**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 ..... :** | SHES210701323703-M2 |
| **Date of issue ..... :** | 2021-07-21; Amendment 1: 2022-08-10; Amendment 2: 2024-02-06 |
| **Total number of pages ..... :** | 19 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 | |
| **Manufacturer..... :** | | Same as applicant | |
| **Model/Type reference ..... :** | | See pages 7 | |
| **Ratings ..... :** | | 100-240 V~, 50/60 Hz, 2,2 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) .....:** | | Emilien Li<br>Project Engineer | Emilien Li |
| **Approved by (name, function, signature) .....:** | | Leo Wang<br>Reviewer | Leo Wang |
| | | | |
| ☐ | **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):**

N/A

**Summary of testing:**

N/A

| **Tests performed (name of test and test clause):** | **Testing location:** |
|---|---|
| N/A | N/A |

**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 product fulfils the above requirements, which have been considered in original CB test report Ref. No. SHES210701323701, dated on 2021-07-21 and SHES210701323701-M1, dated on 2022-08-10 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.

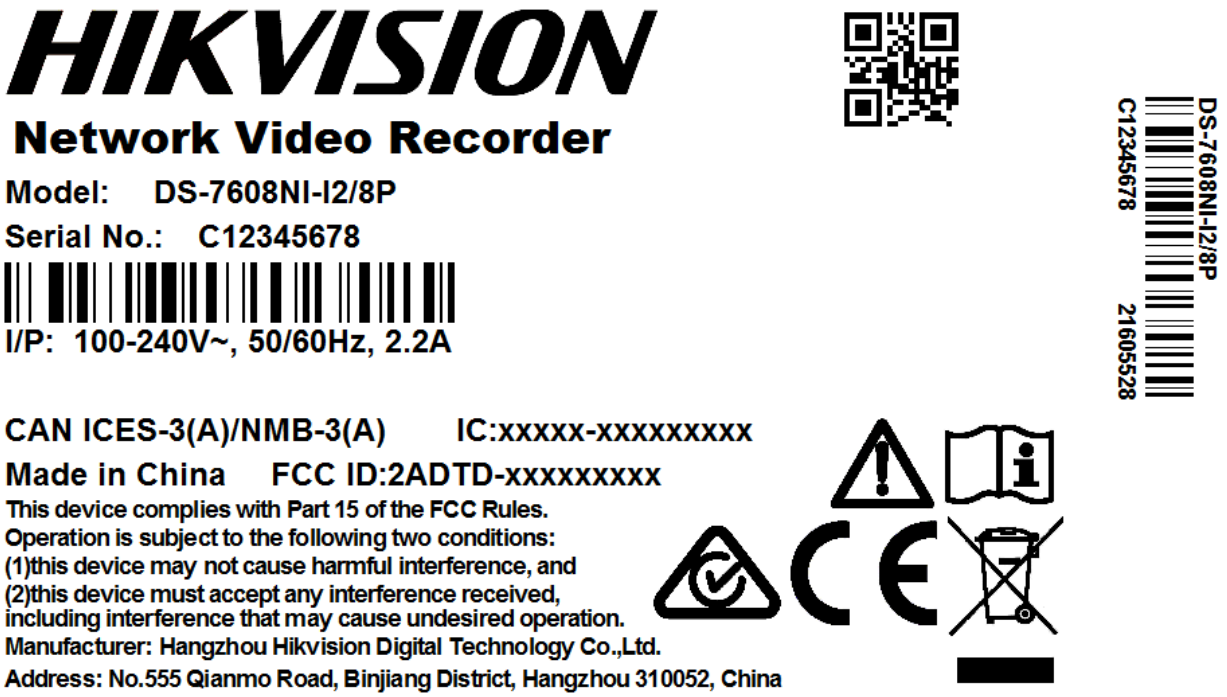
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

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 of DS-7608NI-I2/8P**




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.

| 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: __ |
| **Considered current rating of protective device as part of building or equipment installation** ..... : | 20 A;<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<br>☐ Class II with functional earthing<br>☐ Not classifed |
| **Access location** ..... : | ☐ restricted access area ☒ 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 - ____ $V_{L-L;}$ ☐ dc mains<br>☐ N/A |
| **Altitude during operation (m)** ..... : | ☒ 2000 m or less ☐ _____ m |
| **Altitude of test laboratory (m)** ..... : | ☐ 2000 m or less ☒ 100 m |
| **Mass of equipment (kg)** ..... : | ☒ 3,41 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.....:** | N/A |
| **Date (s) of performance of tests .....:** | N/A |

