



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0593-R1

Page (1) of (44)

EMC TEST REPORT For RCM

Test Report No. : KES-EM-22T0593-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : XNO-6123R
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. 08, 2022 ~ Jul. 12, 2022
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Ju-Won, Yun
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.



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:
KES-EM-22T0593-R1
Page (2) of (44)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jul. 20, 2022	KES-EM-22T0593	Issued
Feb. 24, 2023	KES-EM-22T0593-R1	Change the Applicant and manufacturer at the request of the customer

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:
KES-EM-22T0593-R1
Page (3) of (44)

TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	7
1.2	Variant Model Differences	7
1.3	Device Modifications	7
1.4	Equipment Under Test.....	7
1.5	Support Equipments	8
1.6	External I/O Cabling	8
1.7	EUT Operating Mode(s)	9
1.8	Configuration	10
1.9	Remarks when standards applied	11
1.10	Calibration Details of Equipment Used for Measurement	11
1.11	Test Facility.....	11
1.12	Laboratory Accreditations and Listings	12
2.0	Test Regulations.....	13
2.1	Conducted Emissions at Mains Power Ports	14
2.2	Conducted Emissions at Telecommunication Ports.....	15
2.3	Radiated Electric Field Emissions(Below 1 GHz).....	17
2.4	Radiated Electric Field Emissions(Above 1 GHz)	18
APPENDIX A – TEST DATA.....		19
Conducted Emissions at Mains Power Ports		19
Conducted Emissions at Telecommunication Ports		22
Radiated Electric Field Emissions(Below 1 GHz).....		24
Radiated Electric Field Emissions(Above 1 GHz).....		26
Test Setup Photos and Configuration		28
Conducted Emissions at Mains Power Ports		28
Conducted Emissions at Telecommunication Ports		29
Radiated Electric Field Emissions(Below 1 GHz).....		31
Radiated Electric Field Emissions(Above 1 GHz).....		33
EUT External Photographs.....		35
EUT Internal Photographs		36



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0593-R1

Page (4) of (44)

1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" CMOS
Resolution	1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 120fps/100fps(60Hz/50Hz)(WDR off) Max. 60fps/50fps(60Hz/50Hz)(WDR on) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.03Lux(F1.6, 1/30sec, 30IRE) B/W : 0.003Lux(F1.6, 1/30sec, 30IRE), 0Lux(IR LED on), 30/25fps Color: 0.06Lux(F1.6, 1/60sec, 30IRE) B/W : 0.006Lux(F1.6, 1/60sec, 30IRE), 0Lux(IR LED on), 60/50fps Color: 0.12Lux(F1.6, 1/120sec, 30IRE) B/W : 0.012Lux(F1.6, 1/120sec, 30IRE), 0Lux(IR LED on), 120/100fps
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)	5.2~62.4mm(12x) zoom (digital 32x, total 384x zoom)
Max. Aperture Ratio	F1.6(Wide) – F3.0(Tele)
Angular Field of View	H: 54.58°(Wide)~5.30°(Tele) V: 32.19°(Wide)~3.00°(Tele)
Min. Object Distance	1.5m(4.92ft)
Focus Control	Oneshot AF, Focus save
Lens Type	DC auto iris
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan Range	None
Pan Speed	None
Rotate Range	None
Sequence	Preset(300ea)
Preset Accuracy	None
Operational	
Camera Title	Displayed up to 85 characters
Direction Indicator	None
Day & Night	Auto(ICR)/Color/BW/Schedule
Backlight Compensation	BLC, HLC, WDR, SSDR
Wide Dynamic Range	extremeWDR(150dB)
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)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Analytics events based on AI engine – Object detection (Person/Face/Vehicle(car/truck/bus/bicycle/motorcycle)/Licence plate) – IVA (Virtual line/Area, Enter/Exit, Loitering, direction, appear/disappear, intrusion) Analytics events

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:
KES-EM-22T0593-R1
Page (5) of (44)

	- Defocus detection, Motion detection, Tampering, Fog detection, Audio detection, Sound classification, Shock detection
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
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 90m(295.28ft)
IR Illuminator (Optional)	None
Auto Tracking	None
Coaxial Protocol	None
Radiometry	
Temperature Detect Range	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(Sea area), WiseStream II, WiseStream III (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)
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 Secure OS/Boot/Storage, Verify firmware forgery
Application Programming Interface	ONVIF Profile S/G/T/M SUNAPI(HTTP API) Wisenet open platform
General	
Edge Storage	Micro SD/SDHC/SDXC 2slot Max. 1TB (512GB * 2)
Memory	2GB RAM, 512MB Flash
Environmental & Electrical	
Certification	IP66/67, IK10, NEMA4X, NEMA-TS 2(2.2.8, 2.2.9)
Input Voltage	PoE+(IEEE802.3at, Class4), 12VDC
Power Consumption	TBD Power redundancy failover
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 74.4m(244.19ft) / Tele: 829.7m(2721.97ft)
Observe (63PPM/ 19PPF)	Wide: 29.8m(97.68ft) / Tele: 331.9m(1088.79ft)

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:
KES-EM-22T0593-R1
Page (6) of (44)

Recognize (125PPM/ 38PPF)	Wide: 14.9m(48.84ft) / Tele: 165.9m(544.39ft)
Identify (250PPM/ 76PPF)	Wide: 7.4m(24.42ft) / Tele: 83.0m(272.20ft)

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr



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

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-6123R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
PoE Adapter	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co.,Ltd	-
Notebook	P95G001	9JM8HT2	DELL INC.	-
Notebook Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANGZHOU)CO.,LTD.	-
headset	K550	-	Britz®	-
Alarm	PRO-SL	-	SENSOR PRO	-
Button alarm	-	-	-	-
SmartPhone	SM-G977N	-	samsung electronics	-
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 INTERCOM (EUT)	RJ-45	Notebook	RJ-45	3.0	S
	DC IN	Adapter	DC OUT	1.2	U
	Alarm OUT	Alarm	Alarm IN	3.2	U
	Alarm IN	Button alarm	Alarm OUT	3.6	U
	3.5 mm	headset	3.5 mm	1.8	U
	3.5 mm	SmartPhone	3.5 mm	2.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	DC Jack	Notebook Adaptor	DC Jack	1.6	U

* Unshielded=U, Shielded=S



■ PoE MODE

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK INTERCOM (EUT)	RJ-45 (PoE)	PoE Adapter	RJ-45 (PoE)	3.0	U
	Alarm OUT	Alarm	Alarm IN	3.2	U
	Alarm IN	Button alarm	Alarm OUT	3.6	U
	3.5 mm	headset	3.5 mm	1.8	U
	3.5 mm	SmartPhone	3.5 mm	2.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	RJ-45 (LAN)	PoE Adapter	RJ-45 (LAN)	1.2	U
Notebook	DC Jack	Notebook Adaptor	DC Jack	1.6	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

■ DC / PoE MODE

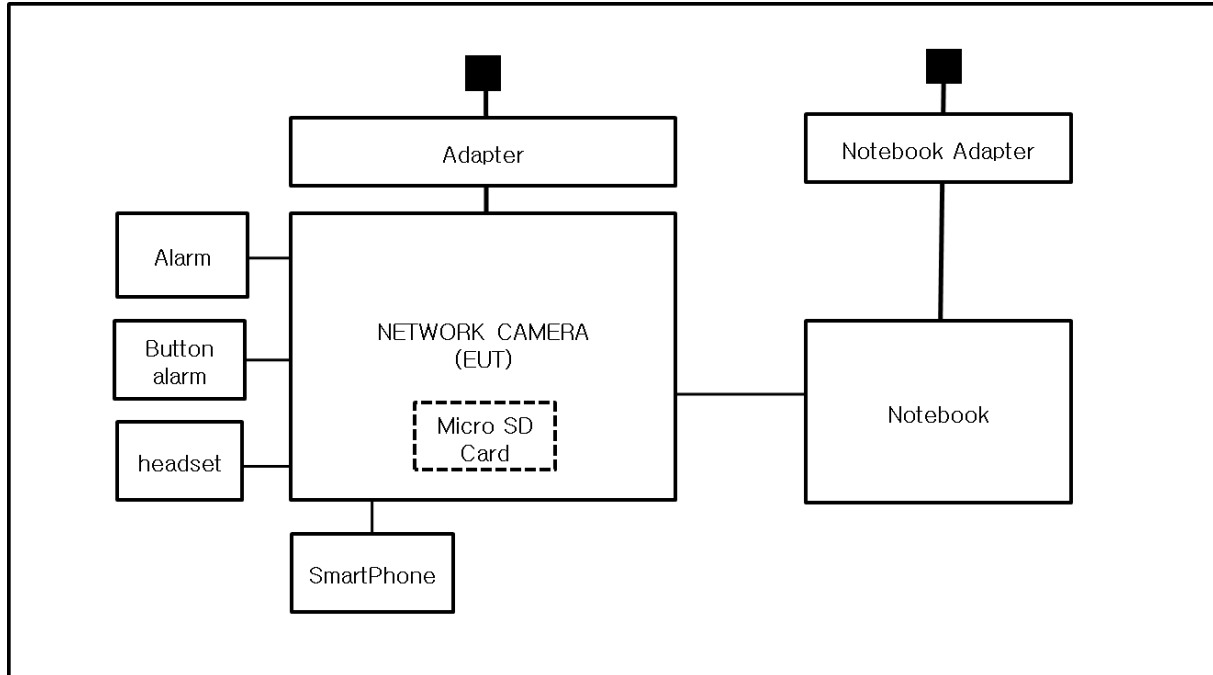
Test Mode	operating
Operation	Tested by checking camera video output from Web View of Notebook and checking whether it works normally while doing PING TEST. Tested by checking 1KHz tone output of the Smart Phone on headset and Before and after the test, it was checked whether it was recorded on the micro sd card.

