



Test Report issued under the responsibility of:



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

Report Number: C19O045-M1A0
Date of issue: 2019-10-04
Total number of pages..... 14 page

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 :	Digital Video Recorder (DVR)	
Trade Mark :	WISENET	
Manufacturer	Hanwha Techwin Co., Ltd. 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA	
Model/Type reference :	HRX-821* (* is Blank or N or P : P=PAL, N=NTSC)	
Ratings :	Input : AC 100-240V~, 50/60Hz, 1.5A	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	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	
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	N/A
Testing location/ address :	N/A	
Tested by (name, function, signature) :	N/A	N/A
Approved by (name, function, signature) ... :	N/A	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	N/A
Testing location/ address :	N/A	
Tested by (name + signature) :	N/A	N/A
Witnessed by (name, function, signature) . :	N/A	N/A
Approved by (name, function, signature) ... :	N/A	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	N/A
Testing location/ address :	N/A	
Tested by (name, function, signature) :	N/A	N/A
Witnessed by (name, function, signature) . :	N/A	N/A
Approved by (name, function, signature) ... :	N/A	N/A
Supervised by (name, function, signature) :	N/A	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): N/A	Testing location: N/A
Summary of compliance with National Differences (List of countries addressed): Australia/ New Zealand, Canada, China, Japan, Korea, Singapore, United Kingdom, United States and European group differences and national differences. (AU, NZ, CA, CN, JP, KR, SG, GB, US, EU(Group))	
<input checked="" type="checkbox"/> The product fulfils the requirements of the standard 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

 Serial No.: [Serial No]	 ETHERNET 1 ADD.: XX-XX-XX-XX-XX-XX ETHERNET 2 ADD.: XX-XX-XX-XX-XX-XX
<p>DIGITAL VIDEO RECORDER</p> <p>MODEL: HRX-821 AC 100-240V~ 50/60Hz 1.5A M/C: HRX-821/KUS Fac. ID: D</p>   [DATE] S/N: [Serial No] ETHERNET 1 ADDRESS: XX-XX-XX-XX-XX-XX ETHERNET 2 ADDRESS: XX-XX-XX-XX-XX-XX CAN ICES-3(A)/NMB-3A(A) MADE IN KOREA Hanwha Techwin Co., Ltd.      PT03-002663D	

