EMC TEST REPORT For RCM

Test Report No.	:	KES-EM-22T0665-R1
Date of Issue	:	Feb. 24, 2023
Product name	:	NETWORK CAMERA
Model/Type No.	:	XND-8083RV
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)
Date of Receipt	:	Jul. 08, 2022
Test date	:	Jul. 11, 2022 ~ Jul. 12, 2022
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Seon Ho, Choi
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
Aug. 02, 2022	KES-EM-22T0665	Issued
Feb. 24, 2023	KES-EM-22T0665-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:

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)
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
Lens	
Focal Length (Zoom Ratio)	4.4~9.3mm(2.1x) motorized varifocal
Max. Aperture Ratio	F1.3
Angular Field of View	H : 112.1°(Wide)~47.5°(Tele) V : 58.0°(Wide)~26.6°(Tele) D : 137.5°(Wide)~54.6°(Tele)
Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple focus, Manual
Lens Type	P-iris(IR corrected)
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0°~360° / -45°~85° / 0°~355°(TBD)
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
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
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/built-in MIC) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
IR Viewable Length	WiseIR 50m(164.04ft)(TBD)
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	-25 °C ~ 50 °C(-13°F ~ +122°F) * Maximum temperature : +55°C (intermittent) 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	IP52/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	Ø160x125mm(6.30x4.92"), 1.6kg(3.53 lb) (TBD)
Compatible Conduit hole / Gangbox	1/2" (M20) single, double, 4" octagon, 4" square
Hanging Mount (Dome)	SBP-167HMW
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 44.8m(147.02ft) / Tele: 151.3m(496.29ft)
Observe (63PPM/ 19PPF)	Wide: 17.9m(58.81ft) / Tele: 60.5m(198.52ft)
Recognize (125PPM/ 38PPF)	Wide: 9.0m(29.4ft) / Tele: 30.3m(99.26ft)
Identify (250PPM/ 76PPF)	Wide: 4.5m(14.7ft) / Tele: 15.1m(49.63ft)

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	XND-8083RV	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC/DC Adapter	2ACB022F	-	ChAnnel Well Technology (Guangzhou) Co.,Ltd.	-
PoE Adapter	PSE156G	-	-	-
Notebook	LG15N54	410NZGK015231	LG Electronics Inc.	-
Notebook Adapter	ADP-90WH B	84ZW19F1663	DELTA ELECTRONICS (JIANGSU) LTD.	-
Alarm	PRO-SL	-	SENSOR PRO	-
Button Alarm	-	-	-	-
Headset	K550	-	Britz®	-
SmartPhone	SM-N920S	-	Samsung	-
Micro SD Card	-	-	SanDisk	-

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	AC/DC Adapter	2 Pin	1.6	U
	RJ-45	Notebook	RJ-45	3.0	S
	Alarm OUT	Alarm	Alarm IN	4.0	U
	Alarm IN	Button Alarm	Alarm OUT	3.5	U
	3.5 ㎜	Headset	3.5 ㎜	1.8	U
	3.5 ㎜		3.5 ㎜	1.8	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
Notebook	3.5 ㎜	SmartPhone	3.5 ㎜	1.1	U
	DC Jack	Notebook Adapter	DC Jack	1.9	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 Adapter	RJ-45(PoE)	3.0	S
	Alarm OUT	Alarm	Alarm IN	4.0	U
	Alarm IN	Button Alarm	Alarm OUT	3.5	U
	3.5 ㎜	Headset	3.5 ㎜	1.8	U
	3.5 ㎜		3.5 ㎜	1.8	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
PoE Adapter	RJ-45(PoE)	Notebook	RJ-45(LAN)	2.0	S
Notebook	3.5 ㎜	SmartPhone	3.5 ㎜	1.1	U
	DC Jack	Notebook Adapter	DC Jack	1.9	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

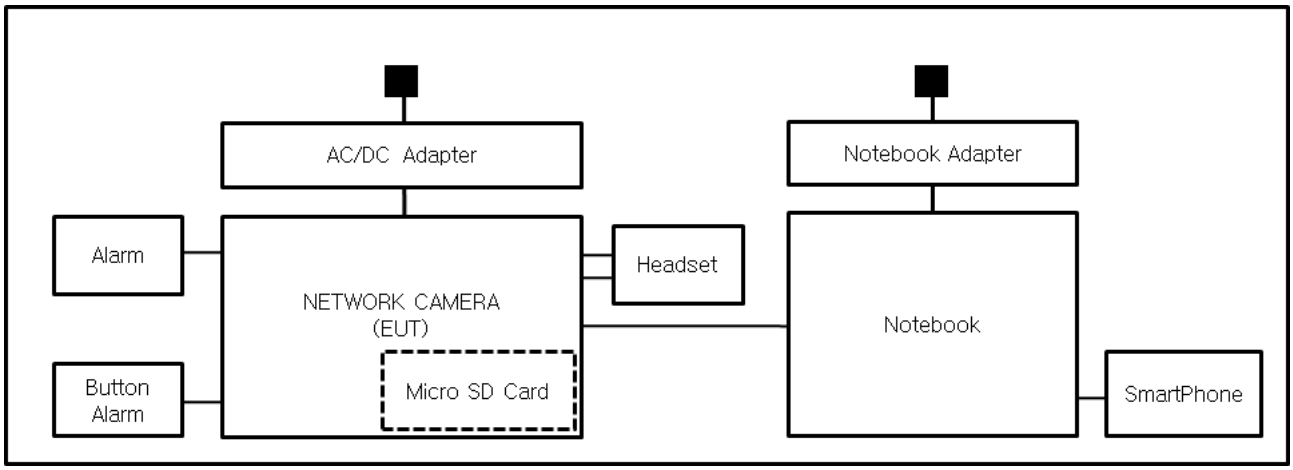
Test Mode	operating
DC Mode	Check the Normal Operation status. after testing, check if the recording is normally done on the Micro SD Card
PoE Mode	

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

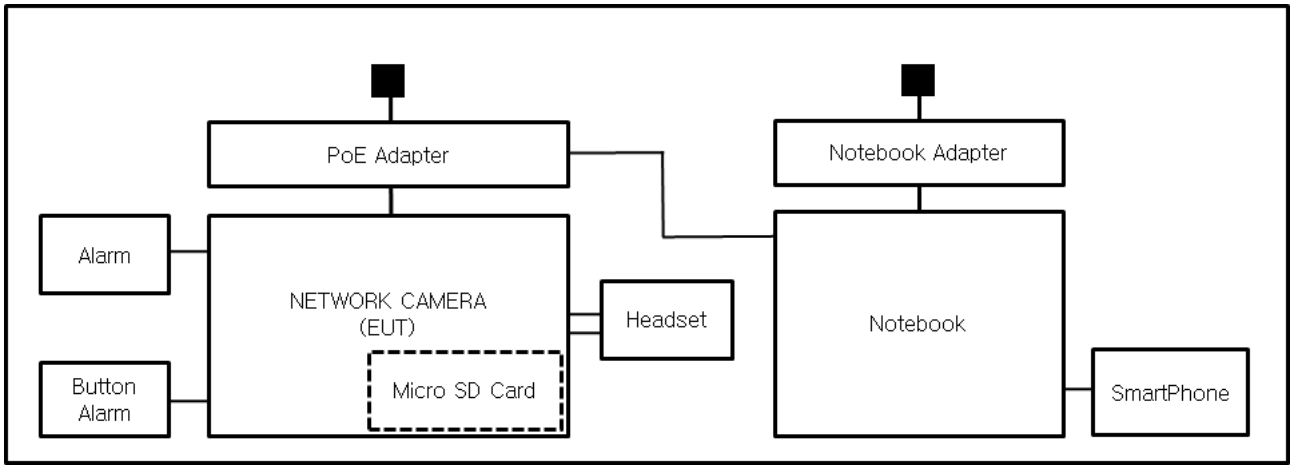
1.8 Configuration

■ AC Main
□ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

The USB, VIDEO ports were excluded from the test as administrator ports.

