EMC TEST REPORT For RCM

Test Report No.	:	KES-EM-21T0555
Date of Issue	:	Jul. 01, 2021
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNV-8093R
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)
Date of Receipt	:	Jun. 03, 2021
Test date	:	Jun. 10, 2021 ~ Jun. 11, 2021
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

김 세 헌

Se Heon, 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
Jul. 01, 2021	KES-EM-21T0555	Issued

TABLE OF CONTENTS

1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/1.8" progressive CMOS
Resolution	3328x1872, 3072x1728, 2592x1944, 2688x1520, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 15fps/12fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	(TBD) Color: 0.04Lux(F1.3, 1/30sec, 30IRE) B/W : 0.004Lux(F1.3, 1/30sec, 30IRE), 0Lux(IR LED on)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P) for installation USB: Micro USB Type B, 1280x720 for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	10.9~29mm(2.7x) motorized varifocal
Max. Aperture Ratio	F1.7
Angular Field of View	H : 42.0°(Wide)~15.0°(Tele) V : 22.8°(Wide)~8.4°(Tele) D : 48.7°(Wide)~17.1°(Tele)
Min. Object Distance	Wide : 2.5m(8.20ft), Tele : 6m(19.69ft)
Focus Control	Simple focus, Manual
Lens Type	DC auto iris with hall sensor
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0°~360° / -45°~85° / 0°~355°(TBD)
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	WiseNR Ⅱ(Based on AI engine), SSNR Ⅴ
Digital Image Stabilization	Support(built-in gyro sensor)
Defog	Support
Motion Detection	8ea, 8point Polygonal zones
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, DC 12V output(Max. 50mA)
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 70m(229.66ft)(TBD)
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(10/100/1000BASE-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)
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	TPM 2.0 (FIPS 140-2 level 2) 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(TBD) 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 2slot Max. 1TB (512GB * 2)
Memory	4GB RAM, 512MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-50°C~+55°C(-58°F ~ +131°F) * Maximum temperature : +60°C (intermittent) NEMA TS-2 : 74°C * Start up should be done at above -30°C less than 95%RH(non-condensing) Humidity control /w GORE vent
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Certification	IP66/IP67/IP6K9K, NEMA4X, IK10+
Input Voltage	PoE+(IEEE802.3at, Class4), 12VDC
Power Consumption	TBD Power redundancy failover
Mechanical	
Color / Material	White / Aluminum Hard-coated dome bubble
RAL Code	RAL9003
Product Dimensions / Weight	Ø180x125mm(7.09x4.92"), 1.9kg(4.19 lb) (TBD)
Compatible Conduit hole / Gangbox	3/4" (M25) single, double, 4" octagon, 4" square
Hanging Mount (Dome)	SBP-187HMW
Skin Cover (Dome)	None
Weather Cap (Dome)	include
Power Module	None
Backbox	None
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 173.4m(568.88ft) / Tele: 505.6m(1,658.71ft)
Observe (63PPM/ 19PPF)	Wide: 69.4m(227.55ft) / Tele: 202.2m(663.48ft)
Recognize (125PPM/ 38PPF)	Wide: 34.7m(113.78ft) / Tele: 101.1m(331.74ft)
Identify (250PPM/ 76PPF)	Wide: 17.3m(56.89ft) / Tele: 50.6m(165.87ft)

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 240 V, 50 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	XNV-8093R	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC / DC Adapter	FSP060-DIBAN2	-	Zhonghan Electronics (Shenzhen) Co., Ltd.	-
PoE Injector	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Notebook	LG15N54	410NZGK015231	LG Electronics Inc.	-
Notebook Adapter	ADP-90WH B	84ZW19F1663	DELTA ELECTRONICS (JIANGSU) LTD.	-
Earphones	-	-	-	-
MIC	CMK-303	-	CAMAC	-
Alarm	SLE-0001 DO	C64167JDB601268 F	-	-
Button Alarm	-	-	-	-
Micro SD Card	-	-	SanDisk	16 GB
Smart Phone	c6903	-	Sony Interactive Entertainment Inc.	-

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)	RJ-45	Notebook	RJ-45	3.0	S
	Audio Out	Earphone	3.5 ㎜	1.5	U
	Audio In	MIC	XLR	1.4	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 ㎜	Smart Phone	3.5 ㎜	1.0	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	S
	Audio Out	Earphone	3.5 ㎜	1.5	U
	Audio In	MIC	XLR	1.4	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	RJ-45 (LAN)	PoE Injector	RJ-45 (LAN)	2.0	S
	3.5 ㎜	Smart Phone	3.5 ㎜	1.0	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

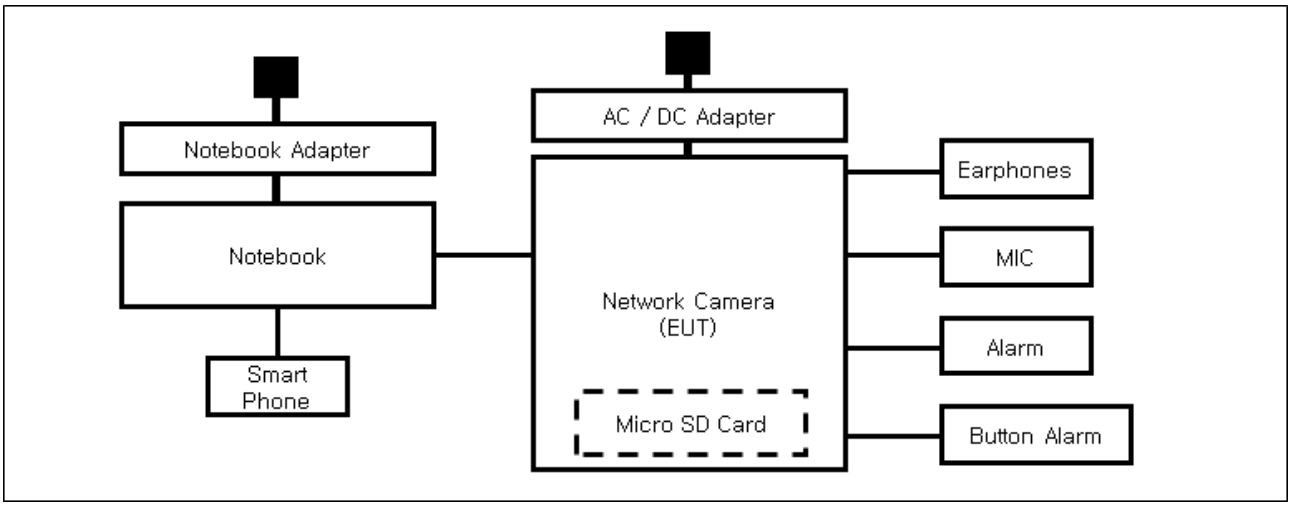
Test Mode	operating
DC Mode	Monitoring EUT Using Web Viewer, Ping Test
PoE Mode	

EUT Test operating S/W		
Name	**Version**	**Manufacture Company**
Web Viewer	-	-

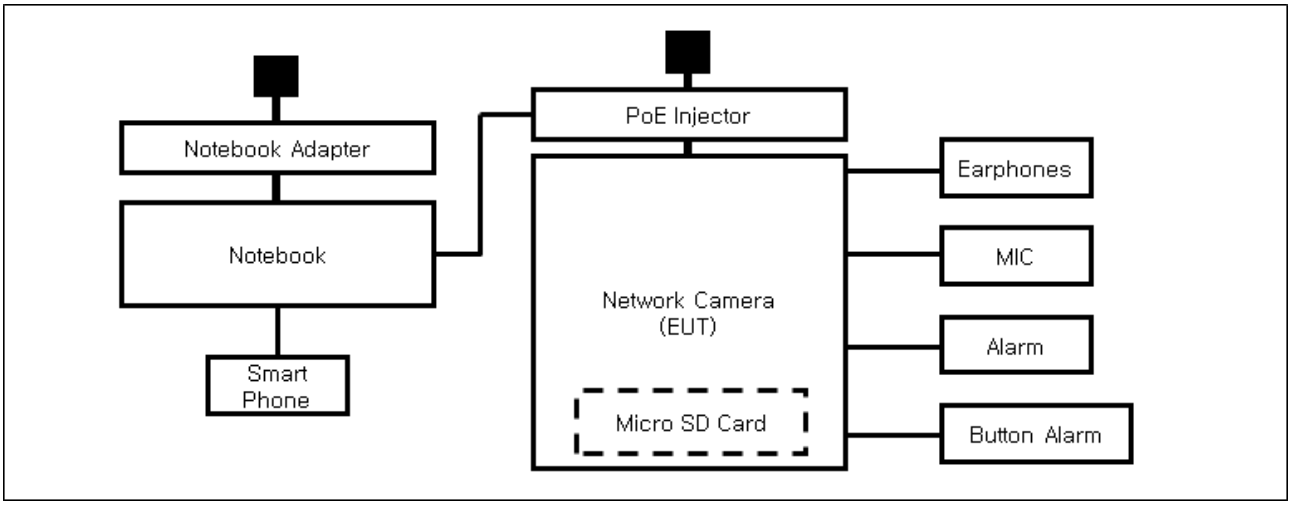
1.8 Configuration

■ AC Main
□ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

USB, VIDEO, 2 Pin port are for administrator use and is 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 16-1-4:2019

