Test Report issued under the responsibility of:

TEST REPORT

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

Report Number. .....:	**C16O026-A3C0**
Date of issue .....:	2018-12-04
Total number of pages.....	16 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 (NVR)
Trade Mark.....:	WISENET
Manufacturer.....:	HANWHA TECHWIN (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China
Model/Type reference.....:	XRN-2011*, XRN-2010*, XRN-3010*, XRN-1610*, XRN-2010P/DM, XRN-3010P/DM XRN-3010A, XRN-2011A, XRN-2010A, XRN-1610A (* is N or P: N=NTSC, P=PAL)
Ratings.....:	Input : 100-240 V~, 50/60 Hz, 4.0-1.5 A

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):

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.

XRN-2011*



XRN-2010*





XRN-3010*



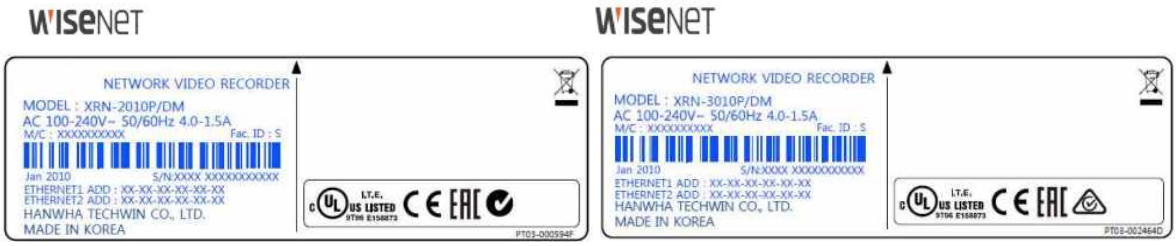


XRN-1610*





XRN-2010P/DM XRN-3010P/DM



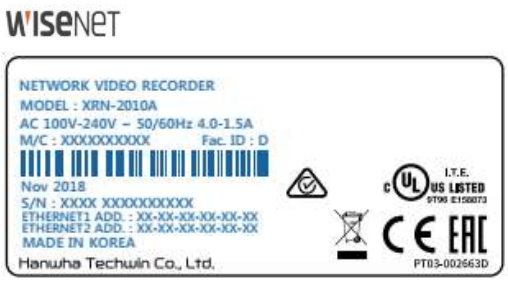
XRN-3010A



XRN-2011A



XRN-2010A









XRN-1610A









Test item particulars.....:	
Equipment mobility.....:	[X] movable [] hand-held [] transportable [] stationary [] for building-in [] direct plug-in
Connection to the mains.....:	[X] pluggable equipment [X] type A [] type B [] permanent connection [X] detachable power supply cord [] non-detachable power supply cord [] not directly connected to the mains
Operating condition.....:	[X] continuous [] rated operating / resting time:
Access location .....:	[X] operator accessible [] restricted access location
Over voltage category (OVC) .....:	[] OVC I [X] OVC II [] OVC III [] OVC IV [] 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 [] 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) .....:	5.8
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 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 ☐ 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 SRN-2010N at condition as manufacturer provided below;
   USB port (2 EA): 5 Vdc, 0.5 A loaded as manufacturer request.
   Hard disk-drive (Seagate, ST3500414CS) 8 EA connected as manufacturer provided.
   CCD Camera (Samsung Techwin Co., Ltd., type SNF-7010V and SNV-6012M) connected through POE switch Hub at NETWORK port.
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-2011* is basic model.

Model XRN-2010*, XRN-3010* and QRN-1610* is identical to XRN-2011* except model designation and Hard disk-drive connection method as below;

Model	Hard disk-drive connection method
XRN-2011*, XRN-2011A	Front injection with Hard disk-drive guide frame.
XRN-2010*, XRN-3010*, XRN-1610*, XRN-3010A, XRN-2010A, XRN-1610A	Fixed with screw at internal frame.

Model XRN-2010P/DM is identical to XRN-2010* except model designation and print silk.

Model XRN-3010P/DM is identical to XRN-3010* except model designation and print silk.

Amendment 1 Report:

The original test Report Ref. No. C16O026-A0C0, dated 2016-05-02 was amended on 2016-05-25 to include the following changes, which were not considered technical modifications:

1. Change of model name from QRN1610* to XRN-1610*
2. Correction of model and Technical data for Power cord set as below;

Item	From	To
model name	HL-002 + SVT 18 AWG X 3 + HL-004 HL-002 + SVT 18 AWG X 3 + HL-004	HL-002S (cord type SVT 18 AWG X 3), HL-004
Technical data	10A 125V~ SVT 3 x 18 AWG (0.824 mm^2), 105 °C, 300 V, VW-1 SVT 3 x 0.824 mm^2 (18 AWG), 105 °C, 300 V, FT2	10A 125V~ SVT 3 x 18 AWG (0.824 mm^2), 105 °C, 300 V, VW-1 or FT2

3. Correction of Manufacturer name for front enclosure and Hard Disk-drive Guide Frame from SDI Chemical Co., Ltd. to Lotte Advanced Materials Co., Ltd.