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, 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:

☒ **AS/NZS CISPR 32:2015 AMD 1:2020** ☒ Class A ☐ Class B

2.1 Conducted Emissions at Mains Power Ports

Test Date
Jul. 11, 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: (24,7 ± 0,2) ℃
Relative Humidity: (44,8 ± 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
Jul. 11, 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
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 07, 2023
☐	CDN	CDNS502A	TESEQ	40431	12, 27, 2022

Test Conditions
Temperature: (24,7 ± 0,2) ℃
Relative Humidity: (44,8 ± 0,2) % 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.
- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.

2.3 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Jul. 11, 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: (24,5 ± 0,3) ℃
Relative Humidity: (44,3 ± 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.

2.4 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Jul. 12, 2022

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, 03, 2022
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 01, 2023
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 03, 2023

Test Conditions
Temperature: (24,2 ± 0,5) ℃
Relative Humidity: (44,1 ± 0,3) % 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

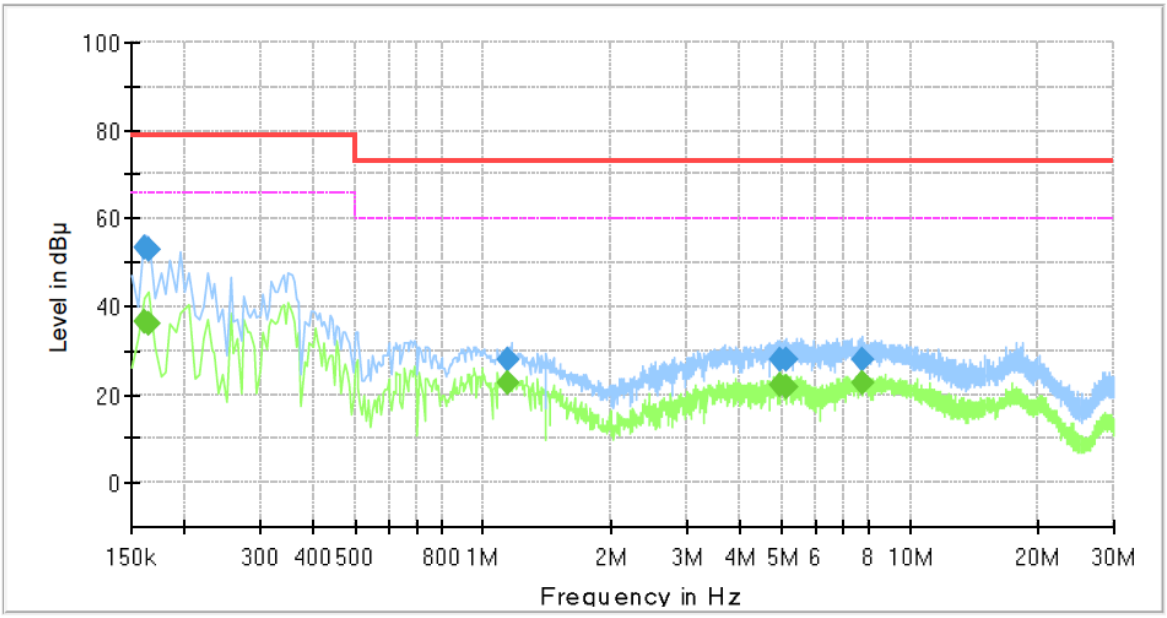
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XND-8083RV
Phase:	H
Mode:	
Operator Name:	KES



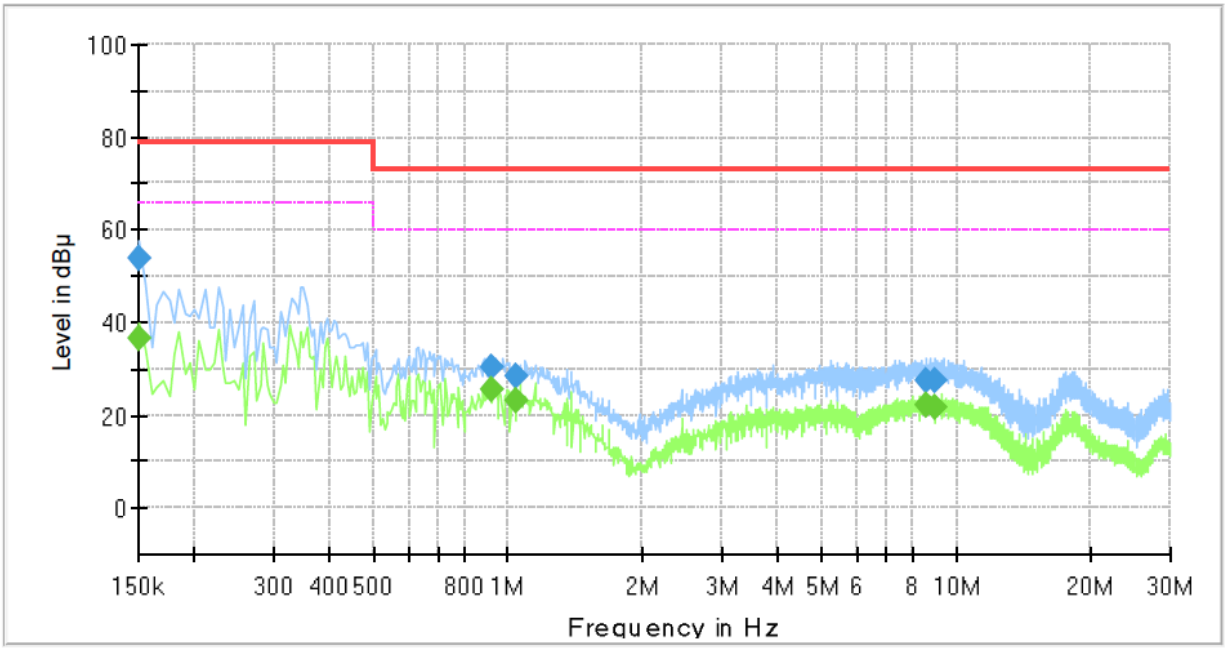
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	36.51	66.00	29.49	1000.0	9.000	L1	19.4
0.160000	53.38	---	79.00	25.62	1000.0	9.000	L1	19.4
0.165000	---	36.28	66.00	29.72	1000.0	9.000	L1	19.4
0.165000	52.74	---	79.00	26.26	1000.0	9.000	L1	19.4
1.135000	---	22.62	60.00	37.38	1000.0	9.000	L1	20.1
1.135000	28.16	---	73.00	44.84	1000.0	9.000	L1	20.1
4.950000	---	22.01	60.00	37.99	1000.0	9.000	L1	19.6
4.950000	27.90	---	73.00	45.10	1000.0	9.000	L1	19.6
5.130000	---	21.67	60.00	38.33	1000.0	9.000	L1	19.6
5.130000	27.78	---	73.00	45.22	1000.0	9.000	L1	19.6
7.735000	---	22.53	60.00	37.47	1000.0	9.000	L1	19.6
7.735000	27.86	---	73.00	45.14	1000.0	9.000	L1	19.6

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XND-8083RV
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)
0.150000	---	36.63	66.00	29.37	1000.0	9.000	N	19.4
0.150000	54.12	---	79.00	24.88	1000.0	9.000	N	19.4
0.915000	---	25.33	60.00	34.67	1000.0	9.000	N	20.1
0.915000	30.27	---	73.00	42.73	1000.0	9.000	N	20.1
1.035000	---	23.16	60.00	36.84	1000.0	9.000	N	20.1
1.035000	28.52	---	73.00	44.48	1000.0	9.000	N	20.1
8.540000	---	22.15	60.00	37.85	1000.0	9.000	N	19.7
8.540000	27.41	---	73.00	45.59	1000.0	9.000	N	19.7
8.975000	---	21.87	60.00	38.13	1000.0	9.000	N	19.7
8.975000	27.36	---	73.00	45.64	1000.0	9.000	N	19.7

♦ 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))

