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The following material resulting from the investigation under the above numbers is enclosed.

**Issue**

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| Product Type            | Model/Type Reference                                                                                                                                                                                                                                                                                                       | Report Reference # | Status    |
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| Digital Video Recorder  | SVR-430                                                                                                                                                                                                                                                                                                                    | E158873-A2-UL      |           |
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| Digital Presenter       | SDP-760                                                                                                                                                                                                                                                                                                                    | E158873-A44-UL     |           |
| Network Camera          | SNP-5300H*, SNP-6201H* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                                                      | E158873-A45-UL     |           |
| Network Camera          | SND-7011*, SND-5011*, SND-5061*, SND-7061*, SNV-5010*, SNZ-5200* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                            | E158873-A46-UL     |           |
| Network Camera          | SNP-5300*, SNP-6201* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                                                        | E158873-A47-UL     |           |
| Digital Color Camera    | SCP-3371H*, SCP-2371H*, SCP-2271H*, SCP-2373H*, SCP-2273H* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                  | E158873-A48-UL     |           |
| Digital Color Camera    | SCP-3371*, SCP-2371*, SCP-2271*, SCP-2373*, SCP-2273* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                       | E158873-A49-UL     |           |
| Network Camera          | SND-7082*, SND-7082F*, SNV-7082* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                                            | E158873-A50-UL     |           |
| Network Camera          | SNB-7001*, SNB-5001*, SNB-3002* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                                             | E158873-A51-UL     |           |
| Network Camera          | SNO-7082R* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                                                                  | E158873-A52-UL     |           |
| Network Camera          | SNB-7002* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                                                                                   | E158873-A53-UL     |           |
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| Network Camera          | SNB-6004*, SNB-6003*, SNB-5004*, SNB-5003*, SNB-7004*, SNB-6005* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                            | E158873-A55-UL     |           |

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| DIGITAL COLOR CAMERA   | SCD-2022*, SCD-2022R*, SCD-2042R* (* is N or P: N = NTSC, P=PAL)                                                                | E158873-A58-UL |  |
| Digital Color Camera   | SCB-2004*, SCB-2005* (* is N or P: N = NTSC, P=PAL);                                                                            | E158873-A59-UL |  |
| Digital Color Camera   | SCD-2082*, SCV-2082R*, SCV-3083*, SCD-3083* (* is N or P: N = NTSC, P=PAL)                                                      | E158873-A60-UL |  |
| Network Camera         | SND-6084R*, SND-7084R*, SND-5084R* (* is N or P: N = NTSC, P=PAL)                                                               | E158873-A61-UL |  |
| NETWORK CAMERA         | SNO-6084R*, SNO-7084R* (* is N or P: N = NTSC, P=PAL)                                                                           | E158873-A62-UL |  |
| Network Camera         | SNV-6084R*, SNV-6084*, SNV-5084*, SNV-7084*, SNV-7084R*, SNV-5084R*, SNV-6084T* (* is N or P: N = NTSC, P=PAL)                  | E158873-A63-UL |  |
| Digital Color Camera   | SCO-2081R* (* is N or P: N = NTSC, P=PAL)                                                                                       | E158873-A64-UL |  |
| DIGITAL COLOR CAMERA   | SCB-2004*D, SCB-2005*D (* is N or P: N = NTSC, P=PAL)                                                                           | E158873-A65-UL |  |
| DIGITAL VIDEO RECORDER | SRD-1673D*, SRD-1654D*, SRD-854D*, SRD-852D*, SRD-1673*, SRD-1653*, SRD-873*, SRD-1640*, SRD-840* (* is N or P, N=NTSC / P=PAL) | E158873-A66-UL |  |
| Network Camera         | SNP-6200RH*, SCP-2370RH* (* is N or P: N=NTSC,P=PAL )                                                                           | E158873-A67-UL |  |
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| NETWORK CAMERA         | SCO-6081R* (* is N or P: N = NTSC, P=PAL)                                                                                       | E158873-A76-UL |  |
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| NETWORK CAMERA         | SNB-6010*, SNB-6010A*, SNB-6011*, SNB-6010B*, SNB-6011B* (* is N or P: N = NTSC, P=PAL)                                         | E158873-A85-UL |  |
| NETWORK CAMERA         | SNP-6320H*, SNP-5430H* (* is N or P: N = NTSC, P=PAL)                                                                           | E158873-A86-UL |  |
| NETWORK CAMERA         | SNP-6320*, SNP-5430* (* is N or P: N = NTSC, P=PAL)                                                                             | E158873-A87-UL |  |
| Network Video Recorder | SRN-472S, XRN-810S* (* is N or P: N = NTSC, P=PAL)                                                                              | E158873-A88-UL |  |
| Digital Video Recorder | SRD-1676D*, SRD-1656D*, SRD-876D* (* is N or P, N=NTSC/ P=PAL)                                                                  | E158873-A89-UL |  |

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| DIGITAL COLOR CAMERA   | SCO-5083R*, SCO-5081R* (* is N or P: N = NTSC, P=PAL)                                                                              | E158873-A101-UL |  |
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| Network Video Recorder | SRN-1673S*(* is N or P)                                                                                                            | E158873-A115-UL |  |
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| DIGITAL COLOR CAMERA         | PNO-9080R* (* is N or P: N = NTSC, P=PAL)                                                                                                 | E158873-A140-UL |  |
| NETWORK CAMERA               | PNV-9080R* (* is N or P: N = NTSC, P=PAL)                                                                                                 | E158873-A141-UL |  |
| NETWORK CAMERA               | PND-9080R* (* is N or P: N = NTSC, P=PAL)                                                                                                 | E158873-A142-UL |  |
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| NETWORK CAMERA               | QNO-7030R*, QNO-7020R*, QNO-7010R*, QNO-6030R*, QNO-6020R*, QNO-6010R*, QNO-6070R*, QNO-7080R*, QNO-6071R* (* is N or P: N = NTSC, P=PAL) | E158873-A147-UL |  |
| NETWORK CAMERA               | QND-7030R*, QND-7020R*, QND-7010R*, QND-6030R*, QND-6020R*, QND-6010R*, QND-6070R*, QND-7080R* (* is N or P: N = NTSC, P=PAL)             | E158873-A148-UL |  |
| NETWORK CAMERA               | QNV-7030R*, QNV-7020R*, QNV-7010R*, QNV-6030R*, QNV-6020R*, QNV-6010R*, QNV-6070R*, QNV-7080R* (* is N or P: N = NTSC, P=PAL)             | E158873-A149-UL |  |
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| NETWORK CAMERA               | PNM-9020V* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                          | E158873-A152-UL |  |
| Network Video Recorder       | PRN-4011* (* is N or P: N=NTSC, P=PAL)                                                                                                                                                                                                                             | E158873-A153-UL |  |
| DIGITAL COLOR CAMERA         | HCP-6320*, HCP-6320A*, HCP-6230* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                    | E158873-A154-UL |  |
| DIGITAL COLOR CAMERA         | HCP-6320H*, HCP-6320HA*, HCP-6230H* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                 | E158873-A155-UL |  |
| NETWORK CAMERA               | PNP-9200RH*, XNP-6370RH*, XNP-6330RH* (* is N or P: N=NT, P=PAL)                                                                                                                                                                                                   | E158873-A156-UL |  |
| NETWORK CAMERA               | XNB-8000*, XNB-6000* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                | E158873-A157-UL |  |
| NETWORK CAMERA               | XNO-8080R*, XNO-6080R*, XNO-6120R* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                  | E158873-A158-UL |  |
| NETWORK CAMERA               | XNV-8040R*, XNV-8030R*, XNV-8020R*, XNV-6020*, XNV-6010*, XNV-6020R* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                | E158873-A159-UL |  |
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| NETWORK CAMERA               | XNV-8080R* (* is N or P: N = NTSC, P=PAL)<br>XNV-6080R* (* is N or P: N = NTSC, P=PAL)<br>XNV-6080* (* is N or P: N = NTSC, P=PAL)<br>XNV-6120R* (* is N or P: N = NTSC, P=PAL)<br>XNV-6120* (* is N or P: N = NTSC, P=PAL)<br>XNV-8080RS, XNV-6080RS, XNV-6120RS. | E158873-A161-UL |  |
| NETWORK CAMERA               | XND-8080RV*, XND-8080R*, XND-6080RV*, XND-6080R*, XND-6080V*, XND-6080* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                             | E158873-A162-UL |  |
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| NETWORK CAMERA               | XNV-6011* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                           | E158873-A165-UL |  |
| DIGITAL COLOR CAMERA         | HCD-6080R*, HCD-6070R* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                              | E158873-A167-UL |  |
| DIGITAL COLOR CAMERA         | HCV-6080R*, HCV-6070R* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                              | E158873-A168-UL |  |
| NETWORK CAMERA               | XNP-6120H* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                          | E158873-A169-UL |  |
| NETWORK CAMERA               | XND-8020F*, XND-6011F* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                              | E158873-A170-UL |  |
| NETWORK CAMERA               | PNM-9080VQ* (* is N or P: N = NTSC, P = PAL)                                                                                                                                                                                                                       | E158873-A172-UL |  |
| Network Storage              | SRB-160S                                                                                                                                                                                                                                                           | E158873-A173-UL |  |
| NETWORK CAMERA               | TNB-6030* (* is N or P: N = NTSC, P = PAL)                                                                                                                                                                                                                         | E158873-A174-UL |  |
| NETWORK CAMERA               | PNM-9081VQ* (* is N or P: N = NTSC, P = PAL)                                                                                                                                                                                                                       | E158873-A176-UL |  |
| NETWORK CAMERA               | XNO-6085R* (* is N or P: N = NTSC, P=PAL)                                                                                                                                                                                                                          | E158873-A177-UL |  |

