**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 ..... :** | SHES230901832806-M3 |
| **Date of issue ..... :** | 2024-08-20; Amendment 1: 2024-02-04; Amendment 2: 2025-01-17; Amendment 3: 2025-06-06 |
| **Total number of pages ..... :** | 31 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.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

| | | | |
|---|---|---|---|
| **Test Item description ..... :** | | Network Video Recorder | |
| **Trade Mark(s) ..... :** | | HIKVISION or HiLook | |
| **Manufacturer..... :** | | Same as applicant | |
| **Model/Type reference ..... :** | | See page 10-11 | |
| **Ratings ..... :** | | 100 - 240 V a.c., 50/60 Hz, 1,5 A Max; 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 – 3 pages of Photos documents.

**Summary of testing:**

The sample(s) tested complies with the requirements of IEC 62368-1: 2014 (Second Edition), EN 62368-1:2014+A11:2017 and AS/NZS 62368.1:2018.

Unless otherwise specified, the EUT with model DS-7732NI-I4 (including building-in power supply: SFXA1071A; main board: 80570 and DC fan: ME60151V3-000C-A99) was selected as representative model for full testing. Models DS-7732NI-K4 (including building-in power supply: DPS-75AB-1 A), DS-7732NI-K4 (including building-in power supply: DPS-80PB-10 B) and DS-7732NI-M4 (including building-in power supply: U1A-G10075-S-A1) were selected for part testing due to the different building-in power supply.

Maximum normal load:

USB2.0 load 0,5A, DC 12V Output load 1A, Ctrl 12V output load 0,5A, HDD 8T 10W*4.

All test conducted when EUT with DC fan ME60151V3-000C-A99.

Heating test:
Tma = 55°C (declared by manufacturer)

K-type thermocouple used for temperature measurement.

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| ☒ 5. Electrically-caused injury<br>☒ 7. Injury caused by hazardous substances<br>☒ 8. Mechanically-caused injury<br>☒ 9. Thermal burn injury<br>☒ Annex B. Normal operating condition tests, abnormal operating condition tests and single fault condition tests<br>☒ Annex M Equipment containing batteries and their protection circuits | 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
3. Australia and New Zealand Differences (AS/NZS 62368.1:2018)

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

☒ The products fulfil the requirements of SHES230901832801, dated on 2023-10-25, SHES230901832802-M1, dated on 2024-02-04, SHES230901832805-M2, dated on 2025-01-17 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.**

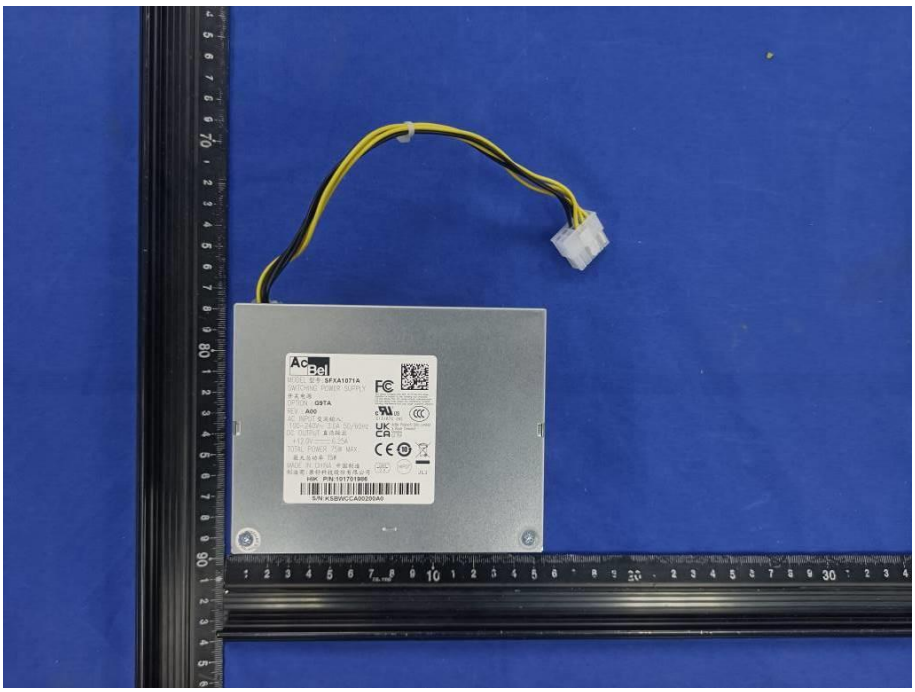
**Marking for model DS-7732NI-I4**


**Marking for model DS-7732NI-K4**


**Marking for model DS-7932NXI-K4**

**Marking for built-in power supply (model DPS-75AB-1 A)**


**Marking for Alternative built-in power supply (model SFXA1071A)**



**Marking for Alternative built-in power supply (model U1A-G10075-S-A1)**

**Marking for Alternative built-in power supply (model DPS-80PB-10 B)**

Remark:

1) The Height of CE/UKCA 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 placed on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

| 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 ..... :** | 16 A for other area;<br>20A for north America<br>Installation location: ☒ building; ☐ equipment |
| **Equipment mobility ..... :** | ☒ movable ☐ hand-held ☐ transportable<br>☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted |
| **Over voltage category (OVC) ..... :** | ☐ OVC I ☒ OVC II ☐ OVC III<br>☐ OVC IV ☐ other: |
| **Class of equipment ..... :** | ☒ Class I ☐ Class II ☐ Class III |
| **Access location ..... :** | ☐ restricted access location ☒ N/A |
| **Pollution degree (PD) ..... :** | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| **Manufacturer's specified maxium operating ambient ..... :** | 55°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) ..... :** | ☒ 4,1 kg (with HDD) |

| | |
|---|---|
| **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.....:** | 2025-05-29 |
| **Date (s) of performance of tests .....:** | 2025-05-29 to 2025-06-05 |

**General remarks:**

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

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



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

| | |
|---|---|
| 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 on 2023-01-04. |

**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 City, 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 and other remarks:**

