EMC TEST REPORT

Test Report No.	:	KES-EM-22T0349
Date of Issue	:	Apr. 12, 2022
Product name	:	NVR
Model/Type No.	:	QRN-1630S
Variant Model	:	-
Applicant	:	Hanwha Techwin Co., Ltd.
Applicant Address	:	6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Manufacturer	:	1. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD. 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. 24, 2022
Test date	:	Mar. 28, 2022 ~ Mar. 30, 2022
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Ki Man, Kim
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.

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Apr. 12, 2022	KES-EM-22T0349	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Display		
Video	Inputs	Max. 16CH
	Resolution	CIF ~ 8MP
	Protocols	sunapi, ONVIF
Live	Local Display	HDMI1, HDMI2 1) HDMI1 : 3840x2160 30Hz HDMI2 : 1920x1080 60Hz
	Multi Screen Display	[Clone Monitor] Dynamic layout [Expand Mode] HDMI1 : Dynamic layout HDMI2 : Max 16 Div
	Resolution	[Local Monitor] 8M(60fps), 1080p(240fps), 720P(480fps), D1(960fps)
Intelligent Analysis		
Search	Object image	N/A
Comparision	Event Trigger	N/A
Attribute (AI)	Person	N/A
	Face	N/A
	Vehicle	N/A
Performance		
System	Operating System	Linux
	Processor	NT98336
Record	Compression	H.265, H.264, MJPEG, WiseStream(H.265, H.264)
	Recording Bandwidth	128Mbps
	Resolution	CIF ~ 8MP

	Mode	Normal, Dual Stream, Schedule(Continuous/Event), Event (Pre/Post), Bookmark
	Event Trigger	Alarm Input, Video Loss, Camera Event(Sensor, MD, Video Analytics, Defocus, Audio), Dynamic Event, User Event
	Event Action	e-Mail, Event Push, PTZ Preset, Alarm Out, Buzzer, Monitor Out, FTP, SUNAPI Command, Shotdown
Search & Play	Playback Bandwidth	Max 32Mbps
	User	Max. 4 Users (Local 1, Remote 3)
	Mode	Time, Event, Text, Export, ARB, Bookmark
	Simultaneous playback	Max 40CH - Set : 16CH - Remote : 8CH Per User
	Resolution	CIF ~ 8MP
	Fisheye Dewarping	No
	Playback Control	Fast/Slow Forward / Backward, Move one step Up / Down
Storage	Built-In	2TB ~ 10TB
	Internal HDD	2ea (Max 20TB)
	External	N/A
	RAID	N/A
Backup	File backup	BU/AVI(GUI), JPG/AVI(Network)
	Function	Multi channel(Upto 8 CH) Play, Date-Time/Title display
Sensor	I/O	4/2 (NO/NC Selectable)
Audio	Input/Output	16CH (network)/output (Set)
	Compression	G.711, G.726, AAC(16/48KHz)
	Audio Communication	2-Way

Network		
Interface		16 Port PoE, RJ-45(1 Gbps)
Protocol		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S),FTP SUNAPI(Server, Client)
DDNS		Hanwha DDNS
Transmission Bandwidth		128Mbps
Max Remote Users		Search (3), Live Unicast (10), Multicast (20)
IP Version		IPv4/v6
Security		IP address filtering, User access Log, 802.1x, Encryption
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, Vietnam
OS		Windows 10, Mac OS 11 Big Sur and later
Web Browser		Chrome v99 or above, Edge v99 or above, Safari v14.0.3 or above
Viewer Software	Type	WAVE(Sunapi peristalsis), SSM, Webviewer, Smart Viewer, Wisenet Viewer, Wisenet Mobile
	CMS Support	Support CGI(SUNAPI) for integration to 3'rd party VMS
Functions		
Camera Setup	Register	Auto, Manual
	Setup Items	IP address, Add profile edit, Bitrate, Camera MD setup (8 point polygon) Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, IRIS, WDR, D&N, SSNR, Shutter, SSDR, DIS), Fisheye

		Dewarping Mode, Hallway View Setup, Camera Webpage
PTZ	Control	Via GUI, Webviewer
	Preset	300 Presets
Smart phone	Support Model	iOS, Android
	Protocol Support	RTP, RTSP, HTTP, CGI(SUNAPI)
	Control	Live : Multi-Profile Support Multi Channel Playback
	Max. Remote Users	Search (3), Live Unicast (10)
Redundancy	Failover	N+1
	ARB	Yes
Easy configuration		P2P(QR code)
System Control		Mouse, Keyboard, Web
Indicator/Interface		
Front	Indicator	LED(Status indicator) : - Power(1), Record(1), Network(1)
Connectors	HDMI	2 EA
	VGA	N/A
	Audio	Out(1EA) : RCA output
	Ethernet	PoE RJ-45(LAN, 10/100) 16 ea ,RJ-45 1ea (WAN, 1Gbps)
	Alarm	(1) In(4EA, Terminal Block) (2) Out(2EA, Terminal Block) - Relay Out1(NO/NC/COM) - Relay Out2(NO/COM)
	USB	2EA(Front 2, USB 2.0)
	Storage	N/A
	Serial	N/A
	Reset	Switch(1EA, PW clear)
	Power Cord	1EA
	POE Budget	Max. 130W
System		

Log	Log List	Max. 100,000 (System, Event each log)
Environmental		
Operating Temperature / Humidity		+0°C to +40°C(+32℉ to +104℉)
Humidity		20% ~ 85% RH
Noise		47 db
Electrical		
Power		100 ~ 240 VAC ±10%; 50/60 Hz
Power Consumption		Max 200W(2HDD, PoE ON)
Mechanical		
Color / Material		Black
Dimension (WxHxD)		370*50.7*320 (370*44*320 FOOT except)
Weight		2,873g

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
NVR	QRN-1630S	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT
Mouse	MOKJUO	-	Primax Electronics Ltd.	-
SWITCHING POWER SUPPLY	DPS-200PB-185 C	-	Delta Electronics Power(Dongguan) Co., Ltd.	-

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Camera1	QNV-6023R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera2	QNV-6023R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera3	QNV-6024RM	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera4	QNV-6023R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera5	QNV-6020RN	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera6	-	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera7	LND-6070R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera8	SND-7084N	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera9	QND-8030R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera10	SND-L6013RN	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera11	XND-6020R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera12	QNV-601RP	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera13	LNV-6030R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera14	SND-L6012P	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-

Description	Model Number	Serial Number	Manufacturer	Remarks
Camera15	-	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Camera16	XNV-6020R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	-
Laptop	P95G001	8KM8HT2	DELL INC.	-
Laptop Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANGZHOU)CO.,LTD.	-
Monitor1	SMT-2232	C95V67VF900038B	Weihai Daewoo Electronics Co., Ltd.	-
Monitor2	SMT-2232	-	Weihai Daewoo Electronics Co., Ltd.	-
Earphone	-	-	-	-
Alarm1	-	-	-	-
Alarm2	-	-	-	-
Button alarm1	-	-	-	-
Button alarm2	-	-	-	-
Button alarm3	-	-	-	-
Button alarm4	-	-	-	-
HDD	810051	-	WESTERN DIGITAL TECHNOLOGIES, INC.	4 TB
MIC	MP1000	-	-	-
USB Memory	-	-	Sandisk	32 GB

