EMC TEST REPORT

Test Report No.	:	KES-EM-21T0566
Date of Issue	:	Jul. 06, 2021
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNO-C7083R
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	:	Jun. 03, 2021
Test date	:	Jun. 25, 2021 ~ Jun. 29, 2021
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

In Han, Kang
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
Jul. 06, 2021	KES-EM-21T0566	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" progressive CMOS
Resolution	2592x1520, 2560x1440, 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz)(WDR off) Max. 30fps/25fps(60Hz/50Hz)(WDR on) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.038Lux(F1.4, 1/30sec, 30IRE) B/W : 0.0038Lux(F1.4, 1/30sec, 30IRE), 0Lux(IR LED on), 30/25fps Color: 0.076Lux(F1.4, 1/60sec, 30IRE) B/W : 0.0076Lux(F1.4, 1/60sec, 30IRE), 0Lux(IR LED on), 60/50fps
Video Out	USB: Micro USB Type B, 1280x720 for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	2.8~10mm(3.6x) motorized varifocal
Max. Aperture Ratio	F1.4(Wide) ~ F3.0(Tele)
Angular Field of View	H: 109.7°(Wide) ~ 30.4°(Tele) V: 60.8°(Wide) ~ 17.8°(Tele) D: 131.3°(Wide) ~ 35.3°(Tele)
Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple focus, Manual
Lens Type	DC auto iris with hall sensor (IR corrected)
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	None
Pan Range	None
Pan Speed	None
Tilt Range	None
Tilt Speed	None
Rotate Range	None
Sequence	None
Preset Accuracy	None
Operational	
Camera Title	Displayed up to 85 characters
Direction Indicator	None
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SSDR
Wide Dynamic Range	extremeWDR (120dB)
Digital Noise Reduction	WiseNRⅡ(Based on AI engine), SSNRⅤ
Digital Image Stabilization	Support(built-in gyro sensor)
Defog	Support
Motion Detection	8ea, 8point Polygonal zones

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Privacy Masking	32ea, Quadrangle zones - Color : Gray, Green, Red, Blue, Black, White - Mosaic
Gain Control	Support
White Balance	ATW / Narrow ATW / AWC / Manual / Indoor / Outdoor
LDC	Support (Fill/stretch mode)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec) Auto prefer shutter control(Based on AI engine)
Digital PTZ	Support
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	- Analytics events based on AI engine(NPU) : Object detection (Person/Face/Vehicle(car/truck/bus/bicycle/motorcycle)/Licence plate), IVA (Virtual line/Area, Enter/Exit, Loitering, direction, intrusion) - Analytics events : Defocus detection, Motion detection, Tampering, Fog detection, Audio detection, Sound classification, Shock detection, Appear/Disappear
Business Intelligence	Based on AI engine(NPU) : People counting, Queue management, Heatmap
Serial Interface	None
Alarm I/O	2 configurable I/O ports
Alarm Triggers	Analytics, Network disconnect, Alarm input, App event, Time schedule
Alarm Events	When alarm trigger occurred - File upload(image) : e-mail/FTP - Notification : e-mail - Recording : SD/SDHC/SDXC or NAS recording at event triggers - Alarm output - Handover(PTZ preset, Send message by HTTP/HTTPS/TCP) - Audio clip playback - PTZ preset
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
IR Viewable Length	WiseIR 40m(131.23ft)
IR Illuminator (Optional)	None
Water Removal	None
Auto Tracking	None
Coaxial Protocol	None
Color Palettes	None
Radiometry	
Temperature Detect Range	None
Temperature Accuracy	None
Temperature Detection	None
Additional	None
Network	
Ethernet	Metal shielded RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/High, MJPEG
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 48Kbps at 16KHz
Smart Codec	Manual(5ea area), WiseStreamⅡ, WiseStreamⅢ(Based on AI engine)
Video Quality Adjustment	H.264/H.265: Target bitrate level control MJPEG: Target bitrate level control
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles, 3 virtual channel support)

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Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP (TCP, UDP Unicast)
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2) Device Certificate(Hanwha Techwin Root CA, pre-installed) Secure by default certificate HTPM (Hanwha Trusted platform module) Secure OS/Boot/Storage, Verify firmware forgery
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish,, Portuguese, Czech, Polish, Turkish, Dutch, Greek, Hungarian
Web Viewer	None
Edge Storage	Micro SD/SDHC/SDXC 1slot 512GB
Memory	2GB RAM, 512MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-40°C~+55°C(-40°F ~ +131°F) * Maximum temperature : +60°C (intermittent) NEMA TS-2 : 74°C * Start up should be done at above -20°C 0~95%RH(non-condensing)(TBD) Humidity control /w GORE vent
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Certification	IP66/IP67/NEMA4X, IK10
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 12.95W, typical 10.8W 12VDC: Max 12.5W, typical 10.0W
Mechanical	
Color / Material	White / Aluminum + PC Hard-coated window
RAL Code	RAL9003
Product Dimensions / Weight	Ø93.4x276.6mm(Ø3.68x10.89"), 1500g(3.30 lb) (TBD)
Compatible Conduit hole / Gangbox	single, double, 4" octagon, 4" square
Hanging Mount (Dome)	None
Skin Cover (Dome)	None
Weather Cap (Dome)	None
Power Module	None
Backbox	include
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 36.5m(119.76ft) / Tele: 183.8m(603.05ft)
Observe (63PPM/ 19PPF)	Wide: 14.6m(47.9ft) / Tele: 73.5m(241.22ft)
Recognize (125PPM/ 38PPF)	Wide: 7.3m(23.95ft) / Tele: 36.8m(120.61ft)
Identify (250PPM/ 76PPF)	Wide: 3.7m(11.98ft) / Tele: 18.4m(60.31ft)

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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 ☒ PoE

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
NETWORK CAMERA	XNO-C7083R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Adapter	SAWA-07-41612	-	HUIZHOU SANHUA INDUSTRIAL CO.,LTD.	-
PoE INJECTOR	GS728TPP	-	NETGEAR	-
Notebook	LG15N54	506NZGK000615	LG Electronics Inc.	-
Notebook Adapter	PA-1650-43(65W)	OF58U63849302 Y609	LG Electronics Inc.	-
Alarm	-	-	-	-
Button alarm	-	-	-	-
Micro SD Card	-	-	SanDisk	16 GB
Mic	MP1000	-	-	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
iPhone	A1586	-	Apple	-

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1.6 External I/O Cabling

■ DC Mode

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (EUT)	2 Pin	Adapter	2 Pin	1.0	U
	RJ-45	Notebook	RJ-45	3.0	U
	Alarm OUT	Alarm	Alarm IN	3.0	U
	Alarm IN	Button alarm	Alarm OUT	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
	3.5 mm	Mic	3.5 mm	1.4	U
	3.5 mm	Speaker	3.5 mm	1.4	U
Notebook	3.5 mm	iPhone	3.5 mm	0.9	U

* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (EUT)	RJ-45 (PoE)	PoE INJECTOR	RJ-45 (PoE)	3.0	U
	Alarm OUT	Alarm	Alarm IN	3.0	U
	Alarm IN	Button alarm	Alarm OUT	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
	3.5 mm	Mic	3.5 mm	1.4	U
	3.5 mm	Speaker	3.5 mm	1.4	U
Notebook	RJ-45 (LAN)	PoE INJECTOR	RJ-45 (LAN)	3.0	U
	3.5 mm	iPhone	3.5 mm	0.9	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

Test Mode	operating
DC Mode	the test was conducted while checking the camera video output from the laptop and making sure that they operate normally while performing a ping test.
PoE Mode	

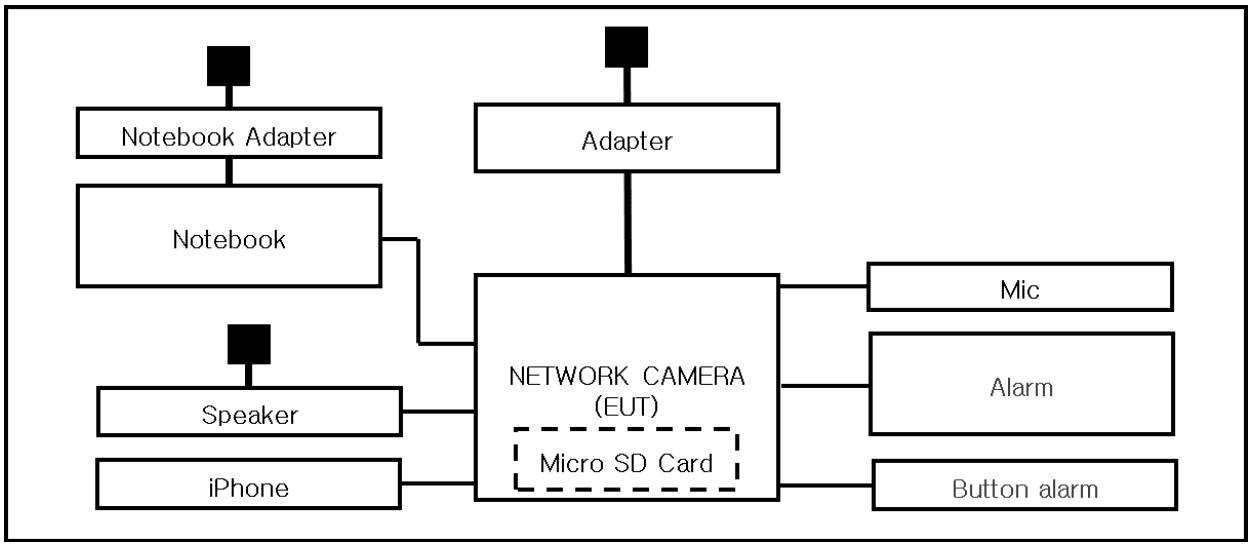
EUT Test operating S/W		
Name	**Version**	**Manufacture Company**
Web Viewer	-	Hanwha Techwin Co., Ltd.