**Product Description –**

| | |
|---|---|
| Functions | The equipment under test is a Class I Network Video Recorder which powered by certified built-in power supply. |
| Material of enclosure | Metal & plastic |
| Interface | AUDIO IN, AUDIO OUT, USB2.0, USB3.0, VGA, HDMI, RS-232, RS-485, LAN, eSATA, ALARM IN/OUT, VIDEO |
| Others | Indoor use only |

| Model / Type Ref. | | | Model Remark |
|---|---|---|---|
| DS-7732NI-K4 | DS-7732NI-K4UHK | DS-7732NI-K4CKV | X can be 0-9, a-z, A-Z, (,), -, /, or blank. |
| DS-7732NI-K4UVS | DS-7732NI-K4HUN | DS-7732NI-K4KVO | |
| DS-7716NI-K4 | DS-7716NI-K4UHK | DS-7716NI-K4CKV | |
| DS-7716NI-K4UVS | DS-7716NI-K4HUN | DS-7716NI-K4KVO | |
| DS-7708NI-K4 | DS-7708NI-K4UHK | DS-7708NI-K4CKV | |
| DS-7708NI-K4UVS | DS-7708NI-K4HUN | DS-7708NI-K4KVO | |
| DS-7708NI-I4 | DS-7708NI-I4(D) | DS-7708NI-I4UHK | |
| DS-7708NI-I4CKV | DS-7708NI-I4UVS | DS-7708NI-I4KVO | |
| DS-7708NI-I4HUN | DS-7716NI-I4 | DS-7716NI-I4UHK | |
| DS-7716NI-I4CKV | DS-7716NI-I4UVS | DS-7716NI-I4KVO | |
| DS-7716NI-I4HUN | DS-7732NI-I4 | DS-7732NI-I4UHK | |
| DS-7732NI-I4CKV | DS-7732NI-I4UVS | DS-7732NI-I4KVO | |
| DS-7732NI-I4HUN | DS-7732NXI-I4/S | DS-7732NXI-I4/SUHK | |
| DS-7732NXI-I4/SCKV | DS-7732NXI-I4/SUVS | DS-7732NXI-I4/SKVO | |
| DS-7732NXI-I4/SHUN | DS-7716NXI-I4/S | DS-7716NXI-I4/SUHK | |
| DS-7716NXI-I4/SCKV | DS-7716NXI-I4/SUVS | DS-7716NXI-I4/SKVO | |
| DS-7716NXI-I4/SHUN | DS-7908NXI-K4 | DS-7908NXI-K4UHK | |
| DS-7908NXI-K4CKV | DS-7908NXI-K4UVS | DS-7908NXI-K4KVO | |
| DS-7908NXI-K4HUN | DS-7916NXI-K4 | DS-7916NXI-K4UHK | |
| DS-7916NXI-K4CKV | DS-7916NXI-K4UVS | DS-7916NXI-K4KVO | |
| DS-7916NXI-K4HUN | DS-7932NXI-K4 | DS-7932NXI-K4UHK | |
| DS-7932NXI-K4CKV | DS-7932NXI-K4UVS | DS-7932NXI-K4KVO | |
| DS-7932NXI-K4HUN | DS-7708NXI-K4 | DS-7708NXI-K4UHK | |
| DS-7708NXI-K4CKV | DS-7708NXI-K4UVS | DS-7708NXI-K4KVO | |
| DS-7708NXI-K4UHN | DS-7716NXI-K4 | DS-7716NXI-K4UHK | |
| DS-7716NXI-K4CKV | DS-7716NXI-K4UVS | DS-7716NXI-K4KVO | |
| DS-7716NXI-K4UHN | DS-7732NXI-K4 | DS-7732NXI-K4UHK | |
| DS-7732NXI-K4CKV | DS-7732NXI-K4UVS | DS-7732NXI-K4KVO | |
| DS-7732NXI-K4UHN | DS-7716NI-M4 | DS-7716NI-M4UHK | |
| DS-7716NI-M4CKV | DS-7716NI-M4UVS | DS-7716NI-M4KVO | |
| DS-7716NI-M4HUN | DS-7716NI-M4/EDU | DS-7716NI-M4/RTL | |
| DS-7716NI-M4/NRG | DS-7716NI-M4/LGX | DS-7716NI-M4/MFG | |
| DS-7716NI-M4/RMS | DS-7732NI-M4 | DS-7732NI-M4UHK | |
| DS-7732NI-M4CKV | DS-7732NI-M4UVS | DS-7732NI-M4KVO | |
| DS-7732NI-M4HUN | DS-7732NI-M4/EDU | DS-7732NI-M4/RTL | |
| DS-7732NI-M4/NRG | DS-7732NI-M4/LGX | DS-7732NI-M4/MFG | |
| DS-7732NI-M4/RMS | DS-7764NI-M4 | DS-7764NI-M4on | |
| DS-7764NI-M4UHK | DS-7764NI-M4CKV | DS-7764NI-M4UVS | |
| DS-7764NI-M4KVO | DS-7764NI-M4HUN | NVR-432MH-B | |
| DS-78632NI-I4PUHK | NVR-764MH-M4 | DS-7XXXNI-XXXXX | |
| DS-7XXXNI-XXXXXUHK | DS-7XXXNI-XXXXXCKV | DS-7XXXNI-XXXXXUVS | |

| | | | |
|---|---|---|---|
| DS-7XXXNI-XXXXXKVO | DS-7XXXNI-XXXXXHUN | DS-7764NI-K4 | |
| DS-7764NI-K4UHK | DS-7764NI-K4CKV | DS-7764NI-K4UVS | |
| DS-7764NI-K4KVO | DS-7764NI-K4HUN | DS-7764NI-K4/EDU | |
| DS-7764NI-K4/RTL | DS-7764NI-K4/NRG | DS-7764NI-K4/LGX | |
| DS-7764NI-K4/MFG | DS-7764NI-K4/RMS | NVR-464MH-K | |
| NVR-464MH-KUHK | NVR-464MH-KCKV | NVR-464MH-KUVS | |
| NVR-464MH-KKVO | NVR-464MH-KHUN | NVR-464MH-K/EDU | |
| NVR-464MH-K/RTL | NVR-464MH-K/NRG | NVR-464MH-K/LGX | |
| NVR-464MH-K/MFG | NVR-464MH-K/RMS | -- | |
| **DS-7716NXI-I4/VPro** | **DS-7716NXI-I4/VProUHK** | **DS-7716NXI-I4/VProCKV** | X can be 0-9, a-z, A-Z, (,), -, /, or blank. |
| **DS-7716NXI-I4/VProUVS** | **DS-7716NXI-I4/VProKVO** | **DS-7716NXI-I4/VProHUN** | |
| **DS-7716NXI-I4/VPro/EDU** | **DS-7716NXI-I4/VPro/RTL** | **DS-7716NXI-I4/VPro/NRG** | |
| **DS-7716NXI-I4/VPro/LGX** | **DS-7716NXI-I4/VPro/MFG** | **DS-7716NXI-I4/VPro/RMS** | |
| **DS-7732NXI-I4/VPro** | **DS-7732NXI-I4/VProUHK** | **DS-7732NXI-I4/VProCKV** | |
| **DS-7732NXI-I4/VProUVS** | **DS-7732NXI-I4/VProKVO** | **DS-7732NXI-I4/VProHUN** | |
| **DS-7732NXI-I4/VPro/EDU** | **DS-7732NXI-I4/VPro/RTL** | **DS-7732NXI-I4/VPro/NRG** | |
| **DS-7732NXI-I4/VPro/LGX** | **DS-7732NXI-I4/VPro/MFG** | **DS-7732NXI-I4/VPro/RMS** | |
| **DS-7716NXI-I4/S/EDU** | **DS-7716NXI-I4/S/RTL** | **DS-7716NXI-I4/S/NRG** | |
| **DS-7716NXI-I4/S/LGX** | **DS-7716NXI-I4/S/MFG** | **DS-7716NXI-I4/S/RMS** | |
| **DS-7732NXI-I4/S/EDU** | **DS-7732NXI-I4/S/RTL** | **DS-7732NXI-I4/S/NRG** | |
| **DS-7732NXI-I4/S/LGX** | **DS-7732NXI-I4/S/MFG** | **DS-7732NXI-I4/S/RMS** | |

