



TEST REPORT



Report No. : KES-EM251774

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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. : PNO-A9082R

Variant Model : -

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

3. Date of Receipt : May. 15, 2025

4. Test date : May. 18, 2025 ~ May. 22, 2025

5. Date of Issue : Jun. 17, 2025

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
Jun. 17, 2025	KES-EM251774	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Division	Specificity
Internal highest clock frequency	1 600 MHz

	PNO-A9082R
Video	
Imaging Device	1/1.2" CMOS
Resolution	3840x2160, 3328x1872, 3072x1728, 2592x1944, 2592x1520, 2560x1440, 1920x1080, 1600x1200, 1280x960, 1280x720, 1024x768, 800x600, 640x480, 640x360, 320x240, 320x180
Max. Framerate	H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 30fps(@8MP Max. 5fps)
NETD	None
Pixel Size	None
Video Out	USB: Micro USB Type C for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	5.9~13.3mm(2.25x) motorized varifocal
Optical Zoom	None
Max. Aperture Ratio	F1.5(Wide)~F2.9(Tele)
Angular Field of View	H: 109°(Wide)~49°(Tele) V: 59°(Wide)~27°(Tele) D: 128°(Wide)~56°(Tele)
Focus Control	Simple focus
Lens Type	P-iris(IR corrected)
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0°~360° / 0°~90° / 0°~180°
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, SDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNRV, WiseNR II (Based on AI engine)
Digital Image Stabilization	Support
Defog	Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, 8point polygonal zones - Color: gray/green/red/blue/black/white/purple/yellow - Mosaic Dynamic Privacy Mask(Based on AI engine) - Color: gray/green/red/blue/black/white/purple/yellow - Mosaic
Gain Control	Off / Max Gain / Manual
White Balance	ATW / NarrowATW / AWC / Manual / Indoor / Outdoor
LDC	Support(Fill/Stretch mode)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/30,000sec) Prefer shutter control(Based on AI engine)
Digital PTZ	None
Video Rotation	Flip, mirror, hallway view(90°/270°)
Analytics	Classified object type: Person/Face/Vehicle(Type: car/bus/truck/motorcycle/bicycle)/License plate Attributes: Person(Gender, Clothing top/bottom color, Bag), Face(Age, Gender, Mask, Glasses), Vehicle(Type: car/bus/truck/motorcycle/bicycle, Color) Support BestShot Support Re-ID(Person) Analytics events based on AI engine - Motion detection, Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit/Appear/Disappear), Slip & fall detection, Face mask detection, Social distancing detection, Sound classification(To be released) Analytics events - Defocus detection, Tampering, Shock detection, Audio detection



Business Intelligence	Based on AI engine: People/Vehicle/Crowd counting, Queue management, Heatmap
Serial Interface	None
Alarm I/O	2 configurable I/O ports, DC 12V output(Max. 50mA)
Alarm Triggers	Analytics, Network disconnection, Alarm input, Time schedule, MQTT subscription, Day/Night, Storage disruption, Case tampering
Alarm Events	When alarm trigger occurred - File upload(image): e-mail/FTP/SFTP - File upload(video clip): FTP/SFTP - 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(WAV, MP3) - MQTT: publication
Audio Streaming	None
Audio In	Selectable(mic in/line in)
Audio Out	Line out
Light Type	IR LED
IR Viewable Length	None
IR Illuminator (Optional)	None
IR Radiation angle	None
IR LED	None
IR Wavelength	850nm
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	Metal shielded RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High MJPEG
Audio Compression	G.711(PCM): 8kHz(64Kbps) G.726(ADPCM): 8kHz(16/24/32/40Kbps) AAC-LC: 16kHz(48Kbps) OPUS: 48kHz(64Kbps)
Smart Codec	WiseStream(Based on AI engine)
Video Quality Adjustment	None
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 5 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/SFTP, SMTP(StartTLS), ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, UPnP, Bonjour, LLDP, SRTP(TCP, UDP Unicast), CDP, MQTT, Syslog
SIP support (VoIP, Peer-to-peer)	None
Security	None
Application Programming Interf	ONVIF Profile S/G/T/M SUNAPI(HTTP API) Hanwha Vision Open Platform
Security	
OS / Firmware Protect	Encrypted Firmware, Secure boot, Signed Firmware
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	IP-based access control, MAC-based access control, Auto logout
Data Protect	Encryption Credentials, Encrypt compress for live recording file export
Audit	Access / System / Event Log management
Device ID	Device Certificate(Hanwha vision Root CA)
Secure Storage	Secure element, SDcard partition encrypt
Security Certificate	ETSI EN 303 645, Secure element(FIPS 140-3 level3, CC EAL6+)
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 2slots 2TB(1TBx2)
Memory	4GB RAM, 8GB eMMC



Environmental & Electrical	
Operating Temperature / Humidity	-50°C~+55°C(-58°F~+131°F) / 0~100% RH +74°C(+165°F)(MAX) based on NEMA-TS 2(2.2.7) * Start up should be done at above -30°C Humidity control /w AIR vent
Storage Temperature / Humidity	-50°C~+60°C(-58°F~+140°F) / 0~90% RH
Wind Load	None
EPA(Effective Projected Area)	0.026m²
Certification	IP66/IP67, NEMA4X, IK10, NEMA-TS 2(2.2.7.2-8, 2.2.8, 2.2.9)
Input Voltage	PoE+(IEEE802.3at type2, Class4), 12VDC
Power Consumption	PoE: Max. 19.2W, typical 11.0W 12VDC: Max. 16.5W, typical 9.5W Support Wisepower - Power monitoring(Max./Current/Avg.) - Power Redundance Failover
Mechanical	
Color / Material	White / Aluminum Window: Hard-coated window
RAL Code	RAL9003
Product Dimensions / Weight	ø93.4x298.4mm(ø3.68x11.75"), 2,060g(4.54lb)
Compatible Conduit hole / Gang	19.1mm(3/4")(M25) single, double, 4" octagon, 4" square
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/IP67, IEC/EN 62262 IK10, NEMA 250 Type 4X, NEMA-TS 2(2.2.7.2-8, 2.2.8, 2.2.9) IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78
Video	None
Compatible Models	
Hanging Adaptor	SBP-160HWM1
Back Box	Included
Ceiling Mount (Assy)	SBP-150CMI, SBP-300CMI, SBP-300CMW1, SBP-900CMW, SBP-300CMTW, SBP-300CMTS
Ceiling Mount (Single Unit)	SBP-180CMB, SBP-140CMB, SBP-180CMS, SBP-900CMP, SBP-300CMP, SBP-150CMP, SBP-C15P, SBP-C15H
Wall Mount	SBP-160WMW1, SBP-400WMW, SBP-250WMW, SBP-300WMW, SBP-300WMW1
Wall Mount Adaptor	None
Pole Mount	SBD-180PMW, SBP-300PMW2
In-ceiling Mount	None
Corner Mount	SBP-156KMW, SBP-300KMW1
Parapet Mount	SBP-156LMW1, SBP-300LMW
Tilt Mount	None
Cabinet	SBP-150NBW, SBP-300NBW
Housing	None
Gang Plate	None
Skin Cover	None
Weather Cap	None
Dome Cover	None
Conduit Adaptor	SBP-060BA
Power Module	None
Interface Box	SPM-4210
Other Compatible Models	SBP-115PFA
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 54.8m(179.73ft) / Tele: 168.5m(552.89ft)
Observe (63PPM/ 19PPF)	Wide: 21.9m(71.89ft) / Tele: 67.4m(221.16ft)
Recognize (125PPM/ 38PPF)	Wide: 11.0m(35.95ft) / Tele: 33.7m(110.58ft)
Identify (250PPM/ 76PPF)	Wide: 5.5m(17.97ft) / Tele: 16.9m(55.29ft)



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 (AC/DC Adapter Input power)
- ☒ AC 120 V, 60 Hz (PoE Adapter Input Power)

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	PNO-A9082R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Injector	PT-PSE109GBRO-A	-	Dongguan PROCET Network Technology Co.,Ltd	-
AC/DC Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
Laptop	P95G001	9JM8HT2	DELL INC.	-
Laptop Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	-
Micro SD Card1	-	-	SanDisk	-
Micro SD Card2	-	-	SanDisk	-
Headset	K550	-	Britz®	-
Alarm	PRO-SL	-	SENSOR PRO	-
Button Alarm	-	-	-	-



1.6 External I/O Cabling

■mode 1

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	DC IN	AC/DC Adapter	DC OUT	1.5	U
	RJ-45 (LAN)	Laptop	RJ-45 (LAN)	3.5	U
	8 Pin (Audio OUT)	Headset	8 Pin (Audio IN)	2.0	U
	8 Pin (Audio IN)		8 Pin (Audio OUT)	2.0	U
	8 Pin (Alarm OUT)	Alarm	8 Pin (Alarm IN)	3.5	U
	8 Pin (Alarm IN)	Button Alarm	8 Pin (Alarm OUT)	3.5	U
	Micro SD Slot	Micor SD Card1	Micro SD Slot	-	-
	Micro SD Slot	Micor SD Card2	Micro SD Slot	-	-
Laptop	DC Jack	Laptop Adapter	DC Jack	1.5	U

* Unshielded=U, Shielded=S

■mode 2

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
	8 Pin (Audio OUT)	Headset	8 Pin (Audio IN)	2.0	U
	8 Pin (Audio IN)		8 Pin (Audio OUT)	2.0	U
	8 Pin (Alarm OUT)	Alarm	8 Pin (Alarm IN)	3.5	U
	8 Pin (Alarm IN)	Button Alarm	8 Pin (Alarm OUT)	3.5	U
	Micro SD Slot	Micor SD Card1	Micro SD Slot	-	-
	Micro SD Slot	Micor SD Card2	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

