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

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

| | |
|---|---|
| **Report Number .....:** | SHES200400677101-M1 |
| **Date of issue .....:** | 2020-05-09; Amendment 1: 2022-12-14 |
| **Total number of pages.....:** | 30 pages |
| **Name of Testing Laboratory preparing the Report.....:** | SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. |
| **Applicant's name.....:** | Hangzhou Hikvision Digital Technology Co., Ltd. |
| **Address .....:** | No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China |
| **Test specification:** | |
| **Standard.....:** | IEC 62368-1:2014 |
| **Test procedure .....:** | CB Scheme |
| **Non-standard test method .....:** | N/A |
| **TRF template used .....:** | IECEE OD-2020-F1:2021, Ed.1.4 |
| **Test Report Form No.....:** | IEC62368_1D |
| **Test Report Form(s) Originator ..:** | UL(US) |
| **Master TRF.....:** | Dated 2022-04-14 |



**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.**

**General disclaimer:**

The test results presented in this report relate only to the object tested.
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| | | | |
|---|---|---|---|
| **Test Item description ..... :** | | Access Controller | |
| **Trade Mark(s) ..... :** | | HIKVISION | |
| **Manufacturer..... :** | | Same as applicant | |
| **Model/Type reference ..... :** | | See page 8 | |
| **Ratings ..... :** | | 100-240 V a.c.; 50-60 Hz; 2 A; Class I | |
| | | | |
| **Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):** | | | |
| ☒ | **CB Testing Laboratory:** | SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. | |
| **Testing location/ address .....:** | | 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China. | |
| **Tested by (name, function, signature) .....:** | | Leo Wang<br>Project Engineer | |
| **Approved by (name, function, signature) .....:** | | Emilien Li<br>Reviewer | |
| | | | |
| ☐ | **Testing procedure: CTF Stage 1:** | | |
| **Testing location/ address ..... :** | | | |
| **Tested by (name, function, signature) .....:** | | | |
| **Approved by (name, function, signature) .....:** | | | |
| | | | |
| ☐ | **Testing procedure: CTF Stage 2:** | | |
| **Testing location/ address .....:** | | | |
| **Tested by (name, function, signature) .....:** | | | |
| **Witnessed by (name, function, signature).....:** | | | |
| **Approved by (name, function, signature) .....:** | | | |
| | | | |
| ☐ | **Testing procedure: CTF Stage 3 :** | | |
| ☐ | **Testing procedure: CTF Stage 4:** | | |
| **Testing location/ address .....:** | | | |
| **Tested by (name, function, signature) .....:** | | | |
| **Witnessed by (name, function, signature).....:** | | | |
| **Approved by (name, function, signature) .....:** | | | |
| **Supervised by (name, function, signature) .....:** | | | |

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

Attachment 1 – 6 pages of Photos documents;

**Summary of testing:**

The sample(s) tested complies with the requirements of IEC 62368-1: 2014 (Second Edition) and EN 62368-1:2014+A11:2017.

Unless otherwise specified, the EUT with model DS-K2804 was selected as representative model for full testing.

Heating test:

Tma = 65°C (declared by manufacturer)

K-type thermocouple used for temperature measurement.

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| ☒ 4. General requirements<br>☒ 5. Electrically-caused injury<br>☒ 6. Electrically-caused fire<br>☒ 7. Injury caused by hazardous substances<br>☒ 8. Mechanically-caused injury<br>☒ 9. Thermal burn injury<br>☒10. Radiation<br>☒ Annex B. Normal operating condition tests, abnormal operating condition tests and single fault condition tests<br>☒ Annex F.3.9. Performance of Marking test<br>☒ Annex M Equipment containing batteries and their protection circuits<br>☒ Annex Q. Limited Power Source<br>☒ Annex T. Mechanical strength tests<br>☒ Annex V. Determination of accessible parts | SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.<br>588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China |

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

1. EU Group Differences (EN 62368-1:2014+A11:2017)
2. EU Special National Conditions, EU A-deviations: DE, DK, FI, GB, IE, NO, SE

Explanation of used codes: DE=Germany, DK=Denmark, FI=Finland, GB= United Kingdom, IE=Ireland, NO=Norway, SE=Sweden

☒ **The product fulfils the above requirements**.

The product fulfils the above requirements. which have been considered in original CB test report Ref. SHES200400677101, dated on 2020-05-09 and this report.

**Use of uncertainty of measurement for decisions on conformity (decision rule) :**

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty (“simple acceptance” decision rule, previously known as “accuracy method”).

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

**Information on uncertainty of measurement:**

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

**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 National Certification Body that own these marks.

**Marking** for DS-K2804

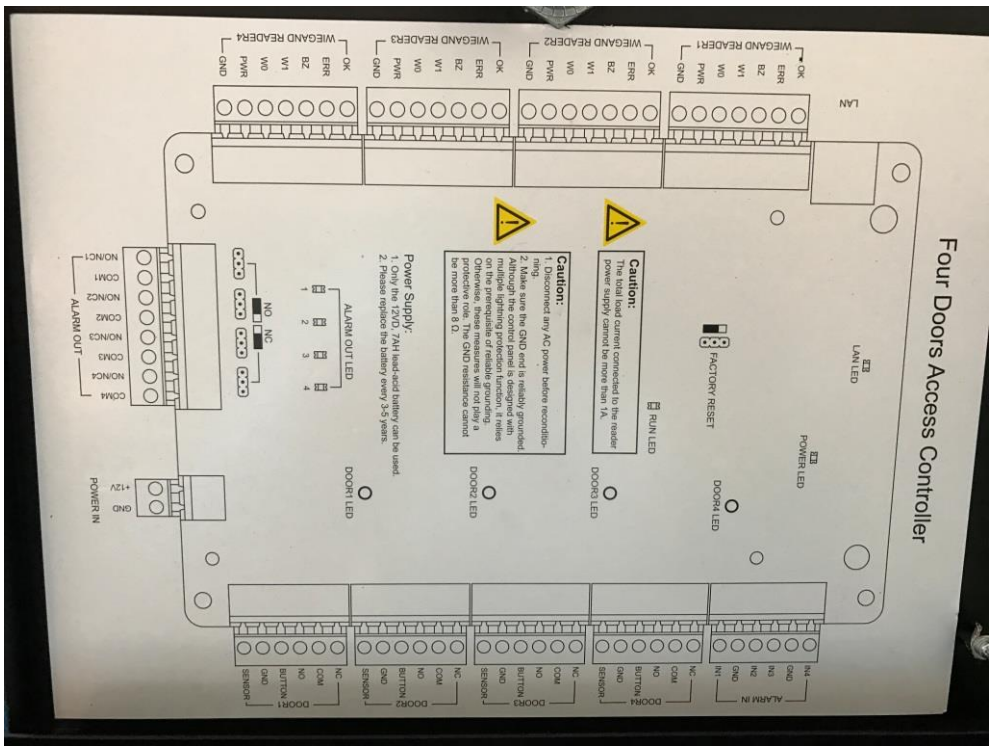

Remark:

1) The Height of CE logo shall not be less than 5 mm; Height of WEEE logo shall not be less than 7 mm.

2) The marking plates for other models are of the same pattern except for model name.