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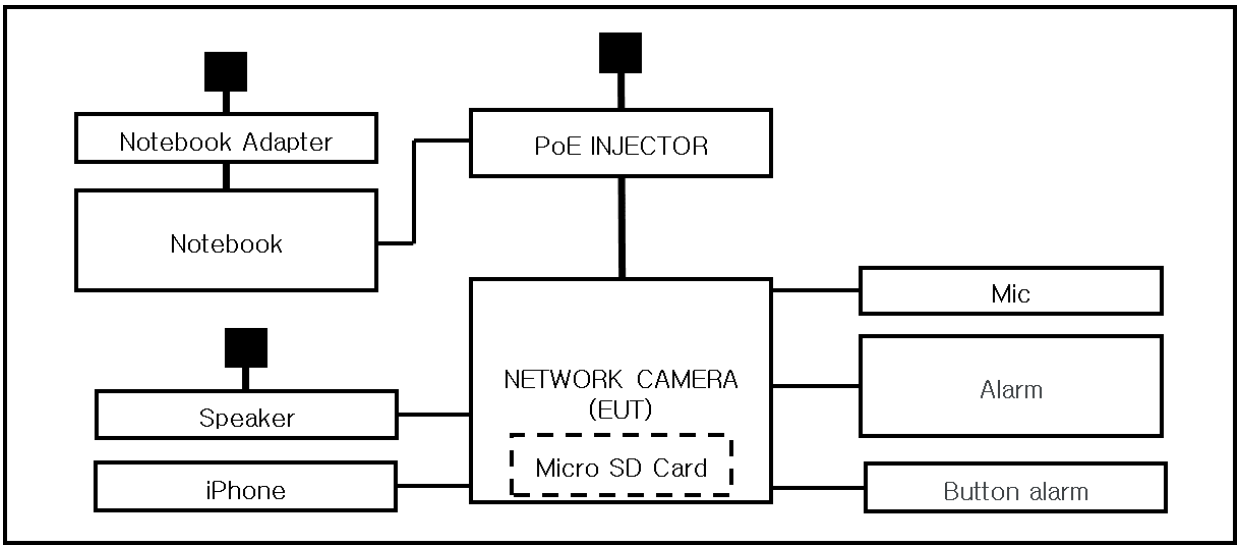
1.8 Configuration

■ AC Main
□ DC Main

■ DC Mode



■ PoE Mode



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1.9 Remarks when standards applied

USB port are for administrator use and are excluded from testing.

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 C63.4:2014 and CISPR 16-1-4:2012

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

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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011		
☐ EN 61000-6-1:2007		
☐ EN 61000-6-4:2007 +A1:2011		
☐ EN 61000-6-2:2005		
☐ EN 55011:2007 +A1:2010	☐ Group 1 ☐ Class A	☐ Group 2 ☐ Class B
☐ EN 55014-1:2006 +A2:2011		
☐ EN 55014-2:1997 +A2:2008		
☐ EN 55015:2013		
☐ EN 55032:2015	☐ Class A	☐ Class B
☐ EN 55024:2010		
☐ EN 50130-4:2011 +A1:2014		
☐ EN 61000-3-2:2014		
☐ EN 61000-3-3:2013		
☐ EN 61326-1:2013		

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☐ **VCCI-CISPR 32:2016**	☐ Class A	☐ Class B
☐ **AS/NZS CISPR32:2015**	☐ Class A	☐ Class B
☒ **47 CFR Part 15, Subpart B**		
☐ CISPR 22:2009 +A1:2010	☐ Class A	☐ Class B
☒ ANSI C63.4-2017	☒ Class A	☐ Class B
☒ **IC Regulation ICES-003 Issue 7**		
☒ CAN/CSA CISPR 32-17	☒ Class A	☐ Class B
☐ ANSI C63.4-2017	☐ Class A	☐ Class B
☐ **RE– Directive 2014/53/EU**		
☐ EN 301 489-1 V1.9.2		
☐ Equipment for fixed use ☐ Equipment for vehicular use ☐ Equipment for portable use		
☐ EN 301 489-3 V1.6.1		
☐ EN 301 489-17 V2.2.1		
☐ EN 60945:2002		

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2.1 Conducted Emissions at Mains Power Ports

Test Date
Jun. 25, 2021

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	01, 15, 2022
☒	LISN	ENV216	R & S	101787	12, 29, 2021
☒	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

Test Conditions
Temperature: (24,8 ± 0,1) ℃
Relative Humidity: (47,6 ± 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.

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2.2 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Jun. 29, 2021

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, 25, 2021
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions
Temperature: (24,4 ± 0,1) ℃
Relative Humidity: (46,2 ± 0,2) % 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.

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2.3 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Jun. 29, 2021

Test Location
SEMI ANECHOIC CHAMBER #4(10 m)

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
☒	PREAMPLIFIER	8449B	AGILENT	3008A01742	12, 29, 2021
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 14, 2021

Test Conditions
Temperature: (24,4 ± 0,1) ℃
Relative Humidity: (46,2 ± 0,2) % 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.

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APPENDIX A – TEST DATA

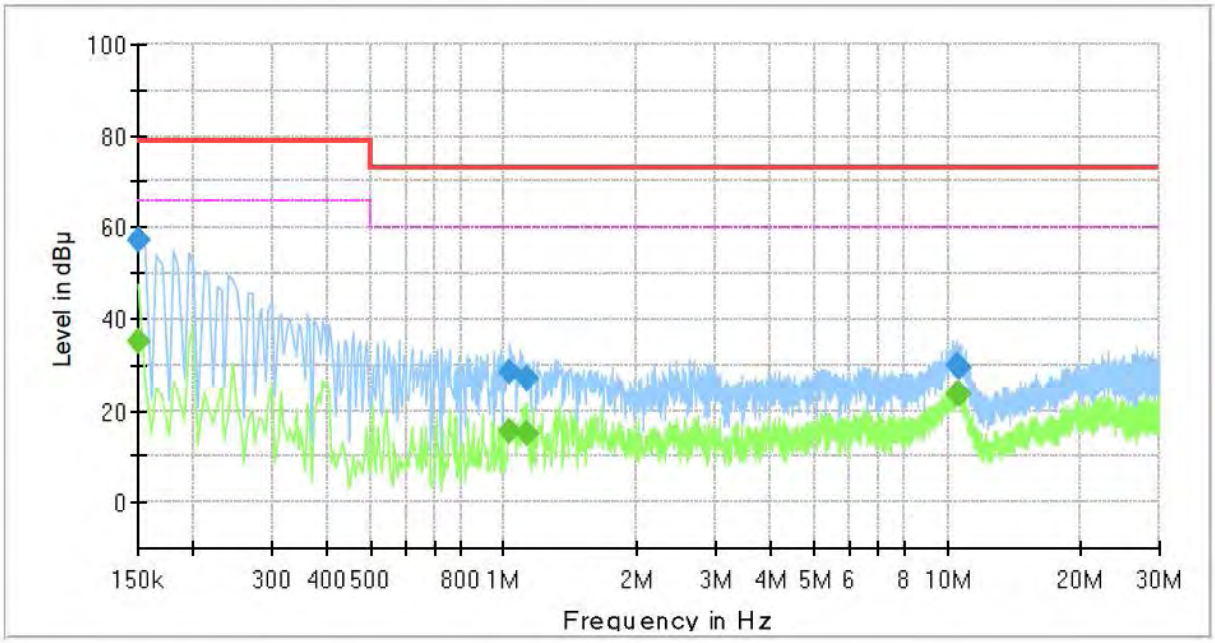
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNO-C7083R
Phase:	L1
Mode:	DC
Operator Name:	KES



Final_Result

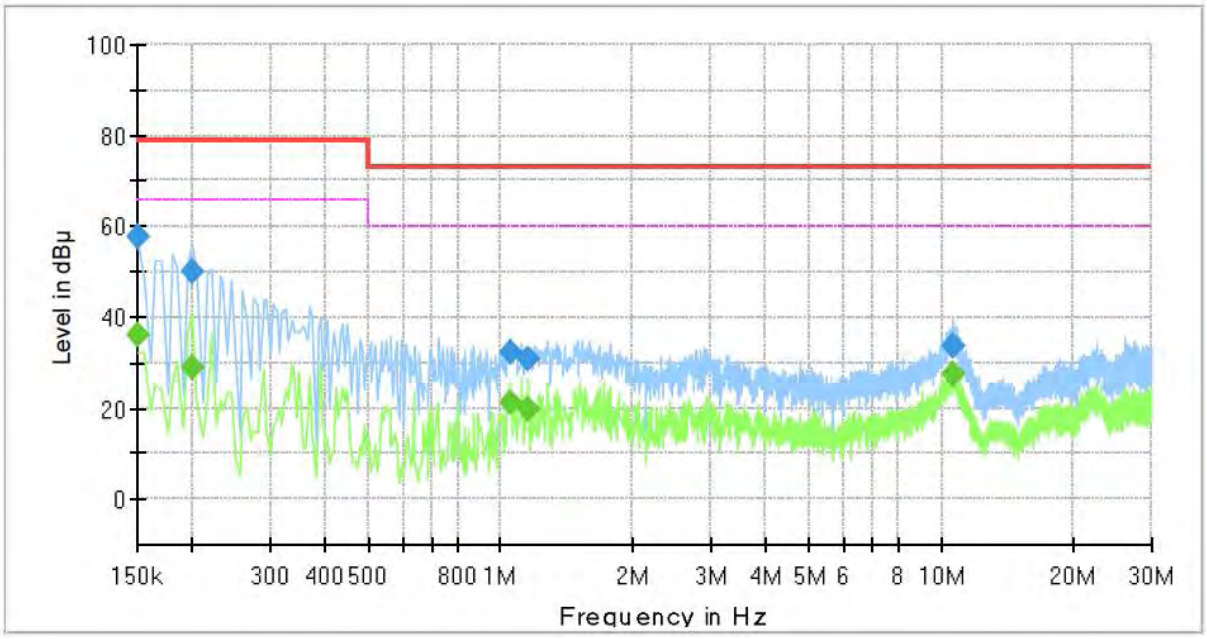
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	35.11	66.00	30.89	1000.0	9.000	L1	19.4
0.150000	57.48	---	79.00	21.52	1000.0	9.000	L1	19.4
1.030000	---	15.50	60.00	44.50	1000.0	9.000	L1	20.1
1.030000	28.30	---	73.00	44.70	1000.0	9.000	L1	20.1
1.130000	---	15.05	60.00	44.95	1000.0	9.000	L1	20.1
1.130000	26.96	---	73.00	46.04	1000.0	9.000	L1	20.1
10.535000	---	23.60	60.00	36.40	1000.0	9.000	L1	19.9
10.535000	29.80	---	73.00	43.20	1000.0	9.000	L1	19.9
10.605000	---	23.75	60.00	36.25	1000.0	9.000	L1	19.9
10.605000	29.60	---	73.00	43.40	1000.0	9.000	L1	19.9

