



TEST REPORT



Report No. : KES-EM251556

Page 1 / 45

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. : PND-A7082RV

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 : May. 08, 2025 ~ May. 12, 2025

5. Date of Issue : May. 23, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Seong Jun, Park
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. 23, 2025	KES-EM255156	Issued

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TABLE OF CONTENTS

1.0	General Product Description	4
1.1	Test Voltage & Frequency	6
1.2	Variant Model Differences	6
1.3	Device Modifications	6
1.4	Equipment Under Test	6
1.5	Support Equipments	6
1.6	External I/O Cabling	7
1.7	EUT Operating Mode(s)	8
1.8	Configuration	9
1.9	Remarks when standards applied	10
1.10	Calibration Details of Equipment Used for Measurement	10
1.11	Test Facility	10
1.12	Measurement Procedure	10
1.13	Laboratory Accreditations and Listings	11
2.0	Test Regulations	12
2.1	Conducted Emissions at Mains Power Ports	13
2.2	Radiated Electric Field Emissions(Below 1 GHz)	15
2.3	Radiated Electric Field Emissions(Above 1 GHz)	17
APPENDIX A – TEST DATA		19
Conducted Emissions at Mains Power Ports		19
Radiated Electric Field Emissions(Below 1 GHz)		23
Radiated Electric Field Emissions(Above 1 GHz)		27
Test Setup Photos and Configuration		31
Conducted Emissions at Mains Power Ports		31
Radiated Electric Field Emissions(Below 1 GHz)		33
Radiated Electric Field Emissions(Above 1 GHz)		35
EUT External Photographs		37
EUT Internal Photographs		38



1.0 General Product Description

Main Specifications of EUT are:

Video		Gain Control	Off / Max Gain / Manual
Imaging Device	1/1.8" CMOS	White Balance	ATW / NarrowATW / AWC / Manual / Indoor / Outdoor
Resolution	2592x1520, 2560x1440, 1920x1080, 1600x1200, 1280x960, 1280x720, 1024x768, 800x600, 640x480, 640x360, 320x240, 320x180	LDI	Support(Fill/Stretch mode)
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MJPEG: Max. 30fps(@4MP Max. 5fps)	Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/30,000sec) Prefer shutter control(Based on AI engine)
NETD	None	Digital PTZ	None
Pixel Size	None	Video Rotation	Flip, mirror, hallway view(90°/270°)
Video Out	USB: Micro USB Type C for installation		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)
Video Transmission Distance	None		
Lens		Analytics	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
Focal Length (Zoom Ratio)	4.6~9.35mm(2.0x) motorized varifocal	Business Intelligence	Based on AI engine: People/Vehicle/Crowd counting, Queue management, Heatmap
Optical Zoom	None	Serial Interface	None
Max. Aperture Ratio	F1.3(Wide)~F2.15(Tele)	Alarm I/O	2 configurable I/O ports, DC 12V output(Max. 50mA)
Angular Field of View	H: 105°(Wide)~47°(Tele) V: 58°(Wide)~27°(Tele) D: 128°(Wide)~55°(Tele)	Alarm Triggers	Analytics, Network disconnection, Alarm input, Time schedule, MQTT subscription, Day/Night, Storage disruption, Case tampering
Min. Object Distance	1.5m(4.92ft)		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
Focus Control	Simple focus	Alarm Events	
Lens Type	P-iris(IR corrected)		
Mount Type	None	Audio Streaming	None
Optional Lens	None	Audio In	Selectable(mic in/line in/built-in 3mics)
Pan / Tilt / Rotate		Audio Out	Line out
Pan / Tilt / Rotate Range	0°~360° / 0°~85° / 0°~355°	Light Type	IR LED
Pan Range	None	Light Viewable Length	WiseIR 60m(196.85ft)
Pan Speed	None	IR Viewable Length	None
Tilt Range	None	IR Illuminator (Optional)	None
Tilt Speed	None	IR Radiation angle	None
Rotate Range	None	IR LED	None
Sequence	None	IR Wavelength	850nm
Preset Accuracy	None	IR Operation	None
Operational		Water Removal	None
Camera Title	Displayed up to 85 characters	Auto Tracking	None
Direction Indicator	None	Coaxial Protocol	None
Day & Night	Auto(ICR)	Color Palettes	None
Backlight Compensation	BLC, HLC, WDR, SDR	Radiometry	
Wide Dynamic Range	120dB	Temperature Detect Range	None
Digital Noise Reduction	SSNR V, WiseNR II (Based on AI engine)	Temperature Accuracy	None
Digital Image Stabilization	Support	Temperature Detection	None
Defog	Support	Additional	None
Motion Detection	Rea, 8point polygonal zones 32ea, 8point polygonal zones		
Privacy Masking	- 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		



Report No. : KES-EM251556

Network		Mechanical	
Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)	Color / Material	White / Aluminum
Video Compression	H.265/H.264: Main/Baseline/High MJPEG	Bubble: Hard-coated dome	
Audio Compression	G.711(PCM): 8kHz(64Kbps)	RAL Code	RAL9003
	G.726(ADPCM): 8kHz(16/24/32/40Kbps)	Product Dimensions / Weight	ø160x125mm(ø6.30x4.92"), 1550g(3.42lb)
	AAC-LC: 16kHz(48Kbps)	Compatible Conduit hole / Gar	12.7mm(1/2") (M20)
	OPUS: 48kHz(64Kbps)		single, double, 4" octagon, 4" square
Smart Codec	WiseStream(Based on AI engine)	Certifications & Standards	
Video Quality Adjustment	None	Network	None
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR	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
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	Safety	UL 62368-1, CAN/CSA C22.2 NO. 62368-1 IEC/EN 62471
Security	None	Environment	IEC/EN 63000
Application Programming Inter	ONVIF Profile S/G/T/M SUNAPI(HTTP API)		IEC/EN 60529 IP52, IEC/EN 62262 IK10 IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78
	Hanwha Vision Open Platform	Video	None
Security		Compatible Models	
OS / Firmware Protect	Encrypted Firmware, Secure boot, Signed Firmware	Hanging Adaptor	SBP-160HMMW1
User authentication	Digest Authentication, Prevent brute-force attack	Back Box	SBV-180BW, SBV-180WW
Network authentication	802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)	Ceiling Mount (Assy)	SBP-150CMI, SBP-300CMI, SBP-300CMW1, SBP-900CMW, SBP-300CMTW, SBP-300CMTS
Secure Communication	HTTPS, SRTP, WSS(Websocket secure)		
Access Control	IP-based access control, MAC-based access control, Auto logout	Ceiling Mount (Single Unit)	SBP-180CMB, SBP-140CMB, SBP-180CMS, SBP-900CMP, SBP-300CMP, SBP-150CMP, SBP-C15P, SBP-C15H
Data Protect	Encryption Credentials, Encrypt compress for live recording file export	Wall Mount	SBP-160WMW1, SBP-400WMW, SBP-250WMW, SBP-300WMW, SBP-300WMW1
Audit	Access / System / Event Log management	Wall Mount Adaptor	None
Device ID	Device Certificate(Hanwha vision Root CA)	Pole Mount	SBD-180PMW
Secure Storage	Secure element, SDcard partition encrypt	In-ceiling Mount	SHD-1372FPW
Security Certificate	ETSI EN 303 645, Secure element(FIPS 140-3 level3, CC EAL6+)	Corner Mount	SBD-180KMA
General		Parapet Mount	SBP-156LMW1, SBP-300LMW
Webpage Language	English, Korean, Simplified Chinese, Traditional Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek	Tilt Mount	SBP-160TMW1
Web Viewer	None	Cabinet	SBP-150NBW, SBP-300NBW
Edge Storage	Micro SD/SDHC/SDXC 2slots 2TB(1TBx2)	Housing	None
Memory	4GB RAM, 8GB eMMC	Gang Plate	None
Environmental & Electrical		Skin Cover	None
Operating Temperature / Humidity	-25°C~+50°C(-13°F~+122°F) / 0~100% RH Humidity control /w AIR vent	Weather Cap	SBV-161WCW
Storage Temperature / Humidity	-50°C~+60°C(-58°F~+140°F) / 0~90% RH	Dome Cover	SPB-IND87W
Wind Load	None	Conduit Adaptor	None
EPA(Effective Projected Area)	0.0148m²	Power Module	None
Certification	IP52, IK10	Interface Box	SPM-4210
Input Voltage	PoE+(IEEE802.3at type2, Class4), 12VDC PoE: Max. 15.0W, typical 9.0W 12VDC: Max. 12.7W, typical 7.8W	Other Compatible Models	SBP-115PFA
Power Consumption	Support Wisepower - Power monitoring(Max./Current/Avg.) - Power Redundance Failover	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