Each model can use combination with five types of main boards, four types of front panel, three types of DC fan and four types of building-in power supplies.
Details see below tables.

| **Building-in power supply** | **Main board** | **DC Fan** |
|---|---|---|
| DPS-75AB-1 A | 80540 | ME60151V3-000C-A99[3)] |
| SFXA1071A[1)] | 80475 | EFC-06C12H |
| U1A-G10075-S-A1 | 80570[2)] | MGA6012SR-O15 |
| DPS-80PB-10 B | 80502 | -- |
| -- | 80604 | -- |
| -- | **80570 version 3.0** | **MGA4012LB-O15** |

1) With the highest temperature.
2) With the maximum power consumption.
3) With the minimum air flow.

**Amendment 1 Report:**

The original Test Report Ref. No. SHES230901832801, dated on 2023-10-25 was modified to include following changes and/or additions:

-Add some approved IC for terminals, please see table 4.1.2 with bold for details.

After comparison, no tests were considered necessary.

This test report is not valid without the original CB Test Report Ref. No. SHES230901832801, dated on 2023-10-25.

**Amendment 2 Report:**

The original Test Report Ref. No. SHES230901832801, dated on 2023-10-25 and SHES230901832802-M1, dated on 2024-02-04 was modified to include following changes and/or additions:

- Add a new model DS-78632NI-I4PUHK, which are identical with DS-7732NI-I4 except for model name.

- Add some new models which are identical previous models except for model name and software version.

Please see page 10 for detials.

- Add a new trademark HiLook, please see page 2.

- Add two new model series DS-7764NI-K4 and NVR-464MH-K which are identical to previous except for front panel, more details can refer to model table on page 10-11.
- Add an alternative main board (model: 80604) and alarm port, please see attachment 1 for details.

After comparison, EUT with model DS-7764NI-K4 (including building-in power supply: DPS-75AB-1 A; main board: 80604) was selected as representative model to verify the Clause B.2.5 input test for the differences.

**Amendment 3 Report:**

The original Test Report Ref. No. SHES230901832801, dated on 2023-10-25, SHES230901832802-M1, dated on 2024-02-04 and SHES230901832805-M2, dated on 2025-01-17 were modified to include following changes and/or additions:

- Add some new models as the bold which has different main board.

- Add new front panel, details see photo attachment. The output protection circuit of front panel is the same as original.
- Add an alternative main board (model: 80570 version 3.0), compare with original main board 80570, the version 3.0 added KT5 intelligent module, DC Fan(MGA4012LB-O15) and CR1220 battery changed to CR2032 battery.

After comparison, the following test were considered necessary (Test model DS-7716NXI-I4/S)

B.2.5 Input test

5.4.1.4 & 9.2.6 Maximum operating temperature for insulating materials Temperatures on Accessible Surfaces

5.4.1.10.3 Ball pressure

6.4 (B.3-B.4) Single fault conditions

M.3 Battery

This test report is not valid without the original CB Test Report Ref. No. SHES230901832801, dated on 2023-10-25, SHES230901832802-M1, dated on 2024-02-04 and SHES230901832805-M2, dated on 2025-01-17

**Model Differences –**

All the models are identical except for model name, sales regions, sales channel, software version and front panel.

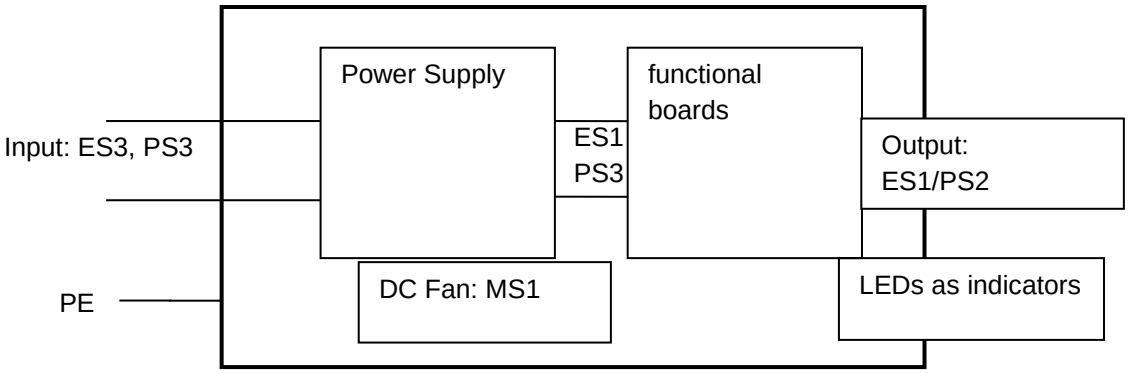
**Additional application considerations – (Considerations used to test a component or sub-assembly) –**

N/A

| | |
|---|---|
| (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)** |
| Power input and primary circuits | ES3 |
| Other internal circuits | ES1 |
| All accessible 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): PS2 | |
| **Source of power or PIS** | **Corresponding classification (PS)** |
| All internal circuits/Input | PS3 |
| DC 12 V output port | PS2 |
| Other output ports | 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** |
| Lithium coin 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 |
| DC 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 only as indicator | RS1 |