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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNO-C7083R
Phase:	N
Mode:	DC
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	35.90	66.00	30.10	1000.0	9.000	N	19.4
0.150000	57.78	---	79.00	21.22	1000.0	9.000	N	19.4
0.200000	---	28.80	66.00	37.20	1000.0	9.000	N	19.4
0.200000	50.27	---	79.00	28.73	1000.0	9.000	N	19.4
1.050000	---	21.18	60.00	38.82	1000.0	9.000	N	20.0
1.050000	32.31	---	73.00	40.69	1000.0	9.000	N	20.0
1.155000	---	19.79	60.00	40.21	1000.0	9.000	N	20.1
1.155000	31.05	---	73.00	41.95	1000.0	9.000	N	20.1
10.585000	---	27.31	60.00	32.69	1000.0	9.000	N	19.9
10.585000	33.64	---	73.00	39.36	1000.0	9.000	N	19.9
10.630000	---	27.62	60.00	32.38	1000.0	9.000	N	19.9
10.630000	33.75	---	73.00	39.25	1000.0	9.000	N	19.9

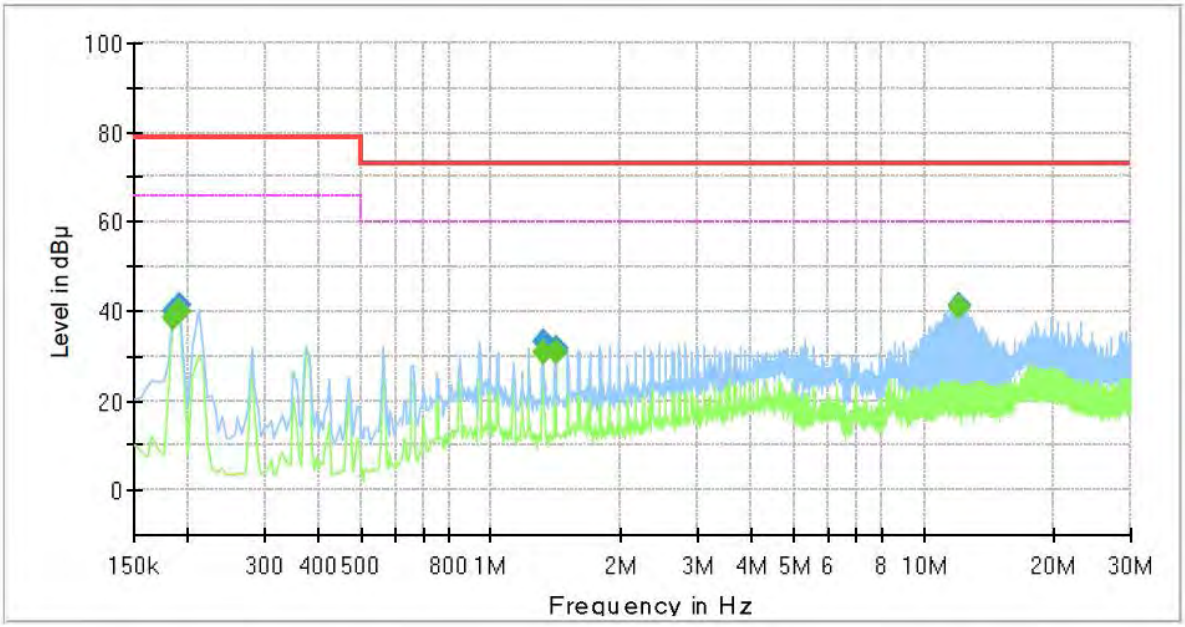
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■ PoE Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNO-C7083R
Phase:	L1
Mode:	PoE
Operator Name:	KES



Final_Result

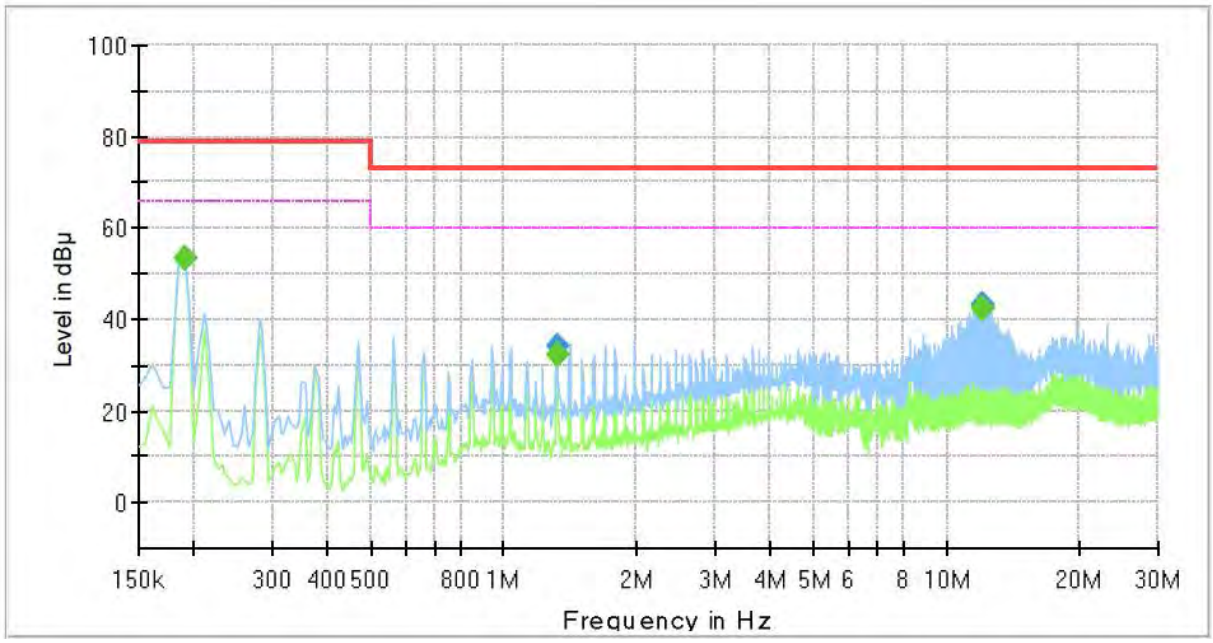
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.185000	---	38.51	66.00	27.49	1000.0	9.000	L1	19.4
0.185000	39.85	---	79.00	39.15	1000.0	9.000	L1	19.4
0.190000	---	39.88	66.00	26.12	1000.0	9.000	L1	19.4
0.190000	41.17	---	79.00	37.83	1000.0	9.000	L1	19.4
1.315000	---	30.86	60.00	29.14	1000.0	9.000	L1	20.1
1.315000	33.14	---	73.00	39.86	1000.0	9.000	L1	20.1
1.410000	---	30.63	60.00	29.37	1000.0	9.000	L1	20.2
1.410000	31.88	---	73.00	41.12	1000.0	9.000	L1	20.2
12.125000	---	41.01	60.00	18.99	1000.0	9.000	L1	20.0
12.125000	41.62	---	73.00	31.38	1000.0	9.000	L1	20.0

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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNO-C7083R
Phase:	N
Mode:	PoE
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	---	53.34	66.00	12.66	1000.0	9.000	N	19.4
0.190000	53.61	---	79.00	25.39	1000.0	9.000	N	19.4
1.315000	---	32.30	60.00	27.70	1000.0	9.000	N	20.1
1.315000	33.98	---	73.00	39.02	1000.0	9.000	N	20.1
12.030000	---	42.32	60.00	17.68	1000.0	9.000	N	20.0
12.030000	43.09	---	73.00	29.91	1000.0	9.000	N	20.0
12.125000	---	42.25	60.00	17.75	1000.0	9.000	N	20.0
12.125000	42.83	---	73.00	30.17	1000.0	9.000	N	20.0

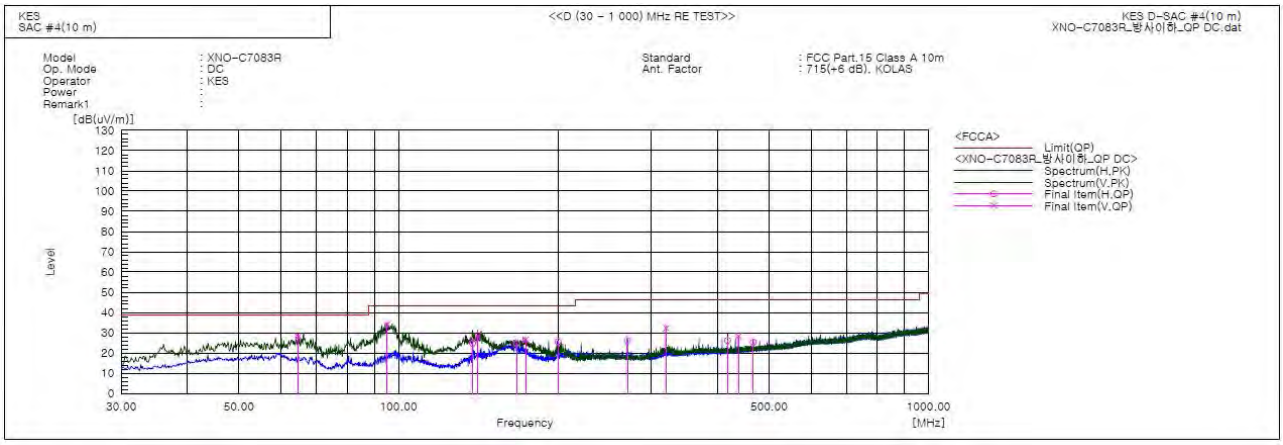
◆ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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Radiated Electric Field Emissions(Below 1 ㎓)