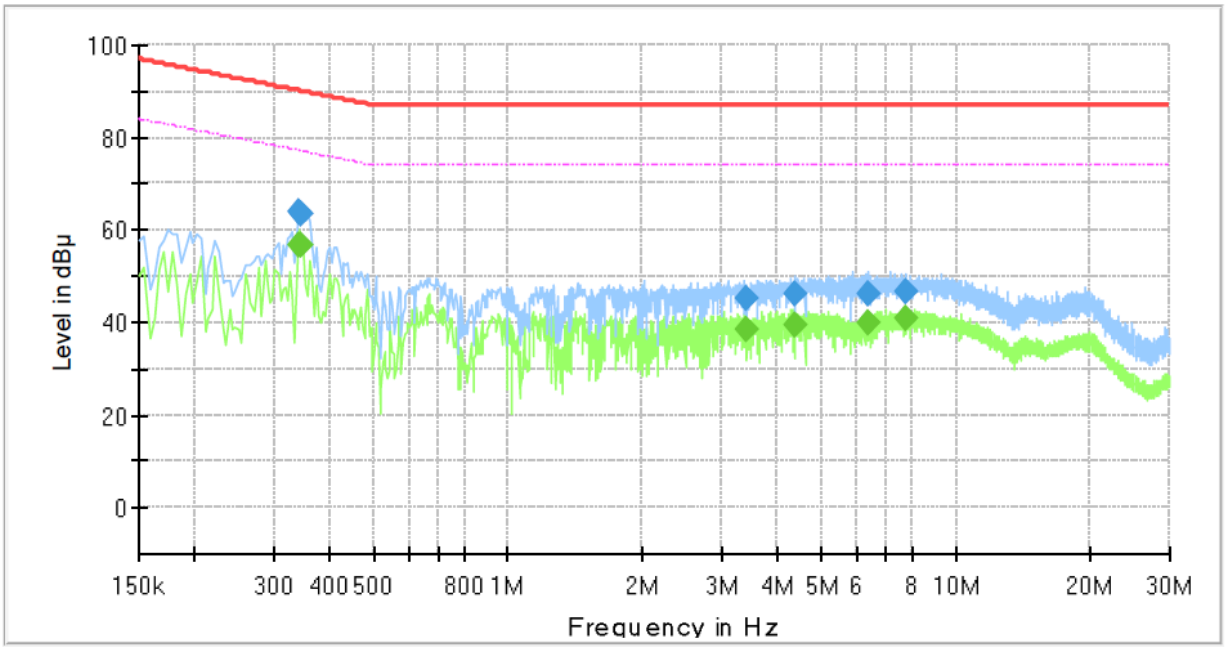
Conducted Emissions at Telecommunication Ports

■ DC Mode

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XND-8083RV
Mode :	DC
Speed :	1 000 Mbps
Operator Name:	KES



Final_Result

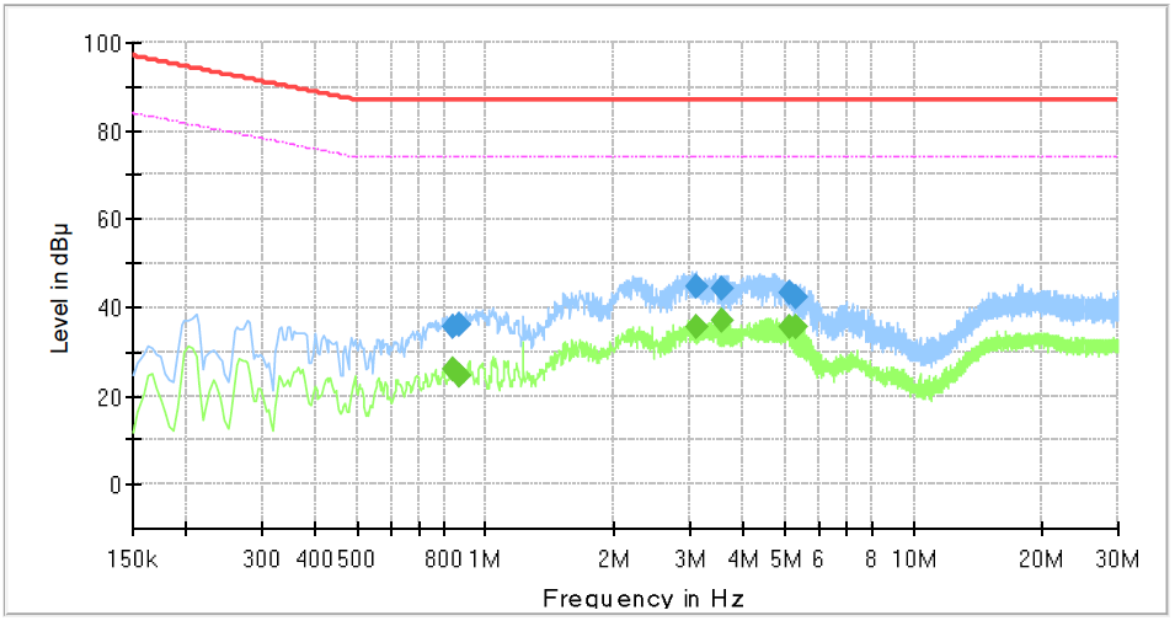
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.342000	---	56.70	77.15	20.45	1000.0	9.000	Single Line	19.3
0.342000	63.86	---	90.15	26.29	1000.0	9.000	Single Line	19.3
0.346000	---	56.98	77.06	20.08	1000.0	9.000	Single Line	19.3
0.346000	63.72	---	90.06	26.34	1000.0	9.000	Single Line	19.3
3.394000	---	38.69	74.00	35.31	1000.0	9.000	Single Line	19.9
3.394000	45.41	---	87.00	41.59	1000.0	9.000	Single Line	19.9
4.394000	---	39.70	74.00	34.30	1000.0	9.000	Single Line	19.6
4.394000	46.02	---	87.00	40.98	1000.0	9.000	Single Line	19.6
6.402000	---	39.73	74.00	34.27	1000.0	9.000	Single Line	19.3
6.402000	46.00	---	87.00	41.00	1000.0	9.000	Single Line	19.3
7.690000	---	40.93	74.00	33.07	1000.0	9.000	Single Line	19.4
7.690000	46.49	---	87.00	40.51	1000.0	9.000	Single Line	19.4

■ PoE Mode

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XND-8083RV
Mode :	PoE
Speed :	1 000 Mbps
Operator Name:	KES



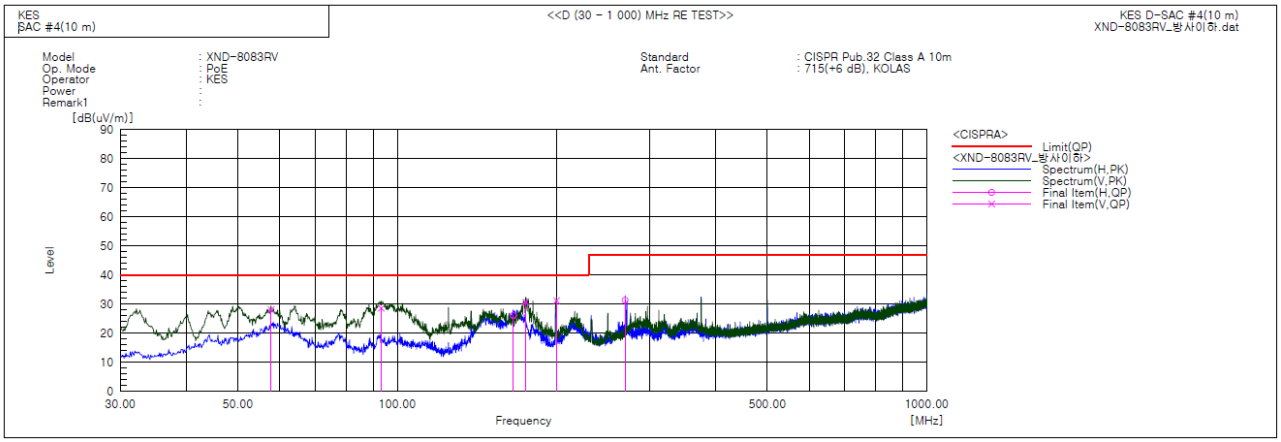
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.842000	---	25.84	74.00	48.16	1000.0	9.000	Single Line	19.9
0.842000	35.73	---	87.00	51.27	1000.0	9.000	Single Line	19.9
0.866000	---	24.54	74.00	49.46	1000.0	9.000	Single Line	19.9
0.866000	36.05	---	87.00	50.95	1000.0	9.000	Single Line	19.9
3.110000	---	35.62	74.00	38.38	1000.0	9.000	Single Line	20.0
3.110000	44.61	---	87.00	42.39	1000.0	9.000	Single Line	20.0
3.574000	---	37.25	74.00	36.75	1000.0	9.000	Single Line	19.9
3.574000	44.07	---	87.00	42.93	1000.0	9.000	Single Line	19.9
5.130000	---	35.47	74.00	38.53	1000.0	9.000	Single Line	19.5
5.130000	43.50	---	87.00	43.50	1000.0	9.000	Single Line	19.5
5.326000	---	35.70	74.00	38.30	1000.0	9.000	Single Line	19.4
5.326000	42.32	---	87.00	44.68	1000.0	9.000	Single Line	19.4