3) As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

**Caution**



| **TEST ITEM PARTICULARS:** | |
|---|---|
| Classification of use by ..... : | ☒ Ordinary person<br>☒ Instructed person<br>☒ Skilled person<br>☐ Children likely to be present |
| Supply Connection ..... : | ☒ AC Mains ☐ DC Mains<br>☐ External Circuit - not Mains connected<br>- ☐ ES1 ☐ ES2 ☐ ES3 |
| Supply % Tolerance ..... : | ☒ +10%/-10%<br>☐ +20%/-15%<br>☐ +____%/ -_____%<br>☐ None |
| Supply Connection – Type ..... : | ☒ pluggable equipment type A -<br>☐ non-detachable supply cord<br>☒ appliance coupler<br>☐ direct plug-in<br>☐ mating connector<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector ☐ other: Not directly connected to mains |
| Considered current rating of protective device as part of building or equipment installation ..... : | ___16A___ ;<br>Installation location: ☒ building; ☐ equipment |
| Equipment mobility ..... : | ☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☒ wall-mounted |
| Over voltage category (OVC) ..... : | ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: Not directly connected to mains |
| Class of equipment ..... : | ☒ Class I ☐ Class II ☐ Class III |
| Access location ..... : | ☐ restricted access location ☒ N/A |
| Pollution degree (PD) ..... : | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| Manufacturer's specified maxium operating ambient : | 65°C |
| IP protection class ..... : | ☒ IPX0 ☐ IP___ |
| Power Systems ..... : | ☒ TN ☒ TT ☐ IT - ____ $V_{L-L}$ |
| Altitude during operation (m) ..... : | ☒ 2000 m or less ☐ _____ m |
| Altitude of test laboratory (m) ..... : | ☒ 2000 m or less ☐ 100 m |
| Mass of equipment (kg) ..... : | ☒ 2,2 kg |
| | |
| **POSSIBLE TEST CASE VERDICTS:** | |
| - test case does not apply to the test object..... : | N/A |

| | |
|---|---|
| - test object does meet the requirement ..... : | P (Pass) |
| - test object does not meet the requirement ..... : | F (Fail) |
| **TESTING:** | |
| Date of receipt of test item..... : | 2022-11-28 |
| Date (s) of performance of tests..... : | 2022-11-28 to 2022-12-02 |
| | |

**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 is used as the decimal separator.



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

| | |
|---|---|
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... : | ☒ **Yes**<br>☐ **Not applicable**<br><br>Factory declaration letter.pdf, dated 2022-12-14. |

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

| | |
|---|---|
| **Name and address of factory (ies) ..... :** | 1. Hangzhou Hikvision Technology Co., Ltd.<br>No.700, Dongliu Road, Binjiang District, Hangzhou Ctiy, Zhejiang, 310052, China<br>2. Hangzhou Hikvision Electronics Co., Ltd.<br>No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 311500, China<br>3. Chongqing Hikvision technology Co., Ltd.<br>No. 118, Haikang Road, Area C, Jianqiao Industrial Park, Dadukou District, Chongqing, 401325, China |

**GENERAL PRODUCT INFORMATION:**

**Product Description –**

| | |
|---|---|
| Functions | The EUT are serials Class I Access Controller, which is powered by building-in power supply through detachable power cord set. |

| | |
|---|---|
| Material of enclosure | Metal |
| Model difference | All models are identical except for model No. and enclosure silk which have no impact on safety. |
| Other features | Indoor use only |

Model Name:

| | | | |
|---|---|---|---|
| DS-K2804 | DS-K2801 | DS-K2802 | DS-K2601S |
| DS-K2601E | DS-K2602E | DS-K2604E | DS-K28UVWXYZ-ABC |
| DS-K26UVWXYZ-ABC | DS-K2801UHK | DS-K2801CKV | DS-K2801UVS |
| DS-K2801KVO | DS-K2801HUN | DS-K2802UHK | DS-K2802CKV |
| DS-K2802UVS | DS-K2802KVO | DS-K2802HUN | DS-K2804UHK |
| DS-K2804CKV | DS-K2804UVS | DS-K2804KVO | DS-K2804HUN |

**Amendment 1 Report:**

The original Test Report Ref. No. SHES200400677101, dated on 2020-05-09 was modified to include following changes and/or additions:

- Add alternative building-in power supply, more details please see attachment 1.

After comparison, the EUT with model DS-K2804 was selected as representative model for Clause B.2.5, 5.4.1.4&9.2.6, 5.2, 5.4.9, 5.7.2, B.3.

This test report is not valid without the original CB Test Report Ref. SHES200400677101, dated on 2020-05-09.

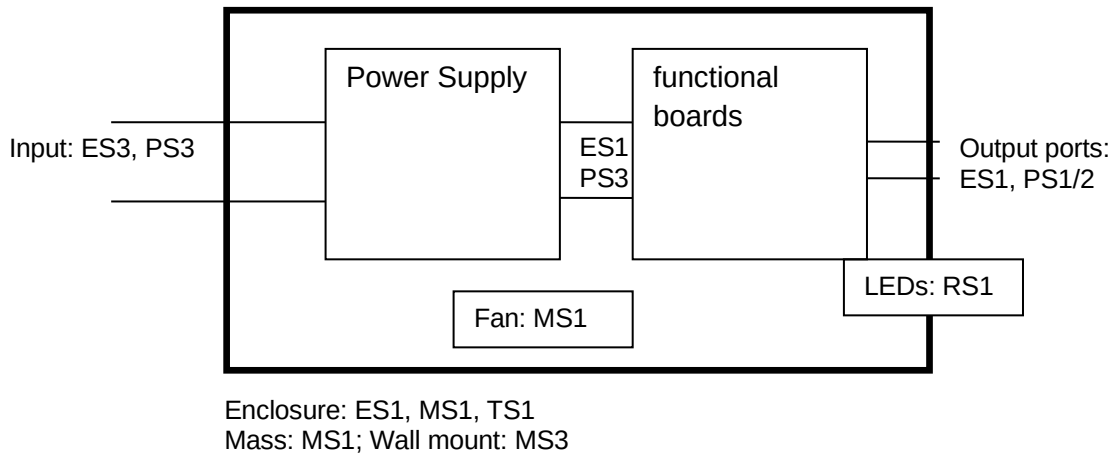
**Additional application considerations – (Considerations used to test a component or sub-assembly) –**

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)** |
| Internal Power Supply primary circuits | ES3 |
| other internal circuits | ES1 |
| Enclosure | ES1 |
| **Electrically-caused fire (Clause 6):**<br>(Note: List sub-assembly or circuit designation and corresponding energy source classification)<br>Example: Battery pack (maximum 85 watts): PS2 | |
| **Source of power or PIS** | **Corresponding classification (PS)** |
| Power input | PS3 |
| All internal circuits | PS3 |
| Signal ports | PS1/2 |
| **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** |
| Battery | Lithium-ion |
| **Mechanically-caused injury (Clause 8)**<br>(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)<br>Example: Wall mount unit MS2 | |
| **Source of kinetic/mechanical energy** | **Corresponding classification (MS)** |
| Sharp edges and corners | MS1 |
| Equipment mass | MS1 |
| Wall mount | MS3 |
| Fan | MS1 |
| **Thermal burn injury (Clause 9)**<br>(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)<br>Example: Hand-held scanner – thermoplastic enclosure TS1 | |
| **Source of thermal energy** | **Corresponding classification (TS)** |
| Accessible parts | TS1 |
| **Radiation (Clause 10)**<br>(Note: List the types of radiation present in the product and the corresponding energy source classification.)<br>Example: DVD – Class 1 Laser Product RS1 | |
| **Type of radiation** | **Corresponding classification (RS)** |
| LEDs | RS1 |

**ENERGY SOURCE DIAGRAM**

Indicate which energy sources are included in the energy source diagram. Insert diagram below




■ **ES** ■ **PS** ■ **MS** ■ **TS** ■ **RS**

| **OVERVIEW OF EMPLOYED SAFEGUARDS** | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (ES3: Primary Filter circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Ordinary person (metal enclosure) | ES3: Power Supply primary circuits | Basic Insulation | Protective Earthing | - |
| Ordinary person (secondary accessible ports) | ES3: Power Supply primary circuits | Basic Insulation | Supplementary Insulation | - |
| 6.1 | Electrically-caused fire | | | |
| Material part (e.g. mouse enclosure) | Energy Source (PS2: 100 Watt circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Internal combustible materials | PS3: Internal circuits | 1. No ignition occurred.<br>2. No parts exceeding 90% of its spontaneous ignition temperature.<br>3. combustible material outside fire enclosure is of min HB | 1. PCB is of min V-1 material<br>2. All other components were mounted on min V-1 PCB or of min V-2 or small parts of combustible material less than 4g.<br>3. Fire enclosure provided | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Lithium battery | Lithium coin battery | N/A | N/A | Comply with Annex M |
| 8.1 | Mechanically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (MS3:High Pressure Lamp) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary person | MS1: Sharp edges and corners | N/A | N/A | N/A |
| Ordinary person | MS1: Equipment mass | N/A | N/A | N/A |
| Ordinary person | MS3: Wall mount | N/A | N/A | N/A |
| Ordinary person | MS1: Fan | N/A | N/A | N/A |

