



TEST REPORT



Report No. : KES-EM251568

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KES Co., Ltd.

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Tel : +82-31-425-6200, Fax : +82-31-341-3838

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-A7082R

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

3. Date of Receipt : Apr. 28, 2025

4. Test date : Apr. 30, 2025

5. Date of Issue : May. 29, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Seong Min, Jang
EMC Test Engineer

Dong Hun, Jang
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
May. 29, 2025	KES-EM251568	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Division		Specificity
Internal highest operating frequency		1.6 GHz
Power	Rated Power	DC 12 V, PoE
	Test Power	AC 120 V, 60 Hz
Ports	I/O Port	Micro SD Slot 2 EA, DC 12 V 1 EA, ALARMAUDIO 1 EA, PoE+ 1 EA
	Unused Port	USB 1 EA
Components		Main Body 1 EA, Cable 1 EA
Ethernet Speed		100 Mbps



	PNO-A7082R
Video	
Imaging Device	1/1.8" CMOS
Resolution	2592x1520, 2560x1440, 1920x1080, 1600x1200, 1280x960, 1280x720, 1024x768, 800x600, 640x480, 640x360, 320x240, 320x180
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MJPEG: Max. 30fps(@4MP 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)	4.6~9.35mm(2.0x) motorized varifocal
Optical Zoom	None
Max. Aperture Ratio	F1.3(Wide)~F2.15(Tele)
Angular Field of View	H: 105°(Wide)~47°(Tele) V: 58°(Wide)~27°(Tele) D: 128°(Wide)~55°(Tele)
Min. Object Distance	1.5m(4.92ft)
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, SSDR
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
Light Viewable Length	WiseIR 60m(196.85ft)
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, S	None
Security	None
Application Programming Interfac	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(RPS 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. 15.0W, typical 9.0W 12VDC: Max. 12.7W, typical 7.8W 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/IP6K9K, IEC/EN 62262 IK11, 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-160HMMW1
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: 39.8m(130.51ft) / Tele: 119.2m(391.15ft)
Observe (63PPM/ 19PPF)	Wide: 15.9m(52.20ft) / Tele: 47.7m(156.46ft)
Recognize (125PPM/ 38PPF)	Wide: 8.0m(26.10ft) / Tele: 23.8m(78.23ft)
Identify (250PPM/ 76PPF)	Wide: 4.0m(13.05ft) / Tele: 11.9m(39.12ft)



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

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	PNO-A7082R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC/DC Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
PoE Adapter	PT-PSE109GBRO-A	-	Dongguan PROCET Network Technology Co.,Ltd	
Laptop	P95G001	9JM8HT2	DELL INC.	-
Laptop Adapter	HA65NM130	-	Chicony Power Technology(Suzhou)Co.,Ltd.	-
Alarm	-	-	-	-
Button Alarm	-	-	-	-
Phone	SHV-E330S	-	SAMSUNG	-
Headset	K550	-	Britz®	-
Micro SD Card1	-	-	Sandisk	8 GB
Micro SD Card2	-	-	Sandisk	8 GB



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)	PoE+	Laptop	RJ-45 (LAN)	3.1	U
	Micro SD Slot	Micro SD Card1	Micro SD Slot	-	-
	Micro SD Slot	Micro SD Card2	Micro SD Slot	-	-
	ALARMAUDIO (Alarm OUT)	Alarm	Alarm IN	3.1	U
	ALARMAUDIO (Alarm IN)	Button Alarm	Alarm OUT	3.2	U
	ALARMAUDIO (Mic)	Phone	3.5 mm	1.0	U
	ALARMAUDIO (Speaker)	Headset	3.5 mm	1.8	U
	DC 12 V	AC/DC Adapter	Line	1.2	U
Laptop	DC Jack	Laptop Adapter	Line	1.7	U

* Unshielded=U, Shielded=S

■mode 2

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	PoE+	PoE Adaptor	RJ-45 (PoE)	3.1	U
	Micro SD Slot	Micro SD Card1	Micro SD Slot	-	-
	Micro SD Slot	Micro SD Card2	Micro SD Slot	-	-
	ALARMAUDIO (Alarm OUT)	Alarm	Alarm IN	3.1	U
	ALARMAUDIO (Alarm IN)	Button Alarm	Alarm OUT	3.2	U
	ALARMAUDIO (Mic)	Phone	3.5 mm	1.0	U
	ALARMAUDIO (Speaker)	Headset	3.5 mm	1.8	U
Laptop	RJ-45 (LAN)	PoE Adapter	RJ-45 (LAN)	1.0	U
	DC Jack	Laptop Adapter	Line	1.7	U

* Unshielded=U, Shielded=S



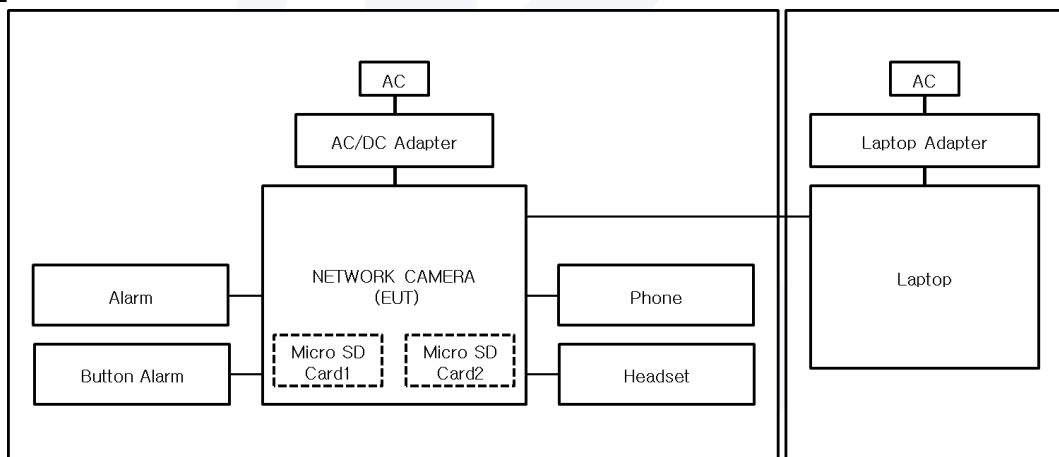
1.7 EUT Operating Mode(s)

Test mode	Normal operating
mode 1	- Check the network behavior of the EUT with the laptop's ping test - View images of the camera through the Web Viewer - Play the 1 kHz tone through the Phone to see the sound output with the headset - When the alarm is pressed, make sure the button alarm is working - After testing, check the recording with Micro SD Card
mode 2	

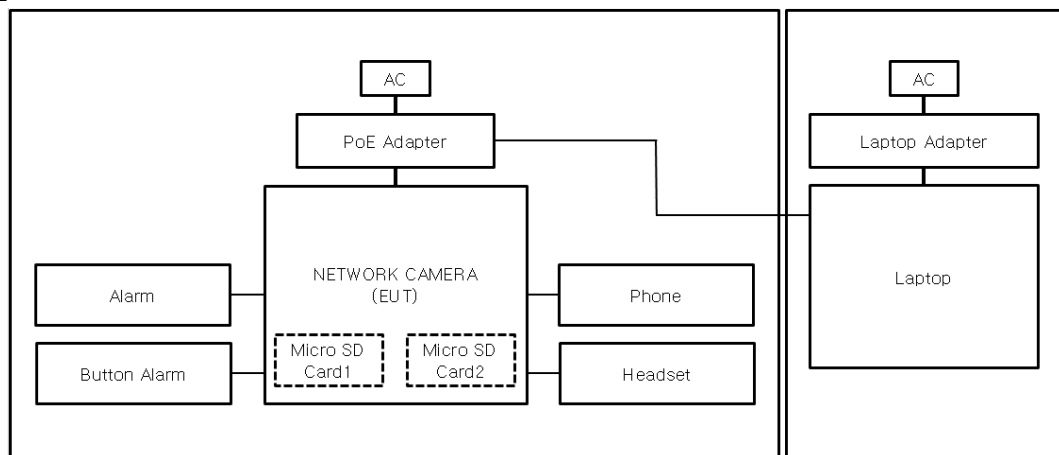
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	HANWHA VISION VIETNAM COMPANY LIMITED

1.8 Configuration

■mode 1



■mode 2





1.9 Remarks when standards applied

- USB port is unused and have not been tested.
- PoE port is considered to be wired network port, so power-related test items are excluded

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

Apr. 30, 2025

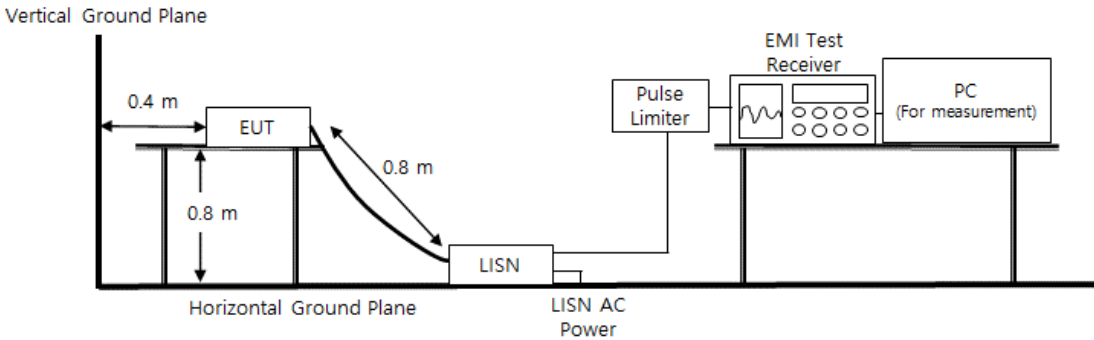
Test Location

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
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 06, 2025	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,7 ± 0,2) °C
Relative Humidity: (46,3 ± 0,2) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