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:

☐ **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/A11:2020	☐ 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		

☐ **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 C63.4-2009		
☐ **IC Regulation ICES-003 : 2016**		
☐ CAN/CSA CISPR 22-10	☐ Class A	☐ Class B
☐ ANSI C63.4-2014		

☐ **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

2.1 Conducted Emissions at Mains Power Ports

Test Date
Jun. 10, 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: (24,2 ± 0,0) ℃
Relative Humidity: (45,9 ± 0,1) % 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 Conducted Emissions at Telecommunication Ports

Test Date
Jun. 10, 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
☐	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 30, 2021
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 30, 2021
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	12, 29, 2021
☐	CDN	CDNS502A	TESEQ	40431	

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

2.3 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Jun. 10, 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: (24,3 ± 0,2) ℃
Relative Humidity: (46,0 ± 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.

2.4 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Jun. 11, 2021

Test Location
SEMI ANECHOIC CHAMBER #3

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	ESR7	R & S	101190	08, 05, 2021
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 07, 2022
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2022

Test Conditions
Temperature: (23,6 ± 0,3) ℃
Relative Humidity: (45,8 ± 0,0) % R.H.

Frequency Range of Measurement
1 ㎓ to 6 ㎓

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

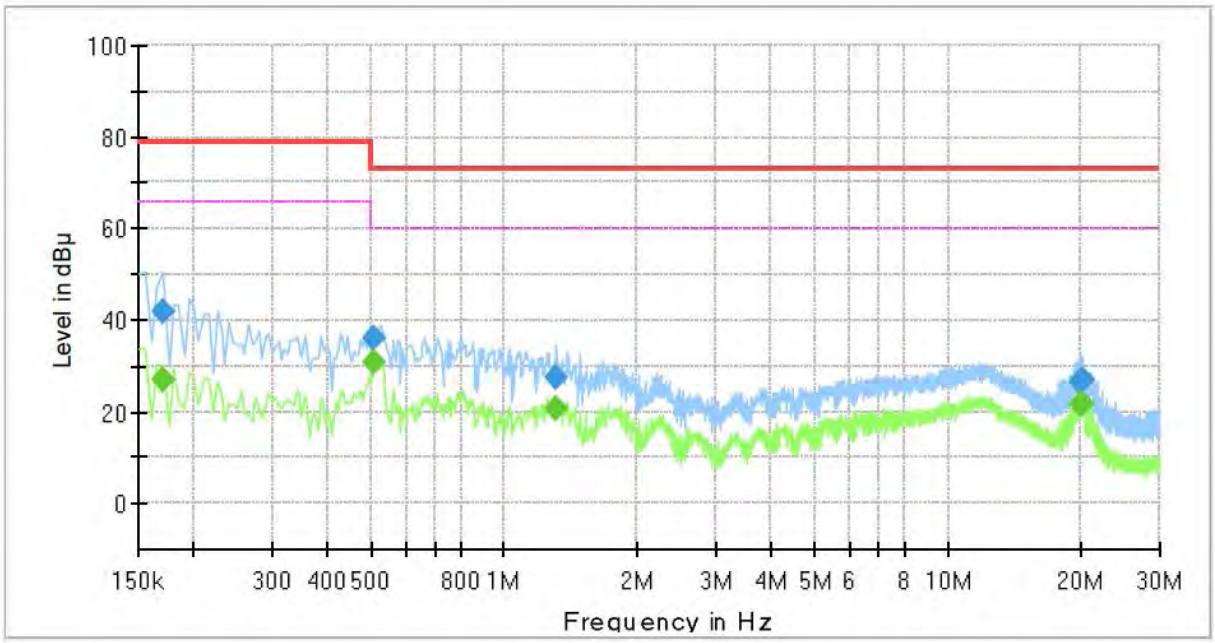
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-8093R
Phase:	L1
Mode:	DC
Operator Name:	KES



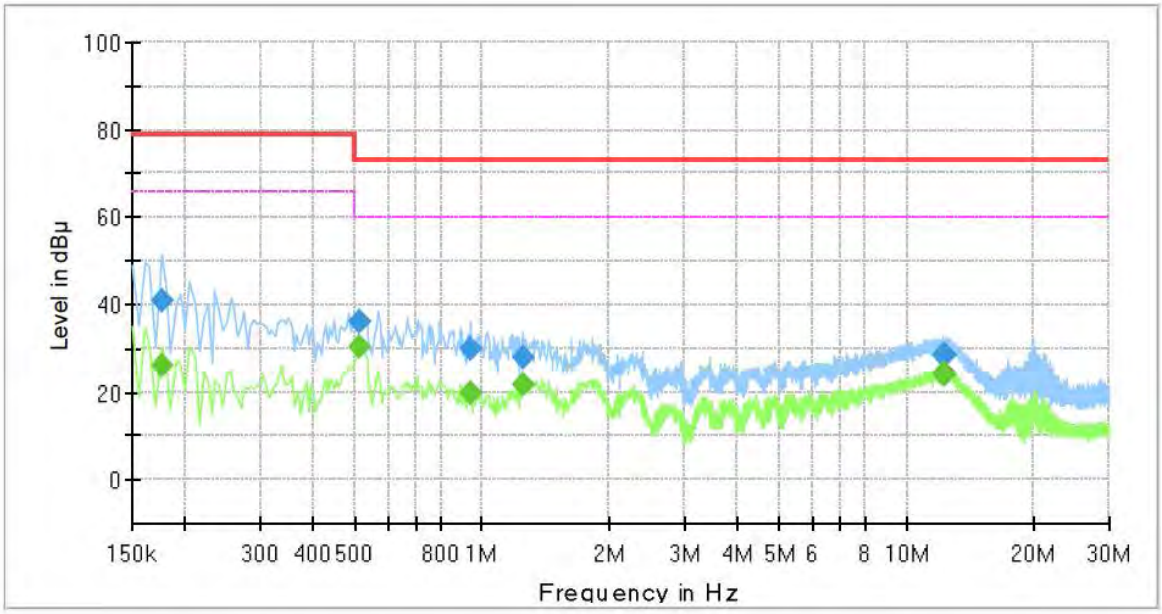
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.170000	---	26.96	66.00	39.04	1000.0	9.000	L1	19.4
0.170000	41.69	---	79.00	37.31	1000.0	9.000	L1	19.4
0.510000	---	30.83	60.00	29.17	1000.0	9.000	L1	19.7
0.510000	36.01	---	73.00	36.99	1000.0	9.000	L1	19.7
1.310000	---	20.83	60.00	39.17	1000.0	9.000	L1	20.1
1.310000	27.69	---	73.00	45.31	1000.0	9.000	L1	20.1
19.945000	---	21.79	60.00	38.21	1000.0	9.000	L1	20.1
19.945000	26.74	---	73.00	46.26	1000.0	9.000	L1	20.1
20.120000	---	21.61	60.00	38.39	1000.0	9.000	L1	20.1
20.120000	26.78	---	73.00	46.22	1000.0	9.000	L1	20.1

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-8093R
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)
0.175000	---	26.18	66.00	39.82	1000.0	9.000	N	19.4
0.175000	41.12	---	79.00	37.88	1000.0	9.000	N	19.4
0.515000	---	30.54	60.00	29.46	1000.0	9.000	N	19.7
0.515000	35.89	---	73.00	37.11	1000.0	9.000	N	19.7
0.935000	---	19.91	60.00	40.09	1000.0	9.000	N	20.0
0.935000	29.82	---	73.00	43.18	1000.0	9.000	N	20.0
1.245000	---	21.70	60.00	38.30	1000.0	9.000	N	20.1
1.245000	28.08	---	73.00	44.92	1000.0	9.000	N	20.1
12.255000	---	24.12	60.00	35.88	1000.0	9.000	N	20.0
12.255000	28.54	---	73.00	44.46	1000.0	9.000	N	20.0
12.280000	---	24.25	60.00	35.75	1000.0	9.000	N	20.0
12.280000	28.63	---	73.00	44.37	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))

