

**KES Co., Ltd.**

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www.kes.co.kr

Report No.:

KES-EM-22T0299-R1

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EMC TEST REPORT

Test Report No. : KES-EM-22T0299-R1

Date of Issue : Feb. 24, 2023

Product name : DVR

Model/Type No. : HRX-835A

Variant Model : -

Applicant : Hanwha Vision Co., Ltd
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea

Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
2. D-TECH CO.,LTD.

Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)

Equipment authorization : **Supplier's Declaration of Conformity**

Date of Receipt : Mar. 02, 2022

Test date : Mar. 15, 2022 ~ Mar. 16, 2022

Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dong Hyun, Won
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Mar. 30, 2022	KES-EM-22T0299	Issued
Feb. 24, 2023	KES-EM-22T0299-R1	Change the Applicant and manufacturer at the request of the customer

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1.0 General Product Description

Main Specifications of EUT are:

Display		
Analog camera	Inputs	8CH(1Vp-p 75ohm, BNC)
	Signal Type	AHD(8MP, 5MP, 4MP, 1080p, 720p) HDTVI(8MP, 5MP, 4MP, 1080p, 720p) HDCVI(8MP, 5MP, 4MP, 1080p, 720p) CVBS(NTSC/PAL)
Network camera	Inputs	2CH (Up to 10CH)
	Resolution	8MP ~ CIF
	Protocols	SUNAPI(Wisenet), ONVIF
Live	Local Display	1x HDMI, 1x VGA (Dual monitor) HDMI: 3840 x 2160, 2560x1440, 1920x1080, 1280x1044, 1280x720 (Expand mode 1920x1080) VGA: 1920x1080, 1280x1024, 1280x720 (Expand 1024*768)
	Multi Screen Display	[Local monitor] Dynamic layout/Sequence, [Web] 1 / 4 / 9 / sequence
	Resolution	[Analog Camera(NTSC/PAL)] - 8MP(15/12fps), 5MP(20/12fps), 4MP(30/25fps), 2MP(30/25fps), 1MP(30/25fps), 960H(or 720H)(30/25fps) * per CH [Network Camera] - Typ. 2MP(240fps)
Performance		
Operating System	Embedded	Linux
Record	Compression	H.265, H.264, MJPEG
	Record Rate(Analog)	Analog Camera (Main Stream) 8MP 8/8fps CH, 5M 12/12fps, 4M 15/12fps, 2M 30/25fps, 720p 30/25fps, 960H/640H 30/25fps(NTSC/PAL per CH) (Sub Stream) 720p or higher : 640x368 full fps/CH, SD signal : upto CIF full fps/CH * The maximum recording frame rate depends on the frame rate of the input camera.
	Recording Bandwidth	Max. 80Mbps
	Resolution	8MP ~ CIF
	Event Trigger	Alarm Input Analog Camera : Video Loss, Motion Detection, Tampering Network Camera : Camera Event (Sensor, MD, Video analytics), VA event (Tampering, Enter / Exit, Passing, Virtual- line, (Dis)Appear, Face Detection, Audio detection), Defocus camera event, Dynamic camera event
	Event Action	E-mail, PTZ preset, Alarm out, Buzzer, Monitor out
Search & Play	Playback Bandwidth	Max. 32Mbps (10CH simultaneously)
	User	Max. 4 Users (Local 1, Remote 3)
	Simultaneous playback	10CH(Local Monitor), 8Ch (CMS), 4Ch (Wisenet Mobile), 1Ch(Web)
	Fisheye Dewarping	WEB / CMS
	Search Mode	Date & Time (Calendar) / Event log list / Text search (POS), Back up, Motion, Smart search (Virtual Line w/ direction, Enter / Exit) * All Search Included Preview Function ARB search
	Resolution	8MP ~ CIF

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	Playback Control	Fast Forward/Backward (x2,x4,x8,x16,x32,x64, x128, x256) Slow Forward/Backward (x1/2,x1/4,x1/8) ※Move one step up/down
Storage	Supported HDD	Up to 6TB
	HDD Slot	SATA 4ea(Max 24TB)
Backup	File backup	BU, EXE(Include Player), AVI(Webviewer only)
	Function	Max. 10 CH play, Date-time/title display
Network		
Protocol		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)
DDNS		Wisenet DDNS
Transmission speed		Analog Camera (Main Stream) 8MP 8/8fps CH, 5M 12/12fps, 4M 15/12fps, 2M 30/25fps, 720p 30/25fps, 960H/640H 30/25fps(NTSC/PAL per CH) (Sub Stream) 720p or higher : 640x368 full fps/CH, SD signal : upto CIF full fps/CH * The maximum recording frame rate depends on the frame rate of the input camera.
Transmission Bandwidth		Max. 80Mbps
Audio	Input/Output	8 Line in (RCA 4 Line, Option : Audio Extension Cable) / 1Line line out
	Compression	G.711 (N/W Cam G.711, 726)
	Audio Communication	2-Way
Max Remote Users		Search(3), Live Unicast(10), Multicast(20)
Security		IP address filtering, User access log, 802.1x Authentication, Encryption (ID/PW, Recording, Transmission, Backup) Device Certificate(Hanwha Techwin Root CA)
Web viewer	Supported OS	Windows 10, Mac OS 11 Big Sur and later
	Supported browser	Chrome v99 / Edge v99 /Safari v14.0.3 Higher (2022/03)
Viewer Software		SSM, Webviewer, SmartViewer, Wisenet Mobile Viewer, Wisenet Viewer Support SDK/CGI(SUNAPI) for integration to 3rd party VMS
Functions		
Camera Setup	Register	Auto, Manual
	Item	None
PTZ	Control	Via GUI, Webviewer, SSM, SmartViewer, Wisenet Mobile Viewer, System Controller
	Preset	300 presets
Smart phone	Support Model	iOS, Android
	Protocol Support	RTP, RTSP, HTTP, CGI(SUNAPI)
	Control	Live(8ch) : Multi-Profile Support Playback(4Ch Multi Playback, Max 2MP) Event push
	Max. Remote Users	Search(3), Live Unicast(10)
Easy configuration		Setup Wizard (Language Date/Time, Password, Network, Auto Camera Configuration), P2P (QR code)
Coaxial Control		CVBS(Pelco-C)/AHD/CVI/TVI