**ENERGY SOURCE DIAGRAM**

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




Enclosure: ES1, MS1, TS1
Mass: MS1

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

| **OVERVIEW OF EMPLOYED SAFEGUARDS** | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part (e.g. Ordinary) | Energy Source (ES3: Primary Filter circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary person | ES3: Power input and primary circuit | Basic Insulation | Protective Earthing | Enclosure |
| Ordinary person | ES1: Other internal circuits | N/A | N/A | N/A |
| Ordinary person | ES1: All accessible parts | N/A | N/A | N/A |
| 6.1 | Electrically-caused fire | | | |
| Material part (e.g. mouse enclosure) | Energy Source (PS2: 100 Watt circuit) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Internal combustible 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 |
| Output | PS2: DC 12 V output port | 1. No ignition occurred.<br>2. No parts exceeding 90% of its spontaneous ignition temperature.<br>3. Combustible material | 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. | N/A |

| | | | | |
|---|---|---|---|---|
| | | outside fire enclosure is of min HB | | |
| Output | PS1: Other output ports | 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 | N/A | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Ordinary person | 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 | MS1: DC Fan | N/A | N/A | Compliance with Clause 8.5 requirements |
| 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 only as indicator | N/A | N/A | N/A |
| Supplementary Information: | | | | |
| (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 |
| **5** | **Electrically-caused injury** | | P |
| 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. | 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 | Certified power supplies | P |
| 5.4.1.9 | Insulating surfaces | | P |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | | P |
| 5.4.1.10.2 | Vicat softening temperature.....: | | N/A |
| 5.4.1.10.3 | Ball pressure .....: | See table 5.4.1.10.3 | 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 | No sharp edges or corners, MS1 | N/A |
| 8.4.1 | Safeguards | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.5 | Safeguards against moving parts | The DC Fan is within the limits under normal and fault conditions.<br>DC Fan ME60151V3-000C-A99 in system:<br>$K=6x10^{-7}(0,0305x30^2x3900^2)$ =250,51<br>3900/15000+250,51/2400=0,36<1;<br>Alternative DC Fan EFC-06C12H:<br>$K=6x10^{-7}(0,033x30^2x3900^2)$ =271,04<br>3900/15000+271,04/2400=0,37<1;<br>Alternative DC Fan MGA6012SR-O15:<br>$K=6x10^{-7}(0,029x30^2x3600^2)$ =202,95<br>3900/15000+202,95/2400=0,32<1;<br>**Alternative DC Fan MGA4012LB-O15**:<br>**$K=6x10^{-7}(0,029x30^2x4500^2)$ =317,12**<br>**4500/15000+317,12/2400 =0,43<1;**<br>DC fan in power supply was considered in power supply test report.<br>According to above calculation, moving fans blade are considered not likely to cause injury. | 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 | | N/A |
| 9.4.1 | Equipment safeguard | | N/A |
| 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 | +/-10% | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 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 | (See appended table B.3) | P |
| B.4 | Simulated single fault conditions | | P |
| B.4.2 | Temperature controlling device open or short-circuited ..... : | (See appended table B.4) | N/A |
| B.4.3 | Motor tests | | P |
| B.4.3.1 | Motor blocked or rotor locked increasing the internal ambient temperature ..... : | (See Clause G.5) | P |
| 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 | | P |
| B.4.6 | Short circuit or disconnect of passive components | | P |
| 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 | (See appended table B.4) | P |
| B.4.9 | Battery charging under single fault conditions ... : | (See Annex M) | 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) .. : | | P |
| M.3 | Protection circuits | | P |
| M.3.1 | Requirements | | P |
| M.3.2 | Tests | | P |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | - 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 | | P |
| M.3.3 | Compliance .....: | (See appended Tables and Annex M and M.4) | 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] |
| Metal enclosure (Fire enclosure) | Interchangeable | Interchangeable | Min. 0,8 mm thickness | IEC 62368-1: 2014 (Second Edition) and EN 62368-1:2014+A11:2017 | Tested with appliance |
| Plastic Faceplate | KINGFA SCI & TECH CO LTD | FRABS-518 | V-0, Min. thickness 1,7mm, 60°C | UL 94<br>UL 746 | UL<br>E171666 |
| Alternative | KINGFA SCI & TECH CO LTD | FRABS-518 | V-0, Min. thickness 2,5mm, 60°C | UL 94<br>UL 746 | UL<br>E171666 |
| Alternative | KINGFA SCI & TECH CO LTD | HF-606 | Min. thickness 1,7mm, V-0, 60°C | UL 94<br>UL 746 | UL<br>E171666 |
| Alternative | KINGFA SCI & TECH CO LTD | HF-606 | Min. thickness 2,5mm, V-0, 60°C | UL 94<br>UL 746 | UL<br>E171666 |
| Building-in power supply | Delta Electronics, Inc. | DPS-75AB-1 A | Input: 100-240V~, 2A, 50Hz-60Hz; Output: +3,3V/3A; +5V/5A; +12V/3A; +5VSB/0,6A; Max. Combined Power 60W, Class I | IEC 62368-1:2014 | TÜVRheinland CB Cert No.: JPTUV-135590, Report No.: CN22GXTK 001 |
| Alternative | Acbel Polytech Inc. | SFXA1071A | Input: 100-240V~, 3,0A, 50Hz/60Hz; Output: +12,0V/6,25A; Total power 75W MAX, Class I | IEC 62368-1:2018 | TÜV Rheinland CB Ref No.: JPTUV-129761-M1; Report No.: CN21EA1T 002 |
| Alternative | Delta Electronics, Inc. | U1A-G10075-S-A1 | Input: 100-240Vac, 2A, 47-63Hz; Output: 12Vdc, 6,25A, 75W, Class I | IEC 62368-1:2014 | UL CB Cert No.: DK-99730-UL Ref No.: ESTS-P20042305 |
| Alternative | Delta Electronics, Inc. | DPS-80PB-10 B | Input: 100-240V~, 4A, 47Hz-63Hz; Output: +3,3V/3A; +5V/5A; +12V/3A; +5VSB/0,6A; Max. Combined Power 60W, Class I | IEC 62368-1:2014 | TÜVRheinland CB Report No.: 50322980 001 |