Test item particulars.....:	
Equipment mobility.....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains.....:	<input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input checked="" type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition.....:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	+10 %, -10 %
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	16 A or 20 A (for US and CANADA)
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IP X0
Altitude during operation (m)	Up to 5000
Altitude of test laboratory (m)	180
Mass of equipment (kg)	5.3 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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	<ol style="list-style-type: none"> D-TECH CO., LTD 5, Omokcheon-ro 132beon-gil, Gwonseong-gu, Suwon-si, Gyeonggi-do, Republic of Korea HANWHA TECHWIN (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China 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:	
<ol style="list-style-type: none"> Test samples are pre-production without serial number. Maximum Specified ambient temperature is 40 °C. The equipment is Class I with certified SMPS used. All test conducted with HRX-821* at condition as manufacturer provided below; Front USB 2.0 port (1 EA): 5 Vdc, 0.5 A loaded as manufacturer request. Rear USB 3.0 port (1 EA): 5 Vdc 0.9 A loaded as manufacturer request. Hard disk-drive (Seagate, WD60PURX-64WYOY1) 4 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. The samples submitted for evaluation are representative of the final product and have the same quality in items of safety aspect from each factory. 	
Amendment 1 Report:	
The original test Report Ref. No. C19O045-M0A0, dated 2019-09-03 was modified on 2019-10-04 to include the following changes and/or additions, which were considered technical modifications:	
<ol style="list-style-type: none"> Delete of Address for testing laboratory in the test report 1 page. Addition of alternate for Power cord set (EU and KR type). Correction of vendor name for Power cord set from Longwell to Longwell Company. Addition of text '3 x 0.75 mm²' for Type/model of the EU type cord set manufactured by longwell. 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
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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	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	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⁾	
Power cord set (EU type)	Longwell Company	LP-34AN , H05VV-F 3 x 0.75 mm ² , LS-13G	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A, 250 V~ 10 A, 250V~, 18 AWG	IEC 60884- 1:2002/AMD1:2 006/AMD2:2013 EN 50525-2- 11:2012 EN 60320- 1:2015	DEKRA VDE ENEC	
Power cord set (EU type) (Alternate)	Changzhou Hong Chang Electronics Co. Ltd.	DTIII-2P-05 , H05VV-F 3 x 0.75 mm ² , DTII-3P-04	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A,250 V~ 10 A,250 V~, 18 AWG	VDE 0620-2- 1/AMD1:2017 EN 50525-2- 11:2012 IEC/EN 60320- 1:2015	VDE	
Power cord set (EU type) (Alternate)	Weihai Honglin Electronic Co., Ltd.	HL-014 , H05VV-F 3 x 0.75 mm ² , HL-026	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A,250 V~ 10 A,250 V~, 18 AWG	VDE 0620-2- 1:2013 EN 50525-2- 11:2012 IEC/EN 60320- 1:2015	VDE	
Power cord set (EU type) (Alternate)	KOREA KDK Co., Ltd.	KKP-4819D, H05VV-F 3 x 0.75 mm ² , KKS-16A	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A,250 V~ 10 A,250 V~, 18 AWG	VDE 0620-2- 1/AMD1:2017 EN 50525-2- 11:2012 IEC/EN 60320- 1/AMD1:2007	VDE SEMKO	
Power cord set (KR type)	Longwell Company	LP-34AN H05VV-F, LS-13G	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A,250 V~, 3G x 0.75 mm ² , 10 A, 250 V	K 60799:2006	KC (SU01102- 13002A)	
Power cord set (KR type) (Alternate)	Changzhou Hong Chang Electronics Co. Ltd.	DTIII-2P-05 , H05VV-F, DTII-3P-04	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A, 250 V~, 3G x 0.75 mm ² , 10 A, 250 V~	KC 60799:2015	KC (HU01021- 16006A)	

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Power cord set (KR type) (Alternate)	Weihai Honglin Electronic Co., Ltd.	HL-014 , H05VV-F, HL-026	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A,250 V~, 3G x 0.75 mm ² , 10 A, 250 V~	KC 60799:2015	KC (SU01054- 11002)
Power cord set (KR type) (Alternate)	KOREA KDK Co., Ltd.	KKP-4819KD, H05VV-F, KKS-16A	Detachable, Min. 1.5 m, Max. 4.5 m long, Rated 16 A,250 V~, 3G x 0.75 mm ² , 10 A, 250 V~	KC 60799:2015	KC (SJ01003- 10001B)
Power cord set (US type)	Weihai Hong Lin Electronic Co., Ltd.	HL-002S, SVT 18AWG X 3C , HL-004	Detachable, min 1.5 m, max. 4.5 m long, rated 125 V, 10 A, 18/3 AWG, 105 deg.C, SVT type flexible cord. One end with NEMA 5-15P other end with appliance coupler.	UL817	UL (E254927)
Power cord set (US type) (Alternate)	Longwell Company	LP-30B , SVT 18AWG X 3C, LS-13	Detachable, min 1.5 m, max. 4.5 m long, rated 125 V, 10 A, 18/3 AWG, 60 deg.C, SVT type flexible cord. One end with NEMA 5-15P other end with appliance coupler.	UL817	UL (E55349)
Power cord set (US type) (Alternate)	CHANGZHOU HONG CHANG ELECTRONICS CO LTD	DTII-3P-11 , UL SVT 18AWG/3C , DTII-3P-04	Detachable, min 1.5 m, max. 4.5 m long, rated 125 V, 10 A, 18/3 AWG, 105 deg.C, SVT type flexible cord. One end with NEMA 5-15P other end with appliance coupler.	UL817	UL (E205766)