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|                        |                                                                                                                        |                 |  |
|------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------|--|
| NETWORK CAMERA         | XNB-6005* (* is N or P: N = NTSC, P=PAL)                                                                               | E158873-A178-UL |  |
| NETWORK VIDEO RECORDER | SNR-D5401N                                                                                                             | E158873-A179-UL |  |
| NETWORK CAMERA         | XND-6085*, XND-6085V* (* is N or P: N = NTSC, P=PAL)                                                                   | E158873-A180-UL |  |
| NETWORK CAMERA         | XNV-6085* (* is N or P: N = NTSC, P=PAL)                                                                               | E158873-A181-UL |  |
| NETWORK CAMERA         | XNP-6040H* (* is N or P: N = NTSC, P=PAL)                                                                              | E158873-A182-UL |  |
| NETWORK VIDEO DECODER  | SPD-150* (* is N or P: N = NTSC, P=PAL)                                                                                | E158873-A184-UL |  |
| DIGITAL COLOR CAMERA   | HCB-6000*, HCB-7000* (* is N or P: N = NTSC, P=PAL)                                                                    | E158873-A185-UL |  |
| DIGITAL COLOR CAMERA   | HCZ-6320* (* is N or P: N = NTSC, P=PAL)                                                                               | E158873-A186-UL |  |
| NETWORK CAMERA         | XNF-8010RVM*, XNF-8010RV*, XNF-8010R* (* is N or P: N = NTSC, P=PAL)                                                   | E158873-A187-UL |  |
| DIGITAL COLOR CAMERA   | HCO-6070R*, HCO-6080R* (* is N or P: N = NTSC, P=PAL)                                                                  | E158873-A188-UL |  |
| NETWORK CAMERA         | XNB-6001* (* is N or P: N = NTSC, P=PAL)                                                                               | E158873-A189-UL |  |
| DIGITAL COLOR CAMERA   | HCO-7070R* (* is N or P: N = NTSC, P=PAL)                                                                              | E158873-A190-UL |  |
| LENS MODULE            | SLA-T2480*, SLA-T2480V*, SLA-T4680*, SLA-T4680V* (* is N or P: N = NTSC, P=PAL), SLA-T4680D, SLA-T4680DW, SLA-T4680DS. | E158873-A191-UL |  |
| DIGITAL COLOR CAMERA   | HCD-7070R* (* is N or P: N = NTSC, P=PAL)                                                                              | E158873-A192-UL |  |
| DIGITAL COLOR CAMERA   | HCV-7070R* (* is N or P: N = NTSC, P=PAL)                                                                              | E158873-A193-UL |  |
| NETWORK VIDEO RECORDER | TRM-1610S                                                                                                              | E158873-A194-UL |  |
| LENS MODULE            | SLA-T1080F* (* is N or P: N = NTSC, P=PAL)                                                                             | E158873-A195-UL |  |
| NETWORK SWITCH         | SPN-10080P, SPN-10080PM                                                                                                | E158873-A196-UL |  |
| ANALOG CAMERA          | HCV-7010R*, HCV-7020R*, HCV-7030R* (* is N or P: N = NTSC, P=PAL)                                                      | E158873-A197-UL |  |
| DIGITAL COLOR CAMERA   | HCD-7010R*, HCD-7020R*, HCD-7030R* (* is N or P: N = NTSC, P=PAL)                                                      | E158873-A198-UL |  |
| DIGITAL COLOR CAMERA   | HCO-7010R*, HCO-7020R*, HCO-7030R* (* is N or P: N = NTSC, P=PAL)                                                      | E158873-A199-UL |  |
| NETWORK CAMERA         | XNP-6320, QNP-6230                                                                                                     | E158873-A200-UL |  |
| NETWORK CAMERA         | XNP-6320H, XNP-6320HS, QNP-6230H                                                                                       | E158873-A201-UL |  |
| NETWORK THERMAL CAMERA | TNO-4050T, TNO-4030T, TNO-4040T                                                                                        | E158873-A202-UL |  |
| NETWORK THERMAL CAMERA | TNO-4051T, TNO-4041T                                                                                                   | E158873-A204-UL |  |
| NETWORK CAMERA         | XNV-6013M                                                                                                              | E158873-A205-UL |  |
| NETWORK                | XNV-6012M, XNV-6012                                                                                                    | E158873-A206-UL |  |