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

| | | | | | |
|---|---|---|---|---|---|
| DC fan | Sunonwealth Electronics Machine Industry Co., Ltd | ME60151V3-000C-A99 | 12VDC, 87mA Max; 1,05W Max; 18,1CFM; 3900±15% RPM | EN 62368-1:2014<br>IEC 62368-1: 2014 (Second Edition) and EN 62368-1:2014+A11:2017 | TÜVRheinland Cert. No.: R 50152959<br>& Tested with appliance |
| Alternative | Shenzhen Dongweifeng Electronic Technology Co., Ltd. | EFC-06C12H | 12VDC, 250mA Max; 3W Max; 18,59CFM; 3900±10% RPM | EN IEC 62368-1:2020+A11 | TÜVRheinland Cert. No.: R 50467958 |
| Alternative | Dongguan Protechnic Electric Co., Ltd. | MGA6012SR-O15 | 12VDC, 75mA Max; 0,9W Max; 19,1CFM; 3600±10% RPM | EN 62368-1:2014/A11:2017 | TÜV SÜD Cert. No.: No. B 031023 0139 Rev. 00 |
| **DC fan on main board** | **Dongguan Protechnic Electric Co., Ltd.** | **MGA4012LB-O15** | **12VDC, 0,09A, Max; 1,08W; 6,15CFM, 4500±10% RPM** | **EN 62368-1:2014/A11: 2017** | **TÜV SUD Cert. No.: B 031023 0138** |
| IC (except for 12Vd.c. output) | SG Micro Corp | SGM2580CYN5G/TR | 2,5Vdc to 5,5Vdc, 1A | IEC 60950-1:2005/AMD1:2009, IEC 60950-1:2005/AMD2:2013,<br>IEC 60950-1:2005 | UL DK-82510-UL |
| Alternative | SG Micro Corp | SGM2588AYN5G/TR | 2,5-5,5V, 1 A | IEC 60950-1:2005/AMD1:2009, IEC 60950-1:2005/AMD2:2013,<br>IEC 60950-1:2005<br>UL 62368-1, Ed. 3 dated December 13, 2019<br>CAN/CSA C22.2 No. 62368-1:19 | UL CB Ref. Certif. No.: DK-82510-UL SGS: SGSNA/22/SH/00150 |
| Alternative | SG Micro Corp | SGM2588GYN5GTR | 2,5-5,5V, 1 A | IEC 60950-1:2005/AMD1:2009, IEC 60950-1:2005/AMD2:2013,<br>IEC 60950-1:2005<br>UL 62368-1, Ed. 3 dated December 13, 2019<br>CAN/CSA C22.2 No. 62368-1:19 | UL CB Ref. Certif. No.: DK-82510-UL SGS: SGSNA/22/SH/00150 |

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

| | | | | | |
|---|---|---|---|---|---|
| Alternative | DIODES INC | AP2822<br>followed by A - H, followed by N or Blank, followed by K, KA, KB or KE, followed by TR-G1. | Input Voltage: 2,7 to 5,5 Vd.c.: Output Continuous Rating: 0,5 to 2,0 A; Output Current Limit: 1,4 to 3,2 A | IEC 62368-1:2014 | UL CB Cert No.: US-34501-UL; Report No.: E339337-A6001-CB-1 |
| Alternative | DIODES INC | AP22816AKBW T-7 | 2,7-5,5V, 1A | IEC 62368-1:2018 | UL CB Ref. Certif. No.: US-38695-UL |
| Alternative | DIODES INC | AP2822CKBTR-G1 | 2,7-5,5V, 1A | IEC 62368-1:2014 | UL CB Ref. Certif. No.: US-34501-UL |
| Alternative | DIODES INC | AP2822GKBTR-G1 | 2,7-5,5V, 2A | IEC 62368-1:2014 | UL CB Ref. Certif. No.: US-34501-UL |
| Alternative | DIODES INC | AP22818AKBW T-7 | 2,7-5,5V, 2A | IEC 62368-1:2018 | UL CB Ref. Certif. No.: US-38695-UL |
| Alternative | Richtek Technology Corp. | RT9742MGJ5 | 2,7-6V, 1,5A | IEC 62368-1:2014 | Nemko: CB Ref. Certif. No.: NO109777 |
| Alternative | JOULWATT TECHNOLOGY CO LIMITED | JW7115S-1SOTA#TRPBF | 2,7-5,5V, 1A | IEC 62368-1:2014 | UL CB Ref. Certif. No.: DK-92033-UL |
| Alternative | Shenzhen Lowpower Semiconductor CO., Ltd | LPW5202SDB5F11 | 2,4V-6V, 1,2A | IEC 62368-1:2018 | TÜVRheinland: JPTUV-141625 |
| PTC (for 12Vd.c. output) | Wayon Electronics Co., Ltd. | LP-MSM150/24, 1812 | 24Vd.c., 1,5A | EN 62319-1-1:2005<br>EN 62319-1:2005 | TUV: R50318402 |
| Alternative | Wayon Electronics Co., Ltd. | LP-MSM260/16, 1812 | 16Vd.c., 2,6A | EN 62319-1-1:2005<br>EN 62319-1:2005 | TUV: R50318402 |
| Alternative | Wayon Electronics Co., Ltd. | LP-MSM110/16, 1812 | 16Vd.c., 1,1A | EN 62319-1-1:2005<br>EN 62319-1:2005 | TUV: R50318402 |
| RTC battery | GUANGZHOU TIANQIU ENTERPRISE CO LTD | CR1220 | 3V d.c., 38mAh; Max Abnormal Charging Current 2,5mA; Max Abnormal Charging Voltage 3,5V dc | UL1642 | UL MH48705 |

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

| | | | | | |
|---|---|---|---|---|---|
| Alternative | POWER GLORY BATTERY TECH (SHENZHEN) CO., LTD | CR1220 | 3V d.c., 38mAh; Max Abnormal Charging Current 10mA; Max Abnormal Charging Voltage 5V dc | UL1642 | UL MH29853 |
| **Alternative** | **GUANGZHOU TIANQIU ENTERPRISE CO LTD** | **CR2032** | **Max Abnormal Charging Current 10mA. Max Abnormal Charging Voltage 3,5V dc** | **UL1642** | **UL MH48705** |
| PCB | WENZHOU GALAXY ELECTRONICS CO LTD | 01V0 | V-0, 130°C | UL796<br>UL94 | UL E157634 |
| Alternative | GUANGZHOU FAST-PRINT CIRCUIT TECHNOLOGY CO LTD | M11 | V-0, 130°C | UL796<br>UL94 | UL E204460 |
| Alternative | VICTORY GIANT TECHNOLOGY (HUIZHOU) CO LTD | SH | V-0, 130°C | UL796<br>UL94 | UL E248779 |
| Alternative | SHENZHEN MANKUN ELECTRONICS CO LTD | MK-D | V-0, 130°C | UL796<br>UL94 | UL E248237 |
| Alternative | WENZHOU OULONG ELECTRIC CO LTD | OL-D | V-0, 130°C | UL796<br>UL94 | UL E231017 |
| Alternative | Interchangeable | Interchangeable | V-1 or better, 130°C | UL796<br>UL94 | UL |
| Power plug | LINOYA ELECTRONIC TECHNOLOGY CO LTD | XYP-02L | AC 250V, 16A | DIN VDE 0620-2-1/A1 (VDE 0620-2-1/A1):2017-09<br>DIN VDE 0620-2-1 (VDE 0620-2-1):2016-01 | VDE 40015292 |
| Alternative | Phino Electric Co., Ltd. | PHP-206, | AC 250V, 16A | DIN VDE 0620-2-1/A1 (VDE 0620-2-1/A1):2017-09<br>DIN VDE 0620-2-1 (VDE 0620-2-1):2016-01 | VDE 40013375 |

