# TEST REPORT

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|---|---|---|
| **Product Name** | : | **paper shredder** |
| **Model Number** | : | **PC420D, PC312D, PC210D, ES531547AAA, PCxyyD, PC3bbD, PCzwwD** |

| | |
|---|---|
| **Prepared For:** | **NINGBO WONGHING INTELLIGENT MANUFACTURING CO.,LTD**<br>**Zhengjia 17 House Settlement, XiePu ZhenHai, Ningbo, Zhejiang, 315203, P.R.China** |
| **Prepared By:** | **EMTEK(NINGBO) CO.,LTD.**<br>**No. 8, Building 8, Lane 216, Qingyi Road, High-tech Zone, Ningbo City, Zhejiang Province. China**<br>**Tel: +86-574-2790 7998**<br>**Fax: +86-574-2772 1538** |

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|---|---|---|
| **Date of Test** | : | **April 01, 2024 to April 12, 2024** |
| **Date of Report** | : | **April 15, 2024** |
| **Report Number** | : | **ENB2404010172S00201R** |

# TEST REPORT

## IEC 62368-1

## Audio/video, information and communication technology equipment

## Part 1: Safety requirements

| | |
|---|---|
| **Report Number**.....: | ENB2404010172S00201R |
| Compiled by (+ signature) .....: | Haoyun Zhang |
| Approved by (+ signature) .....: | Jimmy Qian |
| Date of issue.....: | April 15, 2024 |
| Total number of pages.....: | 87 pages |

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|---|---|
| **Testing Laboratory**.....: | EMTEK (NINGBO) CO., LTD. |
| Address.....: | No. 8, Building 8, Lane 216, Qingyi Road, High-tech Zone, Ningbo City, Zhejiang Province. China |
| Testing location / address.....: | Same as above |

| | |
|---|---|
| **Applicant's name.....:** | NINGBO WONGHING INTELLIGENT MANUFACTURING CO.,LTD |
| Address.....: | Zhengjia 17 House Settlement, XiePu ZhenHai, Ningbo, Zhejiang, 315203, P.R.China |

| | |
|---|---|
| **Test specification:** | |
| Standard.....: | IEC 62368-1:2018 (Third Edition) |
| | J 62368-1:2023 |
| Test procedure.....: | PSE report |
| Non-standard test method.....: | N/A |

| | |
|---|---|
| **Test Report Form No.....:** | IEC/EN 62368_1E |
| Test Report Form(s) Originator.....: | EMTEK |
| Master TRF.....: | 2020-12 |

| | |
|---|---|
| **Test item description.....:** | Paper Shredder |
| Trade Mark.....: | N/A |
| Manufacturer.....: | NINGBO WONGHING INTELLIGENT MANUFACTURING CO.,LTD |
| Address.....: | Zhengjia 17 House Settlement, XiePu ZhenHai, Ningbo, Zhejiang, 315203, P.R.China |
| Model/Type reference.....: | PC420D, PC312D, PC210D, ES531547AAA, PCxyyD, PC3bbD, PCzwwD |
| Ratings.....: | Input: 100V~, 50/60Hz, 3.5A, 330W, Class II |

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

- Japan National Differences

-Attachment I: Photos

**Summary of testing:**

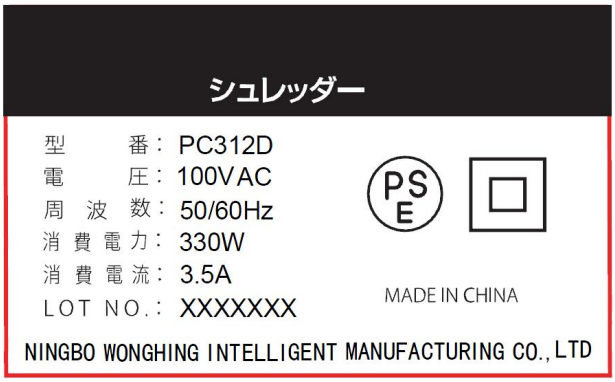
All tests were performed on model PC420D, PC312D, PC210D and passed.

**Summary of compliance with National Differences:**

Japan National Differences

☒ **The product fulfils the requirements of** ___ J 62368-1:2023_____ **(insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)**

**Copy of marking plate:**




Remark:
The label of other models are same with model PC312D, only model name different.
Note:
- The above markings are the minimum requirements required by the safety standard. For the final production, the additional markings which do not give rise to misunderstanding may be added.

| TEST ITEM PARTICULARS: | |
|---|---|
| **Classification of use by.....:** | ☒ Ordinary person<br>☐ Instructed person<br>☐ Skilled person<br>☒ Children likely to be present |
| **Supply Connection.....:** | ☒ AC Mains ☐ DC Mains<br>☐ External Circuit - not Mains connected<br>- ☐ ES1 ☐ ES2 ☐ ES3 |
| **Supply % Tolerance .....:** | ☒ +10%/ -10%<br>☐ +20%/ -15%<br>☐ +____%/ -____%<br>☐ None |
| **Supply Connection – Type .....:** | ☒ pluggable equipment type A -<br>☒ non-detachable supply cord<br>☐ appliance coupler<br>☐ direct plug-in<br>☐ mating connector<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector<br>☐ other:__ __ |
| **Considered current rating of protective device as part of building or equipment installation.....:** | __16__ A;<br>Installation location: ☐ building ☐ equipment<br>☐ other:____ |
| **Equipment mobility.....:** | ☒ movable ☐ hand-held ☐ transportable<br>☐ stationary ☐ for building-in ☐ direct plug-in<br>☐ rack-mounting ☐ wall-mounted |
| **Over voltage category (OVC) .....:** | ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV<br>☐ other: ____ |
| **Class of equipment .....:** | ☐ Class I ☒ Class II ☐ Class III<br>☐ Class II with functional earthing ☐ Not classifed |
| **Access location .....:** | ☐ restricted access area ☒ N/A |
| **Pollution degree (PD) .....:** | ☐ PD 1 ☐ PD 2 ☒ PD 3 |
| **Manufacturer's specified maxium operating ambient.....:** | __25__°C |
| **IP protection class .....:** | ☒ IPX0 ☐ IP____ |

| | |
|---|---|
| **Power Systems .....:** | ☒ TN ☐ TT ☐ IT - ____ $V_{L-L}$<br>☐ DC mains ☐ N/A |
| **Altitude during operation (m) .....:** | ☒ 2000 m or less ☐ ____ m |
| **Altitude of test laboratory (m) .....:** | ☒ 2000 m or less ☐ ____ m |
| **Mass of equipment (kg) .....:** | ☒ __Approx. 10.7__ kg |
| | |
| **Possible test case verdicts:** | |
| **- test case does not apply to the test object.....:** | N/A |
| **- test object does meet the requirement.....:** | P (Pass) |
| **- test object does not meet the requirement.....:** | F (Fail) |
| **Testing:** | |
| **Date of receipt of test item.....:** | April 01, 2024 |
| **Date (s) of performance of tests.....:** | April 01, 2024 to April 12, 2024 |

**GENERAL REMARKS:**

**"(See Enclosure #)" refers to additional information appended to the report.**
**"(See appended table)" refers to a table appended to the report.**
**Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**

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

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

| | |
|---|---|
| **Name and address of factory (ies).....:** | NINGBO WONGHING INTELLIGENT MANUFACTURING CO.,LTD<br>Zhengjia 17 House Settlement, XiePu ZhenHai, Ningbo, Zhejiang, 315203, P.R.China |

**GENERAL PRODUCT INFORMATION:**

**Product Description –**

1. The equipment is a paper shredder for the use as information technology equipment. Pollution degree of paper shredder was considered as Pollution degree 3.

2. The operating time is 10 minutes On, 50 minutes Off.

3. Operating ambient temperature (Tma): 25 °C.

4. The equipment has the function to shred papers and cards.

**Model Differences –**

1. The model ES531547AAA and PC312D is the same product, only model name different.

2.Model list:

| Model name | PCxyyD | PC3bbD | PCzwwD |
|---|---|---|---|
| Motor | DC motor (WX4450D100) | | |
| Blade type | Cross cut | Micro cut | Micro cut |
| Max.Pappers caoacity | 20 | 12 | 10 |
| Remark: "x" can be 4 to 6 which indicates customer code; letter "z"can be 1 to 2 which indicates | | | |

| |
|---|
| customer code. Letter “ww” denote micro-cut units and can be 01 to 10 which indicates the amount of paper shredded; “bb” denote micro-cut units and can be 01 to 12 which indicates the amount of paper shredded. “yy” denote cross-cut units and can be 01 to 20 which indicates the amount of paper shredded. |
| **Additional application considerations – (Considerations used to test a component or sub-assembly) –**<br>N/A |

| OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5 | Electrically-caused injury | | | |
| Class and Energy Source (e.g. ES3: Primary circuit) | Body Part (e.g. Ordinary) | Safeguards | | |
| | | B | S | R |
| ES3: The circuit connected to AC mains | Assumed to be accessible by ordinary person in end product | N/A | N/A | Enclosure, See 5.4.2, 5.4.3, 5.4.4 |
| ES3: Stored charge on primary capacitor (EMC-C1) | Assumed to be accessible by ordinary person in end product | N/A | N/A | See 5.5.2.2 |
| 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 |
| PS3: All components/ circuits inside the equipment enclosure | All combustible materials within equipment fire enclosure | 1, No ignition occurred.<br>2, No parts exceeding 90% of its spontaneous ignition temperature. | 1, PCB is complied with min. V-0 material.<br>2, All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.<br>3, V-0 Enclosures | N/A |
| PS3 | PCB | See 6.3 | V-0 or better | N/A |
| PS3 | Enclosure | See 6.3 | V-0 or better | N/A |
| PS3 | Internal wire | See 6.3 | VW-1 or better | N/A |
| PS3 | Power supply cord | See 6.3 | VW-1 or better | 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: Sharp edges | Ordinary person | N/A | N/A | N/A |
| MS2: 10.7kg | Ordinary person | N/A | N/A | Test according with Clause 8.6.3 and passed. |
| 9 | Thermal burn | | | |

| Class and Energy Source (e.g. TS1: Keyboard caps) | Body Part (e.g., Ordinary) | Safeguards | | |
|---|---|---|---|---|
| | | B | S | R |
| TS3: Internal parts/circuits | Internal components and parts | N/A | N/A | N/A |
| 10 | Radiation | | | |
| Class and Energy Source (e.g. RS1: PMP sound output) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| RS1: Low power LED used as indicator | Ordinary person | N/A | N/A | N/A |
| RS1: IR LED used | Ordinary person | N/A | N/A | N/A |
| Supplementary information:<br>"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 |

| 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.<br>Components not covered by IEC standards are tested under the conditions present in the equipment | P |
| 4.1.3 | Equipment design and construction | Safeguards are provided to reduce the likelihood of injury or, in the case of fire, property damage | P |
| 4.1.4 | Specified ambient temperature for outdoor use (°C) ..... : | | N/A |
| 4.1.5 | Constructions and components not specifically covered | | N/A |
| 4.1.8 | Liquids and liquid filled components (LFC) | | 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.5) | P |
| 4.4.3.3 | Drop tests | (See Annex T.7) | N/A |
| 4.4.3.4 | Impact tests | (See Annex T.6) | P |
| 4.4.3.5 | Internal accessible safeguard tests | See Annex T.3) | P |
| 4.4.3.6 | Glass impact tests | | N/A |
| 4.4.3.7 | Glass fixation tests | | N/A |
| | Glass impact test (1J) | | N/A |
| | Push/pull test (10 N) | | N/A |
| 4.4.3.8 | Thermoplastic material tests | (See Annex T.8) | P |
| 4.4.3.9 | Air comprising a safeguard | Considered, but no such barrier or enclosure provided | P |
| 4.4.3.10 | Accessibility, glass, safeguard effectiveness | All safeguards remain effective. | P |
| 4.4.4 | Displacement of a safeguard by an insulating liquid | | N/A |
| 4.4.5 | Safety interlocks | (See Annex K) | P |
| **4.5** | **Explosion** | | P |

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

| | | | |
|---|---|---|---|
| 4.5.1 | General | | P |
| 4.5.2 | No explosion during normal/abnormal operating condition | No explosion occurred under normal and abnormal operating conditions. | P |
| | No harm by explosion during single fault conditions | No explosion caused harm during single fault conditions and the equipment comply with the relevant parts of this standard. | P |
| **4.6** | **Fixing of conductors** | | P |
| | Fix conductors not to defeat a safeguard | | P |
| | Compliance is checked by test.....: | | 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/button cell batteries** | | N/A |
| 4.8.1 | General | | N/A |
| 4.8.2 | Instructional safeguard..... : | | N/A |
| 4.8.3 | Battery compartment door/cover construction | | N/A |
| | Open torque test | | N/A |
| 4.8.4.2 | Stress relief test | | N/A |
| 4.8.4.3 | Battery replacement test | | N/A |
| 4.8.4.4 | Drop test | | N/A |
| 4.8.4.5 | Impact test | | N/A |
| 4.8.4.6 | Crush test | | N/A |
| 4.8.5 | Compliance | | N/A |
| | 30N force test with test probe | | N/A |
| | 20N force test with test hook | | N/A |
| **4.9** | **Likelihood of fire or shock due to entry of conductive object** | | P |
| **4.10** | **Component requirements** | | P |
| 4.10.1 | Disconnect Device | | P |
| 4.10.2 | Switches and relays | | P |

| | | | |
|---|---|---|---|
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| **5.2** | **Classification and limits of electrical energy sources** | | P |
| 5.2.2 | ES1, ES2 and ES3 limits | All circuits are considered as ES3 | P |

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

| | | | |
|---|---|---|---|
| 5.2.2.2 | Steady-state voltage and current limits..... : | See above | P |
| 5.2.2.3 | Capacitance limits..... : | (See sub-clause 5.5.2.2) | P |
| 5.2.2.4 | Single pulse limits.....: | | N/A |
| 5.2.2.5 | Limits for repetitive pulses.....: | | N/A |
| 5.2.2.6 | Ringing signals | | N/A |
| 5.2.2.7 | Audio signals | | N/A |
| **5.3** | **Protection against electrical energy sources** | | P |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | See below | P |
| 5.3.1 a) | Accessible ES1/ES2 derived from ES2/ES3 circuits | | P |
| 5.3.1 b) | Skilled persons not unintentional contact ES3 bare conductors | | N/A |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | No internal circuit can be accessed checked by test as below. | P |
| | Accessibility to outdoor equipment bare parts | | N/A |
| 5.3.2.2 | Contact requirements | Test probe can't contact internal live parts. | P |
| | Test with test probe from Annex V | Checked by Figure V.1 and Figure V.2 | — |
| 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** | | P |
| 5.4.1.2 | Properties of insulating material | | P |
| 5.4.1.3 | Material is non-hygroscopic | | P |
| 5.4.1.4 | Maximum operating temperature for insulating materials..... : | (See appended table 5.4.1.4) | P |
| 5.4.1.5 | Pollution degrees.....: | Pollution degree III | P |
| 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..... : | | P |
| 5.4.1.9 | Insulating surfaces | | P |

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

| | | | |
|---|---|---|---|
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | | P |
| 5.4.1.10.2 | Vicat test.....: | | N/A |
| 5.4.1.10.3 | Ball pressure test.....: | (See appended table 5.4.1.10.3) | P |
| 5.4.2 | Clearances | | P |
| 5.4.2.1 | General requirements | | 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 .....: | | — |
| 5.4.2.3 | Procedure 2 for determining clearance | | P |
| 5.4.2.3.2.2 | a.c. mains transient voltage..... : | 1500V peak for Overvoltage Cat. II | — |
| 5.4.2.3.2.3 | d.c. mains transient voltage ..... : | No such transient voltage | — |
| 5.4.2.3.2.4 | External circuit transient voltage.....: | No such transient voltage | — |
| 5.4.2.3.2.5 | Transient voltage determined by measurement.....: | | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test .....: | | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages .....: | | N/A |
| 5.4.2.6 | Clearance measurement.....: | | N/A |
| 5.4.3 | Creepage distances | | P |
| 5.4.3.1 | General | | P |
| 5.4.3.3 | Material group.....: | IIIb | — |
| 5.4.3.4 | Creepage distances measurement.....: | (See appended table 5.4.3) | P |
| 5.4.4 | Solid insulation | See below | P |
| 5.4.4.1 | General requirements | | P |
| 5.4.4.2 | Minimum distance through insulation ..... : | (See appended table 5.4.2) | P |
| 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 |