1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NVR (EUT)	RJ-45 (PoE)	Camera1	RJ-45 (PoE)	3.0	U
	RJ-45 (PoE)	Camera2	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera3	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera4	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera5	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera6	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera7	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera8	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera9	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera10	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera11	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera12	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera13	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera14	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera15	RJ-45 (PoE)	10.0	U
	RJ-45 (PoE)	Camera16	RJ-45 (PoE)	10.0	U
	RJ-45 (LAN)	Laptop	RJ-45 (LAN)	3.0	U

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NVR (EUT)	USB	Mouse (EUT)	USB	1.4	U
	USB	USB Memory	USB	-	-
	HDMI	Monitor1	HDMI	1.5	S
	HDMI	Monitor2	HDMI	1.4	S
	grounding	grounding	grounding	1.2	-
	RCA	Earphone	3.5mm	1.5	U
	Alarm out	Alarm1	Alarm in	3.0	U
	Alarm out	Alarm2	Alarm in	3.0	U
	Alarm in	Button alarm1	Alarm out	3.0	U
	Alarm in	Button alarm2	Alarm out	3.0	U
	Alarm in	Button alarm3	Alarm out	3.0	U
	Alarm in	Button alarm4	Alarm out	3.0	U
	SATA	HDD	SATA	0.2	U
Laptop	DC Jack	Laptop Adapter	DC Jack	1.6	U
	3.5 mm	MIC	3.5 mm	1.5	U

* Unshielded=U, Shielded=S

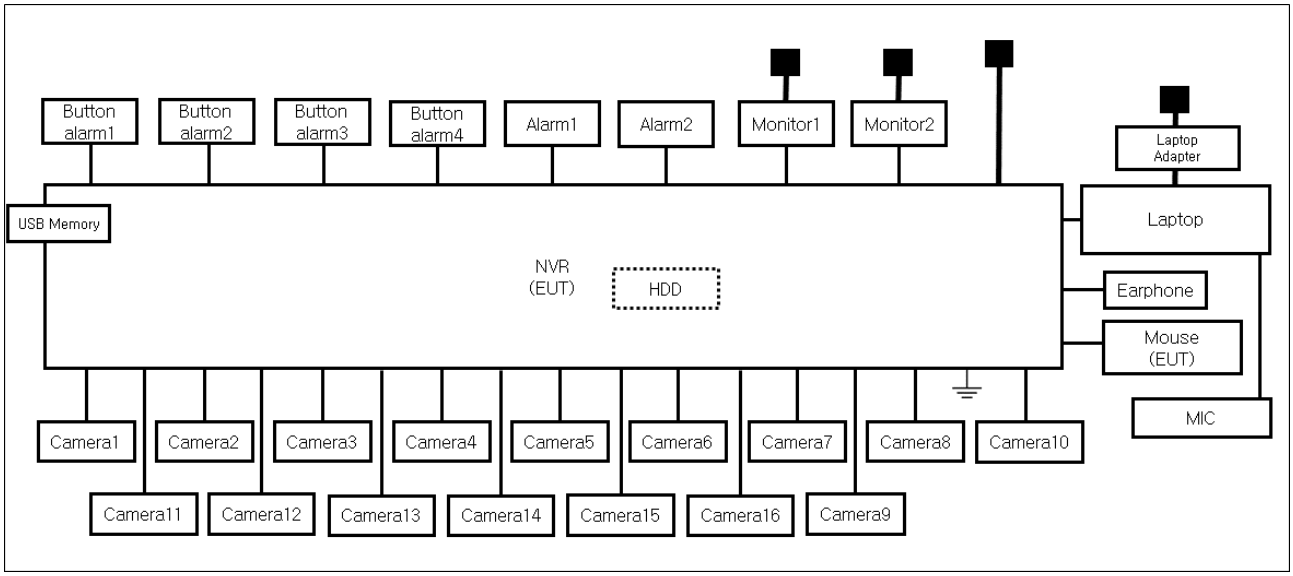
1.7 EUT Operating Mode(s)

Test Mode	operating
Operation Mode	EUT Monitoring, Ping Test after testing, check if the recording is normally done on the HDD and USB Memory

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

1.8 Configuration

■ AC Main
□ DC Main



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, Yeoju-si, Gyeonggi-do, 12658, Korea. 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 , 10 m Open Area 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, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	KR0100
Canada	**ISED**	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	23298-1
JAPAN	**VCCI**	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	R-20056, C-20036, T-20040, G-20057
Europe	**TÜV SÜD**	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area 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. 28, 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: (24,9 ± 0,2) ℃
Relative Humidity: (44,8 ± 0,3) % R.H.

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

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 ㎓)

Test Date
Mar. 29, 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	03, 31, 2023
☒	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: (24,9 ± 0,2) ℃
Relative Humidity: (44,7 ± 0,3) % R.H.

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Settings
IF Band Width: 120 ㎑

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 ㎓)

Test Date
Mar. 30, 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	03, 31, 2023
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 16, 2022
☒	PREAMPLIFIER	8449B	HP	3008A00538	06, 21, 2022

Test Conditions
Temperature: (25,2 ± 0,2) ℃
Relative Humidity: (46,5 ± 0,3) % R.H.

Frequency Range of Measurement
1 ㎓ to 5 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:
☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

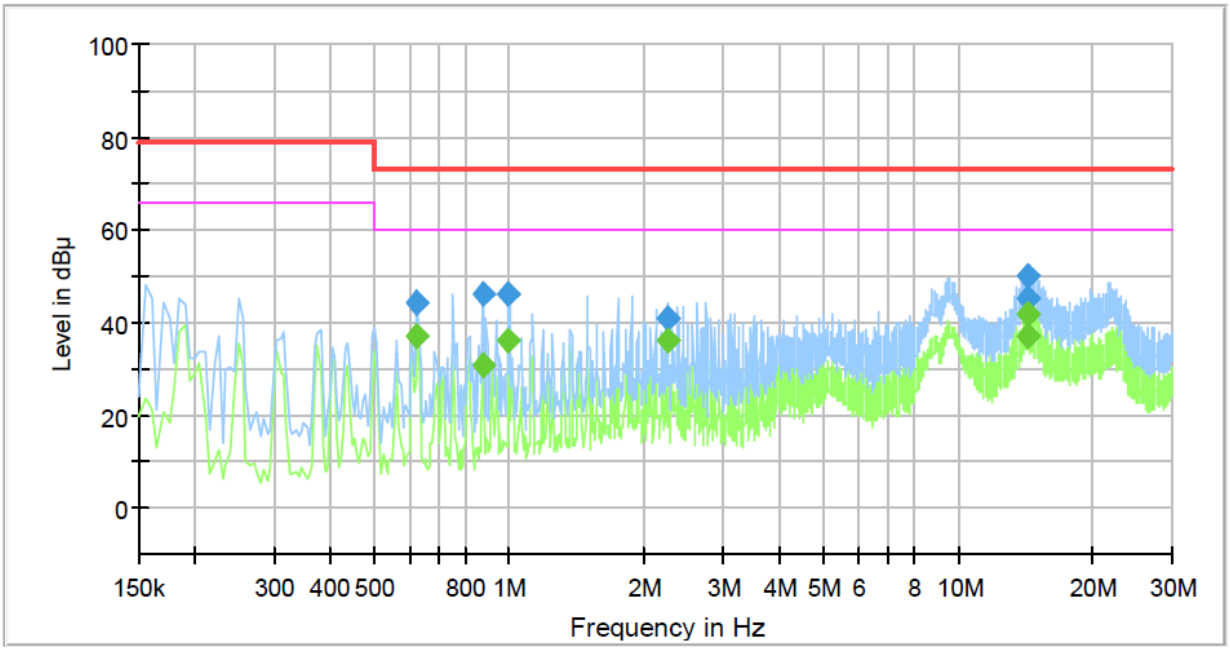
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	QRN-1630S
Phase:	L1
Mode:	
Operator Name:	KES