| 9.1 | Thermal Burn | | | |
|---|---|---|---|---|
| Body Part (e.g., Ordinary) | Energy Source (TS2) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Ordinary person | TS1: Accessible parts | N/A | N/A | N/A |
| 10.1 | Radiation | | | |
| Body Part (e.g., Ordinary) | Energy Source (Output from audio port) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Ordinary person | RS1: LEDs | N/A | N/A | N/A |
| Supplementary Information:<br>(1) See attached energy source diagram for additional details.<br>(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **4** | **GENERAL REQUIREMENTS** | | P |
| 4.1.1 | Acceptance of materials, components and subassemblies | | P |
| 4.1.2 | Use of components | 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 this standard 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 this standard. | 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.....: | | N/A |
| 4.4.4.9 | Accessibility and safeguard effectiveness | | P |
| 4.5 | Explosion | No explosion. | P |
| 4.6 | Fixing of conductors | | 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 | Not such equipment. | 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 | Professional Equipment | N/A |
| 4.8.2 | Instructional safeguard | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.8.3 | Battery Compartment Construction | | N/A |
| | Means to reduce the possibility of children removing the battery.....: | | — |
| 4.8.4 | Battery Compartment Mechanical Tests .....: | | N/A |
| 4.8.5 | Battery Accessibility | | N/A |
| 4.9 | Likelihood of fire or shock due to entry of conductive object.....: | (See Annex P) | P |
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| 5.2.1 | Electrical energy source classifications.....: | | P |
| 5.2.2 | ES1, ES2 and ES3 limits | | P |
| 5.2.2.2 | Steady-state voltage and current.....: | | P |
| 5.2.2.3 | Capacitance limits .....: | approved internal power supply | 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.....: | | 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 .....: | approved internal power supply | P |
| 5.4.1.4 | Maximum operating temperature for insulating materials .....: | | 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 | approved internal power supply | P |

| IEC 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 ..... : | (See appended table 5.4.1.10.2) | N/A |
| 5.4.1.10.3 | Ball pressure ..... : | (See appended table 5.4.1.10.3) | N/A |
| 5.4.2 | Clearances | evaluated in internal power supply report | P |
| 5.4.2.2 | Determining clearance using peak working voltage | (See appended table 5.4.2.2) | N/A |
| 5.4.2.3 | Determining clearance using required withstand voltage ..... : | (See appended table 5.4.2.3) | N/A |
| | a) a.c. mains transient voltage ..... : | 2500 | — |
| | b) d.c. mains transient voltage ..... : | | — |
| | c) external circuit transient voltage ..... : | | — |
| | d) transient voltage determined by measurement ..... : | | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test | (See appended table 5.4.2.4) | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages ..... : | | N/A |
| 5.4.3 | Creepage distances ..... : | evaluated in internal power supply report | P |
| 5.4.3.1 | General | | N/A |
| 5.4.3.3 | Material Group ..... : | IIIb | — |
| 5.4.4 | Solid insulation | approved internal power supply | N/A |
| 5.4.4.2 | Minimum distance through insulation ..... : | (See appended table 5.4.4.2) | 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 ..... : | (See appended Table 5.4.9) | N/A |
| 5.4.4.6.5 | Mandrel test | | N/A |
| 5.4.4.7 | Solid insulation in wound components | | N/A |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz ..... : | (See appended Table 5.4.4.9) | N/A |
| 5.4.5 | Antenna terminal insulation | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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.....: | (See appended table 5.4.4.2) | N/A |
| 5.4.7 | Tests for semiconductor components and for cemented joints | | N/A |
| 5.4.8 | Humidity conditioning | approved internal power supply for solid insulation | N/A |
| | Relative humidity (%).....: | | — |
| | Temperature (°C) .....: | | — |
| | Duration (h) .....: | | — |
| 5.4.9 | Electric strength test.....: | (See appended table 5.4.9) | N/A |
| 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 | (See appended table 5.4.9) | 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 .....: | (See appended table 5.4.9) | N/A |
| 5.4.10.2.3 | Steady-state test.....: | (See appended table 5.4.9) | N/A |
| 5.4.11 | Insulation between external circuits and earthed circuitry .....: | (See appended table 5.4.9) | N/A |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |
| | Rated operating voltage $U_{op}$ (V).....: | | — |
| | Nominal voltage $U_{peak}$ (V).....: | | — |
| | Max increase due to variation $U_{sp}$ .....: | | — |
| | Max increase due to ageing $\Delta U_{sa}$ .....: | | — |
| | $U_{op}= U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....: | | — |
| 5.5 | Components as safeguards | | N/A |
| 5.5.1 | General | approved internal power supply | 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.....: | (See appended table 5.5.2.2) | N/A |
| 5.5.3 | Transformers | (See Annex G.5.3) | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.5.4 | Optocouplers | (See sub-clause 5.4 or Annex G.12) | N/A |
| 5.5.5 | Relays | (See Annex G.2) | N/A |
| 5.5.6 | Resistors | (See Annex G.10) | N/A |
| 5.5.7 | SPD's | (See Annex G.8) | N/A |
| 5.5.7.1 | Use of an SPD connected to reliable earthing | | N/A |
| 5.5.7.2 | Use of an SPD between mains and protective earth | | N/A |
| 5.5.8 | Insulation between the mains and external circuit consisting of a coaxial cable.....: | (See Annex G.10.3) | N/A |
| 5.6 | Protective conductor | | P |
| 5.6.2 | Requirement for protective conductors | evaluated in internal power supply report | N/A |
| 5.6.2.1 | General requirements | | N/A |
| 5.6.2.2 | Colour of insulation | | N/A |
| 5.6.3 | Requirement for protective earthing conductors | | N/A |
| | Protective earthing conductor size ($mm^2$) .....: | min. 0,75 | — |
| 5.6.4 | Requirement for protective bonding conductors | | N/A |
| 5.6.4.1 | Protective bonding conductors | | N/A |
| | Protective bonding conductor size ($mm^2$). .....: | min. 0,75 | — |
| | Protective current rating (A) ..... : | <25A | — |
| 5.6.4.3 | Current limiting and overcurrent protective devices | | N/A |
| 5.6.5 | Terminals for protective conductors | | N/A |
| 5.6.5.1 | Requirement | | N/A |
| | Conductor size ($mm^2$), nominal thread diameter (mm). .....: | min. 0,75$mm^2$, min. 3,5mm | N/A |
| 5.6.5.2 | Corrosion | | N/A |
| 5.6.6 | Resistance of the protective system | | N/A |
| 5.6.6.1 | Requirements | | N/A |
| 5.6.6.2 | Test Method Resistance (Ω).....: | (See appended table 5.6.6.2) | N/A |
| 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 | evaluated in internal power supply report | N/A |
| 5.7.2.1 | Measurement of touch current .....: | (See appended table 5.7.4) | N/A |
| 5.7.2.2 | Measurement of prospective touch voltage | | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | System of interconnected equipment (separate connections/single connection) .....: | | — |
| | Multiple connections to mains (one connection at a time/simultaneous connections) .....: | | — |
| 5.7.4 | Earthed conductive accessible parts.....: | (See appended Table 5.7.4) | N/A |
| 5.7.5 | Protective conductor current | | N/A |
| | Supply Voltage (V).....: | | — |
| | Measured current (mA).....: | | — |
| | Instructional Safeguard.....: | (See F.4 and F.5) | N/A |
| 5.7.6 | Prospective touch voltage and touch current due to external circuits | | N/A |
| 5.7.6.1 | Touch current from coaxial cables | | N/A |
| 5.7.6.2 | Prospective touch voltage and touch current from external circuits | | N/A |
| 5.7.7 | Summation of touch currents from external circuits | | N/A |
| | a) Equipment with earthed external circuits Measured current (mA).....: | | N/A |
| | b) Equipment whose external circuits are not referenced to earth. Measured current (mA) .....: | | N/A |

