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Please note, Follow-Up Procedure Revisions or Report Revisions do not include Authorization Pages, Indices, Section General, and/or Appendices unless revisions were required or requested.

Should you have any questions, after reviewing the material, or need to report any inaccuracies, please reach out to your UL representative or find UL contact details for your local Customer Service Department at

<https://www.ul.com/about/locations>.

Please find attached the related material on Project 4790614291

For your convenience, the below describes the related updates:

RSEC - For File # E158873 volume# X13 section# A6136

E158873-A6136-DescriptionUL
Figure-13-Total
E158873-A6136-TestRecordUL

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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Listing
CCN:	AZOT, AZOT7 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	DIGITAL VIDEO RECORDER
Model:	HRX-1634
Rating:	12 Vdc, 3.3 A
Applicant Name and Address:	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 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.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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

Prepared By: Lawrence Lee / Project Handler Reviewed By: SeulKi Park / Reviewer

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 was supplied by adaptor (Complied with LPS) and consist of main board, 2 hard disk-drive, 1 DC fan and numerous components mounted on PCB. This unit have numerous output ports (USB, VGA, VIDEO, HDMI, ALARM, NETWORK).

Model Differences

N/A

Test Item Particulars

Product group	end product
Classification of use by	Ordinary person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	N/A
Considered current rating of protective device	N/A
Equipment mobility	movable
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	40
IP protection class	IPX0
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	3.876

Technical Considerations

- ☐ The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 40 °C
- ☐ The product is intended for use on the following power systems : No direct connection

- ☐ Considered current rating of protective device as part of the building installation (A) : N/A
- ☐ Mains supply tolerance (%) or absolute mains supply : No direct connection
- ☐ The equipment disconnect device is considered to be : N/A
- ☐ The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS) : All output ports
- ☐ The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

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- Maximum Normal Load: Continuous operation with fan and connected output ports; VGA, VIDEO, AUDIO, HDMI, ALARM, NETWORK, Front USB (2EA) (0.5 A each), Rear USB (0.5 A)

4790614291

- Correct typo error in CCL

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)

Special Instructions to UL Representative

N/A

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
-	-	-	-	-	-	-
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All model					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	All model					
BD1.4	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.					
	All model					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
-	-	-	-	-	-

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Switching Power Adapter	FSP GROUP INC	FSP060-DHAN3	Rated Input: 100-240 Vac, 50/60 Hz, 1.8 A, Output: +12 Vdc, 5.0 A, 60.0 W	QQJQ	UL (E190414)	
Power cord set (For Adapter)	WEIHAI HONG LIN ELECTRONIC CO LTD	HL-002S+ SVT 18AWG X3C+ 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 the other end with appliance coupler.	ELBZ2	UL (E254927)	
Power cord set (For Adapter) - Alternate	LONGWELL CO	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 the other end with appliance coupler.	ELBZ2	UL (E55349)	
Power cord set (For Adapter) - 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 the other end with appliance coupler.	ELBZ2	UL (E205766)	
Power cord set (For Adapter) - 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	ELBZ2	UL (E58075)	

