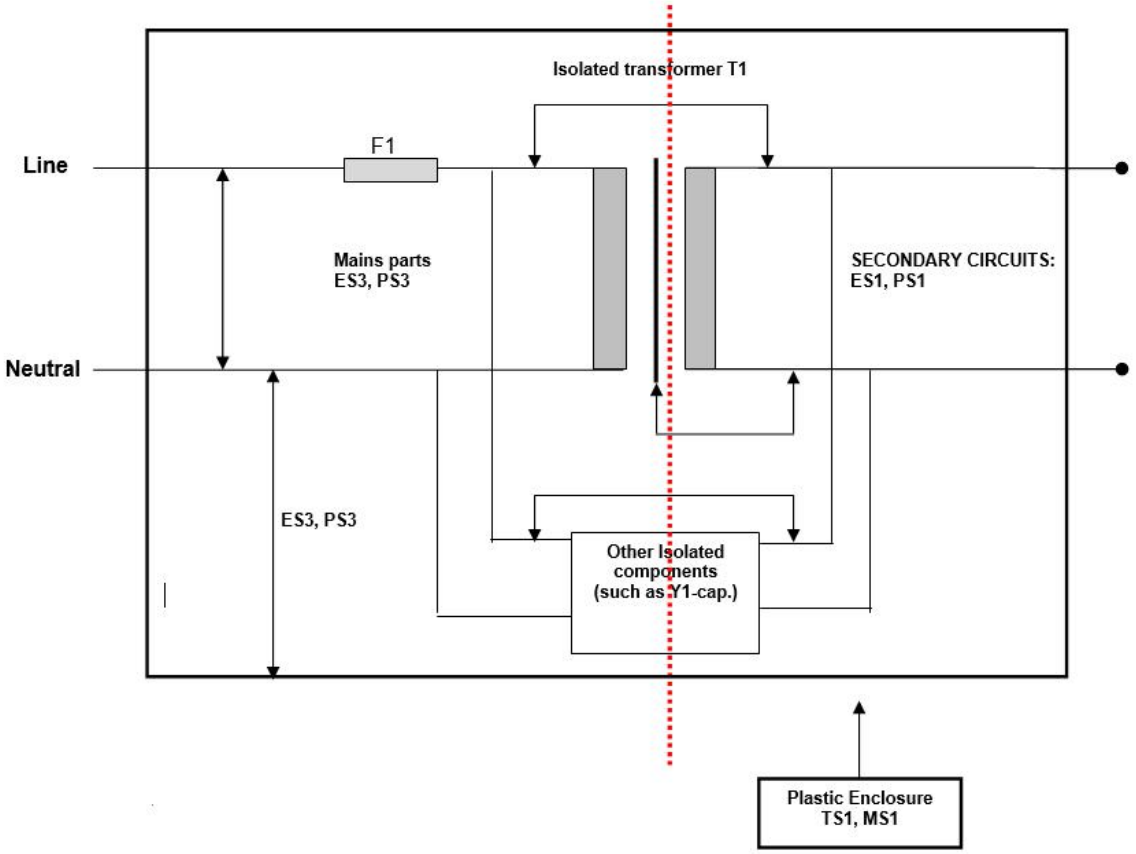
All models are identical, except for model No., secondary circuit and rated parameters. Unless otherwise specified, the model Outdoor P5 was chosen as representative model to perform all the tests.

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

| 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: +12 V dc input ES1 | |
| **Source of electrical energy** | **Corresponding classification (ES)** |
| Primary circuit | ES3 |
| Capacitor discharge | ES1 |
| Secondary circuit | 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)** |
| Primary circuit | PS3 |
| Secondary circuit | PS2 |
| **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** |
| -- | -- |
| **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)** |
| Sharp edges and Corners | MS1 |
| Equipment mass | 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)** |
| External enclosure | TS1 |

| ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE: | |
|---|---|
| **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)** |
| -- | -- |

| ENERGY SOURCE DIAGRAM |
|---|
| Indicate which energy sources are included in the energy source diagram. Insert diagram below |




☒ ES ☒ PS ☒ MS ☒ TS ☐ RS

| OVERVIEW OF EMPLOYED SAFEGUARDS | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (ES3: Primary Filter circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary person | ES3: Primary circuit | N/A | N/A | Enclosure, Transformer, Y1-capacitor, optocoupler |
| Ordinary person | ES1: Capacitor discharge | N/A | N/A | N/A |
| Ordinary person | ES1: Secondary circuit | 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 |
| Internal combustible material | PS3: Primary components/circuit; | 1. No ignition occurred.<br>2. No parts exceeding 90% of its spontaneous ignition temperature. | 1. PCB is complied with V-1 material.<br>2. All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.<br>3. V-1 enclosure provided. | N/A |
| | PS2: Secondary components/circuit | 1. No ignition occurred.<br>2. No parts exceeding 90% of its spontaneous ignition temperature. | 1. PCB is complied with V-1 material.<br>2. All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.<br>3. V-1 enclosure provided. | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |

