**Test Report issued under the responsibility of:**

Prodigy Technology Consultant Co., Ltd.

| | |
|---|---|
| **TEST REPORT**<br>**EN 62368-1**<br>**Audio/video, information and communication technology equipment**<br>**Part 1: Safety requirements** | |
| **Report Number ..... :** | F211013-01-A0 |
| Date of issue ..... : | 2021-12-23 |
| Total number of pages ..... : | 109 |
| **Applicant's name ..... :** | Radware Ltd. |
| Address ..... : | 22 Raoul Wallenberg St, Tel Aviv 6971917, Israel |
| **Test specification:** | |
| Standard..... : | EN 62368-1:2014, EN 62368-1:2014 +A11:2017 |
| Test procedure ..... : | CE Marking serial in LVD |
| Non-standard test method ..... : | N/A |
| **Test Report Form No. ..... :** | DTL-163-A5 |
| Test Report Form(s) Originator..... : | Prodigy Technology Consultant Co., Ltd. |
| Master TRF ..... : | Dated 2020-12-07 |

| | |
|---|---|
| Test Item description ..... : | Network Switch |
| Trade Mark ..... : | RADWARE or radware |
| Manufacturer ..... : | Same as applicant |
| Model/Type reference……..: | ODS2, ODS2 DUAL |
| Ratings ..... : | 100-240VAC, 60-50Hz, 8-5A (for ODS2)<br>100-240VAC, 47-63Hz, 8-4A x 2 (for ODS2 DUAL)<br>-36 - -72VDC, 17A (for ODS2)<br>-36 - -72VDC, 12A x 2 (for ODS2 DUAL) |

| | | | |
|---|---|---|---|
| Testing procedure and testing location: | | | |
| ☒ | Testing Laboratory: | | |
| Testing location/ address .....: | | Prodigy Technology Consultant Co., Ltd. /<br>No. 12, Gong 7th Rd., Linkou District, New Taipei City 24450, Taiwan Chinese Taipei | |
| ☐ | Associated CB Testing Laboratory: | | |
| Testing location/ address .....: | | | |
| Tested by (name + signature) .....: | | Hank Ju /<br>Project Handler |  |
| Approved by (name + signature) .....: | | Frank Chang /<br>Reviewer |  |

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

National Differences (37 pages)

Enclosures (41 pages)

Summary of testing:

- Maximum Normal load:

Approval AC or DC power supply provided EUT power source, the unit connecting to network, CPU performance 100%, continuously crossed transmit data through fiber and LAN ports, each USB2.0 port loaded 2.5W (total 2.5W), loaded to approximately 80% of the internal AC/DC power supply's marked electrical output rating, burn-in program, power fan and system fan flow direction were outward, and working continuously.

- Test samples are pre-production samples without serial numbers.

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| 4.4.4.2, Annex T.5 Steady force test, 250N<br>4.4.4.4, Annex T.6 Impact test<br>5.2.2.2 Steady-state voltage and current limits (ES classification)<br>5.4.1.4, 6.3.2, 9.0, B.2.6 Temperature measurement<br>5.4.8 Humidity Conditioning<br>5.4.9 Electric Strength<br>5.6.6.2 Resistance of protective bonding system<br>5.7.2.2, 5.7.4 Earthed accessible conductive part<br>5.7.5 Protective conductor current<br>6.2.2 Power source circuit classifications<br>8.6.2.2 Static Stability<br>Annex B.2.5 Input test<br>Annex B.3 Simulated abnormal operating conditions<br>Annex B.4 Simulated single fault conditions<br>Annex F.3.10 Test for the permanence of markings<br>Annex M.3.2 Protection circuits for batteries<br>Annex Q.1 Limited power source<br>Note,<br>- Waived LCM board button 6.2.2 test, due to LCM board button circuits are logic circuit, transmit signal only, consider as PS1 circuit | Prodigy Technology Consultant Co., Ltd. /<br>No. 12, Gong 7th Rd., Linkou District, New Taipei City 24450, Taiwan Chinese Taipei |

**Summary of compliance with National Differences:**

**List of countries addressed**

Australia (AU) / New Zealand (NZ), DENMARK, EU group differences

☒ **The product fulfils the requirements of IEC 62368-1:2014 and AS/NZS 62368.1:2018**

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

**Copy of marking plate:**

The artwork below may be only a draft (See Enclosure/Marking Plate ID 13-01 for detail). The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

| **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 (for DC PSU)<br>- ☐ ES1 ☒ ES2 ☐ ES3 |
| Supply % Tolerance .....: | ☒ +10%/-10% (for AC PSU)<br>☐ +20%/-15%<br>☐ +____%/ -_____%<br>☒ None (for DC PSU) |
| Supply Connection – Type .....: | ☒ pluggable equipment type A -<br>☐ non-detachable supply cord<br>☒ appliance coupler (for AC PSU)<br>☐ direct plug-in<br>☐ mating connector<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☒ permanent connection (for DC single PSU)<br>☒ mating connector (for DC redundant PSU)<br>☐ other: _____ |
| Considered current rating of protective device as part of building or equipment installation.....: | 16A or 20A<br>Installation location: ☒ building; ☐equipment |
| Equipment mobility .....: | ☒ movable ☐ hand-held ☐ transportable<br>☐ stationary ☐ for building-in ☐ direct plug-in<br>☒ rack-mounting ☐ wall-mounted |
| Over voltage category (OVC) .....: | ☐ OVC I ☒ OVC II (for AC PSU) ☐ OVC III<br>☐ OVC IV<br>☒ other: not Mains connected (for DC PSU) |
| Class of equipment .....: | ☒Class I ☐ Class II ☐ Class III |
| Access location .....: | ☒ restricted access location ☐ N/A |
| Pollution degree (PD) .....: | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| Manufacturer's specified maxium operating ambient: | 50°C |
| IP protection class .....: | ☒ IPX0 ☐ IP___ |

| | |
|---|---|
| Power Systems .....: | ☒TN ☐ TT ☐ IT - ____ $V_{L-L}$ |
| Altitude during operation (m) .....: | ☐ 2000 m or less ☒ 2000 or 3000 or 3100 m<br>(2000m with power: Zippy Technology Corp. / DMRW-6400F & P1H-6350P; 3000m with power: Zippy Technology Corp. / DP1H-6350F; 3100m with power: Zippy Technology Corp. / MRW-6420P) |
| Altitude of test laboratory (m) .....: | ☒ 2000 m or less ☐ _____ m |
| Mass of equipment (kg) .....: | ☒ 15.10 Max. (Unit), Ear Sets: 0.08 (for ODS2), 0.22 (for ODS2 DUAL) |
| | |
| **POSSIBLE TEST CASE VERDICTS:** | |
| - test case does not apply to the test object .....: | N/A |
| - test object does meet the requirement .....: | P (Pass) |
| - test object does not meet the requirement .....: | F (Fail) |
| **TESTING:** | |
| Date of receipt of test item.....: | 2021-10-13, 2021-11-05 |
| Date (s) of performance of tests.....: | 2021-11-11 to 2021-12-07 |
| | |

**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.**

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

| | |
|---|---|
| **Name and address of factory (ies) ..... :** | 1. NEXCOM International Co., Ltd. /<br>5F, 7F, 8F, 9F, 10F&12F, No.63, Sec.1, Sanmin Rd., Banqiao Dist., New Taipei City, Taiwan<br><br>2. NEXCOM International Co., Ltd. (Hua-Ya Factory)<br>2F., No.50, Huaya 3rd Rd., Guishan Dist., Taoyuan City 333, Taiwan |

**GENERAL PRODUCT INFORMATION:**

- The laboratory's declaration of conformity is based on IEC GUIDE 115 Section 4.4 procedure 2 Accuracy Method, Application of uncertainty of measurement to conformity assessment activities in the electrotechnical sector, IECEE OD 5010 (Procedure for measuring Laboratory Power Source characteristics), IECEE OD 5014 (Instrument Accuracy Limits) to determining the test result, therefore no additional consideration of the measurement uncertainty

- The statement for LDMs:
  A. This end product is for use with field installable LDMs not provided with the product when shipped from the original equipment manufacturer. This end product was evaluated with representative LDMs during the Type Test investigation.

B. The end product with LDMs installed is required to comply with IEC 60950-1/IEC 62368-1, IEC 60825-1 and IEC 60825-2, including any declared national differences.

C. The decision on certification of the end product without the LDMs rests with the recognizing NCB.

**Product Description**

- The equipment is a Class I, 1U or 2U Network Switch which is intended to use with Audio/Video, information and communication technology equipment.
- The unit was configured as follow: Include Certified Internal Power Supply (AC/DC, single/redundant), Electronic Components were mounted on PWB, HDD or SSD and Mainboard with CPU and then housed within a metal enclosure secure by screws.

**Additional Information**

- The EUT is intended to be supplied by Internal AC/DC power supply which output is complied with ES1, maximum ambient temperature: 50°C.
- The label is a draft of an artwork for marking plate pending approval by National Certification Bodies and it shall not be affixed to products prior to such an approval.
- Additional investigation in accordance with IEC 62368-1:2014 and AS/NZS 62368.1:2018
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): All output ports, except for Fiber ports
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- The equipment to be evaluated in the end product for compliance with altitude up to 3100m above the sea level. The correction factors of clearance are 1.14 for 3000m, 1.16 for 3100m, specified in table 17 of IEC 62368-1:2014 on Switching Power adapter.

**Model Differences**

Model ODS2 is similar to model ODS2 DUAL except for power supply configuration (single/redundant), rating, enclosure shape(1U/2U), CPU, fan location and model designation.

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

N/A

| **ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:** | |
|---|---|
| (Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)<br>(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3. | |
| **Electrically-caused injury (Clause 5):**<br>(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)<br>Example: +5 V dc input ES1 | |
| **Source of electrical energy** | **Corresponding classification (ES)** |
| Input and internal primary circuits of approved AC PSU | ES3 |
| Input and internal primary circuits of approved DC PSU | ES2 |
| Output of approved PSU | ES1 |
| Accessible connectors and parts | ES1 |
| **Electrically-caused fire (Clause 6):**<br>(Note: List sub-assembly or circuit designation and corresponding energy source classification)<br>Example: Battery pack (maximum 85 watts):<br>PS2 | |
| **Source of power or PIS** | **Corresponding classification (PS)** |
| All circuits except for output circuits, power and reset buttons circuits, LCM board button circuits | PS3 |
| Output circuits (connectors) | PS2 |
| Power button, Reset button, LCM board button | PS1 |
| **Injury caused by hazardous substances (Clause 7)**<br>(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)<br>Example: Liquid in filled component Glycol | |
| **Source of hazardous substances** | **Corresponding chemical** |
| RTC Battery | See annex M |
| **Mechanically-caused injury (Clause 8)**<br>(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)<br>Example: Wall mount unit MS2 | |
| **Source of kinetic/mechanical energy** | **Corresponding classification (MS)** |
| Equipment mass | MS2 |
| DC fan | MS3 |
| Equipment edges and corner | MS1 |
| **Thermal burn injury (Clause 9)**<br>(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)<br>Example: Hand-held scanner – thermoplastic enclosure<br>TS1 | |
| **Source of thermal energy** | **Corresponding classification (TS)** |

| **ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:** | |
|---|---|
| External accessible parts | TS1 |
| Internal parts | TS3 |
| **Radiation (Clause 10)**<br>(Note: List the types of radiation present in the product and the corresponding energy source classification.)<br>Example: DVD – Class 1 Laser Product<br>RS1 | |
| **Type of radiation** | **Corresponding classification (RS)** |
| LED Indicator | RS1 |
| Optical transceiver module | RS1 |

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

| **OVERVIEW OF EMPLOYED SAFEGUARDS** | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (ES3: Primary Filter circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Instructed | ES3: Input and internal primary circuits of approved AC PSU | N/A | N/A | Enclosure, see 5.4.2, 5.4.3 |
| Instructed | ES2: Input and internal primary circuits of approved DC PSU | Enclosure, see 5.4.2, 5.4.3 | N/A | N/A |
| 6.1 | Electrically-caused fire | | | |
| Material part (e.g. mouse enclosure) | Energy Source (PS2: 100 Watt circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| PCB | PS3 circuit | See 6.3 | V-1 or better. | N/A |
| Metal enclosure | PS3 circuit | See 6.3 | Metal | N/A |
| The other components/materials | PS3 circuit | See 6.3 | See 6.4.5, 6.4.6 | N/A |
| Internal wiring materials | PS3 circuit | N/A | N/A | See 6.5 |
| External wiring materials | PS2 circuit | N/A | N/A | See 6.5 |
| Output connector | PS2 circuit | See 6.3 | See 6.4.5, 6.6 | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Instructed | RTC Battery | N/A | N/A | See annex M |
| 8.1 | Mechanically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (MS3:High Pressure Lamp) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Instructed | MS3: Plastic fan blade (DC fan) | N/A | N/A | Enclosure |
| Instructed | MS2: Equipment mass | See 8.6 | N/A | N/A |
| 9.1 | Thermal Burn | | | |
| Body Part (e.g., Ordinary) | Energy Source (TS2) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Instructed | Internal parts: TS3 | N/A | N/A | Enclosure |
| 10.1 | Radiation | | | |

| Body Part (e.g., Ordinary) | Energy Source (Output from audio port) | Safeguards | | |
|---|---|---|---|---|
| | | Basic | Supplementary | Reinforced |
| N/A | N/A | N/A | N/A | N/A |
| Supplementary Information:<br>(1) See attached energy source diagram for additional details.<br>(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault | | | | |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4** | **GENERAL REQUIREMENTS** | | P |
| 4.1.1 | Acceptance of materials, components and subassemblies | | P |
| 4.1.2 | Use of components | | P |
| 4.1.3 | Equipment design and construction | | P |
| 4.1.15 | Markings and instructions.....: | (See Annex F) | P |
| 4.4.4 | Safeguard robustness | | P |
| 4.4.4.2 | Steady force tests.....: | (See Annex T.5) | P |
| 4.4.4.3 | Drop tests .....: | | N/A |
| 4.4.4.4 | Impact tests .....: | (See Annex T.6) | P |
| 4.4.4.5 | Internal accessible safeguard enclosure and barrier tests.....: | | N/A |
| 4.4.4.6 | Glass Impact tests.....: | | N/A |
| 4.4.4.7 | Thermoplastic material tests .....: | | N/A |
| 4.4.4.8 | Air comprising a safeguard.....: | Evaluated apart of approved power supply. | N/A |
| 4.4.4.9 | Accessibility and safeguard effectiveness | | P |
| 4.5 | Explosion | | P |
| 4.6 | Fixing of conductors | No conductors defeat a safeguard | N/A |
| 4.6.1 | Fix conductors not to defeat a safeguard | | N/A |
| 4.6.2 | 10 N force test applied to .....: | | N/A |
| 4.7 | Equipment for direct insertion into mains socket - outlets | | N/A |
| 4.7.2 | Mains plug part complies with the relevant standard.....: | | N/A |
| 4.7.3 | Torque (Nm) .....: | | N/A |
| 4.8 | Products containing coin/button cell batteries | EUT is professional equipment, not likely to be accessible to children. | N/A |
| 4.8.2 | Instructional safeguard | | N/A |
| 4.8.3 | Battery Compartment Construction | | N/A |
| | Means to reduce the possibility of children removing the battery.....: | | — |
| 4.8.4 | Battery Compartment Mechanical Tests .....: | | N/A |
| 4.8.5 | Battery Accessibility | | N/A |
| 4.9 | Likelihood of fire or shock due to entry of | (See Annex P). | P |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | conductive object.....: | | |
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| 5.2.1 | Electrical energy source classifications.....: | See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE for details. | P |
| 5.2.2 | ES1, ES2 and ES3 limits | | P |
| 5.2.2.2 | Steady-state voltage and current .....: | (See appended table 5.2) | P |
| 5.2.2.3 | Capacitance limits.....: | | N/A |
| 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 | | P |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | | P |
| 5.3.2.2 | Contact requirements | | P |
| | a) Test with test probe from Annex V.....: | Figure V.2 can't contact any bare internal conductive part | P |
| | b) Electric strength test potential (V) .....: | | N/A |
| | c) Air gap (mm) .....: | | N/A |
| 5.3.2.4 | Terminals for connecting stripped wire | | N/A |
| 5.4 | Insulation materials and requirements | | P |
| 5.4.1.2 | Properties of insulating material | | P |
| 5.4.1.3 | Humidity conditioning .....: | See 5.4.8 | P |
| 5.4.1.4 | Maximum operating temperature for insulating materials .....: | (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6.) | P |
| 5.4.1.5 | Pollution degree.....: | 2 | — |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | | N/A |
| 5.4.1.5.3 | Thermal cycling | | 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 | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.1.9 | Insulating surfaces | | N/A |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | | N/A |
| 5.4.1.10.2 | Vicat softening temperature ..... : | | N/A |
| 5.4.1.10.3 | Ball pressure ..... : | | N/A |
| 5.4.2 | Clearances | Evaluated apart of approved power supply. | N/A |
| 5.4.2.2 | Determining clearance using peak working voltage | | N/A |
| 5.4.2.3 | Determining clearance using required withstand voltage ..... : | | N/A |
| | a) a.c. mains transient voltage ..... : | | — |
| | b) d.c. mains transient voltage ..... : | | — |
| | c) external circuit transient voltage ..... : | | — |
| | d) transient voltage determined by measurement ..... : | | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test | | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages ..... : | | N/A |
| 5.4.3 | Creepage distances ..... : | Evaluated apart of approved power supply. | N/A |
| 5.4.3.1 | General | | N/A |
| 5.4.3.3 | Material Group ..... : | | — |
| 5.4.4 | Solid insulation | | N/A |
| 5.4.4.2 | Minimum distance through insulation ..... : | | N/A |
| 5.4.4.3 | Insulation compound forming solid insulation | | N/A |
| 5.4.4.4 | Solid insulation in semiconductor devices | | N/A |
| 5.4.4.5 | Cemented joints | | N/A |
| 5.4.4.6 | Thin sheet material | | N/A |
| 5.4.4.6.1 | General requirements | | N/A |
| 5.4.4.6.2 | Separable thin sheet material | | N/A |
| | Number of layers (pcs) ..... : | | N/A |
| 5.4.4.6.3 | Non-separable thin sheet material | | N/A |
| 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 |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.4.7 | Solid insulation in wound components | | N/A |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz .....: | | 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 |
| | Insulation resistance (MΩ).....: | | — |
| 5.4.6 | Insulation of internal wire as part of supplementary safeguard .....: | | N/A |
| 5.4.7 | Tests for semiconductor components and for cemented joints | | N/A |
| 5.4.8 | Humidity conditioning | Tested with power:<br>(for ODS2 DUAL)<br>Zippy Technology Corp. / MRW-6420P and Zippy Technology Corp. / DMRW-6400F<br>(for ODS2)<br>Zippy Technology Corp. / P1H-6350P and Zippy Technology Corp. / DP1H-6350F | P |
| | Relative humidity (%).....: | 93% | — |
| | Temperature (°C) .....: | 40°C | — |
| | Duration (h) .....: | 120h | — |
| 5.4.9 | Electric strength test.....: | (See appended table 5.4.9) | P |
| 5.4.9.1 | Test procedure for a solid insulation type test | | N/A |
| 5.4.9.2 | Test procedure for routine tests | | N/A |
| 5.4.10 | Protection against transient voltages between external circuit | | N/A |
| 5.4.10.1 | Parts and circuits separated from external circuits | | N/A |
| 5.4.10.2 | Test methods | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test .....: | | N/A |
| 5.4.10.2.3 | Steady-state test.....: | | N/A |
| 5.4.11 | Insulation between external circuits and earthed circuitry .....: | | N/A |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Rated operating voltage $U_{op}$ (V).....: | | — |
| | Nominal voltage $U_{peak}$ (V).....: | | — |
| | Max increase due to variation $U_{sp}$ .....: | | — |
| | Max increase due to ageing $\Delta U_{sa}$ .....: | | — |
| | $U_{op}= U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....: | | — |
| 5.5 | Components as safeguards | | N/A |
| 5.5.1 | General | No components served as safeguard | N/A |
| 5.5.2 | Capacitors and RC units | | N/A |
| 5.5.2.1 | General requirement | | N/A |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector.....: | | N/A |
| 5.5.3 | Transformers | | N/A |
| 5.5.4 | Optocouplers | | N/A |
| 5.5.5 | Relays | | N/A |
| 5.5.6 | Resistors | | N/A |
| 5.5.7 | SPD's | | N/A |
| 5.5.7.1 | Use of an SPD connected to reliable earthing | | N/A |
| 5.5.7.2 | Use of an SPD between mains and protective earth | | N/A |
| 5.5.8 | Insulation between the mains and external circuit consisting of a coaxial cable.....: | | N/A |
| 5.6 | Protective conductor | | P |
| 5.6.2 | Requirement for protective conductors | | P |
| 5.6.2.1 | General requirements | | P |
| 5.6.2.2 | Colour of insulation | Evaluated as part of Power Supply Unit. | P |
| 5.6.3 | Requirement for protective earthing conductors | No power supply cord provided. | N/A |
| | Protective earthing conductor size ($mm^2$) .....: | | — |
| 5.6.4 | Requirement for protective bonding conductors | | P |
| 5.6.4.1 | Protective bonding conductors | Evaluated as part of PSU. | P |
| | Protective bonding conductor size ($mm^2$).....: | Evaluated as part of PSU. | — |
| | Protective current rating (A) ..... : | Evaluated as part of PSU. | — |
| 5.6.4.3 | Current limiting and overcurrent protective devices | | P |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.5 | Terminals for protective conductors | Evaluated as part of PSU. | P |
| 5.6.5.1 | Requirement | | N/A |
| | Conductor size ($mm^2$), nominal thread diameter (mm). .....: | | N/A |
| 5.6.5.2 | Corrosion | | P |
| 5.6.6 | Resistance of the protective system | | P |
| 5.6.6.1 | Requirements | | P |
| 5.6.6.2 | Test Method Resistance (Ω) .....: | (See appended Table 5.6.6.2) | P |
| 5.6.7 | Reliable earthing | | N/A |
| 5.7 | Prospective touch voltage, touch current and protective conductor current | | P |
| 5.7.2 | Measuring devices and networks | | P |
| 5.7.2.1 | Measurement of touch current .....: | Instrument indicating peak voltage used. | P |
| 5.7.2.2 | Measurement of prospective touch voltage | | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | P |
| | System of interconnected equipment (separate connections/single connection) .....: | For single power: single connection;<br>For dual power: N/A | — |
| | Multiple connections to mains (one connection at a time/simultaneous connections) .....: | For single power: N/A;<br>For dual power: one connection at a time | — |
| 5.7.4 | Earthed conductive accessible parts.....: | Test with AC power supply, see appended Table 5.7.4 | P |
| 5.7.5 | Protective conductor current | Test with AC power supply, see Enclosure Miscellaneous ID 7-01 additional table 5.7.5 for details | P |
| | Supply Voltage (V).....: | Test with AC power supply, see Enclosure Miscellaneous ID 7-01 additional table 5.7.5 for details | — |
| | Measured current (mA).....: | Test with AC power supply, see Enclosure Miscellaneous ID 7-01 additional table 5.7.5 for details | — |
| | Instructional Safeguard.....: | | N/A |
| 5.7.6 | Prospective touch voltage and touch current due to external circuits | | N/A |
| 5.7.6.1 | Touch current from coaxial cables | | N/A |
| 5.7.6.2 | Prospective touch voltage and touch current from external circuits | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.7 | Summation of touch currents from external circuits | | N/A |
| | a) Equipment with earthed external circuits Measured current (mA).....: | | N/A |
| | b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....: | | N/A |
| **6** | **ELECTRICALLY- CAUSED FIRE** | | P |
| 6.2 | Classification of power sources (PS) and potential ignition sources (PIS) | | P |
| 6.2.2 | Power source circuit classifications | See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE | P |
| 6.2.2.1 | General | | P |
| 6.2.2.2 | Power measurement for worst-case load fault ... : | See appended table 6.2.2 for details | P |
| 6.2.2.3 | Power measurement for worst-case power source fault..... : | See appended table 6.2.2 for details | P |
| 6.2.2.4 | PS1 ..... : | See 6.2.2 | P |
| 6.2.2.5 | PS2 ..... : | See 6.2.2 | P |
| 6.2.2.6 | PS3 ..... : | See 6.2.2 | P |
| 6.2.3 | Classification of potential ignition sources | All conductors and devices are considered as PIS, except for Power button, reset button, LCM board button circuits. | P |
| 6.2.3.1 | Arcing PIS ..... : | See 6.2.3 | N/A |
| 6.2.3.2 | Resistive PIS ..... : | See 6.2.3. | P |
| 6.3 | Safeguards against fire under normal operating and abnormal operating conditions | | P |
| 6.3.1 (a) | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... : | (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6) | P |
| 6.3.1 (b) | Combustible materials outside fire enclosure | | P |
| 6.4 | Safeguards against fire under single fault conditions | | P |
| 6.4.1 | Safeguard Method | Control of fire spread method used | P |
| 6.4.2 | Reduction of the likelihood of ignition under single fault conditions in PS1 circuits | | N/A |
| 6.4.3 | Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits | | N/A |
| 6.4.3.1 | General | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.3.2 | Supplementary Safeguards | | N/A |
| | Special conditions if conductors on printed boards are opened or peeled | | N/A |
| 6.4.3.3 | Single Fault Conditions..... : | | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | P |
| 6.4.5 | Control of fire spread in PS2 circuits | | P |
| 6.4.5.2 | Supplementary safeguards .....: | 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.<br>(See appended tables 4.1.2 and Annex G) | P |
| 6.4.6 | Control of fire spread in PS3 circuit | | P |
| 6.4.7 | Separation of combustible materials from a PIS | | N/A |
| 6.4.7.1 | General.....: | | N/A |
| 6.4.7.2 | Separation by distance | | N/A |
| 6.4.7.3 | Separation by a fire barrier | | N/A |
| 6.4.8 | Fire enclosures and fire barriers | | P |
| 6.4.8.1 | Fire enclosure and fire barrier material properties | | P |
| 6.4.8.2.1 | Requirements for a fire barrier | | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure | | P |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | P |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | | P |
| 6.4.8.3.2 | Fire barrier dimensions | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.8.3.3 | Top Openings in Fire Enclosure: dimensions (mm) .....: | Top: No openings;<br>Side:<br>Openings do not exceed 5 mm in any dimension or 1 mm in width except for 2U left/right side openings, system fan and all power fan's openings.<br><br>2U left/right side openings: right side, the openings not located with fig. 41; left side, checked for the components UZ18, U56, UZ2 and BAT1 near to openings, those power consumption all lower than 15W, not consider as PIS, the openings not located with fig. 41.<br><br>2U System fan's openings, had distance over 37mm from any PIS, ignore openings size;<br><br>Power fan openings, had no components will cause ignition of fire during 37mm and components fault had considered in approval power supply. | P |
| | Needle Flame test | | N/A |
| 6.4.8.3.4 | Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....: | No Openings, See Enclosure Diagrams ID 4-01 for details | P |
| | Flammability tests for the bottom of a fire enclosure .....: | | N/A |
| 6.4.8.3.5 | Integrity of the fire enclosure, condition met: a), b) or c) .....: | | N/A |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....: | Enclosure is metal. | P |
| 6.5 | Internal and external wiring | | P |
| 6.5.1 | Requirements | VW-1 wiring used, test method was considered equivalent to IEC/TS 60695-11-21 | P |
| 6.5.2 | Cross-sectional area ($mm^2$) .....: | N/A | — |
| 6.5.3 | Requirements for interconnection to building wiring .....: | | N/A |
| 6.6 | Safeguards against fire due to connection to additional equipment | | P |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | External port limited to PS2 or complies with Clause Q.1 | | P |
| **7** | **INJURY CAUSED BY HAZARDOUS SUBSTANCES** | | P |
| 7.2 | Reduction of exposure to hazardous substances | | N/A |
| 7.3 | Ozone exposure | | N/A |
| 7.4 | Use of personal safeguards (PPE) | | N/A |
| | Personal safeguards and instructions ..... : | | — |
| 7.5 | Use of instructional safeguards and instructions | | N/A |
| | Instructional safeguard (ISO 7010) .....: | | — |
| 7.6 | Batteries .....: | (See Annex M) | P |
| **8** | **MECHANICALLY-CAUSED INJURY** | | P |
| 8.1 | General | | 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 | | N/A |
| 8.4.1 | Safeguards | | N/A |
| 8.5 | Safeguards against moving parts | | P |
| 8.5.1 | MS2 or MS3 part required to be accessible for the function of the equipment | The blades of the DC fan are not accessible with test finger Figure V.2. | P |
| 8.5.2 | Instructional Safeguard..... : | N/A | — |
| 8.5.4 | Special categories of equipment comprising moving parts | | N/A |
| 8.5.4.1 | Large data storage equipment | | N/A |
| 8.5.4.2 | Equipment having electromechanical device for destruction of media | | N/A |
| 8.5.4.2.1 | Safeguards and Safety Interlocks .....: | | N/A |
| 8.5.4.2.2 | Instructional safeguards against moving parts | | N/A |
| | Instructional Safeguard.....: | | — |
| 8.5.4.2.3 | Disconnection from the supply | | N/A |
| 8.5.4.2.4 | Probe type and force (N) .....: | | N/A |
| 8.5.5 | High Pressure Lamps | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.5.5.1 | Energy Source Classification | | N/A |
| 8.5.5.2 | High Pressure Lamp Explosion Test.....: | | N/A |
| 8.6 | Stability | | N/A |
| 8.6.1 | Product classification | MS2 | N/A |
| | Instructional Safeguard.....: | N/A | — |
| 8.6.2 | Static stability | | P |
| 8.6.2.2 | Static stability test | | P |
| | Applied Force.....: | The equipment is tipped at any angle up to and including 10° from the vertical. | — |
| 8.6.2.3 | Downward Force Test | | N/A |
| 8.6.3 | Relocation stability test | | N/A |
| | Unit configuration during 10° tilt .....: | | — |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test (Applied Force).....: | | N/A |
| | Position of feet or movable parts.....: | | — |
| 8.7 | Equipment mounted to wall or ceiling | | N/A |
| 8.7.1 | Mounting Means (Length of screws (mm) and mounting surface) .....: | | N/A |
| 8.7.2 | Direction and applied force.....: | | N/A |
| 8.8 | Handles strength | Not for the purpose of lifting or carrying the equipment | N/A |
| 8.8.1 | Classification | | N/A |
| 8.8.2 | Applied Force .....: | | N/A |
| 8.9 | Wheels or casters attachment requirements | | N/A |
| 8.9.1 | Classification | | N/A |
| 8.9.2 | Applied force .....: | | — |
| 8.10 | Carts, stands and similar carriers | | N/A |
| 8.10.1 | General | | N/A |
| 8.10.2 | Marking and instructions | | N/A |
| | Instructional Safeguard.....: | | — |
| 8.10.3 | Cart, stand or carrier loading test and compliance | | N/A |
| | Applied force .....: | | — |
| 8.10.4 | Cart, stand or carrier impact test | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.10.5 | Mechanical stability | | N/A |
| | Applied horizontal force (N) ..... : | | — |
| 8.10.6 | Thermoplastic temperature stability (°C)..... : | | N/A |
| 8.11 | Mounting means for rack mounted equipment | Not SRME | N/A |
| 8.11.1 | General | | N/A |
| 8.11.2 | Product Classification | | N/A |
| 8.11.3 | Mechanical strength test, variable *N* .....: | | N/A |
| 8.11.4 | Mechanical strength test 250N, including end stops | | N/A |
| 8.12 | Telescoping or rod antennas..... | | N/A |
| | Button/Ball diameter (mm).....: | | — |
| **9** | **THERMAL BURN INJURY** | | P |
| 9.2 | Thermal energy source classifications | See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE for details. | P |
| 9.3 | Safeguard against thermal energy sources | | P |
| 9.4 | Requirements for safeguards | | P |
| 9.4.1 | Equipment safeguard | | P |
| 9.4.2 | Instructional safeguard .....: | | N/A |
| **10** | **RADIATION** | | P |
| 10.2 | Radiation energy source classification | | P |
| 10.2.1 | General classification | See ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE for details. | P |
| 10.3 | Protection against laser radiation | Approved class 1 fiber module used. | P |
| | Laser radiation that exists equipment: | | — |
| | Normal, abnormal, single-fault ..... : | | N/A |
| | Instructional safeguard ..... : | | — |
| | Tool..... : | | — |
| 10.4 | Protection against visible, infrared, and UV radiation | | N/A |
| 10.4.1 | General | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.4.1.a) | RS3 for Ordinary and instructed persons .....: | | N/A |
| 10.4.1.b) | RS3 accessible to a skilled person.....: | | N/A |
| | Personal safeguard (PPE) instructional safeguard.....: | | — |
| 10.4.1.c) | Equipment visible, IR, UV does not exceed RS1 . : | | N/A |
| 10.4.1.d) | Normal, abnormal, single-fault conditions .....: | | N/A |
| 10.4.1.e) | Enclosure material employed as safeguard is opaque.....: | | N/A |
| 10.4.1.f) | UV attenuation.....: | | N/A |
| 10.4.1.g) | Materials resistant to degradation UV .....: | | N/A |
| 10.4.1.h) | Enclosure containment of optical radiation.....: | | N/A |
| 10.4.1.i) | Exempt Group under normal operating conditions .....: | | N/A |
| 10.4.2 | Instructional safeguard .....: | | N/A |
| 10.5 | Protection against x-radiation | | N/A |
| 10.5.1 | X- radiation energy source that exists equipment: | | N/A |
| | Normal, abnormal, single fault conditions | | N/A |
| | Equipment safeguards.....: | | N/A |
| | Instructional safeguard for skilled person.....: | | N/A |
| 10.5.3 | Most unfavourable supply voltage to give maximum radiation .....: | | — |
| | Abnormal and single-fault condition .....: | | N/A |
| | Maximum radiation (pA/kg) .....: | | N/A |
| 10.6 | Protection against acoustic energy sources | | N/A |
| 10.6.1 | General | | N/A |
| 10.6.2 | Classification | | N/A |
| | Acoustic output, dB(A).....: | | N/A |
| | Output voltage, unweighted r.m.s.....: | | N/A |
| 10.6.4 | Protection of persons | | N/A |
| | Instructional safeguards .....: | | N/A |
| | Equipment safeguard prevent ordinary person to RS2.....: | | — |
| | Means to actively inform user of increase sound pressure.....: | | — |
| | Equipment safeguard prevent ordinary person to RS2.....: | | — |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.6.5 | Requirements for listening devices (headphones, earphones, etc.) | | N/A |
| 10.6.5.1 | Corded passive listening devices with analog input | | N/A |
| | Input voltage with 94 dB(A) $L_{Aeq}$ acoustic pressure output..... : | | — |
| 10.6.5.2 | Corded listening devices with digital input | | N/A |
| | Maximum dB(A)..... : | | — |
| 10.6.5.3 | Cordless listening device | | N/A |
| | Maximum dB(A)..... : | | — |
| **B** | **NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS** | | P |
| B.2 | Normal Operating Conditions | | P |
| B.2.1 | General requirements..... : | See Test Item Particulars and appended test tables | P |
| | Audio Amplifiers and equipment with audio amplifiers..... : | | N/A |
| B.2.3 | Supply voltage and tolerances | | P |
| B.2.5 | Input test..... : | (See appended table B.2.5) | P |
| B.3 | Simulated abnormal operating conditions | | P |
| B.3.1 | General requirements..... : | (See appended table B.3) | P |
| B.3.2 | Covering of ventilation openings | (See appended table B.3) | P |
| B.3.3 | D.C. mains polarity test | | N/A |
| B.3.4 | Setting of voltage selector..... : | | N/A |
| B.3.5 | Maximum load at output terminals .....: | (See appended table B.3) | P |
| B.3.6 | Reverse battery polarity | | N/A |
| B.3.7 | Abnormal operating conditions as specified in Clause E.2. | | N/A |
| B.3.8 | Safeguards functional during and after abnormal operating conditions | All safeguards remained effectively. | P |
| B.4 | Simulated single fault conditions | | P |
| B.4.2 | Temperature controlling device open or short-circuited..... : | | N/A |
| B.4.3 | Motor tests | | P |
| B.4.3.1 | Motor blocked or rotor locked increasing the internal ambient temperature ..... : | (see appended table B.4) | P |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.4.4 | Short circuit of functional insulation | | P |
| B.4.4.1 | Short circuit of clearances for functional insulation | | P |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | | P |
| B.4.4.3 | Short circuit of functional insulation on coated printed boards | | N/A |
| B.4.5 | Short circuit and interruption of electrodes in tubes and semiconductors | | N/A |
| B.4.6 | Short circuit or disconnect of passive components | | N/A |
| B.4.7 | Continuous operation of components | | N/A |
| B.4.8 | Class 1 and Class 2 energy sources within limits during and after single fault conditions | | P |
| B.4.9 | Battery charging under single fault conditions ... : | | N/A |
| **C** | **UV RADIATION** | | N/A |
| C.1 | Protection of materials in equipment from UV radiation | | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method | | N/A |
| C.2 | UV light conditioning test | | N/A |
| C.2.1 | Test apparatus | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure apparatus | | N/A |
| C.2.4 | Xenon-arc light exposure apparatus | | N/A |
| **D** | **TEST GENERATORS** | | N/A |
| D.1 | Impulse test generators | | N/A |
| D.2 | Antenna interface test generator | | N/A |
| D.3 | Electronic pulse generator | | N/A |
| **E** | **TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS** | | N/A |
| E.1 | Audio amplifier normal operating conditions | | N/A |
| | Audio signal voltage (V) .....: | | — |
| | Rated load impedance (Ω) .....: | | |
| E.2 | Audio amplifier abnormal operating conditions | | N/A |
| **F** | **EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS** | | P |
| F.1 | General requirements | | P |
| | Instructions – Language .....: | English | — |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.2 | Letter symbols and graphical symbols | | P |
| F.2.1 | Letter symbols according to IEC60027-1 | | P |
| F.2.2 | Graphic symbols IEC, ISO or manufacturer specific | | P |
| F.3 | Equipment markings | | P |
| F.3.1 | Equipment marking locations | | P |
| F.3.2 | Equipment identification markings | | P |
| F.3.2.1 | Manufacturer identification .....: | See copy of marking plate | — |
| F.3.2.2 | Model identification .....: | See copy of marking plate | — |
| F.3.3 | Equipment rating markings | | P |
| F.3.3.1 | Equipment with direct connection to mains | | P |
| F.3.3.2 | Equipment without direct connection to mains | | P |
| F.3.3.3 | Nature of supply voltage .....: | See copy of marking plate | — |
| F.3.3.4 | Rated voltage .....: | See copy of marking plate | — |
| F.3.3.4 | Rated frequency.....: | See copy of marking plate | — |
| F.3.3.6 | Rated current or rated power .....: | See copy of marking plate | — |
| F.3.3.7 | Equipment with multiple supply connections | | P |
| 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 ..... : | | N/A |
| F.3.5.3 | Replacement fuse identification and rating markings..... : | Evaluated in approved PSU. | P |
| F.3.5.4 | Replacement battery identification marking ..... : | See manual for details. | P |
| F.3.5.5 | Terminal marking location | | P |
| F.3.6 | Equipment markings related to equipment classification | | P |
| F.3.6.1 | Class I Equipment | | P |
| F.3.6.1.1 | Protective earthing conductor terminal | | P |
| F.3.6.1.2 | Neutral conductor terminal | | N/A |
| F.3.6.1.3 | Protective bonding conductor terminals | | P |
| F.3.6.2 | Class II equipment (IEC60417-5172) | | N/A |
| F.3.6.2.1 | Class II equipment with or without functional earth | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.6.2.2 | Class II equipment with functional earth terminal marking | | N/A |
| F.3.7 | Equipment IP rating marking .....: | IPX0 | — |
| F.3.8 | External power supply output marking | | N/A |
| F.3.9 | Durability, legibility and permanence of marking | Marking is durable and legible.<br>The marking plate has no curling and is not able to be removed easily. | P |
| F.3.10 | Test for permanence of markings | See Enclosure/ Miscellaneous ID 7-01 additional table for details | P |
| F.4 | Instructions | | P |
| | a) Equipment for use in locations where children not likely to be present - marking | | N/A |
| | b) Instructions given for installation or initial use | | P |
| | c) Equipment intended to be fastened in place | | P |
| | d) Equipment intended for use only in restricted access area | | P |
| | e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1 | | N/A |
| | f) Protective earthing employed as safeguard | | P |
| | g) Protective earthing conductor current exceeding ES 2 limits | | N/A |
| | h) Symbols used on equipment | | N/A |
| | i) Permanently connected equipment not provided with all-pole mains switch | | N/A |
| | j) Replaceable components or modules providing safeguard function | | N/A |
| F.5 | Instructional safeguards | | P |
| | Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction | | P |
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches** | | N/A |
| G.1.1 | General requirements | Power button, reset button and LCM board button located on PS1 circuits, see appended table 6.2.2 for details. | N/A |
| G.1.2 | Ratings, endurance, spacing, maximum load | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **G.2** | **Relays** | | N/A |
| G.2.1 | General requirements | | N/A |
| G.2.2 | Overload test | | N/A |
| G.2.3 | Relay controlling connectors supply power | | N/A |
| G.2.4 | Mains relay, modified as stated in G.2 | | N/A |
| **G.3** | **Protection Devices** | | P |
| G.3.1 | Thermal cut-offs | | N/A |
| G.3.1.1a) &b) | Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b) | | N/A |
| G.3.1.1c) | Thermal cut-outs tested as part of the equipment as indicated in c) | | N/A |
| G.3.1.2 | Thermal cut-off connections maintained and secure | | N/A |
| G.3.2 | Thermal links | | N/A |
| G.3.2.1a) | Thermal links separately tested with IEC 60691 | | N/A |
| G.3.2.1b) | Thermal links tested as part of the equipment | | N/A |
| | Aging hours (H) ..... : | | — |
| | Single Fault Condition ..... : | | — |
| | Test Voltage (V) and Insulation Resistance (Ω). : | | — |
| G.3.3 | PTC Thermistors | Approved PTC used | P |
| G.3.4 | Overcurrent protection devices | | N/A |
| G.3.5 | Safeguards components not mentioned in G.3.1 to G.3.5 | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided | | N/A |
| G.3.5.2 | Single faults conditions.....: | | N/A |
| **G.4** | **Connectors** | | P |
| G.4.1 | Spacings | | P |
| G.4.2 | Mains connector configuration .....: | Evaluated in approved PSU. | P |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | | P |
| **G.5** | **Wound Components** | | P |
| G.5.1 | Wire insulation in wound components..... | | N/A |
| G.5.1.2 a) | Two wires in contact inside wound component, angle between 45° and 90° | | N/A |
| G.5.1.2 b) | Construction subject to routine testing | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.5.2 | Endurance test on wound components | | N/A |
| G.5.2.1 | General test requirements | | N/A |
| G.5.2.2 | Heat run test | | N/A |
| | Time (s) .....: | | — |
| | Temperature (°C) .....: | | — |
| G.5.2.3 | Wound Components supplied by mains | | N/A |
| **G.5.3** | **Transformers** | | N/A |
| G.5.3.1 | Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....: | Evaluated in approved PSU. | N/A |
| | Position.....: | | — |
| | Method of protection .....: | | — |
| G.5.3.2 | Insulation | | N/A |
| | Protection from displacement of windings .....: | | — |
| G.5.3.3 | Overload test..... : | | N/A |
| G.5.3.3.1 | Test conditions | | N/A |
| G.5.3.3.2 | Winding Temperatures testing in the unit | | N/A |
| G.5.3.3.3 | Winding Temperatures - Alternative test method | | N/A |
| **G.5.4** | **Motors** | | P |
| G.5.4.1 | General requirements | Approved DC fan used. | P |
| | Position .....: | See appended table 4.1.2 for details | — |
| G.5.4.2 | Test conditions | | N/A |
| G.5.4.3 | Running overload test | | N/A |
| G.5.4.4 | Locked-rotor overload test | | N/A |
| | Test duration (days) .....: | | — |
| G.5.4.5 | Running overload test for d.c. motors in secondary circuits | | N/A |
| G.5.4.5.2 | Tested in the unit | | N/A |
| | Electric strength test (V).....: | | — |
| G.5.4.5.3 | Tested on the Bench - Alternative test method; test time (h) .....: | | N/A |
| | Electric strength test (V).....: | | — |
| G.5.4.6 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| G.5.4.6.2 | Tested in the unit | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Maximum Temperature .....: | | N/A |
| | Electric strength test (V) .....: | | N/A |
| G.5.4.6.3 | Tested on the bench - Alternative test method; test time (h) .....: | | N/A |
| | Electric strength test (V).....: | | N/A |
| G.5.4.7 | Motors with capacitors | | N/A |
| G.5.4.8 | Three-phase motors | | N/A |
| G.5.4.9 | Series motors | | N/A |
| | Operating voltage .....: | | — |
| **G.6** | **Wire Insulation** | | N/A |
| G.6.1 | General | | N/A |
| G.6.2 | Solvent-based enamel wiring insulation | | N/A |
| **G.7** | **Mains supply cords** | | N/A |
| G.7.1 | General requirements | No power supply cord provided. | N/A |
| | Type.....: | | — |
| | Rated current (A).....: | | — |
| | Cross-sectional area ($mm^2$), (AWG) ..... : | | — |
| G.7.2 | Compliance and test method | | N/A |
| G.7.3 | Cord anchorages and strain relief for non-detachable power supply cords | | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements | | N/A |
| | Strain relief test force (N) .....: | | — |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm)....: | | — |
| G.7.3.2.4 | Strain relief comprised of polymeric material | | N/A |
| G.7.4 | Cord Entry ..... : | | N/A |
| G.7.5 | Non-detachable cord bend protection | | N/A |
| G.7.5.1 | Requirements | | N/A |
| G.7.5.2 | Mass (g) ..... : | | — |
| | Diameter (m) .....: | | — |
| | Temperature (°C) .....: | | — |
| G.7.6 | Supply wiring space | | N/A |
| G.7.6.2 | Stranded wire | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.6.2.1 | Test with 8 mm strand | | N/A |
| **G.8** | **Varistors** | | N/A |
| G.8.1 | General requirements | Evaluated in approved PSU. | N/A |
| G.8.2 | Safeguard against shock | | N/A |
| G.8.3 | Safeguard against fire | | N/A |
| G.8.3.2 | Varistor overload test .....: | | N/A |
| G.8.3.3 | Temporary overvoltage .....: | | N/A |
| **G.9** | **Integrated Circuit (IC) Current Limiters** | | N/A |
| G.9.1 a) | Manufacturer defines limit at max. 5A. | | N/A |
| G.9.1 b) | Limiters do not have manual operator or reset | | N/A |
| G.9.1 c) | Supply source does not exceed 250 VA .....: | | — |
| G.9.1 d) | IC limiter output current (max. 5A) .....: | | — |
| G.9.1 e) | Manufacturers' defined drift .....: | | — |
| G.9.2 | Test Program 1 | | N/A |
| G.9.3 | Test Program 2 | | N/A |
| G.9.4 | Test Program 3 | | N/A |
| **G.10** | **Resistors** | | N/A |
| G.10.1 | General requirements | | N/A |
| G.10.2 | Resistor test | | N/A |
| G.10.3 | Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable | | N/A |
| G.10.3.1 | General requirements | | N/A |
| G.10.3.2 | Voltage surge test | | N/A |
| G.10.3.3 | Impulse test | | N/A |
| **G.11** | **Capacitor and RC units** | | N/A |
| G.11.1 | General requirements | | N/A |
| G.11.2 | Conditioning of capacitors and RC units | | N/A |
| G.11.3 | Rules for selecting capacitors | | N/A |
| **G.12** | **Optocouplers** | | N/A |
| | Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....: | Evaluated in approved PSU. | N/A |
| | Type test voltage Vini .....: | | — |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Routine test voltage, Vini,b .....: | | — |
| **G.13** | **Printed boards** | | N/A |
| G.13.1 | General requirements | | N/A |
| G.13.2 | Uncoated printed boards | | N/A |
| G.13.3 | Coated printed boards | | N/A |
| G.13.4 | Insulation between conductors on the same inner surface | | N/A |
| | Compliance with cemented joint requirements (Specify construction).....: | | — |
| G.13.5 | Insulation between conductors on different surfaces | | N/A |
| | Distance through insulation.....: | | N/A |
| | Number of insulation layers (pcs) .....: | | — |
| G.13.6 | Tests on coated printed boards | | N/A |
| G.13.6.1 | Sample preparation and preliminary inspection | | N/A |
| G.13.6.2a) | Thermal conditioning | | N/A |
| G.13.6.2b) | Electric strength test | | N/A |
| G.13.6.2c) | Abrasion resistance test | | N/A |
| **G.14** | **Coating on components terminals** | | N/A |
| G.14.1 | Requirements .....: | | N/A |
| **G.15** | **Liquid filled components** | | N/A |
| G.15.1 | General requirements | | N/A |
| G.15.2 | Requirements | | N/A |
| G.15.3 | Compliance and test methods | | N/A |
| G.15.3.1 | Hydrostatic pressure test | | N/A |
| G.15.3.2 | Creep resistance test | | N/A |
| G.15.3.3 | Tubing and fittings compatibility test | | N/A |
| G.15.3.4 | Vibration test | | N/A |
| G.15.3.5 | Thermal cycling test | | N/A |
| G.15.3.6 | Force test | | N/A |
| G.15.4 | Compliance | | N/A |
| **G.16** | **IC including capacitor discharge function (ICX)** | | N/A |
| a) | Humidity treatment in accordance with sc5.4.8 – 120 hours | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| b) | Impulse test using circuit 2 with Uc = to transient voltage .....: | | N/A |
| C1) | Application of ac voltage at 110% of rated voltage for 2.5 minutes | | N/A |
| C2) | Test voltage .....: | | — |
| D1) | 10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer | | N/A |
| D2) | Capacitance .....: | | — |
| D3) | Resistance .....: | | — |
| **H** | **CRITERIA FOR TELEPHONE RINGING SIGNALS** | | N/A |
| H.1 | General | | N/A |
| H.2 | Method A | | N/A |
| H.3 | Method B | | N/A |
| H.3.1 | Ringing signal | | N/A |
| H.3.1.1 | Frequency (Hz) .....: | | — |
| H.3.1.2 | Voltage (V) .....: | | — |
| H.3.1.3 | Cadence; time (s) and voltage (V) .....: | | — |
| H.3.1.4 | Single fault current (mA): .....: | | — |
| H.3.2 | Tripping device and monitoring voltage .....: | | N/A |
| H.3.2.1 | Conditions for use of a tripping device or a monitoring voltage complied with | | N/A |
| H.3.2.2 | Tripping device | | N/A |
| H.3.2.3 | Monitoring voltage (V) .....: | | — |
| **J** | **INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION** | | N/A |
| | General requirements | | N/A |
| **K** | **SAFETY INTERLOCKS** | | N/A |
| K.1 | General requirements | | N/A |
| K.2 | Components of safety interlock safeguard mechanism ..... | | N/A |
| K.3 | Inadvertent change of operating mode | | N/A |
| K.4 | Interlock safeguard override | | N/A |
| K.5 | Fail-safe | | N/A |
| | Compliance .....: | | N/A |
| K.6 | Mechanically operated safety interlocks | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| K.6.1 | Endurance requirement | | N/A |
| K.6.2 | Compliance and Test method .....: | | N/A |
| K.7 | Interlock circuit isolation | | N/A |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....: | | N/A |
| K.7.2 | Overload test, Current (A) .....: | | N/A |
| K.7.3 | Endurance test | | N/A |
| K.7.4 | Electric strength test .....: | | N/A |
| **L** | **DISCONNECT DEVICES** | | P |
| L.1 | General requirements | Appliance coupler is considered as disconnected device. | P |
| L.2 | Permanently connected equipment | | N/A |
| L.3 | Parts that remain energized | | N/A |
| L.4 | Single phase equipment | | P |
| L.5 | Three-phase equipment | | N/A |
| L.6 | Switches as disconnect devices | | N/A |
| L.7 | Plugs as disconnect devices | | N/A |
| L.8 | Multiple power sources | | P |
| **M** | **EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS** | | P |
| M.1 | General requirements | | P |
| M.2 | Safety of batteries and their cells | | P |
| M.2.1 | Requirements | | P |
| M.2.2 | Compliance and test method (identify method) .. : | See appended table 4.1.2 for RTC battery. | P |
| M.3 | Protection circuits | | P |
| M.3.1 | Requirements | | P |
| M.3.2 | Tests | RTC Battery is protected against charging current by multiple components. | P |
| | - Overcharging of a rechargeable battery | | N/A |
| | - Unintentional charging of a non-rechargeable battery | | P |
| | - Reverse charging of a rechargeable battery | | N/A |
| | - Excessive discharging rate for any battery | | N/A |
| M.3.3 | Compliance .....: | (See appended Tables annex M) | P |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.4 | Additional safeguards for equipment containing secondary lithium battery | | N/A |
| M.4.1 | General | | N/A |
| M.4.2 | Charging safeguards | | N/A |
| M.4.2.1 | Charging operating limits | | N/A |
| M.4.2.2a) | Charging voltage, current and temperature .....: | | — |
| M.4.2.2 b) | Single faults in charging circuitry .....: | | — |
| M.4.3 | Fire Enclosure | | N/A |
| M.4.4 | Endurance of equipment containing a secondary lithium battery | | N/A |
| M.4.4.2 | Preparation | | N/A |
| M.4.4.3 | Drop and charge/discharge function tests | | N/A |
| | Drop | | N/A |
| | Charge | | N/A |
| | Discharge | | N/A |
| M.4.4.4 | Charge-discharge cycle test | | N/A |
| M.4.4.5 | Result of charge-discharge cycle test | | N/A |
| M.5 | Risk of burn due to short circuit during carrying | | N/A |
| M.5.1 | Requirement | | N/A |
| M.5.2 | Compliance and Test Method (Test of P.2.3) | | N/A |
| M.6 | Prevention of short circuits and protection from other effects of electric current | | N/A |
| M.6.1 | Short circuits | | N/A |
| M.6.1.1 | General requirements | | N/A |
| M.6.1.2 | Test method to simulate an internal fault | | N/A |
| M.6.1.3 | Compliance (Specify M.6.1.2 or alternative method) .....: | | N/A |
| M.6.2 | Leakage current (mA) .....: | | N/A |
| M.7 | Risk of explosion from lead acid and NiCd batteries | | N/A |
| M.7.1 | Ventilation preventing explosive gas concentration | | N/A |
| M.7.2 | Compliance and test method | | N/A |
| M.8 | Protection against internal ignition from external spark sources of lead acid batteries | | N/A |
| M.8.1 | General requirements | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.8.2 | Test method | | N/A |
| M.8.2.1 | General requirements | | N/A |
| M.8.2.2 | Estimation of hypothetical volume *Vz* ($m^3$/s)..... : | | — |
| M.8.2.3 | Correction factors..... : | | — |
| M.8.2.4 | Calculation of distance *d* (mm) ..... : | | — |
| M.9 | Preventing electrolyte spillage | | N/A |
| M.9.1 | Protection from electrolyte spillage | | N/A |
| M.9.2 | Tray for preventing electrolyte spillage | | N/A |
| M.10 | Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... : | Complied by inspection and data review | P |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | P |
| | Metal(s) used ..... : | The combined electrochemical potential is below 0.6V. | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | N/A |
| | Figures O.1 to O.20 of this Annex applied..... : | Pollution degree considered | — |
| **P** | **SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS** | | P |
| P.1 | General requirements | | P |
| P.2.2 | Safeguards against entry of foreign object | | N/A |
| | Location and Dimensions (mm) ..... : | | — |
| P.2.3 | Safeguard against the consequences of entry of foreign object | | P |
| P.2.3.1 | Safeguards against the entry of a foreign object | Within the projected volume as depicted in Figure P.3, there were no PIS, nor bare conductive parts of ES3 or PS3 circuits. | P |
| | Openings in transportable equipment | | N/A |
| | Transportable equipment with metalized plastic parts ..... : | | N/A |
| P.2.3.2 | Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... : | | N/A |
| P.3 | Safeguards against spillage of internal liquids | | N/A |
| P.3.1 | General requirements | | N/A |
| P.3.2 | Determination of spillage consequences | | N/A |
| P.3.3 | Spillage safeguards | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| P.3.4 | Safeguards effectiveness | | N/A |
| P.4 | Metallized coatings and adhesive securing parts | | N/A |
| P.4.2 a) | Conditioning testing | | N/A |
| | Tc (°C) ..... : | | — |
| | Tr (°C) ..... : | | — |
| | Ta (°C) ..... : | | — |
| P.4.2 b) | Abrasion testing ..... : | | N/A |
| P.4.2 c) | Mechanical strength testing ..... : | | N/A |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | P |
| Q.1 | Limited power sources | (See appended table Q.1) | P |
| Q.1.1 a) | Inherently limited output | (See appended table Q.1) | P |
| Q.1.1 b) | Impedance limited output | (See appended table Q.1) | P |
| | - Regulating network limited output under normal operating and simulated single fault condition | | N/A |
| Q.1.1 c) | Overcurrent protective device limited output | | N/A |
| Q.1.1 d) | IC current limiter complying with G.9 | | N/A |
| Q.1.2 | Compliance and test method | (See appended table Q.1) | P |
| Q.2 | Test for external circuits – paired conductor cable | | N/A |
| | Maximum output current (A) ..... : | | — |
| | Current limiting method ..... : | | — |
| **R** | **LIMITED SHORT CIRCUIT TEST** | | N/A |
| R.1 | General requirements | | N/A |
| R.2 | Determination of the overcurrent protective device and circuit | | N/A |
| R.3 | Test method Supply voltage (V) and short-circuit current (A)). ..... : | | N/A |
| **S** | **TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| S.1 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | | N/A |
| | Samples, material ..... : | | — |
| | Wall thickness (mm) ..... : | | — |
| | Conditioning (°C) ..... : | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - Material not consumed completely | | N/A |
| | - Material extinguishes within 30s | | N/A |
| | - No burning of layer or wrapping tissue | | N/A |
| S.2 | Flammability test for fire enclosure and fire barrier integrity | | N/A |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |
| | Test specimen does not show any additional hole | | N/A |
| S.3 | Flammability test for the bottom of a fire enclosure | | N/A |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Cheesecloth did not ignite | | N/A |
| S.4 | Flammability classification of materials | | N/A |
| S.5 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | | N/A |
| | Samples, material .....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (test condition), (°C).....: | | — |
| | Test flame according to IEC 60695-11-20 with conditions as set out | | N/A |
| | After every test specimen was not consumed completely | | N/A |
| | After fifth flame application, flame extinguished within 1 min | | N/A |
| **T** | **MECHANICAL STRENGTH TESTS** | | P |
| T.1 | General requirements | | P |
| T.2 | Steady force test, 10 N .....: | | N/A |
| 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 | | P |

| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Fall test | (See appended table T.6) | P |
| | Swing test | | N/A |
| T.7 | Drop test .....: | | N/A |
| T.8 | Stress relief test .....: | | N/A |
| T.9 | Impact Test (glass) | | N/A |
| T.9.1 | General requirements | | N/A |
| T.9.2 | Impact test and compliance | | N/A |
| | Impact energy (J).....: | | — |
| | Height (m) .....: | | — |
| T.10 | Glass fragmentation test .....: | | N/A |
| T.11 | Test for telescoping or rod antennas | | N/A |
| | Torque value (Nm) .....: | | — |
| **U** | **MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION** | | N/A |
| U.1 | General requirements | | N/A |
| U.2 | Compliance and test method for non-intrinsically protected CRTs | | N/A |
| U.3 | Protective Screen .....: | | N/A |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)** | | P |
| V.1 | Accessible parts of equipment | | P |
| V.2 | Accessible part criterion | | P |

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

| 4.1.2 | TABLE: List of critical components | | | | P |
|---|---|---|---|---|---|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity[1] |
| 01. Switching Power Supply (for ODS2 DUAL use) | Zippy Technology Corp. | MRW-6420P | I/P: 100-240Vac, 8-4A, 47-63Hz, O/P: +5V/35A, +12V/28A, +3.3V/0-25A, -5V/0-0.5A, -12V/0-1.2A, +5VSB/0-2A; +5V and +3.3V total max.:48A, +3.3V and +12V total max.:48A, +5V, +3.3V and +12V total max: 398W Total output power continuous shall not exceed 420 watts. Altitude: 3100m | EN 62368-1: 2014/A11:2017, IEC 62368-1: 2014 | CB by UL |
| 01a. Alternate Switching Power Supply (for ODS2 DUAL use) | Zippy Technology Corp. | DMRW-6400F | I/P: -42Vdc- -72Vdc, 14A O/P: +5V/32A, +12V/25A, +3.3V/ 0-25A, -5V/0-0.5A, -12V/0-1.2A, +5VSB/0-2A; +5V and +3.3V total max:45A, +5V, +3.3V and +12V total max:375W Total output power continuous shall not exceed 400 watts. Altitude: 2000m | IEC 60950-1: 2005+A1+A2 | CB by TUV R |