☒ 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	PND-A7082RV	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC/DC Adapter	FSP060-DIBAN2	-	FSP GROUP INC.	-
PoE Injector	PT-PSE106GBR-AH-S	-	Dongguan PROCET Network Technology Co., Ltd	-
Notebook	NT500R5W	-	Samsung Eelcotronics Co., Ltd.	-
Notebook Adapter	PA-1400-96	-	LITE-ON TECHNOLOGY CHANGZHOU CO.,LTD	-
Micro SD Card 1	-	-	SanDisk	-
Micro SD Card 2	-	-	SanDisk	-
LED Alarm	PRO-SL	-	SENSOR PRO	-
Button Alarm	-	-	-	-
Earphone	-	-	-	-
Smartphone	SM-N950N	-	Samsung Eelcotronics Co., Ltd.	-



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)	2 Pin	AC/DC Adapter	2 Pin	1.6	U
	Micro SD Card Slot	Micro SD Card 1	Micro SD Card Slot	-	-
	Micro SD Card Slot	Micro SD Card 2	Micro SD Card Slot	-	-
	RJ-45 (LAN)	Notebook	RJ-45 (LAN)	3.1	-
	Alarm IN (2 PIN)	Button Alarm	Alarm OUT	3.1	U
	Alarm OUT (2 PIN)	LED Alarm	Alarm IN	3.1	U
	Audio IN	Smartphone	3.5 mm	1.0	U
	Audio OUT	Earphone	3.5 mm	1.4	U
Notebook	DC Jack	Notebook Adapter	DC Jack	1.6	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)	3.1	U
	Micro SD Card Slot	Micro SD Card 1	Micro SD Card Slot	-	-
	Micro SD Card Slot	Micro SD Card 2	Micro SD Card Slot	-	-
	Alarm IN (2 PIN)	Button Alarm	Alarm OUT	3.1	U
	Alarm OUT (2 PIN)	LED Alarm	Alarm IN	3.1	U
	Audio IN	Smartphone	3.5 mm	1.0	U
	Audio OUT	Earphone	3.5 mm	1.4	U
Notebook	DC Jack	Notebook Adapter	DC Jack	1.6	U

* Unshielded=U, Shielded=S



1.7 EUT Operating Mode(s)

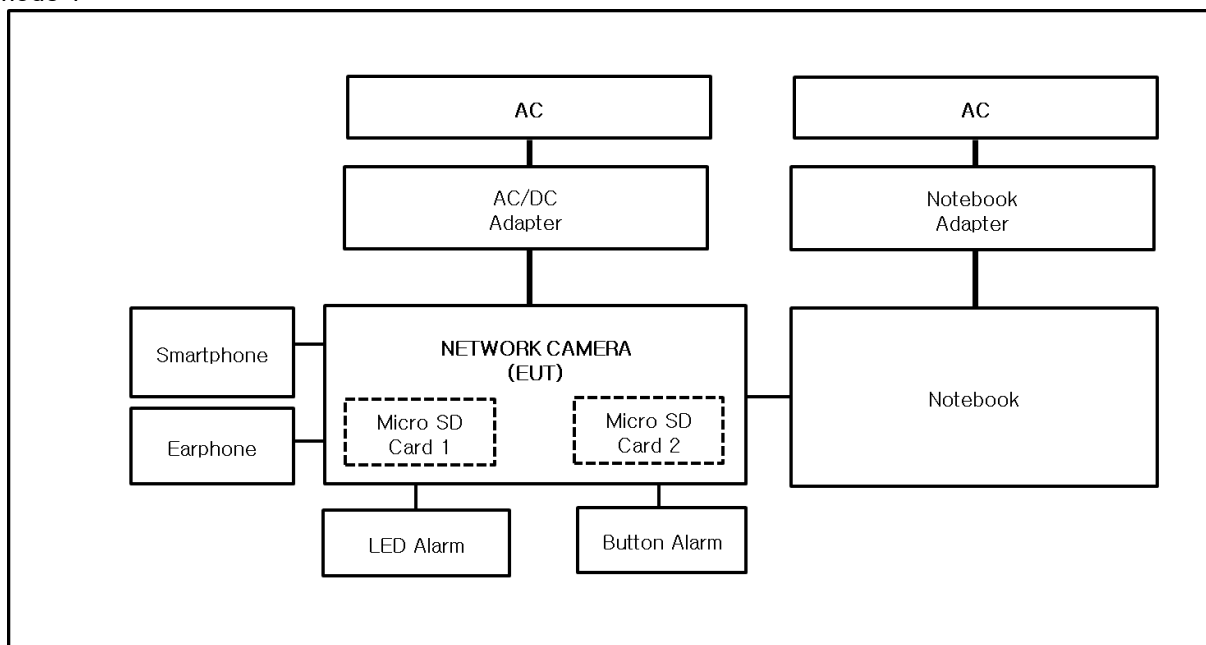
	Test mode	Normal operating
mode 1	AC/DC Adapter	- IP from the test equipment to the laptop was tested by Ping Test on the laptop. - The test was conducted by checking whether the camera image was output normally in the Web Viewer. - After the test, I checked whether the video was recorded normally on the Micro SD Card.
mode 2	PoE	

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

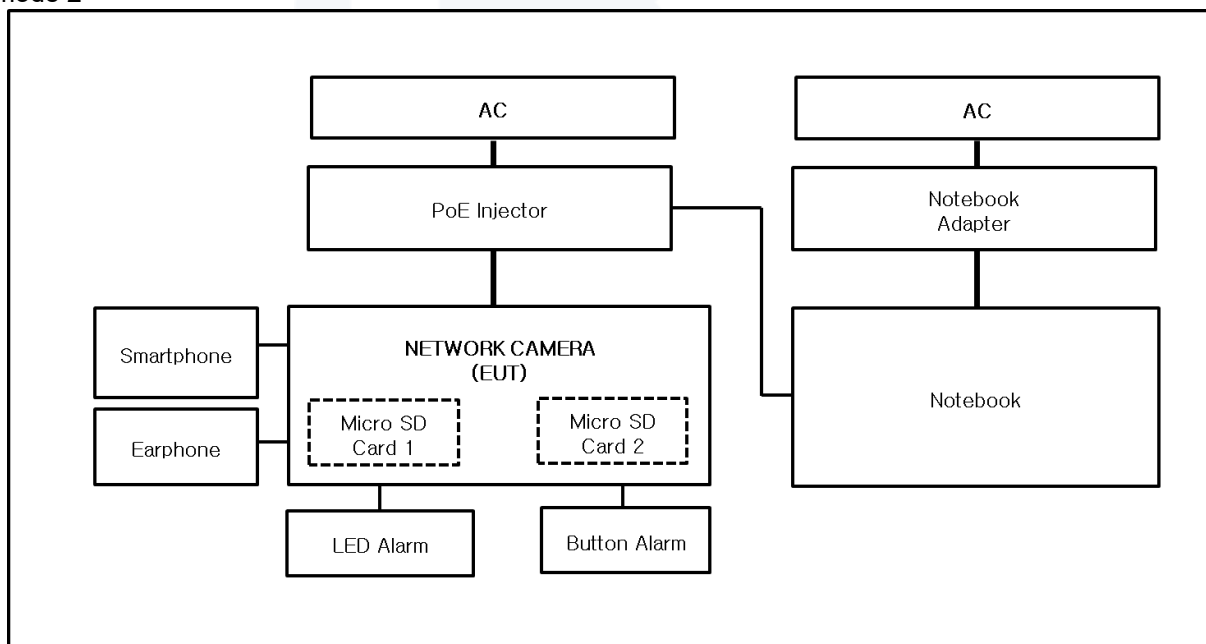


1.8 Configuration

■mode 1



■mode 2





1.9 Remarks when standards applied

USB C Type ports are not used and have not been tested.

