Test Report issued under the responsibility of:

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

Report Number. .....:	C18O018-M1A0
Date of issue .....:	2020-01-06
Total number of pages.....	12 pages
Name of Testing Laboratory preparing the Report.....:	**CTK Co., Ltd.**
Applicant's name.....:	Hanwha Techwin Co., Ltd.
Address .....:	6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
Test specification:	
Standard .....:	IEC 60950-1:2005, AMD1:2009, AMD2:2013
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60950_1G
Test Report Form(s) Originator.....:	SGS Fimko Ltd
Master TRF.....:	Dated 2019-07-02

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Test item description ..... :	NETWORK VIDEO RECORDER
Trade Mark ..... :	WISENET
Manufacturer ..... :	Hanwha Techwin Co., Ltd. 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
Model/Type reference ..... :	QRN-1610S, QRN-1620S, LRN-1610S
Ratings ..... :	Input : AC 100-240 V~, 50/60 Hz, 1.6-0.7 A for model QRN-1610S AC 100-240 V~, 50/60 Hz, 2.1 A for model QRN-1620S, LRN-1610S

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	CTK Co., Ltd.	
Testing location/ address.....:		(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF	
Tested by (name, function, signature).....:		SeonHwa Choi, Project handler	
Approved by (name, function, signature)...:		JungKyu Yang, Reviewer	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + 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:

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

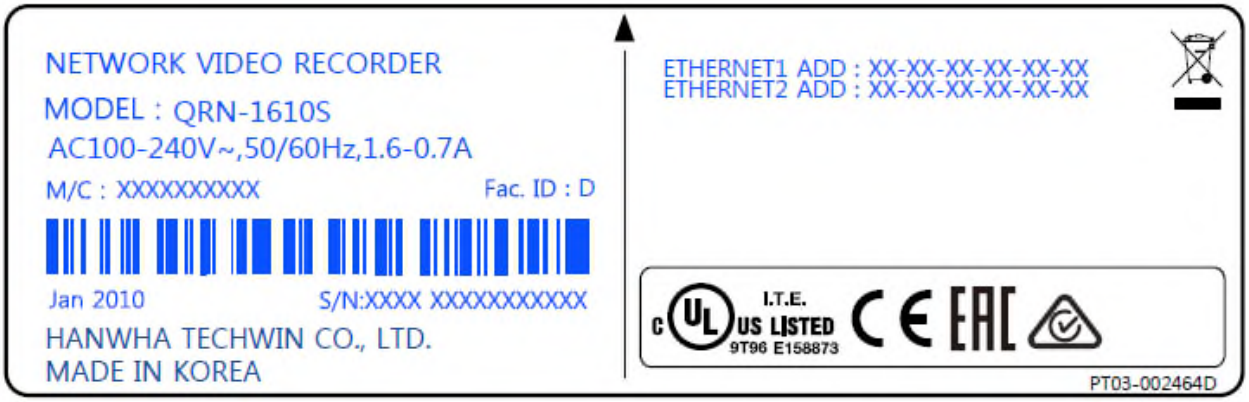
Summary of compliance with National Differences (List of countries addressed):

Australia, Canada, China, Denmark, Finland, Germany, Ireland, Israel, Japan, Korea, Norway, Singapore, Spain, Sweden, Switzerland, United Kingdom, USA and European group differences and national differences