			end with appliance coupler.			
Case-Top (Metal)	Interchangeable	Interchangeable	SECC, Steel electrolytic cold commercial, Min. 0.6 mm thickness, see enclosure for dimension.	-	-	
Case-Bottom (Metal)	Interchangeable	Interchangeable	SECC, Steel electrolytic cold commercial, Min. 0.8 mm thickness, see enclosure for dimension.	-	-	
Case-Rear (Metal)	Interchangeable	Interchangeable	SECC, Steel electrolytic cold commercial, Min. 0.8 mm thickness, see enclosure for dimension.	-	-	
Case-Front (Plastic)	LOTTE CHEMICAL CORPORATION	NH-1017(p)	Min. 2.5 mm thickness, rated Min. V-0, 85 deg. C	QMFZ2	UL (E115797)	
Hard Disk Drive (Max. 2 EA)	Interchangeable	Interchangeable	5 Vdc or 12 Vdc	AZOT2, NWGQ2	UL	
USB Protection IC (U12, U13, U30)	TexasInstrumentsInc	TPS2062	Rated 2.7-5.5 Vdc, Continuous current: 1.0 A, Protection current: 5.0 A	QVGS2	UL (E169910)	
USB Protection IC (U20, U13, U36) - Alternate	DIODES INC	AP2182A	Rated 2.7-5.5 Vdc, Continuous current: 3.0 A, Protection current: 4.8 A	QVGS2	UL (E322375)	
DC Fan	HuiTong Electronic Co., Ltd.	HTD-040(X)12M	12 Vdc, 0.07 A, 4000 RPM (N/15000+K/2400 = 0.275738 < 1, N=4000, K=21.7728)	GPWV2	UL (E311396)	

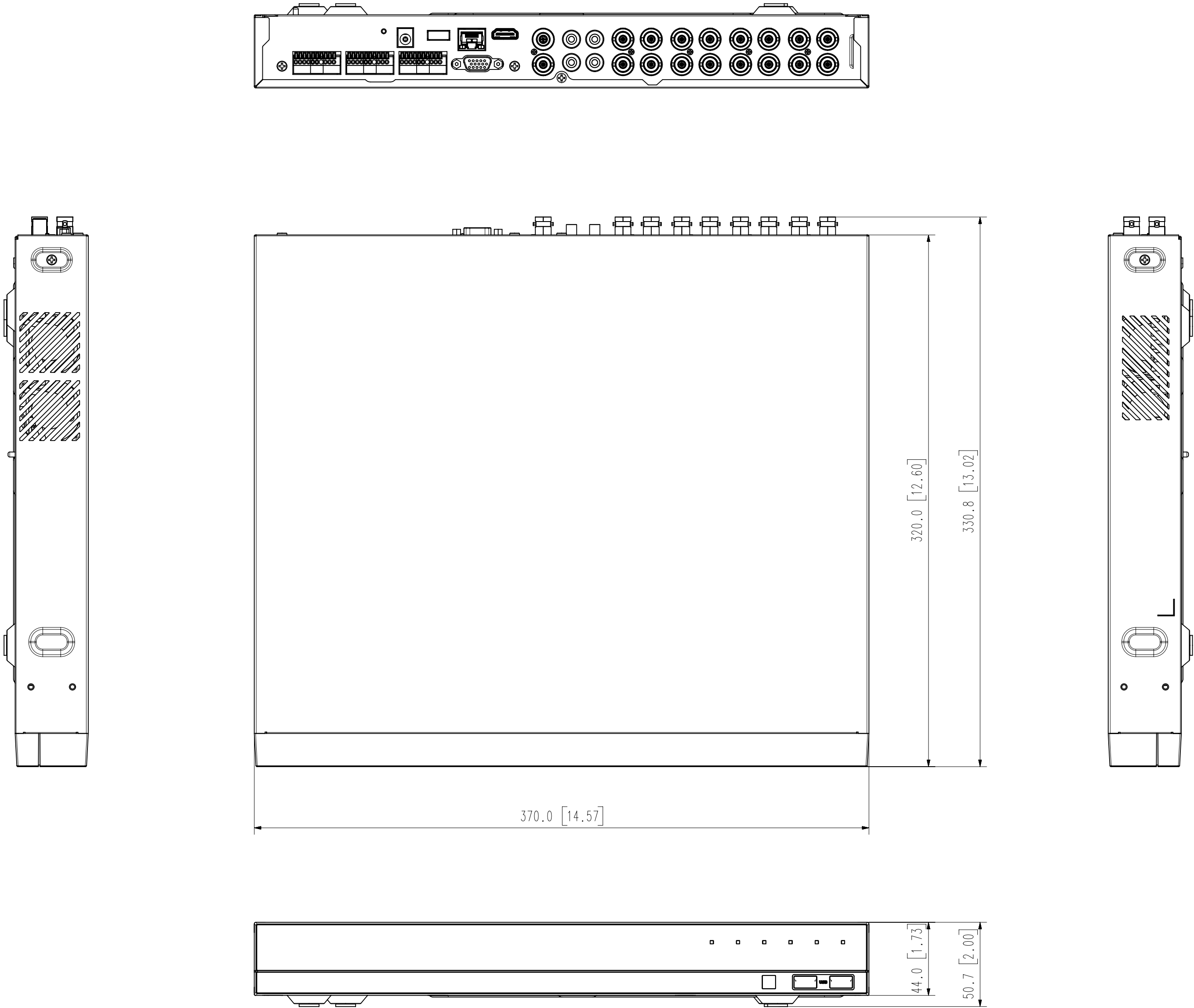