♦ 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 ㎓)

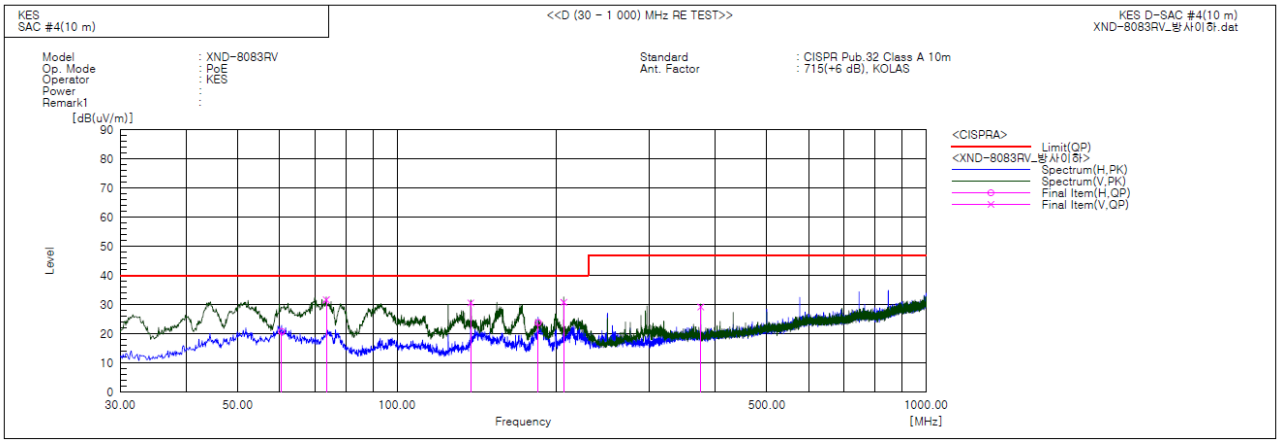
■ DC Mode



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	57.766	V	49.8	-21.7	28.1	40.0	11.9	109.0	179.7	
2	93.293	V	52.3	-23.7	28.6	40.0	11.4	116.0	106.4	
3	165.679	H	50.5	-24.4	26.1	40.0	13.9	400.0	232.7	
4	174.773	V	54.6	-23.9	30.7	40.0	9.3	100.0	288.6	
5	199.871	V	52.2	-21.0	31.2	40.0	8.8	197.0	35.0	
6	269.469	H	50.1	-18.8	31.3	47.0	15.7	308.0	306.3	

■ 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	60.555	H	42.9	-22.1	20.8	40.0	19.2	305.0	346.2	
2	73.529	V	58.0	-26.3	31.7	40.0	8.3	121.0	287.6	
3	137.913	V	56.1	-25.5	30.6	40.0	9.4	102.0	86.3	
4	184.836	H	46.8	-22.9	23.9	40.0	16.1	302.0	346.2	
5	206.661	V	51.6	-20.8	30.8	40.0	9.2	196.0	63.5	
6	374.956	V	44.0	-14.8	29.2	47.0	17.8	100.0	177.4	

♦ Calculation

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

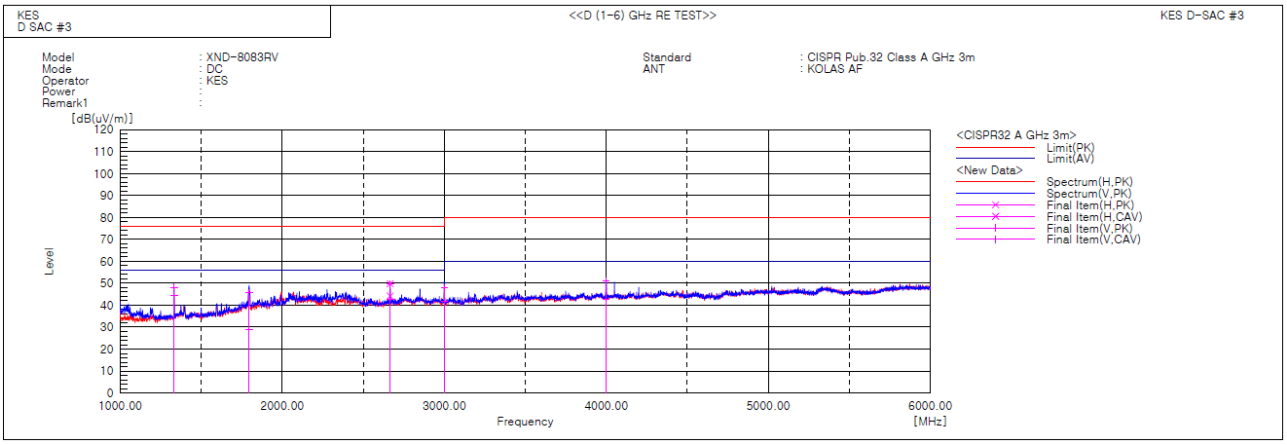
Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

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 ㎓)

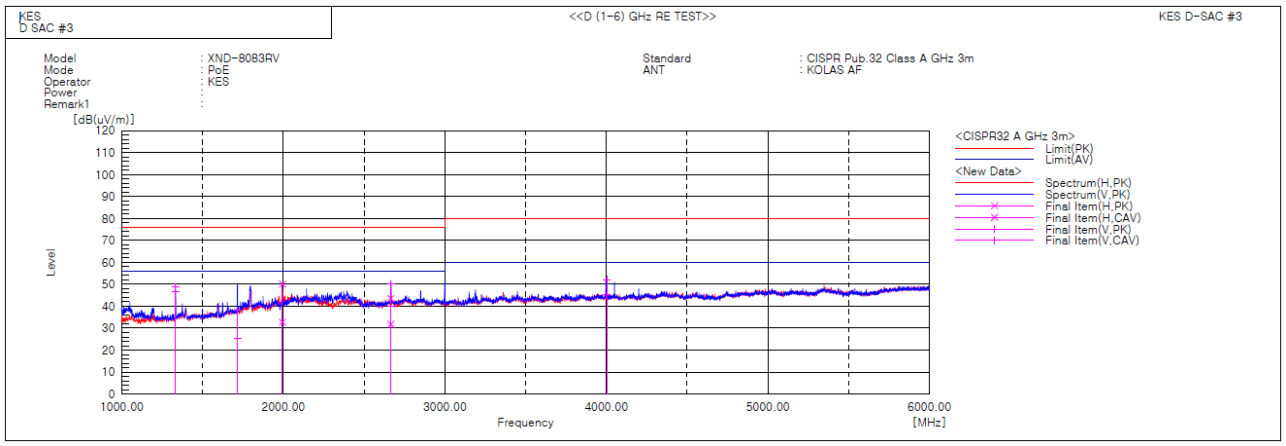
■ DC Mode



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	1333.118	V	55.2	51.5	-7.0	48.2	44.5	76.0	56.0	27.8	11.5	100.0	355.9	
2	1795.065	V	47.8	31.2	-2.2	45.6	29.0	76.0	56.0	30.4	27.0	100.0	161.3	
3	2666.195	H	48.5	42.9	1.3	49.8	44.2	76.0	56.0	26.2	11.8	100.0	313.9	
4	2666.778	V	48.3	41.2	1.3	49.6	42.5	76.0	56.0	26.4	13.5	100.0	11.2	
5	3000.916	V	45.7	39.4	2.2	47.9	41.6	80.0	60.0	32.1	18.4	100.0	106.9	
6	3999.128	V	45.3	36.7	5.8	51.1	42.5	80.0	60.0	28.9	17.5	100.0	73.5	