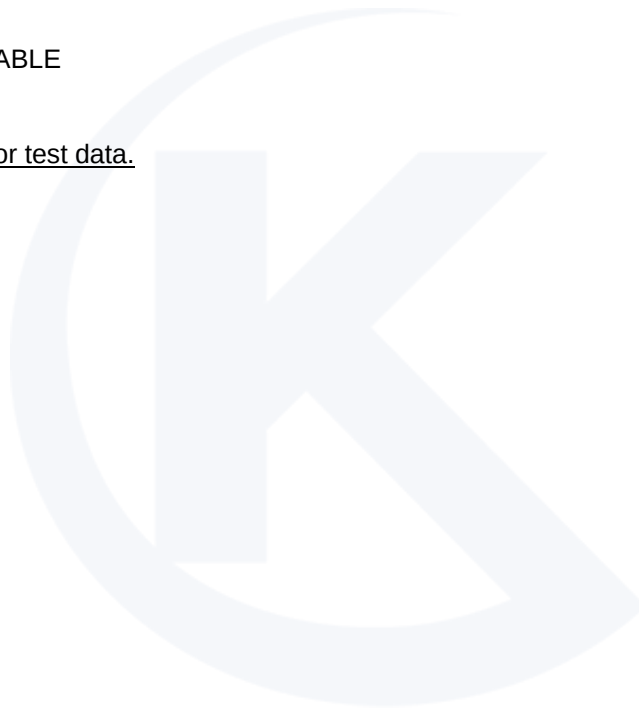
Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





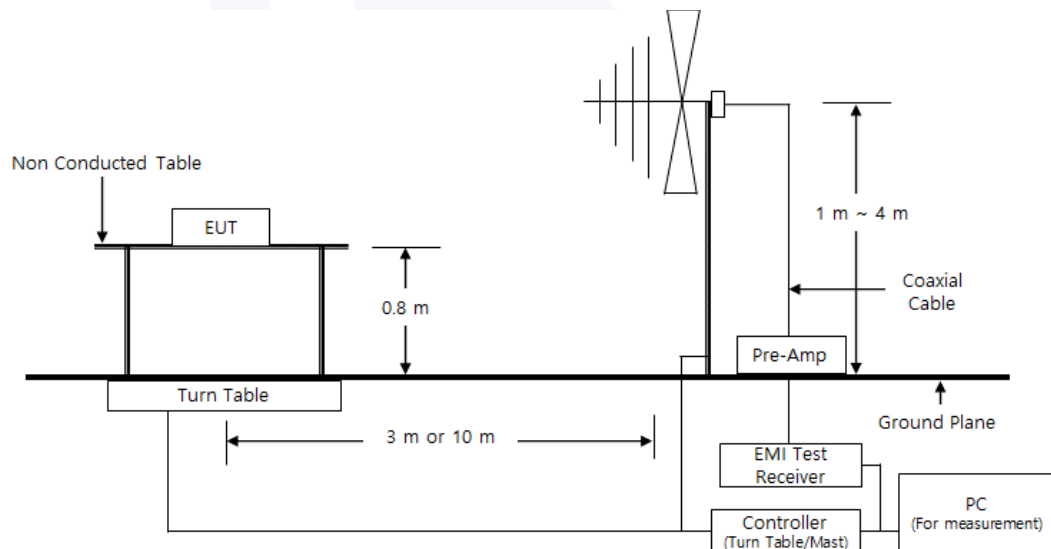
2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Apr. 30, 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: $(23,3 \pm 0,2) ^\circ\text{C}$
Relative Humidity: $(46,2 \pm 0,1) \% \text{ R.H.}$

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

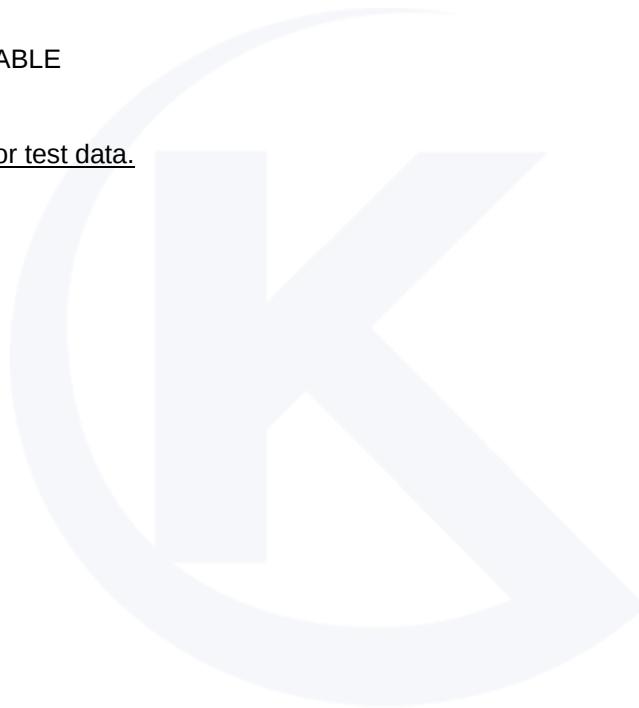
Test Results

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

Apr. 30, 2025

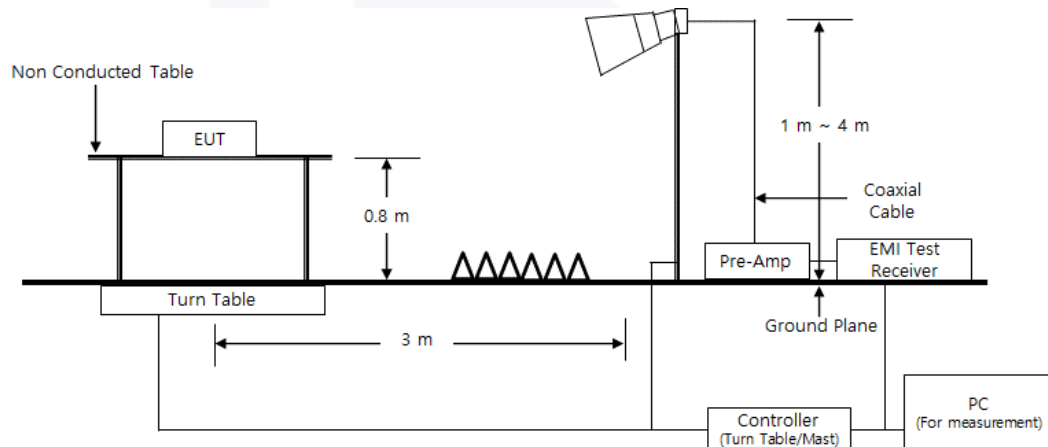
Test Location

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, 2025	1 Year
☒	ATTENUATOR	8491B	HP	23094	02, 13, 2026	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,3 ± 0,2)°C
Relative Humidity: (46,2 ± 0,1) % 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

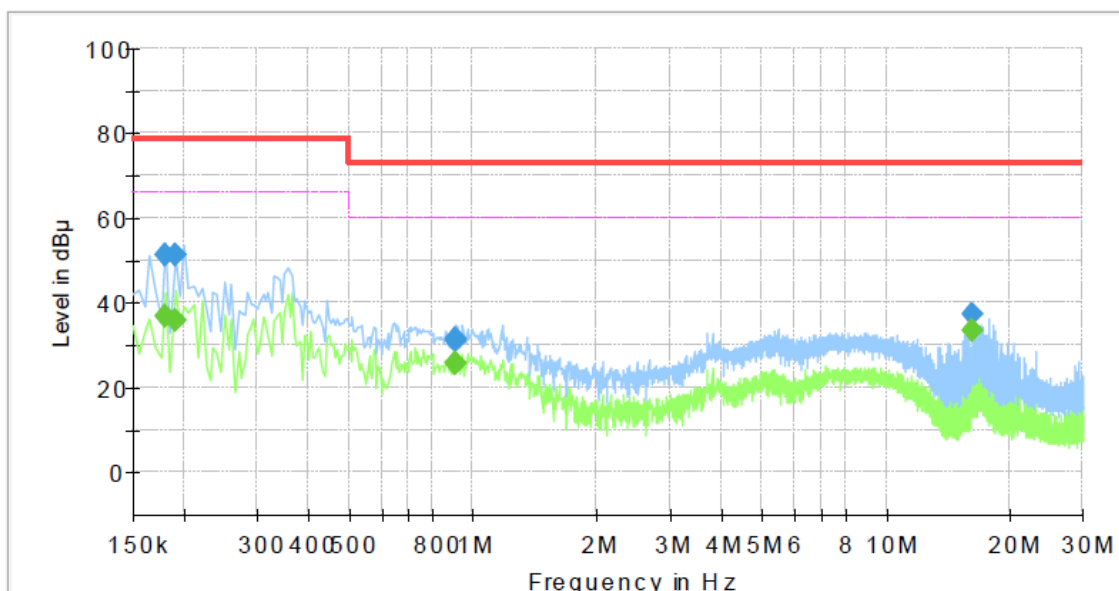
Conducted Emissions at Mains Power Ports

■ mode 1

HOT LINE

1 / 1

Test Description: Conducted Emission
Job No.: KES-EM251568
Phase: L
Mode: mode 1
Operator Name: KES