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

| | | | |
|---|---|---|---|
| 5.4.4.6.3 | Non-separable thin sheet material | | N/A |
| | Number of layers (pcs) ..... : | | N/A |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material..... : | | N/A |
| 5.4.4.6.5 | Mandrel test | | N/A |
| 5.4.4.7 | Solid insulation in wound components | | 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 | | P |
| | Relative humidity (%), temperature (°C), duration (h) ..... : | 93%, 25°C, 48h | — |
| 5.4.9 | Electric strength test | (See appended table 5.4.9) | P |
| 5.4.9.1 | Test procedure for type test of solid insulation..... : | Compliance was checked immediately following temperature test in 5.4.1.4. | P |
| 5.4.9.2 | Test procedure for routine test | No routine tests considered. To be considered during the relevant national approval. | N/A |
| 5.4.10 | Safeguards against transient voltages from external circuits | No such external circuits. | N/A |
| 5.4.10.1 | Parts and circuits separated from external circuits | | N/A |
| 5.4.10.2 | Test methods | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test..... : | | N/A |
| 5.4.10.2.3 | Steady-state test..... : | | N/A |
| 5.4.10.3 | Verification for insulation breakdown for impulse test ..... : | | N/A |

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

| | | | |
|---|---|---|---|
| 5.4.11 | Separation between external circuits and earth | No such connections for external circuit applied within the equipment | N/A |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |
| | SPDs bridge separation between external circuit and earth | | N/A |
| | Rated operating voltage $U_{op}$ (V).....: | | — |
| | Nominal voltage $U_{peak}$ (V).....: | | — |
| | Max increase due to variation $\Delta U_{sp}$ .....: | | — |
| | Max increase due to ageing $\Delta U_{sa}$ .....: | | — |
| 5.4.11.3 | Test method and compliance.....: | | N/A |
| 5.4.12 | Insulating liquid | | N/A |
| 5.4.12.1 | General requirements | | N/A |
| 5.4.12.2 | Electric strength of an insulating liquid.....: | | N/A |
| 5.4.12.3 | Compatibility of an insulating liquid.....: | | N/A |
| 5.4.12.4 | Container for insulating liquid..... : | | N/A |
| **5.5** | **Components as safeguards** | | P |
| 5.5.1 | General | See the following details. | P |
| 5.5.2 | Capacitors and RC units | EMC-C1 complied with IEC 60384-14. | P |
| 5.5.2.1 | General requirement | | P |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector.....: | (See appended table 5.5.2.2) | P |
| 5.5.3 | Transformers | | N/A |
| 5.5.4 | Optocouplers | | N/A |
| 5.5.5 | Relays | | P |
| 5.5.6 | Resistors | | N/A |
| 5.5.7 | SPDs | | N/A |
| 5.5.8 | Insulation between the mains and an external circuit consisting of a coaxial cable..... : | | N/A |
| 5.5.9 | Safeguards for socket-outlets in outdoor equipment | | N/A |
| | RCD rated residual operating current (Ma)..... : | | — |
| **5.6** | **Protective conductor** | | N/A |
| 5.6.2 | Requirement for protective conductors | | N/A |
| **5.6** | **Protective conductor** | | N/A |

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

| | | | |
|---|---|---|---|
| 5.6.2 | Requirement for protective conductors | | N/A |
| 5.6.2.1 | General requirements | | N/A |
| 5.6.2.2 | Colour of insulation | | N/A |
| 5.6.3 | Requirement for protective earthing conductors | | N/A |
| | Protective earthing conductor size ($mm^2$) ..... : | | — |
| | 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)..... : | | N/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 |
| 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..... : | | N/A |
| 5.6.6.3 | Resistance (Ω) or voltage drop..... : | | 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** | | P |
| 5.7.2 | Measuring devices and networks | | P |
| 5.7.2.1 | Measurement of touch current | Figure 4 of IEC 60990 is used in determination of limits of ES1. | P |
| 5.7.2.2 | Measurement of voltage | | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | P |

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

| | | | |
|---|---|---|---|
| 5.7.4 | Unearthed accessible parts..... : | (See appended Table 5.7.4) | P |
| 5.7.5 | Earthed accessible conductive parts.....: | | N/A |
| 5.7.6 | Requirements when touch current exceeds ES2 limits | | N/A |
| | Protective conductor current (Ma).....: | | N/A |
| | Instructional Safeguard.....: | | N/A |
| 5.7.7 | Prospective touch voltage and touch current associated with external circuits | | N/A |
| 5.7.7.1 | Touch current from coaxial cables | | N/A |
| 5.7.7.2 | Prospective touch voltage and touch current associated with paired conductor cables | | N/A |
| 5.7.8 | Summation of touch currents from external circuits | | N/A |
| | a) Equipment connected to earthed external circuits, current (Ma)..... : | | N/A |
| | b) Equipment connected to unearthed external circuits, current (Ma)..... : | | N/A |
| **5.8** | **Backfeed safeguard in battery backed up supplies** | | N/A |
| | Mains terminal ES..... : | | N/A |
| | Air gap (mm)..... : | | N/A |

| | | | |
|---|---|---|---|
| **6** | **ELECTRICALLY- CAUSED FIRE** | | P |
| **6.2** | **Classification of PS and PIS** | | P |
| 6.2.2 | Power source circuit classifications.....: | (See appended table 6.2.2) | P |
| 6.2.3 | Classification of potential ignition sources | (See appended table 6.2.2) | P |
| 6.2.3.1 | Arcing PIS ..... : | (See appended table 6.2.3.1) | P |
| 6.2.3.2 | Resistive PIS .....: | (See appended table 6.2.3.2) | P |
| **6.3** | **Safeguards against fire under normal operating and abnormal operating conditions** | | P |
| 6.3.1 | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....: | (See appended table B.1.5 and B.3) | P |
| | Combustible materials outside fire enclosure.....: | | N/A |
| **6.4** | **Safeguards against fire under single fault conditions** | | P |
| 6.4.1 | Safeguard method | Control fire spread | P |
| 6.4.2 | Reduction of the likelihood of ignition under single fault conditions in PS1 circuits | | N/A |
| 6.4.3 | Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits | | N/A |

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

| | | | |
|---|---|---|---|
| 6.4.3.1 | Supplementary safeguards | | N/A |
| 6.4.3.2 | Single Fault Conditions.....: | | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | N/A |
| 6.4.5 | Control of fire spread in PS2 circuits | | N/A |
| 6.4.5.2 | Supplementary safeguards | | N/A |
| 6.4.6 | Control of fire spread in PS3 circuits | Components other than PCB and wires are:<br>- mounted on PCB rated V-1 or better, or<br>- made of V-2/VTM-2 or better. (See appended tables 4.1.2 and Annex G) | P |
| 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 | Equipment enclosure was<br>evaluated for fire enclosure | P |
| 6.4.8.2 | Fire enclosure and fire barrier material properties | | P |
| 6.4.8.2.1 | Requirements for a fire barrier | | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure | Fire enclosure is made of V-0 class material and the available<br>power of the equipment does not<br>exceed 4000W | P |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | P |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | Fire enclosure with top and bottom openings. | P |
| 6.4.8.3.2 | Fire barrier dimensions | No such fire barrier | N/A |
| 6.4.8.3.3 | Top openings and properties | Openings only for paper entrance, there are no PIS located below these openings. | P |
| | Openings dimensions (mm).....: | | N/A |
| 6.4.8.3.4 | Bottom openings and properties | Top openings not apply to openings above a PIS as shown in Figure 4 | P |
| | Openings dimensions (mm).....: | | N/A |
| | Flammability tests for the bottom of a fire enclosure | | N/A |

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

| | | | |
|---|---|---|---|
| | Instructional Safeguard.....: | | N/A |
| 6.4.8.3.5 | Side openings and properties | No openings | 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.....: | Fire enclosure is made of V-0 material. | P |
| 6.4.9 | Flammability of insulating liquid.....: | | N/A |
| **6.5** | Internal and external wiring | | P |
| 6.5.1 | General requirements | The internal wires are complied with UL 758 standard, which test method and testing condition equivalent to IEC/EN 60695-11-21 | P |
| 6.5.2 | Requirements for interconnection to building wiring .....: | | N/A |
| 6.5.3 | Internal wiring size (mm2) for socket-outlets.....: | | N/A |
| **6.6** | Safeguards against fire due to the connection to additional equipment | | N/A |

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

| | | | |
|---|---|---|---|
| **8** | **MECHANICALLY-CAUSED INJURY** | | P |
| **8.2** | **Mechanical energy source classifications** | | P |
| **8.3** | **Safeguards against mechanical energy sources** | | P |
| **8.4** | **Safeguards against parts with sharp edges and corners** | | P |
| 8.4.1 | Safeguards | Edges and corners of product are rounded and smooth | P |
| | Instructional Safeguard.....: | | N/A |
| 8.4.2 | Sharp edges or corners | | N/A |

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

| | | | |
|---|---|---|---|
| **8.5** | **Safeguards against moving parts** | | P |
| 8.5.1 | 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 | | P |
| | Moving MS3 parts only accessible to skilled person | | N/A |
| 8.5.2 | Instructional safeguard..... : | Instructional safeguard for Moving parts on enclosure surface | P |
| 8.5.4 | Special categories of equipment containing moving parts | | P |
| 8.5.4.1 | General | | N/A |
| 8.5.4.2 | Equipment containing work cells with MS3 parts | | P |
| 8.5.4.2.1 | Protection of persons in the work cell | | N/A |
| 8.5.4.2.2 | Access protection override | | N/A |
| 8.5.4.2.2.1 | Override system | | N/A |
| 8.5.4.2.2.2 | Visual indicator | | N/A |
| 8.5.4.2.3 | Emergency stop system | | N/A |
| | Maximum stopping distance from the point of activation (m)..... : | | N/A |
| | Space between end point and nearest fixed mechanical part (mm)..... : | | N/A |
| 8.5.4.2.4 | Endurance requirements | | N/A |
| | Mechanical system subjected to 100 000 cycles of operation | | N/A |
| | - Mechanical function check and visual inspection | | N/A |
| | - Cable assembly.....: | | N/A |
| 8.5.4.3 | Equipment having electromechanical device for destruction of media | | P |
| 8.5.4.3.1 | Equipment safeguards | | P |
| 8.5.4.3.2 | Instructional safeguards against moving parts..... : | Equipment used faraway from children marked in instruction. | P |
| 8.5.4.3.3 | Disconnection from the supply | | P |
| 8.5.4.3.4 | Cut type and test force (N)..... : | ≤90N | P |
| 8.5.4.3.5 | Compliance | | P |
| 8.5.5 | High pressure lamps | | N/A |
| | Explosion test.....: | | N/A |
| 8.5.5.3 | Glass particles dimensions (mm)..... : | | N/A |

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

| | | | |
|---|---|---|---|
| **8.6** | **Stability of equipment** | | P |
| 8.6.1 | General | | P |
| | Instructional safeguard..... : | See 8.6.3 | P |
| 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 | | P |
| | Wheels diameter (mm)..... : | 30mm | — |
| | Tilt test | No tip over. | P |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test..... : | | N/A |
| **8.7** | **Equipment mounted to wall, ceiling or other structure** | | N/A |
| 8.7.1 | Mount means type.....: | | N/A |
| 8.7.2 | Test methods | | N/A |
| | Test 1, additional downwards force (N)..... : | | N/A |
| | Test 2, number of attachment points and test force (N) .....: | | N/A |
| | Test 3 Nominal diameter (mm) and applied torque (Nm)..... : | | N/A |
| **8.8** | **Handles strength** | | N/A |
| 8.8.1 | General | | N/A |
| 8.8.2 | Handle strength test | | N/A |
| | Number of handles.....: | | — |
| | Force applied (N).....: | | — |
| **8.9** | **Wheels or casters attachment requirements** | | N/A |
| 8.9.2 | Pull test | | N/A |
| **8.10** | **Carts, stands and similar carriers** | | N/A |
| 8.10.1 | General | | N/A |
| 8.10.2 | Marking and instructions.....: | | N/A |
| 8.10.3 | Cart, stand or carrier loading test | | N/A |
| | Loading force applied (N)..... : | | N/A |
| 8.10.4 | Cart, stand or carrier impact test | | N/A |
| 8.10.5 | Mechanical stability | | N/A |
| | Force applied (N).....: | | — |
| 8.10.6 | Thermoplastic temperature stability | | N/A |

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

| | | | |
|---|---|---|---|
| **8.11** | **Mounting means for slide-rail mounted equipment (SRME)** | | N/A |
| 8.11.1 | General | | N/A |
| 8.11.2 | Requirements for slide rails | | N/A |
| | Instructional Safeguard.....: | | N/A |
| 8.11.3 | Mechanical strength test | | N/A |
| 8.11.3.1 | Downward force test, force (N) applied..... : | | N/A |
| 8.11.3.2 | Lateral push force test | | N/A |
| 8.11.3.3 | Integrity of slide rail end stops | | N/A |
| 8.11.4 | Compliance | | N/A |
| **8.12** | **Telescoping or rod antennas** | | N/A |
| | Button/ball diameter (mm).....: | | — |

| | | | |
|---|---|---|---|
| **9** | **THERMAL BURN INJURY** | | P |
| **9.2** | **Thermal energy source classifications** | | P |
| **9.3** | **Touch temperature limits** | | P |
| 9.3.1 | Touch temperatures of accessible parts..... : | (See appended table 9.3) | P |
| 9.3.2 | Test method and compliance | | P |
| **9.4** | **Safeguards against thermal energy sources** | | P |
| **9.5** | **Requirements for safeguards** | | P |
| 9.5.1 | Equipment safeguard | Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions. | P |
| 9.5.2 | Instructional safeguard..... : | Instructional safeguard is not required. | P |
| **9.6** | **Requirements for wireless power transmitters** | | N/A |
| 9.6.1 | General | | N/A |
| 9.6.2 | Specification of the foreign objects | | N/A |
| 9.6.3 | Test method and compliance.....: | | N/A |

| | | | |
|---|---|---|---|
| **10** | **RADIATION** | | P |
| **10.2** | **Radiation energy source classification** | | P |
| 10.2.1 | General classification | Low power LED: RS1<br>IR LED: RS1 | P |
| | Lasers.....: | | — |

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

| | | | |
|---|---|---|---|
| | 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 enclosures | | N/A |
| | UV radiation exposure.....: | | 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.....: | | — |
| 10.5.3 | Maximum radiation (Pa/kg).....: | | — |
| **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 |

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

| | | | |
|---|---|---|---|
| | 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 B.1.5) | P |
| **B.2** | **Normal operating conditions** | | P |
| B.2.1 | General requirements..... : | (See Test Item Particulars and appended test tables) | P |
| | Audio Amplifiers and equipment with audio amplifiers.....: | (See Annex E) | P |
| B.2.3 | Supply voltage and tolerances | 100Vac, +10%/-10% | P |
| B.2.5 | Input test..... : | (See appended table B.2.5) | P |
| **B.3** | **Simulated abnormal operating conditions** | | P |
| B.3.1 | General | (See appended table B.3) | P |
| B.3.2 | Covering of ventilation openings | | P |
| | 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 | | N/A |
| B.3.6 | Reverse battery polarity | | N/A |
| B.3.7 | Audio amplifier abnormal operating conditions | | N/A |

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

| | | | |
|---|---|---|---|
| B.3.8 | Safeguards functional during and after abnormal operating conditions..... : | During an abnormal operating condition that does not lead to a single fault condition, all safeguards are remained effective.<br>After restoration of normal operating conditions, all safeguards are compliance with applicable requirements.<br>For abnormal operating condition leads to a consequential fault, the compliance criteria of B.4.8 apply | P |
| **B.4** | **Simulated single fault conditions** | | P |
| B.4.1 | General | | P |
| B.4.2 | Temperature controlling device | No Temperature controlling device used. | N/A |
| B.4.3 | Blocked motor test | (See appended table B.3&B.4) | P |
| B.4.4 | Functional insulation | Short circuit | P |
| B.4.4.1 | Short circuit of clearances for functional insulation | (See appended table B.3 &B.4) | P |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | (See appended table B.3 &B.4) | P |
| B.4.4.3 | Short circuit of functional insulation on coated printed boards | No coated printed boards. | 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 during and after single fault conditions .....: | During and after a single fault condition, a class 1 or class 2 energy sources did not become a class 3 energy source.<br>For a class 3 energy source, during and after a single fault condition, at least one safeguard continued to comply with the relevant safeguard requirements. | P |

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

| | | | |
|---|---|---|---|
| B.4.9 | Battery charging and discharging under single fault conditions | (See annex M) | N/A |
| **C** | **UV RADIATION** | | N/A |
| **C.1** | **Protection of materials in equipment from UV radiation** | | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method | | N/A |
| **C.2** | **UV light conditioning test** | | N/A |
| C.2.1 | Test apparatus..... : | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure test | | N/A |
| C.2.4 | Xenon-arc light-exposure test | | N/A |
| **D** | **TEST GENERATORS** | | N/A |
| **D.1** | **Impulse test generators** | | N/A |
| **D.2** | **Antenna interface test generator** | | N/A |
| **D.3** | **Electronic pulse generator** | | N/A |
| **E** | **TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS** | | N/A |
| **E.1** | **Electrical energy source classification for audio signals** | | N/A |
| | Maximum non-clipped output power (W)..... : | | — |
| | Rated load impedance (Ω) ..... : | | — |
| | Open-circuit output voltage (V)..... : | | — |
| | Instructional safeguard..... : | | — |
| **E.2** | **Audio amplifier normal operating conditions** | | N/A |
| | Audio signal source type..... : | | — |
| | Audio output power (W)..... : | | — |
| | Audio output voltage (V)..... : | | — |
| | Rated load impedance (Ω) ..... : | | — |
| | Requirements for temperature measurement | | N/A |
| E.3 | Audio amplifier abnormal operating conditions | (See appended table B.3) | N/A |
| **F** | **EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS** | | P |
| **F.1** | **General** | | P |
| | Language ..... : | Japanese | — |
| **F.2** | **Letter symbols and graphical symbols** | | P |
| F.2.1 | Letter symbols according to IEC60027-1 | | P |