■ 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	1333.156	V	55.8	53.6	-7.0	48.8	46.6	76.0	56.0	27.2	9.4	100.0	38.7	
2	1716.996	V	41.5	28.7	-3.3	38.2	25.4	76.0	56.0	37.8	30.6	100.0	38.7	
3	1995.175	H	51.2	33.9	-1.1	50.1	32.8	76.0	56.0	25.9	23.2	100.0	167.7	
4	2666.354	H	42.2	30.5	1.3	43.5	31.8	76.0	56.0	32.5	24.2	100.0	182.9	
5	2666.716	V	48.9	38.6	1.3	50.2	39.9	76.0	56.0	25.8	16.1	100.0	355.8	
6	4001.851	V	46.3	39.3	5.8	52.1	45.1	80.0	60.0	27.9	14.9	100.0	69.9	

♦ Calculation
Result(PK/CAV) [㏈(㎶/m)] = (Reading(PK/CAV)[㏈(㎶)] + c.f[㏈(1/m)]
Margin(PK/CAV)[㏈] = Limit[㏈(㎶/m)] - Result(PK/CAV) [㏈(㎶/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

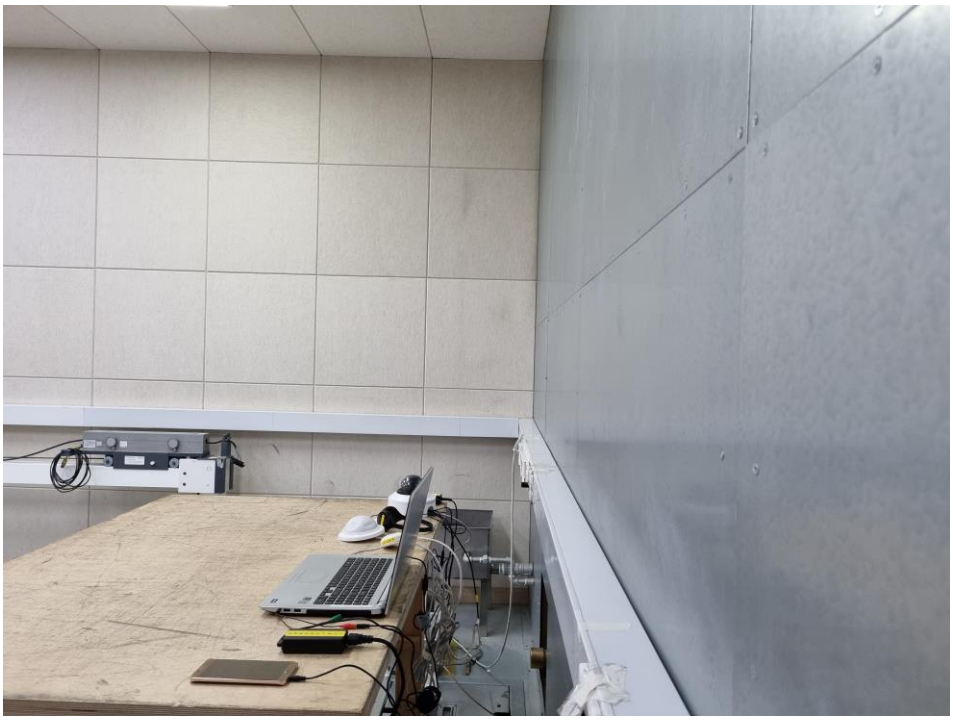
Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