- 47 CFR Part 15, Subpart B

■ DC Mode

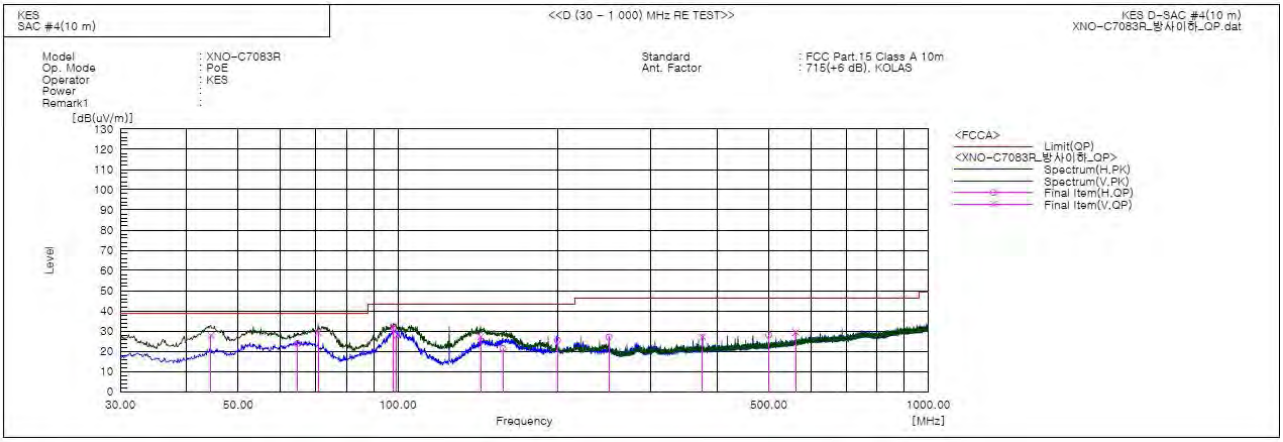


Final Result

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	64.678	V	51.3	-23.2	28.1	39.0	10.9	105.0	114.0	
2	95.233	V	57.8	-23.5	34.3	43.5	9.2	102.0	80.0	
3	138.034	H	50.2	-25.4	24.8	43.5	18.7	391.0	83.0	
4	141.186	V	53.4	-25.3	28.1	43.5	15.4	109.0	182.0	
5	167.013	H	48.8	-24.2	24.6	43.5	18.9	385.0	49.0	
6	173.681	V	50.5	-23.9	26.6	43.5	16.9	114.0	189.0	
7	199.871	H	46.4	-20.8	25.6	43.5	17.9	379.0	23.0	
8	270.318	H	44.6	-18.7	25.9	46.5	20.6	397.0	189.0	
9	319.545	V	49.1	-16.8	32.3	46.5	14.2	107.0	167.0	
10	417.758	H	40.1	-13.9	26.2	46.5	20.3	184.0	262.0	
11	437.521	V	41.8	-13.5	28.3	46.5	18.2	113.0	331.0	
12	466.985	H	37.9	-12.6	25.3	46.5	21.2	271.0	274.0	

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■ PoE Mode



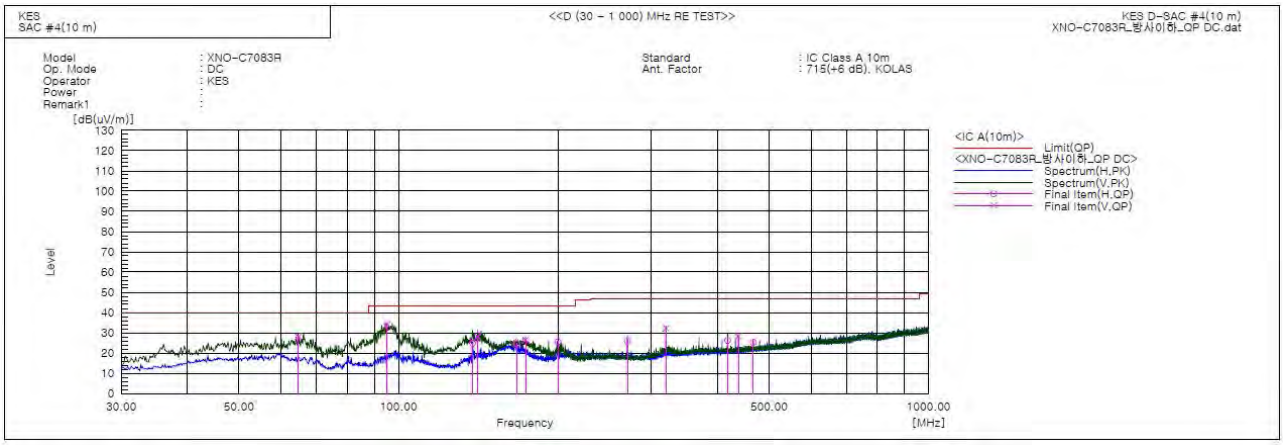
Final Result

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	44.429	V	49.4	-21.5	27.9	39.0	11.1	117.0	68.0	
2	64.678	H	47.0	-23.2	23.8	39.0	15.2	173.0	175.0	
3	70.740	V	54.5	-25.2	29.3	39.0	9.7	109.0	236.0	
4	98.143	V	54.8	-22.8	32.0	43.5	11.5	104.0	81.0	
5	99.113	H	50.6	-22.6	28.0	43.5	15.5	395.0	155.0	
6	143.248	V	52.5	-25.3	27.2	43.5	16.3	105.0	155.0	
7	157.798	H	45.9	-24.6	21.3	43.5	22.2	388.0	270.0	
8	199.871	H	46.3	-20.8	25.5	43.5	18.0	398.0	11.0	
9	249.948	H	46.1	-19.1	27.0	46.5	19.5	392.0	211.0	
10	374.956	V	42.0	-14.8	27.2	46.5	19.3	110.0	26.0	
11	500.086	H	39.6	-11.6	28.0	46.5	18.5	239.0	134.0	
12	562.530	V	39.1	-9.8	29.3	46.5	17.2	105.0	356.0	

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- IC Regulation ICES-003 Issue 7

■ DC Mode

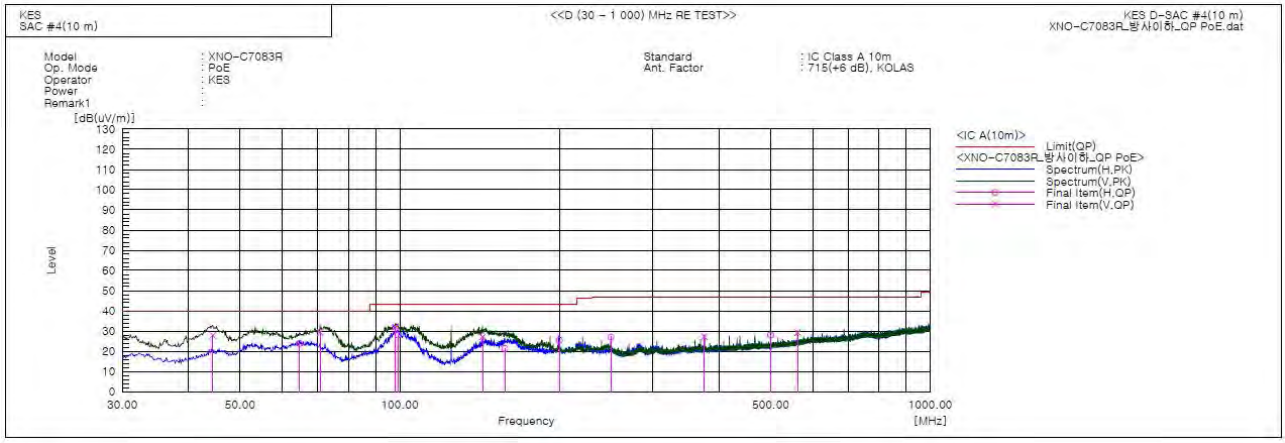


Final Result

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	64.678	V	51.3	-23.2	28.1	40.0	11.9	105.0	114.0	
2	95.233	V	57.8	-23.5	34.3	43.5	9.2	102.0	80.0	
3	138.034	H	50.2	-25.4	24.8	43.5	18.7	391.0	83.0	
4	141.186	V	53.4	-25.3	28.1	43.5	15.4	109.0	182.0	
5	167.013	H	48.8	-24.2	24.6	43.5	18.9	385.0	49.0	
6	173.681	V	50.5	-23.9	26.6	43.5	16.9	114.0	189.0	
7	199.871	H	46.4	-20.8	25.6	43.5	17.9	379.0	23.0	
8	270.318	H	44.6	-18.7	25.9	47.0	21.1	397.0	189.0	
9	319.545	V	49.1	-16.8	32.3	47.0	14.7	107.0	167.0	
10	417.758	H	40.1	-13.9	26.2	47.0	20.8	184.0	262.0	
11	437.521	V	41.8	-13.5	28.3	47.0	18.7	113.0	331.0	
12	466.985	H	37.9	-12.6	25.3	47.0	21.7	271.0	274.0	