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

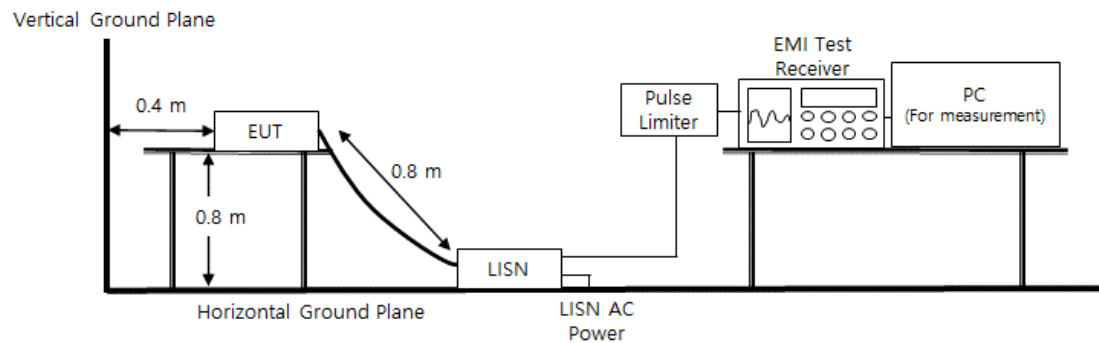
May. 08, 2025

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: (23,3 ± 0,1) °C
Relative Humidity: (46,7 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

- See Appendix A for test data.
- The LAN port is regarded as a wired communication network port and power-related ports are not tested.



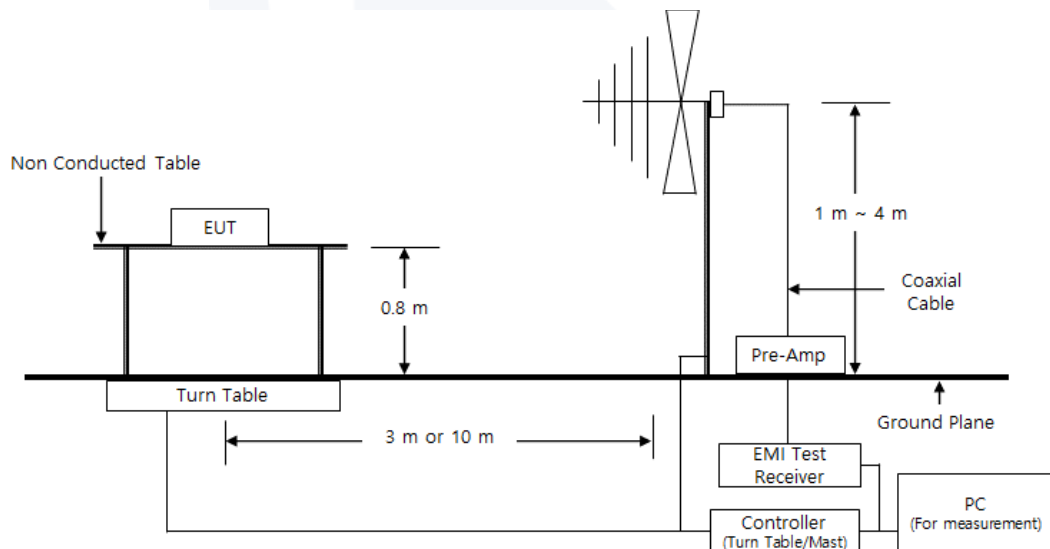
2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

May. 12, 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 ± 0,1) °C
Relative Humidity: (46,5 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

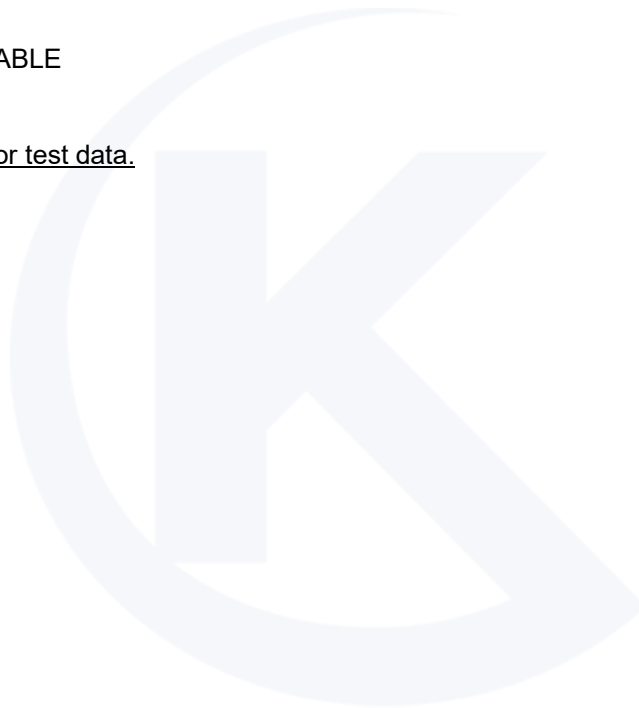
Test Results

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

May. 09, 2025

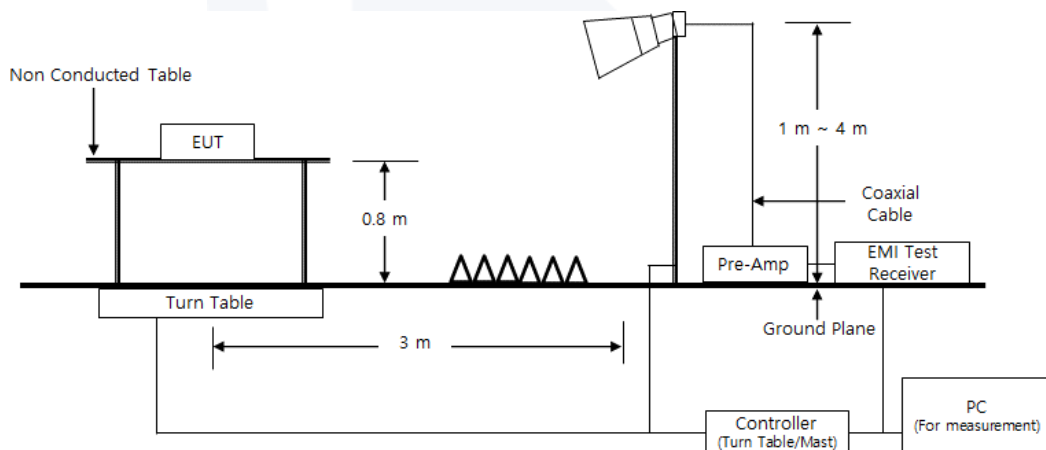
Test Location

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	3008A00899	03, 05, 2026	1 Year
☒	ATTENUATOR	8491B	HP	23094	02, 13, 2026	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,4 ± 0,1)°C
Relative Humidity: (46,3 ± 0,1) % R.H.