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Power cord set (US type) (Alternate)	KOREA KDK CO LTD	KKP-30 , SVT 3/18AWG , KKS-16A	Detachable, min 1.5 m, max. 4.5 m long, rated 125 V, 7 A, 18/3 AWG, 105 deg.C, SVT type flexible cord. One end with NEMA 1-15 other end with appliance coupler.	UL817	UL (E58075)
SMPS	FSP Group Inc	FSP150- 50FGNCXX (##)	Rated input: 100-240 V~, 50- 60 Hz, 4.0-1.5 A Rated output: +3.3 Vdc, 13.0 A; +5 Vdc, 14.0 A; +12 Vdc, 10.0 A; -12 Vdc, 0.3 A; +5 Vsb, 2.0 A; +3.3 Vdc & +5 Vdc, Total Power 80 W, Total Power 150 W	IEC/EN 60950- 1: 2005/AMD1:2 009/AMD2:2013 UL 60950-1	NEMKO UL (E190414)
Enclosure (Top)	Interchangeable	Interchangeable	Metal(Steel), approximately 440.0 by 365.0 by 80.0 mm, Min. 0.8 mm thickness.	IEC/EN 60950- 1: 2005/AMD1:2 009/AMD2:2013 UL 60950-1	Tested in equipment
Enclosure (Bottom)	Interchangeable	Interchangeable	Metal(Steel), approximately 440.0 by 36.5 by 88.0 mm, Min. 0.8 mm thickness.	IEC/EN 60950- 1: 2005/AMD1:2 009/AMD2:2013 UL 60950-1	Tested in equipment
Front Enclosure	LOTTE ADVANCED MATERIALS CO LTD	TH-1100(+)	PC, approximately 440.0 by 20.0 by 88.0 mm, V-0, 80 °C, Min. 2.0 mm thickness	UL 94 UL 746	UL (E115797)
DC Fan	NIDEC AMERICA CORPORATION	a60T12MHA7	DC 12 V, 0.18 A N: 3200 r/min, m: 0.076 kg r: 30 mm	UL 507	UL(E91997)

IEC 60950-1					
Clause	Requirement + Test		Result - Remark		Verdict
Lithium Battery (BAT1)	Wuhan Lixing (Torch) Power Sources Co.,Ltd	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, Max Continuius Discharge Current: 10 mA	UL 1642	UL (MH26236)
Lithium Battery (Alternate)	SHENZHEN GAONENGDA BATTERY CO LTD	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, Abnormal Charging Current 10 mA.	UL 1642	UL (MH30114)
Lithium Battery (Alternate)	Interchangeable	CR2032	Lithium / manganese dioxide (Coin), Non-rechargeable, 3.0 Vdc, Abnormal Charging Current 10 mA.	UL 1642	UL
Reverse Current Protection Circuit for Lithium Coin Battery (BAT1)	Interchangeable	Interchangeable	Diode (D25, 80 V, 100 mA) and resistor (R222, 3.3 kohm) in series.	IEC/EN 60950-1:2005/AMD1:2009/AMD2:2013 UL 60950-1	Tested in equipment
USB Protection IC (U15 and U19)	Texas Instruments Inc	TPS2062	Rated 2.7 – 5.5 Vdc, Max. 5 A	UL 2367	UL (E169910)
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	V-0, Min. 6.0 mm thickness.	UL 746C	UL (E245303)
Internal Wiring (secondary)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 30 V, 80 deg. C	UL 758	UL

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
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	HANNSTAR BOARD CORP	MV-1	V-0, Min. 130 °C	UL 796	UL (E89382)
PCB (alternate)	Interchangeable	Interchangeable	V-0, Min. 105 °C	UL 796	UL
Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039. The CBTL has verified the component information.					