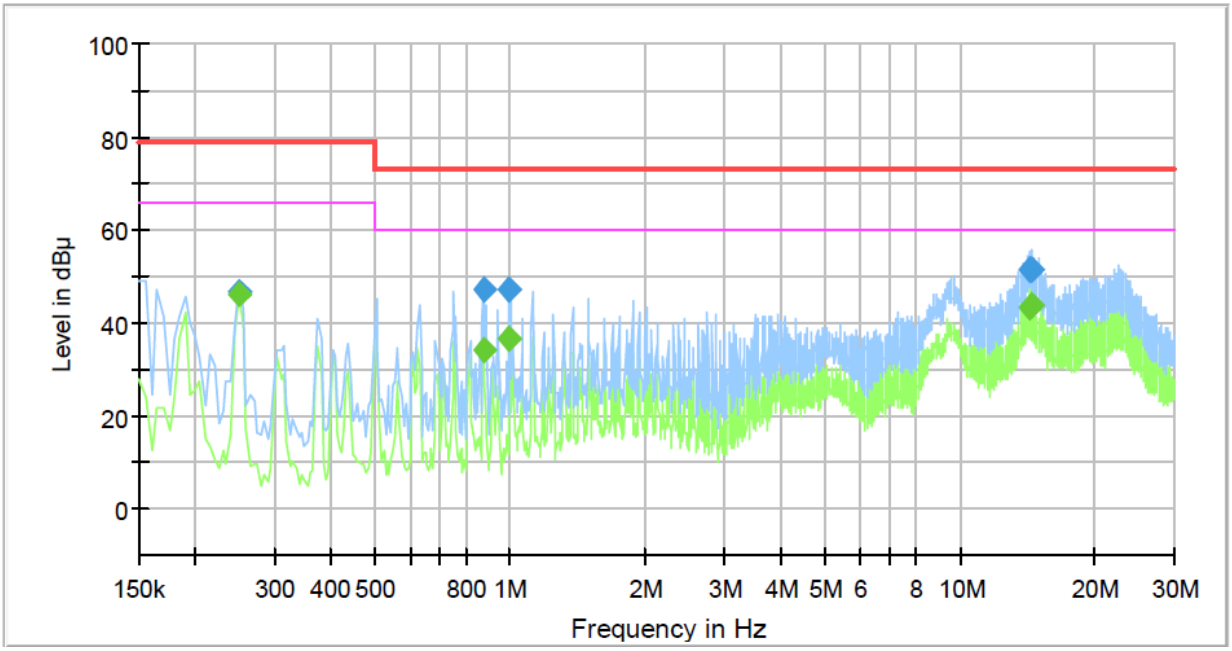
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.625000	---	36.89	60.00	23.11	1000.0	9.000	L1	19.9
0.625000	44.11	---	73.00	28.89	1000.0	9.000	L1	19.9
0.875000	---	31.06	60.00	28.94	1000.0	9.000	L1	20.0
0.875000	46.09	---	73.00	26.91	1000.0	9.000	L1	20.0
1.000000	---	35.90	60.00	24.10	1000.0	9.000	L1	20.0
1.000000	45.99	---	73.00	27.01	1000.0	9.000	L1	20.0
2.250000	---	36.30	60.00	23.70	1000.0	9.000	L1	20.3
2.250000	41.12	---	73.00	31.88	1000.0	9.000	L1	20.3
14.225000	---	37.19	60.00	22.81	1000.0	9.000	L1	19.9
14.225000	45.29	---	73.00	27.71	1000.0	9.000	L1	19.9
14.265000	---	41.93	60.00	18.07	1000.0	9.000	L1	19.9
14.265000	50.19	---	73.00	22.81	1000.0	9.000	L1	19.9

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	QRN-1630S
Phase:	N
Mode:	
Operator Name:	KES



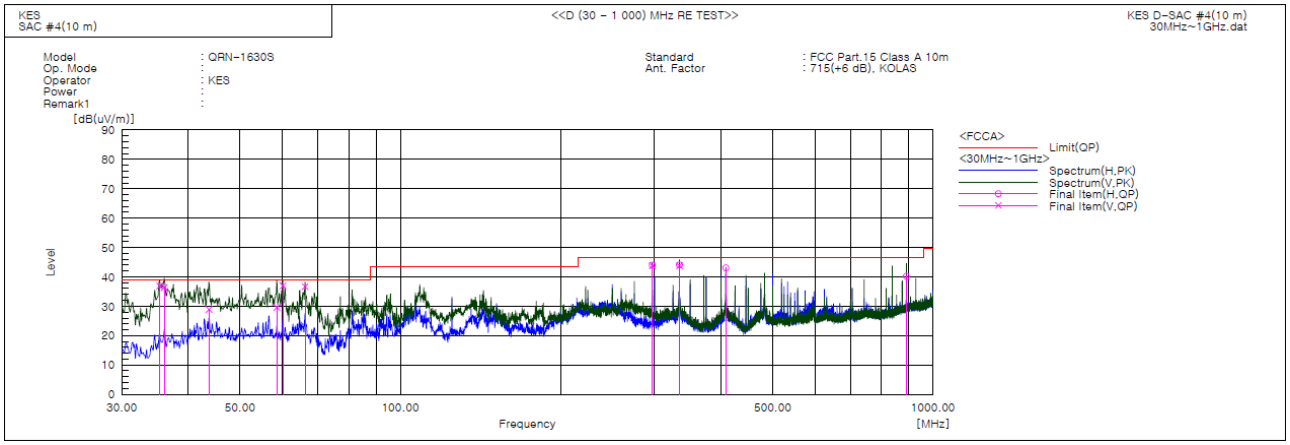
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.250000	---	45.98	66.00	20.02	1000.0	9.000	N	19.5
0.250000	46.69	---	79.00	32.31	1000.0	9.000	N	19.5
0.875000	---	34.09	60.00	25.91	1000.0	9.000	N	20.0
0.875000	47.21	---	73.00	25.79	1000.0	9.000	N	20.0
1.000000	---	36.82	60.00	23.18	1000.0	9.000	N	20.0
1.000000	47.33	---	73.00	25.67	1000.0	9.000	N	20.0
14.385000	---	43.45	60.00	16.55	1000.0	9.000	N	19.9
14.385000	51.55	---	73.00	21.45	1000.0	9.000	N	19.9
14.390000	---	43.68	60.00	16.32	1000.0	9.000	N	19.9
14.390000	51.71	---	73.00	21.29	1000.0	9.000	N	19.9