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

| | | | | | |
|---|---|---|---|---|---|
| Alternative | Interchangeable | Interchangeable | AC 250V, 16A | DIN VDE 0620-2-1/A1 (VDE 0620-2-1/A1):2017-09<br>DIN VDE 0620-2-1 (VDE 0620-2-1):2016-01 | SGS or equivalent certified body |
| Power connector | Phino Electric Co., Ltd. | PHS 301 | AC 250V, 10A | IEC 60320-1:2015<br>DIN EN 60320-1 (VDE 0625-1):2016-04; EN 60320-1:2015 + AC:2016 | VDE 40038017 |
| Alternative | LINOYA ELECTRONIC TECHNOLOGY CO LTD | XYC-03 | AC 250V, 10A | DIN EN 60320-1 (VDE 0625-1):2016-04; EN 60320-1:2015 + AC:2016<br>IEC 60320-1:2015 | VDE 40016051 |
| Alternative | Interchangeable | Interchangeable | AC 250V, 10A | DIN EN 60320-1 (VDE 0625-1):2016-04; EN 60320-1:2015 + AC:2016<br>IEC 60320-1:2015 | SGS or equivalent certified body |
| Power cable | Phino Electric Co., Ltd. | H05VV-F | 3 x 0,75 mm² | DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011 | VDE 113841 |
| Alternative | LINOYA ELECTRONIC TECHNOLOGY CO LTD | H05VV-F | 3 x 0,75 mm² | DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011 | VDE 40035072 |
| Alternative | Interchangeable | Interchangeable | 3 x 0,75 mm² | DIN EN 50525-2-11 (VDE 0285-525-2-11):2012-01; EN 50525-2-11:2011 | SGS or equivalent certified body |
| Internal wires | Interchangeable | Interchangeable | PVC, TFE, PTFE, FEB, Polychloroprene or polyimide or VW-1 | -- | -- |
| Supplementary information:<br>1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

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

| B.2.5 | TABLE: Input test | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| U (V) | Hz | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status |
| EUT with new main board with power supply HK250-48PP: | | | | | | | | |
| 90 | 50 | 1,18 | -- | 104,40 | -- | F1 | 1,18 | Maximum normal load. |
| 100 | 50 | 1,05 | 1,50 | 104,33 | -- | F1 | 1,05 | |
| 240 | 50 | 0,49 | 1,50 | 101,37 | -- | F1 | 0,49 | |
| 264 | 50 | 0,48 | -- | 102,77 | -- | F1 | 0,48 | |
| 90 | 60 | 1,19 | -- | 106,98 | -- | F1 | 1,19 | |
| 100 | 60 | 1,05 | 1,50 | 104,49 | -- | F1 | 1,05 | |
| 240 | 60 | 0,50 | 1,50 | 102,94 | -- | F1 | 0,50 | |
| 264 | 60 | 0,49 | -- | 102,37 | -- | F1 | 0,49 | |
| EUT with new main board with power supply SFXA1151A-G9TA: | | | | | | | | |
| 90 | 50 | 1,18 | -- | 106,37 | -- | F1 | 1,18 | Maximum normal load. |
| 100 | 50 | 1,06 | 1,50 | 105,33 | -- | F1 | 1,06 | |
| 240 | 50 | 0,52 | 1,50 | 103,13 | -- | F1 | 0,52 | |
| 264 | 50 | 0,47 | -- | 102,54 | -- | F1 | 0,47 | |
| 90 | 60 | 1,21 | -- | 107,36 | -- | F1 | 1,21 | |
| 100 | 60 | 1,07 | 1,50 | 106,06 | -- | F1 | 1,07 | |
| 240 | 60 | 0,54 | 1,50 | 103,38 | -- | F1 | 0,54 | |
| 264 | 60 | 0,51 | -- | 103,19 | -- | F1 | 0,51 | |
| Supplementary information: | | | | | | | | |
| Equipment may be have rated current or rated power or both. Both should be measured. | | | | | | | | |

| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | P |
|---|---|---|---|---|
| | Supply voltage (V) ..... : | 90Va.c./60Hz | 264Va.c./50Hz | -- |
| | Ambient $T_{min}$ (°C) ..... : | 23,6 | 24,4 | -- |
| | Ambient $T_{max}$ (°C) ..... : | 25,0 | 25,0 | -- |
| | Tma (°C) ..... : | 55,0 | 55,0 | -- |
| Maximum measured temperature T of part/at: | | T (°C) | | Allowed $T_{max}$ (°C) |
| New main board with power supply HK250-48PP | | | | |

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

| | | | |
|---|---|---|---|
| AC inlet | 65,4 | 65,0 | 70 |
| LF1 | 66,9 | 66,7 | 130 |
| CX2 | 66,7 | 66,4 | 110 |
| CF2 | 67,3 | 67,0 | 105 |
| PCB near BD1 | 66,7 | 66,6 | 130 |
| CY4 | 66,5 | 66,2 | 125 |
| L1 | 69,8 | 69,4 | 130 |
| T1 coil | 75,3 | 75,1 | 110 |
| T1 core | 71,0 | 70,8 | 110 |
| PCB near U1(DS-82133) | 72,2 | 72,0 | 130 |
| BAT | 72,6 | 72,3 | Ref |
| PCB near U1(DS-80570_P) | 77,7 | 77,4 | 130 |
| Plastic enclosure(inside) | 62,2 | 61,6 | 85 |
| Plastic enclosure* | 26,6 | 26,3 | 94 |
| Metal enclosure* | 41,7 | 41,1 | 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 applicable requirementenclosure
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 temperature point list in this table has shifted to Tma 40

| **5.4.1.4, 6.3.2, 9.0, B.2.6** | **TABLE: Temperature measurements** | | | P |
|---|---|---|---|---|
| | Supply voltage (V) ..... : | 90Va.c./60Hz | 264Va.c./50Hz | -- |
| | Ambient $T_{min}$ (°C) ..... : | 23,6 | 24,4 | -- |
| | Ambient $T_{max}$ (°C) ..... : | 25,0 | 25,0 | -- |
| | Tma (°C) ..... : | 55,0 | 55,0 | -- |
| Maximum measured temperature T of part/at: | | T (°C) | | Allowed $T_{max}$ (°C) |
| New main board with power supply SFXA1511A | | | | |

