Test Report issued under the responsibility of:

# TEST REPORT

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

| | |
|---|---|
| **Report Number. .....:** | **C16O055-A3C0** |
| **Date of issue .....:** | 2018-12-07 |
| **Total number of pages.....** | 13 pages |
| **Applicant's name.....:** | Hanwha Techwin Co., Ltd. |
| **Address .....:** | 6, Pangyo-ro 319beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, REPUBLIC OF KOREA |
| **Test specification:** | |
| **Standard.....:** | IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 |
| **Test procedure .....:** | CB Scheme |
| **Non-standard test method.....:** | N/A |
| **Test Report Form No.....:** | IEC60950_1F |
| **Test Report Form(s) Originator .....:** | SGS Fimko Ltd |
| **Master TRF.....:** | Dated 2014-02 |

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**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** ..... : | Network Video Recorder |
| **Trade Mark** ..... : | WISENET |
| **Manufacturer** ..... : | HANWHA TECHWIN (TIANJIN) CO.,LTD<br>No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China |
| **Model/Type reference** ..... : | XRN-1610S*, XRN-1610SP/DM, XRN-1610SA<br>(* is N or P: N=NTSC, P=PAL) |
| **Ratings** ..... : | Input : 100-240 V~, 50/60 Hz, 6-3 A |

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|---|---|---|---|
| **Testing procedure and testing location:** | | | |
| ☒ | **CB Testing Laboratory**: | CTK Co., Ltd. | |
| **Testing location/ address .....:** | | (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF | |
| ☐ | **Associated CB Testing Laboratory:** | | |
| **Testing location/ address .....:** | | N/A | |
| **Tested by (name + signature) .....:** | | JungKyu Yang, Project handler | |
| **Approved by (name + signature) .....:** | | KwangWon Lee, Reviewer | |
| | | | |
| ☐ | **Testing procedure: TMP/CTF Stage 1:** | | |
| **Testing location/ address .....:** | | N/A | |
| **Tested by (name + signature) .....:** | | N/A | |
| **Approved by (name + signature) .....:** | | N/A | |
| | | | |
| ☐ | **Testing procedure: WMT/CTF Stage 2:** | | |
| **Testing location/ address .....:** | | N/A | |
| **Tested by (name + signature) .....:** | | N/A | |
| **Witnessed by (name + signature) .....:** | | N/A | |
| **Approved by (name + signature) .....:** | | N/A | |
| | | | |
| ☐ | **Testing procedure: SMT/CTF Stage 3 or 4:** | | |
| **Testing location/ address .....:** | | N/A | |
| **Tested by (name + signature) .....:** | | N/A | |
| **Witnessed by (name + signature).....:** | | N/A | |
| **Approved by (name + signature) .....:** | | N/A | |
| **Supervised by (name + signature) .....:** | | N/A | |
| | | | |

| |
|---|
| **List of Attachments (including a total number of pages in each attachment):**<br>N/A |
| **Summary of testing:** |

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

**Summary of compliance with National Differences**

**List of countries addressed:** Canada, USA and European group differences and national differences

☒ **The product fulfils the requirements of IEC 60950-1:2005 + Am 1:2009 + Am 2:2013 and/or EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013**

