



TEST REPORT



Report No. : KES-EM242536

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KES Co., Ltd.

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1. Client

Applicant : Hanwha Vision Co., Ltd

Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

2. Sample Description

Product name : NETWORK CAMERA

Model/Type No. : QNV-C8023R

Variant Model : QNV-C8013R

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 Ward, Bac Ninh City, Bac Ninh Province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do, Korea (Suwon Industrial Complex)

3. Date of Receipt : Jul. 24, 2024

4. Test date : Jul. 31, 2024

5. Date of Issue : Aug. 08, 2024

6. Test Results : In Compliance

Tested by

Reviewed by

Se Heon, Kim
EMC Test Engineer

Seong Min, Choi
EMC Technical Manager

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

KES-QP16-F01(00-23-01-01)

KES Co., Ltd.

The authenticity of this test report can be found on the verification page of our website (www.kes.co.kr)



REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Aug. 08, 2024	KES-EM242536	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Highest internal Frequency : 1 866 MHz

QNV-C8013R	
Video	
Imaging Device	1/2.8" CMOS
Resolution	2592x1944, 2560x1440, 1920x1080, 1280x960, 1280x720, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) (WDR on/off) MJPEG: Max. 30fps(5MP Max. 5fps)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.03Lux(F1.6, 1/30sec, 30IRE) BW: 0.003Lux(F1.6, 1/30sec, 30IRE), 0Lux(IR LED on)
Video Out	USB: Micro USB Type B, 1280x720 for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	3.0mm fixed focal
Optical Zoom	None
Max. Aperture Ratio	F1.6
Angular Field of View	H: 100° / V: 73° / D: 129°
Min. Object Distance	0.5m (1.64ft)
Focus Control	Fixed
Lens Type	Fixed IRIS
Mount Type	M12
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0°~350° / 0°~70° / 0°~355°
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, WDR, SDR
Wide Dynamic Range	120dB
Digital Noise Reduction	WiseNR II (Based on AI engine)
Digital Image Stabilization	SSNR V
Defog	None
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, 4point quadrangle zones - Color: Gray/Green/Red/Blue/Black/White Dynamic Privacy Mask - Mosaic
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (1/5~1/25,000sec) Prefer shutter control (Based on AI engine)
Video Rotation	Flip, Mirror, Halfway view(90°/270°)
Analytics	Classified object type: Person/Vehicle (Type: car/bus/truck/motorcycle/bicycle) Attributes: Person(Upper/lower clothes color), Vehicle (Type: car/bus/truck/motorcycle/bicycle and color) Support DetectionShot Analytics events based on AI engine - Motion detection*, Object detection, Virtual line*(Crossing/Direction), Virtual area*(Loitering/Intrusion/Enter/Exit) Analytics events - Defocus detection, Tampering, Virtual area(Appear/Disappear) * Some of the video analytics only works with people and vehicle detection
Business Intelligence	Based on AI engine: People counting, Vehicle counting, Queue management, Heatmap
Serial Interface	None
Alarm I/O	Input 1ea / Output 1ea * Alarm I/O is supported through an optional cable(SPP-C7400)
Alarm Triggers	Analytics, Network disconnect, Alarm input
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) - MQTT: publication
Audio Streaming	None
Audio In	Selectable(mic in/line in) * Audio In is supported through an optional cable(SPP-C7400)
Audio Out	Line out * Audio Out is supported through an optional cable(SPP-C7400) (TBD)
Light Type	IR LED (850nm)
Light Viewable Length	20m(65.62ft)→25m(TBD)
IR Viewable Length	None
IR Illuminator (Optional)	None
IR Radiation angle	None
IR LED	None



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IR Wavelength	long-life 850 nm IR LED
IR Operation	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	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(Sea area), WiseStreamIII(Based on AI engine)
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 5 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTSP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, CDP, SRTP (TCP, UDP Unicast)
SIP support (VoIP, Peer-to-peer)	None
Security	None
Application Programming Inter	ONVIF Profile S/G/T/M SUNAPI(HTTP API)
Security	
OS / Firmware Protect	Secure boot, Signed firmware, Firmware encryption
User authentication	Digest Authentication, Prevent brute-force attack
Network authentication	802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)
Secure Communication	HTTPS, SRTP, WSS(Websocket secure)
Access Control	Access control based on IP address
Data Protect	Authentication information encryption, ZIP compression encryption
Audit	User Access/System/Event log management
Device ID	Device Certificate(Hanwha Private Root CA)
Secure Storage	SDcard partition encrypt
Security Certificate	None
General	
Webpage Language	English, Korean, Simplified Chinese, Traditional Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	None
Edge Storage	Micro SD/SDHC/SDXC 1slot 256GB
Memory	2GB RAM, 1GB Flash
Environmental & Electrical	
Operating Temperature / Hum	-30°C~+55°C(-22°F~+131°F) / 0~100% RH * Start up should be done at above -30°C Humidity control /w Air vent
Storage Temperature / Humid	-50°C~+60°C(-58°F~+140°F) / 0~95% RH
Wind Load	None
EPA(Effective Projected Area)	None
Certification	IP66, IK10
Input Voltage	PoE(IEEE802.3af, Class3)
Power Consumption	PoE: Max 8.1W, typical 4.0W
Mechanical	
Color / Material	White / Aluminum Bubble : Hard-coated dome
RAL Code	RAL9003
Product Dimensions / Weight	ø120x97.5mm(ø4.72x3.84"), 579.0g(1.27 lb)
Compatible Conduit hole / Gar	SBD-110GP1 : Single, Double, 4" Octagon (Sold separately)
Hanging Mount (Dome)	None
Skin Cover	None
Skin Cover (Dome)	None
Weather Cap (Dome)	None
Power Module	None
Backbox	None
Ceiling Mount (Assy)	None
Wall Mount	None
Pole Mount	None
In-ceiling Mount	None
Parapet Mount	None
Corner Mount	None
Tilt Mount	None
Housing (Box)	None
Cabinet	None
Gang Plate	None
Conduit Adaptor	None
Other Compatible Models	None

KES-QP16-F01(00-23-01-01)