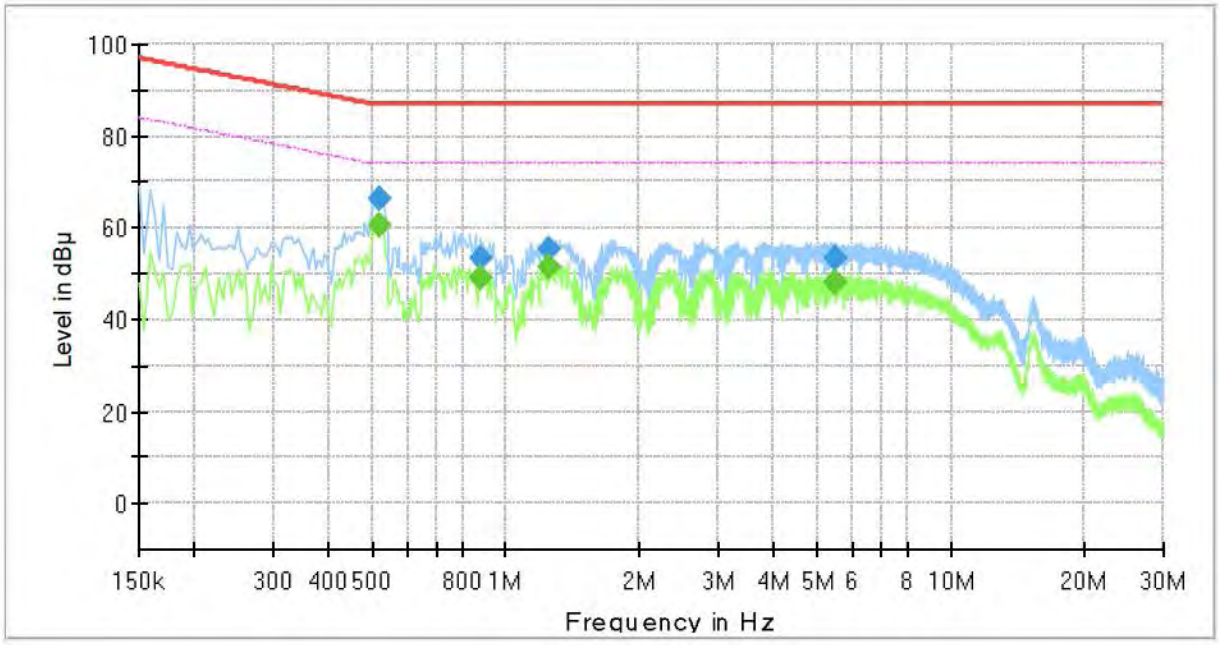
Conducted Emissions at Telecommunication Ports

■ DC Mode

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNV-8093R
Mode :	DC
Speed :	1 000 Mbps
Operator Name:	KES



Final_Result

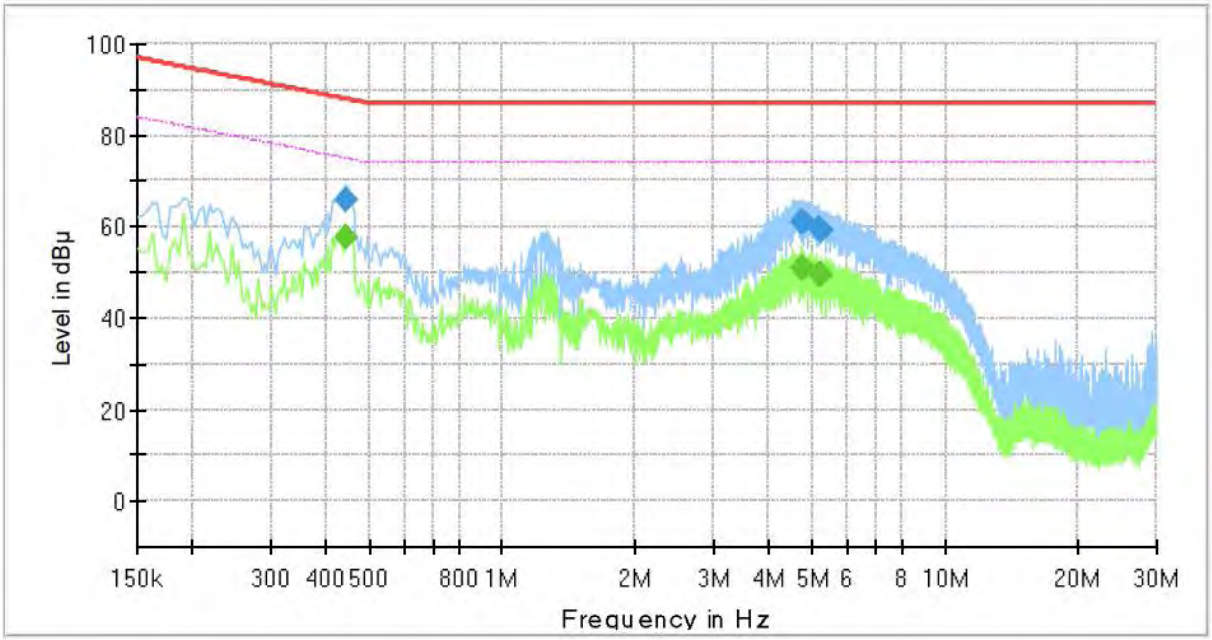
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.518000	---	60.55	74.00	13.45	1000.0	9.000	Single Line	19.7
0.518000	66.24	---	87.00	20.76	1000.0	9.000	Single Line	19.7
0.878000	---	49.03	74.00	24.97	1000.0	9.000	Single Line	19.9
0.878000	53.63	---	87.00	33.37	1000.0	9.000	Single Line	19.9
1.246000	---	51.36	74.00	22.64	1000.0	9.000	Single Line	20.0
1.246000	55.20	---	87.00	31.80	1000.0	9.000	Single Line	20.0
5.466000	---	47.94	74.00	26.06	1000.0	9.000	Single Line	19.4
5.466000	53.18	---	87.00	33.82	1000.0	9.000	Single Line	19.4
5.474000	---	48.07	74.00	25.93	1000.0	9.000	Single Line	19.4
5.474000	53.20	---	87.00	33.80	1000.0	9.000	Single Line	19.4

■ PoE Mode

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNV-8093R
Mode :	PoE
Speed :	1 000 Mbps
Operator Name:	KES



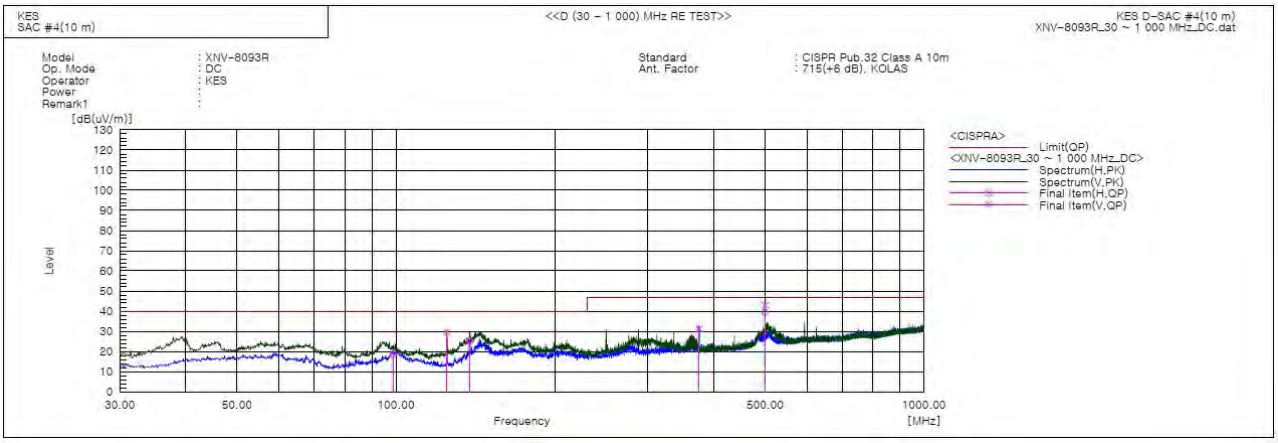
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.442000	---	57.81	75.02	17.21	1000.0	9.000	Single Line	19.6
0.442000	66.12	---	88.02	21.90	1000.0	9.000	Single Line	19.6
4.738000	---	51.12	74.00	22.88	1000.0	9.000	Single Line	19.6
4.738000	61.32	---	87.00	25.68	1000.0	9.000	Single Line	19.6
4.766000	---	50.95	74.00	23.05	1000.0	9.000	Single Line	19.5
4.766000	61.17	---	87.00	25.83	1000.0	9.000	Single Line	19.5
5.198000	---	49.39	74.00	24.61	1000.0	9.000	Single Line	19.5
5.198000	59.45	---	87.00	27.55	1000.0	9.000	Single Line	19.5
5.246000	---	49.45	74.00	24.55	1000.0	9.000	Single Line	19.5
5.246000	59.19	---	87.00	27.81	1000.0	9.000	Single Line	19.5