Frequency Range of Measurement

1 GHz to 8 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:

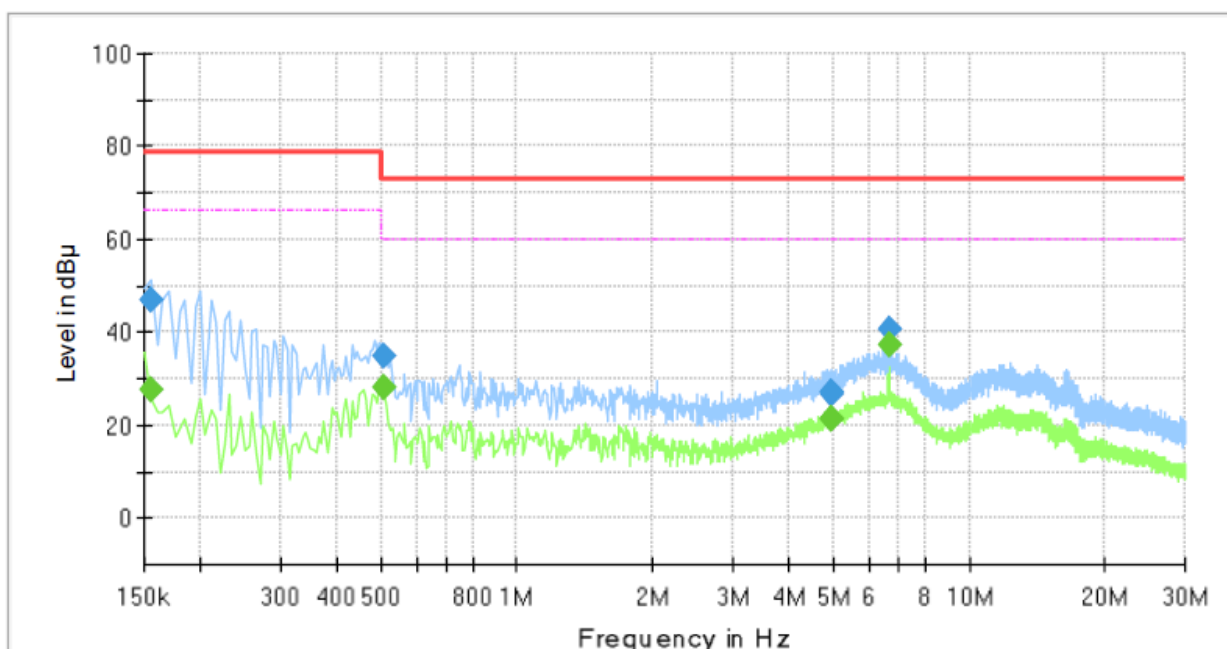
Conducted Emission

KES-EM251556

L

mode 1

KES



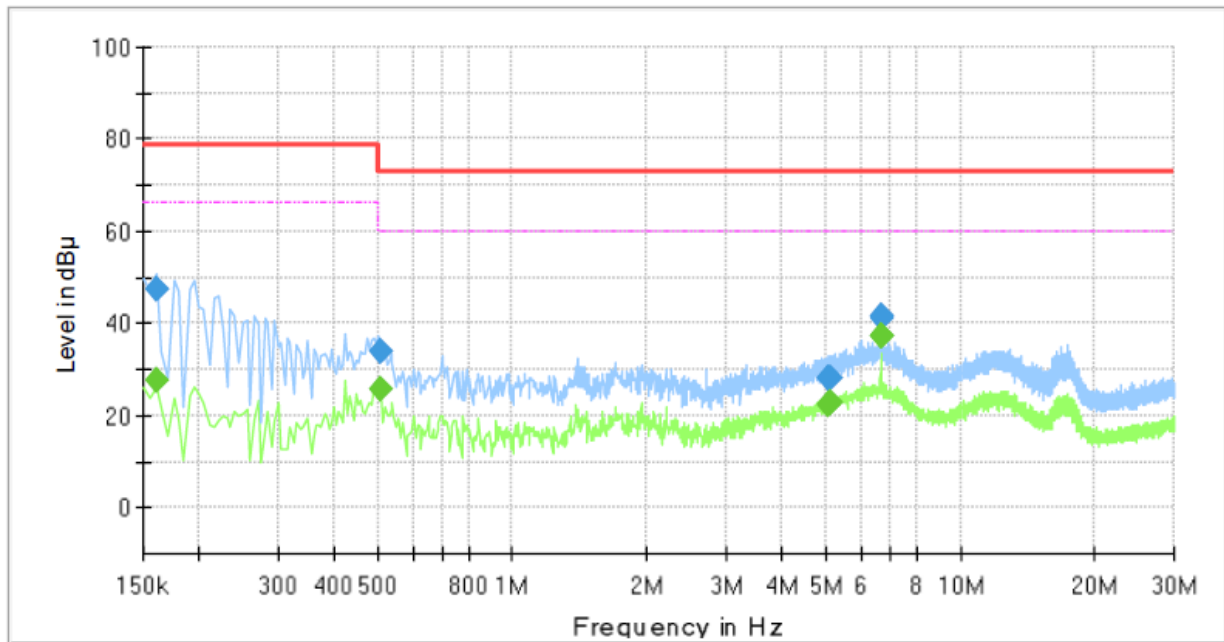
Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	27.40	66.00	38.60	1000.0	9.000	L1	19.5
0.155000	46.99	---	79.00	32.01	1000.0	9.000	L1	19.5
0.505000	---	27.88	60.00	32.12	1000.0	9.000	L1	19.6
0.505000	35.08	---	73.00	37.92	1000.0	9.000	L1	19.6
4.940000	---	21.23	60.00	38.77	1000.0	9.000	L1	19.9
4.940000	26.73	---	73.00	46.27	1000.0	9.000	L1	19.9
4.975000	---	21.39	60.00	38.61	1000.0	9.000	L1	19.9
4.975000	26.91	---	73.00	46.09	1000.0	9.000	L1	19.9
6.630000	---	37.30	60.00	22.70	1000.0	9.000	L1	20.0
6.630000	40.59	---	73.00	32.41	1000.0	9.000	L1	20.0



NEUTRAL LINE

Test Description: Conducted Emission
Job No.: KES-EM251556
Phase: N
Mode: mode 1
Operator Name: KES



Final_Result

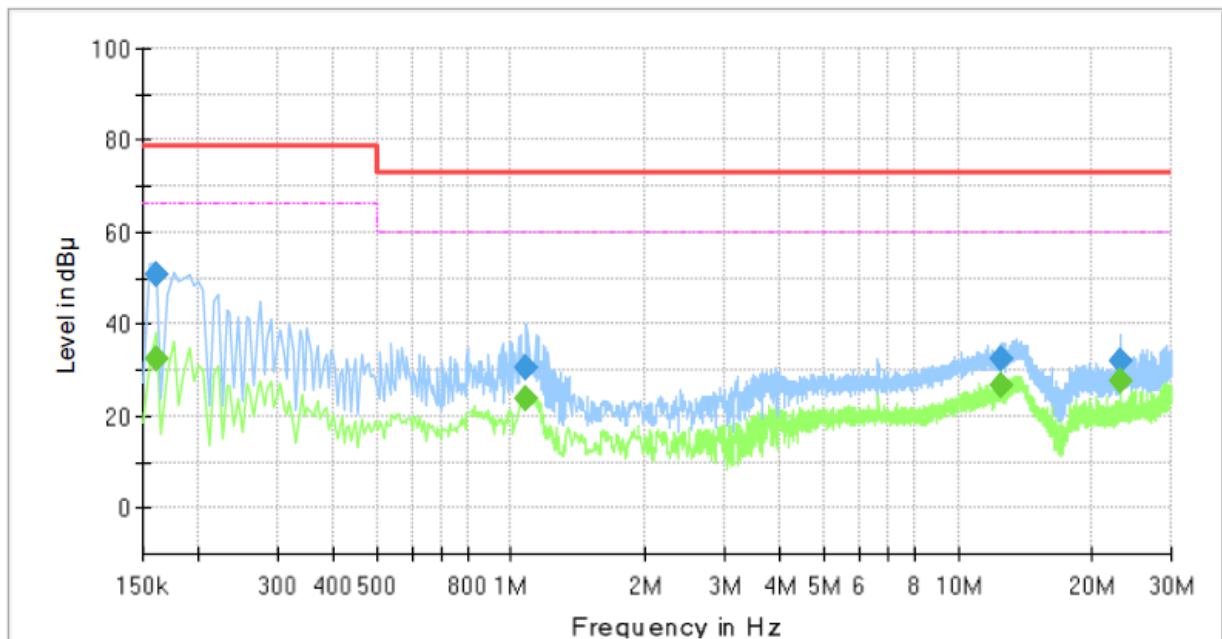
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	27.81	66.00	38.19	1000.0	9.000	N	19.5
0.160000	47.42	---	79.00	31.58	1000.0	9.000	N	19.5
0.510000	---	25.53	60.00	34.47	1000.0	9.000	N	19.5
0.510000	33.77	---	73.00	39.23	1000.0	9.000	N	19.5
5.070000	---	22.44	60.00	37.56	1000.0	9.000	N	19.9
5.070000	27.99	---	73.00	45.01	1000.0	9.000	N	19.9
5.105000	---	22.59	60.00	37.41	1000.0	9.000	N	19.9
5.105000	28.19	---	73.00	44.81	1000.0	9.000	N	19.9
6.635000	---	37.22	60.00	22.78	1000.0	9.000	N	19.9
6.635000	41.42	---	73.00	31.58	1000.0	9.000	N	19.9
6.640000	---	37.28	60.00	22.72	1000.0	9.000	N	19.9
6.640000	40.91	---	73.00	32.09	1000.0	9.000	N	19.9