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|                            |                                     |                 |  |
|----------------------------|-------------------------------------|-----------------|--|
| CAMERA                     |                                     |                 |  |
| NETWORK CAMERA             | XNV-6022R, XNV-6022RM               | E158873-A207-UL |  |
| NETWORK CAMERA             | LNO-6070R                           | E158873-A208-UL |  |
| NETWORK CAMERA             | LNO-6030R, LNO-6020R, LNO-6010R     | E158873-A209-UL |  |
| NETWORK CAMERA             | LNV-6070R                           | E158873-A210-UL |  |
| NETWORK CAMERA             | LND-6070R                           | E158873-A213-UL |  |
| NETWORK CAMERA             | LNV-6030R, LNV-6020R, LNV-6010R     | E158873-A214-UL |  |
| NETWORK CAMERA             | LND-6030R, LND-6020R, LND-6010R     | E158873-A215-UL |  |
| NETWORK CAMERA             | XNV-L6080R, XNV-L6080               | E158873-A216-UL |  |
| NETWORK CAMERA             | XND-L6080RV, XND-L6080R, XND-L6080V | E158873-A217-UL |  |
| NETWORK CAMERA             | XNO-L6080R                          | E158873-A218-UL |  |
| NETWORK CAMERA             | PNM-7000VD                          | E158873-A220-UL |  |
| NETWORK VIDEO ENCODER      | SPE-410                             | E158873-A222-UL |  |
| NETWORK VIDEO ENCODER      | SPE-1610                            | E158873-A223-UL |  |
| NETWORK POSITIONING CAMERA | TNU-6320                            | E158873-A224-UL |  |
| Network Video Recorder     | QRN-1610S                           | E158873-A225-UL |  |

# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20180507-E158873  
**Report Reference** E158873-A225-UL  
**Issue Date** 2018-MAY-07

**Issued to:** Hanwha Techwin Co Ltd  
6, Pangyo-ro 319beon-gil, Bundang-gu  
Seongnam-si Gyeonggi-do 13488 KOREA

**This is to certify that  
representative samples of**

INFORMATION TECHNOLOGY EQUIPMENT INCLUDING  
ELECTRICAL BUSINESS EQUIPMENT

Product: Network Video Recorder  
Model: QRN-1610S

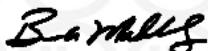
Have been investigated by UL in accordance with the  
Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 60950-1 & CAN/CSA C22.2 No. 60950-1-07 -  
Information Technology Equipment - Safety - Part 1:  
General Requirements

**Additional Information:** See the UL Online Certifications Directory at  
[www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's  
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program  
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please  
contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



## UL TEST REPORT AND PROCEDURE

|                                    |                                                                                                                                                                                                                                                 |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standard:</b>                   | UL 60950-1, 2nd Edition, 2014-10-14 (Information Technology Equipment - Safety - Part 1: General Requirements)<br>CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 (Information Technology Equipment - Safety - Part 1: General Requirements) |
| <b>Certification Type:</b>         | Listing                                                                                                                                                                                                                                         |
| <b>CCN:</b>                        | NWGQ, NWGQ7 (Information Technology Equipment Including Electrical Business Equipment)                                                                                                                                                          |
| <b>Product:</b>                    | Network Video Recorder                                                                                                                                                                                                                          |
| <b>Model:</b>                      | QRN-1610S                                                                                                                                                                                                                                       |
| <b>Rating:</b>                     | 100-240 Vac, 50/60 Hz, 1.6-0.7 A                                                                                                                                                                                                                |
| <b>Applicant Name and Address:</b> | HANWHA TECHWIN CO LTD<br>1204 CHANGWON-DAERO SEONGSAN-GU<br>CHANGWON-SI GYEONGSANGNAM-DO 51542<br>KOREA                                                                                                                                         |

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: SungIl Kim

Reviewed by: SeulKi Park / Seungtae Kim

**Supporting Documentation**

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
  - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
  - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
  - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

**Product Description**

Digital Video Recorder with Recognized Power Supply.

**Model Differences**

N/A

**Technical Considerations**

- Equipment mobility : movable
- Connection to the mains : pluggable A
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class I (earthed)
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 5000
- Altitude of test laboratory (m) : 180
- Mass of equipment (kg) : 2.26
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40 °C
- The means of connection to the mains supply is: Pluggable A
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: Appliance inlet
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): All outputs

- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- For tropical climates, humidity treatment test has done under 93.2 %, 39.1 °C for 120 h.

**Additional Information**

Original (4788419111)

1. No tests were considered necessary for UL/CSA national deviation based upon previous evaluation under CB Scheme. The CB Scheme Test Certificate No. DK-72697-UL and Report Ref. No. C18O018-M0A0 issued date 2018-04-23 were prepared by UL International Demko A/S.

2. Maximum normal load condition as manufacturer provided below;

- USB port (3 EA): 5 Vdc, 0.5 A, 0.5 A and 0.9 A loaded as manufacturer request.
- LAN port (16 EA): connected with CCD Camera supplied by manufacturer.
- Hard-disk (2 EA) connected as manufacturer provided.

**Additional Standards**

The product fulfills the requirements of: N/A

**Markings and instructions**

| Clause Title                          | Marking or Instruction Details                                                                                                     |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Power rating - Ratings                | Ratings (voltage, frequency/dc, current)                                                                                           |
| Power rating - Company identification | Listee's or Recognized company's name, Trade Name, Trademark or File Number                                                        |
| Power rating - Model                  | Model Number                                                                                                                       |
| Replaceable batteries                 | "CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions." |

**Special Instructions to UL Representative**

N/A

**Production-Line Testing Requirements**

**Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.**

| Model | Component | Removable<br>Parts | Test probe location | V<br>rms | V dc | Test Time,<br>s |
|-------|-----------|--------------------|---------------------|----------|------|-----------------|
| N/A   |           |                    |                     |          |      |                 |

**Earthing Continuity Test Exemptions - This test is not required for the following models:**

**Electric Strength Test Exemptions - This test is not required for the following models:**

**Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:**

**Sample and Test Specifics for Follow-Up Tests at UL**

| Model | Component | Material | Test | Sample(s) | Test<br>Specifics |
|-------|-----------|----------|------|-----------|-------------------|
| N/A   |           |          |      |           |                   |