♦ 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 (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

Radiated Electric Field Emissions(Below 1 ㎓)

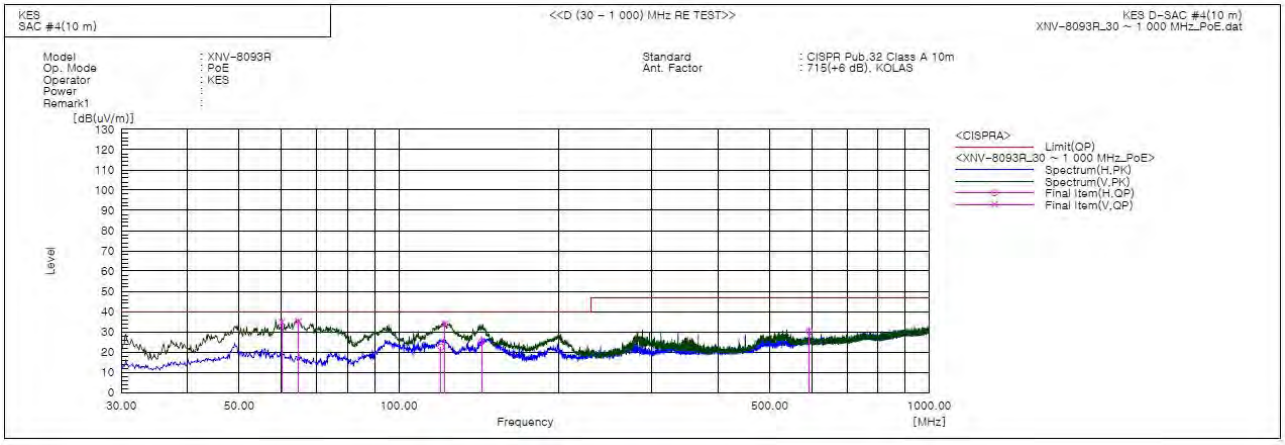
■ DC Mode



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	98.749	H	41.1	-22.7	18.4	40.0	21.6	374.0	336.0	
2	124.939	V	54.6	-24.8	29.8	40.0	10.2	116.0	62.0	
3	138.155	H	50.5	-25.4	25.1	40.0	14.9	387.0	71.0	
4	374.956	V	46.0	-14.8	31.2	47.0	15.8	144.0	202.0	
5	499.965	V	54.5	-11.6	42.9	47.0	4.1	128.0	342.0	
6	499.965	H	51.0	-11.6	39.4	47.0	7.6	376.0	303.0	

■ 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	60.191	V	56.8	-22.0	34.8	40.0	5.2	115.0	61.0	
2	64.678	V	58.3	-23.2	35.1	40.0	4.9	133.0	76.0	
3	120.089	H	46.6	-24.1	22.5	40.0	17.5	386.0	35.0	
4	122.271	V	58.4	-24.5	33.9	40.0	6.1	137.0	20.0	
5	143.248	H	50.4	-25.3	25.1	40.0	14.9	392.0	140.0	
6	594.055	H	38.8	-8.6	30.2	47.0	16.8	365.0	269.0	

♦ Calculation

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

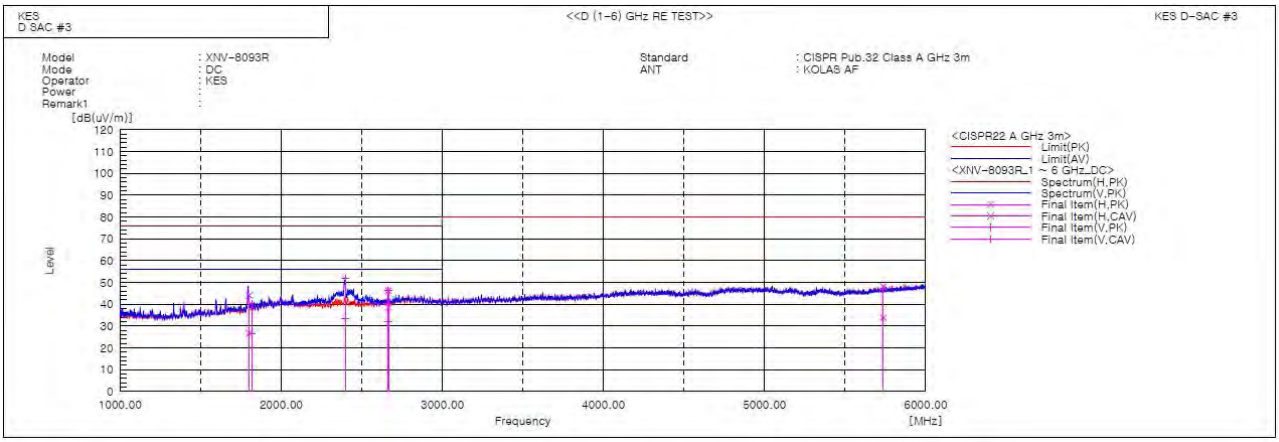
Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

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 ㎓)

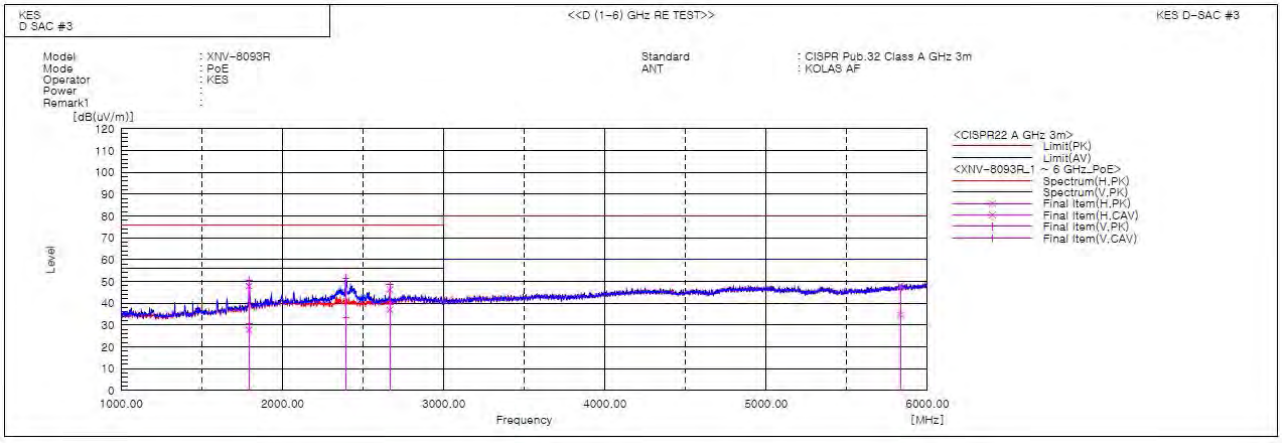
■ DC Mode



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	1801.589	H	47.0	29.6	-2.9	44.1	26.7	76.0	56.0	31.9	29.3	100.0	235.3	
2	1818.165	V	43.2	29.2	-2.7	40.5	26.5	76.0	56.0	35.5	29.5	100.0	24.9	
3	2397.519	V	51.9	33.2	0.2	52.1	33.4	76.0	56.0	23.9	22.6	100.0	20.1	
4	2664.420	V	45.3	31.1	0.8	46.1	31.9	76.0	56.0	29.9	24.1	100.0	196.2	
5	2665.900	H	45.3	37.6	0.9	46.2	38.5	76.0	56.0	29.8	17.5	100.0	335.7	
6	5737.460	H	38.6	24.4	9.4	48.0	33.8	80.0	60.0	32.0	26.2	100.0	214.4	