■ mode 2

HOT LINE

Test Description: Conducted Emission
Job No.: KES-EM251556
Phase: L
Mode: mode 2
Operator Name: KES

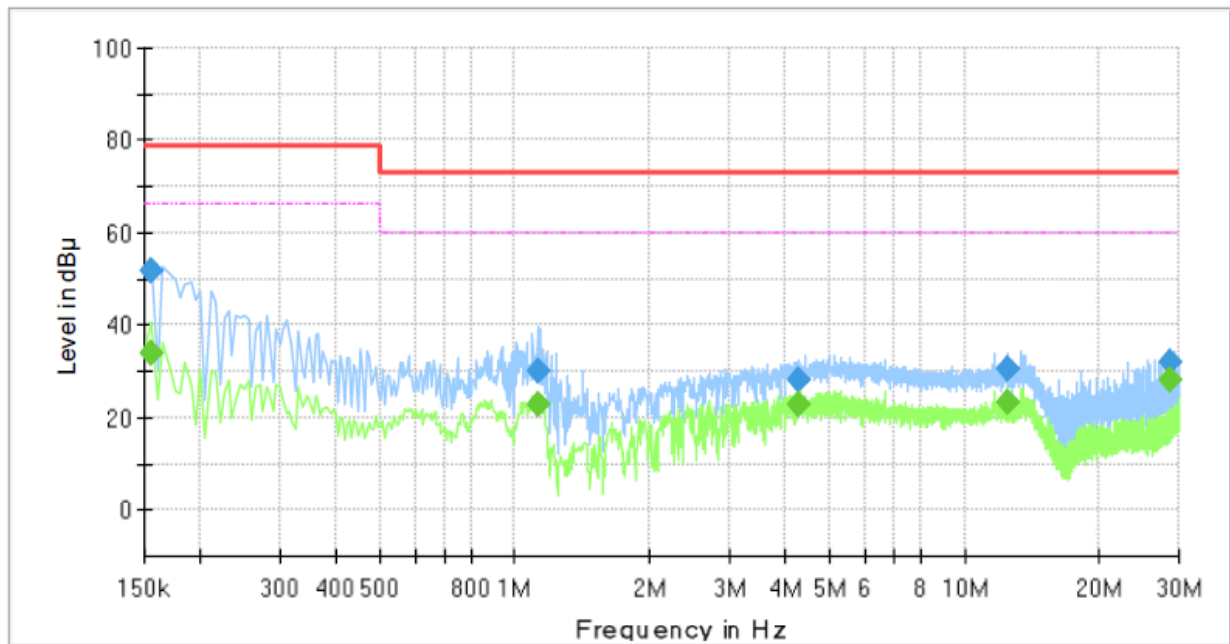
**Final_Result**

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	32.25	66.00	33.75	1000.0	9.000	L1	19.5
0.160000	50.55	---	79.00	28.45	1000.0	9.000	L1	19.5
1.080000	---	23.99	60.00	36.01	1000.0	9.000	L1	19.6
1.080000	30.41	---	73.00	42.59	1000.0	9.000	L1	19.6
12.420000	---	26.87	60.00	33.13	1000.0	9.000	L1	20.2
12.420000	32.25	---	73.00	40.75	1000.0	9.000	L1	20.2
23.130000	---	27.69	60.00	32.31	1000.0	9.000	L1	20.5
23.130000	31.94	---	73.00	41.06	1000.0	9.000	L1	20.5



NEUTRAL LINE

Test Description: Conducted Emission
Job No.: KES-EM251556
Phase: N
Mode: mode 2
Operator Name: KES

**Final_Result**

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	34.14	66.00	31.86	1000.0	9.000	N	19.5
0.155000	51.81	---	79.00	27.19	1000.0	9.000	N	19.5
1.125000	---	22.69	60.00	37.31	1000.0	9.000	N	19.6
1.125000	30.20	---	73.00	42.80	1000.0	9.000	N	19.6
4.265000	---	22.75	60.00	37.25	1000.0	9.000	N	19.8
4.265000	28.24	---	73.00	44.76	1000.0	9.000	N	19.8
12.455000	---	23.41	60.00	36.59	1000.0	9.000	N	20.1
12.455000	30.30	---	73.00	42.70	1000.0	9.000	N	20.1
28.685000	---	27.96	60.00	32.04	1000.0	9.000	N	20.6
28.685000	31.83	---	73.00	41.17	1000.0	9.000	N	20.6

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

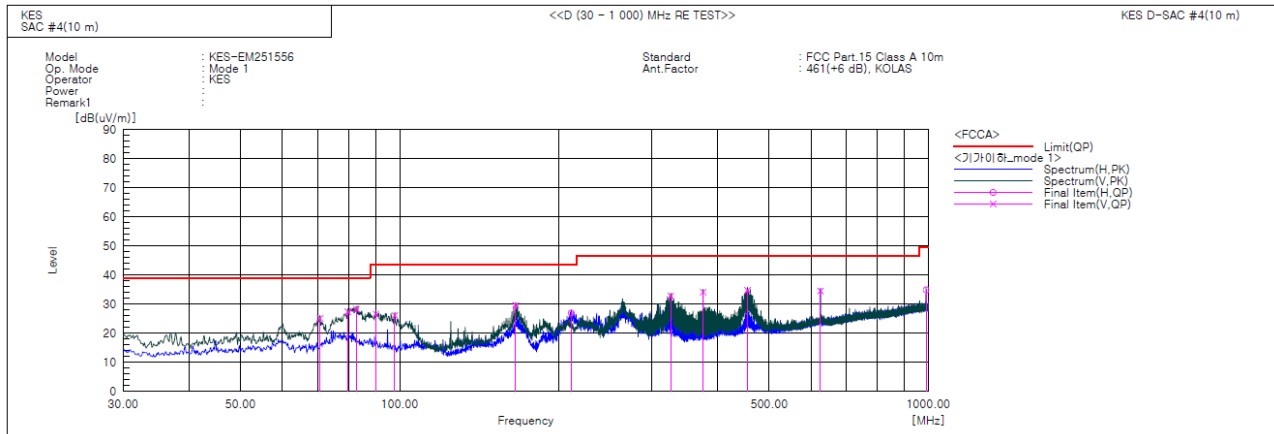
Reading Value : Not shown in the table.