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■ PoE Mode



Final Result

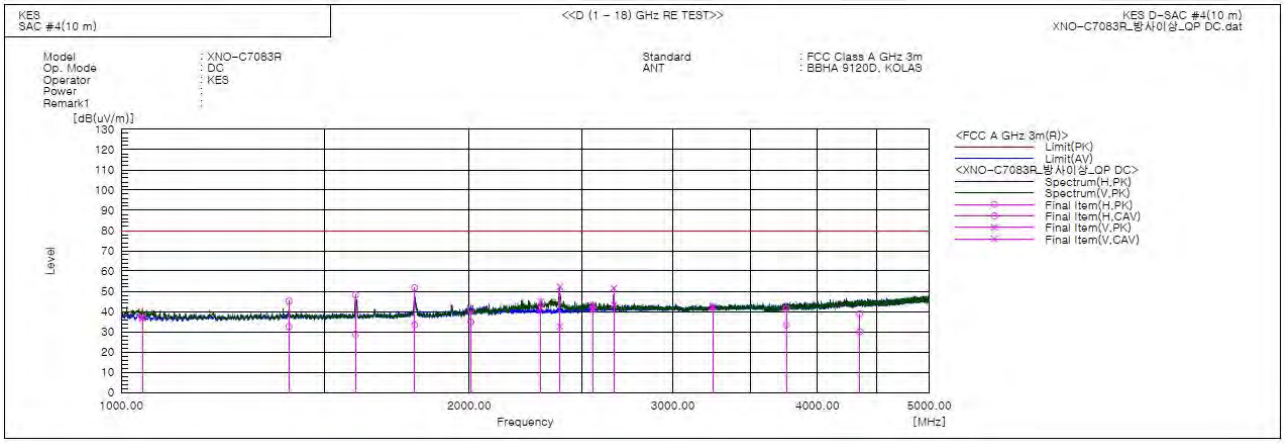
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	44.429	V	49.4	-21.5	27.9	40.0	12.1	117.0	68.0	
2	64.678	H	47.0	-23.2	23.8	40.0	16.2	173.0	175.0	
3	70.740	V	54.5	-25.2	29.3	40.0	10.7	109.0	236.0	
4	98.143	V	54.8	-22.8	32.0	43.5	11.5	104.0	81.0	
5	99.113	H	50.6	-22.6	28.0	43.5	15.5	395.0	155.0	
6	143.248	V	52.5	-25.3	27.2	43.5	16.3	105.0	155.0	
7	157.798	H	45.9	-24.6	21.3	43.5	22.2	388.0	270.0	
8	199.871	H	46.3	-20.8	25.5	43.5	18.0	398.0	11.0	
9	249.948	H	46.1	-19.1	27.0	47.0	20.0	392.0	211.0	
10	374.956	V	42.0	-14.8	27.2	47.0	19.8	110.0	26.0	
11	500.086	H	39.6	-11.6	28.0	47.0	19.0	239.0	134.0	
12	562.530	V	39.1	-9.8	29.3	47.0	17.7	105.0	356.0	

♦ 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

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Radiated Electric Field Emissions(Above 1 ㎓)

■ DC Mode

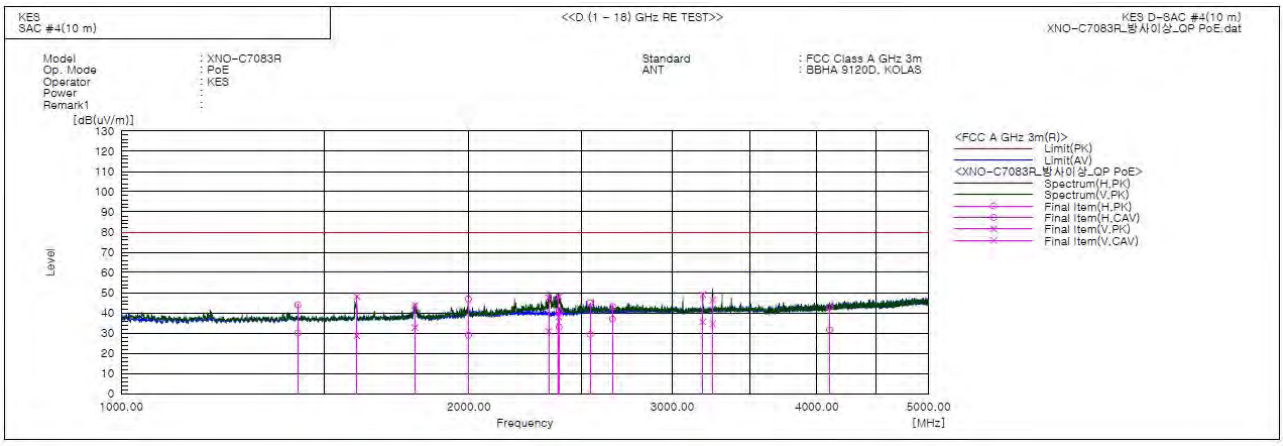


Final Result

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	1043.000	V	42.4	41.7	-5.2	37.2	36.5	80.0	60.0	42.8	23.5	101.0	273.0	
2	1396.500	H	48.1	35.5	-3.0	45.1	32.5	80.0	60.0	34.9	27.5	310.0	211.0	
3	1593.795	H	50.3	30.9	-2.0	48.3	28.9	80.0	60.0	31.7	31.1	251.0	265.0	
4	1793.760	H	53.0	34.6	-1.2	51.8	33.4	80.0	60.0	28.2	26.6	299.0	197.0	
5	2006.000	H	41.0	35.1	-0.2	40.8	34.9	80.0	60.0	39.2	25.1	398.0	185.0	
6	2306.500	V	43.6	40.4	1.3	44.9	41.7	80.0	60.0	35.1	18.3	127.0	228.0	
7	2395.235	V	50.5	30.8	1.8	52.3	32.6	80.0	60.0	27.7	27.4	103.0	292.0	
8	2559.000	V	38.5	40.7	2.6	41.1	43.3	80.0	60.0	38.9	16.7	105.0	269.0	
9	2666.190	V	48.6	40.3	3.0	51.6	43.3	80.0	60.0	28.4	16.7	111.0	212.0	
10	3247.500	V	37.4	37.0	5.2	42.6	42.2	80.0	60.0	37.4	17.8	107.0	179.0	
11	3761.000	H	34.2	26.1	7.2	41.4	33.3	80.0	60.0	38.6	26.7	392.0	215.0	
12	4352.500	H	29.3	20.5	9.6	38.9	30.1	80.0	60.0	41.1	29.9	325.0	38.0	

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■ PoE Mode



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	1422.000	H	46.9	33.0	-2.9	44.0	30.1	80.0	60.0	36.0	29.9	100.0	174.0	
2	1599.250	V	50.1	30.7	-2.0	48.1	28.7	80.0	60.0	31.9	31.3	100.0	310.0	
3	1795.500	V	44.9	33.9	-1.1	43.8	32.8	80.0	60.0	36.2	27.2	100.0	277.0	
4	1998.255	H	47.1	29.2	-0.2	46.9	29.0	80.0	60.0	33.1	31.0	100.0	191.0	
5	2344.450	V	46.1	29.5	1.5	47.6	31.0	80.0	60.0	32.4	29.0	100.0	281.0	
6	2392.000	V	46.2	36.3	1.8	48.0	38.1	80.0	60.0	32.0	21.9	100.0	251.0	
7	2394.000	H	39.2	31.1	1.8	41.0	32.9	80.0	60.0	39.0	27.1	100.0	244.0	
8	2546.385	H	42.5	26.8	2.5	45.0	29.3	80.0	60.0	35.0	30.7	100.0	224.0	
9	2662.500	H	40.2	34.0	3.0	43.2	37.0	80.0	60.0	36.8	23.0	100.0	229.0	
10	3187.500	V	44.1	30.6	5.0	49.1	35.6	80.0	60.0	30.9	24.4	100.0	296.0	
11	3250.000	V	41.2	29.4	5.2	46.4	34.6	80.0	60.0	33.6	25.4	100.0	296.0	
12	4103.500	H	33.8	22.5	9.0	42.8	31.5	80.0	60.0	37.2	28.5	100.0	297.0	

♦ 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

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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ DC Mode