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Certifications & Standards	
Network	None
EMC	FCC 47 CFR 15 Subpart B Class A ICES-3(A)/NMB-3(A) CE/UKCA - EN 55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3 VCCI CISPR 32 Class A RCM AS/NZS CISPR 32 Class A KS C 9832 Class A, KS C 9835
Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1 IEC/EN 62471
Environment	IEC/EN 63000 IEC/EN 60529 IP66, IEC/EN 62262 IK10
Video	None
Compatible Models	
Hanging Adaptor	SBP-120HMMW
Back Box	SBV-140BW
Ceiling Mount (Assy)	SBP-300CMW1/900CMW, SBP-150CMI/300CMI, SBP-300CMTW, SBP-300CM
Ceiling Mount (Single Unit)	None
Wall Mount	SBP-125WMW1, SBP-300WMW/WMW1, SBP-390WMW2
Wall Mount Adaptor	None
Pole Mount	SBD-140PMW, SBP-300PMW2, SBD-140PMB
In-ceiling Mount	SHD-1200FPW
Corner Mount	SBP-300KMW1, SBD-140KMB
Parapet Mount	SBP-300LMW, SBP-156LMW1
Tilt Mount	SBV-140TMW
Cabinet	SBP-300NBW
Housing	None
Gang Plate	SBD-110GP1
Skin Cover	None
Weather Cap	None
Dome Cover	None
Conduit Adaptor	None
Power Module	None
Interface Box	None
Other Compatible Models	SPP-C7400 (Audio/Alarm Cable)
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	43.5m(142.71ft)
Observe (63PPM/ 19PPF)	17.5m(57.09ft)
Recognize (125PPM/ 38PPF)	8.7m(28.54ft)
Identify (250PPM/ 76PPF)	4.3m(14.27ft)
LPR/ANPR/MMCR	
Speed Description	None
Speed limit	None
Min. Forward Distance	None
Max. Forward Distance	None
Max. Horizontal Angle	None
Max. Vertical Angle	None
Horizontal Offset	None
Camera Height	None
Lane Coverage	None
Vehicle Recognition	None
Available Countries	None
Wisenet Road AI LPR/ANPR/MMCR	
Solution	None
Speed Description	None
Lane Coverage	None
Speed limit	None
Min. Forward Distance	None
Max. Forward Distance	None
Max. Horizontal Angle	None
Max. Vertical Angle	None
Horizontal Offset	None
Camera Height	None
Vehicle Recognition	None
Available Countries	None
Ver	
Ver	202407



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 Adapter Input Power)

1.2 Variant Model Differences

Addition of a simple derivative model due to the difference in fixed lenses
(No electronics in the lens, same as the base model, no changes in circuitry, appearance, or hardware.)

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	QNV-C8023R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Laptop	P95G001	9JM8HT2	DELL INC.	-
Laptop Adapter	HA65NM130	-	Chicony Power Technology(Suzhou)Co.,Ltd.	-
Alarm	-	-	-	-
Button Alarm	-	-	-	-
Micro SD Card	-	-	SanDisk	16 GB
PoE Injector	MA-INJ-4	-	Changzhou Wujin Hong Guang Radio Co.,Ltd	-
Headset	K550	-	Britz®	-
Smartphone	SM-N960N	-	Samsung Electronics Co., Ltd.	-



1.6 External I/O Cabling

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)	3.5	U
	7 Pin (Audio OUT)	Headset	7 Pin (Audio IN)	2.0	U
	7 Pin (Audio IN)		7 Pin (Audio OUT)	2.0	U
	7 Pin (Alarm OUT)	Alarm	7 Pin (Alarm IN)	3.5	U
	7 Pin (Alarm IN)	Button Alarm	7 Pin (Alarm OUT)	3.5	U
	Micro SD Slot	Micor SD Card	Micro SD Slot	-	-
PoE Injector	RJ-45 (LAN)	Laptop	RJ-45 (LAN)	2.0	U
Laptop	DC Jack	Laptop Adapter	DC Jack	1.5	U
	3.5 mm	Smartphone	3.5 mm	1.2	U

* Unshielded=U, Shielded=S

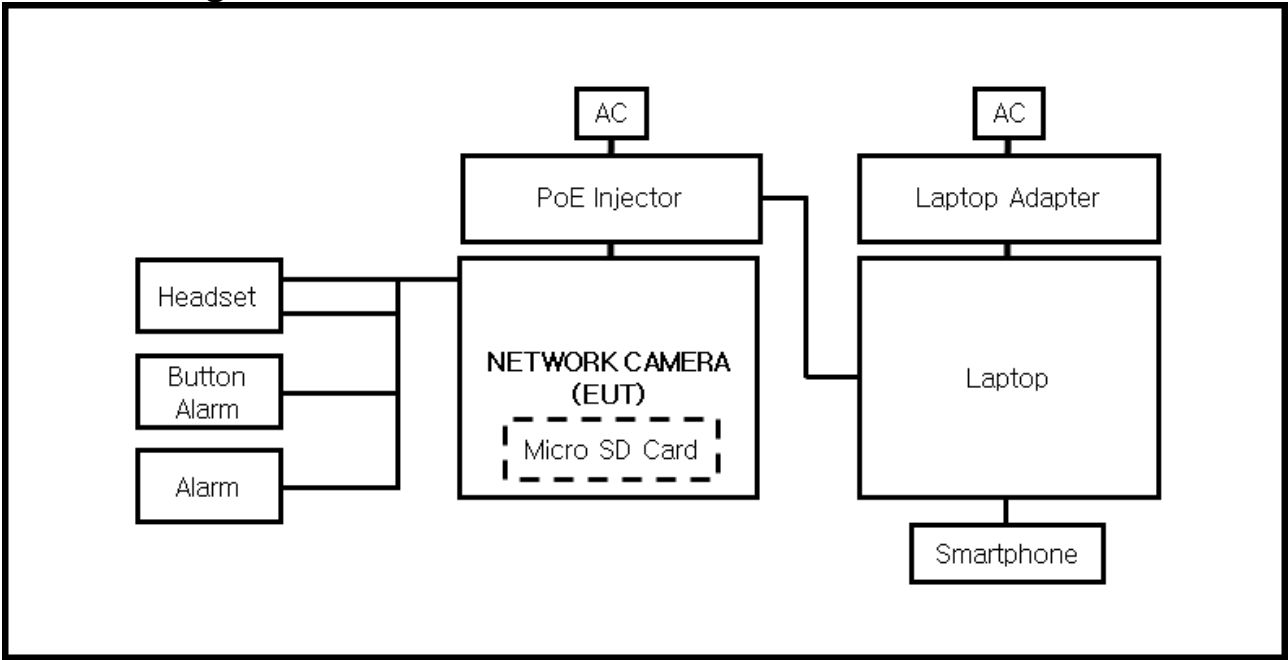
1.7 EUT Operating Mode(s)

Test mode	Normal operating	Test Voltages
Operating	<ul style="list-style-type: none">- Monitoring EUT Using Web Viewer, Ping Test- Check Audio Port Behavior Through Headset- When the Button Alarm is pressed, make sure the Alarm is working- Check the files stored on the Micro SD Card after testing	AC 120 V, 60 Hz

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



1.8 Configuration





1.9 Remarks when standards applied

The USB port was excluded from the test as a port for administrators.