| | | | |
|---|---|---|---|
| **6** | **ELECTRICALLY- CAUSED FIRE** | | P |
| 6.2 | Classification of power sources (PS) and potential ignition sources (PIS) | | P |
| 6.2.2 | Power source circuit classifications | | P |
| 6.2.2.1 | General | | P |
| 6.2.2.2 | Power measurement for worst-case load fault ... : | The internal circuit is considered as PS3 without test. | P |
| 6.2.2.3 | Power measurement for worst-case power source fault ..... : | Outputs are LPS and considered as PS1/PS2 | P |
| 6.2.2.4 | PS1 ..... : | | P |
| 6.2.2.5 | PS2 ..... : | | P |
| 6.2.2.6 | PS3 ..... : | The product is powered by PS3. And internal circuit is considered as PS3 without test. | P |
| 6.2.3 | Classification of potential ignition sources | | P |
| 6.2.3.1 | Arcing PIS ..... : | No primary parts | N/A |
| 6.2.3.2 | Resistive PIS ..... : | The internal circuit is considered as resistive PIS without test. | 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 5.4.1.5, 6.3.2, 9.0, B.2.6) | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.3.1 (b) | Combustible materials outside fire enclosure | Min HB. | P |
| 6.4 | Safeguards against fire under single fault conditions | | P |
| 6.4.1 | Safeguard Method | Control fire spread 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 |
| 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..... : | (See appended table 6.4.3) | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | N/A |
| 6.4.5 | Control of fire spread in PS2 circuits | | N/A |
| 6.4.5.2 | Supplementary safeguards .....: | (See appended tables 4.1.2 and Annex G) | N/A |
| 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.....: | (See tables 6.2.3.1 and 6.2.3.2) | 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 |
| 6.4.8.3.3 | Top Openings in Fire Enclosure: dimensions (mm) .....: | No opening. | 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 PIS above mounting hole | 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) .....: | No door or cover. | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....: | [ ] minimum 5mm from resistive PIS,<br>[x ] enclosure is metal or V-0 | P |
| 6.5 | Internal and external wiring | | P |
| 6.5.1 | Requirements | | P |
| 6.5.2 | Cross-sectional area ($mm^2$) .....: | | — |
| 6.5.3 | Requirements for interconnection to building wiring .....: | (See Annex Q.) | N/A |
| 6.6 | Safeguards against fire due to connection to additional equipment | | P |
| | External port limited to PS2 or complies with Clause Q.1 | see Table annex Q.1 | P |
| **9** | **THERMAL BURN INJURY** | | P |
| 9.2 | Thermal energy source classifications | TS1 for accessible parts. | P |
| 9.3 | Safeguard against thermal energy sources | Enclosure safeguard | P |
| 9.4 | Requirements for safeguards | | P |
| 9.4.1 | Equipment safeguard | | P |
| 9.4.2 | Instructional safeguard .....: | Not used. | N/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 ..... : | No such part. | 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 | | 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 ..... : | | N/A |
| 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 | | P |

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

| 4.1.2 | TABLE: List of critical components | | | | P |
|---|---|---|---|---|---|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity[1] |
| Building-in power supply | Delta Electronics (Thailand) Public Co., Ltd | PMC-12V100W1AJ | I/P: 100-240V~, 50-60Hz, 2,8A, Class I; O/P: 12Vdc, 8,34A, 100W | IEC 62368-1:2014 | TÜV RH Ref. Certif. No. JPTUV-098737 Report No. CN227P38 001 |
| Alternative | MEAN WELL Enterprises Co., Ltd. | LRS-100-12 | I/P: 100-240V~, 50-60Hz, 2,1A, class I; O/P: 12Vdc, 8,5A, Class I | IEC 62368-1:2014 EN 62368-1:2014+A11:2017 | TÜV RH Ref. Certif. No. JPTUV-098884 Report No. 50261876 001 |
| Alternative | Delta Electronics, Inc. | PMT-12V100W2BA | I/P: 100-240V~, 50-60Hz, 2,3A, class I; O/P: 12Vdc, 7,65A(for 100V-114V); 12Vdc, 8,5A(for 115V-240V); Class I | IEC 62368-1:2014 EN 62368-1:2014+A11:2017 | TÜV RH Ref. Certif. No. JPTUV-091141-M2 Report No. 50172574 003 |
| Metal enclosure | Interchangeable | Interchangeable | Metal, Min. thickness 1,3mm | IEC/EN 2368-1 | Tested with equipment |
| Power plug | Scolmore International Ltd. | SW102 | 16A, 250V AC | DIN VDE 0620-1: 2010-02 | VDE 40004330 |
| Power cord | Hangzhou Hongshi Electrical Ltd | H05VV-F | 3 x 0.75 mm² | DIN EN 50525-2-11:2012-01, EN 50525-2-11:2011 | VDE 40010839 |
| Power connector | Scolmore International Ltd. | SW903 | 10A, 250V AC | EN 60320-1 | Nemko Cert. No. P05205306/ A1 |
| AC Inlet | YueQing HUACONN Electronics Co. Ltd | HC-99 | 10A, 250V AC, C14, 70°C | EN 60320-1 DIN EN 60320-1 | VDE 40032734 |
| Primary lead wire | NS-TECH CO LTD SHENZHEN | 1015 | Min. 16AWG, 600V, 105°C, VW-1 | UL 758 | UL E254391 |
| Heat shrinkable tubing (on AC inlet) | CHANGYUAN ELECTRONICS GROUP CO LTD | CB-HFT* | 300V, 125°C, VW-1 | UL 224 | UL E180908 |

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

| | | | | | |
|---|---|---|---|---|---|
| PCB | WENZHOU OULONG ELECTRIC CO LTD | OL-D | V-0, 130°C, Min. thickness 1,6mm | UL 796 | UL E231017 |
| Altenative | Interchangeable | Interchangeable | V-0, 130°C, Min. thickness 1,6mm | UL 796 | UL |
| Lithium battery | GUANGDONG TIANQIU ELECTRONICS TECHNOLOGY CO LTD | CR1220 | 3V, Max abnormal charging current: 2,5mA | UL 1642 | UL MH48705 |
| Relay | Xiamen Hongfa Electroacoustics Co., Ltd | HF3FA | 10A, 250Vac | IEC 61810-1<br>EN 61810-1 | VDE 40023708 |
| PTC (For 12Vdc output) | CYG Wayon Circuit Protection | LP-MSM150/24 | 3A, 24Vdc | IEC 60730-1:2013<br>EN 62319-1:2005<br>EN 62319-1-1:2005 | TUV R 50318402 |

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

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

| **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 | |
| Building-in power supply(model: PMT-12V100W2BA) | | | | | | | |
| 1. | 240Va.c./60 Hz | DC 12V out | Normal | -- | 0,031mApk | -- | ES1 |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |
| Building-in power supply(model: LRS-100-12) | | | | | | | |
| 2. | 240Va.c./60 Hz | DC 12V out | Normal | -- | 0,045mApk | -- | ES1 |
| | | | Abnormal | -- | -- | -- | |
| | | | Single fault – SC/OC | -- | -- | -- | |

| 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 | | | | |

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

Test Conditions:

Normal –

Abnormal -

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

| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | | | | P |
|---|---|---|---|---|---|---|---|
| | Supply voltage (V) ..... : | 90V/ 50Hz | 264V/ 50Hz | -- | -- | -- | — |
| | Ambient $T_{min}$ (°C) ..... : | 25 | 25 | -- | -- | -- | — |
| | Ambient $T_{max}$ (°C) ..... : | 25 | 25 | -- | -- | -- | — |
| | Tma (°C) ..... : | 65 | 65 | -- | -- | -- | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | | Allowed $T_{max}$ (°C) |
| Building-in power supply (Model: PMC-12V100W1AJ) | | | | | | | |
| FL1 coil | | 72,4 | 73,4 | -- | -- | -- | 120 |
| CY5 | | 72,6 | 74,3 | -- | -- | -- | 125 |
| T1 coil | | 75,6 | 80,1 | -- | -- | -- | 110 |
| T1 core | | 74,2 | 78,0 | -- | -- | -- | 110 |
| L350 coil | | 75,5 | 77,9 | -- | -- | -- | 120 |
| CX2 | | 72,4 | 73,9 | -- | -- | -- | 100 |
| PCB near ZD2 | | 74,2 | 77,5 | -- | -- | -- | 130 |
| PCB near FL1 | | 72,2 | 73,3 | -- | -- | -- | 130 |
| PCB near BD1 | | 76,0 | 76,3 | -- | -- | -- | 130 |
| PCB near FB6 | | 76,1 | 80,4 | -- | -- | -- | 130 |
| PCB near D5 | | 74,9 | 77,2 | -- | -- | -- | 130 |
| C1 | | 73,5 | 75,2 | -- | -- | -- | 105 |
| Metal enclosure* | | 26,9 | 27,6 | -- | -- | -- | 70 |
| EUT | | | | | | | |
| PCB near cpu | | 72,2 | 73,3 | -- | -- | -- | 130 |
| Battery body | | 69,5 | 70,4 | -- | -- | -- | Ref. |
| PCB near PTC1 | | 70,2 | 70,9 | -- | -- | -- | 130 |
| Connector | | 70,1 | 70,7 | -- | -- | -- | Ref. |
| Metal enclosure* | | 26,2 | 26,3 | -- | -- | -- | 70 |
| 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 |
|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- |

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

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)

* The test results of touchable surface temperature were considered base on ambient temperature 25°C.