■ PoE Mode



Final Result

No.	Frequency	(P)	Reading PK	Reading CAV	c.f	Result PK	Result CAV	Limit PK	Limit AV	Margin PK	Margin CAV	Height	Angle	Remark
	[MHz]		[dB(uV)]	[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[dB]	[cm]	[deg]	
1	1792.730	H	50.8	30.7	-3.0	47.8	27.7	76.0	56.0	28.2	28.3	100.0	233.2	
2	1794.730	V	53.5	33.8	-3.0	50.5	30.8	76.0	56.0	25.5	25.2	100.0	41.3	
3	2395.240	V	51.4	33.3	0.2	51.6	33.5	76.0	56.0	24.4	22.5	100.0	22.7	
4	2665.610	V	47.8	38.7	0.9	48.7	39.6	76.0	56.0	27.3	16.4	100.0	191.8	
5	2665.760	H	45.3	36.1	0.9	46.2	37.0	76.0	56.0	29.8	19.0	100.0	337.1	
6	5833.751	H	38.0	24.5	10.1	48.1	34.6	80.0	60.0	31.9	25.4	100.0	102.4	

♦ 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

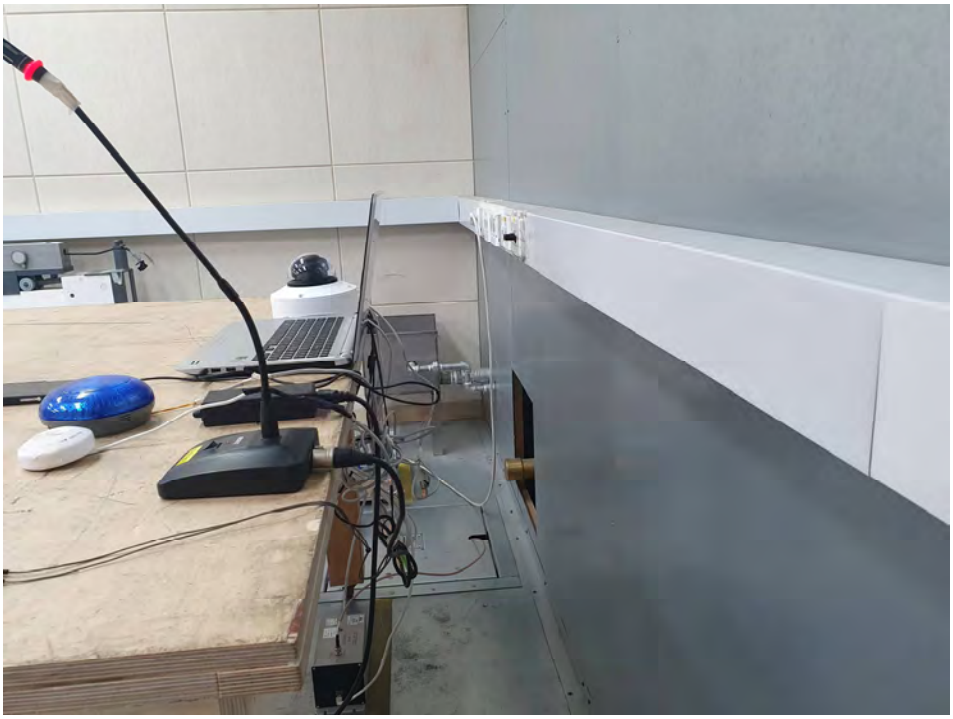
Conducted Emissions at Mains Power Ports