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

| | | | |
|---|---|---|---|
| T1 coil | 73,4 | 73,2 | 110 |
| T1 core | 69,0 | 69,1 | 110 |
| CN1 | 61,9 | 61,1 | 85 |
| C5 | 67,6 | 63,1 | 105 |
| C1 | 64,3 | 61,9 | 105 |
| LC1 | 63,7 | 61,3 | 130 |
| L3 | 67,3 | 63,4 | 130 |
| PCB near BD1 | 71,8 | 64,4 | 130 |
| MOV1 | 62,2 | 61,5 | 85 |
| PCB near U1(DS-82133) | 70,2 | 70,5 | 130 |
| BAT | 70,0 | 70,2 | Ref |
| PCB near U1(DS-80570_P) | 76,0 | 76,1 | 130 |
| Plastic enclosure(inside) | 60,5 | 60,7 | 85 |
| Plastic enclosure* | 31,4 | 31,5 | 94 |
| Metal enclosure* | 38,7 | 38,9 | 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 applicable requirementenclosure
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 temperature point list in this table has shifted to Tma 40

| **5.4.1.10.3** | **TABLE: Ball pressure test of thermoplastics** | | P |
|---|---|---|---|
| Allowed impression diameter (mm) ..... : | | ≤ 2 mm | - |
| Object/Part No./Material | Manufacturer/trademark | Test temperature (°C) | Impression diameter (mm) |
| Front of enclosure | See table 4.1.2 | 85 | 1,2 |
| Supplementary information: | | | |
| | | | |

| **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 | | — |
| Component No. | Abnormal Condition | Supply voltage, (V) | Test time | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation | |
| Test with new main board and Building-in power supply model name: SFXA1071A | | | | | | | | | |

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ventilation Openings | blocked | 90 | 3h | F1 | 1,21 | K | Max termperature as below:<br>T1 coil: 55,6°C;<br>T1 core: 51,9°C;<br>Metal enclosure: 37,8C;<br>Ambient: 24,1°C | All safeguards remain effective. EUT normal work, no damage, no hazard. |

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.

Sc=Short circuit.

| **B.4** | **TABLE: Fault condition tests** | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| Ambient temperature (°C) ..... : | | | | | 25°C | | | -- |
| Power source for EUT: Manufacturer, model/type, output rating .: | | | | | -- | | | -- |
| Component No. | Fault Condition | Supply voltage, (V) | Test time (ms) | Fuse no. | Fuse current, (A) | T-couple | Temp. (°C) | Observation |
| Test with new main board and Building-in power supply model name: SFXA1071A | | | | | | | | |
| Fans | Locked | 90 | 3h | F1 | 1,21 | K | Max termperature as below:<br>T1 coil: 85,6°C;<br>T1 core: 77,3°C;<br>Metal enclosure: 30,8C;<br>Ambient: 24,3°C | EUT restarted once, no damage, no hazard. |

Supplementary information:

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

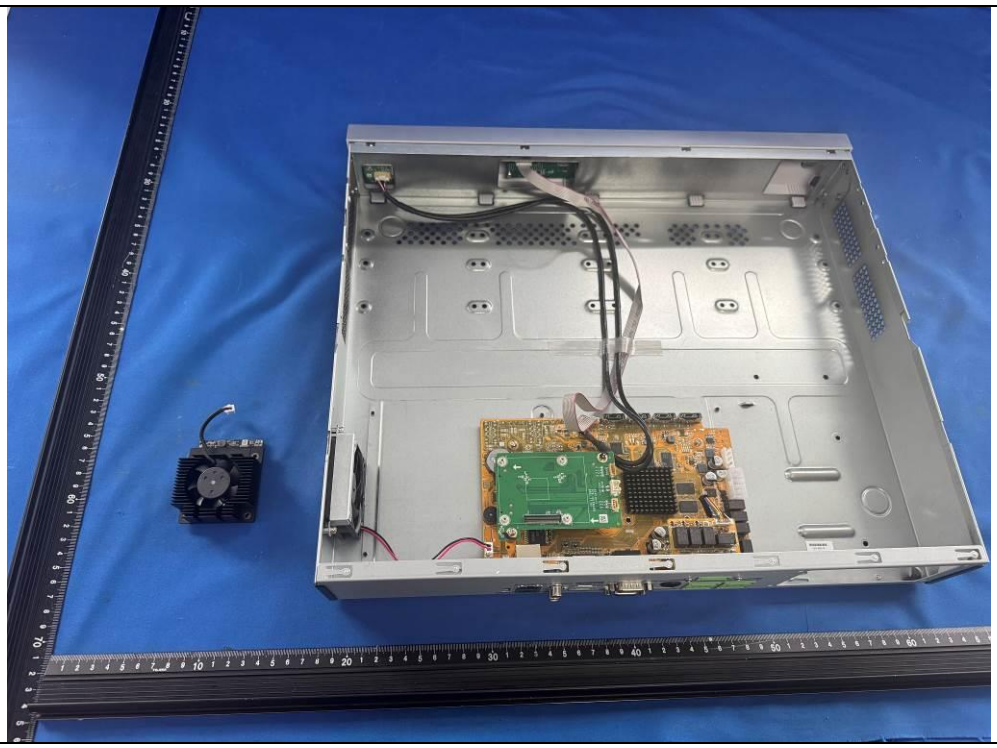
| **Annex M.3** | **TABLE: Batteries** | | | | | | | | | P |
|---|---|---|---|---|---|---|---|---|---|---|
| The tests of Annex M are applicable only when appropriate battery data is not available | | | | | | | | | | P |
| Is it possible to install the battery in a reverse polarity position?..... : | | | | | | | No | | | N/A |
| | 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 | 0,006mA | -- | -- | -- | -- | -- | -- | -- | -- | |
| Max. current during fault condition | 1,73mA CA2 SC | -- | 2,07mA DN2 Pin1-2 SC | -- | -- | -- | -- | -- | -- | |
| | | | | | | | | | | |
| 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 | | | | | | | | | | N/A |
| Supplementary information: | | | | | | | | | | |
| Sc=Short circuit. | | | | | | | | | | |