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, Yeosu-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 0008



2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B





2.1 Conducted Emissions at Mains Power Ports

Test Date

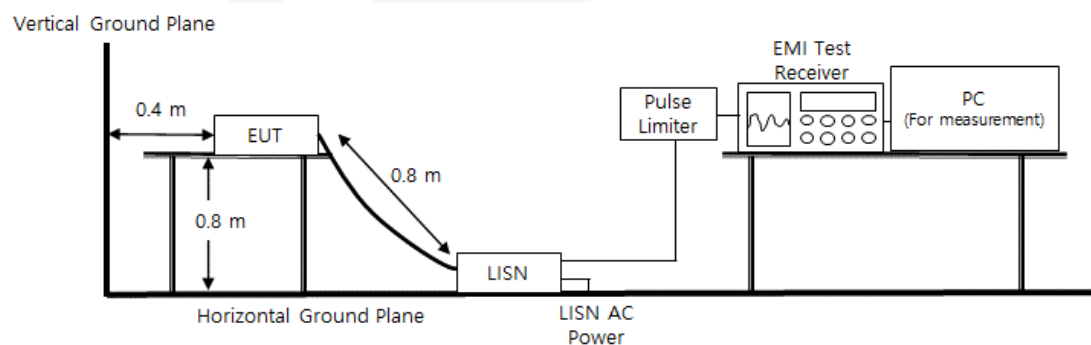
Jul. 31, 2024

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	11, 08, 2024
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	11, 08, 2024
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	11, 08, 2024
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 08, 2024

Diagram of test setup



Test Conditions

Temperature: (25,2 ± 0,1) °C
Relative Humidity: (50,2 ± 0,0) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

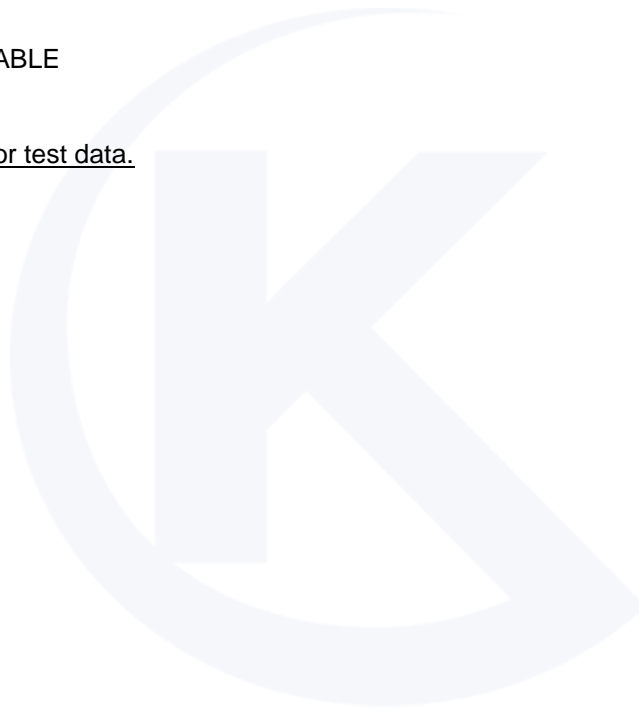
Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jul. 31, 2024

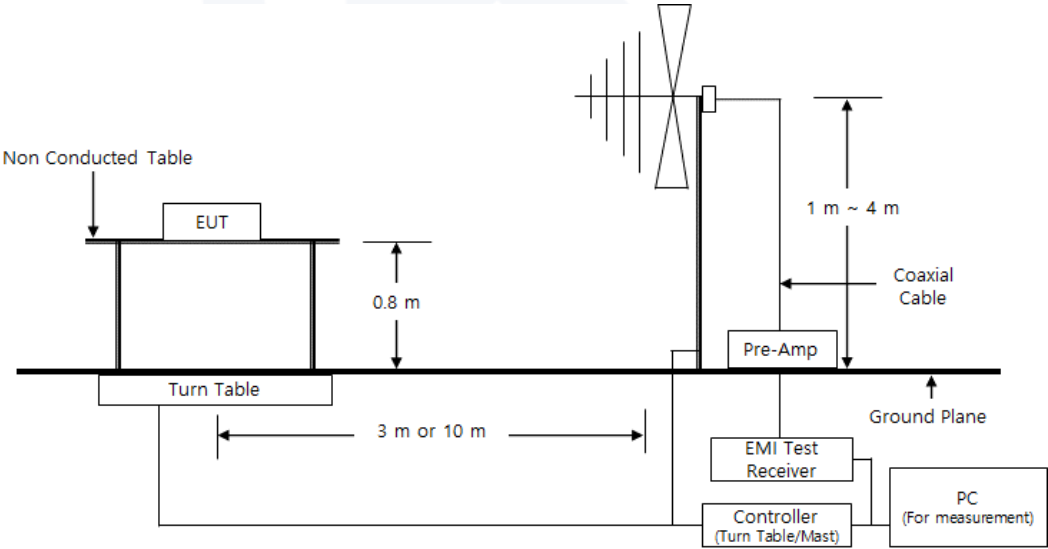
Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	02, 13, 2025
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 08, 2024
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 17, 2024
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	02, 13, 2025

Diagram of test setup





Test Conditions

Temperature: (24,1 ± 0,0) °C
Relative Humidity: (46,7 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

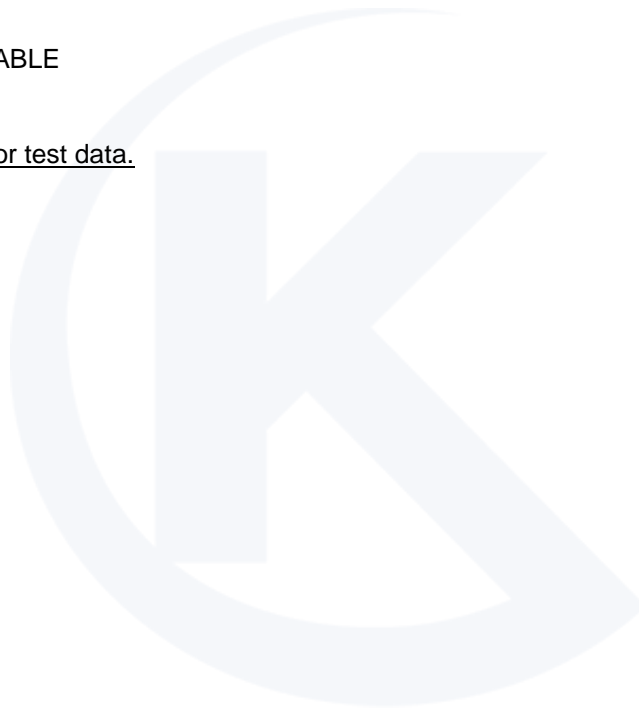
Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jul. 31, 2024

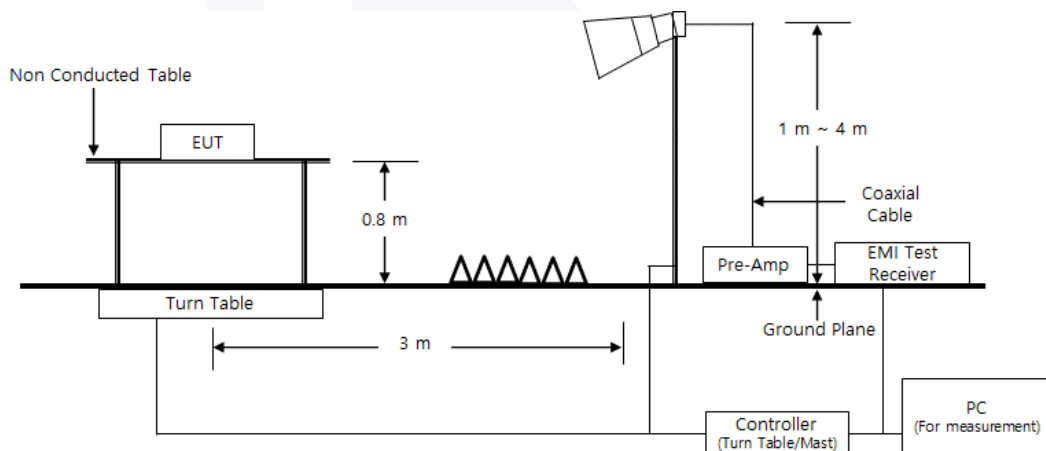
Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	02, 13, 2025
<input checked="" type="checkbox"/>	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 03, 2024
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	HP	3008A00538	04, 30, 2025
<input checked="" type="checkbox"/>	ATTENUATOR	8491B	HP	23094	02, 13, 2025

Diagram of test setup





Test Conditions

Temperature: (24,0 ± 0,2)°C
Relative Humidity: (47,2 ± 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.