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

| | | | |
|---|---|---|---|
| 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 marking plate for details | P |
| F.3.2.2 | Model identification .....: | See marking plate for details | P |
| F.3.3 | Equipment rating markings | See marking plate for details | 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.....: | ~ | P |
| F.3.3.4 | Rated voltage.....: | 100V | P |
| F.3.3.5 | Rated frequency.....: | 50/60Hz | P |
| F.3.3.6 | Rated current or rated power.....: | 3.5A, 330W | P |
| F.3.3.7 | Equipment with multiple supply connections | | N/A |
| F.3.4 | Voltage setting device | | N/A |
| F.3.5 | Terminals and operating devices | | P |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings .....: | | N/A |
| F.3.5.2 | Switch position identification marking.....: | | P |
| F.3.5.3 | Replacement fuse identification and rating markings .....: | T5AL/250V | P |
| | 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 | See below | N/A |
| F.3.6.1 | Class I equipment | Class II apparatus | 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..... : |  | P |
| F.3.6.3 | Functional earthing terminal marking..... : | | N/A |
| F.3.7 | Equipment IP rating marking..... : | | N/A |
| F.3.8 | External power supply output marking.....: | | N/A |

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

| | | | |
|---|---|---|---|
| F.3.9 | Durability, legibility and permanence of marking | See below | P |
| F.3.10 | Test for permanence of markings | Conducted by rubbing the marking by hand without appreciable force for 15 s with a piece of cloth soaked with water and at a different place or on a different sample for 15 s with a piece of cloth soaked with the petroleum spirit specified the reagent grade hexane with a minimum of 85 % n-hexane.<br>After each test, the marking remain legible, no curling and not be removable by hand. | P |
| **F.4** | **Instructions** | | P |
| | a) Information prior to installation and initial use | | P |
| | b) Equipment for use in locations where children not likely to be present | | P |
| | c) Instructions for installation and interconnection | | N/A |
| | d) Equipment intended for use only in restricted access area | | N/A |
| | e) Equipment intended to be fastened in place | | N/A |
| | f) Instructions for audio equipment terminals | | N/A |
| | g) Protective earthing used as a safeguard | | N/A |
| | h) Protective conductor current exceeding ES2 limits | | N/A |
| | i) Graphic symbols used on equipment | See marking on equipment and instruction | P |
| | j) Permanently connected equipment not provided with all-pole mains switch | | N/A |
| | k) Replaceable components or modules providing safeguard function | | N/A |
| | l) Equipment containing insulating liquid | | N/A |
| | m) Installation instructions for outdoor equipment | | N/A |
| **F.5** | Instructional safeguards | | P |
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches** | | P |
| G.1.1 | General | Approved switch used. | P |
| G.1.2 | Ratings, endurance, spacing, maximum load | | P |

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

| | | | |
|---|---|---|---|
| G.1.3 | Test method and compliance | | P |
| **G.2** | **Relays** | | P |
| G.2.1 | Requirements | Approved relays used. | P |
| G.2.2 | Overload test | | N/A |
| G.2.3 | Relay controlling connectors supplying power to other equipment | | N/A |
| G.2.4 | Test method and compliance | | N/A |
| **G.3** | **Protective devices** | | P |
| G.3.1 | Thermal cut-offs | Approved motor protector used as thermal cut-off | P |
| | Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b) | | P |
| | Thermal cut-outs tested as part of the equipment as indicated in c) | | P |
| G.3.1.2 | Test method and compliance | | P |
| G.3.2 | Thermal links | | N/A |
| G.3.2.1 | a) Thermal links tested separately according to IEC 60691 with specifics | | N/A |
| | b) Thermal links tested as part of the equipment | | N/A |
| G.3.2.2 | Test method and compliance | | N/A |
| G.3.3 | PTC thermistors | No PTC thermistor used as safeguard provided within the equipment. | N/A |
| G.3.4 | Overcurrent protection devices | Fuses employed are compliance<br>with IEC 60127-1 and IEC 60127-3 | P |
| G.3.5 | Safeguards components not mentioned in G.3.1 to G.3.4 | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided | | N/A |
| G.3.5.2 | Single faults conditions.....: | | P |
| **G.4** | **Connectors** | | P |
| G.4.1 | Spacings | | N/A |
| G.4.2 | Mains connector configuration.....: | Mains plug complied with JIS 8303. No plugs for other countries provided. | P |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | | N/A |
| **G.5** | **Wound components** | | N/A |

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

| | | | |
|---|---|---|---|
| G.5.1 | Wire insulation in wound components | No such device | 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 | No insulation breakdown | | N/A |
| G.5.3 | Transformers | | N/A |
| G.5.3.1 | Compliance method..... : | | N/A |
| | Position.....: | | N/A |
| | Method of protection..... : | | N/A |
| G.5.3.2 | Insulation | | N/A |
| | Protection from displacement of windings.....: | | — |
| G.5.3.3 | Transformer overload tests | | N/A |
| G.5.3.3.1 | Test conditions | | 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.5.3.4.7 | Routine test | | N/A |
| G.5.4 | Motors | | P |
| G.5.4.1 | General requirements | | P |
| G.5.4.2 | Motor overload test conditions | | P |
| G.5.4.3 | Running overload test | (See appended table B.3) | P |
| G.5.4.4.2 | Locked-rotor overload test | (See appended table B.3) | P |

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

| | | | |
|---|---|---|---|
| | Test duration (days) ..... : | 60 cycles | — |
| G.5.4.5 | Running overload test for DC motors | | N/A |
| G.5.4.5.2 | Tested in the unit | | N/A |
| G.5.4.5.3 | Alternative method | | N/A |
| G.5.4.6 | Locked-rotor overload test for DC motors | | N/A |
| G.5.4.6.2 | Tested in the unit | | N/A |
| | Maximum Temperature ..... : | | N/A |
| G.5.4.6.3 | Alternative method | | N/A |
| G.5.4.7 | Motors with capacitors | | N/A |
| G.5.4.8 | Three-phase motors | | N/A |
| G.5.4.9 | Series motors | | N/A |
| | Operating voltage ..... : | | — |
| **G.6** | **Wire Insulation** | | P |
| G.6.1 | General | The internal wire were considered not under mechanical stress and comply with G 6.1 a) | P |
| G.6.2 | Enamelled winding wire insulation | | N/A |
| **G.7** | **Mains supply cords** | | P |
| G.7.1 | General requirements | Mains supply cord is of PVC sheathed type. | P |
| | Type..... : | VCTFK | — |
| G.7.2 | Cross sectional area ($mm^2$ or AWG)..... : | See appended table 4.1.2 | P |
| G.7.3 | Cord anchorages and strain relief for non-detachable power supply cords | | P |
| G.7.3.2 | Cord strain relief | | P |
| G.7.3.2.1 | Requirements | | P |
| | Strain relief test force (N)..... : | 100N, <2mm | P |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm)..... : | | P |
| G.7.3.2.4 | Strain relief and cord anchorage material | The anchorage/bushing material of plastic, test of G.7.3.2.1 complied after test of T.8 | P |
| G.7.4 | Cord Entry | (See appended table 5.4.9.1) | P |
| G.7.5 | Non-detachable cord bend protection | | N/A |
| G.7.5.1 | Requirements | | N/A |

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

| | | | |
|---|---|---|---|
| G.7.5.2 | Test method and compliance | | N/A |
| | Overall diameter or minor overall dimension, *D* (mm).....: | | — |
| | Radius of curvature after test (mm)..... : | | — |
| G.7.6 | Supply wiring space | The non-detachable power supply cord is checked by inspection and by installation test with cord of 0.75mm2 and complied with designed requierement. | P |
| G.7.6.1 | General requirements | | N/A |
| G.7.6.2 | Stranded wire | | N/A |
| G.7.6.2.1 | Requirements | | N/A |
| G.7.6.2.2 | Test with 8 mm strand | | N/A |
| **G.8** | **Varistors** | | N/A |
| G.8.1 | General requirements | No such device | 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 | No such device | N/A |
| | IC limiter output current (max. 5A)..... : | | — |
| | Manufacturers' defined drift ..... : | | — |
| G.9.2 | Test Program | | N/A |
| G.9.3 | Compliance | | N/A |
| **G.10** | **Resistors** | | N/A |
| G.10.1 | General | | N/A |
| G.10.2 | Conditioning | | N/A |
| G.10.3 | Resistor test | | N/A |
| G.10.4 | Voltage surge test | | N/A |
| G.10.5 | Impulse test | | N/A |
| G.10.6 | Overload test | | N/A |
| **G.11** | **Capacitors and RC units** | | P |

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

| | | | |
|---|---|---|---|
| G.11.1 | General requirements | (see appended table 4.1.2)<br>X2 Capacitor as Basic safeguard with IEC/EN 60384-14. | P |
| G.11.2 | Conditioning of capacitors and RC units | All capacitors complied as environmental category at least 40/100/21 (21 days humidity)<br>40/100/56 (56 days humidity) | P |
| G.11.3 | Rules for selecting capacitors | The selection followed with table G.9 or G.12 bridging the relevant insulation. | P |
| **G.12** | **Optocouplers** | | N/A |
| | Optocouplers comply with IEC 60747-5-5 with specifics | No such device | 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 |
| G.13.2 | Uncoated printed boards | The insulation between conductors on the outer surfaces of an uncoated printed board is compliant with the minimum requirements of clearances (5.4.2) and creepage distances (5.4.3). | P |
| G.13.3 | Coated printed boards | | 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 | | N/A |
| **G.14** | **Coating on components terminals** | | N/A |
| G.14.1 | Requirements ..... : | | N/A |
| **G.15** | **Pressurized liquid filled components** | | N/A |
| G.15.1 | Requirements | No such device | N/A |
| G.15.2 | Test methods and compliance | | N/A |
| G.15.2.1 | Hydrostatic pressure test | | N/A |

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

| | | | |
|---|---|---|---|
| G.15.2.2 | Creep resistance test | | N/A |
| G.15.2.3 | Tubing and fittings compatibility test | | N/A |
| G.15.2.4 | Vibration test | | N/A |
| G.15.2.5 | Thermal cycling test | | N/A |
| G.15.2.6 | Force test | | N/A |
| G.15.3 | Compliance | | N/A |
| **G.16** | **IC including capacitor discharge function (ICX)** | | N/A |
| G.16.1 | Condition for fault tested is not required | No such device | N/A |
| | ICX with associated circuitry tested in equipment | | N/A |
| | ICX tested separately | | N/A |
| G.16.2 | Tests | | N/A |
| | Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test.....: | | — |
| | Mains voltage that impulses to be superimposed on .....: | | — |
| | Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test.....: | | — |
| G.16.3 | Capacitor discharge test.....: | | N/A |
| **H** | **CRITERIA FOR TELEPHONE RINGING SIGNALS** | | N/A |
| **H.1** | **General** | | N/A |
| **H.2** | **Method A** | | N/A |
| **H.3** | **Method B** | | N/A |
| H.3.1 | Ringing signal | | N/A |
| H.3.1.1 | Frequency (Hz) ..... : | | — |
| H.3.1.2 | Voltage (V) .....: | | — |
| H.3.1.3 | Cadence; time (s) and voltage (V) .....: | | — |
| H.3.1.4 | Single fault current (Ma):.....: | | — |
| H.3.2 | Tripping device and monitoring voltage | | N/A |
| H.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | 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.....: | | — |

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

| | | | |
|---|---|---|---|
| | 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** | | P |
| **K.1** | **General requirements** | | P |
| | Instructional safeguard..... : | Micro switch used as safety interlock to shut down the power supply and stop the motor running within 2s, against unitended touching once paper bin is removed. | P |
| **K.2** | **Components of safety interlock safeguard mechanism** | | P |
| **K.3** | **Inadvertent change of operating mode** | | P |
| **K.4** | **Interlock safeguard override** | | P |
| **K.5** | **Fail-safe** | | P |
| K.5.1 | Under single fault condition | | P |
| **K.6** | **Mechanically operated safety interlocks** | | P |
| K.6.1 | Endurance requirement | | P |
| K.6.2 | Test method and compliance.....: | | P |
| **K.7** | **Interlock circuit isolation** | | P |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements | | P |
| | In circuit connected to mains, separation distance for contact gaps (mm).....: | | N/A |
| | In circuit isolated from mains, separation distance for contact gaps (mm).....: | | N/A |
| | Electric strength test before and after the test of K.7.2.....: | | N/A |
| K.7.2 | Overload test, Current (A)..... : | | N/A |
| K.7.3 | Endurance test | | N/A |
| K.7.4 | Electric strength test | | N/A |
| **L** | **DISCONNECT DEVICES** | | P |
| **L.1** | **General requirements** | AC plug on the power supply cord used to disconnect from AC mains. | P |
| **L.2** | **Permanently connected equipment** | | N/A |
| **L.3** | **Parts that remain energized** | When AC plug is disconnected no remaining voltage in the equipment. | P |

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

| | | | |
|---|---|---|---|
| **L.4** | **Single-phase equipment** | The mains plug disconnects both poles simultaneously. | P |
| **L.5** | **Three-phase equipment** | | N/A |
| **L.6** | **Switches as disconnect devices** | | N/A |
| **L.7** | **Plugs as disconnect devices** | | P |
| **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..... : | | N/A |
| **M.3** | **Protection circuits for batteries provided within the equipment** | | N/A |
| M.3.1 | Requirements | | N/A |
| M.3.2 | Test method | | N/A |
| | Overcharging of a rechargeable battery | | N/A |
| | Excessive discharging | | N/A |
| | Unintentional charging of a non-rechargeable battery | | N/A |
| | Reverse charging of a rechargeable battery | Battery cannot be reversed Charging per its structure. | N/A |
| M.3.3 | Compliance | | N/A |
| **M.4** | **Additional safeguards for equipment containing a portable secondary lithium battery** | | N/A |
| M.4.1 | General | | N/A |
| M.4.2 | Charging safeguards | | N/A |
| M.4.2.1 | Requirements | | N/A |
| M.4.2.2 | Compliance.....: | (See appended table M.4) | N/A |
| M.4.3 | Fire enclosure.....: | V-0 enclosure provide | N/A |
| M.4.4 | Drop test of equipment containing a secondary lithium battery | | N/A |
| M.4.4.2 | Preparation and procedure for the drop test | | N/A |
| M.4.4.3 | Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): .....: | | N/A |
| M.4.4.4 | Check of the charge/discharge function | | N/A |
| M.4.4.5 | Charge / discharge cycle test | | N/A |
| M.4.4.6 | Compliance | | N/A |

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

| | | | |
|---|---|---|---|
| **M.5** | **Risk of burn due to short-circuit during carrying** | | N/A |
| M.5.1 | Requirement | | N/A |
| M.5.2 | Test method and compliance | | N/A |
| **M.6** | **Safeguards against short-circuits** | | N/A |
| M.6.1 | External and internal faults | | N/A |
| M.6.2 | Compliance | | N/A |
| **M.7** | **Risk of explosion from lead acid and NiCd batteries** | | N/A |
| M.7.1 | Ventilation preventing explosive gas concentration | | N/A |
| | Calculated hydrogen generation rate..... : | | N/A |
| M.7.2 | Test method and compliance | | N/A |
| | Minimum air flow rate, $Q$ ($m^3/h$).....: | | N/A |
| M.7.3 | Ventilation tests | | N/A |
| M.7.3.1 | General | | N/A |
| M.7.3.2 | Ventilation test – alternative 1 | | N/A |
| | Hydrogen gas concentration (%).....: | | N/A |
| M.7.3.3 | Ventilation test – alternative 2 | | N/A |
| | Obtained hydrogen generation rate.....: | | N/A |
| M.7.3.4 | Ventilation test – alternative 3 | | N/A |
| | Hydrogen gas concentration (%).....: | | N/A |
| M.7.4 | Marking.....: | | N/A |
| **M.8** | **Protection against internal ignition from external spark sources of batteries with aqueous electrolyte** | | N/A |
| M.8.1 | General | | N/A |
| M.8.2 | Test method | | N/A |
| M.8.2.1 | General | | N/A |
| M.8.2.2 | Estimation of hypothetical volume $V_Z$ ($m^3/s$)..... : | | — |
| M.8.2.3 | Correction factors..... : | | — |
| M.8.2.4 | Calculation of distance $d$ (mm) .....: | | — |
| **M.9** | **Preventing electrolyte spillage** | | N/A |
| M.9.1 | Protection from electrolyte spillage | | N/A |
| M.9.2 | Tray for preventing electrolyte spillage | | N/A |
| **M.10** | Instructions to prevent reasonably foreseeable misuse | | N/A |
| | Instructional safeguard..... : | Mentioned in user manual | N/A |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | N/A |