◆ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

Radiated Electric Field Emissions(Below 1 ㎓)

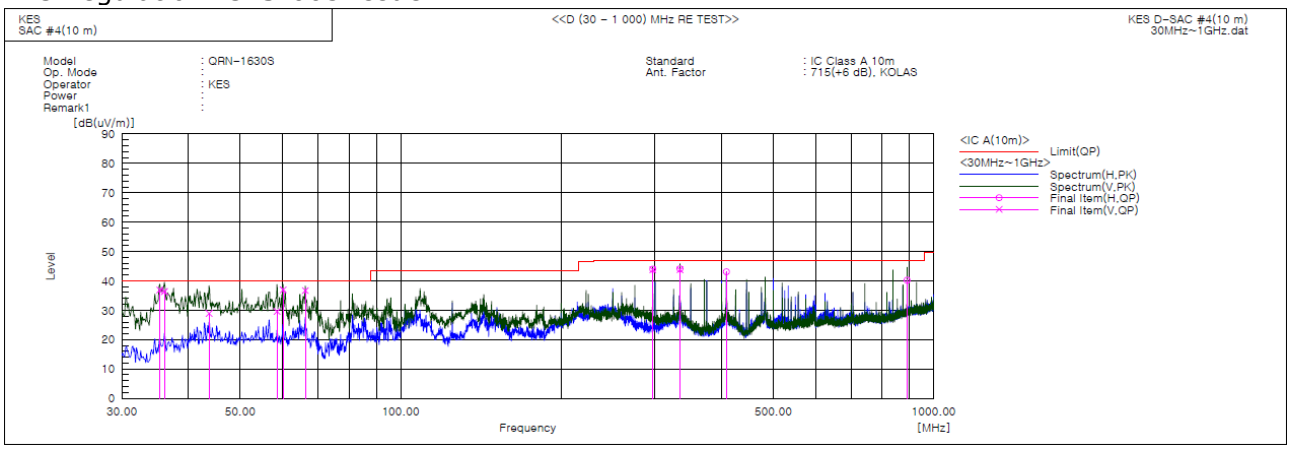
- 47 CFR Part 15, Subpart B



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	35.335	V	61.6	-24.7	36.9	39.0	2.1	121.0	257.0	
2	36.063	V	60.9	-24.5	36.4	39.0	2.6	223.0	219.0	
3	43.701	V	50.5	-21.6	28.9	39.0	10.1	145.0	80.0	
4	58.615	V	51.4	-21.8	29.6	39.0	9.4	158.0	80.0	
5	60.191	V	59.0	-22.0	37.0	39.0	2.0	101.0	226.0	
6	66.254	V	60.3	-23.6	36.7	39.0	2.3	231.0	264.0	
7	296.941	V	61.9	-18.1	43.8	46.5	2.7	100.0	126.0	
8	296.993	H	62.1	-18.1	44.0	46.5	2.5	157.0	11.0	
9	334.095	H	60.0	-15.9	44.1	46.5	2.4	368.0	1.0	
10	334.098	V	59.7	-15.9	43.8	46.5	2.7	221.0	126.0	
11	408.300	H	57.1	-14.0	43.1	46.5	3.4	207.0	352.0	
12	891.118	H	44.3	-4.1	40.2	46.5	6.3	100.0	83.0	

- IC Regulation ICES-003 Issue 7

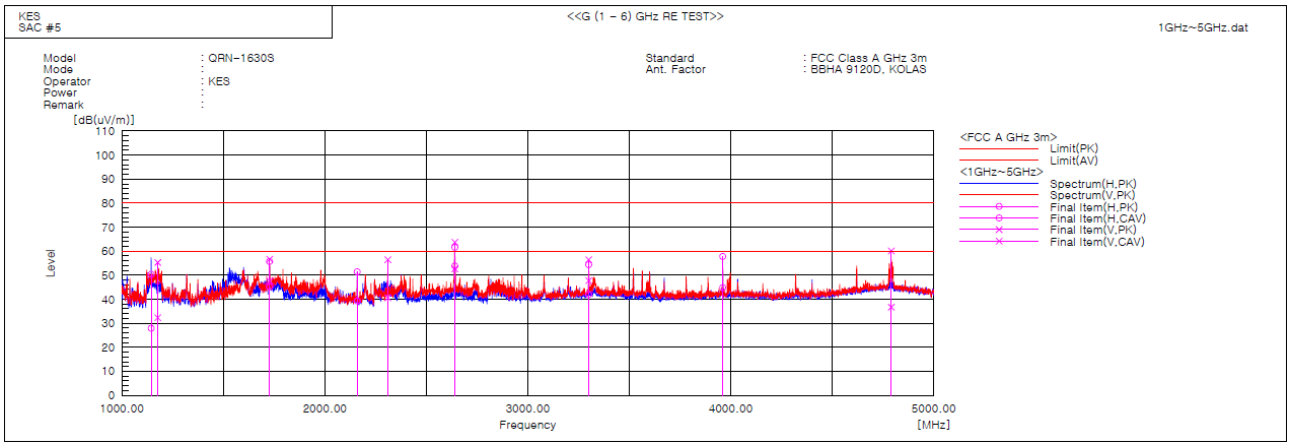


Final Result

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	35.335	V	61.6	-24.7	36.9	40.0	3.1	121.0	257.0	
2	36.063	V	60.9	-24.5	36.4	40.0	3.6	223.0	219.0	
3	43.701	V	50.5	-21.6	28.9	40.0	11.1	145.0	80.0	
4	58.615	V	51.4	-21.8	29.6	40.0	10.4	158.0	80.0	
5	60.191	V	59.0	-22.0	37.0	40.0	3.0	101.0	226.0	
6	66.254	V	60.3	-23.6	36.7	40.0	3.3	231.0	264.0	
7	296.941	V	61.9	-18.1	43.8	47.0	3.2	100.0	126.0	
8	296.993	H	62.1	-18.1	44.0	47.0	3.0	157.0	11.0	
9	334.095	H	60.0	-15.9	44.1	47.0	2.9	368.0	1.0	
10	334.098	V	59.7	-15.9	43.8	47.0	3.2	221.0	126.0	
11	408.300	H	57.1	-14.0	43.1	47.0	3.9	207.0	352.0	
12	891.118	H	44.3	-4.1	40.2	47.0	6.8	100.0	83.0	

♦ Calculation – SAC #4(10 m)
Result(QP) [dB(㎶/m)] = (Reading(QP)[dB(㎶)] + c.f[dB(1/m)]
Margin(QP)[dB] = Limit[dB(㎶/m)] - Result(QP) [dB(㎶/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 ㎓)