| 1.5.1                                 | TABLE: list of critical components      |                                                     |                                                                                                                                                                                   |                            |                                    | Pass          |
|---------------------------------------|-----------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------|---------------|
| Object/part or Description            | Manufacturer/<br>trademark              | type/model                                          | technical data                                                                                                                                                                    | Product Category<br>CCN(s) | Required<br>Marks of<br>Conformity | Supplement ID |
| Power supply cord<br>(Plug)           | WEIHAI HONG LIN<br>ELECTRONIC CO<br>LTD | HL-002S                                             | Detachable, minimum 1.5m<br>and maximum 4.5m long; Type<br>SVT, SPT-2, minimum<br>18AWG/3; flexible cord, one<br>end terminates in NEMA 5-15P,<br>other end in appliance coupler. | ELBZ7                      | UL<br>(E254927)                    |               |
| Power supply cord<br>(Connector)      | WEIHAI HONG LIN<br>ELECTRONIC CO<br>LTD | HL-004                                              | 10 A, 125 V~                                                                                                                                                                      | ELBZ7                      | UL<br>(E254927)                    |               |
| SMPS                                  | DELTA<br>ELECTRONICS INC                | DPS-200PB-185<br>XX (X Can be 0-9,<br>A-Z or blank) | Input: 100-240 V~, 47-63 Hz,<br>3.5 A;<br>Output: 12Vdc, 5A max, 52Vdc,<br>2.5 A max, Max power 190 W                                                                             | QQGQ2/8                    | UL<br>(E131881)                    |               |
| Metal Enclosure (Top)                 | Interchangeable                         | Interchangeable                                     | Steel, Min. 1.0 mm thickness,<br>see enclosure for more<br>dimension.                                                                                                             | -                          | -                                  |               |
| Metal Enclosure<br>(Bottom)           | Interchangeable                         | Interchangeable                                     | Steel, Min. 1.0 mm thickness,<br>see enclosure for more<br>dimension.                                                                                                             | -                          | -                                  |               |
| Front Enclosure (Fire,<br>Elec, Mech) | LOTTE ADVANCED<br>MATERIALS CO LTD      | NH-1017(p)                                          | Min. 1.5 mm thickness, rated V-<br>1, 60 deg.C, No openings, see<br>enclosure for dimension.                                                                                      | QMFZ2/8                    | UL<br>(E115797)                    |               |
| Hard-disk frame (Plastic)             | LOTTE ADVANCED<br>MATERIALS CO LTD      | NH-1035(+)                                          | Min. 1.5 mm thickness, rated V-<br>0, 80 deg.C, No openings, see<br>enclosure for dimension.                                                                                      | QMFZ2/8                    | UL<br>(E115797)                    |               |
| Internal Plastic Part<br>Materials    | Interchangeable                         | Interchangeable                                     | Rated Min. V-2                                                                                                                                                                    | QMFZ2                      | UL                                 |               |
| Lithium Battery<br>(Alternate)        | Interchangeable                         | CR2032                                              | Lithium / manganese dioxide<br>(Coin), Non-rechargeable, 3.0<br>Vdc, 220 mAh, Abnormal<br>charging current: 10 mA                                                                 | BBCV2                      | UL                                 |               |
| Internal Wiring<br>(Secondary)        | Interchangeable                         | Interchangeable                                     | FEP, PTFE, PVC, TFE,<br>neoprene, polyimide or marked                                                                                                                             | AVLV2                      | UL                                 |               |

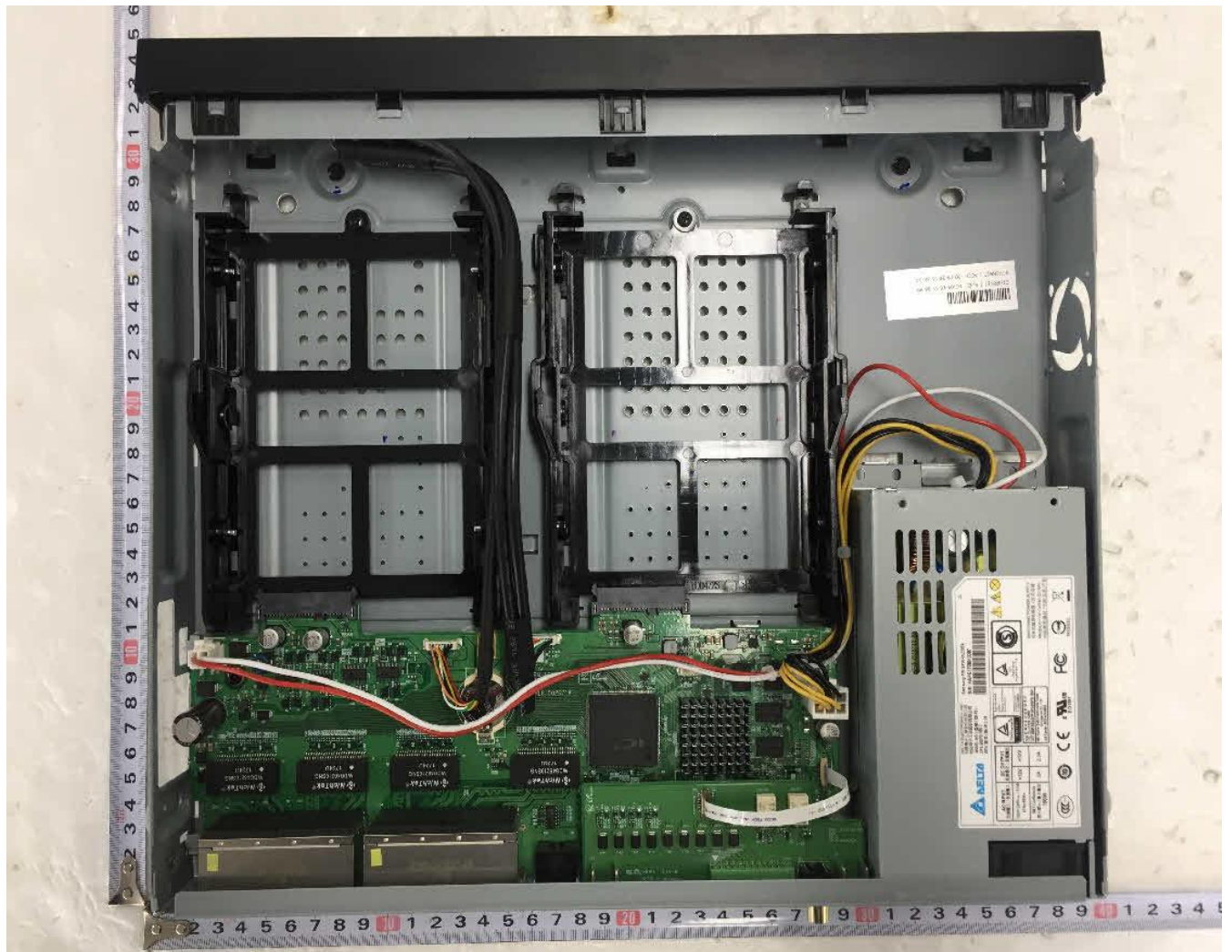
|       |                 |                 |                                                         |                |    |  |
|-------|-----------------|-----------------|---------------------------------------------------------|----------------|----|--|
|       |                 |                 | VW-1; minimum 30 V, 80 degree C                         |                |    |  |
| PWB   | Interchangeable | Interchangeable | Min. V-0, 130 deg.C.                                    | ZPMV2          | UL |  |
| Label | Interchangeable | Interchangeable | Min.70 deg.C if max. surface temperature not specified. | PGDQ2 or PGJ12 | UL |  |