| | | | | |
|---|---|---|---|---|
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |
| 8.1 | Mechanically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (MS3:High Pressure Lamp) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary person | MS1: Sharp edges and Corners | N/A | N/A | N/A |
| Ordinary person | MS1: 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 person | TS1: External enclosure | N/A | N/A | N/A |
| 10.1 | Radiation | | | |
| Body Part (e.g., Ordinary) | Energy Source (Output from audio port) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |
| Supplementary Information:<br>(1) See attached energy source diagram for additional details.<br>(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault | | | | |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4** | **GENERAL REQUIREMENTS** | | P |
| 4.1.1 | Acceptance of materials, components and subassemblies<br>(IEC 60065, 3.4) & (IEC 60950-1, 1.5.1) | | P |
| 4.1.2 | Use of components<br>(IEC 60065, 3.4, 14.1) & (IEC 60950-1, 1.5.2) | | P |
| 4.1.3 | Equipment design and construction<br>(IEC 60065, 3.1) & (IEC 60950-1, 1.3.2) | | P |
| 4.1.15 | Markings and instructions.....:<br>(IEC 60065, 5.1) & (IEC 60950-1, 1.7) | (See Annex F) | — |
| 4.4.4 | Safeguard robustness | | |
| 4.4.4.2 | Steady force tests..... :<br>(IEC 60065, 9.1.1.7 c), 13.3.1) & (IEC 60950-1, 4.2.4) | (See Annex T.4, T.5) | — |
| 4.4.4.3 | Drop tests..... :<br>(IEC 60065, 12.1.5) & (IEC 60950-1, 4.2.6) | (See Annex T.7) | — |
| 4.4.4.4 | Impact tests..... :<br>(IEC 60065, 12.1.4) & (IEC 60950-1, 4.2.5) | (See Annex T.6) | — |
| 4.4.4.5 | Internal accessible safeguard enclosure and barrier tests.....:<br>(IEC 60950-1, 4.2.3) | (See Annex T.3) | — |
| 4.4.4.6 | Glass Impact tests..... :<br>(IEC 60065, 19.6) & (IEC 60950-1, 4.2.5) | (See Annex T.9, Annex U) | — |
| 4.4.4.7 | Thermoplastic material tests..... :<br>(IEC 60065, 12.1.6) & (IEC 60950-1, 4.2.7) | (See Annex T.8) | — |
| 4.4.4.8 | Air comprising a safeguard.....:<br>(IEC 60065, 9.1.7) & (IEC 60950-1, 4.2) | (See Annex T) | — |
| 4.4.4.9 | Accessibility and safeguard effectiveness<br>(IEC 60065, 9.1.7) & (IEC 60950-1, 4.2.1) | | P |
| 4.5 | Explosion | | P |
| 4.6 | Fixing of conductors<br>(IEC 60065, 8.14) & (IEC 60950-1, 3.1.9) | | P |
| 4.6.1 | Fix conductors not to defeat a safeguard<br>(IEC 60065, 8.14) & (IEC 60950-1, 3.1.9) | | P |
| 4.6.2 | 10 N force test applied to .....:<br>(IEC 60065, 8.14) & (IEC 60950-1, 3.1.9) | | — |
| 4.7 | Equipment for direct insertion into mains socket – outlets<br>(IEC 60065, 15.4) & (IEC 60950-1, 4.3.6) | | P |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.2 | Mains plug part complies with the relevant standard .....: (IEC 60065, 15.4.2) & (IEC 60950-1, 4.3.6) | | — |
| 4.7.3 | Torque (Nm)..... : (IEC 60065, 15.4.1) & (IEC 60950-1, 4.3.6) | 0.039Nm | — |
| 4.8 | Products containing coin/button cell batteries (IEC 60065, 12.7) | | N/A |
| 4.8.2 | Instructional safeguard (IEC 60065, 5.4 c), 5.5.2 j)) | | N/A |
| 4.8.3 | Battery Compartment Construction (IEC 60065, 12.7.2) | | N/A |
| | Means to reduce the possibility of children removing the battery..... : | | — |
| 4.8.4 | Battery Compartment Mechanical Tests..... : (IEC 60065, 12.7.3) | (See Table 4.8.4) | — |
| 4.8.5 | Battery Accessibility (IEC 60065, 12.7.4) | | N/A |
| 4.9 | Likelihood of fire or shock due to entry of conductive object..... : (IEC 60065, 9.1.3, 20.3.2) & (IEC 60950-1, 4.6.1) | (See Annex P) | — |
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| 5.2.1 | Electrical energy source classifications..... : | (See appended table 5.2) | — |
| 5.2.2 | ES1, ES2 and ES3 limits | ES3 | P |
| 5.2.2.2 | Steady-state voltage and current..... : (IEC 60065, 9.1.1.2) & (IEC 60950-1, 2.2, 2.3, 2.4) | See appended table 5.2) | — |
| 5.2.2.3 | Capacitance limits.....: (IEC 60065, 9.1.1.2) & (IEC 60950-1, 2.4) | (See appended table 5.2) | — |
| 5.2.2.4 | Single pulse limits..... : (IEC 60950-1, 2.2) | (See appended table 5.2) | — |
| 5.2.2.5 | Limits for repetitive pulses..... : (IEC 60950-1, 2.2) | (See appended table 5.2) | — |
| 5.2.2.6 | Ringing signals ..... : (IEC 60950-1, 2.3, Annex M) | (See Annex H) | — |
| 5.2.2.7 | Audio signals .....: (IEC 60065, 9.1.1.2) & (IEC 60950-1, 2.1.1.9) | (See Clause E.1 ) | — |
| 5.3 | Protection against electrical energy sources (IEC 60065, 9.1.1) & (IEC 60950-1, 2.1) | | P |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons<br>(IEC 60065, 9.1.1) & (IEC 60950-1, 2.1) | | P |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards<br>(IEC 60065, 9.1.1.3, 9.1.2, 9.1.3, 9.1.4, 9.1.5) & (IEC 60950-1, 2.1.1.1) | | P |
| 5.3.2.2 | Contact requirements<br>(IEC 60065, 9.1.1.1) & (IEC 60950-1, 2.1.1.1) | | P |
| | a) Test with test probe from Annex V.....: | | — |
| | b) Electric strength test potential (V)..... : | | — |
| | c) Air gap (mm) ..... : | | — |
| 5.3.2.4 | Terminals for connecting stripped wire<br>(IEC 60065, 9.1.1.4) | | N/A |
| 5.4 | Insulation materials and requirements | | P |
| 5.4.1.2 | Properties of insulating material<br>(IEC 60065, 8.3) & (IEC 60950-1, 2.9.1) | | P |
| 5.4.1.3 | Humidity conditioning.....:<br>(IEC 60065, 10.3)<br>(IEC 60950-1, 2.9.1) | (See sub-clause 5.4.8) | — |
| 5.4.1.4 | Maximum operating temperature for insulating materials ..... :<br>(IEC 60065, 7.1) & (IEC 60950-1, 4.5) | (See appended table 5.4.1.4) | — |
| 5.4.1.5 | Pollution degree.....:<br>(IEC 60065, 13.1) & (IEC 60950-1, 2.10.1.2) | | — |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound<br>(IEC 60065, 13.6, 13.7) & (IEC 60950-1, 2.10.10) | | N/A |
| 5.4.1.5.3 | Thermal cycling<br>(IEC 60065, 13.6) & (IEC 60950-1, 2.10.9) | | N/A |
| 5.4.1.6 | Insulation in transformers with varying dimensions<br>(IEC 60065, 13.2) & (IEC 60950-1, 2.10.1.5) | | N/A |
| 5.4.1.7 | Insulation in circuits generating starting pulses<br>(IEC 60950-1, 2.10.3.5) | | N/A |
| 5.4.1.8 | Determination of working voltage<br>(IEC 60065, 13.2) & (IEC 60950-1, 2.10.2) | | P |
| 5.4.1.9 | Insulating surfaces<br>(IEC 60065, 13.3.1) & (IEC 60950-1, 2.10.3.1) | | P |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted<br>(IEC 60065, 7.2) & (IEC 60950-1, 4.5.5) | | P |
| 5.4.1.10.2 | Vicat softening temperature.....:<br>(IEC 60065, 7.2) | (See appended table 5.4.1.10.2) | — |
| 5.4.1.10.3 | Ball pressure .....:<br>(IEC 60950-1, 4.5.5) | (See appended table 5.4.1.10.3) | — |
| 5.4.2 | Clearances<br>(IEC 60065, 13.3, Annex J) & (IEC 60950-1, 2.10.3, Annex G) | | P |
| 5.4.2.2 | Determining clearance using peak working voltage | (See appended table 5.4.2.2) | P |
| 5.4.2.3 | Determining clearance using required withstand voltage .....: | (See appended table 5.4.2.3) | — |
| | a) a.c. mains transient voltage.....: | | — |
| | b) d.c. mains transient voltage .....: | | — |
| | c) external circuit transient voltage.....: | | — |
| | d) transient voltage determined by measurement....: | | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test | (See appended table 5.4.2.4) | P |
| 5.4.2.5 | Multiplication factors for clearances and test voltages .....: | | — |
| 5.4.3 | Creepage distances.....:<br>(IEC 60065, 13.4) & (IEC 60950-1, 2.10.4) | (See appended table 5.4.3) | — |
| 5.4.3.1 | General | | P |
| 5.4.3.3 | Material Group .....:<br>(IEC 60065, 13.4) & (IEC 60950-1, 2.10.4.2) | | — |
| 5.4.4 | Solid insulation<br>(IEC 60065, 8.8) & (IEC 60950-1, 2.10.5) | | P |
| 5.4.4.2 | Minimum distance through insulation .....:<br>(IEC 60065, 8.8) & (IEC 60950-1, 2.10.5.2) | (See appended table 5.4.4.2) | P |
| 5.4.4.3 | Insulation compound forming solid insulation<br>(IEC 60065, 13.6, 13.7, 13.8) & (IEC 60950-1, 2.10.5.3) | | N/A |
| 5.4.4.4 | Solid insulation in semiconductor devices<br>(IEC 60065, 13.6, 13.8) & (IEC 60950-1, 2.10.5.4) | | N/A |
| 5.4.4.5 | Cemented joints<br>(IEC 60065, 13.6) & (IEC 60950-1, 2.10.5.5) | | N/A |
| 5.4.4.6 | Thin sheet material<br>(IEC 60065, 8.8) & (IEC 60950-1, 2.10.5.6) | | P |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.4.6.1 | General requirements<br>(IEC 60065, 8.8) | | P |
| 5.4.4.6.2 | Separable thin sheet material<br>(IEC 60065, 8.8) & (IEC 60950-1, 2.10.5.7) | | P |
| | Number of layers (pcs) ..... : | | — |
| 5.4.4.6.3 | Non-separable thin sheet material<br>(IEC 60065, 8.21) & (IEC 60950-1, 2.10.5.8) | | N/A |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material.....:<br>(IEC 60950-1, 2.10.5.9) | (See appended Table 5.4.9) | — |
| 5.4.4.6.5 | Mandrel test<br>(IEC 60065, 8.21) & (IEC 60950-1, Annex AA) | | N/A |
| 5.4.4.7 | Solid insulation in wound components<br>(IEC 60065, 8.16) & (IEC 60950-1, 2.10.5.11) | | P |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz.....: | (See appended Table 5.4.4.9) | — |
| 5.4.5 | Antenna terminal insulation<br>(IEC 60065, 10.2) & (IEC 60950-1, 7.4) | | N/A |
| 5.4.5.1 | General | | N/A |
| 5.4.5.2 | Voltage surge test<br>(IEC 60065, 10.2) & (IEC 60950-1, 7.4.2) | | N/A |
| | Insulation resistance (MΩ)..... : | | — |
| 5.4.6 | Insulation of internal wire as part of supplementary safeguard..... :<br>(IEC 60065, 8.9) & (IEC 60950-1, 2.1.1.3) | (See appended table 5.4.4.2) | — |
| 5.4.7 | Tests for semiconductor components and for cemented joints<br>(IEC 60065, 13.6, 13.7, 13.8) & (IEC 60950-1, 2.10.11) | | N/A |
| 5.4.8 | Humidity conditioning<br>(IEC 60065, 10.3) & (IEC 60950-1, 2.9.2) | | P |
| | Relative humidity (%).....: | 95% | — |
| | Temperature (°C) ..... : | 40°C | — |
| | Duration (h) .....: | 120hrs | — |
| 5.4.9 | Electric strength test.....:<br>(IEC 60065, 10.4) & (IEC 60950-1, 5.2) | (See appended table 5.4.9) | — |
| 5.4.9.1 | Test procedure for a solid insulation type test<br>(IEC 60065, 10.4) & (IEC 60950-1, 5.2) | | N/A |
| 5.4.9.2 | Test procedure for routine tests<br>(IEC 60065, N.3.2) & (IEC 60950-1, 5.2.2) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.10 | Protection against transient voltages between external circuit<br>(IEC 60065, Annex B) & (IEC 60950-1, 6.2) | | N/A |
| 5.4.10.1 | Parts and circuits separated from external circuits<br>(IEC 60950-1, 6.2.1) | (See appended table 5.4.9) | N/A |
| 5.4.10.2 | Test methods<br>(IEC 60950-1, 6.2.2) | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test..... :<br>(IEC 60950-1, 6.2.2.1) | (See appended table 5.4.9) | — |
| 5.4.10.2.3 | Steady-state test..... :<br>(IEC 60950-1, 6.2.2.2) | (See appended table 5.4.9) | — |
| 5.4.11 | Insulation between external circuits and earthed circuitry..... :<br>(IEC 60065, Annex B) & (IEC 60950-1, 6.1) | (See appended table 5.4.9) | — |
| 5.4.11.1 | Exceptions to separation between external circuits and earth<br>(IEC 60950-1, 6.1.2.2) | | N/A |
| 5.4.11.2 | Requirements<br>(IEC 60950-1, 6.1.2.1) | | 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 $U_{sa}$ .....: | | — |
| | $U_{op}= U_{peak} + U_{sp} + U_{sa}$.....: | | — |
| 5.5 | Components as safeguards | | P |
| 5.5.1 | General | | P |
| 5.5.2 | Capacitors and RC units<br>(IEC 60065, 14.3) | | P |
| 5.5.2.1 | General requirement<br>(IEC 60065, 14.3) & (IEC 60950-1, 1.5.6) | | P |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector..... :<br>(IEC 60065, 9.1.6) & (IEC 60950-1, 2.1.1.7) | (See appended table 5.5.2.2) | — |
| 5.5.3 | Transformers<br>(IEC 60065, 14.4) & (IEC 60950-1, 1.5.4, Annex C) | (See Annex G.5.3) | P |
| 5.5.4 | Optocouplers<br>(IEC 60065, 14.12) & (IEC 60950-1, 2.10.5.3, 2.10.5.4) | (See sub-clause 5.4 or Annex G.12) | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.5.5 | Relays | (See Annex G.2) | N/A |
| 5.5.6 | Resistors<br>(IEC 60065, 14.2) & (IEC 60950-1, 1.5.7) | (See Annex G.10) | N/A |
| 5.5.7 | SPD's<br>(IEC 60065, 14.13) & (IEC 60950-1, 1.5.9) | (See Annex G.8) | N/A |
| 5.5.7.1 | Use of an SPD connected to reliable earthing<br>(IEC 60065, 14.13) & (IEC 60950-1, 1.5.9.4) | | N/A |
| 5.5.7.2 | Use of an SPD between mains and protective earth<br>(IEC 60065, 14.13) & (IEC 60950-1, 1.5.9.4) | | N/A |
| 5.5.8 | Insulation between the mains and external circuit consisting of a coaxial cable.....:<br>(IEC 60065, 10.2) & (IEC 60950-1, 1.5.7.3, 7.4) | (See Annex G.10.3) | — |
| 5.6 | Protective conductor | | N/A |
| 5.6.2 | Requirement for protective conductors<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.3, 2.6.5) | | N/A |
| 5.6.2.1 | General requirements | | N/A |
| 5.6.2.2 | Colour of insulation<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.3.5) | | N/A |
| 5.6.3 | Requirement for protective earthing conductors<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.3.2) | | N/A |
| | Protective earthing conductor size ($mm^2$) .....: | | — |
| 5.6.4 | Requirement for protective bonding conductors | | N/A |
| 5.6.4.1 | Protective bonding conductors<br>(IEC 60950-1, 2.6.3.3) | | N/A |
| | Protective bonding conductor size ($mm^2$).....: | | — |
| | Protective current rating (A) ..... : | | — |
| 5.6.4.3 | Current limiting and overcurrent protective devices<br>(IEC 60950-1, 2.6.5.2) | | N/A |
| 5.6.5 | Terminals for protective conductors | | N/A |
| 5.6.5.1 | Requirement<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.4.2) | | N/A |
| | Conductor size ($mm^2$), nominal thread diameter (mm).....: | | — |
| 5.6.5.2 | Corrosion<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.5.6) | | N/A |
| 5.6.6 | Resistance of the protective system<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.3.4) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.6.1 | Requirements<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.3.4) | | N/A |
| 5.6.6.2 | Test Method Resistance (Ω)..... :<br>(IEC 60065, 15.2) & (IEC 60950-1, 2.6.3.4) | (See appended table 5.6.6.2) | — |
| 5.6.7 | Reliable earthing<br>(IEC 60065, 14.13) & (IEC 60950-1, 1.5.9.4, 5.1.7.1) | | N/A |
| 5.7 | Prospective touch voltage, touch current and protective conductor current | | P |
| 5.7.2 | Measuring devices and networks | | P |
| 5.7.2.1 | Measurement of touch current..... :<br>(IEC 60065, 9.1.1.2) & (IEC 60950-1, 5.1.4) | (See appended table 5.7.4) | — |
| 5.7.2.2 | Measurement of prospective touch voltage<br>(IEC 60065, 9.1.1.2) & (IEC 60950-1, 1.4.9) | | P |
| 5.7.3 | Equipment set-up, supply connections and earth connections<br>(IEC 60065, 9.1.1.2) & (IEC 60950-1, 5.1.3) | | N/A |
| | System of interconnected equipment (separate connections/single connection)..... : | | — |
| | Multiple connections to mains (one connection at a time/simultaneous connections)..... : | | — |