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

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

■ mode 1

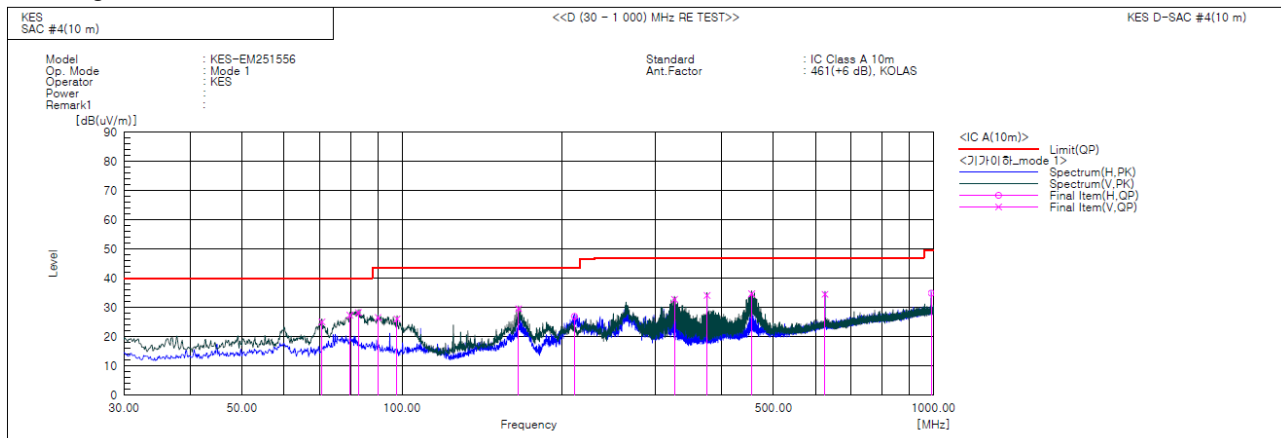
- 47 CFR Part 15, Subpart B

**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	70.740	V	48.0	-22.9	25.1	39.0	13.9	176.0	92.0	
2	79.834	V	52.9	-25.5	27.4	39.0	11.6	184.0	182.0	
3	82.744	V	54.2	-25.9	28.3	39.0	10.7	377.0	253.0	
4	90.140	V	52.7	-26.1	26.6	43.5	16.9	214.0	190.0	
5	97.900	V	51.3	-25.2	26.1	43.5	17.4	295.0	116.0	
6	165.679	V	49.3	-19.7	29.6	43.5	13.9	168.0	2.0	
7	211.269	H	48.5	-21.6	26.9	43.5	16.6	323.0	135.0	
8	325.486	V	49.0	-16.2	32.8	46.5	13.7	144.0	2.0	
9	374.956	V	48.7	-14.6	34.1	46.5	12.4	295.0	123.0	
10	454.860	V	46.0	-11.3	34.7	46.5	11.8	187.0	100.0	
11	624.974	V	41.0	-6.5	34.5	46.5	12.0	290.0	100.0	
12	990.058	H	34.9	0.0	34.9	49.5	14.6	206.0	124.0	



- IC Regulation ICES-003 Issue 7



Final Result

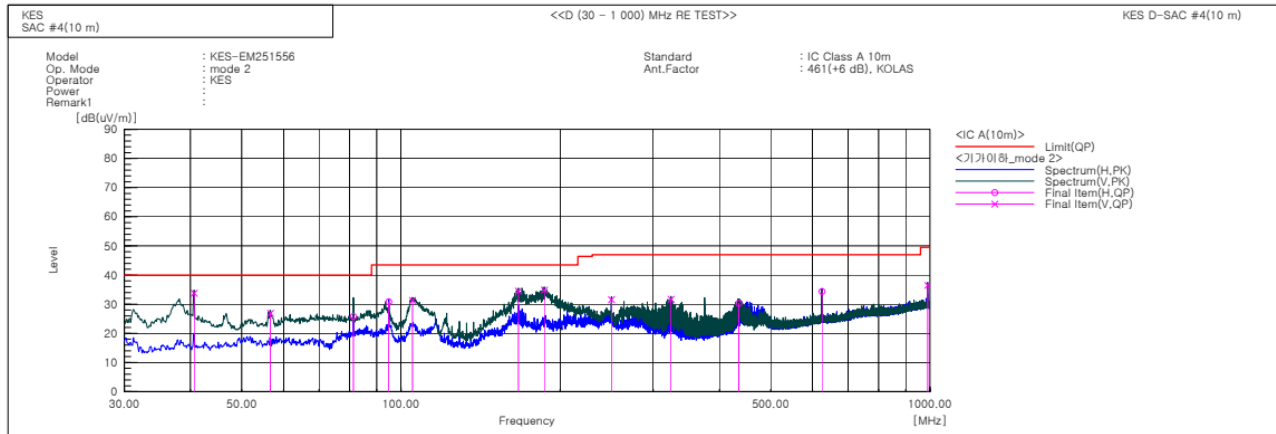
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	70.740	V	48.0	-22.9	25.1	40.0	14.9	176.0	92.0	
2	79.834	V	52.9	-25.5	27.4	40.0	12.6	184.0	182.0	
3	82.744	V	54.2	-25.9	28.3	40.0	11.7	377.0	253.0	
4	90.140	V	52.7	-26.1	26.6	43.5	16.9	214.0	190.0	
5	97.900	V	51.3	-25.2	26.1	43.5	17.4	295.0	116.0	
6	165.679	V	49.3	-19.7	29.6	43.5	13.9	168.0	2.0	
7	211.269	H	48.5	-21.6	26.9	43.5	16.6	323.0	135.0	
8	325.486	V	49.0	-16.2	32.8	47.0	14.2	144.0	2.0	
9	374.956	V	48.7	-14.6	34.1	47.0	12.9	295.0	123.0	
10	454.860	V	46.0	-11.3	34.7	47.0	12.3	187.0	100.0	
11	624.974	V	41.0	-6.5	34.5	47.0	12.5	290.0	100.0	
12	990.058	H	34.9	0.0	34.9	49.5	14.6	206.0	124.0	



Report No. : KES-EM251556

■ mode 2

- 47 CFR Part 15, Subpart B



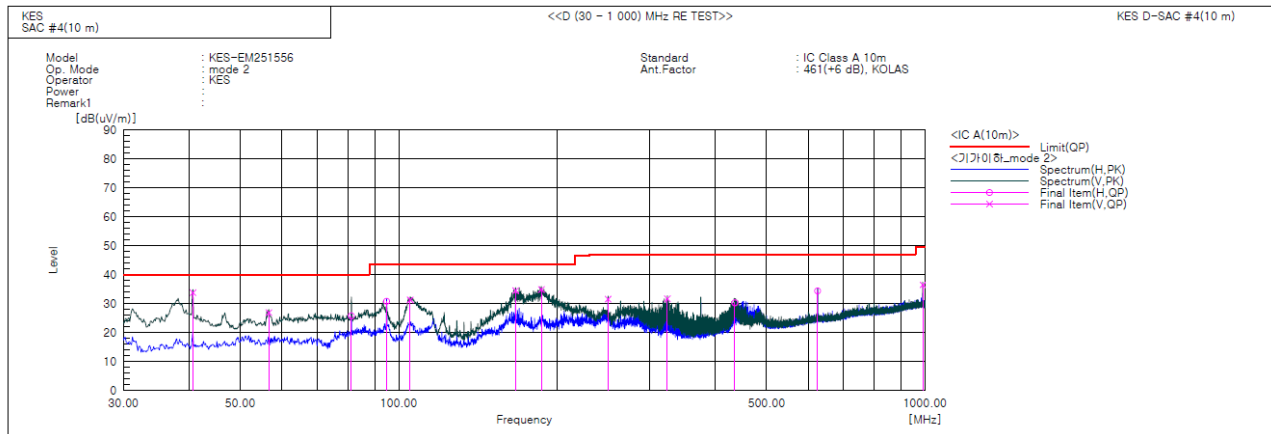
Final Result

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	40.670	V	55.6	-21.8	33.8	40.0	6.2	267.0	242.0	
2	56.675	V	48.0	-21.1	26.9	40.0	13.1	161.0	106.0	
3	81.289	H	51.5	-25.7	25.8	40.0	14.2	327.0	120.0	
4	94.869	H	56.5	-25.7	30.8	43.5	12.7	387.0	214.0	
5	105.175	V	55.4	-24.1	31.3	43.5	12.2	216.0	136.0	
6	166.770	V	54.3	-19.8	34.5	43.5	9.0	275.0	273.0	
7	186.655	V	56.3	-21.4	34.9	43.5	8.6	165.0	326.0	
8	249.948	V	51.0	-19.4	31.6	47.0	15.4	197.0	99.0	
9	324.153	V	47.9	-16.2	31.7	47.0	15.3	114.0	330.0	
10	435.218	H	42.4	-12.1	30.3	47.0	16.7	225.0	107.0	
11	624.974	H	40.9	-6.5	34.4	47.0	12.6	297.0	236.0	
12	990.058	V	36.5	0.0	36.5	49.5	13.0	208.0	116.0	