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	1144.375	H	57.3	34.8	-6.9	50.4	27.9	80.0	60.0	29.6	32.1	121.0	200.5	
2	1176.250	V	62.0	39.1	-6.7	55.3	32.4	80.0	60.0	24.7	27.6	106.0	357.6	
3	1727.500	H	59.7	49.2	-4.0	55.7	45.2	80.0	60.0	24.3	14.8	223.0	355.0	
4	1728.125	V	60.7	51.6	-4.0	56.7	47.6	80.0	60.0	23.3	12.4	252.0	316.4	
5	2159.375	H	53.9	41.8	-2.5	51.4	39.3	80.0	60.0	28.6	20.7	337.0	17.2	
6	2310.000	V	58.4	42.5	-1.9	56.5	40.6	80.0	60.0	23.5	19.4	385.0	288.7	
7	2640.000	H	62.0	54.2	-0.4	61.6	53.8	80.0	60.0	18.4	6.2	100.0	85.7	
8	2640.625	V	64.1	53.1	-0.4	63.7	52.7	80.0	60.0	16.3	7.3	400.0	277.5	
9	3300.000	V	54.9	46.2	1.6	56.5	47.8	80.0	60.0	23.5	12.2	289.0	47.4	
10	3300.000	H	52.8	40.3	1.6	54.4	41.9	80.0	60.0	25.6	18.1	331.0	20.1	
11	3960.000	H	54.8	41.9	3.0	57.8	44.9	80.0	60.0	22.2	15.1	100.0	81.7	
12	4790.625	V	53.5	30.1	6.6	60.1	36.7	80.0	60.0	19.9	23.3	377.0	167.3	

♦ Calculation

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

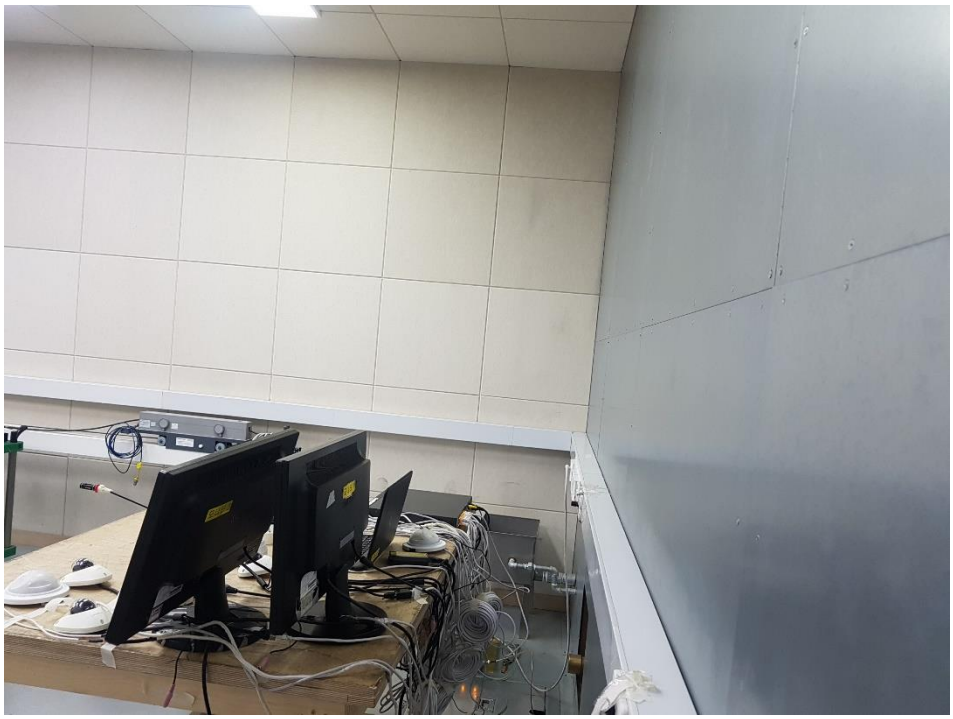
Margin(PK/CAV)[dB] = Limit[dB(㎶/m)] - Result(PK/CAV) [dB(㎶/m)]

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

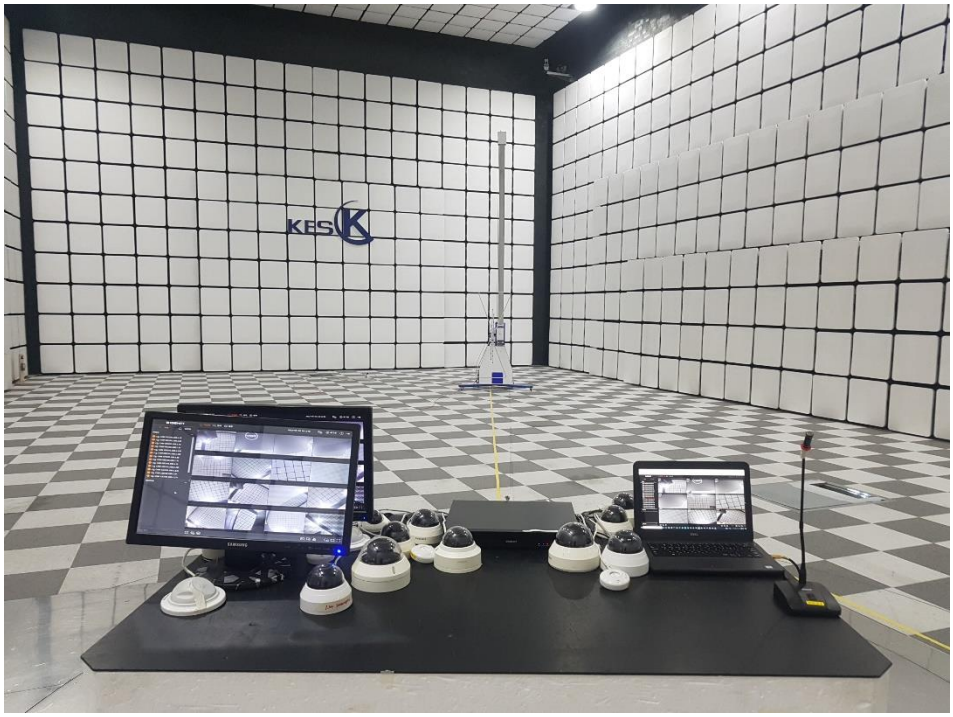
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