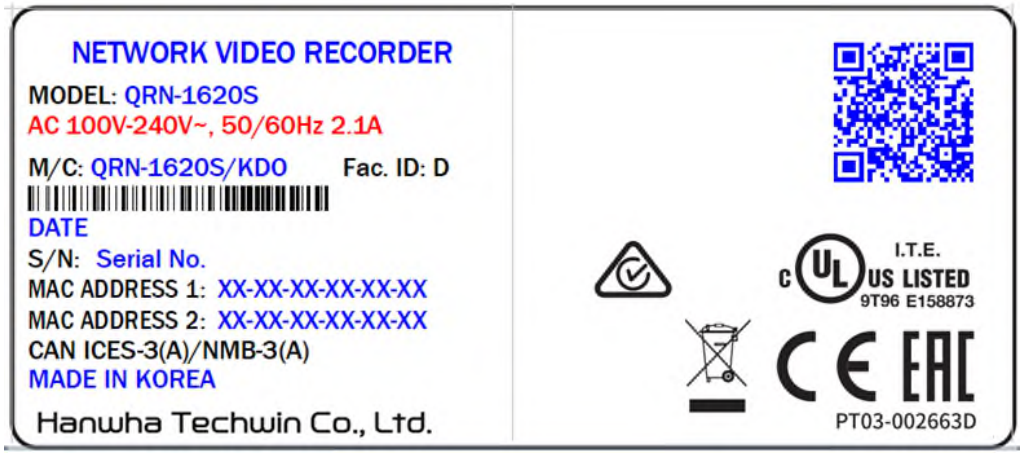
☒ **The product fulfils the requirements of IEC 60950-1:2005+Am 1:2009+Am 2:2013 and/or EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013.**

Copy of marking plate:

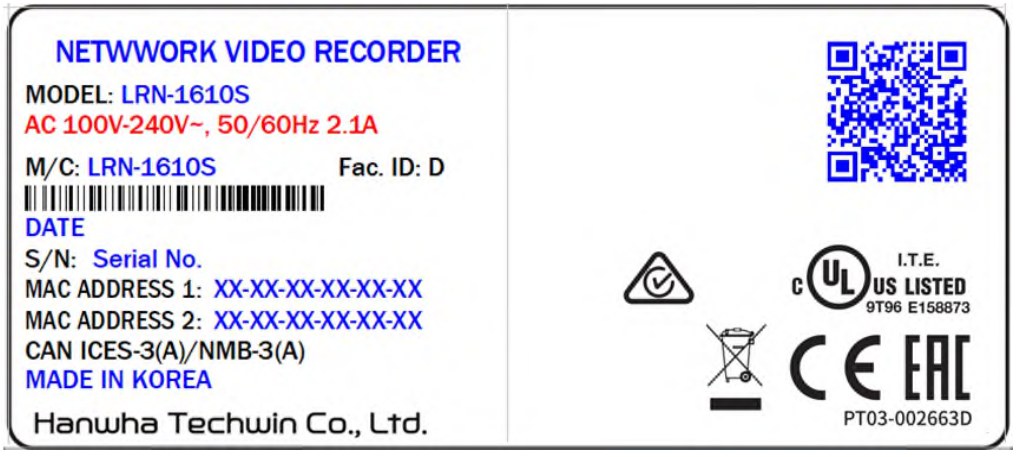
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



WISENET



WISENET



WISENET

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 5 000
Altitude of test laboratory (m) .....:	180 m
Mass of equipment (kg) .....:	2.26 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** ☐ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	1. HANWHA TECHWIN (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA,Tianjin,300385,People's Republic of China 2. D-Tech Co.,Ltd. 5, Omokcheon-ro 132beon-gil, Gwonseon-gu, Suwon-si, Gyeonggi-do, Republic of Korea 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. For tropical climates, humidity treatment test has done under 93.2 %, 39.1 °C for 120 h.
5. All test conducted with QRN-1610S at 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.
6. The samples submitted for evaluation are representative of the final product and have the same quality in items of safety aspect from each factory.
7. The model QRN-1610S was tested and it is the representative of the other model.
8. The model QRN-1610S is similar as model LRN-1610S, QRN-1620S except for model designation and Input rating as below.

Model descriptions:

Model	Input current rating
QRN-1610S	1.6-0.7 A
QRN-1620S	2.1 A
LRN-1610S	2.1 A

Amendment 1 Report:

The Original test Report Ref. No. C18O018-M0A0, dated 2018-04-23 was modified on 2020-01-06 to include the following changes and/or additions, which were considered technical modifications.

1. Addition of Model name and label for LRN-1610S, QRN-1620S.
2. Addition of GPI No. 7, 8 and model description due to model add.
3. Change of Applicant and Manufacturer address as below.