| 5.7.4 | Earthed conductive accessible parts..... :<br>(IEC 60065, 9.1.1.2) & (IEC 60950-1, 5.1.6) | (See appended Table 5.7.4) | N/A |
| 5.7.5 | Protective conductor current<br>(IEC 60950-1, 5.1.7) | | N/A |
| | Supply Voltage (V)..... : | | — |
| | Measured current (mA)..... : | | — |
| | Instructional Safeguard..... : | (See F.4 and F.5) | — |
| 5.7.6 | Prospective touch voltage and touch current due to external circuits<br>(IEC 60950-1, 5.1.8) | | 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<br>(IEC 60950-1, 5.1.8.1) | | N/A |
| 5.7.7 | Summation of touch currents from external circuits<br>(IEC 60950-1, 5.1.8.2) | | N/A |
| | a) Equipment with earthed external circuits<br>Measured current (mA)..... : | | — |
| | b) Equipment whose external circuits are not referenced to earth. Measured current (mA)..... : | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **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..... :<br>(IEC 60065, 4.3.1) & (IEC 60950-1, 2.5) | (See appended table 6.2.2) | — |
| 6.2.2.3 | Power measurement for worst-case power source fault.....:<br>(IEC 60065, 4.3.1) & (IEC 60950-1, 2.5) | (See appended table 6.2.2) | — |
| 6.2.2.4 | PS1 ..... : | (See appended table 6.2.2) | — |
| 6.2.2.5 | PS2 ..... : | (See appended table 6.2.2) | — |
| 6.2.2.6 | PS3 ..... : | (See appended table 6.2.2) | — |
| 6.2.3 | Classification of potential ignition sources | PS2 | P |
| 6.2.3.1 | Arcing PIS ..... : | (See appended table 6.2.3.1) | — |
| 6.2.3.2 | Resistive PIS .....: | (See appended table 6.2.3.2) | — |
| 6.3 | Safeguards against fire under normal operating and abnormal operating conditions | | P |
| 6.3.1 (a) | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....:<br>(IEC 60065, 7.1) & (IEC 60950-1, 4.5.3) | (See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6) | — |
| 6.3.1 (b) | Combustible materials outside fire enclosure<br>(IEC 60950-1, 4.7.3.3) | | P |
| 6.4 | Safeguards against fire under single fault conditions | | P |
| 6.4.1 | Safeguard Method<br>(IEC 60950-1, 4.7.1) | | N/A |
| 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<br>(IEC 60065, 11.2, 20.2) | | N/A |
| 6.4.3.1 | General | | P |
| 6.4.3.2 | Supplementary Safeguards<br>(IEC 60065, 20.2) | | N/A |
| | Special conditions if conductors on printed boards are opened or peeled | | N/A |
| 6.4.3.3 | Single Fault Conditions..... :<br>(IEC 60065, 11.2) | (See appended table 6.4.3) | — |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.5 | Control of fire spread in PS2 circuits<br>(IEC 60950-1, 4.7.3.4) | | P |
| 6.4.5.2 | Supplementary safeguards ..... :<br>(IEC 60950-1, 4.7.3.4) | (See appended tables 4.1.2 and Annex G) | — |
| 6.4.6 | Control of fire spread in PS3 circuit<br>(IEC 60950-1, 4.7.3.4) | | N/A |
| 6.4.7 | Separation of combustible materials from a PIS<br>(IEC 60065, 20.2.5) & (IEC 60950-1, 4.7.3.4) | | N/A |
| 6.4.7.1 | General..... : | (See tables 6.2.3.1 and 6.2.3.2) | — |
| 6.4.7.2 | Separation by distance<br>(IEC 60065, 20.2.5) & (IEC 60950-1, 4.7.3.4) | | N/A |
| 6.4.7.3 | Separation by a fire barrier<br>(IEC 60065, 20.2.5) & (IEC 60950-1, 4.7.3.4) | | N/A |
| 6.4.8 | Fire enclosures and fire barriers<br>(IEC 60065, 20.2.5, 20.3) & (IEC 60950-1, 4.7.2, 4.7.3) | | P |
| 6.4.8.1 | Fire enclosure and fire barrier material properties<br>(IEC 60065, 20.2.5, 20.3) & (IEC 60950-1, 4.7.3.2, 4.7.3.4) | | N/A |
| 6.4.8.2.1 | Requirements for a fire barrier<br>(IEC 60065, 20.2.5) & (IEC 60950-1, 4.7.3.4) | | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure<br>(IEC 60065, 20.3) & (IEC 60950-1, 4.7.3.2) | | 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<br>(IEC 60065, 20.3) & (IEC 60950-1, 4.6.1, 4.6.2) | | P |
| 6.4.8.3.2 | Fire barrier dimensions<br>(IEC 60065, 20.2.5) & (IEC 60950-1, 4.6.2) | | N/A |
| 6.4.8.3.3 | Top Openings in Fire Enclosure: dimensions (mm) .....:<br>(IEC 60065, 20.3) & (IEC 60950-1, 4.6.1) | | — |
| | Needle Flame test | | N/A |
| 6.4.8.3.4 | Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) ..... :<br>(IEC 60065, 20.3) & (IEC 60950-1, 4.6.2) | | — |
| | Flammability tests for the bottom of a fire enclosure .....: | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.8.3.5 | Integrity of the fire enclosure, condition met: a), b) or c)..... :<br>(IEC 60950-1, 4.6.3) | | — |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....:<br>(IEC 60065, 20.2.5) & (IEC 60950-1, 4.7.3.1, 4.7.3.2) | | — |
| 6.5 | Internal and external wiring | | P |
| 6.5.1 | Requirements<br>(IEC 60065, 16.3, 20.2.3) & (IEC 60950-1, 4.7.3.3, 4.7.3.4) | | P |
| 6.5.2 | Cross-sectional area ($mm^2$) .....: | | — |
| 6.5.3 | Requirements for interconnection to building wiring .....:<br>(IEC 60950-1, 2.5, 6.3) | (See Annex Q.) | — |
| 6.6 | Safeguards against fire due to connection to additional equipment<br>(IEC 60950-1, 3.5.4) | | P |
| | External port limited to PS2 or complies with Clause 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<br>(IEC 60950-1, 1.7.2.6) | | N/A |
| 7.4 | Use of personal safeguards (PPE) | | N/A |
| | Personal safeguards and instructions.....: | | — |
| 7.5 | Use of instructional safeguards and instructions | | P |
| | Instructional safeguard (ISO 7010)..... : | | — |
| 7.6 | Batteries..... :<br>(IEC 60065, 14.10) & (IEC 60950-1, 4.3.8) | (See Annex M) | — |
| **8** | **MECHANICALLY-CAUSED INJURY** | | P |
| 8.1 | General | | P |
| 8.2 | Mechanical energy source classifications | MS1 | P |
| 8.3 | Safeguards against mechanical energy sources | | N/A |
| 8.4 | Safeguards against parts with sharp edges and corners<br>(IEC 60065, 19.5) & (IEC 60950-1, 4.3.1) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.4.1 | Safeguards<br>(IEC 60950-1, 4.3.1) | | 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<br>(IEC 60065, 14.10.3) & (IEC 60950-1, 4.4) | | N/A |
| 8.5.2 | Instructional Safeguard..... :<br>(IEC 60950-1, 4.4.5.2) | | — |
| 8.5.4 | Special categories of equipment comprising moving parts | | N/A |
| 8.5.4.1 | Large data storage equipment<br>(IEC 60950-23) | | N/A |
| 8.5.4.2 | Equipment having electromechanical device for destruction of media<br>(IEC 60950-1, Annex EE) | | N/A |
| 8.5.4.2.1 | Safeguards and Safety Interlocks..... :<br>(IEC 60950-1, EE.3) | (See Annex F.4 and Annex K) | — |
| 8.5.4.2.2 | Instructional safeguards against moving parts | | N/A |
| | Instructional Safeguard..... :<br>(IEC 60950-1, EE.2) | | — |
| 8.5.4.2.3 | Disconnection from the supply<br>(IEC 60950-1, EE.4) | | N/A |
| 8.5.4.2.4 | Probe type and force (N)..... :<br>(IEC 60950-1, EE.5) | | — |
| 8.5.5 | High Pressure Lamps<br>(IEC 60950-1, 4.2.9) | | N/A |
| 8.5.5.1 | Energy Source Classification | | N/A |
| 8.5.5.2 | High Pressure Lamp Explosion Test..... : | (See appended table 8.5.5.2) | — |
| 8.6 | Stability<br>(IEC 60065, 19) & (IEC 60950-1, 4.1) | | N/A |
| 8.6.1 | Product classification | | N/A |
| | Instructional Safeguard..... :<br>(IEC 60065, 5.5.2) | | — |
| 8.6.2 | Static stability<br>(IEC 60065, 19.1) & (IEC 60950-1, 4.1) | | N/A |
| 8.6.2.2 | Static stability test<br>(IEC 60065, 19.2) & (IEC 60950-1, 4.1) | | N/A |
| | Applied Force..... : | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.6.2.3 | Downward Force Test<br>(IEC 60065, 19.3) & (IEC 60950-1, 4.1) | | N/A |
| 8.6.3 | Relocation stability test<br>(IEC 60065, 19.2) | | N/A |
| | Unit configuration during 10° tilt..... : | | — |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test (Applied Force).....:<br>(IEC 60065, 19.4) | | — |
| | Position of feet or movable parts..... : | | — |
| 8.7 | Equipment mounted to wall or ceiling<br>(IEC 60065, 19.7) & (IEC 60950-1, 4.2.10) | | N/A |
| 8.7.1 | Mounting Means (Length of screws (mm) and mounting surface) .....:<br>(IEC 60065, 19.7) | | — |
| 8.7.2 | Direction and applied force..... :<br>(IEC 60065, 19.7) & (IEC 60950-1, 4.2.10) | | — |
| 8.8 | Handles strength | | N/A |
| 8.8.1 | Classification | | N/A |
| 8.8.2 | Applied Force .....: | | — |
| 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)..... : | | — |
| 8.11 | Mounting means for rack mounted equipment<br>(IEC 60950-1, Annex DD) | | N/A |
| 8.11.1 | General<br>(IEC 60950-1, DD.1) | | N/A |
| 8.11.2 | Product Classification | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.11.3 | Mechanical strength test, variable *N* ..... :<br>(IEC 60950-1, DD.2) | | — |
| 8.11.4 | Mechanical strength test 250N, including end stops<br>(IEC 60950-1, DD.3) | | N/A |
| 8.12 | Telescoping or rod antennas.....:<br>(IEC 60065, 12.6) | (See Annex T) | — |
| | Button/Ball diameter (mm)..... : | | — |
| **9** | **THERMAL BURN INJURY** | | P |
| 9.2 | Thermal energy source classifications<br>(IEC 60065, 7.1, 11.2) & (IEC 60950-1, 4.5.4) | External enclosure: TS1 | P |
| 9.3 | Safeguard against thermal energy sources<br>(IEC 60065, 7.1, 11.2) & (IEC 60950-1, 4.5.4) | | N/A |
| 9.4 | Requirements for safeguards | | N/A |
| 9.4.1 | Equipment safeguard<br>(IEC 60065, 7.1, 11.2) & (IEC 60950-1, 4.5.4) | | N/A |
| 9.4.2 | Instructional safeguard ..... :<br>(IEC 60065, 7.1, 11.2) & (IEC 60950-1, 4.5.4) | | — |
| **10** | **RADIATION** | | N/A |
| 10.2 | Radiation energy source classification | | N/A |
| 10.2.1 | General classification | | N/A |
| 10.3 | Protection against laser radiation<br>(IEC 60065, 6.2) & (IEC 60950-1, 4.3.13.5.1) | | N/A |
| | Laser radiation that exists equipment.....: | | — |
| | Normal, abnormal, single-fault..... : | (See attached laser test report) | — |
| | Instructional safeguard..... : | | — |
| | Tool.....: | | — |
| 10.4 | Protection against visible, infrared, and UV radiation<br>(IEC 60065, 6.3) & (IEC 60950-1, 4.3.13.4, 4.3.13.5.2) | | N/A |
| 10.4.1 | General | | N/A |
| 10.4.1.a) | RS3 for Ordinary and instructed persons.....: | | — |
| 10.4.1.b) | RS3 accessible to a skilled person..... : | | — |
| | Personal safeguard (PPE) instructional safeguard.. : | | — |
| 10.4.1.c) | Equipment visible, IR, UV does not exceed RS1... : | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.4.1.d) | Normal, abnormal, single-fault conditions ..... : | (See appended table B.3 & B.4) | — |
| 10.4.1.e) | Enclosure material employed as safeguard is opaque ..... : | | — |
| 10.4.1.f) | UV attenuation..... : | | — |
| 10.4.1.g) | Materials resistant to degradation UV..... : | | — |
| 10.4.1.h) | Enclosure containment of optical radiation..... : | | — |
| 10.4.1.i) | Exempt Group under normal operating conditions.: | | — |
| 10.4.2 | Instructional safeguard..... : | | — |
| 10.5 | Protection against x-radiation<br>(IEC 60065, 6.1) & (IEC 60950-1, 4.3.13.2) | | N/A |
| 10.5.1 | X- radiation energy source that exists equipment...: | (See appended table B.3 & B.4) | — |
| | Normal, abnormal, single fault conditions | | N/A |
| | Equipment safeguards..... : | | — |
| | Instructional safeguard for skilled person.....: | | — |
| 10.5.3 | Most unfavourable supply voltage to give maximum radiation.....:<br>(IEC 60950-1, Annex H) | | — |
| | Abnormal and single-fault condition..... : | (See appended table B.3 & B.4) | — |
| | Maximum radiation (pA/kg)..... : | | — |
| 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)..... : | | — |
| | Output voltage, unweighted r.m.s..... : | | — |
| 10.6.4 | Protection of persons | | N/A |
| | Instructional safeguards.....: | | — |
| | Equipment safeguard prevent ordinary person to RS2..... : | | — |
| | Means to actively inform user of increase sound pressure.....: | | — |
| | Equipment safeguard prevent ordinary person to RS2..... : | | — |
| 10.6.5 | Requirements for listening devices (headphones, earphones, etc.) | | N/A |
| 10.6.5.1 | Corded passive listening devices with analogue input | | N/A |
| | Input voltage with 94 dB(A) LAeq acoustic pressure output..... : | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.6.5.2 | Corded listening devices with digital input | | |
| | Maximum dB(A)..... : | | — |
| 10.6.5.3 | Cordless listening device | | |
| | 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..... :<br>(IEC 60065, 4.2.1) & (IEC 60950-1, 1.4.4) | (See Test Item Particulars and appended test tables) | — |
| | Audio Amplifiers and equipment with audio amplifiers.....:<br>(IEC 60065, 4.2.5) & (IEC 60950-1, 4.4) | (See Annex E) | — |
| B.2.3 | Supply voltage and tolerances<br>(IEC 60065, 4.2.2) & (IEC 60950-1, 1.4.5) | | P |
| B.2.5 | Input test..... :<br>(IEC 60065, 4.2, 5.2 g), h)) & (IEC 60950-1, 1.6.2) | (See appended table B.2.5) | — |
| B.3 | Simulated abnormal operating conditions | | P |
| B.3.1 | General requirements..... :<br>(IEC 60065, 4.3) & (IEC 60950-1, 5.3.1) | (See appended table B.3) | — |
| B.3.2 | Covering of ventilation openings<br>(IEC 60065, 4.3.11) & (IEC 60950-1, 5.3.1) | | N/A |
| B.3.3 | D.C. mains polarity test<br>(IEC 60065, 4.2.2) & (IEC 60950-1, 5.3.1) | | N/A |
| B.3.4 | Setting of voltage selector.....:<br>(IEC 60065, 4.3.14) & (IEC 60950-1, 5.3.1) | | — |
| B.3.5 | Maximum load at output terminals..... :<br>(IEC 60065, 4.3.10) & (IEC 60950-1, 5.3.7) | | — |
| B.3.6 | Reverse battery polarity<br>(IEC 60065, 4.3.12) & (IEC 60950-1, 4.3.8) | | N/A |
| B.3.7 | Abnormal operating conditions as specified in Clause E.2.<br>(IEC 60065, 4.3.6) & (IEC 60950-1, 5.3.6) | | N/A |
| B.3.8 | Safeguards functional during and after abnormal operating conditions<br>(IEC 60065, 11) & (IEC 60950-1, 5.3.9) | | N/A |
| B.4 | Simulated single fault conditions<br>(IEC 60065, 4.3) & (IEC 60950-1, 1.4.14) | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.4.2 | Temperature controlling device open or short-circuited..... : | (See appended table B.4) | — |
| B.4.3 | Motor tests<br>(IEC 60065, 4.3.7) & (IEC 60950-1, 5.3.2) | | N/A |
| B.4.3.1 | Motor blocked or rotor locked increasing the internal ambient temperature .....:<br>(IEC 60065, 4.3.7) & (IEC 60950-1, 5.3.2) | (See Clause G.5) | — |
| B.4.4 | Short circuit of functional insulation<br>(IEC 60950-1, 5.3.4) | | 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<br>(IEC 60065, 4.3.4) & (IEC 60950-1, 5.3.7) | | P |
| B.4.6 | Short circuit or disconnect of passive components<br>(IEC 60065, 4.3.5) & (IEC 60950-1, 5.3.7) | | P |
| B.4.7 | Continuous operation of components<br>(IEC 60065, 4.3.8) & (IEC 60950-1, 5.3.5) | | P |
| B.4.8 | Class 1 and Class 2 energy sources within limits during and after single fault conditions<br>(IEC 60065, 11) & (IEC 60950-1, 5.3.9) | | N/A |
| B.4.9 | Battery charging under single fault conditions..... :<br>(IEC 60065, 14.11.3) & (IEC 60950-1, 4.3.8) | (See Annex M) | — |