**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, date 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 product is a Network Video Recorder that contains one certified internal power supply, Max two HDDs, one side Fan and one main board with one system Fan, all components are mounted in min V-1 PWB and enclosed by metal and plastic enclosure. |
| Material of enclosure | Plastic & Metal |
| Other features | Indoor use only |

Model list:

| | | |
|---|---|---|
| DS-7808NXI-I2/8P/S | DS-7808NXI-I2/8P/SUHK | DS-7808NXI-I2/8P/SCKV |
| DS-7808NXI-I2/8P/SUVS | DS-7808NXI-I2/8P/SKVO | DS-7808NXI-I2/8P/SHUN |
| DS-7608NXI-I2/8P/S | DS-7608NXI-I2/8P/SUHK | DS-7608NXI-I2/8P/SCKV |
| DS-7608NXI-I2/8P/SUVS | DS-7608NXI-I2/8P/SKVO | DS-7608NXI-I2/8P/SHUN |
| iDS-7608NXI-I2/8P/X | iDS-7608NXI-I2/8P/X/S | iDS-7608NXI-I2/8P/X/SUHK |
| iDS-7608NXI-I2/8P/X/SCKV | iDS-7608NXI-I2/8P/X/SUVS | iDS-7608NXI-I2/8P/X/SKVO |
| iDS-7608NXI-I2/8P/X/SHUN | DS-7608NI-I2/8P | *DS-78***N*I-I2/8P********** |
| *DS-76***N*I-I2/8P********** | DS-7608NI-K2/8P | DS-7808NI-K2/8P |
| *: 0 -9 or A-Z or “-” or “/” or "(" or ")" or blank. | | |

**Amendment 1 Report:**

The original Test Report Ref. No. SHES210701323701, dated on 2021-07-21 was modified to include following changes and/or additions:

- Update the main board with PSE chip for PoE port. Details see attachment 1.
- Add a new model: DS-7608NI-K2/8P.
- Update Australia and New Zealand national differences, please see attachment 2 for details.

After comparison, tests of clause B.2.5 and Annex Q.1 were considered necessary. The EUT with model DS-7608NI-K2/8P and DS-7808NXI-I2/8P/S were selected as representative model for part testing.

**Amendment 2 Report:**

The original Test Report Ref. No. SHES210701323701, dated on 2021-07-21 and SHES210701323701-M1, dated on 2022-08-10 were modified to include following changes and/or additions:

- Add some approved IC and PPTC for USB and HDMI ports, please see table 4.1.2 for details.
- Add two approved DC fans, please see table 4.1.2 and clause 8.5 for details.
- Add a new model DS-7808NI-K2/8P which is identical except for model name which has no impact on safety.
- Update the standard of switching power supply and DC fan, please see table 4.1.2 for details.

After evaluation, no additional test was considered necessary.

This test report is not valid without the original CB Test Report Ref. No. SHES210701323701, dated on 2021-07-21 and SHES210701323701-M1, dated on 2022-08-10.

**Model Differences –**

All models are identical to each other except for model designation, internal power supply and main board.

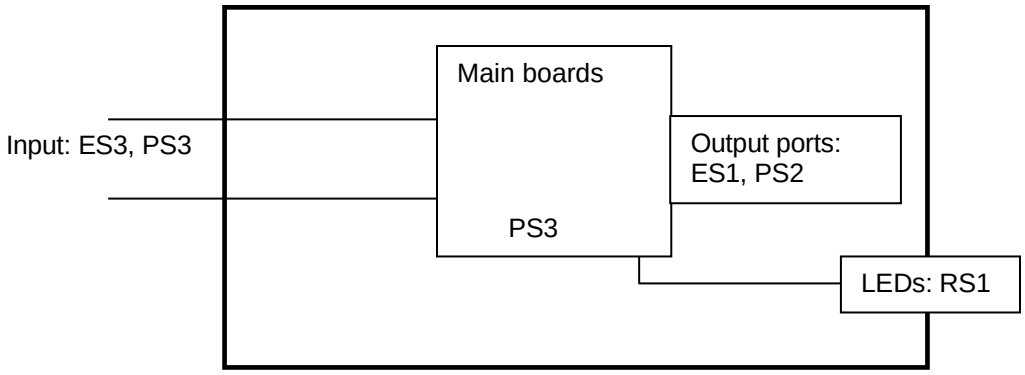
**Additional application considerations – (Considerations used to test a component or sub-assembly) –**