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

| | | | | | |
|---|---|---|---|---|---|
| 02. Switching Power Supply (for ODS2 use) | Zippy Technology Corp. | P1H-6350P | I/P: 100-240Vac, 60-50Hz, 8-5A,<br>O/P: +5V/25A, +12V/22-28A, +3.3V/20A, +5VSB/2A, -5V/ 0.5A, -12V/0.5A;<br>+5 and +3.3 V total max:175W,<br>Total output power continuous shall not exceed 350 watts.<br>Altitude: 2000m | IEC 60950-1: 2005+A1+A2 | CB by TUV R |
| 02a. Alternate Switching Power Supply (for ODS2 use) | Zippy Technology Corp. | DP1H-6350F | I/P: -36Vdc- -72Vdc, 17A<br>O/P: +5V/35A, +12V/22A, +3.3V/0-20A, -5V/0-0.5A, -12V/0-0.5A, +5VSB/0-2A;<br>+5 and +3.3V total max:40A<br>Total output power continuous shall not exceed 350 watts.<br>Altitude: 3000m | IEC 60950-1: 2005+A1+A2 | CB by TUV R |
| 03. Enclosure (for ODS2 DUAL use) | Interchangeable | Interchangeable | Steel, thickness 1.0 mm min., see Enclosure / Diagrams ID 4-01 for details. | -- | -- |
| 03a. Alternate Enclosure (for ODS2 use) | Interchangeable | Interchangeable | Steel, thickness 1.0 mm min., see Enclosure / Diagrams ID 4-02 for details. | -- | -- |
| 04. Ear sets (Optional) (Two provided) (for ODS2 DUAL use) | Interchangeable | Interchangeable | Iron or steel, thickness 3.0mm min., see Enclosure / Diagrams ID 4-03 for details. | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 04a. Ear sets (Optional) (Two provided) (for ODS2 use) | Interchangeable | Interchangeable | SECC, thickness 3.0mm min., see Enclosure / Diagrams ID 4-04 for details. | -- | -- |
| 05. Mainboard | -- | -- | See below. | -- | -- |
| 05-1. CPU Cooler (Two provided) (for ODS2 DUAL use) | -- | -- | See below. | -- | -- |
| 05-1-1. CPU Heat sink | Interchangeable | Interchangeable | Aluminium and Cu, see Enclosure/ Diagrams ID 4-05 for details. | -- | -- |
| 05-1-2. CPU Fan #12, #13 (2 provided max.) | Everflow Precision Electronic (Dong Guan) Co., Ltd. | F126025DU | 12Vdc, 0.26A max., 24.49CFM min. Fan location see Enclosure / Miscellaneous 7-02 for details | UL 507, EN 62368-1: 2014 | UL, TUV |
| 05-2. CPU Heatsink (One provided) (for ODS2 use) | Interchangeable | Interchangeable | Aluminium and Cu, see Enclosure / Diagrams ID 4-06 for details | -- | -- |
| 05-3. Heatsink (U13) (One provided) | Interchangeable | Interchangeable | Aluminium, see Enclosure / Diagrams ID 4-07 for details | -- | -- |
| 05-4. Heatsink (U34) (Three provided) | Interchangeable | Interchangeable | Aluminium, see Enclosure / Diagrams ID 4-08 for details | -- | -- |
| 05-5. Heatsink (UZ3, UZ4, UZ5) (Three provided) | Interchangeable | Interchangeable | Aluminium, see Enclosure / Diagrams ID 4-09 for details | -- | -- |
| 05-6. Polyswitch (F3) for USB 2.0 port | POLYTRONICS TECHNOLOGY CORP | SMD1812P260 TFT($) | 8Vdc, Ih: 2.6A, CA=3 | UL 1434, EN 60730-1 (2016) | UL, TUV |
| 05-6a. Alternate Polyswitch (F3) for USB 2.0 port | Interchangeable | Interchangeable | 8Vdc, Ih: 2.6A, CA=3 | UL 1434, EN 60730-1 (2016) | UL, TUV |

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

| | | | | | |
|---|---|---|---|---|---|
| 05-7. RTC Battery (BAT1) | Interchangeable | CR2032, CR2032*, CR-2032*, CR2032X*, CR2032HT, BR2032, BR2032*, BR-2032*, | Maximum abnormal charging current 5mA minimum, Non- rechargeable and protected by one diode (D4) and one resistor (R52, 1K ohm) | UL 1642 | UL |
| 06. PCIe Card (on Extension board) (for ODS2 DUAL use) | -- | -- | See below. | -- | -- |
| 06-1. Chipset Heatsink (One provided) | Interchangeable | Interchangeable | Aluminum, overall 18.5 by 18.5 by 7.6mm, fins 0.5mm, see Enclosure / Photographs ID 3-26 for details | -- | -- |
| 07. System Fan #1, #6, #7, #8, #9 (#1, #7, #8 are optional) (Five provided for ODS2 DUAL use); #1, #6, #7, #8, #9 (#1, #7, #8 are optional) (Five provided for ODS2 use) | Sunonwealth Electric Machine Industry Co., Ltd. | GM1204PQB1-8A | 12Vdc, 2.6W max., 15.3CFM min. Fan location see Enclosure / Miscellaneous 7-02 for details | UL 507, EN 62368-1: 2014 | UL, TUV |
| 08. System Fan #2 (Optional) (One provided for ODS2 DUAL use); #2, #3, #4, #5 (Four provided for ODS2 use) | Sunonwealth Electric Machine Industry Co., Ltd. | PMD1204WQB2-A | 12Vdc, 7W max., 22CFM min. Fan location see Enclosure / Miscellaneous 7-02 for details | UL 507, EN 62368-1: 2014 | UL, TUV |
| 08a. Alternate System Fan #2 (Optional) (One provided for ODS2 DUAL use); #2, #3, #4, #5 (Four provided for ODS2 use) | Everflow Precision Electronic (Dong Guan) Co., Ltd. | R124028BU(2) | 12Vdc, 0.9A max., 25.55CFM min. Fan location see Enclosure / Miscellaneous 7-02 for details | UL 507, EN 62368-1: 2014 | UL, TUV |

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

| | | | | | |
|---|---|---|---|---|---|
| 09. System Fan #10, #11 (Two provided) | Sunonwealth Electric Machine Industry Co., Ltd. | 124010VM-8 | 12Vdc, 0.9W max., 6CFM min. Fan location see Enclosure / Miscellaneous 7-02 for details | UL 507, EN 62368-1: 2014 | UL, TUV |
| 10. PWB | Interchangeable | Interchangeable | Rated V-1 min., 105 °C min. | UL 796 | UL |
| 11. HDD (Optional) | Western Digital Technologies Inc. | WD2503ABYX | Generic 5Vdc, 0.65A; 12Vdc, 0.5A maximum; One provided maximum for 3.5” | UL 60950-1, IEC 60950-1: 2005+A1+A2 | UL, TUV |
| 11a. Alternate HDD (Optional) | Interchangeable | Interchangeable | Generic 5V, 1.5A; 12V, 1.5A maximum; one provided maximum for 3.5” or two provided maximum for 2.5” | UL 60950-1, IEC 60950-1: 2005+A1+A2 EN 62368-1: 2014/A11:2017, IEC 62368-1: 2014, UL 62368-1 | UL, TUV |
| 11b. Alternate SSD (Optional) | Interchangeable | Interchangeable | Generic 5V, 1.5A; 12V, 1.5A maximum; two provided maximum | -- | -- |
| 12. Internal Wiring | Interchangeable | Interchangeable | FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1 or FT-1, 30V, min. 60 degree C for ES1 circuit wiring. | UL 758, IEC 60332-1-2 (2015), IEC 60332-1-3 (2015), IEC 60332-2-2 (2004), IEC/TS 60695-11-21 (2005) | UL, CB scheme |
| 13.Interconnecting Cable (Optional) | Interchangeable | Interchangeable | Minimum 60 degree C, 30V minimum, maximum 3.05 m long, VW-1 or FT-1 or better | UL 758, UL 1863, IEC 60332-1-2 (2015), IEC 60332-1-3 (2015), IEC 60332-2-2 (2004), IEC/TS 60695-11-21 (2005) | UL, CB scheme |

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

| | | | | | |
|---|---|---|---|---|---|
| 14. Connectors and Receptacles (ES1 circuits for filling fire enclosure opening) | Interchangeable | Interchangeable | 1) Metal/Plastic Copper alloy pins housed in bodies of plastic rated V-1 min. , or<br>2) Metal/Plastic Copper alloy pins housed in bodies of plastic rated V-2 min. and the whole port was covered by metal shielding. | UL94 | UL |
| 14a. Connectors and Receptacles (ES1 circuits not for filling fire enclosure opening) (Alternate) | Interchangeable | Interchangeable | Metal/Plastic Copper alloy pins housed in bodies of plastic rated V-2 min. | UL 94 | UL |
| 14b. Connectors and Receptacles (ES1 circuits) (Alternate) | Interchangeable | Interchangeable | -- | UL 1977,<br>UL 1863 | UL |
| 15. Optical Transceiver Module (Optional) | Finisar Corporation | FTLX2471DC0Y<br>Yaaa (YY=27, 29, 31, 33; a=0-9, A-Z, blank) | 3.3Vdc.<br>"CLASS 1 LASER PRODUCT". | IEC 60950-1: 2013,<br>IEC 62368-1:2014<br>IEC/EN 60825-1: 2014,<br>IEC/EN 60825-2:2006,<br>UL 60950-1,<br>UL 62368-1 | UL, CB by TUV |
| 15a. Alternate Optical Transceiver Module (Optional) | Interchangeable | Interchangeable | 3.3Vdc.<br>"CLASS 1 LASER PRODUCT". | UL 60950-1,<br>IEC 60950-1: 2005+A1+A2,<br>UL 62368-1,<br>IEC 62368-1:2014 | UL, TUV |

Supplementary information:

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

[2)] Description line content is optional. Main line description needs to clearly detail the component used for testing

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

| | | | |
|---|---|---|---|
| **4.8.4, 4.8.5** | **TABLE: Lithium coin/button cell batteries mechanical tests** | | **N/A** |
| **(The following mechanical tests are conducted in the sequence noted.)** | | | |
| **4.8.4.2** | **TABLE: Stress Relief test** | | — |
| **Part** | **Material** | **Oven Temperature (°C)** | **Comments** |
| -- | -- | -- | -- |
| **4.8.4.3** | **TABLE: Battery replacement test** | | — |
| Battery part no.....: | | -- | — |
| Battery Installation/withdrawal | | Battery Installation/Removal Cycle | Comments |
| | | 1 | -- |
| | | 2 | -- |
| | | 3 | -- |
| | | 4 | -- |
| | | 5 | -- |
| | | 6 | -- |
| | | 8 | -- |
| | | 9 | -- |
| | | 10 | -- |
| **4.8.4.4** | **TABLE: Drop test** | | — |
| Impact Area | Drop Distance | Drop No. | Observations |
| -- | -- | 1 | -- |
| -- | -- | 2 | -- |
| -- | -- | 3 | -- |
| **4.8.4.5** | **TABLE: Impact** | | — |
| **Impacts per surface** | **Surface tested** | **Impact energy (Nm)** | **Comments** |
| -- | -- | -- | -- |
| -- | -- | -- | -- |
| -- | -- | -- | -- |
| **4.8.4.6** | **TABLE: Crush test** | | — |
| **Test position** | **Surface tested** | **Crushing Force (N)** | **Duration force applied (s)** |
| -- | -- | -- | -- |
| -- | -- | -- | -- |

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

Supplementary information:

| 4.8.5 | TABLE: Lithium coin/button cell batteries mechanical test result | | N/A |
|---|---|---|---|
| **Test position** | **Surface tested** | **Force (N)** | **Duration force applied (s)** |
| -- | -- | -- | -- |
| Supplementary information: | | | |

| 5.2 | Table: Classification of electrical energy sources | | | | | P |
|---|---|---|---|---|---|---|
| 5.2.2.2 – Steady State Voltage and Current conditions | | | | | | |
| No. | Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | ES Class |
| | | | | U (Vrms or Vpk) | I (Apk or Arms) / Hz | |
| (For ODS2 DUAL) | | | | | | |
| 1 | 264Vac / 63Hz (with power model: MRW-6420P) | Output connector + to – (all output terminals were considered) | Normal | 4.97Vdc | -- / -- | ES1 |
| | | | Abnormal See Table B.3 for details | 4.97Vdc | -- / -- | |
| | | | Single fault – See Table B.4 for details | 4.97Vdc | -- / -- | |
| 2 | -72Vdc (with power model: DMRW-6400F) | Output connector + to – (all output terminals were considered) | Normal | 4.97Vdc | -- / -- | ES1 |
| | | | Abnormal See Table B.3 for details | 4.97Vdc | -- / -- | |
| | | | Single fault – See Table B.4 for details | 4.97Vdc | -- / -- | |
| 3 | 264Vac / 63Hz (with power model: MRW-6420P) | Front enclosure decorated Plastic part | Normal | -- | Max. 0.01mAPk / -- | ES1 |
| | | | Abnormal See Table B.3 for details | -- | Max. 0.01mAPk / -- | |

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Single fault – See Table B.4 for details | -- | Max. 0.01mAPk | -- | |
| 4 | -72Vdc (with power model: DMRW-6400F) | Front enclosure decorated Plastic part | Normal | -- | Max. 0.01mAPk | -- | ES1 |
| | | | Abnormal See Table B.3 for details | -- | Max. 0.01mAPk | -- | |
| | | | Single fault – See Table B.4 for details | -- | Max. 0.01mAPk | -- | |
| (For ODS2) | | | | | | | |
| 5 | 264Vac / 60Hz (with power model: P1H-6350P) | Output connector + to – (all output terminals were considered) | Normal | 4.97Vdc | -- | -- | ES1 |
| | | | Abnormal See Table B.3 for details | 4.97Vdc | -- | -- | |
| | | | Single fault – See Table B.4 for details | 4.97Vdc | -- | -- | |
| 6 | -72Vdc (with power model: DP1H-6350F) | Output connector + to – (all output terminals were considered) | Normal | 4.97Vdc | -- | -- | ES1 |
| | | | Abnormal See Table B.3 for details | 4.97Vdc | -- | -- | |
| | | | Single fault – See Table B.4 for details | 4.97Vdc | -- | -- | |
| 7 | 264Vac / 60Hz (with power model: P1H-6350P) | Front enclosure decorated Plastic part | Normal | -- | Max. 0.01mAPk | -- | ES1 |
| | | | Abnormal See Table B.3 for details | -- | Max. 0.01mAPk | -- | |
| | | | Single fault – See Table B.4 for details | -- | Max. 0.01mAPk | -- | |

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8 | -72Vdc (with power model: DP1H-6350F) | Front enclosure decorated Plastic part | Normal | -- | Max. 0.01mAPk | -- | ES1 |
| | | | Abnormal See Table B.3 for details | -- | Max. 0.01mAPk | -- | |
| | | | Single fault – See Table B.4 for details | -- | Max. 0.01mAPk | -- | |

5.2.2.3 - Capacitance Limits

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

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

Test Conditions:

Normal –

Abnormal -

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

Note,

- For table 5.2.2.2 Parameters, only show out the worst condition and its measured value, for more abnormal and single fault condition and its test result, see table B.3 & B.4 for details.
- Overload Test conducted on USB2.0-1 and USB3.0-1 for represent the other USB ports, due to there are identical circuits
- System fan location please refer table B.4 Supplementary information for details.

| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Temperature measurements** | | | | | P |
|---|---|---|---|---|---|---|
| | Supply voltage (V) ..... : | See below | See below | See below | -- | — |
| | Ambient $T_{min}$ (°C) ..... : | See below | See below | See below | -- | — |
| | Ambient $T_{max}$ (°C) ..... : | -- | -- | -- | -- | — |
| | Tma (°C) ..... : | -- | -- | -- | -- | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | Allowed $T_{max}$ (°C) |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT** Test item : Normal Heating 90Vac/63Hz, (for ODS2 DUAL, with power model : MRW-6420P(1 power, bottom), power 80% load) | | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | | 21.3 | 25.0 | 50.0 | -- | - |
| **For power** | | -- | -- | -- | -- | -- |
| 02.T2 coil | | 52.7 | 56.4 | 81.4 | -- | --/105 |
| 03.C42 body | | 49.6 | 53.3 | 78.3 | -- | --/85 |
| 04.T5 coil | | 52.9 | 56.6 | 81.6 | -- | --/105 |
| 05.T3 coil | | 78.7 | 82.4 | 107.4 | -- | --/110 |
| 06.T3 core | | 69.4 | 73.1 | 98.1 | -- | --/110 |
| 07.T4 coil | | 73.1 | 76.8 | 101.8 | -- | --/110 |
| 08.T4 core | | 71.7 | 75.4 | 100.4 | -- | --/110 |
| 09.Metal chassis near DC fan | | 34.2 | 37.9 | 62.9 | -- | 60/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| 10.Handle | 31.5 | 35.2 | 60.2 | -- | 60/-- |
| 11.AC inlet | 30.7 | 34.4 | 59.4 | -- | 77/70 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 37.6 | 41.3 | 66.3 | -- | --/105 |
| 13.L1 coil | 49.5 | 53.2 | 78.2 | -- | --/105 |
| 14.RTC | 31.9 | 35.6 | 60.6 | -- | --/100 |
| 15.PWB near U25 | 40.7 | 44.4 | 69.4 | -- | --/105 |
| 16.L12 coil | 42.0 | 45.7 | 70.7 | -- | --/105 |
| 17.PWB near U41 | 37.9 | 41.6 | 66.6 | -- | --/105 |
| 18.L20 coil | 40.5 | 44.2 | 69.2 | -- | --/105 |
| 19.PWB near F3 | 30.9 | 34.6 | 59.6 | -- | --/105 |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 38.5 | 42.2 | 67.2 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 32.5 | 36.2 | 61.2 | -- | --/105 |
| 22.Metal enclosure outside near Power | 25.3 | 29.0 | 54.0 | -- | 60/-- |
| 23.Metal enclosure outside near U25,U41 | 28.1 | 31.8 | 56.8 | -- | 60/-- |
| 24.Metal enclosure outside near USB2.0 | 27.2 | 30.9 | 55.9 | -- | 60/-- |
| 25.Power button | 28.1 | 31.8 | 56.8 | -- | 77/-- |
| 26.Right handle | 26.2 | 29.9 | 54.9 | -- | 60/-- |
| Test duration: | 1.1hrs | 1.1hrs | 1.1hrs | -- | -- |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating 264Vac/63Hz, (for ODS2 DUAL, with power model : MRW-6420P(1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.5 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 37.7 | 41.2 | 66.2 | -- | --/105 |
| 03.C42 body | 39.9 | 43.4 | 68.4 | -- | --/85 |
| 04.T5 coil | 40.8 | 44.3 | 69.3 | -- | --/105 |
| 05.T3 coil | 80.1 | 83.6 | 108.6 | -- | --/110 |

| EN 62368-1 | | | | | |
|---|---|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | | | Verdict |
| 06.T3 core | 73.7 | 77.2 | 102.2 | -- | --/110 |
| 07.T4 coil | 67.6 | 71.1 | 96.1 | -- | --/110 |
| 08.T4 core | 63.2 | 66.7 | 91.7 | -- | --/110 |
| 09.Metal chassis near DC fan | 32.3 | 35.8 | 60.8 | -- | 60/-- |
| 10.Handle | 29.7 | 33.2 | 58.2 | -- | 60/-- |
| 11.AC inlet | 27.4 | 30.9 | 55.9 | -- | 77/70 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 37.9 | 41.4 | 66.4 | -- | --/105 |
| 13.L1 coil | 50.3 | 53.8 | 78.8 | -- | --/105 |
| 14.RTC | 31.2 | 34.7 | 59.7 | -- | --/100 |
| 15.PWB near U25 | 41.1 | 44.6 | 69.6 | -- | --/105 |
| 16.L12 coil | 42.9 | 46.4 | 71.4 | -- | --/105 |
| 17.PWB near U41 | 38.3 | 41.8 | 66.8 | -- | --/105 |
| 18.L20 coil | 40.3 | 43.8 | 68.8 | -- | --/105 |
| 19.PWB near F3 | 31.2 | 34.7 | 59.7 | -- | --/105 |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 37.4 | 40.9 | 65.9 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 32.8 | 36.3 | 61.3 | -- | --/105 |
| 22.Metal enclosure outside near Power | 25.8 | 29.3 | 54.3 | -- | 60/-- |
| 23.Metal enclosure outside near U25,U41 | 28.3 | 31.8 | 56.8 | -- | 60/-- |
| 24.Metal enclosure outside near USB2.0 | 27.7 | 31.2 | 56.2 | -- | 60/-- |
| 25.Power button | 28.2 | 31.7 | 56.7 | -- | 77/-- |
| 26.Right handle | 26.2 | 29.7 | 54.7 | -- | 60/-- |
| Test duration: | 1.1hrs | 1.1hrs | 1.1hrs | -- | -- |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating -36Vdc (for ODS2 DUAL, with power model : DMRW-6400F(1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 02.T2 coil | 40.3 | 44.0 | 69.0 | -- | --/105 |
| 03.PWB near H3 | 61.8 | 65.5 | 90.5 | -- | --/105 |
| 04.T3 coil | 46.0 | 49.7 | 74.7 | -- | --/110 |
| 05.T3 core | 37.0 | 40.7 | 65.7 | -- | --/110 |
| 06.T4 coil | 51.8 | 55.5 | 80.5 | -- | --/110 |
| 07.T4 core | 48.2 | 51.9 | 76.9 | -- | --/110 |
| 08.C42A body | 37.7 | 41.4 | 66.4 | -- | --/85 |
| 09.Handle | 28.7 | 32.4 | 57.4 | -- | 60/-- |
| 10.DC terminal | 25.8 | 29.5 | 54.5 | -- | 77/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 11.CE3 body | 35.1 | 38.8 | 63.8 | -- | --/105 |
| 12.L1 coil | 46.7 | 50.4 | 75.4 | -- | --/105 |
| 13.RTC | 29.6 | 33.3 | 58.3 | -- | --/100 |
| 14.PWB near U25 | 41.6 | 45.3 | 70.3 | -- | --/105 |
| 15.L12 coil | 40.6 | 44.3 | 69.3 | -- | --/105 |
| 16.PWB near U41 | 36.2 | 39.9 | 64.9 | -- | --/105 |
| 17.L20 coil | 39.2 | 42.9 | 67.9 | -- | --/105 |
| 18.PWB near F3 | 30.2 | 33.9 | 58.9 | -- | --/105 |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 37.1 | 40.8 | 65.8 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 20.PWB near U20 | 31.7 | 35.4 | 60.4 | -- | --/105 |
| 21.Metal enclosure outside near Power | 26.0 | 29.7 | 54.7 | -- | 60/-- |
| 22.Metal enclosure outside near U25,U41 | 27.3 | 31.0 | 56.0 | -- | 60/-- |
| 23.Metal enclosure outside near USB2.0 | 27.0 | 30.7 | 55.7 | -- | 60/-- |
| 24.Power button | 27.6 | 31.3 | 56.3 | -- | 77/-- |
| 25.Right handle | 25.7 | 29.4 | 54.4 | -- | 60/-- |
| Test duration: | 1.2hrs | 1.2hrs | 1.2hrs | -- | -- |

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

| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating -72Vdc (for ODS2 DUAL, with power model : DMRW-6400F(1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
|---|---|---|---|---|---|
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 37.0 | 40.7 | 65.7 | -- | --/105 |
| 03.PWB near H3 | 63.6 | 67.3 | 92.3 | -- | --/105 |
| 04.T3 coil | 42.9 | 46.6 | 71.6 | -- | --/110 |
| 05.T3 core | 35.0 | 38.7 | 63.7 | -- | --/110 |
| 06.T4 coil | 52.8 | 56.5 | 81.5 | -- | --/110 |
| 07.T4 core | 48.7 | 52.4 | 77.4 | -- | --/110 |
| 08.C42A body | 34.9 | 38.6 | 63.6 | -- | --/85 |
| 09.Handle | 27.7 | 31.4 | 56.4 | -- | 60/-- |
| 10.DC terminal | 24.8 | 28.5 | 53.5 | -- | 77/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 11.CE3 body | 34.3 | 38.0 | 63.0 | -- | --/105 |
| 12.L1 coil | 46.2 | 49.9 | 74.9 | -- | --/105 |
| 13.RTC | 29.1 | 32.8 | 57.8 | -- | --/100 |
| 14.PWB near U25 | 41.0 | 44.7 | 69.7 | -- | --/105 |
| 15.L12 coil | 40.1 | 43.8 | 68.8 | -- | --/105 |
| 16.PWB near U41 | 36.3 | 40.0 | 65.0 | -- | --/105 |
| 17.L20 coil | 38.6 | 42.3 | 67.3 | -- | --/105 |
| 18.PWB near F3 | 29.7 | 33.4 | 58.4 | -- | --/105 |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 37.0 | 40.7 | 65.7 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 20.PWB near U20 | 31.2 | 34.9 | 59.9 | -- | --/105 |
| 21.Metal enclosure outside near Power | 25.4 | 29.1 | 54.1 | -- | 60/-- |
| 22.Metal enclosure outside near U25,U41 | 27.0 | 30.7 | 55.7 | -- | 60/-- |
| 23.Metal enclosure outside near USB2.0 | 26.8 | 30.5 | 55.5 | -- | 60/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| 24.Power button | 27.2 | 30.9 | 55.9 | -- | 77/-- |
| 25.Right handle | 25.3 | 29.0 | 54.0 | -- | 60/-- |
| Test duration: | 1.2hrs | 1.2hrs | 1.2hrs | -- | -- |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating 90Vac/60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 22.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 81.7 | 84.4 | 109.4 | -- | --/130 |
| 03.LF1 coil | 70.9 | 73.6 | 98.6 | -- | --/105 |
| 04.H2 body (touch PWB) | 65.7 | 68.4 | 93.4 | -- | --/130 |
| 05.T2 coil | 64.5 | 67.2 | 92.2 | -- | --/105 |
| 06.C35 body | 52.2 | 54.9 | 79.9 | -- | --/85 |
| 07.T4 coil | 73.1 | 75.8 | 100.8 | -- | --/110 |
| 08.T4 core | 52.6 | 55.3 | 80.3 | -- | --/110 |
| 09.T3 coil | 59.7 | 62.4 | 87.4 | -- | --/110 |
| 10.L7 coil | 54.3 | 57.0 | 82.0 | -- | --/105 |
| 11.AC inlet | 37.1 | 39.8 | 64.8 | -- | 77/70 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 33.8 | 36.5 | 61.5 | -- | --/105 |
| 13.L1 coil | 41.6 | 44.3 | 69.3 | -- | --/105 |
| 14.RTC | 29.8 | 32.5 | 57.5 | -- | --/100 |
| 15.PWB near U25 | 29.8 | 32.5 | 57.5 | -- | --/105 |
| 16.L12 coil | 30.7 | 33.4 | 58.4 | -- | --/105 |
| 17.PWB near F3 | 28.7 | 31.4 | 56.4 | -- | --/105 |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 25.8 | 28.5 | 53.5 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 30.8 | 33.5 | 58.5 | -- | --/105 |
| 20.Metal enclosure outside near Power | 24.9 | 27.6 | 52.6 | -- | 60/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| 21.Metal enclosure outside near U25 | 26.3 | 29.0 | 54.0 | -- | 60/-- |
| 22.Metal enclosure outside near USB2.0 | 26.7 | 29.4 | 54.4 | -- | 60/-- |
| 23.Power button | 26.3 | 29.0 | 54.0 | -- | 77/-- |
| Test duration: | 1.5hrs | 1.5hrs | 1.5hrs | -- | -- |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating 264Vac/60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 22.4 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 54.1 | 56.7 | 81.7 | -- | --/130 |
| 03.LF1 coil | 55.3 | 57.9 | 82.9 | -- | --/105 |
| 04.H2 body (touch PWB) | 55.3 | 57.9 | 82.9 | -- | --/130 |
| 05.T2 coil | 56.7 | 59.3 | 84.3 | -- | --/105 |
| 06.C35 body | 50.5 | 53.1 | 78.1 | -- | --/85 |
| 07.T4 coil | 71.1 | 73.7 | 98.7 | -- | --/110 |
| 08.T4 core | 51.2 | 53.8 | 78.8 | -- | --/110 |
| 09.T3 coil | 58.0 | 60.6 | 85.6 | -- | --/110 |
| 10.L7 coil | 53.3 | 55.9 | 80.9 | -- | --/105 |
| 11.AC inlet | 33.6 | 36.2 | 61.2 | -- | 77/70 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 33.6 | 36.2 | 61.2 | -- | --/105 |
| 13.L1 coil | 41.4 | 44.0 | 69.0 | -- | --/105 |
| 14.RTC | 29.5 | 32.1 | 57.1 | -- | --/100 |
| 15.PWB near U25 | 29.7 | 32.3 | 57.3 | -- | --/105 |
| 16.L12 coil | 30.7 | 33.3 | 58.3 | -- | --/105 |
| 17.PWB near F3 | 28.7 | 31.3 | 56.3 | -- | --/105 |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 25.8 | 28.4 | 53.4 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 30.9 | 33.5 | 58.5 | -- | --/105 |

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

| | | | | | |
|---|---|---|---|---|---|
| 20.Metal enclosure outside near Power | 24.9 | 27.5 | 52.5 | -- | 60/-- |
| 21.Metal enclosure outside near U25 | 26.3 | 28.9 | 53.9 | -- | 60/-- |
| 22.Metal enclosure outside near USB2.0 | 26.8 | 29.4 | 54.4 | -- | 60/-- |
| 23.Power button | 26.4 | 29.0 | 54.0 | -- | 77/-- |
| Test duration: | 1.1hrs | 1.1hrs | 1.1hrs | -- | -- |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating -36Vdc (for ODS2, with power model : DP1H-6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 20.5 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T3 coil | 67.0 | 71.5 | 96.5 | -- | --/110 |
| 03.T3 core | 54.2 | 58.7 | 83.7 | -- | --/110 |
| 04.T4 coil | 48.7 | 53.2 | 78.2 | -- | --/110 |
| 05.T4 core | 46.8 | 51.3 | 76.3 | -- | --/110 |
| 06.T2 coil | 55.4 | 59.9 | 84.9 | -- | --/130 |
| 07.C42 body | 50.7 | 55.2 | 80.2 | -- | --/85 |
| 08.DC terminal | 28.7 | 33.2 | 58.2 | -- | 77/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 09.CE3 body | 29.7 | 34.2 | 59.2 | -- | --/105 |
| 10.L1 coil | 38.3 | 42.8 | 67.8 | -- | --/105 |
| 11.RTC | 26.5 | 31.0 | 56.0 | -- | --/100 |
| 12.PWB near U25 | 27.4 | 31.9 | 56.9 | -- | --/105 |
| 13.L12 coil | 28.0 | 32.5 | 57.5 | -- | --/105 |
| 14.PWB near F3 | 24.7 | 29.2 | 54.2 | -- | --/105 |
| **For extension board** | -- | -- | -- | -- | -- |
| 15.CE1 body | 22.8 | 27.3 | 52.3 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 16.PWB near U2 | 26.3 | 30.8 | 55.8 | -- | --/105 |
| 17.Metal enclosure outside near Power | 23.7 | 28.2 | 53.2 | -- | 60/-- |
| 18.Metal enclosure outside near U25 | 23.7 | 28.2 | 53.2 | -- | 60/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| 19.Metal enclosure outside near USB2.0 | 22.8 | 27.3 | 52.3 | -- | 60/-- |
| 20.Power button | 22.4 | 26.9 | 51.9 | -- | 60/-- |
| Test duration: | 1.0hr | 1.0hr | 1.0hr | -- | 77/-- |
| **B.2.6 / NORMAL OPERATING TEMPERATURE MEASUREMENT**<br>Test item : Normal Heating -72Vdc (for ODS2, with power model : DP1H-6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 20.6 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T3 coil | 62.4 | 66.8 | 91.8 | -- | --/110 |
| 03.T3 core | 52.2 | 56.6 | 81.6 | -- | --/110 |
| 04.T4 coil | 49.8 | 54.2 | 79.2 | -- | --/110 |
| 05.T4 core | 47.5 | 51.9 | 76.9 | -- | --/110 |
| 06.T2 coil | 53.4 | 57.8 | 82.8 | -- | --/130 |
| 07.C42 body | 48.4 | 52.8 | 77.8 | -- | --/85 |
| 08.DC terminal | 28.1 | 32.5 | 57.5 | -- | 77/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 09.CE3 body | 29.5 | 33.9 | 58.9 | -- | --/105 |
| 10.L1 coil | 38.1 | 42.5 | 67.5 | -- | --/105 |
| 11.RTC | 26.4 | 30.8 | 55.8 | -- | --/100 |
| 12.PWB near U25 | 27.5 | 31.9 | 56.9 | -- | --/105 |
| 13.L12 coil | 28.2 | 32.6 | 57.6 | -- | --/105 |
| 14.PWB near F3 | 24.5 | 28.9 | 53.9 | -- | --/105 |
| **For extension board** | -- | -- | -- | -- | -- |
| 15.CE1 body | 22.8 | 27.2 | 52.2 | -- | --/105 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 16.PWB near U2 | 26.4 | 30.8 | 55.8 | -- | --/105 |
| 17.Metal enclosure outside near Power | 23.9 | 28.3 | 53.3 | -- | 60/-- |
| 18.Metal enclosure outside near U25 | 23.7 | 28.1 | 53.1 | -- | 60/-- |
| 19.Metal enclosure outside near USB2.0 | 22.8 | 27.2 | 52.2 | -- | 60/-- |
| 20.Power button | 22.3 | 26.7 | 51.7 | -- | 60/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| Test duration: | 1.2hrs | 1.2hrs | 1.2hrs | -- | 77/-- |
| **B.3.2 / COVERING OF VENTILATION OPENINGS**<br>Test item : Test at 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 20.9 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 41.6 | 45.7 | 70.7 | -- | --/300 |
| 03.C42 body | 43.6 | 47.7 | 72.7 | -- | --/300 |
| 04.T5 coil | 44.6 | 48.7 | 73.7 | -- | --/300 |
| 05.T3 coil | 84.1 | 88.2 | 113.2 | -- | --/300 |
| 06.T3 core | 77.3 | 81.4 | 106.4 | -- | --/300 |
| 07.T4 coil | 71.1 | 75.2 | 100.2 | -- | --/300 |
| 08.T4 core | 66.7 | 70.8 | 95.8 | -- | --/300 |
| 09.Metal chassis near DC fan | 40.3 | 44.4 | 69.4 | -- | 70/-- |
| 10.Handle | 35.6 | 39.7 | 64.7 | -- | 70/-- |
| 11.AC inlet | 34.2 | 38.3 | 63.3 | -- | 87/300 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 40.1 | 44.2 | 69.2 | -- | --/300 |
| 13.L1 coil | 52.7 | 56.8 | 81.8 | -- | --/300 |
| 14.RTC | 33.1 | 37.2 | 62.2 | -- | --/300 |
| 15.PWB near U25 | 42.9 | 47.0 | 72.0 | -- | --/300 |
| 16.L12 coil | 44.2 | 48.3 | 73.3 | -- | --/300 |
| 17.PWB near U41 | 39.1 | 43.2 | 68.2 | -- | --/300 |
| 18.L20 coil | 41.4 | 45.5 | 70.5 | -- | --/300 |
| 19.PWB near F3 | 32.3 | 36.4 | 61.4 | -- | --/300 |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 39.7 | 43.8 | 68.8 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 34.0 | 38.1 | 63.1 | -- | --/300 |
| 22.Metal enclosure outside near Power | 30.6 | 34.7 | 59.7 | -- | 70/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| 23.Metal enclosure outside near U25,U41 | 31.1 | 35.2 | 60.2 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 27.7 | 31.8 | 56.8 | -- | 70/-- |
| 25.Power button | 28.3 | 32.4 | 57.4 | -- | 87/-- |
| 26.Right handle | 26.6 | 30.7 | 55.7 | -- | 70/-- |
| Test duration: | 1.3hrs | 1.3hrs | 1.3hrs | -- | -- |
| **B.3.2 / COVERING OF VENTILATION OPENINGS**<br>Test item : Test at -72Vdc (for ODS2 DUAL, with power model : DMRW-6400F (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.0 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 39.1 | 43.1 | 68.1 | -- | --/300 |
| 03.PWB near H3 | 65.4 | 69.4 | 94.4 | -- | --/300 |
| 04.T3 coil | 45.4 | 49.4 | 74.4 | -- | --/300 |
| 05.T3 core | 36.9 | 40.9 | 65.9 | -- | --/300 |
| 06.T4 coil | 54.4 | 58.4 | 83.4 | -- | --/300 |
| 07.T4 core | 50.5 | 54.5 | 79.5 | -- | --/300 |
| 08.C42A body | 37.0 | 41.0 | 66.0 | -- | --/300 |
| 09.Handle | 30.9 | 34.9 | 59.9 | -- | 70/-- |
| 10.DC terminal | 29.3 | 33.3 | 58.3 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 11.CE3 body | 36.9 | 40.9 | 65.9 | -- | --/300 |
| 12.L1 coil | 48.8 | 52.8 | 77.8 | -- | --/300 |
| 13.RTC | 31.4 | 35.4 | 60.4 | -- | --/300 |
| 14.PWB near U25 | 39.8 | 43.8 | 68.8 | -- | --/300 |
| 15.L12 coil | 41.7 | 45.7 | 70.7 | -- | --/300 |
| 16.PWB near U41 | 38.4 | 42.4 | 67.4 | -- | --/300 |
| 17.L20 coil | 39.9 | 43.9 | 68.9 | -- | --/300 |
| 18.PWB near F3 | 31.2 | 35.2 | 60.2 | -- | --/300 |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 37.9 | 41.9 | 66.9 | -- | --/300 |

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

| | | | | | |
|---|---|---|---|---|---|
| **For LCM board** | -- | -- | -- | -- | -- |
| 20.PWB near U20 | 33.4 | 37.4 | 62.4 | -- | --/300 |
| 21.Metal enclosure outside near Power | 28.8 | 32.8 | 57.8 | -- | 70/-- |
| 22.Metal enclosure outside near U25,U41 | 30.1 | 34.1 | 59.1 | -- | 70/-- |
| 23.Metal enclosure outside near USB2.0 | 28.0 | 32.0 | 57.0 | -- | 70/-- |
| 24.Power button | 29.1 | 33.1 | 58.1 | -- | 87/-- |
| 25.Right handle | 28.4 | 32.4 | 57.4 | -- | 70/-- |
| Test duration: | 2.0hrs | 2.0hrs | 2.0hrs | -- | -- |
| **B.3.2 / COVERING OF VENTILATION OPENINGS**<br>Test item : Test at 264Vac/60Hz (for ODS2, with power model : P1H6350F, (Right and Left Side), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.9 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 54.2 | 57.3 | 82.3 | -- | --/300 |
| 03.LF1 coil | 55.7 | 58.8 | 83.8 | -- | --/300 |
| 04.H2 body (touch PWB) | 56.1 | 59.2 | 84.2 | -- | --/300 |
| 05.T2 coil | 57.1 | 60.2 | 85.2 | -- | --/300 |
| 06.C35 body | 51.1 | 54.2 | 79.2 | -- | --/300 |
| 07.T4 coil | 72.0 | 75.1 | 100.1 | -- | --/300 |
| 08.T4 core | 51.8 | 54.9 | 79.9 | -- | --/300 |
| 09.T3 coil | 59.2 | 62.3 | 87.3 | -- | --/300 |
| 10.L7 coil | 54.0 | 57.1 | 82.1 | -- | --/300 |
| 11.AC inlet | 33.1 | 36.2 | 61.2 | -- | 87/300 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 34.8 | 37.9 | 62.9 | -- | --/300 |
| 13.L1 coil | 42.1 | 45.2 | 70.2 | -- | --/300 |
| 14.RTC | 29.8 | 32.9 | 57.9 | -- | --/300 |
| 15.PWB near U25 | 29.6 | 32.7 | 57.7 | -- | --/300 |
| 16.L12 coil | 30.8 | 33.9 | 58.9 | -- | --/300 |
| 17.PWB near F3 | 28.9 | 32.0 | 57.0 | -- | --/300 |

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

| | | | | | |
|---|---|---|---|---|---|
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 25.9 | 29.0 | 54.0 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 30.3 | 33.4 | 58.4 | -- | --/300 |
| 20.Metal enclosure outside near Power | 24.4 | 27.5 | 52.5 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 26.9 | 30.0 | 55.0 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 26.6 | 29.7 | 54.7 | -- | 70/-- |
| 23.Power button | 26.2 | 29.3 | 54.3 | -- | 87/-- |
| Test duration: | 1.1hrs | 1.1hrs | 1.1hrs | -- | -- |
| **B.3.2 / COVERING OF VENTILATION OPENINGS**<br>Test item : Test at 264Vac/60Hz (for ODS2, with power model : P1H6350F, (Back Side), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 22.4 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 61.2 | 63.8 | 88.8 | -- | --/300 |
| 03.LF1 coil | 62.2 | 64.8 | 89.8 | -- | --/300 |
| 04.H2 body (touch PWB) | 63.4 | 66.0 | 91.0 | -- | --/300 |
| 05.T2 coil | 64.1 | 66.7 | 91.7 | -- | --/300 |
| 06.C35 body | 57.3 | 59.9 | 84.9 | -- | --/300 |
| 07.T4 coil | 78.6 | 81.2 | 106.2 | -- | --/300 |
| 08.T4 core | 58.0 | 60.6 | 85.6 | -- | --/300 |
| 09.T3 coil | 66.3 | 68.9 | 93.9 | -- | --/300 |
| 10.L7 coil | 60.2 | 62.8 | 87.8 | -- | --/300 |
| 11.AC inlet | 38.7 | 41.3 | 66.3 | -- | 87/300 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 37.4 | 40.0 | 65.0 | -- | --/300 |
| 13.L1 coil | 45.0 | 47.6 | 72.6 | -- | --/300 |
| 14.RTC | 37.0 | 39.6 | 64.6 | -- | --/300 |
| 15.PWB near U25 | 33.4 | 36.0 | 61.0 | -- | --/300 |
| 16.L12 coil | 33.4 | 36.0 | 61.0 | -- | --/300 |

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

| | | | | | |
|---|---|---|---|---|---|
| 17.PWB near F3 | 29.2 | 31.8 | 56.8 | -- | --/300 |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 29.9 | 32.5 | 57.5 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 31.1 | 33.7 | 58.7 | -- | --/300 |
| 20.Metal enclosure outside near Power | 34.9 | 37.5 | 62.5 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 28.4 | 31.0 | 56.0 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 27.1 | 29.7 | 54.7 | -- | 70/-- |
| 23.Power button | 26.7 | 29.3 | 54.3 | -- | 87/-- |
| Test duration: | 1.5hrs | 1.5hrs | 1.5hrs | -- | -- |
| **B.3.2 / COVERING OF VENTILATION OPENINGS**<br>Test item : Test at -72Vdc (for ODS2, with power model : DP1H-6350F, (Right and Left Side), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 20.7 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T3 coil | 62.0 | 66.3 | 91.3 | -- | --/300 |
| 03.T3 core | 51.9 | 56.2 | 81.2 | -- | --/300 |
| 04.T4 coil | 49.5 | 53.8 | 78.8 | -- | --/300 |
| 05.T4 core | 47.3 | 51.6 | 76.6 | -- | --/300 |
| 06.T2 coil | 53.1 | 57.4 | 82.4 | -- | --/300 |
| 07.C42 body | 48.1 | 52.4 | 77.4 | -- | --/300 |
| 08.DC terminal | 27.1 | 31.4 | 56.4 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 09.CE3 body | 30.8 | 35.1 | 60.1 | -- | --/300 |
| 10.L1 coil | 38.8 | 43.1 | 68.1 | -- | --/300 |
| 11.RTC | 26.8 | 31.1 | 56.1 | -- | --/300 |
| 12.PWB near U25 | 27.7 | 32.0 | 57.0 | -- | --/300 |
| 13.L12 coil | 28.6 | 32.9 | 57.9 | -- | --/300 |
| 14.PWB near F3 | 25.5 | 29.8 | 54.8 | -- | --/300 |
| **For extension board** | -- | -- | -- | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 15.CE1 body | 23.5 | 27.8 | 52.8 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 16.PWB near U2 | 27.2 | 31.5 | 56.5 | -- | --/300 |
| 17.Metal enclosure outside near Power | 23.5 | 27.8 | 52.8 | -- | 70/-- |
| 18.Metal enclosure outside near U25 | 24.9 | 29.2 | 54.2 | -- | 70/-- |
| 19.Metal enclosure outside near USB2.0 | 23.4 | 27.7 | 52.7 | -- | 70/-- |
| 20.Power button | 22.9 | 27.2 | 52.2 | -- | 87/-- |
| Test duration: | 2.0hrs | 2.0hrs | 2.0hrs | -- | -- |
| **B.3.2 / COVERING OF VENTILATION OPENINGS**<br>Test item : Test at -72Vdc (for ODS2, with power model : DP1H-6350F, (Back Side), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T3 coil | 69.3 | 73.0 | 98.0 | -- | --/300 |
| 03.T3 core | 64.8 | 68.5 | 93.5 | -- | --/300 |
| 04.T4 coil | 65.7 | 69.4 | 94.4 | -- | --/300 |
| 05.T4 core | 66.3 | 70.0 | 95.0 | -- | --/300 |
| 06.T2 coil | 66.0 | 69.7 | 94.7 | -- | --/300 |
| 07.C42 body | 57.5 | 61.2 | 86.2 | -- | --/300 |
| 08.DC terminal | 35.7 | 39.4 | 64.4 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 09.CE3 body | 33.3 | 37.0 | 62.0 | -- | --/300 |
| 10.L1 coil | 41.0 | 44.7 | 69.7 | -- | --/300 |
| 11.RTC | 30.8 | 34.5 | 59.5 | -- | --/300 |
| 12.PWB near U25 | 30.9 | 34.6 | 59.6 | -- | --/300 |
| 13.L12 coil | 30.8 | 34.5 | 59.5 | -- | --/300 |
| 14.PWB near F3 | 25.5 | 29.2 | 54.2 | -- | --/300 |
| **For extension board** | -- | -- | -- | -- | -- |
| 15.CE1 body | 27.6 | 31.3 | 56.3 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 16.PWB near U2 | 27.4 | 31.1 | 56.1 | -- | --/300 |
| 17.Metal enclosure outside near Power | 31.1 | 34.8 | 59.8 | -- | 70/-- |
| 18.Metal enclosure outside near U25 | 25.3 | 29.0 | 54.0 | -- | 70/-- |
| 19.Metal enclosure outside near USB2.0 | 23.7 | 27.4 | 52.4 | -- | 70/-- |
| 20.Power button | 23.1 | 26.8 | 51.8 | -- | 87/-- |
| Test duration: | 4.2hrs | 4.2hrs | 4.2hrs | -- | -- |
| **B.3.5 Output Terminal Overload**<br>Test item : USB2.0 Overload 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 35.0 | 38.7 | 63.7 | -- | --/300 |
| 03.C42 body | 39.4 | 43.1 | 68.1 | -- | --/300 |
| 04.T5 coil | 40.6 | 44.3 | 69.3 | -- | --/300 |
| 05.T3 coil | 79.0 | 82.7 | 107.7 | -- | --/300 |
| 06.T3 core | 68.1 | 71.8 | 96.8 | -- | --/300 |
| 07.T4 coil | 68.7 | 72.4 | 97.4 | -- | --/300 |
| 08.T4 core | 66.2 | 69.9 | 94.9 | -- | --/300 |
| 09.Metal chassis near DC fan | 31.9 | 35.6 | 60.6 | -- | 70/-- |
| 10.Handle | 29.7 | 33.4 | 58.4 | -- | 70/-- |
| 11.AC inlet | 27.5 | 31.2 | 56.2 | -- | 87/300 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 38.3 | 42.0 | 67.0 | -- | --/300 |
| 13.L1 coil | 50.7 | 54.4 | 79.4 | -- | --/300 |
| 14.RTC | 32.2 | 35.9 | 60.9 | -- | --/300 |
| 15.PWB near U25 | 40.8 | 44.5 | 69.5 | -- | --/300 |
| 16.L12 coil | 41.9 | 45.6 | 70.6 | -- | --/300 |
| 17.PWB near U41 | 37.6 | 41.3 | 66.3 | -- | --/300 |
| 18.L20 coil | 40.2 | 43.9 | 68.9 | -- | --/300 |
| 19.PWB near F3 | 49.1 | 52.8 | 77.8 | -- | --/300 |

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

| | | | | | |
|---|---|---|---|---|---|
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 37.4 | 41.1 | 66.1 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 32.4 | 36.1 | 61.1 | -- | --/300 |
| 22.Metal enclosure outside near Power | 25.1 | 28.8 | 53.8 | -- | 70/-- |
| 23.Metal enclosure outside near U25,U41 | 28.4 | 32.1 | 57.1 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 29.4 | 33.1 | 58.1 | -- | 70/-- |
| 25.Power button | 28.3 | 32.0 | 57.0 | -- | 87/-- |
| 26.Right handle | 26.3 | 30.0 | 55.0 | -- | 70/-- |
| Test duration: | 2.2hrs | 2.2hrs | 2.2hrs | -- | -- |
| **B.3.5 Output Terminal Overload**<br>Test item : USB2.0 Overload 264Vac/60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.0 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 59.4 | 63.4 | 88.4 | -- | --/300 |
| 03.LF1 coil | 61.6 | 65.6 | 90.6 | -- | --/300 |
| 04.H2 body (touch PWB) | 67.6 | 71.6 | 96.6 | -- | --/300 |
| 05.T2 coil | 65.4 | 69.4 | 94.4 | -- | --/300 |
| 06.C35 body | 56.5 | 60.5 | 85.5 | -- | --/300 |
| 07.T4 coil | 88.5 | 92.5 | 117.5 | -- | --/300 |
| 08.T4 core | 61.0 | 65.0 | 90.0 | -- | --/300 |
| 09.T3 coil | 68.7 | 72.7 | 97.7 | -- | --/300 |
| 10.L7 coil | 59.4 | 63.4 | 88.4 | -- | --/300 |
| 11.AC inlet | 36.0 | 40.0 | 65.0 | -- | 87/300 |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 35.0 | 39.0 | 64.0 | -- | --/300 |
| 13.L1 coil | 42.5 | 46.5 | 71.5 | -- | --/300 |
| 14.RTC | 32.7 | 36.7 | 61.7 | -- | --/300 |
| 15.PWB near U25 | 31.8 | 35.8 | 60.8 | -- | --/300 |

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

| | | | | | |
|---|---|---|---|---|---|
| 16.L12 coil | 32.7 | 36.7 | 61.7 | -- | --/300 |
| 17.PWB near F3 | 41.0 | 45.0 | 70.0 | -- | --/300 |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 25.7 | 29.7 | 54.7 | -- | --/300 |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 29.6 | 33.6 | 58.6 | -- | --/300 |
| 20.Metal enclosure outside near Power | 25.1 | 29.1 | 54.1 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 25.9 | 29.9 | 54.9 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 27.8 | 31.8 | 56.8 | -- | 70/-- |
| 23.Power button | 26.8 | 30.8 | 55.8 | -- | 87/-- |
| Test duration: | 1.4hrs | 1.4hrs | 1.4hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : System Fan#1,3,5 Stalled 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.2 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 35.3 | 39.1 | 64.1 | -- | -- |
| 03.C42 body | 39.3 | 43.1 | 68.1 | -- | -- |
| 04.T5 coil | 40.4 | 44.2 | 69.2 | -- | -- |
| 05.T3 coil | 78.5 | 82.3 | 107.3 | -- | -- |
| 06.T3 core | 68.1 | 71.9 | 96.9 | -- | -- |
| 07.T4 coil | 70.4 | 74.2 | 99.2 | -- | -- |
| 08.T4 core | 68.0 | 71.8 | 96.8 | -- | -- |
| 09.Metal chassis near DC fan | 31.6 | 35.4 | 60.4 | -- | 70/-- |
| 10.Handle | 29.8 | 33.6 | 58.6 | -- | 70/-- |
| 11.AC inlet | 27.4 | 31.2 | 56.2 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 43.5 | 47.3 | 72.3 | -- | -- |
| 13.L1 coil | 61.2 | 65.0 | 90.0 | -- | -- |
| 14.RTC | 34.3 | 38.1 | 63.1 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 15.PWB near U25 | 45.8 | 49.6 | 74.6 | -- | -- |
| 16.L12 coil | 43.9 | 47.7 | 72.7 | -- | -- |
| 17.PWB near U41 | 39.9 | 43.7 | 68.7 | -- | -- |
| 18.L20 coil | 43.1 | 46.9 | 71.9 | -- | -- |
| 19.PWB near F3 | 32.0 | 35.8 | 60.8 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 39.2 | 43.0 | 68.0 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 34.3 | 38.1 | 63.1 | -- | -- |
| 22.Metal enclosure outside near Power | 25.8 | 29.6 | 54.6 | -- | 70/-- |
| 23.Metal enclosure outside near U25,U41 | 28.8 | 32.6 | 57.6 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 28.1 | 31.9 | 56.9 | -- | 70/-- |
| 25.Power button | 28.9 | 32.7 | 57.7 | -- | 87/-- |
| 26.Right handle | 26.5 | 30.3 | 55.3 | -- | 70/-- |
| Test duration: | 3.4hrs | 3.4hrs | 3.4hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : System Fan#2,4,6 Stalled 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.5 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 36.3 | 39.8 | 64.8 | -- | -- |
| 03.C42 body | 40.3 | 43.8 | 68.8 | -- | -- |
| 04.T5 coil | 41.3 | 44.8 | 69.8 | -- | -- |
| 05.T3 coil | 79.1 | 82.6 | 107.6 | -- | -- |
| 06.T3 core | 68.9 | 72.4 | 97.4 | -- | -- |
| 07.T4 coil | 70.8 | 74.3 | 99.3 | -- | -- |
| 08.T4 core | 68.4 | 71.9 | 96.9 | -- | -- |
| 09.Metal chassis near DC fan | 32.5 | 36.0 | 61.0 | -- | 70/-- |
| 10.Handle | 30.2 | 33.7 | 58.7 | -- | 70/-- |
| 11.AC inlet | 27.7 | 31.2 | 56.2 | -- | 87/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| **For main board** | -- | -- | -- | -- | -- |
| 12.CE3 body | 38.8 | 42.3 | 67.3 | -- | -- |
| 13.L1 coil | 50.2 | 53.7 | 78.7 | -- | -- |
| 14.RTC | 33.3 | 36.8 | 61.8 | -- | -- |
| 15.PWB near U25 | 44.2 | 47.7 | 72.7 | -- | -- |
| 16.L12 coil | 43.3 | 46.8 | 71.8 | -- | -- |
| 17.PWB near U41 | 43.2 | 46.7 | 71.7 | -- | -- |
| 18.L20 coil | 46.4 | 49.9 | 74.9 | -- | -- |
| 19.PWB near F3 | 35.4 | 38.9 | 63.9 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 42.4 | 45.9 | 70.9 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 35.4 | 38.9 | 63.9 | -- | -- |
| 22.Metal enclosure outside near Power | 26.1 | 29.6 | 54.6 | -- | 70/-- |
| 23.Metal enclosure outside near U25,U41 | 30.7 | 34.2 | 59.2 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 29.7 | 33.2 | 58.2 | -- | 70/-- |
| 25.Power button | 30.1 | 33.6 | 58.6 | -- | 87/-- |
| 26.Right handle | 27.8 | 31.3 | 56.3 | -- | 70/-- |
| Test duration: | 1.9hrs | 1.9hrs | 1.9hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : CPU Fan#1 Stalled 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 34.1 | 37.8 | 62.8 | -- | -- |
| 03.C42 body | 38.3 | 42.0 | 67.0 | -- | -- |
| 04.T5 coil | 39.4 | 43.1 | 68.1 | -- | -- |
| 05.T3 coil | 79.9 | 83.6 | 108.6 | -- | -- |
| 06.T3 core | 69.2 | 72.9 | 97.9 | -- | -- |
| 07.T4 coil | 70.4 | 74.1 | 99.1 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 08.T4 core | 67.7 | 71.4 | 96.4 | -- | -- |
| 09.Metal chassis near DC fan | 31.6 | 35.3 | 60.3 | -- | 70/-- |
| 10.Handle | 29.2 | 32.9 | 57.9 | -- | 70/-- |
| 11.AC inlet | 26.9 | 30.6 | 55.6 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 38.0 | 41.7 | 66.7 | -- | -- |
| 13.L1 coil | 49.9 | 53.6 | 78.6 | -- | -- |
| 14.RTC | 31.4 | 35.1 | 60.1 | -- | -- |
| 15.PWB near U25 | 49.9 | 53.6 | 78.6 | -- | -- |
| 16.L12 coil | 47.0 | 50.7 | 75.7 | -- | -- |
| 17.PWB near U41 | 38.7 | 42.4 | 67.4 | -- | -- |
| 18.L20 coil | 39.9 | 43.6 | 68.6 | -- | -- |
| 19.PWB near F3 | 30.6 | 34.3 | 59.3 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 36.4 | 40.1 | 65.1 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 31.5 | 35.2 | 60.2 | -- | -- |
| 22.Metal enclosure outside near Power | 25.1 | 28.8 | 53.8 | -- | 70/-- |
| 23.Metal enclosure outside near U25,U41 | 28.0 | 31.7 | 56.7 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 27.0 | 30.7 | 55.7 | -- | 70/-- |
| 25.Power button | 27.4 | 31.1 | 56.1 | -- | 87/-- |
| 26.Right handle | 25.7 | 29.4 | 54.4 | -- | 70/-- |
| Test duration: | 1.5hrs | 1.5hrs | 1.5hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : CPU Fan#2 Stalled 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 33.8 | 37.5 | 62.5 | -- | -- |
| 03.C42 body | 38.0 | 41.7 | 66.7 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 04.T5 coil | 39.2 | 42.9 | 67.9 | -- | -- |
| 05.T3 coil | 78.3 | 82.0 | 107.0 | -- | -- |
| 06.T3 core | 68.3 | 72.0 | 97.0 | -- | -- |
| 07.T4 coil | 69.5 | 73.2 | 98.2 | -- | -- |
| 08.T4 core | 66.9 | 70.6 | 95.6 | -- | -- |
| 09.Metal chassis near DC fan | 31.3 | 35.0 | 60.0 | -- | 70/-- |
| 10.Handle | 28.8 | 32.5 | 57.5 | -- | 70/-- |
| 11.AC inlet | 26.7 | 30.4 | 55.4 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 37.3 | 41.0 | 66.0 | -- | -- |
| 13.L1 coil | 49.4 | 53.1 | 78.1 | -- | -- |
| 14.RTC | 31.1 | 34.8 | 59.8 | -- | -- |
| 15.PWB near U25 | 37.1 | 40.8 | 65.8 | -- | -- |
| 16.L12 coil | 43.6 | 47.3 | 72.3 | -- | -- |
| 17.PWB near U41 | 43.2 | 46.9 | 71.9 | -- | -- |
| 18.L20 coil | 39.5 | 43.2 | 68.2 | -- | -- |
| 19.PWB near F3 | 30.6 | 34.3 | 59.3 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 36.1 | 39.8 | 64.8 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 31.6 | 35.3 | 60.3 | -- | -- |
| 22.Metal enclosure outside near Power | 24.7 | 28.4 | 53.4 | -- | 70/-- |
| 23.Metal enclosure outside near U25,U41 | 28.3 | 32.0 | 57.0 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 26.7 | 30.4 | 55.4 | -- | 70/-- |
| 25.Power button | 27.5 | 31.2 | 56.2 | -- | 87/-- |
| 26.Right handle | 25.5 | 29.2 | 54.2 | -- | 70/-- |
| Test duration: | 1.5hrs | 1.5hrs | 1.5hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#1 Stalled 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |

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

| | | | | | |
|---|---|---|---|---|---|
| 01.Ambient | 21.7 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 54.7 | 58.0 | 83.0 | -- | -- |
| 03.C42 body | 52.1 | 55.4 | 80.4 | -- | -- |
| 04.T5 coil | 54.3 | 57.6 | 82.6 | -- | -- |
| 05.T3 coil | 115.5 | 118.8 | 143.8 | -- | -- |
| 06.T3 core | 108.3 | 111.6 | 136.6 | -- | -- |
| 07.T4 coil | 91.8 | 95.1 | 120.1 | -- | -- |
| 08.T4 core | 84.7 | 88.0 | 113.0 | -- | -- |
| 09.Metal chassis near DC fan | 30.0 | 33.3 | 58.3 | -- | 70/-- |
| 10.Handle | 31.1 | 34.4 | 59.4 | -- | 70/-- |
| 11.AC inlet | 31.7 | 35.0 | 60.0 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 39.9 | 43.2 | 68.2 | -- | -- |
| 13.L1 coil | 52.2 | 55.5 | 80.5 | -- | -- |
| 14.RTC | 33.9 | 37.2 | 62.2 | -- | -- |
| 15.PWB near U25 | 43.6 | 46.9 | 71.9 | -- | -- |
| 16.L12 coil | 44.5 | 47.8 | 72.8 | -- | -- |
| 17.PWB near U41 | 39.9 | 43.2 | 68.2 | -- | -- |
| 18.L20 coil | 41.5 | 44.8 | 69.8 | -- | -- |
| 19.PWB near F3 | 31.7 | 35.0 | 60.0 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 41.2 | 44.5 | 69.5 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 33.6 | 36.9 | 61.9 | -- | -- |
| 22.Metal enclosure outside near Power | 28.3 | 31.6 | 56.6 | -- | 70/-- |
| 23.Metal enclosure outside near U25,U41 | 29.0 | 32.3 | 57.3 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 27.9 | 31.2 | 56.2 | -- | 70/-- |
| 25.Power button | 28.7 | 32.0 | 57.0 | -- | 87/-- |
| 26.Right handle | 26.4 | 29.7 | 54.7 | -- | 70/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| Test duration: | 2.5hrs | 2.5hrs | 2.5hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#2 Stalled 264Vac/63Hz (for ODS2 DUAL, with power model : MRW-6420P (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.6 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 46.2 | 49.6 | 74.6 | -- | -- |
| 03.C42 body | 51.9 | 55.3 | 80.3 | -- | -- |
| 04.T5 coil | 52.5 | 55.9 | 80.9 | -- | -- |
| 05.T3 coil | 152.3 | 155.7 | 180.7 | -- | -- |
| 06.T3 core | 137.6 | 141.0 | 166.0 | -- | -- |
| 07.T4 coil | 113.5 | 116.9 | 141.9 | -- | -- |
| 08.T4 core | 97.8 | 101.2 | 126.2 | -- | -- |
| 09.Metal chassis near DC fan | 32.1 | 35.5 | 60.5 | -- | 70/-- |
| 10.Handle | 32.5 | 35.9 | 60.9 | -- | 70/-- |
| 11.AC inlet | 30.8 | 34.2 | 59.2 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 39.5 | 42.9 | 67.9 | -- | -- |
| 13.L1 coil | 51.5 | 54.9 | 79.9 | -- | -- |
| 14.RTC | 33.5 | 36.9 | 61.9 | -- | -- |
| 15.PWB near U25 | 44.0 | 47.4 | 72.4 | -- | -- |
| 16.L12 coil | 44.7 | 48.1 | 73.1 | -- | -- |
| 17.PWB near U41 | 40.1 | 43.5 | 68.5 | -- | -- |
| 18.L20 coil | 42.2 | 45.6 | 70.6 | -- | -- |
| 19.PWB near F3 | 31.6 | 35.0 | 60.0 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 20.PWB near U2 | 41.3 | 44.7 | 69.7 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 21.PWB near U20 | 33.6 | 37.0 | 62.0 | -- | -- |
| 22.Metal enclosure outside near Power | 26.1 | 29.5 | 54.5 | -- | 70/-- |