Final_Result

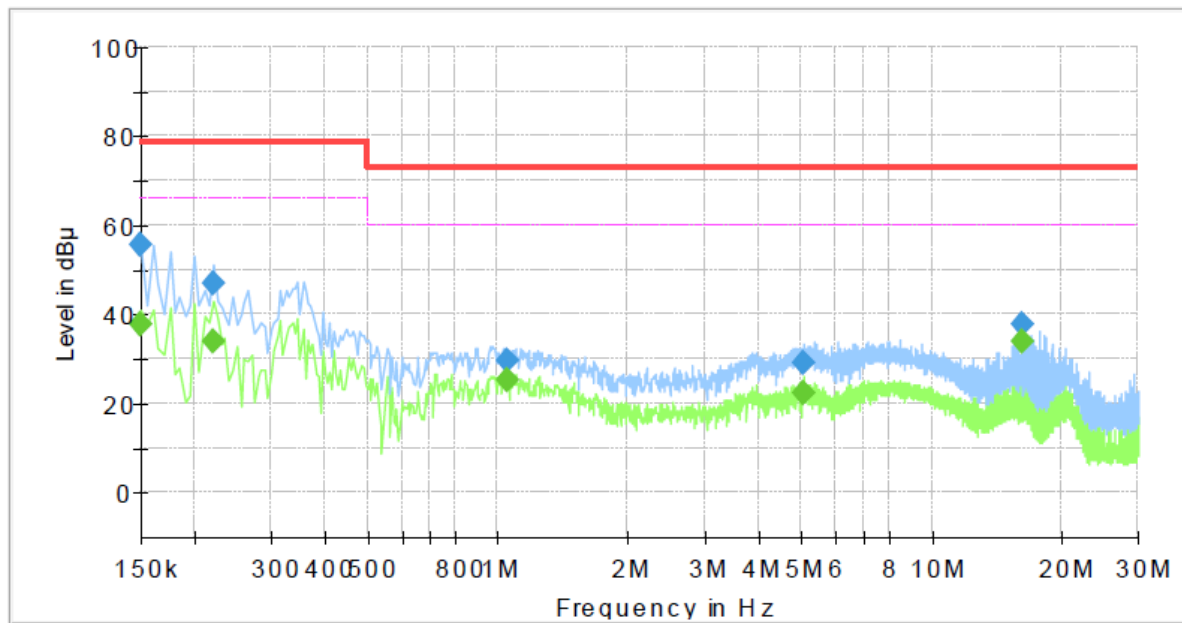
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.180000	---	36.69	66.00	29.31	1000.0	9.000	L1	19.5
0.180000	51.34	---	79.00	27.66	1000.0	9.000	L1	19.5
0.190000	---	35.95	66.00	30.05	1000.0	9.000	L1	19.5
0.190000	51.37	---	79.00	27.63	1000.0	9.000	L1	19.5
0.905000	---	25.84	60.00	34.16	1000.0	9.000	L1	19.6
0.905000	31.13	---	73.00	41.87	1000.0	9.000	L1	19.6
0.910000	---	25.86	60.00	34.14	1000.0	9.000	L1	19.6
0.910000	31.41	---	73.00	41.59	1000.0	9.000	L1	19.6
16.230000	---	33.64	60.00	26.36	1000.0	9.000	L1	20.3
16.230000	37.07	---	73.00	35.93	1000.0	9.000	L1	20.3



NEUTRAL LINE

1 / 1

Test Description: Conducted Emission
Job No.: KES-EM251568
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)
0.150000	---	37.94	66.00	28.06	1000.0	9.000	N	19.5
0.150000	55.41	---	79.00	23.59	1000.0	9.000	N	19.5
0.220000	---	33.75	66.00	32.25	1000.0	9.000	N	19.5
0.220000	47.07	---	79.00	31.93	1000.0	9.000	N	19.5
1.055000	---	25.44	60.00	34.56	1000.0	9.000	N	19.6
1.055000	29.71	---	73.00	43.29	1000.0	9.000	N	19.6
5.085000	---	22.54	60.00	37.46	1000.0	9.000	N	19.9
5.085000	28.91	---	73.00	44.09	1000.0	9.000	N	19.9
16.230000	---	34.07	60.00	25.93	1000.0	9.000	N	20.3
16.230000	37.64	---	73.00	35.36	1000.0	9.000	N	20.3

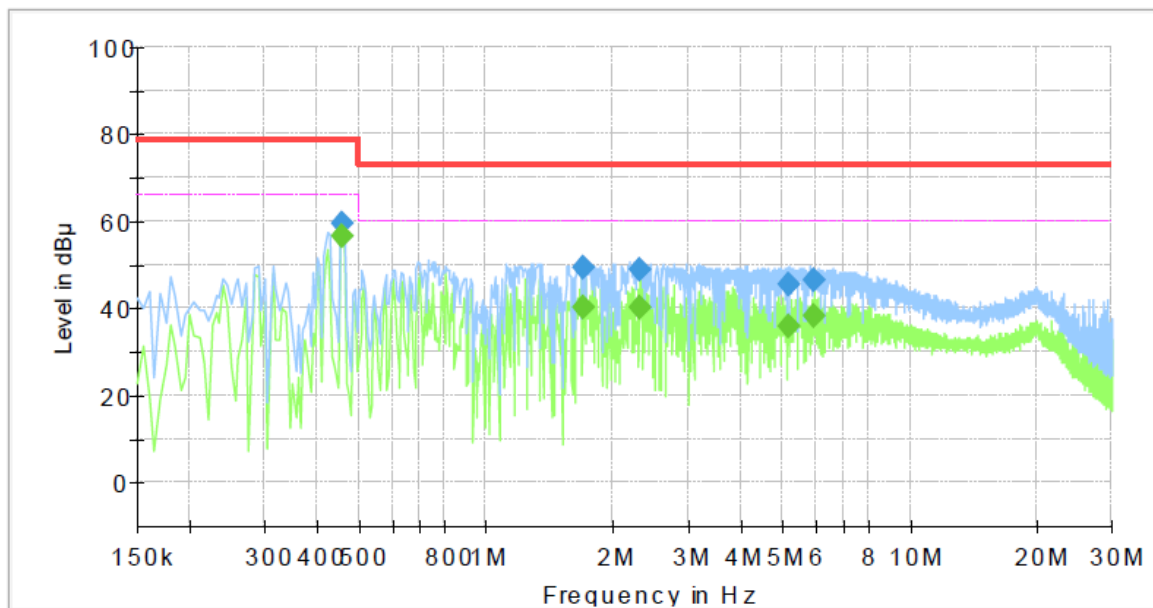


■mode 2

HOT LINE

1 / 1

Test Description: Conducted Emission
Job No.: KES-EM251568
Phase: L
Mode: mode 2
Operator Name: KES



Final Result

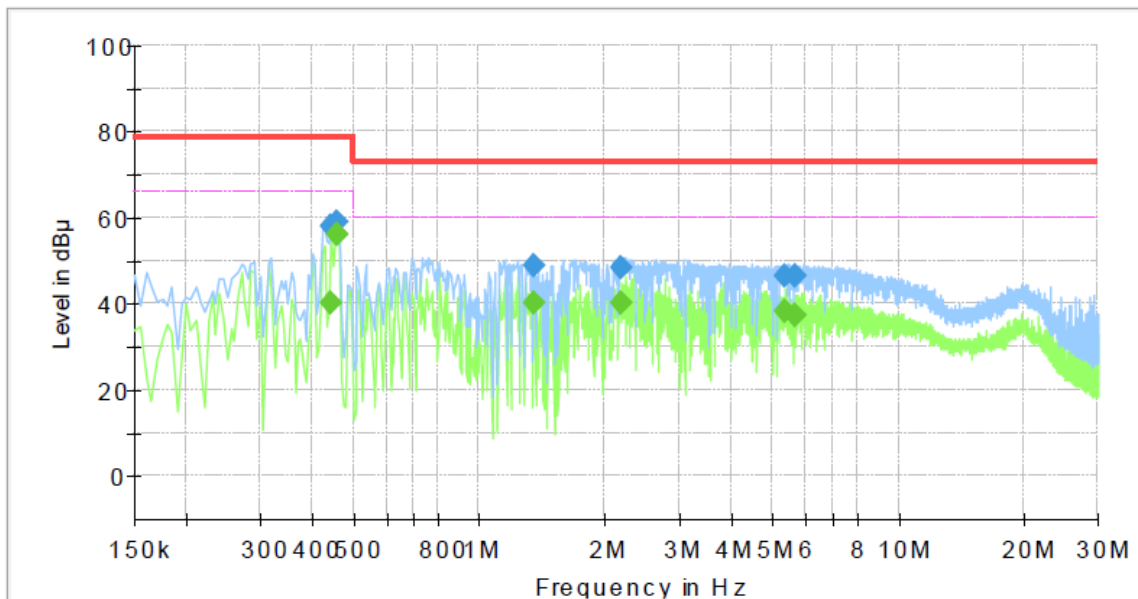
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.460000	---	56.51	66.00	9.49	1000.0	9.000	L1	19.6
0.460000	59.26	---	79.00	19.74	1000.0	9.000	L1	19.6
1.705000	---	40.22	60.00	19.78	1000.0	9.000	L1	19.6
1.705000	49.26	---	73.00	23.74	1000.0	9.000	L1	19.6
2.300000	---	40.34	60.00	19.66	1000.0	9.000	L1	19.7
2.300000	48.99	---	73.00	24.01	1000.0	9.000	L1	19.7
5.160000	---	35.88	60.00	24.12	1000.0	9.000	L1	19.9
5.160000	45.27	---	73.00	27.73	1000.0	9.000	L1	19.9
5.960000	---	38.28	60.00	21.72	1000.0	9.000	L1	20.0
5.960000	46.55	---	73.00	26.45	1000.0	9.000	L1	20.0



NEUTRAL LINE

1 / 1

Test Description: Conducted Emission
Job No.: KES-EM251568
Phase: N
Mode: mode 2
Operator Name: KES

**Final_Result**

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.445000	---	39.99	66.00	26.01	1000.0	9.000	N	19.5
0.445000	57.81	---	79.00	21.19	1000.0	9.000	N	19.5
0.460000	---	56.14	66.00	9.86	1000.0	9.000	N	19.5
0.460000	59.17	---	79.00	19.83	1000.0	9.000	N	19.5
1.355000	---	40.17	60.00	19.83	1000.0	9.000	N	19.6
1.355000	48.82	---	73.00	24.18	1000.0	9.000	N	19.6
2.185000	---	40.03	60.00	19.97	1000.0	9.000	N	19.6
2.185000	48.32	---	73.00	24.68	1000.0	9.000	N	19.6
5.375000	---	38.14	60.00	21.86	1000.0	9.000	N	19.9
5.375000	46.56	---	73.00	26.44	1000.0	9.000	N	19.9
5.665000	---	37.38	60.00	22.62	1000.0	9.000	N	19.9
5.665000	46.37	---	73.00	26.63	1000.0	9.000	N	19.9