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

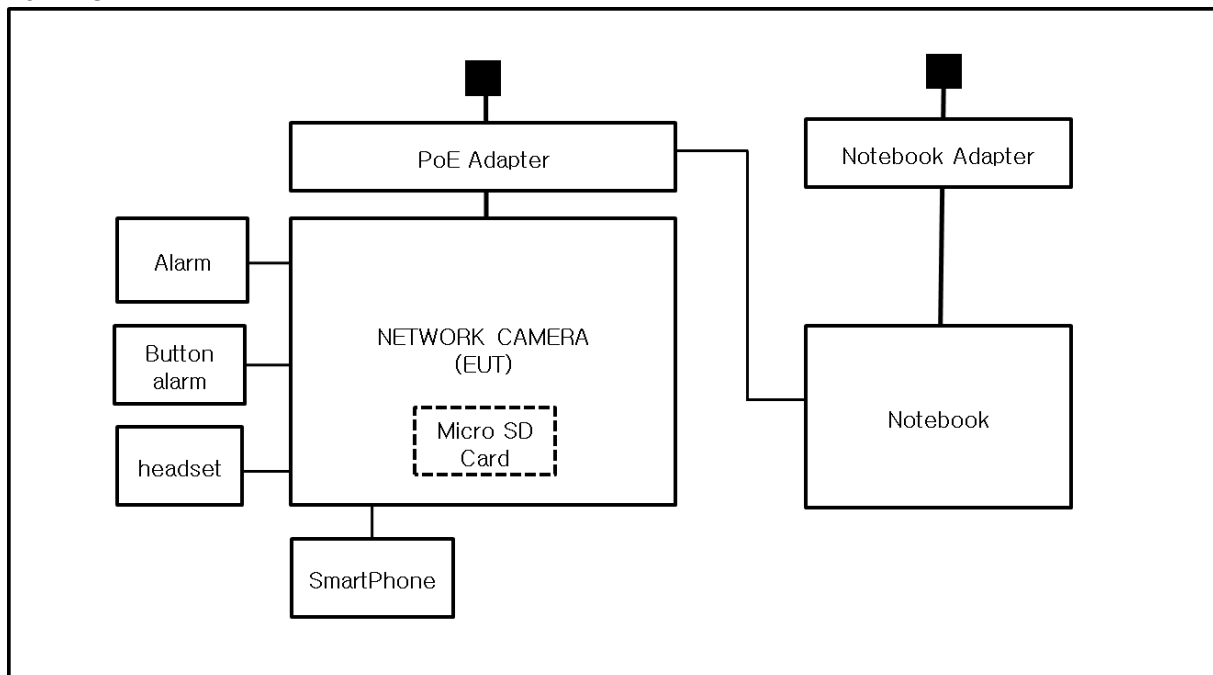
1.8 Configuration

■ AC Main
 □ DC Main

■ DC MODE



■ PoE MODE



1.9 Remarks when standards applied



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



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0593-R1

Page (13) of (44)

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **AS/NZS CISPR32:2015 AMD 1:2020**

☒ Class A

☐ Class B

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr



2.1 Conducted Emissions at Mains Power Ports

Test Date

Jul. 08, 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: (24,5 ± 0,1) °C

Relative Humidity: (44,6 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Jul. 08, 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
☐	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 28, 2022
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 28, 2022
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 07, 2023

Test Conditions

Temperature: (24,5 ± 0,1) °C

Relative Humidity: (44,6 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0593-R1

Page (16) of (44)

See Appendix A for test data.

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jul. 08, 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: (24,0 ± 0,1) °C
Relative Humidity: (43,7 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jul. 12, 2022

Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-
☒	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, 02, 2023

Test Conditions

Temperature: (24,6 ± 0,1) °C

Relative Humidity: (45,5 ± 0,1) % R.H.

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

■ DC MODE

HOT LINE

Common Information

Test Description:

Model No.:

Phase:

Mode:

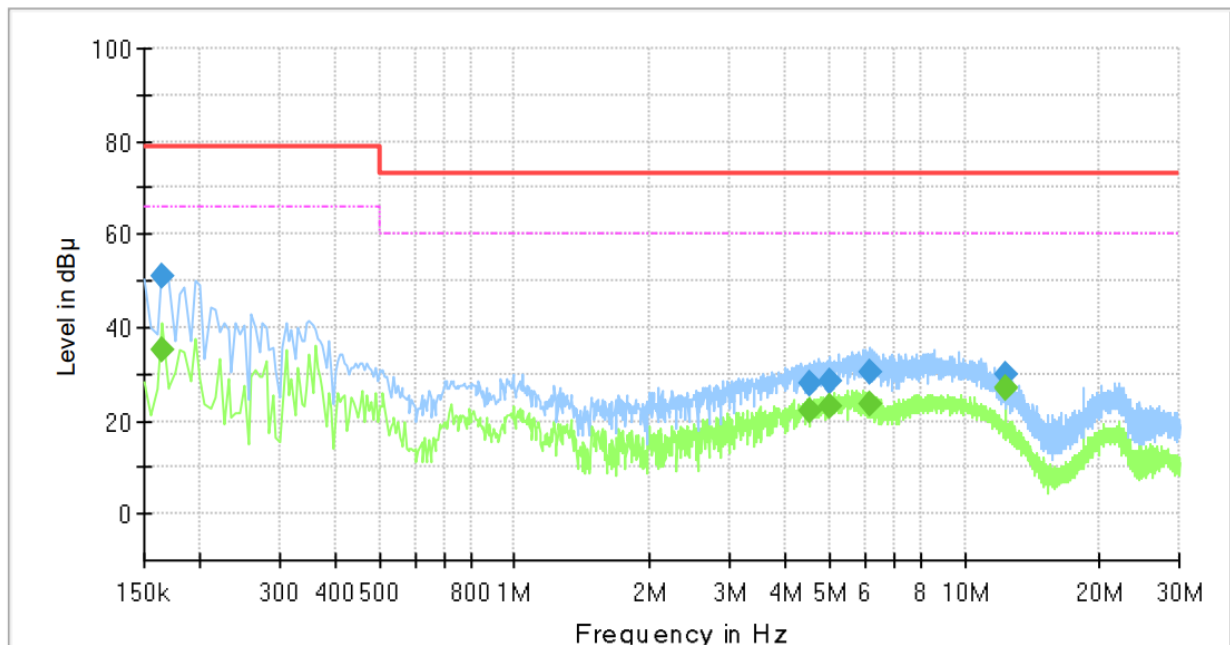
Operator Name:

Conducted Emission

XNO-6123R

DC

KES



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:
KES-EM-22T0593-R1
Page (20) of (44)

Final Result

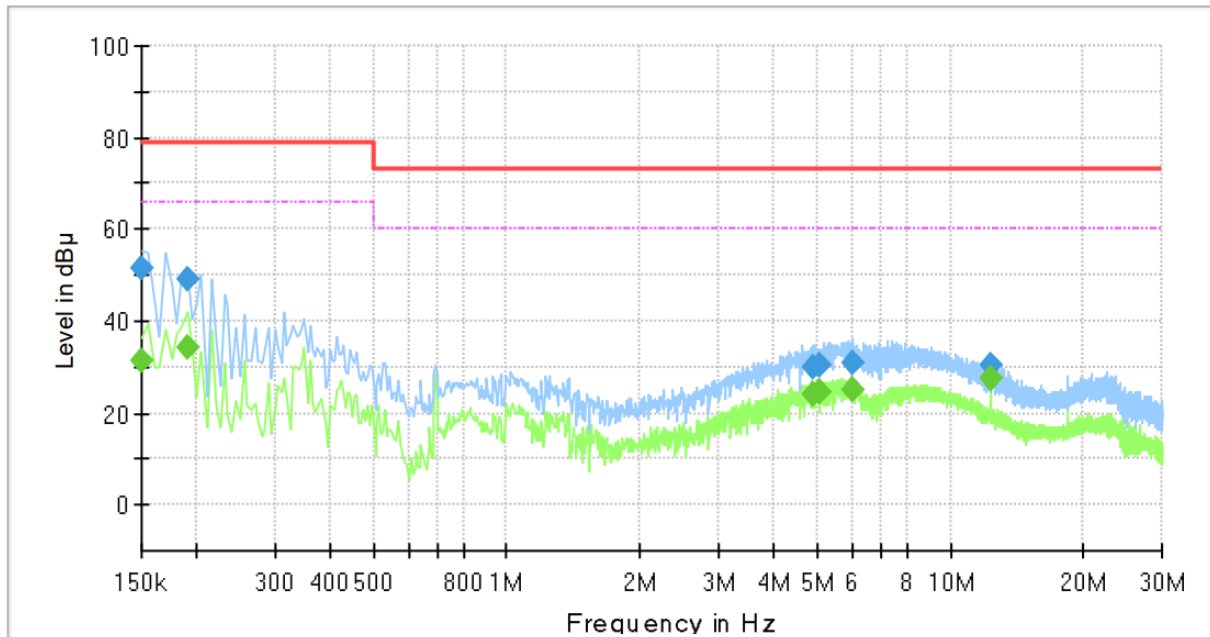
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	34.93	66.00	31.07	1000.0	9.000	L1	19.4
0.165000	50.81	---	79.00	28.19	1000.0	9.000	L1	19.4
4.500000	---	22.17	60.00	37.83	1000.0	9.000	L1	19.8
4.500000	27.92	---	73.00	45.08	1000.0	9.000	L1	19.8
4.990000	---	23.27	60.00	36.73	1000.0	9.000	L1	19.6
4.990000	28.59	---	73.00	44.41	1000.0	9.000	L1	19.6
6.135000	---	23.75	60.00	36.25	1000.0	9.000	L1	19.5
6.135000	30.34	---	73.00	42.66	1000.0	9.000	L1	19.5
12.290000	---	27.09	60.00	32.91	1000.0	9.000	L1	20.0
12.290000	29.78	---	73.00	43.22	1000.0	9.000	L1	20.0

