# SAFETY TEST REPORT

Report No: FCS202501111A01

Issued for

| | |
|---|---|
| Applicant: | Mid Ocean Brands B.V. |
| Address: | 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong. |
| Product Name: | Wireless charger |
| Brand Name: | N/A |
| Model Name: | MO2458 |
| Series Model: | N/A |
| Test Standard: | EN IEC 62368-1-2024 + A11:2024 |

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# TEST REPORT

## EN IEC 62368-1

## Audio/video, information and communication technology equipment

## Part 1: Safety requirements

| | |
|---|---|
| **Report Number.....:** | FCS202501111A01 |
| **Date of issue.....:** | Jan. 15, 2025 |
| **Total number of pages.....:** | 59 |
| **Name of Testing Laboratory preparing the Report.....:** | Dongguan Funas Testing Technology Co.,Ltd.<br>Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan, China |
| **Applicant's name.....:** | Mid Ocean Brands B.V. |
| **Address.....:** | 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong. |
| **Test specification:** | |
| **Standard.....:** | EN IEC 62368-1-2024 + A11:2024 |
| **Test procedure.....:** | Type test |
| **Non-standard test method.....:** | N/A |
| **TRF template used.....:** | IECEE OD-2020-F1:2023, Ed.1.6 |
| **Test Report Form No.....:** | IEC62368_1F |
| **Test Report Form(s) Originator.....:** | UL Solutions (US) |
| **Master TRF.....:** | Dated 2023-08-18 |

**General disclaimer:**

The test results presented in this report relate only to the object tested.

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| | |
|---|---|
| **Test item description.....:** | Wireless charger |
| **Trademark(s).....:** | N/A |
| **Manufacturer.....:** | 117486 |
| **Model/Type reference.....:** | MO2458 |
| **Ratings.....:** | Wireless Output Power (Phone): 15W Max.<br>Wireless Output Power (Airpods): 5W<br>Wireless Output Power (Watch): 3W<br>Output(Phone): DC 5V 1A, 7.5V 1A,9V 1.1A, 9V 1.67A<br>Output(Airpods): DC 5V 1A<br>Output(Watch): DC 5V 0.6A |

**Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):**

| | | | |
|---|---|---|---|
| ☒ | **Testing Laboratory:** | Dongguan Funas Testing Technology Co.,Ltd | |
| **Testing location/ address.....:** | | Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan, China | |
| **Tested by (name, function, signature).....:** | | Duke Qian |  |
| **Approved by (name, function, signature)...:** | | Wade Huang | |
| ☐ | **Testing procedure: CTF Stage 1:** | | |
| **Testing location/ address.....:** | | | |
| **Tested by (name, function, signature).....:** | | | |
| **Approved by (name, function, signature)...:** | | | |
| ☐ | **Testing procedure: CTF Stage 2:** | | |
| **Testing location/ address.....:** | | | |
| **Tested by (name + signature).....:** | | | |
| **Witnessed by (name, function, signature)..:** | | | |
| **Approved by (name, function, signature)...:** | | | |
| ☐ | **Testing procedure: CTF Stage 3:** | | |
| ☐ | **Testing procedure: CTF Stage 4:** | | |
| **Testing location/ address.....:** | | | |
| **Tested by (name, function, signature).....:** | | | |
| **Witnessed by (name, function, signature)..:** | | | |
| **Approved by (name, function, signature)...:** | | | |
| **Supervised by (name, function, signature) :** | | | |

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

- Attachment 1: Photograph (2 pages)

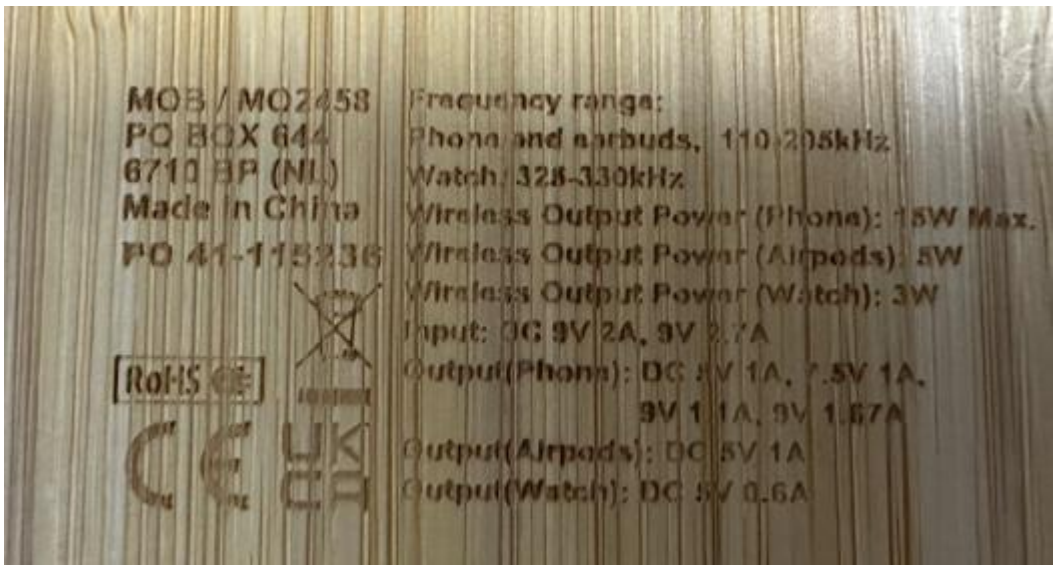
**Summary of testing:**

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| 4: General requirements<br>5: Electrically-caused injury<br>6: Electrically-caused fire<br>7: Injury caused by hazardous substance<br>8: Mechanically-caused injury<br>9: Thermal burn injury<br>10: Radiation | Dongguan Funas Testing Technology Co.,Ltd.<br>Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan, China |

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

☒ **The product fulfils the requirements of EN IEC 62368-1-2024 + A11:2024**

**Copy of marking plate:**




Importer:xxx...
Importer Address:xxx...

Notes:

- The above markings are the min. requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

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

| Test item particulars: | |
|---|---|
| **Product group** | ☐ end product ☒ built-in component |
| **Classification of use by** | ☒ Ordinary person ☒ Children likely present<br>☐ Instructed person<br>☐ Skilled person |
| **Supply connection** | ☐ AC mains ☐ DC mains<br>☒ 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>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector<br>☒ other: Not directly connected to the mains |
| **Considered current rating of protective device** | ☐ A;<br>Location: ☐ building ☐ equipment<br>☒ N/A |
| **Equipment mobility** | ☐ movable ☐ hand-held ☒ transportable<br>☐ direct plug-in ☐ stationary ☒ for building-in<br>☐ wall/ceiling-mounted ☐ SRME/rack-mounted<br>☐ **other:** |
| **Overvoltage category (OVC)** | ☐ OVC I ☐ OVC II ☐ OVC III<br>☐ OVC IV ☒ other: Not directly connected to the mains |
| **Class of equipment** | ☐ Class I ☐ Class II<br>☐ Class II with functional earthing<br>☒ Class III ☐ Not classified ☐ |
| **Special installation location** | ☒ N/A ☐ restricted access area<br>☐ outdoor location ☐ |
| **Pollution degree (PD)** | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| **Manufacturer's specified $T_{ma}$** | 30 °C ☐ Outdoor: minimum °C |
| **IP protection class** | ☐ IPX0 ☒ IP_20__ |
| **Power systems** | ☒ TN ☐ TT ☐ IT - $V_{L-L}$<br>☐ not AC mains |
| **Altitude during operation (m)** | ☒ 2000 m or less ☐ 5000 m |
| **Altitude of test laboratory (m)** | ☒ 2000 m or less ☐ m |
| **Mass of equipment (kg)** | Approximate 0.55kg |

| |
|---|
| **Possible test case verdicts:**<br>**- test case does not apply to the test object.....:** N/A<br>**- test object does meet the requirement.....:** P (Pass)<br>**- test object does not meet the requirement.....:** F (Fail) |
| **Testing.....:**<br>**Date of receipt of test item.....:** Jan. 09, 2025<br>**Date (s) of performance of tests.....:** Jan. 09, 2025~ Jan. 15, 2025 |
| |
| **General remarks:** |
| "(See Enclosure #)" refers to additional information appended to the report.<br>"(See appended table)" refers to a table appended to the report.<br><br>**Throughout this report a ☐ comma / ☒ point is used as the decimal separator.** |
| **Name and address of factory (ies).....:** 117486 |
| **General product information and other remarks:**<br>1. Wireless charger, which designed to supply power for audio, video, information and communication technology, business and office machines, for indoor use only.<br>2. The top enclosure is sealed with bottom enclosure by ultrasonic welding.<br>3. The max. operation temperature is 30℃. |

| OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5 | Electrically-caused injury | | | |
| Class and Energy Source (e.g. ES3: Primary circuit) | Body Part (e.g. Ordinary) | Safeguards | | |
| | | B | S | R |
| ES1: Internal circuits | Ordinary person, Instructed person | N/A | N/A | N/A |
| ES1: External enclosure | Ordinary person, Instructed person | N/A | N/A | N/A |
| 6 | Electrically-caused fire | | | |
| Class and Energy Source (e.g. PS2: 100 Watt circuit) | Material part (e.g. Printed board) | Safeguards | | |
| | | B | 1st S | 2nd S |
| PS1: all circuit | All combustible materials for output terminal | See 6.3 | N/A | N/A |
| 7 | Injury caused by hazardous substances | | | |
| Class and Energy Source (e.g. Ozone) | Body Part (e.g., Skilled) | Safeguards | | |
| | | B | S | R |
| N/A | N/A | N/A | N/A | N/A |
| 8 | Mechanically-caused injury | | | |
| Class and Energy Source (e.g. MS3: Plastic fan blades) | Body Part (e.g. Ordinary) | Safeguards | | |
| | | B | S | R |
| MS1: Edges and corners | Ordinary | N/A | N/A | N/A |
| MS1: Mass of the unit | Ordinary | N/A | N/A | N/A |
| 9 | Thermal burn | | | |
| Class and Energy Source (e.g. TS1: Keyboard caps) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| TS1: Enclosure | Ordinary | N/A | N/A | N/A |
| 10 | Radiation | | | |
| Class and Energy Source (e.g. RS1: PMP sound output) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| N/A | N/A | N/A | N/A | N/A |
| Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard | | | | |