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

| | | | |
|---|---|---|---|
| | Material(s) used..... : | | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | P |
| | Value of X (mm)..... : | Considered. | — |
| **P** | **SAFEGUARDS AGAINST CONDUCTIVE OBJECTS** | | P |
| **P.1** | General | | P |
| **P.2** | **Safeguards against entry or consequences of entry of a foreign object** | | P |
| P.2.1 | General | Equipment comply with the requirements of P.2.2 | P |
| P.2.2 | Safeguards against entry of a foreign object | No opening except for paper entrance and exit openings. | P |
| | Location and Dimensions (mm) ..... : | Max. Dimensions<1mm | — |
| P.2.3 | Safeguards against the consequences of entry of a foreign object | Safety interlock as safeguard and no PIS around openings | P |
| P.2.3.1 | Safeguard requirements | Entrance and exit openings, there are no bare conductive parts located within the projected volume. | P |
| | The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment | | N/A |
| | Transportable equipment with metalized plastic parts..... : | | N/A |
| P.2.3.2 | Consequence of entry test..... : | | N/A |
| **P.3** | **Safeguards against spillage of internal liquids** | | N/A |
| P.3.1 | General | | N/A |
| P.3.2 | Determination of spillage consequences | | N/A |
| P.3.3 | Spillage safeguards | | N/A |
| P.3.4 | Compliance | | N/A |
| **P.4** | **Metallized coatings and adhesives securing parts** | | N/A |
| P.4.1 | General | | N/A |
| P.4.2 | Tests | | N/A |
| | Conditioning, $T_C$ (°C)..... : | | — |
| | Duration (weeks)..... : | | — |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | N/A |
| **Q.1** | **Limited power sources** | (See append table Annex Q.1) | N/A |
| Q.1.1 | Requirements | | N/A |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | | N/A |

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

| | | | |
|---|---|---|---|
| | c) Regulating network limited output | | N/A |
| | d) Overcurrent protective device limited output | | N/A |
| | e) IC current limiter complying with G.9 | | N/A |
| Q.1.2 | Test method and compliance.....: | | N/A |
| | Current rating of overcurrent protective device (A) .....: | | N/A |
| **Q.2** | **Test for external circuits – paired conductor cable** | | N/A |
| | Maximum output current (A) ..... : | | N/A |
| | Current limiting method.....: | | — |
| **R** | **LIMITED SHORT CIRCUIT TEST** | | N/A |
| **R.1** | **General** | | N/A |
| **R.2** | **Test setup** | | N/A |
| | Overcurrent protective device for test..... : | | — |
| **R.3** | **Test method** | | N/A |
| | Cord/cable used for test..... : | | — |
| **R.4** | **Compliance** | | N/A |
| **S** | **TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| **S.1** | **Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W** | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C)..... : | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | - Material not consumed completely | | N/A |
| | - Material extinguishes within 30s | | N/A |
| | - No burning of layer or wrapping tissue | | N/A |
| **S.2** | **Flammability test for fire enclosure and fire barrier integrity** | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C)..... : | | — |
| **S.3** | **Flammability test for the bottom of a fire enclosure** | | N/A |
| S.3.1 | Mounting of samples | | N/A |
| S.3.2 | Test method and compliance | | N/A |

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

| | | | |
|---|---|---|---|
| | Mounting of samples .....: | | — |
| | Wall thickness (mm).....: | | — |
| **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)..... : | | — |
| **T** | **MECHANICAL STRENGTH TESTS** | | P |
| **T.1** | **General** | | P |
| **T.2** | **Steady force test, 10 N .....:** | (See appended table T.2) | P |
| **T.3** | **Steady force test, 30 N .....:** | | N/A |
| **T.4** | **Steady force test, 100 N .....:** | | N/A |
| **T.5** | **Steady force test, 250 N .....:** | (See appended table T.5) | P |
| **T.6** | **Enclosure impact test** | (See appended table T.6) | P |
| | Fall test | | P |
| | Swing test | | P |
| **T.7** | **Drop test..... :** | | N/A |
| **T.8** | **Stress relief test.....:** | (See appended table T.8) | P |
| **T.9** | **Glass Impact Test.....:** | | N/A |
| **T.10** | **Glass fragmentation test** | | N/A |
| | Number of particles counted.....: | | N/A |
| **T.11** | **Test for telescoping or rod antennas** | | N/A |
| | Torque value (Nm) .....: | | N/A |
| **U** | **MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION** | | N/A |
| **U.1** | **General** | | N/A |
| | Instructional safeguard..... : | | N/A |
| **U.2** | **Test method and compliance for non-intrinsically protected CRTs** | | N/A |
| **U.3** | **Protective screen** | | N/A |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS** | | P |
| **V.1** | **Accessible parts of equipment** | | P |
| V.1.1 | General | No hazards can be accessible | P |
| V.1.2 | Surfaces and openings tested with jointed test probes | | P |

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

| | | | |
|---|---|---|---|
| V.1.3 | Openings tested with straight unjointed test probes | | P |
| V.1.4 | Plugs, jacks, connectors tested with blunt probe | | N/A |
| V.1.5 | Slot openings tested with wedge probe | | N/A |
| V.1.6 | Terminals tested with rigid test wire | | P |
| **V.2** | **Accessible part criterion** | | P |
| **X** | **ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)** | | N/A |
| | Clearance.....: | | 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** | **Resistance to corrosion** | | N/A |
| Y.3.1 | Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by.....: | | N/A |
| Y.3.2 | Test apparatus | | N/A |
| Y.3.3 | Water – saturated sulphur dioxide atmosphere | | N/A |
| Y.3.4 | Test procedure.....: | | N/A |
| Y.3.5 | Compliance | | N/A |
| **Y.4** | **Gaskets** | | N/A |
| Y.4.1 | General | | N/A |
| Y.4.2 | Gasket tests | | N/A |
| Y.4.3 | Tensile strength and elongation tests | | N/A |
| | Alternative test methods.....: | | N/A |
| Y.4.4 | Compression test | | N/A |
| Y.4.5 | Oil resistance | | N/A |
| Y.4.6 | Securing means | | N/A |
| **Y.5** | **Protection of equipment within an outdoor enclosure** | | N/A |
| Y.5.1 | General | | N/A |
| Y.5.2 | Protection from moisture | | N/A |
| | Relevant tests of IEC 60529 or Y.5.3.....: | | N/A |
| Y.5.3 | Water spray test | | N/A |
| Y.5.4 | Protection from plants and vermin | | N/A |
| Y.5.5 | Protection from excessive dust | | N/A |

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

| | | | |
|---|---|---|---|
| Y.5.5.1 | General | | N/A |
| Y.5.5.2 | IP5X equipment | | N/A |
| Y.5.5.3 | IP6X equipment | | N/A |
| **Y.6** | **Mechanical strength of enclosures** | | N/A |
| Y.6.1 | General | | N/A |
| Y.6.2 | Impact test..... : | | N/A |

| 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)] | |
| 110Vac, 60Hz | All circuit | Normal | 110V | -- | SS | -- | ES3 (declared) |
| Supplementary information: | | | | | | | |
| 1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. | | | | | | | |
| 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. | | | | | | | |

| 5.2.2.3 - Capacitance Limits | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | ES Class |
| | | | | Capacitance, nF | Upk (V) | |
| 1 | 110V/60Hz | Line to Neutral | Normal | EMC-C1: 470 | 156 | ES3 |
| | | | Abnormal | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | |

| 5.2.2.4 - Single Pulses | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | ES Class |
| | | | | Duration (ms) | Upk (V) | Ipk (mA) | |
| -- | -- | -- | Normal | -- | -- | -- | -- |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |

| 5.2.2.5 - Repetitive Pulses | | | | | | | |
|---|---|---|---|---|---|---|---|
| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | ES Class |
| | | | | Off time (ms) | Upk (V) | Ipk (mA) | |
| -- | -- | -- | Normal | -- | -- | -- | -- |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |

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

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

| **5.4.1.8** | **TABLE: Working voltage measurement** | | | N/A |
|---|---|---|---|---|
| Location | RMS voltage (V) | Peak voltage (V) | Frequency (Hz) | Comments |
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |
| Supplementary information: | | | | |
| | | | | |

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

| **5.4.1.10.3** | **TABLE: Ball pressure test of thermoplastics** | | | P |
|---|---|---|---|---|
| Allowed impression diameter (mm)..... : | ≤ 2 mm | | | — |
| Object/Part No./Material | Manufacturer/trademark | Thickness (mm) | Test temperature (°C) | Impression diameter (mm) |
| PCB | 1) | Min.2.5 | 125 | 1.09 |
| Enclosure | 1) | Min.2.5 | 75 | 1.26 |
| Motor support plastic | 1) | Min.2.5 | 125 | 1.25 |
| Supplementary information: 1) See appended tables 4.1.2 for detail. | | | | |
| | | | | |

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

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Primary trace of different polarity before F1 (BI) | 210 | 100 | <30 | 1.27 | 4.0 | -- | 2.2 | 4.0 |
| Primary trace under Fuse | 210 | 100 | <30 | 1.27 | 2.7 | -- | 2.2 | 2.7 |
| Power PCB board to plastic enclosure | 210 | 100 | <30 | 2.54 | >10.0 | -- | 4.4 | >10.0 |
| Metal part of motor to blade | 210 | 100 | <30 | 2.54 | >5.8 | -- | 4.4 | >5.8 |
| Supplementary information: | | | | | | | | |
| 1) Only for frequency above 30 kHz<br>2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied) | | | | | | | | |

| **5.4.4.2** | **TABLE: Minimum distance through insulation** | | | P |
|---|---|---|---|---|
| Distance through insulation (DTI) at/of | Peak voltage (V) | Insulation | Required DTI (mm) | Measured DTI (mm) |
| Plastic enclosure | 210 | See table 4.1.2 | 0.4 | Min.3.0 |
| LED | 210 | -- | 0.4 | >0.4 |
| Supplementary information: | | | | |
| | | | | |

| **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 |
| L to N (with fuse opened ) | DC | 1500V Peak | No |

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

| | | | |
|---|---|---|---|
| Live parts to enclosure | DC | 2500V Peak | No |
| Live parts to blade | DC | 2500V Peak | No |
| Unit primary to switch | DC | 2500V Peak | No |
| Supplementary information: | | | |
| | | | |

| 5.5.2.2 | TABLE: Stored discharge on capacitors | | | | P |
|---|---|---|---|---|---|
| Location | Supply voltage (V) | Operating and fault condition [1)] | Switch position | Measured voltage (Vpk) | ES Class |
| L/N | 110V, 60Hz | Normal | switch on | 2 | ES1 |
| L/N | 110V, 60Hz | EMC_R1 OC | switch on | 10 | ES1 |
| Supplementary information: | | | | | |
| X-capacitors installed for testing: EMC-C1=0.47μF<br>[ ] bleeding resistor rating: EMC_R1=EMC_R2=EMC_R3=EMC_R4=1MΩ<br>[ ] ICX:<br>1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit | | | | | |

| 5.6.6 | TABLE: Resistance of protective conductors and terminations | | | 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 | 110V | -- | 0.011 | 60 | ES1 |
| Accessible switch knob (with metal foil) to earth | Normal | 110V | -- | 0.012 | 60 | ES1 |
| Accessible blade | Normal | 110V | -- | 0.014 | 60 | ES1 |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| to earth | | | | | | |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit | | | | | | |

| **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 circuit | Normal | N/A | N/A | N/A | >5 | PS3 |
| 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. | | | | | | |

| **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 |
| All primary circuits and secondary circuits inside the equipment enclosure | * | * | * | Yes |

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

| Supplementary information: |
|---|
| |

| 6.2.3.2 | TABLE: Determination of resistive PIS | | P |
|---|---|---|---|
| Location | Operating and fault condition | Dissipate power (W) | Arcing PIS? Yes / No |
| All primary circuits and secondary circuits inside the equipment enclosure | * | * | Yes |

Supplementary information:

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

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

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

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

Supplementary information:

| 9.6 | TABLE: Temperature measurements for wireless power transmitters | | | | | | | N/A |
|---|---|---|---|---|---|---|---|---|
| Supply voltage (V).....: | | | | | | | | — |
| Max. transmit power of transmitter (W)..... : | | | | | | | | — |
| | 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 | |
| Foreign objects | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |

Supplementary information:

| 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).....: | 90V/60Hz | 110V/60Hz | -- | -- | — |
| Ambient temperature during test $T_{amb}$ (°C).....: | 25.0 | 25.0 | -- | -- | — |
| Maximum measured temperature *T* of part/at: | *T* (°C) | | | | Allowed $T_{max}$ (°C) |
| Enclosure inside near motor | 44.5 | 47.6 | -- | -- | Ref. |
| Enclosure outside near motor | 36.4 | 39.0 | -- | -- | 77 |
| Main switch button | 28.7 | 28.9 | -- | -- | 77 |
| Power cord | 29.4 | 30.0 | -- | -- | 70 |
| Interlock switch (waster bin) | 35.5 | 36.6 | -- | -- | 85 |
| Input wire | 38.2 | 39.3 | -- | -- | 80 |
| EMC_C1 | 48.5 | 52.0 | | | 110 |
| VR1 | 45.1 | 47.9 | -- | -- | 85 |
| EMC_L1 | 57.9 | 61.9 | -- | -- | 130 |
| PCB near DB1 | 98.9 | 104.0 | -- | -- | 130 |
| EMC_L2 | 108.4 | 115.6 | -- | -- | 130 |
| EMC_C2 | 65.0 | 69.0 | -- | -- | 110 |
| EMC_C3 | 61.8 | 66.3 | -- | -- | 110 |
| RELAY_COM | 45.4 | 47.4 | -- | -- | 85 |
| RELAY_REV | 40.1 | 41.7 | -- | -- | 85 |
| EC1 | 33.6 | 34.2 | -- | -- | 105 |
| L3 | 33.7 | 34.2 | -- | -- | 130 |
| EC3 | 33.8 | 34.3 | -- | -- | 105 |
| EC4 | 37.2 | 38.2 | -- | -- | 105 |
| C6 | 36.8 | 37.8 | -- | -- | 105 |
| C8 | 36.3 | 37.9 | -- | -- | 105 |
| Motor enclosure 1 | 69.6 | 74.4 | -- | -- | Ref. |
| Motor enclosure 2 | 72.9 | 78.0 | -- | -- | Ref. |
| Motor enclosure 3 | 70.8 | 72.5 | -- | -- | Ref. |
| Internal wire to motor | 67.1 | 70.9 | -- | -- | 105 |
| Motor support plastic | 58.6 | 62.0 | -- | -- | 105. |
| LED light support plastic | 44.5 | 47.3 | -- | -- | Ref. |