* Unshielded=U, Shielded=S



1.7 EUT Operating Mode(s)

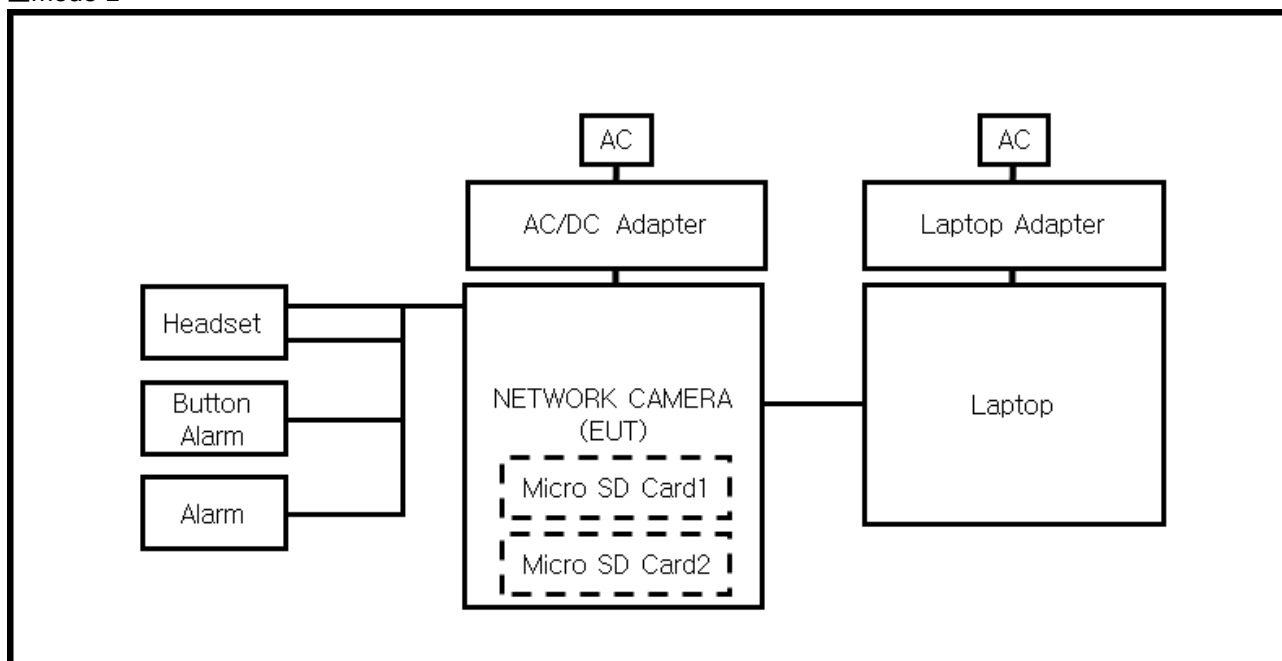
Test No.	Test mode	Operating	Test Voltages
mode 1	DC Power	- Monitoring EUT Using Web Viewer, Ping Test - When the Button Alarm is pressed, make sure the Alarm is working	AC 120 V, 60 Hz
mode 2	PoE Power	- Uploaded the 1 kHz tone sound to the Web Viewer and checked if the sound is output to the headset. - After the test, the recorded video stored on the Micro SD Card was checked and the microphone motion was also confirmed.	

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

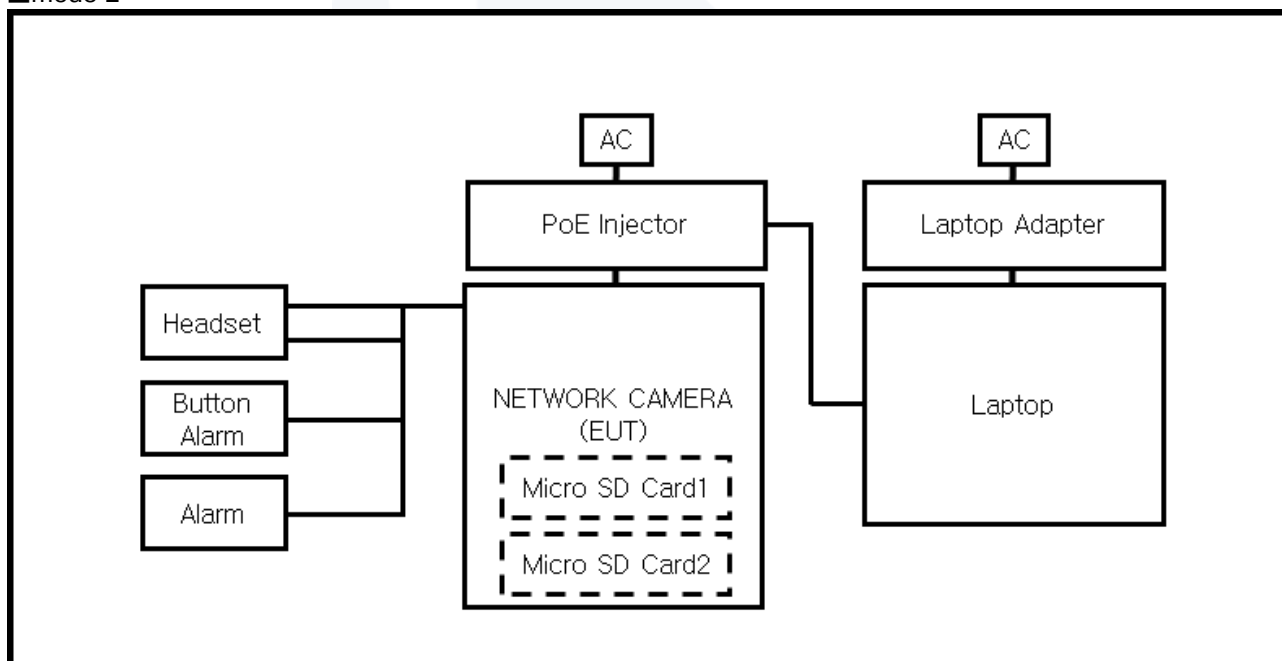


1.8 Configuration

■mode 1



■mode 2





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 Measurement Procedure

- Conducted Emissions

The conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP".

- Radiated Electric Field Emissions

The test was done at a SEMI ANECHOIC CHAMBER with quasi-peak detector. The final test data was measured using a Quasi-Peak detector below 1 GHz at 10 m or 3 m distance and a Peak and Average detector above 1 GHz at 3 m distance. Test was proceeded worst case test mode and cable configuration.

Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Measurement procedures was In accordance with ANSI C63.4-2014 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2

**1.13 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

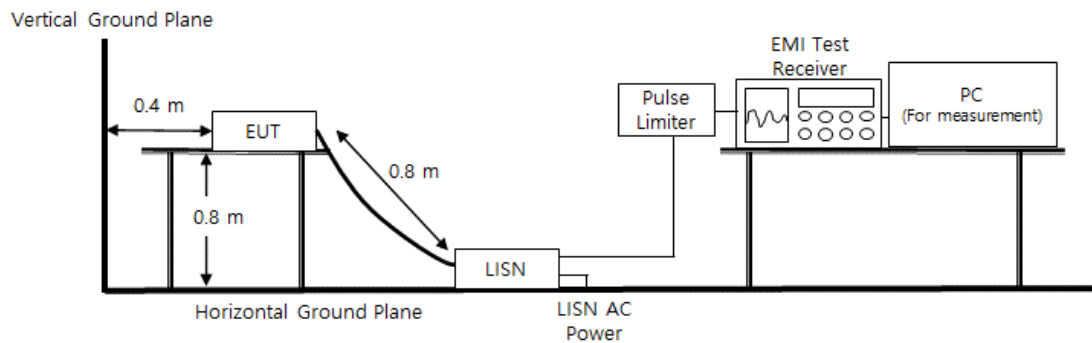
May. 18, 2025

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	EMC32	R & S	9.12.00	-	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	11, 06, 2025	1 Year
☒	LISN	ENV216	R & S	101786	01, 09, 2026	1 Year
☒	ARTIFICIAL MAINS NETWORK	ESH2-Z5	R & S	100450	11, 06, 2025	1 Year
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 06, 2025	1 Year

Diagram of test setup



Test Conditions

Temperature: (23,1 ± 0,1) °C
Relative Humidity: (46,4 ± 0,0) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

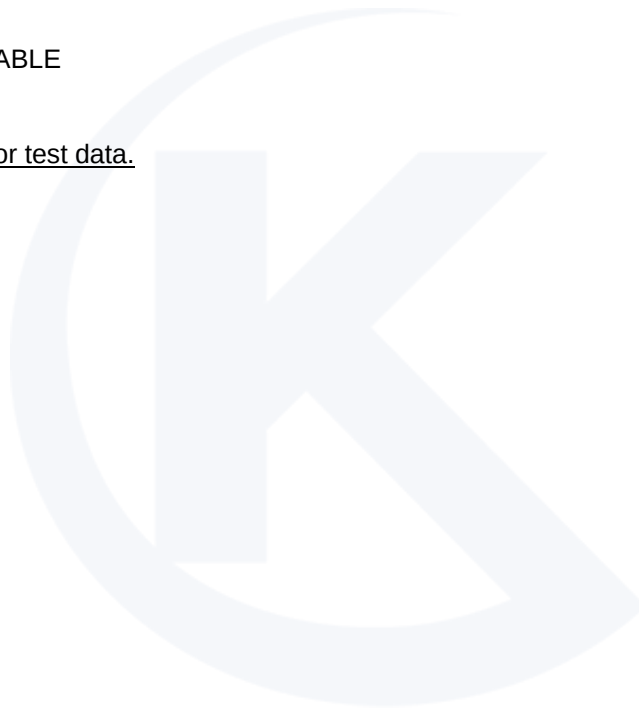
Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