| ENERGY SOURCE DIAGRAM |
| --- |
| **Optional**. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.<br>Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings |
| ☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☒ **RS** |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4** | **GENERAL REQUIREMENTS** | | P |
| 4.1.1 | Acceptance of materials, components and subassemblies | (See appended table 4.1.2) | P |
| 4.1.2 | Use of components | Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G | P |
| 4.1.3 | Equipment design and construction | Evaluation of safeguards regarding limiting the outputs to fulfill ES1 and protection in regard to risk of spread of fire, mechanical and thermal burn injury considered. | P |
| 4.1.4 | Specified ambient temperature for outdoor use (ºC) ..... : | Not outdoor equipment | N/A |
| 4.1.5 | Constructions and components not specifically covered | No this constructions and components. | N/A |
| 4.1.8 | Liquids, refrigerants and liquid filled components (LFCs) | No such component used. | N/A |
| 4.1.15 | Markings and instructions | (See Annex F) | P |
| 4.4.3 | Safeguard robustness | | P |
| 4.4.3.1 | General | | P |
| 4.4.3.2 | Steady force tests | (See Clause T.2, T.4) | P |
| 4.4.3.3 | Drop tests | See Annex T.7 | P |
| 4.4.3.4 | Impact tests | See Annex T.6 | N/A |
| 4.4.3.5 | Internal accessible safeguard tests | (See Clause T.3) | N/A |
| 4.4.3.6 | Glass impact tests | (See Clause T.9) | N/A |
| 4.4.3.7 | Glass fixation test | | N/A |
| | Glass impact test (1J) | (See Clause T.9) | N/A |
| | Push/pull test (10 N) | | N/A |
| 4.4.3.8 | Thermoplastic material tests | (See Clause T.8) | P |
| 4.4.3.9 | Air comprising a safeguard | Considered, but no such barrier or enclosure provided | N/A |
| 4.4.3.10 | Accessibility, glass, safeguard effectiveness | No such component used. | N/A |
| 4.4.4 | Displacement of a safeguard by an insulating liquid | | N/A |
| 4.4.5 | Safety interlocks | (See Annex K) | N/A |
| **4.5** | **Explosion** | | P |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.5.1 | General | No explosion occurs during normal/abnormal operation and single fault conditions (see Annex M) | P |
| 4.5.2 | No explosion during normal/abnormal operating conditions | (See Clause B.2, B.3) | P |
| | No harm by explosion during single fault conditions | (See Clause B.4) | P |
| **4.6** | **Fixing of conductors and conductive parts** | | P |
| | Fix conductors and conductive parts not to defeat a safeguard | Only ES1 for internal circuits, no safeguard affected by conductor displacement. | P |
| | Compliance is checked by test.....: | (See Clause T.2) | P |
| **4.7** | **Equipment for direct insertion into mains socket–outlets** | | N/A |
| 4.7.2 | Mains plug part complies with relevant standard... : | | N/A |
| 4.7.3 | Torque (Nm)..... : | | N/A |
| **4.8** | **Equipment containing coin or button cell batteries** | | N/A |
| 4.8.1 | General | | N/A |
| 4.8.2 | Instructional safeguard.....: | | N/A |
| 4.8.3 | Coin or button cell battery compartment, door or cover construction | | N/A |
| | Open torque test | | N/A |
| 4.8.4.2 | Stress relief test | (See Clause T.8) | N/A |
| 4.8.4.3 | Battery replacement test | | N/A |
| 4.8.4.4 | Drop test | (See Clause T.7) | N/A |
| 4.8.4.5 | Impact test | (See Clause T.6) | N/A |
| 4.8.4.6 | Crush test | | N/A |
| 4.8.5 | Compliance | | N/A |
| | 30N force test with test probe | | N/A |
| | 20N force test with test hook | | N/A |
| **4.9** | **Likelihood of fire or shock due to entry of conductive object** | | N/A |
| **4.10** | **Component requirements** | | P |
| 4.10.1 | Disconnect device | (See Annex L) | P |
| 4.10.2 | Switches and relays | (See Annex G) | N/A |
| 4.10.3 | Mains power supply cords | (See Clause G.7) | N/A |
| 4.10.4 | Batteries and their protection circuits | (See Annex M) | P |