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

| | | | | | |
|---|---|---|---|---|---|
| 23.Metal enclosure outside near U25,U41 | 29.1 | 32.5 | 57.5 | -- | 70/-- |
| 24.Metal enclosure outside near USB2.0 | 28.0 | 31.4 | 56.4 | -- | 70/-- |
| 25.Power button | 28.5 | 31.9 | 56.9 | -- | 87/-- |
| 26.Right handle | 26.4 | 29.8 | 54.8 | -- | 70/-- |
| Test duration: | 2.8hrs | 2.8hrs | 2.8hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#1 Stalled -72Vdc (for ODS2 DUAL, with power model : DMRW-6400 (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.1 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 50.2 | 54.1 | 79.1 | -- | -- |
| 03.PWB near H3 | 76.4 | 80.3 | 105.3 | -- | -- |
| 04.T3 coil | 53.3 | 57.2 | 82.2 | -- | -- |
| 05.T3 core | 45.1 | 49.0 | 74.0 | -- | -- |
| 06.T4 coil | 65.7 | 69.6 | 94.6 | -- | -- |
| 07.T4 core | 60.3 | 64.2 | 89.2 | -- | -- |
| 08.C42A body | 46.7 | 50.6 | 75.6 | -- | -- |
| 09.Handle | 27.8 | 31.7 | 56.7 | -- | 70/-- |
| 10.DC terminal | 26.9 | 30.8 | 55.8 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 11.CE3 body | 36.2 | 40.1 | 65.1 | -- | -- |
| 12.L1 coil | 47.6 | 51.5 | 76.5 | -- | -- |
| 13.RTC | 30.6 | 34.5 | 59.5 | -- | -- |
| 14.PWB near U25 | 42.6 | 46.5 | 71.5 | -- | -- |
| 15.L12 coil | 41.3 | 45.2 | 70.2 | -- | -- |
| 16.PWB near U41 | 37.9 | 41.8 | 66.8 | -- | -- |
| 17.L20 coil | 40.0 | 43.9 | 68.9 | -- | -- |
| 18.PWB near F3 | 29.8 | 33.7 | 58.7 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 38.9 | 42.8 | 67.8 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| **For LCM board** | -- | -- | -- | -- | -- |
| 20.PWB near U20 | 31.4 | 35.3 | 60.3 | -- | -- |
| 21.Metal enclosure outside near Power | 26.4 | 30.3 | 55.3 | -- | 70/-- |
| 22.Metal enclosure outside near U25,U41 | 27.3 | 31.2 | 56.2 | -- | 70/-- |
| 23.Metal enclosure outside near USB2.0 | 26.7 | 30.6 | 55.6 | -- | 70/-- |
| 24.Power button | 27.2 | 31.1 | 56.1 | -- | 87/-- |
| 25.Right handle | 25.2 | 29.1 | 54.1 | -- | 70/-- |
| Test duration: | 1.8hrs | 1.8hrs | 1.8hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#2 Stalled -72Vdc (for ODS2 DUAL, with power model : DMRW-6400 (1 power, bottom), power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.3 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T2 coil | 46.6 | 50.3 | 75.3 | -- | -- |
| 03.PWB near H3 | 87.1 | 90.8 | 115.8 | -- | -- |
| 04.T3 coil | 69.8 | 73.5 | 98.5 | -- | -- |
| 05.T3 core | 47.3 | 51.0 | 76.0 | -- | -- |
| 06.T4 coil | 62.2 | 65.9 | 90.9 | -- | -- |
| 07.T4 core | 66.1 | 69.8 | 94.8 | -- | -- |
| 08.C42A body | 41.1 | 44.8 | 69.8 | -- | -- |
| 09.Handle | 27.5 | 31.2 | 56.2 | -- | 70/-- |
| 10.DC terminal | 26.2 | 29.9 | 54.9 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 11.CE3 body | 36.1 | 39.8 | 64.8 | -- | -- |
| 12.L1 coil | 47.7 | 51.4 | 76.4 | -- | -- |
| 13.RTC | 30.6 | 34.3 | 59.3 | -- | -- |
| 14.PWB near U25 | 42.1 | 45.8 | 70.8 | -- | -- |
| 15.L12 coil | 41.3 | 45.0 | 70.0 | -- | -- |
| 16.PWB near U41 | 37.9 | 41.6 | 66.6 | -- | -- |
| 17.L20 coil | 40.0 | 43.7 | 68.7 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 18.PWB near F3 | 30.0 | 33.7 | 58.7 | -- | -- |
| **For PCIe card on extension board (PCIe Card)** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 39.0 | 42.7 | 67.7 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 20.PWB near U20 | 31.5 | 35.2 | 60.2 | -- | -- |
| 21.Metal enclosure outside near Power | 26.3 | 30.0 | 55.0 | -- | 70/-- |
| 22.Metal enclosure outside near U25,U41 | 27.2 | 30.9 | 55.9 | -- | 70/-- |
| 23.Metal enclosure outside near USB2.0 | 26.9 | 30.6 | 55.6 | -- | 70/-- |
| 24.Power button | 27.3 | 31.0 | 56.0 | -- | 87/-- |
| 25.Right handle | 25.4 | 29.1 | 54.1 | -- | 70/-- |
| Test duration: | 2.1hrs | 2.1hrs | 2.1hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : System Fan#1,3,5,7 Stalled 264Vac/60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.5 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 52.3 | 55.8 | 80.8 | -- | -- |
| 03.LF1 coil | 53.8 | 57.3 | 82.3 | -- | -- |
| 04.H2 body (touch PWB) | 55.0 | 58.5 | 83.5 | -- | -- |
| 05.T2 coil | 57.0 | 60.5 | 85.5 | -- | -- |
| 06.C35 body | 49.4 | 52.9 | 77.9 | -- | -- |
| 07.T4 coil | 70.7 | 74.2 | 99.2 | -- | -- |
| 08.T4 core | 50.8 | 54.3 | 79.3 | -- | -- |
| 09.T3 coil | 52.9 | 56.4 | 81.4 | -- | -- |
| 10.L7 coil | 52.1 | 55.6 | 80.6 | -- | -- |
| 11.AC inlet | 33.0 | 36.5 | 61.5 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 33.4 | 36.9 | 61.9 | -- | -- |
| 13.L1 coil | 44.9 | 48.4 | 73.4 | -- | -- |
| 14.RTC | 30.6 | 34.1 | 59.1 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 15.PWB near U25 | 35.7 | 39.2 | 64.2 | -- | -- |
| 16.L12 coil | 37.4 | 40.9 | 65.9 | -- | -- |
| 17.PWB near F3 | 30.7 | 34.2 | 59.2 | -- | -- |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 29.2 | 32.7 | 57.7 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 32.4 | 35.9 | 60.9 | -- | -- |
| 20.Metal enclosure outside near Power | 25.6 | 29.1 | 54.1 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 27.8 | 31.3 | 56.3 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 27.1 | 30.6 | 55.6 | -- | 70/-- |
| 23.Power button | 26.6 | 30.1 | 55.1 | -- | 87/-- |
| Test duration: | 2.1hrs | 2.1hrs | 2.1hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : System Fan#2,4,6,8 Stalled 264Vac/60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.5 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 51.8 | 55.3 | 80.3 | -- | -- |
| 03.LF1 coil | 52.9 | 56.4 | 81.4 | -- | -- |
| 04.H2 body (touch PWB) | 52.2 | 55.7 | 80.7 | -- | -- |
| 05.T2 coil | 53.8 | 57.3 | 82.3 | -- | -- |
| 06.C35 body | 48.6 | 52.1 | 77.1 | -- | -- |
| 07.T4 coil | 67.2 | 70.7 | 95.7 | -- | -- |
| 08.T4 core | 47.3 | 50.8 | 75.8 | -- | -- |
| 09.T3 coil | 52.3 | 55.8 | 80.8 | -- | -- |
| 10.L7 coil | 51.3 | 54.8 | 79.8 | -- | -- |
| 11.AC inlet | 32.6 | 36.1 | 61.1 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 32.2 | 35.7 | 60.7 | -- | -- |
| 13.L1 coil | 40.1 | 43.6 | 68.6 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 14.RTC | 30.6 | 34.1 | 59.1 | -- | -- |
| 15.PWB near U25 | 36.8 | 40.3 | 65.3 | -- | -- |
| 16.L12 coil | 38.8 | 42.3 | 67.3 | -- | -- |
| 17.PWB near F3 | 30.7 | 34.2 | 59.2 | -- | -- |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 24.7 | 28.2 | 53.2 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 32.2 | 35.7 | 60.7 | -- | -- |
| 20.Metal enclosure outside near Power | 25.2 | 28.7 | 53.7 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 26.2 | 29.7 | 54.7 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 27.2 | 30.7 | 55.7 | -- | 70/-- |
| 23.Power button | 26.6 | 30.1 | 55.1 | -- | 87/-- |
| Test duration: | 2.2hrs | 2.2hrs | 2.2hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#1 Stalled 264Vac /60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 22.4 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 67.9 | 70.5 | 95.5 | -- | -- |
| 03.LF1 coil | 64.7 | 67.3 | 92.3 | -- | -- |
| 04.H2 body (touch PWB) | 92.3 | 94.9 | 119.9 | -- | -- |
| 05.T2 coil | 74.1 | 76.7 | 101.7 | -- | -- |
| 06.C35 body | 66.5 | 69.1 | 94.1 | -- | -- |
| 07.T4 coil | 104.3 | 106.9 | 131.9 | -- | -- |
| 08.T4 core | 90.5 | 93.1 | 118.1 | -- | -- |
| 09.T3 coil | 79.3 | 81.9 | 106.9 | -- | -- |
| 10.L7 coil | 73.8 | 76.4 | 101.4 | -- | -- |
| 11.AC inlet | 40.4 | 43.0 | 68.0 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 12.CE3 body | 41.5 | 44.1 | 69.1 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 13.L1 coil | 49.0 | 51.6 | 76.6 | -- | -- |
| 14.RTC | 37.9 | 40.5 | 65.5 | -- | -- |
| 15.PWB near U25 | 33.4 | 36.0 | 61.0 | -- | -- |
| 16.L12 coil | 33.5 | 36.1 | 61.1 | -- | -- |
| 17.PWB near F3 | 29.2 | 31.8 | 56.8 | -- | -- |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 29.9 | 32.5 | 57.5 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 31.1 | 33.7 | 58.7 | -- | -- |
| 20.Metal enclosure outside near Power | 35.0 | 37.6 | 62.6 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 28.4 | 31.0 | 56.0 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 27.1 | 29.7 | 54.7 | -- | 70/-- |
| 23.Power button | 26.7 | 29.3 | 54.3 | -- | 87/-- |
| Test duration: | 3.3hrs | 3.3hrs | 3.3hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#2 Stalled 264Vac /60Hz (for ODS2, with power model : P1H6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.9 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.LD1coil | 67.4 | 92.4 | 117.4 | -- | -- |
| 03.LF1 coil | 78.4 | 103.4 | 128.4 | -- | -- |
| 04.H2 body (touch PWB) | 60.2 | 85.2 | 110.2 | -- | -- |
| 05.T2 coil | 81.9 | 106.9 | 131.9 | -- | -- |
| 06.C35 body | 74.9 | 99.9 | 124.9 | -- | -- |
| 07.T4 coil | 99.7 | 124.7 | 149.7 | -- | -- |
| 08.T4 core | 73.5 | 98.5 | 123.5 | -- | -- |
| 09.T3 coil | 62.3 | 87.3 | 112.3 | -- | -- |
| 10.L7 coil | 66.4 | 91.4 | 116.4 | -- | -- |
| 11.AC inlet | 38.5 | 63.5 | 88.5 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 12.CE3 body | 36.6 | 61.6 | 86.6 | -- | -- |
| 13.L1 coil | 43.5 | 68.5 | 93.5 | -- | -- |
| 14.RTC | 32.8 | 57.8 | 82.8 | -- | -- |
| 15.PWB near U25 | 31.4 | 56.4 | 81.4 | -- | -- |
| 16.L12 coil | 32.0 | 57.0 | 82.0 | -- | -- |
| 17.PWB near F3 | 28.5 | 53.5 | 78.5 | -- | -- |
| **For extension board** | -- | -- | -- | -- | -- |
| 18.CE1 body | 27.7 | 52.7 | 77.7 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 19.PWB near U2 | 30.7 | 55.7 | 80.7 | -- | -- |
| 20.Metal enclosure outside near Power | 28.2 | 53.2 | 78.2 | -- | 70/-- |
| 21.Metal enclosure outside near U25 | 27.2 | 52.2 | 77.2 | -- | 70/-- |
| 22.Metal enclosure outside near USB2.0 | 26.5 | 51.5 | 76.5 | -- | 70/-- |
| 23.Power button | 26.1 | 51.1 | 76.1 | -- | 87/-- |
| Test duration: | 2.4hrs | 2.4hrs | 2.4hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#1 Stalled -72Vdc(for ODS2, with power model : DP1H-6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.4 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T3 coil | 65.9 | 69.5 | 94.5 | -- | -- |
| 03.T3 core | 61.4 | 65.0 | 90.0 | -- | -- |
| 04.T4 coil | 62.2 | 65.8 | 90.8 | -- | -- |
| 05.T4 core | 62.7 | 66.3 | 91.3 | -- | -- |
| 06.T2 coil | 63.6 | 67.2 | 92.2 | -- | -- |
| 07.C42 body | 53.8 | 57.4 | 82.4 | -- | -- |
| 08.DC terminal | 29.6 | 33.2 | 58.2 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 09.CE3 body | 31.7 | 35.3 | 60.3 | -- | -- |
| 10.L1 coil | 38.6 | 42.2 | 67.2 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 11.RTC | 29.5 | 33.1 | 58.1 | -- | -- |
| 12.PWB near U25 | 28.0 | 31.6 | 56.6 | -- | -- |
| 13.L12 coil | 28.5 | 32.1 | 57.1 | -- | -- |
| 14.PWB near F3 | 24.8 | 28.4 | 53.4 | -- | -- |
| **For extension board** | -- | -- | -- | -- | -- |
| 15.CE1 body | 24.6 | 28.2 | 53.2 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 16.PWB near U2 | 26.6 | 30.2 | 55.2 | -- | -- |
| 17.Metal enclosure outside near Power | 28.2 | 31.8 | 56.8 | -- | 70/-- |
| 18.Metal enclosure outside near U25 | 24.0 | 27.6 | 52.6 | -- | 70/-- |
| 19.Metal enclosure outside near USB2.0 | 23.2 | 26.8 | 51.8 | -- | 70/-- |
| 20.Power button | 22.7 | 26.3 | 51.3 | -- | 87/-- |
| Test duration: | 3.2hrs | 3.2hrs | 3.2hrs | -- | -- |
| **B.4.3.1 Blocked motor**<br>Test item : Power Fan#2 Stalled -72Vdc (for ODS2, with power model : DP1H-6350F, power 80% load) | Maximum Normal Load | Maximum Normal Load Shift to Tma 25 | Maximum Normal Load Shift to Tma 50 | -- | Tmax for Tma *25/50 |
| 01.Ambient | 21.2 | 25.0 | 50.0 | -- | -- |
| **For power** | -- | -- | -- | -- | -- |
| 02.T3 coil | 82.8 | 86.6 | 111.6 | -- | -- |
| 03.T3 core | 68.9 | 72.7 | 97.7 | -- | -- |
| 04.T4 coil | 56.8 | 60.6 | 85.6 | -- | -- |
| 05.T4 core | 65.9 | 69.7 | 94.7 | -- | -- |
| 06.T2 coil | 67.1 | 70.9 | 95.9 | -- | -- |
| 07.C42 body | 61.6 | 65.4 | 90.4 | -- | -- |
| 08.DC terminal | 27.8 | 31.6 | 56.6 | -- | 87/-- |
| **For Mainboard** | -- | -- | -- | -- | -- |
| 09.CE3 body | 30.7 | 34.5 | 59.5 | -- | -- |
| 10.L1 coil | 38.6 | 42.4 | 67.4 | -- | -- |
| 11.RTC | 26.5 | 30.3 | 55.3 | -- | -- |
| 12.PWB near U25 | 27.0 | 30.8 | 55.8 | -- | -- |

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

| | | | | | |
|---|---|---|---|---|---|
| 13.L12 coil | 27.9 | 31.7 | 56.7 | -- | -- |
| 14.PWB near F3 | 24.5 | 28.3 | 53.3 | -- | -- |
| **For extension board** | -- | -- | -- | -- | -- |
| 15.CE1 body | 22.8 | 26.6 | 51.6 | -- | -- |
| **For LCM board** | -- | -- | -- | -- | -- |
| 16.PWB near U2 | 26.2 | 30.0 | 55.0 | -- | -- |
| 17.Metal enclosure outside near Power | 24.0 | 27.8 | 52.8 | -- | 70/-- |
| 18.Metal enclosure outside near U25 | 23.4 | 27.2 | 52.2 | -- | 70/-- |
| 19.Metal enclosure outside near USB2.0 | 22.7 | 26.5 | 51.5 | -- | 70/-- |
| 20.Power button | 22.3 | 26.1 | 51.1 | -- | 87/-- |
| Test duration: | 2.1hrs | 2.1hrs | 2.1hrs | -- | -- |

Supplementary information:

| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |

Supplementary information:
Note 1: Tma should be considered as directed by appliable requirement
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)
Note 3: System and Power Fans flow direction were outward.
Note 4: System Fans speed default to lowest speed.
* Tmax for accessible limitation.
- system fan and power fan location see table B.4 Supplementary information for details
- For ODS2 DUAL all tests removed system fan #7, #8, for ODS2 all tested removed system fan #9, #10, #11

| 5.4.1.10.2 | TABLE: Vicat softening temperature of thermoplastics | | N/A |
|---|---|---|---|
| Penetration (mm).....: | -- | | — |
| Object/ Part No./Material | Manufacturer/trademark | T softening (°C) | |
| -- | -- | -- | |
| supplementary information: -- | | | |

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

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

| 5.4.2.2, 5.4.2.4 and 5.4.3 | TABLE: Minimum Clearances/Creepage distance | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Clearance (cl) and creepage distance (cr) at/of/between: | Up (V) | U r.m.s. (V) | Frequency (kHz)[1] | Required cl (mm) | cl (mm)[2] | Required[3] cr (mm) | cr (mm) |
| Functional: | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |
| Basic: | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |
| Reinforced: | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- |

Supplementary information:

Note 1: Only for frequency above 30 kHz
Note 2: See table 5.4.2.4 if this is based on electric strength test

Note 3: Provide Material Group

| 5.4.2.3 | TABLE: Minimum Clearances distances using required withstand voltage | | | N/A |
|---|---|---|---|---|
| | **Overvoltage Category (OV):** | | | II |
| | **Pollution Degree:** | | | 2 |
| Clearance distanced between: | | Required withstand voltage | Required cl (mm) | Measured cl (mm) |
| -- | | -- | -- | -- |
| -- | | -- | -- | -- |

Supplementary information:

1) See appended table 5.4.2.2, 5.4.2.4 and 5.4.3 for measurements.

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

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

Supplementary information:--

| 5.4.4.2, 5.4.4.5 c) 5.4.4.9 | TABLE: Distance through insulation measurements | N/A |
|---|---|---|

| Distance through insulation di at/of: | Peak voltage (V) | Frequency (kHz) | Material | Required DTI (mm) | DTI (mm) |
|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- |

Supplementary information:--

| 5.4.9 | TABLE: Electric strength tests | | P |
|---|---|---|---|
| Test voltage applied between: | Voltage shape (AC, DC[1)]) | Test voltage (V) | Breakdown Yes / No |
| Functional: | | | |
| -- | -- | -- | -- |
| Basic/supplementary | -- | -- | -- |
| Mains Poles to Earthed metal enclosure (for ODS2 DUAL, with power model: MRW-6420P) | DC | 2500 | No |
| Mains Poles to Earthed metal enclosure (for ODS2 DUAL, with power model: DMRW-6400F) | DC | 1500 | No |
| Mains Poles to Earthed metal enclosure (for ODS2, with power model: P1H-6350P) | DC | 2500 | No |
| Mains Poles to Earthed metal enclosure (for ODS2, with power model: DP1H-6350F) | DC | 1500 | No |
| Mains Poles to Output connector (for ODS2 DUAL, with power model: DMRW-6400F) | DC | 1500 | No |
| Mains Poles to Output connector (for ODS2, with power model: DP1H-6350F) | DC | 1500 | No |
| Reinforced: | | | |
| Mains Poles to Output connector (for ODS2 DUAL, with power model: MRW-6420P) | DC | 4000 | No |
| Mains Poles to Output connector (for ODS2, with power model: P1H-6350P) | DC | 4000 | No |
| Supplementary information:<br>[1)] A d.c. voltage in one polarity and then repeated in reverse polarity | | | |

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

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

| 5.6.6.2 | TABLE: Resistance of protective conductors and terminations | | | P |
|---|---|---|---|---|
| Accessible part | Test current (A) | Duration (min) | Voltage drop (V) | Resistance (Ω) |
| (for ODS2 DUAL, with power model: MRW-6420P) | | | | |
| AC Inlet earth pin to farthest earthed metal enclosure | 32 | 2 | 0.416 | 0.013 |
| Ground screw to farthest earthed metal enclosure | 32 | 2 | 0.224 | 0.007 |
| AC Inlet earth pin to farthest earthed metal enclosure | 40 | 2 | 0.560 | 0.014 |
| Ground screw to farthest earthed metal enclosure | 40 | 2 | 0.320 | 0.008 |
| (for ODS2 DUAL, with power model: DMRW-6400F) | | | | |
| Ground screw to farthest earthed metal enclosure | 32 | 2 | 0.256 | 0.008 |
| Ground screw to farthest earthed metal enclosure | 40 | 2 | 0.400 | 0.010 |
| (for ODS2, with power model: P1H-6350P) | | | | |
| AC Inlet earth pin to farthest earthed metal enclosure | 32 | 2 | 0.480 | 0.015 |
| Ground screw to farthest earthed metal enclosure | 32 | 2 | 0.352 | 0.011 |
| AC Inlet earth pin to farthest earthed metal enclosure | 40 | 2 | 0.640 | 0.016 |
| Ground screw to farthest earthed metal enclosure | 40 | 2 | 0.480 | 0.012 |
| (for ODS2, with power model: DP1H-6350F) | | | | |
| Ground screw to farthest earthed metal enclosure | 32 | 2 | 0.256 | 0.008 |
| Ground screw to farthest earthed metal enclosure | 40 | 2 | 0.360 | 0.009 |
| Supplementary information: Test Voltage: 12Vac | | | | |

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

| 5.7.2.2, 5.7.4 | TABLE: Earthed accessible conductive part | | P |
|---|---|---|---|
| Supply voltage .....: | | 264Vac | — |
| Location | | Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7 | Touch current (mA) |
| Earthed accessible part to earth<br>(for ODS2 DUAL, with power model: MRW-6420P) | | 1 | 2.320mApk/N<br>2.205mApk/R |
| | | 2* | -- |
| | | 3 | -- |
| | | 4 | -- |
| | | 5 | -- |
| | | 6 | -- |
| | | 8 | -- |
| Earthed accessible part to earth<br>(for ODS2, with power model: P1H-6350P) | | 1 | 1.778mApk/N<br>1.645mApk/R |
| | | 2* | -- |
| | | 3 | -- |
| | | 4 | -- |
| | | 5 | -- |
| | | 6 | -- |
| | | 8 | -- |

Supplementary Information:

Notes:
[1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

| 6.2.2 | Table: Electrical power sources (PS) measurements for classification | | | | P |
|---|---|---|---|---|---|
| Source | Description | Measurement | Max Power after 3 s | Max Power after 5 s*) | PS Classification |
| Power Button | Worst-case | Power (W): | 0.00018 | -- | PS1 |

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

| | | | | | |
|---|---|---|---|---|---|
| (JP9) | fault | VA (V): | 0.018 | -- | |
| | | IA (A) : | 0.01 | -- | |
| Power Button (JP9) | Worst-case power source fault (R1072 short) | Power (W): | 2.018 | -- | PS1 |
| | | VA (V): | 0.013 | -- | |
| | | IA (A) : | 1.904 | -- | |
| Reset Button (SW1) | Worst-case fault | Power (W): | 0.00017 | -- | PS1 |
| | | VA (V): | 0.017 | -- | |
| | | IA (A) : | 0.01 | -- | |
| Reset Button (SW1) | Worst-case power source fault (R844 short) | Power (W): | 0.636 | -- | PS1 |
| | | VA (V): | 0.070 | -- | |
| | | IA (A) : | 9.08 | -- | |
| #Relay | Worst-case fault | Power (W): | 0 | -- | PS1 |
| | | VA (V): | 0.00 | -- | |
| | | IA (A) : | 0.01 | -- | |

Supplementary Information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

SC=Short circuit, OC=Open circuit

# : Waived “Worst-case power source fault” measurement, due to the relay circuit contact pin measured 0V, no current will be measured on Worst-case power source fault.

- Waived LCM board button 6.2.2 test, due to LCM board button circuits are logic circuit, transmit signal only, consider as PS1 circuit

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

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

Supplementary information:--

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

| Circuit Location (x-y) | Operating Condition (Normal / Describe Single Fault) | Measured wattage or VA During first 30 s (W / VA) | Measured wattage or VA After 30 s (W / VA) | Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment) | Resistive PIS? Yes/No |
|---|---|---|---|---|---|

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

| | | | | | |
|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- |

Supplementary Information:

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

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

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

| 8.5.5 | TABLE: High Pressure Lamp | N/A |
|---|---|---|

| Description | Values | Energy Source Classification |
|---|---|---|
| Lamp type .....: | -- | — |
| Manufacturer .....: | -- | — |
| Cat no. .....: | -- | — |
| Pressure (cold) (MPa).....: | -- | MS_ |
| Pressure (operating) (MPa) .....: | -- | MS_ |
| Operating time (minutes) .....: | -- | — |
| Explosion method .....: | -- | — |
| Max particle length escaping enclosure (mm) .: | -- | MS_ |
| Max particle length beyond 1 m (mm).....: | -- | MS_ |
| Overall result .....: | | |
| Supplementary information:-- | | |

| B.2.5 | TABLE: Input test | | | | | | P |
|---|---|---|---|---|---|---|---|

| U (V) | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status |
|---|---|---|---|---|---|---|---|
| (for ODS2 DUAL) | | | | | | | |
| -- | -- | -- | -- | -- | -- | -- | Two powers operating total (Power Model: MRW-6420P) with power 80% load |
| 90V/47Hz | 5.68 | -- | 507.8 | -- | In PSU | 5.68 | Maximum normal load |
| 90V/63Hz | 5.70 | -- | 508.5 | -- | In PSU | 5.70 | Maximum normal load |
| 100V/47Hz | 5.04 | 8 | 503.4 | -- | In PSU | 5.04 | Maximum normal load |
| 100V/63Hz | 5.07 | 8 | 504.7 | -- | In PSU | 5.07 | Maximum normal load |

| EN 62368-1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Clause | Requirement + Test | | | | Result - Remark | | Verdict |
| 240V/47Hz | 2.15 | 4 | 484.9 | -- | In PSU | 2.15 | Maximum normal load |
| 240V/63Hz | 2.18 | 4 | 485.5 | -- | In PSU | 2.18 | Maximum normal load |
| 264V/47Hz | 2.06 | -- | 480.8 | -- | In PSU | 2.06 | Maximum normal load |
| 264V/63Hz | 2.09 | -- | 481.6 | -- | In PSU | 2.09 | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Top power (Two powers operating) (Power Model: MRW-6420P) with power 80% load |
| 90V/47Hz | 2.50 | -- | 224.0 | -- | In PSU | 2.50 | Maximum normal load |
| 90V/63Hz | 2.51 | -- | 224.2 | -- | In PSU | 2.51 | Maximum normal load |
| 100V/47Hz | 2.22 | 8 | 221.8 | -- | In PSU | 2.22 | Maximum normal load |
| 100V/63Hz | 2.23 | 8 | 222.8 | -- | In PSU | 2.23 | Maximum normal load |
| 240V/47Hz | 0.93 | 4 | 213.8 | -- | In PSU | 0.93 | Maximum normal load |
| 240V/63Hz | 0.94 | 4 | 214.0 | -- | In PSU | 0.94 | Maximum normal load |
| 264V/47Hz | 0.90 | -- | 211.3 | -- | In PSU | 0.90 | Maximum normal load |
| 264V/63Hz | 0.91 | -- | 211.7 | -- | In PSU | 0.91 | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Bottom power (Two powers operating) (Power Model: MRW-6420P) with power 80% load |
| 90V/47Hz | 3.18 | -- | 283.8 | -- | In PSU | 3.18 | Maximum normal load |
| 90V/63Hz | 3.19 | -- | 284.3 | -- | In PSU | 3.19 | Maximum normal load |
| 100V/47Hz | 2.82 | 8 | 281.6 | -- | In PSU | 2.82 | Maximum normal load |
| 100V/63Hz | 2.84 | 8 | 281.9 | -- | In PSU | 2.84 | Maximum normal load |
| 240V/47Hz | 1.22 | 4 | 271.1 | -- | In PSU | 1.22 | Maximum normal load |
| 240V/63Hz | 1.24 | 4 | 271.5 | -- | In PSU | 1.24 | Maximum normal load |
| 264V/47Hz | 1.16 | -- | 269.5 | -- | In PSU | 1.16 | Maximum normal load |
| 264V/63Hz | 1.18 | -- | 269.9 | -- | In PSU | 1.18 | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Bottom power (One power operating) (Power Model: MRW-6420P) with power 80% load |
| 90V/47Hz | 5.84 | -- | 525.7 | -- | In PSU | 5.84 | Maximum normal load |
| 90V/63Hz | 5.86 | -- | 526.1 | -- | In PSU | 5.86 | Maximum normal load |

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 100V/47Hz | 5.01 | 8 | 518.3 | -- | In PSU | 5.01 | Maximum normal load |
| 100V/63Hz | 5.09 | 8 | 518.9 | -- | In PSU | 5.09 | Maximum normal load |
| 240V/47Hz | 2.08 | 4 | 490.8 | -- | In PSU | 2.08 | Maximum normal load |
| 240V/63Hz | 2.09 | 4 | 491.6 | -- | In PSU | 2.09 | Maximum normal load |
| 264V/47Hz | 1.98 | -- | 488.2 | -- | In PSU | 1.98 | Maximum normal load |
| 264V/63Hz | 2.04 | -- | 488.5 | -- | In PSU | 2.04 | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Two powers operating total (Power Model: DMRW-6400F) with power 80% load |
| -36Vdc | 11.35 | 12 | 408.6 | -- | -- | -- | Maximum normal load |
| -72Vdc | 5.34 | 12 | 384.5 | -- | -- | -- | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Top power (Two powers operating) (Power Model: DMRW-6400F) with power 80% load |
| -36Vdc | 4.70 | 12 | 169.2 | -- | -- | -- | Maximum normal load |
| -72Vdc | 2.32 | 12 | 167.0 | -- | -- | -- | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Bottom power (Two powers operating) (Power Model: DMRW-6400F) with power 80% load |
| -36Vdc | 6.65 | 12 | 239.4 | -- | -- | -- | Maximum normal load |
| -72Vdc | 3.02 | 12 | 217.4 | -- | -- | -- | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Bottom power (One power operating) (Power Model: DMRW-6400F) with power 80% load |
| -36Vdc | 11.32 | 12 | 407.5 | -- | -- | -- | Maximum normal load |
| -72Vdc | 5.31 | 12 | 382.3 | -- | -- | -- | Maximum normal load |
| (for ODS2) | | | | | | | |
| -- | -- | -- | -- | -- | -- | -- | Power Model: P1H-6350P) with power 80% load |
| 90V/50Hz | 5.37 | -- | 477.0 | -- | In PSU | 5.37 | Maximum normal load |
| 90V/60Hz | 5.38 | -- | 478.2 | -- | In PSU | 5.38 | Maximum normal load |

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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 100V/50Hz | 4.76 | 8 | 471.3 | -- | In PSU | 4.76 | Maximum normal load |
| 100V/60Hz | 4.77 | 8 | 472.0 | -- | In PSU | 4.77 | Maximum normal load |
| 240V/50Hz | 1.98 | 5 | 453.0 | -- | In PSU | 1.98 | Maximum normal load |
| 240V/60Hz | 2.01 | 5 | 453.3 | -- | In PSU | 2.01 | Maximum normal load |
| 264V/50Hz | 1.91 | -- | 447.0 | -- | In PSU | 1.91 | Maximum normal load |
| 264V/60Hz | 1.95 | -- | 450.2 | -- | In PSU | 1.95 | Maximum normal load |
| -- | -- | -- | -- | -- | -- | -- | Power Model: DP1H-6350F) with power 80% load |
| -36Vdc | 12.80 | 17 | 460.8 | -- | -- | -- | Maximum normal load |
| -72Vdc | 6.29 | 17 | 452.9 | -- | -- | -- | Maximum normal load |

Supplementary information:

Equipment may be have rated current or rated power or both. Both should be measured

“Maximum normal load” was defined as follows:

Approval AC or DC power supply provided EUT power source, the unit connecting to network, CPU performance 100%, continuously crossed transmit data through fiber and LAN ports, each USB2.0 port loaded 2.5W (total 2.5W), loaded to approximately 80% of the internal AC/DC power supply’s marked electrical output rating, burn-in program, power fan and system fan flow direction were outward, and working continuously..

| B.3 | TABLE: Abnormal operating condition tests | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) : | | | | | See below | | | — |
| Power source for EUT: Manufacturer, model/type, output rating : | | | | | See table 4.1.2 for details | | | — |
| Component No. | Abnormal Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| Ventilation openings blocked (for ODS2 DUAL, with power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.3.2/ Blocked | 264Vac | 1.3hrs | In PSU | 2.04 to 2.04 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation: No hazard, No damage, NB, CT, ASRE, Unit normal operated. Measure I/O output voltage: USB2.0: 4.97Vdc |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ventilation openings blocked (for ODS2 DUAL, with power model: DMRW-6400F) (1 power, bottom) -72Vdc (2U, power 80% load) | B.3.2/ Blocked | -72Vdc | 2.0hrs | In PSU | 5.31 to 5.31 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation: No hazard, No damage, NB, CT, ASRE, Unit normal operated. Measure I/O output voltage: USB2.0: 4.97Vdc |
| Ventilation openings blocked (Right and Left Side) (for ODS2, with power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.3.2/ Blocked | 264Vac | 1.1hrs | In PSU | 1.95 to 1.95 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation: No hazard, No damage, NB, CT, ASRE, Unit normal operated. Measure I/O output voltage: USB2.0: 4.97Vdc |
| Ventilation openings blocked (Back Side) (for ODS2, with power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.3.2/ Blocked | 264Vac | 1.5hrs | In PSU | 1.95 to 1.95 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation: No hazard, No damage, NB, CT, ASRE, Unit normal operated. Measure I/O output voltage: USB2.0: 4.97Vdc |
| Ventilation openings blocked (Right and Left Side) (for ODS2, with power model: DP1H-6350F) -72Vdc (1U, power 80% load) | B.3.2/ Blocked | -72Vdc | 2.0hrs | In PSU | 6.29 to 6.29 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation: No hazard, No damage, NB, CT, ASRE, Unit normal operated. Measure I/O output voltage: USB2.0: 4.97Vdc |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ventilation openings blocked (Back Side) (for ODS2, with power model: DP1H-6350F) -72Vdc (1U, power 80% load) | B.3.2/ Blocked | -72Vdc | 4.2hrs | In PSU | 6.29 to 0.1 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation:<br>No hazard,<br>No damage, NB, CT, ASRE,<br>Unit shutdown.<br>Measure I/O output voltage:<br>USB2.0: 0Vdc |
| Connector Overload (USB2.0 for ODS2 DUAL, with power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.3.5/ Maximum load at output terminals | 264Vac | 2.2hrs | In PSU | 2.04 to 2.21 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation:<br>No hazard,<br>No damage, NB, CT, ASRE,<br>Unit normal operated.<br>Load condition:<br>USB1 maximum available current: 5000mA<br>Measure I/O output voltage:<br>USB2.0: 4.00Vdc |
| Connector Overload (USB2.0 for ODS2, with power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.3.5/ Maximum load at output terminals | 264Vac | 1.4hrs | In PSU | 1.95 to 2.08 | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6 for temperature measurements. | Observation:<br>No hazard,<br>No damage, NB, CT, ASRE,<br>Unit normal operated.<br>Load condition:<br>USB1 maximum available current: 4700mA<br>Measure I/O output voltage:<br>USB2.0: 4.01Vdc |

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

Supplementary information:
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.

- All ES measurement refer to table 5.2

NC: Cheesecloth remain intact

NT: Tissue paper remains intact

NB: No indication of dielectric breakdown

IP: Internal protection operated (list component)

CT: Constant temperatures were obtained

CD: Components damaged (list damaged components)

ASRE: All safeguards remained effectively

| **B.4** | **TABLE: Fault condition tests** | | | | | | | **P** |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) .....: | | | | See below | | | | — |
| Power source for EUT: Manufacturer, model/type, output rating .: | | | | See table 4.1.2 for details | | | | — |
| Component No. | Fault Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| Power Fan#1 (for power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 2.5hrs | In PSU | 2.04 to 2.02 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| Power Fan#2 (for power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 2.8hrs | In PSU | 2.04 to 2.02 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |

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

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Power Fan#1 (for power model: DMRW-6400F) (1 power, bottom) -72Vdc (2U, power 80% load) | B.4.3.1/ Stalled | -72Vdc | 1.8hrs | In PSU | 5.31 to 5.30 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| Power Fan#2 (for power model: DMRW-6400F) (1 power, bottom) -72Vdc (2U, power 80% load) | B.4.3.1/ Stalled | -72Vdc | 2.1hrs | In PSU | 5.31 to 5.30 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0: 4.97Vdc |
| Power Fan#1 (for power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 3.3hrs | In PSU | 1.95 to 0.2 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit shutdown, ASRE. Measure I/O output voltage: USB2.0:0Vdc |
| Power Fan#2 (for power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 2.4hrs | In PSU | 1.95 to 1.94 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| Power Fan#1 (for power model: DP1H-6350F) -72Vdc (1U, power 80% load) | B.4.3.1/ Stalled | -72Vdc | 3.2hrs | In PSU | 6.29 to 0.1 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit shutdown, ASRE. Measure I/O output voltage: USB2.0:0Vdc |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Power Fan#2 (for power model: DP1H-6350F) -72Vdc (1U, power 80% load) | B.4.3.1/ Stalled | -72Vdc | 2.1hrs | In PSU | 6.29 to 6.28 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| System Fan#1,3,5 (for power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 3.4hrs | In PSU | 2.04 to 2.02 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| System Fan#2,4,6 (for power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 1.9hrs | In PSU | 2.04 to 2.02 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| System Fan#1,3,5,7 (for power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 2.1hrs | In PSU | 1.95 to 1.92 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| System Fan#2,4,6,8 (for power model: P1H-6350P) 264Vac /60Hz (1U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 2.2hrs | In PSU | 1.95 to 1.92 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CPU Fan#1 (for power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 1.5hrs | In PSU | 2.04 to 2.00 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |
| CPU Fan#2 (for power model: MRW-6420P) (1 power, bottom) 264Vac /63Hz (2U, power 80% load) | B.4.3.1/ Stalled | 264Vac | 1.5hrs | In PSU | 2.04 to 2.00 | -- | See TABLE: Thermal requirements | No hazard, No damage, No flame, NB, CT, Unit normal operated, ASRE. Measure I/O output voltage: USB2.0:4.97Vdc |

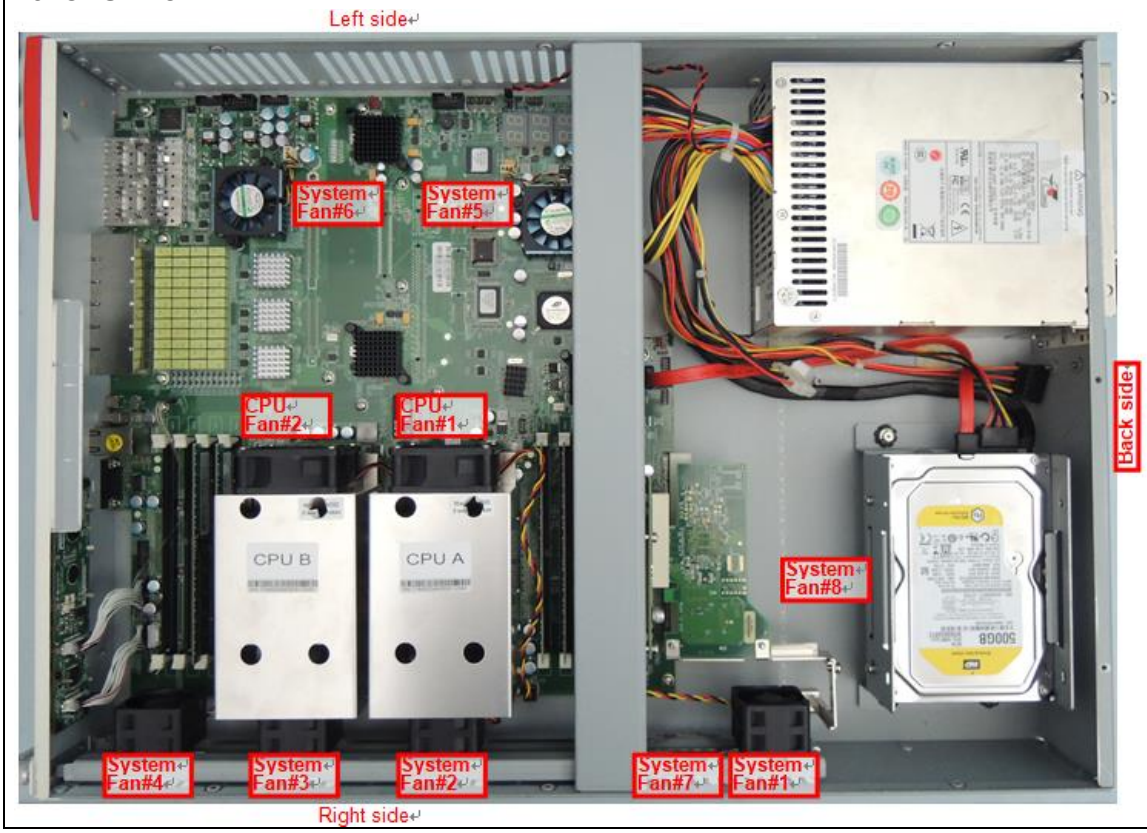
| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

Supplementary information:
- All ES measurement refer to table 5.2
NB - No indication of dielectric breakdown.
NC - Cheesecloth remained intact.
NT - Tissue paper remained intact.
CT – Constant temperatures were obtained
IP - Internal protection operated (list component).
CD - Components damaged (list damaged components)
ASRE: All safeguards remained effectively

Note,
For ODS2 DUAL all tests removed system fan #7, #8, for ODS2 all tested removed system fan #9, #10, #11

Fan location:

For ODS2 DUAL:

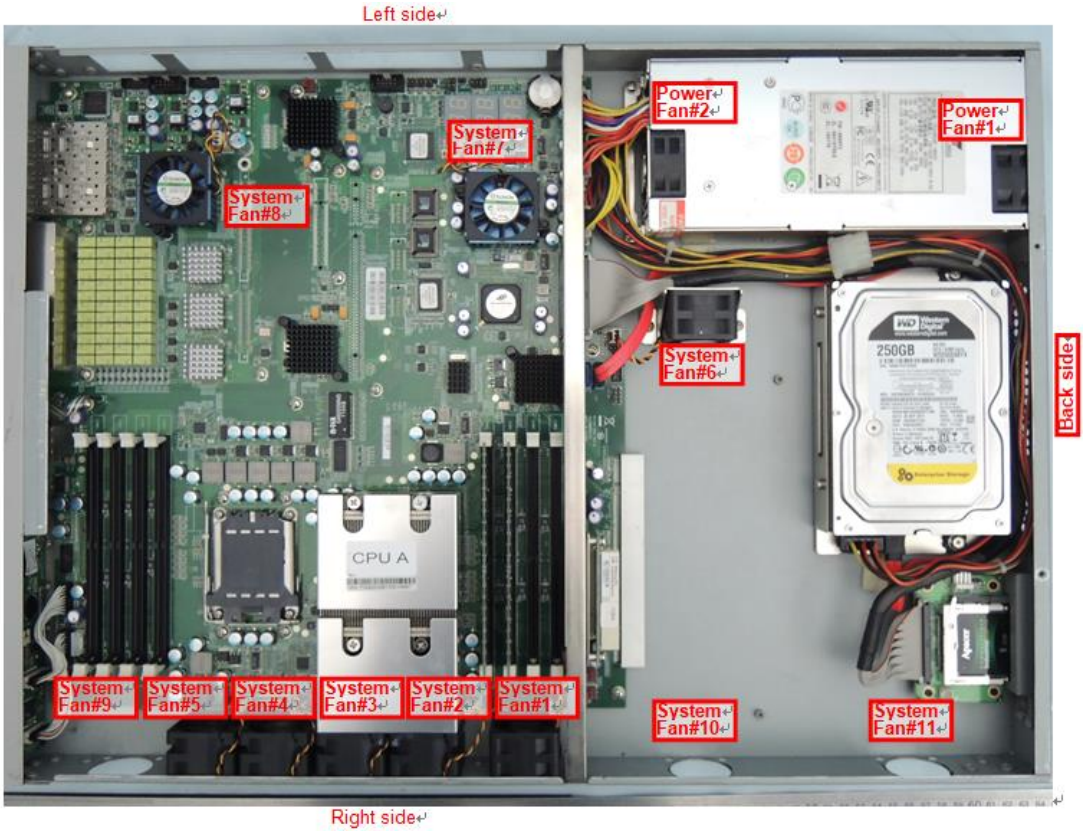


| EN 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

(with power model: MRW-6420P)

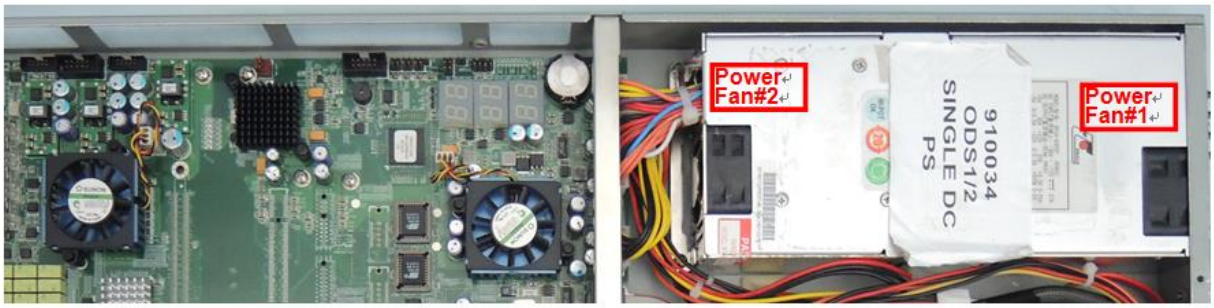

(with power model: DMRW-6400F)


For ODS2 (with power model: P1H-6350P)



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

(with power model: DP1H-6350F)




| **Annex M** | **TABLE: Batteries** | | | | | | | | | **P** |
|---|---|---|---|---|---|---|---|---|---|---|
| The tests of Annex M are applicable only when appropriate battery data is not available | | | | | | | | | | -- |
| Is it possible to install the battery in a reverse polarity position? ..... : | | | | | | | No | | | -- |
| | Non-rechargeable batteries | | | Rechargeable batteries | | | | | | |
| | Discharging | | Un-intentional charging | Charging | | Discharging | | Reversed charging | | |
| | Meas. current | Manuf. Specs. | | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. | |
| Max. current during normal condition | -- | -- | 0mA | -- | -- | -- | -- | -- | -- | |
| SFC 1: R52 short | -- | -- | 0mA | -- | -- | -- | -- | -- | -- | |
| SFC 3: D4 Pin1 to Pin2 short | -- | -- | 3.15mA | -- | -- | -- | -- | -- | -- | |
| | | | | | | | | | | |
| Test results: | | | | | | | -- | | | Verdict |
| - Chemical leaks | | | | | | | -- | | | N/A |
| - Explosion of the battery | | | | | | | -- | | | N/A |
| - Emission of flame or expulsion of molten metal | | | | | | | -- | | | N/A |
| - Electric strength tests of equipment after completion of tests | | | | | | | -- | | | N/A |
| Supplementary information:<br>- Maximum abnormal charging current 5 mA, R748=1 K Ω<br>- Waived Non-rechargeable batteries discharge test, due to the recognized RTC battery is used | | | | | | | | | | |

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

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

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

Supplementary Information:--

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

Supplementary Information:--

| **Annex Q.1** | **TABLE: Circuits intended for interconnection with building wiring (LPS)** | | | | | **P** |
|---|---|---|---|---|---|---|
| Note: Measured UOC (V) with all load circuits disconnected: | | | | | | |
| Output Circuit | Components | $U_{oc}$ (V) | $I_{sc}$ (A) | | S (VA) | |
| | | | Meas. | Limit | Meas. | Limit |
| Impedance limited | -- | -- | -- | -- | -- | -- |
| USB2.0 (USB1) | Pin1 (Normal condition) | 5.21Vdc | 5.10 | 8 | 19.55 (3.91V*5.00A) | 100 |
| Inherently limited | -- | -- | -- | -- | -- | -- |
| USB2.0 (USB1) | Pin2-4 (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN1 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN2 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |

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

| | | | | | | |
|---|---|---|---|---|---|---|
| LAN3 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN4 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN5 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN6 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN7 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN8 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN9 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN10 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN11 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN12 (JZ13) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN13 (LAN1A) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| LAN14 (LAN1B) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |
| COM (J22) | All Pins (Normal condition) | 0Vdc | 0 | 8 | 0 | 100 |

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

I/O Views:

LAN 1/3/5/7/9/11 LAN13


LAN 2/4/6/8/10/12 USB/LAN14/COM

| EN 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) | Force (N) | Test Duration (sec) | Observation |
| (for ODS2 DUAL, with power model: MRW-6420P) | | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| (for ODS2 DUAL, with power model: DMRW-6400F) | | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |

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

| | | | | | |
|---|---|---|---|---|---|
| Metal enclosure/ Bottom near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| (for ODS2, with power model: P1H-6350P) | | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |

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

| | | | | | |
|---|---|---|---|---|---|
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| (for ODS2, with power model: DP1H-6350F) | | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Metal enclosure/ Bottom near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 250 | 5 | 1) |
| Supplementary information:<br>1) No cracking, class 3 energy sources did not become accessible and all safeguards remain effective, No indication of dielectric breakdown | | | | | |

| T.6, T.9 | TABLE: Impact tests | | | | P |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Vertical distance (mm) | Observation | |
| (for ODS2 DUAL, with power model: MRW-6420P) | | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) | |

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

| | | | | |
|---|---|---|---|---|
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| (for ODS2 DUAL, with power model: DMRW-6400F) | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| (for ODS2, with power model: P1H-6350P) | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |

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

| | | | | |
|---|---|---|---|---|
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| (for ODS2, with power model: DP1H-6350F) | | | | |
| Metal enclosure/ Top near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Supply | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near Power Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Top near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Side near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Metal enclosure/ Rear near System Fan | See appended table 4.1.2 | See appended table 4.1.2 | 1300 | 1) |
| Supplementary information:<br>1) No cracking, class 3 energy sources did not become accessible and all safeguards remain effective, No indication of dielectric breakdown | | | | |

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

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

| T.8 | TABLE: Stress relief test | | | | N/A |
|---|---|---|---|---|---|
| Part/Location | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation |
| -- | -- | -- | -- | -- | -- |
| Supplementary information:<br>1)No shrinkage, warpage, or other distortion, class 3 energy sources did not become accessible. All safeguards remain effective.<br>Note, Waived insulation mylar stress relief test, due to it will not cause shrinkage, warpage, or other distortion. | | | | | |

# National Differences

Australia / New Zealand
Denmark
Group

* No National Differences Declared
** Only Group Differences

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**ATTACHMENT TO TEST REPORT**
IEC 62368-1
(AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES
(**Audio/video, information and communication technology equipment**)

| | |
|---|---|
| **Differences according to** ..... : | AS/NS 62368-1:2018 |
| **TRF template used**..... : | IECEE OD-2020-F3, Ed. 1.1 |
| **Attachment Form No**. ..... : | AU-NZ-ND-IEC62368_1D |
| **Attachment Originator**..... : | JAS-ANZ |
| **Master Attachment**..... : | 2021-04-19 |



| | **National Differences** | |
|---|---|---|
| **Appendix ZZ** | Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand | P |
| **ZZ1 Scope** | This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0) | P |
| **ZZ2 Variations** | The following modifications are required for Australian/New Zealand conditions: | P |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **2** | *Add* the following to the list of normative references:<br>The following normative documents are referenced in Appendix ZZ:<br>-AS/NZS 3112, *Approval and test specification—Plugs and socket-outlets*<br>-AS/NZS 3123, *Approval and test specification—Plugs, socket-outlets and couplers for general industrial application*<br>-AS/NZS 3191, *Electric flexible cords*<br>-AS/NZS 60065, *Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)*<br>-AS/NZS 60320.1, *Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)*<br>-AS/NZS 60320.2.2, *Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)*<br>-AS/NZS 60695.2.11*, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products*<br>-AS/NZS 60695.11.5, *Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance*<br>-AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods*<br>-AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements*<br>-AS/NZS 60950.1:2015, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)*<br>IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification*<br>-AS/NZS 61558.1:2008 (including Amendment 2:2015), *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)*<br>-AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.* | | P |
| **4.1.1** | **Application of requirements and acceptance of** | | P |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | **materials, components and subassemblies**<br>1 *Replace* the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.<br>2 *Replace* the text 'IEC 60065' with 'AS/NZS 60065'. | | |
| **4.7** | **Equipment for direct insertion into mains socket-outlets** | | N/A |
| **4.7.2** | **Requirements**<br>*Delete* the text of the second paragraph and *replace* with the following:<br>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | | N/A |
| **4.7.3** | **Compliance Criteria**<br>*Delete* the first paragraph and Note 1 and Note 2 and *replace* with the following:<br>*Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.* | | N/A |
| **4.8** | *Delete* existing clause title and *replace* with the following:<br>**4.8 Products containing coin/button cell batteries** | | N/A |
| **4.8.1** | **General**<br>1 Second dashed point, *delete* the text and *replace* with the following:<br>– include coin/button cell batteries with a diameter of 32 mm or less.<br>2 After the second dashed point, *insert* the following Note:<br>NOTE 1: Batteries are specified in IEC 60086-2.<br>3 After the third dashed point, *renumber* the existing Note as 'NOTE 2'.<br>4 Fifth dashed point, *delete* the word 'lithium'. | | N/A |
| **4.8.2** | **Instructional Safeguard**<br>First line, *delete* the word 'lithium'. | | N/A |
| **4.8.3** | **Construction**<br>First line, after the word 'Equipment' *insert* the words 'containing one or more coin/button batteries and' | | N/A |
| **4.8.5** | **Compliance criteria**<br>*Delete* the first paragraph and *replace* with the following:<br>*Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.* | | N/A |
| **5.4.10.2** | **Test methods** | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **5.4.10.2.1** | **General**<br>*Delete* the first paragraph and *replace* with the following:<br>In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2<br>and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3. | | N/A |
| **Table 29** | *Replace* the table with the following: | | N/A |

| Parts | Impulse test | | Steady state test | |
|---|---|---|---|---|
| | New Zealand | Australia | New Zealand | Australia |
| Parts indicated in Clause 5.4.10.1 a) [a] | 2.5 kV 0/700 µs | 7.0 kV for hand-held telephones and heads ts, 2.5 kV or other equipment. 10/700 µs | 1.5 kV | 3 kV |
| Part indica ed in Clause 5.4.10.1 b) and c) [b] | 1.5 kV 10/700 µs [c] | | .0 k | 1.5 kV |

[a] Surge suppressor shall not be removed.
[b] Sur e upp essors may be emoved, provid th t such devices ass the im ulse test f Clause 5.4.10.2.2 when tested as co ponent outside the equipm t.
[c] During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.

| | | | |
|---|---|---|---|
| **5.4.10.2.2** | After the first paragraph, *insert* new Notes 201 and 202 as follows:<br>NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.<br>NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages. | | N/A |
| **5.4.10.2.3** | After the first paragraph, *insert* new Notes 201 and 202 as follows:<br>NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.<br>NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system. | | N/A |
| **6** | **Electrically-caused fire** | | N/A |
| **6.1** | **General**<br>After the first paragraph, *insert* the following new paragraph:<br>Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202 | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **6.6** | After Clause 6.6, *add* the new Clauses 6.201 and 6.202 as follows:<br>**6.201 External power supplies, docking stations and other similar devices** and<br>**6.202 Resistance to fire—Alternative tests**<br>(see special national conditions) | | N/A |
| **8.5.4** | **Special categories of equipment comprising moving parts** | | N/A |
| **8.5.4.1** | **Large data storage equipment**<br>In the first dashed row and the second dashed rows *replace* 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'. | | N/A |
| **8.6** | **Stability of equipment** | | N/A |
| **8.6.1 and Table 36** | **Requirements**<br>1. Table 36, *insert* Footnote c at the end of the 'Glass slide' heading, and *add* a new Footnote c after the text of Footnote b in the last row of Table 36 as follows:<br>[c] The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display.<br>2. Table 36, fifth row, *insert* '201' at the end of 'No stability requirements'<br>3. Table 36, ninth row, *insert* '201' at the end of 'No stability requirements'<br>4. Table 36, *add* the following new footnote:<br>201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply.<br>5. Second paragraph beneath Table 36, *delete* the words 'MS2 and MS3 television sets' and *replace* with 'MS2 and MS3 television sets and display devices' | | N/A |
| **8.6.1** | After Clause 8.6.1 *add* the following new clauses:<br>**8.6.1.201 Instructional safeguard for fixed-mount television sets**<br>(see special national conditions) | | N/A |
| **Annex F Paragraph F.3.5.1** | **Mains appliance outlet and socket-outlet markings**<br>*Replace* 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **Annex G**<br>**Paragraph G.4.2** | **Mains connectors**<br>1 In the second line *insert* 'or AS/NZS 3123' after 'IEC 60906-1'.<br>2 In the second line *insert* 'or AS/NZS 60320 series' after 'IEC 60320 series'<br>3 *Add* the following new paragraph:<br>10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1. | | N/A |
| **Paragraph G.5.3.1** | **Transformers, General**<br>1 In the third dashed point *replace* 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'<br>2 In the fourth dashed point *replace* 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'. | | N/A |
| **Paragraph G.7.1** | **Mains supply cords, General**<br>In the fourth dashed paragraph, *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' | | N/A |
| **Table G.5** | **Sizes of conductors**<br>1 In the second row, first column, *delete* '6' and *replace* with '7.5'<br>2 In the second row, second column, *delete* '0,75' and *replace* with '0.75[b]<br>3 *Delete* Note 1.<br>4 *Replace* 'NOTE 2' with 'NOTE:'.<br>5 *Delete* the text of 'Footnote b' and *replace* with the following:<br>[b] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm2 three-core supply flexible cords are not permitted; see AS/NZS 3191).<br>6 In Footnote c *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'<br>7 In Footnote d *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **Annex M Paragraph M.3.2** | **Protection circuits for batteries provided within the equipment, Test method**<br>After the first dashed point *add* the following Note:<br>NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test. | | N/A |
| | **Special national conditions (if any)** | | N/A |
| **6.201** | **External power supplies, docking stations and other similar devices**<br>For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage—<br>– at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and<br>– of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher.<br>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.<br>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.<br>*Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4* | | N/A |
| **6.202** | **Resistance to fire—Alternative tests** | | N/A |
| **6.202.1** | **General**<br>Parts of non-metallic material shall be resistant to ignition and spread of fire.<br>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:<br>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | completely, and for ventilation not exceeding 1 mm in width regardless of length.<br>b) The following parts which would contribute negligible fuel to a fire:<br>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;<br>– small electrical components, such as capacitors with a volume not exceeding 1 750 mm3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.<br>NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other<br>for the possible effect of propagating the fire from one part to another. | | |
| | *Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.*<br>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.<br>The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.<br>These tests are not carried out on internal wiring. | | |
| **6.202.2** | **Testing of non-metallic materials**<br>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.<br>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested. | | N/A |
| **6.202.3** | **Testing of insulating materials**<br>Parts of insulating material supporting Potential Ignition Sources shall be subject<br>to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.<br>The test shall be also carried out on other parts of insulating material which are<br>within a distance of 3 mm of the connection.<br>NOTE: Contacts in components such as switch contacts are considered to be connections | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| | For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test.<br>However, parts shielded by a barrier which meets the needle-flame test need not be tested | | N/A |
| | The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications: | | N/A |

| **Clause of AS/NZS 60695.11.5** | Change |
|---|---|
| **9 Test procedure** | |
| **9.2 Application of needle-flame** | *Delete* the first and second paragraphs and *replace* with the following:<br>The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.<br>The duration of application of the test flame shall be 30 s 1 s. |
| **9.3 Number of test specimens** | *Replace* with the following:<br>The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further<br>spe mens, both of which shall withstand the test. |
| **11 Evaluation of test results** | *Replace* with the following:<br>The duration of burning (tb) shall not exceed 30 s. |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | However,<br>for printed circuit boards, it shall not exceed 15 s.<br>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested. | | |
| **6.202.4** | **Testing in the event of non-extinguishing material**<br>If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.<br>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.<br>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.<br>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. | | N/A |
| **6.202.5** | **Testing of printed boards**<br>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.<br><br>The test is not carried out if—<br>– the printed board does not carry any potential ignition source; | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | – the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or<br>– the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.<br>*Conformance shall be determined using the smallest thickness of the material.*<br>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected. | | |
| **6.202.6** | **For open circuit voltages greater than 4 kV**<br>Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **8.6.1.201** | **8.6.1.201 Instructional safeguard for fixed-mount television sets**<br>MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment.<br>The elements of the instructional safeguard shall be as follows:<br>– element 1a: not available;<br>– element 2: 'Stability Hazard' or equivalent wording;<br>– element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text;<br>– element 4: the following or equivalent text:<br>To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions | | N/A |
| **8.6.1.202** | **Restraining device**<br>MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage.<br>Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | -AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods*<br>-AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements*<br>-AS/NZS 60950.1:2015, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)*<br>IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification*<br>-AS/NZS 61558.1:2008 (including Amendment 2:2015), *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)*<br>-AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.* | | |
| **4.1.1** | **Application of requirements and acceptance of materials, components and subassemblies**<br>1 *Replace* the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.<br>2 *Replace* the text 'IEC 60065' with 'AS/NZS 60065'. | | P |
| **4.7** | **Equipment for direct insertion into mains socket-outlets** | | N/A |
| **4.7.2** | **Requirements**<br>*Delete* the text of the second paragraph and *replace* with the following:<br>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | | N/A |
| **4.7.3** | **Compliance Criteria**<br>*Delete* the first paragraph and Note 1 and Note 2 and *replace* with the following:<br>*Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.* | | N/A |
| **4.8** | *Delete* existing clause title and *replace* with the following:<br>**4.8 Products containing coin/button cell batteries** | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4.8.1** | **General**<br>1 Second dashed point, *delete* the text and *replace* with the following:<br>– include coin/button cell batteries with a diameter of 32 mm or less.<br>2 After the second dashed point, *insert* the following Note:<br>NOTE 1: Batteries are specified in IEC 60086-2.<br>3 After the third dashed point, *renumber* the existing Note as 'NOTE 2'.<br>4 Fifth dashed point, *delete* the word 'lithium'. | | N/A |
| **4.8.2** | **Instructional Safeguard**<br>First line, *delete* the word 'lithium'. | | N/A |
| **4.8.3** | **Construction**<br>First line, after the word 'Equipment' *insert* the words 'containing one or more coin/button batteries and' | | N/A |
| **4.8.5** | **Compliance criteria**<br>*Delete* the first paragraph and *replace* with the following:<br>*Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.* | | N/A |
| **5.4.10.2** | **Test methods** | | N/A |
| **5.4.10.2.1** | **General**<br>*Delete* the first paragraph and *replace* with the following:<br>In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3. | | N/A |
| **Table 29** | *Replace* the table with the following: | | N/A |

| Parts | Impulse test | | Steady state test | |
|---|---|---|---|---|
| | New Zealand | Australia | New Zealand | Australia |
| Parts indicated in Clause 5.4.10.1 a) [a] | 2.5 kV 10/7 0 µs | 7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 µs | 1.5 V | 3 kV |
| Parts in icat d in Clause 5.4.10.1 b) and c) [b] | 1.5 kV 10/700 µs [c] | | 1.0 kV | 1.5 kV |