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■ PoE Mode

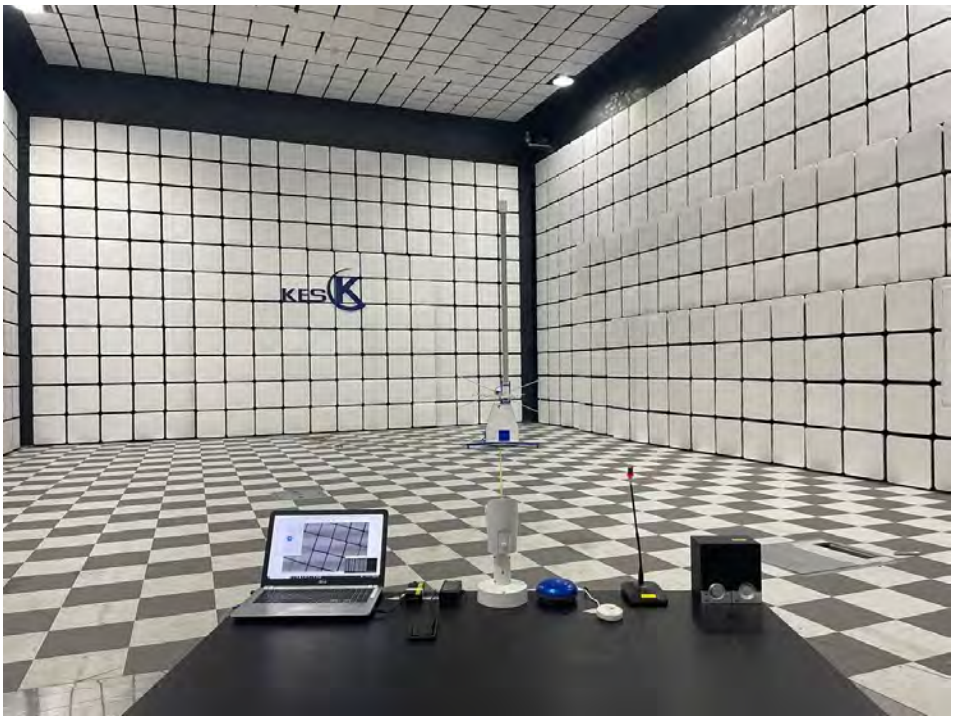


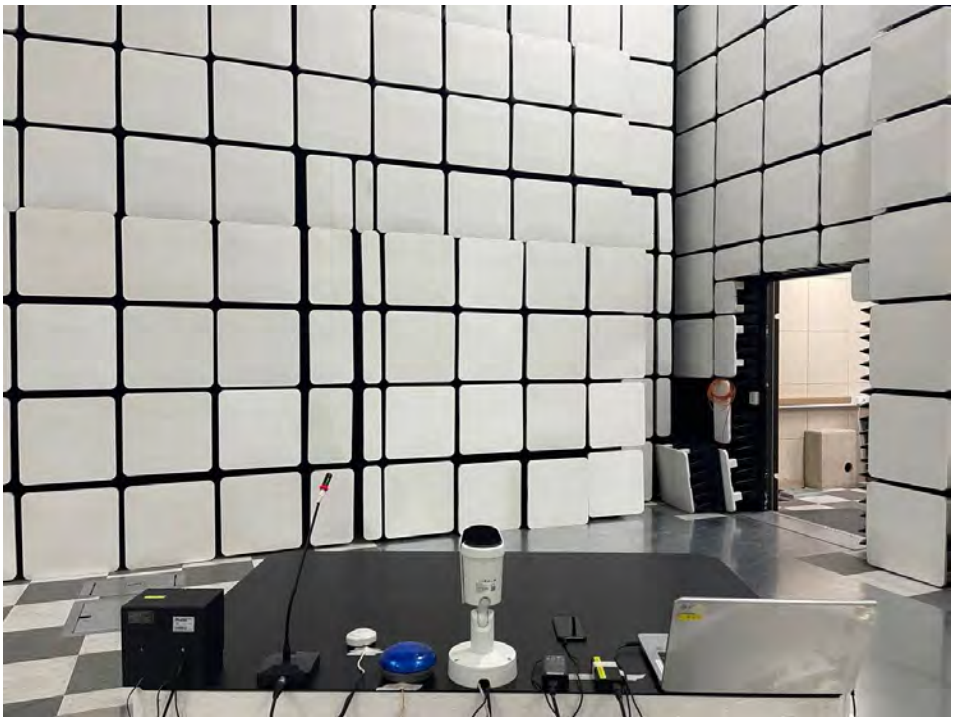


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Radiated Electric Field Emissions(Below 1 ㎓)

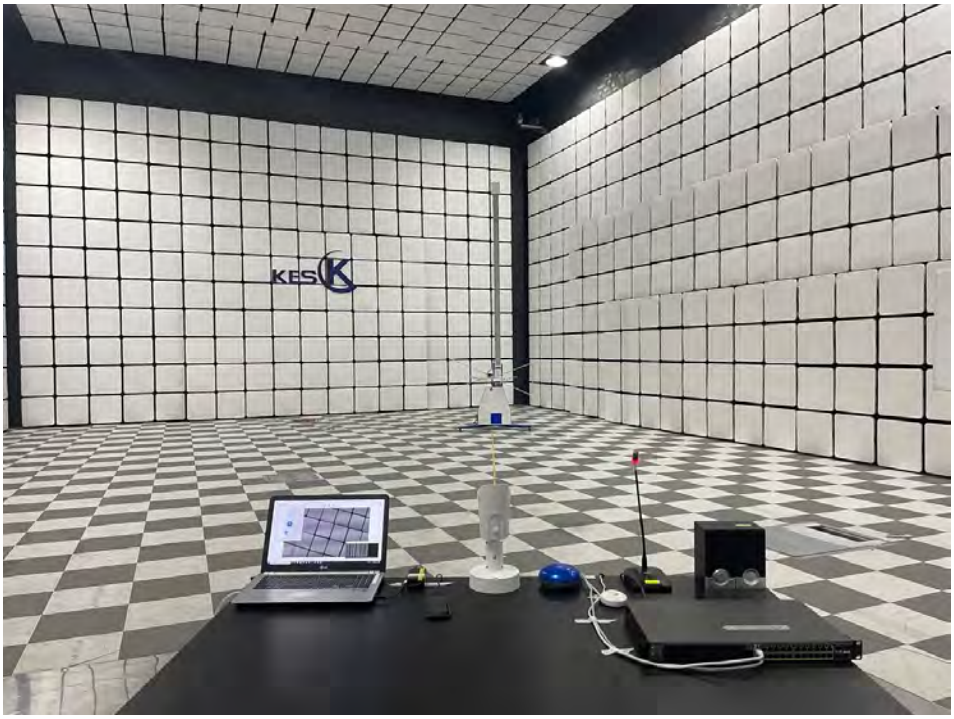
■ DC Mode

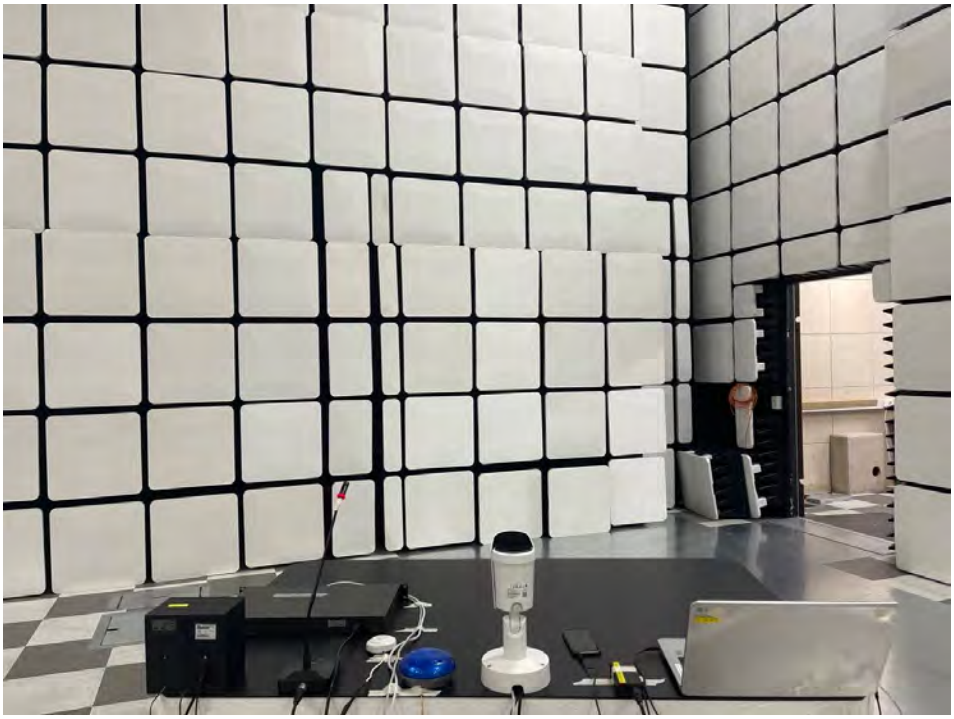




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■ PoE Mode

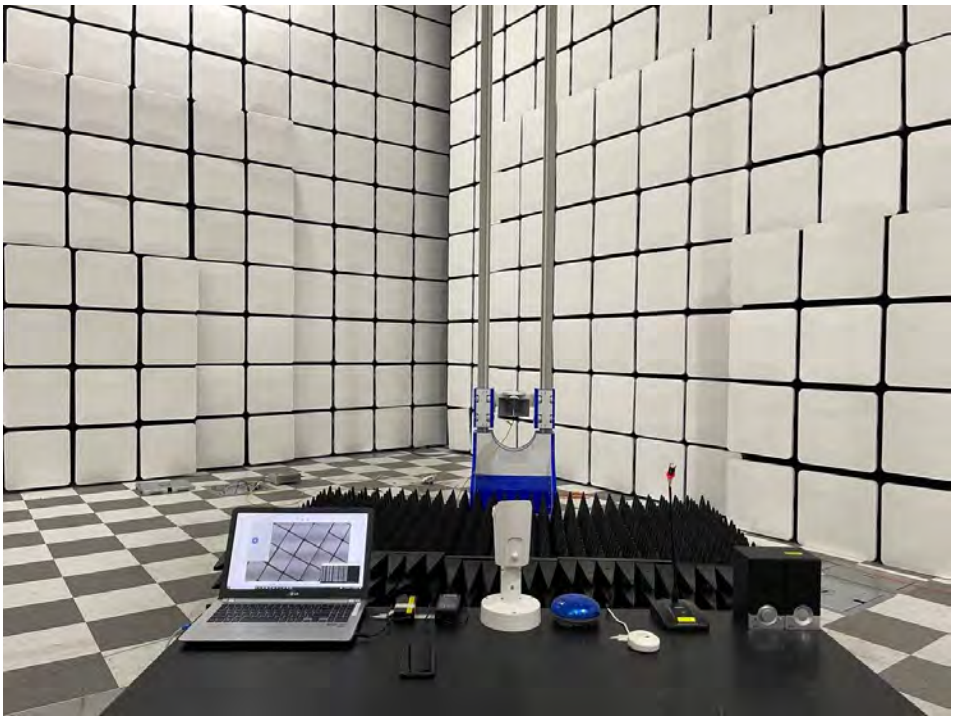


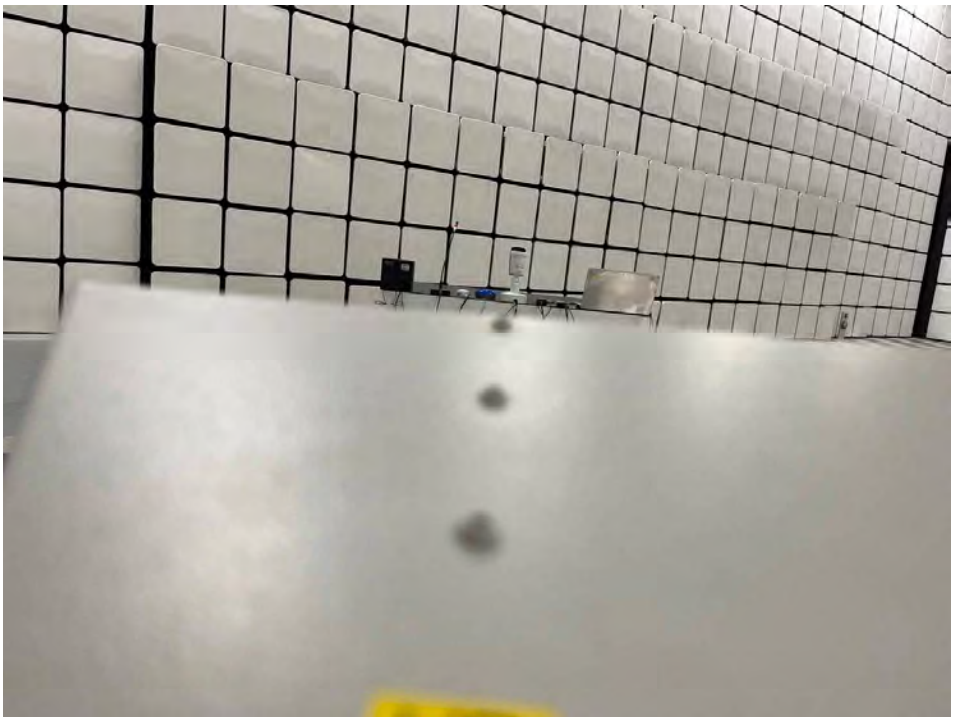


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Radiated Electric Field Emissions(Above 1 ㎓)