| | | | |
|---|---|---|---|
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| **5.2** | **Classification and limits of electrical energy sources** | | P |
| 5.2.2 | ES1 and ES2 limits | | P |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.2.2.2 | Steady-state voltage and current limits.....: | (See appended table 5.2) | P |
| 5.2.2.3 | Capacitance limits.....: | (See appended table 5.2) | P |
| 5.2.2.4 | Single pulse limits.....: | No single pulse | N/A |
| 5.2.2.5 | Limits for repetitive pulses.....: | No repetitive pulses | N/A |
| 5.2.2.6 | Ringing signals | No analogue telephone network ringing signals | N/A |
| 5.2.2.7 | Audio signals | (See Clause E.1) | N/A |
| **5.3** | **Protection against electrical energy sources** | | N/A |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | | N/A |
| 5.3.1 a) | ES2/ES3 circuits that are not ES2/ES3 mains | | N/A |
| 5.3.1 b) | Skilled persons not unintentional contact ES3 bare conductors | | N/A |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | | N/A |
| | Accessibility to outdoor equipment bare parts | | N/A |
| 5.3.2.2 | Contact requirements | | N/A |
| | Test with test probe from Annex V.....: | | — |
| 5.3.2.2 a) | Air gap – electric strength test potential (V).....: | | N/A |
| 5.3.2.2 b) | Air gap – distance (mm) .....: | | N/A |
| 5.3.2.3 | Compliance | | N/A |
| 5.3.2.4 | Terminals for connecting stripped wire | | N/A |
| **5.4** | **Insulation materials and requirements** | | N/A |
| 5.4.1.2 | Properties of insulating material | | N/A |
| 5.4.1.3 | Compliance | | N/A |
| | Non-hygroscopic materials | | N/A |
| 5.4.1.4 | Maximum operating temperature for insulating materials.....: | | N/A |
| 5.4.1.5 | Pollution degrees.....: | 2 | — |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | | N/A |
| 5.4.1.5.3 | Thermal cycling test | | N/A |
| 5.4.1.6 | Insulation in transformers with varying dimensions | | N/A |
| 5.4.1.7 | Insulation in circuits generating starting pulses | | N/A |
| 5.4.1.8 | Determination of working voltage.....: | (See appended table 5.4.1.8) | N/A |
| 5.4.1.9 | Insulating surfaces | | N/A |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | | N/A |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.1.10.2 | Vicat test..... : | | N/A |
| 5.4.1.10.3 | Ball pressure test..... : | | N/A |
| 5.4.2 | Clearances | | N/A |
| 5.4.2.1 | General requirements | | N/A |
| | Clearances in circuits connected to AC Mains, Alternative method | | N/A |
| 5.4.2.2 | Procedure 1 for determining clearance | | N/A |
| | Temporary overvoltage ..... : | 2000Vpk | — |
| 5.4.2.3 | Procedure 2 for determining clearance | | N/A |
| 5.4.2.3.2.2 | AC mains transient voltages..... : | | — |
| 5.4.2.3.2.3 | DC mains transient voltages ..... : | | — |
| 5.4.2.3.2.4 | External circuit transient voltages..... : | | — |
| 5.4.2.3.2.5 | Transient voltage determined by measurement..... : | | — |
| 5.4.2.3.3 | Exceptions of determining required withstand voltage..... : | | N/A |
| 5.4.2.3.4 | Determining clearances using required withstand voltage..... : | | N/A |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test ..... : | | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages..... : | | — |
| 5.4.2.6 | Clearance measurement..... : | | N/A |
| 5.4.3 | Creepage distances | | N/A |
| 5.4.3.1 | General | | P |
| 5.4.3.3 | Material group and CTI..... : | IIIb | — |
| 5.4.3.4 | Creepage distances measurement..... : | | N/A |
| 5.4.4 | Solid insulation | | N/A |
| 5.4.4.1 | General requirements | | N/A |
| 5.4.4.2 | Minimum distance through insulation ..... : | | N/A |
| 5.4.4.3 | Insulating compound forming solid insulation | | N/A |
| 5.4.4.4 | Solid insulation in semiconductor devices | | N/A |
| 5.4.4.5 | Insulating compound forming cemented joints | | N/A |
| 5.4.4.6 | Thin sheet material | | N/A |
| 5.4.4.6.1 | General requirements | | N/A |
| 5.4.4.6.2 | Separable thin sheet material | | N/A |
| | Number of layers (pcs) ..... : | | N/A |
| 5.4.4.6.3 | Non-separable thin sheet material | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Number of layers (pcs) .....: | | N/A |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material.....: | | N/A |
| 5.4.4.6.5 | Mandrel test | | N/A |
| 5.4.4.7 | Solid insulation in wound components | | N/A |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz, $E_P$, $K_R$, $d$, $V_{PW}$ (V).....: | | N/A |
| | Alternative by electric strength test, tested voltage (V), $K_R$.....: | | N/A |
| 5.4.5 | Antenna terminal insulation | | N/A |
| 5.4.5.1 | General | | N/A |
| 5.4.5.2 | Voltage surge test | | N/A |
| 5.4.5.3 | Insulation resistance (MΩ).....: | | N/A |
| | Electric strength test.....: | | N/A |
| 5.4.6 | Insulation of internal wire as part of supplementary safeguard | | N/A |
| 5.4.7 | Tests for semiconductor components and for cemented joints | | N/A |
| 5.4.8 | Humidity conditioning | See below | P |
| | Relative humidity (%), temperature (°C), duration (h).....: | 95%, 40°C, 48h | — |
| 5.4.9 | Electric strength test | | P |
| 5.4.10 | Safeguards against transient voltages from external circuits | | N/A |
| 5.4.10.1 | Parts and circuits separated from external circuits | | N/A |
| 5.4.10.2 | Test methods | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test.....: | | N/A |
| 5.4.10.2.3 | Steady-state test.....: | (See appended table 5.4.9) | N/A |
| 5.4.10.3 | Verification for insulation breakdown.....: | | N/A |
| 5.4.11 | Separation between external circuits and earth | | N/A |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |
| | Surge suppressors bridge separation between external circuit and earth | | N/A |
| | Rated operating voltage $U_{op}$ (V).....: | | — |
| | Nominal voltage $U_{peak}$ (V).....: | | — |
| | Max increase due to variation $\Delta U_{sp}$ .....: | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Max increase due to ageing $\Delta U_{sa}$ ..... : | | — |
| 5.4.11.3 | Test method and compliance..... : | (See appended table 5.4.9) | N/A |
| | Test voltage (V) of additional test..... : | | — |
| | Measured current (mA) of additional test..... : | | N/A |
| 5.4.12 | Insulating liquid | | N/A |
| 5.4.12.1 | General requirements | | N/A |
| 5.4.12.2 | Electric strength of an insulating liquid..... : | (See appended table 5.4.9) | N/A |
| 5.4.12.3 | Compatibility of an insulating liquid | | N/A |
| | Thermal classification of IEC 60085..... : | | — |
| 5.4.12.4 | Container for insulating liquid | | N/A |
| **5.5** | **Components as safeguards** | | N/A |
| 5.5.1 | General | | N/A |
| 5.5.2 | Capacitors and RC units | | N/A |
| 5.5.2.1 | General requirement | | N/A |
| 5.5.2.2 | Capacitor discharge after disconnection of a connector..... : | | N/A |
| 5.5.3 | Transformers | | N/A |
| 5.5.4 | Optocouplers | | N/A |
| 5.5.5 | Relays | | N/A |
| 5.5.6 | Resistors | | N/A |
| | Application type of resistors..... : | | — |
| 5.5.7 | Surge suppressors | (See Clause G.8) | N/A |
| | GDT..... : | | N/A |
| 5.5.8 | Insulation between the mains and an external circuit consisting of a coaxial cable..... : | | N/A |
| | Insulation resistance (MΩ)..... : | | N/A |
| | Electric strength test..... : | (See appended table 5.4.9) | N/A |
| 5.5.9 | Safeguards for socket-outlets in outdoor equipment | | N/A |
| | RCD rated residual operating current (mA)..... : | | — |
| **5.6** | **Protective conductor** | | N/A |
| 5.6.2 | Requirements for protective conductors | | N/A |
| 5.6.2.1 | General requirements | | N/A |
| 5.6.2.2 | Colour of insulation | | N/A |
| 5.6.3 | Requirements for protective earthing conductors | | N/A |
| | Protective earthing conductor size ($mm^2$) ..... : | | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Protective earthing conductor serving as a reinforced safeguard | | N/A |
| | Protective earthing conductor serving as a double safeguard | | N/A |
| 5.6.4 | Requirements for protective bonding conductors | | N/A |
| 5.6.4.1 | Protective bonding conductors | | N/A |
| | Protective bonding conductor size ($mm^2$).....: | | — |
| 5.6.4.2 | Protective current rating (A)..... : | | — |
| 5.6.5 | Terminals for protective conductors | | N/A |
| 5.6.5.1 | Terminal size for connecting protective earthing conductors (mm)..... : | | N/A |
| | Terminal size for connecting protective bonding conductors (mm).....: | | N/A |
| | Relevant IEC standard.....: | | N/A |
| 5.6.5.2 | Corrosion | | N/A |
| 5.6.6 | Resistance of the protective bonding system | | N/A |
| 5.6.6.1 | Requirements | | N/A |
| 5.6.6.2 | Test method.....: | (See appended table 5.6.6) | N/A |
| 5.6.6.3 | Resistance (Ω) or voltage drop.....: | (See appended table 5.6.6) | N/A |
| 5.6.7 | Reliable connection of a protective earthing conductor | | N/A |
| 5.6.8 | Functional earthing | | N/A |
| | Conductor size ($mm^2$)..... : | | N/A |
| | Class II with functional earthing marking ..... : | | N/A |
| | Appliance inlet cl & cr (mm)..... : | | N/A |
| **5.7** | **Prospective touch voltage, touch current and protective conductor current** | | N/A |
| 5.7.2 | Measuring devices and networks | | N/A |
| 5.7.2.1 | Measurement of touch current | | N/A |
| 5.7.2.2 | Measurement of voltage | | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | N/A |
| 5.7.4 | Unearthed accessible parts.....: | (See appended table 5.7.4) | N/A |
| 5.7.5 | Earthed accessible conductive parts..... : | (See appended table 5.7.5) | N/A |
| 5.7.6 | Requirements when touch current exceeds ES2 limits | | N/A |
| | Protective conductor current (mA)..... : | | N/A |
| | Instructional Safeguard.....: | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.7 | Prospective touch voltage and touch current associated with external circuits | | N/A |
| 5.7.7.1 | Touch current from coaxial cables | | N/A |
| 5.7.7.2 | Prospective touch voltage and touch current associated with paired conductor cables | | N/A |
| 5.7.8 | Summation of touch currents from external circuits | | N/A |
| | a) Equipment connected to an earthed external circuit, current (mA)..... : | | N/A |
| | b) Equipment connected to an unearthed external circuit, current (mA)..... : | | N/A |
| **5.8** | **Backfeed safeguard in battery backed up supplies** | | N/A |
| | Mains terminal ES..... : | (See appended table 5.8) | N/A |
| | Air gap (mm)..... : | (See appended table 5.4.2, 5.4.3) | N/A |
| **6** | **ELECTRICALLY- CAUSED FIRE** | | P |
| **6.2** | **Classification of power sources and potential ignition sources** | | P |
| 6.2.2 | Power source circuit classifications.....: | (See appended table 6.2.2) | P |
| 6.2.3 | Classification of potential ignition sources | | P |
| 6.2.3.1 | Arcing PIS .....: | (See appended table 6.2.3.1) | P |
| 6.2.3.2 | Resistive PIS .....: | (See appended table 6.2.3.2) | P |
| **6.3** | **Safeguards against fire under normal operating and abnormal operating conditions** | | P |
| 6.3.1 | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... : | (No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9, B.2.6) | P |
| | Combustible materials not inside a fire enclosure.....: | Only output connector complying with 6.4.6. | P |
| **6.4** | **Safeguards against fire under single fault conditions** | | P |
| 6.4.1 | Safeguard method.....: | Method of “control of fire spread” is used. | — |
| 6.4.2 | Reduction of the likelihood of ignition under single fault conditions in PS1 circuits | | N/A |
| 6.4.3 | Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits | | N/A |
| 6.4.3.1 | Supplementary safeguards | | N/A |
| 6.4.3.2 | Single fault conditions..... : | (See appended table B.4) | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.5 | Control of fire spread in PS2 circuits | | P |
| 6.4.5.2 | Supplementary safeguards | | P |
| 6.4.6 | Control of fire spread in PS3 circuits | | N/A |
| 6.4.7 | Separation of combustible materials from a PIS | | N/A |
| 6.4.7.2 | Separation by distance | | N/A |
| 6.4.7.3 | Separation by a fire barrier | | N/A |
| 6.4.8 | Fire enclosures and fire barriers | | N/A |
| 6.4.8.2 | Fire enclosure and fire barrier material properties | | N/A |
| 6.4.8.2.1 | Requirements for a fire barrier | No fire barrier. | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure | | N/A |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | N/A |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | | N/A |
| 6.4.8.3.2 | Fire barrier dimensions | | N/A |
| 6.4.8.3.3 | Top openings and properties | | N/A |
| | Openings dimensions (mm)..... : | | N/A |
| | Flammability tests for the top of a fire enclosure | | N/A |
| 6.4.8.3.4 | Bottom openings and properties | | N/A |
| | Openings dimensions (mm)..... : | | N/A |
| | Flammability tests for the bottom of a fire enclosure | | N/A |
| | Instructional Safeguard..... : | | N/A |
| 6.4.8.3.5 | Side openings and properties | | N/A |
| | Openings dimensions (mm)..... : | | N/A |
| 6.4.8.3.6 | Integrity of a fire enclosure, condition met: a), b) or c)..... : | | N/A |
| 6.4.8.4 | Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating..... : | | N/A |
| 6.4.9 | Flammability of insulating liquid | | N/A |
| | Auto ignition temperature (°C)..... : | | N/A |
| | Flashpoint temperature (°C)..... : | | N/A |
| **6.5** | **Internal and external wiring** | | N/A |
| 6.5.1 | General requirements | | N/A |
| 6.5.2 | Requirements for interconnection to building wiring ..... : | | N/A |
| 6.5.3 | Internal wiring size ($mm^2$) for socket-outlets..... : | | N/A |
| **6.6** | **Safeguards against fire due to the connection to additional equipment** | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **7** | **INJURY CAUSED BY HAZARDOUS SUBSTANCES** | | N/A |
| **7.2** | **Reduction of exposure to hazardous substances** | | N/A |
| **7.3** | **Ozone exposure** | | N/A |
| **7.4** | **Use of personal safeguards or personal protective equipment (PPE)** | | N/A |
| | Personal safeguards and instructions..... : | | — |
| **7.5** | **Use of instructional safeguards and instructions** | | N/A |
| | Instructional safeguard (ISO 7010)..... : | | — |
| **8** | **MECHANICALLY-CAUSED INJURY** | | P |
| **8.2** | **Mechanical energy source classifications** | | P |
| **8.3** | **Safeguards against mechanical energy sources** | | N/A |
| **8.4** | **Safeguards against parts with sharp edges and corners** | | N/A |
| 8.4.1 | Requirements | Mass<7kg, no moving parts in the equipment – see below regarding edges and corners. | N/A |
| | Instructional Safeguard..... : | | N/A |
| 8.4.2 | Compliance criteria | Edges and corners of the enclosure are rounded. | N/A |
| **8.5** | **Safeguards against moving parts** | | N/A |
| 8.5.1 | Requirements | | N/A |
| | Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts | | N/A |
| | MS2 or MS3 part required to be accessible for the function of the equipment | | N/A |
| | A manually activated stopping device for moving MS3 | | N/A |
| | Moving MS3 parts only accessible to skilled person | | N/A |
| 8.5.2 | Instructional safeguard..... : | | N/A |
| 8.5.4 | Special categories of equipment containing moving parts | | N/A |
| 8.5.4.1 | General | | N/A |
| 8.5.4.2 | Equipment containing work cells with MS3 parts | | N/A |
| 8.5.4.2.1 | Protection of persons in the work cell | | N/A |
| 8.5.4.2.2 | Access protection override | | N/A |
| 8.5.4.2.2.1 | Override system | | N/A |
| 8.5.4.2.2.2 | Visual indicator | | N/A |
| 8.5.4.2.3 | Emergency stop system | | N/A |
| | Maximum stopping distance from the point of activation (m)..... : | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Space between end point and nearest fixed mechanical part (mm)..... : | | N/A |
| 8.5.4.2.4 | Endurance requirements | | N/A |
| | Mechanical system subjected to 100 000 cycles of operation | | N/A |
| | - Mechanical function check and visual inspection | | N/A |
| | - Cable assembly..... : | | N/A |
| 8.5.4.3 | Equipment having electromechanical device for destruction of media | | N/A |
| 8.5.4.3.1 | Equipment safeguards | | N/A |
| 8.5.4.3.2 | Instructional safeguards against moving parts..... : | | N/A |
| 8.5.4.3.3 | Disconnection from the supply | | N/A |
| 8.5.4.3.4 | Cut type and test force (N)..... : | | N/A |
| 8.5.4.3.5 | Compliance | | N/A |
| 8.5.5 | High pressure lamps | | N/A |
| | Explosion test..... : | | N/A |
| 8.5.5.3 | Glass particles dimensions (mm)..... : | | N/A |
| **8.6** | **Stability of equipment** | | N/A |
| 8.6.1 | Requirements | | N/A |
| | Instructional safeguard for MS2 and MS3 television sets..... : | | N/A |
| 8.6.2 | Static stability | | N/A |
| 8.6.2.2 | Static stability test..... : | | N/A |
| 8.6.2.3 | Downward force test | | N/A |
| 8.6.3 | Relocation stability | | N/A |
| | Wheels diameter (mm)..... : | | — |
| | Tilt test | | N/A |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test..... : | | N/A |
| **8.7** | **Equipment mounted to wall, ceiling or other structure** | | N/A |
| 8.7.1 | Requirements | | N/A |
| | Mount means type..... : | | N/A |
| 8.7.2 | Test methods | | N/A |
| | Test 1, additional downwards force (N)..... : | | N/A |
| | Horizontal force to a wall or another structure | | N/A |
| | Test 2, number of attachment points and test force (N)..... : | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Test 3, nominal diameter (mm) and applied torque (Nm)..... : | | N/A |
| **8.8** | **Handles strength** | | N/A |
| 8.8.1 | General | | N/A |
| 8.8.2 | Handle strength test | | N/A |
| | Number of handles..... : | | — |
| | Weight applied (kg)..... : | | — |
| **8.9** | **Wheels or casters attachment requirements** | | N/A |
| 8.9.2 | Pull test | | N/A |
| **8.10** | **Carts, stands and similar carriers** | | N/A |
| 8.10.1 | General | | N/A |
| 8.10.2 | Marking and instructions..... : | | N/A |
| 8.10.3 | Cart, stand or carrier loading test | | N/A |
| | Loading force applied (N)..... : | | N/A |
| 8.10.4 | Cart, stand or carrier impact test | (See Clause T.6) | N/A |
| | Loading force applied (N) on each supporting surface..... : | | N/A |
| 8.10.5 | Mechanical stability | | N/A |
| | Force applied (N)..... : | | N/A |
| 8.10.6 | Thermoplastic temperature stability | (See Clause T.8) | N/A |
| **8.11** | **Mounting means for slide-rail mounted equipment (SRME)** | | N/A |
| 8.11.1 | General | | N/A |
| 8.11.2 | Requirements | | N/A |
| | Instructional Safeguard..... : | | N/A |
| 8.11.3 | Mechanical strength test | | N/A |
| 8.11.3.1 | Downward force test, force applied (N)..... : | | N/A |
| 8.11.3.2 | Lateral push force test | | N/A |
| 8.11.3.3 | Integrity of slide rail end stops | | N/A |
| 8.11.4 | Compliance criteria | | N/A |
| **8.12** | **Telescoping or rod antennas** | | |
| | No sharp edges or points | | N/A |
| | Button/ball diameter (mm)..... : | | N/A |