[a] urge su presso shall not be removed
[b] Surge sup ress rs may be removed, provided at such devices pass t e impulse test of

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Clause 5.4.10. .2 when tested as componen s outside the e ui ment.<br>[c] During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT. | | |
| **5.4.10.2.2** | After the first paragraph, *insert* new Notes 201 and 202 as follows:<br>NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.<br>NOTE 202 For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages. | | N/A |
| **5.4.10.2.3** | After the first paragraph, *insert* new Notes 201 and 202 as follows:<br>NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.<br>NOTE 202 The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system. | | N/A |
| **6** | **Electrically-caused fire** | | N/A |
| **6.1** | **General**<br>After the first paragraph, *insert* the following new paragraph:<br>Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202 | | N/A |
| **6.6** | After Clause 6.6, *add* the new Clauses 6.201 and 6.202 as follows:<br>**6.201 External power supplies, docking stations and other similar devices** and<br>**6.202 Resistance to fire—Alternative tests**<br>(see special national conditions) | | N/A |
| **8.5.4** | **Special categories of equipment comprising moving parts** | | N/A |
| **8.5.4.1** | **Large data storage equipment**<br>In the first dashed row and the second dashed rows *replace* 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'. | | N/A |
| **8.6** | **Stability of equipment** | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **8.6.1 and Table 36** | **Requirements**<br>1. Table 36, *insert* Footnote c at the end of the 'Glass slide' heading, and *add* a new Footnote c after the text of Footnote b in the last row of Table 36 as follows:<br>[c] The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display.<br>2. Table 36, fifth row, *insert* '201' at the end of 'No stability requirements'<br>3. Table 36, ninth row, *insert* '201' at the end of 'No stability requirements'<br>4. Table 36, *add* the following new footnote:<br>201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply.<br>5. Second paragraph beneath Table 36, *delete* the words 'MS2 and MS3 television sets' and *replace* with 'MS2 and MS3 television sets and display devices' | | N/A |
| **8.6.1** | After Clause 8.6.1 *add* the following new clauses:<br>**8.6.1.201 Instructional safeguard for fixed-mount television sets**<br>(see special national conditions) | | N/A |
| **Annex F Paragraph F.3.5.1** | **Mains appliance outlet and socket-outlet markings**<br>*Replace* 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'. | | N/A |
| **Annex G Paragraph G.4.2** | **Mains connectors**<br>1 In the second line *insert* 'or AS/NZS 3123' after 'IEC 60906-1'.<br>2 In the second line *insert* 'or AS/NZS 60320 series' after 'IEC 60320 series'<br>3 *Add* the following new paragraph:<br>10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1. | | N/A |
| **Paragraph G.5.3.1** | **Transformers, General**<br>1 In the third dashed point *replace* 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'<br>2 In the fourth dashed point *replace* 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **Paragraph G.7.1** | **Mains supply cords, General**<br>In the fourth dashed paragraph, *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' | | N/A |
| **Table G.5** | **Sizes of conductors**<br>1 In the second row, first column, *delete* '6' and *replace* with '7.5'<br>2 In the second row, second column, *delete* '0,75' and *replace* with '0.75[b]<br>3 *Delete* Note 1.<br>4 *Replace* 'NOTE 2' with 'NOTE:'.<br>5 *Delete* the text of 'Footnote b' and *replace* with the following:<br>[b] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm2 three-core supply flexible cords are not permitted; see AS/NZS 3191).<br>6 In Footnote c *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'<br>7 In Footnote d *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' | | N/A |
| **Annex M Paragraph M.3.2** | **Protection circuits for batteries provided within the equipment, Test method**<br>After the first dashed point *add* the following Note:<br>NOTE 201: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test. | | N/A |
| | **Special national conditions (if any)** | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **6.201** | **External power supplies, docking stations and other similar devices**<br>For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage—<br>– at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and<br>– of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher.<br>For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn.<br>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries.<br>*Compliance shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single-fault conditions of Annex B.4* | All IO connectors do not increase by more than 10% of its output voltage, see appended table 5.2.2, B.3, B.4 and Q.1 for details | P |
| **6.202** | **Resistance to fire—Alternative tests** | | N/A |
| **6.202.1** | **General**<br>Parts of non-metallic material shall be resistant to ignition and spread of fire.<br>This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following:<br>a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.<br>b) The following parts which would contribute negligible fuel to a fire:<br>– small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;<br>– small electrical components, such as capacitors with a volume not exceeding 1 750 mm3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.<br>NOTE: In considering how to minimize | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other<br>for the possible effect of propagating the fire from one part to another. | | |
| | *Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.*<br>For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5.<br>The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.<br>These tests are not carried out on internal wiring. | | |
| **6.202.2** | **Testing of non-metallic materials**<br>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.<br>Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested. | | N/A |
| **6.202.3** | **Testing of insulating materials**<br>Parts of insulating material supporting Potential Ignition Sources shall be subject<br>to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.<br>The test shall be also carried out on other parts of insulating material which are<br>within a distance of 3 mm of the connection.<br>NOTE: Contacts in components such as switch contacts are considered to be connections | | N/A |
| | For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test.<br>However, parts shielded by a barrier which meets the needle-flame test need not be tested | | N/A |
| | The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:<br>**Clause of AS/NZS 60695.11.5** \| Change | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | **9 Test procedure** | | |
| | **9.2 Application of needle-flame** | *Delete* the first and second paragraphs and *replace* with the following:<br>The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner.<br>The duration of application of the test flame shall be 30 s 1 s. | |
| | **9.3 Number of test specimens** | *Replace* with the following:<br>The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further<br>sp cimens, both of which shall withstand the test. | |
| | **11 Evaluation of test results** | *Replace* with the following:<br>The duration of burning (tb) shall not exceed 30 s. However,<br>for printed circuit boards, it shall not exceed 15 s. | |
| | The needle-flame test shall not be carried out on parts of material classified as<br>V-0 or V-1 according to AS/NZS 60695.11.10, provided that the relevant part is not thinner than the sample tested. | | |
| **6.202.4** | **Testing in the event of non-extinguishing material** | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.<br>NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.<br>NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing.<br>NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. | | |
| **6.202.5** | **Testing of printed boards**<br>The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source.<br><br>The test is not carried out if—<br>– the printed board does not carry any potential ignition source;<br>– the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and<br>equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | completely; or<br>– the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.<br>*Conformance shall be determined using the smallest thickness of the material.*<br>NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected. | | |
| **6.202.6** | **For open circuit voltages greater than 4 kV**<br>Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10. | | N/A |
| **8.6.1.201** | **8.6.1.201 Instructional safeguard for fixed-mount television sets**<br>MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment.<br>The elements of the instructional safeguard shall be as follows:<br>– element 1a: not available;<br>– element 2: ‘Stability Hazard’ or equivalent wording;<br>– element 3: ‘The television set may fall, causing serious personal injury or death’ or equivalent text;<br>– element 4: the following or equivalent text:<br>To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **8.6.1.202** | **Restraining device**<br>MS2 and MS3 television sets and display devices that are not solely fixed-mounted<br>should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage.<br>Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**ATTACHMENT TO TEST REPORT IEC 62368-1**
**DENMARK NATIONAL DIFFERENCES**

Audio/video, information and communication technology equipment –
Part 1: Safety requirements

**Differences according to**.....: DS/EN 62368-1:2014

**Attachment Form No**. .....: DK_ND_IEC62368_1D

**Attachment Originator .....**: UL (Demko)

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



| | **National Differences** | | |
|---|---|---|---|
| 4.1.15 | To the end of the subclause the following is added:<br><br>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.<br><br>The marking text in the applicable countries shall be as follows:<br>In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” | | N/A |
| 5.2.2.2 | After the 2nd paragraph add the following:<br>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | | N/A |
| 5.6.1 | Add to the end of the subclause:<br><br>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.<br><br>Justification:<br>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.5 | To the end of the subclause the following is added:<br>The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | | N/A |
| 5.7.6.2 | To the end of the subclause the following is added:<br>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA. | | N/A |
| G.4.2 | To the end of the subclause the following is added:<br><br>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.<br><br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.<br><br>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.<br><br>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.<br><br>Other current rating socket outlets shall be in compliance with Standard Sheet<br>DKA 1-3a or DKA 1-1c. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.2 | Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a<br><br>Justification:<br>Heavy Current Regulations, Section 6c | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

**ATTACHMENT TO TEST REPORT**

**IEC 62368-1**
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

**Differences according to** ..... : EN 62368-1:2014+A11:2017

**Attachment Form No**. ..... : EU_GD_IEC62368_1D_II

**Attachment Originator**..... : Nemko AS

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



| | | |
|---|---|---|
| | **CENELEC COMMON MODIFICATIONS (EN)** | |
| | Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z". | Pass |
| CONTENTS | **Add** the following annexes:<br>Annex ZA (normative) Normative references to international publications with their corresponding European publications<br>Annex ZB (normative) Special national conditions<br>Annex ZC (informative) A-deviations<br>Annex ZD (informative) IEC and CENELEC code designations for flexible cords | Pass |
| | **Delete** all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list: | Pass |

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

| | | | |
|---|---|---|---|
| | For special national conditions, see Annex ZB. | | Pass |
| 1 | **Add** the following note:<br>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU. | | Pass |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.Z1 | **Add** the following new subclause after 4.9:<br>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):<br>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;<br>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;<br>c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.<br>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | | Pass |
| 5.4.2.3.2.4 | **Add** the following to the end of this subclause:<br>The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009. | | N/A |
| 10.2.1 | Add the following to [c] and [d] in table 39:<br>For additional requirements, see 10.5.1. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.5.1 | **Add** the following after the first paragraph:<br>*For RS 1 compliance is checked by measurement under the following conditions:*<br>*In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.*<br>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.<br>*The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.*<br>*Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.*<br>*For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.*<br>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996. | | N/A |
| 10.6.1 | **Add** the following paragraph to the end of the subclause:<br>EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply. | | N/A |
| 10.Z1 | **Add** the following new subclause after 10.6.5.<br>**10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz**<br>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).<br>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566 | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.1 | **Add** the following note:<br>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD. | | N/A |
| Bibliography | **Add** the following standards:<br>**Add** the following notes for the standards indicated:<br>IEC 60130-9 NOTE Harmonized as EN 60130-9.<br>IEC 60269-2 NOTE Harmonized as HD 60269-2.<br>IEC 60309-1 NOTE Harmonized as EN 60309-1.<br>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.<br>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.<br>IEC 60664-5 NOTE Harmonized as EN 60664-5.<br>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).<br>IEC 61508-1 NOTE Harmonized as EN 61508-1.<br>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.<br>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.<br>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.<br>IEC 61643-1 NOTE Harmonized as EN 61643-1.<br>IEC 61643-21 NOTE Harmonized as EN 61643-21.<br>IEC 61643-311 NOTE Harmonized as EN 61643-311.<br>IEC 61643-321 NOTE Harmonized as EN 61643-321.<br>IEC 61643-331 NOTE Harmonized as EN 61643-331. | | Pass |
| **ZB** | **ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)** | | N/A |
| 4.1.15 | **Denmark, Finland, Norway** and **Sweden**<br>To the end of the subclause the following is added:<br>**Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet.<br>The marking text in the applicable countries shall be as follows:<br>In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.”<br>In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"<br>In **Norway**: “Apparatet må tilkoples jordet stikkontakt”<br>In **Sweden**: “Apparaten skall anslutas till jordat uttag” | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3 | **United Kingdom**<br>To the end of the subclause the following is added:<br>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex | | N/A |
| 5.2.2.2 | **Denmark**<br>After the 2nd paragraph add the following:<br>A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | | N/A |
| 5.4.11.1 and Annex G | **Finland and Sweden**<br>To the end of the subclause the following is added:<br>For separation of the telecommunication network from earth the following is applicable:<br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br>• two layers of thin sheet material, each of which shall pass the electric strength test below, or<br>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition<br>• passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and<br>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV.<br>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.<br>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11;<br>• the additional testing shall be performed on all the test specimens as described in EN 60384-14;<br>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | | |
| 5.5.2.1 | **Norway**<br>After the 3rd paragraph the following is added:<br>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V). | | N/A |
| 5.5.6 | **Finland, Norway** and **Sweden**<br>To the end of the subclause the following is added:<br>Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2. | | N/A |
| 5.6.1 | **Denmark**<br>**Add** to the end of the subclause<br>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.<br>*Justification:*<br>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse. | | N/A |
| 5.6.4.2.1 | **Ireland and United Kingdom**<br>After the indent for **pluggable equipment type A**, the following is added:<br>– the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug. | | N/A |
| 5.6.5.1 | To the second paragraph the following is added:<br>The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is:<br>1,25 $mm^2$ to 1,5 $mm^2$ in cross-sectional area. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.5 | **Denmark**<br>To the end of the subclause the following is added:<br>The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c. | | N/A |
| 5.7.6.1 | **Norway and Sweden**<br>To the end of the subclause the following is added:<br>The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.<br>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.<br>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:<br>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”<br>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Translation to Norwegian (the Swedish text will also be accepted in Norway):<br>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”<br>Translation to Swedish:<br>”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”. | | |
| 5.7.6.2 | **Denmark**<br>To the end of the subclause the following is added:<br>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA . | | N/A |
| B.3.1 and B.4 | **Ireland and United Kingdom**<br>The following is applicable:<br>To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met | | N/A |

| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | **Denmark**<br>To the end of the subclause the following is added:<br>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.<br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.<br>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.<br>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.<br>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.<br>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a<br>*Justification:*<br>Heavy Current Regulations, Section 6c | | N/A |
| G.4.2 | **United Kingdom**<br>To the end of the subclause the following is added:<br>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply. | | N/A |

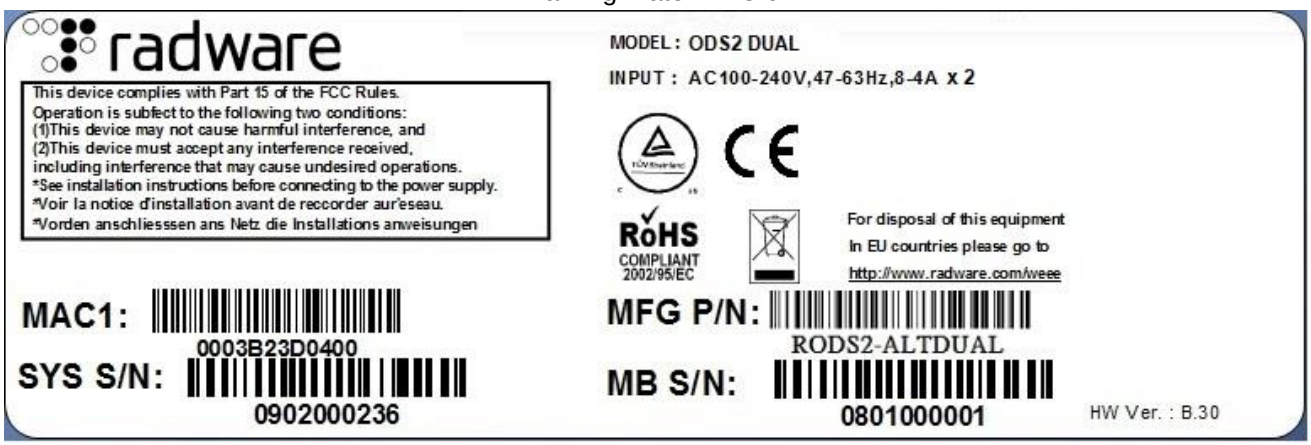
| IEC62368_1B - ATTACHMENT | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.7.1 | **United Kingdom**<br>To the first paragraph the following is added:<br>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.<br>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. | | N/A |
| G.7.1 | **Ireland**<br>To the first paragraph the following is added:<br>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard | | N/A |
| G.7.2 | **Ireland and United Kingdom**<br>To the first paragraph the following is added:<br>A power supply cord with a conductor of 1,25 $mm^2$ is allowed for equipment which is rated over 10 A and up to and including 13 A. | | N/A |
| *ZC* | *ANNEX ZC, NATIONAL DEVIATIONS (EN)* | | N/A |
| 10.5.2 | **Germany**<br>The following requirement applies:<br>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.<br>*Justification:*<br>German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.<br>**NOTE** Contact address:<br>Physikalisch-Technische Bundesanstalt,<br>Bundesallee 100, D-38116 Braunschweig,<br>Tel.: Int +49-531-592-6320,<br>Internet: http://www.ptb.de | | N/A |

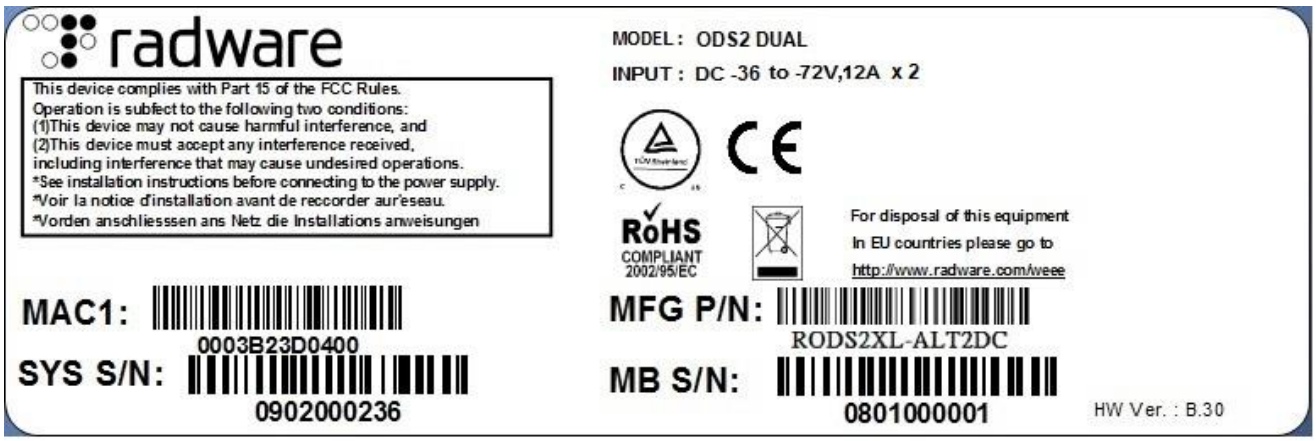
# Enclosures

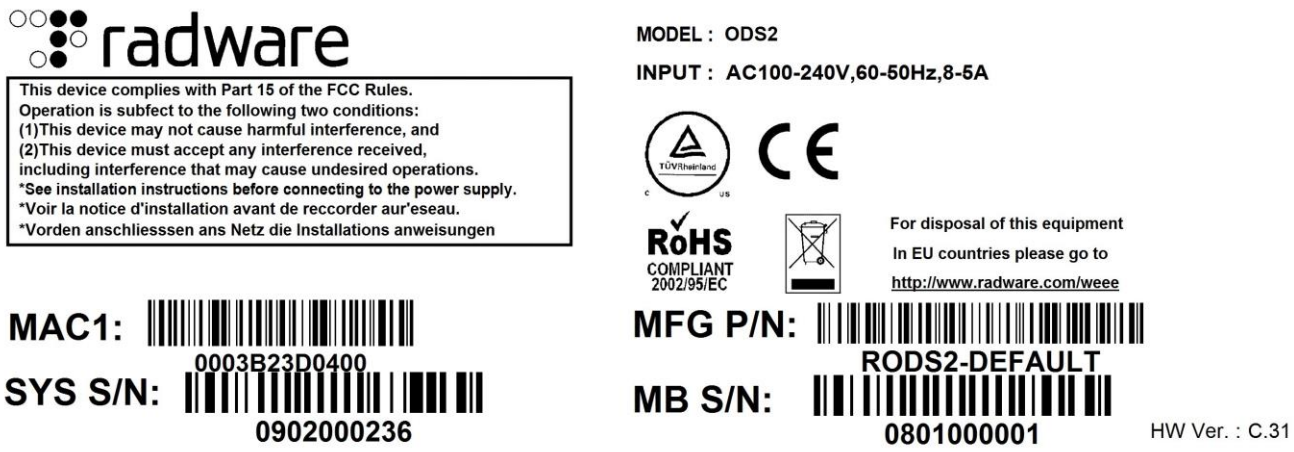
| Type | Supplement Id | Description |
|---|---|---|
| Marking Plate | 13-01 | Label |
| Photographs | 3-01 | Overall View-1 (for ODS2 DUAL) |
| Photographs | 3-02 | Overall View-2 (for ODS2 DUAL, with Ear sets) |
| Photographs | 3-03 | Overall View-3 (for ODS2 DUAL, with AC power) |
| Photographs | 3-04 | Overall View-4 (for ODS2 DUAL, with DC power) |
| Photographs | 3-05 | Overall View-5 (for ODS2) |
| Photographs | 3-06 | Overall View-6 (for ODS2, with Ear sets) |
| Photographs | 3-07 | Overall View-7 (for ODS2, with AC power) |
| Photographs | 3-08 | Overall View-8 (for ODS2, with DC power) |
| Photographs | 3-09 | Connector View-1 (for ODS2 DUAL) |
| Photographs | 3-10 | Connector View-2 (for ODS2 DUAL, with AC power) |
| Photographs | 3-11 | Connector View-3 (for ODS2 DUAL, with DC power) |
| Photographs | 3-12 | Connector View-4 (for ODS2) |
| Photographs | 3-13 | Connector View-5 (for ODS2, with AC power) |
| Photographs | 3-14 | Connector View-6 (for ODS2, with DC power) |
| Photographs | 3-15 | Internal View-1 (for ODS2 DUAL) |
| Photographs | 3-16 | Internal View-2 (for ODS2 DUAL) |
| Photographs | 3-17 | Internal View-3 (for ODS2) |
| Photographs | 3-18 | Internal View-4 (for ODS2) |
| Photographs | 3-19 | Mainboard View-1 |
| Photographs | 3-20 | Mainboard View-2 |
| Photographs | 3-21 | Mainboard View-3 |
| Photographs | 3-22 | Extension board View-1 (for ODS2 DUAL) |
| Photographs | 3-23 | Extension board View-2 (for ODS2 DUAL) |
| Photographs | 3-24 | Extension board View-3 (for ODS2) |
| Photographs | 3-25 | Extension board View-4 (for ODS2) |
| Photographs | 3-26 | PCIe card View-1 (for ODS2 DUAL) |
| Photographs | 3-27 | PCIe Card View-2 (for ODS2 DUAL) |
| Photographs | 3-28 | LCM board View-1 |
| Photographs | 3-29 | LCM board View-2 |
| Diagrams | 4-01 | Enclosure Drawing (for ODS2 DUAL use) |
| Diagrams | 4-02 | Enclosure Drawing (for ODS2 use) |
| Diagrams | 4-03 | Ear sets Drawing (for ODS2 DUAL use) |

| | | |
|---|---|---|
| Diagrams | 4-04 | Ear sets Drawing (for ODS2 use) |
| Diagrams | 4-05 | CPU Heat sink Drawing (for ODS2 DUAL use) |
| Diagrams | 4-06 | CPU Heat sink Drawing (for ODS2 use) |
| Diagrams | 4-07 | Heat sink Drawing (U13) |
| Diagrams | 4-08 | Heat sink Drawing (U34) |
| Diagrams | 4-09 | Heat sink Drawing (UZ3, UZ4, UZ5) |
| Schematics + PWB | | |
| Manuals | | |
| Miscellaneous | 7-01 | Additional Table |
| Miscellaneous | 7-02 | Fan Location |
| Licenses | 8-01 | Switching Power Supply Cert, type: Zippy / MRW-6420P |
| Licenses | 8-02 | Switching Power Supply Cert, type: Zippy / DMRW-6400F |
| Licenses | 8-03 | Switching Power Supply Cert, type: Zippy / P1H-6350P |
| Licenses | 8-04 | Switching Power Supply Cert, type: Zippy / DP1H-6350F |

Marking Plate ID 13-01



Marking Plate ID 13-01

radware

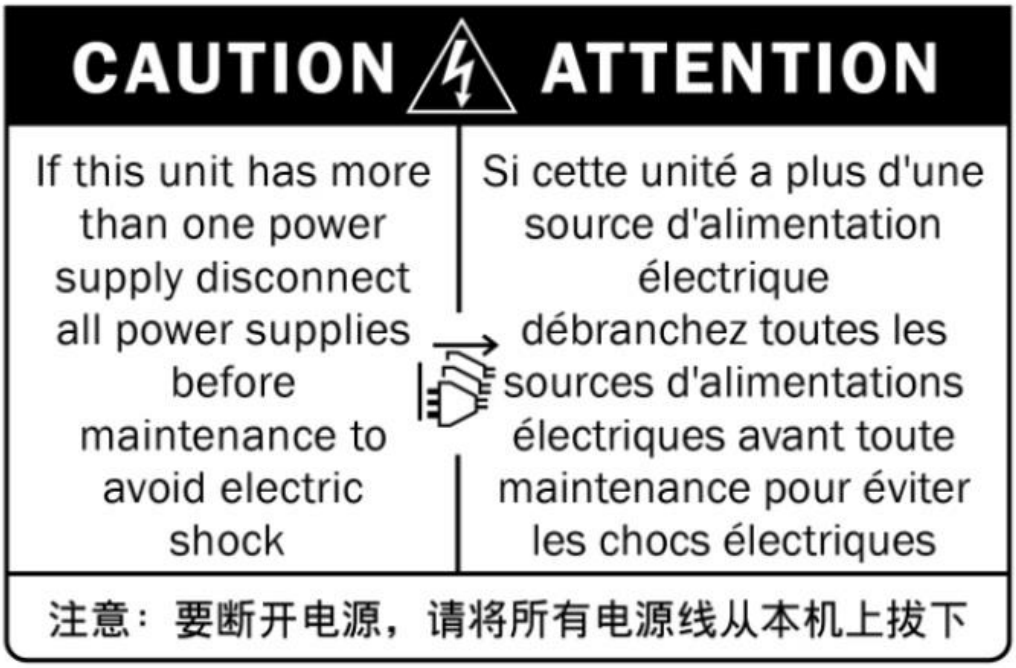
This device complies with Part 15 of the FCC Rules.
Operation is subfect to the following two conditions:
(1)This device may not cause harmful interference, and
(2)This device must accept any interference received,
including interference that may cause undesired operations.
*See installation instructions before connecting to the power supply.
*Voir la notice d'installation avant de reccorder aur'eseau.
*Vorden anschliesssen ans Netz die Installations anweisungen

MODEL : ODS2
INPUT : DC -36V to -72V,17A

RoHS COMPLIANT 2002/95/EC

For disposal of this equipment
In EU countries please go to
http://www.radware.com/weee

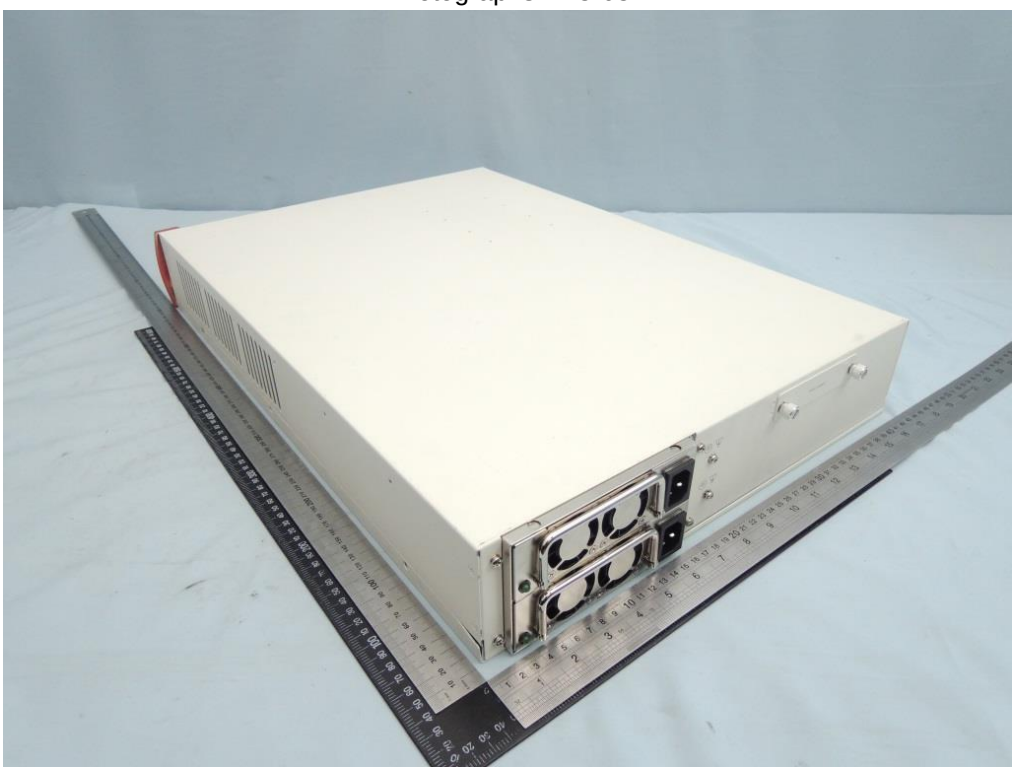
MAC1: 0003B23D0400
SYS S/N: 0902000236
MFG P/N: RODS2-DEFDCPS
MB S/N: 0801000001
HW Ver. : C.31