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Interface		
Front	Indicator	LED(Status indicator) : Power(1), HDD Action(1), Alarm(1), Record(1), Network(1), Backup(1)
Reset		Switch(1EA)
HDMI		1EA
VGA		1EA
BNC		8CH In / 1CH Out(Spot Output)
Ethernet		RJ-45(10/100/1000BASE-T)
Alarm		In 8EA, Out 4EA - Relay Out1(NO/NC/COM) - Relay Out2~4(NO/COM)
USB		3EA(Front USB2.0 2a , Rear USB 3.0 1ea)
Serial(Protocols)		RS-485/422 (Samsung-T/Pelco-D/Pelco-p) * for PTZ
Power inlet		1EA AC (AC100~240V)
System		
Log	Log List	Max. 100,000 (System Log, Event Log each), (HRX-1632)
System Control		Mouse, Webviewer, System Controller(SPC-7000, SPC-6000, SPC-2000)
Language		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai
Environmental		
Operating Temperature		0°C to +40°C(+32°F to +104°F)
Operating Humidity		20% ~ 85% RH
Certification		UL, CE, FCC, KC
Electrical		
Power Input		100~240 VAC±10%, 50/60 Hz
Power Consumption		Max. 100W (6T HDD 4ea)
PoE Budget		None
Mechanical		
Color / Material		Black / Metal
Dimension (WxHxD)		440 x 88 x 384.8mm(17.32" x 3.48" x 15.15")
Weight		Approx. 5.3Kg (4TB HDD 1ea)

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

☒ AC 120 V, 60 Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
DVR	HRX-835A	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT
Mouse	MOKJUO	21H07051	Primax Electronics Ltd.	-
HDD	ST2000VX012	WFM17XFS	SEAGATE	2 TB

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	P98F004	21599158359	DELL INC.	-
Notebook Adapter	LA240PM190	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	-
Monitor 1	SMT-2232	C95V67VF90002 5B	Weihai Daewoo Electronics Co., Ltd.	-
Monitor 2	SMT-2232	C95V67VF90003 8B	Weihai Daewoo Electronics Co., Ltd.	-
Monitor 3	DELL E2222H DVT	8221TCM10D001 03X	DELL INC.	-
Speaker	E5	-	PreSonus®	-
Controller	SPC-1010	C50E67WG10100 F	HANWHA VISION VIETNAM COMPANY LIMITED	-
Controller Adapter	-	-	-	-
Alarm	PRO-SL	-	SENSOR PRO	-
ButtonAlarm	-	-	-	-
Camera	HCV-6070R	-	HANWHA VISION VIETNAM COMPANY LIMITED	-
Camera Adapter	DAD12050DKA	KTLSA10022- 8001	(주)드림전자	-
NETWORK VIDEO ENCODER	SPE-410	-	HANWHA VISION VIETNAM COMPANY LIMITED	-
NETWORK VIDEO ENCODER Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
USB Memory	-	-	NOVOMATIC	-

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1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
DVR (EUT)	USB 2.0	Mouse (EUT)	USB	1.5	U
	RJ-45	Notebook	RJ-45	4.0	S
	AUDIO IN	Notebook	3.5 mm	1.6	U
	Parallel Port	Notebook	3.5 mm	1.6	U
	BNC (SPOT)	Monitor 1	BNC	3.5	S
	D-SUB	Monitor 2	D-SUB	1.8	S
	HDMI	Monitor 3	HDMI	2.0	S
	AUDIO OUT	Speaker	RCA	2.8	U
	RS-485	Controller	RS-485	4.0	U
	Alarm OUT	Alarm	Alarm IN	3.0	U
	Alarm IN	ButtonAlarm	Alarm OUT	3.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	BNC (VIDEO IN)	NETWORK VIDEO ENCODER	BNC	10.0	U
	USB 3.0	USB Memory	USB	-	-

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NETWORK VIDEO ENCODER	BNC	Camera	BNC	1.6	U
Notebook	DC Jack	Notebook Adapter	DC Jack	2.2	S
Controller	DC Jack	Controller Adapter	DC Jack	1.8	U
NETWORK VIDEO ENCODER	2 Pin	NETWORK VIDEO ENCODER Adapter	2 Pin	2.0	U
Camera	2 Pin	Camera Adapter	2 Pin	1.8	U

* Unshielded=U, Shielded=S

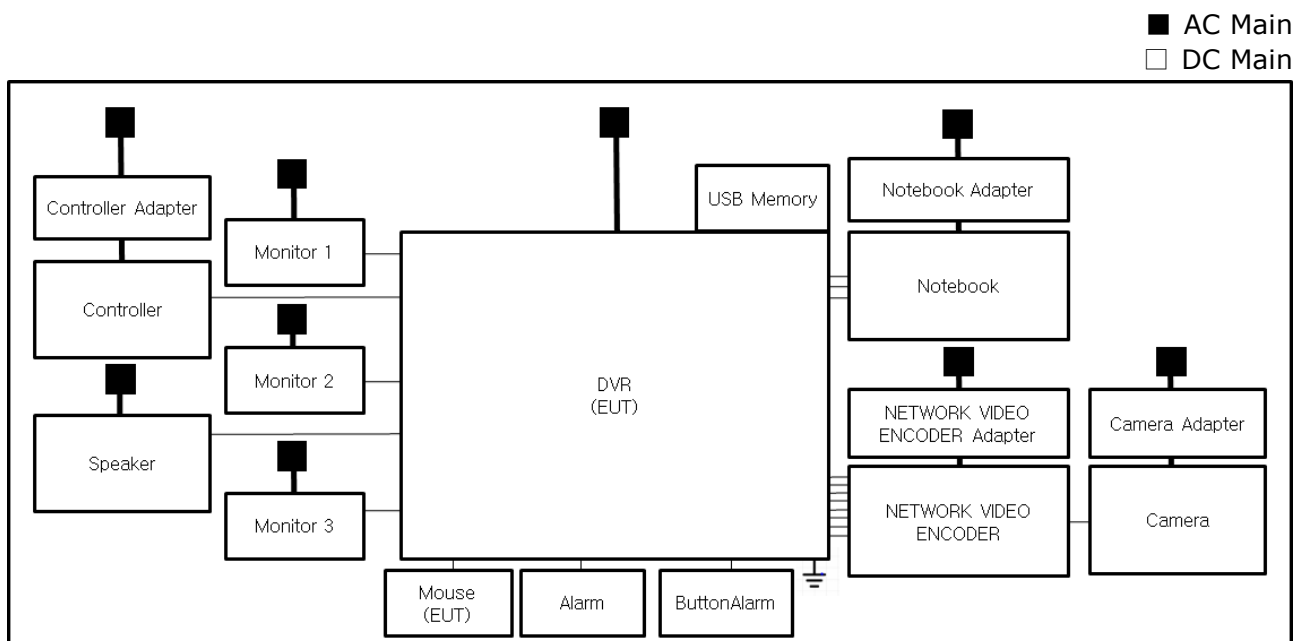
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1.7 EUT Operating Mode(s)