Test Setup Photos and Configuration

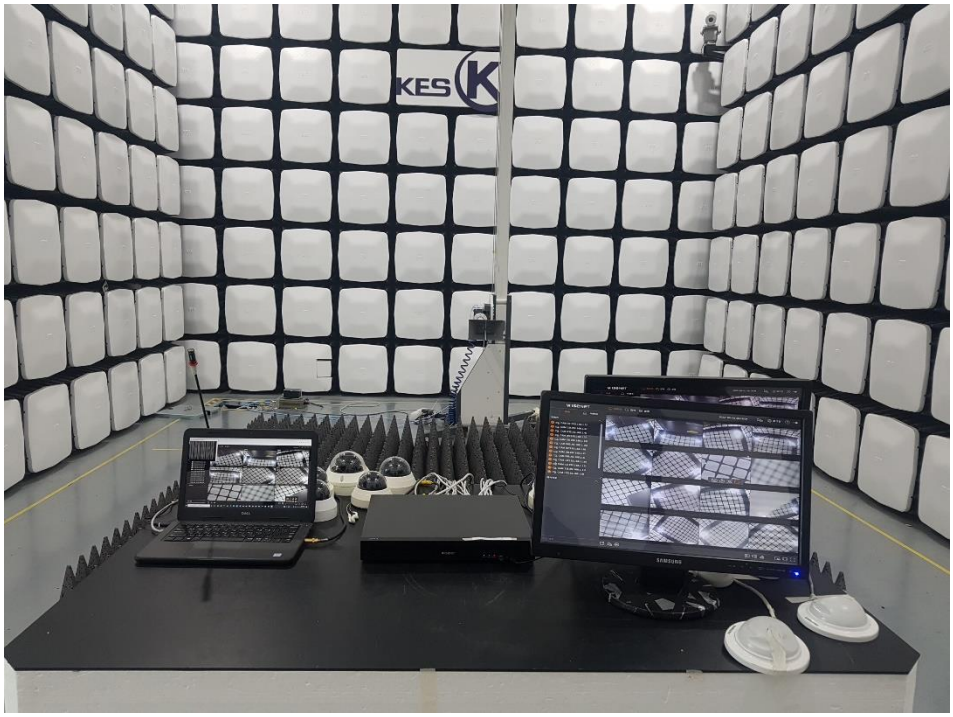
Conducted Emissions at Mains Power Ports



Radiated Electric Field Emissions(Below 1 ㎓)



Radiated Electric Field Emissions(Above 1 ㎓)



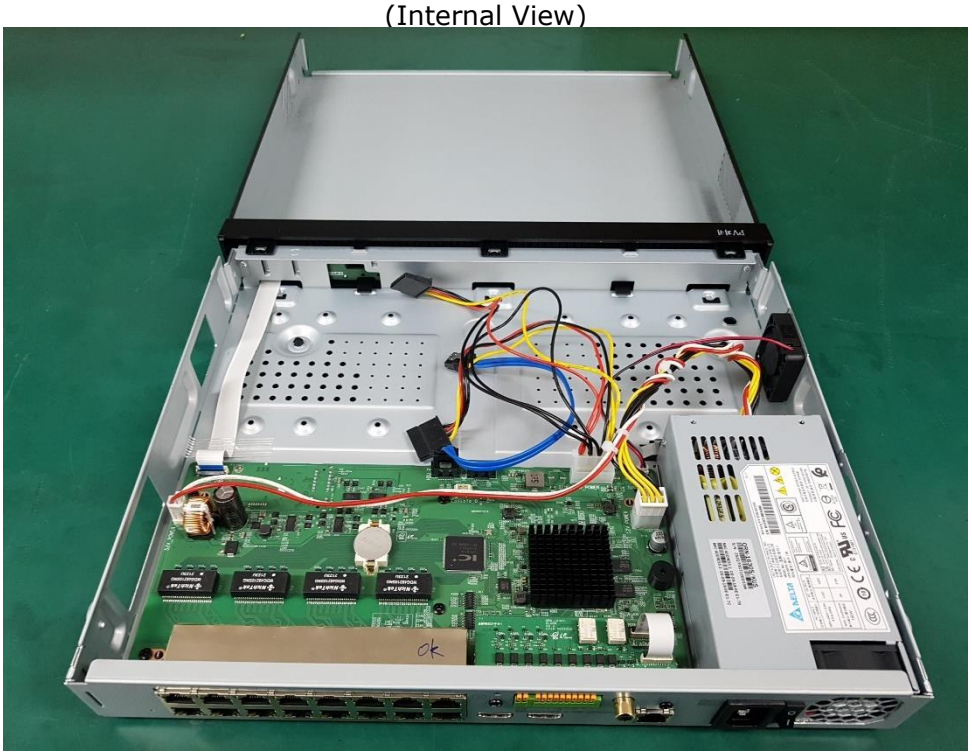
EUT External Photographs

(Top)

(Bottom)

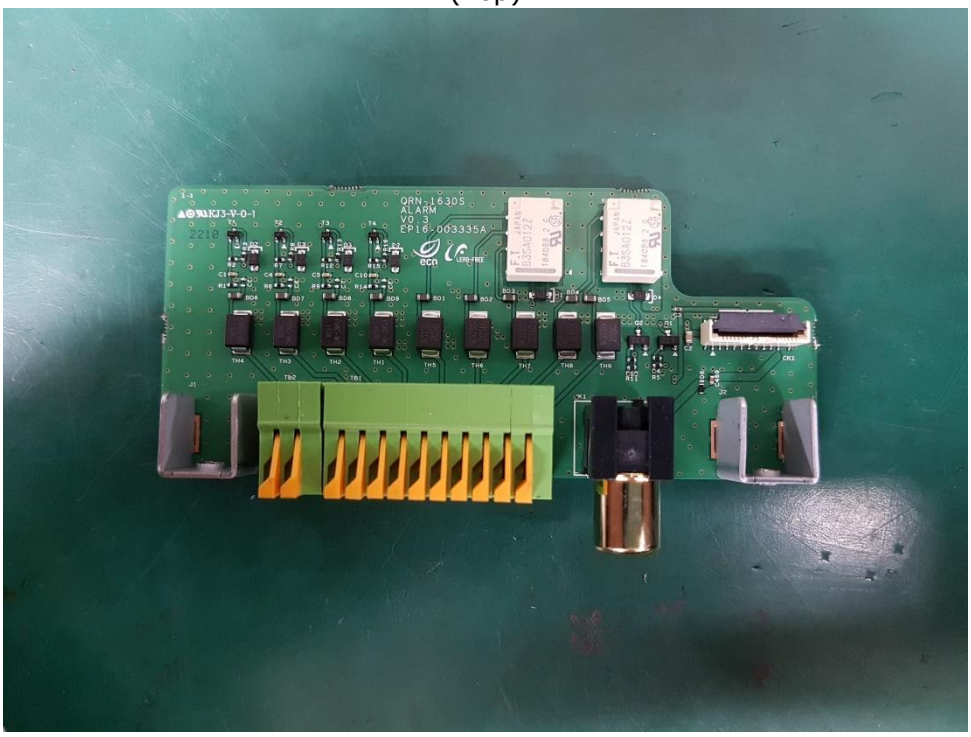
EUT Internal Photographs

(Internal View)



EUT Internal View – Board 1

(Top)