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

NEUTRAL LINE

Common Information

Test Description: Conducted Emission
 Model No.: XNO-6123R
 Phase:
 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	---	31.36	66.00	34.64	1000.0	9.000	N	19.4
0.150000	51.30	---	79.00	27.70	1000.0	9.000	N	19.4
0.190000	---	34.16	66.00	31.84	1000.0	9.000	N	19.4
0.190000	48.93	---	79.00	30.07	1000.0	9.000	N	19.4
4.915000	---	24.12	60.00	35.88	1000.0	9.000	N	19.6
4.915000	30.06	---	73.00	42.94	1000.0	9.000	N	19.6
5.045000	---	24.56	60.00	35.44	1000.0	9.000	N	19.6
5.045000	30.41	---	73.00	42.59	1000.0	9.000	N	19.6
6.010000	---	24.90	60.00	35.10	1000.0	9.000	N	19.5
6.010000	30.95	---	73.00	42.05	1000.0	9.000	N	19.5
12.290000	---	27.45	60.00	32.55	1000.0	9.000	N	20.0
12.290000	30.35	---	73.00	42.65	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))

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr

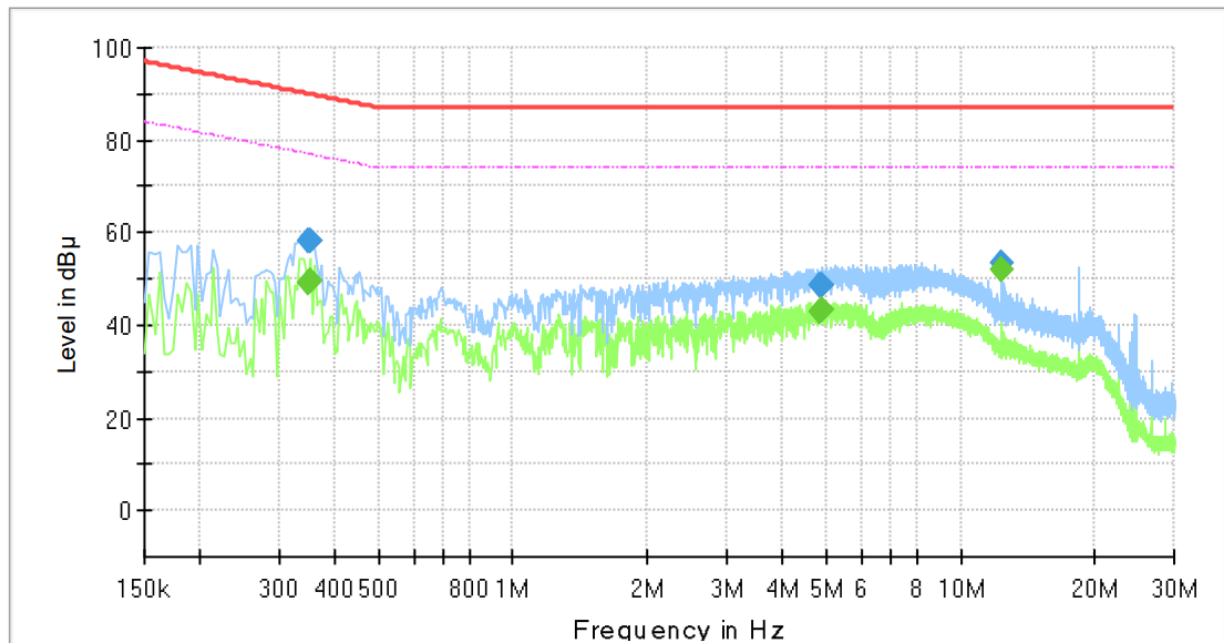
Conducted Emissions at Telecommunication Ports

■ DC MODE

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNO-6123R
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)
0.350000	---	49.27	76.96	27.69	1000.0	9.000	Single Line	19.4
0.350000	58.20	---	89.96	31.76	1000.0	9.000	Single Line	19.4
0.354000	---	49.44	76.87	27.43	1000.0	9.000	Single Line	19.4
0.354000	58.06	---	89.87	31.81	1000.0	9.000	Single Line	19.4
4.846000	---	42.86	74.00	31.14	1000.0	9.000	Single Line	19.5
4.846000	48.57	---	87.00	38.43	1000.0	9.000	Single Line	19.5
4.902000	---	43.11	74.00	30.89	1000.0	9.000	Single Line	19.5
4.902000	48.70	---	87.00	38.30	1000.0	9.000	Single Line	19.5
12.286000	---	52.20	74.00	21.80	1000.0	9.000	Single Line	19.9
12.286000	53.32	---	87.00	33.68	1000.0	9.000	Single Line	19.9
12.290000	---	52.01	74.00	21.99	1000.0	9.000	Single Line	19.9
12.290000	53.19	---	87.00	33.81	1000.0	9.000	Single Line	19.9

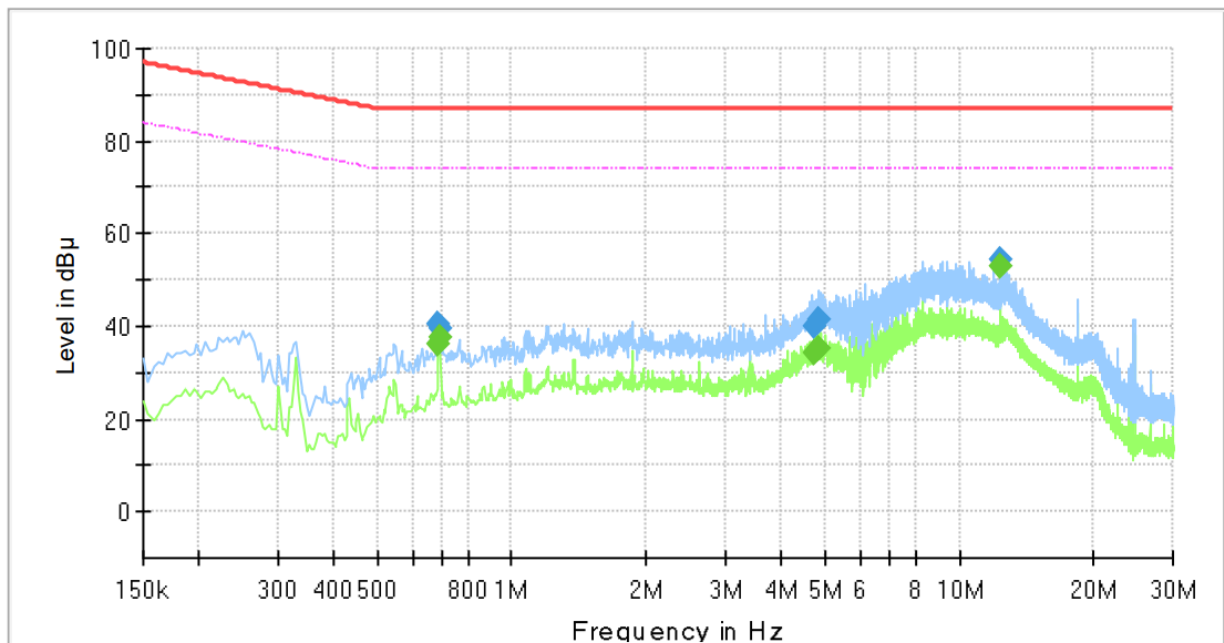
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
 The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
 The authenticity of the test report, contact kes@kes.co.kr