Report No. : KES-EM251556

- 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	40.670	V	55.6	-21.8	33.8	39.0	5.2	267.0	242.0	
2	56.675	V	48.0	-21.1	26.9	39.0	12.1	161.0	106.0	
3	81.289	H	51.5	-25.7	25.8	39.0	13.2	327.0	120.0	
4	94.869	H	56.5	-25.7	30.8	43.5	12.7	387.0	214.0	
5	105.175	V	55.4	-24.1	31.3	43.5	12.2	216.0	136.0	
6	166.770	V	54.3	-19.8	34.5	43.5	9.0	275.0	273.0	
7	186.655	V	56.3	-21.4	34.9	43.5	8.6	165.0	326.0	
8	249.948	V	51.0	-19.4	31.6	46.5	14.9	197.0	99.0	
9	324.153	V	47.9	-16.2	31.7	46.5	14.8	114.0	330.0	
10	435.218	H	42.4	-12.1	30.3	46.5	16.2	225.0	107.0	
11	624.974	H	40.9	-6.5	34.4	46.5	12.1	297.0	236.0	
12	990.058	V	36.5	0.0	36.5	49.5	13.0	208.0	116.0	

◆ Calculation

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

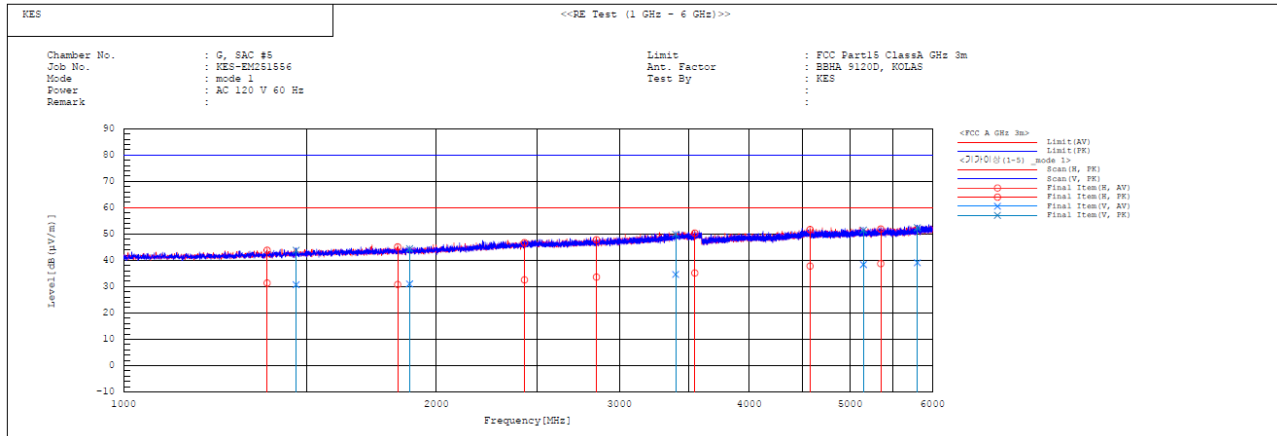
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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	5806.217	V	26.5	39.4	13.0	52.4	60.0	80.0	20.5	27.6	121.0	95.9	
2	5312.213	V	27.0	40.0	12.0	52.0	60.0	80.0	21.0	28.0	227.0	61.5	
3	4723.772	V	27.2	40.8	10.9	51.7	60.0	80.0	21.9	28.3	275.0	144.6	
4	4987.651	H	26.7	39.5	11.5	51.0	60.0	80.0	21.8	29.0	267.0	136.6	
5	3478.877	H	27.8	43.1	7.4	50.5	60.0	80.0	24.8	29.5	387.0	16.8	
6	4377.877	H	27.2	40.2	10.2	50.4	60.0	80.0	22.6	29.6	380.0	140.3	
7	3594.701	H	27.8	42.4	7.6	50.0	60.0	80.0	24.6	30.0	170.0	16.1	
8	2951.109	H	27.3	41.9	6.1	48.0	60.0	80.0	26.6	32.0	115.0	7.8	
9	2450.854	H	28.0	42.4	4.9	47.3	60.0	80.0	27.1	32.7	286.0	231.3	
10	1937.063	H	28.2	42.2	3.0	45.2	60.0	80.0	28.8	34.8	307.0	239.4	
11	1993.672	V	28.5	41.8	3.2	45.0	60.0	80.0	28.3	35.0	160.0	107.0	
12	1447.201	V	29.0	42.1	1.4	43.5	60.0	80.0	29.6	36.5	121.0	70.8	



(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)
6 242.693	39.600	H	1.000	33.860	8.910	34.060	48.310	80.000	31.690
6 710.712	40.000	H	1.000	34.910	9.350	34.740	49.520	80.000	30.480
6 848.493	39.300	V	1.000	35.570	9.110	34.690	49.290	80.000	30.710
7 386.693	39.100	V	1.000	36.460	9.390	33.520	51.430	80.000	28.570

- CISPR AV

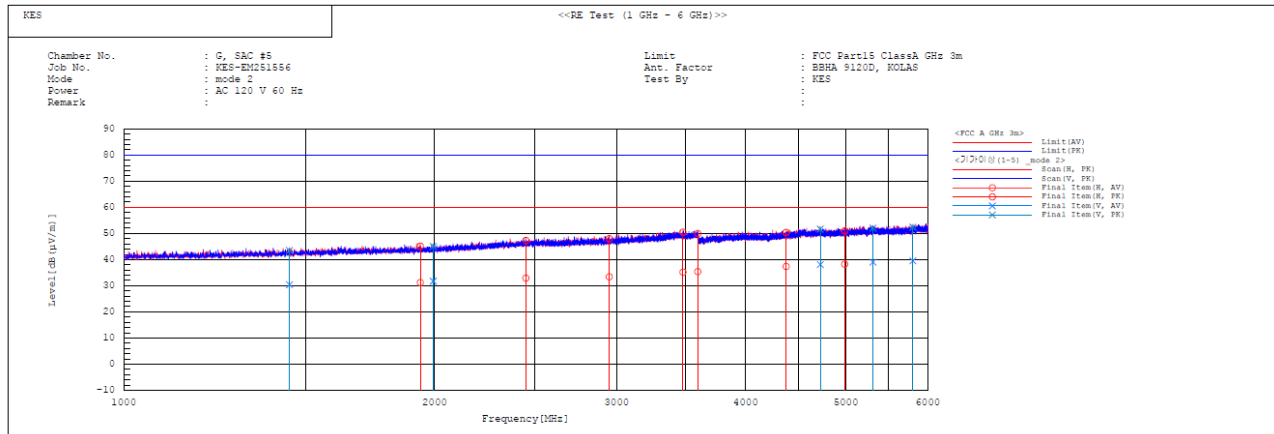
Frequency (MHz)	Reading CISPR AV (dBuV)	Polarization	Height (m)	ANT Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
6 242.693	33.100	H	1.000	33.860	8.910	34.060	41.810	60.000	18.190
6 710.712	33.300	H	1.000	34.910	9.350	34.740	42.820	60.000	17.180
6 848.493	33.400	V	1.000	35.570	9.110	34.690	43.390	60.000	16.610
7 386.693	33.200	V	1.000	36.460	9.390	33.520	45.530	60.000	14.470



Report No. : KES-EM251556

Page 29 / 45

■ mode 2
(1 ~ 5) GHz



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	1357.182	V	29.4	42.3	1.0	43.3	60.0	80.0	29.6	36.7	215.0	157.0	
2	1440.601	H	29.2	42.1	1.4	43.5	60.0	80.0	29.4	36.5	268.0	38.4	
3	1859.901	V	28.3	42.2	2.7	44.9	60.0	80.0	29.0	35.1	190.0	53.2	
4	1953.101	H	28.5	42.1	3.0	45.1	60.0	80.0	28.5	34.9	310.0	158.4	
5	2452.246	H	28.4	43.0	4.9	47.9	60.0	80.0	26.7	32.1	320.0	1.5	
6	2627.302	V	27.9	43.1	5.3	48.4	60.0	80.0	26.8	31.6	134.0	359.3	
7	3430.761	H	27.8	42.6	7.3	49.9	60.0	80.0	24.9	30.1	378.0	1.5	
8	3827.389	H	27.7	41.1	8.7	49.8	60.0	80.0	23.6	30.2	330.0	205.5	
9	4420.901	H	26.9	40.2	10.3	50.5	60.0	80.0	22.8	29.5	396.0	134.7	
10	4945.644	V	26.3	40.0	11.4	51.4	60.0	80.0	22.3	28.6	160.0	47.7	
11	5171.217	H	26.7	40.5	11.9	52.4	60.0	80.0	21.4	27.6	324.0	4.3	
12	5905.352	V	26.4	42.8	13.1	55.9	60.0	80.0	20.5	24.1	231.0	324.2	