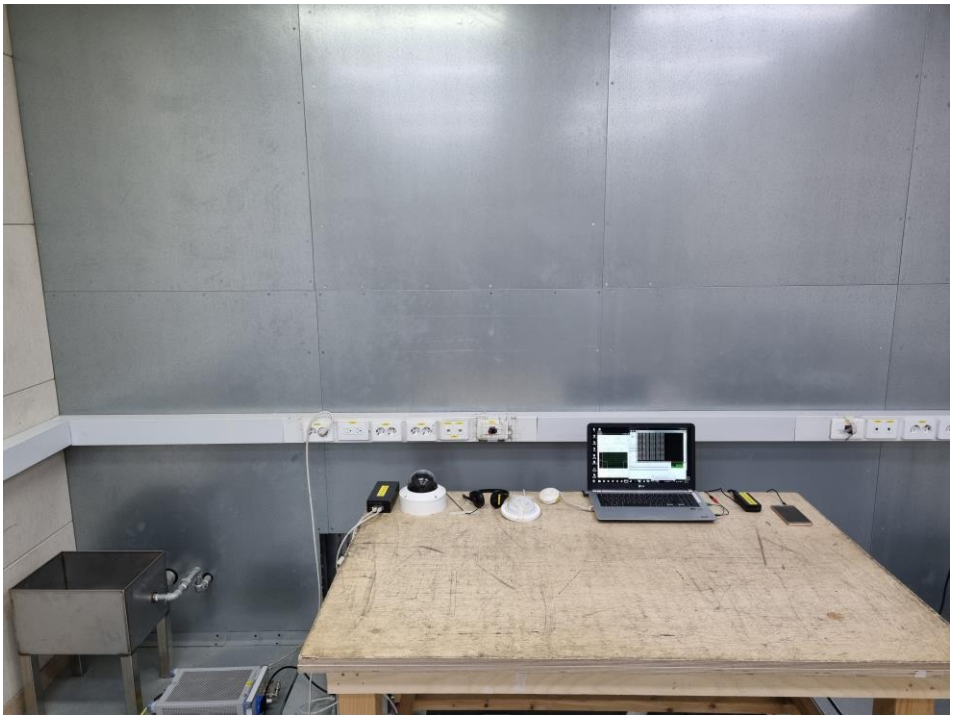
■ DC Mode

Conducted Emissions at Telecommunication Ports

■ DC Mode

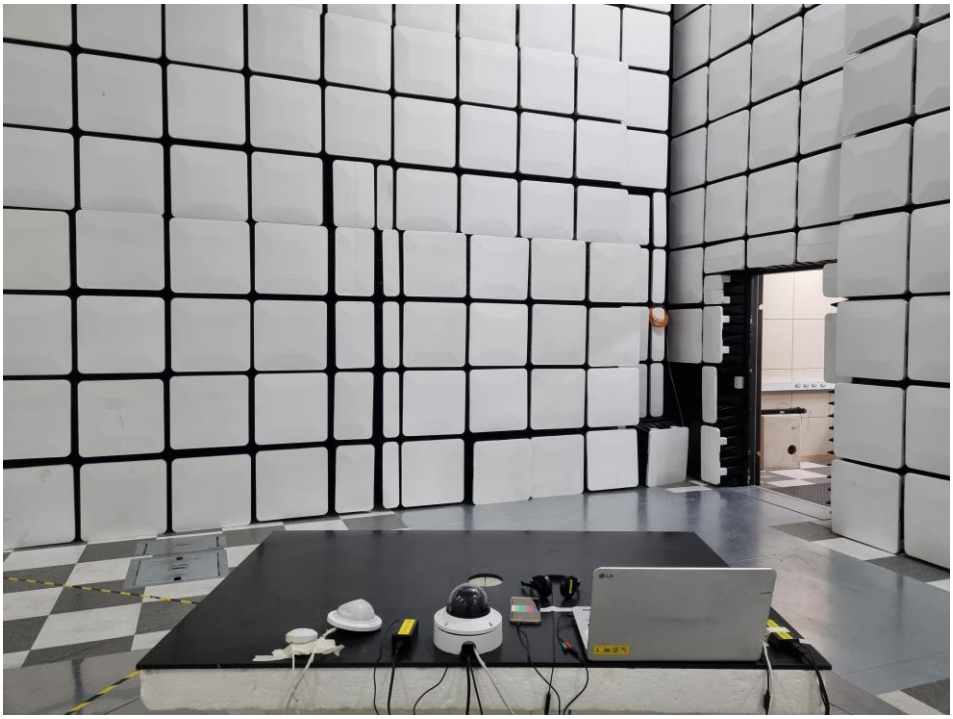


■ PoE Mode

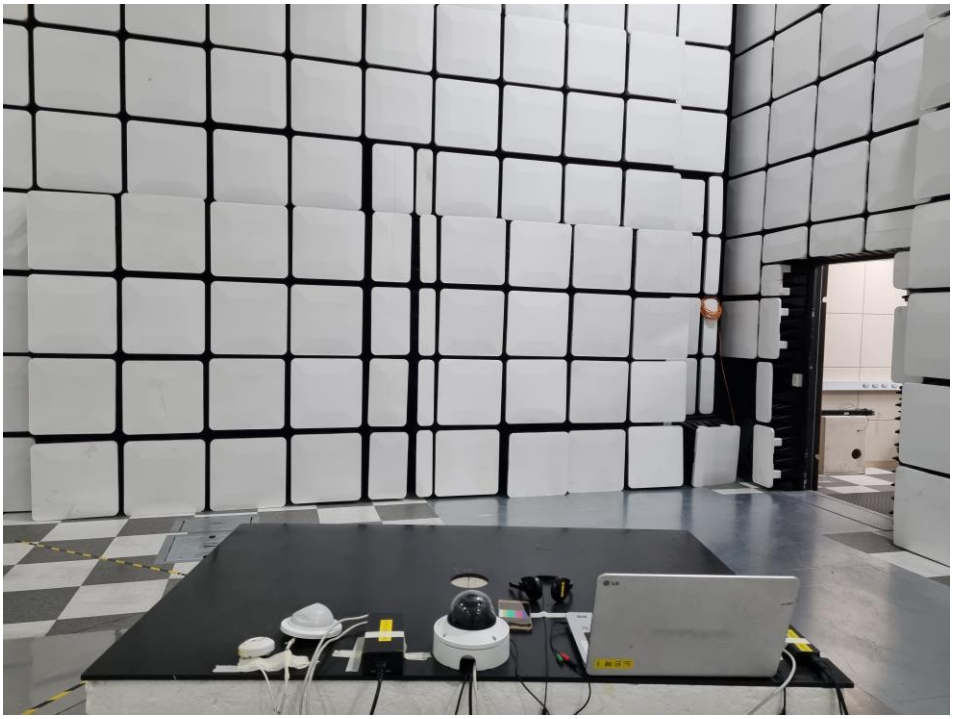


Radiated Electric Field Emissions(Below 1 ㎓)