Lithium Battery (CN1)	WUHAN LIXING (TORCH) POWER SOURCE CO LTD	CR2032	Lithium/manganese dioxide (Coin), Max Abnormal Charging Current: 10 mA, Max Abnormal Charging Voltage: 5.0 Vdc	BBCV2	UL (MH26236)	
Lithium Battery (CN1) - Alternate	PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA	CR2032*	Lithium/manganese dioxide (Coin), Max Abnormal Charging Current: 10 mA, Max Abnormal Charging Voltage: -	BBCV2	UL (MH12210)	
Lithium Battery (CN1) - Alternate	SHENZHEN GAONENGDA BATTERY CO LTD	CR2032	Lithium/manganese dioxide (Coin), Max Abnormal Charging Current: 10 mA, Max Abnormal Charging Voltage: 3.5 Vdc	BBCV2	UL (MH30114)	
Reverse Current Protection Circuit for Lithium Coin Battery (BAT1)	Interchangeable	Interchangeable	Diode (D9, 80 V, 100 mA) and resistor (R250, 3.3 kohm, 1/16 W) in series.	-	-	
Relay (RLY1, RLY2, RLY3, RLY4)	FUJITSU COMPONENT LIMITED.	FTR-B3	Contact Rating 30 Vdc 1 A, Carrying Current 2.0 A	NRNT2	UL (E63615)	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 6.0 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Internal Wiring	MYUNG BO CABLE CO LTD	1007	VW-1, 300 V, 60 or 80 deg. C	AVLV2	UL (E232407)	
Internal Wiring - Alternate	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; Min. 300 V, 80 deg.	AVLV2	UL	
FFC cable	FAT CO LTD	20861	Marked VW-1; Min. 60 V, 105 deg C	AVLV2	UL (E363546)	