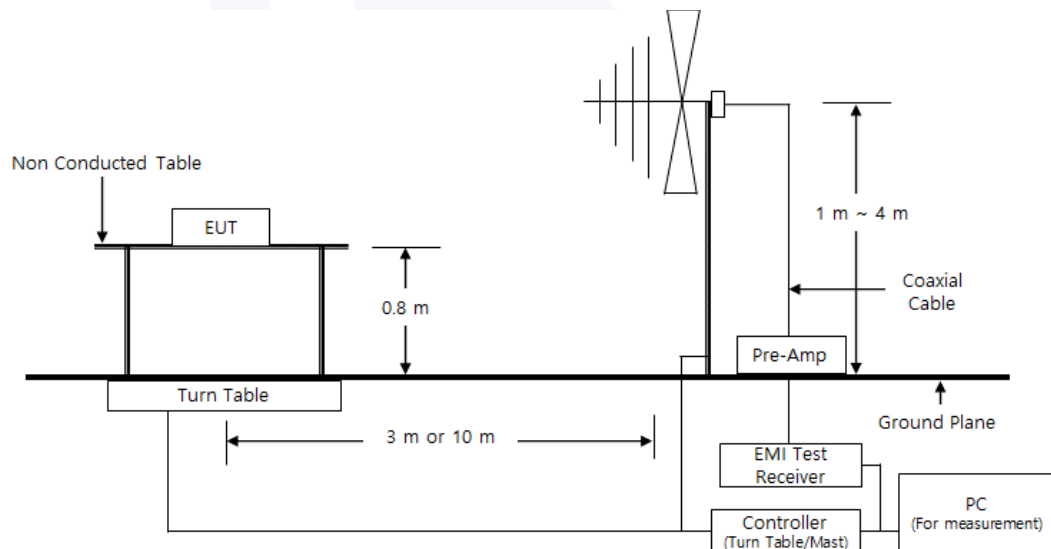
2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

May. 22, 2025

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

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-	-
☒	EMI TEST RECEIVER	ESW8	R & S	101319	03, 24, 2026	1 Year
☒	AMPLIFIER	SCU 01	R & S	100603	11, 06, 2025	1 Year
☒	BILOG ANTENNA	VULB 9168	SCHWARZBECK	9168-461	05, 09, 2026	2 Year
☒	ATTENUATOR	6806.17.A	HUBER+SUHNER	-	02, 13, 2026	1 Year

Diagram of test setup



Test Conditions

Temperature: (23,4 ± 0,2) °C
Relative Humidity: (47,7 ± 0,0) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

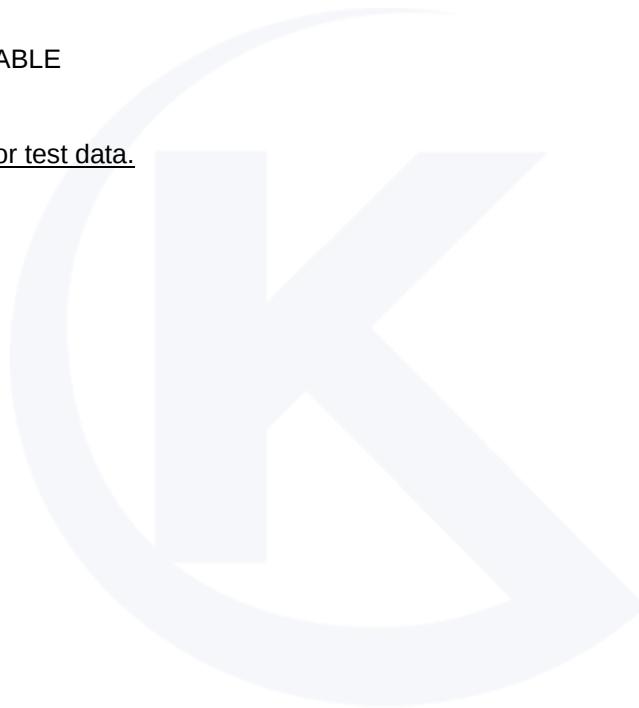
Test Results

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

May. 21, 2025

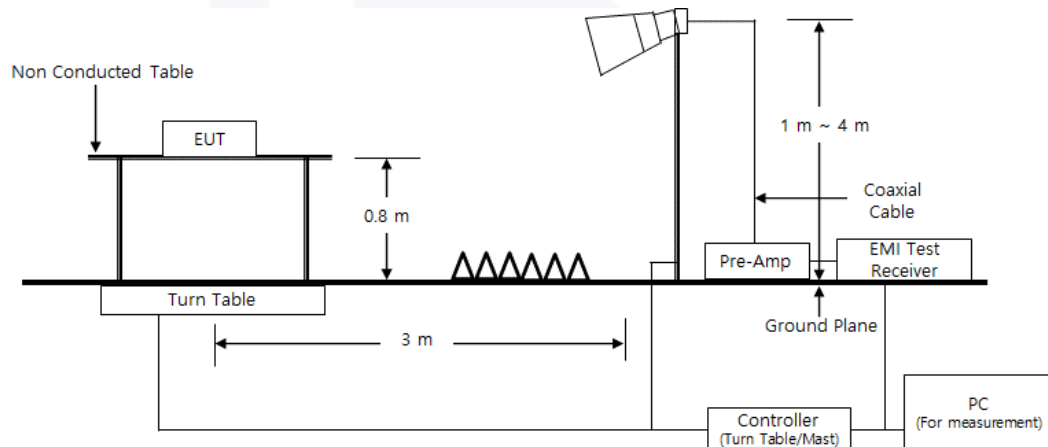
Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	02, 13, 2026	1 Year
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 04, 2025	1 Year
☒	PREAMPLIFIER	8449B	HP	3008A00538	04, 30, 2026	1 Year
☒	ATTENUATOR	8491B	HP	23094	02, 13, 2026	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,0 ± 0,2)°C
Relative Humidity: (47,3 ± 0,2) % R.H.

Frequency Range of Measurement

1 GHz to 5 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

■ mode 1

HOT LINE

Test Description:

Job No.:

Phase:

Mode:

Operator Name:

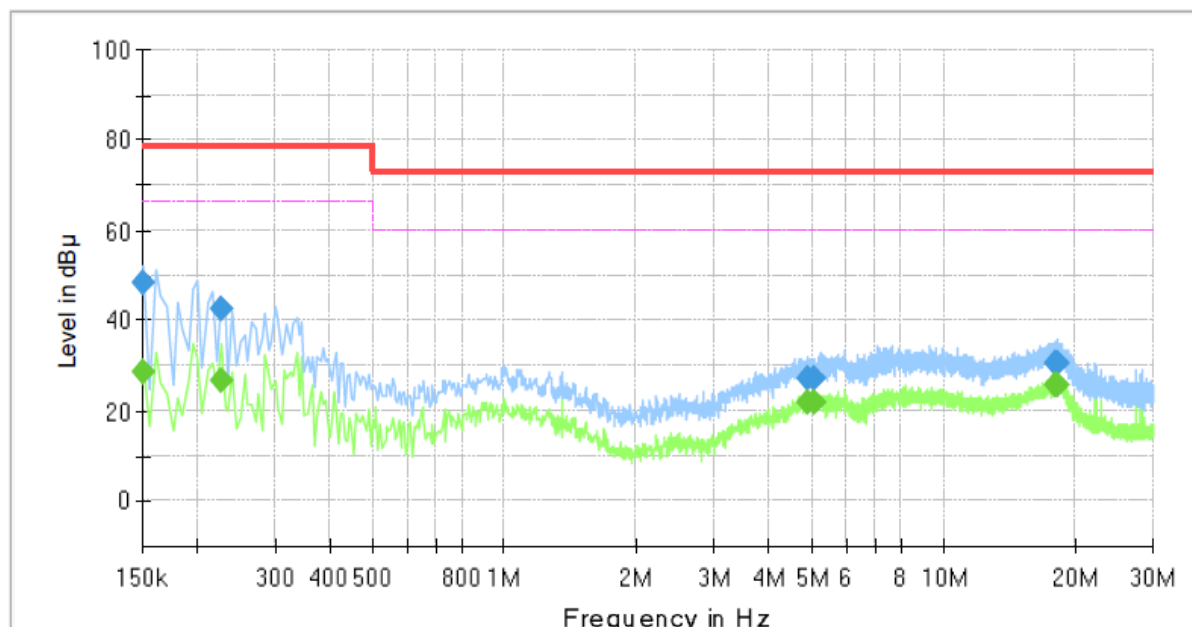
Conducted Emission

KES-EM251774

L

mode 1

KES



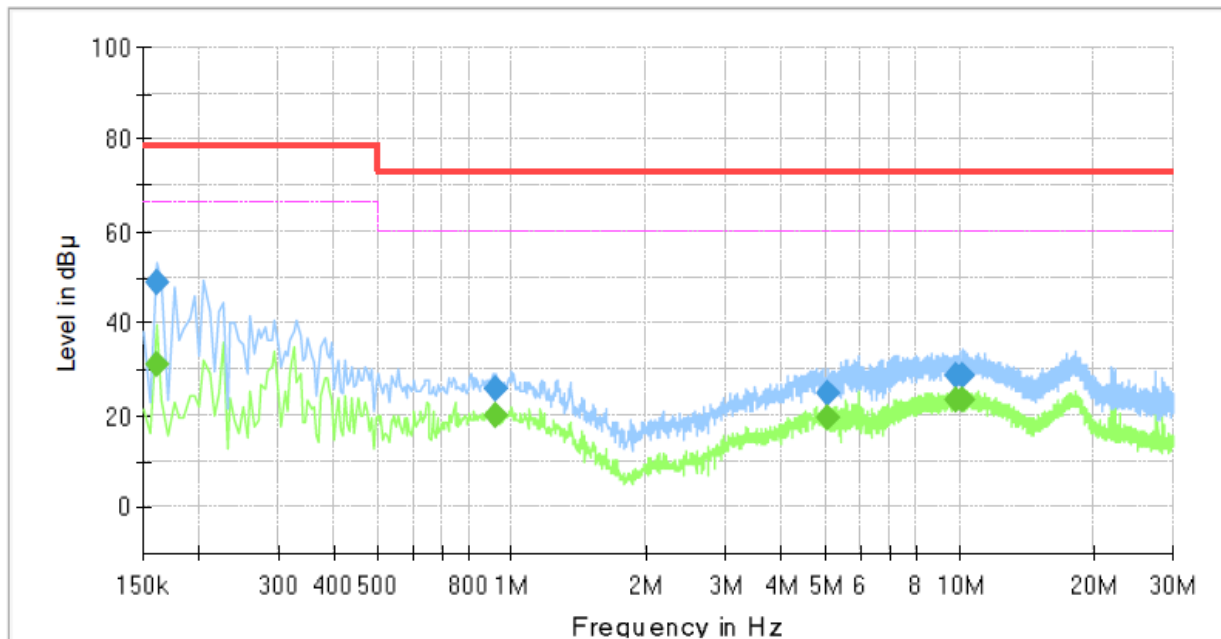
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	28.56	66.00	37.44	1000.0	9.000	L1	19.5
0.150000	48.35	---	79.00	30.65	1000.0	9.000	L1	19.5
0.225000	---	26.65	66.00	39.35	1000.0	9.000	L1	19.5
0.225000	42.45	---	79.00	36.55	1000.0	9.000	L1	19.5
4.915000	---	21.74	60.00	38.26	1000.0	9.000	L1	19.9
4.915000	27.30	---	73.00	45.70	1000.0	9.000	L1	19.9
5.065000	---	21.72	60.00	38.28	1000.0	9.000	L1	19.9
5.065000	27.33	---	73.00	45.67	1000.0	9.000	L1	19.9
17.995000	---	25.69	60.00	34.31	1000.0	9.000	L1	20.3
17.995000	30.56	---	73.00	42.44	1000.0	9.000	L1	20.3
18.090000	---	25.80	60.00	34.20	1000.0	9.000	L1	20.3
18.090000	30.73	---	73.00	42.27	1000.0	9.000	L1	20.3