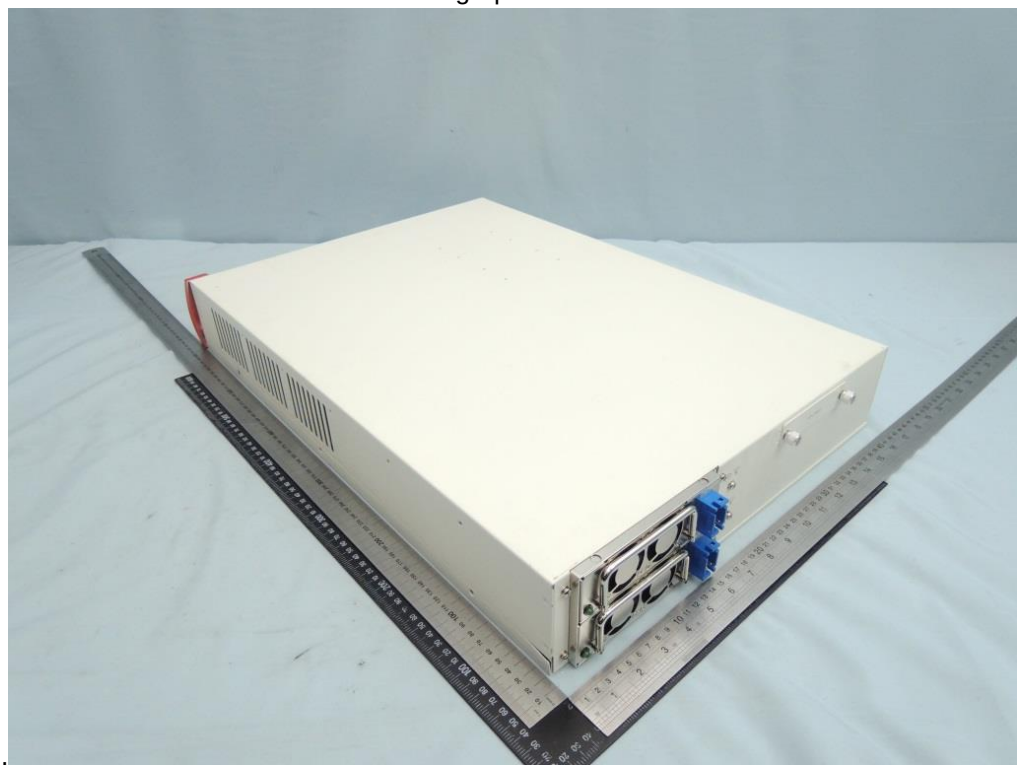
Photographs ID 3-01

Photographs ID 3-02

Photographs ID 3-03



Photographs ID 3-04



Photographs ID 3-05

Photographs ID 3-06

Photographs ID 3-07

Photographs ID 3-08

Photographs ID 3-09


Photographs ID 3-10

Photographs ID 3-11

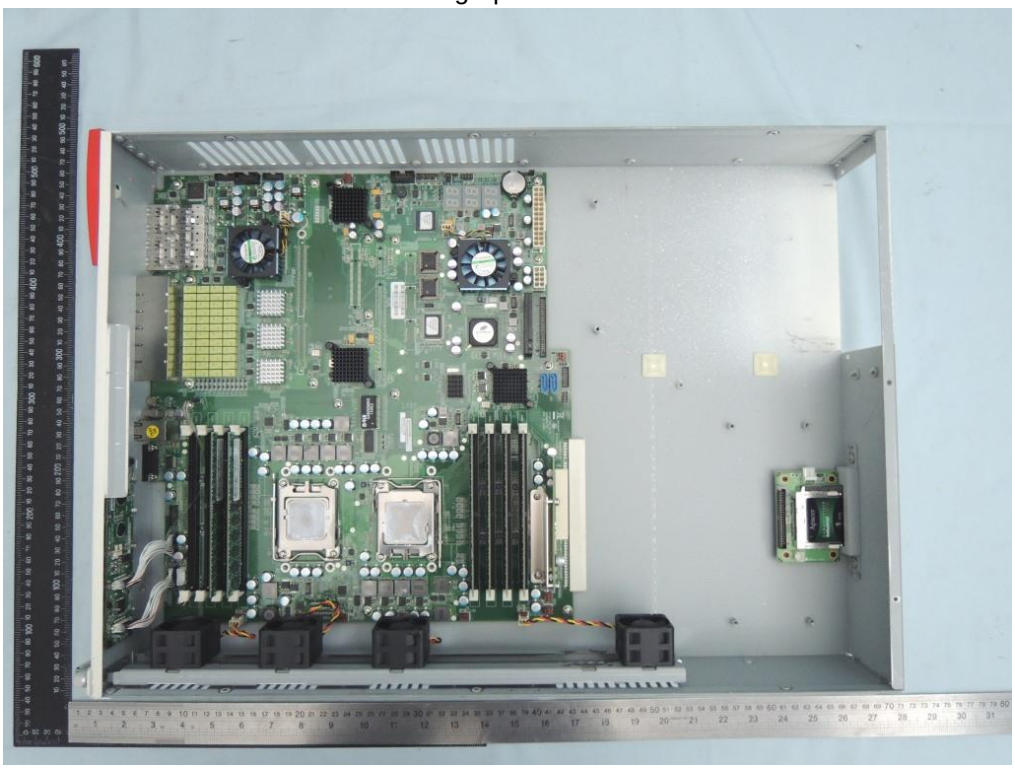
Photographs ID 3-12

Photographs ID 3-13

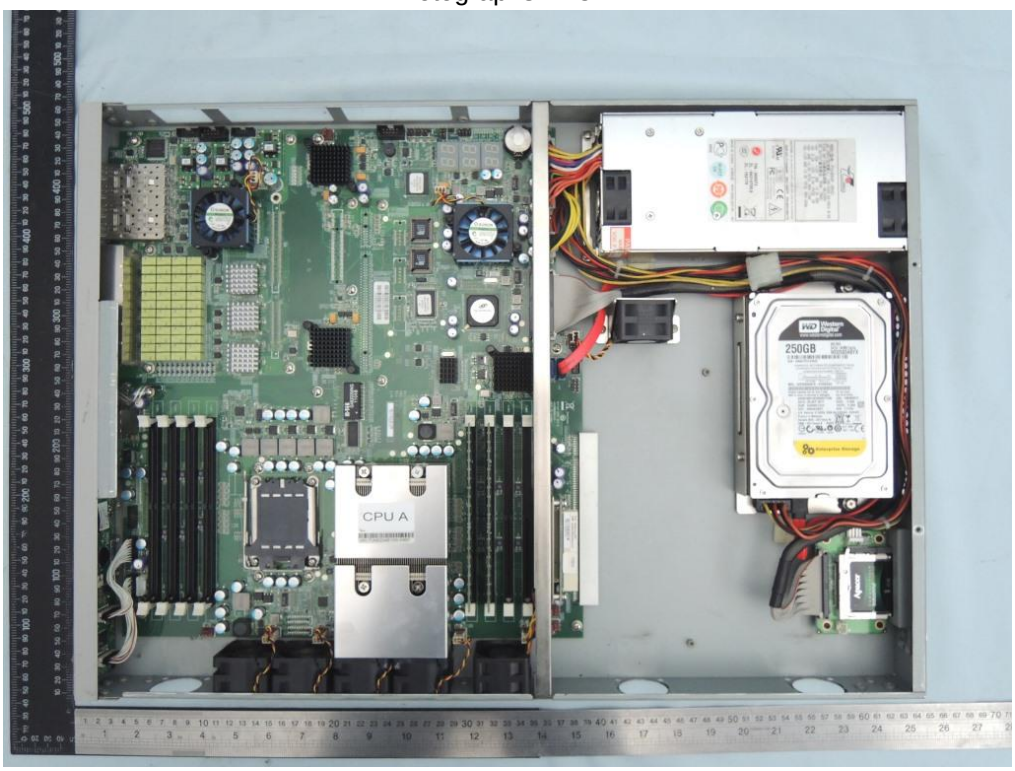
Photographs ID 3-14

Photographs ID 3-15

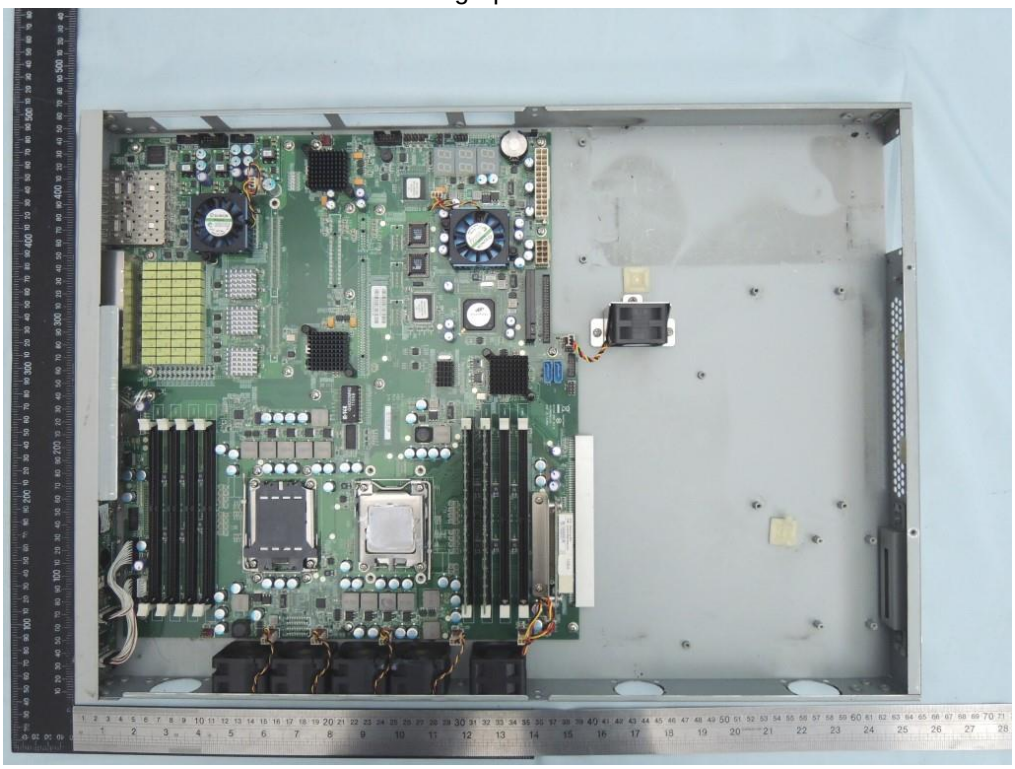

Photographs ID 3-16



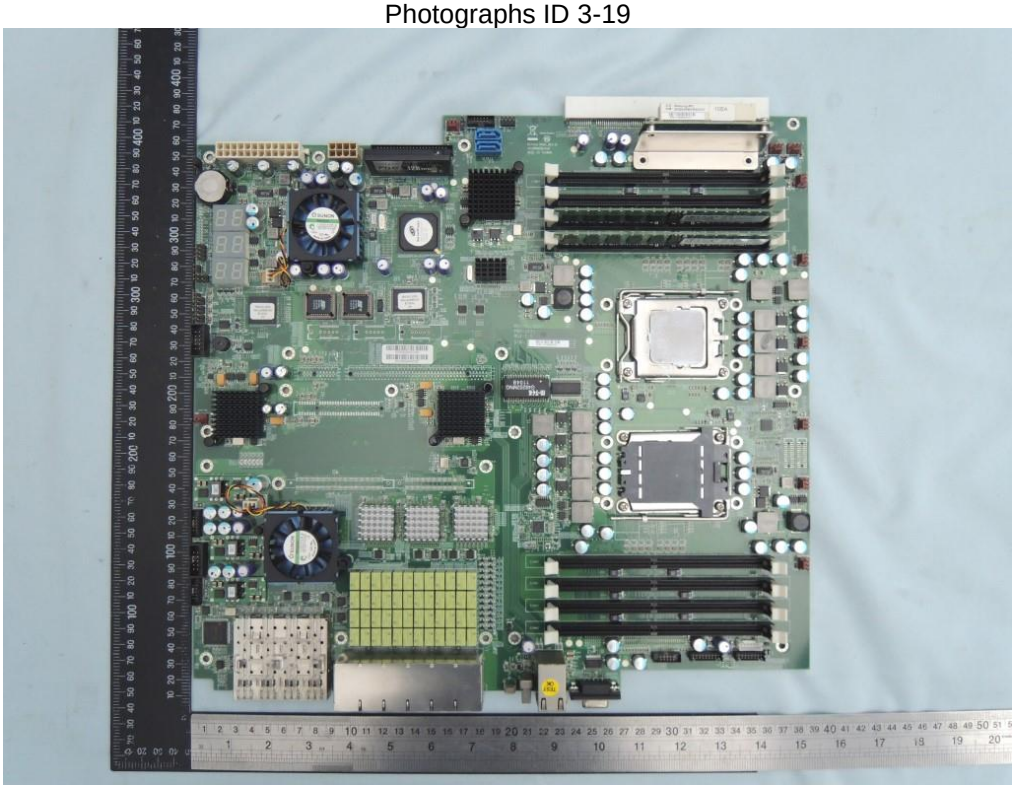
Photographs ID 3-17



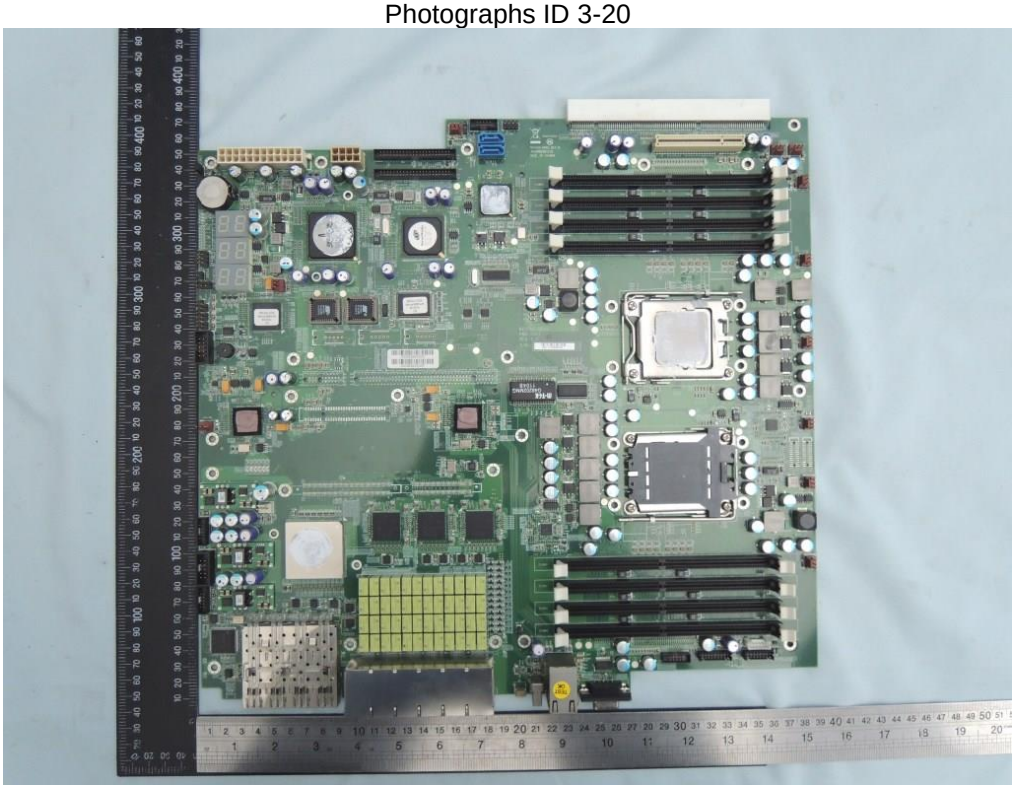

Photographs ID 3-18



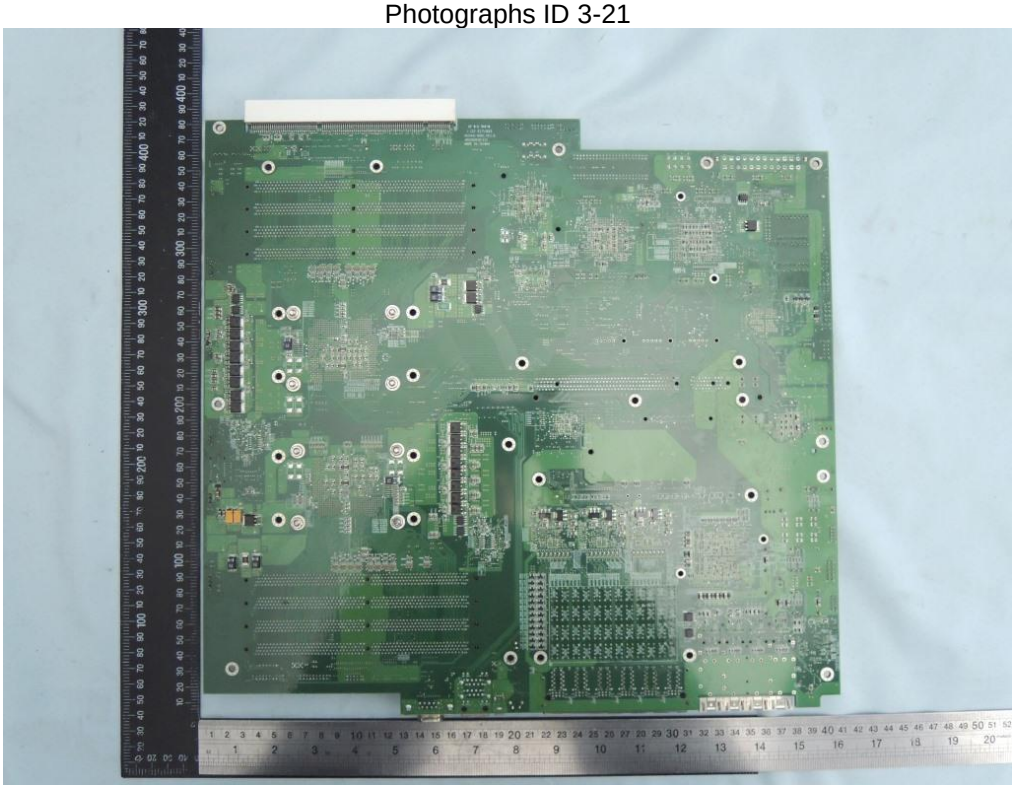
Photographs ID 3-19



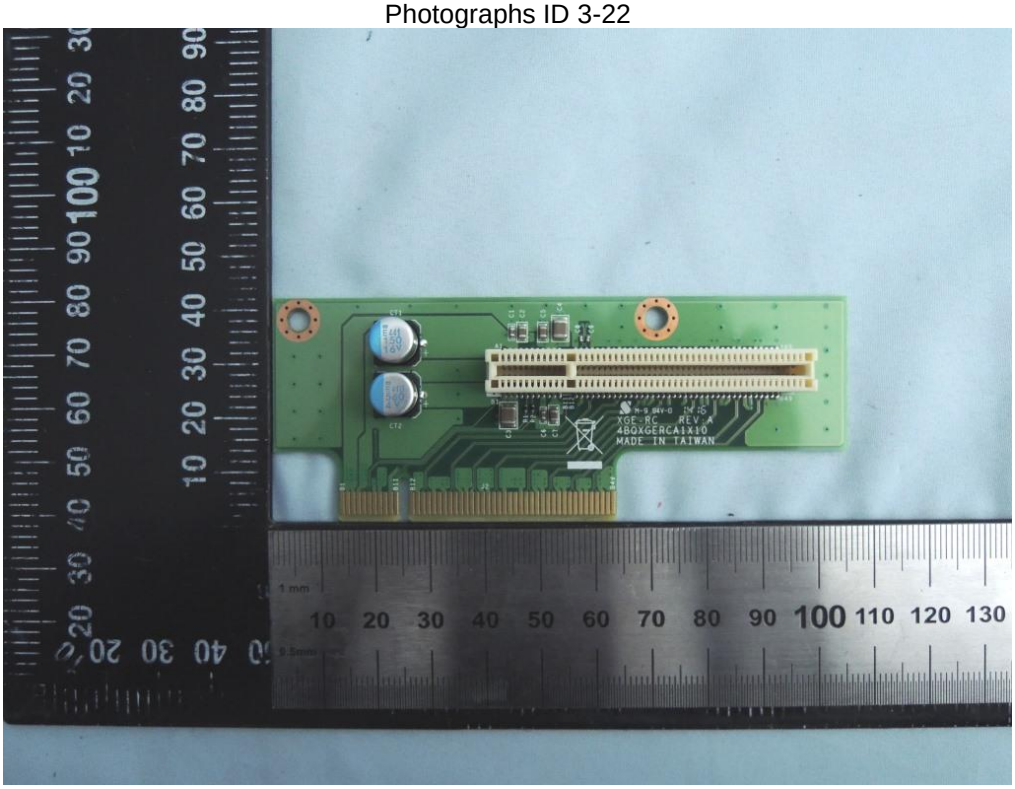
Photographs ID 3-20



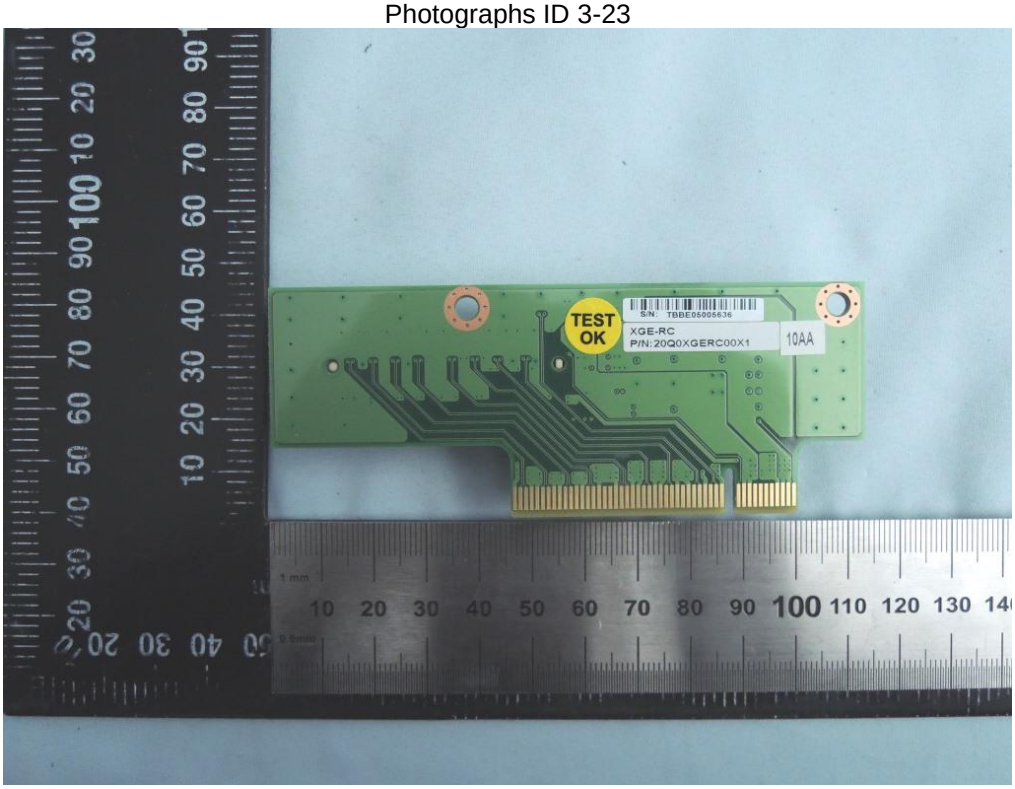
Photographs ID 3-21



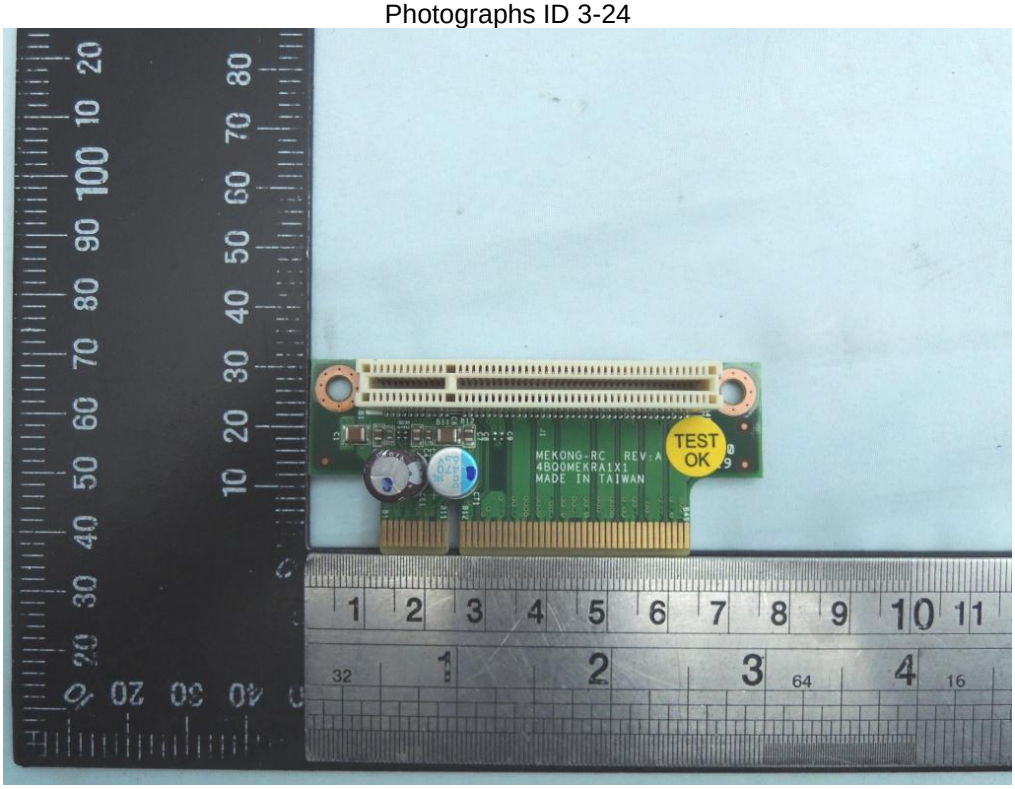
Photographs ID 3-22



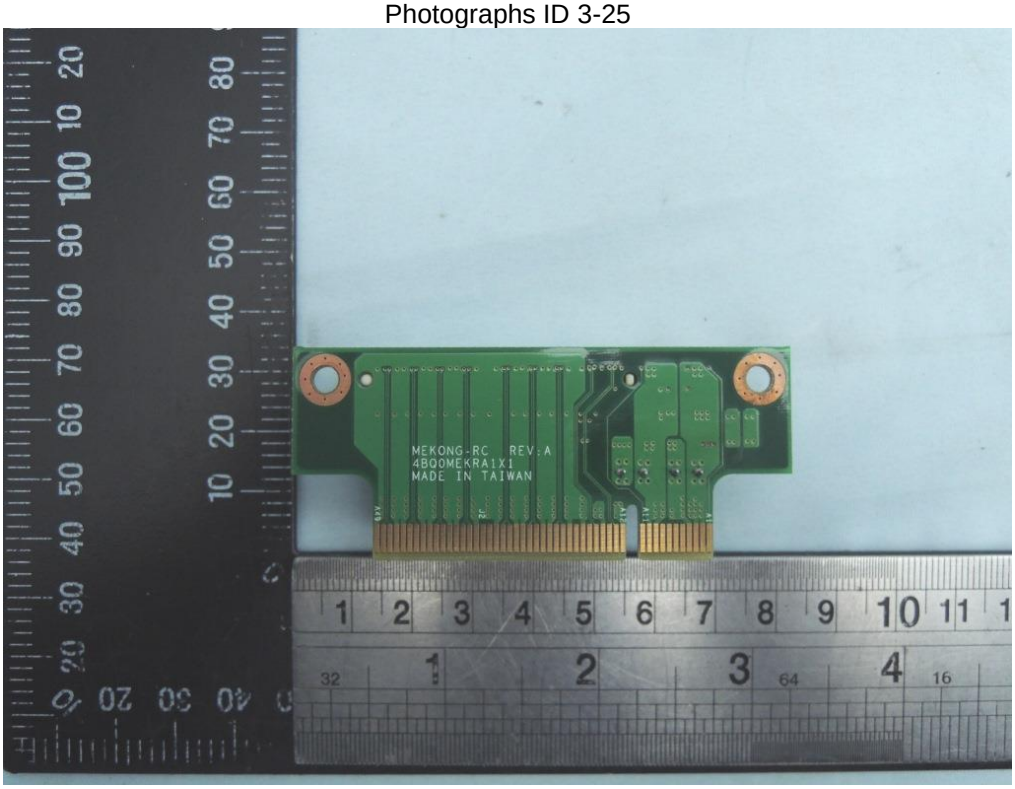
Photographs ID 3-23



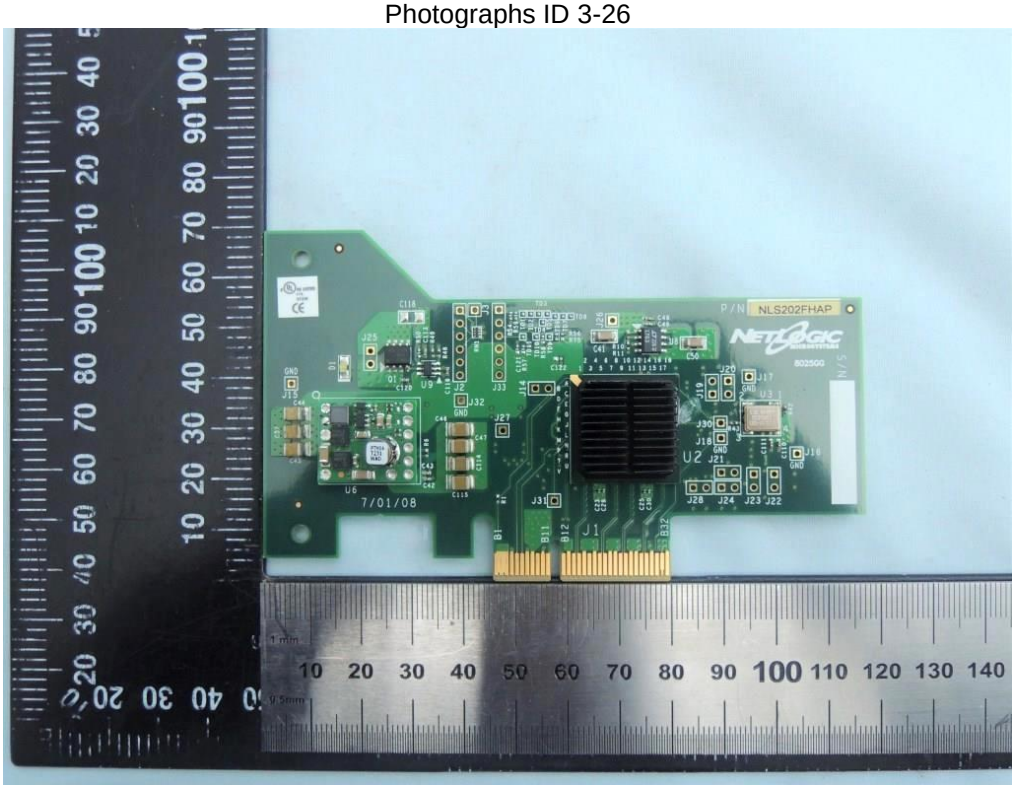

Photographs ID 3-24



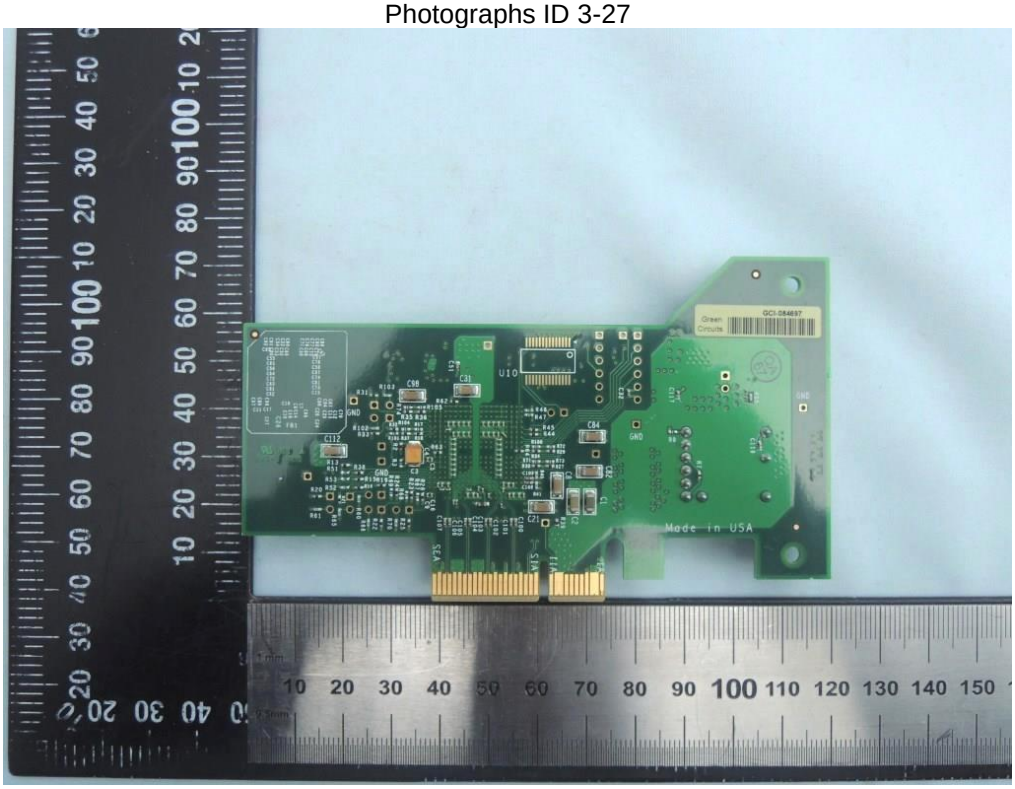
Photographs ID 3-25



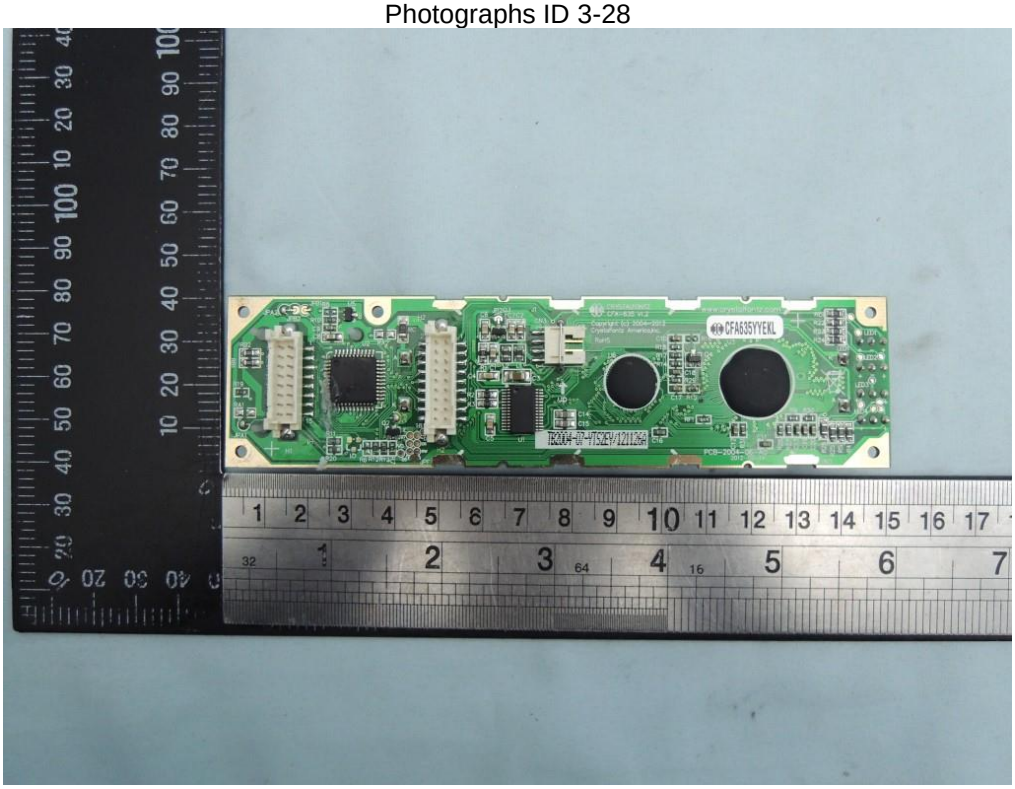

Photographs ID 3-26



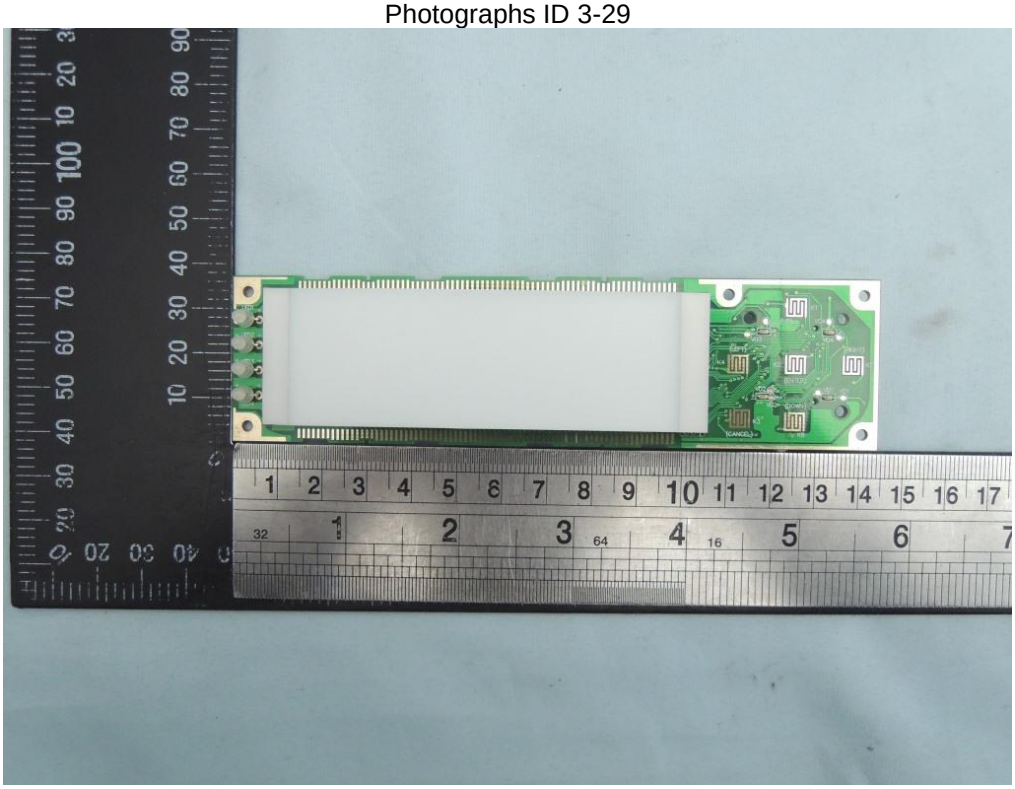
Photographs ID 3-27



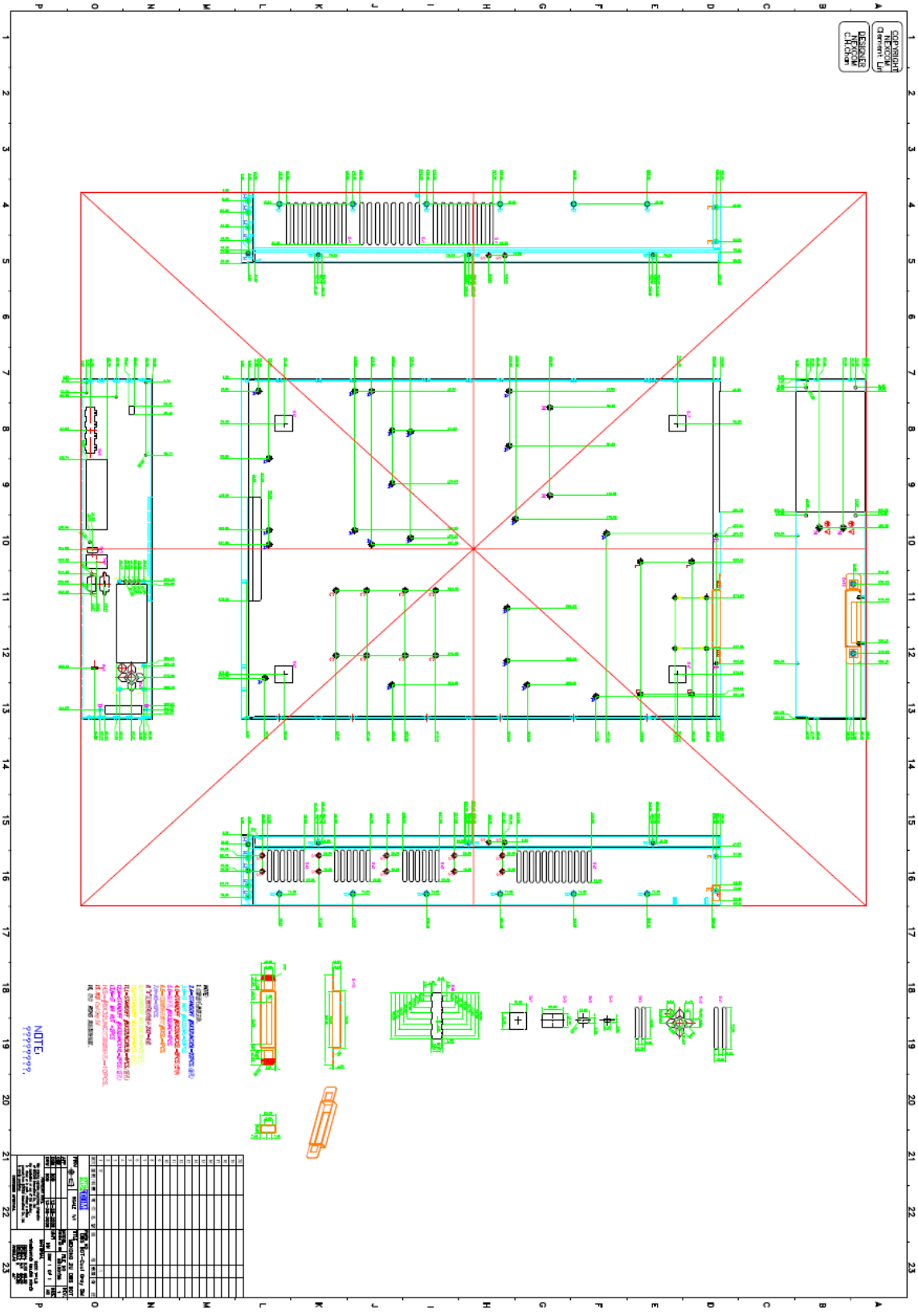

Photographs ID 3-28



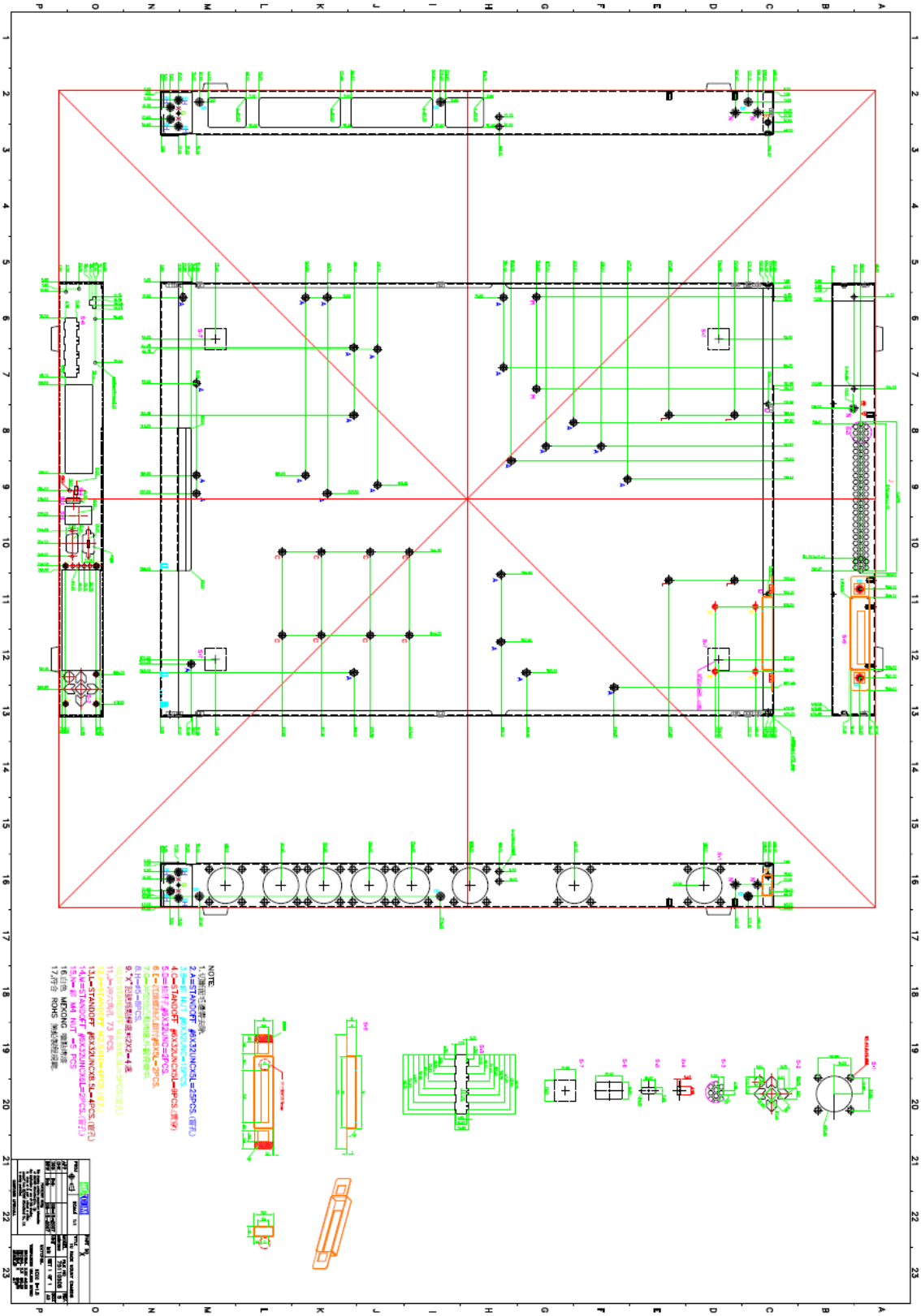
Photographs ID 3-29



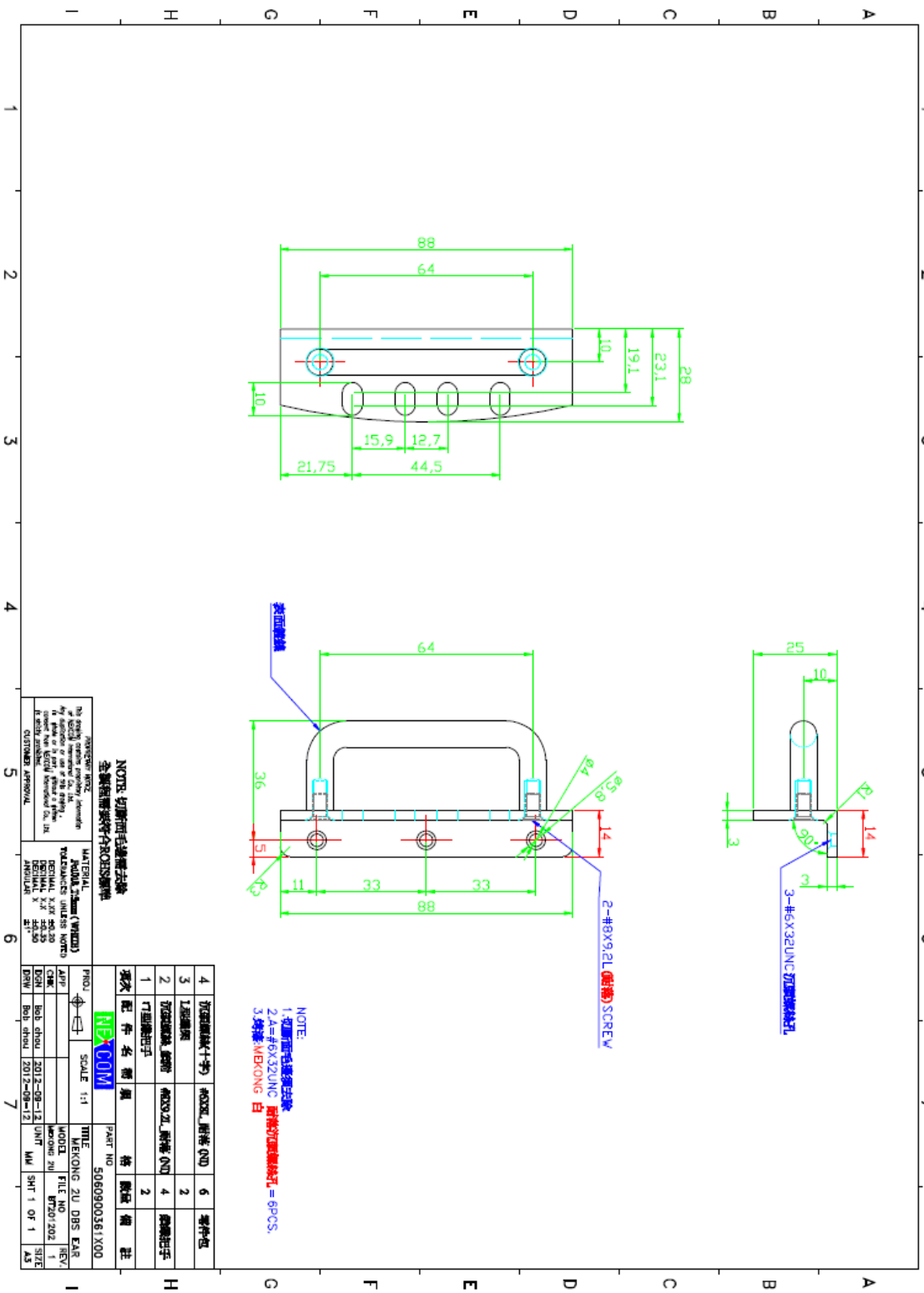
Diagrams ID 4-01



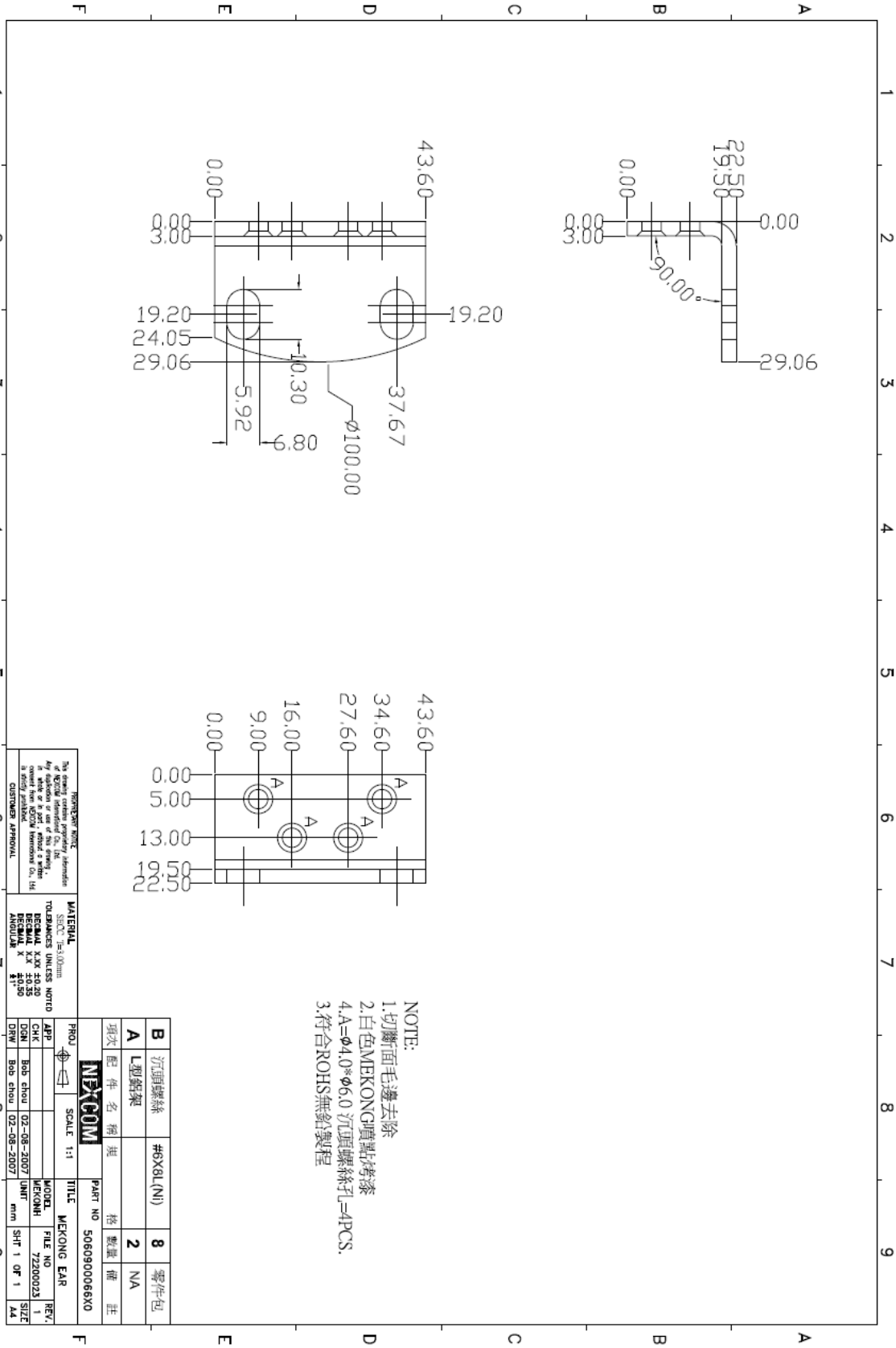
Diagrams ID 4-02



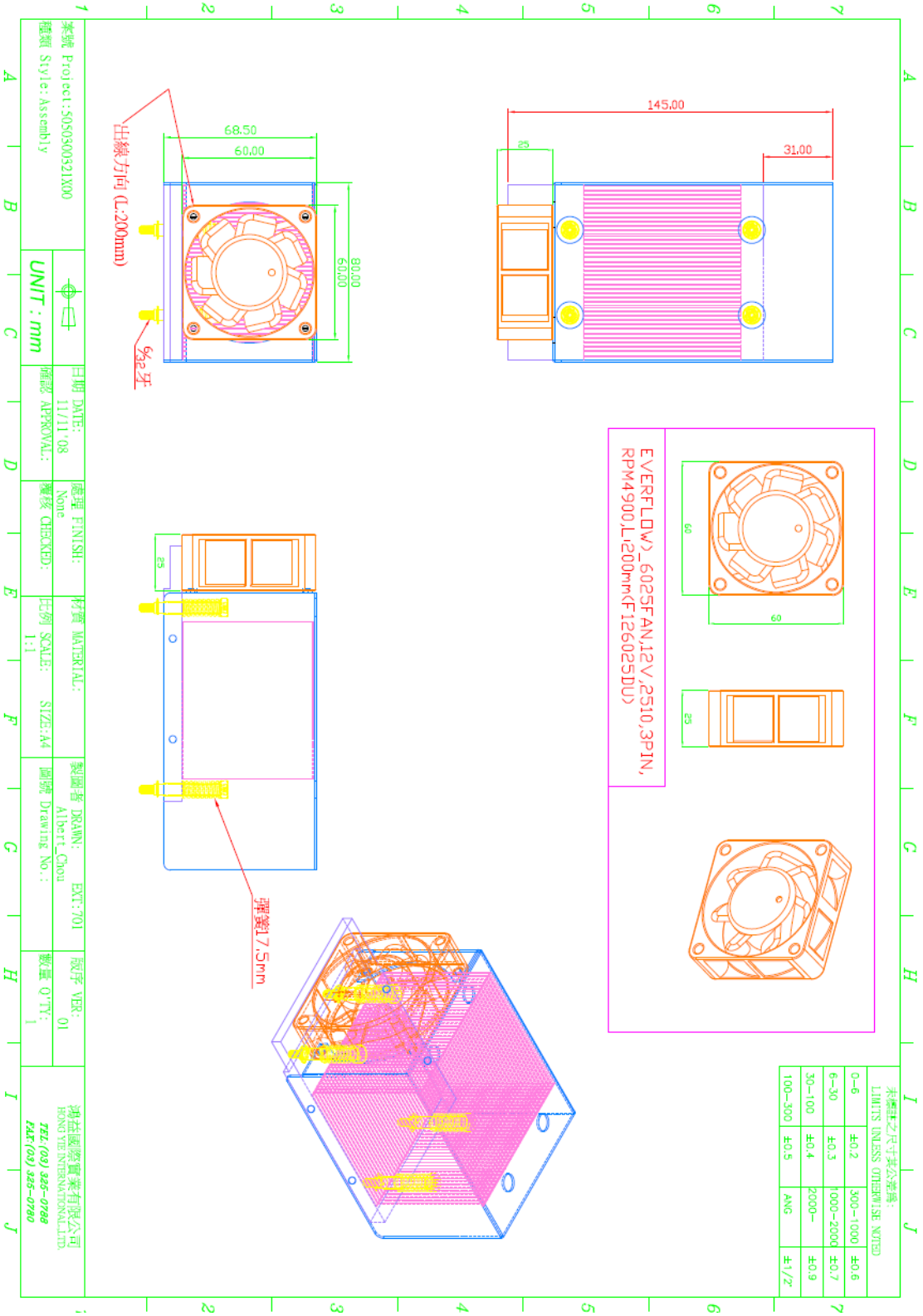
Diagrams ID 4-03



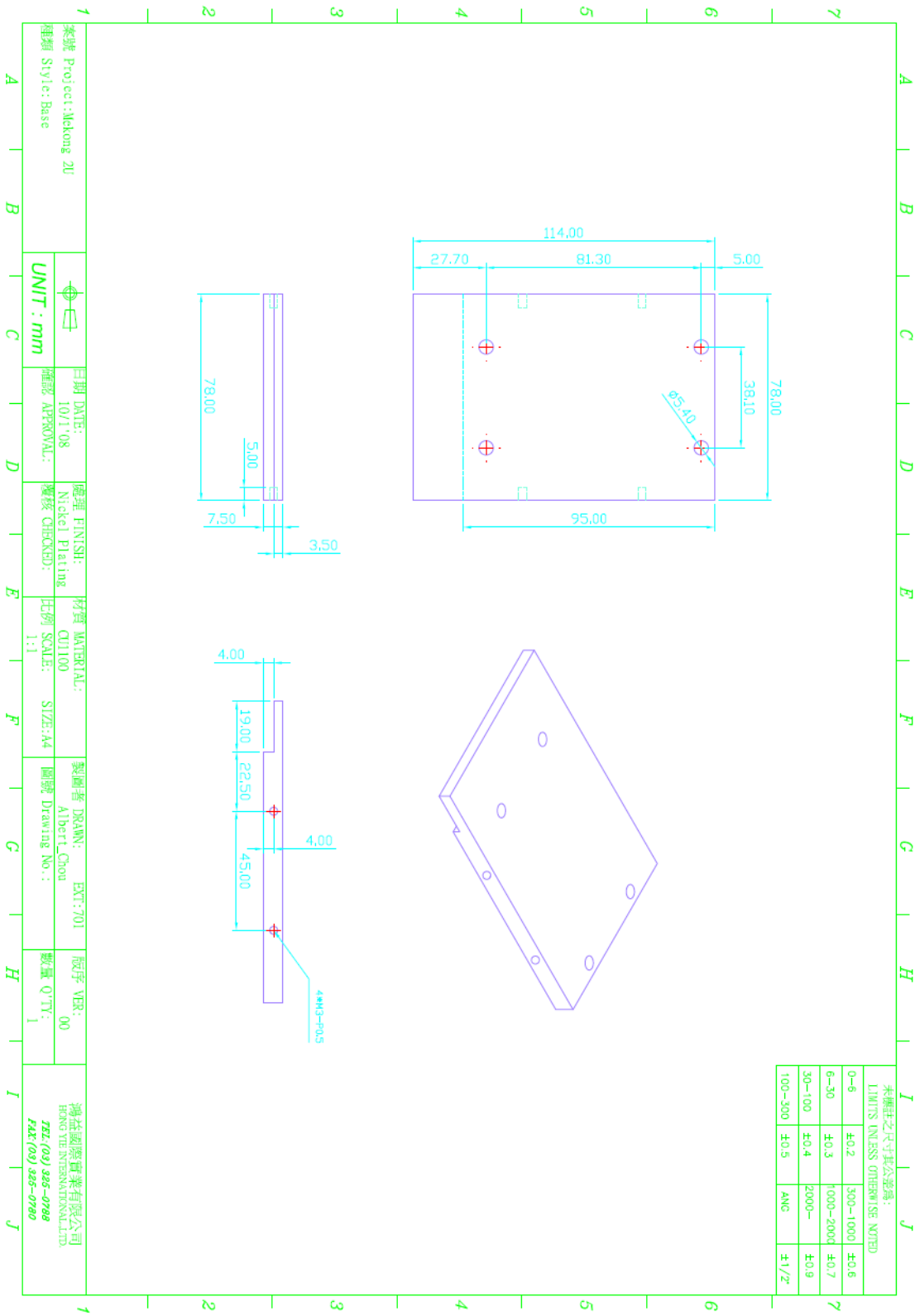
Diagrams ID 4-04



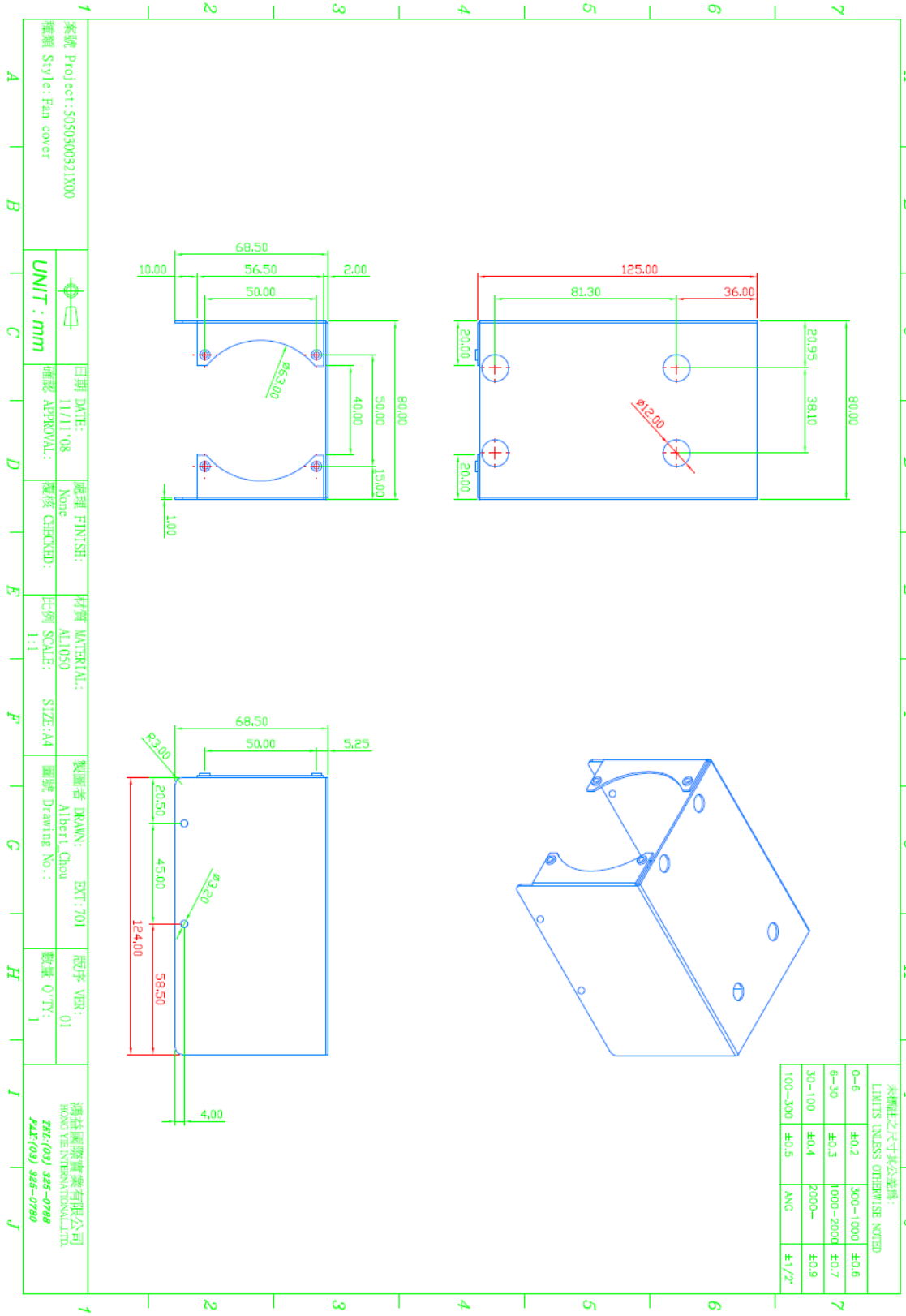
Diagrams ID 4-05



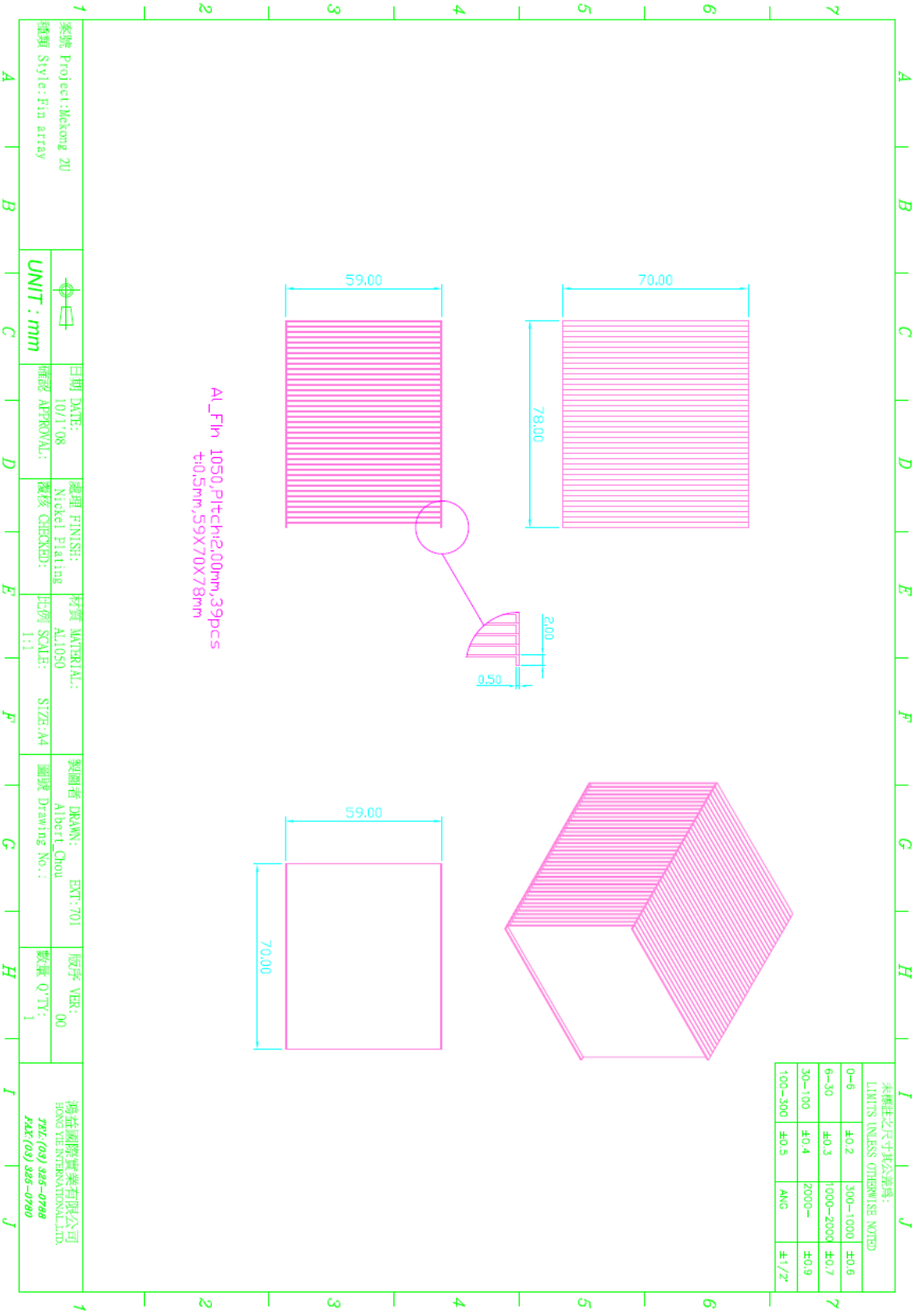
Diagrams ID 4-05



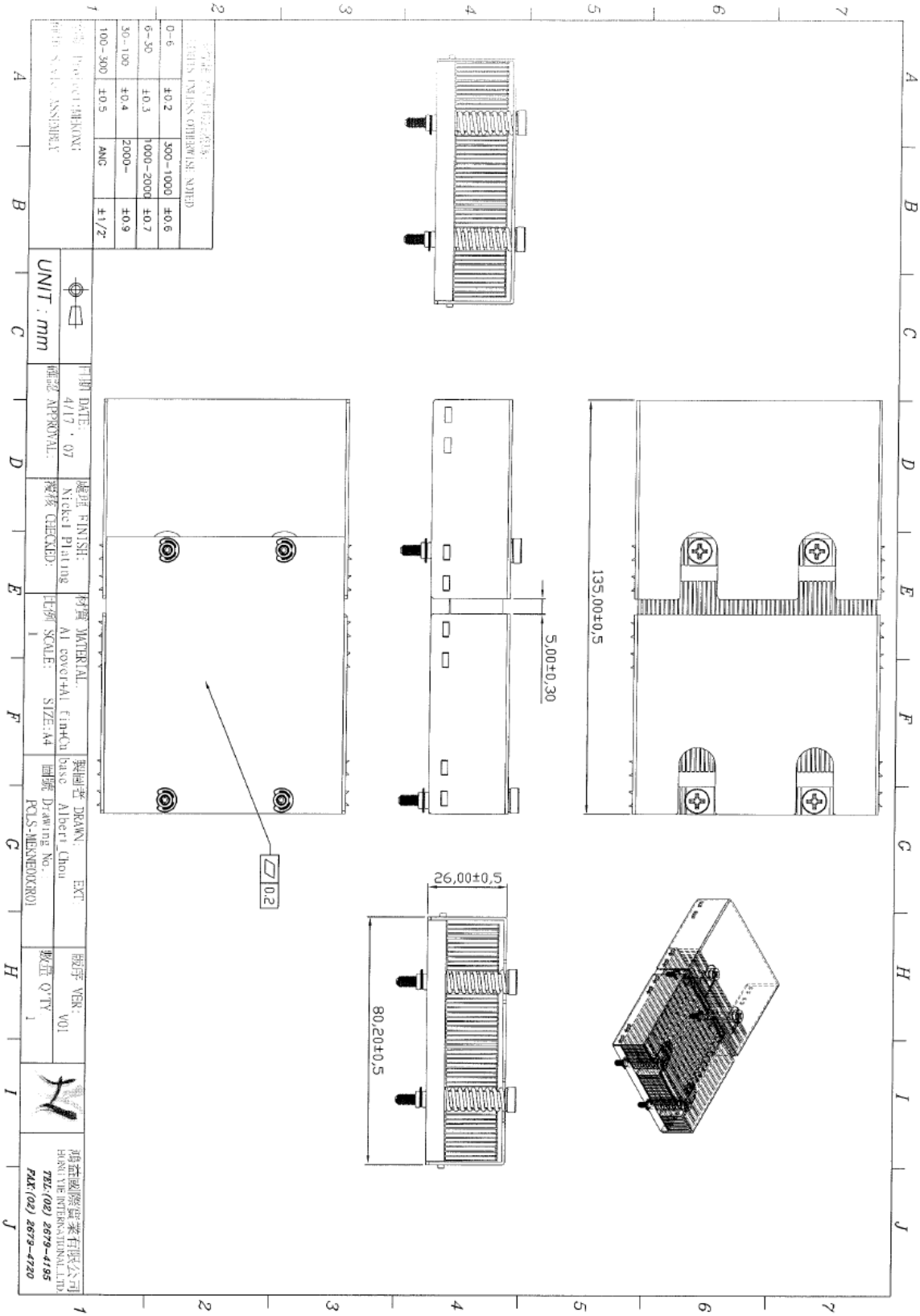
Diagrams ID 4-05



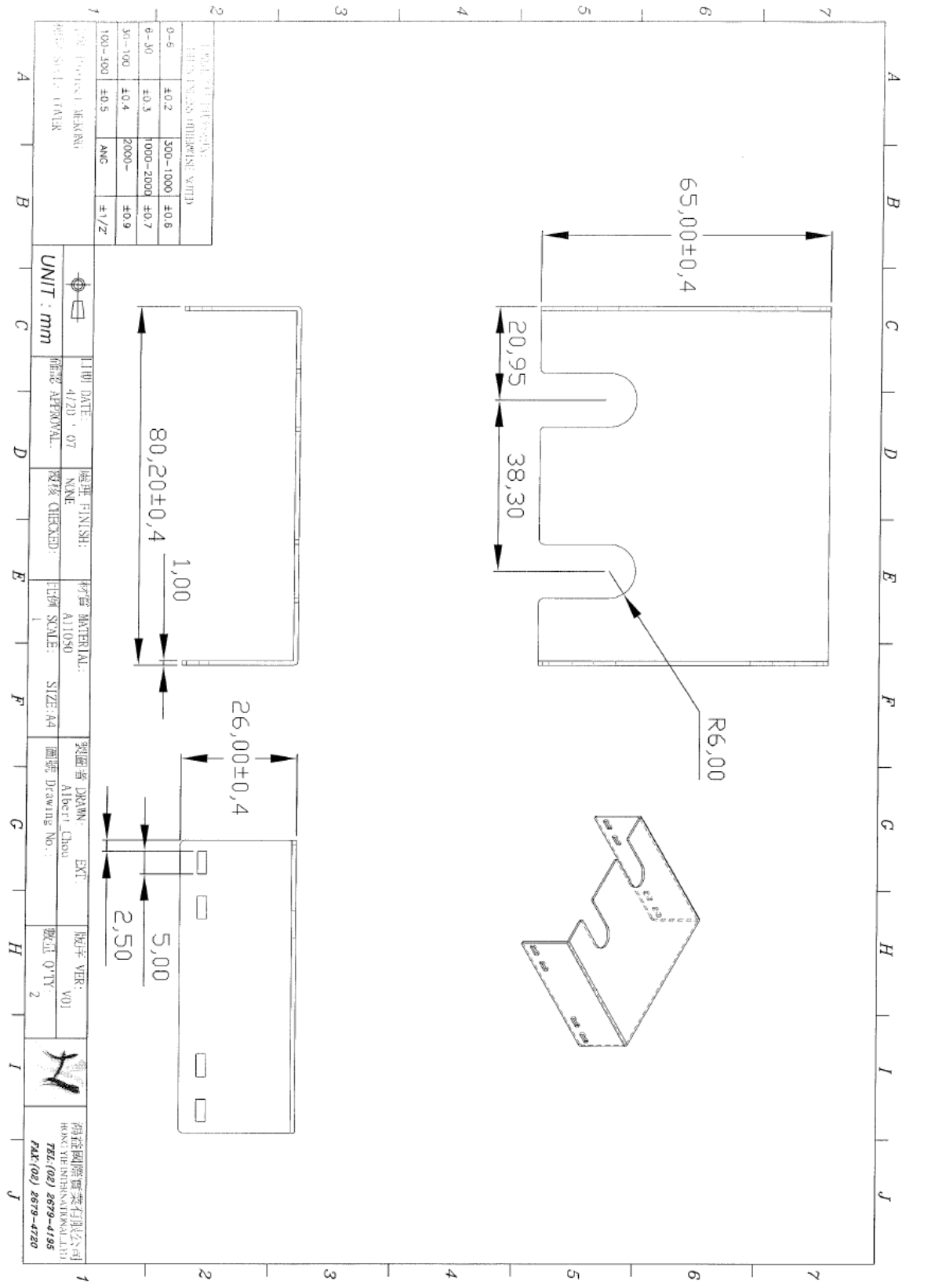
Diagrams ID 4-05



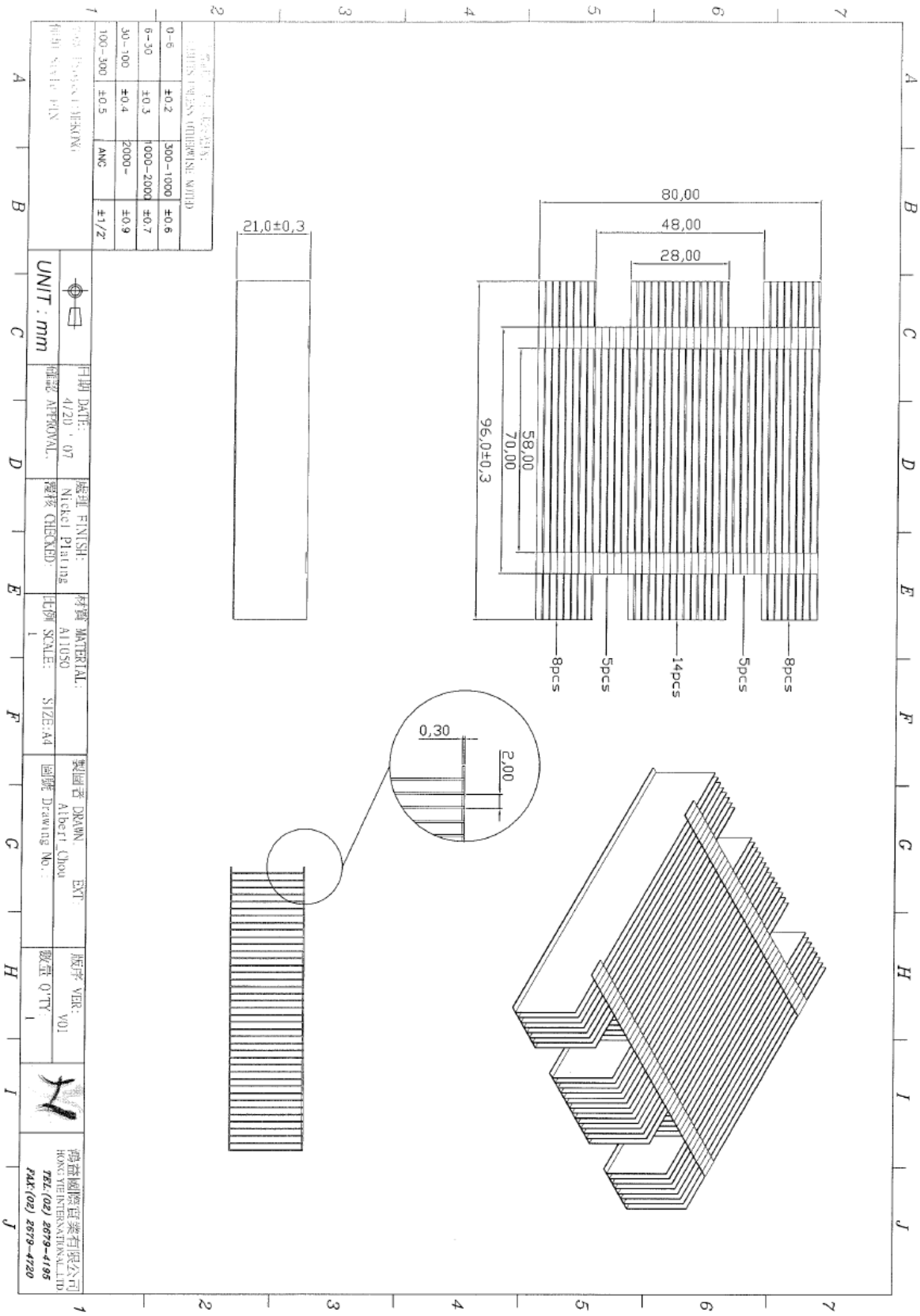
Diagrams ID 4-06



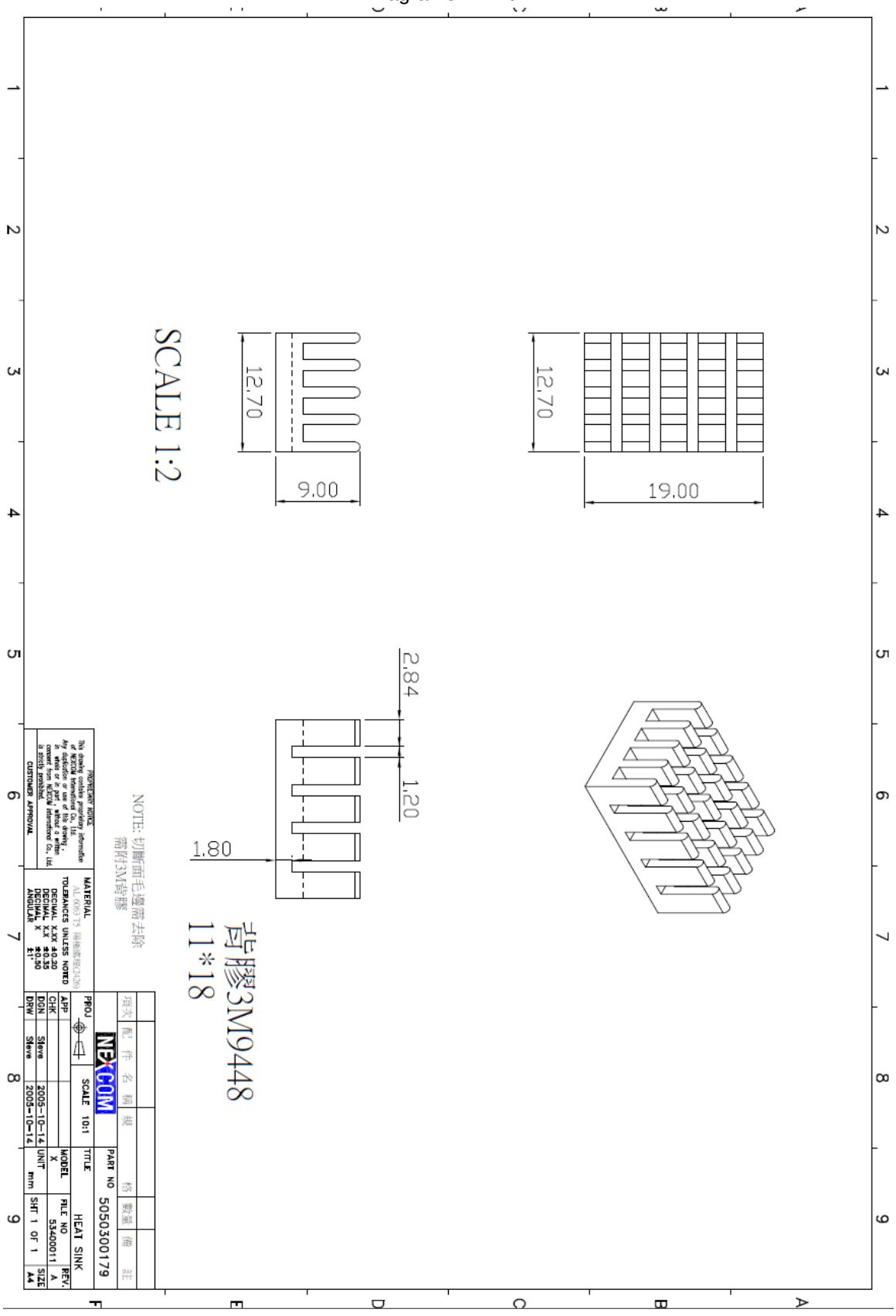
Diagrams ID 4-06



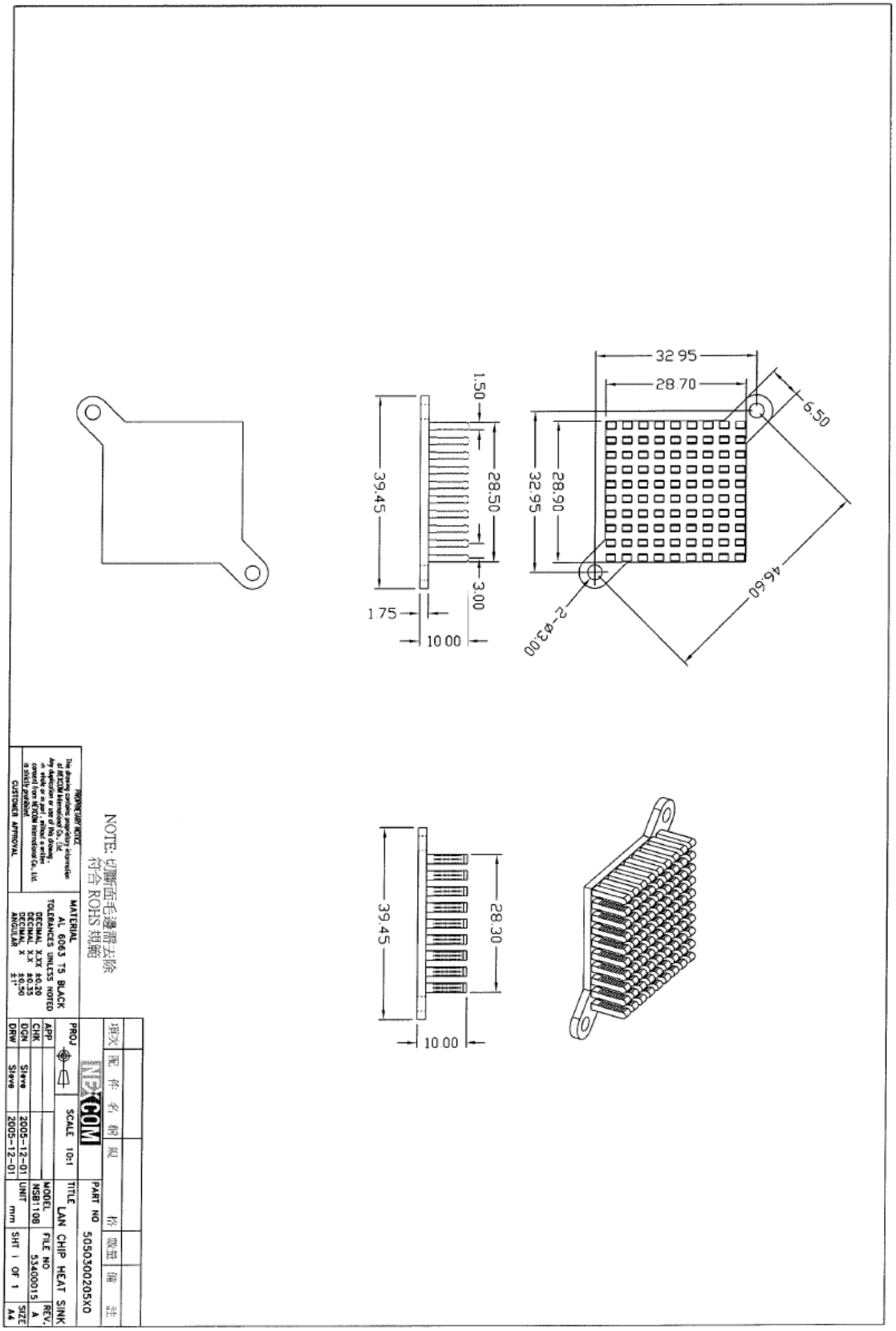
Diagrams ID 4-06



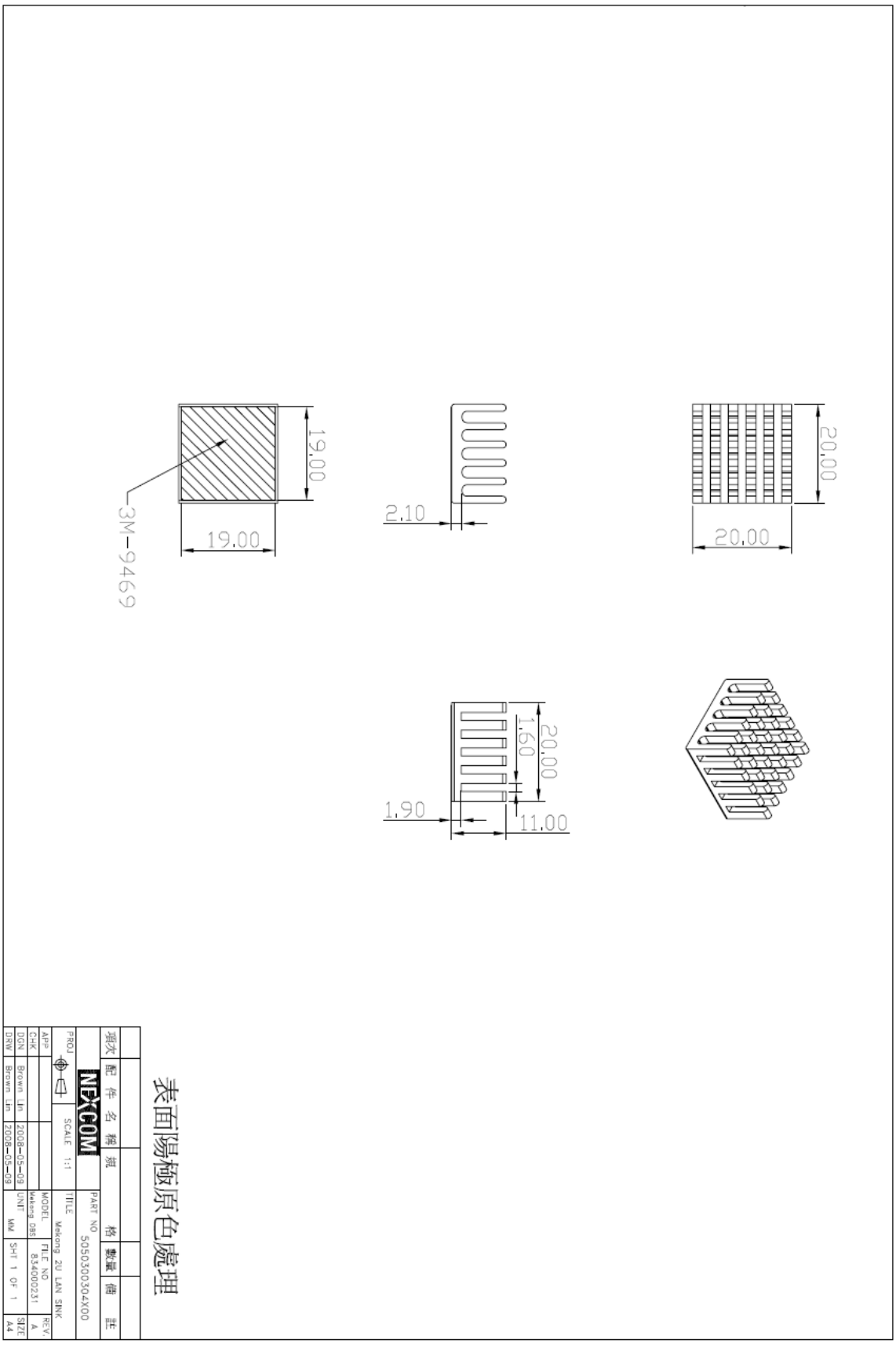
Diagrams ID 4-07



Diagrams ID 4-08



Diagrams ID 4-09



Miscellaneous ID 7-01

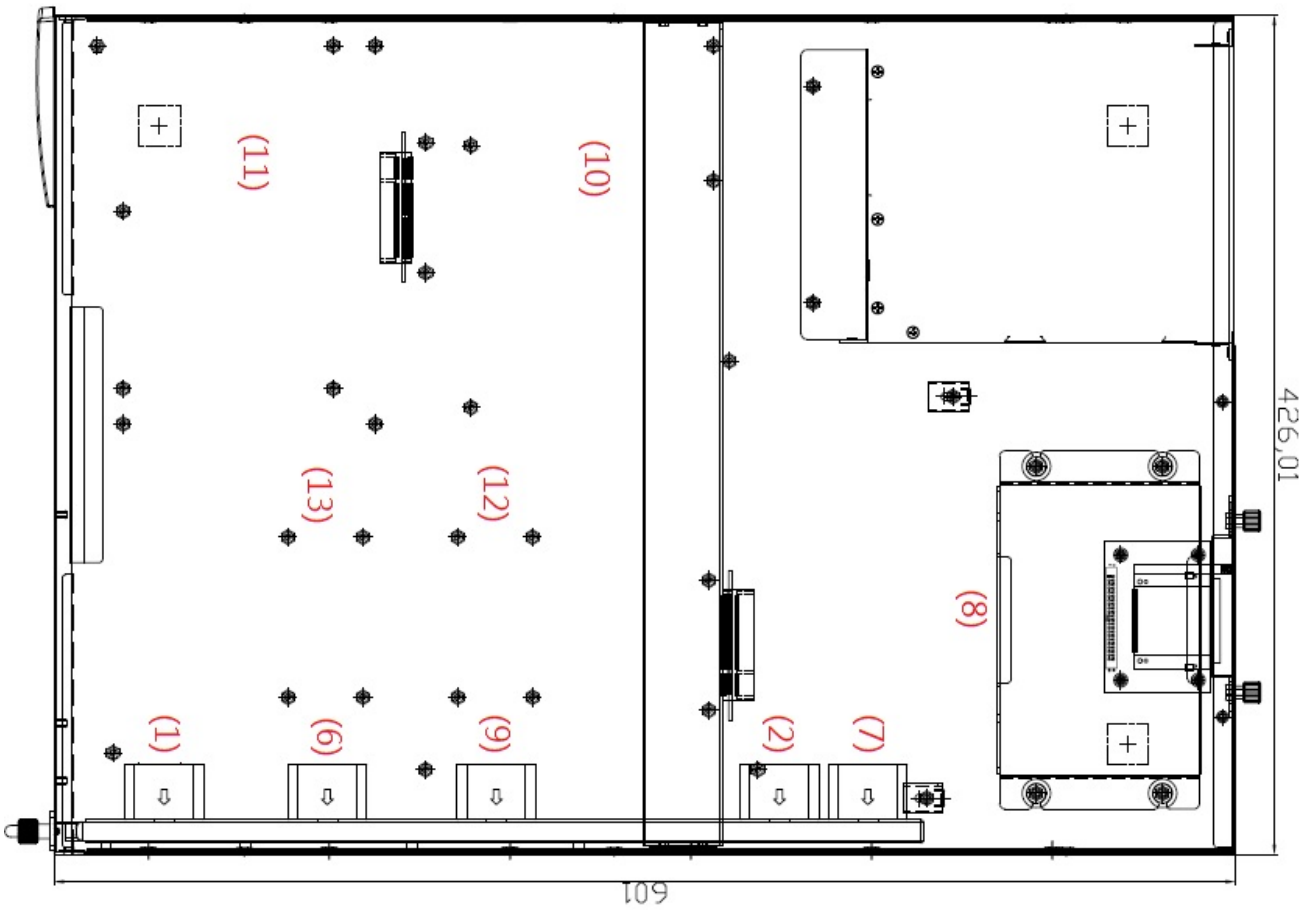
| F3.10 | TABLE: DURABILITY, LEGIBILITY AND PERMANENCE OF MARKING | | | | | | P |
|---|---|---|---|---|---|---|---|
| TEST CONDITIONS: | | | | | | | |
| Use of Marking | Nameplate/electrical ratings | | -- | | -- | | |
| Material | 1. WAI GHA INDUSTRIAL CO LTD / WG-7818-MS, 2. AVERY (CHINA) CO LTD / 50 micron Matte Silver PET TC/S333 | 1. WAI GHA INDUSTRIAL CO LTD / WG-7818-MS, 2. AVERY (CHINA) CO LTD / 50 micron Matte Silver PET TC/S333 | -- | -- | -- | -- | |
| Held by | -- | -- | -- | -- | -- | -- | |
| Applied Surface Material | Steel | Steel | -- | -- | -- | -- | |

| OBSERVATIONS: | | | | | | |
|---|---|---|---|---|---|---|
| | Water | Hexane [ ] a [X] b | Water | Hexane [ ] a [ ] b | Water | Hexane [ ] a [ ] b |
| Any Damage? | No | No | -- | -- | -- | -- |
| Legible? | Yes | Yes | -- | -- | -- | -- |
| Curled? | No | No | -- | -- | -- | -- |
| Edge Lifted? | No | No | -- | -- | -- | -- |
| Easily Removed Intact? | No | No | -- | -- | -- | -- |