Other temperture point list in this table has shifted to Tma 65°C

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

| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Temperature measurements** | | | | | | P |
|---|---|---|---|---|---|---|---|
| | Supply voltage (V) ..... : | 90V/ 50Hz | 264V/ 50Hz | -- | -- | -- | — |
| | Ambient $T_{min}$ (°C) ..... : | 23,7 | 24,0 | -- | -- | -- | — |
| | Ambient $T_{max}$ (°C) ..... : | 25,0 | 25,0 | -- | -- | -- | — |
| | Tma (°C) ..... : | 65,0 | 65,0 | -- | -- | -- | — |
| Maximum measured temperature T of part/at: | | T (°C) | | | | | Allowed $T_{max}$ (°C) |
| Building-in power supply (Model: PMT-12V100W2BA) | | | | | | | |
| T1 coil | | 70,1 | 73,8 | -- | -- | -- | 110 |
| T1 core | | 69,4 | 72,8 | -- | -- | -- | 110 |
| CN1 L Pin | | 66,7 | 69,3 | -- | -- | -- | 105 |
| FL1 coil | | 69,3 | 71,3 | -- | -- | -- | 130 |
| CX1 near FL2 | | 68,6 | 70,9 | -- | -- | -- | 105 |
| PCB under BD1 | | 70,9 | 72,2 | -- | -- | -- | 130 |
| IC31 body | | 70,0 | 73,0 | -- | -- | -- | 110 |
| IC51 | | 68,7 | 72,0 | -- | -- | -- | 110 |
| C32 near T1 | | 68,9 | 71,6 | -- | -- | -- | Ref. |
| C1 near BD1 | | 69,7 | 71,7 | -- | -- | -- | 105 |
| EUT | | | | | | | |
| PCB(DS-180024 V1.1) near U1 | | 72,2 | 74,6 | -- | -- | -- | 130 |
| BAT | | 69,9 | 72,4 | -- | -- | -- | Ref. |
| Metal enclosure* | | 26,0 | 28,6 | -- | -- | -- | 70 |
| 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)

* The test results of touchable surface temperature were considered base on ambient temperature 25°C.

Other temperture point list in this table has shifted to Tma 65°C

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

| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | | | | P |
|---|---|---|---|---|---|---|---|
| | Supply voltage (V) ..... : | 90V/ 50Hz | 264V/ 50Hz | -- | -- | -- | — |
| | Ambient $T_{min}$ (°C) ..... : | 23,8 | 24,1 | -- | -- | -- | — |
| | Ambient $T_{max}$ (°C) ..... : | 25,0 | 25,0 | -- | -- | -- | — |
| | Tma (°C) ..... : | 65,0 | 65,0 | -- | -- | -- | — |

| Maximum measured temperature T of part/at: | T (°C) | | | | | Allowed $T_{max}$ (°C) |
|---|---|---|---|---|---|---|
| Building-in power supply (Model: LRS-100-12) | | | | | | |
| PCB under RTH1 | 71,0 | 71,1 | -- | -- | -- | 130 |
| C105 body | 69,1 | 69,8 | -- | -- | -- | 105 |
| U2 body | 69,6 | 70,6 | -- | -- | -- | 110 |
| C5 body | 70,7 | 71,3 | -- | -- | -- | 105 |
| C4 body | 69,4 | 70,1 | -- | -- | -- | 85 |
| C1 | 70,7 | 69,5 | -- | -- | -- | 85 |
| PCB near Q1 | 72,4 | 72,5 | -- | -- | -- | 130 |
| PCB under BD1 | 70,0 | 70,4 | -- | -- | -- | 130 |
| TB1 | 68,2 | 68,3 | -- | -- | -- | 80 |
| LF1 coil | 74,5 | 72,8 | -- | -- | -- | 120 |
| T1 coil | 72,1 | 72,8 | -- | -- | -- | 110 |
| T1 core | 73,6 | 74,4 | -- | -- | -- | 110 |
| EUT | | | | | | |
| PCB(DS-180024 V1.1) near U1 | 73,4 | 71,8 | -- | -- | -- | 130 |
| BAT | 68,7 | 68,2 | -- | -- | -- | Ref. |
| Metal enclosure* | 27,0 | 26,5 | -- | -- | -- | 70 |

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)

* The test results of touchable surface temperature were considered base on ambient temperature 25°C.

Other temperture point list in this table has shifted to Tma 65°C

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

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

| Test voltage applied between: | Voltage shape (AC, DC) | Test voltage (V) | Breakdown Yes / No |
|---|---|---|---|
| Functional: | | | |
| | | | |
| Basic/supplementary: | | | |
| AC inlet to Metal enclosure | DC | 2500 | No |
| Reinforced: | | | |
| AC inlet to Secondary output | DC | 4000 | No |
| AC inlet to Plastic enclosure | DC | 4000 | No |
| Routine Tests: | | | |
| -- | -- | -- | -- |
| Supplementary information:<br>The test data of the two power supplies are the same. | | | |

| **5.7.2.2, 5.7.4** | **TABLE: Earthed accessible conductive part** | | P |
|---|---|---|---|
| Supply voltage .....: | | 264V | — |
| 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) |
| Metal enclosure | | 1 | 0,156mA (PMT-12V100W2BA)<br>0,221mA (LRS-100-12) |
| | | 2* | - |
| | | 3 | - |
| | | 4 | - |
| | | 5 | - |
| | | 6 | - |
| | | 8 | - |