| | | |
|---|---|---|
| **9** | **THERMAL BURN INJURY** | P |
| **9.2** | **Thermal energy source classifications** | P |
| **9.3** | **Touch temperature limits** | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 9.3.1 | Touch temperatures of accessible parts.....: | (See appended table 5.4.1.4, 9.3, B.1.5, B.2.6) | P |
| 9.3.2 | Test method and compliance | | P |
| **9.4** | **Safeguards against thermal energy sources** | | P |
| **9.5** | **Requirements for safeguards** | | P |
| 9.5.1 | Equipment safeguard | | P |
| 9.5.2 | Instructional safeguard.....: | | N/A |
| **9.6** | **Requirements for wireless power transmitters** | | P |
| 9.6.1 | General | | P |
| 9.6.2 | Specification of the foreign objects | | P |
| 9.6.3 | Test method and compliance criteria.....: | (See appended table 9.6) | P |
| **10** | **RADIATION** | | N/A |
| **10.2** | **Radiation energy source classifications** | | N/A |
| 10.2.1 | General classification | | N/A |
| | Lasers.....: | | — |
| | Lamps and lamp systems.....: | | — |
| | Image projectors.....: | | — |
| | X-Ray.....: | | — |
| | Personal music player.....: | | — |
| **10.3** | **Safeguards against laser radiation** | | N/A |
| | The standard(s) equipment containing laser(s) comply.....: | | N/A |
| **10.4** | **Safeguards against optical radiation from lamps and lamp systems (including LED types)** | | N/A |
| 10.4.1 | General requirements | | N/A |
| | Instructional safeguard provided for accessible radiation level needs to exceed | | N/A |
| | Risk group marking and location.....: | | N/A |
| | Information for safe operation and installation | | N/A |
| 10.4.2 | Requirements for equipment safeguards | | N/A |
| | UV radiation exposure.....: | (See Annex C) | N/A |
| 10.4.3 | Instructional safeguard.....: | | N/A |
| **10.5** | **Safeguards against X-radiation** | | N/A |
| 10.5.1 | Requirements | | N/A |
| | Instructional safeguard for skilled persons.....: | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.5.3 | Maximum radiation (pA/kg)..... : | (See appended tables B.3 & B.4) | N/A |
| **10.6** | **Safeguards against acoustic energy sources** | | N/A |
| 10.6.1 | General | | N/A |
| 10.6.2 | Classification | | N/A |
| | Acoustic output $L_{Aeq,T}$, dB(A)..... : | | N/A |
| | Unweighted RMS output voltage (mV)..... : | | N/A |
| | Digital output signal (dBFS)..... : | | N/A |
| 10.6.3 | Requirements for dose-based systems | | N/A |
| 10.6.3.1 | General requirements | | N/A |
| 10.6.3.2 | Dose-based warning and automatic decrease | | N/A |
| 10.6.3.3 | Exposure-based warning and requirements | | N/A |
| | 30 s integrated exposure level (MEL30)..... : | | N/A |
| | Warning for MEL ≥ 100 dB(A)..... : | | N/A |
| 10.6.4 | Measurement methods | | N/A |
| 10.6.5 | Protection of persons | | N/A |
| | Instructional safeguards..... : | | N/A |
| 10.6.6 | Requirements for listening devices (headphones, earphones, etc.) | | N/A |
| 10.6.6.1 | Corded listening devices with analogue input | | N/A |
| | Listening device input voltage (mV)..... : | | N/A |
| 10.6.6.2 | Corded listening devices with digital input | | N/A |
| | Max. acoustic output $L_{Aeq,T}$, dB(A)..... : | | N/A |
| 10.6.6.3 | Cordless listening devices | | N/A |
| | Max. acoustic output $L_{Aeq,T}$, dB(A)..... : | | N/A |