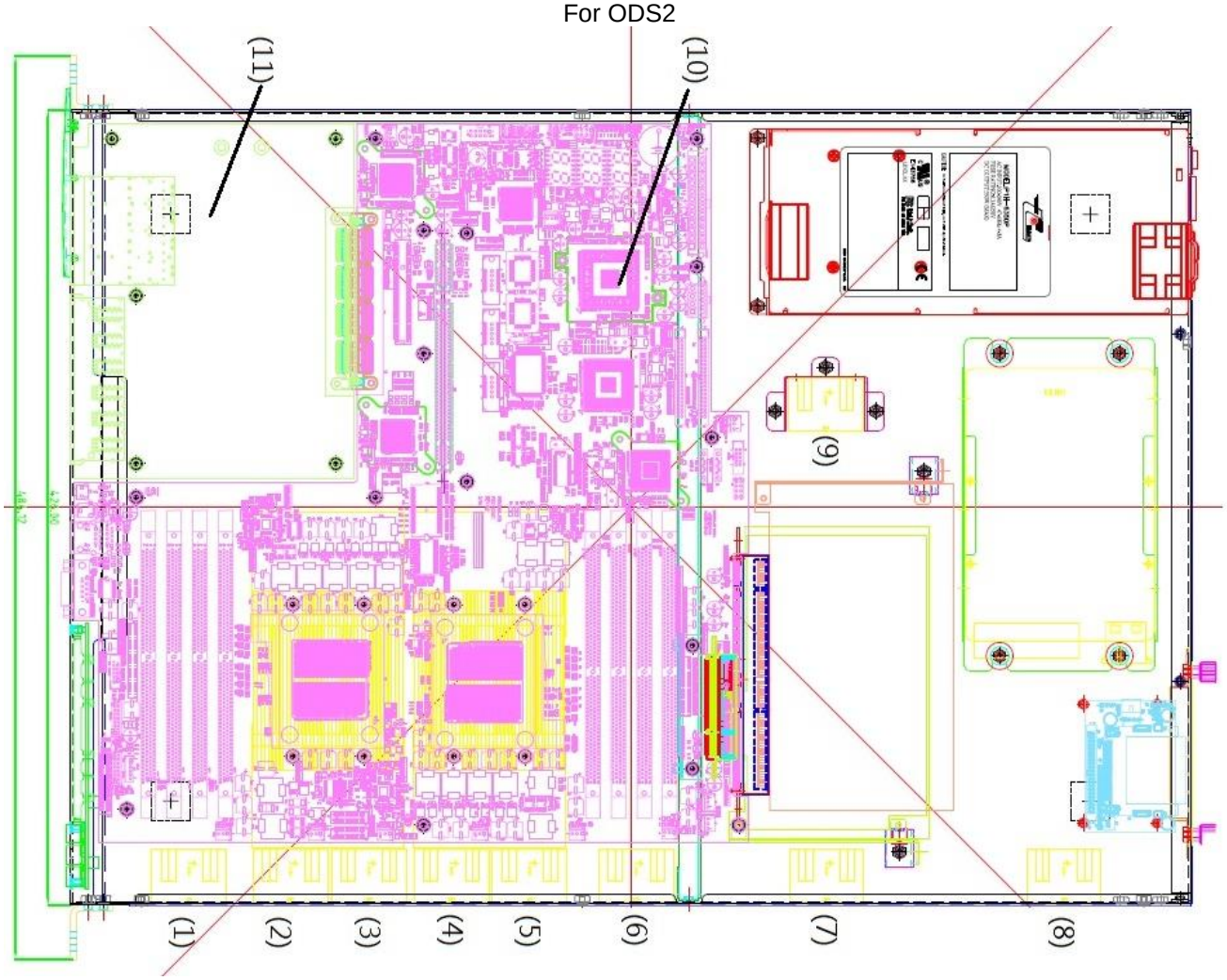
PROTECTIVE CONDUCTOR CURRENT 5.7.5

| Operating Conditions | Input Current (A) | Calculation: Input Current x 0,05 | Measured Protective Conductor Current (mA) |
|---|---|---|---|
| System maximum normal load (for ODS2 DUAL, with power model: MRW-6420P) | 2.09 | 0.1045A | 1.08mArms |
| System maximum normal load (for ODS2, with power model: P1H-6350P) | 1.95 | 0.0975A | 0.81mArms |

Miscellaneous ID 7-02
For ODS2 DUAL



Miscellaneous ID 7-02
For ODS2



IEC IECEE CB SCHEME

**Ref. Certif. No.**

**DK-82524-UL**

**IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME**

## CB TEST CERTIFICATE

| | |
|---|---|
| Product | Redundant Power Supply and Power Module |
| Name and address of the applicant | ZIPPY TECHNOLOGY CORP<br>10F 50 Minquan Rd, Xindian District, NEW TAIPEI 231, TAIWAN |
| Name and address of the manufacturer | ZIPPY TECHNOLOGY CORP<br>10F 50 Minquan Rd, Xindian District, NEW TAIPEI 231, TAIWAN |
| Name and address of the factory<br>*Note: When more than one factory, please report on page 2* | Zippy Technology Corp.<br>4F., No.48, Wucyuan Rd. Wugu Dist., New Taipei City 24886<br>Taiwan<br>☐ Additional Information on page 2 |
| Ratings and principal characteristics | Input: 100-240Vac, 8-4A, 47-63Hz<br>Output: See test report Pages 9 and 10 for details. |
| Trademark (if any) | |
| Type of Customer's Testing Facility (CTF) Stage used | |
| Model / Type Ref. | MRP-6420P, MRW-6350P-R, MRW-6350P, MRW-6400P-R, MRW-6400P, MRW-6420P-R, See Page 2 |
| Additional Information (If necessary may also be reported on page 2) | Additionally evaluated to EN 62368-1:2014 / A11: 2017; National Differences specified in the CB Test Report.<br>☒ Additional Information on page 2 |
| A sample of the product was tested and found to be in conformity with | IEC 62368-1:2014 |
| As shown in the Test Report Ref. No. which forms part of this Certificate | 1803018-CB issued on 2019-04-08 |

This CB Test Certificate is issued by the National Certification Body

☐ UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
☒ UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
☐ UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
☐ UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2019-04-15

Signature:

Jan-Erik Storgaard

Licenses ID 8-01

| | Ref. Certif. No. |
|---|---|
| IEC IECEE CB SCHEME | DK-82524-UL |

Models:

Redundant Power Supply:
MRP-6420P, MRW-6350P, MRW-6400P, and MRW-6420P
Power Module:
MRP-6420P-R, MRW-6350P-R, MRW-6400P-R, and MRW-6420P-R

Additional information (if necessary)

- ☐ UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- ☒ UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
- ☐ UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- ☐ UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2019-04-15

Signature:
Jan-Erik Storgaard

IEC IECEE CB SCHEME

| Ref. Certif. No. |
| --- |
| JPTUV-063823 |

**IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME**

**SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC**

# CB TEST CERTIFICATE

# CERTIFICAT D'ESSAI OC

| | |
| --- | --- |
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Minquan Rd.,<br>Shin Tien District, New Taipei City, 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Minquan Rd.,<br>Shin Tien District, New Taipei City, 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | ZIPPY TECHNOLOGY CORP<br>4F., No. 48, Wucyuan Rd.<br>Wugu Dist., New Taipei City 24886 Taiwan |
| Ratings and principal characteristics<br>Valeurs nominales et charactéristiques principales | Input : DC -36V to -72V; 12A (x=300), 13A (x=350),<br>14A (x=375); DC -42V to -72V; 14A (x=400); Class I<br>Output: refer to the test report |
| Trademark (if any)<br>Marque de fabrique (si elle existe) | EMACS |
| Type of Manufacturer's Testing Laboratories used<br>Type de programme du laboratoire d'essais constructeur | N/A |
| Model / Type Ref.<br>Ref. de type | DMRW-6xF, DMRW-6xF-R (x can be 300, 350, 375 and 400) |
| Additional information (if necessary may also be reported on page 2)<br>Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005+A1+A2<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat | 11041276 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 09.06.2015

Signature: Dipl.-Ing. [illegible]

10081 CB 05.12

IEC IECEE CB SCHEME

**Ref. Certif. No.**
JPTUV-057183

**IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME**

**SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC**

# CB TEST CERTIFICATE

# CERTIFICAT D'ESSAI OC

| | |
|---|---|
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien District, New Taipei City, 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien District, New Taipei City, 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | Zippy Technology Corp.<br>2F, No. 123, Lane 235<br>Pao-Chiao Rd., Shin Tien District, New Taipei City, 231 Taiwan |
| Ratings and principal characteristics<br>Valeurs nominales et charactéristiques principales | Input : 1) AC 100-240V; 8-5A, 2) AC 200-240V; 5A; 60-50Hz;<br>Class I<br>Output: refer to the test report |
| Trademark (if any)<br>Marque de fabrique (si elle existe) | EMACS |
| Type of Manufacturer's Testing Laboratories used<br>Type de programme du laboratoire d'essais constructeur | N/A |
| Model / Type Ref.<br>Ref. de type | 1) P1H-6xxxP, P2H-6xxxP (xxx=400, 350), P1H-6357P<br>2) P1H-5408P |
| Additional information (if necessary may also be reported on page 2)<br>Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005+A1+A2<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat | 11037128 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 24.06.2014

Signature: Dipl.-Ing. T. Stoelzel

10981 CB 05.12

IEC IECEE CB SCHEME

**Ref. Certif. No.**
JPTUV-065240

**IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME**

**SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC**

# CB TEST CERTIFICATE

# CERTIFICAT D'ESSAI OC

| | |
|---|---|
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Minquan Rd.,<br>Shin Tien District, New Taipei City, 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Minquan Rd.,<br>Shin Tien District, New Taipei City, 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | ZIPPY TECHNOLOGY CORP<br>4F., No. 48, Wucyuan Rd.<br>Wugu Dist., New Taipei City 24886 Taiwan |
| Ratings and principal characteristics<br>Valeurs nominales et caractéristiques principales | Input : DC -36V- -72V; 17A; Class I<br>Output: refer to the test report |
| Trademark (if any)<br>Marque de fabrique (si elle existe) | EMACS |
| Type of Manufacturer's Testing Laboratories used<br>Type de programme du laboratoire d'essais constructeur | N/A |
| Model / Type Ref.<br>Ref. de type | DP1H-6350F, DP1H-6400F, DP2H-6350F, DP2H-6400F, SP410-1D |
| Additional information (if necessary may also be reported on page 2)<br>Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005+A1+A2<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat | 11042164 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 07.08.2015

Signature: Dipl.-Ing. F. Scheitel

IM/61 CB 05.12

Ref. Certif. No.
US/4213/ITS

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEM CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

# CB TEST CERTIFICATE

# CERTIFICAT D'ESSAI OC

| | |
|---|---|
| Product<br>Produit | Network Switch |
| Name and address of the Applicant<br>Nom et adresse du demandeur | Radware Ltd.<br>22 Raoul Wallenberg Street, Tel-Aviv 69710<br>Israel |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Radware Ltd.<br>22 Raoul Wallenberg Street, Tel-Aviv 69710<br>Israel |
| Name and address of the factory<br>Nom et adresse de l'usine | Nexcom International Co., Ltd<br>5F,7F,8F,9F,10F&12F,No.63, Sec.1, Sanmin Rd., Banqiao Dist, New Taipei City<br>Taiwan |
| Rating and principal characteristics<br>Valeurs nominales et caractéristiques principales | 100-240VAC, 60-50Hz, 8-5A (for models with single AC power supply);<br>100-240VAC, 47-63Hz, 8-4A (for models with dual AC power supply);<br>-36- -72VDC, 17A (for models with single DC power supply)<br>-36- -72VDC, 12A (for models with dual DC power supply) |
| Trademark (if any)<br>Marque de fabrique (si elle existe) | Radware |
| Type of manufacturer's Testing Laboratories used<br>Type de programme de laboratoire d'essais constructeur | |
| Model / Type Ref.<br>Réf. de type | See Appendix 2 of report for models names. |
| Additional information (if necessary may also be reported on page 2)<br>Les informations complémentaires (si nécessaire, peuvent être indiquées sur la 2ème page) | |
| A sample of product was tested and found to be in conformity with IEC<br>Un échantillon de ce produit a été essayé et été considéré conforme à la CEI | 60950-1(ed.2);am1 |
| National differences / Comments<br>Les différences nationales / Commentaires | EU Group Differences, EU Special National Conditions, EU A-Deviations, AT, AU, BE, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, FR, GB, HU, IL, IN, IT, JP, KR, MY, NL, NO, PL, SE, SG, SI, SK, UA, US |
| As shown in the test report Ref. No. which forms part of this certificate<br>Comme indiqué dans le rapport d'essais numéro de référence qui constitue partie de ce certificat | CB103900.02 |

This CB Test Certificate is issued by the National Certification Body:

Ce Certificat d'essai OC est établi par l'Organisme National de Certification

Intertek Testing Services, N.A.
165 Main Street, Cortland, NY 13045, USA

Intertek

Date: 2013-02-01

Signature: John Quigley

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEM CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

## Additional factory

PCI Shanghai Electronics Company Limited

Shanghai Caohejing Hi-Tech Park, 6th Floor, Block 87 No.1199 Qin Zhou Bei Road, Shanghai 200233

China

This CB Test Certificate is issued by the National Certification Body:

Intertek Testing Services, N.A.
165 Main Street, Cortland, NY 13045, USA

Ce Certificat d'essai OC est établi par l'Organisme National de Certification

Intertek

Date: 2013-02-01

Signature: John Quigley

**Test Report issued under the responsibility of:**

NCB **Intertek** Testing Services NA, Inc

# TEST REPORT

## IEC 60950-1
## Information technology equipment – Safety – Part 1: General requirements

| | |
|---|---|
| **Report Number**. ..... : | CB103900.02 |
| Date of issue..... : | 29 January 2013 |
| Total number of pages ..... | 153 |
| **CB Testing Laboratory**..... : | I.T.L. (PRODUCT TESTING) Ltd. |
| Address ..... : | 1 Bat-Sheva St. POB 87 Lod 71100 ISRAEL |
| **Applicant's name**..... : | Radware Ltd. |
| Address ..... : | 22 Raoul Wallenberg Street, Tel-Aviv 69710, Israel |
| **Manufacturer's name**……..: | Radware Ltd. |
| Address ..... : | 22 Raoul Wallenberg Street, Tel-Aviv 69710, Israel |
| **Test specification:** | |
| Standard..... : | IEC 60950-1:2005 (Second Edition) + Am 1:2009 |
| Test procedure ..... : | CB Scheme |
| Non-standard test method…….. : | N/A |
| **Test Report Form No**..... : | IEC60950_1C |
| Test Report Form(s) Originator ..... : | SGS Fimko Ltd |
| Master TRF..... : | Dated 2012-08 |



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

| | |
|---|---|
| **Test item description .....:** | Network Switch |
| Trade Mark .....: | Radware |
| Manufacturer .....: | Radware Ltd., 22 Raoul Wallenberg Street, Tel-Aviv 69710, Israel |
| Model/Type reference.....: | See Appendix 2 for models names |
| Ratings .....: | 100-240VAC, 60-50Hz, 8-5A (for models with single AC power supply);<br>100-240VAC, 47-63Hz, 8-4A (for models with dual AC power supply);<br>-36- -72VDC, 17A (for models with single DC power supply)<br>-36- -72VDC, 12A (for models with dual DC power supply) |

| **Testing procedure and testing location:** | | | |
|---|---|---|---|
| ☒ | **CB Testing Laboratory**: | I.T.L. (PRODUCT TESTING) Ltd. | |
| Testing location/ address .....: | | 1 Bat-Sheva St. POB 87 Lod 71100 ISRAEL | |
| ☐ | **Associated CB Laboratory:** | | |
| Testing location/ address .....: | | | |
| | Tested by (name + signature) .....: | Yigal Y Cohen | |
| | Approved by (name + signature).....: | Vladimir Chernikh | |
| ☐ | Testing procedure: **TMP** | | |
| Testing location/ address .....: | | | |
| | Tested by (name + signature) .....: | | |
| | Approved by (name + signature).....: | | |
| ☐ | Testing procedure: **WMT** | | |
| Testing location/ address .....: | | | |
| | Tested by (name + signature) .....: | | |
| | Witnessed by (name + signature) ....: | | |
| | Approved by (name + signature).....: | | |
| ☐ | Testing procedure: **SMT** | | |
| Testing location/ address .....: | | | |
| | Tested by (name + signature) .....: | | |
| | Approved by (name + signature).....: | | |
| | Supervised by (name + signature) ...: | | |
| ☐ | Testing procedure: **RMT** | | |
| Testing location/ address .....: | | | |
| | Tested by (name + signature) .....: | | |
| | Approved by (name + signature).....: | | |
| | Supervised by (name + signature) ...: | | |

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

**Appendix 1 – Photographs**

**Appendix 2 – National differecnes**

**Appendix 3 –Model names**

**Appendix 4 – Battery circuit protection**

**Appendix 5 – licences**

**Summary of testing:**

**This report is a standard upgrade to IEC 60950-1:2005 + Am.1:2009 standard version for 3 previous test reports CB103900.01_M2, CB103900.01_M1 and CB103900.01 which complied with IEC 60950-1:2005.**

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| **-CB103900.02-**<br>2.9.2 humidity conditioning (For China deviations)<br>5.2.2 Electric strength<br>**-CB103900.01_M2-**<br>None testing<br>**-CB103900.01_M1-**<br>1.6.2 –Input Test<br>**-CB103900.01 –**<br>1.6.2 – Input Test<br>1.7.13- Durability test<br>2.1.1.1- Access to energized parts<br>2.1.1.7- Capacitance Discharge Test<br>2.6.3.3- Earthing Test<br>4.5.1- Heating Test<br>5.1- Touch Current Test<br>5.2.2- Electrical strength Test<br>5.3.1- Abnormal Operation Test<br>Tests were performed with maximum load on the models represent all AC and DC versions of the units:<br>with single AC PS: RODS2XL-DEF-ND<br>with single DC PS: RODS2XL-DCPS-ND<br>with dual AC PS: RODS2-DUAL-MMB<br>with dual DC PS: RODS2-DUDC-MMB | I.T.L. (PRODUCT TESTING) Ltd.<br>1 Bat-Sheva St. POB 87 Lod 71100 ISRAEL |

**Error! Reference source not found.**

**Summary of compliance with National Differences**

**Summary of compliance with National Differences to IEC 60950-1:2005 (2nd Edition)+Am 1:2009.**

List of countries addressed:
EU Group Differences, EU Special National Conditions, AT, BE, BY, CA, CH, CZ, DE, DK, ES, FI, FR, HU, IN, IL, IT, JP, KR, MY, NL, NO, SG, SE, SI, PL, SK, UA, UK, US

**Summary of compliance with National Differences to IEC 60950-1:2005 (2nd Edition).**

List of countries addressed: AU, BR, CN

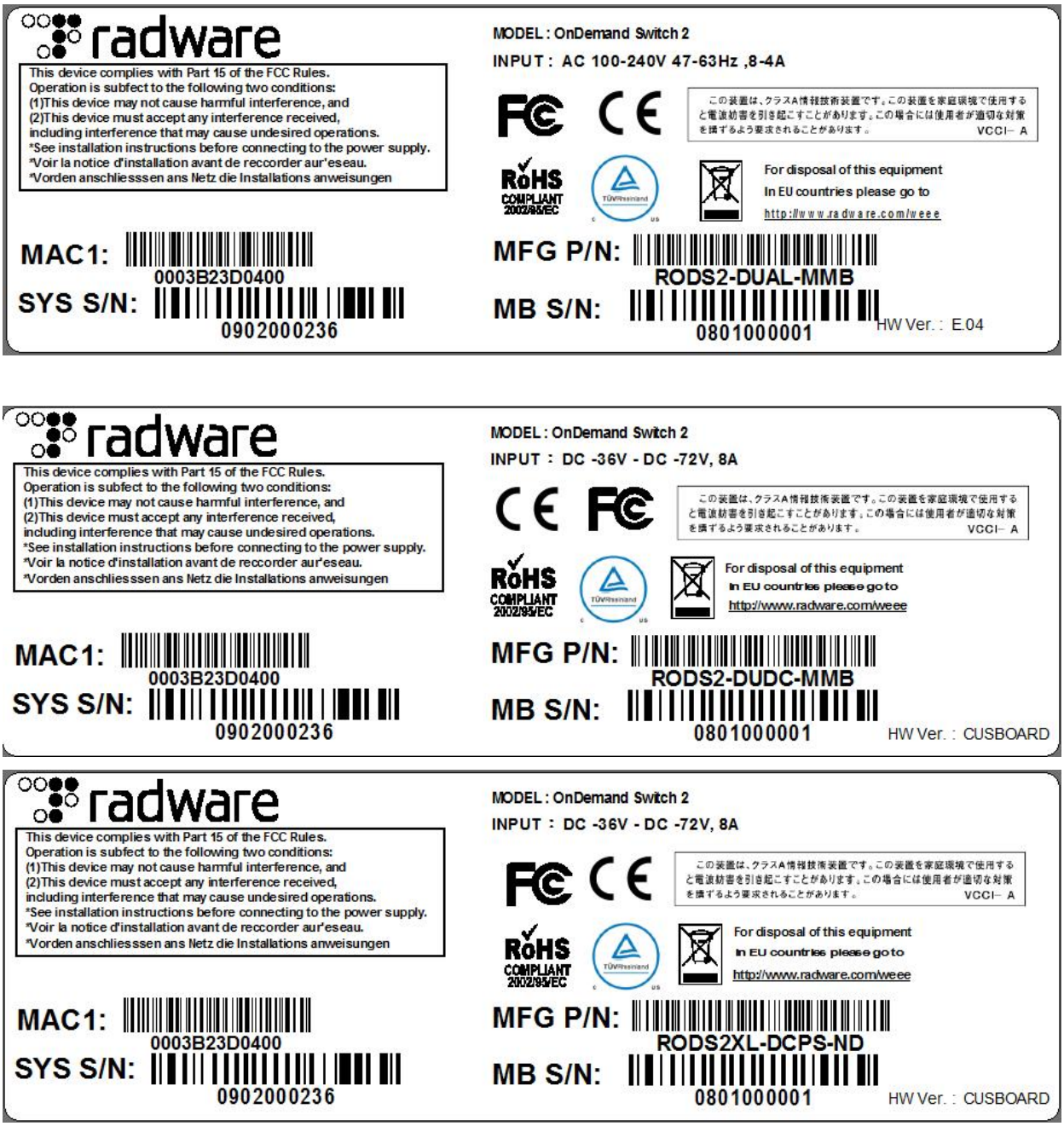
Explanation of used codes: AU=Australia, AT=Austria, BE=Belgium, BY=Belarus, BR=Brazil, CA=Canada, CH=Switzerland, CZ=Czech Republic, CN=China, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, FR=France, HU=Hungary, IN=India, IL=Israel, IT=Italy, JP=Japan, KR=Korea, MY=Malaysia, NL=The Netherlands, NO=Norway, SG=Singapore, SE=Sweden, SI=Slovenia, PL=Poland, SK=Slovakia, UA=Ukraine, UK= United Kingdom, US=United States of America

☒ The product fulfils the requirements of IEC 60950-1:2005 (Second Edition), Am 1: 2009, EN 60950-1:2006+A11:2009+A1:2010, EN 60950-1:2006+A11:2009+A1:2010+A12:2011 and EN 60950-1:2006+A11:2009.

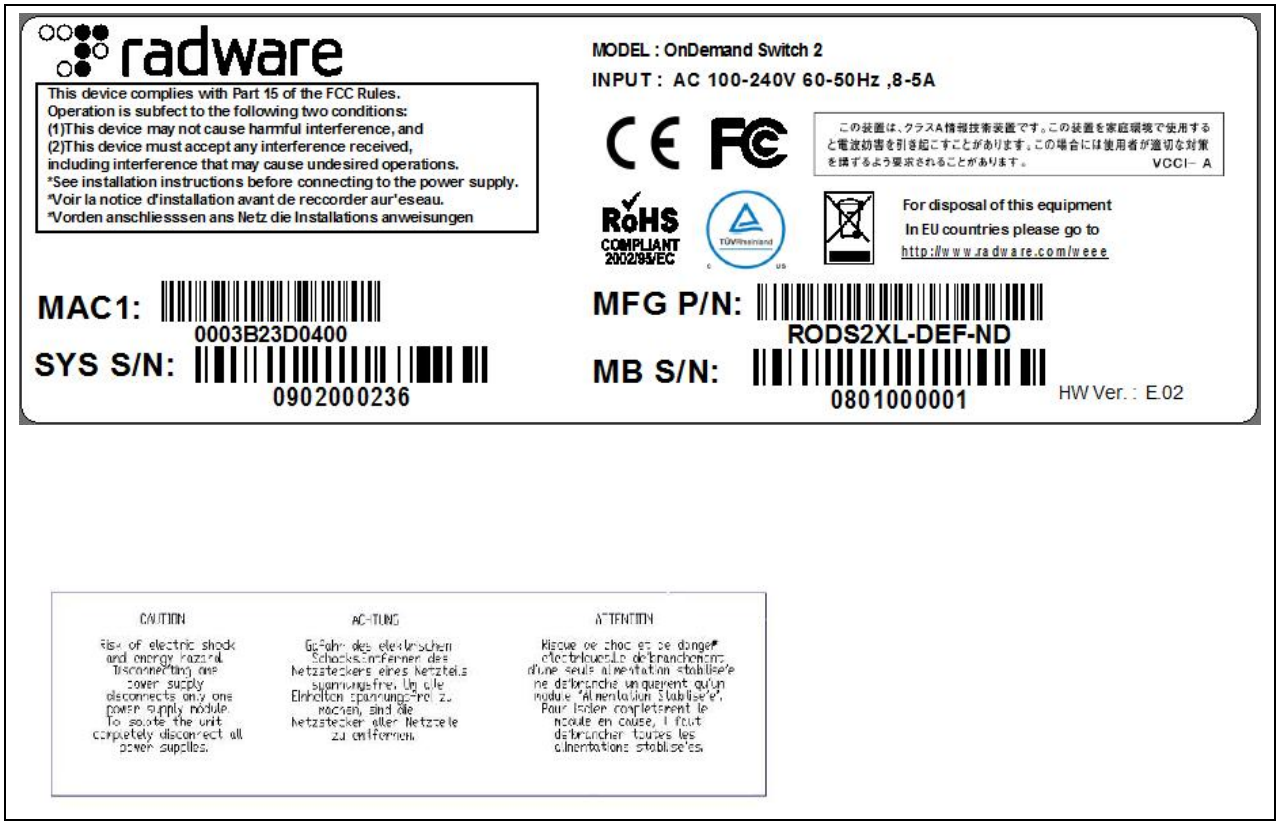
**Copy of marking plate**

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

(Additional requirements for markings. See 1.7 NOTE)



**Error! Reference source not found.**



| | |
|---|---|
| **Test item particulars**.....: | |
| Equipment mobility.....: | [X] movable [] hand-held [] transportable<br>[X] stationary [] for building-in [] direct plug-in |
| Connection to the mains .....: | [] pluggable equipment [x] type A [] type B<br>[x] permanent connection (For DC version)<br>[x] detachable power supply cord (For AC version)<br>[] non-detachable power supply cord<br>[] not directly connected to the mains |
| Operating condition.....: | [x] continuous<br>[] rated operating / resting time: |
| Access location .....: | [x] operator accessible (For AC version)<br>[x] restricted access location (For DC version) |
| Over voltage category (OVC) .....: | [x] OVC I [x] OVC II [] OVC III [] OVC IV<br>[] other: |
| Mains supply tolerance (%) or absolute mains supply values .....: | +10%/-10%; for AC powered unit;<br>36V-72Vdc according to manufacturer requirements |
| Tested for IT power systems .....: | [x] Yes for Norway only [] No |
| IT testing, phase-phase voltage (V) .....: | |
| Class of equipment .....: | [x] Class I [] Class II [] Class III<br>[] Not classified |
| Considered current rating of protective device as part of the building installation (A) .....: | Up to 20A |
| Pollution degree (PD) .....: | [] PD 1 [x] PD 2 [] PD 3 |
| IP protection class .....: | IPX0 |
| Altitude during operation (m) .....: | Up to 2000m |
| Altitude of test laboratory (m) .....: | 55m |
| Mass of equipment (kg) .....: | 11kg -1U<br>15.5kg -2U |
| **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..... : | November 15, 2012 |
| Date(s) of performance of tests..... : | 20/11/2012 |

**General remarks:**

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(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 6.2.5 of IECEE 02:**

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:

☒ Yes

☐ Not applicable

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

**Name and address of factory (ies) ..... :**

1. Nexcom International Co., Ltd

5F,7F,8F,9F,10F&12F,No.63, Sec.1, Sanmin Rd., Banqiao Dist, New Taipei City, Taiwan

2. **PCI Shanghai Electronics Company Limited**
**上海毕诚电子有限公司**
Shanghai Caohejing Hi-Tech Park, 6th Floor, Block No.1199 Qin Zhou Bei Road, Shanghai 200233, Chi

上海市漕河泾开发区钦州北路 1199 号 87 座 6 楼， 邮编 200233

**General product information:**

The units are movable or rack-mountable, Class I, may be AC or DC powered.
Four configurations of units were considered:

- AC powered :1U and 2U units with single and dual power supplies
- DC powered : 1U and 2U units with single and dual power supplies

All power supplies are certified.

AC powered units 1U and 2U are pluggable type A, use detachable power cord. The appliance inlet is part of approved power supply, considered as disconnect device.

DC powered units 1U are permanently connected; use terminal block that is a part of approved power supply, suitable for field wiring.

DC voltages is up to -72V , the positive line DC pole is connected to earthing ground in the building installation and considered as TNV-2.

Power cords are not part of this evaluation.

Units contain certified optical transceivers, Class 1 complying with EN60825-1 and 21CFR (J).

Model differences – The models are different in software versions.

All models 1U have same hardware and mechanical construction and can be AC or DC powered.

All models 2U have same hardware and mechanical construction and can be AC or DC powered. The models 2U are different from 1U having an additional daughter board on the main board and alternate chip for CPU.

The products were submitted and tested for use at the maximum ambient temperature 50°C

Model Differences:

– The models are different in software versions.

All models 1U have same hardware and mechanical construction and can be AC or DC powered.

All models 2U have same hardware and mechanical construction and can be AC or DC powered. The models 2U are different from 1U having an additional daughter board on the main board and alternate chip for CPU.

Report history :

-CB103900.01 – original report -(IEC 60950-1:2005 (Second Edition):

-Amendment_M1 CB103900.01-(IEC 60950-1:2005 (Second Edition):
Changed input voltage range to 36-72Vdc

-Amendment_M2 CB103900.01-(IEC 60950-1:2005 (Second Edition):
Added model no. RODS2-DEF-NEBS and RODS2XL-2DC-NEBS with different hard disk
Alternate type of lithium battery and DC fan were added

-CB103900.02 full report -(IEC 60950-1:2005 (Second Edition) + Am 1:2009):
Humidity testing for China and upgraded standard version

**Abbreviations used in the report:**

| | | | |
|---|---|---|---|
| - normal conditions | N.C. | - single fault conditions | S.F.C |
| - functional insulation | OP | - basic insulation | BI |
| - double insulation | DI | - supplementary insulation | SI |
| - between parts of opposite polarity | BOP | - reinforced insulation | RI |

Indicate used abbreviations (if any)

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **1** | **GENERAL** | | P |
| **1.5** | **Components** | | P |
| 1.5.1 | General | See appended table 1.5.1 | P |
| | Comply with IEC 60950-1 or relevant component standard | All components either comply with the relevant standard or were subjected to the necessary test. | P |
| 1.5.2 | Evaluation and testing of components | Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard.<br>Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component Standard.<br>Components, for which no relevant IEC-Standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1. | P |
| 1.5.3 | Thermal controls | No such components | N/A |
| 1.5.4 | Transformers | Evaluated as part of approved power supply. | N/A |
| 1.5.5 | Interconnecting cables | Interconnecting cables are not part of this evaluation. | N/A |
| 1.5.6 | Capacitors bridging insulation | Capacitors are evaluated as part of approved power supply. | N/A |
| 1.5.7 | Resistors bridging insulation | Part of approved power supply | N/A |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation | Part of approved power supply | N/A |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between a.c. mains and other circuits | Part of approved power supply | N/A |
| 1.5.7.3 | Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable | Part of approved power supply | N/A |
| 1.5.8 | Components in equipment for IT power systems | Components are suitably rated to withstand 230Vac line-to-line voltages of Norway IT power system | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.9 | Surge suppressors | Considered and certified as part of the power supplies | N/A |
| 1.5.9.1 | General | Considered and certified as part of the power supplies | N/A |
| 1.5.9.2 | Protection of VDRs | Considered and certified as part of the power supplies | N/A |
| 1.5.9.3 | Bridging of functional insulation by a VDR | Considered and certified as part of the power supplies | N/A |
| 1.5.9.4 | Bridging of basic insulation by a VDR | Considered and certified as part of the power supplies | N/A |
| 1.5.9.5 | Bridging of supplementary, double or reinforced insulation by a VDR | Considered and certified as part of the power supplies | N/A |
| **1.6** | **Power interface** | | P |
| 1.6.1 | AC power distribution systems | AC Unit was evaluated for use with TN power system. However it may be connected to IT power system of Norway only | P |
| 1.6.2 | Input current | (see appended table 1.6.2) | P |
| 1.6.3 | Voltage limit of hand-held equipment | No hand-held equipment | N/A |
| 1.6.4 | Neutral conductor | Part of approved power supply | N/A |
| **1.7** | **Marking and instructions** | | P |
| 1.7.1 | Power rating and identification markings | Provided | P |
| 1.7.1.1 | Power rating marking | Provided | P |
| | Multiple mains supply connections.....: | See installation instructions | P |
| | Rated voltage(s) or voltage range(s) (V) .....: | 100-240Vac;<br>36-72Vdc for 1U units,<br>36-72Vdc for 2U units | P |
| | Symbol for nature of supply, for d.c. only.....: | Marked DC | N/A |
| | Rated frequency or rated frequency range (Hz) ....: | 60-50Hz for AC 1U units<br>47-63Hz for AC 2U units | P |
| | Rated current (mA or A) .....: | 8A-5A for AC 1U units<br>8A-4A for AC 2U units,<br>17A for DC 1U units;<br>12A for DC 2U units | P |
| 1.7.1.2 | Identification markings | | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Manufacturer's name or trade-mark or identification mark .....: | Radware Ltd | P |
| | Model identification or type reference .....: | See Appendix 1 for model names | P |
| | Symbol for Class II equipment only .....: | Class I equipment | N/A |
| | Other markings and symbols .....: | No other symbols | N/A |
| 1.7.2 | Safety instructions and marking | Operating instructions made available to the user. | P |
| 1.7.2.1 | General | Operating instructions made available to the user. | P |
| 1.7.2.2 | Disconnect devices | Clear statement is provided in the installation instruction | P |
| 1.7.2.3 | Overcurrent protective device | No such equipment | N/A |
| 1.7.2.4 | IT power distribution systems | Safety instructions include a note that specifies connection for IT for Norway only | P |
| 1.7.2.5 | Operator access with a tool | Only SELV circuits and safety earth are accessible to an operator | P |
| 1.2.7.6 | Ozone | No such equipment | N/A |
| 1.7.3 | Short duty cycles | Continuous operation equipment | N/A |
| 1.7.4 | Supply voltage adjustment .....: | Equipment is automatically selectable | N/A |
| | Methods and means of adjustment; reference to installation instructions .....: | Equipment is automatically selectable | N/A |
| 1.7.5 | Power outlets on the equipment .....: | No such outlets | N/A |
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference) .....: | Part of certified power supply. No other fuses employed | N/A |
| 1.7.7 | Wiring terminals | | P |
| 1.7.7.1 | Protective earthing and bonding terminals .....: | Earthing screw is marked with symbol 5019 IEC 60417 | P |
| 1.7.7.2 | Terminals for a.c. mains supply conductors | Unit is not permanently connected to AC mains | N/A |
| 1.7.7.3 | Terminals for d.c. mains supply conductors | DC terminal block is marked "+" "-" for DC connection of 1U units. | P |
| 1.7.8 | Controls and indicators | No such parts | N/A |
| 1.7.8.1 | Identification, location and marking .....: | Only functional indicators are used. | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.8.2 | Colours .....: | No switches | N/A |
| 1.7.8.3 | Symbols according to IEC 60417.....: | Earthing screw is marked with symbol 5019 IEC 60417 | P |
| 1.7.8.4 | Markings using figures .....: | Figures are not used | N/A |
| 1.7.9 | Isolation of multiple power sources .....: | Marking near power connection to power supply of 2U units are provided. Markings are visible. | P |
| 1.7.10 | Thermostats and other regulating devices .....: | No such devices | N/A |
| 1.7.11 | Durability | The marking(s) withstood the required test | P |
| 1.7.12 | Removable parts | No removable parts | N/A |
| 1.7.13 | Replaceable batteries .....: | Statement provided in user manual | P |
| | Language(s) .....: | English, French | — |
| 1.7.14 | Equipment for restricted access locations.....: | DC 1U unit is intended for RESTRICTED ACCESS LOCATION. Suitable text contains installation instruction. | P |
| **2** | **PROTECTION FROM HAZARDS** | | P |
| 2.1 | Protection from electric shock and energy hazards | | P |
| 2.1.1 | Protection in operator access areas | Only SELV circuits and safety earth are accessible to an operator. Protection is achieved by overall equipment basic insulation and earthing of accessible conductive parts. DC powered 1U units are for installation in RAL (Restricted access location) | P |
| 2.1.1.1 | Access to energized parts | The operator has access to bare parts of SELV circuits only | P |
| | Test by inspection .....: | No hazards | P |
| | Test with test finger (Figure 2A) .....: | The test finger was unable to touch hazardous parts | P |
| | Test with test pin (Figure 2B) .....: | The test pin was unable to contact bare parts at hazardous voltage | P |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Test with test probe (Figure 2C) ..... : | TNV-2 connectors are not accessible with Test Probe. Part of approved power supply. | P |
| 2.1.1.2 | Battery compartments | No such parts | N/A |
| 2.1.1.3 | Access to ELV wiring | There are no ELV circuits. | N/A |
| | Working voltage (Vpeak or Vrms); minimum distance through insulation (mm) | (see appended tables 2.10.2 and 2.10.5) | — |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | No operator access to internal wire | P |
| 2.1.1.5 | Energy hazards ..... : | There are no energy hazards in operator access area | P |
| 2.1.1.6 | Manual controls | The equipment does not contain any knobs, handles or levers. | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | The voltage across-line capacitors decayed to less than 37% of its original value in 1sec. for AC unit | P |
| | Measured voltage (V); time-constant (s) ..... : | 0V after 1 sec. | — |
| 2.1.1.8 | Energy hazards – d.c. mains supply | Hazard energy level is removed after 2 s: residual voltage after 0.1 s is 0V. | P |
| | a) Capacitor connected to the d.c. mains supply .. : | Part of certified power supply | P |
| | b) Internal battery connected to the d.c. mains supply ..... : | No such case | N/A |
| 2.1.1.9 | Audio amplifiers ..... : | No such parts | N/A |
| 2.1.2 | Protection in service access areas | Bare parts operating at hazardous voltages are located such that unintentional contact with such parts is unlikely during servicing operations involving other parts of the equipment. | P |
| 2.1.3 | Protection in restricted access locations | DC 1U units comply with the requirements for protection in restricted access location. | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **2.2** | **SELV circuits** | | P |
| 2.2.1 | General requirements | Compliance checked by inspection and relevant tests. | P |
| 2.2.2 | Voltages under normal conditions (V) ..... : | Maximum 12VDC | P |
| 2.2.3 | Voltages under fault conditions (V) ..... : | Part of certified power supply evaluation | N/A |
| 2.2.4 | Connection of SELV circuits to other circuits ..... : | The SELV circuits are connected to SELV circuits | P |

| | | | |
|---|---|---|---|
| **2.3** | **TNV circuits** | | N/A |
| 2.3.1 | Limits | DC units are connected to a maximum 72V DC mains, regarded as TNV-2 for the purpose of application of insulation requirements | N/A |
| | Type of TNV circuits..... : | No internal circuits are classified as TNV circuits | — |
| 2.3.2 | Separation from other circuits and from accessible parts | Part of certified power supply | N/A |
| 2.3.2.1 | General requirements | | N/A |
| 2.3.2.2 | Protection by basic insulation | | N/A |
| 2.3.2.3 | Protection by earthing | | N/A |
| 2.3.2.4 | Protection by other constructions ..... : | | N/A |
| 2.3.3 | Separation from hazardous voltages | | N/A |
| | Insulation employed ..... : | | — |
| 2.3.4 | Connection of TNV circuits to other circuits | | N/A |
| | Insulation employed ..... : | | — |
| 2.3.5 | Test for operating voltages generated externally | | N/A |

| | | | |
|---|---|---|---|
| **2.4** | **Limited current circuits** | | N/A |
| 2.4.1 | General requirements | Unit was not evaluated for limited current circuits. | N/A |
| 2.4.2 | Limit values | Unit was not evaluated for limited current circuits. | N/A |
| | Frequency (Hz)..... : | | — |
| | Measured current (mA) ..... : | | — |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Measured voltage (V) ..... : | | — |
| | Measured circuit capacitance (nF or µF) ..... : | | — |
| 2.4.3 | Connection of limited current circuits to other circuits | | N/A |
| **2.5** | **Limited power sources** | (see appended table 2.5) | P |
| | a) Inherently limited output | Schematics evaluation -<br>All ports (Ethernet and signal/data ports) are inherently limited signal/data outputs not associated with power transfer | P |
| | b) Impedance limited output | USB ports are protected by certified PTC rated Ihold 2.6A, Itrip 5A | P |
| | c) Regulating network limited output under normal operating and single fault condition | No such outputs | N/A |
| | d) Overcurrent protective device limited output | No such outputs | N/A |
| | Max. output voltage (V), max. output current (A), max. apparent power (VA) ..... : | | — |
| | Current rating of overcurrent protective device (A) .: | | — |
| | Use of integrated circuit (IC) current limiters | | |
| **2.6** | **Provisions for earthing and bonding** | | P |
| 2.6.1 | Protective earthing | Accessible conductive parts are connected to protective earth in accordance with 2.6.1a), b) | P |
| 2.6.2 | Functional earthing | Circuits, which provide functional earthing, are connected to protective earthing. | P |
| 2.6.3 | Protective earthing and protective bonding conductors | Requirements of 2.6.3.1, 2.6.3.2, 2.6.3.3 applicable | P |
| 2.6.3.1 | General | Protective protective bonding conductors comply with 2.6.1 a), b) | P |
| 2.6.3.2 | Size of protective earthing conductors | Power cord is not part of investigation | N/A |
| | Rated current (A), cross-sectional area ($mm^2$), AWG ..... : | | — |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.6.3.3 | Size of protective bonding conductors | Protective bonding conductors passed the test of 2.6.3.4 | P |
| | Rated current (A), cross-sectional area ($mm^2$), AWG ..... : | | — |
| | Protective current rating (A), cross-sectional area ($mm^2$), AWG..... : | Protective bonding conductors passed the test of 2.6.3.4 based on protective current 20A | |
| 2.6.3.4 | Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)..... : | Test current 40A for a period of 2 minutes<br>1U AC unit: 0.02Ω, voltage drop 0.8V<br>2U AC unit: 0.025Ω, voltage drop 1V<br>1U DC unit: 0.01Ω, voltage drop 0.4V<br>2U DC unit: 0.012 Ω, voltage drop 0.48V | P |
| 2.6.3.5 | Colour of insulation ..... : | Protective earthing conductor is part of power supply cord. Power supply cord not part of this evaluation. | N/A |
| 2.6.4 | Terminals | Requirements of 2.6.4.1, 2.6.4.2 apply | P |
| 2.6.4.1 | General | AC unit: Appliance inlet(s) used as protective earthing terminal(s).<br>DC unit: GND screws (2 provided) used as protective earthing terminal | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.6.4.2 | Protective earthing and bonding terminals | Construction of protective earthing terminal is suitable for application.<br>AC unit incorporates IEC 60320 type appliance inlet for protective earthing. Bonding is provided with mounting screws.<br>DC unit – External screw terminal is provided as main protective earthing terminal.<br>Protective bonding is provided with mounting screws.<br>External PE terminal provided. | P |
| | Rated current (A), type, nominal thread diameter (mm)..... : | PE terminal located on the rear panel: Rated current 17 A. Earthing screw terminals have 5mm thread diameter | — |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors | No such conductors. | P |
| 2.6.5 | Integrity of protective earthing | | P |
| 2.6.5.1 | Interconnection of equipment | Equipment does not provide earthing to other equipment | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors | No protective devices in the earthling conductors | P |
| 2.6.5.3 | Disconnection of protective earth | Disconnection of protective earthing at one point in the unit does not break the protective earthing to the other parts of the unit. | P |
| 2.6.5.4 | Parts that can be removed by an operator | No such parts | N/A |
| 2.6.5.5 | Parts removed during servicing | Earth does not have to be removed during service | P |
| 2.6.5.6 | Corrosion resistance | No risk of corrosion. Complies with Annex J. | P |
| 2.6.5.7 | Screws for protective bonding | Self-trapping or space thread screws are not used. | P |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system | Protective earthing does not rely on a telecommunication network or a cable distribution system. | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **2.7** | **Overcurrent and earth fault protection in primary circuits** | | P |
| 2.7.1 | Basic requirements | AC units: Pluggable equipment Type A. Protection against overcurrent, short-circuit and earth faults in Primary provided as part of EUT. Additional protection provided as part of building installation. | P |
| | Instructions when protection relies on building installation | AC units are Pluggable Type A. | P |
| 2.7.2 | Faults not simulated in 5.3.7 | Earth fault protection to be provided by buildings installation | P |
| 2.7.3 | Short-circuit backup protection | Building installation provides short-circuit back-up protection for the ac rated units. | P |
| 2.7.4 | Number and location of protective devices .....: | Protective device provided as part of approved power supply. | P |
| 2.7.5 | Protection by several devices | No such protection | N/A |
| 2.7.6 | Warning to service personnel .....: | No protective device provided in the neutral conductor. | N/A |

| | | | |
|---|---|---|---|
| **2.8** | **Safety interlocks** | | N/A |
| 2.8.1 | General principles | No interlocks provided | N/A |
| 2.8.2 | Protection requirements | No interlocks provided | N/A |
| 2.8.3 | Inadvertent reactivation | No interlocks provided | N/A |
| 2.8.4 | Fail-safe operation | No interlocks provided | N/A |
| | Protection against extreme hazard | No interlocks provided | N/A |
| 2.8.5 | Moving parts | No interlocks provided | N/A |
| 2.8.6 | Overriding | No interlocks provided | N/A |
| 2.8.7 | Switches, relays and their related circuits | No interlocks provided | N/A |
| 2.8.7.1 | Separation distances for contact gaps and their related circuits (mm) .....: | No interlocks provided | N/A |
| 2.8.7.2 | Overload test | No interlocks provided | N/A |
| 2.8.7.3 | Endurance test | No interlocks provided | N/A |
| 2.8.7.4 | Electric strength test | No interlocks provided | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.8.8 | Mechanical actuators | No interlocks provided | N/A |
| **2.9** | **Electrical insulation** | | P |
| 2.9.1 | Properties of insulating materials | No natural rubber, asbestos or hygroscopic materials used as insulation | P |
| 2.9.2 | Humidity conditioning | For AC version -<br>Humidity test was conducted 48H hours for China deviation<br>See National Differences China (CH). | P |
| | Relative humidity (%), temperature (°C) ..... : | 93% , $22^0$C | — |
| 2.9.3 | Grade of insulation | Functional insulation employed in secondary SELV evaluated to 5.3.4 c)<br>Basic insulation between Primary and earth.(Certified PS)<br>Basic insulation between TNV-2 and SELV. (Certified PS)<br>Reinforced insulation between primary circuits to SELV circuits | |
| 2.9.4 | Separation from hazardous voltages | Part of certified power supply having outputs defined as SELV | P |
| | Method(s) used ..... : | As above | — |
| **2.10** | **Clearances, creepage distances and distances through insulation** | | P |
| 2.10.1 | General | Compliance was checked by inspection and by measurements. | P |
| 2.10.1.1 | Frequency ..... : | 50-60Hz | P |
| 2.10.1.2 | Pollution degrees ..... : | 2 | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.1.3 | Reduced values for functional insulation | Considerations were considered and schematic evaluated according with 5.3.4 c) requirements | P |
| 2.10.1.4 | Intervening unconnected conductive parts | No such part | N/A |
| 2.10.1.5 | Insulation with varying dimensions | Part of certified power supplies | N/A |
| 2.10.1.6 | Special separation requirements | No such case | N/A |
| 2.10.1.7 | Insulation in circuits generating starting pulses | No such part | N/A |
| 2.10.2 | Determination of working voltage | Evaluated as part of closed frame certified power supplies.<br>For the DC version, the DC mains input voltage, its positive pole shall be connected electrically to ground from the building installation side, so the max transient peak working voltage is assumed to be 71Vpeak | P |
| 2.10.2.1 | General | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.2.2 | RMS working voltage | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.2.3 | Peak working voltage | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.3 | Clearances | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.3.1 | General | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.3.2 | Mains transient voltages | | P |
| | a) AC mains supply .....: | Evaluated as part of closed frame certified power supplies. | P |
| | b) Earthed d.c. mains supplies .....: | Assumed 71Vpeak | P |
| | c) Unearthed d.c. mains supplies .....: | | N/A |
| | d) Battery operation .....: | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.3.3 | Clearances in primary circuits | Evaluated as part of closed frame certified power supplies. | N/A |
| 2.10.3.4 | Clearances in secondary circuits | Considered through 5.3.4c | N/A |
| 2.10.3.5 | Clearances in circuits having starting pulses | | N/A |
| 2.10.3.6 | Transients from a.c. mains supply .....: | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.3.7 | Transients from d.c. mains supply .....: | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.3.8 | Transients from telecommunication networks and cable distribution systems .....: | | N/A |
| 2.10.3.9 | Measurement of transient voltage levels | Evaluated as part of closed frame certified power supplies. | P |
| | a) Transients from a mains supply | | N/A |
| | For an a.c. mains supply .....: | | N/A |
| | For a d.c. mains supply .....: | | N/A |
| | b) Transients from a telecommunication network : | | N/A |
| 2.10.4 | Creepage distances | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.4.1 | General | | N/A |
| 2.10.4.2 | Material group and comparative tracking index | | N/A |
| | CTI tests.....: | Material group IIIb is assumed to be used | — |
| 2.10.4.3 | Minimum creepage distances | Evaluated as part of closed frame certified power supplies. | N/A |
| **2.10.5** | **Solid insulation** | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.5.1 | General | | N/A |
| 2.10.5.2 | Distances through insulation | (see appended table 2.10.5) | N/A |
| 2.10.5.3 | Insulating compound as solid insulation | | N/A |
| 2.10.5.4 | Semiconductor devices | | N/A |
| 2.10.5.5. | Cemented joints | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.5.6 | Thin sheet material – General | | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.5.7 | Separable thin sheet material | | N/A |
| | Number of layers (pcs)..... : | | — |
| 2.10.5.8 | Non-separable thin sheet material | | N/A |
| 2.10.5.9 | Thin sheet material – standard test procedure | | N/A |
| | Electric strength test | (see appended table 2.10.5) | — |
| 2.10.5.10 | Thin sheet material – alternative test procedure | | N/A |
| | Electric strength test | (see appended table 2.10.5) | — |
| 2.10.5.11 | Insulation in wound components | | N/A |
| 2.10.5.12 | Wire in wound components | | N/A |
| | Working voltage ..... : | | N/A |
| | a) Basic insulation not under stress ..... : | | N/A |
| | b) Basic, supplementary, reinforced insulation ..... : | | N/A |
| | c) Compliance with Annex U ..... : | | N/A |
| | Two wires in contact inside wound component; angle between 45° and 90° ..... : | | N/A |
| 2.10.5.13 | Wire with solvent-based enamel in wound components | | N/A |
| | Electric strength test | (see appended table 2.10.5) | — |
| | Routine test | | N/A |
| 2.10.5.14 | Additional insulation in wound components | | N/A |
| | Working voltage ..... : | | N/A |
| | - Basic insulation not under stress ..... : | | N/A |
| | - Supplementary, reinforced insulation ..... : | | N/A |
| **2.10.6** | **Construction of printed boards** | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.6.1 | Uncoated printed boards | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.6.2 | Coated printed boards | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.6.3 | Insulation between conductors on the same inner surface of a printed board | (see appended table 2.10.3 and 2.10.4) | N/A |
| 2.10.6.4 | Insulation between conductors on different layers of a printed board | | N/A |
| | Distance through insulation | (see appended table 2.10.5) | N/A |
| | Number of insulation layers (pcs)..... : | | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **2.10.7** | **Component external terminations** | No Such components | N/A |
| 2.10.8 | Tests on coated printed boards and coated components | Evaluated as part of closed frame certified power supplies. | P |
| 2.10.8.1 | Sample preparation and preliminary inspection | | N/A |
| 2.10.8.2 | Thermal conditioning | | N/A |
| 2.10.8.3 | Electric strength test | (see appended table 5.2) | N/A |
| 2.10.8.4 | Abrasion resistance test | | N/A |
| 2.10.9 | Thermal cycling | | N/A |
| 2.10.10 | Test for Pollution Degree 1 environment and insulating compound | | N/A |
| 2.10.11 | Tests for semiconductor devices and cemented joints | | N/A |
| 2.10.12 | Enclosed and sealed parts | | N/A |

| | | | |
|---|---|---|---|
| **3** | **WIRING, CONNECTIONS AND SUPPLY** | | P |
| 3.1 | General | | P |
| 3.1.1 | Current rating and overcurrent protection | All internal wiring is rated for the application and has adequate cross-sectional areas depending on the circuits. | P |
| 3.1.2 | Protection against mechanical damage | The wires are well routed away from sharp edges, etc. and are adequately fixed to prevent excessive strain on wire and terminals | P |
| 3.1.3 | Securing of internal wiring | All wiring is reliably routed or separated and are adequately fixed to prevent excessive strain on wire and terminals | P |
| 3.1.4 | Insulation of conductors | Insulation on internal conductors are considered to be of adequate quality and suitable for the application and the working voltages involved | P |
| 3.1.5 | Beads and ceramic insulators | No such components | N/A |
| 3.1.6 | Screws for electrical contact pressure | PCBs are connected to earth via screws to chassis. Screws are engaged with at least two turns into metal. | P |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.1.7 | Insulating materials in electrical connections | The equipment does not have such components | N/A |
| 3.1.8 | Self-tapping and spaced thread screws | Self-tapping and spaced thread screws not used in this equipment | N/A |
| 3.1.9 | Termination of conductors | All internal wiring is properly terminated and fixed | P |
| | 10 N pull test | Not considered necessary | N/A |
| 3.1.10 | Sleeving on wiring | Sleeving is not used as supplementary insulation | N/A |
| **3.2** | **Connection to a mains supply** | | P |
| 3.2.1 | Means of connection | AC units and 2U DC units employ an appliance inlet. 1U DC units permanently connected. | P |
| 3.2.1.1 | Connection to an a.c. mains supply | Power inlet provided as part of approved power supplies. | P |
| 3.2.1.2 | Connection to a d.c. mains supply | Terminal block or power connector provided as part of approved DC power supplies. | P |
| 3.2.2 | Multiple supply connections | Two appliance inlets for 2U units for connection to AC mains or two connectors for 2U DC units for connection to DC are provided. Bare parts at hazardous voltage are not operator accessible when one of this connections is disconnected | P |
| 3.2.3 | Permanently connected equipment | For 1U DC units a terminal block is provided. | P |
| | Number of conductors, diameter of cable and conduits (mm) .....: | No part of this investigation | — |
| 3.2.4 | Appliance inlets | Certified inlet provided for AC and 2U DC units (part of certified power supply) | P |
| 3.2.5 | Power supply cords | Units not provided with power supply cord. When detachable power supply cord is supplied with unit, it shall comply with the requirements of the destination country. | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.5.1 | AC power supply cords | Detachable power supply cord set not supplied with the equipment and not evaluated as part of this investigation. | N/A |
| | Type .....: | | — |
| | Rated current (A), cross-sectional area ($mm^2$), AWG .....: | | — |
| 3.2.5.2 | DC power supply cords | Not provided as part of the unit | N/A |
| 3.2.6 | Cord anchorages and strain relief | | N/A |
| | Mass of equipment (kg), pull (N) .....: | | — |
| | Longitudinal displacement (mm) .....: | | — |
| 3.2.7 | Protection against mechanical damage | No sharp edges on equipment which could damage the power supply cord | P |
| 3.2.8 | Cord guards | No cord guards required | N/A |
| | Diameter or minor dimension D (mm); test mass (g) .....: | | — |
| | Radius of curvature of cord (mm) .....: | | — |
| 3.2.9 | Supply wiring space | For 1U DC units Terminal block for permanent connection to the supply are certified with power supply. There is no wiring compartment or cover as the unit is intended for installation in a Restricted Access Location. | P |