None

| **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)** |
| AC input and circuit of Power supply module | ES3 |
| Power supply module output (Power supply) | ES1 |
| All output ports | ES1 |
| Earthed conductive 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)** |
| Internal circuit | PS3 |
| Terminal | PS2 |
| **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 RTC 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 | RS1 |

**ENERGY SOURCE DIAGRAM**

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




Enclosure: ES1, MS1, TS1
Mass: MS1; DC fan: 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 | ES3: AC input and circuit of Power supply module | N/A | N/A | Certified power supply module |
| Ordinary | ES1: Power supply module outputs (Power supply) | N/A | N/A | N/A |
| Ordinary | ES1: All output ports | N/A | N/A | N/A |
| Ordinary | ES1: Earthed conductive 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. | N/A |
| 7.1 | Injury caused by hazardous substances | | | |
| Body Part (e.g., skilled) | Energy Source (hazardous material) | Safeguards | | |
| | | Basic | Supplementary | Reinforced |
| Lithium RTC battery | Lithium-ion | 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 | 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: | | | | |
| (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 |
| **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 |
| 8.5 | Safeguards against moving parts | The DC Fan is within the limits under normal and fault conditions.<br>Fan located at side of enclosure:<br>DC Fan HA40101V4-000C-999:<br>$K=6x10^{-7}(0,0147x20^2x4500^2)$<br>=71,44<br>4500/15000+71,44/2400<br>=0,33<1; MS1<br>Alternative KD1204PFB3:<br>$K=6x10^{-7}(0,013x20^2x5000^2)$<br>=78,00<br>5000/15000+78/2400<br>=0,37<1; MS1<br>**Alternative MGA4012SB-O10:**<br>**$K=6x10^{-7}(0,013x20^2x5200^2)$**<br>**=84,36**<br>**5200/15000+84,36/2400**<br>**=0,38<1; MS1**<br>**Alternative DAZA0410B2H-020:**<br>**$K=6x10^{-7}(0,015x20^2x5000^2)$**<br>**=90,00**<br>**5000/15000+90/2400**<br>**=0,37<1; MS1**<br>Alternative DC Fan MGA4012LB-O15:<br>$K=6x10^{-7}(0,016x18,5^2x4500^2)$<br>=66,53<br>4500/15000+66,53/2400<br>=0,33<1; MS1<br>According to above calculation, moving fans blade are considered not likely to cause injury. | P |
| 8.5.1 | MS2 or MS3 part required to be accessible for the function of the equipment | | N/A |
| 8.5.2 | Instructional Safeguard..... : | | — |
| 8.5.4 | Special categories of equipment comprising moving parts | Not such equipment. | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.5.4.1 | Large data storage equipment | | N/A |
| 8.5.4.2 | Equipment having electromechanical device for destruction of media | | N/A |
| 8.5.4.2.1 | Safeguards and Safety Interlocks .....: | (See Annex F.4 and Annex K) | N/A |
| 8.5.4.2.2 | Instructional safeguards against moving parts | | N/A |
| | Instructional Safeguard.....: | | — |
| 8.5.4.2.3 | Disconnection from the supply | | N/A |
| 8.5.4.2.4 | Probe type and force (N) .....: | | N/A |
| 8.5.5 | High Pressure Lamps | | N/A |
| 8.5.5.1 | Energy Source Classification | | N/A |
| 8.5.5.2 | High Pressure Lamp Explosion Test.....: | (See appended table 8.5.5.2) | N/A |

| 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]** |
| Power Supply Cord (Optional) | Interchangeable | Interchangeable | Detachable, Min.1,5m, 18 AWG Min. Type SVT or SJT or SPT-2 or NISPT-2 flexible cord, rated Min. 125V, if one end terminated in NEMA 5-15P; rated Min. 250V, if one end terminated in NEMA 6-15P, the other end in an appliance coupler. | UL 62 and UL 498, UL 817 | UL |
| Interconnecting Cable (Optional) | Interchangeable | Interchangeable | Max. 3,05m long, rated VW-1 or better. | UL 758 | UL |
| Interconnecting Cable (Optional) (Alternate) | Interchangeable | Interchangeable | Suitable for external use. Type CMP, CMR, CMG, or CM. For type CMX, or CMUC, maximum 3,05m long. | UL 444 | UL |
| Interconnecting Cable (optional) (Alternate) | Interchangeable | Interchangeable | With RJ-45 type connector. | UL1863 | UL |
| Internal Wiring, | Interchangeable | Interchangeable | Marked VW-1; 80°C, Min. 60Vdc. | UL758 | UL |
| Connectors and Receptacles (Secondary ES1circuits) | Interchangeable | Interchangeable | Metal/ Coper alloy pins housed in bodies of plastic rated Min. V-2 for not pluggable Connectors, or min V-1 for pluggable Connectors. Or min V-1 when fill an opening in a fire enclosure. | UL 94, UL746C | UL |
| Internal Plastic Parts Materials | Interchangeable | Interchangeable | Min. V-2, or Min. HF-2. | UL 94 | UL |