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

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

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

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

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

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

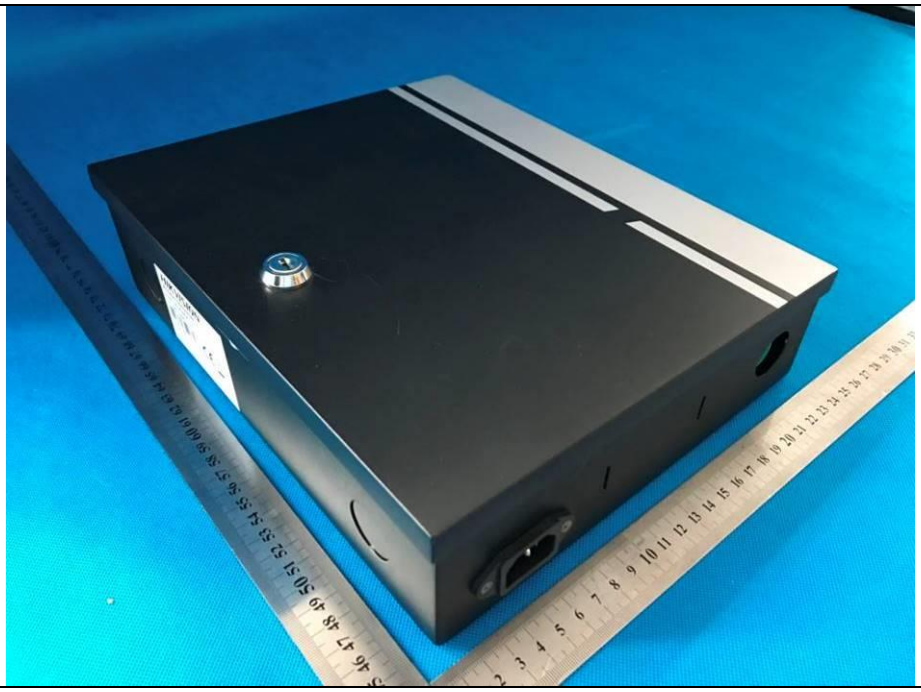
| B.2.5 | TABLE: Input test | | | | | | P |
|---|---|---|---|---|---|---|---|
| U (V) | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status |
| Building-in power supply (Model: PMT-12V100W2BA) | | | | | | | |
| 90V/50Hz | 0,24 | -- | 12,18 | -- | F1 | 0,24 | Normal operation condition. |
| 90V/60Hz | 0,24 | -- | 12,32 | -- | F1 | 0,24 | Normal operation condition. |
| 100V/50Hz | 0,21 | 2 | 11,97 | -- | F1 | 0,21 | Normal operation condition. |
| 100V/60Hz | 0,21 | 2 | 11,99 | -- | F1 | 0,21 | Normal operation condition. |
| 240V/50Hz | 0,14 | 2 | 12,25 | -- | F1 | 0,14 | Normal operation condition. |
| 240V/60Hz | 0,13 | 2 | 12,29 | -- | F1 | 0,13 | Normal operation condition. |
| 264V/50Hz | 0,12 | -- | 12,53 | -- | F1 | 0,12 | Normal operation condition. |
| 264V/60Hz | 0,12 | -- | 12,60 | -- | F1 | 0,12 | Normal operation condition. |
| Building-in power supply (Model: LRS-100-12) | | | | | | | |
| 90V/50Hz | 0,23 | -- | 11,56 | -- | F1 | 0,23 | Normal operation condition. |
| 90V/60Hz | 0,23 | -- | 11,56 | -- | F1 | 0,23 | Normal operation condition. |
| 100V/50Hz | 0,20 | 2 | 11,51 | -- | F1 | 0,20 | Normal operation condition. |
| 100V/60Hz | 0,20 | 2 | 11,52 | -- | F1 | 0,20 | Normal operation condition. |
| 240V/50Hz | 0,14 | 2 | 11,59 | -- | F1 | 0,14 | Normal operation condition. |
| 240V/60Hz | 0,13 | 2 | 11,59 | -- | F1 | 0,13 | Normal operation condition. |
| 264V/50Hz | 0,12 | -- | 11,64 | -- | F1 | 0,12 | Normal operation condition. |
| 264V/60Hz | 0,12 | -- | 11,66 | -- | F1 | 0,12 | Normal operation condition. |
| Supplementary information:<br>Equipment may be have rated current or rated power or both. Both should be measured.<br>Four ports each loaded 12V/0,2A. | | | | | | | |

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

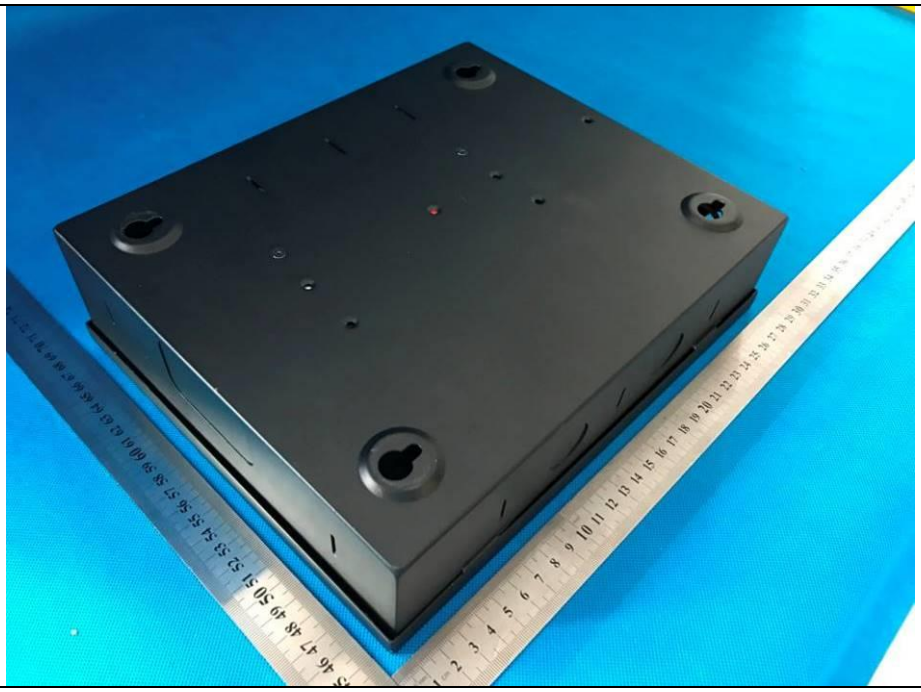
| B.3 | TABLE: Abnormal operating condition tests | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) .....: | | | | | | | | — |
| Power source for EUT: Manufacturer, model/type, output rating ..: | | | | | | | | — |
| Component No. | Abnormal Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| Building-in power supply (Model: PMT-12V100W2BA) | | | | | | | | |
| 12V Output | Overload | 264V | 3 hrs | F1 | 0,24A-> 0,52A-> 0,64A-> 0,23A | K | Max. temp. measured: T1 coil= 37,9ºC, T1 core= 35,9ºC, Ambient= 25,0ºC. | 12Vdc port loaded to 2,02A,12V dc port shutdown. No damage, no hazards. |
| Building-in power supply (Model: LRS-100-12) | | | | | | | | |
| 12V Output | Overload | 264V | 3 hrs | F1 | 0,23A-> 0,52A-> 0,63A-> 0,22A | K | Max. temp. measured: T1 coil= 43,5ºC, T1 core= 43,7ºC, Ambient= 23,9ºC. | 12Vdc port loaded to 2,6A,12Vdc port shutdown. No damage, no hazards. |
| Supplementary information:<br>Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4. | | | | | | | | |

*** End of Test report ***

Details of: General view (Model: DS-K2804)

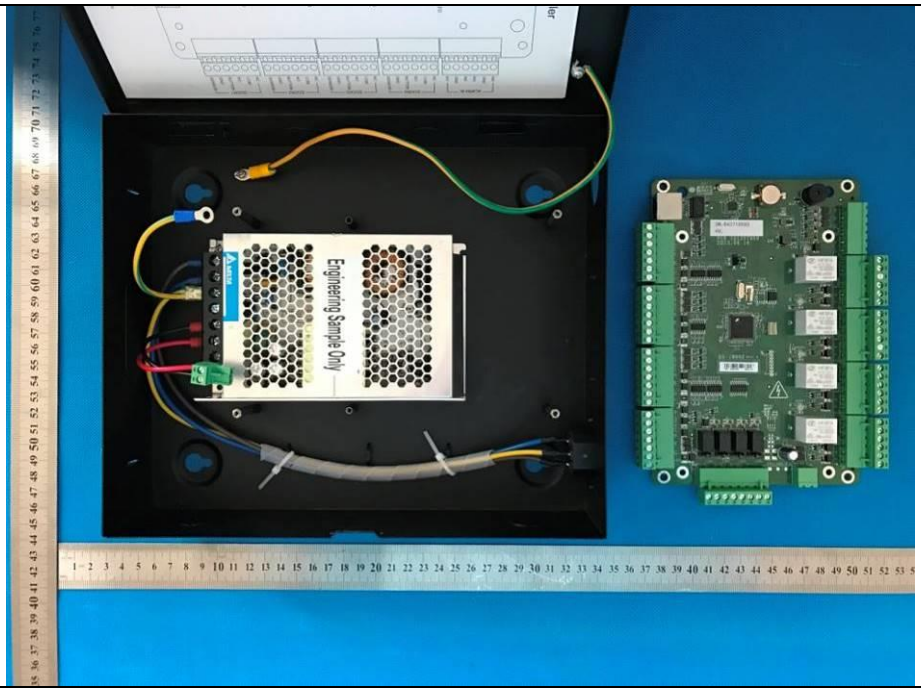


Details of: General view (Model: DS-K2804)