| | | | |
|---|---|---|---|
| **3.3** | **Wiring terminals for connection of external conductors** | | P |
| 3.3.1 | Wiring terminals | AC powered units and 1U DC units used detachable power cord. 1U DC powered units connect to mains by terminal block. | P |
| 3.3.2 | Connection of non-detachable power supply cords | Not used special non-detachable power supply cord | N/A |
| 3.3.3 | Screw terminals | Suitable for application | P |
| 3.3.4 | Conductor sizes to be connected | Terminal sizes comply with wires suitable with table 3D requirements. Power cord is not part of this investigation | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Rated current (A), cord/cable type, cross-sectional area ($mm^2$) ..... : | | — |
| 3.3.5 | Wiring terminal sizes | Wiring terminals are part of closed-frame certified power supply | P |
| | Rated current (A), type, nominal thread diameter (mm) ..... : | | — |
| 3.3.6 | Wiring terminal design | Earthing screw is designed to reliably fix earthing conductor and provided with washer | P |
| 3.3.7 | Grouping of wiring terminals | No such terminals | N/A |
| 3.3.8 | Stranded wire | No such components | N/A |
| **3.4** | **Disconnection from the mains supply** | | P |
| 3.4.1 | General requirement | Disconnect from mains supply provided for servicing comply with the requirements as disconnect device. | P |
| 3.4.2 | Disconnect devices | AC powered units and 2U DC units employ an appliance coupler.<br>For 1U DC powered unit disconnect device incorporated in building installation instruction. | P |
| 3.4.3 | Permanently connected equipment | Appropriate disconnect device for 1U provided as part of the building installation. | P |
| 3.4.4 | Parts which remain energized | No accessible parts on the supply side of the disconnect device. 1U DC units are located in RAL location. | P |
| 3.4.5 | Switches in flexible cords | No such parts | P |
| 3.4.6 | Number of poles - single-phase and d.c. equipment | For 1U DC units the disconnect device is provided as part of building installation. For other units appliance coupler disconnect both supply poles simultaneously | P |
| 3.4.7 | Number of poles - three-phase equipment | The unit is a single-phase equipment | N/A |
| 3.4.8 | Switches as disconnect devices | No such switches | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.4.9 | Plugs as disconnect devices | No such parts | N/A |
| 3.4.10 | Interconnected equipment | No such connection | N/A |
| 3.4.11 | Multiple power sources | Marking provided on the unit and in installation manual. | P |
| **3.5** | **Interconnection of equipment** | | P |
| 3.5.1 | General requirements | SELV connected to SELV | P |
| 3.5.2 | Types of interconnection circuits ..... : | SELV circuits | P |
| 3.5.3 | ELV circuits as interconnection circuits | No ELV circuits | N/A |
| 3.5.4 | Data ports for additional equipment | Ports are considered data ports , complied with limited power sources requirements.<br>USB complies with 2.5 b) (impedance limited LPS) | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4** | **PHYSICAL REQUIREMENTS** | | P |
| 4.1 | Stability | | P |
| | Angle of 10° | Unit designed and constructed so as not to overbalance when tilted to an angle of 10° from its normal upright position | P |
| | Test force (N) ..... : | Equipment is not intended for floor standing. | N/A |
| **4.2** | **Mechanical strength** | | P |
| 4.2.1 | General | Rigid metallic enclosure is provided | P |
| | Rack-mounted equipment. | No slides | N/A |
| 4.2.2 | Steady force test, 10 N | Evaluated as part of certified power supply | N/A |
| 4.2.3 | Steady force test, 30 N | The equipment does not have covers or doors in operator access area | N/A |
| 4.2.4 | Steady force test, 250 N | No adverse effect | P |
| 4.2.5 | Impact test | The power supplies are closed frame, located inside a metal mechanical enclosure, so no adverse effect.<br>After the impact test equipment passed Dielectric Strength. | P |
| | Fall test | | P |
| | Swing test | | P |
| 4.2.6 | Drop test; height (mm) ..... : | Not required | N/A |
| 4.2.7 | Stress relief test | Metal enclosure | N/A |
| 4.2.8 | Cathode ray tubes | No such components | N/A |
| | Picture tube separately certified ..... : | No such components | N/A |
| 4.2.9 | High pressure lamps | No such components | N/A |
| 4.2.10 | Wall or ceiling mounted equipment; force (N) ..... : | Not wall or ceiling mounted device | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **4.3** | **Design and construction** | | P |
| 4.3.1 | Edges and corners | All edges and corners are well rounded and smoothed so as not to constitute a hazard | P |
| 4.3.2 | Handles and manual controls; force (N) .....: | No such parts | N/A |
| 4.3.3 | Adjustable controls | No operator adjustable controls | N/A |
| 4.3.4 | Securing of parts | No loosening of parts impairing creepage distances or clearances is likely to occur. Screwed connections are reliably secured | P |
| 4.3.5 | Connection by plugs and sockets | No possibility of misconnection that may cause a hazard | P |
| 4.3.6 | Direct plug-in equipment | Unit is not direct plug-in type | N/A |
| | Torque .....: | | — |
| | Compliance with the relevant mains plug standard .....: | | N/A |
| 4.3.7 | Heating elements in earthed equipment | No heating elements in this unit | N/A |
| 4.3.8 | Batteries | Lithium battery is protected against charging current by resistor and diode. See Critical Components List. Marking in installation guide includes the suitable text | P |
| | - Overcharging of a rechargeable battery | No rechargeable batteries | N/A |
| | - Unintentional charging of a non-rechargeable battery | Lithium battery is protected against charging current by resistor and diode. See Critical Components List. | P |
| | - Reverse charging of a rechargeable battery | No rechargeable battery | N/A |
| | - Excessive discharging rate for any battery | Part of battery certification per UL1642 | P |
| 4.3.9 | Oil and grease | No oil and grease | N/A |
| 4.3.10 | Dust, powders, liquids and gases | No such components | N/A |
| 4.3.11 | Containers for liquids or gases | No such components | N/A |
| 4.3.12 | Flammable liquids .....: | No such components | N/A |
| | Quantity of liquid (l) .....: | No such components | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Flash point (°C) ..... : | No such components | N/A |
| 4.3.13 | Radiation | Equipment using lasers Class I according to EN/IEC 60825 and 21CFR(J).<br>Indicator LEDs are used. | P |
| 4.3.13.1 | General | Lasers Class I according to EN/IEC 60825-1 and 21CFR(J) and indicator LEDS are used. | P |
| 4.3.13.2 | Ionizing radiation | No such components | N/A |
| | Measured radiation (pA/kg) ..... : | | — |
| | Measured high-voltage (kV) ..... : | | — |
| | Measured focus voltage (kV) ..... : | | — |
| | CRT markings ..... : | | — |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | No such components | N/A |
| | Part, property, retention after test, flammability classification ..... : | No such components | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation ..... : | No such components | N/A |
| 4.3.13.5 | Lasers (including laser diodes) and LEDs | Equipment using lasers Class I according to EN/IEC 60825-1 and 21CFR(J)<br>Low power indicator LEDs. | P |
| 4.3.13.5.1 | Lasers (including laser diodes) | No such components | N/A |
| | Laser class ..... : | | — |
| 4.3.13.5.2 | Light emitting diodes (LEDs) | | |
| 4.3.13.6 | Other types ..... : | No such components | N/A |

| | | | |
|---|---|---|---|
| **4.4** | **Protection against hazardous moving parts** | | P |
| 4.4.1 | General | DC fans provided | P |
| 4.4.2 | Protection in operator access areas ..... : | Fans are properly guarded | P |
| | Household and home/office document/media shredders | (see Annex EE) | N/A |
| 4.4.3 | Protection in restricted access locations ..... : | Unintentional contact with hazards is unlikely. | P |
| 4.4.4 | Protection in service access areas | Unintentional contact with hazardous moving parts is unlikely. | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.4.5 | Protection against moving fan blades | Unintentional contact with hazardous moving parts is unlikely. | P |
| 4.4.5.1 | General | | P |
| | Not considered to cause pain or injury. a)……..: | | P |
| | Is considered to cause pain, not injury. b) ……: | | N/A |
| | Considered to cause injury. c) ……: | | N/A |
| 4.4.5.2 | Protection for users | The fans are suitably guarded from user access | P |
| | Use of symbol or warning ……: | | N/A |
| 4.4.5.3 | Protection for service persons | Unintentional contact is unlikely | P |
| | Use of symbol or warning ……: | | N/A |
| **4.5** | **Thermal requirements** | | P |
| 4.5.1 | General | Temperatures do not exceed safe values under normal load operation. Refer to Table 4.5. | P |
| 4.5.2 | Temperature tests | Equipment was tested under the most adverse actual and simulated condition permitted in the installation instruction. Power supply evaluated in separate certification and tested in this evaluation. | P |
| | Normal load condition per Annex L .....: | Unit operated per it's maximum normal load configuration. Data ports and laser transceivers were looped to simulate normal load, application was running | — |
| 4.5.3 | Temperature limits for materials | (see appended table 4.5) | P |
| 4.5.4 | Touch temperature limits | (see appended table 4.5) | P |
| 4.5.5 | Resistance to abnormal heat .....: | | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **4.6** | **Openings in enclosures** | | P |
| 4.6.1 | Top and side openings | Top side without openings. Side's openings are compliant. | P |
| | Dimensions (mm) .....: | 1U units: rear side contained 5mm diameter hexahon openings on area 148 by 15 mm; left side contained 5mm diameter hexahon openings on 2 areas 25 by 34 mm and 2 areas 25 by 76mm; right side contained 5mm diameter hexahon openings on 8 areas 36mm diameter near fans;<br>2U units: left side contained 24 oval openings 53 by 5mm, right side 30 oval openings 40 by 5mm. However, there are no parts at hazardous voltage or energy within volume V of Fig,. 4D | — |
| 4.6.2 | Bottoms of fire enclosures | Bottom without openings. | P |
| | Construction of the bottomm, dimensions (mm) ..: | | — |
| 4.6.3 | Doors or covers in fire enclosures | No doors or covers leading to operator access areas | N/A |
| 4.6.4 | Openings in transportable equipment | Not transportable equipment | N/A |
| 4.6.4.1 | Constructional design measures | No such components | N/A |
| | Dimensions (mm) .....: | | — |
| 4.6.4.2 | Evaluation measures for larger openings | No such equipment | N/A |
| 4.6.4.3 | Use of metallized parts | No such equipment | N/A |
| 4.6.5 | Adhesives for constructional purposes | Not used | N/A |
| | Conditioning temperature (°C), time (weeks).....: | | — |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4.7** | **Resistance to fire** | | P |
| 4.7.1 | Reducing the risk of ignition and spread of flame | The maximum working temperature of electrical components used in single fault conditions is less than that necessary to cause ignition of materials with which they are likely to come into contact. | P |
| | Method 1, selection and application of components wiring and materials | Method 1: Selection and application of components and materials, which minimize the possibility of ignition and spread of flame. | P |
| | Method 2, application of all of simulated fault condition tests | Method 1 used | N/A |
| 4.7.2 | Conditions for a fire enclosure | Fire enclosure is provided | P |
| 4.7.2.1 | Parts requiring a fire enclosure | All components except external decorative plastic reqarded requiring fire enclosure | P |
| 4.7.2.2 | Parts not requiring a fire enclosure | Decorative plastic rated HB outside fire enclosure | P |
| 4.7.3 | Materials | | P |
| 4.7.3.1 | General | Enclosure and other components so constructed and such materials used, that the propagation of fire is limited. | P |
| 4.7.3.2 | Materials for fire enclosures | The fire enclosure is metal. | P |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | The fire enclosure is only metal. Decorative parts are flame rated HB min. | P |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better. Integrated circuits, capacitors, etc. mounted on V-1 PWBs. Wiring is PVC, TFE, PTFE, FEP or neoprene. Connectors are flame rated min. V-2. | P |
| 4.7.3.5 | Materials for air filter assemblies | No such components | N/A |
| 4.7.3.6 | Materials used in high-voltage components | No such components | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **5** | **ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS** | | **P** |
| 5.1 | **Touch current and protective conductor current** | | P |
| 5.1.1 | General | (see appended Table 5.1) | P |
| 5.1.2 | Configuration of equipment under test (EUT) | Single phase Class 1 equipment. | P |
| 5.1.2.1 | Single connection to an a.c. mains supply | For 2U AC unit testing was performed for multiple connections to an a.c. mains supply | P |
| 5.1.2.2 | Redundant multiple connections to an a.c. mains supply | For 2U AC unit testing was performed for multiple connections to an a.c. mains supply | P |
| 5.1.2.3 | Simultaneous multiple connections to an a.c. mains supply | 2U AC units tested at both normal and reverse polarity of the supply. Switch “e” was open.<br>2 power supplies were operated to simulate the worst case. Current from 2 power supplies was measured | P |
| 5.1.3 | Test circuit | According to Figure 5A | P |
| 5.1.4 | Application of measuring instrument | Test instrument of Annex D.1 was used. Application of measuring device according to Fig. 5A, terminal A connected to unit PE terminal | P |
| 5.1.5 | Test procedure | Touch current from power supply was measured in normal and reverse polarity of the supply, switch “e” was open | P |
| 5.1.6 | Test measurements | rms value of U2 was measured and divided by 500 Ohm | P |
| | Supply voltage (V) .....: | 264V | — |
| | Measured touch current (mA) .....: | See appended table 5.1 | — |
| | Max. allowed touch current (mA) .....: | 3.5mA | — |
| | Measured protective conductor current (mA) .....: | | — |
| | Max. allowed protective conductor current (mA)...: | | — |
| 5.1.7 | Equipment with touch current exceeding 3,5 mA | | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.1.7.1 | General .....: | | N/A |
| 5.1.7.2 | Simultaneous multiple connections to the supply | | N/A |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks | No connection to telecommunication network or cable distribution system | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system | No connection to telecommunication network or cable distribution system | N/A |
| | Supply voltage (V) .....: | | — |
| | Measured touch current (mA) .....: | | — |
| | Max. allowed touch current (mA) .....: | | — |
| 5.1.8.2 | Summation of touch currents from telecommunication networks | | N/A |
| | a) EUT with earthed telecommunication ports .....: | | N/A |
| | b) EUT whose telecommunication ports have no reference to protective earth | | N/A |

| | | | |
|---|---|---|---|
| **5.2** | **Electric strength** | | P |
| 5.2.1 | General | (see appended table 5.2) | P |
| 5.2.2 | Test procedure | No insulation breakdown detected during the test | P |

| | | | |
|---|---|---|---|
| **5.3** | **Abnormal operating and fault conditions** | | P |
| 5.3.1 | Protection against overload and abnormal operation | | N/A |
| 5.3.2 | Motors | No motors except for certified fans | N/A |
| 5.3.3 | Transformers | Evaluated as part of approved power supply. | N/A |
| 5.3.4 | Functional insulation.....: | Functional insulation within SELV meets 5.3.4 c).<br>All components in SELV are mounted on PCB having flammability rating min. V-1 | P |
| 5.3.5 | Electromechanical components | No electromechanical components except for certified fans. | N/A |
| 5.3.6 | Audio amplifiers in ITE .....: | No such parts | N/A |
| 5.3.7 | Simulation of faults | Refer to Table 5.3 | P |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.3.8 | Unattended equipment | No thermostats, temperature limiters and thermal cut-outs which operated during the test of 4.5.1 | N/A |
| 5.3.9 | Compliance criteria for abnormal operating and fault conditions | See appended table 5.3 for results. No excessive temperatures, dielectric breakdown, fire, emission of molten parts or deformation was noted during the tests | P |
| 5.3.9.1 | During the tests | Temperatures did not exceed allowed value | P |
| 5.3.9.2 | After the tests | No dielectric breakdown | P |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **6** | **CONNECTION TO TELECOMMUNICATION NETWORKS** | | N/A |
| 6.1 | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment | | N/A |
| 6.1.1 | Protection from hazardous voltages | | N/A |
| 6.1.2 | Separation of the telecommunication network from earth | | |
| 6.1.2.1 | Requirements | (see appended table 5.2) | |
| | Supply voltage (V) .....: | No internal circuits connected to telecommunication network | — |
| | Current in the test circuit (mA) .....: | | — |
| 6.1.2.2 | Exclusions .....: | | N/A |
| **6.2** | **Protection of equipment users from overvoltages on telecommunication networks** | | N/A |
| 6.2.1 | Separation requirements | | N/A |
| 6.2.2 | Electric strength test procedure | | N/A |
| 6.2.2.1 | Impulse test | (see appended table 5.2) | N/A |
| 6.2.2.2 | Steady-state test | (see appended table 5.2) | N/A |
| 6.2.2.3 | Compliance criteria | | N/A |
| **6.3** | **Protection of the telecommunication wiring system from overheating** | | N/A |
| | Max. output current (A) .....: | No internal circuits connected to cable distribution systems | — |
| | Current limiting method .....: | | — |
| **7** | **CONNECTION TO CABLE DISTRIBUTION SYSTEMS** | | N/A |
| 7.1 | General | No connected to cable distribution systems | N/A |
| 7.2 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | | N/A |
| 7.3 | Protection of equipment users from overvoltages on the cable distribution system | | N/A |
| 7.4 | Insulation between primary circuits and cable distribution systems | | N/A |
| 7.4.1 | General | | N/A |
| 7.4.2 | Voltage surge test | (see appended table 5.2) | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 7.4.3 | Impulse test | (see appended table 5.2) | N/A |

| | | | |
|---|---|---|---|
| **A** | **ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | Metal enclosure | N/A |
| A.1.1 | Samples ..... : | | — |
| | Wall thickness (mm) ..... : | | — |
| A.1.2 | Conditioning of samples; temperature (°C) ..... : | | N/A |
| A.1.3 | Mounting of samples ..... : | | N/A |
| A.1.4 | Test flame (see IEC 60695-11-3) | | N/A |
| | Flame A, B, C or D ..... : | | — |
| A.1.5 | Test procedure | | N/A |
| A.1.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s)..... : | | — |
| | Sample 2 burning time (s)..... : | | — |
| | Sample 3 burning time (s)..... : | | — |
| A.2 | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) | | N/A |
| A.2.1 | Samples, material ..... : | Metal enclosure | — |
| | Wall thickness (mm) ..... : | | — |
| A.2.2 | Conditioning of samples; temperature (°C) ..... : | | N/A |
| A.2.3 | Mounting of samples ..... : | | N/A |
| A.2.4 | Test flame (see IEC 60695-11-4) | | N/A |
| | Flame A, B or C ..... : | | — |
| A.2.5 | Test procedure | | N/A |
| A.2.6 | Compliance criteria | | N/A |
| | Sample 1 burning time (s)..... : | | — |
| | Sample 2 burning time (s)..... : | | — |
| | Sample 3 burning time (s)..... : | | — |
| A.2.7 | Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 | | N/A |
| | Sample 1 burning time (s)..... : | | — |
| | Sample 2 burning time (s)..... : | | — |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Sample 3 burning time (s) ..... : | | — |
| A.3 | Hot flaming oil test (see 4.6.2) | Metal enclosure | N/A |
| A.3.1 | Mounting of samples | | N/A |
| A.3.2 | Test procedure | | N/A |
| A.3.3 | Compliance criterion | | N/A |
| **B** | **ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)** | | P |
| B.1 | General requirements | Certified DC fans are used | N/A |
| | Position ..... : | | — |
| | Manufacturer ..... : | | — |
| | Type ..... : | | — |
| | Rated values ..... : | | — |
| B.2 | Test conditions | Certified DC fans are used | N/A |
| B.3 | Maximum temperatures | Certified DC fans are used | N/A |
| B.4 | Running overload test | Certified DC fans are used | N/A |
| B.5 | Locked-rotor overload test | Certified DC fans are used | N/A |
| | Test duration (days) ..... : | | — |
| | Electric strength test: test voltage (V) ..... : | | — |
| B.6 | Running overload test for d.c. motors in secondary circuits | Certified DC fans are used | N/A |
| B.6.1 | General | | N/A |
| B.6.2 | Test procedure | | N/A |
| B.6.3 | Alternative test procedure | | N/A |
| B.6.4 | Electric strength test; test voltage (V) ..... : | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | Certified DC fans are used | N/A |
| B.7.1 | General | | N/A |
| B.7.2 | Test procedure | | N/A |
| B.7.3 | Alternative test procedure | | N/A |
| B.7.4 | Electric strength test; test voltage (V) ..... : | | N/A |
| B.8 | Test for motors with capacitors | Certified DC fans are used | N/A |
| B.9 | Test for three-phase motors | Certified DC fans are used | N/A |
| B.10 | Test for series motors | Certified DC fans are used | N/A |
| | Operating voltage (V) ..... : | | — |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **C** | **ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)** | | N/A |
| | Position ..... : | Transformer(s) part of certified power supply | — |
| | Manufacturer ..... : | | — |
| | Type ..... : | | — |
| | Rated values ..... : | | — |
| | Method of protection ..... : | | — |
| C.1 | Overload test | Transformer(s) part of certified power supply | N/A |
| C.2 | Insulation | (Transformer(s) part of certified power supply | N/A |
| | Protection from displacement of windings ..... : | | |

| | | | |
|---|---|---|---|
| **D** | **ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)** | | P |
| D.1 | Measuring instrument | | P |
| D.2 | Alternative measuring instrument | | N/A |

| | | | |
|---|---|---|---|
| **E** | **ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)** | | N/A |

| | | | |
|---|---|---|---|
| **F** | **ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)** | | P |

| | | | |
|---|---|---|---|
| **G** | **ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES** | | N/A |
| G.1 | Clearances | Standard methods used | N/A |
| G.1.1 | General | | N/A |
| G.1.2 | Summary of the procedure for determining minimum clearances | | N/A |
| G.2 | Determination of mains transient voltage (V) | Standard methods used | N/A |
| G.2.1 | AC mains supply ..... : | | N/A |
| G.2.2 | Earthed d.c. mains supplies ..... : | | N/A |
| G.2.3 | Unearthed d.c. mains supplies ..... : | | N/A |
| G.2.4 | Battery operation ..... : | | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) ..... : | Standard methods used | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4 | Determination of required withstand voltage (V) | Standard methods used | N/A |
| G.4.1 | Mains transients and internal repetitive peaks .....: | | N/A |
| G.4.2 | Transients from telecommunication networks .....: | | N/A |
| G.4.3 | Combination of transients | | N/A |
| G.4.4 | Transients from cable distribution systems | | N/A |
| G.5 | Measurement of transient voltages (V) | Standard methods used | N/A |
| | a) Transients from a mains supply | | N/A |
| | For an a.c. mains supply | | N/A |
| | For a d.c. mains supply | | N/A |
| | b) Transients from a telecommunication network | | N/A |
| G.6 | Determination of minimum clearances .....: | Standard methods used | N/A |
| **H** | **ANNEX H, IONIZING RADIATION (see 4.3.13)** | | N/A |
| **J** | **ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)** | | P |
| | Metal(s) used .....: | Aluminum and stainless steel | — |
| **K** | **ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)** | | N/A |
| K.1 | Making and breaking capacity | | N/A |
| K.2 | Thermostat reliability; operating voltage (V) .....: | | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) .....: | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) .....: | | N/A |
| K.5 | Thermal cut-out reliability | | N/A |
| K.6 | Stability of operation | (see appended table 5.3) | N/A |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **L** | **ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)** | | P |
| L.1 | Typewriters | | N/A |
| L.2 | Adding machines and cash registers | | N/A |
| L.3 | Erasers | | N/A |
| L.4 | Pencil sharpeners | | N/A |
| L.5 | Duplicators and copy machines | | N/A |
| L.6 | Motor-operated files | | N/A |
| L.7 | Other business equipment | Maximum normal load was used | P |

| | | | |
|---|---|---|---|
| **M** | **ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)** | | N/A |
| M.1 | Introduction | No telephone ringing signals | N/A |
| M.2 | Method A | No telephone ringing signals | N/A |
| M.3 | Method B | No telephone ringing signals | N/A |
| M.3.1 | Ringing signal | | N/A |
| M.3.1.1 | Frequency (Hz) ..... : | | — |
| M.3.1.2 | Voltage (V) ..... : | | — |
| M.3.1.3 | Cadence; time (s), voltage (V) ..... : | | — |
| M.3.1.4 | Single fault current (mA) ..... : | | — |
| M.3.2 | Tripping device and monitoring voltage ..... : | No telephone ringing signals | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | |
| M.3.2.2 | Tripping device | | |
| M.3.2.3 | Monitoring voltage (V) ..... : | No telephone ringing signals | N/A |

| | | | |
|---|---|---|---|
| **N** | **ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)** | | N/A |
| N.1 | ITU-T impulse test generators | | N/A |
| N.2 | IEC 60065 impulse test generator | | N/A |

| | | |
|---|---|---|
| **P** | **ANNEX P, NORMATIVE REFERENCES** | — |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **Q** | **ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)** | | N/A |
| | a) Preferred climatic categories .....: | Part of certified power supply | N/A |
| | b) Maximum continuous voltage .....: | Part of certified power supply | N/A |
| | c) Pulse current .....: | Part of certified power supply | N/A |

| | | | |
|---|---|---|---|
| **R** | **ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES** | | N/A |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2) | | N/A |
| R.2 | Reduced clearances (see 2.10.3) | | N/A |

| | | | |
|---|---|---|---|
| **S** | **ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)** | | N/A |
| S.1 | Test equipment | | N/A |
| S.2 | Test procedure | | N/A |
| S.3 | Examples of waveforms during impulse testing | | N/A |

| | | | |
|---|---|---|---|
| **T** | **ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)** | | N/A |
| | | IPX0 | — |

| | | | |
|---|---|---|---|
| **U** | **ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)** | | P |
| | | Part of certified power supplies | — |

| | | | |
|---|---|---|---|
| **V** | **ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)** | | P |
| V.1 | Introduction | Intended for TN power distribution system and IT for Norway only, single phase, 3 wire | P |
| V.2 | TN power distribution systems | Separate neutral and protective conductors used | P |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **W** | **ANNEX W, SUMMATION OF TOUCH CURRENTS** | | P |
| W.1 | Touch current from electronic circuits | Only SELV accessibility circuits | P |
| W.1.1 | Floating circuits | No such case | N/A |
| W.1.2 | Earthed circuits | Only SELV accessibility circuits | P |
| W.2 | Interconnection of several equipments | No such case. | N/A |
| W.2.1 | Isolation | No such case. | N/A |
| W.2.2 | Common return, isolated from earth | No such case. | N/A |
| W.2.3 | Common return, connected to protective earth | No such case. | N/A |

| | | | |
|---|---|---|---|
| **X** | **ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)** | | N/A |
| X.1 | Determination of maximum input current | | N/A |
| X.2 | Overload test procedure | | N/A |

| | | | |
|---|---|---|---|
| **Y** | **ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)** | | N/A |
| Y.1 | Test apparatus .....: | No UV | N/A |
| Y.2 | Mounting of test samples .....: | No UV | N/A |
| Y.3 | Carbon-arc light-exposure apparatus .....: | No UV | N/A |
| Y.4 | Xenon-arc light exposure apparatus .....: | No UV | N/A |

| | | |
|---|---|---|
| **Z** | **ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)** | N/A |

| | | |
|---|---|---|
| **AA** | **ANNEX AA, MANDREL TEST (see 2.10.5.8)** | N/A |

| | | |
|---|---|---|
| **BB** | **ANNEX BB, CHANGES IN THE SECOND EDITION** | — |

| | | | |
|---|---|---|---|
| **CC** | **ANNEX CC, Evaluation of integrated circuit (IC) current limiters** | | N/A |
| CC.1 | General | | N/A |
| CC.2 | Test program 1……: | | N/A |
| CC.3 | Test program 2……: | | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **DD** | **ANNEX DD, Requirements for the mounting means of rack-mounted equipment** | | N/A |
| DD.1 | General | No slides | N/A |
| DD.2 | Mechanical strength test, variable N……..: | | N/A |
| DD.3 | Mechanical strength test, 250N, including end stops……..: | | N/A |
| DD.4 | Compliance……..: | | N/A |

| | | | |
|---|---|---|---|
| **EE** | **ANNEX EE, Household and home/office document/media shredders** | | N/A |
| EE.1 | General | No such equipment | N/A |
| EE.2 | Markings and instructions | | N/A |
| | Use of markings or symbols……..: | | N/A |
| | Information of user instructions, maintenance and/or servicing instructions……..: | | N/A |
| EE.3 | Inadvertent reactivation test……..: | | N/A |
| EE.4 | Disconnection of power to hazardous moving parts: | | N/A |
| | Use of markings or symbols……..: | | N/A |
| EE.5 | Protection against hazardous moving parts | | N/A |
| | Test with test finger (Figure 2A) ……..: | | N/A |
| | Test with wedge probe (Figure EE1 and EE2) ……: | | N/A |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 1.5.1 | TABLE: List of critical components | | | | |
|---|---|---|---|---|---|
| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard (Edition / year) | Mark(s) of conformity[1]) |
| PCB | Any | Any | Flame rated min V-1, temperature rated min. 105°C | UL796, CAN/CSA-C22.2 No. 0.17 | cURus |
| Power supply (for 1U AC powered unit) | Zippy Technology co. | P1H-6350P | Input: 100-240Vac, 60-50Hz, 8-5A; output: +5V, 25A; +12V, 22-28A; +3.3V, 20A; -5V, 0.5A; -12V, 0.5A; +5Vsb, 2A; +5V and +3.3V 175W max; Total 350W max. | IEC60950-1 2ed. UL60950-1 2ed. | cURus, TUV |
| Power supply (for 1U DC powered unit) | Zippy Technology co. | DP1H-6350F | Rated: Input:-36 to -72Vdc, 17A; Output: +5V, 35A; +12V, 22A; +3.3V, 0-20A; -5V, 0-0.5A; -12V, 0-0.5A; +5Vsb, 0-2A. +5V and +3.3V Total max.40A, total output power 350W max | IEC60950-1 2ed. UL60950-1 2ed. | cURus, TUV |
| Power supply (for 2U AC powered unit) | Zippy Technology co. | MRW-6420P | Input: 100-240Vac, 47-63Hz, 8-4A; output: +5V, 35A; +12V, 20A; +3.3V, 0-20A; -5V, 0-0.5A; -12V, 0-1.2A; +5Vsb, 0-2A; +5V and +3.3V 48A max; Total 420W max. | IEC60950-1 2ed. UL60950-1 2ed. | cURus, TUV |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Power supply (for 2U DC powered unit) | Zippy Technology co. | DMRW-6400F | Rated: Input: -42 to -72Vdc, 12A. DC Output: +5V, 32A; +12V, 25A; +3.3V, 0-25A; -5V, 0-0.5A; -12V, 0-1.2A; +5Vsb, 0-2A Total output 400W max. | IEC60950-1 2ed. UL60950-1 evaluated to 2ed. in CB report | cURus, TUV |
| Poly Switch (F2 for USB, F3 for internal port) | Polytronics technology or equivalent | SMD1812P260TFT | Rated: 8Vdc, It=5A, Ihold=2.6A | UL1434 IEC60730 | cURus, TUV |
| Lithium battery BAT1 | Spectrum Brands Inc or equivalent | BR2032 | 3.0Vdc, max. abnormal charging current 5mA, protected by resistor R52 1k and diode D4 | UL1642 | cURus |
| Lithium battery BAT1 (Alternate) | Vic-dawn Enterprise co ltd or equivalent | CR2032 | 3.0Vdc, max. abnormal charging current 10mA, protected by resistor R52 1k and diode D4 | UL1642 | cURus |
| Lithium battery BAT1(Alternate) | Panasonic corporation, Panasonic corporation of north America or equivalent | CR2032 | 3.0Vdc, max. abnormal charging current 10mA, protected by resistor R52 1k and diode D4 | UL1642 | cURus |
| Decorative plastic on front panel of enclosure | Any | Any | Flame rated min. HB | UL94 | cURus |
| Hard Disk Drive for models RODS2-DEF-NEBS and RODS2XL-2DC-NEBS | Hitachi or equivalent | HTE723232A7A364 or equivalent | Rated: 5V, 1A max.<br>2.5 inch | UL60950-1 | cURus |
| Hard Disk Drive for all other units (Optional) | Any | Any | Rated:<br>5V, 0.72A max.; 12V, 0.52A max. | UL60950-1 | cURus |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Fan (5 provided on 1U unit and 5 on 2U unit) | Sunon | GM1204PQB1-8A | Rated: 12Vdc, 0.22A, 15.3 CFM | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, TUV |
| Fan (5 provided on 1U unit and 5 on 2U unit) Alternate | Any | Any | Rated: 12Vdc, 0.22A max., 15.3 CFM min. | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, CSA, TUV or VDE |
| Fan (2 provided on main board of 1U and 2U units) | Sunon | 124010VM-8 | Rated: 12Vdc, 0.07A, 6 CFM | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, TUV |
| Fan (2 provided on main board of 1U and 2U units) Alternate | Any | Any | Rated: 12Vdc, 0.07A max., 6 CFM min. | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, CSA, TUV or VDE |
| Fan (4 provided on 1U and 1 on 2U unit) | Sunon | PMD1204WQB2-A | Rated: 12Vdc, 0.58A, 22CFM | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, TUV |
| Fan (4 provided on 1U and 1 on 2U unit) Alternate | Any | Any | Rated: 12Vdc, 0.58A max., 22CFM min. | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, CSA, TUV or VDE |
| Fan (2 provided on 2U unit) | Everflow | F126025DU | Rated: 12Vdc, 0.26A, 24.49CFM | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, TUV |
| Fan (2 provided on 2U unit) Alternate | Any | Any | Rated: 12Vdc, 0.26A max., 24.49CFM min. | UL507, CSA-C22.2 No. 113-M1984 EN60950-1 | cURus, CSA, TUV or VDE |
| DC/DC converter UZ13, UZ7, UZ2) | Texas Instruments | PTH12010WAH | Rated: input 12V, output 3.3V, 12A | UL60950-1 2ed. | cURus |
| DC/DC converter (VR4, VR6 on daughter board) (Optional) | Texas Instruments | PTH12010WAV | Rated: input 12V, output 3.3V, 12A | UL60950-1 2ed. | cURus |
| Laser transceiver (4 provided) (Optional) | Optech or equivalent | OP6C-MX5-85-C4 | SFP, Laser Class 1, rated 3.3V, CDRH | UL/CSA60950-1, EN60825-1 | cURus or cCSAus, TUV |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | |
|---|---|---|---|---|---|
| Laser transceiver (4 provided) Alternate (Optional) | Any | Any | SFP, Laser Class 1, rated 3.3V, CDRH | UL/CSA60950-1, EN60825-1 | cURus or cCSAus, TUV |
| Copper transceiver (4 provided) Alternate | Optech | OP6C-TX1-00-C2 | SFP Copper - 10/100/1000 Mbps - 3.3V | - | - |
| Copper transceiver (4 provided) Alternate | Any | Any | SFP Copper - 10/100/1000 Mbps - 3.3V | - | - |
| SELV external connectors | Any | Any | Flame rated min. UL94V-0 | UL94 | cURus |
| SELV internal connectors | Any | Any | Flame rated min. UL94V-2 | UL94 | cURus |
| Internal Wiring, (secondary) | Any | Any | Rated min. 300V, 60°C, VW-1 or FT-1 or better. | UL758 | cURus |
| Supplementary information:<br>[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 1.5.1 | TABLE: Opto Electronic Devices | N/A |
|---|---|---|
| Manufacturer ..... : | | |
| Type..... : | | |
| Separately tested..... : | | |
| Bridging insulation ..... : | | |
| External creepage distance..... : | | |
| Internal creepage distance ..... : | | |
| Distance through insulation ..... : | | |
| Tested under the following conditions ..... : | | |
| Input..... : | | |
| Output..... : | | |
| supplementary information | | |
| | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 1.6.2 | TABLE: Electrical data (in normal conditions) | | | | | P |
|---|---|---|---|---|---|---|
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 90 | 3.1 | - | 279.7 | - | - | Maximum normal load 1U unit RODS2XL-DEF-ND |
| 100 | 2.78 | 8 | 277.3 | - | - | "" |
| 240 | 1.21 | 5 | 271.8 | - | - | "" |
| 264 | 1.07 | - | 271.1 | - | - | "" |
| | | | | | | |
| 36 | 7.15 | 17 | 257.4 | - | - | Maximum normal load 1U unit RODS2XL-DCPS-ND |
| 48 | 5.3 | 17 | 254.4 | - | - | "" |
| 60 | 4.2 | 17 | 252 | - | - | "" |
| 72 | 3.63 | 17 | 261.4 | - | - | "" |
| | | | | | | |
| 90 | 3.25 | - | 292.7 | - | - | Maximum normal load two power supplies 2U unit RODS2-DUAL-MMB |
| 100 | 2.92 | 8 | 290.5 | - | - | "" |
| 240 | 1.27 | 4 | 286.6 | - | - | "" |
| 264 | 1.43 | - | 285.9 | - | - | "" |
| | | | | | | |
| 90 | 2.97 | - | 272.5 | - | - | Maximum normal load one power supply 2U unit RODS2-DUAL-MMB |
| 100 | 2.79 | 8 | 277.1 | - | - | "" |
| 240 | 1.18 | 4 | 274.6 | - | - | "" |
| 264 | 1.23 | - | 273.2 | - | - | "" |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 1.6.2 | TABLE: Electrical data (in normal conditions) | | | | | P |
|---|---|---|---|---|---|---|
| U (V) | I (A) | Irated (A) | P (W) | Fuse # | Ifuse (A) | Condition/status |
| 72 | 4.0 | 12 | 288.0 | - | - | Maximum normal load two power supplies 2U unit RODS2-DUDC-MMB |
| 48 | 5.8 | 12 | 278.4 | - | - | "" |
| 60 | 4.6 | 12 | 276 | - | - | "" |
| 36 | 7.9 | 12 | 284.4 | - | - | "" |
| 72 | 3.8 | 12 | 273.6 | - | - | Maximum normal load one power supply 2U unit RODS2-DUDC-MMB |
| 48 | 5.7 | 12 | 273.6 | - | - | "" |
| 60 | 4.5 | 12 | 270.0 | - | - | "" |
| 36 | 7.8 | 12 | 280.8 | - | - | "" |
| Supplementary information: | | | | | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|---|---|---|
| **2.1.1.5 c) 1)** | **TABLE: max. V, A, VA test** | N/A |

| Voltage (rated) (V) | Current (rated) (A) | Voltage (max.) (V) | Current (max.) (A) | VA (max.) (VA) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| supplementary information: | | | | |
| | | | | |

| | | |
|---|---|---|
| **2.1.1.5 c) 2)** | **TABLE: stored energy** | N/A |

| Capacitance C (µF) | Voltage U (V) | Energy E (J) |
|---|---|---|
| | | |
| | | |
| supplementary information: | | |
| | | |

| | | |
|---|---|---|
| **2.2** | **TABLE: evaluation of voltage limiting components in SELV circuits** | N/A |

| Component (measured between) | max. voltage (V) (normal operation) | | Voltage Limiting Components |
|---|---|---|---|
| | V peak | V d.c. | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Fault test performed on voltage limiting components | Voltage measured (V) in SELV circuits (V peak or V d.c.) |
|---|---|
| | |
| | |
| | |
| | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| supplementary information: |
|---|
| |

| 2.5 | TABLE: Limited power sources | N/A |
|---|---|---|

Circuit output tested:

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

| Components | Sample No. | Uoc (V) | $I_{sc}$ (A) | | VA | |
|---|---|---|---|---|---|---|
| | | | Meas. | Limit | Meas. | Limit |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| supplementary information: |
|---|
| Sc=Short circuit, Oc=Open circuit |

| 2.10.2 | Table: working voltage measurement | N/A |
|---|---|---|

| Location | RMS voltage (V) | Peak voltage (V) | Comments |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| supplementary information: |
|---|
| |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **2.10.3 and 2.10.4** | **TABLE: Clearance and creepage distance measurements** | | | | | N/A |
|---|---|---|---|---|---|---|
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| Functional: | | | | | | |
| | | | | | | |
| | | | | | | |
| Basic/supplementary: | | | | | | |
| | | | | | | |
| | | | | | | |
| Reinforced: | | | | | | |
| | | | | | | |
| | | | | | | |
| Supplementary information:certified closed frame power supplies | | | | | | |

| **2.10.5** | **TABLE: Distance through insulation measurements** | | | | N/A |
|---|---|---|---|---|---|
| Distance through insulation (DTI) at/of: | U peak (V) | U rms (V) | Test voltage (V) | Required DTI (mm) | DTI (mm) |
| | | | | | |
| | | | | | |
| Supplementary information: certified closed frame power supplies | | | | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **4.3.8** | **TABLE: Batteries** | | P |
| The tests of 4.3.8 are applicable only when appropriate battery data is not available | | Certified batteries see apended table 1.5.1 | N/A |
| Is it possible to install the battery in a reverse polarity position? | | The battery shape prevents reverse polarity | P |

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

| | | |
|---|---|---|
| Test results: | | Verdict |
| - Chemical leaks | No | P |
| - Explosion of the battery | No | P |
| - Emission of flame or expulsion of molten metal | No | P |
| - Electric strength tests of equipment after completion of tests | | |
| Supplementary information: | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 4.3.8 | TABLE: Batteries | N/A |
|---|---|---|

| | |
|---|---|
| Battery category..... : | (Lithium, ~~NiMh, NiCad, Lithium Ion~~ …) |
| Manufacturer ..... : | See appended table 1.5.1 |
| Type / model..... : | See appended table 1.5.1 |
| Voltage ..... : | See appended table 1.5.1 |
| Capacity..... : | See appended table 1.5.1 |
| Tested and Certified by (incl. Ref. No.) ..... : | See appended table 1.5.1 |
| Circuit protection diagram: | See appendix 4Need to get |

| MARKINGS AND INSTRUCTIONS (1.7.13 ) | |
|---|---|
| Location of replaceable battery | Service access area |
| Language(s) ……..: | English and French |
| Close to the battery ……..: | -- |
| In the servicing instructions ……..: | Provided |
| In the operating instructions ……..: | Provided |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 4.5 | **TABLE: Thermal requirements** | | | | | | P |
|---|---|---|---|---|---|---|---|
| | Supply voltage (V) .....: | 90/60 | 264/50 | | | | — |
| | Ambient $T_{min}$ (°C) .....: | 24.2 | 23.9 | | | | — |
| | Ambient $T_{max}$ (°C) .....: | 24.2 | 23.9 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed $T_{max}$ (°C) |
| **1U AC powered unit** | | | | | | | |
| Motherboard DC/DC UZ13 (Q501 130degC) | | 29.0 | 28.6 | | | | 104.2 (130-50+24.2) |
| Motherboard, DC/DC UZ7 (Q501 130degC) | | 28.0 | 27.4 | | | | 104.2 (130-50+24.2) |
| Motherboard, DC/DC UZ2 (Q501 130degC) | | 31.1 | 30.7 | | | | 104.2 (130-50+24.2) |
| Motherboard lithium battery | | 27.6 | 27.4 | | | | 59.2 (85-50+24.2) |
| Motherboard PCB by main CPU | | 32.7 | 32.5 | | | | 79.2 (105-50+24.2) |
| Small card above motherboard, PCB near U1 | | 33.9 | 33.7 | | | | 79.2 (105-50+24.2) |
| Small card near HDD, PCB near heatsink | | 28.8 | 28.6 | | | | 79.2 (105-50+24.2) |
| PS inlet | | 34.2 | 30.9 | | | | 59.2 (85-50+24.2) |
| PS X-cap | | 41.2 | 40.9 | | | | 59.2 (85-50+24.2) |
| PS main storage capacitor | | 42.0 | 40.5 | | | | 59.2 (85-50+24.2) |
| PS small input choke | | 40.1 | 35.9 | | | | 64.2 (100-10-50+24.2) |
| PS big input choke | | 45.4 | 41.1 | | | | 64.2 (100-10-50+24.2) |
| PS nest big input choke | | 49.4 | 46.6 | | | | 64.2 (100-10-50+24.2) |
| PS big transformer winding | | 50.4 | 49.4 | | | | 64.2 (100-10-50+24.2) |
| PS big transformer core | | 46.0 | 44.9 | | | | 64.2 (100-10-50+24.2) |
| PS small transformer winding | | 45.8 | 45.1 | | | | 64.2 (100-10-50+24.2) |
| PS small transformer core | | 51.0 | 50.3 | | | | 64.2 (100-10-50+24.2) |
| PS PCB by Q3 | | 55.9 | 54.6 | | | | 79.2 (105-50+24.2) |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | |
|---|---|---|---|---|---|---|
| EUT enclosure | 24.7 | 24.7 | | | | 44.2 (70-50+24.2) |
| Supplementary information: | | | | | | |

| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| Supplementary information: | | | | | | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **4.5** | **TABLE: Thermal requirements** | | | | | | P |
| | Supply voltage (V) .....: | 72 | 36 | | | | — |
| | Ambient $T_{min}$ (°C) .....: | 25.5 | 25.5 | | | | — |
| | Ambient $T_{max}$ (°C) .....: | 25.5 | 25.5 | | | | — |
| Maximum measured temperature T of part/at:: | | T (°C) | | | | | Allowed $T_{max}$ (°C) |
| **1U DC powered unit** | | | | | | | |
| Motherboard DC/DC UZ13 (Q501 130degC) | | 31.2 | 31.6 | | | | 105.5 (130-50+25.5) |
| Motherboard, DC/DC UZ7 (Q501 130degC) | | 29.7 | 30.2 | | | | 105.5 (130-50+25.5) |
| Motherboard, DC/DC UZ2 (Q501 130degC) | | 34.0 | 34.3 | | | | 105.5 (130-50+25.5) |
| Motherboard lithium battery | | 30.7 | 30.8 | | | | 60.5 (85-50+25.5) |
| Motherboard PCB by main CPU | | 30.1 | 30.4 | | | | 80.5 (105-50+25.5) |
| Small card above motherboard, PCB by U1 | | 38.5 | 38.9 | | | | 80.5 (105-50+25.5) |
| Small card near HDD, PCB by heatsink | | 39.2 | 39.6 | | | | 80.5 (105-50+25.5) |
| PS input choke winding | | 28.9 | 31.5 | | | | 64.5 (100-10-50+25.5) |
| PS main storage capacitor | | 40.4 | 41.6 | | | | 60.5 (85-50+25.5) |
| PS big transformer winding | | 48.7 | 49.1 | | | | 64.5 (100-10-50+25.5) |
| PS big transformer core | | 51.5 | 51.4 | | | | 64.5 (100-10-50+25.5) |
| PS small transformer winding | | 59.4 | 56.9 | | | | 64.5 (100-10-50+25.5) |
| PS small transformer core | | 51.0 | 49.5 | | | | 64.5 (100-10-50+25.5) |
| PS output choke winding | | 37.0 | 36.6 | | | | 64.5 (100-10-50+25.5) |
| PS PCB by Q3 | | 29.2 | 30.6 | | | | 80.5 (105-50+25.5) |
| PS terminal block | | 26.6 | 27.6 | | | | 60.5 (85-50+25.5) |
| EUT enclosure | | 32.8 | 32.9 | | | | 45.5 (70-50+25.5) |
| | | | | | | | |
| | | | | | | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V) .....: | 90/60 | 264/50 | | | | — |
| | Ambient $T_{min}$ (°C) .....: | 28.7 | 25.2 | | | | — |
| | Ambient $T_{max}$ (°C) .....: | 28.7 | 25.2 | | | | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | | Allowed $T_{max}$ (°C) |
| **2U AC powered unit** | | | | | | | |
| PS LD2 winding | | 34.4 | 28.3 | | | | 68.7 (100-10-50+28.7) |
| PS C1 (X-cap) | | 33.5 | 28.5 | | | | 63.7 (85-50+28.7) |
| PS LF1 | | 36.0 | 29.2 | | | | 68.7 (100-10-50+28.7) |
| PS PCB by BD1 | | 34.0 | 28.6 | | | | 63.7 (105-50+28.7) |
| PS LF2 | | 45.3 | 33.2 | | | | 68.7 (100-10-50+28.7) |
| PS C42 | | 42.4 | 32.1 | | | | 63.7 (105-50+28.7) |
| PS T3 winding | | 47.4 | 42.3 | | | | 68.7 (100-10-50+28.7) |
| PS T3 core | | 47.2 | 42.2 | | | | 68.7 (100-10-50+28.7) |
| PS T4 winding | | 47.6 | 43.2 | | | | 68.7 (100-10-50+28.7) |
| PS T4 core | | 50.0 | 45.0 | | | | 68.7 (100-10-50+28.7) |
| Motherboard DC/DC UZ13– (Q501, 130degC) | | 40.3 | 35.7 | | | | 108.7 (130-50+28.7) |
| Motherboard, DC/DC UZ2–(Q501, 130degC) | | 43.9 | 39.8 | | | | 108.7 (130-50+28.7) |
| Motherboard, DC/DC UZ7– (Q501 130degC) | | 37.5 | 33.2 | | | | 108.7 (130-50+28.7) |
| PS inlet | | 34.4 | 29.9 | | | | 43.7 (85-50+28.7) |
| Motherboard lithium battery | | 31.0 | 26.9 | | | | 43.7 (85-50+28.7) |
| Motherboard PCB by main CPU | | 40.5 | 36.0 | | | | 63.7 (105-50+28.7) |
| Small card above motherboard, PCB near U1 | | 32.8 | 30.1 | | | | 63.7 (105-50+28.7) |
| Small card near HDD, PCB near heatsink | | 39.0 | 34.9 | | | | 63.7 (105-50+28.7) |
| EUT enclosure | | 28.7 | 24.5 | | | | 48.7 (70-50+28.7) |
| Supplementary information: | | | | | | | |

| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
|---|---|---|---|---|---|---|---|
| Supplementary information: | | | | | | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4.5 | TABLE: Thermal requirements | | | | | | P |
| | Supply voltage (V) .....: | 72 | 36 | | | | — |
| | Ambient $T_{min}$ (°C) .....: | 23.1 | 23.1 | | | | — |
| | Ambient $T_{max}$ (°C) .....: | 23.1 | 23.1 | | | | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | | Allowed $T_{max}$ (°C) |
| **2U DC powered unit** | | | | | | | |
| PS DMRW-6400F, T3 winding | | 44.8 | 46.0 | | | | 63.1 (100-10-50+23.1) |
| PS DMRW-6400F, T3 core | | 42.6 | 42.6 | | | | 63.1 (100-10-50+23.1) |
| PS DMRW-6400F, T4 winding | | 45.3 | 44.7 | | | | 63.1 (100-10-50+23.1) |
| PS DMRW-6400F, choke LF1 winding | | 32.0 | 33.5 | | | | 63.1 (100-10-50+23.1) |
| PS DMRW-6400F, C42B (main storage E.C. 85degC) | | 35.6 | 36.7 | | | | 58.1 (85-50+23.1) |
| PS DMRW-6400F, DC input connector | | 25.2 | 25.1 | | | | 58.1 (85-50+23.1) |
| PS DMRW-6400F, PCB near heatsink H3 | | 35.7 | 35.6 | | | | 78.1 (105-50+23.1) |
| Motherboard PCB by main CPU | | 35.6 | 35.9 | | | | 78.1 (105-50+23.1) |
| Motherboard lithium battery | | 29.1 | 29.5 | | | | 58.1 (85-50+23.1) |
| Motherboard DC/DC UZ13 (Q501 130degC) | | 40.5 | 40.2 | | | | 103.1 (130-50+23.1) |
| Motherboard, DC/DC UZ7 (Q501 130degC) | | 35.2 | 35.0 | | | | 103.1 (130-50+23.1) |
| Motherboard, DC/DC UZ2 (Q501 130degC) | | 34.6 | 34.6 | | | | 103.1 (130-50+23.1) |
| Small card above motherboard PCB by U1 | | 28.4 | 28.4 | | | | 78.1 (105-50+23.1) |
| Small card near HDD PCB by heatsink | | 40.4 | 40.5 | | | | 78.1 (105-50+23.1) |
| Unit metal enclosure | | 28.5 | 28.7 | | | | 43.1 (70-50+23.1) |
| Supplementary information: | | | | | | | |

| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| Supplementary information: | | | | | | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 4.5.5 | TABLE: Ball pressure test of thermoplastic parts | | N/A |
|---|---|---|---|
| | Allowed impression diameter (mm) .....: | ≤ 2 mm | — |

| Part | Test temperature (°C) | Impression diameter (mm) |
|---|---|---|
| | | |
| | | |
| Supplementary information: | | |

| 4.7 | TABLE: Resistance to fire | | | | N/A |
|---|---|---|---|---|---|
| Part | Manufacturer of material | Type of material | Thickness (mm) | Flammability class | Evidence |
| | | | | | |
| | | | | | |
| Supplementary information: | | | | | |

| 5.1 | TABLE: touch current measurement | | P |
|---|---|---|---|
| Measured between: | Measured (mA) | Limit (mA) | Comments/conditions |
| Between primary and ground | 0.76 | 3.5 | 1U AC unit |
| Between primary and ground | 1.2 | 3.5 | 2U AC unit |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| supplementary information: | | | |
| | | | |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **5.2** | **TABLE: Electric strength tests, impulse tests and voltage surge tests** | | P |
|---|---|---|---|
| Test voltage applied between: | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdown Yes / No |
| Functional: | | | |
| | | | |
| | | | |
| Basic/supplementary: | | | |
| 2U DC model, 72VDC input to GND (power supply DMRW-6400F) | DC | 1718V | No |
| 2U AC model, L+N to GND (power supply MRW-6420P) | DC | 2677V | No |
| 1U DC model, 72VDC input to GND (DP1H-6350F) | DC | 1001V | No |
| 1U AC model, L+N to GND (power supply P1H-6350P) | DC | 2900VDC | No |
| Reinforced: | | | |
| | | | |
| | | | |
| Supplementary information:<br>The test on the AC chassis was reconducted after humidity conditioing test per National Differences **China (CH) clause 2.9.2** | | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **5.3** | **TABLE: Fault condition tests** | | P |
| | Ambient temperature (°C) .....: | 23.6-25.7 | — |
| | Power source for EUT: Manufacturer, model/type, output rating .....: | See Table 1.5.1 | — |

| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation |
|---|---|---|---|---|---|---|
| Complete 2U DC model | Blocked Vents | 60VDC | 2h | - | - | No excessive temperatures. PS T3 winding temperature is 60.3C at ambient 23.3C.<br>Hi-Pot pass |
| Complete 2U DC model | Disconnected fans | 60VDC | 2h | - | - | No excessive temperatures. PS T3 winding temperature is 47.1C at ambient 24.2C.<br>Hi-Pot pass |
| Complete 2U AC model | Blocked Vents | 100VAC | 1h 30m | - | - | No excessive temperatures. PS LF2 winding temperature is 58.9C at ambient 24.0C.<br>Hi-Pot pass |
| Complete 2U AC model | Disconnected fans | 100VAC | 1h 30m | - | - | No excessive temperatures. PS T4 winding temperature is 44.0C at ambient 23.4C.<br>Hi-Pot pass |
| Complete 1U DC model | Blocked Vents | 48VDC | 2h | - | - | Unit shut down. No excessive temperatures. PS small transformer winding temperature is 69.4C at ambient 22.8C.<br>Hi-Pot pass |
| Complete 1U DC model | Disconnected fans | 48VDC | 2h | - | - | No excessive temperatures. PS small transformer winding temperature is 49.5C at ambient 23.4C.<br>Hi-Pot pass |
| Complete 1U AC model | Blocked Vents | 100VAC | 1h 30m | - | - | Unit shut down. No excessive temperatures. PS PCB by Q3 temperature is 75.4C at ambient 24.1C.<br>Hi-Pot pass |

**Error! Reference source not found.**

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | | | | |
|---|---|---|---|---|---|---|
| Complete 1U AC model | Disconnected fans | 100VAC | 1h 30m | - | - | No excessive temperatures. PS PCB by Q3 temperature is 51.0C at ambient 24.71C.<br>Hi-Pot pass |
| | | | | | | |
| Supplementary information: | | | | | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| C.2 | TABLE: transformers | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Loc. | Tested insulation | Working voltage peak / V (2.10.2) | Working voltage rms / V (2.10.2) | Required electric strength (5.2) | Required clearance / mm (2.10.3) | Required creepage distance / mm (2.10.4) | Required distance thr. insul. (2.10.5) |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Loc. | Tested insulation | | | Test voltage/ V | Measured clearance / mm | Measured creepage dist./ mm | Measured distance thr. insul. / mm; number of layers |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| supplementary information: certified power supplies | | | | | | | |
| | | | | | | | |

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| C.2 | TABLE: transformers | N/A |
|---|---|---|
| Transformer | | |

**List of test equipment used:**
**(Note: This is an example of the required attachment. Other forms with a different layout but containing similar information are also acceptable.)**

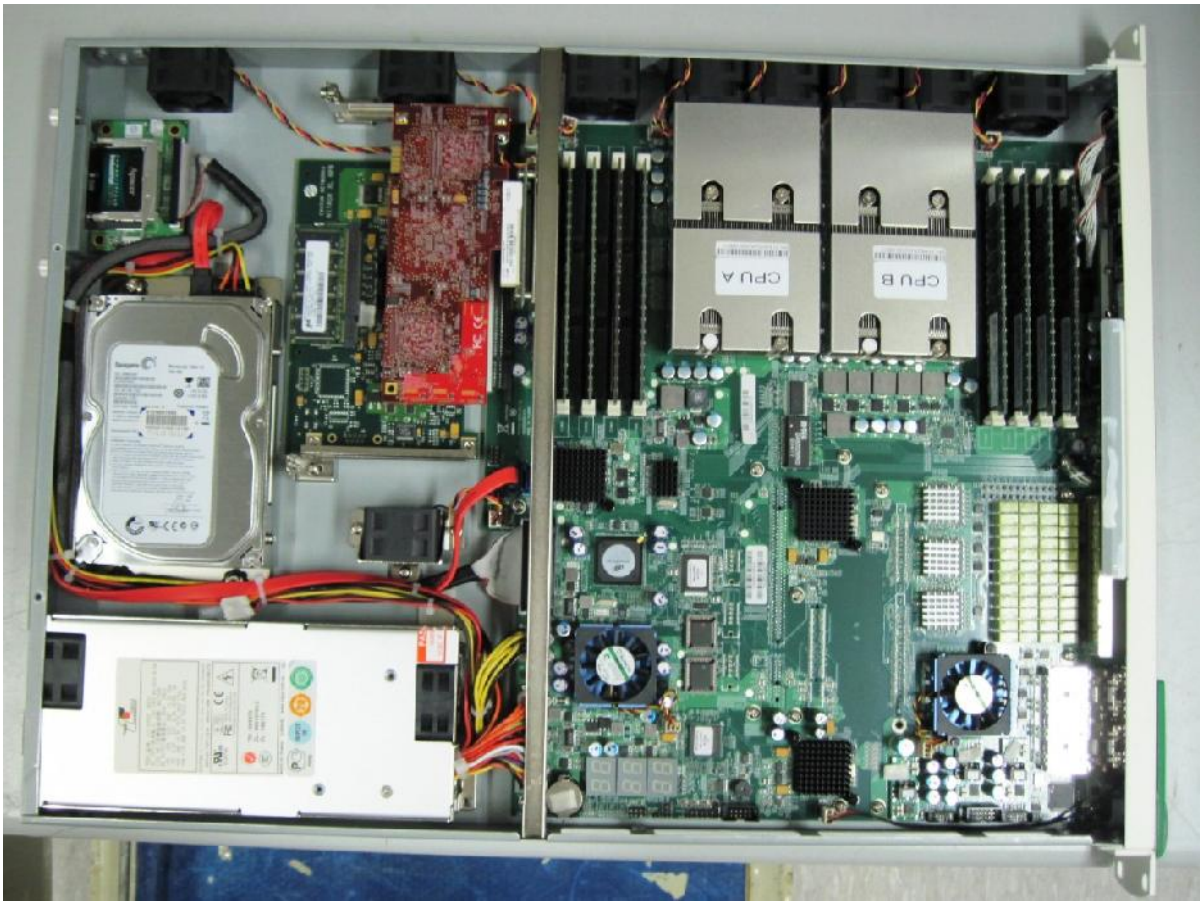
| ITL | Instrument | Manufacturer | Model | Serial | Cal Due |
|---|---|---|---|---|---|
| 1217 | Hipot Tester | Hipotronics | HD 100 | 390301 | 28/02//2013 |
| 1337 | Walk-In Chamber | Thermotron | WP-683 | 22499 | 23/02/2013 |
| | | | | | |

**Appendix 1 – Photographs**

**Overall view of the units 1U AC and DC optional**


**Rear side view of the 1U AC and DC powered units**

**Internal view on 1U unit AC / DC powered**

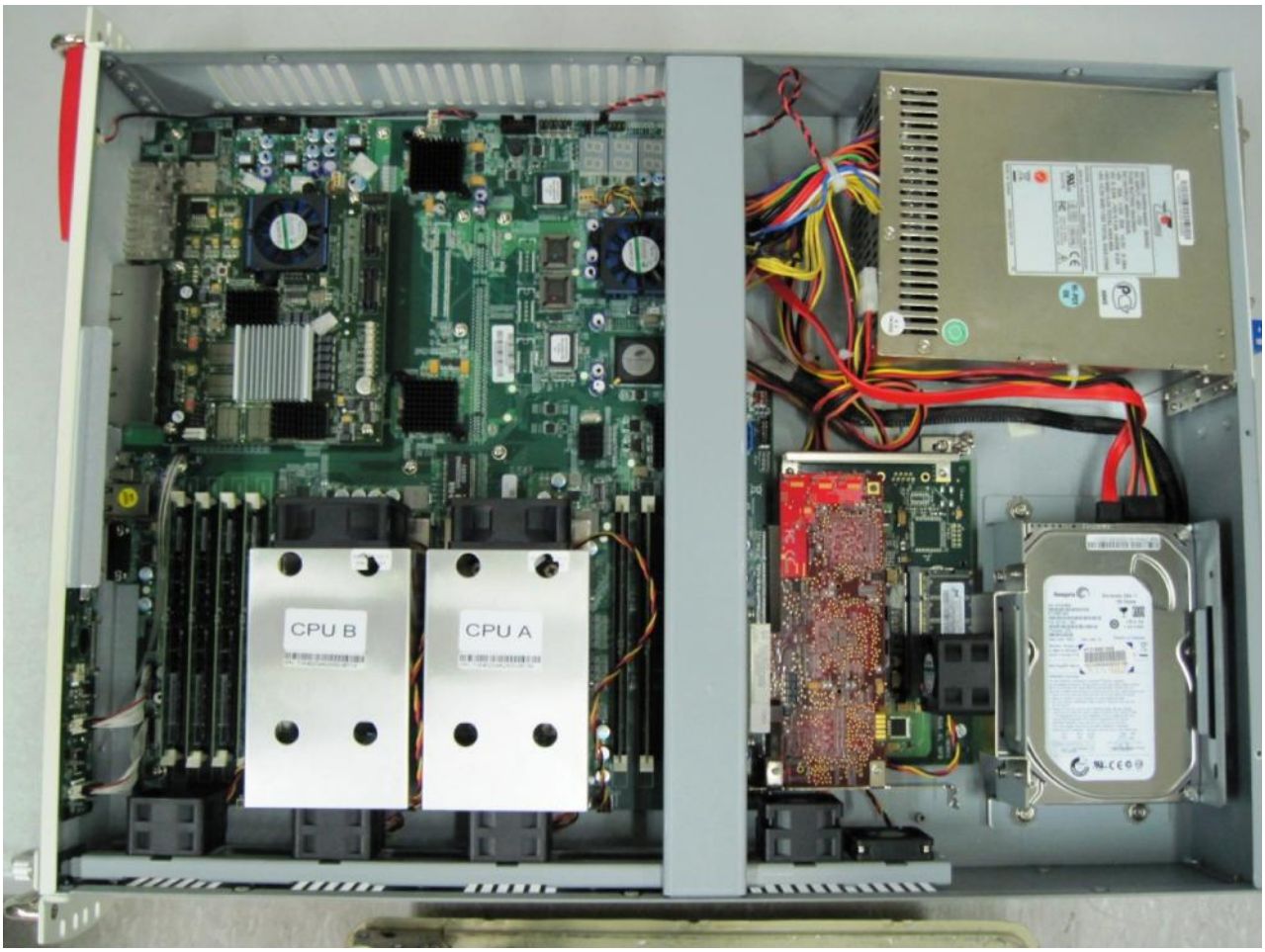


**Overall view of the units 2U AC and DC optional**

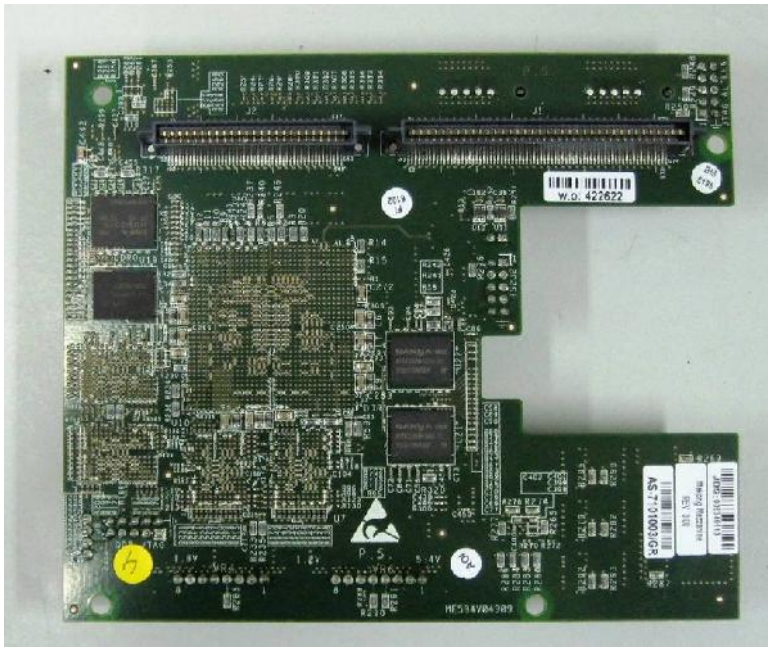
**Rear side view of the units 2U AC powered unit**