| | | | |
|---|---|---|---|
| **C** | **UV RADIATION** | | N/A |
| C.1 | Protection of materials in equipment from UV radiation<br>(IEC 60950-1, 4.3.13.3) | | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method | | N/A |
| C.2 | UV light conditioning test<br>(IEC 60950-1, Annex Y) | | N/A |
| C.2.1 | Test apparatus<br>(IEC 60950-1, Y.1) | | N/A |
| C.2.2 | Mounting of test samples<br>(IEC 60950-1, Y.2) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| C.2.3 | Carbon-arc light-exposure apparatus<br>(IEC 60950-1, Y.3) | | N/A |
| C.2.4 | Xenon-arc light exposure apparatus<br>(IEC 60950-1, Y.4) | | N/A |
| **D** | **TEST GENERATORS** | | N/A |
| D.1 | Impulse test generators<br>(IEC 60065, Annex K) & (IEC 60950-1, N.1) | | N/A |
| D.2 | Antenna interface test generator<br>(IEC 60950-1, N.2) | | N/A |
| D.3 | Electronic pulse generator | | N/A |
| **E** | **TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS** | | N/A |
| E.1 | Audio amplifier normal operating conditions<br>(IEC 60065, 4.2.5) & (IEC 60950-1, 4.5.1) | | N/A |
| | Audio signal voltage (V)..... : | | — |
| | Rated load impedance (Ω) ..... : | | — |
| E.2 | Audio amplifier abnormal operating conditions<br>(IEC 60065, 4.3.6) & (IEC 60950-1, 5.3.6) | | N/A |
| **F** | **EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS** | | P |
| F.1 | General requirements<br>(IEC 60065, 5.1, 5.2, 5.3) & (IEC 60950-1, 1.7.2.1) | | P |
| | Instructions – Language ..... : | | — |
| F.2 | Letter symbols and graphical symbols<br>(IEC 60065, 5.1) | | P |
| F.2.1 | Letter symbols according to IEC60027-1<br>(IEC 60065, 5.1) | | P |
| F.2.2 | Graphic symbols IEC, ISO or manufacturer specific<br>(IEC 60065, 5.1) & (IEC 60950-1, 1.7.1.1) | | P |
| F.3 | Equipment markings | | |
| F.3.1 | Equipment marking locations<br>(IEC 60065, 5.1) & (IEC 60950-1, 1.7.1.2) | | P |
| F.3.2 | Equipment identification markings<br>(IEC 60065, 5.2) & (IEC 60950-1, 1.7.1.2) | | P |
| F.3.2.1 | Manufacturer identification ..... :<br>(IEC 60065, 5.2 a)) & (IEC 60950-1, 1.7.1.2) | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.2.2 | Model identification .....:<br>(IEC 60065, 5.2 b)) & (IEC 60950-1, 1.7.1.2) | | — |
| F.3.3 | Equipment rating markings<br>(IEC 60065, 5.2) & (IEC 60950-1, 1.7.1.1) | | P |
| F.3.3.1 | Equipment with direct connection to mains<br>(IEC 60065, 5.2 e)) & (IEC 60950-1, 1.7.1.1) | | P |
| F.3.3.2 | Equipment without direct connection to mains<br>(IEC 60065, 5.2 e)) & (IEC 60950-1, 1.7.1.1) | | N/A |
| F.3.3.3 | Nature of supply voltage..... :<br>(IEC 60065, 5.2 d)) & (IEC 60950-1, 1.7.1.1) | | — |
| F.3.3.4 | Rated voltage..... :<br>(IEC 60065, 5.2 e)) & (IEC 60950-1, 1.7.1.1) | | — |
| F.3.3.4 | Rated frequency.....:<br>(IEC 60065, 5.2 f)) & (IEC 60950-1, 1.7.1.1) | | — |
| F.3.3.6 | Rated current or rated power.....:<br>(IEC 60065, 5.2 g), h)) & (IEC 60950-1, 1.7.1.1) | | — |
| F.3.3.7 | Equipment with multiple supply connections<br>(IEC 60950-1, 1.7.1.1) | | N/A |
| F.3.4 | Voltage setting device<br>(IEC 60065, 5.2 e)) & (IEC 60950-1, 1.7.4) | | N/A |
| F.3.5 | Terminals and operating devices | | N/A |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings:<br>(IEC 60065, 5.3 c)) & (IEC 60950-1, 1.7.5) | | — |
| F.3.5.2 | Switch position identification marking.....:<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 1.7.8.3) | | — |
| F.3.5.3 | Replacement fuse identification and rating markings<br>.....:<br>(IEC 60065, 14.6.3.2) & (IEC 60950-1, 1.7.6) | | — |
| F.3.5.4 | Replacement battery identification marking.....:<br>(IEC 60065, 5.5.2 c)) & (IEC 60950-1, 1.7.13) | | — |
| F.3.5.5 | Terminal marking location<br>(IEC 60950-1, 1.7.7.1) | | N/A |
| F.3.6 | Equipment markings related to equipment classification | | P |
| F.3.6.1 | Class I Equipment | | N/A |
| F.3.6.1.1 | Protective earthing conductor terminal<br>(IEC 60065, 5.3 a)) & (IEC 60950-1, 1.7.7.1) | | N/A |
| F.3.6.1.2 | Neutral conductor terminal<br>(IEC 60950-1, 1.7.7.2) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.6.1.3 | Protective bonding conductor terminals<br>(IEC 60950-1, 1.7.7.1) | | 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<br>(IEC 60065, 5.2 c)) & (IEC 60950-1, 1.7.7.2) | | N/A |
| F.3.6.2.2 | Class II equipment with functional earth terminal marking<br>(IEC 60950-1, 2.6.2) | ☐ used | P |
| F.3.7 | Equipment IP rating marking .....:<br>(IEC 60065, A.5) | IP20 | — |
| F.3.8 | External power supply output marking<br>(IEC 60065, 5.3 c)) | | N/A |
| F.3.9 | Durability, legibility and permanence of marking<br>(IEC 60065, 5.1) & (IEC 60950-1, 1.7.11) | | P |
| F.3.10 | Test for permanence of markings<br>(IEC 60065, 5.1) & (IEC 60950-1, 1.7.11) | | P |
| F.4 | Instructions<br>(IEC 60065, 5.4, 5.5.2) & (IEC 60950-1, 1.7.2.1, 1.7.14, 5.1.7, 3,4,3) | | P |
| | a) Equipment for use in locations where children not likely to be present – marking | | P |
| | b) Instructions given for installation or initial use | | P |
| | c) Equipment intended to be fastened in place | | P |
| | d) Equipment intended for use only in restricted access area | | P |
| | 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 |
| | j) Replaceable components or modules providing safeguard function | | N/A |
| F.5 | Instructional safeguards<br>(IEC 60065, 5.4, 5.5) | | P |
| | Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches**<br>(IEC 60950-1, 2.8.7) | | N/A |
| G.1.1 | General requirements<br>(IEC 60065, 14.7) | | N/A |
| G.1.2 | Ratings, endurance, spacing, maximum load<br>(IEC 60065, 14.7) | | N/A |
| **G.2** | **Relays**<br>(IEC 60065, 14.4.3) & (IEC 60950-1, 2.8.7) | | N/A |
| G.2.1 | General requirements | | N/A |
| G.2.2 | Overload test<br>(IEC 60950-1, 2.8.7.2) | | 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<br>(IEC 60065, 14.6.2.2) | | N/A |
| G.3.1.1a) &b) | Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)<br>(IEC 60065, 14.6.2.2 a)) | | N/A |
| G.3.1.1c) | Thermal cut-outs tested as part of the equipment as indicated in c)<br>(IEC 60065, 14.6.2.2 b)) | | N/A |
| G.3.1.2 | Thermal cut-off connections maintained and secure | | N/A |
| G.3.2 | Thermal links<br>(IEC 60065, 14.6.2.3) | | N/A |
| G.3.2.1a) | Thermal links separately tested with IEC 60691<br>(IEC 60065, 14.6.2.3 a)) | | N/A |
| G.3.2.1b) | Thermal links tested as part of the equipment<br>(IEC 60065, 14.6.2.3 b)) | | N/A |
| | Aging hours (H)..... : | | — |
| | Single Fault Condition..... : | | — |
| | Test Voltage (V) and Insulation Resistance (Ω).....: | | — |
| G.3.3 | PTC Thermistors<br>(IEC 60065, 14.6.4) & (IEC 60950-1, 2.5) | | N/A |
| G.3.4 | Overcurrent protection devices<br>(IEC 60065, 14.6.3) & (IEC 60950-1, 2.7) | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.3.5 | Safeguards components not mentioned in G.3.1 to G.3.5<br>(IEC 60065, 14.6.5) | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided<br>(IEC 60065, 14.6.5) | | P |
| G.3.5.2 | Single faults conditions..... :<br>(IEC 60065, 14.6.5) | (See appended Table B.4) | — |
| **G.4** | **Connectors** | | N/A |
| G.4.1 | Spacings<br>(IEC 60950-1, 2.10.3.1, 2.10.4.3) | | N/A |
| G.4.2 | Mains connector configuration ..... :<br>(IEC 60065, 15.1) & (IEC 60950-1, 3.2.4) | | — |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely<br>(IEC 60065, 15.1.2) & (IEC 60950-1, 4.3.5) | | N/A |
| **G.5** | **Wound Components** | | P |
| G.5.1 | Wire insulation in wound components..... | (See Annex J) | — |
| G.5.1.2 a) | Two wires in contact inside wound component, angle between 45° and 90°<br>(IEC 60065, 8.16) & (IEC 60950-1, 2.10.5.12) | | P |
| G.5.1.2 b) | Construction subject to routine testing<br>(IEC 60950-1, 2.10.5.11) | | N/A |
| G.5.2 | Endurance test on wound components<br>(IEC 60065, 8.17) | | N/A |
| G.5.2.1 | General test requirements | | N/A |
| G.5.2.2 | Heat run test<br>(IEC 60065, 8.17 a)) | | N/A |
| | Time (s)..... : | | — |
| | Temperature (°C)..... : | | — |
| G.5.2.3 | Wound Components supplied by mains<br>(IEC 60065, 8.17 d)) | | N/A |
| **G.5.3** | **Transformers**<br>(IEC 60950-1, 1.5.4) | | P |
| G.5.3.1 | Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)..... :<br>(IEC 60065, 14.4.3) | | — |
| | Position..... : | | — |
| | Method of protection ..... : | | — |
| G.5.3.2 | Insulation | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Protection from displacement of windings.....:<br>(IEC 60065, 14.4) & (IEC 60950-1, C.2) | | — |
| G.5.3.3 | Overload test.....: | (See appended table B.3) | — |
| G.5.3.3.1 | Test conditions<br>(IEC 60950-1, C.1) | | P |
| G.5.3.3.2 | Winding Temperatures testing in the unit<br>(IEC 60065, 11.2) & (IEC 60950-1, C.1) | | 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<br>(IEC 60065, 4.3.7, 14.10) & (IEC 60950-1, B.1) | | N/A |
| | Position ..... : | | — |
| G.5.4.2 | Test conditions<br>(IEC 60065, 4.3.7, 14.10) & (IEC 60950-1, B.2) | | N/A |
| G.5.4.3 | Running overload test<br>(IEC 60950-1, B.4) | | N/A |
| G.5.4.4 | Locked-rotor overload test<br>(IEC 60065, 4.3.7) & (IEC 60950-1, B.5) | | N/A |
| | Test duration (days) ..... : | | — |
| G.5.4.5 | Running overload test for d.c. motors in secondary circuits<br>(IEC 60950-1, B.6) | | N/A |
| G.5.4.5.2 | Tested in the unit<br>(IEC 60950-1, B.6.2) | | N/A |
| | Electric strength test (V).....: | | — |
| G.5.4.5.3 | Tested on the Bench - Alternative test method; test time (h) .....:<br>(IEC 60950-1, B.6.3) | | — |
| | Electric strength test (V).....: | | — |
| G.5.4.6 | Locked-rotor overload test for d.c. motors in secondary circuits<br>(IEC 60065, 4.3.7) & (IEC 60950-1, B.7) | | N/A |
| G.5.4.6.2 | Tested in the unit<br>(IEC 60950-1, B.7.2) | | N/A |
| | Maximum Temperature ..... : | | — |
| | Electric strength test (V) .....: | | — |
| G.5.4.6.3 | Tested on the bench - Alternative test method; test time (h).....:<br>(IEC 60950-1, B.7.3) | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Electric strength test (V)..... : | | — |
| G.5.4.7 | Motors with capacitors<br>(IEC 60950-1, B.8) | | N/A |
| G.5.4.8 | Three-phase motors<br>(IEC 60950-1, B.9) | | N/A |
| G.5.4.9 | Series motors<br>(IEC 60950-1, B.10) | | N/A |
| | Operating voltage ..... : | | — |
| **G.6** | **Wire Insulation** | | P |
| G.6.1 | General<br>(IEC 60065, 8.16) & (IEC 60950-1, 2.10.5.12) | | P |
| G.6.2 | Solvent-based enamel wiring insulation<br>(IEC 60065, 8.1) & (IEC 60950-1, 2.10.5.13) | | P |
| **G.7** | **Mains supply cords** | | N/A |
| G.7.1 | General requirements<br>(IEC 60065, 16.1, 16.2) & (IEC 60950-1, 3.2.5.1) | | N/A |
| | Type..... : | | — |
| | Rated current (A)..... : | | — |
| | Cross-sectional area ($mm^2$), (AWG)..... : | | — |
| G.7.2 | Compliance and test method<br>(IEC 60065, 16.2) & (IEC 60950-1, 3.2.5.1) | | N/A |
| G.7.3 | Cord anchorages and strain relief for non-detachable power supply cords | | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements<br>(IEC 60065, 16.5) & (IEC 60950-1, 3.2.6) | | N/A |
| | Strain relief test force (N)..... : | | — |
| G.7.3.2.2 | Strain relief mechanism failure<br>(IEC 60950-1, 3.2.6) | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm)..... :<br>(IEC 60065, 16.5) & (IEC 60950-1, 3.2.7) | | — |
| G.7.3.2.4 | Strain relief comprised of polymeric material<br>(IEC 60065, 16.5) & (IEC 60950-1, 3.2.6, 3.2.7) | | N/A |
| G.7.4 | Cord Entry..... :<br>(IEC 60950-1, 3.1.4, 3.2.7) | (See appended table 5.4.11.1) | — |
| G.7.5 | Non-detachable cord bend protection | | N/A |
| G.7.5.1 | Requirements<br>(IEC 60950-1, 3.2.8) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.5.2 | Mass (g) .....: | | — |
| | Diameter (m).....: | | — |
| | Temperature (°C)..... : | | — |
| G.7.6 | Supply wiring space<br>(IEC 60950-1, 3.2.9) | | N/A |
| G.7.6.2 | Stranded wire<br>(IEC 60950-1, 3.3.8) | | N/A |
| G.7.6.2.1 | Test with 8 mm strand<br>(IEC 60950-1, 3.3.8) | | N/A |
| **G.8** | **Varistors** | | P |
| G.8.1 | General requirements | Approved varistors used | P |
| G.8.2 | Safeguard against shock<br>(IEC 60065, 14.13) & (IEC 60950-1, Annex Q) | | P |
| G.8.3 | Safeguard against fire | | N/A |
| G.8.3.2 | Varistor overload test.....:<br>(IEC 60065, 14.13) | (See appended table B.3) | — |
| G.8.3.3 | Temporary overvoltage.....: | (See appended table B.3) | — |
| **G.9** | **Integrated Circuit (IC) Current Limiters**<br>(IEC 60950-1, Annex CC) | | N/A |
| G.9.1 a) | Manufacturer defines limit at max. 5A.<br>(IEC 60950-1, CC.1) | | N/A |
| G.9.1 b) | Limiters do not have manual operator or reset<br>(IEC 60950-1, CC.1) | | N/A |
| G.9.1 c) | Supply source does not exceed 250 VA .....:<br>(IEC 60950-1, CC.1) | | — |
| G.9.1 d) | IC limiter output current (max. 5A).....:<br>(IEC 60950-1, CC.1) | | — |
| G.9.1 e) | Manufacturers' defined drift .....:<br>(IEC 60950-1, CC.1) | | — |
| G.9.2 | Test Program 1<br>(IEC 60950-1, CC.2) | | N/A |
| G.9.3 | Test Program 2<br>(IEC 60950-1, CC.3) | | N/A |
| G.9.4 | Test Program 3<br>(IEC 60950-1, CC.4) | | N/A |
| **G.10** | **Resistors**<br>(IEC 60065, 14.2) & (IEC 60950-1, 1.5.7) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.10.1 | General requirements<br>(IEC 60065, 14.2) & (IEC 60950-1, 1.5.7.1) | | N/A |
| G.10.2 | Resistor test<br>(IEC 60065, 14.2) & (IEC 60950-1, 1.5.7.2) | | N/A |
| G.10.3 | Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable<br>(IEC 60065, 14.2) & (IEC 60950-1, 1.5.7.3) | | 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<br>(IEC 60950-1, 1.5.7.3) | | N/A |
| **G.11** | **Capacitor and RC units**<br>(IEC 60065, 14.3) & (IEC 60950-1, 1.5.6) | | P |
| G.11.1 | General requirements<br>(IEC 60065, 14.3.1) & (IEC 60950-1, 1.5.6) | Approved CX1 and CY1 used | P |
| G.11.2 | Conditioning of capacitors and RC units<br>(IEC 60065, 14.3.1) & (IEC 60950-1, 1.5.6) | | P |
| G.11.3 | Rules for selecting capacitors<br>(IEC 60065, 14.3.2) & (IEC 60950-1, 1.5.6) | | P |
| **G.12** | **Optocouplers** | | P |
| | Optocouplers comply with IEC 60747-5-5:2007<br>Spacing or Electric Strength Test (specify option and test results)..... :<br>(IEC 60065, 14.12) & (IEC 60950-1, 2.10.5.4) | Approved U2 used | P |
| | Type test voltage Vini .....: | | — |
| | Routine test voltage, Vini,b ..... : | | — |
| **G.13** | **Printed boards**<br>(IEC 60065, 13.5) & (IEC 60950-1, 2.10.6) | | P |
| G.13.1 | General requirements | | P |
| G.13.2 | Uncoated printed boards<br>(IEC 60065, 13.5.1) & (IEC 60950-1, 2.10.6.1) | | P |
| G.13.3 | Coated printed boards<br>(IEC 60065, 13.5.2) & (IEC 60950-1, 2.10.6.2) | | N/A |
| G.13.4 | Insulation between conductors on the same inner surface<br>(IEC 60950-1, 2.10.6.3) | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Compliance with cemented joint requirements (Specify construction).....: (IEC 60065, 13.5.2, 13.6, 13.7) & (IEC 60950-1, 2.10.5.5) | | — |
| G.13.5 | Insulation between conductors on different surfaces (IEC 60065, 13.5.1) & (IEC 60950-1, 2.10.6.4) | | N/A |
| | Distance through insulation.....: | (See appended table 5.4.4.5) | — |
| | Number of insulation layers (pcs) ..... : | | — |
| G.13.6 | Tests on coated printed boards (IEC 60065, 13.5.2) & (IEC 60950-1, 2.10.8) | | N/A |
| G.13.6.1 | Sample preparation and preliminary inspection (IEC 60950-1, 2.10.8.1) | | N/A |
| G.13.6.2a) | Thermal conditioning (IEC 60950-1, 2.10.8.2) | | N/A |
| G.13.6.2b) | Electric strength test (IEC 60950-1, 2.10.8.3) | | N/A |
| G.13.6.2c) | Abrasion resistance test (IEC 60950-1, 2.10.8.4) | | N/A |
| **G.14** | **Coating on components terminals** | | N/A |
| G.14.1 | Requirements .....: (IEC 60950-1, 2.10.7) | (See G.13) | — |
| **G.15** | **Liquid filled components** | | N/A |
| G.15.1 | General requirements | | N/A |
| G.15.2 | Requirements | | N/A |
| G.15.3 | Compliance and test methods | | N/A |
| G.15.3.1 | Hydrostatic pressure test | | N/A |
| G.15.3.2 | Creep resistance test | | N/A |
| G.15.3.3 | Tubing and fittings compatibility test | | N/A |
| G.15.3.4 | Vibration test | | N/A |
| G.15.3.5 | Thermal cycling test | | N/A |
| G.15.3.6 | Force test | | N/A |
| G.15.4 | Compliance | | N/A |
| **G.16** | **IC including capacitor discharge function (ICX)** | | N/A |
| a) | Humidity treatment in accordance with sc5.4.8 – 120 hours | | N/A |
| b) | Impulse test using circuit 2 with Uc = to transient voltage .....: | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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<br>(IEC 60950-1, M.1) | | N/A |
| H.2 | Method A<br>(IEC 60950-1, M.2) | | N/A |
| H.3 | Method B<br>(IEC 60950-1, M.3) | | N/A |
| H.3.1 | Ringing signal<br>(IEC 60950-1, M.3.1) | | N/A |
| H.3.1.1 | Frequency (Hz) .....:<br>(IEC 60950-1, M.3.1.1) | | — |
| H.3.1.2 | Voltage (V) .....:<br>(IEC 60950-1, M.3.1.2) | | — |
| H.3.1.3 | Cadence; time (s) and voltage (V) .....:<br>(IEC 60950-1, M.3.1.3) | | — |
| H.3.1.4 | Single fault current (mA):..... :<br>(IEC 60950-1, M.3.1.4) | | — |
| H.3.2 | Tripping device and monitoring voltage.....:<br>(IEC 60950-1, M.3.2) | | — |
| H.3.2.1 | Conditions for use of a tripping device or a monitoring voltage complied with<br>(IEC 60950-1, M.3.2.1) | | N/A |
| H.3.2.2 | Tripping device<br>(IEC 60950-1, M.3.2.2) | | N/A |
| H.3.2.3 | Monitoring voltage (V).....:<br>(IEC 60950-1, M.3.2.3) | | — |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **J** | **INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION** | | P |
| | General requirements<br>(IEC 60065, Annex H) & (IEC 60950-1, Annex U) | (See separate test report) | P |
| **K** | **SAFETY INTERLOCKS** | | N/A |
| K.1 | General requirements<br>(IEC 60065, 14.8) & (IEC 60950-1, 2.8.1, 2.8.2) | | N/A |
| K.2 | Components of safety interlock safeguard mechanism .....<br>(IEC 60950-1, 2.8.7) | (See Annex G) | — |
| K.3 | Inadvertent change of operating mode<br>(IEC 60950-1, 2.8.3) | | N/A |
| K.4 | Interlock safeguard override<br>(IEC 60950-1, 2.8.6) | | N/A |
| K.5 | Fail-safe<br>(IEC 60950-1, 2.8.4) | | N/A |
| | Compliance.....: | (See appended table B.4) | — |
| K.6 | Mechanically operated safety interlocks<br>(IEC 60950-1, 2.8.5) | | N/A |
| K.6.1 | Endurance requirement<br>(IEC 60950-1, 2.8.5) | | N/A |
| K.6.2 | Compliance and Test method.....:<br>(IEC 60950-1, 2.8.5) | | — |
| K.7 | Interlock circuit isolation<br>(IEC 60950-1, 2.8.7) | | N/A |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....:<br>(IEC 60950-1, 2.8.7.1, 2.8.7.3) | | — |
| K.7.2 | Overload test, Current (A).....:<br>(IEC 60950-1, 2.8.7.2) | | — |
| K.7.3 | Endurance test<br>(IEC 60950-1, 2.8.7.3) | | N/A |
| K.7.4 | Electric strength test .....:<br>(IEC 60950-1, 2.8.7.4) | (See appended table 5.4.11) | — |
| **L** | **DISCONNECT DEVICES** | | P |
| L.1 | General requirements<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 3.4.1, 3.4.2) | Integrated mains plug as disconnect device | P |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| L.2 | Permanently connected equipment<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 3.4.3) | | N/A |
| L.3 | Parts that remain energized<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 3.4.4) | | N/A |
| L.4 | Single phase equipment<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 3.4.6) | | P |
| L.5 | Three-phase equipment<br>(IEC 60065, 8.18) & (IEC 60950-1, 3.4.7) | | N/A |
| L.6 | Switches as disconnect devices<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 3.4.8) | | N/A |
| L.7 | Plugs as disconnect devices<br>(IEC 60065, 5.5.3) & (IEC 60950-1, 3.4.9) | | P |
| L.8 | Multiple power sources<br>(IEC 60950-1, 3.4.11) | | N/A |
| **M** | **EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS** | | N/A |
| M.1 | General requirements<br>(IEC 60065, 5.5.2 c)) & (IEC 60950-1, 1.7.13) | | N/A |
| M.2 | Safety of batteries and their cells<br>(IEC 60065, 14.11.1) & (IEC 60950-1, 4.3.8) | | N/A |
| M.2.1 | Requirements<br>(IEC 60950-1, 4.3.8) | | N/A |
| M.2.2 | Compliance and test method (identify method)..... :<br>(IEC 60950-1, 4.3.8) | | — |
| M.3 | Protection circuits<br>(IEC 60950-1, 4.3.8) | | N/A |
| M.3.1 | Requirements<br>(IEC 60950-1, 4.3.8) | | N/A |
| M.3.2 | Tests<br>(IEC 60950-1, 4.3.8) | | N/A |
| | - Overcharging of a rechargeable battery | | N/A |
| | - Unintentional charging of a non-rechargeable battery | | N/A |
| | - Reverse charging of a rechargeable battery | | N/A |
| | - Excessive discharging rate for any battery | | N/A |
| M.3.3 | Compliance ..... :<br>(IEC 60950-1, 4.3.8) | (See appended Tables and Annex M and M.4) | — |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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.....: (IEC 60065, 14.11.3) | (See Table M.4) | — |
| M.4.2.2 b) | Single faults in charging circuitry.....: (IEC 60065, 14.11.3) | (See Annex B.4) | — |
| M.4.3 | Fire Enclosure | | N/A |
| M.4.4 | Endurance of equipment containing a secondary lithium battery | | N/A |
| M.4.4.2 | Preparation | | N/A |
| M.4.4.3 | Drop and charge/discharge function tests (IEC 60065, 14.11.5) | | 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 | | N/A |
| M.6.1.3 | Compliance (Specify M.6.1.2 or alternative method) .....: | | — |
| M.6.2 | Leakage current (mA) .....: | | — |
| 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 |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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) ..... :<br>(IEC 60065, 5.5.1) | | — |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | P |
| | Metal(s) used.....:<br>(IEC 60065, Annex F) & (IEC 60950-1, Annex J) | Pollution degree considered | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | P |
| | Figures O.1 to O.20 of this Annex applied.....:<br>(IEC 60065, Annex E) & (IEC 60950-1, Annex F) | | — |
| **P** | **SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS** | | P |
| P.1 | General requirements | | P |
| P.2.2 | Safeguards against entry of foreign object<br>(IEC 60065, 9.1.3) & (IEC 60950-1, 4.6.1) | | P |
| | Location and Dimensions (mm) ..... : | No opening | — |
| P.2.3 | Safeguard against the consequences of entry of foreign object | | P |
| P.2.3.1 | Safeguards against the entry of a foreign object<br>(IEC 60950-1, 4.6.1, 4.6.4.3) | | P |
| | Openings in transportable equipment | | N/A |
| | Transportable equipment with metalized plastic parts.....: | | — |
| P.2.3.2 | Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) .....:<br>(IEC 60950-1, 4.6.4.2, 4.6.4.3) | | — |
| P.3 | Safeguards against spillage of internal liquids | | N/A |
| P.3.1 | General requirements | | N/A |