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

| | | | | | |
|---|---|---|---|---|---|
| Internal Plastic Parts Materials (Alternate) | Interchangeable | Interchangeable | Min. HB or HBF, when foamed plastic parts are separated from electrical parts (other than insulated wires and cables) by at least 13mm of air or by a solid barrier of V-1 class material. | UL 94 | UL |
| Internal Plastic Parts Materials (Optional)(Alternate) | Interchangeable | Interchangeable | Flammability level is ignored, when small parts (Max. 4g or Max. 1750mm^3) are mounted on V-1 class material. | -- | -- |
| Insulating Tubing/ Sleeving | Interchangeable | Interchangeable | Marked VW-1 | UL758 | UL |
| Printed Wiring Board (PWB) | Interchangeable | Interchangeable | Min. V-1, Min. 105°C | UL796 | UL |
| Metal Enclosure | Interchangeable | Interchangeable | Metal, Min. 0.6mm thick. See enclosure 4-01 for detail. | IEC62368-1:2014 | Test with appliance |
| Switching Power Supply | Delta Electronics Inc. | DPS-200PB-185 A | Input：100-240~ 3,5A 47Hz-63Hz；output+12V 5 A， +52V 2,5A MAXPOWER 190W, 45 °C, 5000m | IEC 62368-1:2014 | CB by TUV Rheinland (Certificate no.: JPTUV-084195-M2) |
| Alternative | CHANNEL WELL TECHNOLOGY CO., LTD | KSA-180S2 | input：100-240~3A 47-63Hz；output：+52Vdc2,5A;+12 Vdc5,0A; MAXPOWER180 W, 2000m, 40 °C | IEC 62368-1:2014 | CB by TUV Rheinland (Certificate no.: JPTUV-073674) JPTUV-109369 |
| Alternative | Shenzhen Honor Electronic Co., LTD | P1A-N10190-S-F2 | Input: 100-240V a.c., 47/63Hz, 3,5A<br>Output: 12V d.c., 5A; 53V d.c., 2,83A<br>Max 190W | IEC62368-1:2014 | UL, CB by TUV Rheinland (Certificate no.: JPTUV-096984) |