FFC cable - Alternate	Interchangeable	Interchangeable	Marked VW-1	AVLV2	UL	
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	-	ECBT2	UL	
Connectors and Receptacles (Secondary circuits) - Alternate	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	UL	
PWB	HANNSTAR BOARD CORP	MV-4	Min. V-0, 130 deg. C	ZPMV2	UL (E89382)	
PWB - Alternate	Interchangeable	Interchangeable	Min. V-0, 130 deg. C	ZPMV2	UL	
Label	Interchangeable	Interchangeable	Min. 40 deg. C if max. surface temperature not specified.	PGDQ2 or PGJ12	UL	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Internal View
Photographs	03-04	Rear ports View
Photographs	03-05	Main Board - Top
Photographs	03-06	Main Board - Bottom
Photographs	03-07	Alarm Board - Top
Photographs	03-08	Alarm Board - Bottom
Photographs	03-09	Fan
Photographs	03-10	Adapter
Diagrams	04-01	Enclosure Diagram
Manuals	06-01	Manual
Miscellaneous	07-01	Label

The following Page(s) are related to Diagrams-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.



Appearance drawing HRX-1634
Unit : mm[inches]

The following Page(s) are related to Manuals-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

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.
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.

PRODUCT USER MANUAL DESCRIPTION

- This document is a user manual for Recorder product. Before using this product, please read this document carefully in order to use it properly.
- This user manual explains how to use the product based on the defaults and default screens of this product.
 - The content of this manual is subject to change depending on the product software updates and the company policies. It is subject to partial changes without prior notification to users.

TARGET AUDIENCE

This user manual contains contents for Recorder users.

HOW TO USE THE PRODUCT

- Users of this product can perform the following:
- Monitor cameras registered to Recorder in real time
 - Search for or play videos saved in Recorder
 - Monitor text data being transmitted to the POS device connected to Recorder in real time
 - Search for text data from the POS device connected to Recorder
 - Monitor real time events that occur in Recorder, sensors, and cameras or search through logs

Before using this product, check if the latest version of this software is installed. Go to Hanwha Techwin's website (<http://www.hanwha-security.com>) to check the software version and download necessary files.

CAUTION

- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- Do not ingest battery, Chemical Burn Hazard.
- This product contains a coin / button cell battery. If the coin / button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- Keep new and used batteries away from children. If the battery compartment does not close securely, stop using the product and keep it away from children.
If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

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.
- Ne pas ingérer la pile, risque de brûlure chimique.
- Ce produit contient une pile de type bouton/pièce de monnaie. Si la pile de type bouton/pièce de monnaie est avalée, elle peut causer de graves brûlures internes en seulement 2 heures et peut entraîner la mort.
- Gardez les piles neuves et usagées hors de portée des enfants. Si le compartiment de la pile ne se ferme pas correctement, cessez d'utiliser le produit et gardez-le d'atteinte des enfants.
Si vous suspectez que des piles ont été avalées ou insérées dans une partie du corps, consultez un médecin sans tarder.