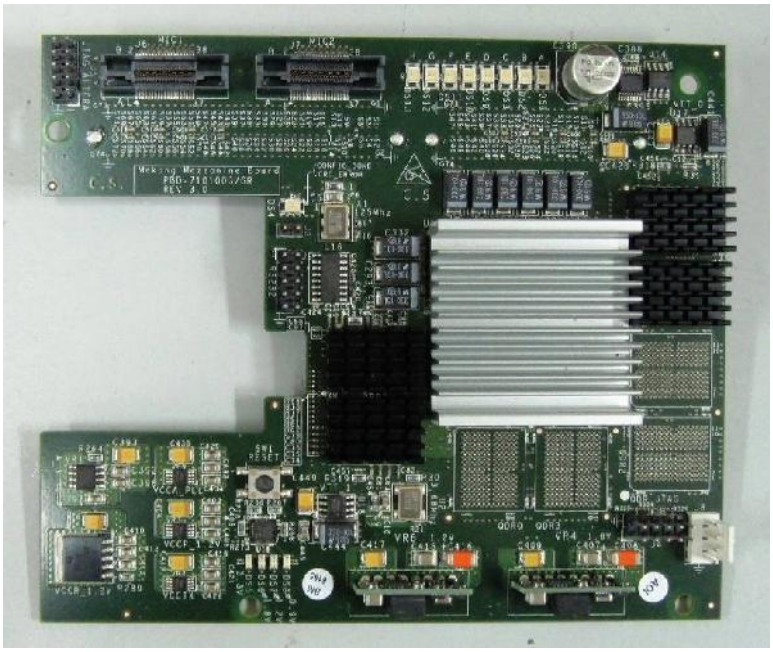
**Rear side view of the units 2U DC powered unit**

**Internal view of the 2U AC / DC powered unit**



**Daughter board of 2U units Optional**





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

**Appendix 2 - National Differences CB Bulletin**

**IEC 60950-1:2006, Amendment 1 :2009**

EU Group Differences
AT=Austria (issuing/recognizing)
BE=Belgium (issuing/recognizing)
BY=Belarus (issuing/recognizing)
CA=Canada
CH=Switzerland (issuing/recognizing)
CZ=Czech Republic (issuing/recognizing)
DE=Germany
DK=Denmark
ES=Spain (issuing/recognizing)
FI=Finland
FR=France (issuing/recognizing)
HU=Hungary (issuing/recognizing)
IN=India (issuing/recognizing)
IL=Israel
IT=Italy (issuing/recognizing)
JP=Japan (issuing/recognizing)
KR=Korea
MY=Malaysia (issuing/recognizing)
NL=The Netherlands (issuing/recognizing)
NO=Norway (issuing/recognizing)
SG=Singapore (issuing/recognizing)
SE=Sweden
SI=Slovenia
PL=Poland (recognizing only)
SK=Slovakia (issuing/recognizing)
UA=Ukraine (issuing/recognizing)
UK= United Kingdom
US=United States of America

**IEC 60950-1:2005**

,
AU=Australia
BR=Brazil
CN=China

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

# ATTACHMENT TO TEST REPORT IEC 60950-1
# EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

| | |
|---|---|
| **Differences according to**.....: | EN 60950-1:2006/A11:2009/A1:2010 |
| **Attachment Form No**. .....: | EU_GD_IEC60950_1C |
| **Attachment Originator .....**: | SGS Fimko Ltd |
| **Master Attachment** .....: | Date (2010-04) |



## EN 60950-1:2006/A11:2009/A1:2010 – CENELEC COMMON MODIFICATIONS

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Contents | Add the following annexes:<br>Annex ZA (normative) Normative references to international publications with their corresponding European publications<br>Annex ZB (normative) Special national conditions | | P |
| General | Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list:<br>1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note<br>1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6<br>2.2.3 Note; 2.2.4 Note; 2.3.2 Note<br>2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3<br>2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3<br>3.2.1.1 Note; 3.2.4 Note 3.; 2.5.1 Note 2<br>4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note<br>4.7.3.1Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1<br>6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note<br>6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note<br>7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2<br>G.2.1 Note 2; Annex H Note 2 | | P |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| General<br>(A1:2010) | Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list:<br>1.5.7.1 Note 6.1.2.1 Note 2<br>6.2.2.1 Note 2 EE.3 Note | | P |
| 1.3.Z1 | Add the following subclause:<br>1.3.Z1 Exposure to excessive sound pressure<br>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.<br>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers. | Added | N/A |
| 1.5.1 | Add the following NOTE:<br>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC | Added | P |
| 1.7.2.1<br>(A1:2010) | In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss. | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.7.1 | Replace the subclause as follows:<br>Basic requirements<br>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):<br>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;<br>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; | Replaced | P |
| | c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.<br>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | | P |
| 2.7.2 | This subclause has been declared ‘void’. | Void N/A | P |
| 3.2.3 | Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses. | Deleted | P |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.5.1 | Replace “60245 IEC 53” by “H05 RR-F”;<br>“60227 IEC 52” by “H03 VV-F or H03 VVH2-F”;<br>“60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.<br><br>In Table 3B, replace the first four lines by the following:<br><br>Up to and including 6 \| 0,75 [a)] \|<br>Over 6 up to and including 10\| (0,75) [b)] 1,0 \|<br>Over 10 up to and including 16\| (1,0) [c)] 1,5 \|<br><br>In the conditions applicable to Table 3B delete the words “in some countries” in condition [a)].<br><br>In NOTE 1, applicable to Table 3B, delete the second sentence. | Replaced | N/A |
| 3.3.4 | In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:<br><br>Over 10 up to and including 16 \| 1,5 to 2,5 \| 1,5 to 4 \|<br><br>Delete the fifth line: conductor sizes for 13 to 16 A | Deleted | P |
| 4.3.13.6<br>(A1:2010) | Replace the existing NOTE by the following:<br><br>NOTE Z1 Attention is drawn to:<br><br>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and<br><br>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation). | Replaced | P |
| | Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC. | | P |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Annex H | Replace the last paragraph of this annex by:<br>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.<br>Replace the notes as follows:<br>NOTE These values appear in Directive 96/29/Euratom.<br>Delete NOTE 2. | Replaced | P |
| Bibliography | Additional EN standards. | | — |

| | | |
|---|---|---|
| **ZA** | **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS** | — |

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.2.4.1 | In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets. | Not provided with the unit | N/A |
| 1.2.13.14 | In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex. | | N/A |
| 1.5.7.1 | In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. | Part of certified power supply | N/A |
| 1.5.8 | In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V). | Capacitors are suitably rated for 230V phase-phase voltage of IT system of Norway | P |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.5.9.4 | In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex. | Part of certified power supply | N/A |

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

## *ZB ANNEX (normative)*

## *SPECIAL NATIONAL CONDITIONS (EN)*

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| 1.7.2.1 | In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.<br><br>The marking text in the applicable countries shall be as follows:<br><br>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"<br><br>In Norway: “Apparatet må tilkoples jordet stikkontakt”<br><br>In Sweden: “Apparaten skall anslutas till jordat uttag”<br><br>In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.<br><br>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.<br><br>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:<br><br>“Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).” | The unit has own connection to protective earthing<br><br>Marking will be provided when distributed in Finland, Norway and Sweden | P |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.<br>Translation to Norwegian (the Swedish text will also be accepted in Norway):<br>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”<br>Translation to Swedish:<br>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät<br>galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.” | | P |
| 1.7.5 | In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.<br>For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a. | | N/A |
| 2.2.4 | In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |

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

## *ZB ANNEX (normative)*

## *SPECIAL NATIONAL CONDITIONS (EN)*

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| 2.3.2 | In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.3.4 | In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.6.3.3 | In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A. | Considered | P |
| 2.7.1 | In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met. | No direct plug-in | N/A |
| 2.10.5.13 | In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 3.2.1.1 | In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:<br>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A | Not supplied with the unit | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A<br><br>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A<br><br>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:<br>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A<br><br>SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A<br><br>SEV 5934-2.1998: Plug Type 23, L+N+PE .250 V, 16 A | Power cord is not supplied with the unit | N/A |
| 3.2.1.1 | In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.<br><br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.<br><br>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2. | Power cord is not supplied with the unit | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.1.1 | In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.<br>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.<br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.<br>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2. | Power cord is not supplied with the unit | N/A |
| 3.2.1.1 | In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.<br>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. | Power cord is not supplied with the unit | N/A |
| 3.2.1.1 | In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997. | Power cord is not supplied with the unit | N/A |

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

## *ZB ANNEX (normative)*

## *SPECIAL NATIONAL CONDITIONS (EN)*

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| 3.2.4 | In **Switzerland**, for requirements see 3.2.1.1 of this annex. | | P |
| 3.2.5.1 | In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A. | Power cord is not supplied with the unit | N/A |
| 3.3.4 | In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:<br>• 1,25 $mm^2$ to 1,5 $mm^2$ nominal cross-sectional area. | Power cord is not supplied with the unit | N/A |
| 4.3.6 | In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply. | | N/A |
| 4.3.6 | In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997. | | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.1.7.1 | In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:<br>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that<br>is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and<br>has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and<br>is provided with instructions for the installation of that conductor by a SERVICE PERSON;<br>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;<br>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT. | Less than 3.5mA | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.1.2.1<br>(A1:2010) | In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause:<br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br>- two layers of thin sheet material, each of which shall pass the electric strength test below, or<br>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition<br>- passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of<br>2.10.10 shall be performed using 1,5 kV), and<br>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. | Added | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).<br><br>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.<br>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:<br>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;<br>- the additional testing shall be performed on all the test specimens as described in EN 60384-14;<br>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | | N/A |
| 6.1.2.2 | In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON. | | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 7.2 | In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.<br>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM. | No CABLE DISTRIBUTION SYSTEM. | N/A |
| 7.3 | In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex. | | N/A |
| 7.3 | In **Norway**, for installation conditions see EN 60728-11:2005. | | N/A |

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

# ATTACHMENT TO TEST REPORT IEC 60950-1
# EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

| | |
|---|---|
| **Differences according to**.....: | EN 60950-1:2006/A11:2009/A1:2010/A12:2011 |
| **Attachment Form No**. .....: | EU_GD_IEC60950_1C_II |
| **Attachment Originator** .....: | SGS Fimko Ltd |
| **Master Attachment** .....: | Date 2011-08 |



## EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Contents | Add the following annexes:<br>Annex ZA (normative) Normative references to international publications with their corresponding European publications<br>Annex ZB (normative) Special national conditions | | P |
| General | Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list:<br>1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note<br>1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6<br>2.2.3 Note; 2.2.4 Note; 2.3.2 Note<br>2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3<br>2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3<br>3.2.1.1 Note; 3.2.4 Note 3.; 2.5.1 Note 2<br>4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note<br>4.7.3.1Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1<br>6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note<br>6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note<br>7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2<br>G.2.1 Note 2; Annex H Note 2 | | P |
| General (A1:2010) | Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list:<br>1.5.7.1 Note; 6.1.2.1 Note 2<br>6.2.2.1 Note 2; EE.3 Note | | P |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.3.Z1 | Add the following subclause:<br>1.3.Z1 Exposure to excessive sound pressure<br>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.<br>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers. | Added | N/A |
| (A12:2011) | In EN 60950-1:2006/A12:2011<br>Delete the addition of 1.3.Z1 / EN 60950-1:2006<br>Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010 | Deleted | N/A |
| 1.5.1 | Add the following NOTE:<br>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC | Added | P |
| 1.7.2.1<br>(A1:2010) | In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss. | | N/A |
| 1.7.2.1<br>(A12.2011) | In EN 60950-1:2006/A12:2011<br>Delete NOTE Z1 and the addition for Portable Sound System.<br>Add the following clause and annex to the existing standard and amendments. | Deleted | N/A |
| | **Zx Protection against excessive sound pressure from personal music players** | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | **Zx.1 General**<br>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.<br><br>A personal music player is a portable equipment for personal use, that:<br>– is designed to allow the user to listen to recorded or broadcast sound or video; and<br>– primarily uses headphones or earphones that can be worn in or on or around the ears; and<br>– allows the user to walk around while in use.<br>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.<br><br>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.<br><br>The requirements in this sub-clause are valid for music or video mode only.<br><br>The requirements do not apply:<br>– while the personal music player is connected to an external amplifier; or<br>– while the headphones or earphones are not used.<br>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.<br><br>The requirements do not apply to:<br>– hearing aid equipment and professional equipment;<br>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | – analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.<br>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.<br><br>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply. | | N/A |
| | **Zx.2 Equipment requirements**<br>No safety provision is required for equipment that complies with the following:<br>– equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and<br>– a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1.<br>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.<br><br>All other equipment shall:<br>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and<br>b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and<br>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.<br>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.<br>d) have a warning as specified in Zx.3; and<br>e) not exceed the following:<br>1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and<br>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.<br>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.<br>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.<br>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA. | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | **Zx.3 Warning**<br>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:<br>– the symbol of Figure 1 with a minimum height of 5 mm; and<br>– the following wording, or similar:<br>"To prevent possible hearing damage, do not listen at high volume levels for long periods."<br>  <br>**Figure 1 – Warning label (IEC 60417-6044)**<br>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level. | | N/A |
| | **Zx.4 Requirements for listening devices (headphones and earphones)** | | N/A |
| | **Zx.4.1 Wired listening devices with analogue input**<br>With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV.<br>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).<br>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV. | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | **Zx.4.2 Wired listening devices with digital input**<br>With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA.<br>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).<br>NOTE An example of a wired listening device with digital input is a USB headphone. | | N/A |
| | **Zx.4.3 Wireless listening devices**<br>In wireless mode:<br>– with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and<br>– respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and<br>– with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA.<br>NOTE An example of a wireless listening device is a Bluetooth headphone. | | N/A |
| | **Zx.5 Measurement methods**<br>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.<br>Unless stated otherwise, the time interval T shall be 30 s.<br>NOTE Test method for wireless equipment provided without listening device should be defined. | | N/A |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.7.1 | Replace the subclause as follows:<br>Basic requirements<br>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):<br>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;<br>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; | Replaced | P |
| | c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.<br>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | Pluggable equipment type A | N/A |
| 2.7.2 | This subclause has been declared ‘void’. | Void | N/A |
| 3.2.3 | Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses. | Deleted | P |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.5.1 | Replace “60245 IEC 53” by “H05 RR-F”;<br>“60227 IEC 52” by “H03 VV-F or H03 VVH2-F”;<br>“60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.<br>In Table 3B, replace the first four lines by the following:<br>Up to and including 6 \| 0,75 [a] \|<br>Over 6 up to and including 10\| (0,75) [b] 1,0 \|<br>Over 10 up to and including 16\| (1,0) [c] 1,5 \|<br>In the conditions applicable to Table 3B delete the words “in some countries” in condition [a].<br>In NOTE 1, applicable to Table 3B, delete the second sentence. | Replaced | N/A |
| 3.3.4 | In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:<br>Over 10 up to and including 16 \| 1,5 to 2,5 \| 1,5 to 4 \|<br>Delete the fifth line: conductor sizes for 13 to 16 A | Deleted | N/A |
| 4.3.13.6<br>(A1:2010) | Replace the existing NOTE by the following:<br>NOTE Z1 Attention is drawn to:<br>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and<br>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation). | Replaced | P |
| | Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC. | | P |
| Annex H | Replace the last paragraph of this annex by:<br>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.<br>Replace the notes as follows:<br>NOTE These values appear in Directive 96/29/Euratom.<br>Delete NOTE 2. | Replaced | P |
| Bibliography | Additional EN standards. | | — |

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

| IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN) | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | |
|---|---|---|
| **ZA** | **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS** | — |

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.2.4.1 | In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets. | Power cord Is not supplied with the unit | N/A |
| 1.2.13.14 | In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex. | | N/A |
| 1.5.7.1 | In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. | Part of certified power supplies | N/A |
| 1.5.8 | In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V). | Capacitors suitably rated for 230V phase-phase voltage of IT system of Norway | P |
| 1.5.9.4 | In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex. | | N/A |

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

## *ZB ANNEX (normative)*

## *SPECIAL NATIONAL CONDITIONS (EN)*

| Clause | Requirement + Test | Result - Remark | Verdict |
|---|---|---|---|
| 1.7.2.1 | In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.<br>The marking text in the applicable countries shall be as follows:<br>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"<br>In Norway: “Apparatet må tilkoples jordet stikkontakt”<br>In Sweden: “Apparaten skall anslutas till jordat uttag”<br>In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.<br>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.<br>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:<br>“Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).” | The unit has own connection to protective earthing<br>Marking will be provided when distributed in Finland, Norway and Sweden | P |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.<br>Translation to Norwegian (the Swedish text will also be accepted in Norway):<br>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”<br>Translation to Swedish:<br>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät<br>galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.” | | P |
| 1.7.5 | In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.<br>For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a. | No socket outlets | N/A |
| 2.2.4 | In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.3.2 | In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.3.4 | In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.6.3.3 | In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A. | | P |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.7.1 | In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met. | No direct plug-in unit | N/A |
| 2.10.5.13 | In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 3.2.1.1 | In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:<br>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A<br>SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A<br>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A<br>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:<br>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A<br>SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A<br>SEV 5934-2.1998: Plug Type 23, L+N+PE .250 V, 16 A | Not supplied with the unit | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.1.1 | In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.<br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.<br>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2. | Not supplied with the unit | N/A |
| 3.2.1.1 | In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.<br>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.<br>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.<br>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2. | Not supplied with the unit | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.1.1 | In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.<br>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. | Not supplied with the unit | N/A |
| 3.2.1.1 | In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997. | Not supplied with the unit | N/A |
| 3.2.4 | In **Switzerland**, for requirements see 3.2.1.1 of this annex. | Not supplied with the unit | N/A |
| 3.2.5.1 | In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A. | Not supplied with the unit | N/A |
| 3.3.4 | In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:<br>• 1,25 $mm^2$ to 1,5 $mm^2$ nominal cross-sectional area. | Not supplied with the unit | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.3.6 | In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply. | | N/A |
| 4.3.6 | In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997. | | N/A |
| 5.1.7.1 | In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:<br>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that<br>is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and<br>has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and<br>is provided with instructions for the installation of that conductor by a SERVICE PERSON;<br>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;<br>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT. | Less than 3.5mA | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.1.2.1<br>(A1:2010) | In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause:<br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br>- two layers of thin sheet material, each of which shall pass the electric strength test below, or<br>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition<br>- passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of<br>2.10.10 shall be performed using 1,5 kV), and<br>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. | Added | P |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).<br><br>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.<br>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:<br>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;<br>- the additional testing shall be performed on all the test specimens as described in EN 60384-14:<br>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. | Part of certified power supplies | N/A |
| 6.1.2.2 | In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON. | Pluggable type A | N/A |
| 7.2 | In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.<br>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM. | No CABLE DISTRIBUTION SYSTEM. | N/A |
| 7.3 | In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex. | | N/A |

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

| *ZB ANNEX (normative)*<br>*SPECIAL NATIONAL CONDITIONS (EN)* | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 7.3 | In **Norway**, for installation conditions see EN 60728-11:2005. | | N/A |

**ATTACHMENT TO TEST REPORT IEC 60950-1**
**FINLAND NATIONAL DIFFERENCES**

Information technology equipment – Safety –

Part 1: General requirements

| | |
|---|---|
| **Differences according to**.....: | EN 60950-1:2006/A11:2009/A1:2010 |
| **Attachment Form No**. .....: | FI_ND_IEC60950_1C |
| **Attachment Originator .....**: | SGS Fimko Ltd |
| **Master Attachment** .....: | Date (2010-04) |



| | | | P |
|---|---|---|---|
| | **National Differences** | | |
| **General** | See also Group Differences (EN 60950-1:2006/A11/A1) | | P |
| 1.5.7.1 | In **Finland** resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2. | Part of certified power supplies | N/A |
| 1.5.9.4 | In **Finland,** the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex. | | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.2.1 | In **Finland**,CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.<br>The marking text in in Finland shall be as follows:<br>"Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" | The unit has own connection to protective earthing<br>Marking will be provided when distributed in Finland | P |
| 2.3.2 | In **Finland,** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 2.10.5.13 | In **Finland,** there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex. | | N/A |
| 5.1.7.1 | In **Finland,** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:<br>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that<br>- is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and<br>- has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and<br>- is provided with instructions for the installation of that conductor by a SERVICE PERSON;<br>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;<br>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT. | Less than 3.5mA | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.1.2.1 (A1:2010) | In **Finland,** add the following text between the first and second paragraph of the compliance clause:<br><br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br><br>- two layers of thin sheet material, each of which shall pass the electric strength test below, or<br><br>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br><br>Alternatively for components, there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition<br><br>- passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and<br><br>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. | Added | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).<br><br>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.<br>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:<br>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14:2005 which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;<br>- the additional testing shall be performed on all the test specimens as described in EN 60384-14:2005;<br>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14:2005, in the sequence of tests as described in EN 60384-14:2005. | | N/A |
| 6.1.2.2 | In **Finland,** the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON. | Pluggable equipment type A | N/A |
| 7.2 | In **Finland,** for requirements see 6.1.2.1 and 6.1.2.2 of this annex.<br>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM. | No connection to CABLE DISTRIBUTION SYSTEM. | N/A |

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

# ATTACHMENT TO TEST REPORT IEC 60950-1
# US NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

| | |
|---|---|
| **Differences according to.....:** | UL 60950-1-07 |
| **Attachment Form No. .....:** | US_ND_IEC60950_1C |
| **Attachment Originator.....:** | TÜV SÜD Product Service GmbH |
| **Master Attachment.....:** | Date (2012-08) |



| | | | |
|---|---|---|---|
| | ***Special national conditions*** | | P |
| 1.1.1 | All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. | In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA | P |
| | Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75. | | P |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A. | Considered | P |
| 1.5.5 | For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. | No interconnecting cords | N/A |
| | For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings. | | N/A |
| 1.7.1 | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. | No such equipment | N/A |
| | A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and | | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - if it is part of a range that extends into the Table 2 "Normal Operating Conditions." | | N/A |
| | A voltage rating is not to be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions." | | N/A |
| 1.7.7 | Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC are marked with the voltage rating and “Class 2” or equivalent. | No such equipment | N/A |
| | - Marking is located adjacent to the terminals | | N/A |
| | - Marking is visible during wiring | | N/A |
| 2.5 | Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable. | No such equipment | N/A |
| 2.6.3.3 | Modify first column on Table 2D to “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | Modified | P |
| 2.7.1 | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. | | N/A |
| | Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection. | | N/A |
| 3.2 | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC. | Complied | P |
| 3.2.1 | Attachment plugs of power supply cords are rated not less than 125 per cent of the rated current of the equipment. | Power supply cords is not provided. | N/A |
| 3.2.1.2 | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment comply with special earthing, wiring, marking and installation instruction requirements. | One pole of the DC mains input terminal is not connected to the main protective earthing terminal in the equipment | N/A |
| 3.2.3 | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | No permanent connection by cord | N/A |
| 3.2.5 | Power supply cords are no longer than 4.5 m in length. | Power supply cords are not part of this investigation | N/A |
| | Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. | | N/A |
| | Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2.9 | Permanently connected equipment have a suitable wiring compartment and wire bending space. | Suitable wiring space is provided on certified DC terminal block | P |
| 3.3 | Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0. | Certified DC terminal block and earthing screws comply with CSA C22.2 No. 0. | P |
| 3.3.3 | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm2). | As above | N/A |
| 3.3.4 | Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are | Complied | P |
| | - rated 125 per cent of the equipment rating, and | | P |
| | - are specially marked when specified (1.7.7). | | P |
| 3.3.5 | Revise first column of Table 3E to “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | Revised | P |
| 3.4.2 | Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A, | No motor control devices | N/A |
| | - or if the motor has a nominal voltage rating greater than 120 V | | N/A |
| | - or is rated more than 1/3 hp (locked rotor current over 43 A) | | N/A |
| 3.4.8 | Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position. | No such switches | N/A |
| 3.4.11 | For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit. | No battery system of this type | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment complies with NFPA 30. | No flammable liquids | N/A |
| 4.3.13.5 | Equipment with lasers meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable. | Lasers to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable. | P |
| 4.7 | For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | Not this type of equipment | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3.1 | For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. | Not this type of equipment | N/A |
| | For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less. | | N/A |
| Annex H | Equipment that produces ionizing radiation complies with U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | No ionizing radiation | N/A |
| | ***Other National Differences*** | | |
| 1.5.1 | Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. | Considered. See component list. | P |
| 1.6.1.2 | A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. | Maximum operated voltages of dc mains supply up to 72Vdc, classified as TNV-2. | P |
| | This maximum operating voltage includes consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment. | | P |
| 2.3.1 | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions. | Requirement not applicable to DC mains systems | N/A |
| 2.3.2.1 | In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts. | Not applied | N/A |
| 2.6.3.4 | Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified. | No such conductors | N/A |
| 4.2.8.1 | Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT. | No such components | N/A |
| 4.3.2 | Equipment with handles complies with special loading tests. | No handles | N/A |
| 5.1.8.3 | Equipment intended to receive telecommunication ringing signals comply with a special touch current measurement tests. | Not intended to receive ringing signals | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.3.7 | Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded. | No such parts | N/A |
| | During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary | No such condition occured | N/A |
| 6.4 | Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC. | Not for connection to telecommunications network | N/A |
| Annex EE | Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger. | | N/A |
| Annex M.2 | Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions. | Does not produce ringing signals | N/A |
| Annex NAD | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements. | Not for connection to telecommunications and cable distribution networks | N/A |

## ATTACHMENT TO TEST REPORT IEC 60950-1
## CANADA NATIONAL DIFFERENCES

Information technology equipment – Safety –

Part 1: General requirements

| | |
|---|---|
| **Differences according to** ..... : | CAN/CSA-C22.2 NO. 60950-1A-07 |
| **Attachment Form No**. ..... : | CA_ND_IEC60950_1C |
| **Attachment Originator**..... : | TÜV SÜD Product Service GmbH |
| **Master Attachment**..... : | Date (2012-08) |



| | | | |
|---|---|---|---|
| | ***Special national conditions*** | | P |
| 1.1.1 | All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. | Equipment is designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2 | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75. | | P |
| 1.4.14 | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A. | Considered | P |
| 1.5.5 | *For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC.* | No interconnecting cables | N/A |
| | *For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.* | | N/A |
| 1.7.1 | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. | Single phase unit | N/A |
| | A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and | | P |
| | - if it is part of a range that extends into the Table 2 "Normal Operating Conditions." | | N/A |
| | A voltage rating is not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions." | Not lower than specified | P |
| 1.7.7 | Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC are marked with the voltage rating and “Class 2” or equivalent. | | N/A |
| | - Marking is located adjacent to the terminals | | N/A |
| | - Marking is visible during wiring | | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.5 | Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable. | No fuse used to provide Class 2, Limited Power Source, or TNV current limiting | N/A |
| 2.6.3.3 | Modify first column on Table 2D to “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | Modified | P |
| 2.7.1 | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. | No standard supply outlets, receptacles and medium-base or smaller lampholders, power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more | N/A |
| | Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection. | | N/A |
| 3.2 | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC. | Appliance inlet and earthing screw is in accordance with the NEC/CEC | P |
| 3.2.1 | Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment. | Power cord is not provided with the equipment | N/A |
| 3.2.1.2 | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment comply with special earthing, wiring, marking and installation instruction requirements. | The pole of the DC mains input terminal unit is not connected to the main protective earthing terminal in the equipment | N/A |
| 3.2.3 | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | Not for permanent connection to mains | N/A |
| 3.2.5 | Power supply cords are no longer than 4.5 m in length. | Not supplied with the unit | N/A |
| | Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. | | N/A |
| | Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |
| 3.2.9 | Permanently connected equipment have a suitable wiring compartment and wire bending space. | Suitable wiring space is provided for connection of earthing screw | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.3 | Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0. | 1U DC connection by certified field wiring terminal. Earthing screws comply with CSA C22.2 No. 0 | P |
| 3.3.3 | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm2). | No such screws | N/A |
| 3.3.4 | Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are | M5 earthing screw employed | P |
| | - rated 125 percent of the equipment rating, and | | P |
| | - are specially marked when specified (1.7.7). | | P |
| 3.3.5 | Revise first column of Table 3E to “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.” | Revised | P |
| 3.4.2 | Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A, | | N/A |
| | - or if the motor has a nominal voltage rating greater than 120 V | | N/A |
| | - or is rated more than 1/3 hp (locked rotor current over 43 A) | | N/A |
| 3.4.8 | Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position. | No vertically mounted disconnect switched | N/A |
| 3.4.11 | For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the computer room remote power-off circuit. | No battery system of this type | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment complies with NFPA 30. | No flammable liquids | N/A |
| 4.3.13.5 | Equipment with lasers meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable. | Lasers meet the Code of Federal Regulations 21 CFR 1040. | P |
| 4.7 | For computer room applications, automated information storage systems with combustible media greater than 0.76 $m^3$ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | Not this type of equipment | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.3.1 | For computer room applications, enclosures with combustible material measuring greater than 0.9 $m^2$ (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. | Not this type of equipment | N/A |
| | For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less. | | N/A |
| Annex H | Equipment that produces ionizing radiation comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable. | No ionizing radiation | N/A |
| | **Other National Differences** | | **P** |
| 1.5.1 | Some components and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. | Considered. See component list. | P |
| 1.6.1.2 | A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. | Maximum operated voltages of dc mains supply up to 72Vdc, classified as TNV-2. | P |
| | This maximum operating voltage includes consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment. | Includes | P |
| 2.3.1 | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions. | Not such internal circuits | N/A |
| 2.3.2.1 | In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts. | Not applied | N/A |
| 2.6.3.4 | Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified. | No such conductors | N/A |
| 4.2.8.1 | Enclosures around CRTs with a face diameter of 160 mm or more reduce the risk of injury due to the implosion of the CRT. | No such components | N/A |
| 4.3.2 | Equipment with handles complies with special loading tests. | No handles | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.1.8.3 | Equipment intended to receive telecommunication ringing signals comply with a special touch current measurement tests. | Not intended to receive ringing signals | N/A |
| 5.3.7 | Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are overloaded. | No such parts | N/A |
| | During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary | No such condition | N/A |
| 6.4 | Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC. | Not for connection to telecommunications network | N/A |
| Annex EE | Articulated accessibility probe (Fig EE.3) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger. | | N/A |
| M.2 | Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions. | Does not produce ringing signals | N/A |
| Annex NAD | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear comply with special acoustic pressure requirements. | Not for connection to telecommunications and cable distribution networks | N/A |

| National Differences/EU Special National Conditions/EU A-Deviations for **Switzerland (CH)** (EN 60950-1:2006/AC:2011) | | | P |
|---|---|---|---|
| 1.5.1 | Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7,<br>Mercury - Annex 1.7 of SR 814.81 applies for mercury.)<br>Add the following:<br>NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed. | | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.13 | Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries)<br>Annex 2.15 of SR 814.81 applies for batteries. | No hazardous materials | N/A |
| 3.2.1.1 | In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:<br>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A<br>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:<br>SEV 5932-2.1998 Plug Type 25 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998 Plug Type 21 L+N 250 V, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A | No cord supplied with the equipment | N/A |
| 3.2.4 | In Switzerland, for requirements see 3.2.1.1 of this annex. | | P |

| National Differences/EU A-Deviations for **Germany (DE)** | | | P |
|---|---|---|---|
| 1.7.2.1 | According to GPSG, section 2, clause 4:<br>If certain rules on the use, supplementation or maintenance of an item of technical work equipment or ready-to-use commodity must be observed in order to guarantee safety and health, instructions for use in German must be supplied when it is brought into circulation. | Instructions in German will be provided when distributed to Germany | P |

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

| | | | |
|---|---|---|---|
| National Differences for **Korea (KR)** | | | P |
| 1.5.101 | Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305) | Power supply cord not shipped with the product | N/A |
| 8 | EMC, The apparatus shall comply with the relevant CISPR standards | Compliance with relevant CISPR standards will be demonstrated when distributed to Korea | P |

| | | | |
|---|---|---|---|
| National Differences: **Israel (IL)** | | | P |
| 1.6 | Power interfaces | | P |
| 1.6.1 | AC power distribution system | | P |
| 1.7 | Marking and instruction:<br>Subclause 1.7.201 shall be added | | P |
| 1.7.201 | Marking in Hebrew language | Will be provided when shipped to Israel | P |
| 1.7.2 | Safety instruction and marking | | P |
| 1.7.2.1 | The following shall be added to the clause:<br>All the instructions and warning related to safety shall also be written in the Hebrew language | Will be provided when shipped to Israel | P |
| 2 | Protection from hazards<br>The clause is applicable with the following additions | | P |
| 2.9.4 | Seven means of protection against electrocution are permitted as follows :<br>1) TN-S, TN-C-S<br>2) TT<br>3) IT<br>4) Isolated transformer<br>5) Safety extra low voltage<br>6) Residual current breaker (30mA=IΔ)<br>7) Reinforced insulation; Double insulation | TN-S<br>Double/ Reinforce insulation part of certified power supplies | P |
| 2.201 | The apparatus shall meet the requirements in the appropriate parts of the Standard series SI 961 | Compliance with SI 961 standard will be demonstrated when distributed to Israel | P |
| 3 | Wiring connection and supply | | P |
| 3.2 | Connection to a mains supply | | P |
| 3.2.1 | Means of connection | | P |
| 3.2.1.1 | Connection to an a.c. mains supply<br>In Israel, the feed plug shall comply, with the requirements of Isrek Standard SI 32 Part 1.1 | | N/A |
| 3.2.1.2 | Connection to a d.c. mains<br>At the time of issue this Standard, there is no Israel Standard for connection accessories to d.c. | | N/A |

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

| | | | |
|---|---|---|---|
| National Differences for Australia (AU) and New Zealand – IEC 60950-1: ED. 2.0 (2005) | | | P |
| 1.2 | Between the definitions for 'Person, service' and 'Range, rated frequency' insert the following: l ignition source 1.2.12.201 | Inserted | P |
| 1.2.12.201 | After the definition of 1.2.12.15, add the following: 1.2.12.201 potential ignition source: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards. NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202 This definition is from AS/NZS 60065:2003. | Added | P |
| 1.5.1 | Add the following to the end of first paragraph: 'or the relevant Australian/New Zealand Standard'. | Added | P |
| 1.5.2 | Add the following to the end of first and third dash items: 'or the relevant Australian/New Zealand Standard'. | Added | P |
| 3.2.5.1 | Modify Table 3B as follows: Delete the first four rows and replace with | | N/A |

| Rated Current of the Equipment A | Minimum Conductor Sizes | |
|---|---|---|
| | Nominal cross-sectional area $mm^2$ | AWG or kcmil [cross-sectional area in mm2] see note 2 |
| Over 0.2 up to and including 3 | 0,5 [1)] | 18 [0,8] |
| Over 3 up to and including 7.5 | 0,75 | 16 [1,3] |
| Over 7.5 up to and including 10 | (0,75)[2)] 1,00 | 16 [1,3] |
| Over 10 up to and including 16 | (1,0 )[3)] 1,5 | 14 [2] |

Replace footnote 1) with the following: 1) This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm2 three-core supply flexible cords are not permitted; see AS/NZS 3191).

Delete Note 1

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.1.201 | Insert a new Clause 4.1.201 after Clause 4.10 as followings: 4.1.201 Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065. | Inserted | N/A |
| 4.3.6 | Delete the third paragraph and replace with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flatpin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | Deleted | N/A |
| 4.3.13.5 | Add the following to the end of the first paragraph: ‘, or AS/NZS 2211.1’.“. | Added | P |
| 4.7 | Add the following paragraph: For alternative tests refer to Clause 4.7.201. | Added | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.7.201 | Add the following after Clause 4.7.3.6. 4.7.201 Resistance to fire – Alternative tests 4.7.201.1 General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following: Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. The following parts which would contribute negligible fuel to a fire: small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; small electrical components, such as capacitors with a volume not exceeding 1 750 mm3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10.<br>NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another. Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.<br>4.7.201.2 Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.<br>4.7.201.3 Testing of insulating materials Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. | Added<br>No alternative tests applied | N/A |

| National Differences | | | | |
|---|---|---|---|---|
| Clause | Requirement + Test | | Result - Remark | Verdict |
| | The test shall be also carried out on other parts of insulating material which are within a distance of 3mm of the connection. NOTE Contacts in components such as switch contacts are considered to be connections. For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications: | | No alternative tests applied | N/A |
| | Clause of AS/NZS 60695.11.5 | Change | | N/A |
| | 9 Test procedure | | | N/A |
| | 9.2 Application of needleflame | Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s ±1 s. | Replaced | N/A |
| | 9.3 Number of test specimens | Replace with:<br>The test shall be made on one specimen. If the specimen does not<br>withstand the test, the test may be repeated on two further specimens, both<br>of which shall withstand the test. | Replaced | N/A |
| | 11 Evaluation of test results | Replace with:<br>The duration of burning (tb) shall not exceed 30 s. However, for printed circuit<br>boards, it shall not exceed 15 s. | Replaced | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part. 4.7.201.4 Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. 4.7.201.5 Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE. The test is not carried out if the — Printed board does not carry any POTENTIAL IGNITION SOURCE; Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or | | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.2.2 | For Australia only, delete the first paragraph and Note, and replace with the following:<br>In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2. | No connection to telecommunication networks | N/A |
| 6.2.2.1 | For Australia only, delete the first paragraph including the Notes, and replace with the following:<br>In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U , is:<br>(i) for 6.2.1 a):7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and<br>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV. NOTE 201 – The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages. | No connection to telecommunication networks | N/A |
| 6.2.2.2 | For Australia only, delete the second paragraph including the Note, and replace with the following:<br>In Australia only, the a.c. test voltage is:<br>(i) for 6.2.1 a): 3 kV; and<br>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.<br>NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.<br>NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system. | No connection to telecommunication networks | N/A |
| 7.3 | Add the following before the first paragraph:<br>Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or<br>video ports and analogue or data ports not intended to be used for telecommunications purposes. | No such equipment | N/A |
| Annex P | Add the following Normative References:<br>AS/NZS 3191, Electric flexible cords<br>AS/NZS 3112, Approval and test specification—Plugs and socket-outlets | | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Index | 1. Insert the following between 'asbestos, not to be used as insulation' and 'attitude see orientation':<br>AS/NZS 2211.1……4.3.13.5<br>AS/NZS3112……..4.3.6<br>AS/NZS3191…..... 3.2.5.1 (Table 3B)<br>AS/NZS60064..... 4.1.201<br>AS/NZS60695.2.11..... 4.7.201.2, 4.7.201.3<br>AS/NZS60695.11.10…..... 4.7.201.1, 4.7.201.5<br>AS/NZS60695.11.5.....4.7.201.3<br>2. Insert the following between 'positive temperature coefficient (PTC) device' and 'powder': potential ignition source 1.2.201, 4.7.201.3, 4.7.201.5 | Inserted | P |

| National Differences **China (CN)**<br>GB4943.1-2011Information technology equipment – Safety – Part 1: General requirements<br>Applicable for 60950-1:2005 oldest version | | | P |
|---|---|---|---|
| 1.1.2 | GB 4943.1-2011 applies to equipment for use at altitudes not exceeding 5000m above sea level, primarily in regions with moderate or tropical climates.<br>Amend the third dashed paragraph of 1.1.2 as:<br>——equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m; | For altitudes up to 2000m | N/A |
| 1.4.5 | After the third paragraph, add a paragraph:<br>If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. The first dash paragraph "-the RATED VOLTAGE is 230V single -phase or 400V three-phase, in which case the tolerance shall be taken as +10% and -10%" of IEC 60950-1:2005 is deleted in GB 4943.1-2011 | Tested at -/+10% | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.4.12.1 | Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater.<br><br>Add note 1: For equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater.<br>Add note 2: For equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration. | Not for tropic climate conditions<br><br>Added | N/A |
| 1.5. 2 | Add a note behind the first break off section in Clause 1.5.2: A component used shall comply with related requirements corresponding altitude of 5000m. | Added | N/A |
| 1.7 | Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified. | Instructions will be given in normative Chinese | P |
| 1.7.1 | Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured.<br><br>And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz. | Covered by EUT rating | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.2.1 | Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions:<br>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.<br>"Only used at altitude not exceeding 2000m."<br>  <br>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.<br>"Only used in not-tropical climate regions."<br>  <br>If only the symbol used, the explanation of the symbol shall be contained in the instruction manual. The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used. | Tested for Max operation up to 2000m, for non-tropical climate<br><br>Markings will be provided when the product is shipped to China | P |
| 2.7.1 | Amended the first paragraph as:<br>Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3.<br><br>Delete note of Clause 2.7.1. | Part of certified power supplies | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.9.2 | First section of Clause 2.9.2 amended as two sections:<br>Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature 40±2℃ and a relative humidity of (93±3)%. During this conditioning the component or subassembly is not energized.<br>For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of (93±3) %. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur.<br>Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered.<br><br>Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered. | Humidity conditioning was conducted for 48 Hours at temp. $22^0$C with relative humidity 93%<br><br>See also appended table 5.2 IEC60950-1 | P |
| 2.10.3.1 | Amend the third paragraph of Clause 2.10.3.1 to be:<br>These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. | Up to 2000m | N/A |
| 2.10.3.3& 2.10.3.4 | Add "(applicable for altitude up to 2000m)" in header of Table 2K、2L and 2M. | Added | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10.3.4 | Add a new section above Table 2K and in Clause 2.10.3.4:<br>Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1 ( IEC 60664-1 ) . For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1. | Designed to operate up to 2000m altituded | P |
| 3.2.1.1 | Add a paragraph before the last paragraph:<br><br>Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable. | Not shipped with the product | N/A |
| 4.2.8 | Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011.<br><br>Delete note of Clause 4.2.8. | No CRT‘s | N/A |
| Annex E | Last section of Annex E amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B. | Resistance method not applied | N/A |
| Annex G.6 | Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. | Designed to operate up to 2000m altituded | N/A |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Annex BB (informative) | Amended as :<br>The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001. | | P |
| Annex DD (normative) | Added annex DD: Instructions for the new safety warning labels.<br><br>DD.1 Altitude warning label<br>  <br><br>Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m .<br><br>DD.2 Climate warning label<br>  <br>Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region. | Will be provided on EUT label when shipped to China | P |
| Annex EE (informative) | Added annex EE:<br>Illustration relative to safety explanation in normative Chinese、Tibetan、Mongolian、Zhuang Language and Uighu. | | P |
| Other amendments | In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U. | | P |

| National Differences | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Quoting standards and reference documents | The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:<br>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.<br>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:<br>- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;<br>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted;<br>- If the date of the national standard or industry standard is not given, the latest edition of the standard applies;<br>- The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard.<br>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:<br>- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;<br>- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted.<br>Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005 and GB 4943.1-2011. | | P |

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

# Appendix 3 – Model names

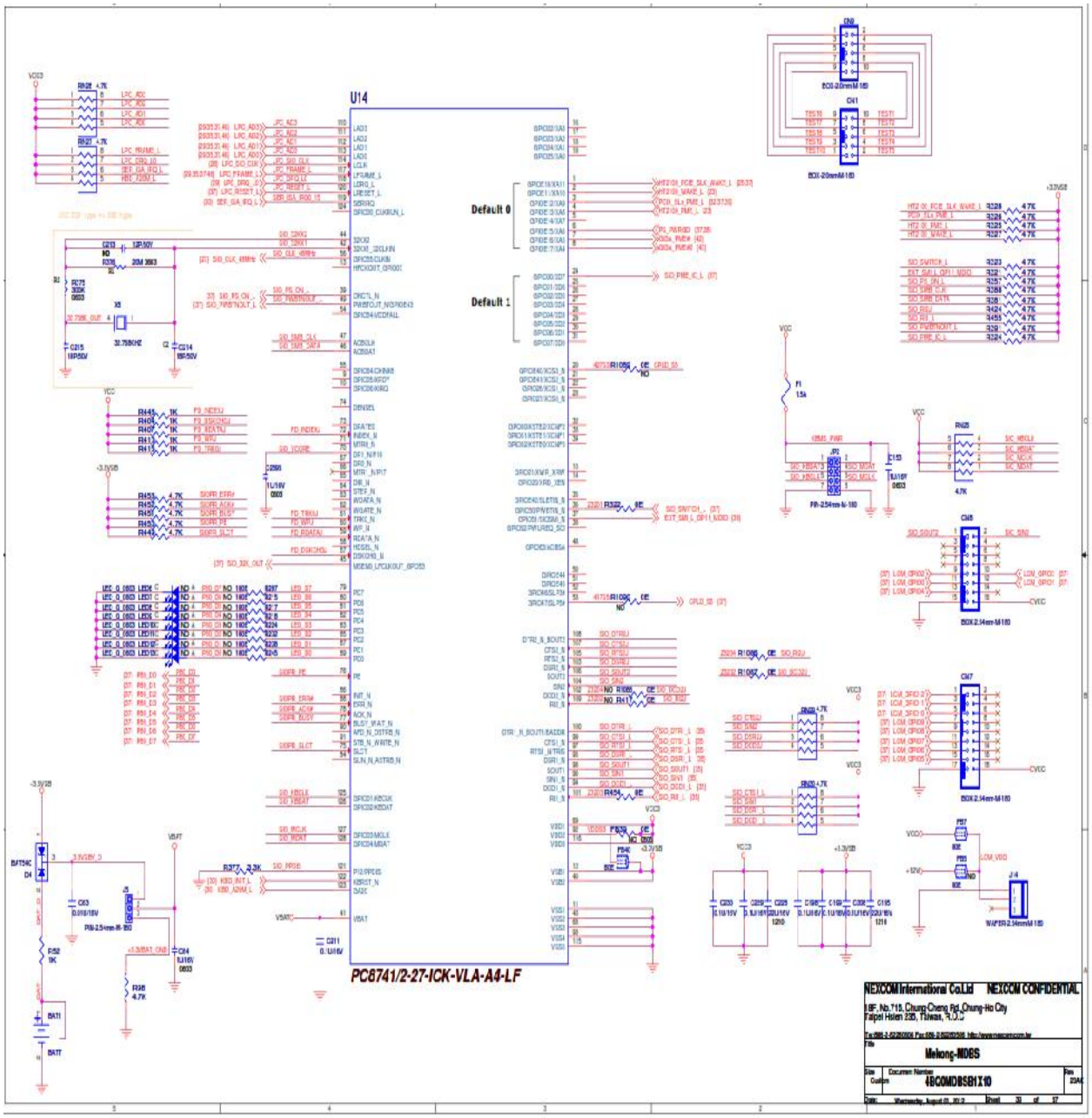
| AC version 1U units | DC version 1U units |
|---|---|
| RODS2-DEF-ND | RODS2-DCPS-ND |
| RODS2XL-DEF-ND | RODS2XL-DCPS-ND |
| RODS2-ALTEON | RODS2-ALTDC |
| RODS2XL-ALTEON | RODS2XL-ALTDC |
| ODS2-ND | ODS2-ND DC |
| ODS2 | ODS2 DC |
| AppDirector | AppDirector DC |
| AppDirector XL | AppDirector XL DC |
| LinkProof | LinkProof DC |
| AppWall | AppWall DC |
| AppXcel | AppXcel DC |
| AppXML | AppXML DC |
| SIP Director | SIP Director DC |
| Alteon 4416 | Alteon 4416 DC |
| Alteon 4416 XL | Alteon 4416 XL DC |
| InFlight | InFlight DC |
| Virtual Director | Virtual Director DC |
| DefensePro | DefensePro DC |
| Content Inspection Director (CID) | Content Inspection Director (CID) DC |
| ODS2 –XL | ODS2 –XL DC |
| OnDemand Switch 2 | OnDemand Switch 2 DC |
| OnDemand Switch 2 XL | OnDemand Switch 2 XL DC |
| ODS2-S1 | ODS2-S1 DC |
| ODS2 XL ND | ODS2 XL ND DC |

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

| AC version 2U units | DC version 2U units |
|---|---|
| RODS2-DUAL-ND | RODS2-DUDC-ND |
| RODS2XL-DUAL-ND | RODS2XL-DUDC-ND |
| RODS2-DUAL-MMB | RODS2-DUDC-MMB |
| RODS2-ALTDUAL | RODS2-ALT2DC |
| RODS2XL-ALTDUAL | RODS2XL-ALT2DC |
| ODS2-ND DUAL | ODS2-ND DUAL DC |
| AppDirector DUAL | AppDirector DUAL DC |
| ODS2 DUAL | ODS2 DUAL DC |
| AppDirector XL DUAL | AppDirector XL DUAL DC |
| LinkProof DUAL | LinkProof DUAL DC |
| AppWall DUAL | AppWall DUAL DC |
| AppXcel DUAL | AppXcel DUAL DC |
| AppXML DUAL | AppXML DUAL DC |
| SIP Director DUAL | SIP Director DUAL DC |
| Alteon 4416 DUAL | Alteon 4416 DUAL DC |
| Alteon 4416 XL DUAL | Alteon 4416 XL DUAL DC |
| InFlight DUAL | InFlight DUAL DC |
| Virtual Director DUAL | Virtual Director DUAL DC |
| DefensePro DUAL | DefensePro DUAL DC |
| Content Inspection Director (CID) DUAL | Content Inspection Director (CID) DUAL DC |
| ODS2 –XL DUAL AC | ODS2 –XL DUAL DC |
| OnDemand Switch 2 DUAL AC | OnDemand Switch 2 DUAL DC |
| OnDemand Switch 2 XL DUAL AC | OnDemand Switch 2 XL DUAL DC |
| ODS2-S2 | ODS2-S2 DC |
| ODS2 XL ND Dual AC | ODS2 XL ND Dual DC |

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

## Appendix 4 – Battery circuit protection



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

**Appendix 5 – licences**

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

IEC IECEE CB SCHEME

Ref. Certif. No.
JPTUV-027530

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

## CB TEST CERTIFICATE
## *CERTIFICAT D'ESSAI OC*

| | |
|---|---|
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.,<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | Zippy Technology Corp.<br>2F, No. 123, Lane 235<br>Pao-Chiao Rd., Shin Tien City, Taipei Hsien 231 Taiwan |
| Rating and principal characteristics<br>Valeurs nominales et caractéristiques principales | Input : AC 100-240V; 60-50Hz; 8-5A; Class I<br>Output: refer to the test report |
| Trade mark (if any)<br>Marque de fabrique (si elle existe) | Trademark of EMACS |
| Model/type Ref.<br>Ref. de type | P1H-6xxxP, P2H-6xxxP (xxx=400, 350)<br>P1H-6357P |
| Additional information (if necessary)<br>Information complémentaire (si nécessaire) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat | 11017063 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

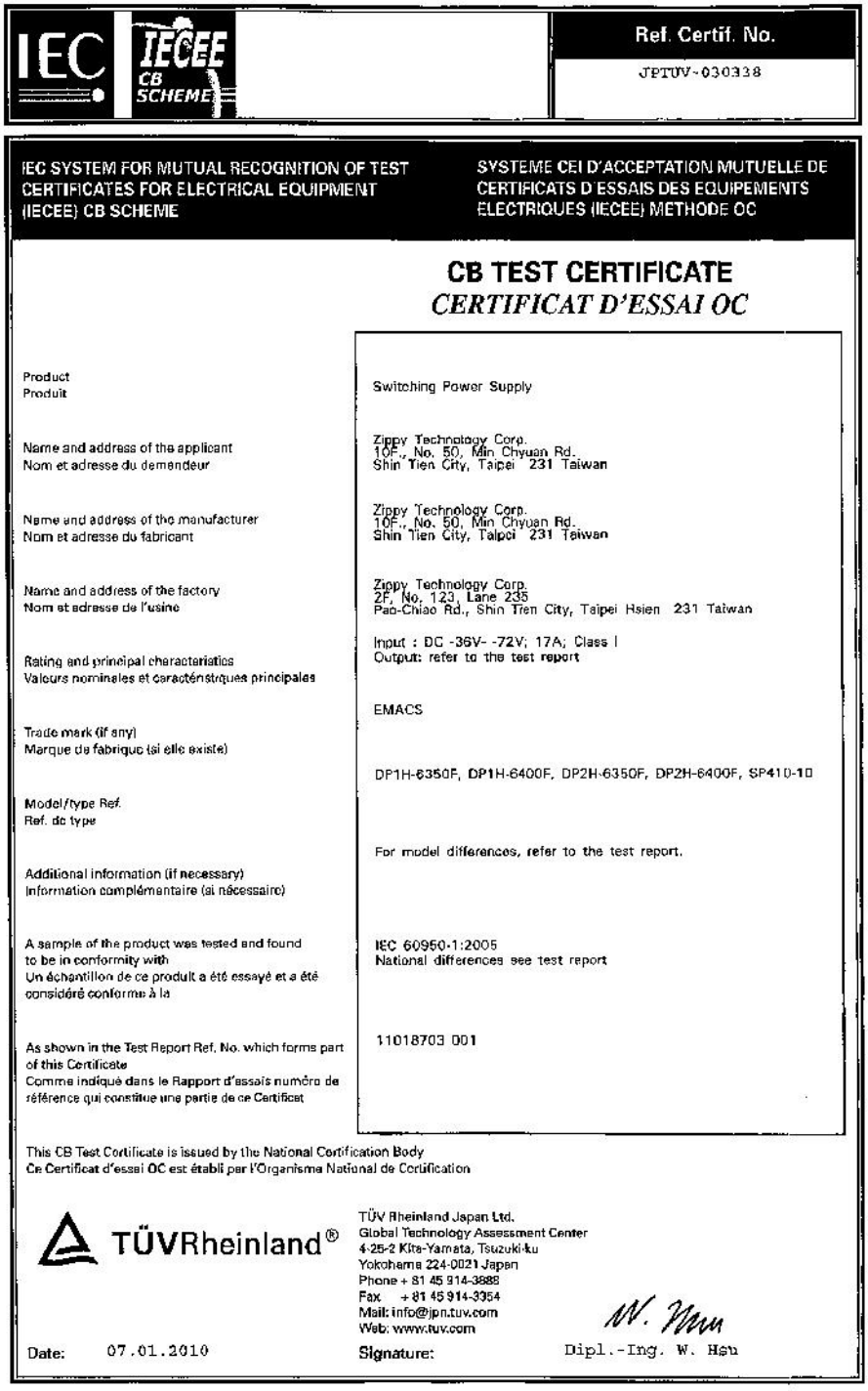
TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 24.06.2009

Signature: Dipl.-Ing. W. Hsu

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



IEC IECEE CB SCHEME

Ref. Certif. No.
JPTUV-030338

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

## CB TEST CERTIFICATE
## *CERTIFICAT D'ESSAI OC*

| | |
|---|---|
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.,<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.,<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | Zippy Technology Corp.<br>2F, No. 123, Lane 235<br>Pao-Chiao Rd., Shin Tien City, Taipei Hsien 231 Taiwan |
| Rating and principal characteristics<br>Valeurs nominales et caractéristiques principales | Input : DC -36V- -72V; 17A; Class I<br>Output: refer to the test report |
| Trade mark (if any)<br>Marque de fabrique (si elle existe) | EMACS |
| Model/type Ref.<br>Ref. de type | DP1H-6350F, DP1H-6400F, DP2H-6350F, DP2H-6400F, SP410-10 |
| Additional information (if necessary)<br>Information complémentaire (si nécessaire) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat | 11018703 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3954
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 07.01.2010

Signature: W. Hsu

Dipl.-Ing. W. Hsu

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

IEC IECEE CB SCHEME

Ref. Certif. No.
JPTUV-027465

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

## CB TEST CERTIFICATE
## *CERTIFICAT D'ESSAI OC*

| | |
|---|---|
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | Zippy Technology Corp.<br>2F, No. 123, Lane 235<br>Pao-Chiao Rd., Shin Tien City, Taipei Hsien 231 Taiwan |
| Rating and principal characteristics<br>Valeurs nominales et caractéristiques principales | Input: AC 100-240V; 8-4A; 47-63Hz; Class I<br>Output: refer to the test report |
| Trade mark (if any)<br>Marque de fabrique (si elle existe) | EMACS |
| Model/type Ref.<br>Ref. de type | MRW-6xP, MRW-6xP-R (x = 350, 400, 420)<br>MRP-6420P, MRP-6420P-R |
| Additional information (if necessary)<br>Information complémentaire (si nécessaire) | For model differences, refe to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat | 11016617 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

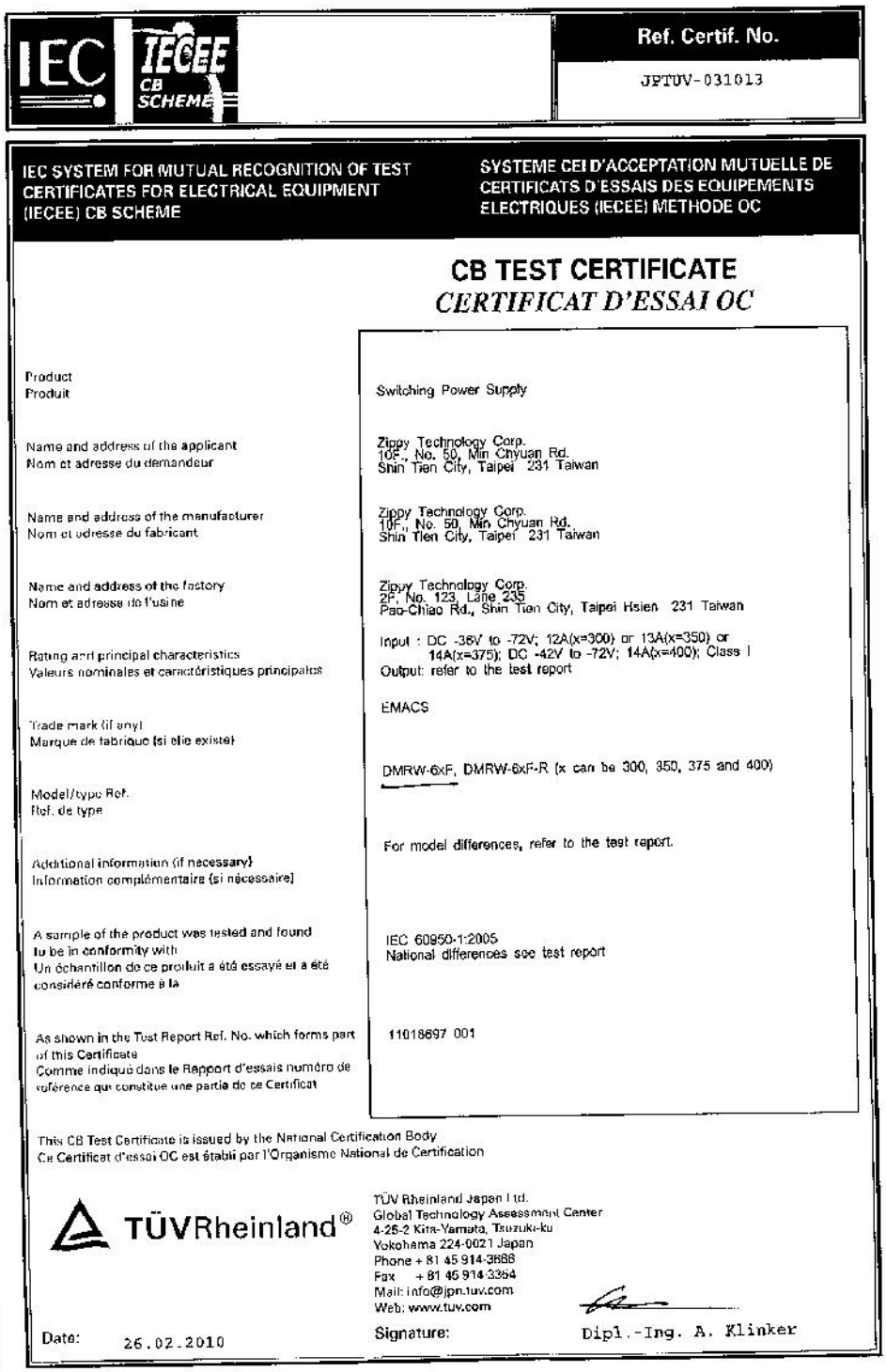
TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 19.06.2009

Signature: Dipl.-Ing.

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



IEC IECEE CB SCHEME

Ref. Certif. No.
JPTUV-031013

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

**CB TEST CERTIFICATE**
***CERTIFICAT D'ESSAI OC***

| | |
|---|---|
| Product<br>Produit | Switching Power Supply |
| Name and address of the applicant<br>Nom et adresse du demandeur | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the manufacturer<br>Nom et adresse du fabricant | Zippy Technology Corp.<br>10F., No. 50, Min Chyuan Rd.<br>Shin Tien City, Taipei 231 Taiwan |
| Name and address of the factory<br>Nom et adresse de l'usine | Zippy Technology Corp.<br>2F, No. 123, Lane 235<br>Pao-Chiao Rd., Shin Tien City, Taipei Hsien 231 Taiwan |
| Rating and principal characteristics<br>Valeurs nominales et caractéristiques principales | Input : DC -36V to -72V; 12A(x=300) or 13A(x=350) or 14A(x=375); DC -42V to -72V; 14A(x=400); Class I<br>Output: refer to the test report |
| Trade mark (if any)<br>Marque de fabrique (si elle existe) | EMACS |
| Model/type Ref.<br>Réf. de type | DMRW-6xF, DMRW-6xF-R (x can be 300, 350, 375 and 400) |
| Additional information (if necessary)<br>Information complémentaire (si nécessaire) | For model differences, refer to the test report. |
| A sample of the product was tested and found to be in conformity with<br>Un échantillon de ce produit a été essayé et a été considéré conforme à la | IEC 60950-1:2005<br>National differences see test report |
| As shown in the Test Report Ref. No. which forms part of this Certificate<br>Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat | 11018697 001 |

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3688
Fax + 81 45 914-3354
Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 26.02.2010

Signature: Dipl.-Ing. A. Klinker

**End of test report**