| | | | |
|---|---|---|---|
| **B** | **NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS** | | P |
| **B.1** | **General** | | P |
| B.1.5 | Temperature measurement conditions | (See appended table 5.4.1.4, 9.3, B.1.5, B.2.6) | P |
| B.1.6 | Specific output conditions | | P |
| **B.2** | **Normal operating conditions** | | P |
| B.2.1 | General requirements..... : | (See Test Item Particulars and appended test tables) | P |
| | Audio Amplifiers and equipment containing an audio amplifiers..... : | (See Annex E) | N/A |
| B.2.3 | Supply voltage and tolerances | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.2.5 | Input test.....: | (See appended table B.2.5) | P |
| B.2.6.4 | Equipment intended for building-in or rack-mounting | | N/A |
| **B.3** | **Simulated abnormal operating conditions** | | P |
| B.3.1 | General | (See appended table B.3) | P |
| B.3.2 | Covering of ventilation openings | | N/A |
| | Instructional safeguard.....: | | N/A |
| B.3.3 | DC mains polarity test | | N/A |
| B.3.4 | Setting of voltage selector | | N/A |
| B.3.5 | Maximum load at output terminals | (See appended table B.3, B.4) | P |
| B.3.6 | Reverse battery polarity | | N/A |
| B.3.7 | Audio amplifier abnormal operating conditions | (See Clause E.3.2) | N/A |
| B.3.8 | Safeguards functional during and after abnormal operating conditions.....: | (See appended table B.3, B.4) | P |
| **B.4** | **Simulated single fault conditions** | | P |
| B.4.1 | General | | P |
| B.4.2 | Temperature controlling device | | N/A |
| B.4.3 | Blocked motor test | | P |
| B.4.4 | Functional insulation | | P |
| B.4.4.1 | Short circuit of clearances for functional insulation | | P |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | | P |
| B.4.4.3 | Short circuit of functional insulation on coated printed boards | No coated printed board | N/A |
| B.4.5 | Short-circuit and interruption of electrodes in tubes and semiconductors | | P |
| B.4.6 | Short circuit or disconnection of passive components | | P |
| B.4.7 | Continuous operation of components | | N/A |
| B.4.8 | Compliance criteria during and after single fault conditions.....: | (See appended table B.3, B.4) | P |
| B.4.9 | Battery charging and discharging under single fault conditions | (See appended table B.4) | P |
| **C** | **UV RADIATION** | | N/A |
| **C.1** | **Protection of materials in equipment from UV radiation** | | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method and compliance criteria | | N/A |
| **C.2** | **UV light conditioning test** | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| C.2.1 | Test apparatus..... : | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure test | | N/A |
| C.2.4 | Xenon-arc light-exposure test | | N/A |
| **D** | **TEST GENERATORS** | | P |
| **D.1** | **Impulse test generators** | | N/A |
| **D.2** | **Antenna interface test generator** | | P |
| **D.3** | **Electronic pulse generator** | | N/A |
| **E** | **TEST CONDITIONS FOR EQUIPMENT INTENDED TO AMPLIFY AUDIO SIGNALS** | | N/A |
| **E.1** | **Electrical energy source classification for audio signals** | | N/A |
| | Maximum non-clipped output power (W)..... : | (See appended table 4.1..2) | — |
| | Rated load impedance (Ω) ..... : | | — |
| | Open-circuit output voltage (V)..... : | | — |
| | Instructional safeguard..... : | | — |
| **E.2** | **Audio signals used during test** | | N/A |
| E.2.1 | Pink noise test signal | | N/A |
| E.2.2 | Sine-wave signal | | N/A |
| **E.3** | **Operating conditions of equipment containing an audio amplifier** | | N/A |
| E.3.1 | Normal operating conditions | (See appended table B.2.5, E.3.1) | N/A |
| E.3.2 | Abnormal operating conditions | (See appended table B.3, B.4) | N/A |
| E.3.3 | Audio equipment temperature measurement conditions..... : | | N/A |
| **F** | **EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS** | | P |
| **F.1** | **General** | | P |
| | Language ..... : | English | — |
| **F.2** | **Letter symbols and graphical symbols** | | P |
| F.2.1 | Letter symbols according to IEC 60027-1 | | P |
| F.2.2 | Graphic symbols according to IEC, ISO or manufacturer specific | | P |
| **F.3** | **Equipment markings** | | P |
| F.3.1 | Equipment marking locations | | P |
| F.3.2 | Equipment identification markings | | P |
| F.3.2.1 | Manufacturer identification ..... : | (See copy of marking plate) | P |
| F.3.2.2 | Model identification ..... : | (See copy of marking plate) | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.3 | Equipment rating markings | (See copy of marking plate) | P |
| F.3.3.1 | Equipment with direct connection to mains | | P |
| F.3.3.2 | Equipment without direct connection to mains | | N/A |
| F.3.3.3 | Nature of the supply voltage..... : | (See copy of marking plate) | P |
| F.3.3.4 | Rated voltage..... : | (See copy of marking plate) | P |
| F.3.3.5 | Rated frequency..... : | See copy of marking plate) | N/A |
| F.3.3.6 | Rated current or rated power..... : | (See copy of marking plate) | P |
| F.3.3.7 | Equipment with multiple supply connections | | N/A |
| F.3.4 | Voltage setting device | | N/A |
| F.3.5 | Markings on terminals and operating devices | | P |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings : | No mains appliance outlets or socket-outlets | N/A |
| F.3.5.2 | Switch position identification marking..... : | | N/A |
| F.3.5.3 | Replacement fuse identification and rating markings..... : | | N/A |
| | Instructional safeguards for neutral fuse..... : | | N/A |
| F.3.5.4 | Replacement battery identification marking..... : | | N/A |
| F.3.5.5 | Neutral conductor terminal | | N/A |
| F.3.5.6 | Terminal marking location | | N/A |
| F.3.6 | Equipment markings related to equipment classification | | N/A |
| F.3.6.1 | Class I equipment | | N/A |
| F.3.6.1.1 | Protective earthing conductor terminal..... : | | N/A |
| F.3.6.1.2 | Protective bonding conductor terminals ..... : | | N/A |
| F.3.6.2 | Equipment class marking..... : | | N/A |
| F.3.6.3 | Functional earthing terminal marking..... : | | N/A |
| F.3.7 | Equipment IP rating marking..... : | IPX0. | N/A |
| F.3.8 | External power supply unit output marking..... : | | P |
| F.3.9 | Durability, legibility and permanence of markings | Marking is considered to be legible and easily discernible. See also the following details. | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.10 | Test for permanence of markings | The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec, with the cloth soaked with petroleum spirit.<br>After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible. | P |
| **F.4** | **Instructions** | | P |
| | – Information prior to installation and initial use | | P |
| | – Equipment for use in locations where children not likely to be present | | N/A |
| | – Instructions for installation and interconnection | | N/A |
| | – Equipment intended for use only in restricted access area | | N/A |
| | – Equipment intended to be fastened in place | | N/A |
| | – Instructions for audio equipment terminals | | N/A |
| | – Protective earthing used as a safeguard | | N/A |
| | – Protective conductor current exceeding ES2 limits | | N/A |
| | – Graphic symbols used on equipment | | P |
| | – Permanently connected equipment not provided with all-pole mains switch | | N/A |
| | – Replaceable components or modules providing safeguard function | | N/A |
| | – Equipment containing insulating liquid | | N/A |
| | – Installation instructions for outdoor equipment | | N/A |
| **F.5** | Instructional safeguards | | P |
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches** | | N/A |
| G.1.1 | General | | N/A |
| G.1.2 | Ratings, endurance, spacing, maximum load | | N/A |
| G.1.3 | Test method and compliance criteria | | N/A |
| **G.2** | **Relays** | | N/A |
| G.2.1 | Requirements and compliance criteria | | N/A |
| G.2.2 | Overload test | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.2.3 | Relay controlling connectors supplying power to other equipment | | N/A |
| G.2.4 | Test method and compliance criteria | | N/A |
| **G.3** | **Protective devices** | | P |
| G.3.1 | Thermal cut-offs | | N/A |
| | Thermal cut-outs separately approved according to IEC 60730-1 with conditions indicated in a) & b) | | N/A |
| | Thermal cut-outs tested as part of the equipment as indicated in c) | | N/A |
| G.3.1.2 | Test method and compliance criteria | | N/A |
| G.3.2 | Thermal links | | N/A |
| G.3.2.1 | a) Thermal links tested separately according to IEC 60691 with specifics | | N/A |
| | b) Thermal links tested as part of the equipment | | N/A |
| G.3.2.2 | Test method and compliance criteria | | N/A |
| G.3.3 | PTC thermistors | | N/A |
| G.3.4 | Overcurrent protection devices | | N/A |
| G.3.5 | Safeguards components not mentioned in G.3.1 to G.3.4 | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided | | N/A |
| G.3.5.2 | Single faults conditions..... : | (See appended table B.3, B.4) | N/A |
| **G.4** | **Connectors** | | N/A |
| G.4.1 | Spacings | | N/A |
| G.4.2 | Mains connectors configuration.....: | | N/A |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | | N/A |
| **G.5** | **Wound components** | | P |
| G.5.1 | Wire insulation in wound components | | N/A |
| G.5.1.2 | Protection against mechanical stress | | N/A |
| G.5.2 | Endurance test | | N/A |
| G.5.2.1 | General test requirements | | N/A |
| G.5.2.2 | Heat run test | | N/A |
| | Test time (days per cycle)..... : | | — |
| | Test temperature (°C)..... : | | — |
| G.5.2.3 | Wound components supplied from the mains | | N/A |
| G.5.2.4 | Compliance criteria | | N/A |
| G.5.3 | Transformers | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.5.3.1 | General | | N/A |
| | Compliance method.....: | | N/A |
| G.5.3.2 | Insulation | | N/A |
| | Protection from displacement of windings..... : | | P |
| G.5.3.3 | Transformer overload tests | | N/A |
| G.5.3.3.1 | Test conditions | | N/A |
| | Position.....: | | N/A |
| | Method of protection.....: | | N/A |
| G.5.3.3.2 | Winding temperatures | | N/A |
| G.5.3.3.3 | Winding temperatures - alternative test method | | N/A |
| G.5.3.4 | Transformers using FIW | | N/A |
| G.5.3.4.1 | General | | N/A |
| | FIW wire nominal diameter.....: | | — |
| G.5.3.4.2 | Transformers with basic insulation only | | N/A |
| G.5.3.4.3 | Transformers with double insulation or reinforced insulation..... : | | N/A |
| G.5.3.4.4 | Transformers with FIW wound on metal or ferrite core | | N/A |
| G.5.3.4.5 | Thermal cycling test and compliance | | N/A |
| G.5.3.4.6 | Partial discharge test | | N/A |
| G.5.4 | Motors | Motors that are used for air-handling only and where the air-propelling component is directly coupled to the motor shaft | N/A |
| G.5.4.1 | General requirements | | N/A |
| G.5.4.2 | Motor overload test conditions | | N/A |
| G.5.4.3 | Running overload test | | N/A |
| G.5.4.4 | Locked-rotor overload test | | N/A |
| | Test duration (days) ..... : | | — |
| | Electric strength test.....: | (See appended table 5.4.9) | N/A |
| G.5.4.5 | Running overload test for DC motors | | N/A |
| G.5.4.5.2 | Tested in the unit | | N/A |
| | Electric strength test.....: | (See appended table 5.4.9) | N/A |
| G.5.4.5.3 | Alternative method | | N/A |
| | Electric strength test.....: | (See appended table 5.4.9) | N/A |
| G.5.4.6 | Locked-rotor overload test for DC motors | | N/A |
| G.5.4.6.2 | Tested in the unit | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Maximum Temperature (°C)..... : | | N/A |
| | Electric strength test.....: | (See appended table 5.4.9) | N/A |
| G.5.4.6.3 | Alternative method | | N/A |
| | Electric strength test.....: | (See appended table 5.4.9) | N/A |
| G.5.4.7 | Motors with capacitors | | N/A |
| G.5.4.8 | Three-phase motors | | N/A |
| G.5.4.9 | Series motors | | N/A |
| | Operating voltage (V)..... : | | — |
| **G.6** | **Wire Insulation** | | N/A |
| G.6.1 | General | Approved TIW used in transformer as secondary winding | N/A |
| G.6.2 | Enamelled winding wire insulation | | N/A |
| **G.7** | **Mains power supply cords and interconnection cables** | | N/A |
| G.7.1 | General requirements | | N/A |
| | Type..... : | | — |
| G.7.2 | Cross sectional area ($mm^2$ or AWG)..... : | | N/A |
| G.7.3 | Cord anchorages and strain relief | | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements | | N/A |
| | Strain relief test force (N).....: | | N/A |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm).....: | | N/A |
| G.7.3.2.4 | Strain relief and cord anchorage material | | N/A |
| G.7.4 | Cord Entry | | N/A |
| G.7.5 | Non-detachable cord bend protection | | N/A |
| G.7.5.1 | Requirements | | N/A |
| G.7.5.2 | Test method and compliance criteria | | N/A |
| | Overall diameter or minor overall dimension, *D* (mm).....: | | — |
| | Radius of curvature after test (mm)..... : | | — |
| G.7.6 | Supply wiring space | | N/A |
| G.7.6.1 | General requirements | | N/A |
| G.7.6.2 | Stranded wire | | N/A |
| G.7.6.2.1 | Requirements | | N/A |
| G.7.6.2.2 | Test with 8 mm strand | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **G.8** | **Varistors** | | N/A |
| G.8.1 | General requirements | | N/A |
| G.8.2 | Safeguards against fire | | N/A |
| G.8.2.1 | General | | N/A |
| G.8.2.2 | Varistor overload test | | N/A |
| G.8.2.3 | Temporary overvoltage test | | N/A |
| **G.9** | **Integrated circuit (IC) current limiters** | | N/A |
| G.9.1 | Requirements | | N/A |
| | IC limiter output current (max. 5A)..... : | | — |
| | Manufacturers' defined drift ..... : | | — |
| G.9.2 | Test Program | | N/A |
| G.9.3 | Compliance criteria | | N/A |
| **G.10** | **Resistors** | | N/A |
| G.10.1 | General | | N/A |
| G.10.2 | Conditioning | | N/A |
| G.10.3 | Resistor test | | N/A |
| | Changes of resistance (%)..... : | | N/A |
| | Measured current with the lowest resistance value : | | N/A |
| G.10.4 | Voltage surge test | | N/A |
| | Changes of resistance (%)..... : | | N/A |
| G.10.5 | Impulse test | | N/A |
| | Changes of resistance (%)..... : | | N/A |
| G.10.6 | Overload test | | N/A |
| | Changes of resistance (%)..... : | | N/A |
| **G.11** | **Capacitors and RC units** | | N/A |
| G.11.1 | General requirements | | N/A |
| G.11.2 | Conditioning of capacitors and RC units | | N/A |
| G.11.3 | Rules for selecting capacitors | | N/A |
| **G.12** | **Optocouplers** | | N/A |
| | Optocouplers comply with IEC 60747-5-5 with specifics | | N/A |
| | Type test voltage $V_{ini,a}$..... : | | — |
| | Routine test voltage, $V_{ini,b}$..... : | | — |
| **G.13** | **Printed boards** | | P |
| G.13.1 | General requirements | See the following details. | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.13.2 | Uncoated printed boards | The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements. | P |
| G.13.3 | Coated printed boards | No coated printed board or multilayer board applied for within the equipment. | N/A |
| G.13.4 | Insulation between conductors on the same inner surface | | N/A |
| G.13.5 | Insulation between conductors on different surfaces | | N/A |
| | Distance through insulation.....: | | N/A |
| | Number of insulation layers (pcs) .....: | | — |
| G.13.6 | Tests on coated printed boards | | N/A |
| G.13.6.1 | Sample preparation and preliminary inspection | | N/A |
| G.13.6.2 | Test method and compliance criteria | | N/A |
| **G.14** | **Coating on components terminals** | | N/A |
| G.14.1 | Requirements .....: | (See Clause G.13) | N/A |
| **G.15** | **Pressurized liquid filled components or LFC assemblies** | | N/A |
| G.15.1 | Requirements | | N/A |
| G.15.2 | Test methods and compliance criteria for self-contained LFC | | N/A |
| G.15.2.1 | Hydrostatic pressure test, applied test pressure..... : | | N/A |
| G.15.2.2 | Creep resistance test | | N/A |
| G.15.2.3 | Tubing and fittings compatibility test, the change of tensile strength (%).....: | | N/A |
| G.15.2.4 | Vibration test | | N/A |
| G.15.2.5 | Thermal cycling test, test temperature (°C).....: | | N/A |
| G.15.2.6 | Force test | | N/A |
| G.15.2.7 | Compliance criteria | | N/A |
| G.15.3 | Test methods and compliance for a modular LFC | | N/A |
| G.15.3.2 | Hydrostatic pressure test, applied test pressure..... : | | N/A |
| G.15.3.3 | Creep resistance test | | N/A |
| G.15.3.4 | Tubing and fittings compatibility test, the change of tensile strength (%).....: | | N/A |
| G.15.3.5 | Thermal cycle test, test temperature (°C).....: | | N/A |
| G.15.3.6 | Force test | | N/A |
| G.15.3.7 | Compliance criteria | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **G.16** | **IC including capacitor discharge function (ICX)** | | N/A |
| G.16.1 | Condition for fault tested is not required | | N/A |
| | ICX with associated circuitry tested in equipment | | N/A |
| | ICX tested separately | | N/A |
| G.16.2 | Tests | | N/A |
| | Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... : | | — |
| | Mains voltage that impulses to be superimposed on.....: | | — |
| | Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test.....: | | — |
| G.16.3 | Capacitor discharge test.....: | (See appended table 5.5.2.2) | N/A |
| **H** | **CRITERIA FOR TELEPHONE RINGING SIGNALS** | | N/A |
| **H.1** | **General** | | N/A |
| **H.2** | **Method A** | | N/A |
| **H.3** | **Method B** | | N/A |
| H.3.1 | Ringing signal | | N/A |
| H.3.1.1 | Frequency (Hz) ..... : | | — |
| H.3.1.2 | Voltage (V) .....: | | — |
| H.3.1.3 | Cadence; time (s) and voltage (V) .....: | | — |
| H.3.1.4 | Single fault condition current (mA):.....: | | — |
| H.3.2 | Tripping device and monitoring voltage | | N/A |
| H.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | N/A |
| H.3.2.2 | Tripping device | | N/A |
| H.3.2.3 | Monitoring voltage (V).....: | | N/A |
| **J** | **INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION** | | N/A |
| **J.1** | **General** | | N/A |
| | Winding wire insulation.....: | | — |
| | Solid round winding wire, diameter (mm)..... : | | N/A |
| | Solid square and rectangular (flatwise bending) winding wire, cross-sectional area ($mm^2$)..... : | | N/A |
| **J.2/J.3** | Tests and Manufacturing | | — |
| **K** | **SAFETY INTERLOCKS** | | N/A |
| **K.1** | **General requirements** | | N/A |
| | Instructional safeguard.....: | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **K.2** | **Components of safety interlock safeguard mechanism** | | N/A |
| **K.3** | **Inadvertent change of operating mode** | | N/A |
| **K.4** | **Interlock safeguard override** | | N/A |
| **K.5** | **Fail-safe** | | N/A |
| K.5.1 | Under single fault condition | | N/A |
| **K.6** | **Mechanically operated safety interlocks** | | N/A |
| K.6.1 | Endurance requirement | | N/A |
| **K.7** | **Interlock circuit isolation** | | N/A |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements | | N/A |
| | In circuit connected to mains, separation distance for contact gaps (mm)..... : | | N/A |
| | In circuit isolated from mains, separation distance for contact gaps (mm)..... : | | N/A |
| | Electric strength test before and after the test of K.7.2..... : | (See appended table 5.4.9) | N/A |
| K.7.2 | Overload test, Current (A)..... : | | N/A |
| K.7.3 | Endurance test | | N/A |
| K.7.4 | Electric strength test | (See appended table 5.4.9) | N/A |
| **L** | **DISCONNECT DEVICES** | | N/A |
| **L.1** | **General requirements** | | N/A |
| **L.2** | **Permanently connected equipment** | | N/A |
| | Instructions for permanently connected equipment | | N/A |
| **L.3** | **Parts that remain energized** | | N/A |
| **L.4** | **Single-phase equipment** | | N/A |
| | Instructions for single pole disconnect device | | N/A |
| **L.5** | **Three-phase equipment** | | N/A |
| **L.6** | **Switches as disconnect devices** | | N/A |
| **L.7** | **Plugs as disconnect devices** | | N/A |
| | Instructions for pluggable equipment | | — |
| **L.8** | **Multiple power sources** | | N/A |
| | Instructional safeguard..... : | | N/A |
| **M** | **EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS** | | N/A |
| **M.1** | **General requirements** | | N/A |
| **M.2** | **Safety of batteries and their cells** | | N/A |
| M.2.1 | Batteries and their cells comply with relevant IEC standards..... : | The integrated cell comply with IEC 62133-2:2017. (See appended table 4.1.2) | N/A |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **M.3** | **Protection circuits for batteries provided within the equipment** | | N/A |
| M.3.1 | Requirements | | N/A |
| M.3.2 | Test method | | N/A |
| | Overcharging of a rechargeable battery | (See table B.4 and table Annex M.3) | N/A |
| | Excessive discharging | (See table B.4 and table Annex M.3) | N/A |
| | Unintentional charging of a non-rechargeable battery | | N/A |
| | Reverse charging of a rechargeable battery | | N/A |
| M.3.3 | Compliance criteria | (See appended table M.3) | N/A |
| **M.4** | **Additional safeguards for equipment containing a secondary lithium battery** | | N/A |
| M.4.1 | General | | N/A |
| | IEC 62133-2 batteries used for sub-system power powering application.....: | | N/A |
| M.4.2 | Charging safeguards | | N/A |
| M.4.2.1 | Requirements | (See appended table M.4.2) | N/A |
| M.4.2.2 | Test | | N/A |
| M.4.2.2.1 | General | | N/A |
| M.4.2.2.2 | Abnormal operating conditions | | N/A |
| M.4.2.2.3 | Single fault conditions | | N/A |
| M.4.2.3 | Compliance criteria.....: | | N/A |
| M.4.3 | Fire enclosure.....: | | N/A |
| M.4.4 | Drop test of equipment containing a secondary lithium battery | | N/A |
| M.4.4.2 | Preparation and procedure for the drop test | | N/A |
| M.4.4.3 | Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): .....: | After test, the voltage difference less than 5% in the 24H | N/A |
| M.4.4.4 | Check of the charge/discharge function | Charging normally, Discharging normally | N/A |
| M.4.4.5 | Charge / discharge cycle test | | N/A |
| M.4.4.6 | Compliance criteria | | N/A |
| **M.5** | **Risk of burn due to short-circuit during carrying** | | N/A |
| M.5.1 | Requirement | | N/A |
| M.5.2 | Test method and compliance criteria | | N/A |
| **M.6** | **Safeguards against short-circuits** | | N/A |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.6.1 | External and internal faults | Internal fault testing had been conducted on the cell as part of compliance with IEC 62133-2: 2017. No such explosion or fire likely to result from short circuits. | N/A |
| M.6.2 | Compliance criteria | | N/A |
| **M.7** | **Risk of explosion from lead acid and NiCd batteries** | | N/A |
| M.7.1 | Ventilation preventing explosive gas concentration | | N/A |
| | Calculated hydrogen generation rate..... : | | N/A |
| M.7.2 | Test method and compliance criteria | | N/A |
| | Minimum air flow rate, $Q$ ($m^3/h$)..... : | | N/A |
| M.7.3 | Ventilation tests | | N/A |
| M.7.3.1 | General | | N/A |
| M.7.3.2 | Ventilation test – alternative 1 | | N/A |
| | Hydrogen gas concentration (%)..... : | | N/A |
| M.7.3.3 | Ventilation test – alternative 2 | | N/A |
| | Obtained hydrogen generation rate..... : | | N/A |
| M.7.3.4 | Ventilation test – alternative 3 | | N/A |
| | Hydrogen gas concentration (%)..... : | | N/A |
| M.7.4 | Marking..... : | | N/A |
| **M.8** | **Protection against internal ignition from external spark sources of rechargeable batteries with aqueous electrolyte** | | N/A |
| M.8.1 | General | | N/A |
| M.8.2 | Test method | | N/A |
| M.8.2.1 | General | | N/A |
| M.8.2.2 | Estimation of hypothetical volume $V_Z$ ($m^3/s$)..... : | | — |
| M.8.2.3 | Correction factors..... : | | — |
| M.8.2.4 | Calculation of distance $d$ (mm) ..... : | | — |
| **M.9** | **Preventing electrolyte spillage** | | N/A |
| M.9.1 | Protection from electrolyte spillage | | N/A |
| M.9.2 | Tray for preventing electrolyte spillage | | N/A |
| **M.10** | **Instructions to prevent reasonably foreseeable misuse** | | N/A |
| | Instructional safeguard..... : | | N/A |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | N/A |
| | Material(s) used..... : | | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | N/A |
| | Value of $X$ (mm)..... : | | — |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **P** | **SAFEGUARDS AGAINST CONDUCTIVE OBJECTS** | | N/A |
| **P.1** | **General** | | N/A |
| **P.2** | **Safeguards against entry or consequences of entry of a foreign object** | | N/A |
| P.2.1 | General | | N/A |
| | Location and Dimensions (mm) .....: | | — |
| P.2.2 | Safeguard requirements | | N/A |
| | The ES3 and PS3 keep-out volume in Figure P.4 not applicable to transportable equipment | | N/A |
| | Transportable equipment with metalized plastic parts..... : | | N/A |
| P.2.3 | Consequence of entry test..... : | | N/A |
| **P.3** | **Safeguards against spillage of internal liquids** | | N/A |
| P.3.1 | General | | N/A |
| P.3.2 | Determination of spillage consequences | | N/A |
| P.3.3 | Spillage safeguards | | N/A |
| P.3.4 | Compliance criteria | | N/A |
| **P.4** | **Metallized coatings and adhesives securing parts** | | N/A |
| P.4.1 | General | | N/A |
| P.4.2 | Tests | | N/A |
| | Conditioning, $T_C$ (°C).....: | | — |
| | Duration (weeks).....: | | — |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | N/A |
| **Q.1** | **Limited power sources** | | N/A |
| Q.1.1 | Requirements | (see appended table Q.1) | N/A |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | | N/A |
| | c) Regulating network limited output | (see appended table Q.1) | N/A |
| | d) Overcurrent protective device limited output | | N/A |
| | e) IC current limiter complying with G.9 | | N/A |
| Q.1.2 | Test method and compliance criteria.....: | (See appended table Q.1) | N/A |
| | Current rating of overcurrent protective device (A) : | | N/A |
| **Q.2** | **Test for external circuits – paired conductor cable** | | N/A |
| | Maximum output current (A) ..... : | | N/A |
| | Current limiting method.....: | | — |
| **R** | **LIMITED SHORT CIRCUIT TEST** | | N/A |
| **R.1** | **General** | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **R.2** | **Test setup** | | N/A |
| | Overcurrent protective device for test..... : | | — |
| **R.3** | **Test method** | | N/A |
| | Cord/cable used for test.....: | | — |
| **R.4** | **Compliance criteria** | | N/A |
| **S** | **TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| **S.1** | **Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W** | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | - Material not consumed completely | | N/A |
| | - Material extinguishes within 30s | | N/A |
| | - No burning of layer or wrapping tissue | | N/A |
| **S.2** | **Flammability test for fire enclosure and fire barrier integrity** | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| | - Material did not show any additional holes for combustible materials | | N/A |
| | - Cheesecloth did not ignite for top openings | | N/A |
| **S.3** | **Flammability test for the bottom of a fire enclosure** | | N/A |
| S.3.1 | Mounting of samples | | N/A |
| S.3.2 | Test method and compliance criteria | | N/A |
| | Mounting of samples .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Cheesecloth did not ignite | | N/A |
| **S.4** | **Flammability classification of materials** | | N/A |
| **S.5** | **Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W** | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| **S.6** | **Grille covering material, cloth, and reticulated foam** | | N/A |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Samples, material.....: | | — |
| | Measured distance from the centre of the fuel tablet (mm).....: | | N/A |
| **T** | **MECHANICAL STRENGTH TESTS** | | P |
| **T.1** | **General** | | |
| **T.2** | **Steady force test, 10 N .....:** | (See appended table T.2) | P |
| **T.3** | **Steady force test, 30 N .....:** | (See appended table T.3) | N/A |
| **T.4** | **Steady force test, 100 N .....:** | (See appended table T.4) | P |
| **T.5** | **Steady force test, 250 N .....:** | (See appended table T.5) | N/A |
| **T.6** | **Enclosure impact test** | (See appended table T.6) | N/A |
| | Fall test | | N/A |
| | Swing test | | N/A |
| **T.7** | **Drop test .....:** | (See appended table T.7) | P |
| **T.8** | **Stress relief test.....:** | (See appended table T.8) | P |
| **T.9** | **Glass Impact Test.....:** | (See appended table T.6, T.9) | N/A |
| **T.10** | **Glass fragmentation test** | | N/A |
| | Number of particles counted.....: | | N/A |
| **T.11** | **Test for telescoping or rod antennas** | | N/A |
| | Torque value (Nm) .....: | | N/A |
| **U** | **MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION** | | N/A |
| **U.1** | **General** | | N/A |
| | Instructional safeguard.....: | | N/A |
| **U.2** | **Test method and compliance for non-intrinsically protected CRTs** | | N/A |
| **U.3** | **Protective screen** | | N/A |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS** | | N/A |
| **V.1** | **Accessible parts of equipment** | | N/A |
| V.1.1 | General | | N/A |
| V.1.2 | Surfaces and openings tested with jointed test probes | | N/A |
| V.1.3 | Openings tested with straight unjointed test probes | | N/A |
| V.1.4 | Plugs, jacks, connectors tested with blunt probe | | N/A |
| V.1.5 | Slot openings tested with wedge probe | | N/A |
| V.1.6 | Terminals tested with rigid test wire | | N/A |
| **V.2** | **Accessible part criterion** | | N/A |