■ PoE MODE

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNO-6123R
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)
0.686000	---	36.23	74.00	37.77	1000.0	9.000	Single Line	19.8
0.686000	40.66	---	87.00	46.34	1000.0	9.000	Single Line	19.8
0.690000	---	37.51	74.00	36.49	1000.0	9.000	Single Line	19.8
0.690000	39.47	---	87.00	47.53	1000.0	9.000	Single Line	19.8
4.746000	---	34.20	74.00	39.80	1000.0	9.000	Single Line	19.5
4.746000	40.00	---	87.00	47.00	1000.0	9.000	Single Line	19.5
4.858000	---	35.34	74.00	38.66	1000.0	9.000	Single Line	19.5
4.858000	41.38	---	87.00	45.62	1000.0	9.000	Single Line	19.5
12.290000	---	52.76	74.00	21.24	1000.0	9.000	Single Line	19.9
12.290000	54.43	---	87.00	32.57	1000.0	9.000	Single Line	19.9

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

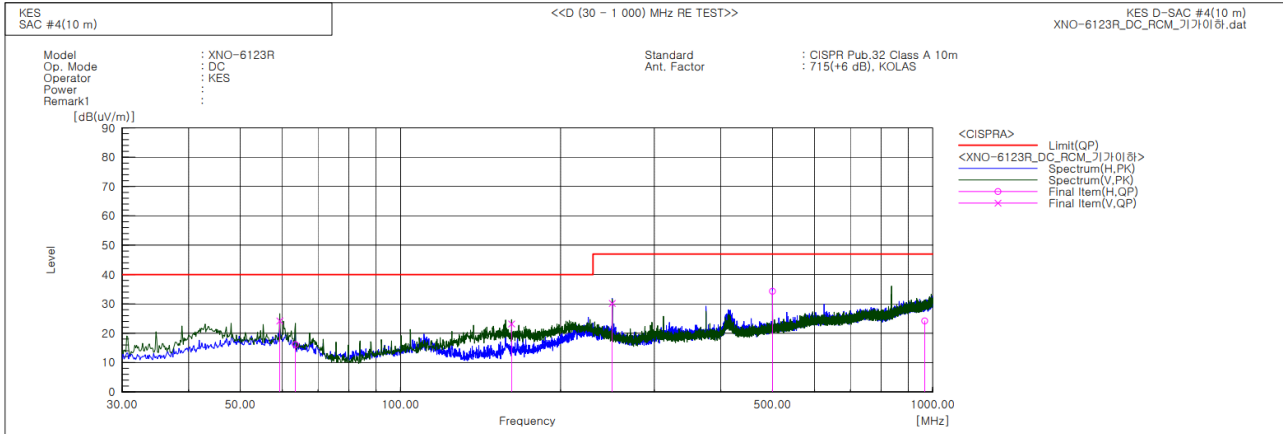
Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
 The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
 The authenticity of the test report, contact kes@kes.co.kr



Radiated Electric Field Emissions(Below 1 GHz)

■ DC MODE

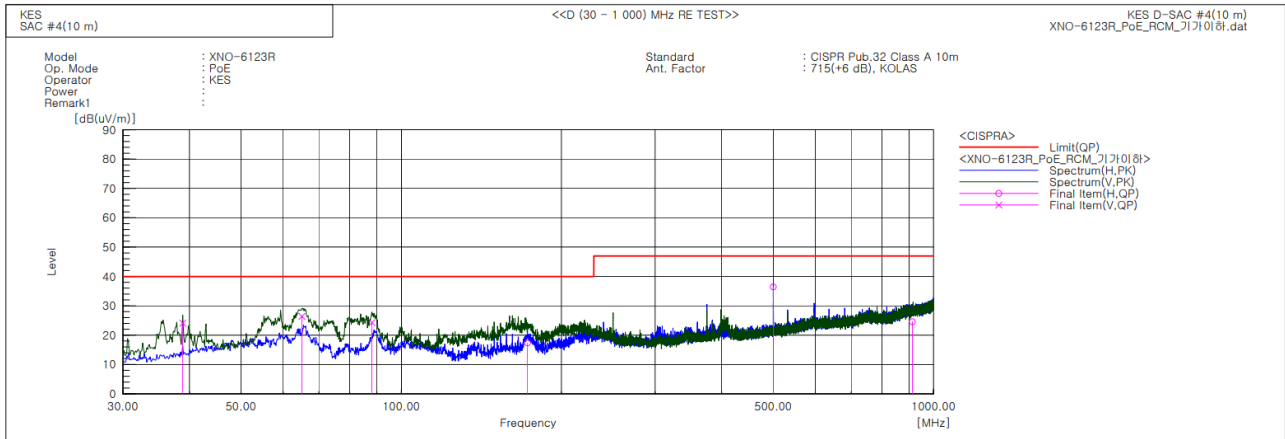


Final Result

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	59.343	V	46.1	-21.9	24.2	40.0	15.8	100.0	310.9	
2	63.465	H	38.9	-22.8	16.1	40.0	23.9	196.0	103.2	
3	161.799	V	47.8	-24.6	23.2	40.0	16.8	154.0	347.4	
4	249.948	V	49.5	-19.3	30.2	47.0	16.8	100.0	274.0	
5	499.965	H	45.8	-11.5	34.3	47.0	12.7	233.0	214.8	
6	966.120	H	27.6	-3.4	24.2	47.0	22.8	400.0	214.8	



■ 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	38.851	V	47.3	-23.2	24.1	40.0	15.9	125.0	296.3	
2	65.041	V	49.7	-23.3	26.4	40.0	13.6	106.0	296.3	
3	88.079	V	49.1	-24.8	24.3	40.0	15.7	144.0	59.3	
4	172.590	H	41.5	-24.1	17.4	40.0	22.6	400.0	159.3	
5	500.086	H	48.0	-11.5	36.5	47.0	10.5	400.0	3.4	
6	912.094	H	28.5	-3.9	24.6	47.0	22.4	400.0	215.1	

◆ 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)]

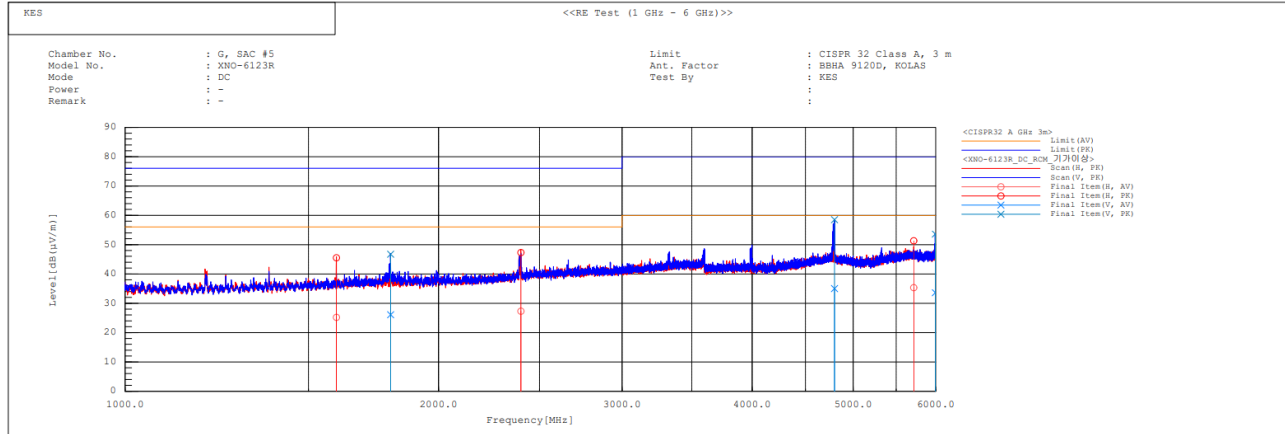
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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



Radiated Electric Field Emissions(Above 1 GHz)