Before	After
R&D CENTER, 701 SAMPYEONG-DONG, BUNDANG-GU, SEONGNAM-SI GYEONGGI-DO 463-400, REPUBLIC OF KOREA	6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA

4. Change of factory address for D-Tech Co.,Ltd. as below.

Before	After
962 beonji (Suwon industrial complex), Gosaek-dong, Gwonseon-gu, Suwon-si, Gyeonggi-do, REPUBLIC OF KOREA	5, Omokcheon-ro 132beon-gil, Gwonseon-gu, Suwon-si, Gyeonggi-do, Republic of Korea

5. Addition of alternate for ‘interchangeable’ in the test report.
6. Addition of Year for Standard in List of critical components.

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 tables 1.5.1)	P
1.5.2	Evaluation and testing of components	Components, which are found to affect safety aspects, comply with the requirements of this standard or comply with the safety requirement of the relevant component standards	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	Weihai Hong Lin Electronic Co., Ltd.	HL-014/HL-026, with cord H05VV-F 3G0,75	10 A, 250 V~ 3G x 0.75 mm^2	EN 60799:1998	FIMKO (FI 29594)
Power supply cord (Plug)	WEIHAI HONG LIN ELECTRONIC CO LTD	HL-002S	Detachable, minimum 1.5m and maximum 4.5m long; Type SVT, SPT-2, minimum 18AWG/3; flexible cord, one end terminates in NEMA 5-15P, other end in appliance coupler.	UL 817	UL (E254927)
Power supply cord (Connector)	WEIHAI HONG LIN ELECTRONIC CO LTD	HL-004	10 A, 125 V~	UL 817	UL (E254927)
SMPS	Delta Electronics, Inc.	DPS-200PB-185 XX (X can be any alphanumeric character or blank)	Rated input: 100-240 V~, 47-63 Hz, 3.5 A; Rated output: 12Vdc, 5A max, 52Vdc, 2.5 A max, Max power 190 W	IEC/EN 60950-1: **2005/AMD1: 2009/AMD2: 2013** UL 60950-1	TUV (JPTUV-**099440**) UL (E131881)
Enclosure (Top)	Interchangeable	Metal	Steel, Min. 0.6 mm thickness.	IEC/EN 60950-1: **2005/AMD1: 2009/AMD2: 2013** UL 60950-1	Tested in equipment
Enclosure (Bottom)	Interchangeable	Metal	Steel, Min. 0.8 mm thickness.	IEC/EN 60950-1: **2005/AMD1: 2009/AMD2: 2013** UL 60950-1	Tested in equipment

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

Enclosure (Front, Plastic)	LOTTE ADVANCED MATERIALS CO LTD	NH-1017(p)	PC/ABS, V-1, 60 °C, Min. 1.5 mm thickness	UL 94 UL 746	UL (E115797)
Hard-disk frame (Plastic)	LOTTE ADVANCED MATERIALS CO LTD	NH-1035(+)	PC, V-0, 80 °C, Min. 1.5 mm thickness	UL 94 UL 746	UL (E115797)
USB Protection IC (U12, U13 and U25)	Texas Instruments Inc	TPS2062	Rated 2.7–5.5 Vdc, 1 A	IEC/EN 60950-1: **2005/AMD1: 2009/AMD2: 2013** UL 2367	Tested in equipment UL (E169910)
Lithium Battery (BAT1)	Wuhan Lixing (Torch) Power Sources Co., Ltd.	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, 220 mAh, Abnormal charging current: 10 mA	IEC/EN 60950-1: **2005/AMD1: 2009/AMD2: 2013** UL 1642	Tested in equipment UL (MH26236)
(Alternate)	Interchangeable	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, 220 mAh, Abnormal charging current: 10 mA	IEC/EN 60950-1: **2005/AMD1: 2009/AMD2: 2013** UL 1642	Tested in equipment UL
PCB	**HANNSTAR BOARD CORP**	**MV-1**	**V-0, 130 °C**	**UL 796**	**UL (E89382)**
(Alternate)	Interchangeable	Interchangeable	Rated V-0, Min. 105 °C	UL796	UL
Supplementary information: **[1] Provided evidence ensures the agreed level of compliance. See OD-CB2039**.					

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