Test Mode	operating
Operating Mode	EUT Monitoring, Ping Test

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

1.8 Configuration



1.9 Remarks when standards applied

N/A

1.10 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.11 Test Facility

The measurement facility is located at 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004



2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B



2.1 Conducted Emissions at Mains Power Ports

Test Date

Mar. 15, 2022

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	12, 28, 2022
☒	LISN	ENV216	R & S	101787	12, 27, 2022
☒	LISN	ESH2-Z5	R & S	100450	12, 27, 2022
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 27, 2022

Test Conditions

Temperature: (23,8 ± 0,1) °C

Relative Humidity: (42,1 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Mar. 15, 2022

Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2022
☒	AMPLIFIER	SCU 01	R & S	100603	11, 24, 2022
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 08, 2023

Test Conditions

Temperature: (23,8 ± 0,1) °C

Relative Humidity: (42,6 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Mar. 16, 2022

Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.120	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	04, 01, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 16, 2022
☒	PREAMPLIFIER	8449B	HP	3008A00538	06, 21, 2022

Test Conditions

Temperature: (24,7 ± 0,2) °C

Relative Humidity: (43,1 ± 0,1) % R.H.

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

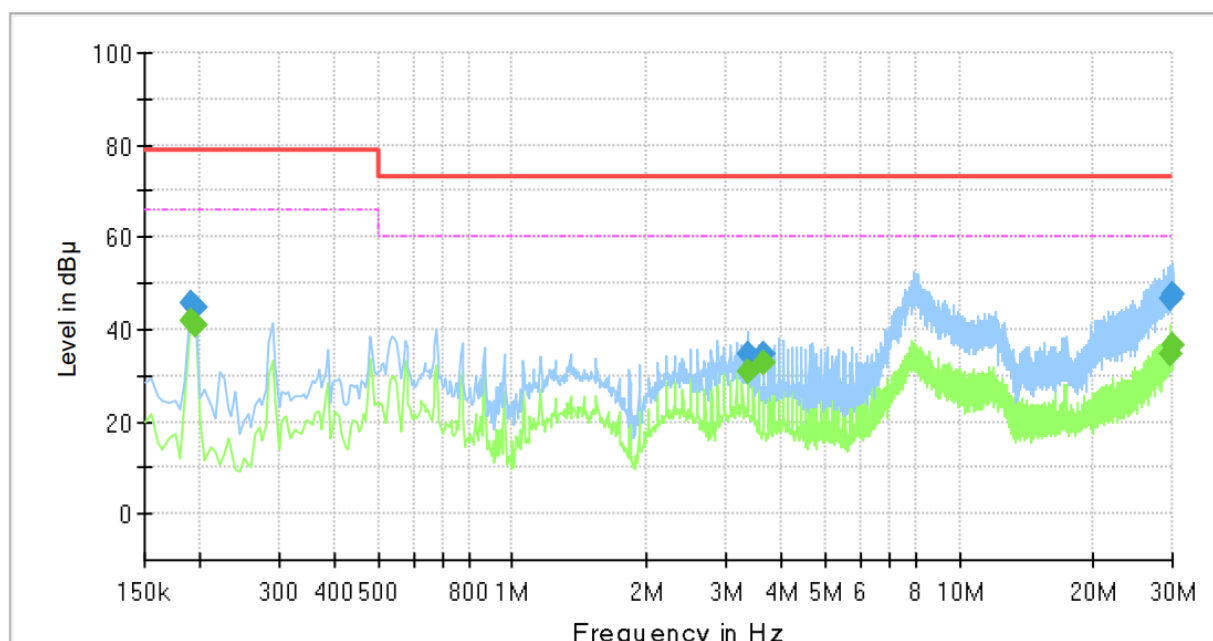
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	HRX-835A
Phase:	
Mode:	H
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190000	---	42.00	66.00	24.00	1000.0	9.000	L1	19.4
0.190000	45.89	---	79.00	33.11	1000.0	9.000	L1	19.4
0.195000	---	40.80	66.00	25.20	1000.0	9.000	L1	19.4
0.195000	44.79	---	79.00	34.21	1000.0	9.000	L1	19.4
3.360000	---	30.93	60.00	29.07	1000.0	9.000	L1	20.1
3.360000	34.67	---	73.00	38.33	1000.0	9.000	L1	20.1
3.650000	---	32.71	60.00	27.29	1000.0	9.000	L1	20.0
3.650000	34.57	---	73.00	38.43	1000.0	9.000	L1	20.0
29.555000	---	34.67	60.00	25.33	1000.0	9.000	L1	20.3
29.555000	46.85	---	73.00	26.15	1000.0	9.000	L1	20.3
29.880000	---	36.57	60.00	23.43	1000.0	9.000	L1	20.3
29.880000	47.76	---	73.00	25.24	1000.0	9.000	L1	20.3