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

| Ambient | | | 25.0 | 25.0 | -- | -- | -- |
|---|---|---|---|---|---|---|---|
| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
| -- | -- | -- | -- | -- | -- | -- | -- |
| Supplementary information: Test Duty cycle: 7 mins on, 50mins off. | | | | | | | |
| Note: Tma is not included in assessment of Touch Temperatures (Clause 9). | | | | | | | |

| **B.2.5** | **TABLE: Input test** | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| U (V) | Hz | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status |
| PC210D | | | | | | | | |
| 90 | 50 | 2.2954 | -- | 180.83 | -- | F1 | 1.9422 | 10 pieces of printed A4 paper |
| 100 | 50 | 2.5840 | 3.5 | 226.81 | 330 | F1 | 1.9209 | |
| 110 | 50 | 2.5896 | -- | 247.04 | -- | F1 | 1.9854 | |
| 90 | 60 | 2.4955 | -- | 195.11 | -- | F1 | 1.9437 | 10 pieces of printed A4 paper |
| 100 | 60 | 2.5652 | 3.5 | 223.54 | 330 | F1 | 1.8938 | |
| 110 | 60 | 2.6290 | -- | 252.81 | -- | F1 | 1.9845 | |
| 90 | 50 | 1.3788 | -- | 106.30 | -- | F1 | 1.5442 | One credit card |
| 100 | 50 | 1.4114 | 3.5 | 120.76 | 330 | F1 | 1.5898 | |
| 110 | 50 | 1.3806 | -- | 128.62 | -- | F1 | 1.5444 | |
| 90 | 60 | 1.3392 | -- | 102.67 | -- | F1 | 1.4888 | One credit card |
| 100 | 60 | 1.3873 | 3.5 | 117.73 | 330 | F1 | 1.9832 | |
| 110 | 60 | 1.3857 | -- | 129.98 | -- | F1 | 1.5336 | |
| PC312D | | | | | | | | |
| 90 | 50 | 2.4676 | -- | 195.10 | -- | F1 | 1.9422 | 12 pieces of printed A4 paper |
| 100 | 50 | 2.4714 | 3.5 | 216.50 | 330 | F1 | 1.9209 | |
| 110 | 50 | 2.5912 | -- | 249.97 | -- | F1 | 1.9854 | |
| 90 | 60 | 2.4356 | -- | 191.33 | -- | F1 | 1.9437 | 12 pieces of printed A4 paper |
| 100 | 60 | 2.5344 | 3.5 | 224.23 | 330 | F1 | 1.8938 | |
| 110 | 60 | 2.6080 | -- | 250.33 | -- | F1 | 1.9845 | |
| 90 | 50 | 1.2341 | -- | 94.25 | -- | F1 | 1.5442 | One credit card |
| 100 | 50 | 1.2550 | 3.5 | 106.50 | 330 | F1 | 1.5898 | |
| 110 | 50 | 1.3361 | -- | 123.64 | -- | F1 | 1.5444 | |
| 90 | 60 | 1.2478 | -- | 94.84 | -- | F1 | 1.4888 | One credit card |
| 100 | 60 | 1.2592 | 3.5 | 106.68 | 330 | F1 | 1.9832 | |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 110 | 60 | 1.2928 | -- | 120.59 | -- | F1 | 1.5336 | |
| PC420D | | | | | | | | |
| 90 | 50 | 2.5524 | -- | 203.01 | -- | F1 | 1.9422 | 20 pieces of printed A4 paper |
| 100 | 50 | 2.6781 | 3.5 | 233.69 | 330 | F1 | 1.9209 | |
| 110 | 50 | 2.8283 | -- | 271.87 | -- | F1 | 1.9854 | |
| 90 | 60 | 2.6208 | -- | 206.27 | -- | F1 | 1.9437 | 20 pieces of printed A4 paper |
| 100 | 60 | 2.8409 | 3.5 | 249.43 | 330 | F1 | 1.8938 | |
| 110 | 60 | 2.8602 | -- | 275.15 | -- | F1 | 1.9845 | |
| 90 | 50 | 0.7875 | -- | 59.53 | -- | F1 | 1.5442 | One credit card |
| 100 | 50 | 0.8569 | 3.5 | 71.23 | 330 | F1 | 1.5898 | |
| 110 | 50 | 0.8336 | -- | 75.64 | -- | F1 | 1.5444 | |
| 90 | 60 | 0.7936 | -- | 59.75 | -- | F1 | 1.4888 | One credit card |
| 100 | 60 | 0.8418 | 3.5 | 70.38 | 330 | F1 | 1.9832 | |
| 110 | 60 | 0.8513 | -- | 77.55 | -- | F1 | 1.5336 | |
| Supplementary information: | | | | | | | | |
| | | | | | | | | |

| **B.3, B.4** | **TABLE: Abnormal operating and fault condition tests** | P |
|---|---|---|
| Ambient temperature $T_{amb}$ (°C)..... : | 25 | — |
| Power source for EUT: Manufacturer, model/type, outputrating... : | -- | — |

| Component No. | Condition | Supply voltage (V) | Test time | Fuse no. | Fuse current (A) | Observation |
|---|---|---|---|---|---|---|
| Motor | Locked | 110V | 60 cycles | F1 | 3.725 → 0.023 | Input: 366.4→0.4W<br>Unit shut down, recoverable, no hazard.<br>Motor enclosure: 48.3 °C<br>Enclosure outside near motor: 31.3 °C<br>Ambient measured max: 25.0 °C.<br>Touch current: 0.014mApk |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| Motor | O-L | 110V | 3h24mins | F1 | 3.190 | Input: 310.8W<br>Shred over to 21 pieces of printed A4 paper.<br>Protected when shred 22 sheets of paper for about 5 minutes. no damage, no hazard<br>Motor enclosure: 80.6 °C<br>Enclosure outside near motor: 39.0 °C<br>Ambient measured max: 25.0 °C.<br>Touch current: 0.014mApk |
| Motor (Paper jam) | -- | 110V | 10min | F1 | 0.023 | P=0.4W<br>Unit shut down, recoverable, no hazard<br>Touch current: 0.014mApk |
| VR1 | SC | 90/110V | 1s | F1 | 0 | Fuse opened, no hazards.<br>Touch current: 0.014mApk |
| DB1 | SC | 90/110V | 1s | F1 | 0 | Fuse opened, no hazards.<br>Touch current: 0.014mApk |
| D1_1 | SC | 110V | 10mins | F1 | 2.814 | P=267.39W<br>Normal work. No damage, no hazard.<br>Touch current: 0.014mApk |
| EC5 | SC | 110V | 10mins | F1 | 0.017 | P=0.035W<br>Unit shut down, recoverable, no hazard<br>Touch current: 0.014mApk |
| RELAY-REV | SC | 110V | 10mins | F1 | 0.598 | P=51.56W<br>Motor reverses. No damage, no hazard.<br>Touch current: 0.014mApk |
| RELAY-COM | SC | 110V | 10mins | F1 | 2.860 | P=275.15W<br>Normal work. No damage, no hazard.<br>Touch current: 0.014mApk |
| U2 Pin I-O | SC | 110V | 10mins | F1 | 0.019 | P=0.039W<br>Unit shut down, recoverable, no hazard<br>Touch current: 0.014mApk |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| EC4 | SC | 110V | 10mins | F1 | 0.021 | P=0.43W<br>Unit shut down, recoverable, no hazard<br>Touch current: 0.014mApk |
| Q1 | SC | 110V | 10mins | F1 | 0.021 | P=0.43W<br>Unit shut down, recoverable, no hazard<br>Touch current: 0.014mApk |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit, BL= Block | | | | | | |

| **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) | | | |
| See appended tables 4.1.2 | -- | -- | -- | -- | -- | -- | |
| Note: The tests of M.3.2 are applicable only when above appropriate data is not available. | | | | | | | |
| Specified battery temperature (°C).....: | | | | 0-45 | | | -- |

| Component No. | Fault condition | Charge/ discharge mode | Test time | Temp. (°C) | Current (A) | Voltage (V) | Observation |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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| | | | | | | | |
| Supplementary information: | | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit; NL= no chemical leakage; NS= no spillage of liquid; NE= | | | | | | | |

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

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 specified charging temperature

NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.

| Battery identification | Charging at $T_{lowest}$ (°C) | Observation | Charging at $T_{highest}$ (°C) | Observation |
|---|---|---|---|---|
| -- | -- | -- | -- | -- |

Supplementary information:

| Q.1 | TABLE: Circuits intended for interconnection with building wiring (LPS) | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Output Circuit | Condition | $U_{oc}$ (V) | Time (s) | Isc (A) | | S (VA) | |
| | | | | Meas. | Limit | Meas. | Limit |
| -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit

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

| T.2, T.3, T.4, T.5 | TABLE: Steady force test | | | | | P |
|---|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Probe | Force (N) | Test Duration (s) | Observation |
| Internal component or part | -- | -- | -- | 10 | 5 | No damaged, no hazards. |
| External enclosure top | Thermoplastic | Min.2.0 | a circular plane surface 30 mm in diameter | 250 | 5 | No damaged, no hazards. |
| External enclosure side | Thermoplastic | Min.2.0 | a circular plane surface 30 mm in diameter | 250 | 5 | No damaged, no hazards. |
| External enclosure bottom | Thermoplastic | Min.2.0 | a circular plane surface 30 mm in diameter | 250 | 5 | No damaged, no hazards. |
| Supplementary information: | | | | | | |
| 1) See appended tables 4.1.2 for detail. | | | | | | |

| T.6, T.9 | TABLE: Impact test | | | P |
|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Height (mm) | Observation |
| Enclosure top | Thermoplastic | Min.2.0 | 1300 | No damaged, no hazards. |
| Enclosure side | Thermoplastic | Min.2.0 | 1300 | No damaged, no hazards. |
| Enclosure bottom | Thermoplastic | Min.2.0 | 1300 | No damaged, no hazards. |
| Supplementary information: | | | | |
| 1) See appended tables 4.1.2 for detail. | | | | |

| T.7 | TABLE: Drop test | | | N/A |
|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Height (mm) | Observation |
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |
| Supplementary information: | | | | |
| 1) See appended tables 4.1.2 for detail. | | | | |

| T.8 | TABLE: Stress relief test | P |
|---|---|---|

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

| Location/Part | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation |
|---|---|---|---|---|---|
| Enclosure of completed product | Thermoplastic | Min.2.0 | 70 | 7 | No class 3 energy sources become accessible to an ordinary person or to an instructed person |
| Supplementary information: | | | | | |
| 1) See appended tables 4.1.2 for detail. | | | | | |

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

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

| 4.1.2 | TABLE: Critical components information | | | | P |
|---|---|---|---|---|---|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity[1)] |
| Plug | DONGGUAN STAR THAI ELECTRIC CO.,LTD | HL-811 | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET7940-4300 1-1001) |
| Alternative | DONGGUAN YINGHAO ELECTRIC WIRE PRODUCT CO.,LTD | SY-41 | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET7555-4300 1-1001) |
| Alternative | ZHEJIANG JINTING NUCLEAR CABLE CO.,LTD | J2-7 | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET5812-4300 1-1002) |
| Alternative | SHENZHEN DONGZHANWANG ELECTRONICS CO.,LTD | DZW-T16 | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET7496-4300 1-1001) |
| Alternative | NINGBO LIGHT-HEAVY ELECTRONICS TECHNOLOGY CO., LTD. | FE-126P | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET5033-4300 1-1003) |
| Alternative | YUYAO JINGYI ELECTRONICS CO.,LTD | JY04 | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET2382-4300 1-1004) |
| Alternative | KUNSHAN BAIDELI ELECTRONICS CO.,LTD | BDL-022 | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | JET (JET6219-4300 1-1001) |

| 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)] |
| Alternative | VARIOUS | VARIOUS | 125 Vac, 7 A | Appendix 4 Section 1, Section 6 and Appendix 10 Chapter 5 | PSE<br>JET Approved |
| Power cord | DONGGUAN STAR THAI ELECTRIC CO.,LTD | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET7940-12009-1001) |
| Alternative | DONGGUAN POWERYUAN WIRE INDUSTRIES CO.,LTD | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET6563-12009-1001) |
| Alternative | ZHEJIANG JINTING NUCLEAR CABLE CO.,LTD | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET5812-12009-1001) |
| Alternative | SHENZHEN DONGZHANWANG ELECTRONICS CO.,LTD | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET7496-12009-1001) |
| Alternative | NINGBO LIGHT-HEAVY ELECTRONICS TECHNOLOGY CO., LTD. | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET5033-12009-1001) |
| Alternative | YUYAO JINGYI ELECTRONICS CO.,LTD | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET2382-12009-1004) |
| Alternative | KUNSHAN BRANDLI ELECTRONICS CO.,LTD | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | JET (JET7608-12009-1001) |
| Alternative | VARIOUS | VCTFK | 2x0.75 $mm^2$ | Appendix 1 Section 1, (1), (6) and (9) | PSE<br>JET Approved |
| Power Switch | ZHEJIANG ZHONGXUN ELECTRONICS CO.,LTD | KCD1-B3 | 250Vac, 6A, T85, 1E4 | EN 61058-1 | TUV R 50258840 |

| 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)] |
| Alternative | ZHEJIANG LECI ELECTRONICS CO.,LTD. | RS601 | 250Vac, 6(4)A, T85/55, 1E4 | EN 61058-1 | VDE 40037234 |
| Alternative | ZHEJIANG CHUANGYE ELECTRONICS CO.,LTD | XW-601, XW-603 | 250Vac, 10A, T85/55, 1E4 | EN 61058-1 | TUV R 50199561 |
| Alternative | HUIYANG ZING EAR INDUSTRY CO.,LTD | KAB series | 250Vac, 10(6)A, T105/55, 1E4 | EN 61058-1 | ENEC 168237 |
| Alternative | SUZHOU IE-TECH CO.,LTD | SSM-1113 | 250Vac, 6.5A, T85, 1E4 | EN 61058-1 | TUV R 50055176 |
| Micro interlock switch | YUEQING SIWIG ELECTRONICS CO.,LTD | G20-16 | 125/250Vac,16(10)A, T125, 5E4 | EN61058-1 | ENEC 01678 |
| Alternative | ZHONGXUN ELECTRONICS INDUSTRY COMPANY | KW11-7 | 250Vac, 16(8)A, T85, 5E4 | EN 61058-1 | TUV R 50046626 |
| Alternative | ZHONGSHAN JUFOND ELECTRIC APPLIANCE CO., LTD | SW315 | 250Vac, 16(2)A, T125, 1E5 | EN 61058-1 | TUV R 50112960 |
| Alternative | TRANTEK ELECTRONICS CO., LTD. | TXJ6 | 125/250Vac, 6A, T130, 1E4 | EN 61058-1 | ENEC17 159776 |
| Alternative | TRANTEK ELECTRONICS CO., LTD. | 163 | 125/250Vac, 6A, T130, 5E4 | EN 61058-1 | ENEC05 35-110257 |
| Alternative | TRANTEK ELECTRONICS CO., LTD. | 162 | 125/250Vac,16(4)A,T 130, 5E4 | EN 61058-1 | ENEC05 35-110477 |
| Alternative | SUZHOU XIN NAN ELECTRIC CO.,LTD | XN-5 | 250Vac, 15(2.5)A, T85, 5E4 | EN 61058-1 | TUV R 50245691 |
| Alternative | YUEQING TONGDA WIRE ELECTRIC FACTORY | HK-14 | 250Vac, 16(3) A, T125, 5E4 | EN 61058-1 | VDE 40027032 |
| Alternative | HUIYANG ZING EAR INDUSTRY CO.,LTD | G5T16 | 250Vac, 16(4)A, T125, 5E4 | EN 61058-1 | ENEC NO 246256 |

| 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)] |
| Alternative | FONGDA ELECTRONIC CO., LTD. | FDJ05 | 250 Vac, 5A, T85, 10E3 | EN 61058-1 | VDE 40018353 |
| Alternative | SUZHOU IE-TECH CO., LTD. | MS-1115 | 250 Vac, 15(3) A, T130, 50E3 | EN 61058-1 | VDE 40018494 |
| Alternative | ZHEJIANG QIAOH CONTROL COMPONENT CO., LTD. | KW9 | 250 Vac, 16(4) A, T105, 1E4 | EN 61058-1 | ENEC 00074 |
| Alternative | FOSHAN SHUNDE YUSHUN ELECTRIC APPLIANCE LTD | KW-16 | 125/250Vac,16(4)A, T125, 5E4 | EN 61058-1 | TUV R 50179582 |
| Fuse(F1) | XC ELECTRONICS (SHEN ZHEN) CORP. LTD. | 3T | T5A, 250VAC | EN 60127-1 EN 60127-3 | VDE 40019614 |
| Alternative | SUNNY EAST ENTERPRISE CO., LTD. | TDP | T5A, 250VAC | EN 60127-1 EN 60127-3 | VDE 40024676 |
| Alternative | DONGGUAN REOMAX ELECTRONICS CO.,LTD | TBP | T5A, 250VAC | EN 60127-1 EN 60127-3 | VDE 40032053 |
| Alternative | HONGHU BLUELIGHT ELECTRONIC CO., LTD. | L3T | T5A, 250VAC | EN 60127-1 EN 60127-3 | VDE 40026874 |
| Alternative | DONGGUAN BETTER ELECTRONIVS TECHNOLOGY CO.,LTD | 332 | T5A, 250VAC | EN 60127-1 EN 60127-3 | TUV J50158950 |
| Alternative | HOLLYLAND COMPANY LIMITED | 32S 30TS | T5A, 250VAC | EN 60127-1 EN 60127-3 | VDE 40011830 |
| PCB | CIXI CITY LUTENG ELECTRONIC TECHNOLOGY CO.,LTD | CEM1, FR1 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E321750 + tested with appliance |