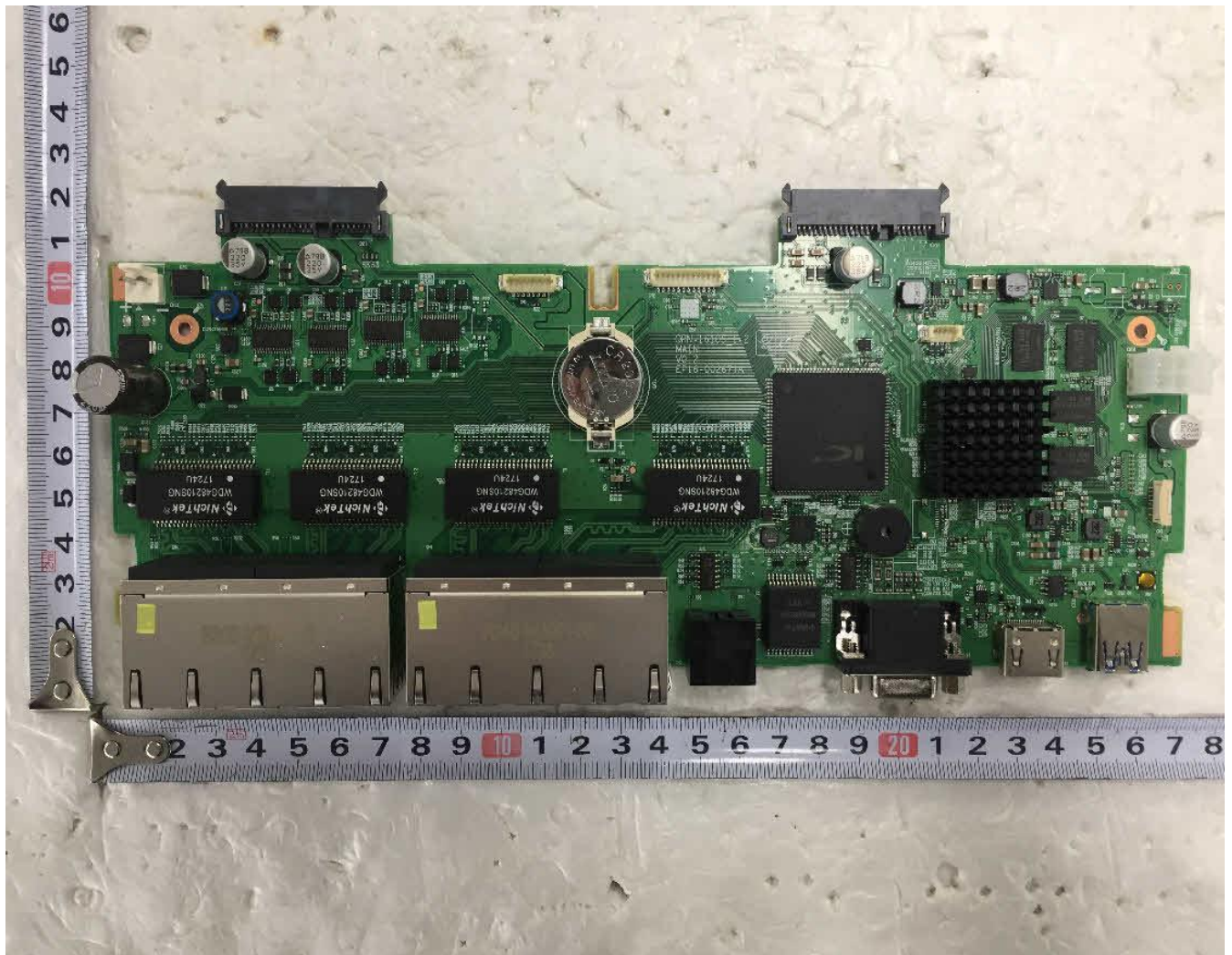
## **Enclosures**

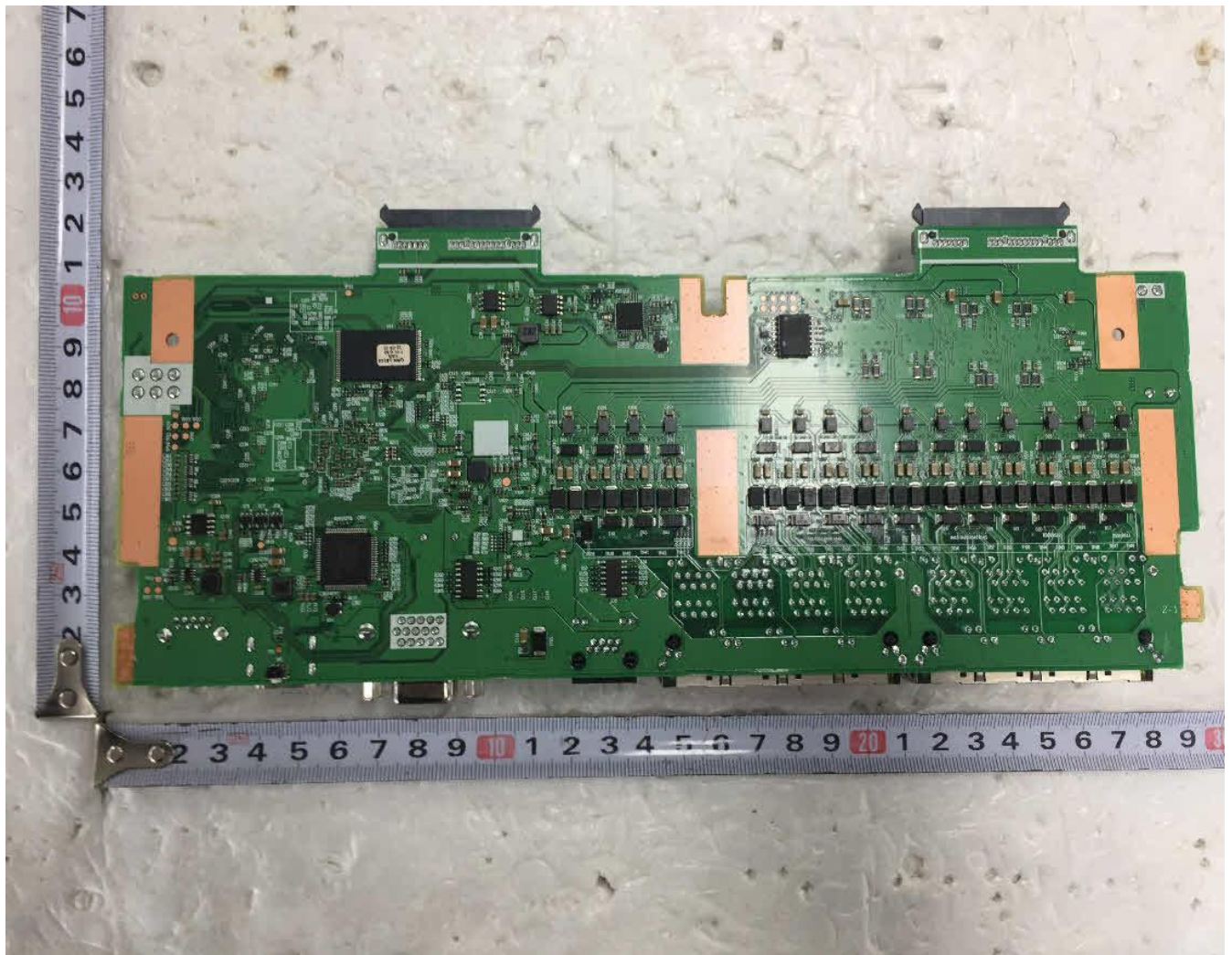
| <u>Type</u>   | <u>Supplement Id</u> | <u>Description</u>      |
|---------------|----------------------|-------------------------|
| Photographs   | 3-01                 | External view 1         |
| Photographs   | 3-02                 | External view 2         |
| Photographs   | 3-03                 | Internal view           |
| Photographs   | 3-04                 | Main board Top view     |
| Photographs   | 3-05                 | Main board Bottom view  |
| Photographs   | 3-06                 | ALARM board Top view    |
| Photographs   | 3-07                 | ALARM board Bottom view |
| Photographs   | 3-08                 | SMPS External view 1    |
| Photographs   | 3-09                 | SMPS External view 2    |
| Photographs   | 3-10                 | SMPS Internal view      |
| Manuals       | 6-01                 | Manual                  |
| Miscellaneous | 7-01                 | Enclosure dimension     |
| Miscellaneous | 7-02                 | Label                   |
| Miscellaneous | 7-03                 | Schematic of RTC        |