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

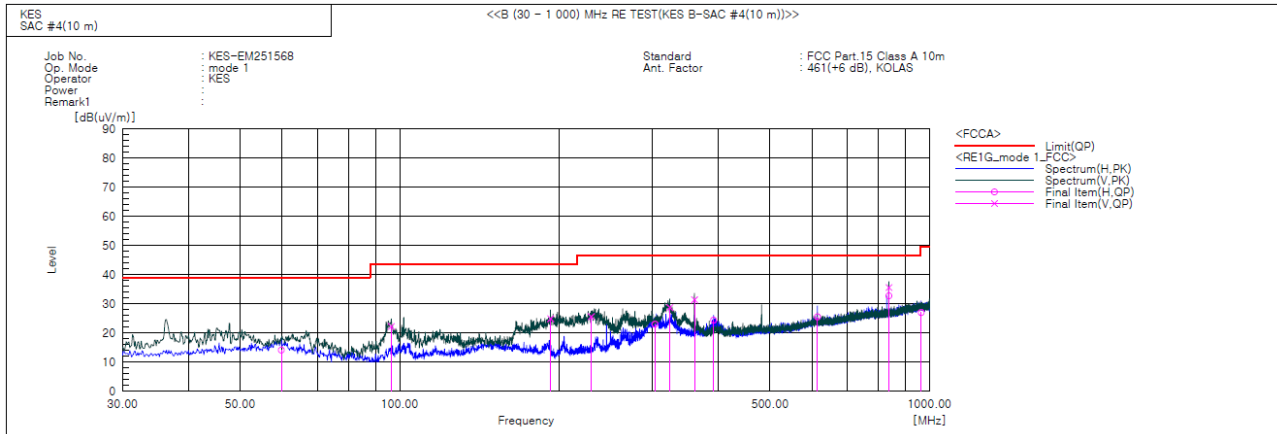
Reading Value : Not shown in the table.

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

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

■ mode 1

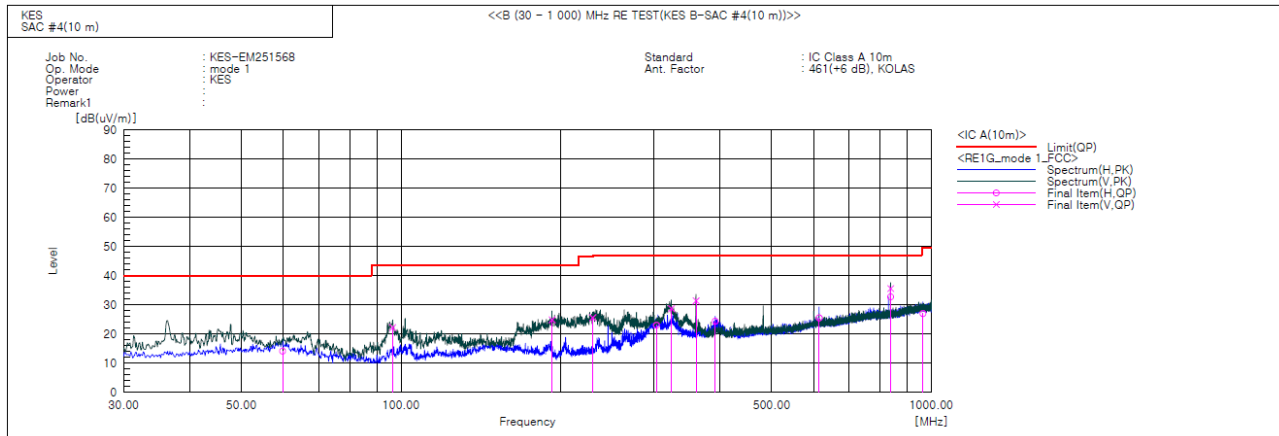
- 47 CFR Part 15, Subpart B

**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	59.828	H	35.4	-21.3	14.1	39.0	24.9	386.0	149.0	
2	96.445	V	47.6	-25.4	22.2	43.5	21.3	101.0	205.0	
3	192.596	V	46.6	-21.7	24.9	43.5	18.6	108.0	319.0	
4	229.820	V	46.3	-20.7	25.6	46.5	20.9	107.0	68.0	
5	303.419	H	39.9	-16.9	23.0	46.5	23.5	399.0	79.0	
6	323.425	V	44.9	-16.2	28.7	46.5	17.8	109.0	280.0	
7	360.043	V	46.5	-15.1	31.4	46.5	15.1	103.0	37.0	
8	391.446	H	38.4	-14.0	24.4	46.5	22.1	400.0	126.0	
9	614.425	H	32.2	-6.7	25.5	46.5	21.0	384.0	232.0	
10	838.131	H	35.7	-3.0	32.7	46.5	13.8	393.0	161.0	
11	838.253	V	38.6	-3.0	35.6	46.5	10.9	103.0	315.0	
12	964.474	H	27.4	-0.4	27.0	49.5	22.5	382.0	259.0	



- IC Regulation ICES-003 Issue 7



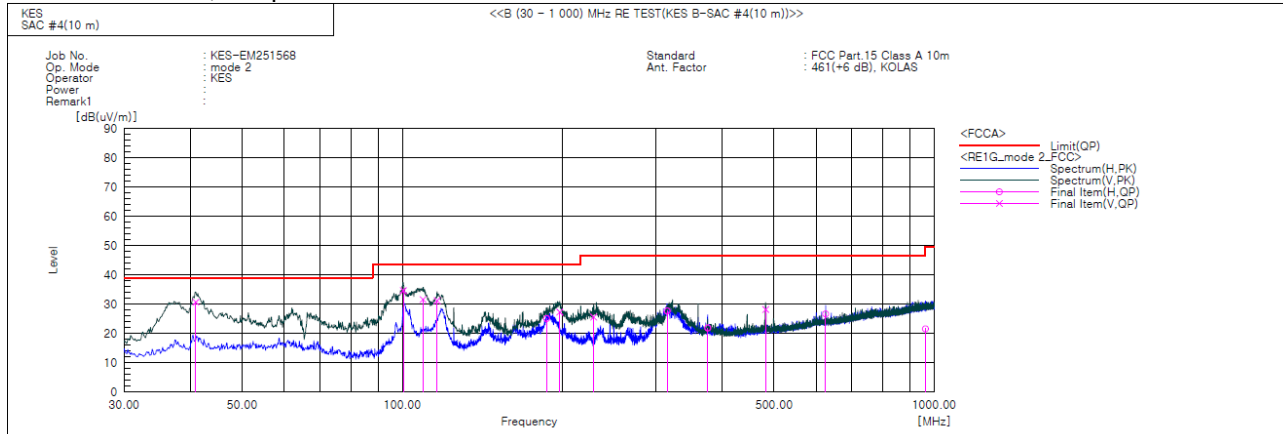
Final Result

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	59.828	H	35.4	-21.3	14.1	40.0	25.9	386.0	149.0	
2	96.445	V	47.6	-25.4	22.2	43.5	21.3	101.0	205.0	
3	192.596	V	46.6	-21.7	24.9	43.5	18.6	108.0	319.0	
4	229.820	V	46.3	-20.7	25.6	46.4	20.8	107.0	68.0	
5	303.419	H	39.9	-16.9	23.0	47.0	24.0	399.0	79.0	
6	323.425	V	44.9	-16.2	28.7	47.0	18.3	109.0	280.0	
7	360.043	V	46.5	-15.1	31.4	47.0	15.6	103.0	37.0	
8	391.446	H	38.4	-14.0	24.4	47.0	22.6	400.0	126.0	
9	614.425	H	32.2	-6.7	25.5	47.0	21.5	384.0	232.0	
10	838.131	H	35.7	-3.0	32.7	47.0	14.3	393.0	161.0	
11	838.253	V	38.6	-3.0	35.6	47.0	11.4	103.0	315.0	
12	964.474	H	27.4	-0.4	27.0	49.5	22.5	382.0	259.0	



■ mode 2

- 47 CFR Part 15, Subpart B

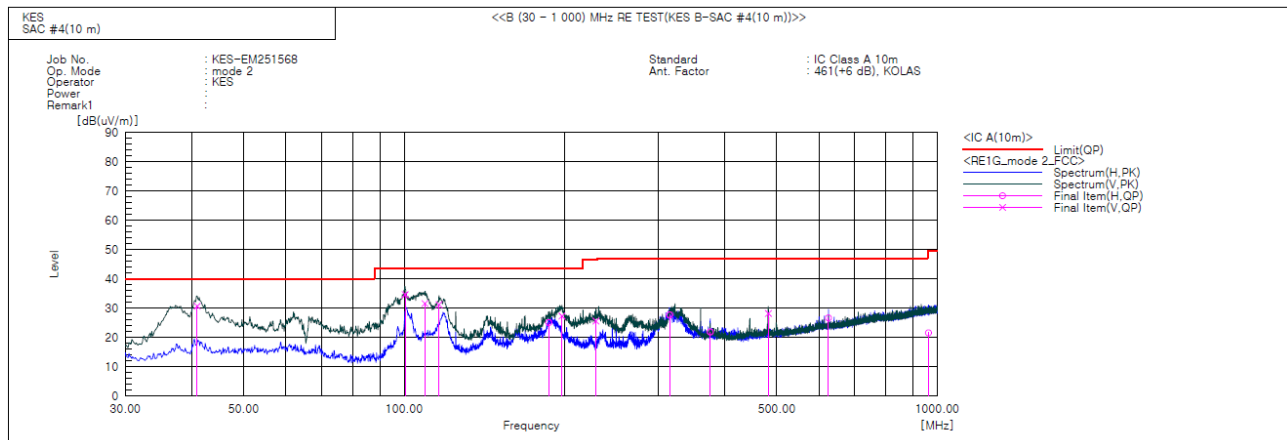


Final Result

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	40.913	V	52.4	-21.7	30.7	39.0	8.3	111.0	209.0	
2	100.446	V	59.4	-24.8	34.6	43.5	8.9	107.0	153.0	
3	109.419	V	55.1	-23.5	31.6	43.5	11.9	111.0	299.0	
4	116.209	V	54.0	-22.8	31.2	43.5	12.3	121.0	351.0	
5	186.898	H	46.5	-21.4	25.1	43.5	18.4	399.0	80.0	
6	197.689	V	49.2	-21.9	27.3	43.5	16.2	106.0	240.0	
7	228.850	V	46.3	-20.7	25.6	46.5	20.9	112.0	67.0	
8	314.695	H	44.2	-16.5	27.7	46.5	18.8	396.0	284.0	
9	375.078	H	36.5	-14.6	21.9	46.5	24.6	226.0	108.0	
10	482.020	V	38.7	-10.5	28.2	46.5	18.3	100.0	59.0	
11	625.095	H	33.2	-6.5	26.7	46.5	19.8	400.0	354.0	
12	963.019	H	22.0	-0.4	21.6	49.5	27.9	400.0	260.0	