**Copy of marking plate**

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
















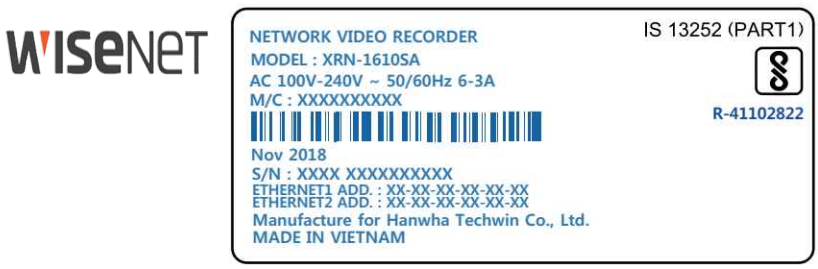

| | |
|---|---|
| **Test item particulars..... :** | |
| **Equipment mobility..... :** | [X] movable [] hand-held [] transportable<br>[] stationary [] for building-in [] direct plug-in |
| **Connection to the mains ..... :** | [X] pluggable equipment [X] type A [] type B<br>[] permanent connection<br>[X] detachable power supply cord<br>[] non-detachable power supply cord<br>[] not directly connected to the mains |
| **Operating condition..... :** | [X] continuous<br>[] rated operating / resting time: |
| **Access location ..... :** | [X] operator accessible<br>[] restricted access location |
| **Over voltage category (OVC) ..... :** | [] OVC I [X] OVC II [] OVC III [] OVC IV<br>[] other: |
| **Mains supply tolerance (%) or absolute mains supply values ..... :** | +10 %, -10 % |
| **Tested for IT power systems ..... :** | [] Yes [X] No |
| **IT testing, phase-phase voltage (V) ..... :** | N/A |
| **Class of equipment ..... :** | [X] Class I [] Class II [] Class III<br>[] Not classified |
| **Considered current rating of protective device as part of the building installation (A) ..... :** | 16 A or 20 A |
| **Pollution degree (PD) ..... :** | [] PD 1 [X] PD 2 [] PD 3 |
| **IP protection class ..... :** | IP X0 |
| **Altitude during operation (m) ..... :** | Up to 2000 |
| **Altitude of test laboratory (m) ..... :** | 180 |
| **Mass of equipment (kg) ..... :** | 6.4 |
| **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.<br>"(see appended table)" refers to a table appended to the report.<br><br>**Throughout this report a ☐ comma / ☒ point is used as the decimal separator.** | |

| **Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:** | |
|---|---|
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... : | ☒ Yes<br>☐ Not applicable |

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

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

1. D-TECH CO., LTD.
   5, Omokcheon-ro 132beon-gil, Gwonseon-gu, Suwon-si, Gyeonggi-do, Republic of Korea
2. HANWHA TECHWIN (TIANJIN) CO.,LTD.
   No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 P eople's Republic of China
3. HANWHA TECHWIN SECURITY VIETNAM COMPANY LIMITED
   Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam.

**General product information:**

1. Test samples are pre-production without serial number.
2. Maximum Specified ambient temperature is 40 °C.
3. The equipment is Class I with certified SMPS used.
4. All test conducted with XRN-1610SN at condition as manufacturer provided below;
   USB port (2 EA): 5 Vdc, 1.0 A loaded as manufacturer request.
   Hard disk-drive (Seagate, ST3500414CS) 4 EA connected as manufacturer provided.
   CCD Camera (Samsung Techwin Co., Ltd., type SNV-6012W) 16 EA connected as manufacturer provided.
5. The samples submitted for evaluation are representative of the final product and have the same quality in items of safety aspect from each factory.

**Model differences**

Model XRN-1610S* is basic model.

Model XRN-1610SP/DM is identical to XRN-1610S* except model designation and print silk

Model XRN-1610SA is identical to XRN-1610S* except model designation and distribution channel

**Amendment 1 Report:**

The original test Report Ref. No. C16O055-A0C0, dated 2016-07-12 was amended on 2017-10-24 to include the following changes, which were not considered technical modifications:

1. Addition of model for XRN-1610SP/DM
2. Addition of label for XRN-1610SP/DM
3. Addition of Model differences.

4. Change of Manufacturer and factory name from Tianjin Samsung Techwin Opto-Electronic Co., Ltd to HANWHA TECHWIN(TIANJIN) CO LTD
5. Change of Hanwha Techwin Co., Ltd address from 1204, Changwondae–ro, Sungsan-gu, Changwon-si, Gyeongsangnam-do, Korea to 42 SUNGJU-DONG, CHANGWON-SI GYEONGNAM 641-716, REPUBLIC OF KOREA

**Amendment 2 Report**
The Amendment 1 test Report Ref. No. C16O055-A1C0, dated 2017-10-24 was modified on 2018-05-17 to include the following changes and/or additions, which were considered technical modifications

1. Change of applicant address from SUNGJU-DONG, CHANGWON-SI GYEONGNAM 641-716, REPUBLIC OF KOREA to 6, Pangyo-ro 319beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, REPUBLIC OF KOREA
2. Addition of factory for HANWHA TECHWIN SECURITY VIETNAM COMPANY LIMITED and D-TECH CO., LTD
3. Change of label
4. Change of trade mark.
5. Deletion of factory for Hanwha Techwin Co., Ltd

**Amendment 3 Report**
The Amendment 2 test Report Ref. No. C16O055-A2C0, dated 2018-05-17 was modified on 2018-12-07 to include the following changes and/or additions, which were considered technical modifications

1. Addition of model for XRN-1610SA
2. Addition of label for XRN-1610SA
3. Addition of model difference.

**Abbreviations used in the report:**

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

Indicate used abbreviations (if any)

| IEC 60950-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **1** | **GENERAL** | | P |
| **1.5** | **Components** | | P |
| 1.5.1 | General | | P |
| | Comply with IEC 60950-1 or relevant component standard | (see appended table 1.5.1) | P |