---End of Report---

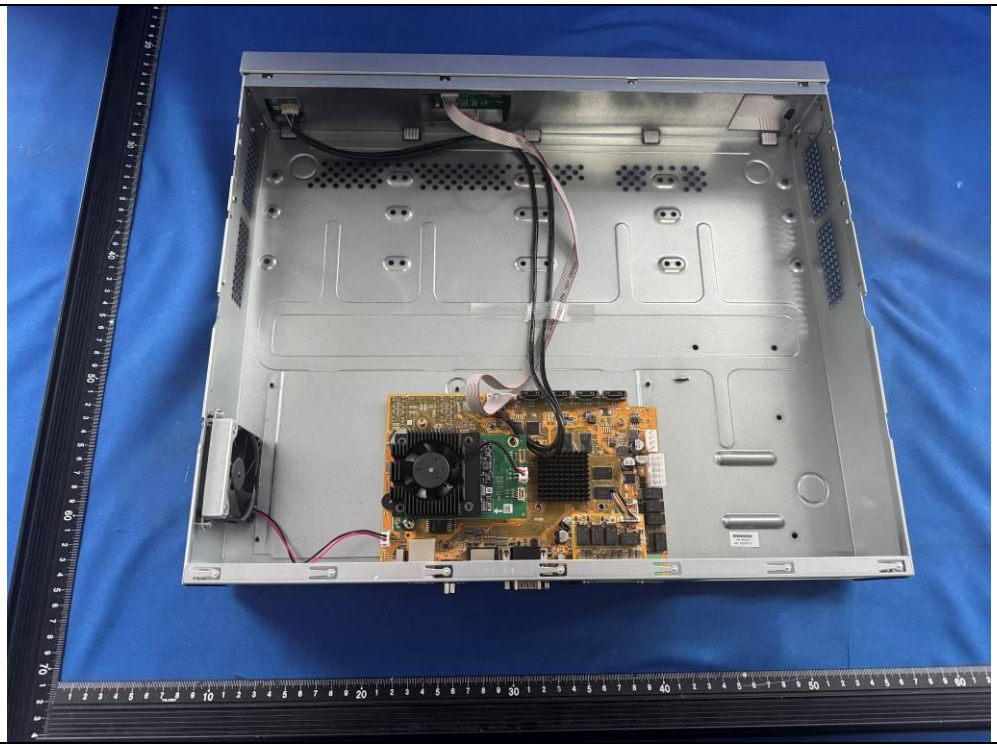
Details of: General View with new front panel


Details of: General View with new front panel

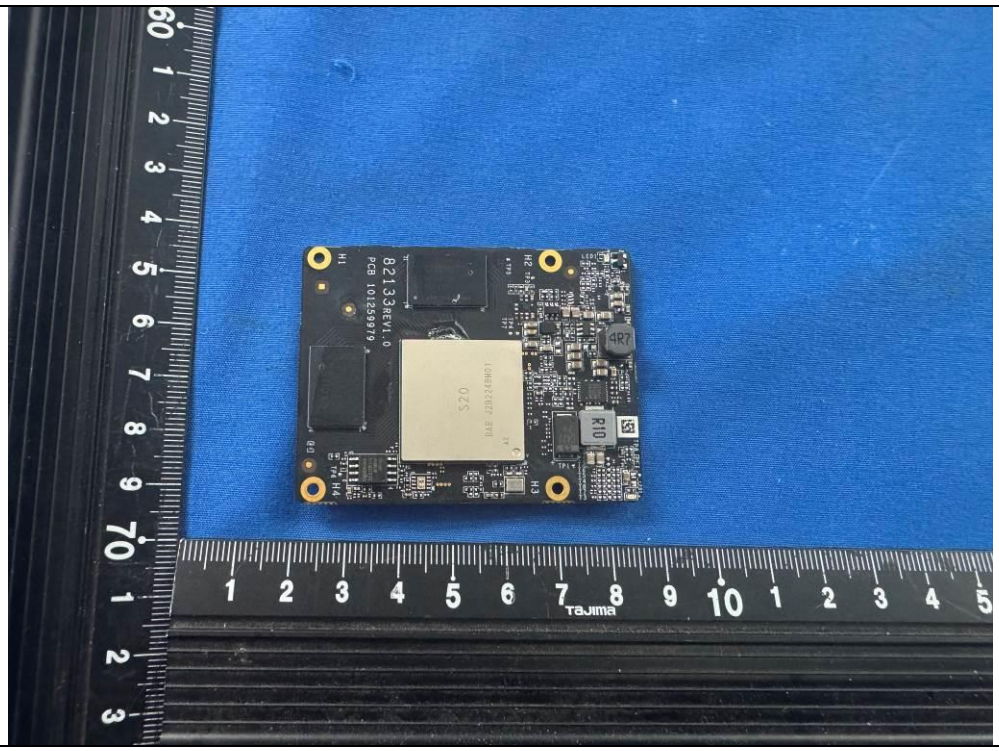
Details of: Internal View



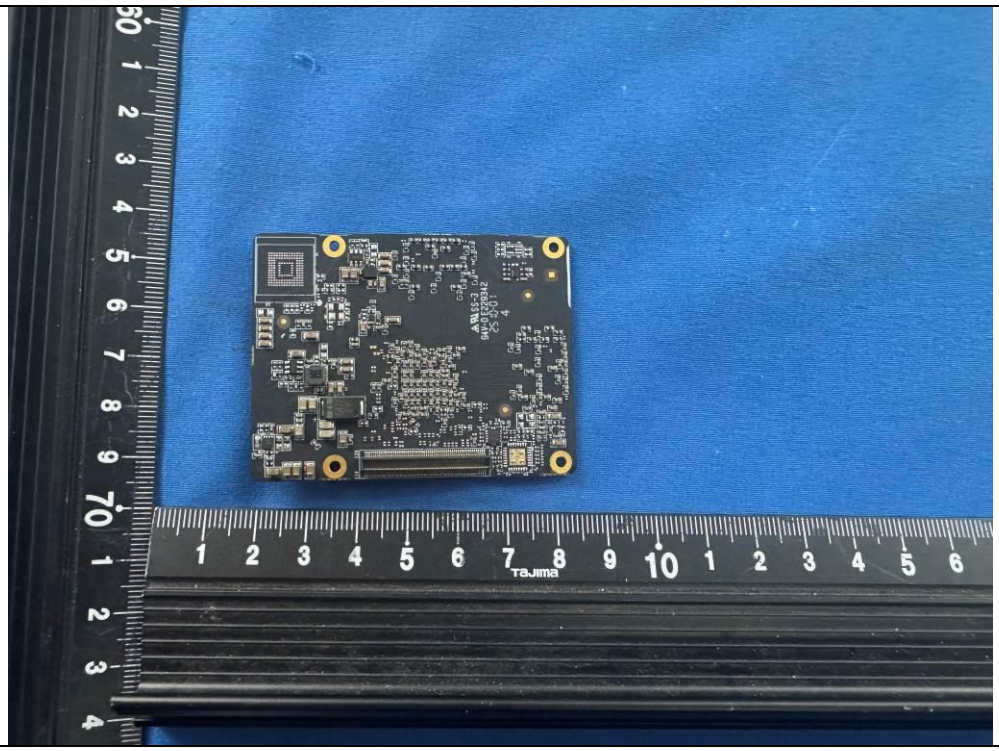
Details of: Internal View



Details of: General View




Details of: Terminal View




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