- 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	40.913	V	52.4	-21.7	30.7	40.0	9.3	111.0	209.0	
2	100.446	V	59.4	-24.8	34.6	43.5	8.9	107.0	153.0	
3	109.419	V	55.1	-23.5	31.6	43.5	11.9	111.0	299.0	
4	116.209	V	54.0	-22.8	31.2	43.5	12.3	121.0	351.0	
5	186.898	H	46.5	-21.4	25.1	43.5	18.4	399.0	80.0	
6	197.689	V	49.2	-21.9	27.3	43.5	16.2	106.0	240.0	
7	228.850	V	46.3	-20.7	25.6	46.4	20.8	112.0	67.0	
8	314.695	H	44.2	-16.5	27.7	47.0	19.3	396.0	284.0	
9	375.078	H	36.5	-14.6	21.9	47.0	25.1	226.0	108.0	
10	482.020	V	38.7	-10.5	28.2	47.0	18.8	100.0	59.0	
11	625.095	H	33.2	-6.5	26.7	47.0	20.3	400.0	354.0	
12	963.019	H	22.0	-0.4	21.6	49.5	27.9	400.0	260.0	

◆ Calculation

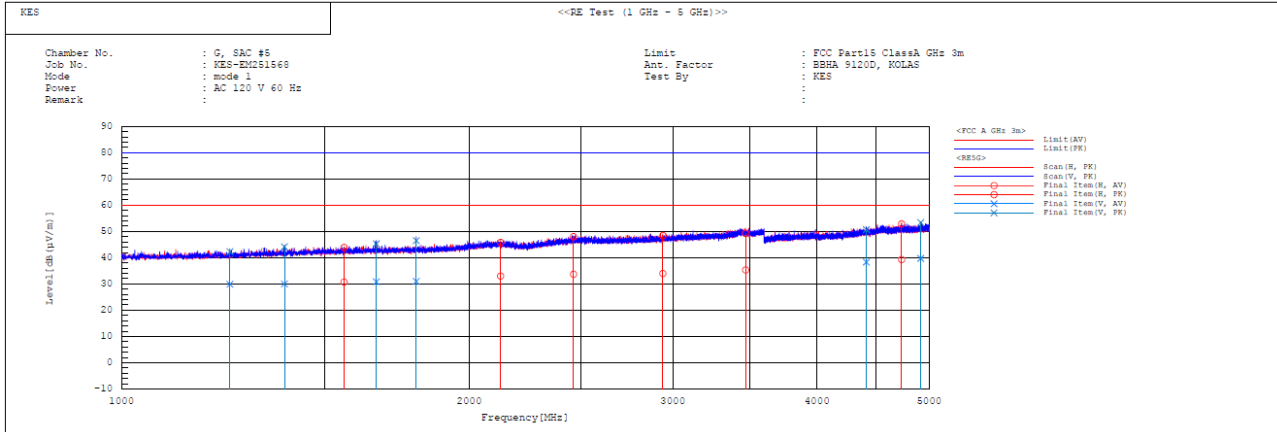
$$\text{Result(QP)} [\text{dB}(\mu\text{V/m})] = (\text{Reading(QP)} [\text{dB}(\mu\text{V})] + \text{c.f} [\text{dB}(1/\text{m})])$$
$$\text{Margin(QP)} [\text{dB}] = \text{Limit} [\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$$

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)**

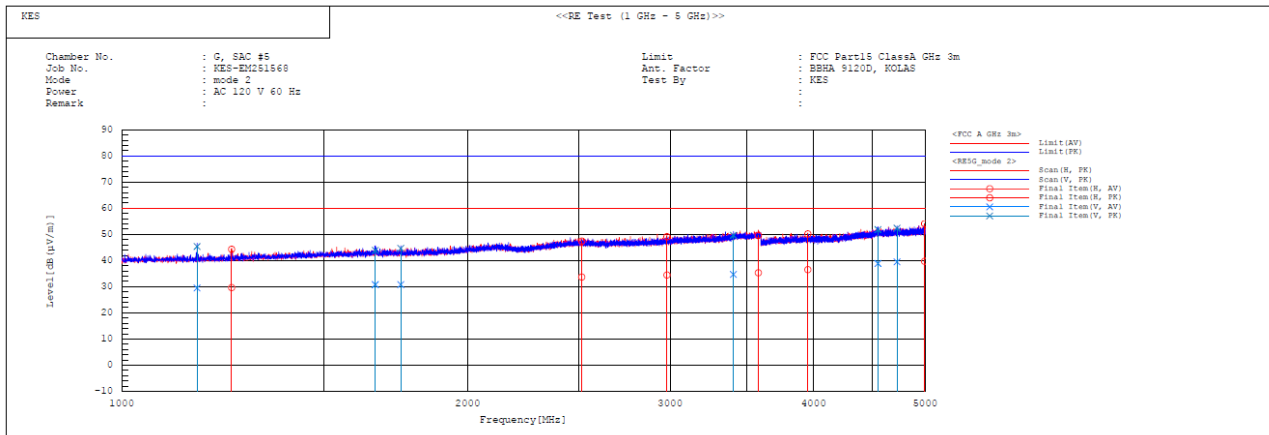
■ mode 1

**Final Result**

No.	Frequency [MHz]	Pol	Reading AV [dB (μV)]	Reading PK [dB (μV)]	c.f [dB (1/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	1241.231	V	30.2	42.6	-0.3	42.3	60.0	80.0	30.1	37.7	145.0	223.4	
2	1384.267	V	29.5	43.7	0.5	44.2	60.0	80.0	30.0	35.8	398.0	314.5	
3	1558.436	H	29.3	42.5	1.4	43.9	60.0	80.0	29.3	36.1	202.0	171.4	
4	1662.230	V	29.1	43.5	1.8	45.3	60.0	80.0	29.1	34.7	398.0	359.3	
5	1799.646	V	28.7	44.2	2.3	46.5	60.0	80.0	29.0	33.5	398.0	102.8	
6	2129.206	H	29.4	42.2	3.6	45.8	60.0	80.0	27.0	34.2	398.0	291.2	
7	2462.254	H	28.8	43.1	4.9	48.0	60.0	80.0	26.3	32.0	398.0	39.6	
8	2941.436	H	27.7	42.1	6.3	48.4	60.0	80.0	26.0	31.6	201.0	264.7	
9	3470.101	H	28.1	42.1	7.2	49.3	60.0	80.0	24.7	30.7	374.0	279.3	
10	4412.256	V	27.8	40.2	10.5	50.7	60.0	80.0	21.7	29.3	134.0	264.2	
11	4735.216	H	27.7	41.3	11.6	52.9	60.0	80.0	20.7	27.1	106.0	343.3	
12	4919.163	V	27.4	41.1	12.3	53.4	60.0	80.0	20.3	26.6	400.0	350.6	



mode 2



Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/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	1163.218	V	30.3	46.2	-0.8	45.4	60.0	80.0	30.5	34.6	143.0	156.1	
2	1246.369	H	30.0	44.6	-0.3	44.3	60.0	80.0	30.3	35.7	201.0	255.0	
3	1662.479	V	29.0	42.1	1.8	43.9	60.0	80.0	29.2	36.1	398.0	320.1	
4	1749.604	V	28.7	42.6	2.1	44.7	60.0	80.0	29.2	35.3	100.0	195.9	
5	2513.445	H	28.6	42.3	5.1	47.4	60.0	80.0	26.3	32.6	105.0	358.6	
6	2981.446	H	28.1	42.7	6.4	49.1	60.0	80.0	25.5	30.9	202.0	279.2	
7	3406.368	V	27.6	42.5	7.1	49.6	60.0	80.0	25.3	30.4	106.0	154.0	
8	3580.135	H	27.9	42.2	7.4	49.6	60.0	80.0	24.7	30.4	364.0	100.4	
9	3954.409	H	27.8	41.5	8.7	50.2	60.0	80.0	23.5	29.8	400.0	358.8	
10	4550.336	V	27.9	40.8	11.0	51.8	60.0	80.0	21.1	28.2	150.1	217.3	
11	4727.687	V	27.9	40.8	11.6	52.4	60.0	80.0	20.5	27.6	387.0	64.7	
12	4994.559	H	27.1	41.5	12.6	54.1	60.0	80.0	20.3	25.9	204.0	124.4	