DIGITAL VIDEO RECORDER

MODEL: HRX-1634

DC 12V  3.3A

M/C: HRX-1634/KUS Fac. ID: D



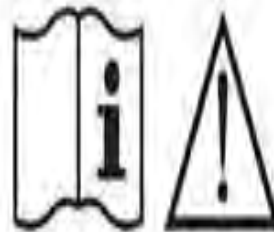
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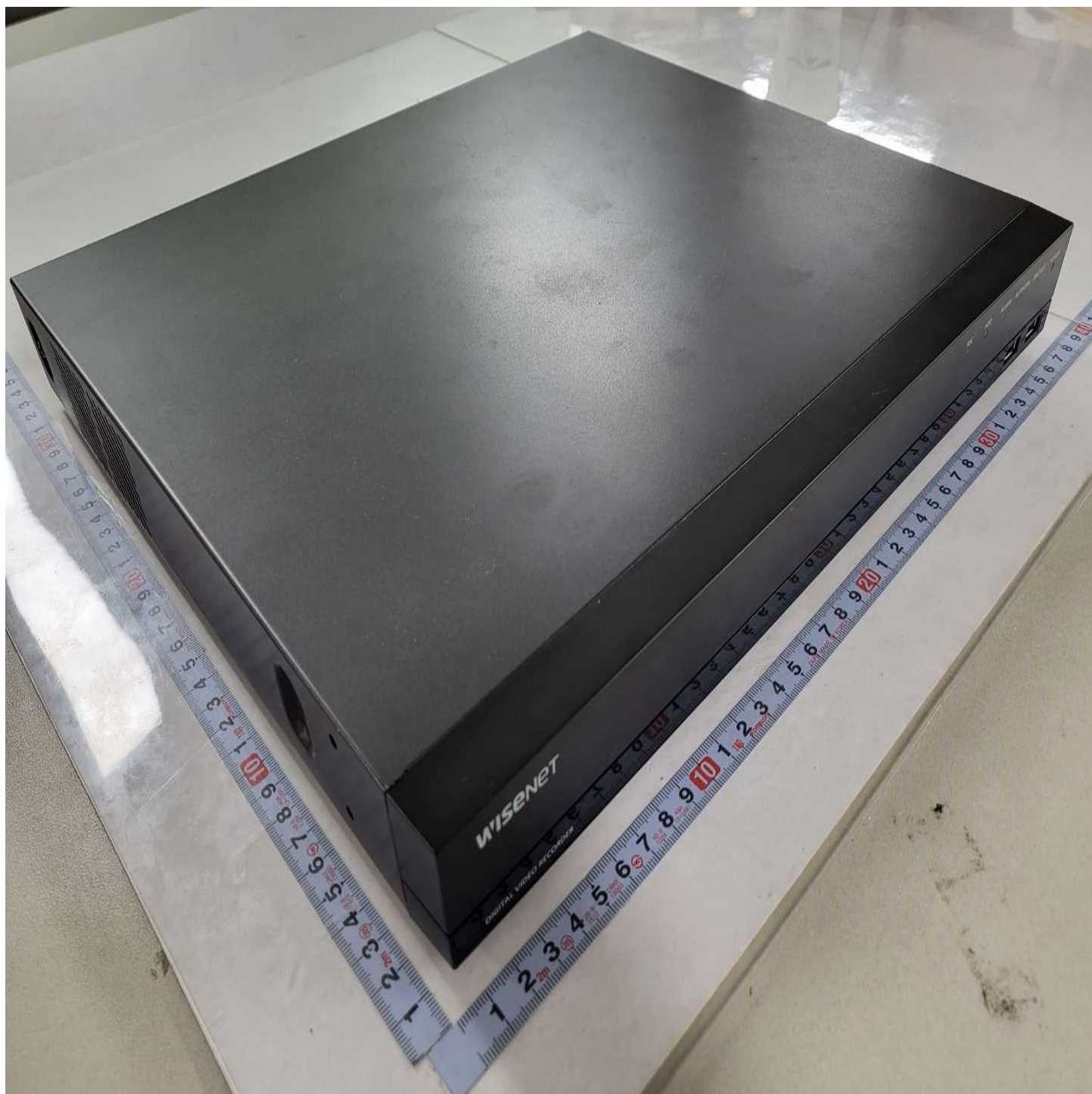
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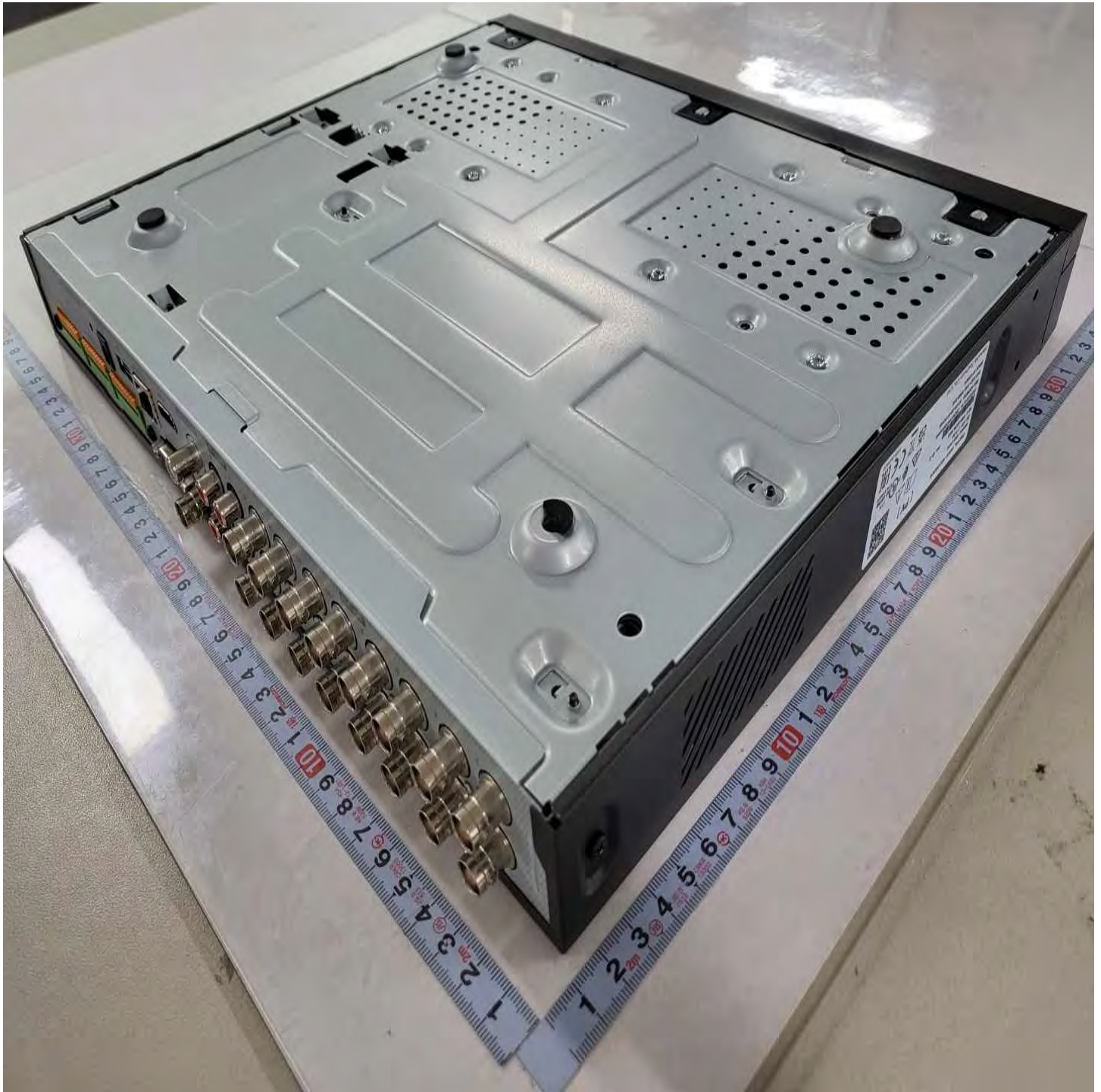
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MADE IN KOREA