The Average of the test data is the cispr average result.



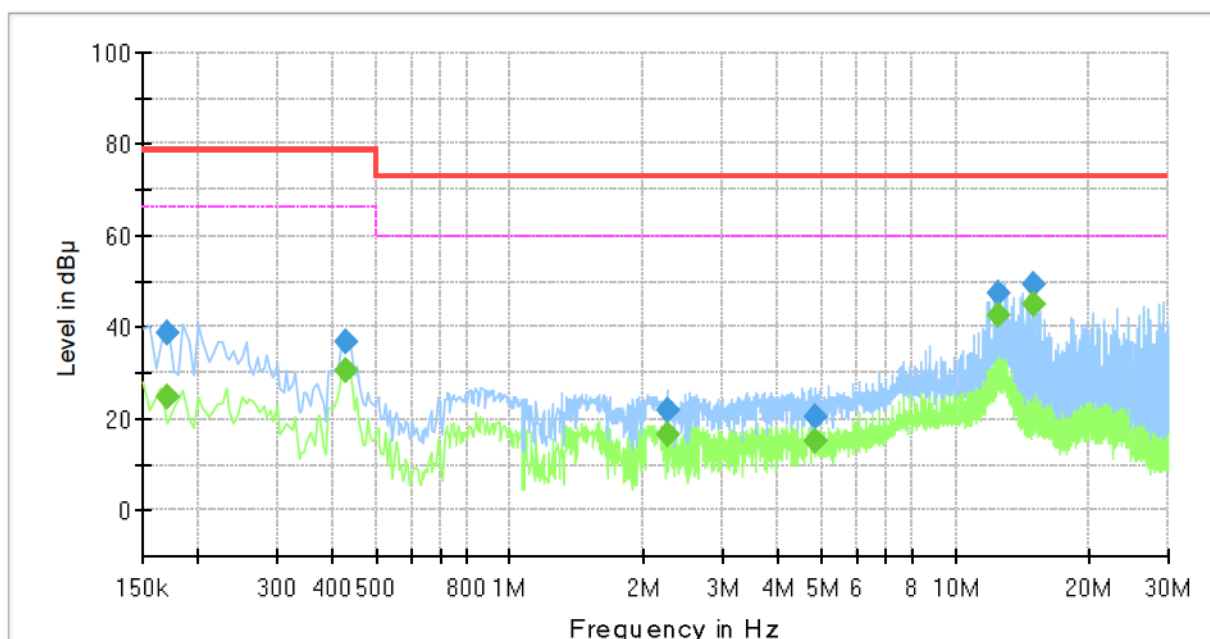
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM242536
Phase: L
Mode:
Operator Name: KES



Final Result

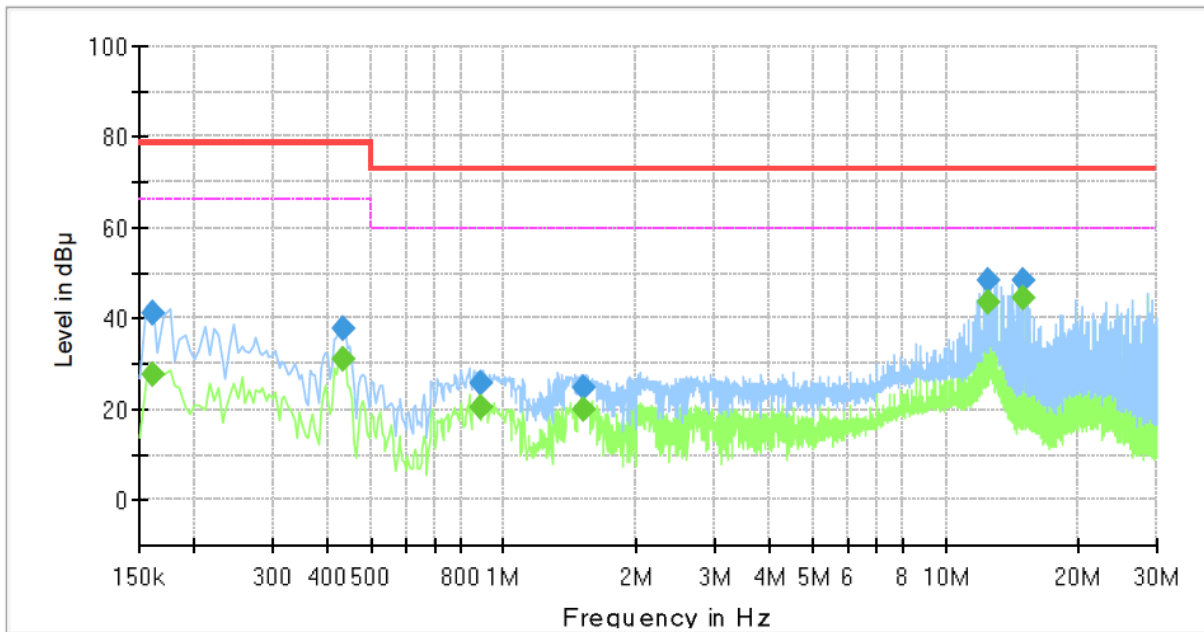
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.170000	---	24.77	66.00	41.23	1000.0	9.000	L1	19.6
0.170000	38.73	---	79.00	40.27	1000.0	9.000	L1	19.6
0.430000	---	30.60	66.00	35.40	1000.0	9.000	L1	19.6
0.430000	36.86	---	79.00	42.14	1000.0	9.000	L1	19.6
2.255000	---	16.42	60.00	43.58	1000.0	9.000	L1	19.8
2.255000	22.06	---	73.00	50.94	1000.0	9.000	L1	19.8
4.855000	---	15.25	60.00	44.75	1000.0	9.000	L1	20.0
4.855000	20.26	---	73.00	52.74	1000.0	9.000	L1	20.0
12.415000	---	42.51	60.00	17.49	1000.0	9.000	L1	20.2
12.415000	47.47	---	73.00	25.53	1000.0	9.000	L1	20.2
14.895000	---	45.24	60.00	14.76	1000.0	9.000	L1	20.3
14.895000	49.17	---	73.00	23.83	1000.0	9.000	L1	20.3



NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM242536
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)
0.160000	---	27.78	66.00	38.22	1000.0	9.000	N	19.5
0.160000	41.07	---	79.00	37.93	1000.0	9.000	N	19.5
0.435000	---	31.18	66.00	34.82	1000.0	9.000	N	19.6
0.435000	37.53	---	79.00	41.47	1000.0	9.000	N	19.6
0.885000	---	20.50	60.00	39.50	1000.0	9.000	N	19.6
0.885000	25.93	---	73.00	47.07	1000.0	9.000	N	19.6
1.520000	---	19.75	60.00	40.25	1000.0	9.000	N	19.7
1.520000	24.53	---	73.00	48.47	1000.0	9.000	N	19.7
12.410000	---	43.62	60.00	16.38	1000.0	9.000	N	20.2
12.410000	48.47	---	73.00	24.53	1000.0	9.000	N	20.2
14.895000	---	44.41	60.00	15.59	1000.0	9.000	N	20.3
14.895000	48.49	---	73.00	24.51	1000.0	9.000	N	20.3

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

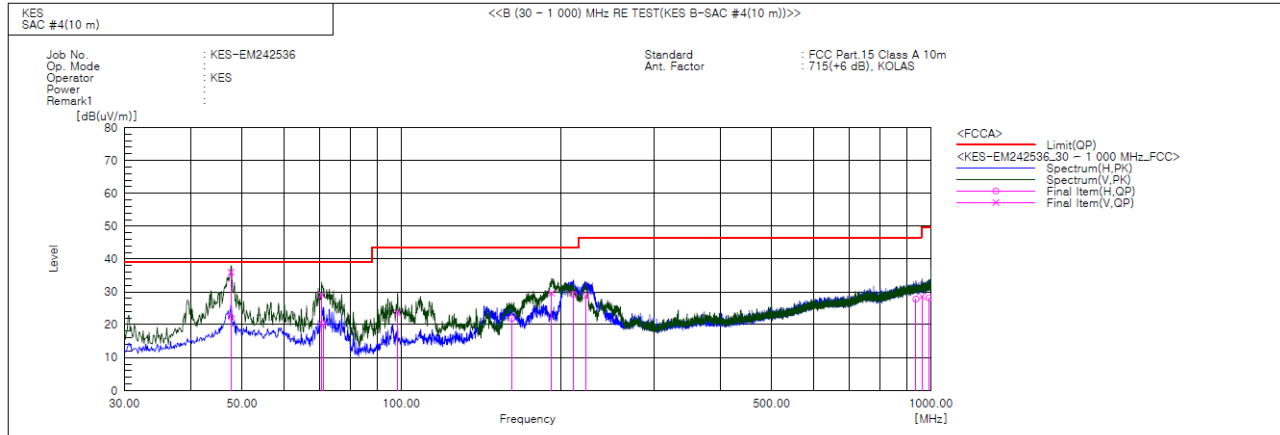
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))



Report No. : KES-EM242536

Radiated Electric Field Emissions(Below 1 GHz)

- 47 CFR Part 15, Subpart B

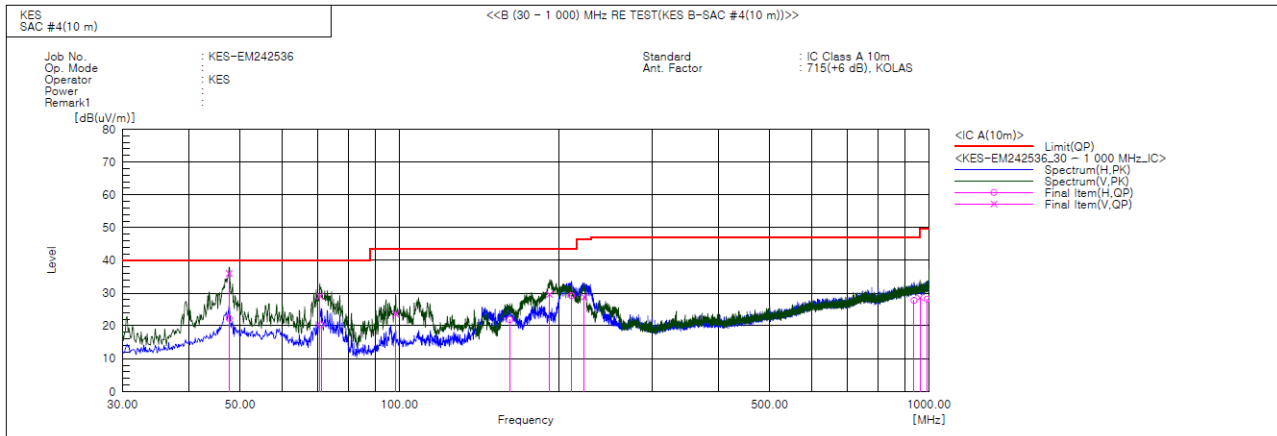
**Final Result**

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	47.703	V	57.2	-21.2	36.0	39.0	3.0	114.0	259.0	
2	47.703	H	43.5	-21.2	22.3	39.0	16.7	396.0	189.0	
3	70.740	V	54.2	-25.2	29.0	39.0	10.0	168.0	270.0	
4	71.104	H	45.7	-25.4	20.3	39.0	18.7	369.0	177.0	
5	98.385	V	46.0	-22.4	23.6	43.5	19.9	115.0	273.0	
6	161.556	H	46.6	-24.7	21.9	43.5	21.6	394.0	170.0	
7	191.990	V	51.3	-21.7	29.6	43.5	13.9	131.0	69.0	
8	211.390	H	49.1	-19.9	29.2	43.5	14.3	341.0	128.0	
9	223.394	V	48.1	-19.3	28.8	46.5	17.7	107.0	150.0	
10	936.829	H	30.5	-2.7	27.8	46.5	18.7	388.0	225.0	
11	961.685	V	31.1	-2.5	28.6	49.5	20.9	140.0	244.0	
12	990.906	H	30.1	-1.9	28.2	49.5	21.3	363.0	146.0	



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- IC Regulation ICES-003 Issue 7



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	47.703	V	57.2	-21.2	36.0	40.0	4.0	114.0	259.0	
2	47.703	H	43.5	-21.2	22.3	40.0	17.7	396.0	189.0	
3	70.740	V	54.2	-25.2	29.0	40.0	11.0	168.0	270.0	
4	71.104	H	45.7	-25.4	20.3	40.0	19.7	369.0	177.0	
5	98.385	V	46.0	-22.4	23.6	43.5	19.9	115.0	273.0	
6	161.556	H	46.6	-24.7	21.9	43.5	21.6	394.0	170.0	
7	191.990	V	51.3	-21.7	29.6	43.5	13.9	131.0	69.0	
8	211.390	H	49.1	-19.9	29.2	43.5	14.3	341.0	128.0	
9	223.394	V	48.1	-19.3	28.8	46.4	17.6	107.0	150.0	
10	936.829	H	30.5	-2.7	27.8	47.0	19.2	388.0	225.0	
11	961.685	V	31.1	-2.5	28.6	49.5	20.9	140.0	244.0	
12	990.906	H	30.1	-1.9	28.2	49.5	21.3	363.0	146.0	