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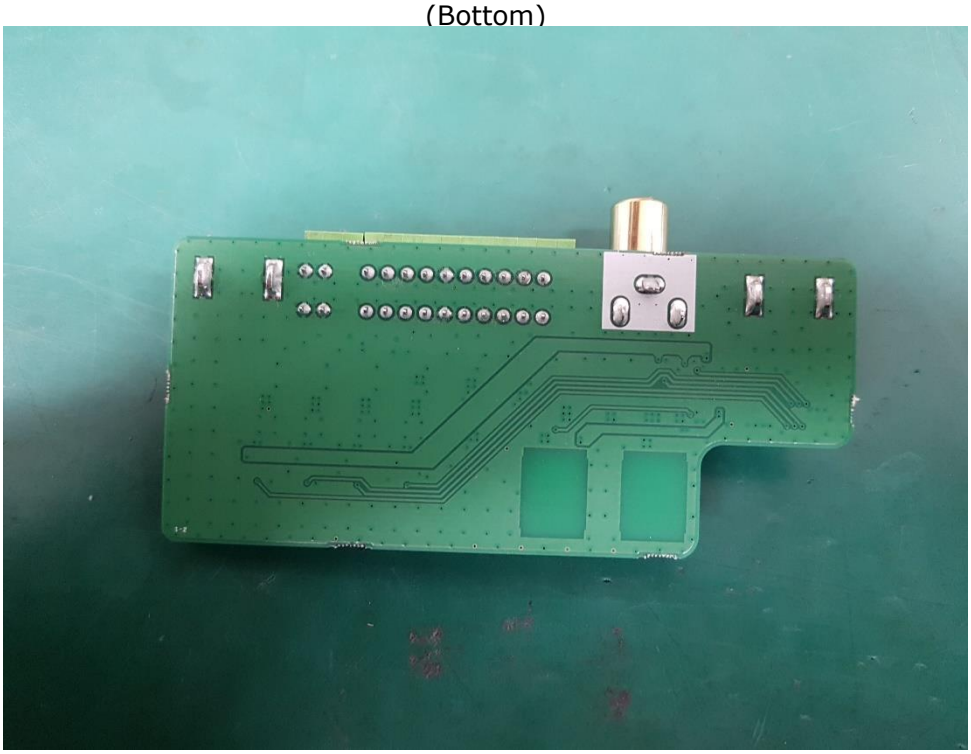
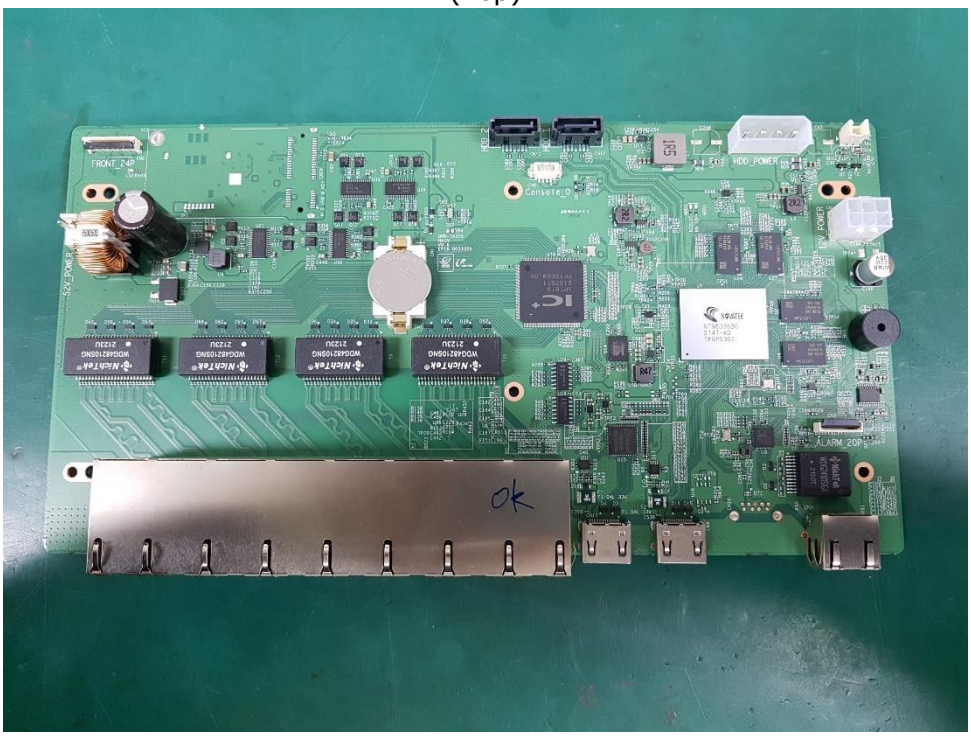
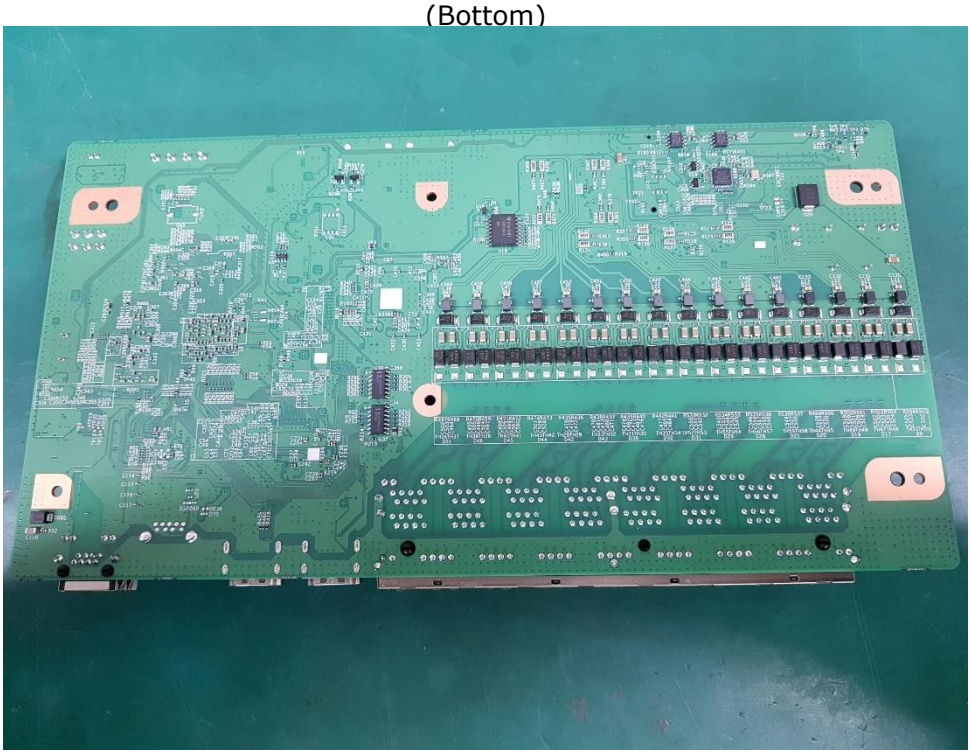


EUT Internal View – Board 2

(Top)