Hanwha Techwin Co., Ltd.



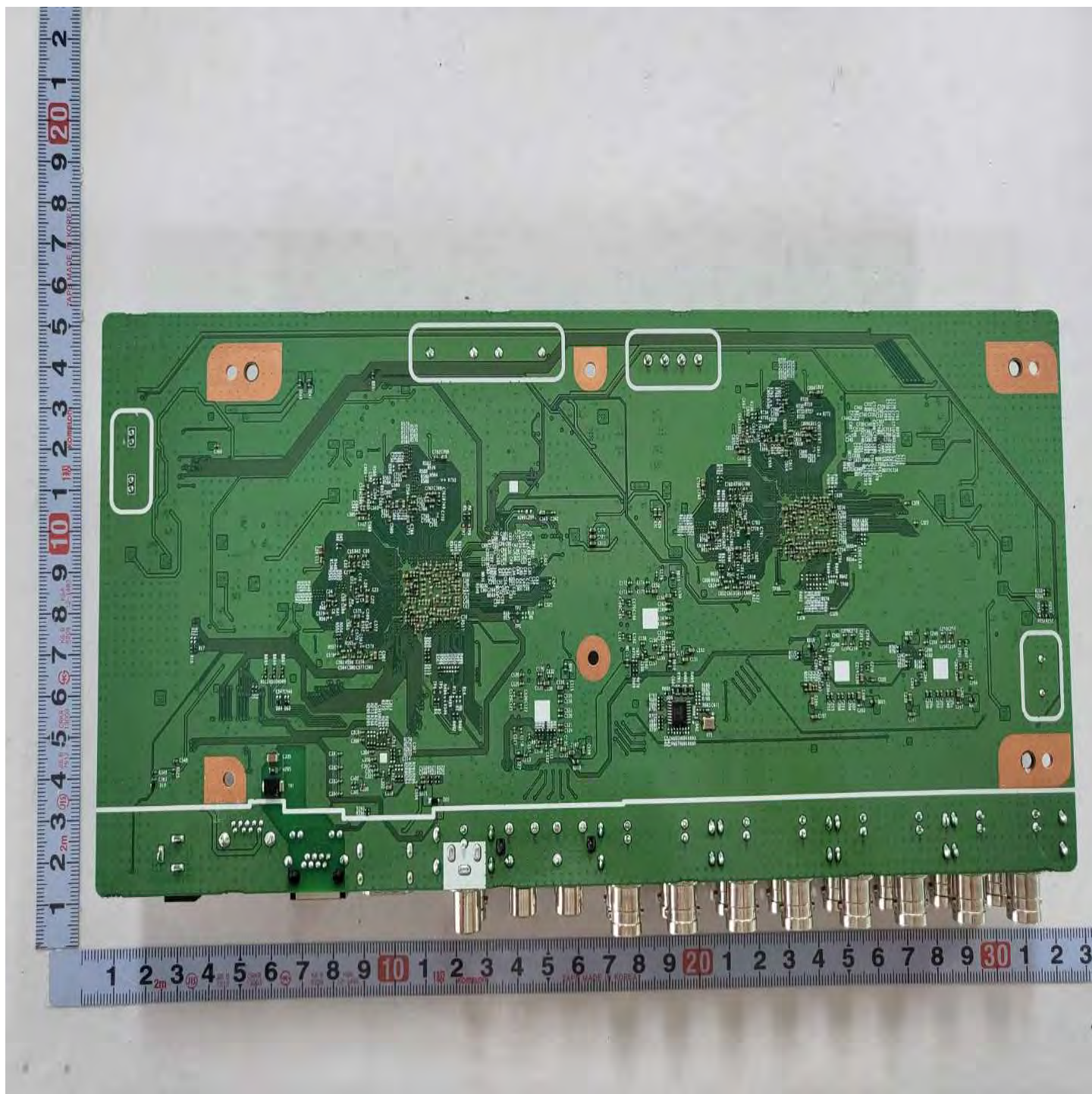
















Revision Date: 2022-12-14

Test Record No. 1

1. Test result relate only to the items tested.
2. The manufacturer submitted representative production samples of DIGITAL VIDEO RECORDER, HRX-1634.
3. Only the test listed were considered necessary.

The following tests were conducted:

Tests performed (name of test and test clause):	Testing location: CTK Co., Ltd., 386-1 Ho-dong Yongin-shi, Kyungki-do, 449-100, Korea
4.4.3.2, T.5 – STEADY FORCE TEST, 250 N	
4.4.3.4, T.6 - IMPACT TEST	
B.2.5 – INPUT TEST: SINGLE PHASE	
B.2.6, 5.4.1.4, 6.3, 9.3, B.1.5 – NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT	
B.3 – SIMULATED ABNORMAL OPERATING CONDITIONS	
B.4 – SIMULATED SINGLE FAULT CONDITIONS	
M.3.2 – PROTECTION CIRCUITS FOR BATTERIES	
Q.1 – LIMITED POWER SOURCE	
The following tests were waived:	Rationale for Waiving

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

The following supplements are provided as part of this Test Record. NOTE: These supplements are only available to the Applicant via the myUL™ Client Portal.

Type	Supplement Id	Description
Datasheet	02-01	Datasheet
Attachment	02-02	Dual language safety labeling CRD

Revision Date: 2022-12-14

Test Record No. 2

No test was considered necessary in order to correct typo error in CCL

The following tests were conducted:

Tests performed (name of test and test clause): None	Testing location: None
The following tests were waived: None	Rationale for Waiving

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

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Type	Supplement Id	Description