◆ Calculation

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

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

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

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



Test Setup Photos and Configuration

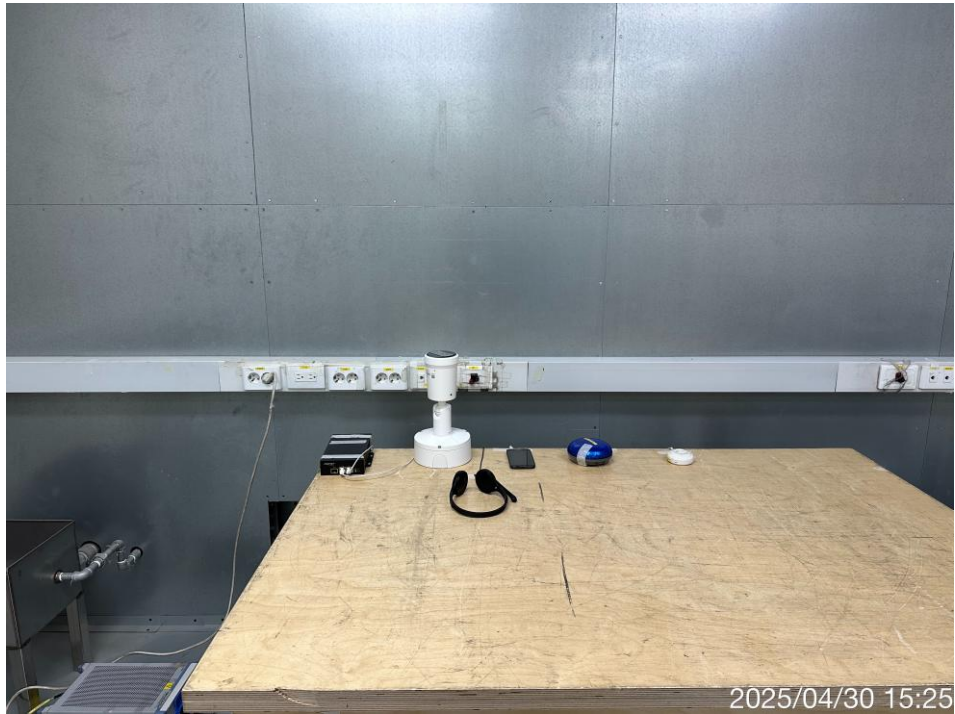
Conducted Emissions at Mains Power Ports

■ mode 1





■ mode 2





Radiated Electric Field Emissions(Below 1 GHz)

■ mode 1





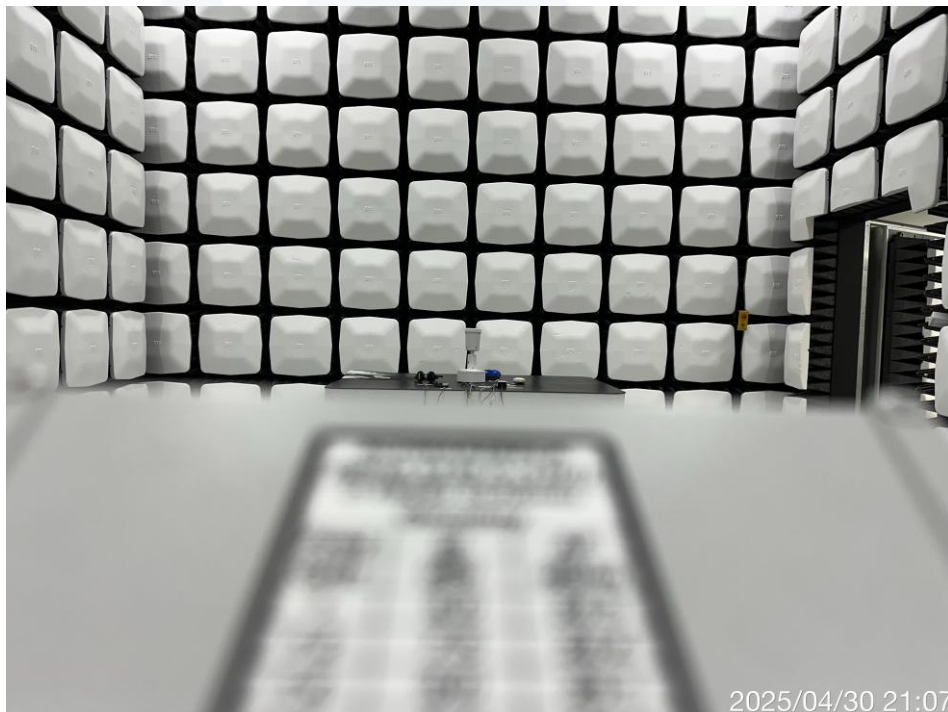
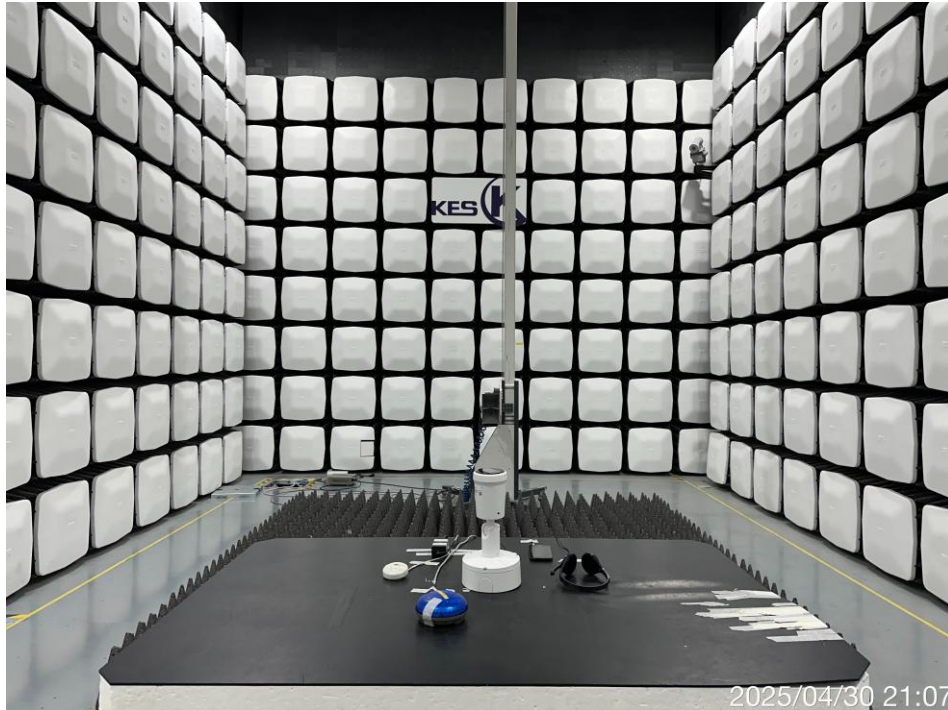
■ mode 2





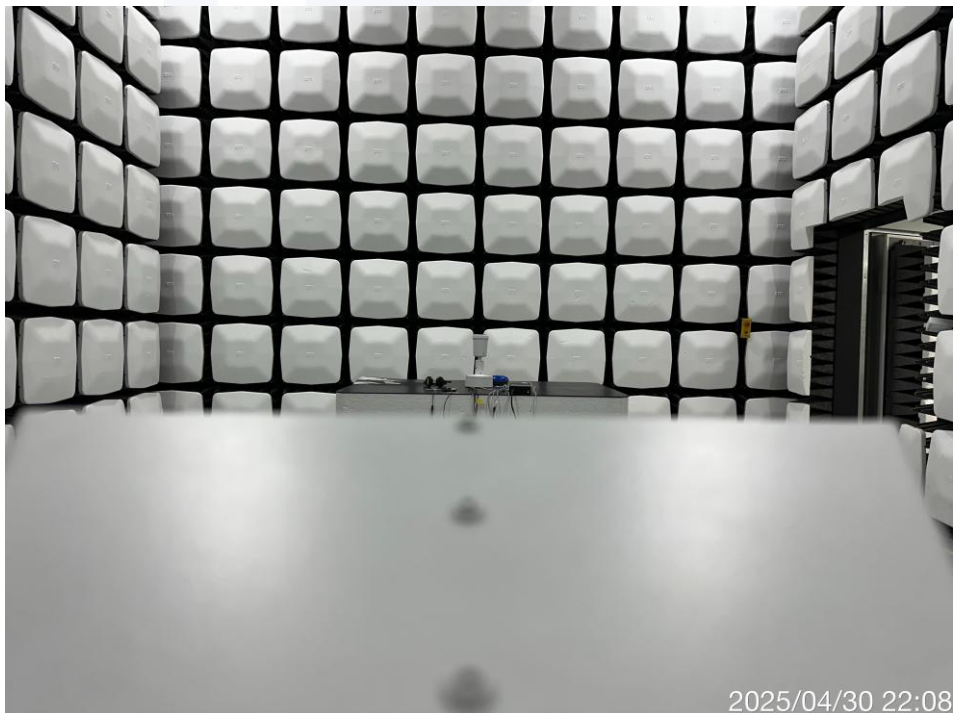
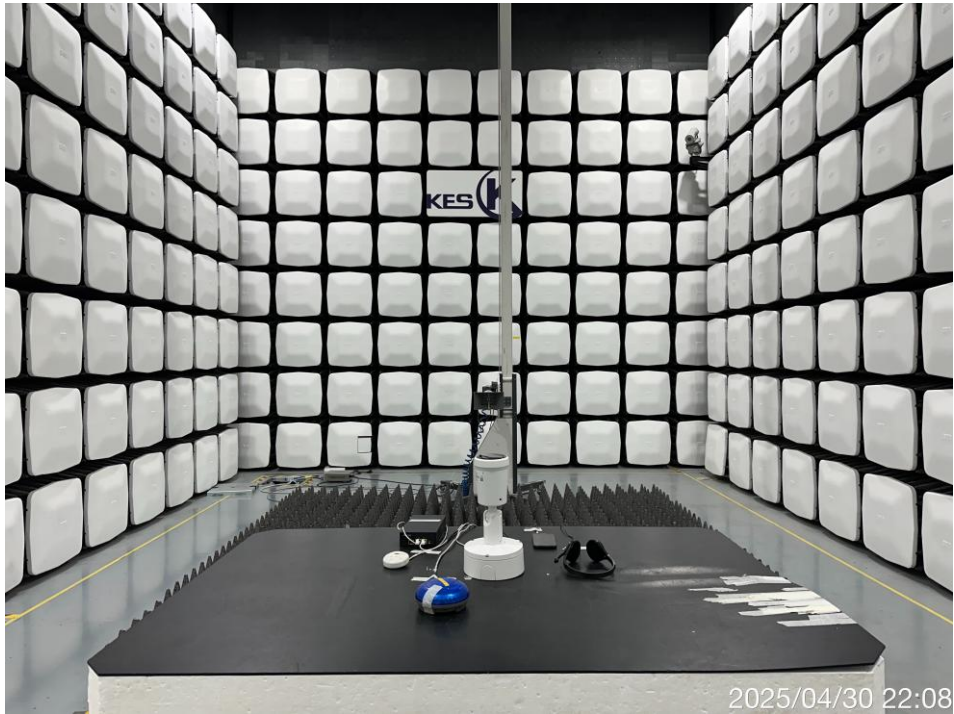
Radiated Electric Field Emissions(Above 1 GHz)