| 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)] |
| Alternative | ZHEJIANG CHANGSHAN DEXUNDA ELECTRONIC TECHNOLOGY CO.,LTD | DXD-D1，DXD-S1, DXD-S2 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E474292 + tested with appliance |
| Alternative | YANGZHOU YONGLI ELECTRONIC CO., LTD. | YL-01, YL-03, YL-V0 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E217102 + tested with appliance |
| Alternative | CHANGZHOU YUNFENG ELECTRONICS CO., LTD | HD-2, HD-4, HD-5 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E174651 + tested with appliance |
| Alternative | GUANGDONG CHAOHUA TECHNOLOGY CO.,LTD | C-102, C-104 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E231151 + tested with appliance |
| Alternative | HANGZHOU BAOLIN PRINTED CIRCUIT BOARD CO.,LTD | BL1, BL2, BL3 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E207143 + tested with appliance |
| Alternative | HANGZHOU SHENGDA ELECTRONICS CO.,LTD | SD-1, SD-2 | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL E349766 + tested with appliance |
| Alternative | VARIOUS | Various | V-0, 130°C | EN 62368-1 UL 796 UL 94 | UL + tested with appliance |
| X2 capacitor | DAIN ELECTRONICS CO., LTD. | MPX | X2 type, Max.0.47μF, 275Vac, 40/110/21 | EN 60384-14 | VDE 40018798 |
| Alternative | SHANGHAI JIABAO PAN OCEAN ELECTRON CO., LTD. | MPX | X2 type, Max.0.47μF, 275Vac, 40/100/56 | EN 60384-14 | VDE 40043363 |
| Alternative | GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD. | MKP-X2 | X2 type, Max.0.47μF, 275 Vac, 40/105/21 | EN 60384-14 | VDE 40025702 |
| Alternative | SHENZHEN JING YU ELECTRONICS CO.,LTD | CBBX2 | X2 type, Max.0.47μF, 275 Vac, 40/100/21 | EN 60384-14 | VDE 40025597 |

| 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)] |
| Alternative | FOSHAN CITY XIN YUAN ELECTRONIC CO.,LTD | MKP-X2 | X2 type, Max.0.47μF, 275 Vac, 40/105/21 | EN 60384-14 | VDE 40027433 |
| Alternative | JIMSON ELECTRONICS (XIAMEN) CO., LTD. | MKP | X2 type, Max.0.47μF, 275 Vac, 40/100/21 | EN 60384-14 | VDE 40000463 |
| Alternative | HSUAN TAI ELECTRONIC CO., LTD. | MCY | X2 type, Max.0.47μF, 275 Vac, 25/110/21 | EN 60384-14 | VDE 125205 |
| Alternative | FOSHAN SHUNDE BEIJIAO HUA DA ELECTRIC INDUSTRIAL CO.,LTD | HD MKP | X2 type, Max.0.47μF, 275 Vac, 40/105/21 | EN 60384-14 | VDE 40027182 |
| Relay (RELAY_COM) | YUYAO HUI LONG CANG RELAYS MFG FACTORY | 922-24VDC-SL-A BAOCHENG or NHC,HLC | 250Vac, 15A, T85, 24Vdc | EN 61810-1 | TUV R 50156096 |
| Alternative | NINGBO TIANBO GANGLIAN ELECTRONICS CO.,LTD | HJR-21FF-S-H | 240Vac, 12A, T85, 24Vdc | EN 61810-1 | TUV R 50116165 |
| Alternative | NINGBO SONGLE RELAY CO.,LTD | SRU-24VDC-SL-A | 250Vac, 10A, T85, 24Vdc | EN 61810-1 | TUV R 50056114 |
| Alternative | SHENZHEN YUANZE ELECTRIC CO.,LTD | Y3F-SS-124DMU | 250Vac, 10A, T85, 24Vdc | EN 61810-1 | TUV R 50197243 |
| Alternative | WANGRONG ELECTRONICS (SHENZHEN) CO.,LTD | RD-124DF-S, RD-124D | 277Vac,15A,T85, 24Vdc | EN 61810-1 | TUV R 50244311 |
| Alternative | NINGBO ZETTLER ELECTRONICS CO., LTD. | JQC-3FF 24VDC-1HS | 277Vac, 10A, T105, 24Vdc | EN 61810-1 | TUV R 50265555 |
| Alternative | LI YANG QLRELAY ELECTRONIC CO.,LTD | BRF-SS-124DM | 250Vac,17A, T85, 24Vdc | EN61810-1 | TUV R 50468523 |

| 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)] |
| Relay (RELAY_REV) | NINGBO BAO CHENG ELECTRONICS CO.,LTD | 914F-24VDC-SL-2C | 250Vac, 2x8A, T85, 24Vdc | EN 61810-1 | TUV R 50449833 |
| Alternative | NINGBO TIANBO GANGLIAN ELECTRONICS CO.,LTD | TRA3 L-24VDC-S-2Z | 240Vac, 5A, T85, 24Vdc | EN 61810-1 | TUV R 50116170 |
| Alternative | XIAMEN HONGFA ELECTROACOUSTIC CO.,LTD | HF115F, JQX-115F | 250Vac, 8A, T85, 24Vdc | EN 61810-1 | VDE 116934 |
| Alternative | SHENZHEN YUANZE ELECTRIC CO.,LTD | Y14F-SS-224L | 240Vac, 5A, T85, 24Vdc | EN 61810-1 | TUV R 50198479 |
| Alternative | NINGBO YINZHOU CHENGYUAN ELECTRONIC DEVICE FACTORY | CYF2-2C-24VDC | 250Vac, 5A, T85, 24Vdc | EN 61810-1 | TUV R 50277641 |
| Alternative | WANGRONG ELECTRONICS (SHENZHEN) CO.,LTD | RB-224DF6-S | 277Vac, 8A, T105, 24Vdc | EN61810-1 | TUV R 50249912 |
| Alternative | LI YANG QLRELAY ELECTRONIC CO.,LTD | BRT2-SS-224D | 250Vac ,8A ,T85, 24Vdc | EN61810-1 | TUV R 50468505 |
| Internal wire | SHENZHEN DONG JU WIRE & CABLE CO., LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E189674 + tested with appliance |
| Alternative | XINYA ELECTRONIC CO.,LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E170689 + tested with appliance |
| Alternative | XINGDA ELECTRONICS WIRE & CABLE CO., LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E187208 + tested with appliance |
| Alternative | QIFURUI ELECTRONICS CO. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E211048 + tested with appliance |
| Alternative | SHANGHAI MINGZHAN WIRE & CABLE CO., LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E243220 + tested with appliance |

| 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)] |
| Alternative | SHEN ZHEN BAOHING ELECTRIC WIRE & CABLE MFRCO., LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E168141 + tested with appliance |
| Alternative | LEADER ELECTRIC WIRE & CABLE CO., LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E154283 + tested with appliance |
| Alternative | EVER BRIGHT DEVELOPMEN T COMPANY | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E191230 + tested with appliance |
| Alternative | HONG KONG DONG TIAN TONG LI ELECTRICITY CO., LTD. | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL E254854 + tested with appliance |
| Alternative | VARIOUS | 1007 | 300V, 80°C, 20-26AWG | EN 62368-1 UL 758 | UL Approved + tested with appliance |
| Internal wire connected to motor | SHENZHEN DONG JU WIRE & CABLE CO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E189674 + tested with appliance |
| Alternative | QIFURUI ELECTRONICS CO. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E211048 + tested with appliance |
| Alternative | HONG KONG DONG TIAN TONG LI ELECTRICITY CO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E254854 + tested with appliance |
| Alternative | XINYA ELECTRONIC CO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E170689 + tested with appliance |
| Alternative | XINGDA ELECTRONICS WIRE & CABLE CO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E187208 + tested with appliance |
| Alternative | EVER BRIGHT DEVELOPMEN T COMPANY | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E191230 + tested with appliance |
| Alternative | LEADER ELECTRIC WIRE & CABLE CO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E154283 + tested with appliance |

| 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)] |
| Alternative | SHEN ZHEN BAOHING ELECTRIC WIRE & CABLE MFRCO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E168141 + tested with appliance |
| Alternative | SHANGHAI MINGZHAN WIRE & CABLE CO., LTD. | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL E243220 + tested with appliance |
| Alternative | VARIOUS | 1015 | 600V, 105°C, 22AWG | EN 62368-1 UL 758 | UL Approved + tested with appliance |
| Enclosure of main parts | NINGBO LG YONGXING CHEMICAL CO., LTD. | FR-500H | ABS, V-0, 60°C, min. thickness 2.0mm | EN 62368-1 UL 758 | UL E203955 + tested with appliance |
| Alternative | CHI MEI CORPORATIO N | PA-765A | V-0, 85°C, min. thickness 2.0mm | UL746 | UL (E56070) + tested with appliance |
| Motor | DONG CHANG MOTOR | WX4450D100 | 100VDC, Class B | EN 62368-1 | Tested with appliance |
| Motor protector | JIANGSU CHANGSHENG ELECTRIC APPLIANCE CO., LTD. | 17AM-D | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | VDE 40016509 |
| -Alternative | JIANGSU MEIKAI ELECTRIC CO.,LTD | 17AMC | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | VDE 40030600 |
| -Alternative | SENSATA TECHNOLOGIE S HOLLAND B.V. | 17AMC | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | KEMA No.2092331 .0 1 |
| -Alternative | SENSATA TECHNOLOGIE S HOLLAND B.V. | 17AM | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | KEMA No.201453 1.05 |
| -Alternative | SENSATA TECHNOLOGIE S HOLLAND B.V. | 8CM | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | KEMA No.201453 1.02 |
| -Alternative | CHWEN-DER THERMOSTAT & CO., LTD. | CD79F | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | VDE 40004958 |
| -Alternative | FOSHAN JI HUI ELECTRICAL APPLIANCE CO.,LTD | BW | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | VDE 40019595 |

| 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)] |
| -Alternative | HUBEI JIHUI CO.,LTD | 17AM | AC250V, Tf 65°C | EN 60730-1 EN 60730-2-2 | TUV SUD B1051280006 |
| -Y2 capacitor | JYH CHUNG ELECTRONIC CO., LTD. | JY | Y2 type, Max.4700pF, 300Vac, 40/085/21/C | EN 60384-14 | VDE 123326 |
| -Alternative | HSUAN TAI ELECTRONIC CO., LTD. | CY | Y2 type, Max.4700pF, 250Vac, 40/085/21/C | EN 60384-14 | VDE 118413 |
| -Alternative | JYA-NAY CO., LTD | JY | Y2 type, Max.4700pF, 250Vac, 25/125/21/A | EN 60384-14 | TUV R 50232061 |
| -Alternative | SUCCESS ELECTRONICS CO., LTD. | SF | Y2 type, Max.4700pF, 250Vac, 40/125/56/C | EN 60384-14 | VDE 40016665 |
| -Alternative | DONGGUAN CITY DAFU ELECTRONICS CO.,LTD | CT7 Y2 | Y2 type, Max.4700pF, 250Vac, 25/085/21/C | EN 60384-14 | VDE 40041521 |
| Supplementary information: | | | | | |
| [1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

| ATTACHMENT to TRF IEC62368_1E | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **ATTACHMENT TO TEST REPORT**<br>**IEC 62368-1:2018**<br>**JAPAN NATIONAL DIFFERENCES**<br>Audio/video, information and communication technology equipment – Part 1: Safety requirements | | | |
| **Differences according to**.....: J62368-1(2023) | | | |
| **TRF template used:.....:** IECEE OD-2020-F3:2022, Ed. 1.2 | | | |
| **Attachment Form No**..... : JP_ND_IEC62368_1E<br>**Attachment Originator**.....: UL Solutions (JP)<br>**Master Attachment**.....: Dated 2023-05-12 | | | |
|  | | | |
| | **National Differences** | | — |
| 4.1.2 | Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this document or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these. | | P |
| 5.6.1 | Mains socket-outlet and interconnection coupler shall comply with Clause G.4.2A if they are incorporated as part of the equipment. | No mains socket-outlet and appliance outlet. | N/A |

| ATTACHMENT to TRF IEC62368_1E | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.2.1 | Connection for protective conductor of class 0I equipment provided with instructional safeguard in accordance with Clause F.3.6.1A is considered to make earlier and break later than supply connection.<br><br>Mains plug having a lead wire for protective earthing connection of class 0I equipment shall comply with all of the following:<br><br>– Not to be used for equipment having a rated voltage of 150 V or more<br><br>– Clip is not used for the earthing connection of the lead wire.<br><br>– The lead wire for earthing is at least 10 cm long<br><br>If class 0I equipment provides an independent main protective earthing terminal and is intended to be installed by ordinary person, earthing wire shall be provided in the package of the equipment. | | N/A |
| 5.6.2.2 | Internal earthing conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector need not be green-and-yellow. | | N/A |
| 5.6.3 | In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following:<br><br>– use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire<br><br>– single core cord or single core cab tire cable with 1.25 $mm^2$ or more cross-sectional area | | N/A |
| 5.7.3 | For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303, or that is provided with mains appliance outlet as specified in JIS C 8283 series for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains. | | N/A |
| 5.7.5 | In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990:2016. | | N/A |

| ATTACHMENT to TRF IEC62368_1E | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.3.2 | A fuse complying with JIC C 6575 series or a fuse having equivalent characteristics shall open within 1 s.<br><br>A fuse having time/current characteristics other than those specified in IEC 60127 shall be tested with the characteristics taken into account. In case of Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”. | | P |
| 8.5.4.3.1 | Only three-phase stationary equipment rated more than AC 200 V can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4. | | N/A |
| 8.5.4.3.2 | For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional. | | P |
| 8.5.4.3.4 | The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part. | | P |
| 8.5.4.3.5 | The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part.<br><br>Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts. | | P |
| F.3.5.1 | When the mains socket-outlet is configured in accordance with JIS C 8282 series, JIS C 8300 or JIS C 8303, the assigned current or power shall be marked. If the voltage of the socket-outlet is the same as the mains voltage, the voltage need not be marked.<br><br>Instructional safeguard of Class 0I equipment shall be provided with an instructional safeguard in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303 to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons. | | N/A |
| F.3.5.3 | If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic shall be included. | | P |

| ATTACHMENT to TRF IEC62368_1E | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.6.1A | Marking for class 0I equipment<br><br>The requirements of Clauses F.3.6.1.1 and F.3.6.1.2 shall be applied to class 0I equipment.<br><br>For class 0I equipment, a marking of instructions shall be provided regarding the earthing connection.<br><br>In addition to the above, for class 0I equipment, an instruction to connect earthing before and disconnect earthing after the connection of supply conductors shall be marked on the visible place of the main body or shall be in the text of an accompanying document. | | N/A |
| F.3.6.2 | Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment. | | P |
| F.3.8A | Attention marking for aging deterioration of CRT television<br><br>Year of manufacture, standard usage period by design according to JIS C 9921-5 and cautionary statement for possible risks of aging deterioration when used beyond the specified period shall be marked on CRT television except for industrial use CRT television. | | N/A |
| F.4 | For audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A, the instructions shall require that the external wiring connected to these terminals shall be installed by a skilled person, or shall be connected by means of ready-made leads or cords that are constructed in a way that would prevent contact with any ES3 circuit.<br><br>For class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided in the package of the equipment, if the protective earthing connection is made by instructed person or skilled person, the suitable installation instruction for the protective earthing connection shall be provided. | | N/A |
| G.3.2.1 | The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that. | | P |

| ATTACHMENT to TRF IEC62368_1E | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.3.4 | Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the applicable JIS or IEC standard in accordance with 4.1.2 or shall have equivalent or better properties.<br><br>Such a protective device shall have adequate breaking (rupturing) capacity to interrupt the maximum fault current (including short-circuit current) that can flow. | | P |
| G.4.1 | This requirement does not apply to connectors covered in Clauses G.4.2 and G.4.2A. | | N/A |
| G.4.2 | Mains connectors, mains plugs and socket-outlets shall comply with JIS C 8283 series, JIS C 8285, IEC 60309 series, JIS C 8282 series, JIS C 8300, JIS C 8303, or have equivalent or better properties.<br><br>A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286.<br><br>Construction shall prevent mechanical stress not to transmit to the soldering part of appliance inlet terminal.<br><br>When an equipment is rated not more than 125 V and all of the following are met, Type C14 and C18 appliance inlet complying with JIS C 8283-3 can be considered as rated 15 A.<br><br>– The temperature of appliance inlet does not exceed the value specified in JIS C 8283-1 under the most unfavourable normal operating condition as specified in Clause B.2.1.<br><br>– "Use only designated cord set attached in this equipment" or equivalent text is described in the operating instruction. If the cord set is not provided in the package of the equipment, suitable information regarding to the cord set is described in the operating instruction. | Approved Plug used | P |
| G.4.2A | Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively | | N/A |
| G.7.1 | A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor. | | N/A |
| G.7.2<br>Table G.7 | Cross-sectional area of equipment rated up to and including 3 A shall be 0.75 $mm^2$. | | P |

| ATTACHMENT to TRF IEC62368_1E | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.6.1<br>Table G.9 | The cross-sectional area of mains cords according to JIS C 3010 may comply with relevant Japanese wiring regulation.<br><br>For cables other than those complying with JIS C 3662 series or JIS C 3663 series, the terminals shall be suitable for the size of the intended cables. | | P |