DC MODE

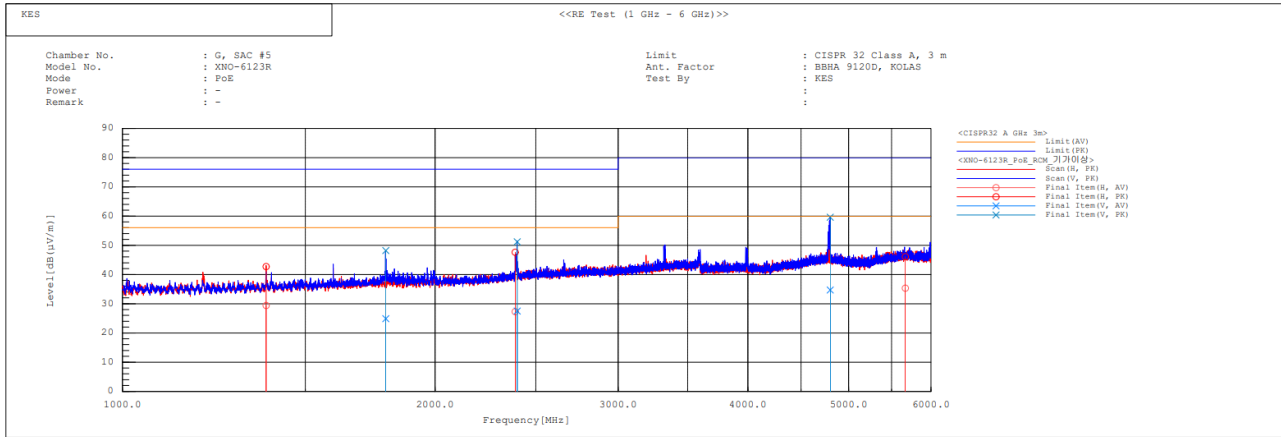


Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB (μV)]	Reading PK [dB (μV)]	c.f [dB (1/m)]	Result AV [dB (μV/m)]	Result PK [dB (μV/m)]	Limit AV [dB (μV/m)]	Limit PK [dB (μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	1595.547	H	29.9	50.2	-4.7	25.2	45.5	56.0	76.0	30.8	30.5	100.0	309.5
2	1798.878	V	29.8	50.4	-3.7	26.1	46.7	56.0	76.0	29.9	29.3	100.0	185.5
3	2399.097	H	28.7	48.7	-1.4	27.3	47.3	56.0	76.0	28.7	28.7	100.0	162.2
4	4798.074	V	28.5	52.0	6.5	35.0	58.5	60.0	80.0	25.0	21.5	100.0	142.9
5	5716.870	H	27.1	43.1	8.2	35.3	51.3	60.0	80.0	24.7	28.7	100.0	213.5
6	5995.857	V	24.8	44.8	8.8	33.6	53.6	60.0	80.0	26.4	26.4	100.0	160.3



■ PoE MODE



Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	1375.237	H	34.9	48.2	-5.5	29.4	42.7	56.0	76.0	26.6	33.3	100.0	7.5
2	1792.780	V	28.6	51.9	-3.7	24.9	48.2	56.0	76.0	31.1	27.8	100.0	143.8
3	2388.587	H	28.8	49.1	-1.5	27.3	47.6	56.0	76.0	28.7	28.4	100.0	162.2
4	2398.571	V	28.9	52.6	-1.4	27.5	51.2	56.0	76.0	28.5	24.8	100.0	264.6
5	4800.710	V	28.2	53.1	6.5	34.7	59.6	60.0	80.0	25.3	20.4	100.0	148.1
6	5668.897	H	27.1	37.9	8.2	35.3	46.1	60.0	80.0	24.7	33.9	100.0	108.5

◆ 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)]

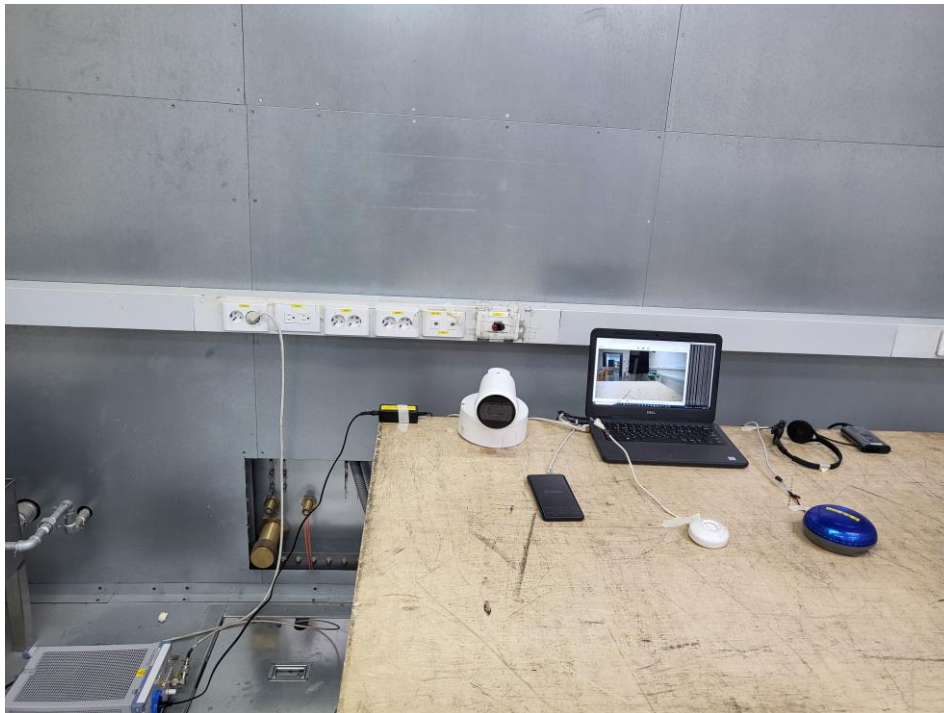
Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

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

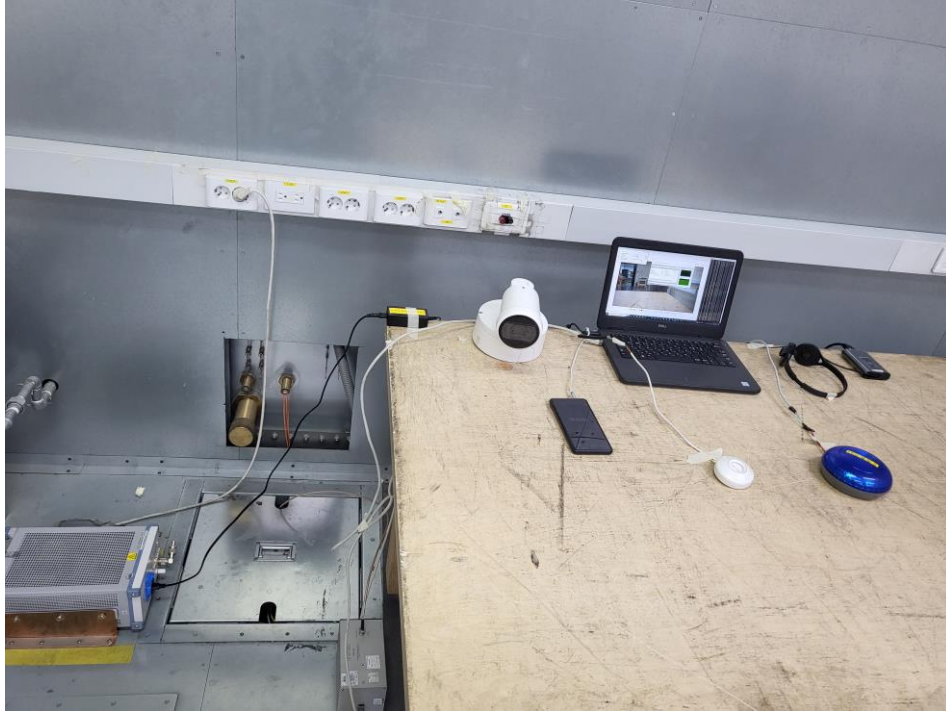
■ DC MODE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

Conducted Emissions at Telecommunication Ports

■ DC MODE



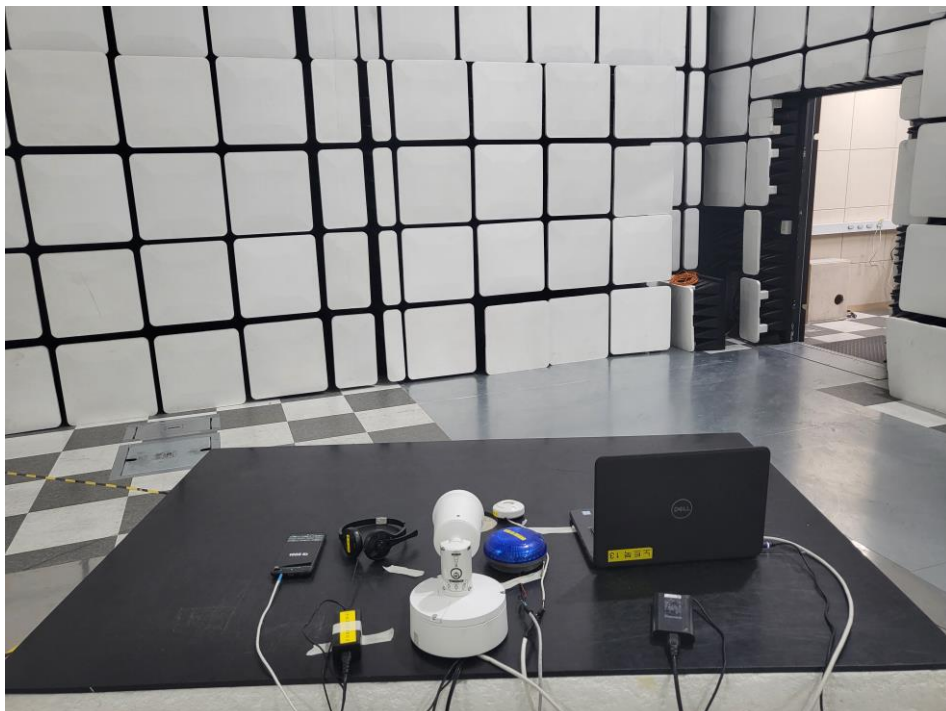
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