■ DC Mode

Conducted Emissions at Telecommunication Ports

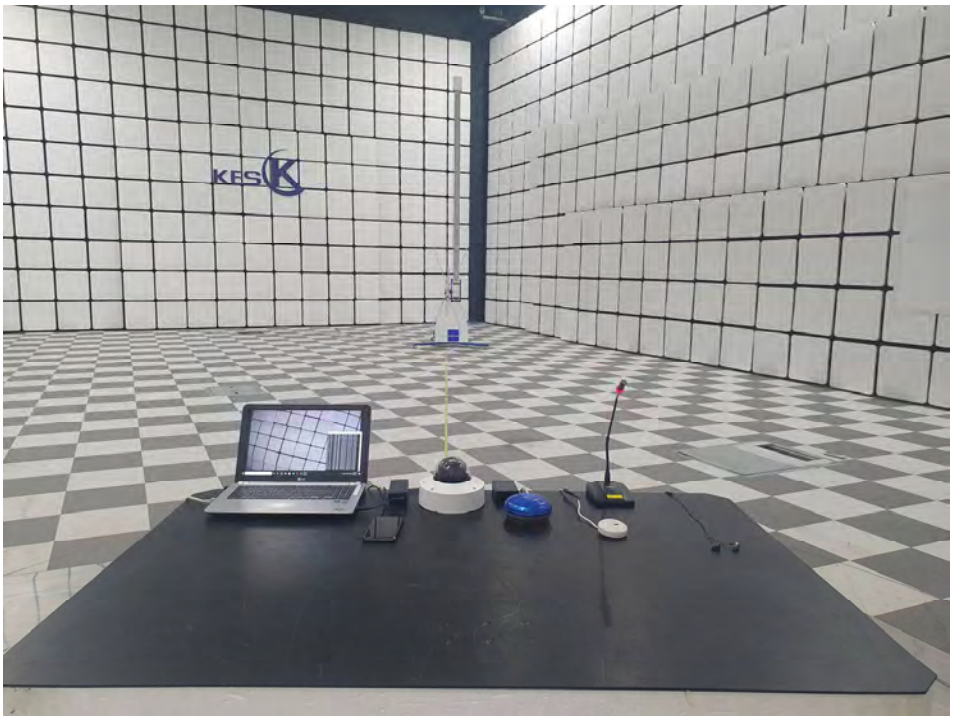
■ DC Mode

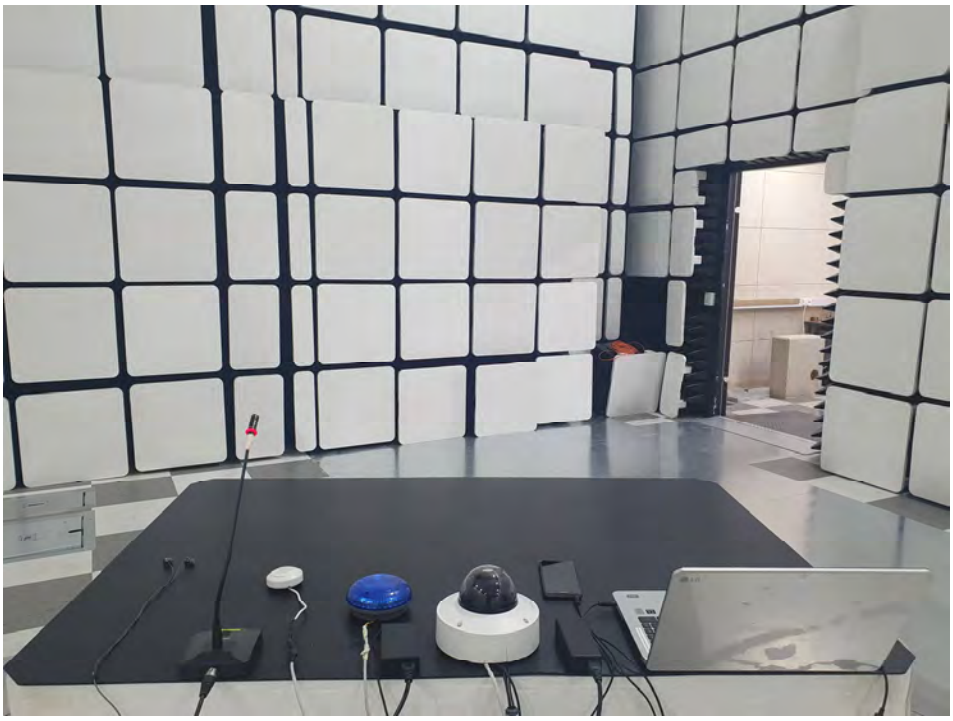
■ PoE Mode



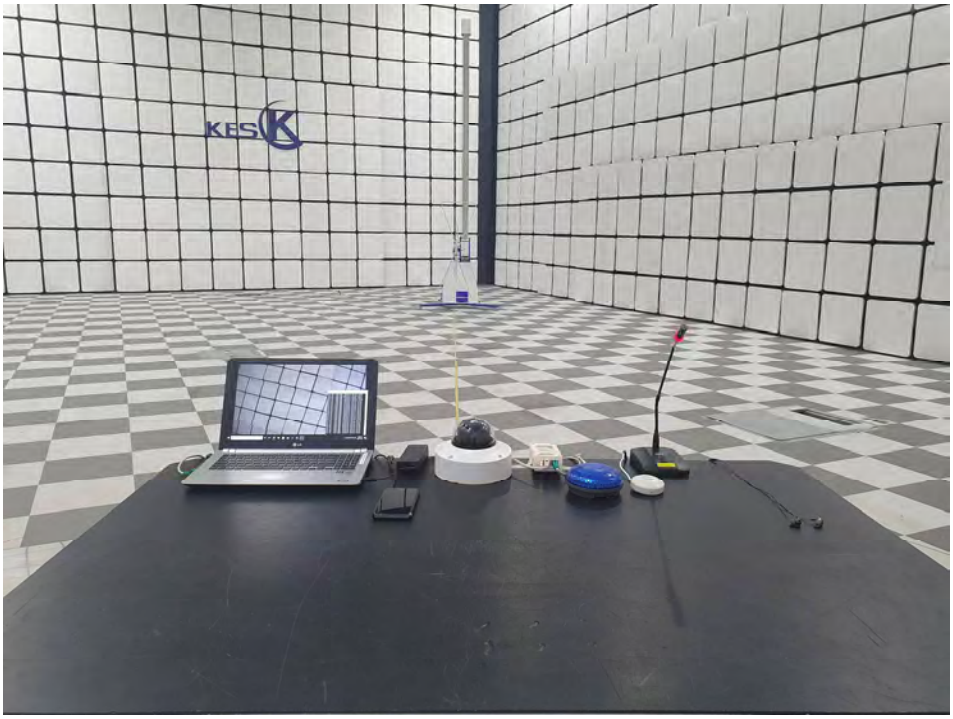
Radiated Electric Field Emissions(Below 1 ㎓)

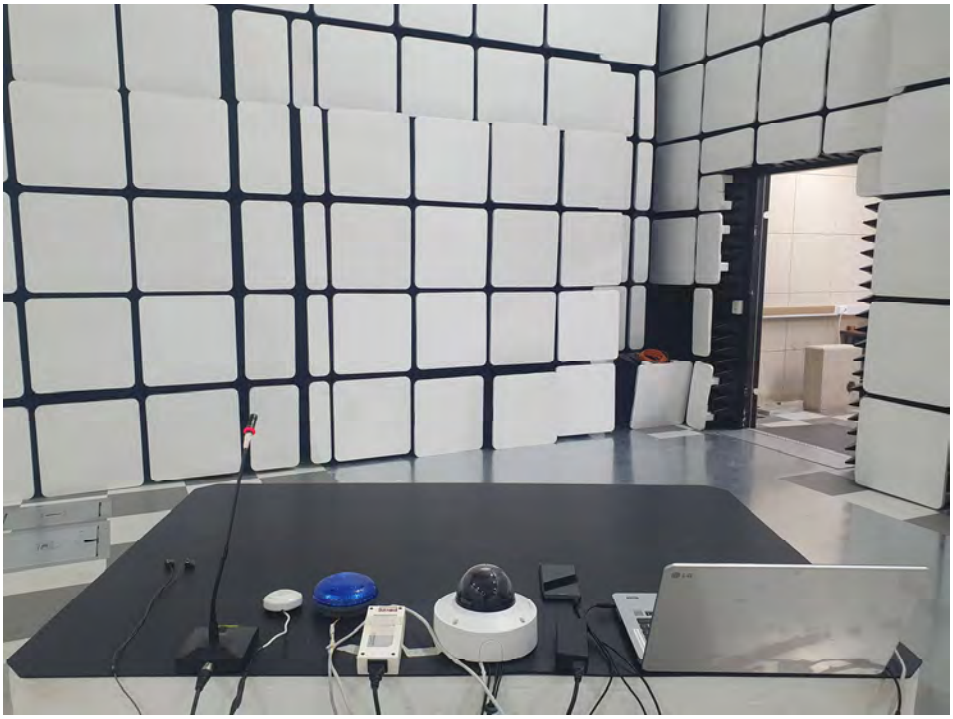
■ DC Mode





■ PoE Mode

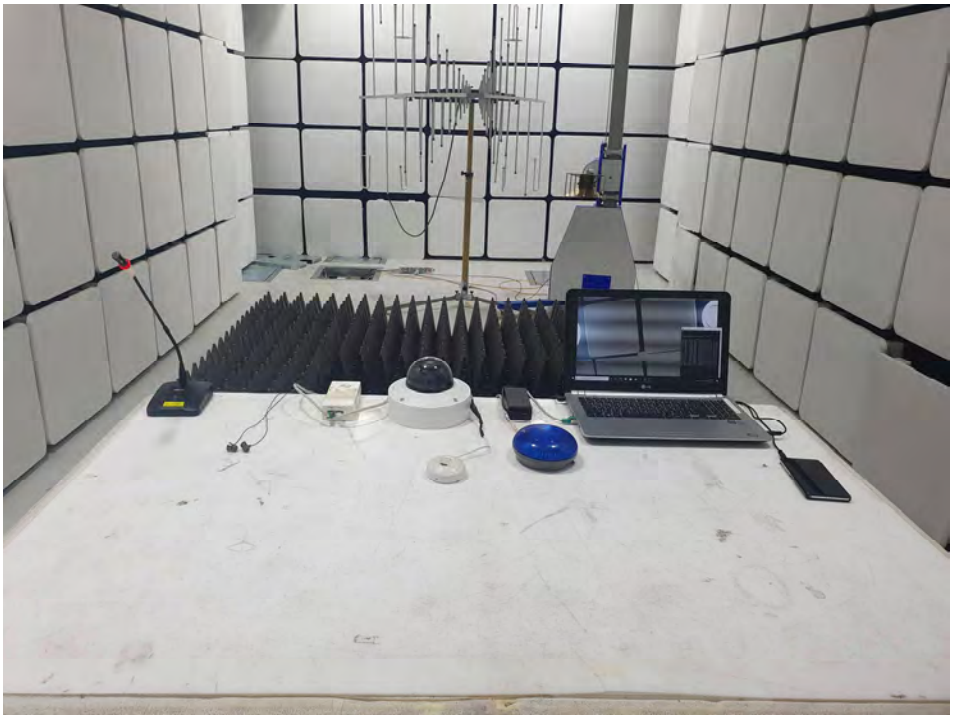




Radiated Electric Field Emissions(Above 1 ㎓)

■ DC Mode

■ PoE Mode



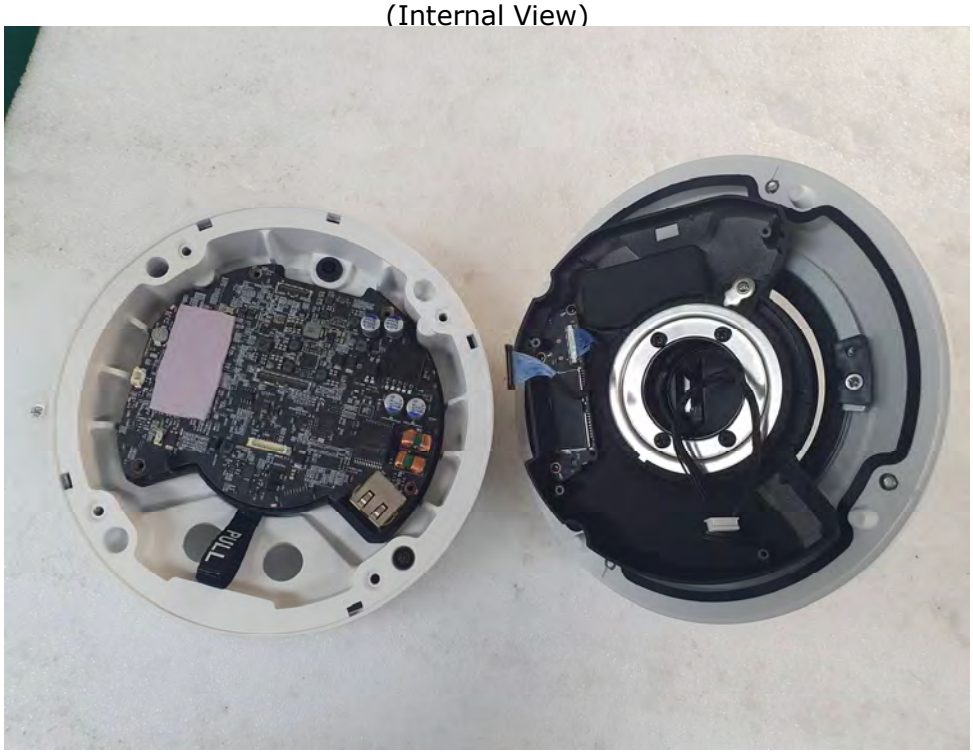
EUT External Photographs

(Top)