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **X** | **ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)** | | N/A |
| | Clearance..... : | (See appended table X) | N/A |
| **Y** | **CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES** | | N/A |
| **Y.1** | **General** | | N/A |
| **Y.2** | **Resistance to UV radiation** | | N/A |
| **Y.3** | **Resistance to corrosion** | | N/A |
| Y.3.1 | Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by..... : | | N/A |
| Y.3.2 | Test apparatus | | N/A |
| Y.3.3 | Water – saturated sulphur dioxide atmosphere | | N/A |
| Y.3.4 | Test procedure.....: | | N/A |
| Y.3.5 | Compliance criteria | | N/A |
| **Y.4** | **Gaskets** | | N/A |
| Y.4.1 | General | | N/A |
| Y.4.2 | Gasket tests | | N/A |
| Y.4.3 | Tensile strength and elongation tests, changes of tensile strength and elongation..... : | | N/A |
| | Alternative test methods..... : | | N/A |
| Y.4.4 | Compression test | | N/A |
| Y.4.5 | Oil resistance, change of swell / shrink (%)..... : | | N/A |
| Y.4.6 | Securing means | (See Clause P.4) | N/A |
| **Y.5** | **Protection of equipment within an outdoor enclosure** | | N/A |
| Y.5.1 | General | | N/A |
| Y.5.2 | Protection from moisture | | N/A |
| | Relevant tests of IEC 60529 or Y.5.3..... : | | N/A |
| Y.5.3 | Water spray test | | N/A |
| Y.5.4 | Protection from plants and vermin | | N/A |
| Y.5.5 | Protection from excessive dust | | N/A |
| Y.5.5.1 | General | | N/A |
| | Relevant tests of IEC 60529 or Y.5.5.2 or Y.5.5.3.. : | | N/A |
| Y.5.5.2 | IP5X equipment | | N/A |
| Y.5.5.3 | IP6X equipment | | N/A |
| **Y.6** | **Mechanical strength of enclosures** | | N/A |
| Y.6.1 | General | | N/A |
| Y.6.2 | Impact test.....: | (See appended table T.6, T.9) | N/A |