◆ Calculation

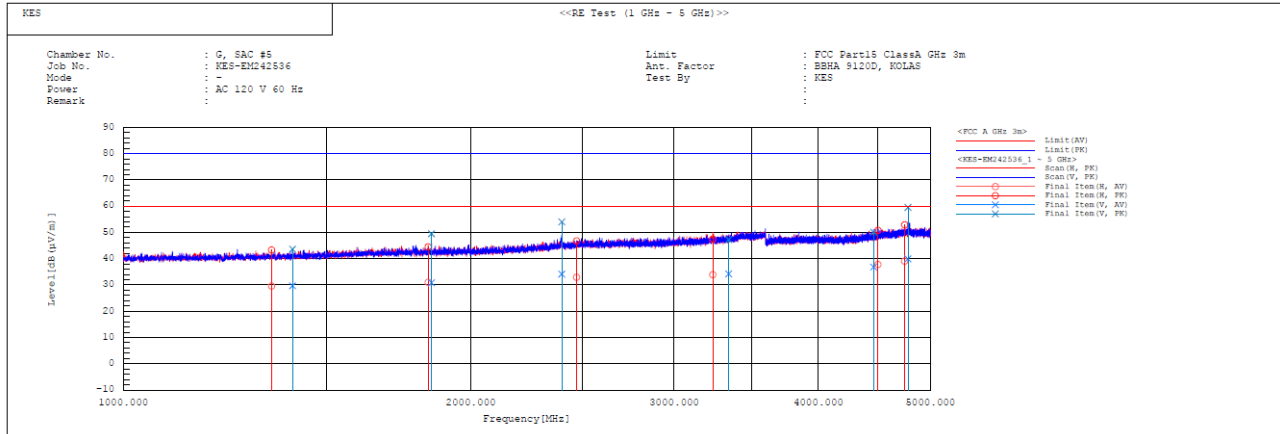
$$\text{Result(QP)} [\text{dB}(\mu\text{V/m})] = (\text{Reading(QP)} [\text{dB}(\mu\text{V})] + \text{c.f} [\text{dB}(1/\text{m})])$$
$$\text{Margin(QP)} [\text{dB}] = \text{Limit} [\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$$

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)**

- (1 ~ 5) GHz

**Final Result**

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(l/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]	Remark
1	1344.400	H	29.6	43.3	0.0	29.6	43.3	60.0	80.0	30.4	36.7	297.4	353.3	
2	1401.600	V	29.5	43.4	0.2	29.7	43.6	60.0	80.0	30.3	36.4	144.8	169.8	
3	1836.800	H	28.9	42.4	2.1	31.0	44.5	60.0	80.0	29.0	35.5	313.0	104.3	
4	1849.200	V	28.6	47.3	2.2	30.8	49.5	60.0	80.0	29.2	30.5	129.9	357.3	
5	2398.000	V	29.7	49.6	4.4	34.1	54.0	60.0	80.0	25.9	26.0	161.7	256.8	
6	2465.600	H	28.3	42.2	4.6	32.9	46.8	60.0	80.0	27.1	33.2	393.8	229.0	
7	3240.400	H	27.4	41.0	6.5	33.9	47.5	60.0	80.0	26.1	32.5	352.4	278.8	
8	3345.200	V	27.5	40.5	6.7	34.2	47.2	60.0	80.0	25.8	32.8	103.6	7.9	
9	4465.600	V	26.6	39.9	10.2	36.8	50.1	60.0	80.0	23.2	29.9	114.3	37.8	
10	4504.400	H	27.4	40.4	10.4	37.8	50.8	60.0	80.0	22.2	29.2	362.2	177.2	
11	4750.000	H	27.7	41.5	11.4	39.1	52.9	60.0	80.0	20.9	27.1	375.0	70.3	
12	4782.800	V	28.4	48.0	11.5	39.9	59.5	60.0	80.0	20.1	20.5	140.7	169.8	



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- (5 ~ 10) GHz

- PK

Frequency (MHz)	Reading PK (dBuV)	Polarization	Height (m)	ANT Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5 638.300	40.500	V	1.000	32.550	8.470	33.880	47.640	80.000	32.360
8 680.300	40.500	H	1.000	37.690	10.760	33.770	55.180	80.000	24.820

- CISPR AV

Frequency (MHz)	Reading CISPR AV (dBuV)	Polarization	Height (m)	ANT Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5 638.300	26.700	V	1.000	32.550	8.470	33.880	33.840	60.000	26.160
8 680.300	26.400	H	1.000	37.690	10.760	33.770	41.080	60.000	18.920

◆ Calculation

$$\text{Result(QP)} [\text{dB}(\mu\text{V}/\text{m})] = (\text{Reading(QP)}[\text{dB}(\mu\text{V})] + \text{c.f}[\text{dB}(1/\text{m})])$$
$$\text{Margin(QP)}[\text{dB}] = \text{Limit}[\text{dB}(\mu\text{V}/\text{m})] - \text{Result(QP)} [\text{dB}(\mu\text{V}/\text{m})]$$

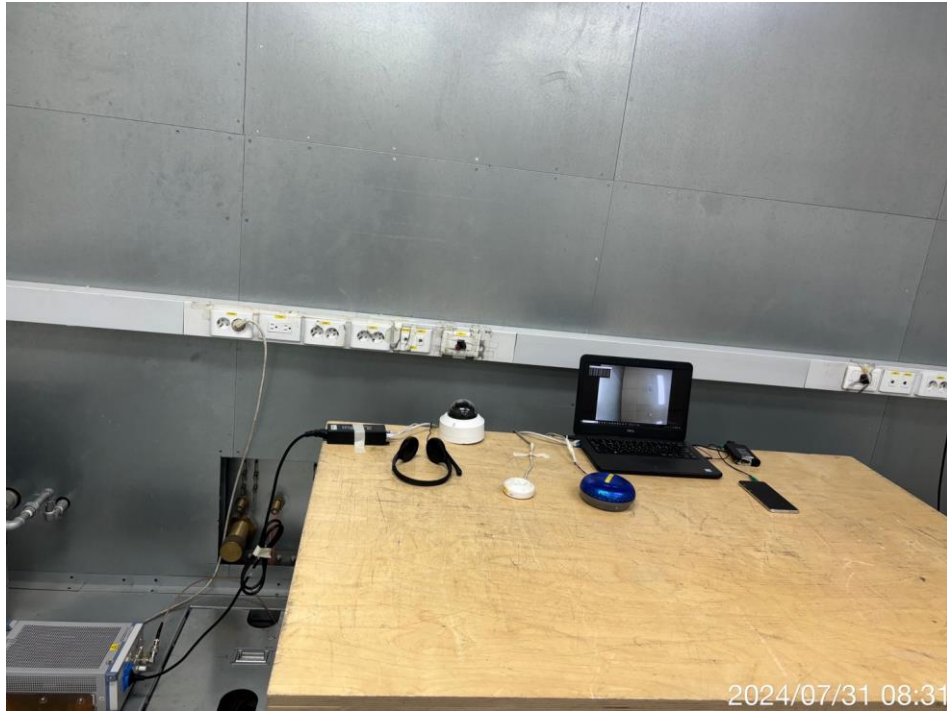
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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