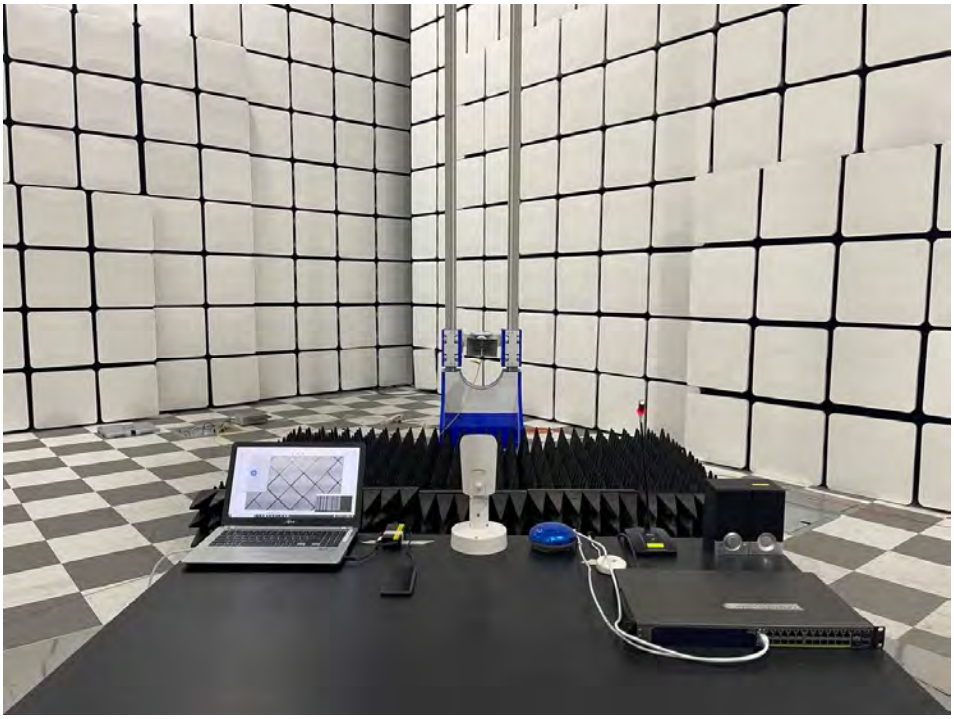
■ DC Mode





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■ PoE Mode





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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

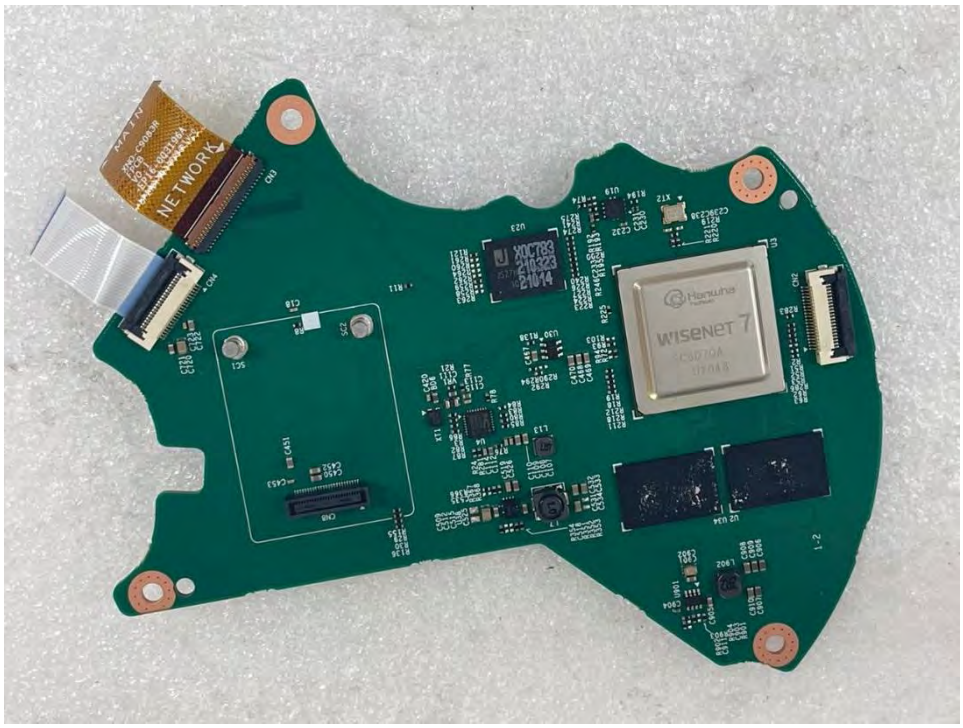
(Internal View)



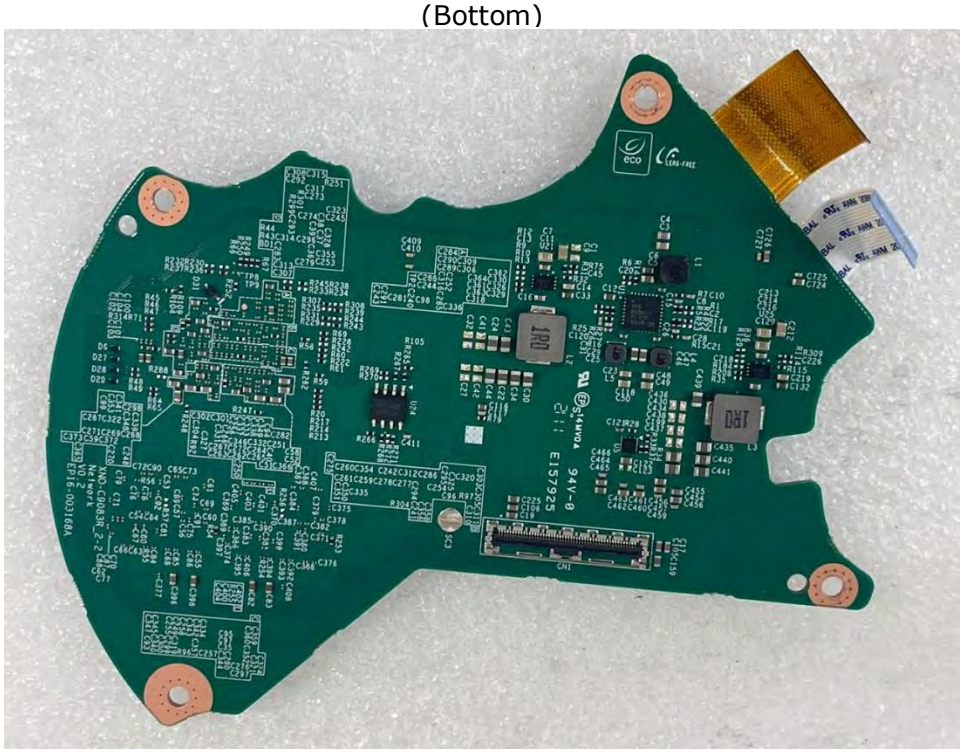
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EUT Internal View – Board 1

(Top)



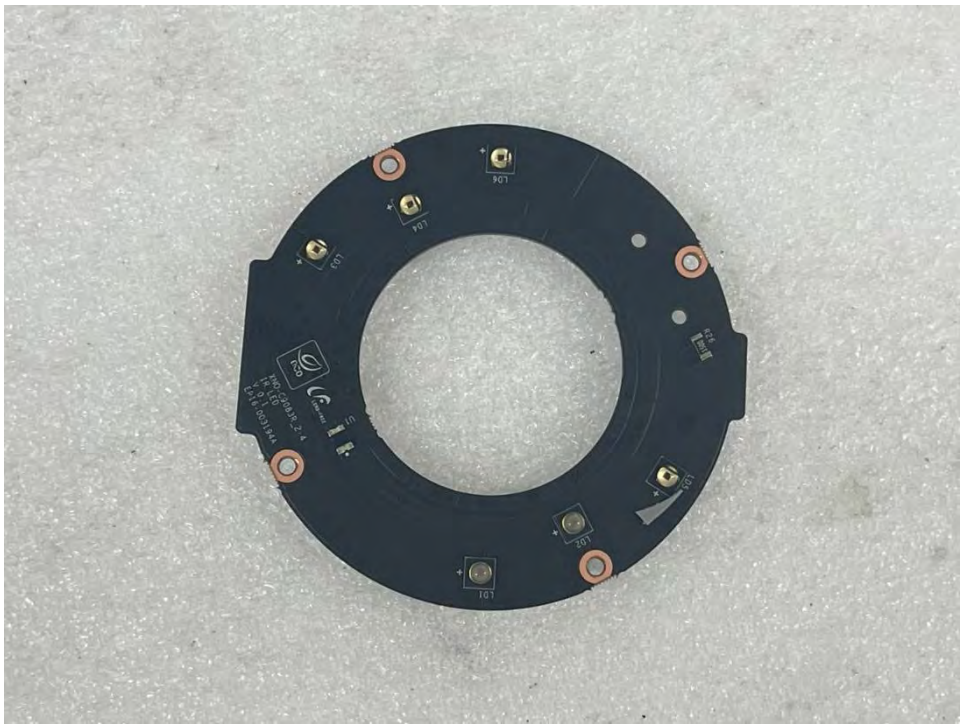
(Bottom)