| IEC/EN 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 (IEC 60950-1, 4.6.5) | | N/A |
| | Tc (°C)..... : | | — |
| | Tr (°C)..... : | | — |
| | Ta (°C)..... : | | — |
| P.4.2 b) | Abrasion testing ..... : | (See G.13.6.2) | — |
| P.4.2 c) | Mechanical strength testing..... : | (See Annex T) | — |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | P |
| Q.1 | Limited power sources (IEC 60950-1, 2.5) | | P |
| Q.1.1 a) | Inherently limited output (IEC 60950-1, 2.5) | | N/A |
| Q.1.1 b) | Impedance limited output (IEC 60950-1, 2.5) | | P |
| | - Regulating network limited output under normal operating and simulated single fault condition | | P |
| Q.1.1 c) | Overcurrent protective device limited output (IEC 60950-1, 2.5) | | N/A |
| Q.1.1 d) | IC current limiter complying with G.9 (IEC 60950-1, 2.5) | | N/A |
| Q.1.2 | Compliance and test method (IEC 60950-1, 2.5) | | P |
| Q.2 | Test for external circuits – paired conductor cable (IEC 60950-1, 6.3) | | 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)). ..... : | | — |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **S** | **TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| S.1 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C)..... : | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | - Material not consumed completely | | N/A |
| | - Material extinguishes within 30s | | N/A |
| | - No burning of layer or wrapping tissue | | N/A |
| S.2 | Flammability test for fire enclosure and fire barrier integrity | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C)..... : | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | Test specimen does not show any additional hole | | N/A |
| S.3 | Flammability test for the bottom of a fire enclosure (IEC 60950-1, A.3) | | 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 |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **T** | **MECHANICAL STRENGTH TESTS** | | **P** |
| T.1 | General requirements | | P |
| T.2 | Steady force test, 10 N ..... :<br>(IEC 60065, 13.3.1) & (IEC 60950-1, 4.2.2) | (See appended table T.2) | — |
| T.3 | Steady force test, 30 N ..... :<br>(IEC 60065, 13.3.1) & (IEC 60950-1, 4.2.3) | (See appended table T3) | — |
| T.4 | Steady force test, 100 N ..... :<br>(IEC 60065, 9.1.7) | (See appended table T4) | — |
| T.5 | Steady force test, 250 N ..... :<br>(IEC 60065, 9.1.7) & (IEC 60950-1, 4.2.4) | (See appended table T5) | — |
| T.6 | Enclosure impact test<br>(IEC 60065, 12.1.4) & (IEC 60950-1, 4.2.5) | (See appended table T6) | N/A |
| | Fall test | | N/A |
| | Swing test | | N/A |
| T.7 | Drop test ..... :<br>(IEC 60065, 12.1.5) & (IEC 60950-1, 4.2.6) | (See appended table T7) | — |
| T.8 | Stress relief test..... :<br>(IEC 60065, 12.1.6) & (IEC 60950-1, 4.2.7) | (See appended table T8) | — |
| T.9 | Impact Test (glass)<br>(IEC 60065, 19.6.1) & (IEC 60950-1, 4.2.5) | | 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..... :<br>(IEC 60065, 19.6.2) | (See sub-clause 4.4.4.9) | — |
| T.11 | Test for telescoping or rod antennas<br>(IEC 60065, 12.6) | | 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<br>(IEC 60065, 18.1) & (IEC 60950-1, 4.2.8) | | N/A |
| U.2 | Compliance and test method for non-intrinsically protected CRTs<br>(IEC 60065, 18.2) | | N/A |