■ PoE MODE

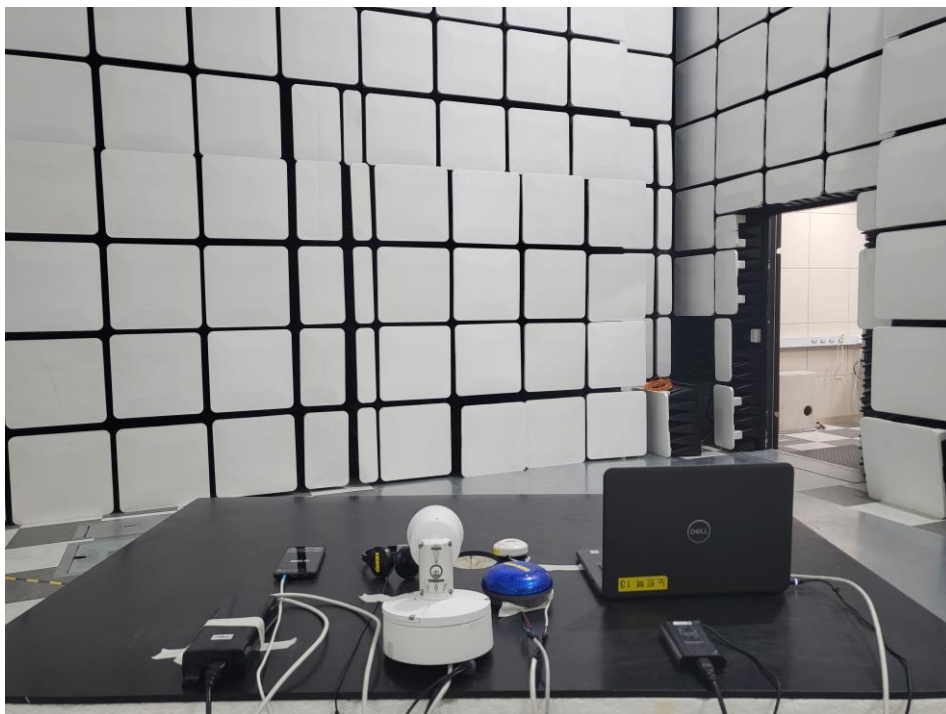


Radiated Electric Field Emissions(Below 1 GHz)

■ DC MODE



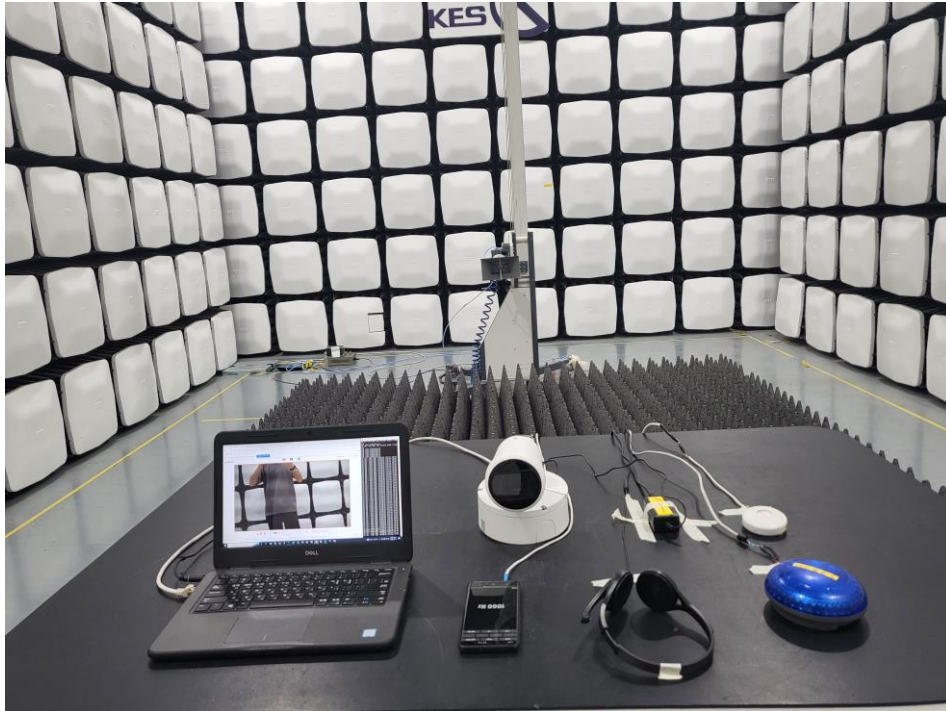
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

■ PoE MODE

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

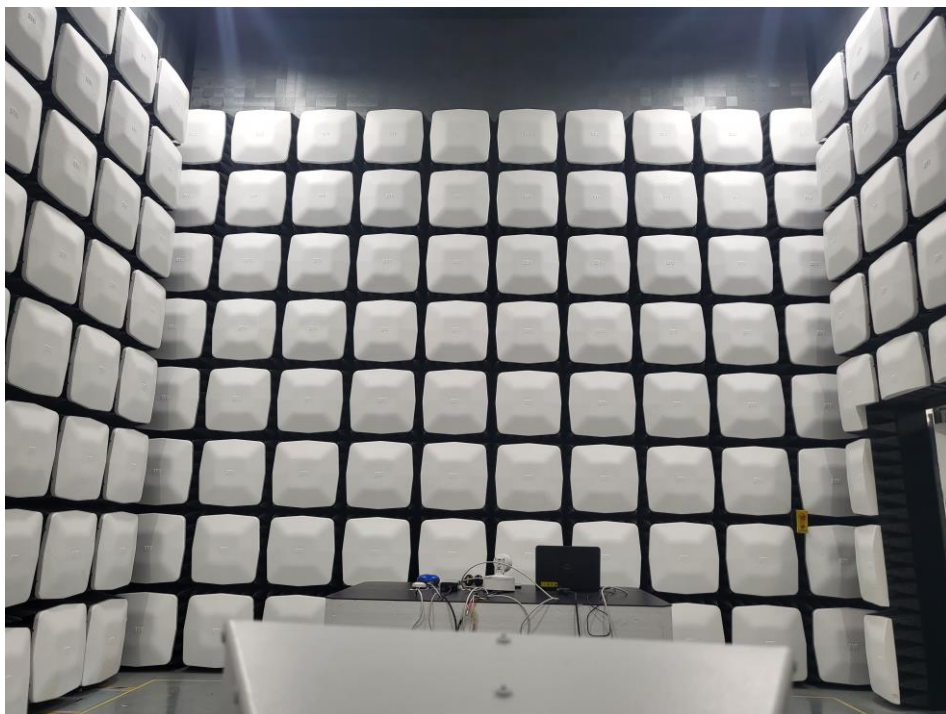
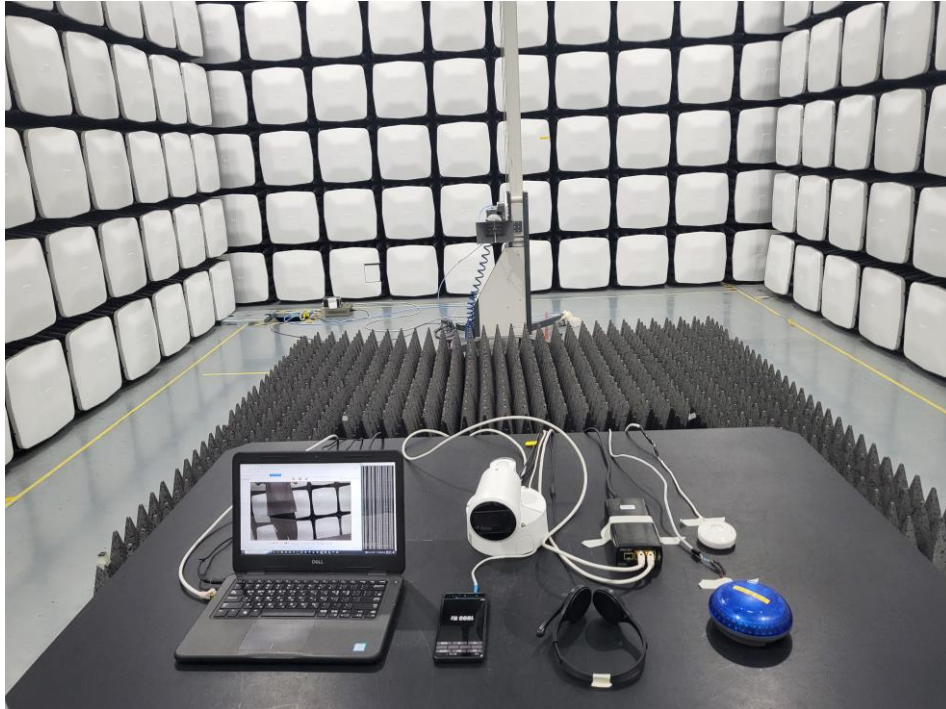
Radiated Electric Field Emissions(Above 1 GHz)

■ DC MODE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

■ PoE MODE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT External Photographs

(Top)