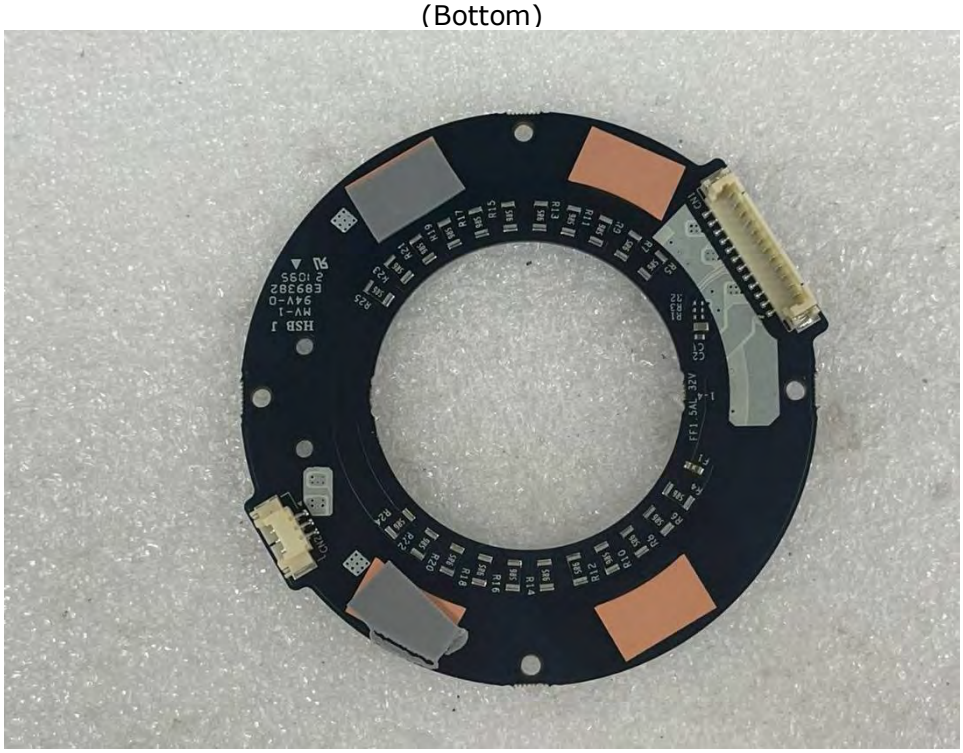
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EUT Internal View – Board 2

(Top)



(Bottom)



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EUT Internal View – Board 3

(Top)



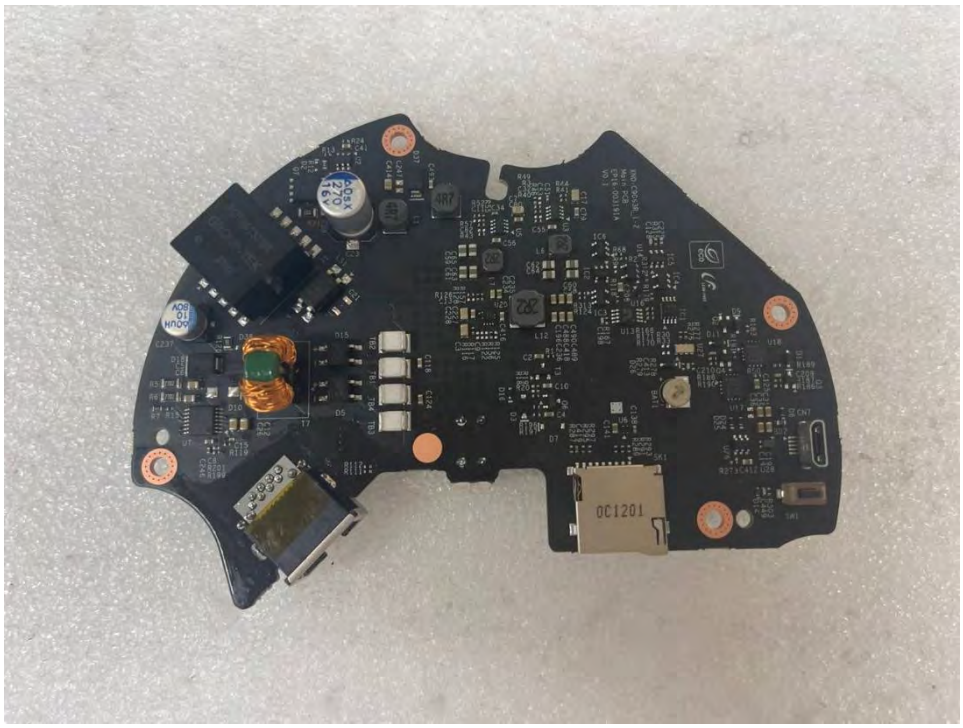
(Bottom)



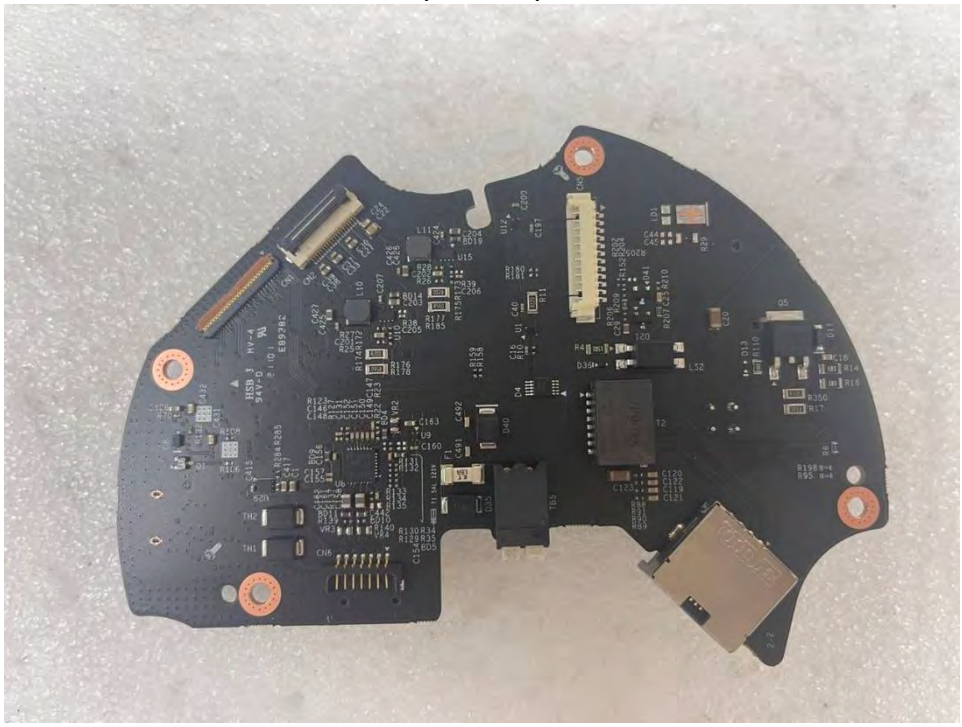
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EUT Internal View – Board 4

(Top)



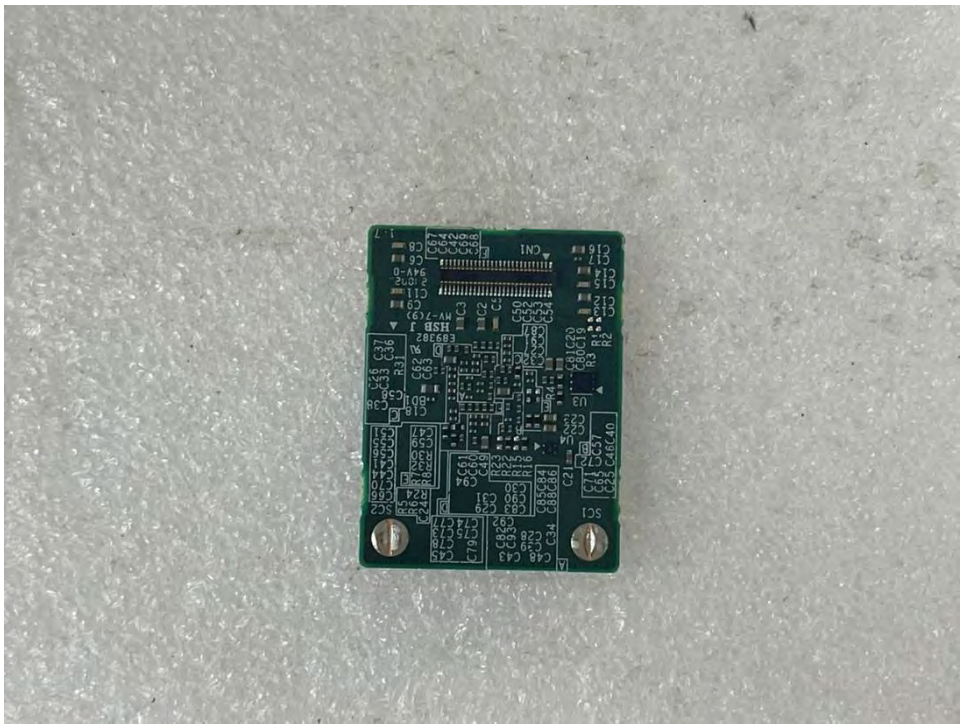
(Bottom)



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EUT Internal View – Board 5

(Top)



(Bottom)



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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.

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