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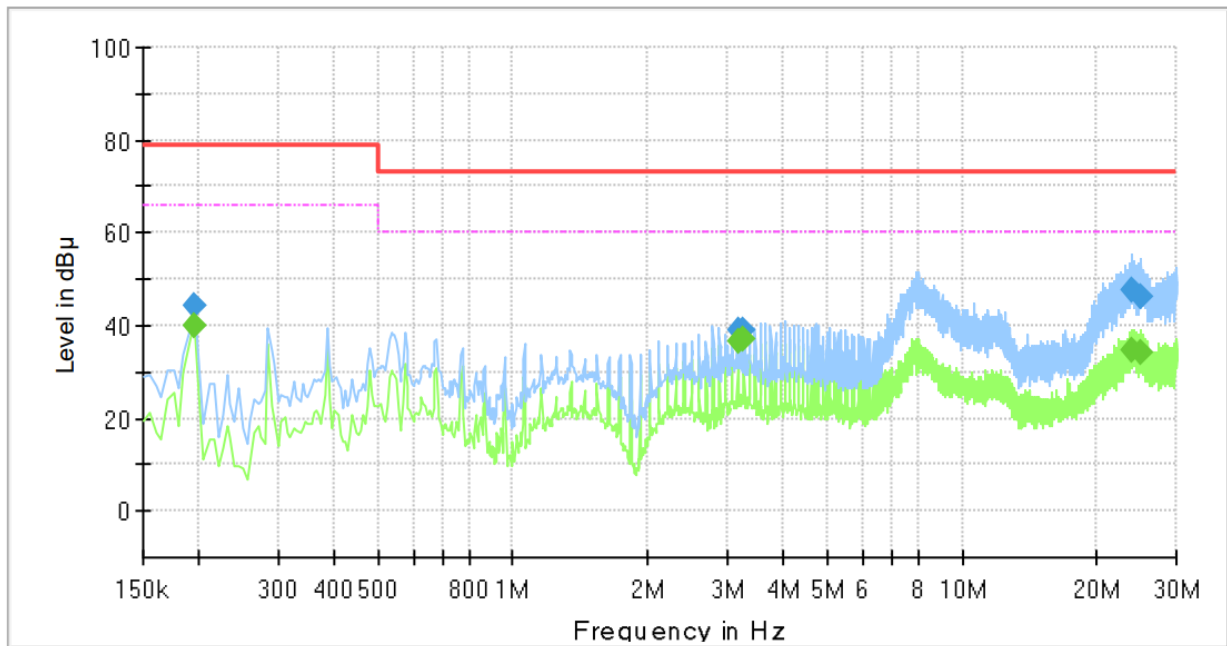
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	HRX-835A
Phase:	
Mode:	N
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.195000	---	39.77	66.00	26.23	1000.0	9.000	N	19.4
0.195000	44.15	---	79.00	34.85	1000.0	9.000	N	19.4
3.170000	---	36.56	60.00	23.44	1000.0	9.000	N	20.1
3.170000	39.11	---	73.00	33.89	1000.0	9.000	N	20.1
3.265000	---	36.87	60.00	23.13	1000.0	9.000	N	20.1
3.265000	39.05	---	73.00	33.95	1000.0	9.000	N	20.1
23.890000	---	34.76	60.00	25.24	1000.0	9.000	N	20.1
23.890000	47.42	---	73.00	25.58	1000.0	9.000	N	20.1
25.045000	---	34.20	60.00	25.80	1000.0	9.000	N	20.2
25.045000	46.29	---	73.00	26.71	1000.0	9.000	N	20.2

◆ Calculation

$$\text{QuasiPeak [dBuV]} / \text{CAverage [dBuV]} = \text{Reading Value [dBuV]} + \text{Corr. [dB]}$$

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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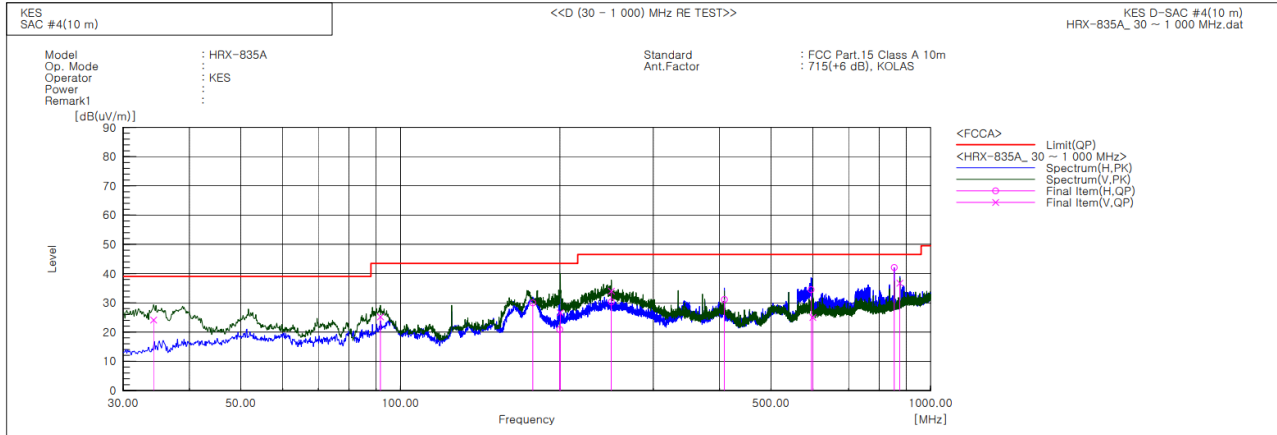
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Radiated Electric Field Emissions(Below 1 GHz)

- 47 CFR Part 15, Subpart B



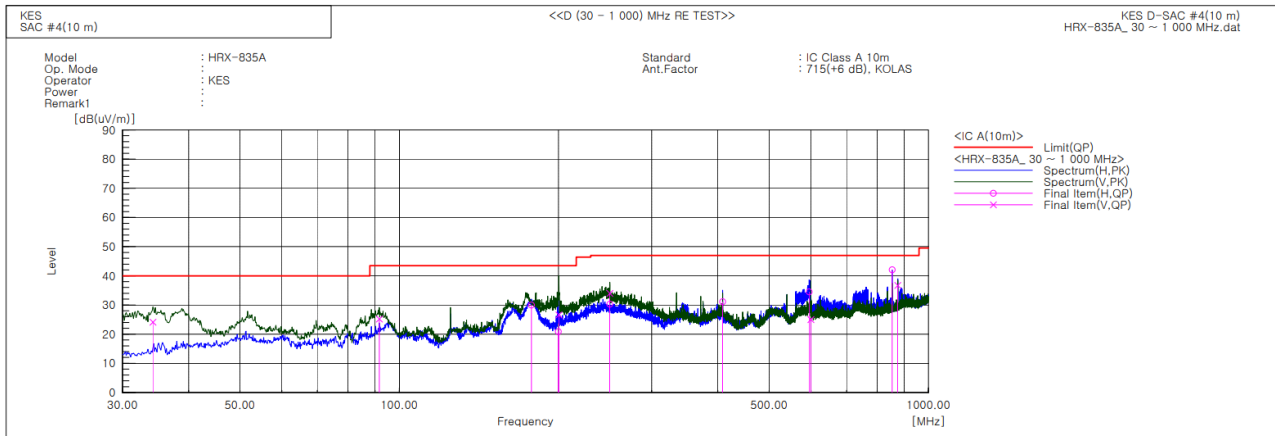
Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	34.244	V	48.9	-24.8	24.1	39.0	14.9	106.0	47.0	
2	91.716	V	49.1	-23.9	25.2	43.5	18.3	114.0	182.0	
3	177.683	H	53.7	-23.7	30.0	43.5	13.5	400.0	63.0	
4	199.750	H	41.9	-21.0	20.9	43.5	22.6	356.0	359.0	
5	200.235	V	47.5	-20.9	26.6	43.5	16.9	124.0	122.0	
6	249.985	V	53.3	-19.3	34.0	46.5	12.5	100.0	193.0	
7	249.987	H	49.6	-19.3	30.3	46.5	16.2	365.0	78.0	
8	408.421	H	45.1	-14.0	31.1	46.5	15.4	298.0	131.0	
9	595.025	H	43.1	-8.6	34.5	46.5	12.0	389.0	27.0	
10	599.511	V	33.5	-8.5	25.0	46.5	21.5	152.0	36.0	
11	853.894	H	47.5	-5.4	42.1	46.5	4.4	392.0	352.0	
12	874.982	V	41.3	-4.6	36.7	46.5	9.8	145.0	341.0	