NEUTRAL LINE

Test Description: Conducted Emission
Job No.: KES-EM251774
Phase: N
Mode: mode 1
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	---	30.97	66.00	35.03	1000.0	9.000	N	19.5
0.160000	48.99	---	79.00	30.01	1000.0	9.000	N	19.5
0.920000	---	20.02	60.00	39.98	1000.0	9.000	N	19.6
0.920000	25.61	---	73.00	47.39	1000.0	9.000	N	19.6
5.095000	---	19.40	60.00	40.60	1000.0	9.000	N	19.9
5.095000	24.83	---	73.00	48.17	1000.0	9.000	N	19.9
9.870000	---	23.24	60.00	36.76	1000.0	9.000	N	20.0
9.870000	28.40	---	73.00	44.60	1000.0	9.000	N	20.0
10.125000	---	23.16	60.00	36.84	1000.0	9.000	N	20.0
10.125000	28.41	---	73.00	44.59	1000.0	9.000	N	20.0



■mode 2

HOT LINE

Test Description:

Job No.:

Phase:

Mode:

Operator Name:

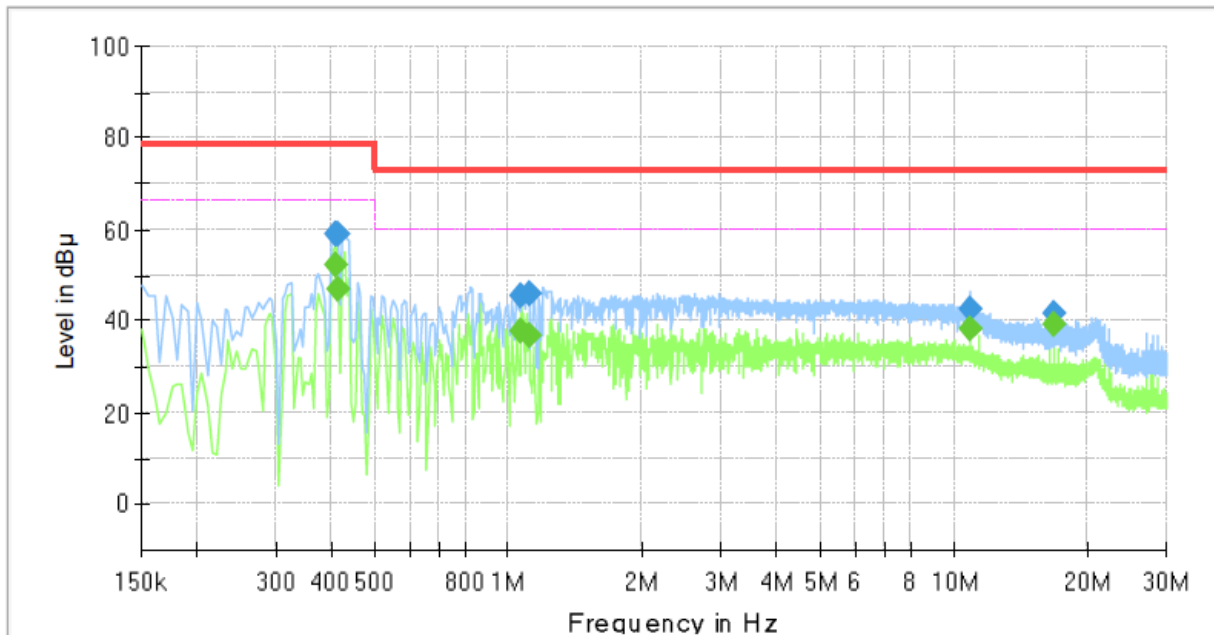
Conducted Emission

KES-EM251774

L

mode 2

KES



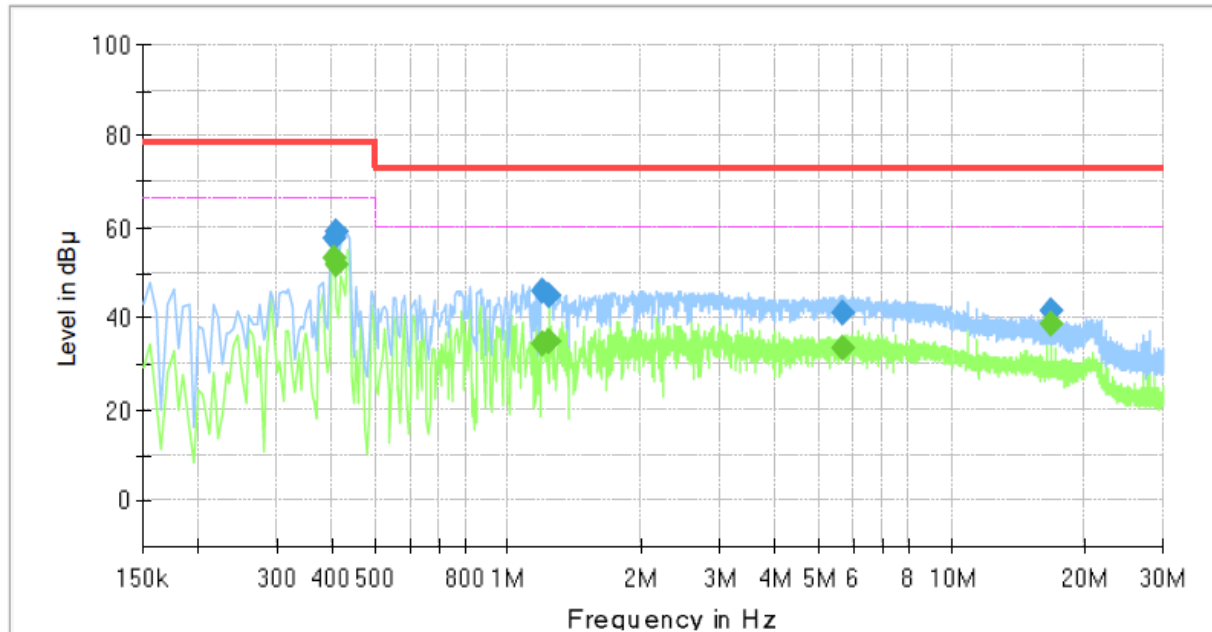
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.410000	---	52.16	66.00	13.84	1000.0	9.000	L1	19.6
0.410000	59.07	---	79.00	19.93	1000.0	9.000	L1	19.6
0.415000	---	46.76	66.00	19.24	1000.0	9.000	L1	19.6
0.415000	59.18	---	79.00	19.82	1000.0	9.000	L1	19.6
1.070000	---	37.92	60.00	22.08	1000.0	9.000	L1	19.6
1.070000	45.72	---	73.00	27.28	1000.0	9.000	L1	19.6
1.110000	---	36.74	60.00	23.26	1000.0	9.000	L1	19.6
1.110000	46.14	---	73.00	26.86	1000.0	9.000	L1	19.6
10.885000	---	38.47	60.00	21.53	1000.0	9.000	L1	20.1
10.885000	42.74	---	73.00	30.26	1000.0	9.000	L1	20.1
16.775000	---	38.97	60.00	21.03	1000.0	9.000	L1	20.3
16.775000	41.65	---	73.00	31.35	1000.0	9.000	L1	20.3



NEUTRAL LINE

Test Description: Conducted Emission
Job No.: KES-EM251774
Phase: N
Mode: mode 2
Operator Name: KES

**Final_Result**

Frequency (MHz)	QuasiPeak (dB u V)	CAverage (dB u V)	Limit (dB u V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.405000	---	53.30	66.00	12.70	1000.0	9.000	N	19.5
0.405000	57.72	---	79.00	21.28	1000.0	9.000	N	19.5
0.410000	---	51.90	66.00	14.10	1000.0	9.000	N	19.5
0.410000	58.80	---	79.00	20.20	1000.0	9.000	N	19.5
1.195000	---	34.48	60.00	25.52	1000.0	9.000	N	19.6
1.195000	46.09	---	73.00	26.91	1000.0	9.000	N	19.6
1.235000	---	35.10	60.00	24.90	1000.0	9.000	N	19.6
1.235000	45.07	---	73.00	27.93	1000.0	9.000	N	19.6
5.715000	---	33.26	60.00	26.74	1000.0	9.000	N	19.9
5.715000	41.35	---	73.00	31.65	1000.0	9.000	N	19.9
16.775000	---	38.79	60.00	21.21	1000.0	9.000	N	20.3
16.775000	41.51	---	73.00	31.49	1000.0	9.000	N	20.3

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

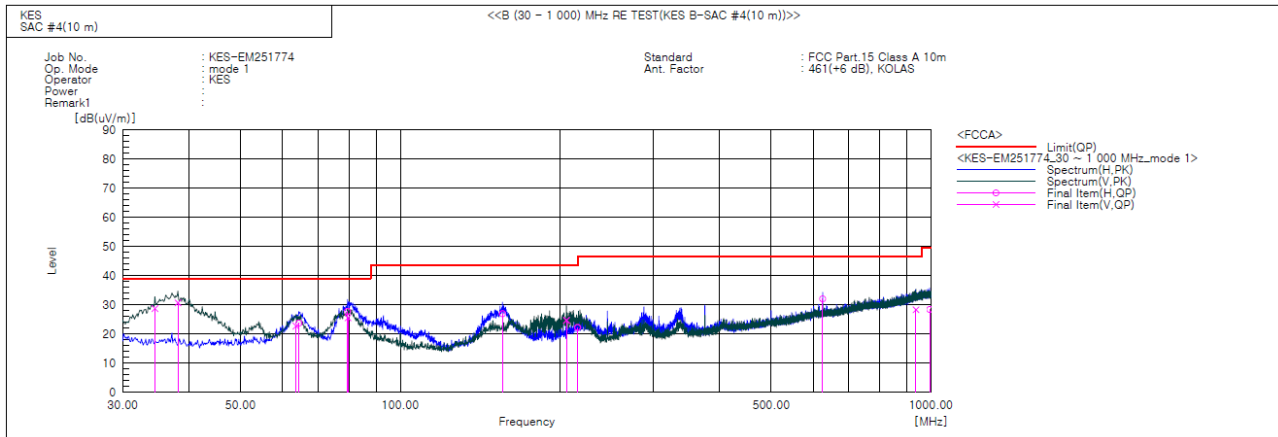
Reading Value : Not shown in the table.