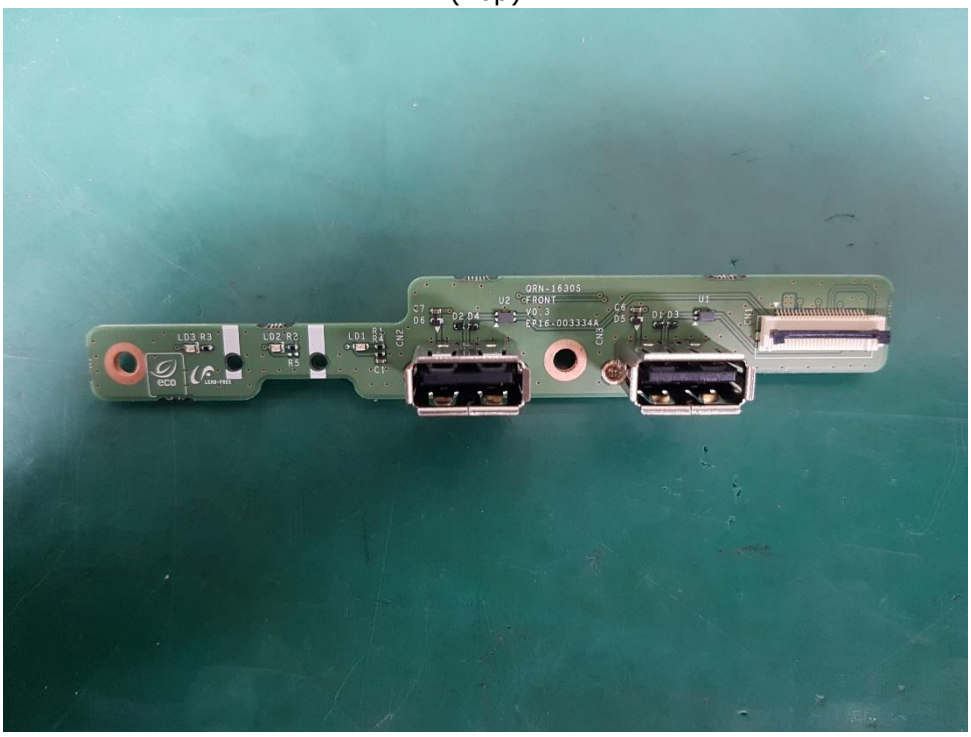


(Bottom)

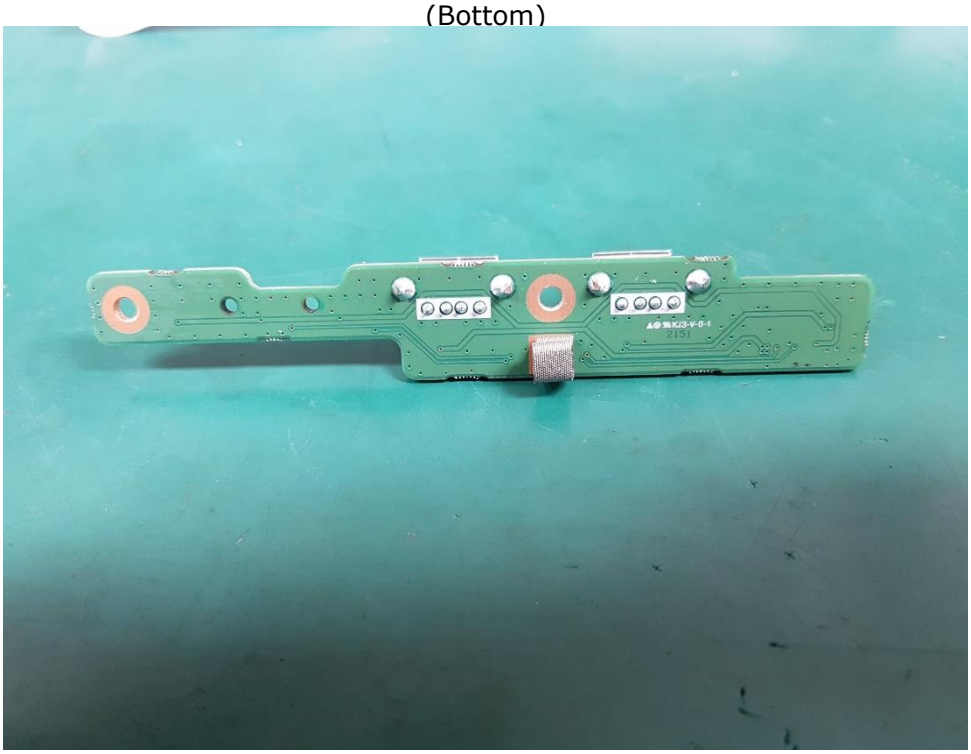


EUT Internal View – Board 3

(Top)



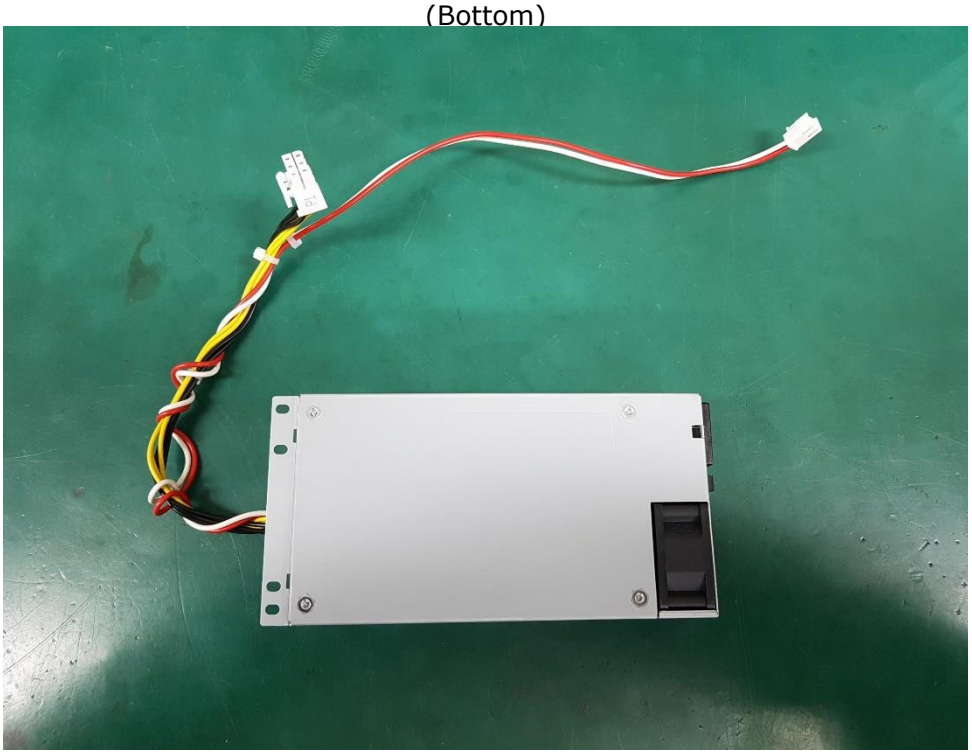
(Bottom)



EUT Internal View – SWITCHING POWER SUPPLY

(Top)

(Bottom)



(Label)

EUT Internal View – Mouse

(Top)

(Bottom)

(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.