(Bottom)

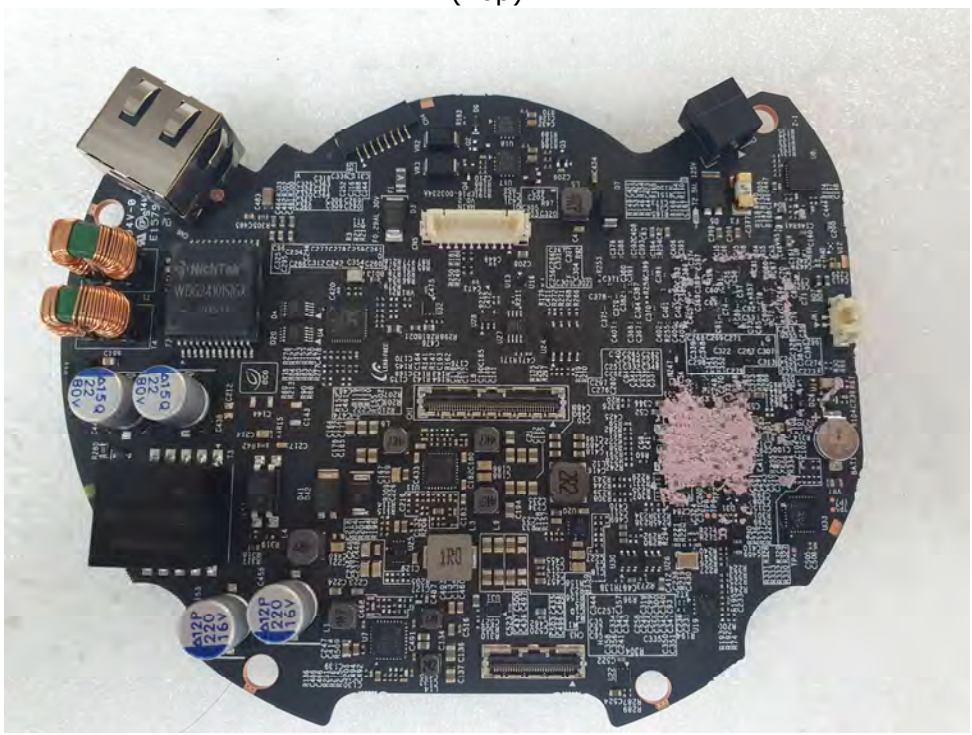
EUT Internal Photographs

(Internal View)

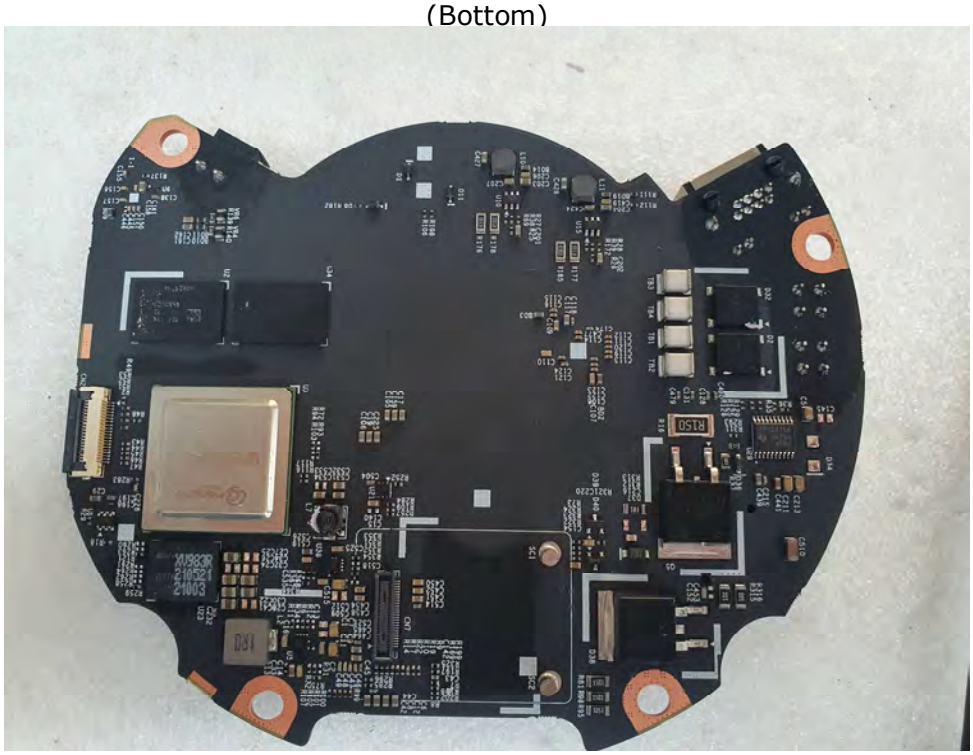


EUT Internal View – Board 1

(Top)

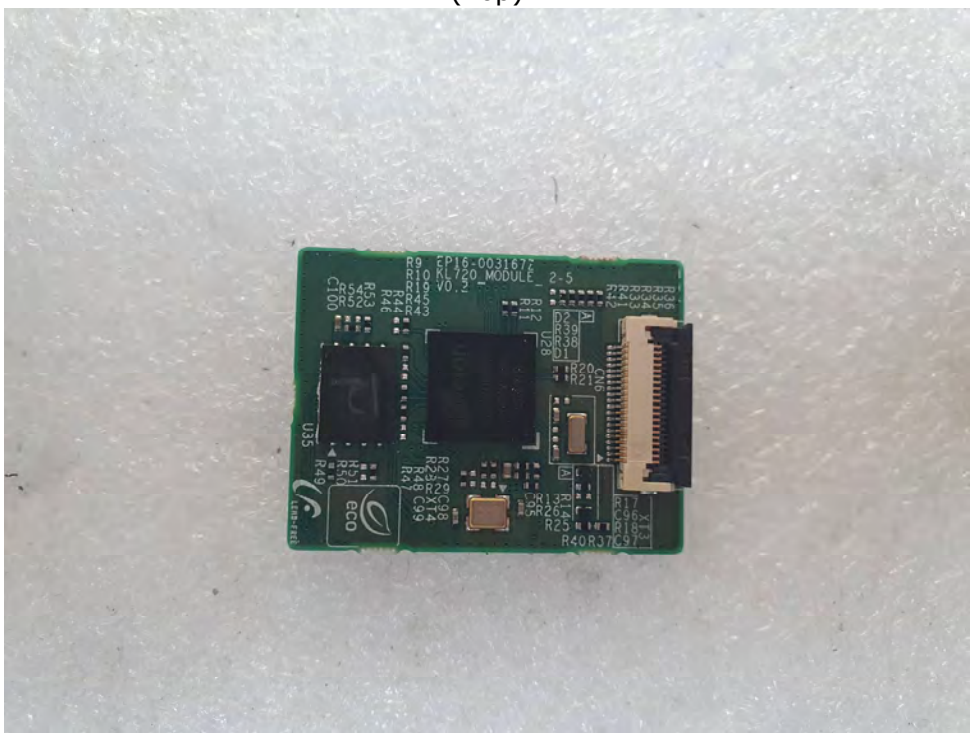


(Bottom)



EUT Internal View – Board 2

(Top)