■ mode 1





■ mode 2





EUT External Photographs

(Top)



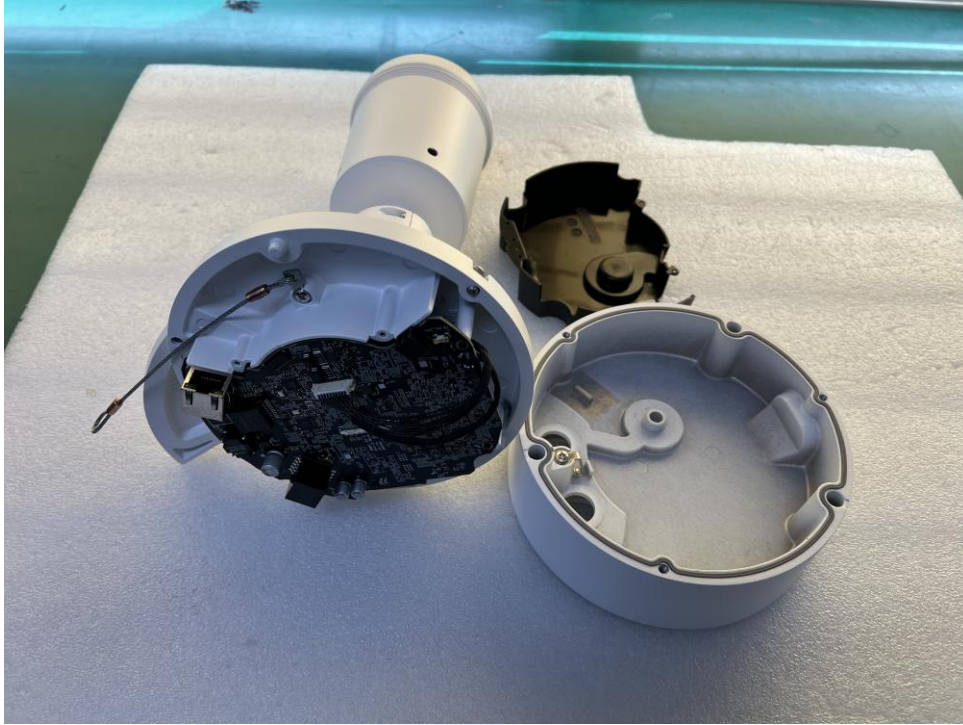
(Bottom)





EUT Internal Photographs

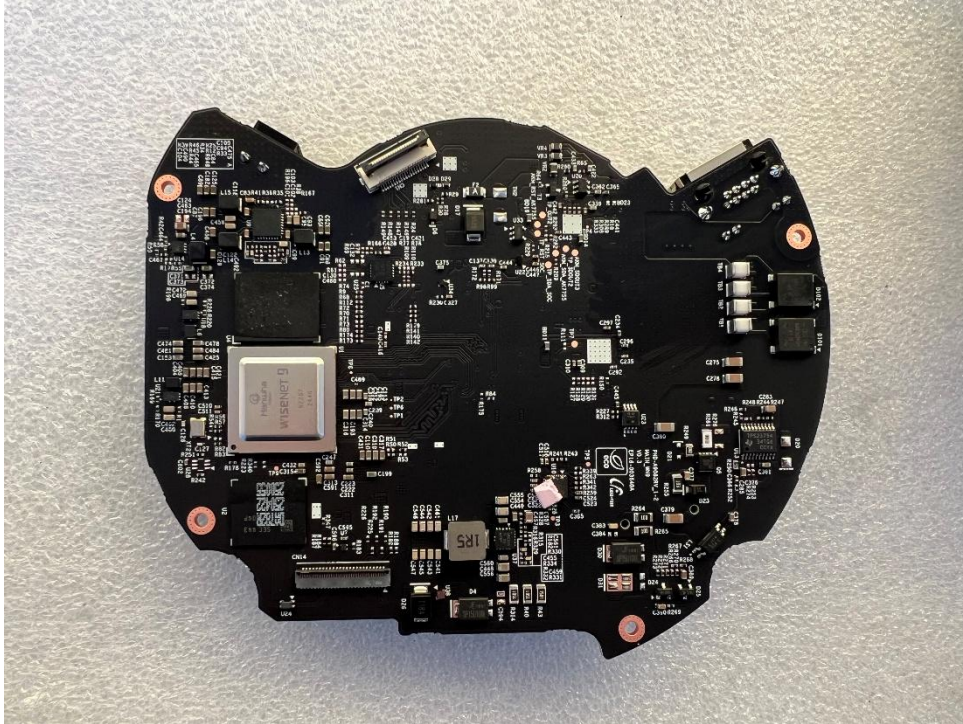
(Internal View)



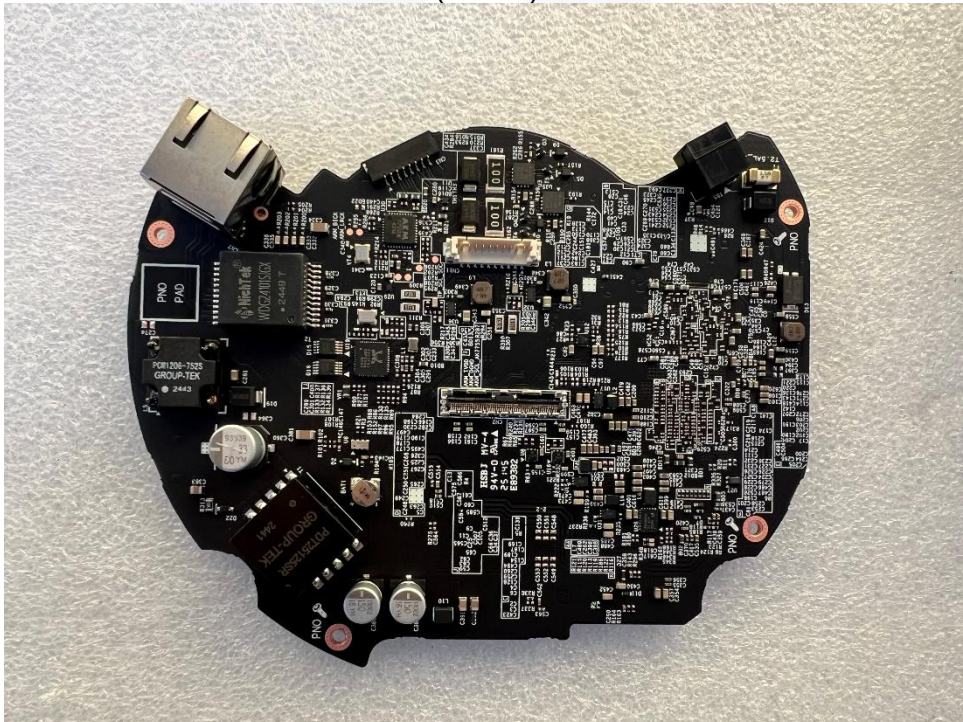


EUT Internal View – Board 1

(Top)



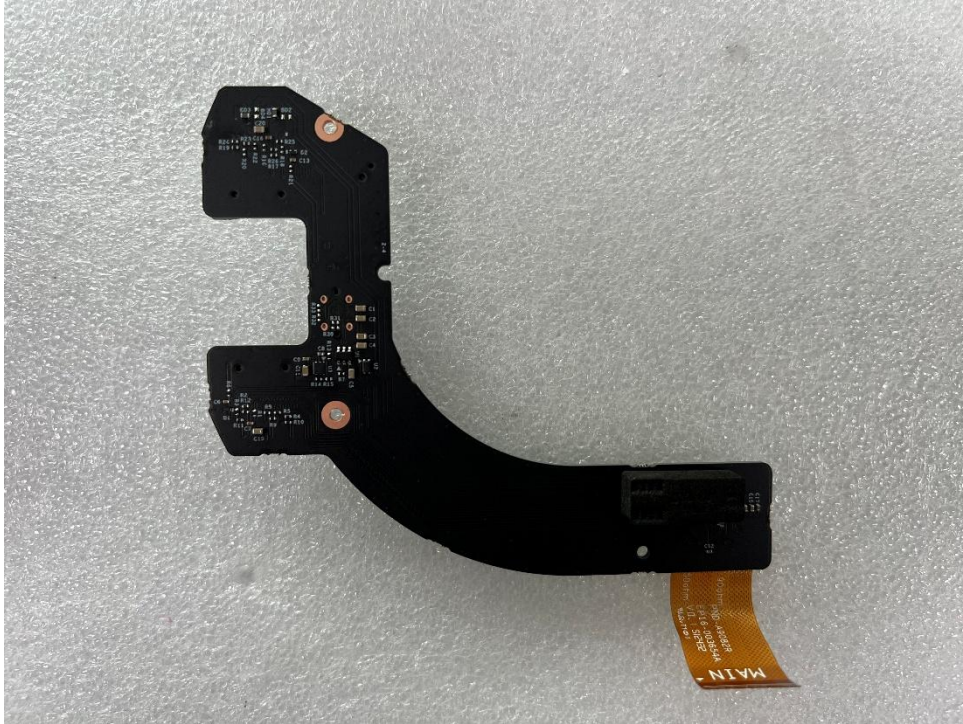
(Bottom)