■ DC Mode

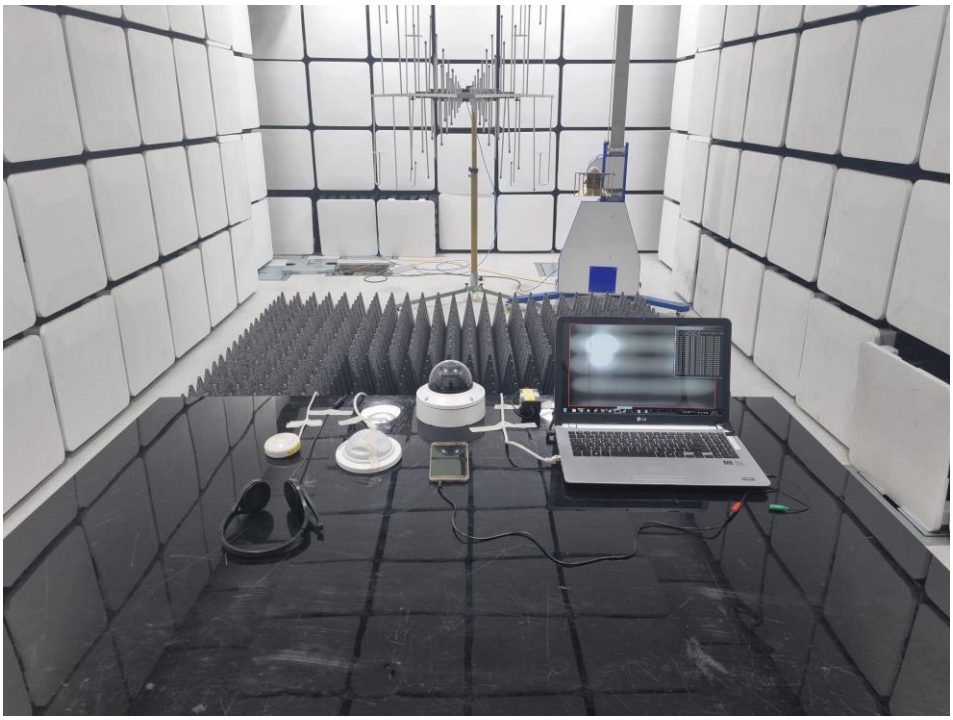


■ PoE Mode

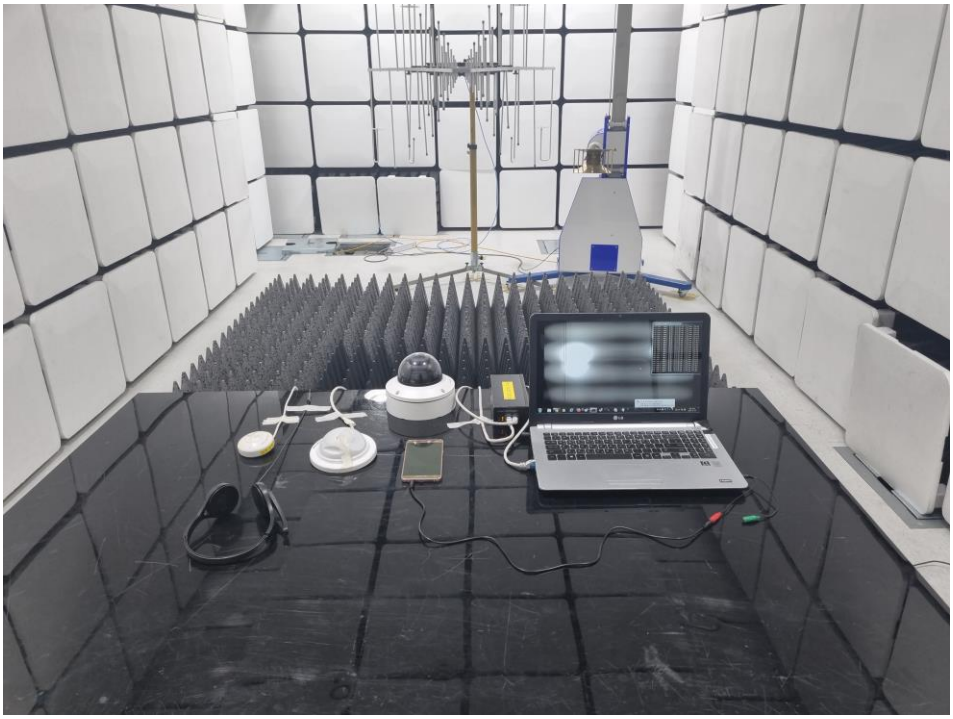


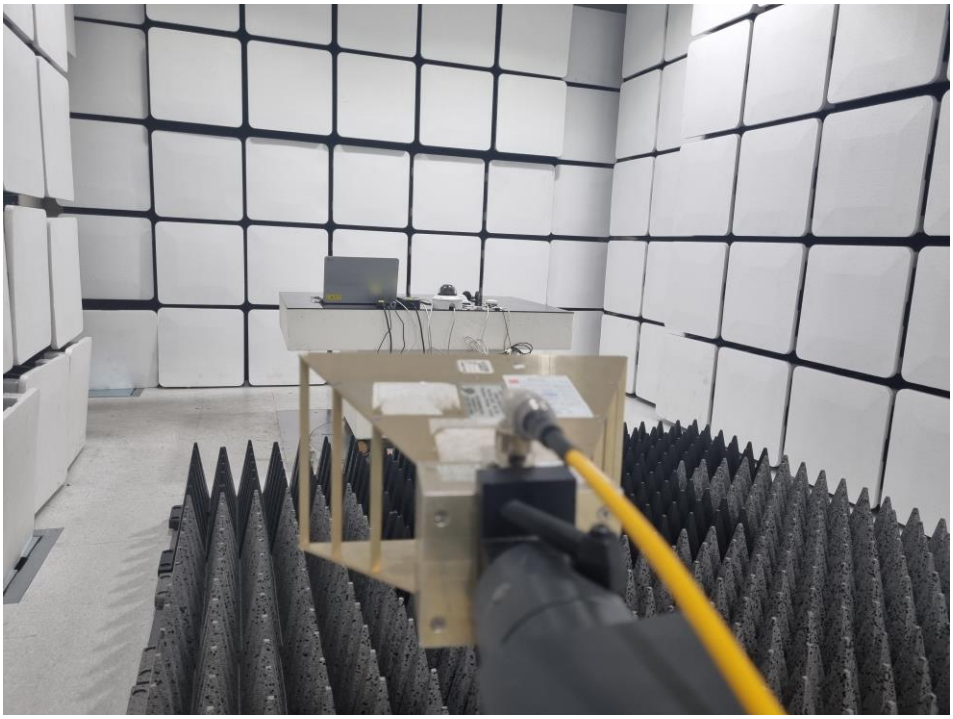
Radiated Electric Field Emissions(Above 1 ㎓)

■ DC Mode



■ PoE Mode





EUT External Photographs

(Top)

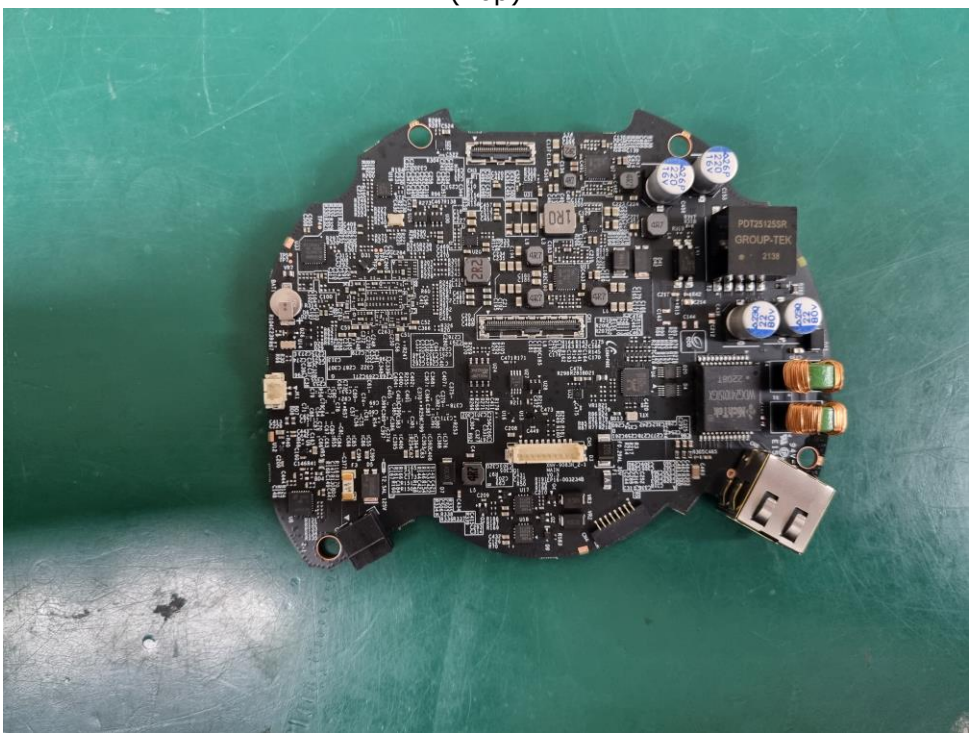
(Bottom)

EUT Internal Photographs

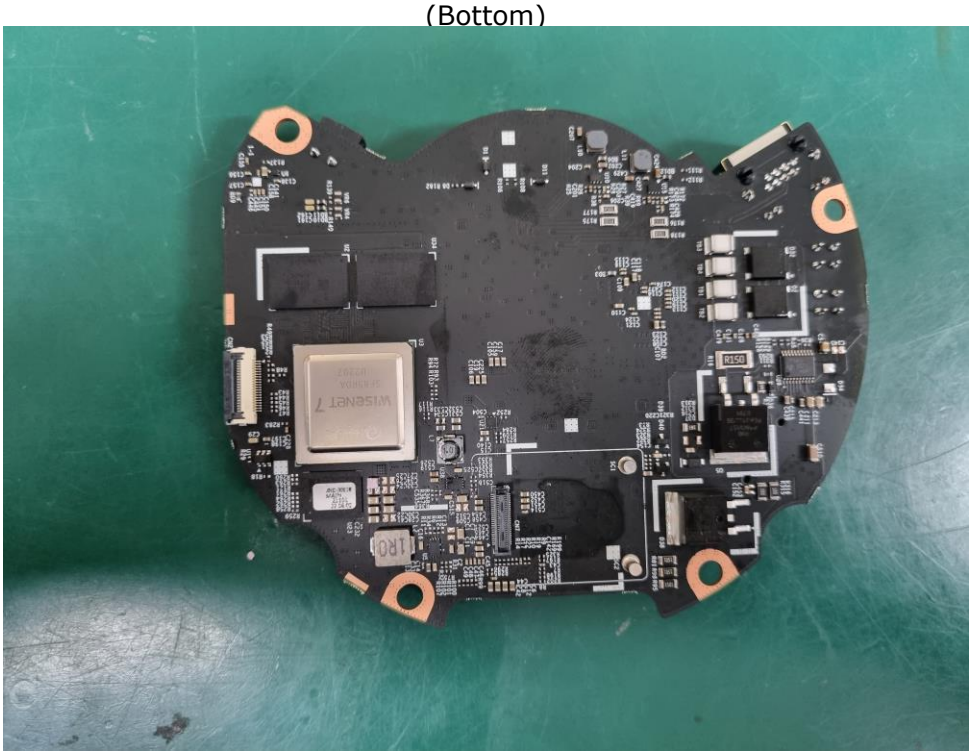
(Internal View)

EUT Internal View – Board 1

(Top)

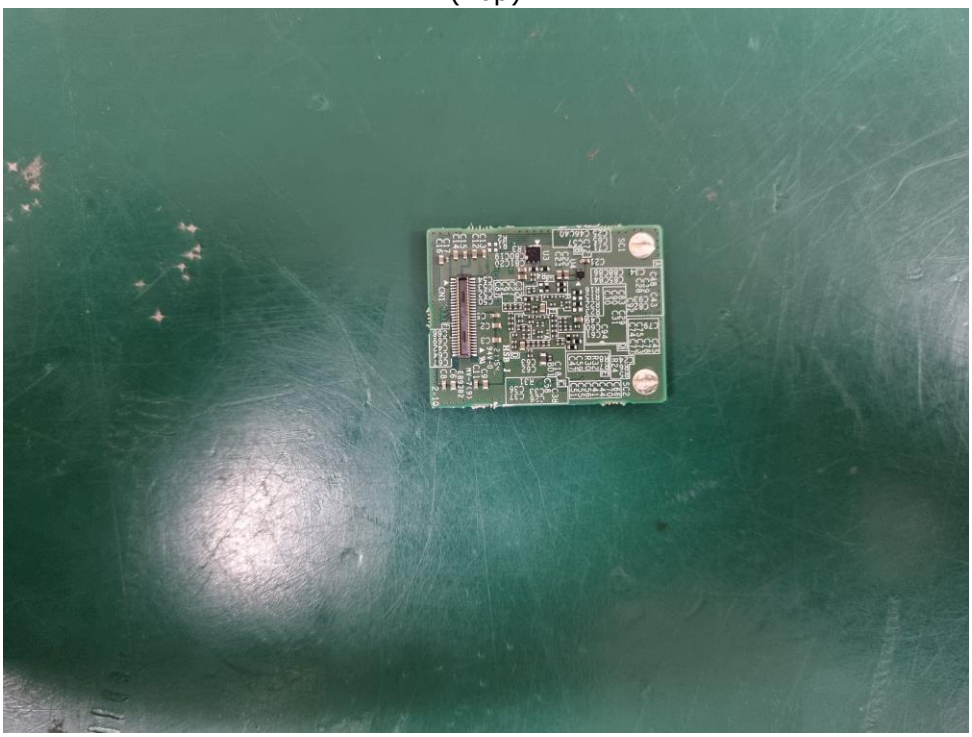


(Bottom)