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- IC Regulation ICES-003 Issue 7



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	34.244	V	48.9	-24.8	24.1	40.0	15.9	106.0	47.0	
2	91.716	V	49.1	-23.9	25.2	43.5	18.3	114.0	182.0	
3	177.683	H	53.7	-23.7	30.0	43.5	13.5	400.0	63.0	
4	199.750	H	41.9	-21.0	20.9	43.5	22.6	356.0	359.0	
5	200.235	V	47.5	-20.9	26.6	43.5	16.9	124.0	122.0	
6	249.985	V	53.3	-19.3	34.0	47.0	13.0	100.0	193.0	
7	249.987	H	49.6	-19.3	30.3	47.0	16.7	365.0	78.0	
8	408.421	H	45.1	-14.0	31.1	47.0	15.9	298.0	131.0	
9	595.025	H	43.1	-8.6	34.5	47.0	12.5	389.0	27.0	
10	599.511	V	33.5	-8.5	25.0	47.0	22.0	152.0	36.0	
11	853.894	H	47.5	-5.4	42.1	47.0	4.9	392.0	352.0	
12	874.982	V	41.3	-4.6	36.7	47.0	10.3	145.0	341.0	

◆ Calculation - SAC #4(10 m)

Result(QP) [dB(μV/m)] = (Reading(QP)[dB(μV)] + c.f[dB(1/m)])

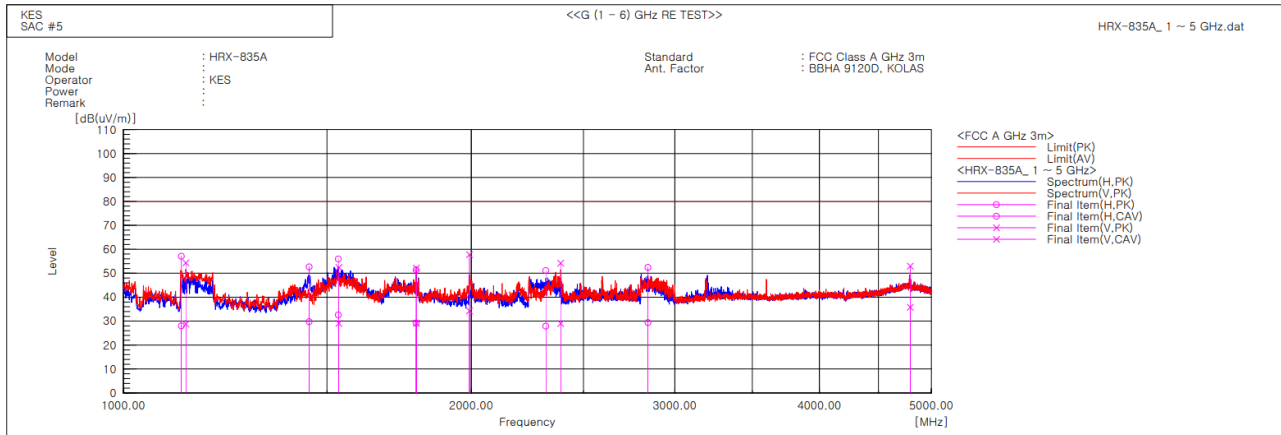
Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value



Radiated Electric Field Emissions(Above 1 GHz)



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1122.500	H	64.1	35.0	-7.0	57.1	28.0	80.0	60.0	22.9	32.0	103.0	323.0	
2	1132.500	V	61.3	35.7	-6.9	54.4	28.8	80.0	60.0	25.6	31.2	205.0	354.6	
3	1447.459	H	57.7	34.8	-5.0	52.7	29.8	80.0	60.0	27.3	30.2	358.0	63.3	
4	1534.239	H	60.7	37.4	-4.8	55.9	32.6	80.0	60.0	24.1	27.4	389.0	44.7	
5	1536.095	V	57.2	33.9	-4.8	52.4	29.1	80.0	60.0	27.6	30.9	114.0	56.0	
6	1791.870	H	55.1	32.9	-3.7	51.4	29.2	80.0	60.0	28.6	30.8	400.0	44.7	
7	1792.300	V	55.9	32.9	-3.7	52.2	29.2	80.0	60.0	27.8	30.8	149.9	25.0	
8	1992.635	V	60.7	37.2	-2.9	57.8	34.3	80.0	60.0	22.2	25.7	145.0	196.5	
9	2319.449	H	53.0	29.8	-1.9	51.1	27.9	80.0	60.0	28.9	32.1	298.0	61.7	
10	2389.029	V	55.8	30.6	-1.6	54.2	29.0	80.0	60.0	25.8	31.0	149.0	52.5	
11	2843.059	H	51.9	28.9	0.5	52.4	29.4	80.0	60.0	27.6	30.6	362.0	79.6	
12	4793.409	V	46.4	29.2	6.6	53.0	35.8	80.0	60.0	27.0	24.2	100.0	145.7	

◆ Calculation

Result(PK/CAV) [dB(μV/m)] = (Reading(PK/CAV)[dB(μV)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

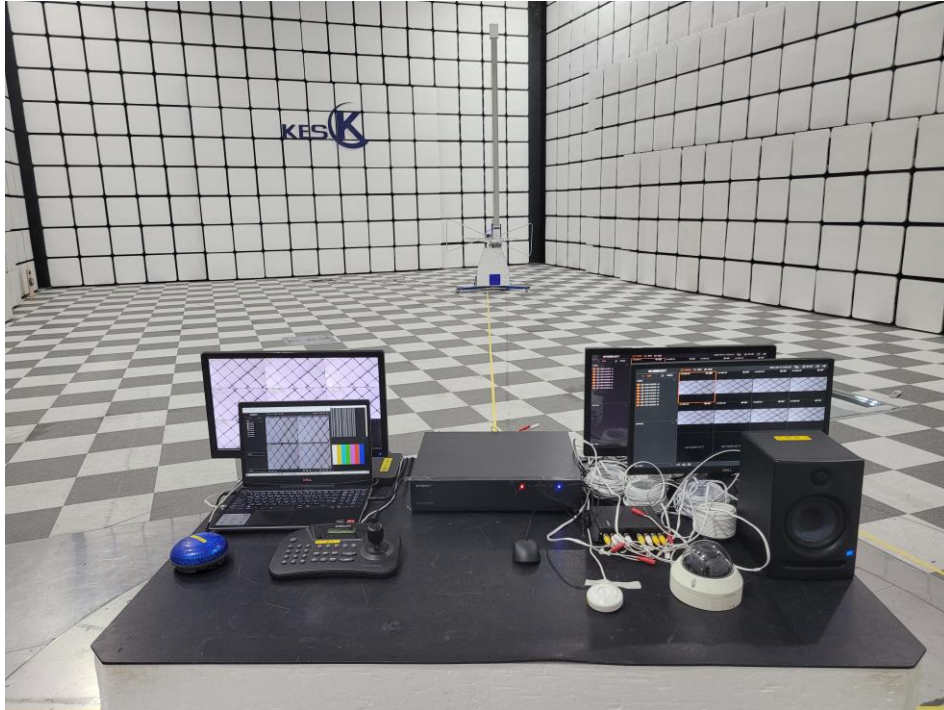
Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports