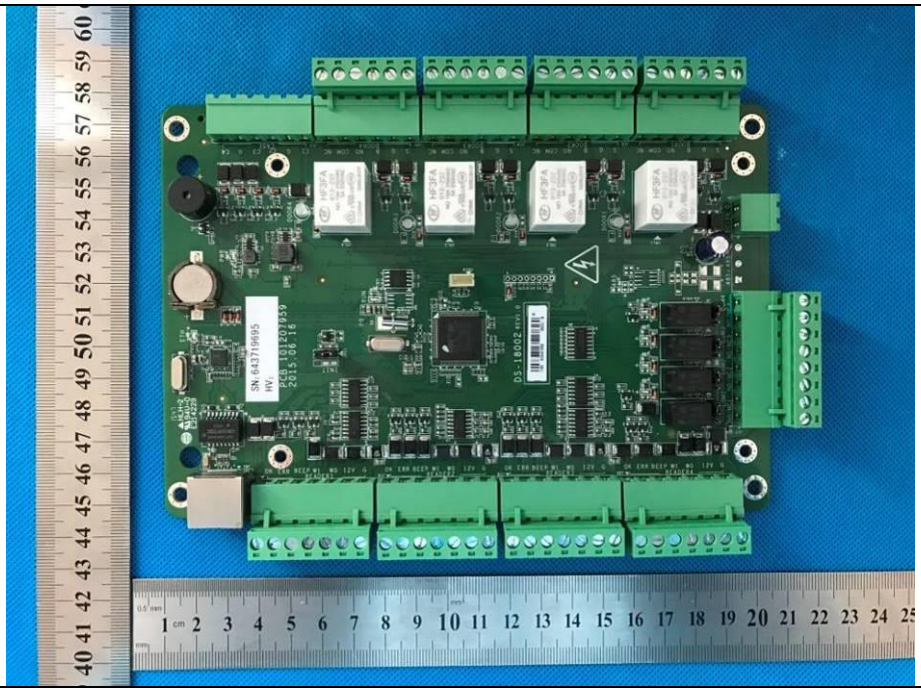


Details of: Internal view (Model: DS-K2804)

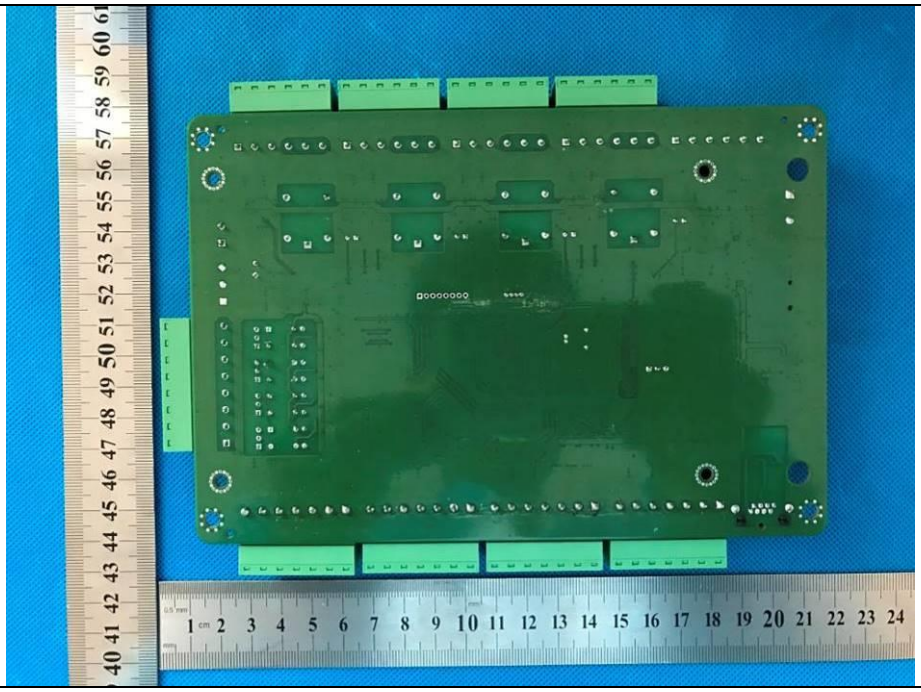

Details of: Internal view (Model: DS-K2804)



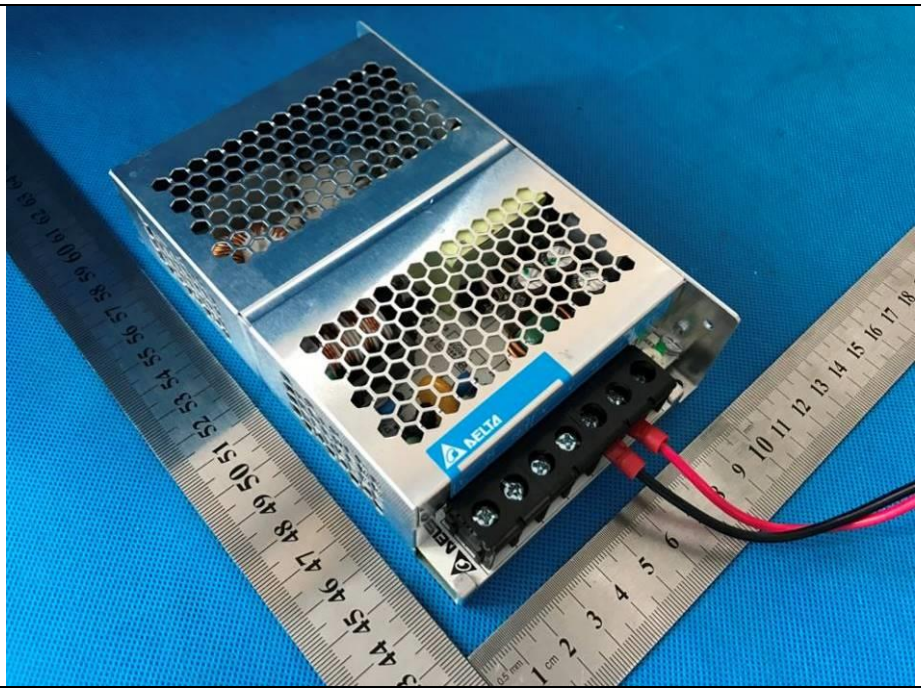
Details of: PCB



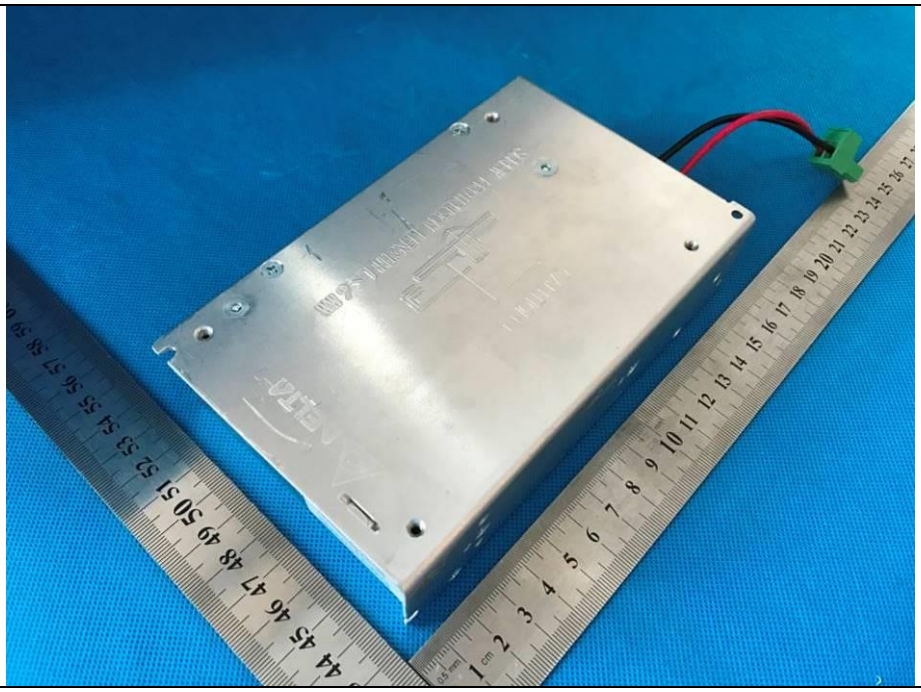
Details of: PCB



Details of: Building-in power supply (PMC-12V100W1AJ)