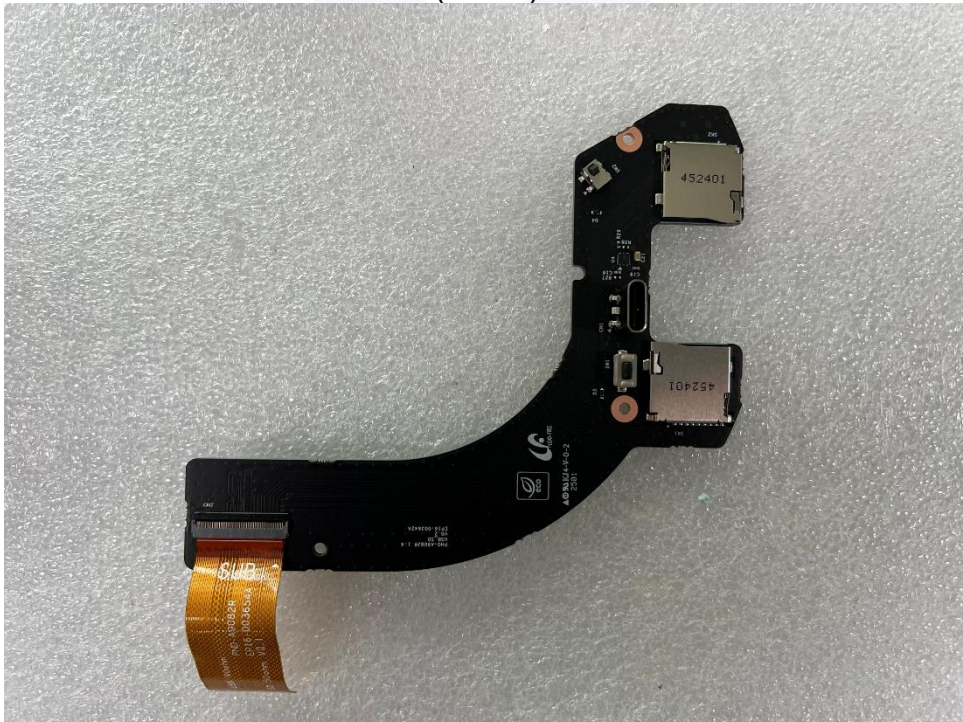


EUT Internal View – Board 2

(Top)



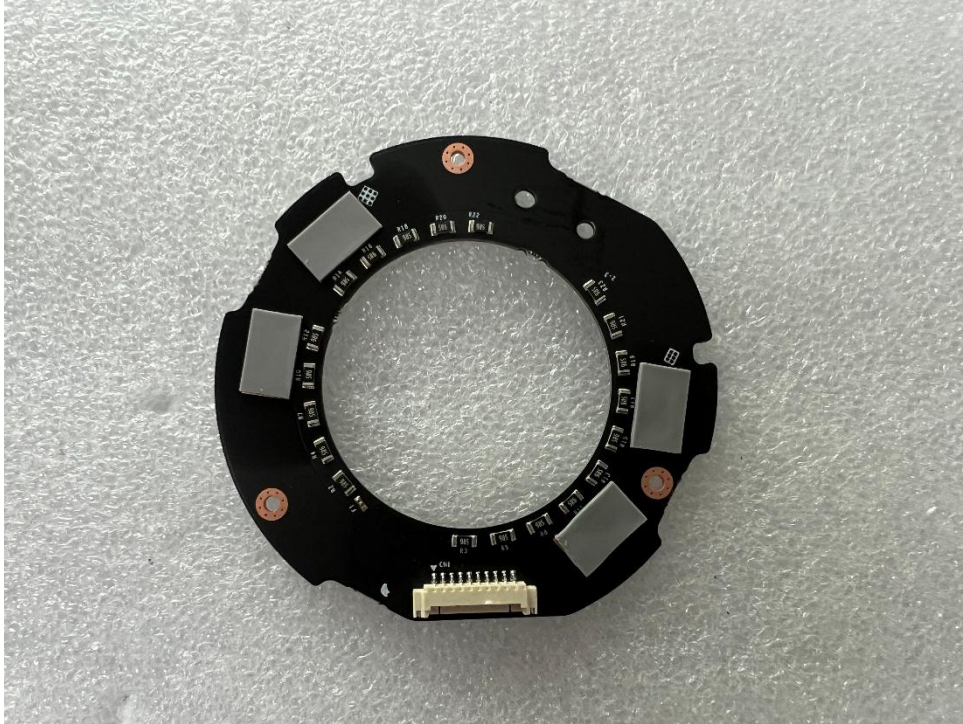
(Bottom)





EUT Internal View – Board 3

(Top)



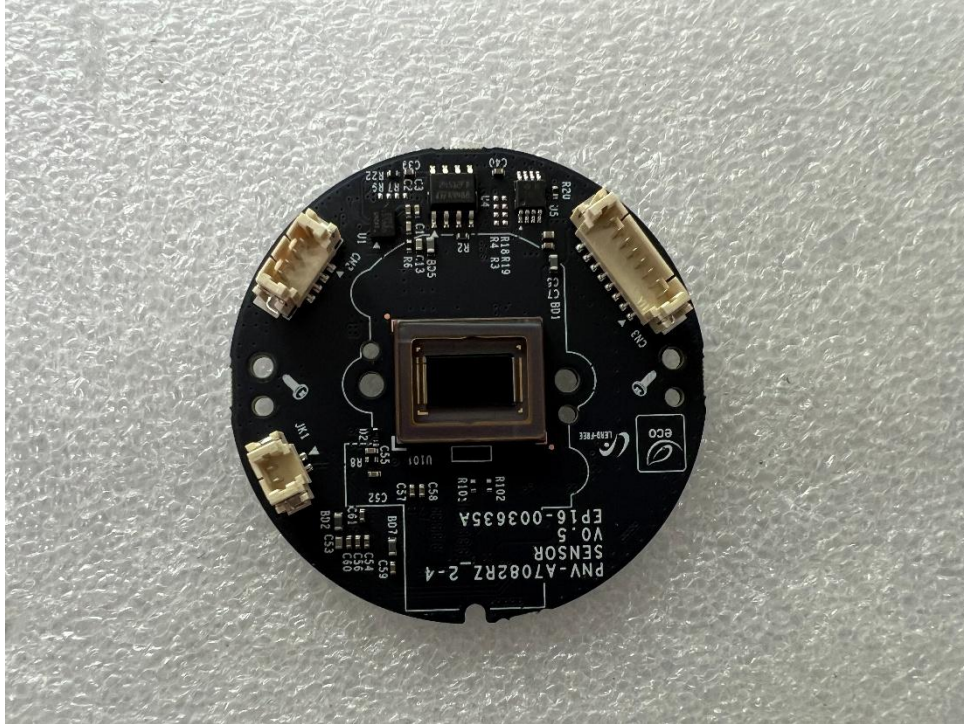
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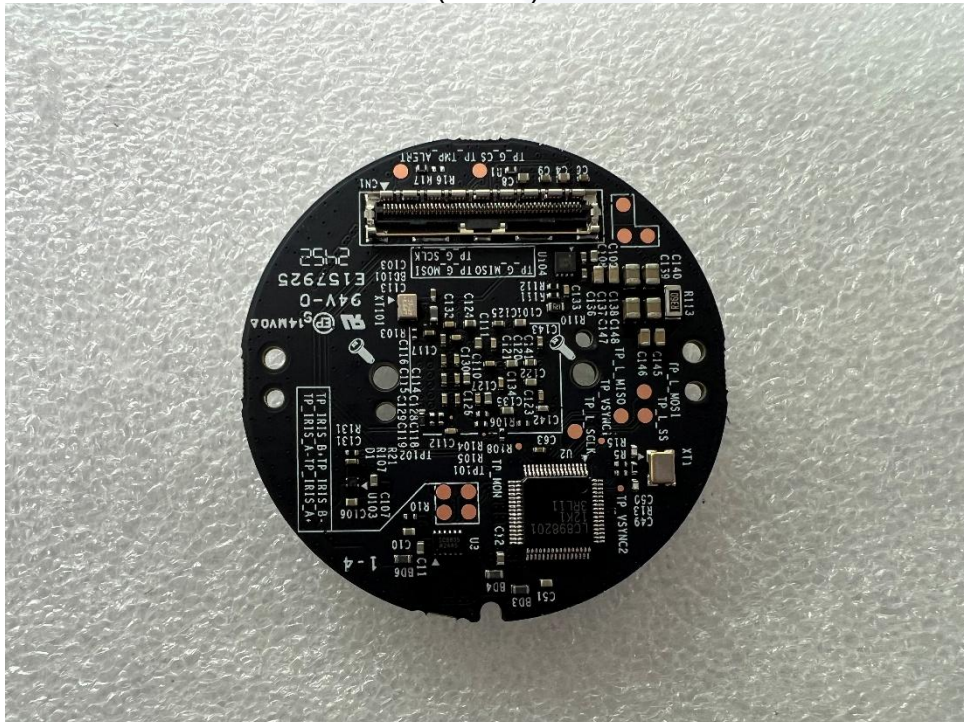


EUT Internal View – Board 4

(Top)



(Bottom)





Label Photographs

FCC Label



NETWORK CAMERA

PNO-A7082R

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.