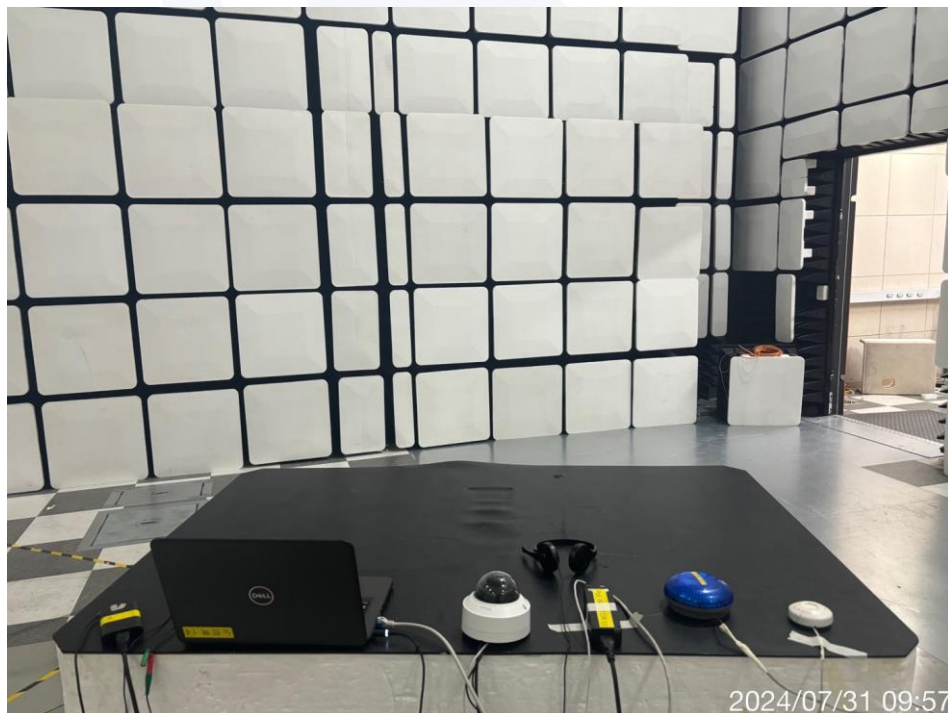
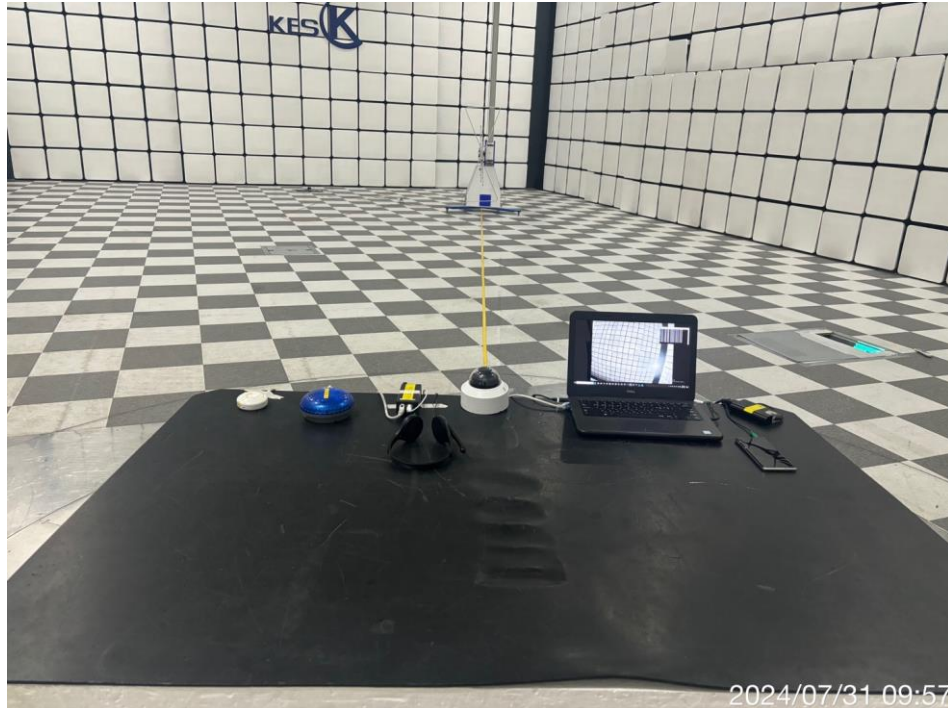
Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports



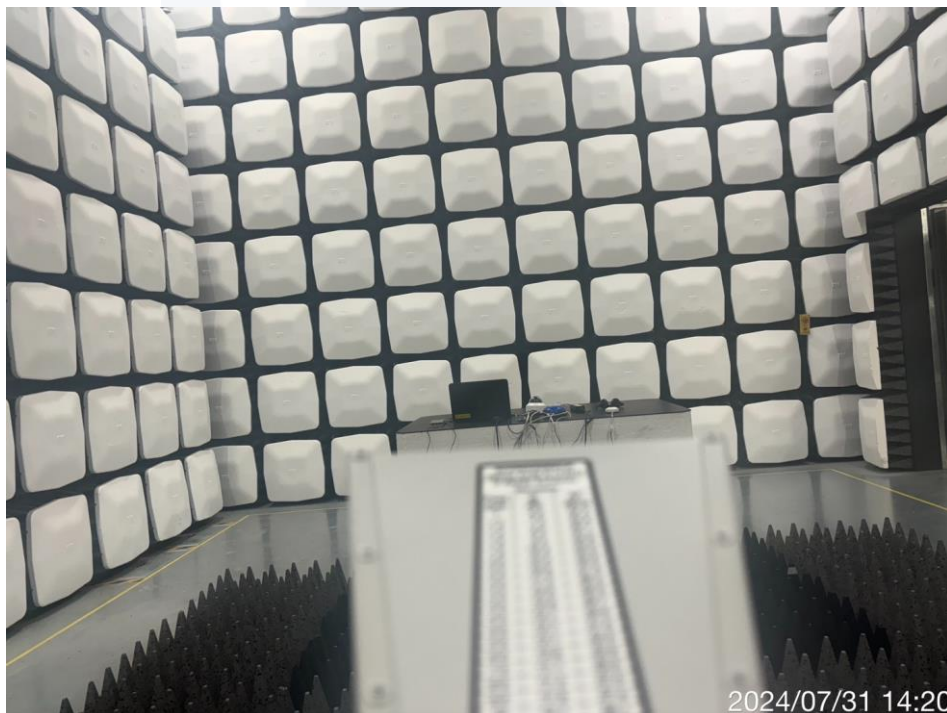
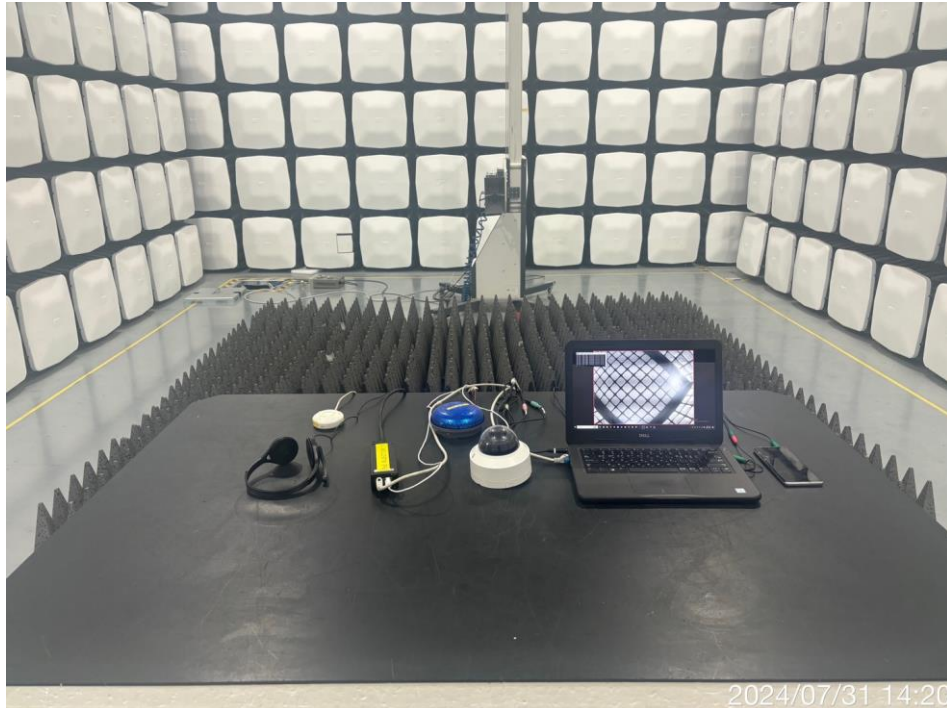