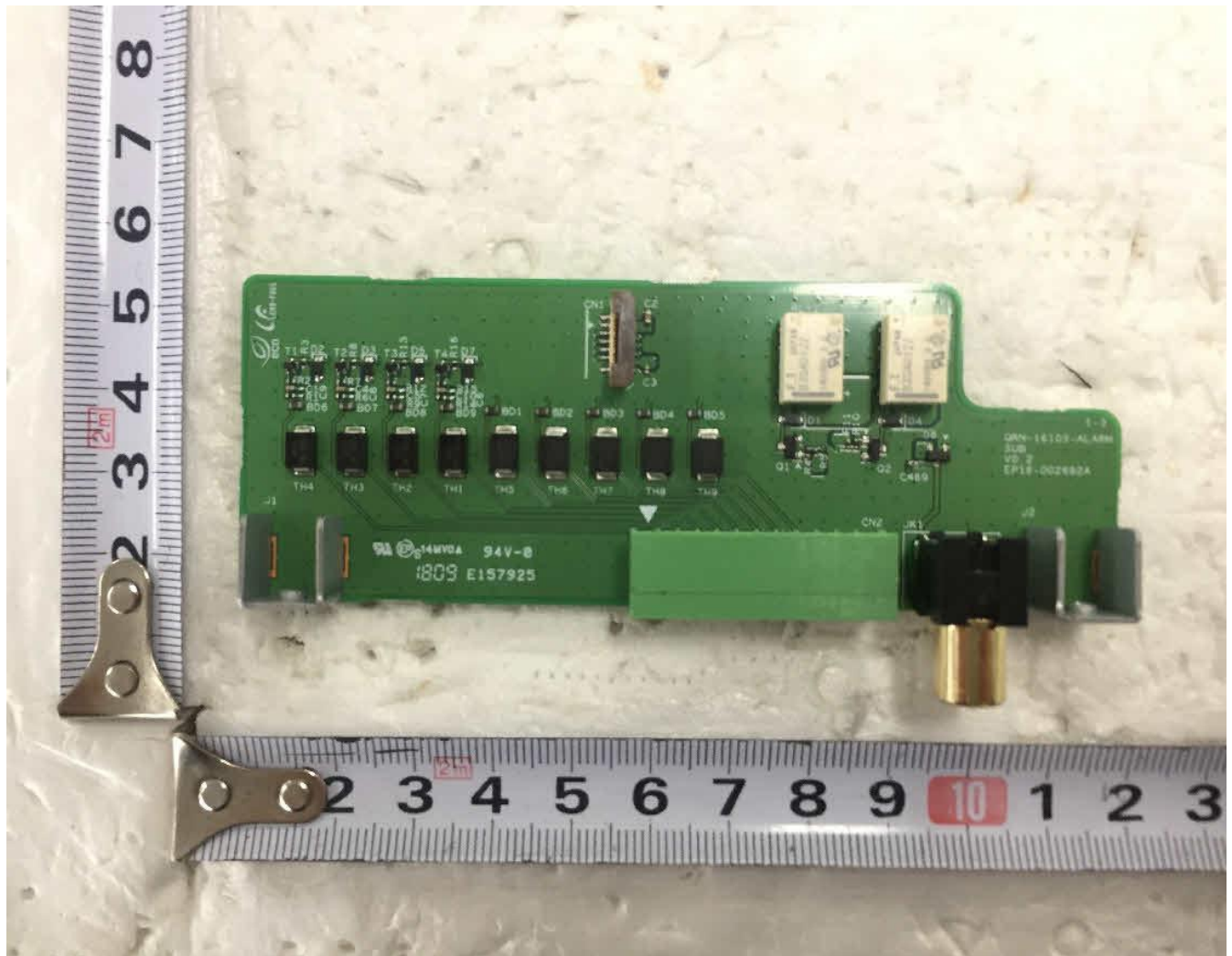


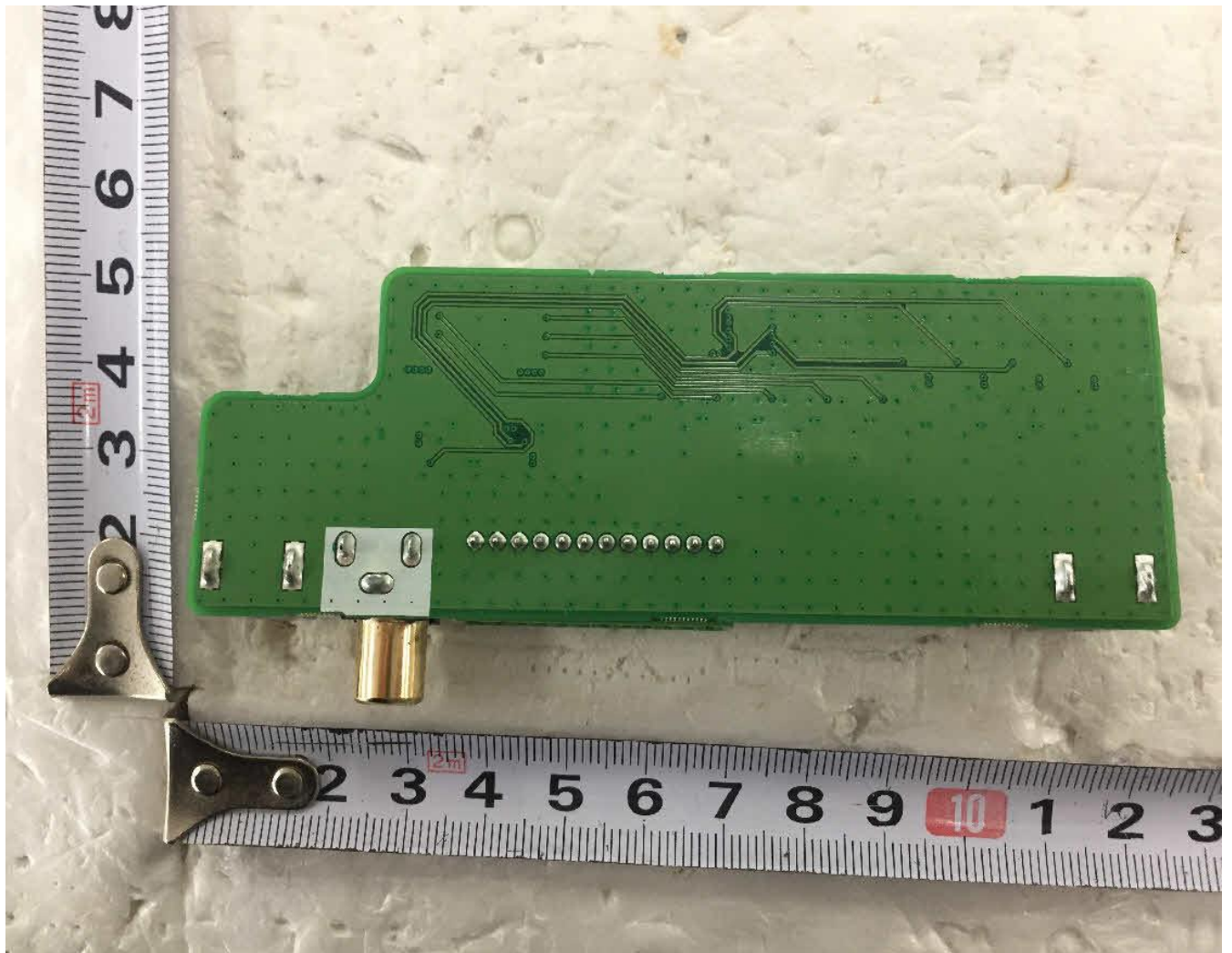


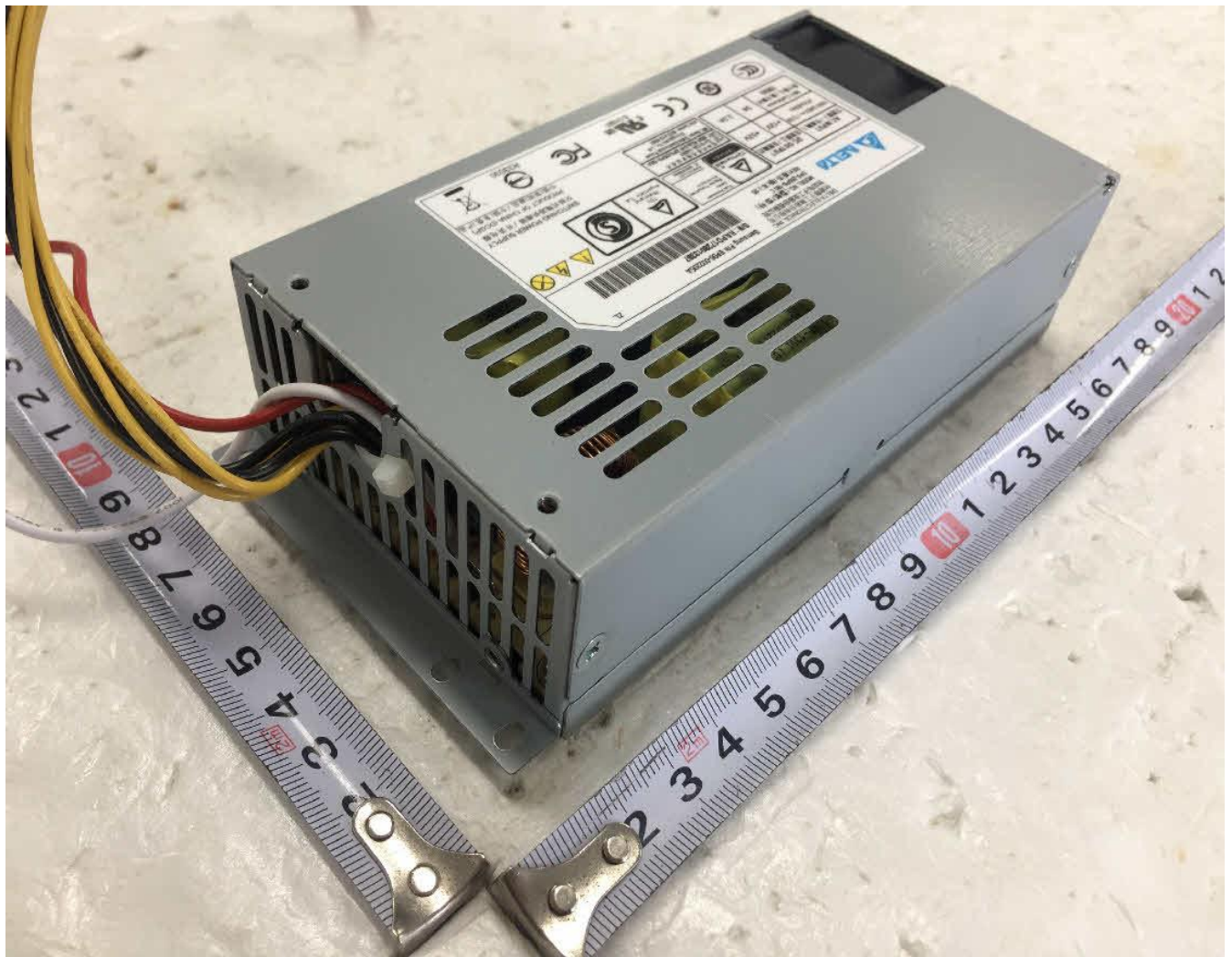


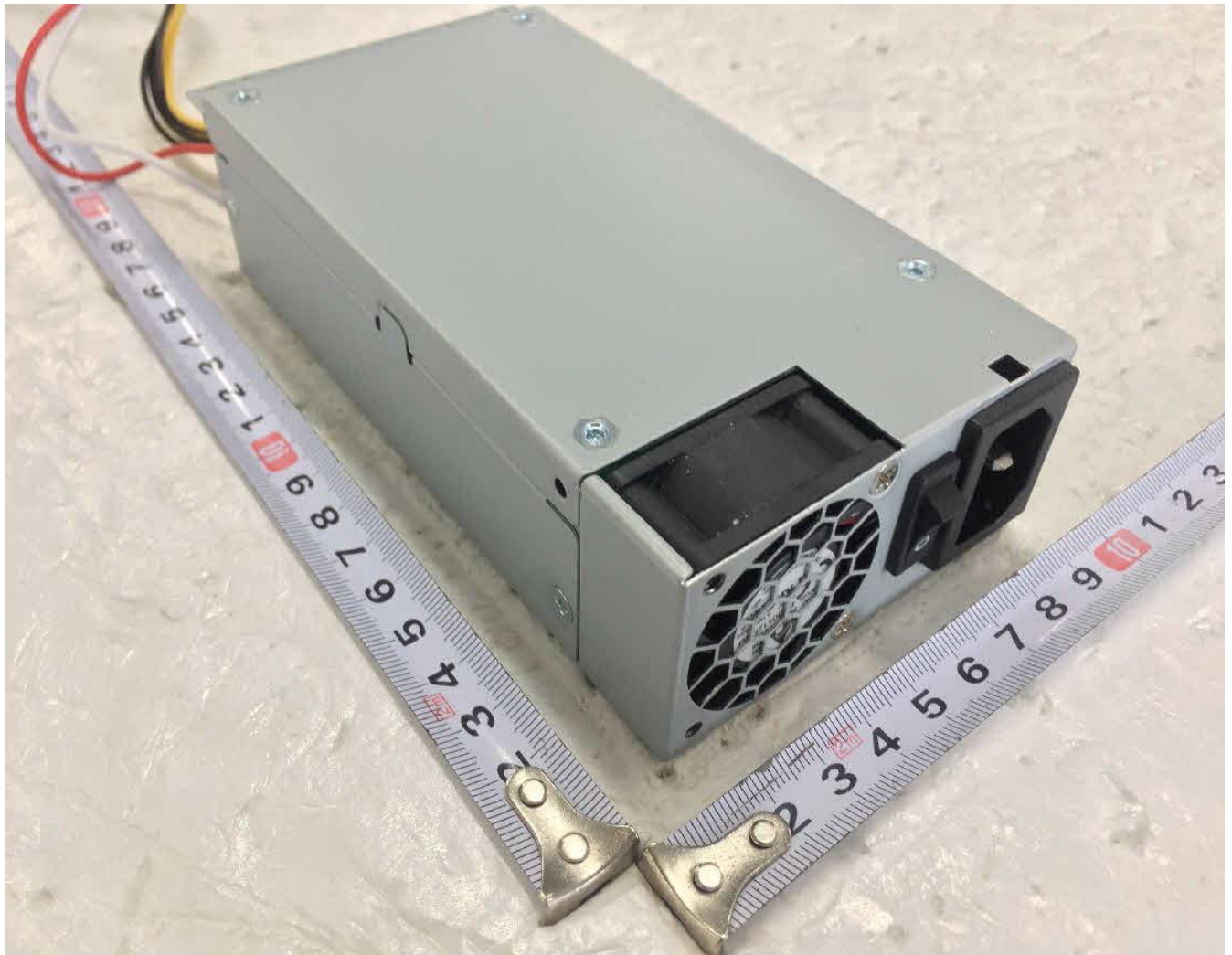














## overview

## IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit.  
Follow all the safety instructions listed below.  
Keep these operating instructions handy for future reference.