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

**Radiated Electric Field Emissions(Below 1 GHz)**

■ mode 1

- 47 CFR Part 15, Subpart B

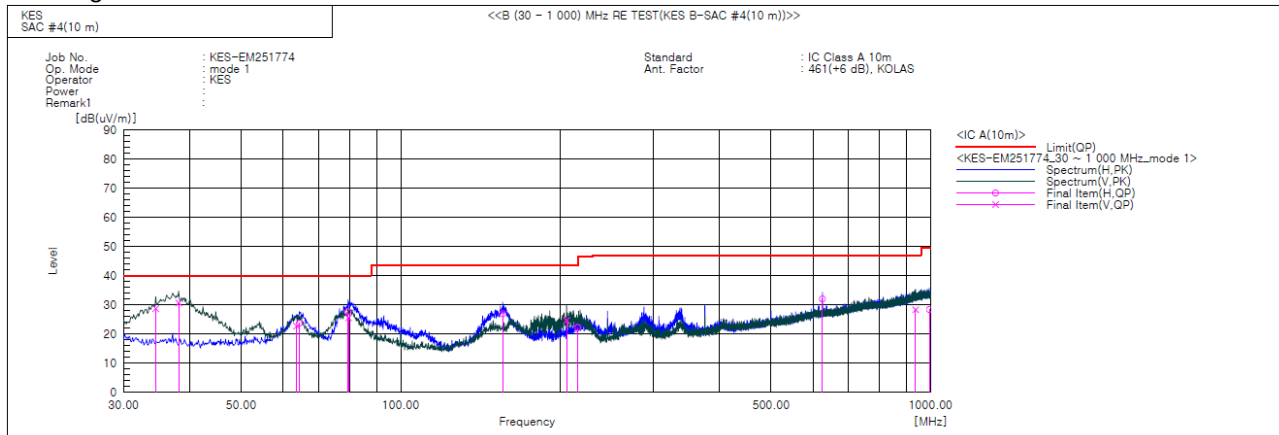
**Final Result**

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	34.486	V	51.0	-22.3	28.7	39.0	10.3	124.0	216.0	
2	38.124	V	52.7	-22.0	30.7	39.0	8.3	104.0	5.0	
3	63.586	V	44.3	-21.6	22.7	39.0	16.3	133.0	46.0	
4	64.435	H	45.4	-21.7	23.7	39.0	15.3	391.0	211.0	
5	79.591	H	53.1	-25.4	27.7	39.0	11.3	357.0	240.0	
6	79.713	V	51.0	-25.5	25.5	39.0	13.5	118.0	58.0	
7	155.858	H	46.2	-19.3	26.9	43.5	16.6	378.0	203.0	
8	205.691	V	46.5	-21.8	24.7	43.5	18.8	150.0	253.0	
9	215.876	H	43.6	-21.4	22.2	43.5	21.3	389.0	111.0	
10	624.974	H	38.5	-6.5	32.0	46.5	14.5	395.0	318.0	
11	936.708	V	29.2	-0.9	28.3	46.5	18.2	169.0	20.0	
12	994.059	H	28.4	0.0	28.4	49.5	21.1	368.0	13.0	



Report No. : KES-EM251774

- IC Regulation ICES-003 Issue 7



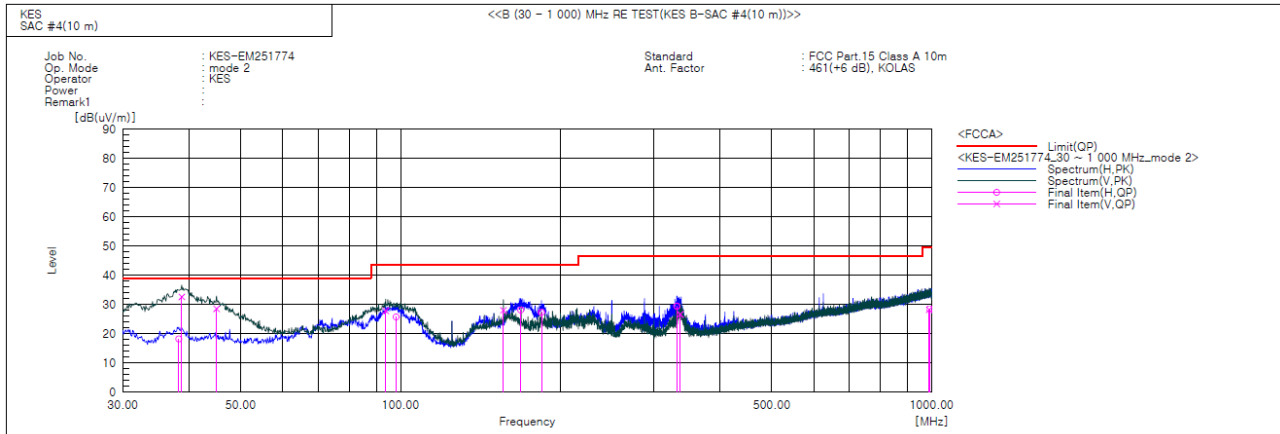
Final Result

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	34.486	V	51.0	-22.3	28.7	40.0	11.3	124.0	216.0	
2	38.124	V	52.7	-22.0	30.7	40.0	9.3	104.0	5.0	
3	63.586	V	44.3	-21.6	22.7	40.0	17.3	133.0	46.0	
4	64.435	H	45.4	-21.7	23.7	40.0	16.3	391.0	211.0	
5	79.591	H	53.1	-25.4	27.7	40.0	12.3	357.0	240.0	
6	79.713	V	51.0	-25.5	25.5	40.0	14.5	118.0	58.0	
7	155.858	H	46.2	-19.3	26.9	43.5	16.6	378.0	203.0	
8	205.691	V	46.5	-21.8	24.7	43.5	18.8	150.0	253.0	
9	215.876	H	43.6	-21.4	22.2	43.5	21.3	389.0	111.0	
10	624.974	H	38.5	-6.5	32.0	47.0	15.0	395.0	318.0	
11	936.708	V	29.2	-0.9	28.3	47.0	18.7	169.0	20.0	
12	994.059	H	28.4	0.0	28.4	49.5	21.1	368.0	13.0	



■ mode 2

- 47 CFR Part 15, Subpart B



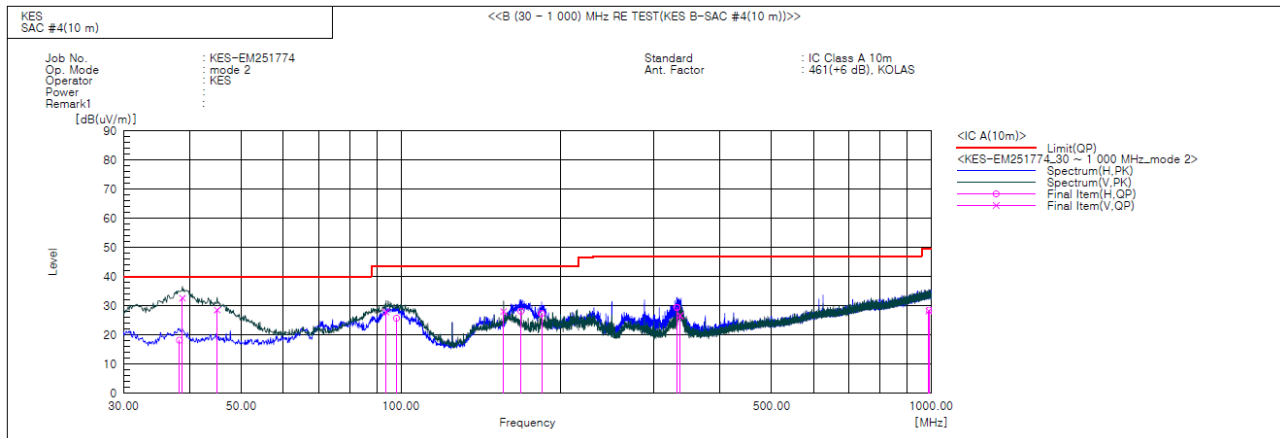
Final Result

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	38.245	H	40.2	-22.0	18.2	39.0	20.8	352.0	146.0	
2	38.730	V	54.5	-21.9	32.6	39.0	6.4	151.0	91.0	
3	45.035	V	49.8	-21.3	28.5	39.0	10.5	156.0	68.0	
4	93.778	V	53.6	-25.8	27.8	43.5	15.7	143.0	106.0	
5	98.143	H	50.9	-25.2	25.7	43.5	17.8	363.0	278.0	
6	156.221	V	47.3	-19.3	28.0	43.5	15.5	116.0	117.0	
7	168.346	H	48.0	-19.9	28.1	43.5	15.4	348.0	263.0	
8	184.230	H	48.5	-21.2	27.3	43.5	16.2	377.0	297.0	
9	331.549	H	45.4	-16.0	29.4	46.5	17.1	396.0	188.0	
10	336.035	V	42.5	-15.9	26.6	46.5	19.9	103.0	166.0	
11	989.936	V	28.3	-0.1	28.2	49.5	21.3	147.0	199.0	
12	990.421	H	28.5	0.0	28.5	49.5	21.0	387.0	357.0	