Radiated Electric Field Emissions(Below 1 GHz)





Radiated Electric Field Emissions(Above 1 GHz)





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs

(Internal View)



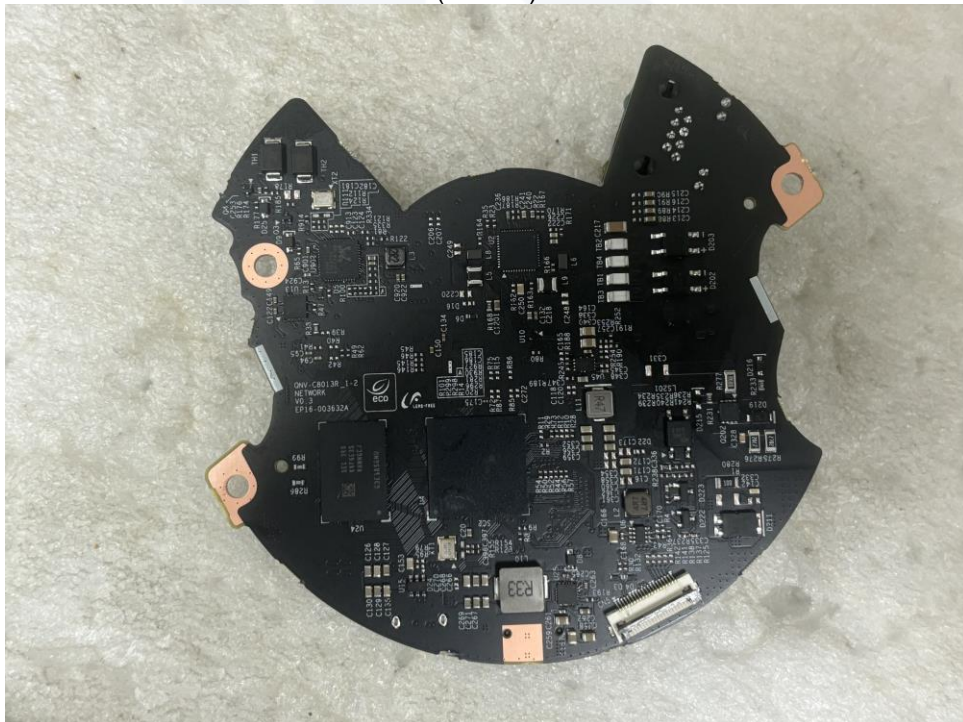


EUT Internal View – Board 1

(Top)



(Bottom)





EUT Internal View – Board 2

(Top)



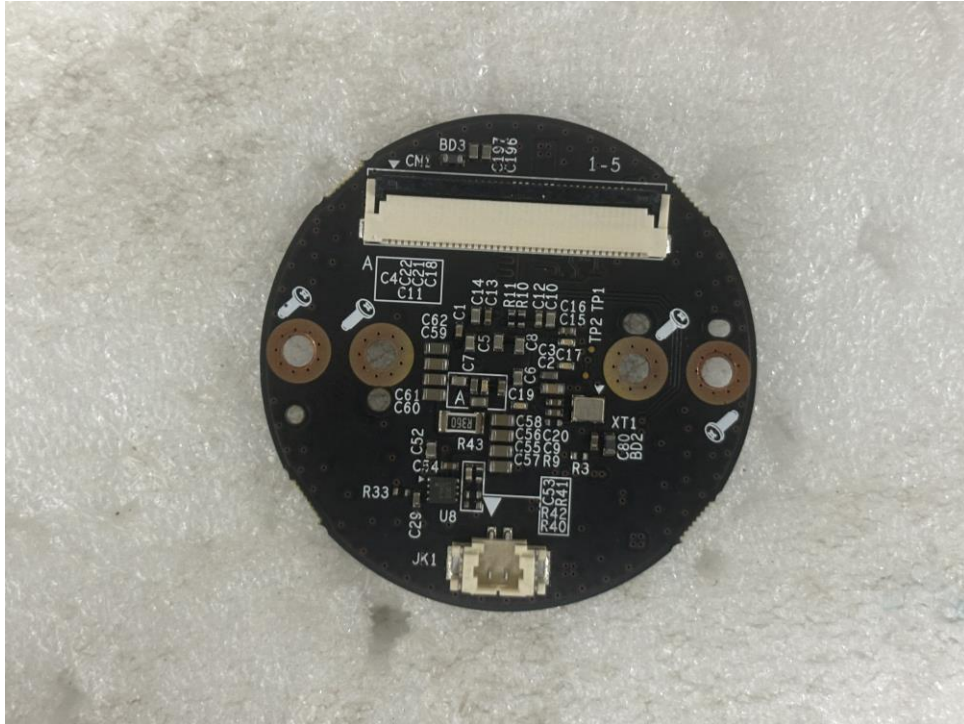
(Bottom)





EUT Internal View – Board 3

(Top)



(Bottom)





EUT Internal View – Lens

(Top)



(Bottom)





Label Photographs

FCC Label



NETWORK CAMERA

QNV-C8023R

IC Label

CAN ICES-003(A) / NMB-003(A)

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.