| IEC/EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| U.3 | Protective Screen..... : | (See Annex T) | — |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)** | | P |
| V.1 | Accessible parts of equipment<br>(IEC 60065, 9.1.1.3, 9.1.3, 9.1.4) & (IEC 60950-1, 1.7.2.5, 2.1.1.1, EE.5) | | P |
| V.2 | Accessible part criterion | | P |

| 4.1.2 | TABLE: List of critical components | | | | |
|---|---|---|---|---|---|
| Object/part No. | Manufacturer/ trademark | Type/ model | Technical data | Standard | Mark(s) of conformity |
| Plastic Enclosure | COVESTRO DEUTSCHLAND AG [PC RESINS] | 6485 + (z)(f1)<br>6485 + (z)(f2) | V-0, 115°C, min. thinkness 2.0 mm. | UL 94 | UL E41613 |
| Plug Holder | COVESTRO DEUTSCHLAND AG [PC RESINS] | 6485 + (z)(f1)<br>6485 + (z)(f2) | V-0, 115°C, min. thinkness 2.0 mm. | -- | UL E41613 |
| PCB | DONGGUAN CITY TONSUN ELECTRONIC CO LTD | TS-03 | V-0, 130°C | ZPMV2<br>UL 796 | UL E315942 |
| F101 | XC Electronics (Shen Zhen) Corp. Ltd. | 5TE | T4AL, 250Vac | IEC/EN 60127-1, IEC/EN 60127-3 | VDE 40029550<br>UL E249609 |
| Varistor (RV101) (Optional) | Shantou High-New Technology Development Zone Songtian Enterprise Co Ltd | STE-10D471K<br>STE-10D561K | Minimum 300VAC, coating min. V-1, 6KV/3KA, minimum 105 °C | IEC/EN 61051-1 IEC/EN 61051-2 | VDE 40023049 UL E330837 |
| Bridge Diodes (BD101) | Interchangeable | Interchangeable | Min. 0.5A, min. 1000V | IEC/EN 62368 | Tested with appliance |
| Electrolytic Capacitor (C101, C102) | Interchangeable | Interchangeable | 6.8-10μF, min. 400V, min. 105°C | -- | -- |
| IC101 | Interchangeable | Interchangeable | Min. 2A, min. 600V | -- | -- |
| Current sensre Resistor (R106 R107) | Interchangeable | Interchangeable | Each Min. 1.2ohm, 1/4W | -- | -- |
| Bridge-Capacitor (CY101) | Success Electronics Co., Ltd | SE | Min.500Vac, Max. 1000pF, 125°C | IEC/EN 60384-14 | VDE 40020002 UL E114280 |
| Transformer (T101) | Airline Mechanical Company Limited | 8916+CA328-1E16 | Class B. | Applicable part of IEC/EN 60065 and according to IEC 60085 | Tested with appliance |
| Component in the mains transformer T101 | | | | | |
| - Bobbin | Chang Chun Plastics Co., Ltd. | T375J | Phenolic, V-0, 150°C, min. 0.71mm thickness. | -- | UL E59481 |