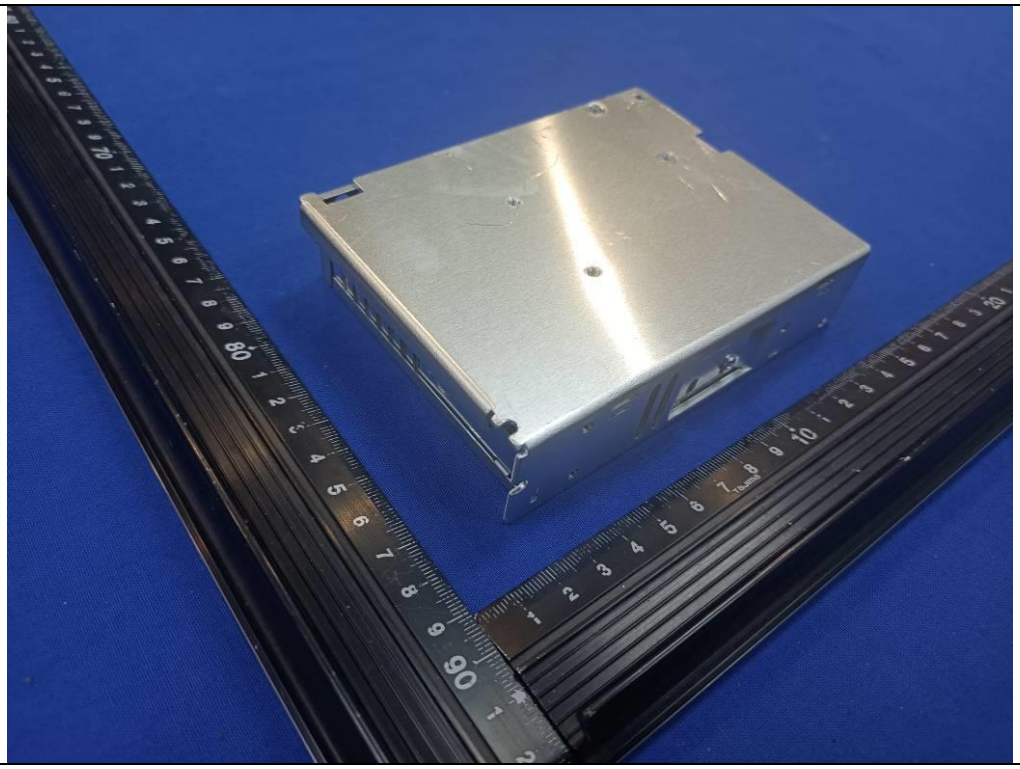



Details of: Building-in power supply (PMC-12V100W1AJ)

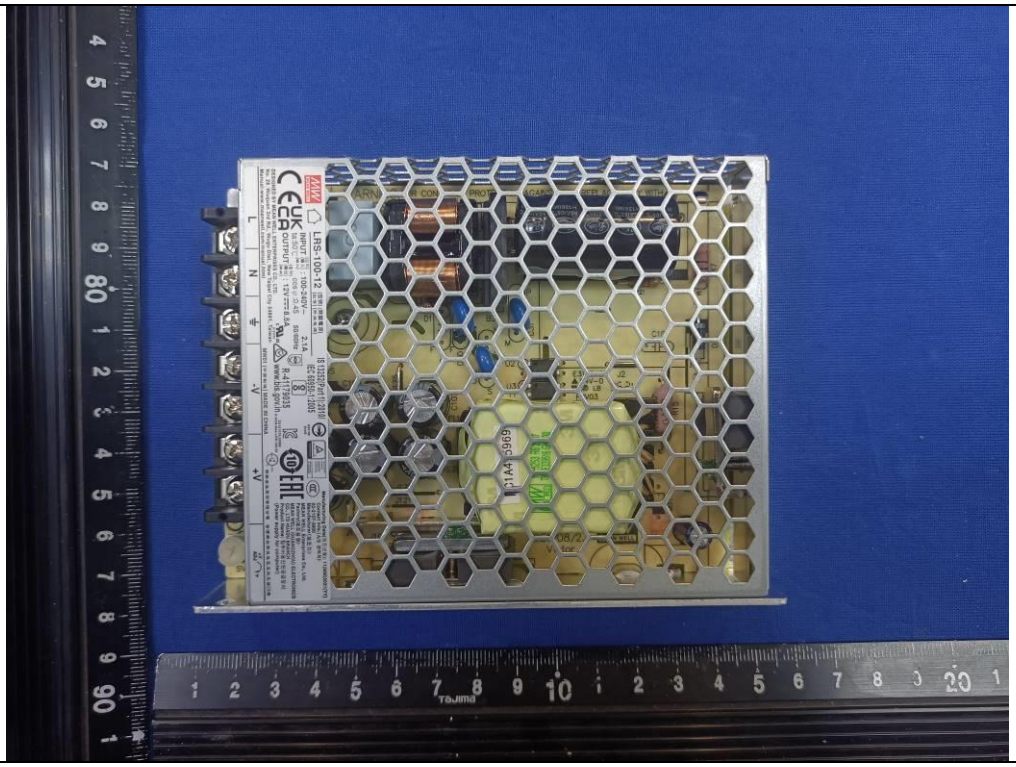


Details of: Alternative Building-in power supply (PMT-12V100W2BA)

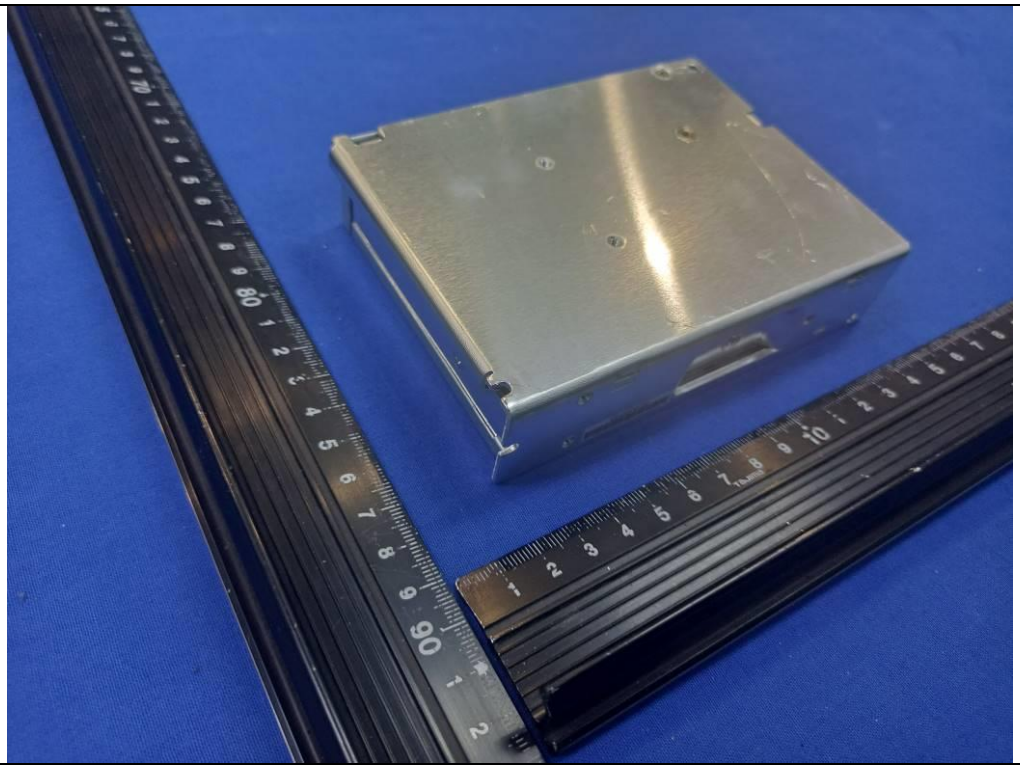

Details of: Alternative Building-in power supply (PMT-12V100W2BA)



Details of: Alternative Building-in power supply (LRS-100-12)



Details of: Alternative Building-in power supply (LRS-100-12)



*******End of Attachment 1*******