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

| 1.5.1 | TABLE: List of critical components | | | | P |
|---|---|---|---|---|---|
| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard (Edition / year) | Mark(s) of conformity [1]) |
| - Description: | | | | | |
| Power cord set | Longwell Company | LS-60, with cord H05VV-F 3G 0.75-1-1.5<br>LP-34A | 16 A, 250 V~<br>3 x 0.75 $mm^2$<br>10 A, 250 V~ | EN 60320-1:2001 + A1:2007 | FIMKO (FI 29082) |
| (alternate) | Weihai Hong Lin Electronic Co., Ltd. | HL-013 + H05VV-F 3G 0.75 $mm^2$ + HL-026<br>HL-014 + H05VV-F 3G 0.75 $mm^2$ + HL-026 | 16 A, 250 V~<br>3 x 0.75 $mm^2$<br>10 A, 250 V~ | EN 60320-1<br>EN 60799<br>K60799 | VDE (40022736)<br>KC (SU01054-11002) |
| (alternate) | Weihai Hong Lin Electronic Co., Ltd. | HL-002S (cord type SVT 18 AWG X 3),<br>HL-004 | 10A 125V~<br>SVT 3 x 18 AWG (0.824 $mm^2$), 105 °C, 300 V, VW-1 or FT2 | UL 817 | UL (E254927) |
| SMPS | Delta Electronics Inc | DPS-280AB-6 XX (DPS-280AB-6 A) | Rated input: 100-240 V~, 47-63Hz, 6.0-3.0 A<br>Rated output: 12 Vdc, 6 A, 55 Vdc, 4 A, Total Power 292 W | IEC/EN 60950-1<br>UL 60950-1 | TUV-Rh (JPTUV-057647)<br>UL (E131881) |
| Enclosure (Top) | Interchangeable | Metal | Min. 0.6 mm thickness. | IEC/EN 60950-1<br>UL 60950-1 | Tested in equipment |
| Enclosure (Bottom) | Interchangeable | Metal | Min. 0.6 mm thickness. | IEC/EN 60950-1<br>UL 60950-1 | Tested in equipment |
| Front Enclosure | Lotte Advanced Materials Co., Ltd. | TH-1100(+) | PC, V-0, 80 °C, Min. 2.0 mm thickness | UL 94<br>UL 746 | UL (E115797) |
| DC Fan | Minebea Co., Ltd. | 06025SS-12N-AT-D2 | 12 Vdc, 0.18 A,N: 4700 r/min, m: 0.065 kgr: 30 mm | UL 60950-1 | UL (E89936) |
| Hard Disk Drive (Max. 4 EA) | Seagate or Interchangeable | Interchangeable | SATA type, Max. 8 TB | IEC 60950-1<br>UL 60950-1 | Tested in equipment |

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

| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard (Edition / year) | Mark(s) of conformity [1]) |
|---|---|---|---|---|---|
| Lithium Battery (BAT1) | Energizer Battery Mfg Inc | CR2032 | Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 V dc, 240 mAh | UL 1642 | UL (MH29980) |
| (alternate) | Shenzhen Gaonengda Battery Co., Ltd. | CR2032 | Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 V dc, 210 mAh | UL 1642 | UL (MH30114) |
| (alternate) | Guangdong Tianqiu Electronics Technology Co., Ltd. | CR1220 | Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 V dc, 40 mAh | UL 1642 | UL (MH48705) |
| Reverse Current Protection Circuit for Lithium Coin Battery (BAT1) | Interchangeable | Interchangeable | Diode (D36: rated Min. 30 V, 1 A) and Resistor (R53: rated Min. 1 kohm) in series. | IEC/EN 60950-1<br>UL 60950-1 | Tested in equipment |
| USB Protection IC (U17 and U18) | Texas Instruments Inc | TPS2062 | Rated 2.7–5.5 Vdc, 1 A | UL 2367 | UL (E169910) |
| Internal Wiring (secondary) | Interchangeable | Interchangeable | FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 °C | UL 758 | UL |
| Flat wire Cable (secondary) | Interchangeable | Interchangeable | FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 °C | UL 758 | UL |
| Label | Interchangeable | Interchangeable | Min.70 °C if Max. surface temperature not specified. | UL 969 | UL |

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

| Object/part No. | Manufacturer/ trademark | Type/model | Technical data | Standard (Edition / year) | Mark(s) of conformity [1]) |
|---|---|---|---|---|---|
| PCB | Interchangeable | Interchangeable | Rated V-0, Min. 105 °C | UL796 | UL |
| supplementary information: | | | | | |
| **[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039. The CBTL has verified the component information.** | | | | | |

**List of test equipment used:**
A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or WMT/CTF stage 2 procedure has been used.

| Clause | Measurement / testing | Testing / measuring equipment / material used | Range used | Calibration date |
|---|---|---|---|---|
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