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

| | | | | | |
|---|---|---|---|---|---|
| (Alternative) | Sumitomo Bakelite Co Ltd | PM-9820 | Phenolic, V-0, 150°C, min. 0.71mm thickness. | -- | UL E41429 |
| - Insulation tape | Jingjiang Yahua Pressure Sensitive Glue Co Ltd | PZ, CT | 130°C | -- | UL E165111 |
| (Alternative) | P Leo & Co (B C) Ltd | 1P801, 1P802 | 130°C | -- | UL E126174 |
| - Triple wire used in secondary | Furukawa Electric Co Ltd | TEX-E | 130°C | IEC/EN 60950-1 | VDE 006735 UL E206440 |
| (Alternative) | Dah Jin Technology Co Ltd | TLW-B | 130°C | IEC/EN 60950-1 | VDE 40008834 UL E236542 |
| - Primary magnet wire | PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD | UEW/U | 130 °C | -- | UL E201757 |
| (Alternative) | Interchangeable | Interchangeable | 130°C | -- | UL |
| - Varnish | Elantas Electrical Insulation Elantas Pdg Inc | 468-2(x), | 130°C | -- | UL E75225 |
| (Alternative) | Hongdatong Industry (Dongguan) Co Ltd China | WE-386 | 155°C | -- | UL E238459 |
| Inductor LF101 | Airline Mechanical Company Limited | 2305-02030Y0000 | EE8.3 20mH(min) | -- | Tested with appliance |
| Output cord | Interchangeable | Interchangeable | VW-1, min. 80°C, min. 24AWG, min. 30Vac | -- | UL |
| Note: | | | | | |
| Supplementary information:<br>1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.<br>2) Description line content is optional. Main line description needs to clearly detail the component used for testing | | | | | |

| IEC/EN 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/EN 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 | 264Va.c. 60Hz | All primary circuits | Normal | -- | -- | -- | ES3 (declared) |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |
| 2 | 264Va.c. 60Hz | Output of power supply unit (12V) | Normal | 12.08Vd.c. | -- | DC | ES1 |
| | | | Abnormal | 12.09Vd.c. | -- | DC | |
| | | | Single fault – SC:D1 | 0 | -- | -- | |

| 5.2.2.3 - Capacitance Limits | | | | | | |
|---|---|---|---|---|---|---|
| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | ES Class |
| | | | | Capacitance, nF | Upk (V) | |
| 1 | | | Normal | -- | -- | -- |
| | | | Abnormal | -- | -- | |
| | | | Single fault | -- | -- | |

| 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/EN 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:

Normal –

Abnormal -

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) .....: | 90V/ 60Hz Horizontal | 90V/ 60Hz Vertical | 264V/ 50Hz Horizontal | 264V/ 50Hz Vertical | — |
| | Ambient $T_{min}$ (°C) .....: | 25.6 | 24.3 | 25.2 | 24.1 | — |
| | Ambient $T_{max}$ (°C) .....: | 25.7 | 25.6 | 24.0 | 25.1 | — |
| | Tma (°C) .....: | 25.0 | 25.0 | 25.0 | 25.0 | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | Allowed $T_{max}$ (°C) |
| RV101 | | 71.4 | 64.6 | 46.7 | 43.9 | 105-20=85 |
| C102 | | 82.2 | 77.2 | 62.1 | 60.1 | 105-20=85 |
| C101 | | 79.7 | 73.4 | 50.8 | 48.2 | 105-20=85 |
| LF101 coil | | 80.8 | 77.8 | 51.7 | 51 | 130-20=110 |
| LF101 core | | 79.5 | 76 | 54.4 | 53.6 | 130-20=110 |
| T101 coil | | 88.2 | 81.4 | 75.7 | 71.6 | 110-20=90 |
| T101 core | | 82.1 | 74.5 | 70.8 | 65.7 | 110-20=90 |
| CY101 | | 57.6 | 50.3 | 48.8 | 44.4 | 125-20=105 |
| C201 | | 51.5 | 45.1 | 45.8 | 41.3 | 105-20=85 |
| output wire | | 37.5 | 32.2 | 33.3 | 30.1 | 80-20=60 |
| D201 | | 90.6 | 87 | 85.2 | 82.4 | Ref. |
| PCB near T101 | | 73.9 | 67 | 59.4 | 56.3 | 130-20=110 |
| Enclosure inside near T101 | | 68 | 59.8 | 59.6 | 53.6 | 115-20=95 |

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

| | | | | | |
|---|---|---|---|---|---|
| Enclosure outside near T101 | 52.1 | 39.6 | 46.2 | 37.7 | 95-20=75 |
| Ambient | 25.8 | 25.1 | 25.4 | 25.3 | -- |

Supplementary information:Ta: 45°C

| 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: Vicat softening temperature of thermoplastics** | | N |
|---|---|---|---|
| Penetration (mm)..... : | | | — |
| Object/ Part No./Material | Manufacturer/trademark | T softening (°C) | |
| | | | |

Supplementary information:

| **5.4.1.10.3** | **TABLE: Ball pressure test of thermoplastics** | | P |
|---|---|---|---|
| Allowed impression diameter (mm) ..... : | ≤ 2 mm | | — |
| Object/Part No./Material | Manufacturer/trademark | Test temperature (°C) | Impression diameter (mm) |
| Plug holder | COVESTRO DEUTSCHLAND AG [PC RESINS] | 125 | 1.1 |
| Bobbin of T101 | Chang Chun Plastics Co., Ltd. | 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) |
| Between F101 pad 1 and 2 | 420 | 240 | <30 | 2.3 | 3.4 | 2.5 | 3.4 |
| Between L and N (before fuse) | 420 | 240 | <30 | 2.3 | 4.0 | 2.5 | 4.0 |
| CY101 pri. To sec. | 372 | <240 | * | 4.0 | 7.2 | 5.0 | 7.2 |

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Primary trace to secondary trace | 580 | <240 | * | 4.6 | 7.3 | 5.0 | 7.4 |
| Transformer secondary winding to core | 580 | <240 | * | 4.6 | 6.2 | 5.0 | >6.5 |
| Transformer primary core to secondary components | 580 | <240 | * | 4.6 | >7.8 | 5.0 | >7.8 |
| PCB under Transformer primary to secondary | 580 | <240 | * | 4.6 | 10.1 | 5.0 | 10.1 |
| Supplementary information:<br>Note 1: Only for frequency above 30 kHz<br>Note 2: See table 5.4.2.4 if this is based on electric strength test<br>Note 3: Provide Material Group | | | | | | | |

| **5.4.2.3** | **TABLE: Minimum Clearances distances using required withstand voltage** | | P |
|---|---|---|---|
| | Overvoltage Category (OV)..... : | | |
| | Pollution Degree..... : | | |

| Clearance distanced between: | Required withstand voltage | Required cl (mm) | Measured cl (mm) |
|---|---|---|---|
| Between F101 pad 1 and 2 | 2500Vpeak | 2.3 | 3.4 |
| Between L and N (before fuse) | 2500Vpeak | 3.0 | 4.0 |
| CY101 pri. To sec. | 2500Vpeak | 4.0 | 7.3 |
| Primary trace to secondary trace | 2500Vpeak | 4.6 | >7.2 |
| Transformer secondary winding to core | 2500Vpeak | 4.6 | >6.8 |
| Transformer primary core to secondary components | 2500Vpeak | 4.6 | >7.8 |
| PCB under Transformer primary to secondary | 2500Vpeak | 4.6 | >8.0 |
| 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)** | **TABLE: Distance through insulation measurements** | P |
|---|---|---|

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

| 5.4.4.9 | | | | | |
|---|---|---|---|---|---|
| Distance through insulation di at/of: | Peak voltage (V) | Frequency (kHz) | Material | Required DTI (mm) | DTI (mm) |
| Plastic enclosure | 580 | 62.7 | 3000 | 0.4 | Min.:2.0 |
| Bobbin | 580 | 62.7 | 3000 | 0.4 | Min.:1.6 |
| Supplementary information: | | | | | |

| 5.4.9 | TABLE: Electric strength tests | | | P |
|---|---|---|---|---|
| Test voltage applied between: | | Voltage shape (AC, DC) | Test voltage (V) | Breakdown Yes / No |
| Functional: | | | | |
| -- | | -- | -- | -- |
| Basic/supplementary: | | | | |
| Between L and N (fuse F101 opened) | | AC | 1500 | No |
| Reinforced: | | | | |
| Between input and output terminal | | DC | 4242 | No |
| Between input and plastic enclosure (with metal foil) | | AC | 3000 | No |
| Transformer primary and secondary | | AC | 3000 | No |
| Transformer secondary and core | | AC | 3000 | No |
| 1 layer insulation tape of transformer | | AC | 3000 | No |
| Routine Tests: | | | | |
| Supplementary information: | | | | |

| 5.5.2.2 | TABLE: Stored discharge on capacitors | | | | N/A |
|---|---|---|---|---|---|
| Supply Voltage (V), Hz | Test Location | Operating Condition (N, S) | Switch position On or off | Measured Voltage (after 2 seconds) | ES Classification |
| 264V, 60Hz | Phase to Neutral | -- | - | -- | -- |
| 264V, 60Hz | Phase to Neutral | -- | --- | -- | - |

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

Supplementary information:
☒ bleeding resistor rating:
☐ 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:

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

| **5.7.2.2, 5.7.4** | **TABLE: Earthed accessible conductive part** | | N/A |
|---|---|---|---|
| Supply voltage..... : | | | — |
| Location | | Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7 | Touch current (mA) |
| | | 1 | |
| | | 2* | |
| | | 3 | |
| | | 4 | |
| | | 5 | |
| | | 6 | |
| | | 8 | |

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

| IEC/EN 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 |
| A | DC Output | Power (W)..... : | 13.95 | 13.95 | PS2 |
| | | VA (V)..... : | 11.89 | 11.89 | |
| | | IA (A)..... : | 1.173 | 1.173 | |
| B | | Power (W)..... : | | | |
| | | VA (V)..... : | | | |
| | | IA (A)..... : | | | |
| C | | Power (W)..... : | | | |
| | | VA (V)..... : | | | |
| | | IA (A)..... : | | | |
| D | | Power (W)..... : | | | |
| | | VA (V)..... : | | | |
| | | IA (A)..... : | | | |
| Supplementary Information:<br>(*) Measurement taken only when limits at 3 seconds exceed PS1 limits | | | | | |

| 6.2.3.1 | TABLE: Determination of Potential Ignition Sources (Arcing PIS) | | | N/A |
|---|---|---|---|---|
| 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 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 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. | | | | |