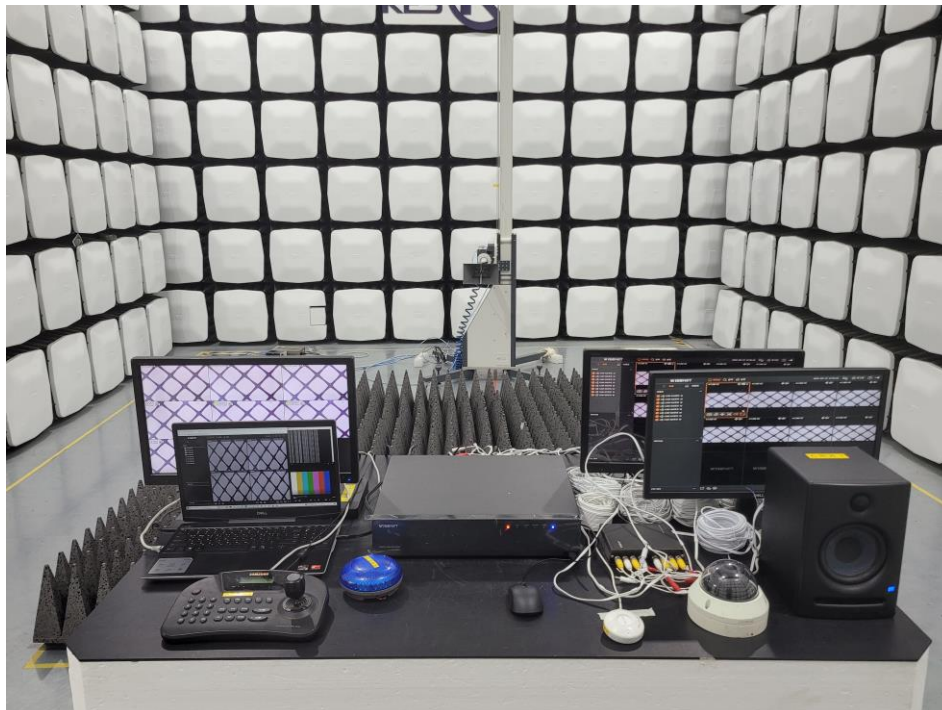
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



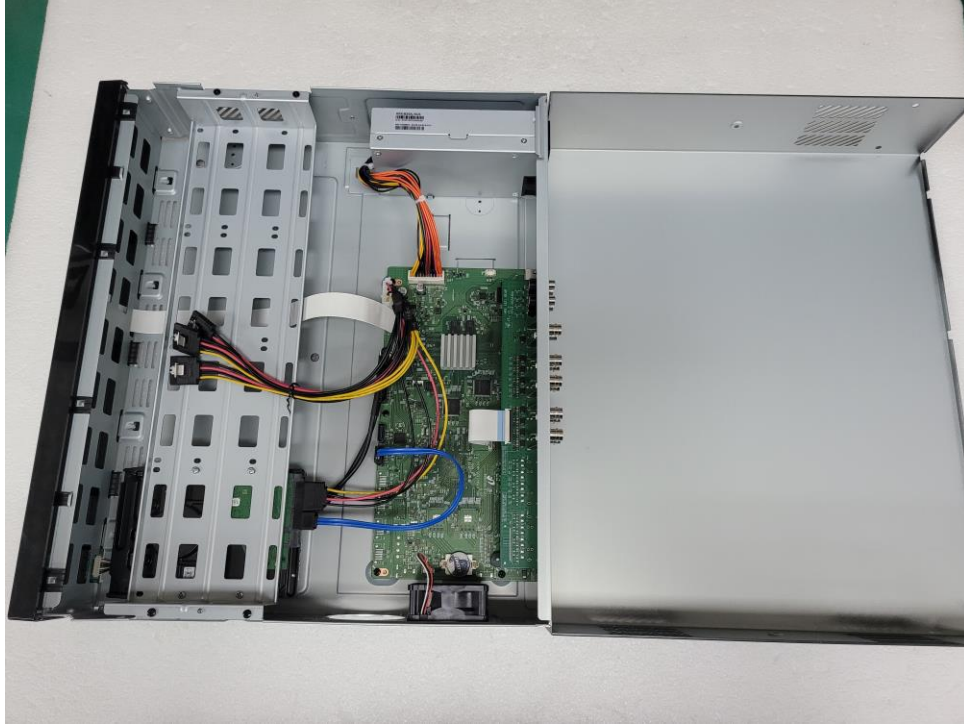
(Bottom)