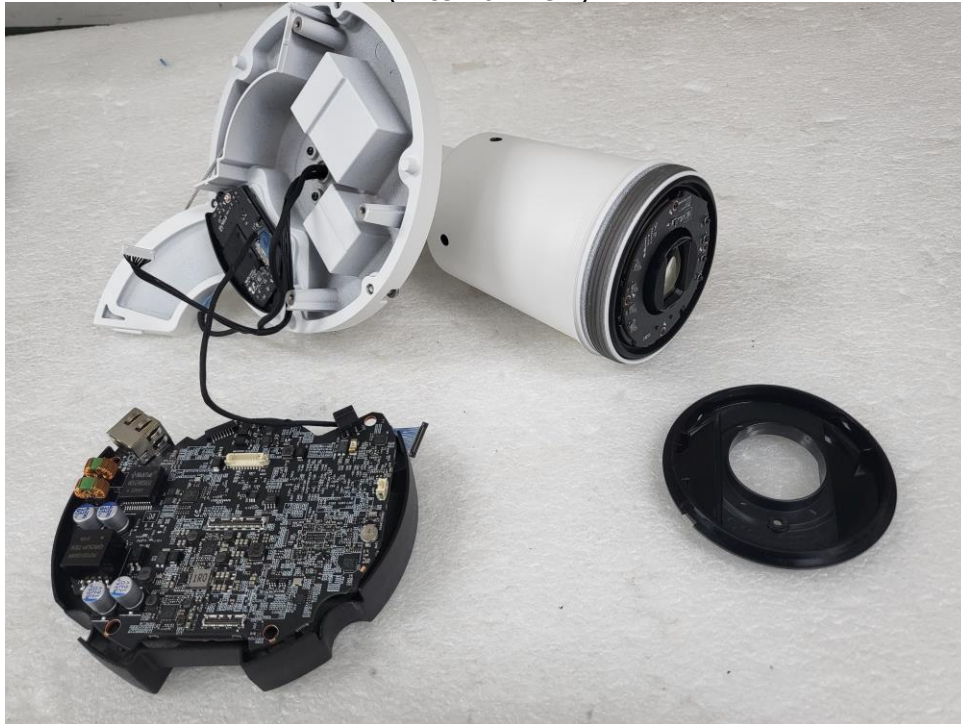
(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

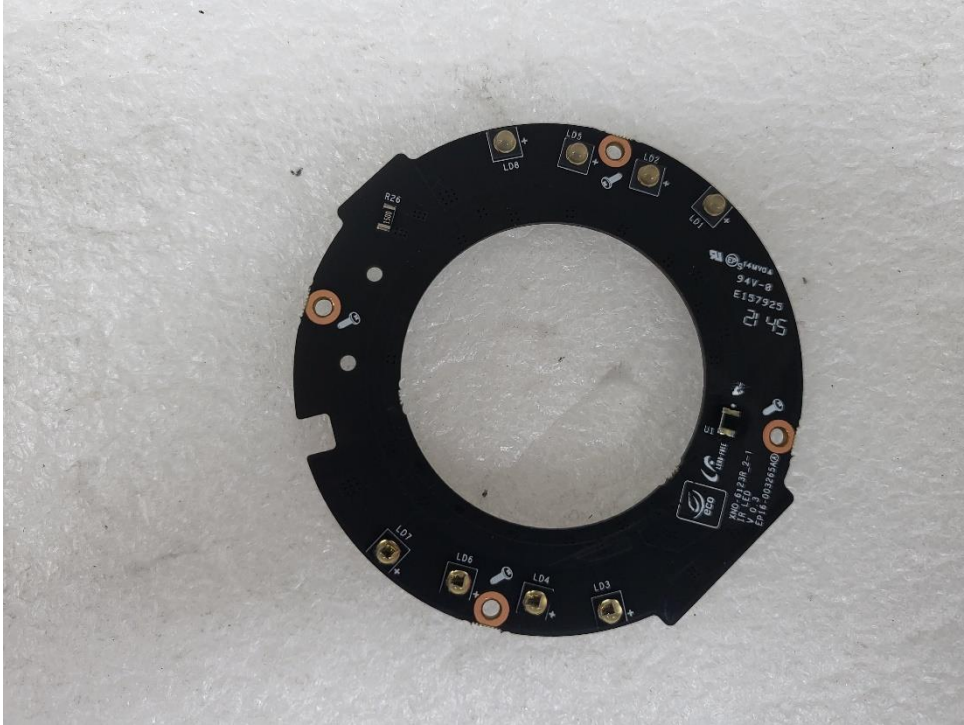
EUT Internal Photographs

(Internal View)



EUT Internal View – Board 1

(Top)



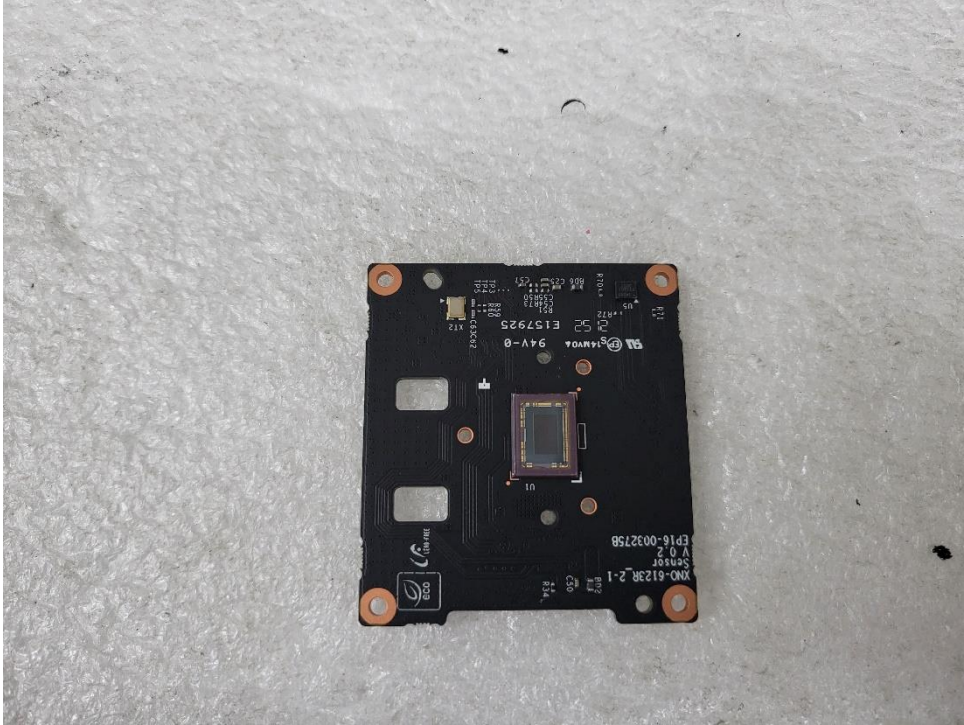
(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Board 2

(Top)



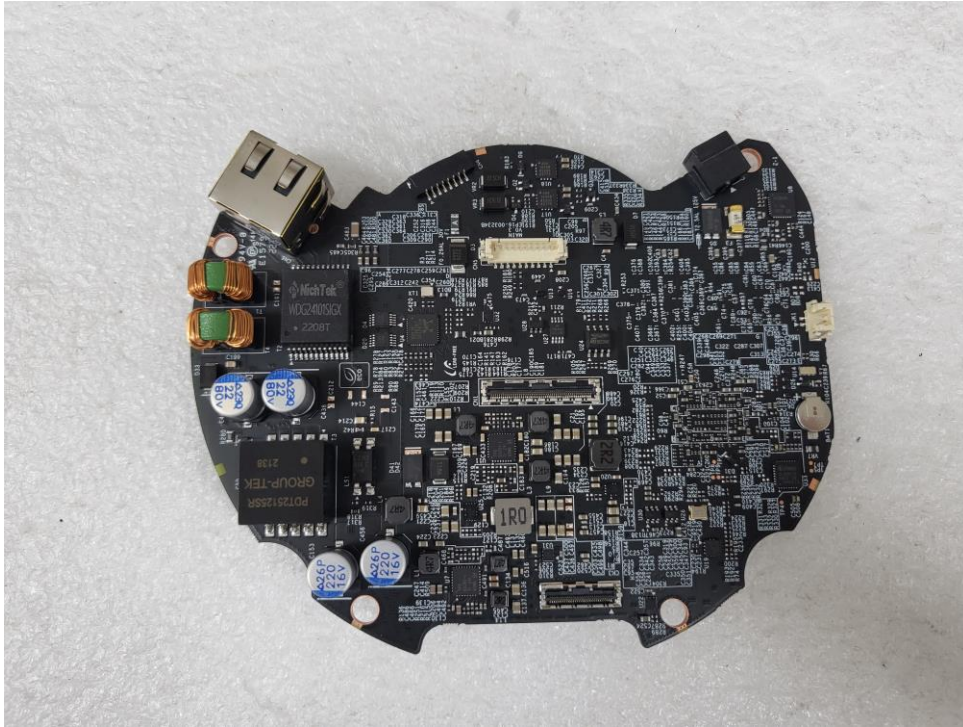
(Bottom)