*Pictures*

Fig.1 Over view

Fig.2 Rear view

*Pictures*

Fig.3 Side View

Fig.4 Side View

*Pictures*

Fig.5 Bottom View


Fig.6 Waste container

*Pictures*

Fig.7 Power switch and cord Strain proof


Fig.8 Main part top view for model PC210D

*Pictures*

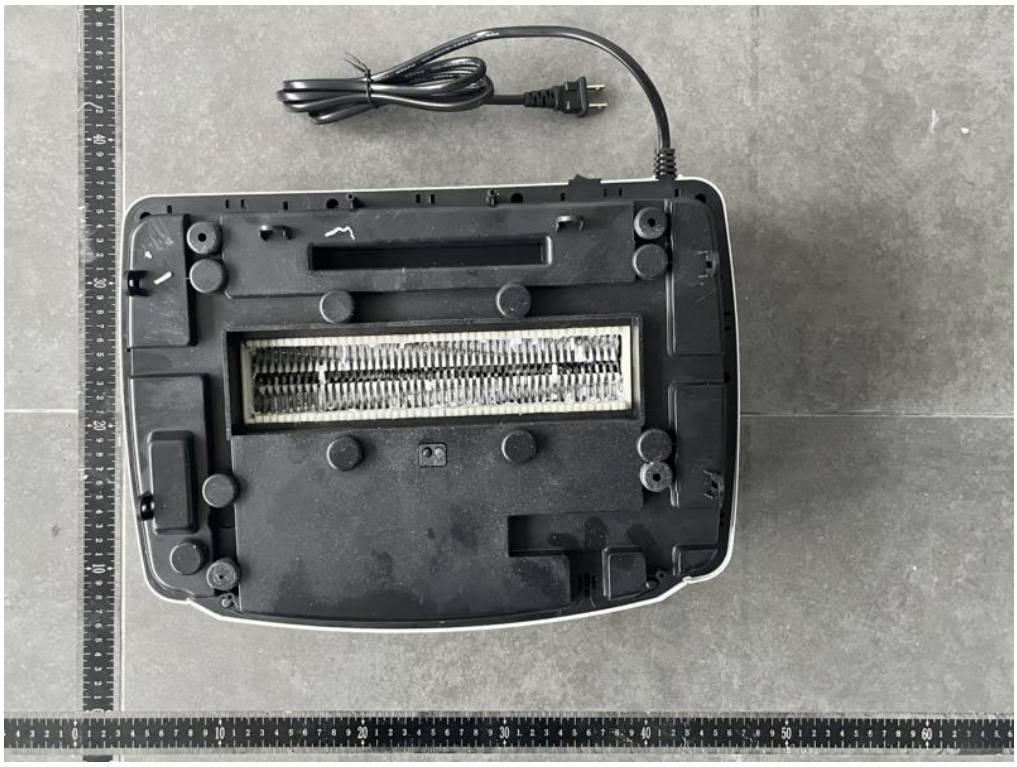

Fig.9 Main part bottom view for model PC210D

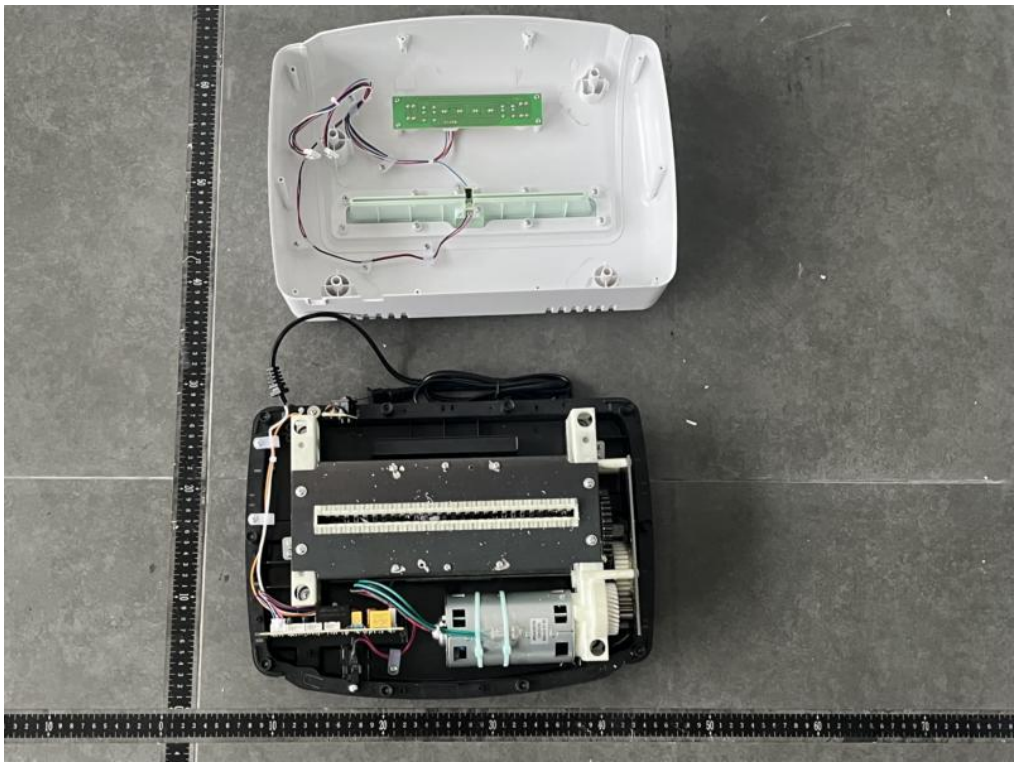

Fig.10 Internal view for model PC210D

*Pictures*

Fig.11 Blade view for model PC210D


Fig.12 Main part top view for model PC312D

*Pictures*

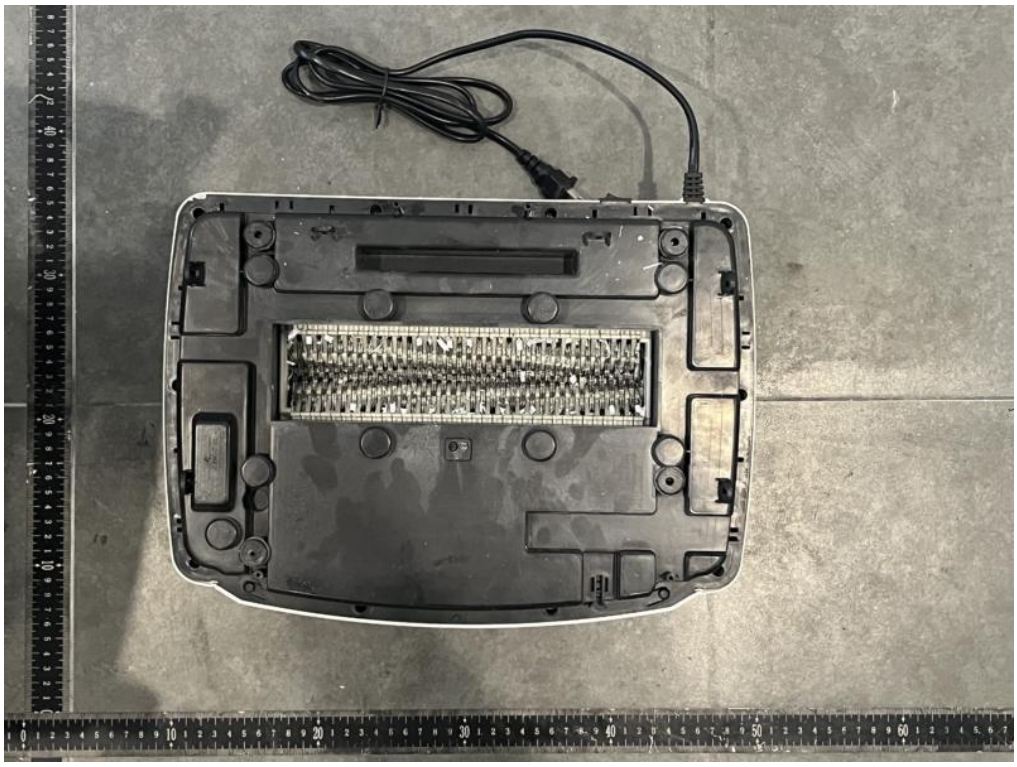

Fig.13 Internal view for model PC312D

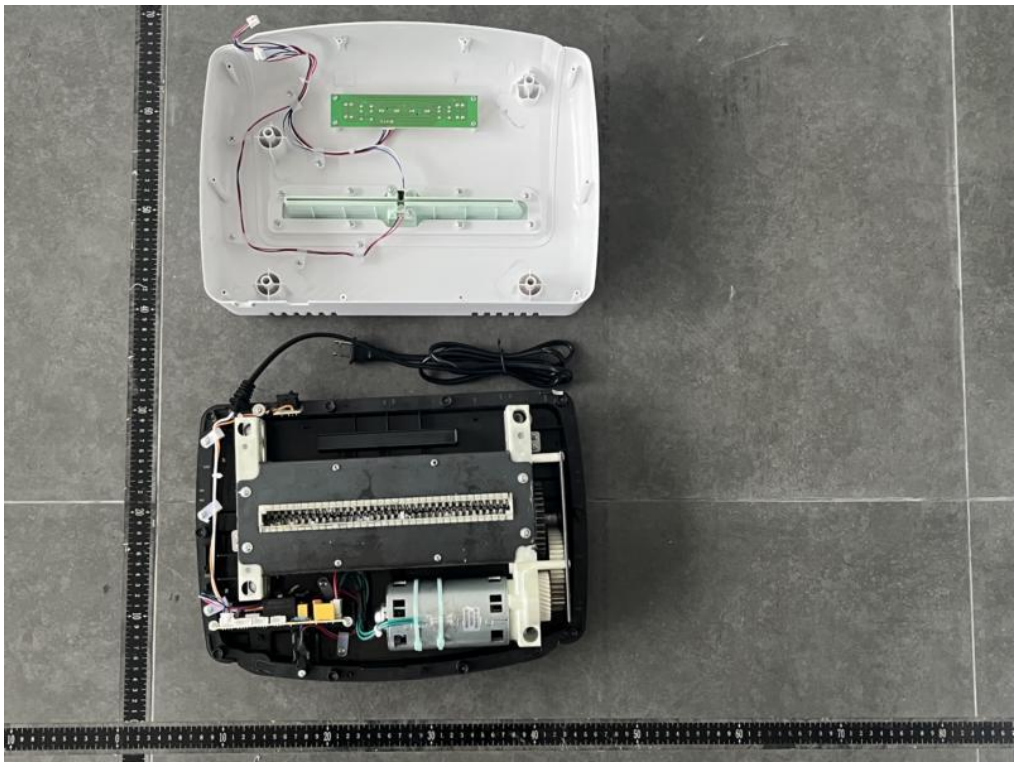

Fig.14 Internal view for model PC312D

*Pictures*

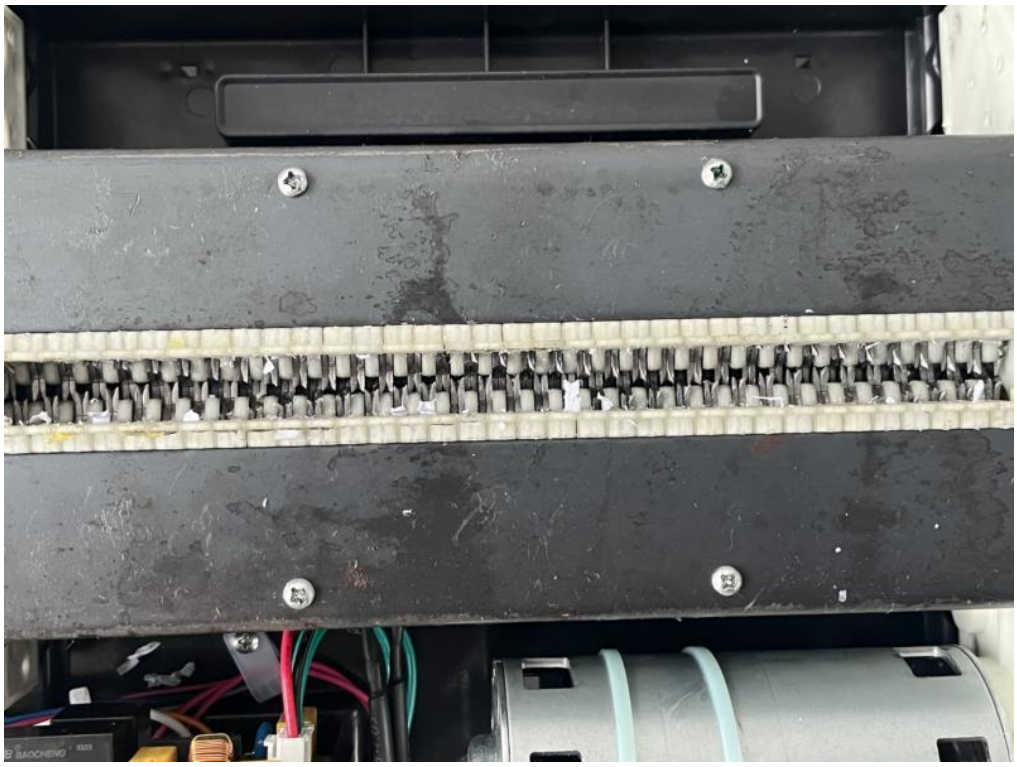

Fig.15 Blade view for model PC312D


Fig.16 Main part top view for model PC420D

*Pictures*