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EUT Internal Photographs

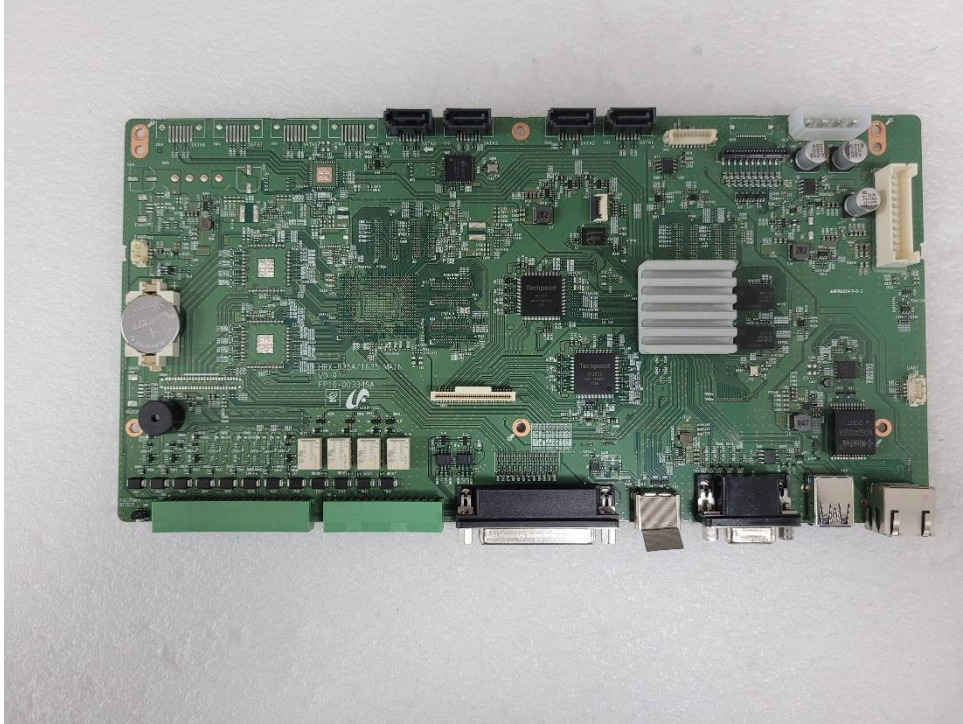
(Internal View)



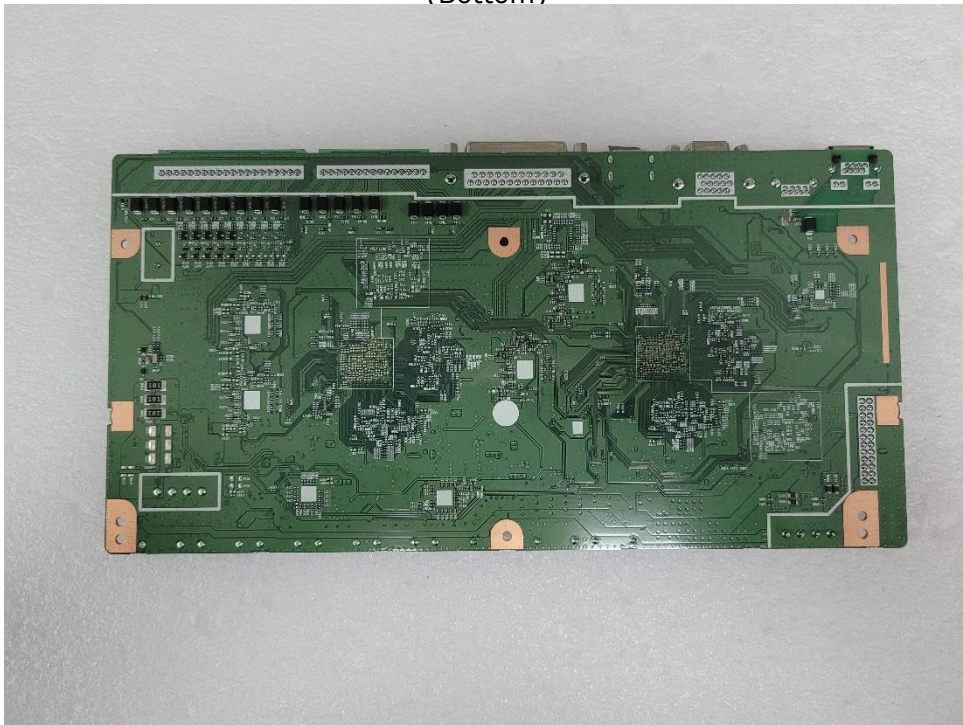
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EUT Internal View – Main Board

(Top)



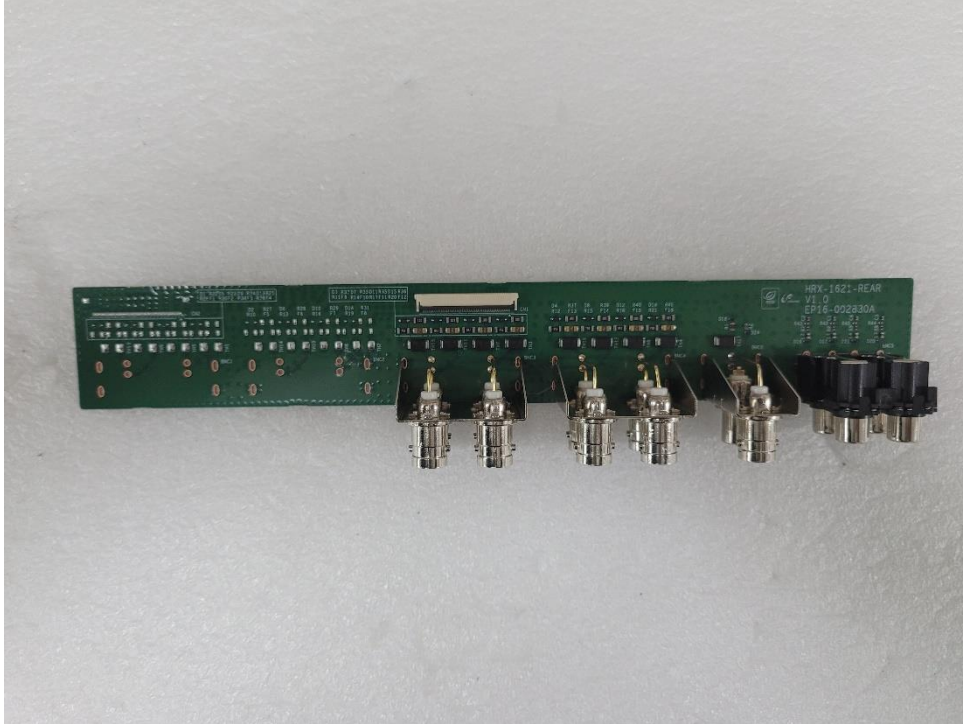
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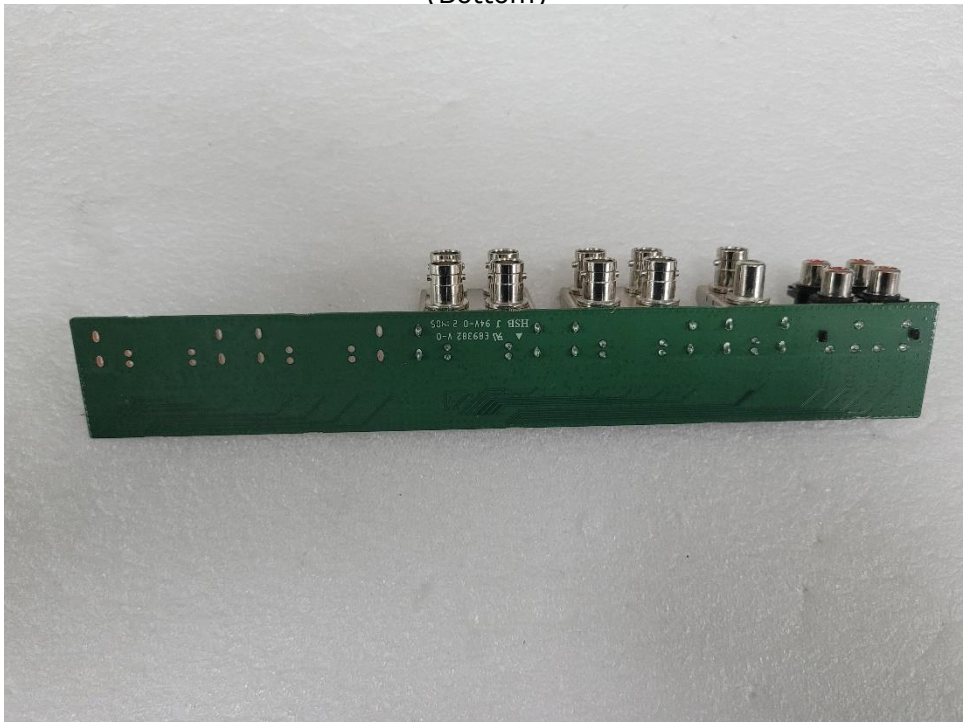
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EUT Internal View – Board