Report No. : KES-EM251774

- IC Regulation ICES-003 Issue 7



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	38.245	H	40.2	-22.0	18.2	40.0	21.8	352.0	146.0	
2	38.730	V	54.5	-21.9	32.6	40.0	7.4	151.0	91.0	
3	45.035	V	49.8	-21.3	28.5	40.0	11.5	156.0	68.0	
4	93.778	V	53.6	-25.8	27.8	43.5	15.7	143.0	106.0	
5	98.143	H	50.9	-25.2	25.7	43.5	17.8	363.0	278.0	
6	156.221	V	47.3	-19.3	28.0	43.5	15.5	116.0	117.0	
7	168.346	H	48.0	-19.9	28.1	43.5	15.4	348.0	263.0	
8	184.230	H	48.5	-21.2	27.3	43.5	16.2	377.0	297.0	
9	331.549	H	45.4	-16.0	29.4	47.0	17.6	396.0	188.0	
10	336.035	V	42.5	-15.9	26.6	47.0	20.4	103.0	166.0	
11	989.936	V	28.3	-0.1	28.2	49.5	21.3	147.0	199.0	
12	990.421	H	28.5	0.0	28.5	49.5	21.0	387.0	357.0	

◆ Calculation

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

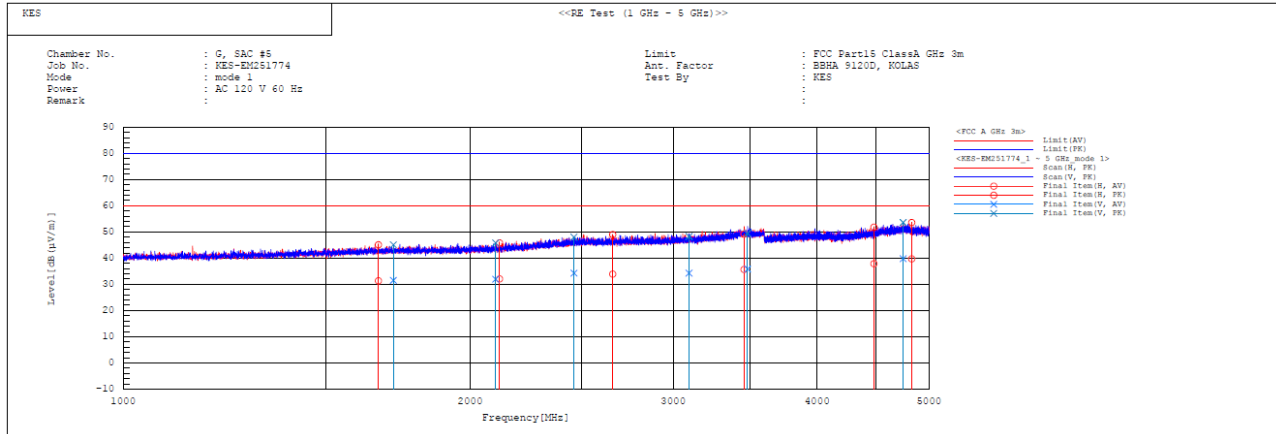
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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

**Radiated Electric Field Emissions(Above 1 GHz)**

■ mode 1

- (1 ~ 5) GHz

**Final Result**

No.	Frequency	Pol	Reading	Reading	c.f	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]		AV	PK		PK	AV	PK	AV	PK	[cm]	[deg]	
			[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]			
1	1665.515	H	29.6	43.3	1.8	45.1	60.0	80.0	28.6	34.9	337.1	238.3	
2	1716.207	V	29.6	43.2	1.9	45.1	60.0	80.0	28.5	34.9	105.8	321.7	
3	2105.139	V	28.5	42.4	3.4	45.8	60.0	80.0	28.1	34.2	127.7	294.9	
4	2120.979	H	28.6	42.3	3.5	45.8	60.0	80.0	27.9	34.2	361.2	181.5	
5	2461.557	V	29.4	43.1	4.9	48.0	60.0	80.0	25.7	32.0	133.8	185.8	
6	2658.629	H	28.4	43.5	5.5	49.0	60.0	80.0	26.1	31.0	343.2	226.0	
7	3056.953	V	27.7	41.7	6.6	48.3	60.0	80.0	25.7	31.7	167.0	66.8	
8	3457.488	H	28.5	42.0	7.2	49.2	60.0	80.0	24.3	30.8	283.1	242.8	
9	3481.725	V	28.5	42.2	7.3	49.5	60.0	80.0	24.2	30.5	140.3	177.4	
10	4480.065	H	27.1	41.0	10.8	51.8	60.0	80.0	22.1	28.2	384.0	37.7	
11	4750.119	V	28.2	42.0	11.6	53.6	60.0	80.0	20.2	26.4	103.1	332.4	
12	4832.107	H	27.8	41.7	11.9	53.6	60.0	80.0	20.3	26.4	279.8	327.6	



- (5 ~ 8) 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)
6 623.700	40.800	V	1.000	34.620	9.210	34.770	49.860	80.000	30.140
6 782.300	41.100	H	1.000	35.410	9.460	34.710	51.260	80.000	28.740

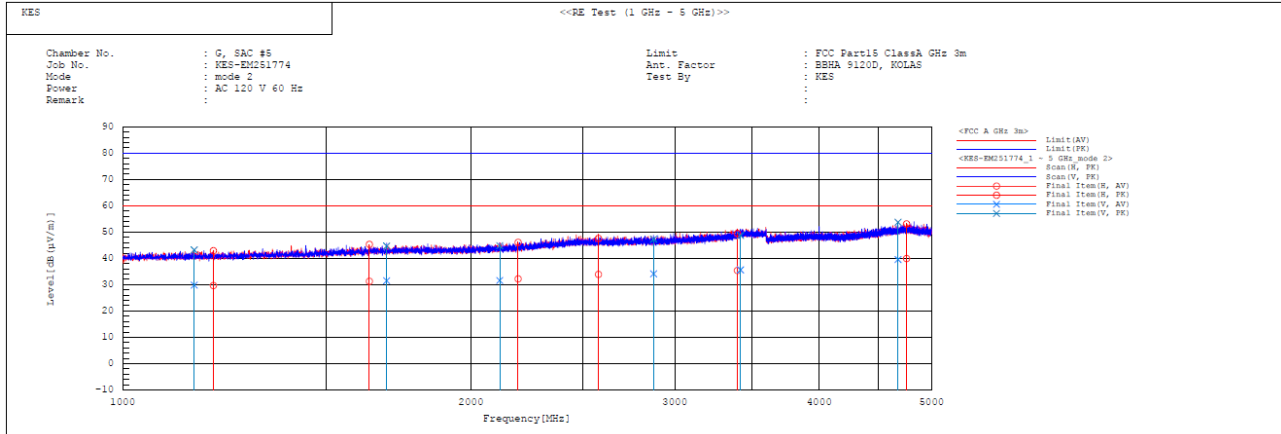
- CISPR AV

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)
6 623.700	27.500	V	1.000	34.620	9.210	34.770	36.560	60.000	23.440
6 782.300	27.700	H	1.000	35.410	9.460	34.710	37.860	60.000	22.140



Report No. : KES-EM251774

■ mode 2
- (1 ~ 5) GHz



Final Result

No.	Frequency	Pol	Reading	Reading	c.f	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]		AV	PK		PK	AV	PK	AV	PK	[cm]	[deg]	
1	1153.258	V	30.7	44.1	-0.9	43.2	60.0	80.0	30.2	36.8	101.6	296.0	
2	1198.020	H	30.3	43.5	-0.6	42.9	60.0	80.0	30.3	37.1	272.0	340.4	
3	1634.128	H	29.7	43.7	1.6	45.3	60.0	80.0	28.7	34.7	294.3	357.7	
4	1691.687	V	29.7	42.9	1.8	44.7	60.0	80.0	28.5	35.3	102.4	133.8	
5	2117.752	V	28.1	41.3	3.5	44.8	60.0	80.0	28.4	35.2	123.7	296.0	
6	2197.314	H	28.4	42.3	3.8	46.1	60.0	80.0	27.8	33.9	374.8	180.6	
7	2577.683	H	28.7	42.4	5.2	47.6	60.0	80.0	26.1	32.4	380.6	161.5	
8	2876.915	V	28.0	41.2	6.1	47.3	60.0	80.0	25.9	32.7	154.9	359.4	
9	3398.814	H	28.2	42.3	7.2	49.5	60.0	80.0	24.6	30.5	387.7	237.8	
10	3419.965	V	28.4	41.5	7.2	48.7	60.0	80.0	24.4	31.3	156.3	101.7	
11	4678.142	V	28.1	42.2	11.5	53.7	60.0	80.0	20.4	26.3	166.1	148.4	
12	4759.873	H	28.2	41.4	11.7	53.1	60.0	80.0	20.1	26.9	396.0	191.1	



Report No. : KES-EM251774

- (5 ~ 8) GHz

- PK

Frequency (MHz)	Reading PK (dBuV)	Polarization	Height (m)	ANT Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5 733.200	41.100	H	1.000	32.930	8.500	33.740	48.790	80.000	31.210
6 735.500	40.800	V	1.000	35.180	9.390	34.730	50.640	80.000	29.360

- CISPR AV

Frequency (MHz)	Reading CISPR AV (dBuV)	Polarization	Height (m)	ANT Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
5 733.200	27.000	H	1.000	32.930	8.500	33.740	34.690	60.000	25.310
6 735.500	27.500	V	1.000	35.180	9.390	34.730	37.340	60.000	22.660

◆ Calculation

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

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

Limit(PK/CAV) : Limit value, c.f : (ANT Factor + Cable Loss - Preamplifier Factor), Margin: Margin value



Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ mode 1





Report No. : KES-EM251774

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■ mode 2





Radiated Electric Field Emissions(Below 1 GHz)