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

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

| 5.2 | TABLE: Classification of electrical energy sources | | | | | | P |
|---|---|---|---|---|---|---|---|
| Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | | ES Class |
| | | | U (V) | I (mA) | Type[1)] | Additional Info [2)] | |
| 5.0Vdc | Input terminal, All Internal circuits | Normal: | -- | -- | SS | -- | ES1 |
| | | Abnormal: | -- | -- | SS | -- | |
| | | Single fault – SC/OC: | -- | -- | SS | -- | |
| 5.0Vdc | Accessible enclosure with metal foil to earth | Normal | -- | 0.005mApk# | SS | 60 | ES1 |
| | | Abnormal: Over load | -- | 0.005mApk# | SS | 60 | |
| | | Single fault – Fuse open* | -- | 0.005mApk# | SS | 60 | |
| Supplementary information: | | | | | | | |
| 1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.<br>2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.<br>#: Current is measured using the measuring network specified in Figure 4 of IEC 60990:1999.<br>@: Current is measured using the measuring network specified in Figure 5 of IEC 60990:1999.<br>*: Refer to table B.4 for details of fuse open condition.<br>Output terminal does not exceed ES1 limits, and the maximum output voltage did not increase by more than 3V or 10% of rated output voltage. | | | | | | | |

| 5.4.1.10.2 | TABLE: Vicat softening temperature of thermoplastics | | N/A |
|---|---|---|---|
| Method..... : | ISO 306 / B50 | | — |
| Object/ Part No./Material | Manufacturer/trademark | Thickness (mm) | T softening (°C) |
| -- | -- | -- | -- |
| -- | -- | -- | -- |
| Supplementary information: | | | |
| | | | |

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

| 5.4.1.10.3 | TABLE: Ball pressure test of thermoplastics | | | | N/A |
|---|---|---|---|---|---|
| Allowed impression diameter (mm)..... : | | ≤ 2 mm | | | — |
| Object/Part No./Material | Manufacturer/trademark | Thickness (mm) | Test temperature (°C) | Impression diameter (mm) | |
| -- | -- | -- | -- | -- | |
| Supplementary information: | | | | | |
| | | | | | |

| 5.4.2, 5.4.3 | TABLE: Minimum Clearances/Creepage distance | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Clearance (cl) and creepage distance (cr) at/of/between: | $U_p$ (V) | $U_{rms}$ (V) | Freq [1] (Hz) | Required cl (mm) | cl (mm) | E.S. [2] (V) | Required cr (mm) | cr (mm) |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Supplementary information: | | | | | | | | |
| | | | | | | | | |

| 5.4.4.2 | TABLE: Minimum distance through insulation | | | |
|---|---|---|---|---|
| Distance through insulation (DTI) at/of | Peak voltage (V) | Insulation | Required DTI (mm) | Measured DTI (mm) |
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |
| Supplementary information: | | | | |
| | | | | |

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

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

| 5.4.9 | TABLE: Electric strength tests | | | P |
|---|---|---|---|---|
| Test voltage applied between: | | Voltage shape (Surge, Impulse, AC, DC, etc.) | Test voltage (V) | Breakdown Yes / No |
| Functional: | | | | |
| -- | | -- | -- | -- |
| Basic/supplementary: | | | | |
| L/N to outer plastic enclosure with metal foil @ | | DC | 500 | No |
| Reinforced: | | | | |
| -- | | -- | -- | -- |
| -- | | -- | -- | -- |
| -- | | -- | -- | -- |
| -- | | -- | -- | -- |
| -- | | -- | -- | -- |
| Supplementary information: | | | | |
| 1. #: All sources of alternative component and materials listed in table 4.1.2 were considered and passed for above test.<br>2. @: Test models:<br>3. #: Test repeated for all alternate materials and components listed in table 4.1.2. | | | | |

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

| 5.5.2.2 | TABLE: Stored discharge on capacitors | | | | N/A |
|---|---|---|---|---|---|
| Location | Supply voltage (V) | Operating and fault condition [1)] | Switch position | Measured voltage (Vpk) | ES Class |
| -- | -- | -- | -- | -- | -- |
| Supplementary information: | | | | | |
| X-capacitors installed for testing:<br>[ ] bleeding resistor rating:<br>[ ] ICX:<br>1) Normal operating condition (e.g., normal operation), SC= short circuit, OC= open circuit | | | | | |

| 5.6.6 | TABLE: Resistance of protective conductors and terminations | | | N/A |
|---|---|---|---|---|
| Location | Test current (A) | Duration (min) | Voltage drop (V) | Resistance (Ω) |
| -- | -- | -- | -- | -- |
| Supplementary information: | | | | |
| | | | | |

| 5.7.4 | TABLE: Unearthed accessible parts | | | | | P |
|---|---|---|---|---|---|---|
| Location | Operating and fault conditions | Supply Voltage (V) | Parameters | | | ES class |
| | | | Voltage ($V_{rms}$ or $V_{pk}$) | Current ($A_{rms}$ or $A_{pk}$) | Freq. (Hz) | |
| Accessible enclosure with metal foil to earth | Normal | 5.0Vdc | -- | 0.005mApk# | 60 | ES1 |
| | Abnormal: Over load | 5.0Vdc | -- | 0.005mApk# | 60 | |
| | Single fault – Fuse open* | 5.0Vdc | -- | 0.005mApk# | 60 | |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit | | | | | | |

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

| 5.7.5 | TABLE: Earthed accessible conductive part | | | N/A |
|---|---|---|---|---|
| Supply voltage (V)..... : | | | | — |
| Phase(s) ..... : | [ ] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye | | | |
| Power Distribution System ..... : | [ ] TN [ ]TT [ ] IT | | | |
| Location | Fault Condition No in IEC 60990 clause 6.2.2 | Touch current (mA) | Comment | |
| -- | -- | -- | -- | |
| Supplementary Information: | | | | |
| | | | | |

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

| 6.2.2 | TABLE: Power source circuit classifications | | | | | P |
|---|---|---|---|---|---|---|
| Location | Operating and fault condition | Voltage (V) | Current (A) | Max. Power[1)] (W) | Time (S) | PS class |
| All circuits supplied by DC mains | -- | -- | -- | -- | -- | PS1 (declared) |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit<br>1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.<br>#: Test method-power measurement for worst-case fault.<br>&: Test method-power measurement for worst-case power source fault. | | | | | | |

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

| 6.2.3.1 | TABLE: Determination of Arcing PIS | | | P |
|---|---|---|---|---|
| Location | Open circuit voltage after 3 s (Vpk) | Measured r.m.s current (A) | Calculated value | Arcing PIS? Yes / No |
| Input terminal, All primary and secondary circuits inside enclosure | -- | -- | -- | Yes |
| Output terminal | <50 | >0.3 | >15 | No |
| Supplementary information: | | | | |
| An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage ($V_p$) and normal operating condition rms current ($I_{rms}$) is greater than 15. | | | | |

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

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

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

| 9.6 | TABLE: Temperature measurements for wireless power transmitters | N/A |
|---|---|---|
| Supply voltage (V).....: | -- | — |
| Max. transmitting power (W)..... : | -- | — |

Part A [1)]

| Foreign objects | w/o receiver and direct contact | | with receiver and direct contact | | with receiver and at distance of 2 mm | | with receiver and at distance of 5 mm | |
|---|---|---|---|---|---|---|---|---|
| | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) |
| Steel disc | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminium ring | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminium foil | -- | -- | -- | -- | -- | -- | -- | -- |
| Measurement temperature T of part/at: | w/o receiver and direct contact | | with receiver and direct contact | | with receiver and at distance of 2 mm | | with receiver and at distance of 5 mm | |
| | T (°C) | Ambient (°C) | T (°C) | Ambient (°C) | T (°C) | Ambient (°C) | T (°C) | Ambient (°C) |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |

Part B [2)]

| Foreign objects | w/o receiver and direct contact | | with receiver and direct contact | | with receiver and at distance of 2 mm | | with receiver and at distance of 5 mm | |
|---|---|---|---|---|---|---|---|---|
| | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) |
| Steel disc | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminium ring | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminium foil | -- | -- | -- | -- | -- | -- | -- | -- |
| Measurement temperature T of part/at: | w/o receiver and direct contact | | with receiver and direct contact | | with receiver and at distance of 2 mm | | with receiver and at distance of 5 mm | |
| | T (°C) | Ambient (°C) | T (°C) | Ambient (°C) | T (°C) | Ambient (°C) | T (°C) | Ambient (°C) |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |

Supplementary information:

1) The test is performed by powering up the transmitter and then placing each of the foreign objects specified in 9.6.2 in direct contact with the transmitter.

2) The test is performed by first placing each of the foreign objects specified in 9.6.2 in direct contact with the transmitter and then powering up transmitter.

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **5.4.1.4, 9.3, B.1.5, B.2.6** | **TABLE: Temperature measurements** | | | | | | P |
| Supply voltage (V)..... | | 5.0Vdc | -- | -- | -- | | — |
| Ambient temperature during test $T_{amb}$ (°C)..... | | See below | -- | -- | -- | | — |
| Maximum measured temperature *T* of part/at: | | *T* (°C) | | | | | Allowed $T_{max}$ (°C) |
| PCB | | 49.9 | -- | -- | -- | | Ref. |
| Input wire | | 57.6 | -- | -- | -- | | 80 |
| Enclosure | | 70.5 | -- | -- | -- | | Ref. |
| Ambient | | 30.0 | -- | -- | -- | | -- |
| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
| -- | -- | -- | -- | -- | -- | -- | -- |
| Supplementary information: | | | | | | | |
| - Thermal coupler method used for above temperature tests.<br>- The maximum operation ambient temperature is 30°C. | | | | | | | |

| EN IEC 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 |
| 5.0V | 2 | 2 | 10W | - | - | - | Normal work |
| Supplementary information: -- | | | | | | | |

| B.2.5, E.3.1 | TABLE: Input test for equipment containing audio amplifiers | | | | | | | | | | | N/A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operation Condition: | Signal type | | Frequency (Hz) | | Output loads (Ω) | | Load setup | | | | | |
| -- | -- | | -- | | -- | | -- | | | | | |
| -- | -- | | -- | | -- | | -- | | | | | |
| Input | | | | | | | | | Amplifier Output | | | |
| Cond. | U (V) | Hz | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Ch. | U (V) | P (W) | Load (Ω) |
| | | | | | | | | | | | | |
| Supplementary information: | | | | | | | | | | | | |
| | | | | | | | | | | | | |

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

| B.3, B.4 | TABLE: Abnormal operating and fault condition tests | | | | | | P |
|---|---|---|---|---|---|---|---|
| Ambient temperature $T_{amb}$ (°C)..... : | | | | | | | — |
| Power source for EUT: Manufacturer, model/type, outputrating... : | | | | | | | — |
| Component No. | Condition | Supply voltage (V) | Test time | Fuse no. | Fuse current (A) | Observation | |
| -- | -- | -- | -- | -- | -- | -- | |

Supplementary information:

1. 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.

2. 2. O-L: overload.

3. 3. The Hi-pot test conducted successfully after the completion of fault condition test.

4. 4. Temperature limits under the fault condition: Motor winding limit: 165°C (class B), Enclosure outside: 87°C, For other parts: 300°C.

5. 5. Output terminal does not exceed ES1 limits, and the maximum output voltage did not increase by more than 3V or 10% of rated output voltage.

1) SC: short circuit, OC: open circuit.

2) The Hi-pot test conducted successfully after the completion of fault condition test.