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

| | | | | | |
|---|---|---|---|---|---|
| Fan located at side of enclosure, one provided | Sunonwealth Electric Machine Industry Co., Ltd | HA40101V4-000C-999 | 12VDC, 75mA Max, 0,9W Max, Min. 5,3CFM, 4500RPM±15% | EN 62368-1:2014 | TÜVRheinland Cert. No.: R 50016065 |
| Alternative | Sunonwealth Electric Machine Industry Co., Ltd | KD1204PFB3 | 12V DC, 55mA, 0,7W, 5,7 CFM, 5000RPM±10% | EN 62368-1:2014 | TÜVRheinland Cert. No.: R 50019837 |
| **Alternative** | **Dongguan Protechnic Electric Co., Ltd.** | **MGA4012SB-O10** | **12V DC, 0,06A, 0,72W, 6,07 CFM, 5200RPM±10%** | **EN 62368-1:2014/A11:2017** | **TÜVSÜD Cert. No.: No. B 031023 0138 Rev. 00** |
| **Alternative** | **Asia Vital Components Co., Ltd.** | **DAZA0410B2H-020** | **12V DC, 0,06A Max, 0,72W Max, 6,89CFM, 5000RPM±15%** | **EN 62368-1:2014/A11:2017** | **TÜVSÜD Cert. No.: No. B 025730 0883 Rev. 16** |
| Located at the main board | DONGGUAN PROTECHNIC ELECTRIC CO LTD | MGA4012LB-O15 | 12Vdc, 0,09A, 6,15CFM, 4500RPM±10% | EN 62368-1:2014/A11:2017 | TÜV SÜD: No. B 047634 0002 Rev.00 |
| RTC Battery | GUANGZHOU TIANQIU ENTERPRISE CO LTD | CR1220 | Max Abnormal Charging Current 2,5mAMax Abnormal Charging Voltage 3,5V dc | UL 1642 | UL MH48705 |
| PTC (RA121) for HDMI port | WAYON ELECTRONICS CO LTD | LP-TSM020 | 9Vdc, Ih=0,2A, It=0,5A, CA=1(max. 120), 2, 3, 4.<br>Tmoa=85 °C | UL 1434, EN 62319-1-1:2005<br>EN 62319-1:2005 | UL E202125<br>TUV R 50318402 |
| **Alternative** | **Wayon Electronics Co., Ltd.** | **LP-TSM020, 0603** | **Maximum non operating current: 0,2A; Minimum operating current: 0,5A 1A, 0,6s Max** | **EN 62319-1:2005 EN 62319-1-1:2005** | **TÜVRheinland: R50318402** |
| **Alternative** | **Polytronics Technology Corp.** | **SMD0603P020TF** | **Maximum non operating current: 0,2A; Minimum operating current: 0,5A 1A, 0,6s Max** | **IEC 62319-1-1:2005**<br>**EN 62319-1-1:2005**<br>**IEC 62319-1:2005**<br>**EN 62319-1:2005** | **TÜVRheinland: R50099121** |

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

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| Component IC Overcurrent Protector (IC (UL3) provided for Front USB 2.0 port/ IC (UL4) provided for Back USB 3.0 port/ for terminal ports) | DIODES INC | AP2822, followed by A - H, followed by N or Blank, followed by K, KA, KB or KE, followed by TR-G1. | Input Voltage: 2,7 -5,5 Vdc, Output Continuous Rating: 0,5-2,0 A, Output Current Limit: 1,4-3,2 A | UL 2367, IEC 62368-1:2014, IEC 60950-1+A1+A2 | UL, CB by UL (Certificate no.: US-34501-UL) for IEC 62368-1:2014; CB by UL (Certificate no.: US-24736-UL) for IEC 60950-1+A1+A2 |
| **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** | **AP22816AKBWT-7** | **2,7-5,5V, 1A** | **IEC 62368-1:2018** | **UL CB Ref. Certif. No.: US-38695-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** | **AP22818AKBWT-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** | **Richtek Technology Corp.** | **RT9742CGJ5F** | **2,7-6V, 2A** | **IEC 62368-1:2014** | **Nemko: CB Ref. Certif. No.: NO109777** |
| **Alternative** | **Richtek Technology Corp.** | **RT9742GGJ5F** | **2,7-6V, 1A** | **IEC 62368-1:2014** | **Nemko: CB Ref. Certif. No.: NO109777** |
| **Alternative** | **Richtek Technology Corp.** | **RT9742VGJ5** | **2,7-6V, 2A** | **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** |

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

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| **Alternative** | **SG Micro Corp** | **SGM2580CYN5G/TR** | **2,7-5,5V, 1A** | **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**<br>**SGS: SGSNA/22/SH/00150** |
| **Alternative** | **SG Micro Corp** | **SGM2584AYN5G/TR** | **2,5-5,5V, 1,1A** | **IEC 60950-1:2005/AMD1:2009, IEC 60950-1:2005/AMD2:2013,**<br>**IEC 60950-1:2005**<br>**IEC 62368-1:2018** | **UL CB Ref. Certif. No.: DK-82510-UL SGS CB Ref. Certif. No.: BE-39069** |
| **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**<br>**SGS: SGSNA/22/SH/00150** |

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

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|---|---|---|---|---|---|
| **Alternative** | **SG Micro Corp** | **SGM2588GYN5 GTR** | **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**<br>**SGS: SGSNA/22/SH/00150** |
| **Alternative** | **Shenzhen Lowpower Semiconductor CO., Ltd** | **LPW5202SDB5 F11** | **2,4V-6V, 1,2A** | **IEC 62368-1:2018** | **TÜVRheinland: JPTUV-141625** |
| Front Plastic enclosure | KINGFA SCI & TECH CO LTD | HF-606 | 2,5mm Thickness, V-0, 60 °C | UL 94, UL 746C | UL |
| Supplementary information:<br>[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

---End of Report---