



Test Report issued under the responsibility of:



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

Report Number.: C16O032-A1C1

Date of issue: 2017-02-16

Total number of pages..... 11 pages

Applicant's name.....: Hanwha Techwin Co., Ltd.

Address: 1204, Changwondae-ro, Sungsan-gu, Changwon-si,
Gyeongsangnam-do, 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.

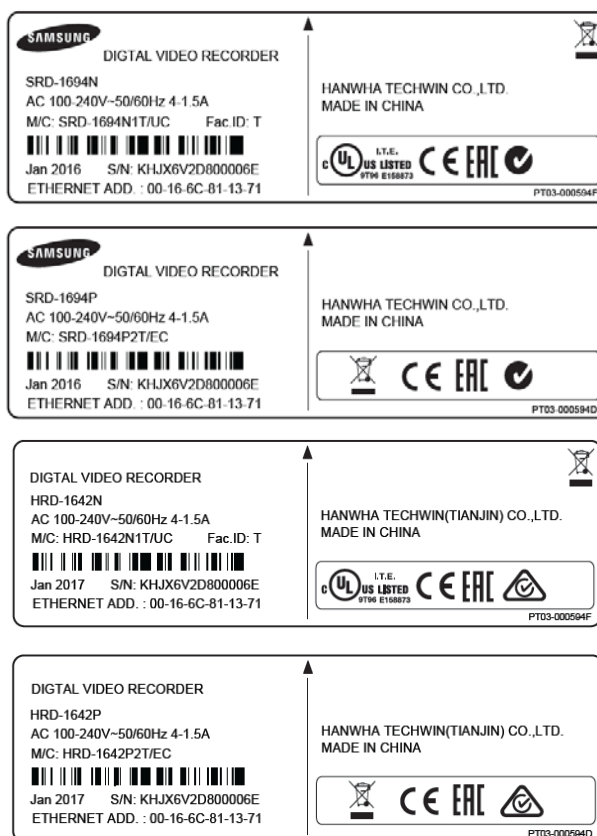
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Test item description: Digital Video Recorder (DVR)		
Trade Mark: 		
Manufacturer: HANWHA TECHWIN (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China		
Model/Type reference: SRD-1694*, HRD-1642* (* is N or P: N=NTSC, P=PAL)		
Ratings: Input : 100-240 V~, 50/60 Hz, 4-1.5 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, function, signature):		JungKyu Yang, Project handler. 
Approved by (name, function, signature):		KwangWon Lee, Reviewer 
☐	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address		N/A
Tested by (name, function, signature):		N/A
Approved by (name, function, signature):		N/A
☐	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address		N/A
Tested by (name, function, signature):		N/A
Witnessed by (name, function, signature) .:		N/A
Approved by (name, function, signature):		N/A
☐	Testing procedure: SMT/CTF Stage 3 or 4:	
Testing location/ address		N/A
Tested by (name, function, signature):		N/A
Witnessed by (name, function, signature) .:		N/A
Approved by (name, function, signature):		N/A
Supervised by (name, function, 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): N/A	Testing location: 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 :	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in
Connection to the mains :	☒ pluggable equipment ☒ type A ☐ type B ☐ permanent connection ☒ detachable power supply cord ☐ non-detachable power supply cord ☐ not directly connected to the mains
Operating condition :	☒ continuous ☐ rated operating / resting time:
Access location	☒ operator accessible ☐ restricted access location
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply values	+10 %, -10 %
Tested for IT power systems	☐ Yes ☒ No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	☒ 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 ☒ 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)	8.6 kg (with 8 EA of HDD)
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 IEC 60950-1:	
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) : HANWHA TECHWIN (TIANJIN) CO.,LTD No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385 People's Republic of China	
General product information: - 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 SRD-1694N at condition as below; USB port (2 EA): 5 Vdc, 0.5 A loaded Hard disk-drive (Seagate, ST3500414CS) 8 EA connected. CCD Camera (Samsung Techwin Co., Ltd., SDC-9441BCN) 16 EA connected. - 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 HRD-1642* is identical to SRD-1694* except for distribution channel.	
Correction 1 Report: The original test Report Ref. No. C16O032-A0C0, dated 2016-05-02 was corrected on 2016-05-18 to include the following changes, which were not considered technical modifications: - Correction of SMPS model name from FSP250-50FGUB to FSP250-50GUB. - Correction of Lithium Battery part No. from BT1 to BAT1.	
Amendment 1 Report: The Correction 1 test Report Ref. No. C16O032-A0C1, dated 2016-05-18 was modified on 2017-02-16 to include the following changes and/or additions, which were considered technical modifications: - Addition of model for HRD-1642* - Addition of label for HRD-1642* (see appended Copy of marking plate) - Change of Manufacturer and factory name from Tianjin Samsung Techwin Opto-Electronic Co., Ltd to HANWHA TECHWIN (TIANJIN) CO.,LTD.	

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		

1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P

1.7	Marking and instructions		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		P
	Model identification or type reference	SRD-1694*, HRD-1642 (* 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	SDI Chemical Co., Ltd.	TH-1100(+)	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
DC Fan	Nidec Corporation	U60T12MHA7-52	DC 12 V, 0.09 A N: 3200 r/min, m: 0.08 kg r: 30 mm, K: 442.368	IEC/EN 60950-1 UL 60950-1	Tested in equipment
Hard Disk Drive (Max. 8 EA)	Seagate or Interchangeable	Interchangeable	SATA type, Max. 8 TB	IEC 60950-1 UL 60950-1	Tested in equipment
Lithium Battery (BAT1)	Energizer Battery Mfg Inc	CR2032	Lithium / manganese dioxide (Coin), Non- rechargeable, 3.0 Vdc, 240 mAh	UL 1642	UL (MH29980)
Lithium Battery (BAT1) (alternate)	Shenzhen Gaonengda Battery Co., Ltd.	CR2032	Lithium / manganese dioxide (Coin), Non- rechargeable, 3.0 Vdc, 210 mAh	UL 1642	UL (MH30114)
Lithium Battery (BAT1) (alternate)	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	Resistor (R576, 2 K ohm) in series.	IEC/EN 60950-1 UL 60950-1	Tested in equipment
USB Protection IC (U20 and U36)	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

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⁾
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
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