■ mode 1





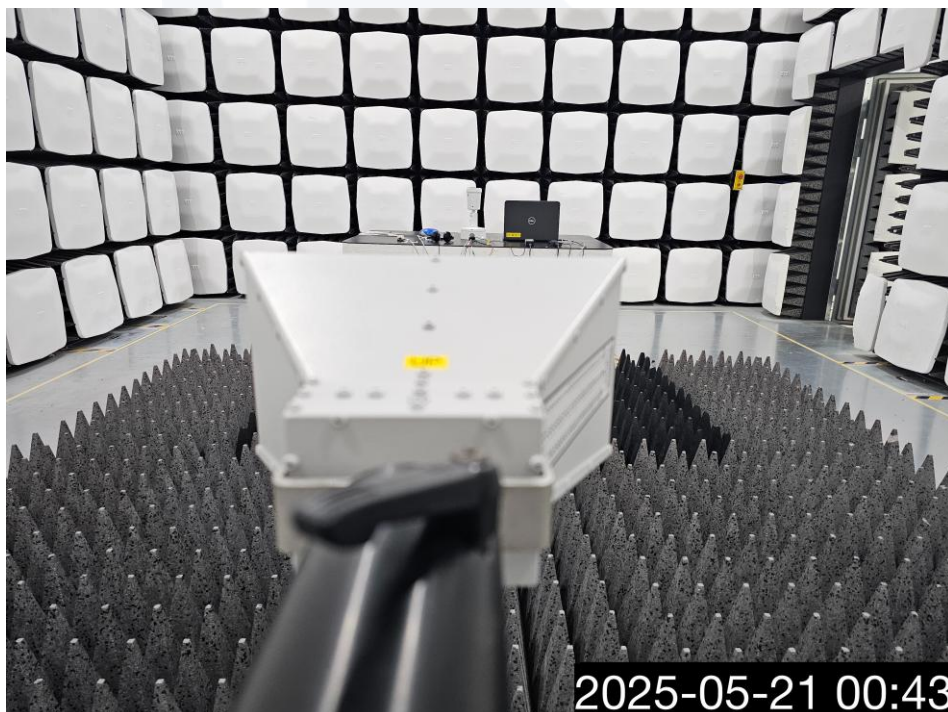
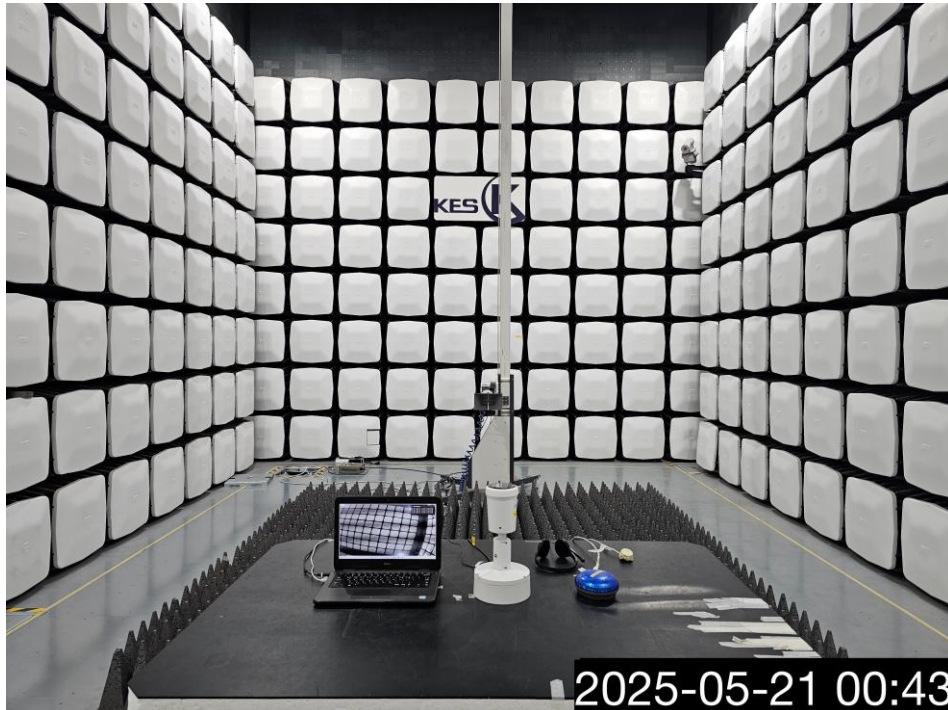
■ mode 2





Radiated Electric Field Emissions(Above 1 GHz)

■ mode 1





■ mode 2





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs

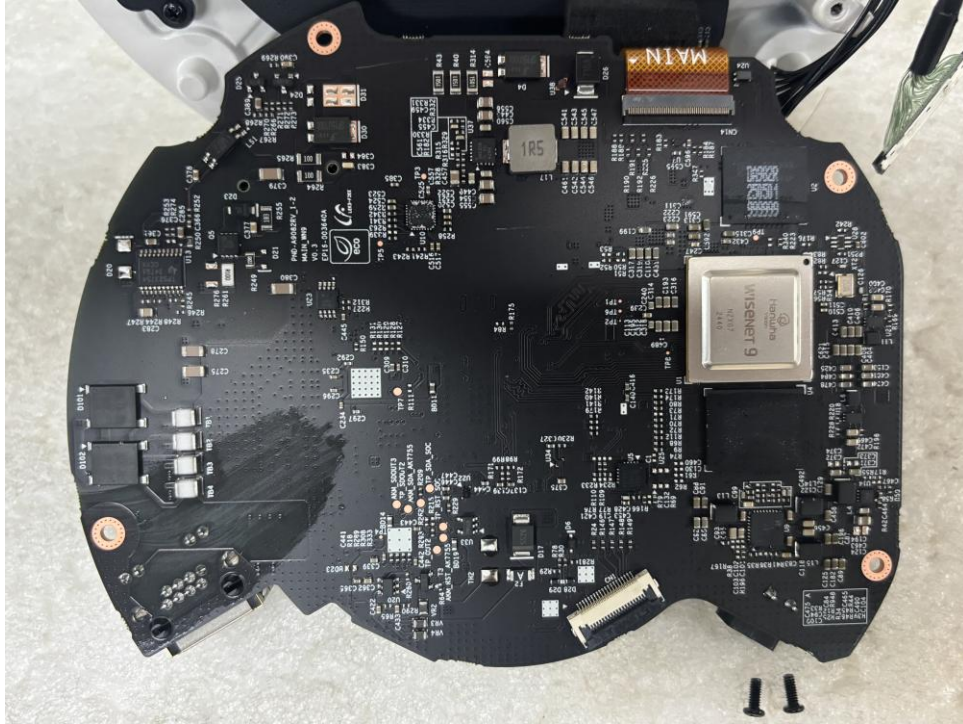
(Internal View)



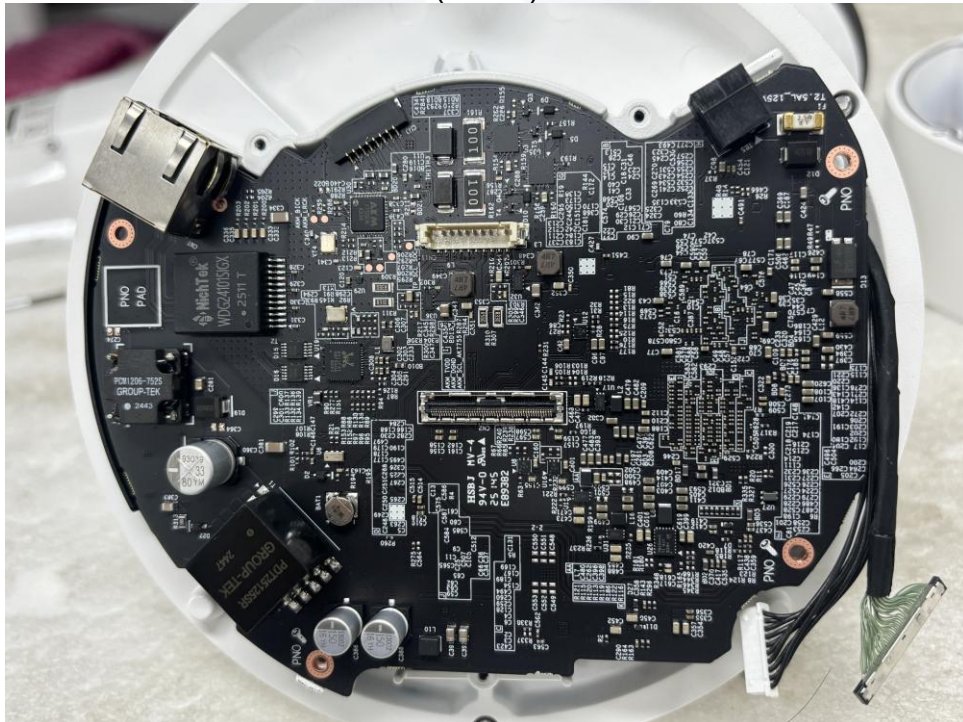


EUT Internal View – Board 1

(Top)



(Bottom)





EUT Internal View – Board 2

(Top)



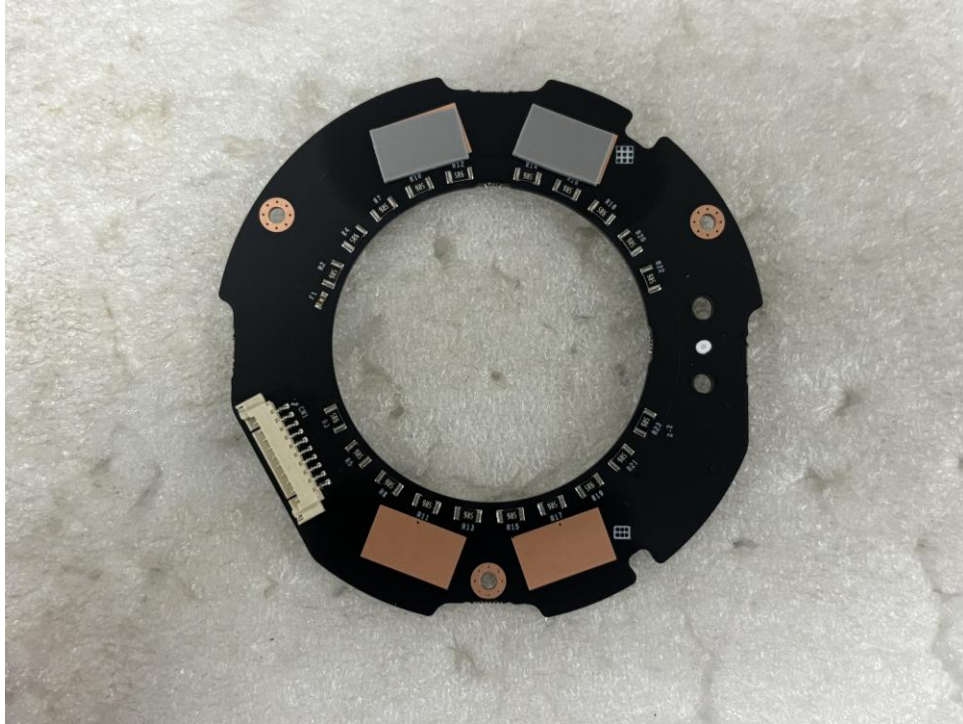
(Bottom)