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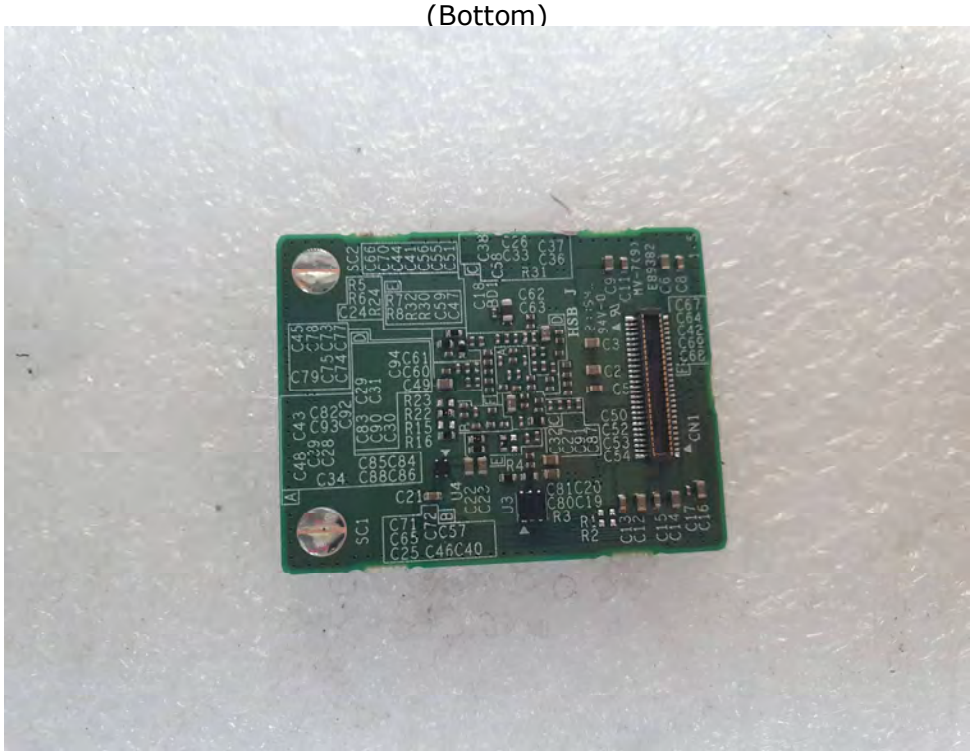
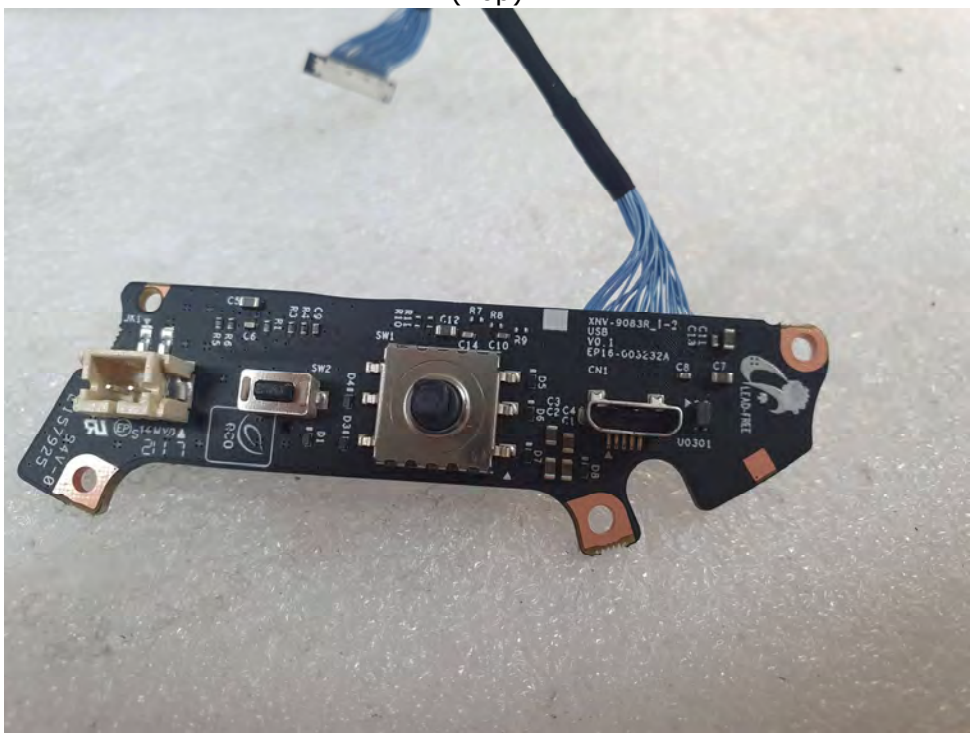
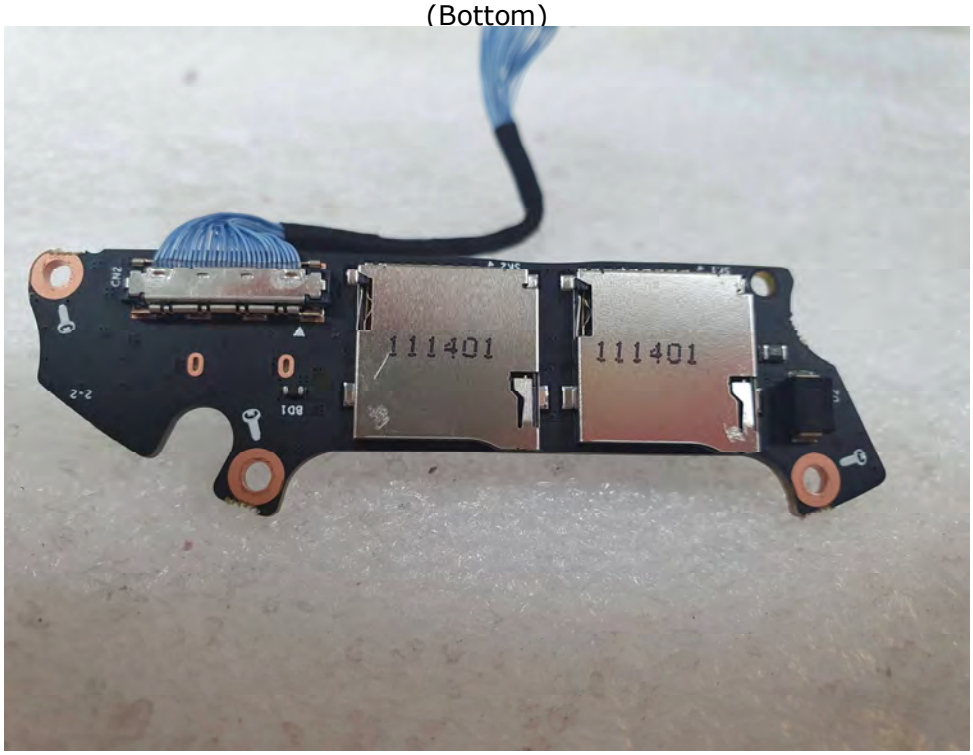


EUT Internal View – Board 3

(Top)



(Bottom)



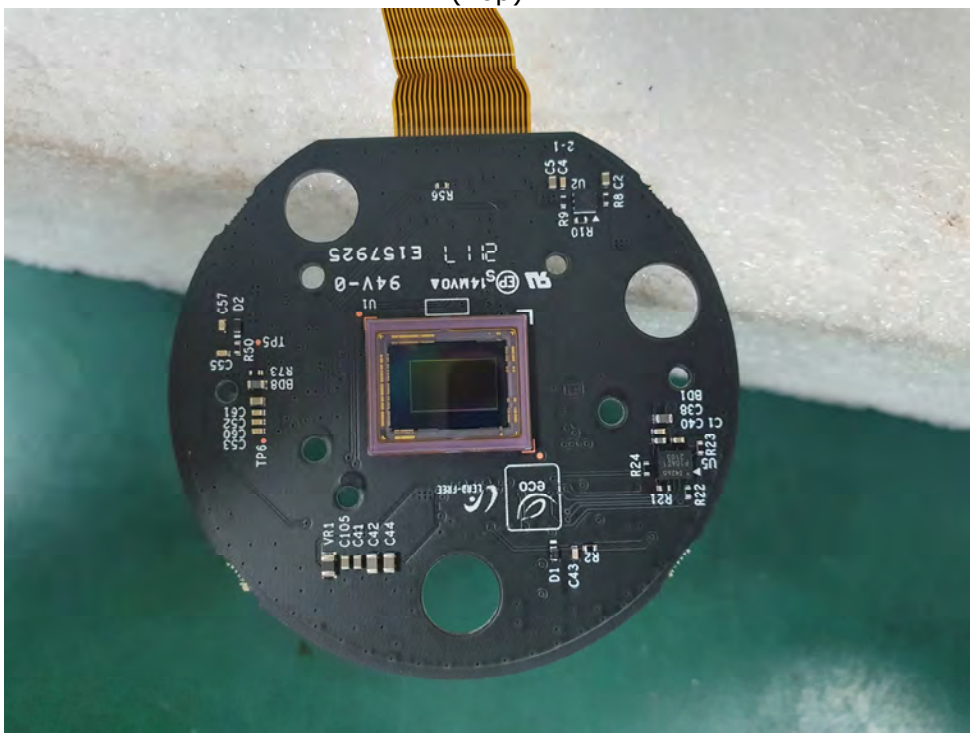
EUT Internal View – Board 4

(Top)

(Bottom)

EUT Internal View – Board 5

(Top)



(Bottom)