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

| 6.2.3.2 | TABLE: Determination of Potential Ignition Sources (Resistive PIS) | | | | N/A |
|---|---|---|---|---|---|
| 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 |
| | | | | | |
| | | | | | |

Supplementary Information:

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

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

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

| 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: | | | |

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

| 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 |
| 90V/50Hz | 0.251 | -- | 15.54 | -- | F101 | 0.251 | Loading: 12V1A |
| 90V/60Hz | 0.252 | -- | 15.62 | -- | F101 | 0.252 | Ditto |
| 100V/50Hz | 0.246 | 0.5 | 15.43 | -- | F101 | 0.246 | Ditto |
| 100V/60Hz | 0.247 | 0.5 | 15.38 | -- | F101 | 0.247 | Ditto |
| 240V/50Hz | 0.124 | 0.5 | 14.87 | -- | F101 | 0.124 | Ditto |
| 240V/60Hz | 0.129 | 0.5 | 14.80 | -- | F101 | 0.129 | Ditto |
| 264V/50Hz | 0.116 | -- | 14.68 | -- | F101 | 0.116 | Ditto |
| 264V/60Hz | 0.115 | -- | 14.85 | -- | F101 | 0.115 | Ditto |
| 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 blow | | | | — |
| Power source for EUT: Manufacturer, model/type, output rating .....: | | | | | See label | | | | — |
| Component No. | Abnormal Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation | |
| DC output | O-L | 240 | 5h 50mins | F1, | 0.286 to 0.318 to 0.336 to 0.05 | | T1 coil: 112.0°C T1 core: 104.5°C Ambient: 25.2°C | The unit shutdown when the loading to 1.20A. No damaged, no hazards. | |
| | | | | | | | | | |
| Supplementary information:<br>Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4. | | | | | | | | | |

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

| B.4 | TABLE: Fault condition tests | | P |
|---|---|---|---|
| Ambient temperature (°C) .....: | | See blow | — |
| Power source for EUT: Manufacturer, model/type, output rating .....: | | See label | — |

| Component No. | Fault Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
|---|---|---|---|---|---|---|---|---|
| RV101 | S-C | 240V/60Hz | 1s | F101, | 0.003 | -- | -- | F101 opened immediately . No hazard. |
| R102 | S-C | 240V/60Hz | 1s | F101 | 0.003 | -- | -- | F101 opened immediately, No hazard. |
| C102 | S-C | 240V/60Hz | 10mins | F101 | 0.003 | -- | -- | Unit shutdown immediately, F101 opened, no hazard |
| C202 | S-C | 240V/60Hz | 1s | F101 | 0.015 | -- | -- | Unit shutdown immediately, recoverable when the fault removed, No damage, no hazard |
| R109 | S-C | 240V/60Hz | 10mins | F101 | 0.010 | -- | -- | Unit shutdown immediately, IC101 damage, no hazard |
| R111 | S-C | 240V/60Hz | 1s | F101 | 0.006 | -- | -- | Unit shutdown immediately, no hazard |
| T101 pin6-10 | S-C | 240V/60Hz | 1s | F101 | 0.024 | -- | -- | Unit shutdown immediately, F1 opened. Repeated, no hazard |
| D201 | S-C | 240V/60Hz | 10mins | F101 | 0.016 | -- | -- | Unit shutdown immediately, no hazard |
| BD101 | S-C | 240V/60Hz | 1s | F101 | 0.002 | -- | -- | F101 opened immediately, No hazard. |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IC101 pin 1-5 | S-C | 240V/60Hz | 10mins | F101 | 0.105 | -- | -- | Unit shutdown immediately, No damage, no hazard |
| DC output | S-C | 240V/60Hz | 10mins | F101 | 0.142 | -- | -- | Unit shutdown immediately, recoverable when the fault removed, No damage, no hazard |

Supplementary information: S-C=Short Circuit, O-C=Open Circuit, O-L=Over Load.
The Electric strength tests were successfully conducted after the completion of fault tests, no breakdown.
*) fuse current is more than 2.1 times fuse rating.

| **Annex M** | **TABLE: Batteries** | N/A |
|---|---|---|
| The tests of Annex M are applicable only when appropriate battery data is not available | | |
| Is it possible to install the battery in a reverse polarity position?..... : | | |

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

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

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

| Battery/Cell | Test conditions | Measurements | Observation |
|---|---|---|---|

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

| No. | | U | I (A) | Temp (C) | |
|---|---|---|---|---|---|
| | Normal | | | | |
| | Abnormal | | | | |
| | Single fault –SC/OC | | | | |
| | Normal | | | | |
| | Abnormal | | | | |
| | Single fault – SC/OC | | | | |

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)** | | | | | P |
|---|---|---|---|---|---|---|
| Note: Measured UOC (V) with all load circuits disconnected: | | | | | | |
| Output Circuit | Components | $U_{oc}$ (V) | $I_{sc}$ (A) | | S (VA) | |
| | | | Meas. | Limit | Meas. | Limit |
| 12V output | Normal operation | 12.13 | 4.08 | 8 | 39.93 | 100 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Supplementary Information:
SC=Short circuit, OC=Open circuit

| **T.2, T.3, T.4, T.5** | **TABLE: Steady force test** | | | | P |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Force (N) | Test Duration (sec) | Observation |
| Internal component | -- | -- | 10 | 5 | No any hazards, no reducing the insulation distance. |
| External enclosure | PC | 2.0 | 250 | 5 | No any hazards, no any damages. |

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

| Supplementary information: |
|---|

| T.6, T.9 | TABLE: Impact tests | | | | N/A |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Vertical distance (mm) | Observation | |
| | | | | | |
| Supplementary information: | | | | | |

| T.7 | TABLE: Drop tests | | | | P |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Drop Height (mm) | Observation | |
| Top External enclosure | PC | 2.32 | 1000 | No any hazards, no any damages. | |
| Side External enclosure | PC | 2.32 | 1000 | No any hazards, no any damages. | |
| Bottom External enclosure | PC | 2.32 | 1000 | No any hazards, no any damages. | |
| Supplementary information: | | | | | |

| T.8 | TABLE: Stress relief test | | | | P |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation |
| External enclosure | PC | 2.32 | 88 | 7 | No any hazards, no any damages. |
| Supplementary information: | | | | | |

| ATTACHMENT TO TEST REPORT IEC/EN 62368-1<br>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES<br>(Audio/video, information and communication technology equipment Part 1: Safety requirements) | |
|---|---|
| **Differences according to**..... : | EN IEC 62368-1: 2020/A11: 2020 |
| **Attachment Form No**..... : | EU_GD_IEC62368_1B |
| **Attachment Originator**..... : | Intertek Semko AB |
| **Master Attachment**..... : | Date (2015-08) |
| **Copyright © 2015 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE)** | |

| | **CENELEC COMMON MODIFICATIONS (EN)** | | P |
|---|---|---|---|
| 1 | NOTE Z1 | | P |
| 4.Z1 | Protective devices included as integral parts of the equipment or as parts of the building installation: | | P |
| | a) Included as parts of the equipment | | P |
| | b) For components in series with the mains; by devices in the building installation | | P |
| | c) For pluggable type B or permanently connected; by devices in the building installation | | N/A |
| 5.4.2.3.2.4 | Interconnection with external circuit | | N/A |
| 10.2.1 | Additional requirements in 10.5.1 | | P |
| 10.5.1 | RS1 compliance measurement conditions | | P |
| 10.6.2.1 | EN 71-1:2011, 4.20 and methods and distances | | N/A |
| 10.Z1 | Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz | | P |
| G.7.1 | NOTE Z1 | | N/A |

| ***ZB*** | **ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)** | | **P** |
|---|---|---|---|
| 4.1.15 | **Denmark, Finland, Norway and Sweden:**<br>Class I pluggable equipment type A marking | | N/A |
| 4.7.3 | **United Kingdom:**<br>Torque test socket-outlet BS 1363, and the plug part BS 1363. | | P |
| 5.2.2.2 | **Denmark:**<br>Warning for high touchcurrent | | N/A |
| 5.4.11.1 and Annex G | **Finland and Sweden:**<br>Separation of the telecommunication network from earth | | N/A |
| 5.5.2.1 | **Norway:**<br>Capacitors rated for the applicable line-to-line voltage (230 V). | | N/A |
| 5.5.6 | **Finland, Norway and Sweden:**<br>Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2. | | N/A |
| 5.6.1 | **Denmark:**<br>Protection for pluggable equipment type A; integral part of the equipment | | N/A |

| IEC/EN 62368_1B – ATTACHMENT 1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.4.2.1 | **Ireland and United Kingdom:**<br>The protective current rating is taken to be 13 A | | N/A |
| 5.6.5.1 | **Ireland and United Kingdom:**<br>Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A | | N/A |
| 5.7.5 | **Denmark:**<br>The installation instruction affixed to the equipment if high protective conductor current | | N/A |
| 5.7.6.1 | **Norway and Sweden:**<br>Television distribution system isolation text in user manual | | N/A |
| 5.7.6.2 | **Denmark:**<br>Warning for high touch current | | N/A |
| B.3.1<br>and<br>B.4 | **Ireland and United Kingdom:**<br>Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment | | N/A |
| G.4.2 | **Denmark:**<br>Appliances rated ≤13 A provided with a plug according to DS 60884-2-D1:2011. | | N/A |
| | Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. | | N/A |
| | If a single-phase equipment having rated >13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. | | N/A |
| | Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a. | | N/A |
| | Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. | | N/A |
| | Mains socket-outlets with earth 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 | | N/A |
| G.4.2 | **United Kingdom:**<br>The plug part of direct plug-in equipment assessed to BS 1363 | | P |
| G.7.1 | **United Kingdom:**<br>Equipment fitted with a ‘standard plug’ in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768 | | P |
| G.7.1 | **Ireland:**<br>Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use | | N/A |

| IEC/EN 62368_1B – ATTACHMENT 1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.2 | **Ireland and United Kingdom:**<br>A power supply cord for equipment which is rated over 10 A and up to and including 13 A. | | N/A |
| ***ZC*** | ***ANNEX ZC, NATIONAL DEVIATIONS (EN)*** | | N/A |
| 10.5.2 | **Germany:**<br>Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking. | | N/A |
| F.1 | **Italy:**<br>The power consumption in Watts (W) indicated on TV receiver and in instruction for use | | N/A |
| | TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. | | N/A |
| | Marking for controls and terminals in Italian language. | | N/A |
| | Conformity declaration according to the above requirements in the instruction manual | | N/A |
| | First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover. | | N/A |

## Attachment 2: Photos of the product:

**Photo 1 Appearance of EUT**

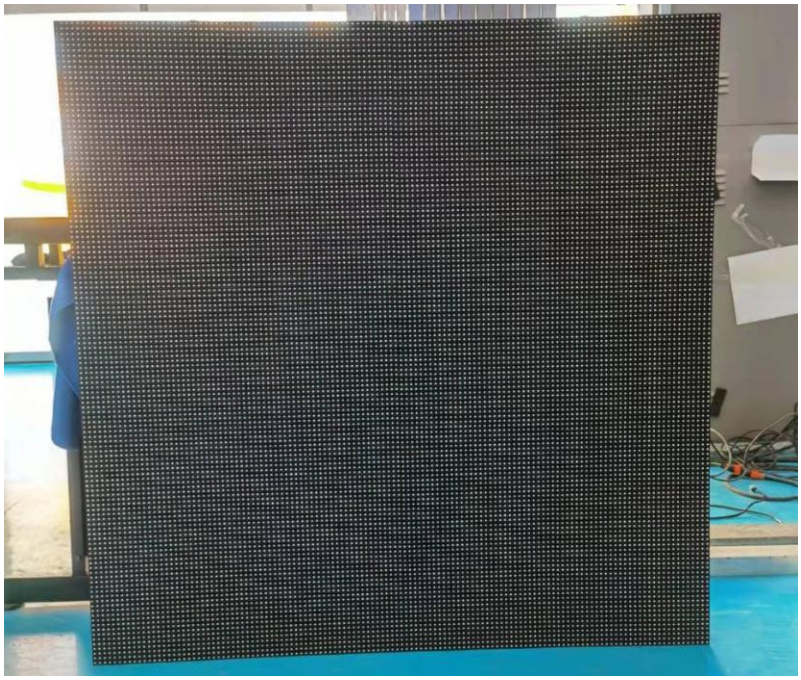

**Photo 2 Appearance of EUT**


**---The End of Report---**