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth.  
(Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



## Standards Approvals



-  Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
-  This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
-  This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.  
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## BEFORE START

This manual provides operational information necessary for using the product and contains a description about each component part and its function as well as menu or network settings.

You have to keep in mind the following notices :

- Hanwha Techwin retains the copyright on this manual.
- This manual cannot be copied without Hanwha Techwin's prior written approval.
- We are not liable for any or all losses to the product incurred by your use of non-standard product or violation of instructions mentioned in this manual.
- Prior to opening the case, please consult a qualified technician first. Whenever this is needed power must be removed from the unit.
- Before adding a hard disk drive or external storage (USB memory, USB HDD, etc), check if it is compliant with this product. For the compatibility list, contact the retailer.

## Warning

## Battery

It is essential that when changing the battery in the unit, the replacement battery must be of the same type otherwise there may be a possibility of an explosion.

The following are the specifications of the battery you are using now.

- Normal voltage : 3V
- Normal capacity : 210mAh
- Continuous standard load : 0.4mA
- Operating temperature : -20°C ~ +60°C  
(-4°F ~ +140°F)

## CALIFORNIA USA ONLY

This Precaution warning applies only to primary CR (Manganese Dioxide) Lithium coin cells in the product sold or distributed ONLY in California USA.  
"Hazardous Material" - special handling may apply.  
See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate).

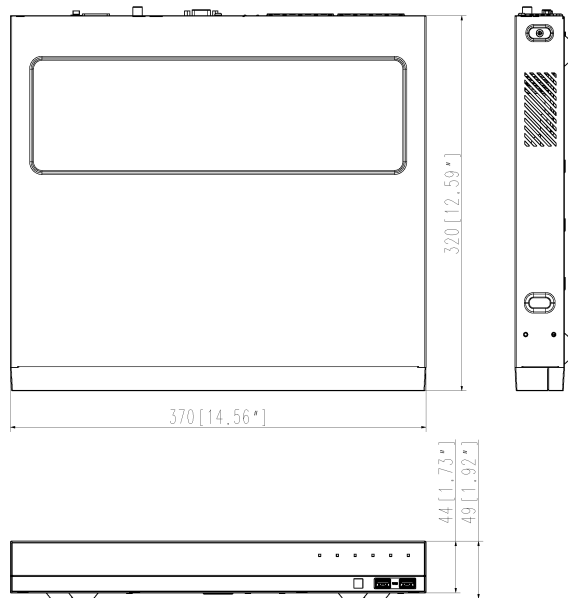
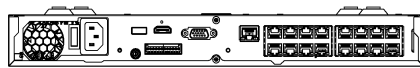
## Caution

- Connect the power cord into a grounded outlet.
- The Mains plug is used as a disconnect device and shall stay readily operable at any time.
- Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.
- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- When the HDD reaches its end of life, the stored video data may be damaged, and not be able to be recovered. We are not responsible for your stored data. Be sure to back up your important data regularly.
- The HDD status LED on the front of the system continuously blinks to indicate that the system's connection to the HDD is normal. Check the HDD status LED regularly to see if it blinks continuously. Recording may not be possible when there is an HDD failure.  
Periodically check the recording status and backup important data regularly.

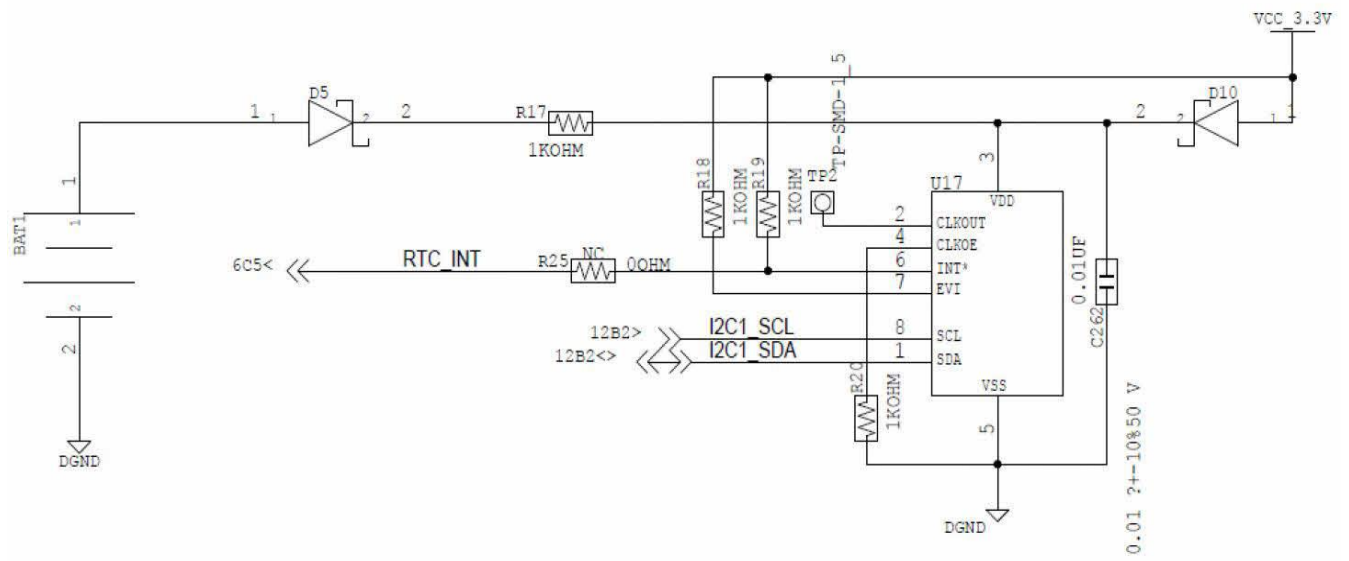
## ATTENTION

- IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.  
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

QRN-1610S  
UNIT : mm[inch]



**NETWORK VIDEO RECORDER****MODEL : QRN-1610S****AC100-240V~, 50/60Hz, 1.6-0.7A****M/C : VVCF01NEX****Fac. ID : S****Apr 2010****S/N:XXXX XXXXXXXXXXXX****ETHERNET ADD. : XX-XX-XX-XX-XX-XX****MADE IN CHINA****Hanwha Techwin Co., Ltd.****N5167****LT.E.****US LISTED****9T96 E158873****PT03-002663D**



## Test Record

**Test Record No. 1**

No tests were considered necessary for UL/CSA national deviation based upon previous evaluation under CB Scheme. The CB Scheme Test Certificate No. DK-72697-UL and Report Ref. No. C18O018-M0A0 issued date 2018-04-23 were prepared by UL International Demko A/S.