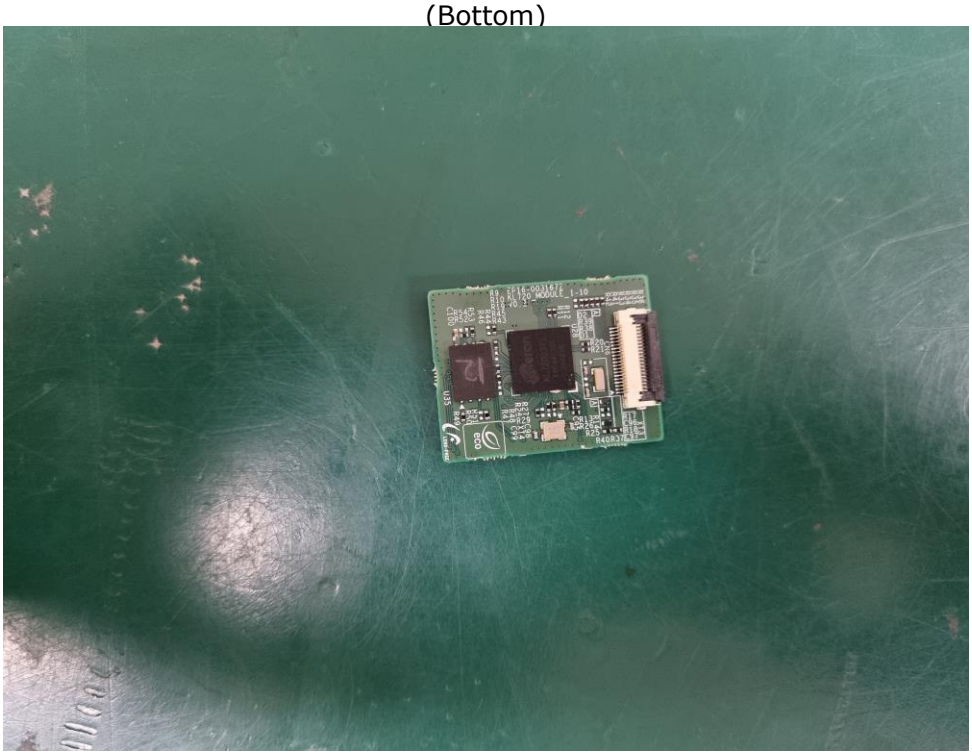


EUT Internal View – Board 2

(Top)

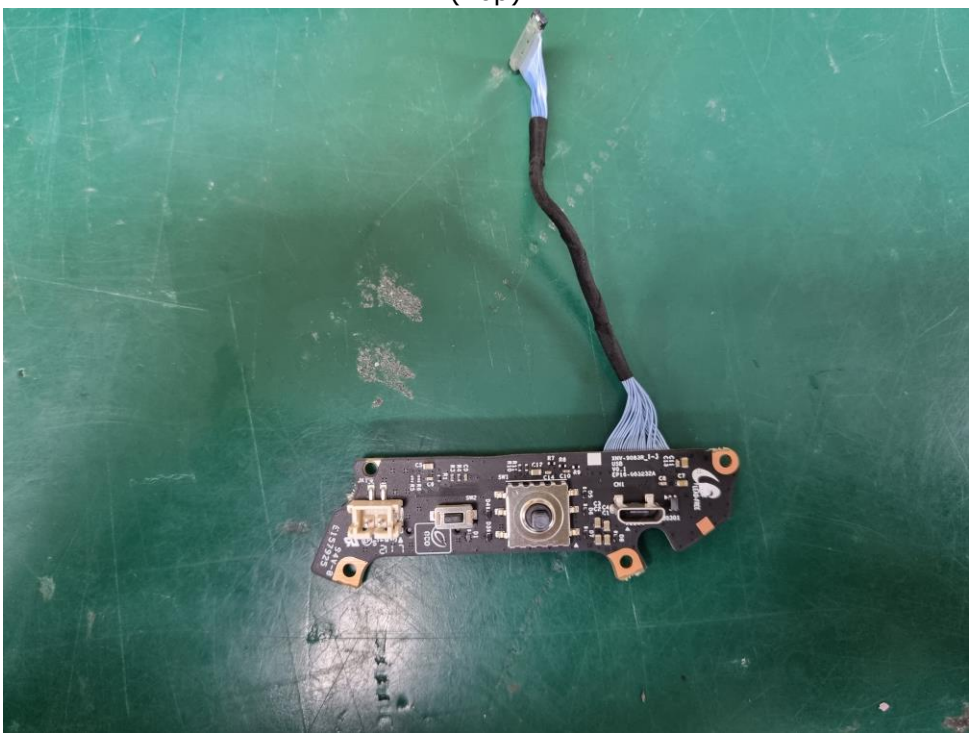


(Bottom)

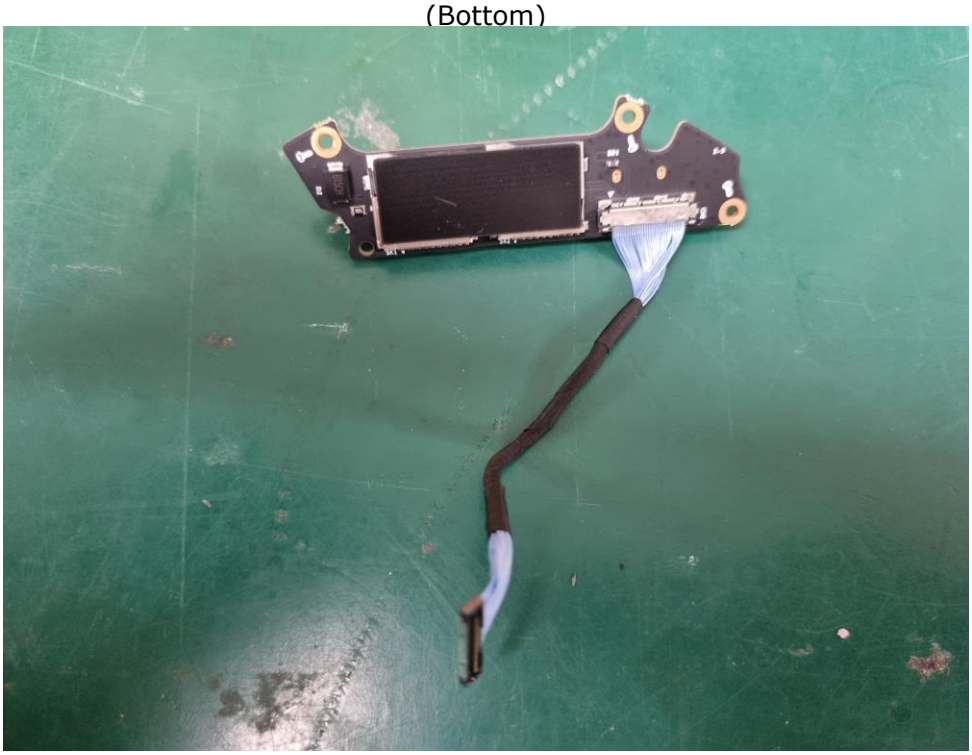


EUT Internal View – Board 3

(Top)



(Bottom)



EUT Internal View – Board 4

(Top)

(Bottom)

EUT Internal View – Lens Board

(Top)

(Bottom)