EUT Internal View – Board 3

(Top)



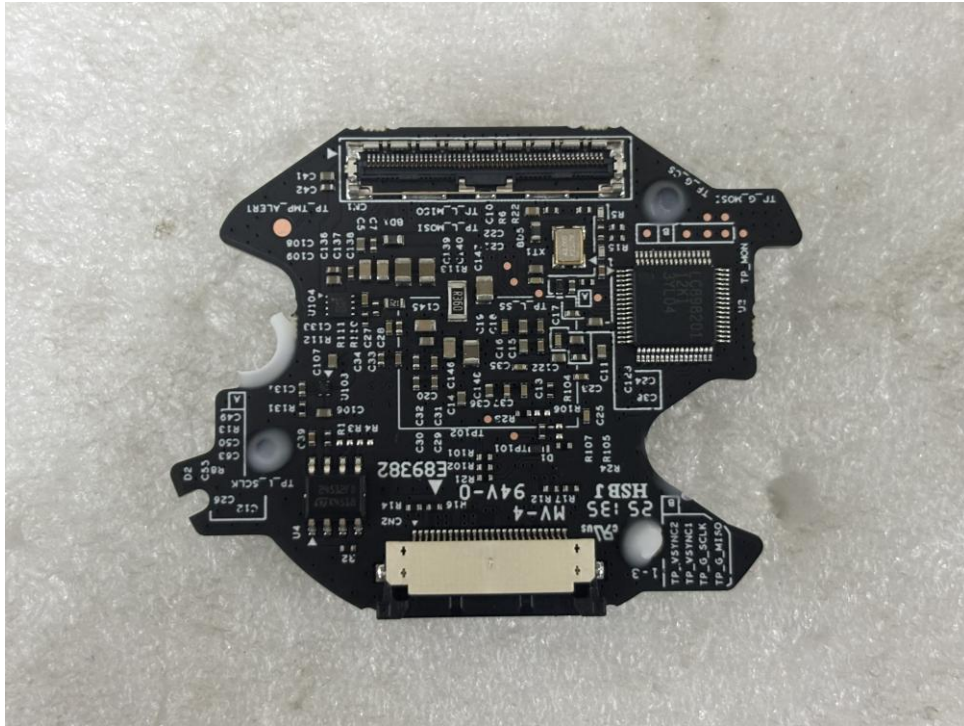
(Bottom)



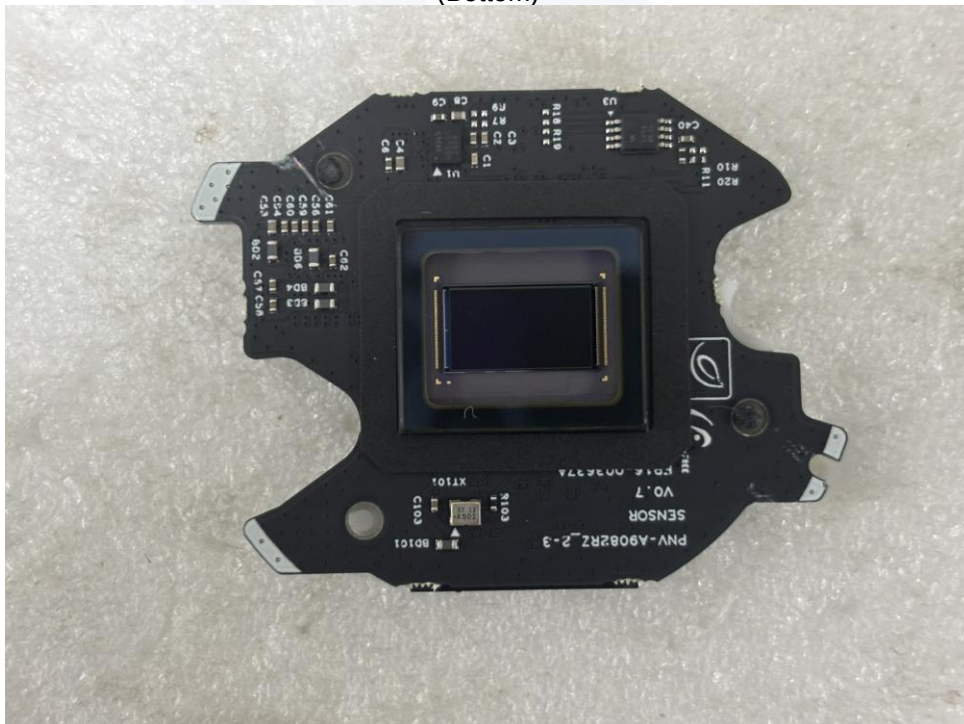


EUT Internal View – Board 4

(Top)



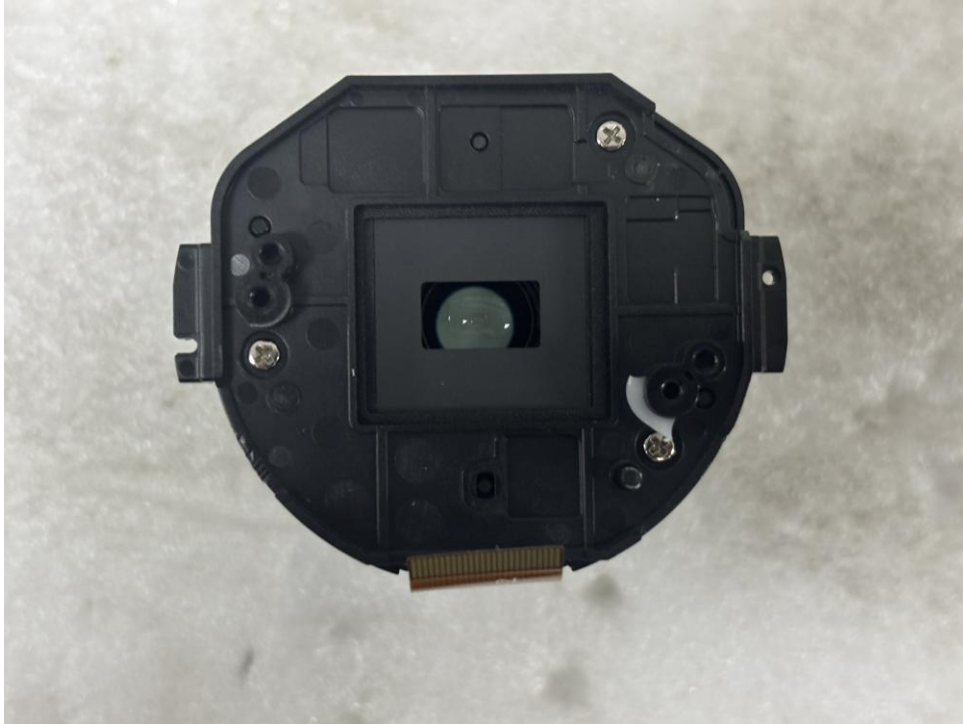
(Bottom)



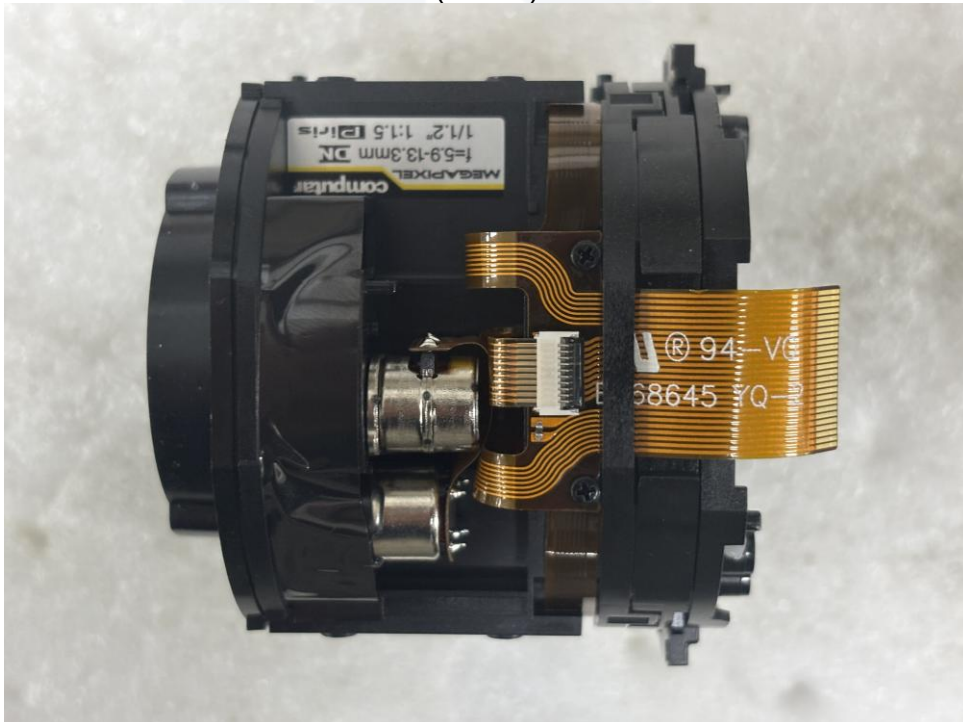


EUT Internal View – Lens

(Top)



(Bottom)





Label Photographs

FCC Label



NETWORK CAMERA

PNO-A9082R

IC Label

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

This device complies with ICES-003 Canada Rules 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.

The End.