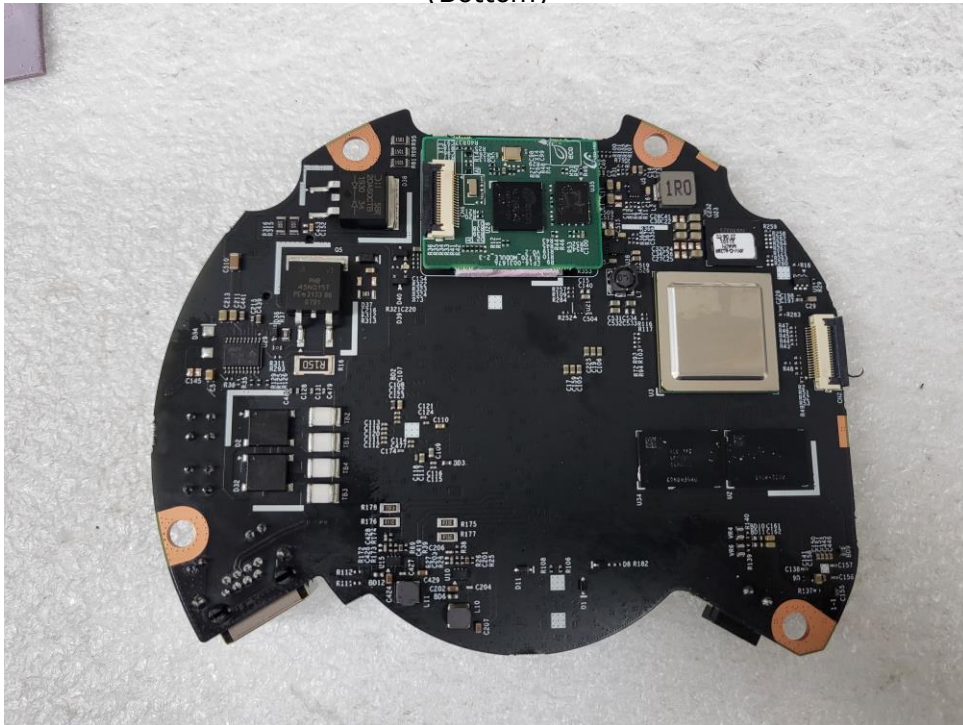
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Board 3

(Top)



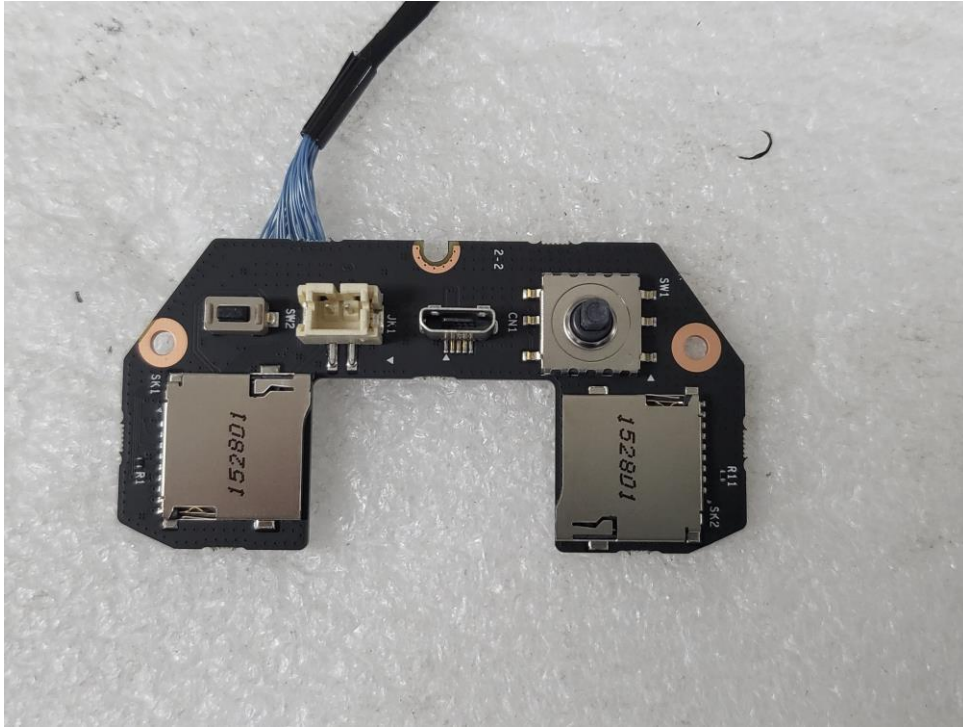
(Bottom)



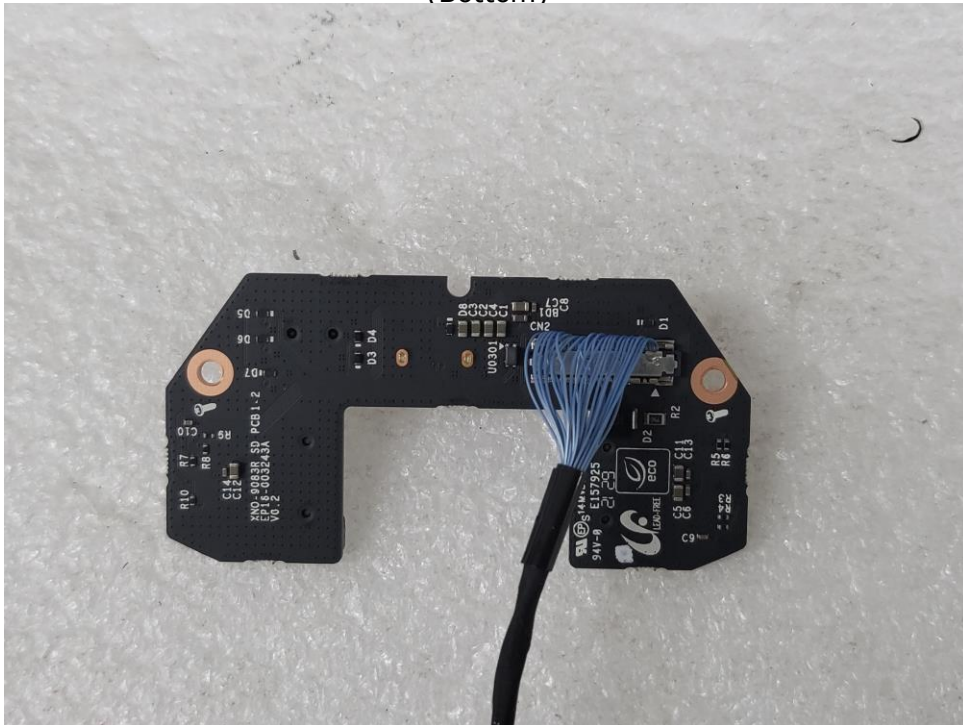
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Board 4

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
 The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
 The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Lens

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

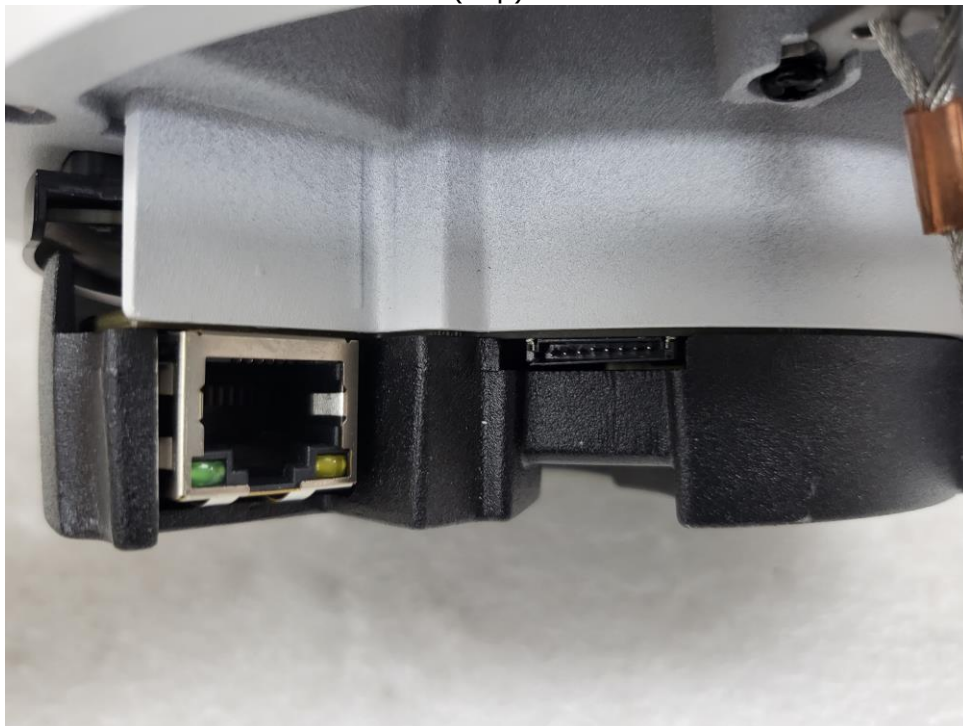
EUT Internal View – Port 1

(Top)



EUT Internal View – Port 2

(Top)



EUT Internal View – Port 3

(Top)