Fig.17 Main part bottom view for model PC420D

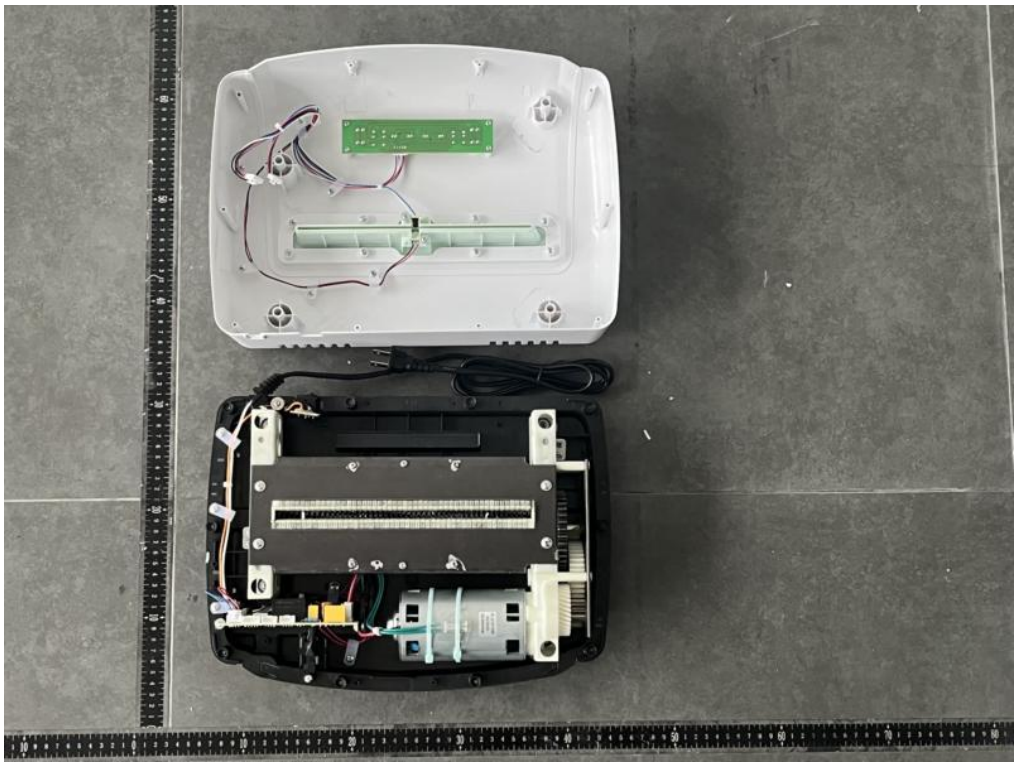

Fig.18 Internal view for model PC420D

*Pictures*

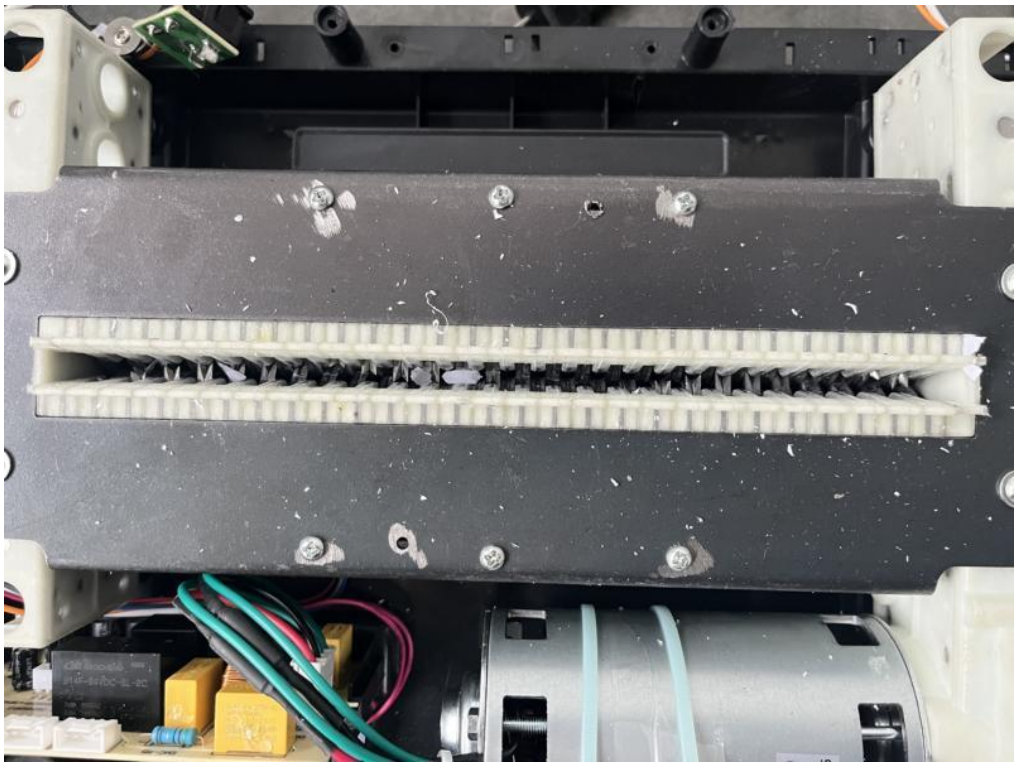

Fig.19 Blade view for model PC420D

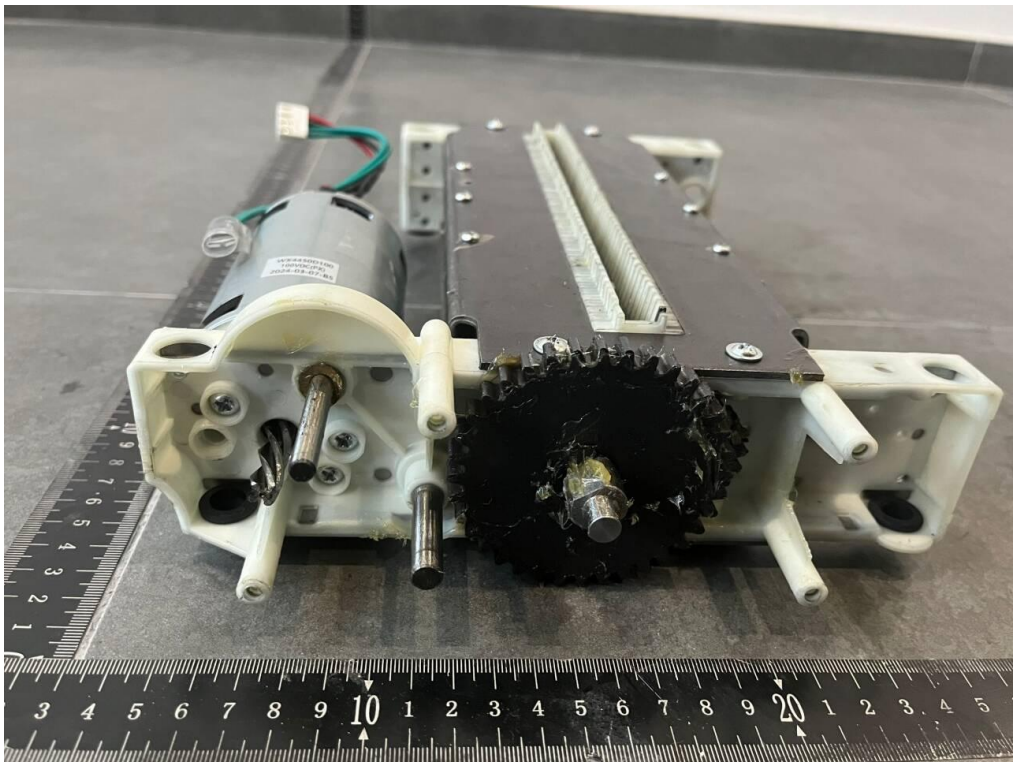

Fig.20 Motor and Blade side view

*Pictures*


Fig.21 DC Motor view


Fig.22 Motor thermal protector view

*Pictures*

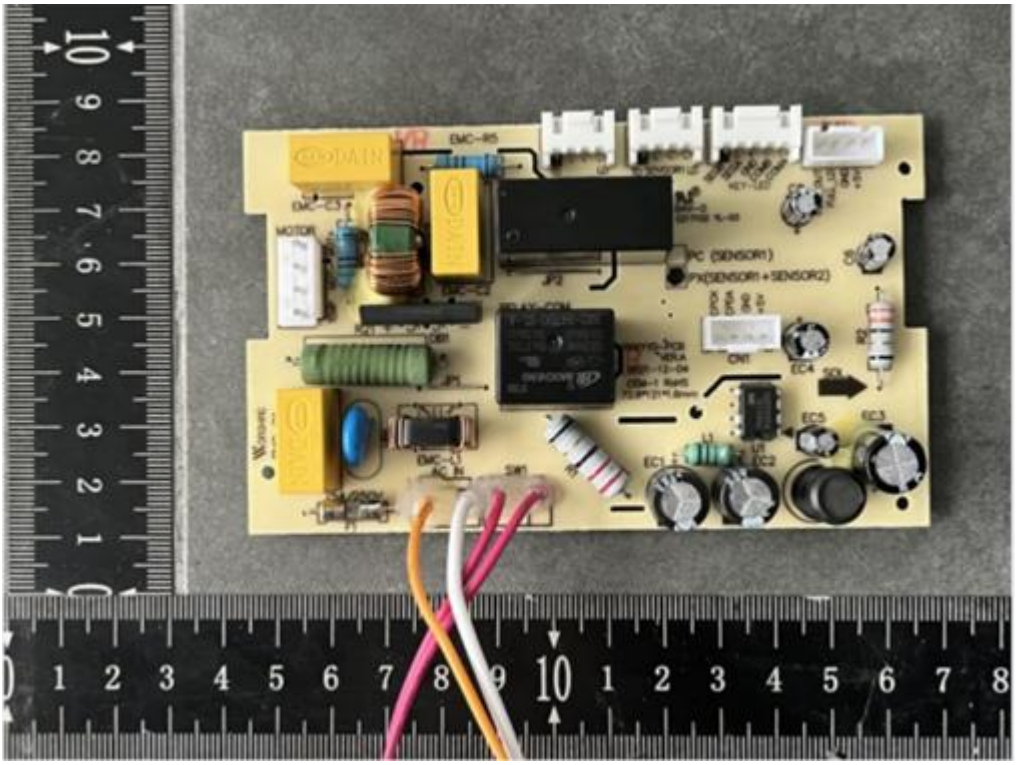

Fig.23 Main PCB top view

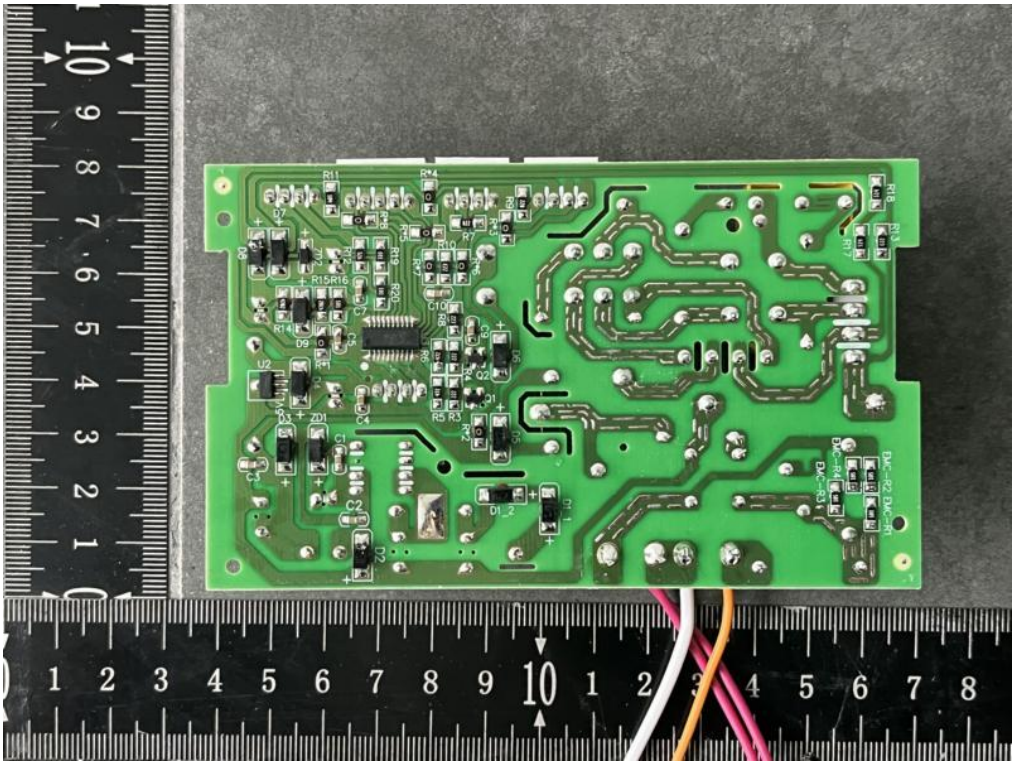

Fig.24 Main PCB bottom view

*Pictures*

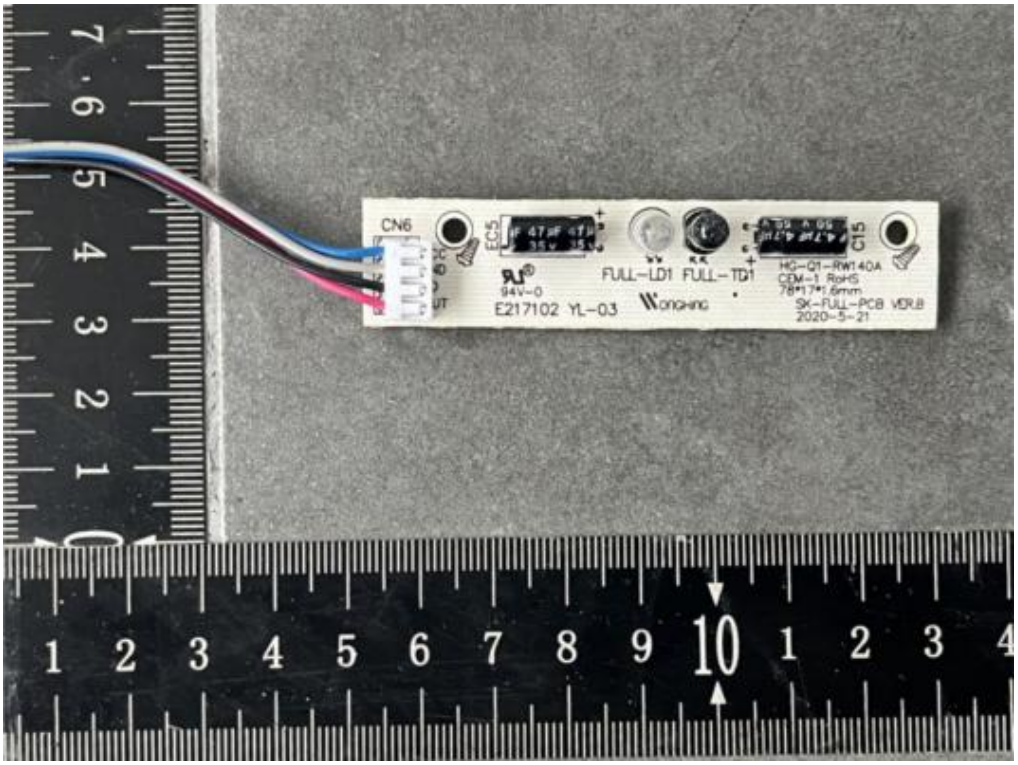


Fig.25 Function PCB top view

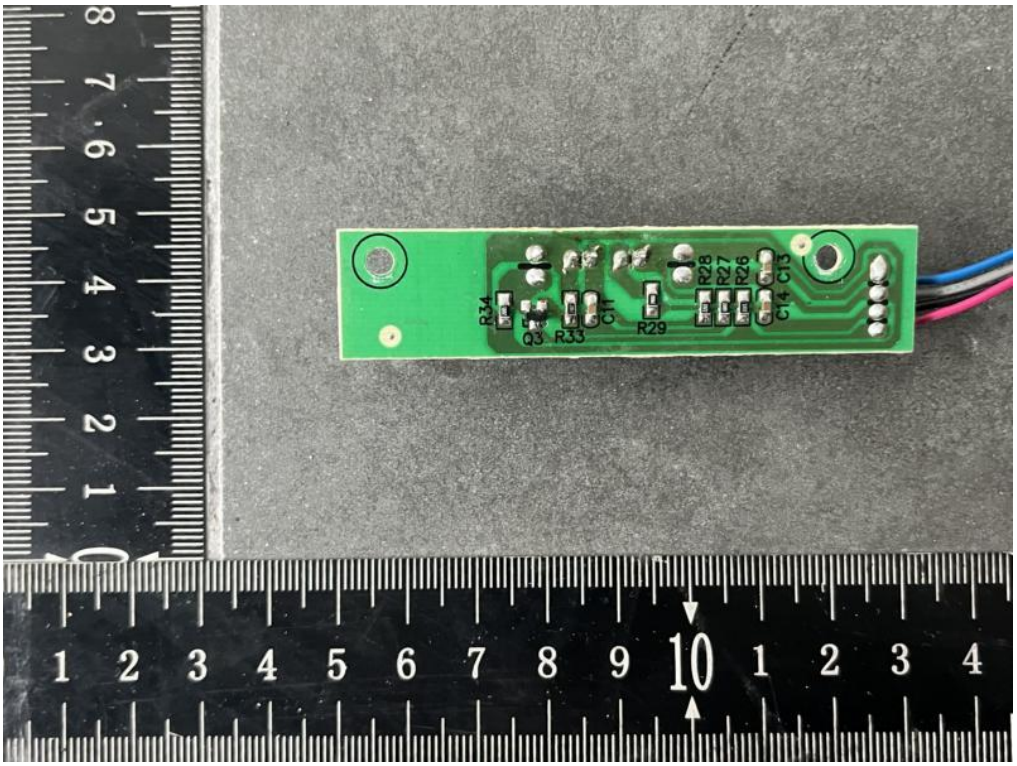


Fig.26 Function PCB bottom view

*Pictures*

Fig.27 Switch PCB top view

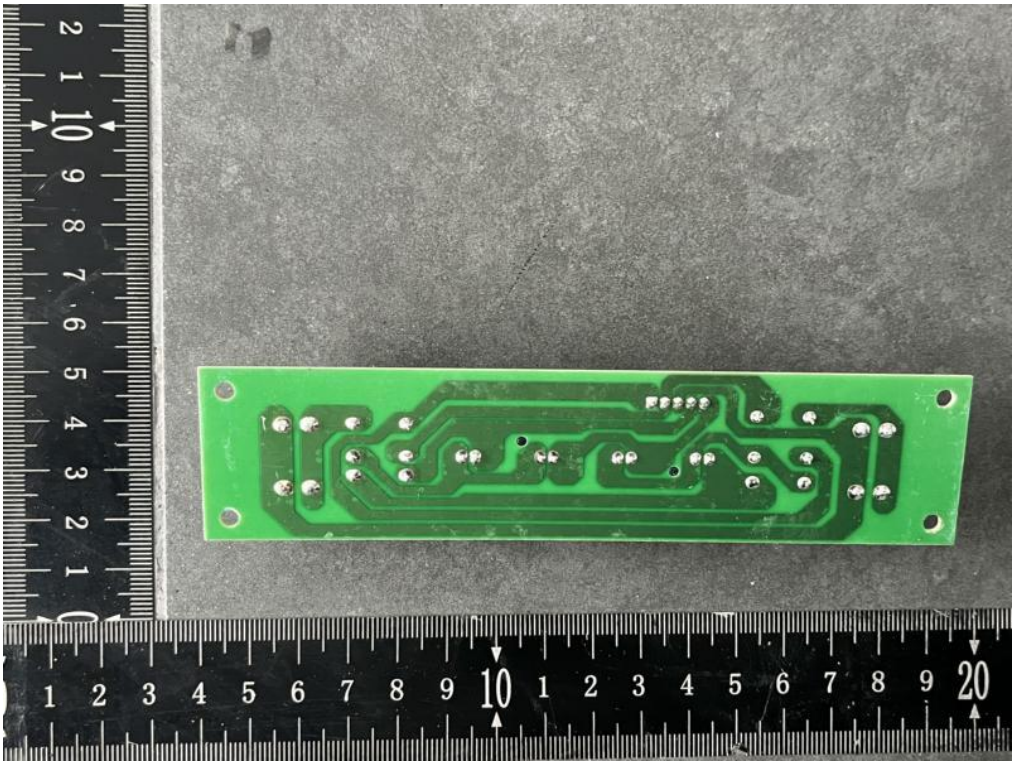

Fig.28 Switch PCB bottom view

----------The end----------

# 声 明
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