(Top)



(Bottom)



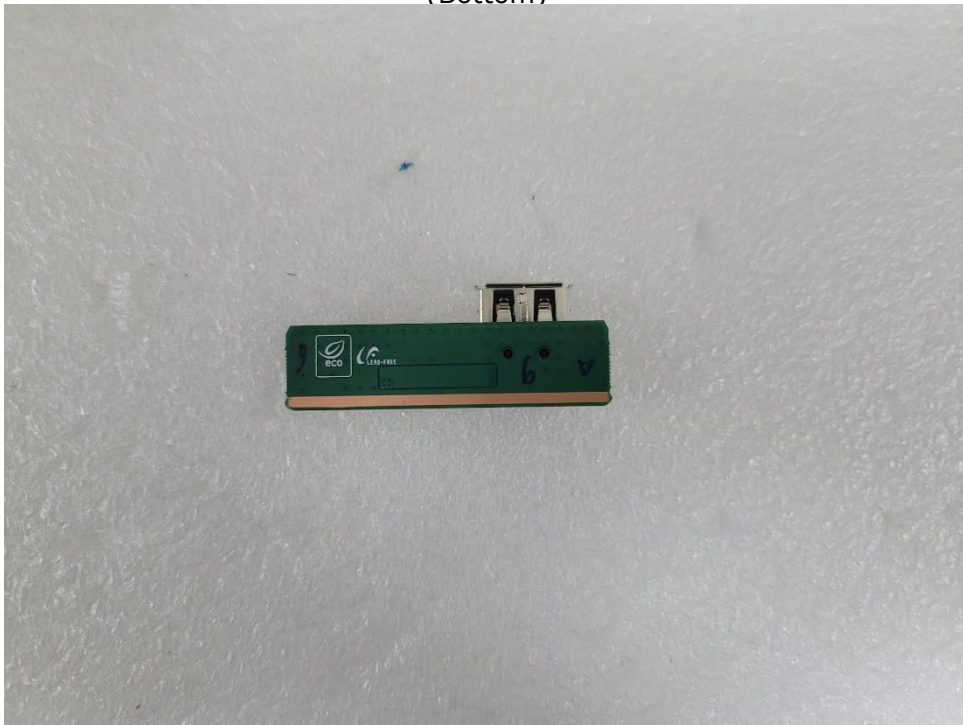
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EUT Internal View – USB Board

(Top)



(Bottom)



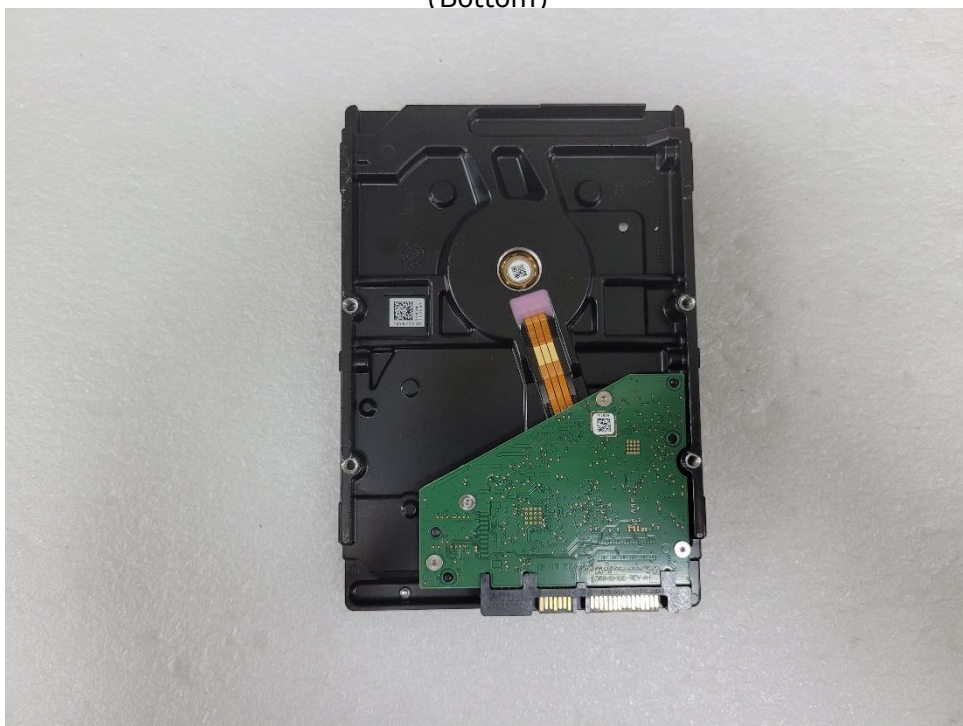
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EUT Internal View – HDD

(Top)



(Bottom)



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EUT Internal View – HDD

(label)



EUT Internal View – Mouse

(Top)



(Bottom)



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EUT Internal View – Mouse

(label)



Label Photographs



CAN ICES-3(A) / NMB-3(A)

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 device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.