Amendment 2 Report:

The amendment 1 test Report Ref. No. C16O026-A1C0, dated 2016-05-25 was amended on 2017-06-20 to include the following changes, which were not considered technical modifications:

1. Addition of model for XRN-2010P/DM, XRN-3010P/DM
2. Addition of label for XRN-2010P/DM, XRN-3010P/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

Amendment 3 Report:

The amendment 2 test Report Ref. No. C16O026-A2C0, dated 2017-06-20 was amended on 2018-12-04 to include the following changes, which were considered technical modifications:

1. Addition of model for XRN-3010A, XRN-2011A, XRN-2010A, XRN-1610A
2. Addition of label for models XRN-3010A, XRN-2011A, XRN-2010A, XRN-1610A
3. Change of label for all model.
4. Change of trademark from SAMSUNG to WISENET
5. Correction of Model differences
6. Change of Applicant address from 1204, Changwondae–ro, Sungsan-gu, Changwon-si, Gyeongsangnam-do, Korea to 6, Pangyo-ro 319beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, REPUBLIC OF KOREA
7. Deletion of Factory for Hanwha Techwin Co., Ltd.
8. Addition of Factory for D-TECH CO., LTD and HANWHA TECHWIN SECURITY VIETNAM COMPANY LIMITED

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**		
1.7	**Marking and instructions**		P
1.7.1	Power rating and identification markings	(see copy of marking plates)	P
1.7.1.2	Identification markings	Identification marking is located on the outside surface of the equipment.	P
	Manufacturer's name or trade-mark or identification mark ..... :	WISENET	P
	Model identification or type reference ..... :	XRN-2011*, XRN-2010*, XRN-3010*, XRN-1610*, XRN-2010P/DM, XRN-3010P/DM XRN-3010A, XRN-2011A, XRN-2010A, XRN-1610A (* is N or P: N=NTSC, P=PAL)	P
	Symbol for Class II equipment only ..... :	Class I equipment	P
	Other markings and symbols ..... :	No markings and symbols give rise to misunderstanding. (see copy of marking plates)	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	LP-34A H05VV-F LS-60	16 A, 250 V~ 3 x 0.75 mm^2 10 A, 250 V~	EN 60779	FIMKO
Power cord set (alternate)	Weihai Hong Lin Electronic Co., Ltd.	HL-013 + H05VV-F 3G 0.75 mm^2 + HL-026 HL-014 + H05VV-F 3G 0.75 mm^2 + HL-026	16 A, 250 V~ 3 x 0.75 mm^2 10 A, 250 V~	EN 60320-1 EN 60799 K60799	VDE KC (SU01054-11002)
Power cord set (alternate)	Weihai Hong Lin Electronic Co., Ltd.	HL-002S (cord type SVT 18 AWG X 3), HL-004	10A 125V~ SVT 3 x 18 AWG (0.824 mm^2), 105 °C, 300 V, VW-1 or FT2	UL 817	UL (E254927)
SMPS	FSP Group Inc	FSP250-50GUB	Rated input: 100-240 V~, 50-60 Hz, 4.0-1.5 A Rated output: +3.3 Vdc, 17.0 A; +5 Vdc, 18.0 A; +12 Vdc, 17.0 A; -12 Vdc, 0.8 A; +5 Vsb, 2.0 A; +3.3 Vdc & +5 Vdc, Total Power 105 W, Total Power 250 W	IEC/EN 60950-1 UL 60950-1	NEMKO UL (E190414)
Enclosure (Top)	Interchangeable	Metal	Min. 0.6 mm thickness.	IEC/EN 60950-1 UL 60950-1	Tested in equipment
Enclosure (Bottom)	Interchangeable	Metal	Min. 0.6 mm thickness.	IEC/EN 60950-1 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 UL 746	UL (E115797)

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])
Hard Disk-drive Guide Frame (8 EA) (for model XRN-2011*)	Lotte Advanced Materials Co., Ltd.	NH-1023(+)	PC, V-0, 80 °C, Min. 1.5 mm thickness	UL 94 UL 746	UL (E115797)
DC Fan (2 EA)	Minebea Co., Ltd.	06025SS-12N-AT-D2	DC 12 V, 0.18 A N: 4700 r/min, m: 0.065 kg r: 30 mm	UL 507 IEC/EN 60950-1	UL (E89936) Tested in equipment
Hard Disk Drive (Max. 8 EA)	Seagate or Interchangeable	Interchangeable	SATA type, Max. 6 TB	IEC 60950-1 UL 60950-1	Tested in equipment
Lithium Battery (BAT1)	Guangdong Tianqiu Electronics Technology Co., Ltd.	CR1220	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, 40 mAh	UL 1642	UL (MH48705)
Reverse Current Protection Circuit for Lithium Coin Battery (BAT1)	Interchangeable	Interchangeable	Diode (D36, 30 V, 1 A) and resistor (R53, 1 kohm) in series.	IEC/EN 60950-1 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 deg. C	UL 758	UL
Flat wire Cable (secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	UL 758	UL
Label	Interchangeable	Interchangeable	Min.70 °C if max. surface temperature not specified.	UL 969	UL
PCB	Interchangeable	Interchangeable	V-0, Min. 105 °C	UL796	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])
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