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

| M.3 | TABLE: Protection circuits for batteries provided within the equipment | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Is it possible to install the battery in a reverse polarity position?.....: | | | | NO | | | — |
| Equipment Specification | Charging | | | | | | |
| | Voltage (V) | | | Current (A) | | | |
| | -- | | | -- | | | |
| Manufacturer/type | Battery specification | | | | | | |
| | Non-rechargeable batteries | | Rechargeable batteries | | | | |
| | Discharging current (A) | Unintentional charging current (A) | Charging | | Discharging current (A) | Reverse charging current (A) | |
| | | | Voltage (V) | Current (A) | | | |
| -- | -- | -- | -- | -- | -- | -- | |
| Note: The tests of M.3.2 are applicable only when above appropriate data is not available. | | | | | | | |
| Specified battery temperature (°C).....: | | | | 0-45°C | | | |

| Component No. | Fault condition | Charge/ discharge mode | Test time | Temp. (°C) | Current (A) | Voltage (V) | Observation |
|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.

| M.4.2 | TABLE: Charging safeguards for equipment containing a secondary lithium battery | | | | N/A |
|---|---|---|---|---|---|
| Maximum specified charging voltage (V)..... : | | | -- | | — |
| Maximum specified charging current (A) .....: | | | -- | | — |
| Highest specified charging temperature (°C) .....: | | | -- | | |
| Lowest specified charging temperature (°C) .....: | | | -- | | |
| Battery manufacturer/type | Operating and fault condition | Measurement | | | Observation |
| | | Charging voltage (V) | Charging current (A) | Temp. (°C) | |
| -- | -- | -- | -- | -- | -- |
| | -- | -- | -- | -- | -- |

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest

| EN IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| specified charging temperature | | | |

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

| Q.1 | TABLE: Circuits intended for interconnection with building wiring (LPS) | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Output Circuit | Condition | $U_{oc}$ (V) | Time (s) | $I_{sc}$ (A) | | S (VA) | |
| | | | | Meas. | Limit | Meas. | Limit |
| -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |
| Supplementary Information: | | | | | | | |
| SC=Short circuit, OC=Open circuit. | | | | | | | |

| T.2, T.3, T.4, T.5 | TABLE: Steady force test | | | | | P |
|---|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Probe | Force (N) | Test Duration (s) | Observation |
| Internal components, output wire | -- | -- | -- | 10 | 5 | Clearances and creepage distances still complied with the requirements of this standard |
| Each side of enclosure | Plastic | 1.5 | A circular plane surface 30 mm in diameter | 100 | 5 | Enclosure remained intact |
| Supplementary information: | | | | | | |
| | | | | | | |

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

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

| T.7 | TABLE: Drop test | | | | P |
|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Height (mm) | Observation | |
| Top enclosure | Plastic | Min. 1.5 | 1000 | No damaged | |
| Side enclosure | Plastic | Min. 1.5 | 1000 | No damaged | |
| Bottom enclosure | Plastic | Min. 1.5 | 1000 | No damaged | |
| Supplementary information: | | | | | |
| | | | | | |

| T.8 | TABLE: Stress relief test | | | | | P |
|---|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation | |
| Enclosure of completed product | Plastic | 1.5 | 70.0 | 7 | No distortion, No damaged | |
| Supplementary information: | | | | | | |
| | | | | | | |

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

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

| 4.1.2 | TABLE: Critical components information | | | | P |
|---|---|---|---|---|---|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity[1)] |
| Enclosure | SABIC INNOVATIVE PLASTICS US L L C | 940(f1)(gg*), 945(GG) | PC, V-0, 120°C, min. Thickness 1.5mm | IEC/EN 62368-1, UL 94, UL746 | Tested with appliance UL |
| (Alternative) | SABIC INNOVATIVE PLASTICS B V | ML6412 | V-0, 100℃, Min. thickness 1.0mm. | IEC/EN 62368-1, UL 94, UL746 | Tested with appliance UL |
| PCB | DONGGUAN HRSC PCB CO LTD | HX-002A | V-0, 130°C | IEC/EN 62368-1 UL 796 | Tested with appliance UL |
| (Alternative) | Interchangeable | Interchangeable | V-1 or better, 130°C | UL 796 | UL |
| Supplementary information: | | | | | |
| 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

Description: Overall view of EUT

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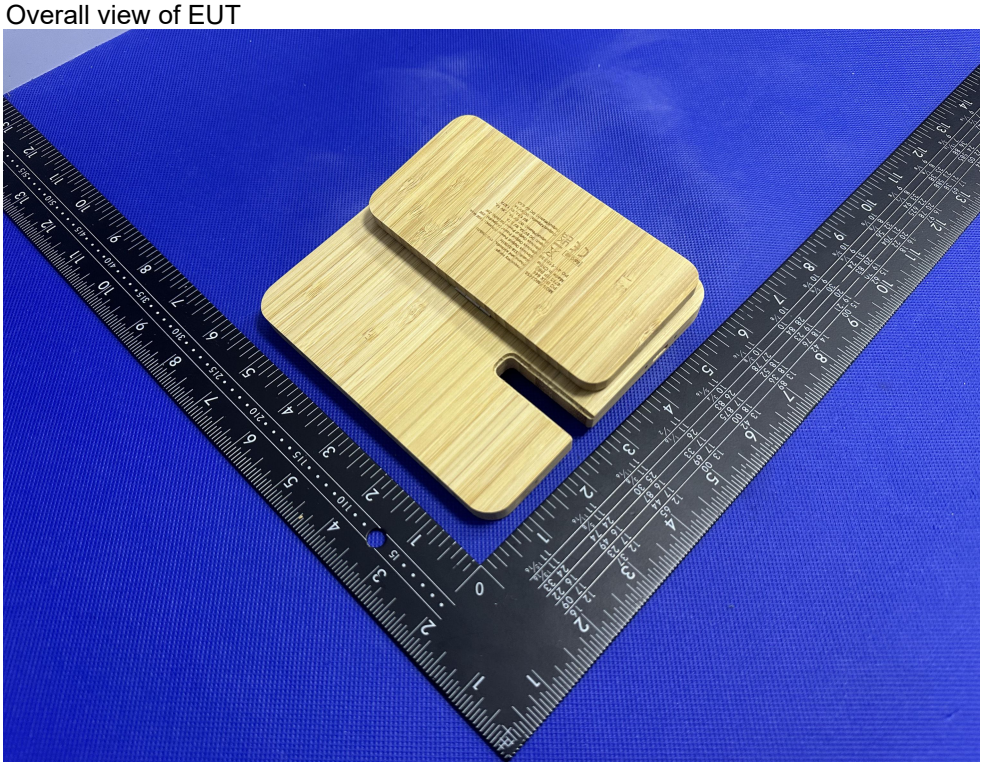
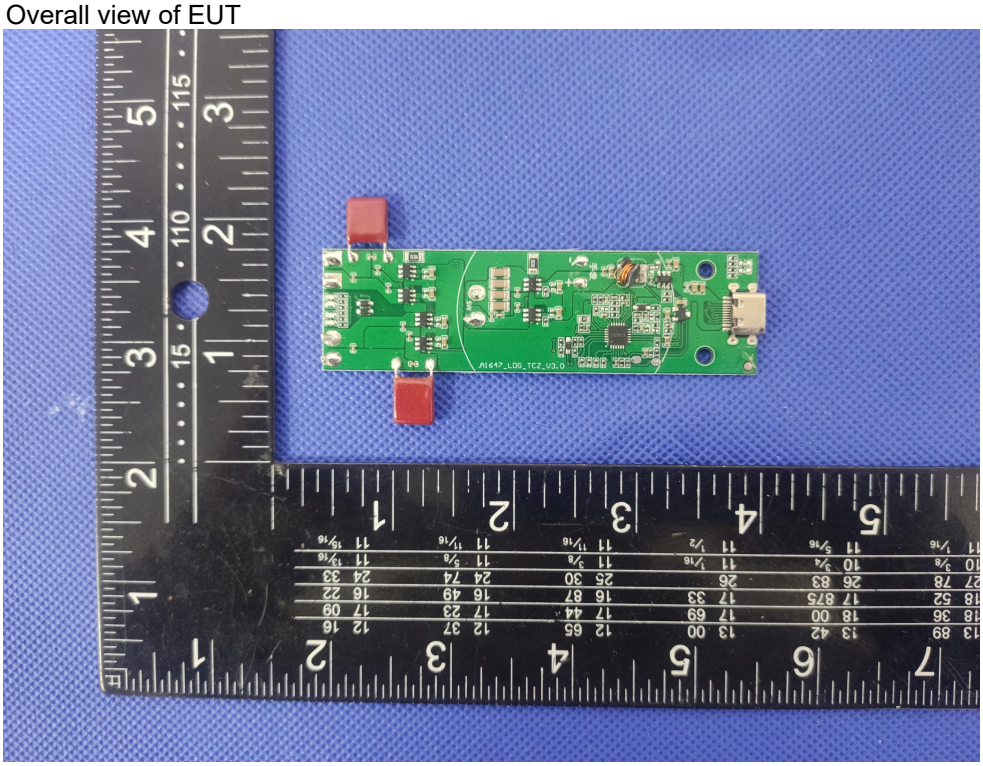
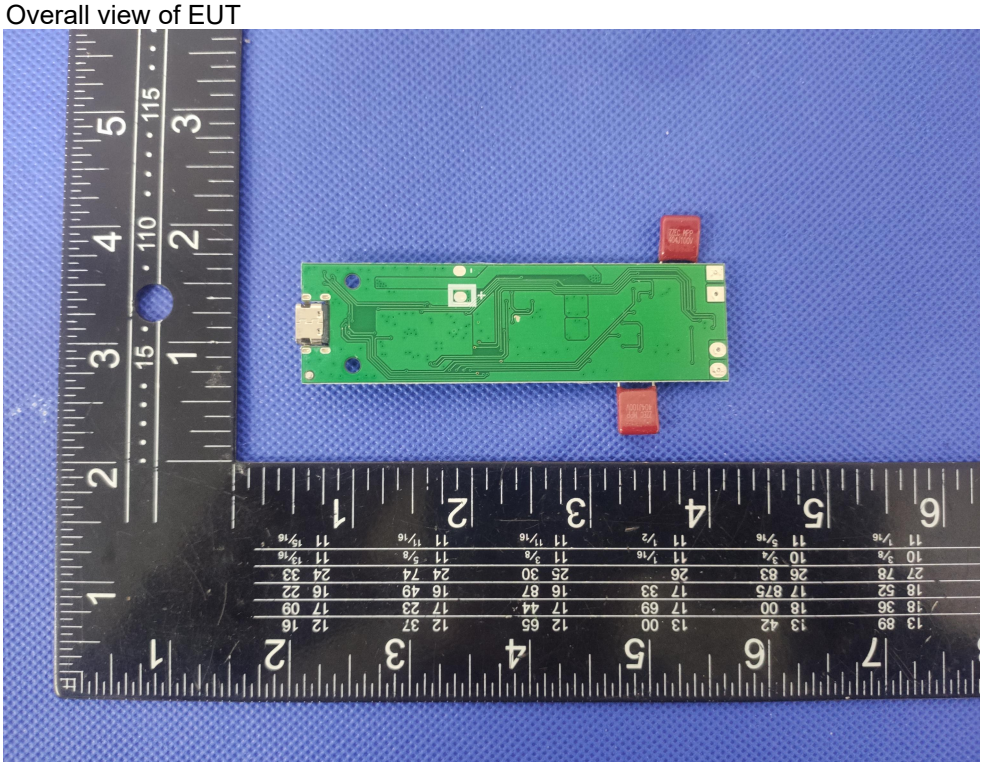


Description: Overall view of EUT



Description: Overall view of EUT



※※※※※END OF THE REPORT※※※※※