(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)
5 642.419	39.400	V	1.000	32.400	8.470	33.870	46.400	80.000	33.600
6 608.103	39.500	H	1.000	34.420	9.190	34.770	48.340	80.000	31.660
7 011.148	39.400	V	1.000	35.330	9.360	34.610	49.480	80.000	30.520
7 342.693	39.600	H	1.000	36.330	9.390	33.650	51.670	80.000	28.330

- 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)
5 642.419	33.800	V	1.000	32.400	8.470	33.870	40.800	60.000	19.200
6 608.103	33.500	H	1.000	34.420	9.190	34.770	42.340	60.000	17.660
7 011.148	33.600	V	1.000	35.330	9.360	34.610	43.680	60.000	16.320
7 342.693	33.300	H	1.000	36.330	9.390	33.650	45.370	60.000	14.630

◆ Calculation

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

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

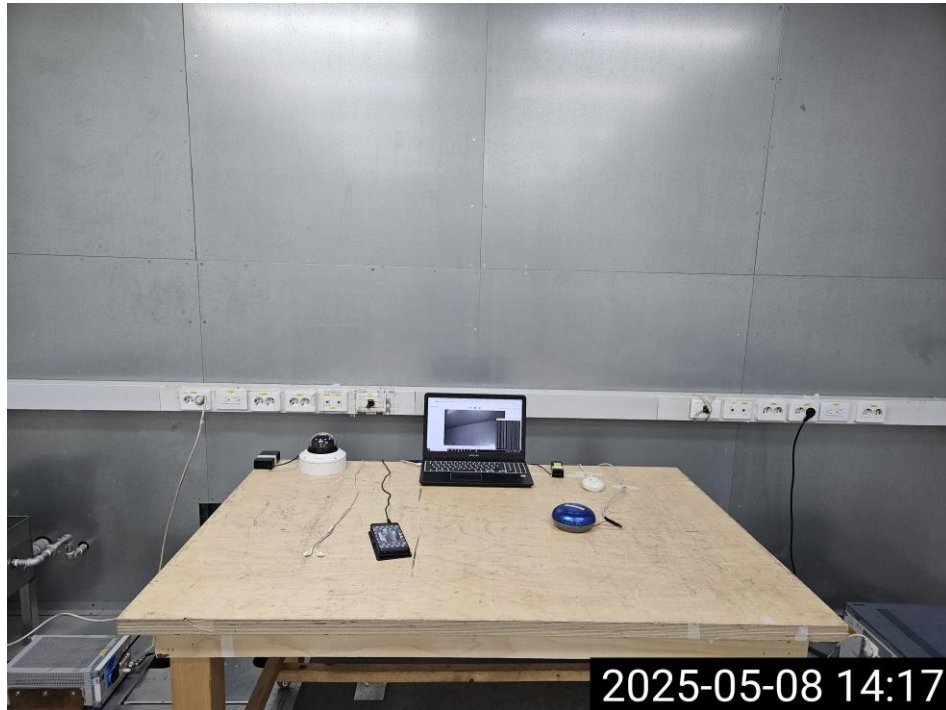
Limit(PK/CAV) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value



Test Setup Photos and Configuration

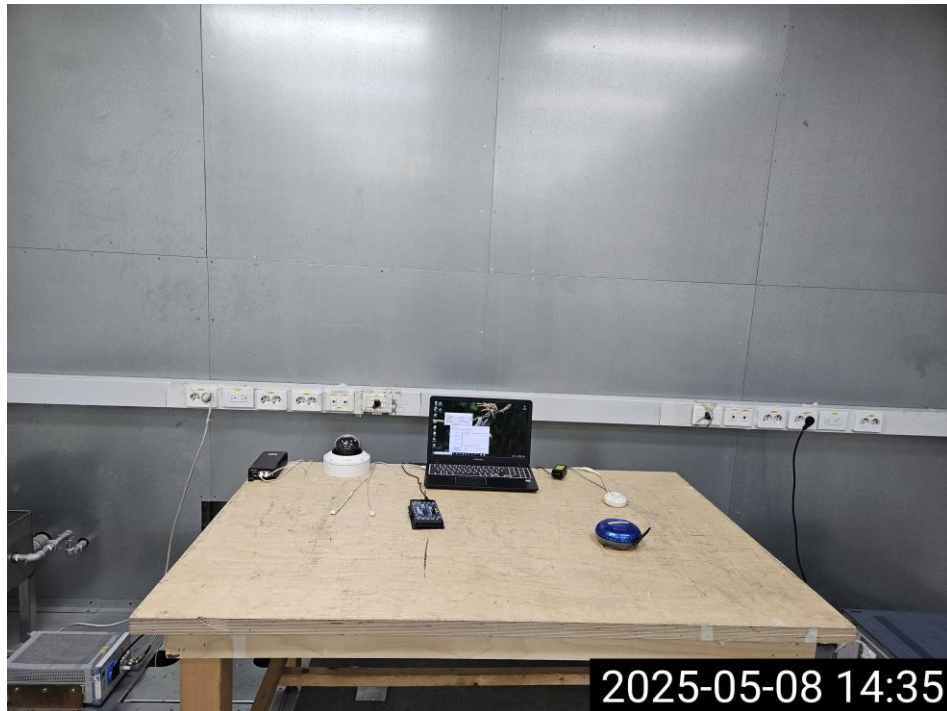
Conducted Emissions at Mains Power Ports

■ mode 1





■ mode 2





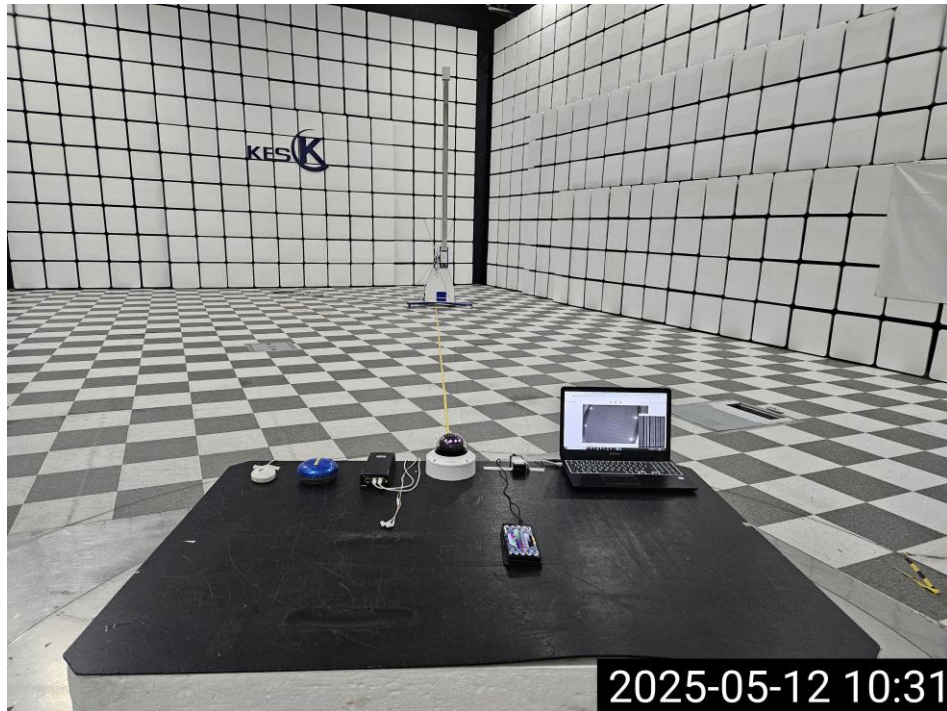
Radiated Electric Field Emissions(Below 1 GHz)

■ mode 1





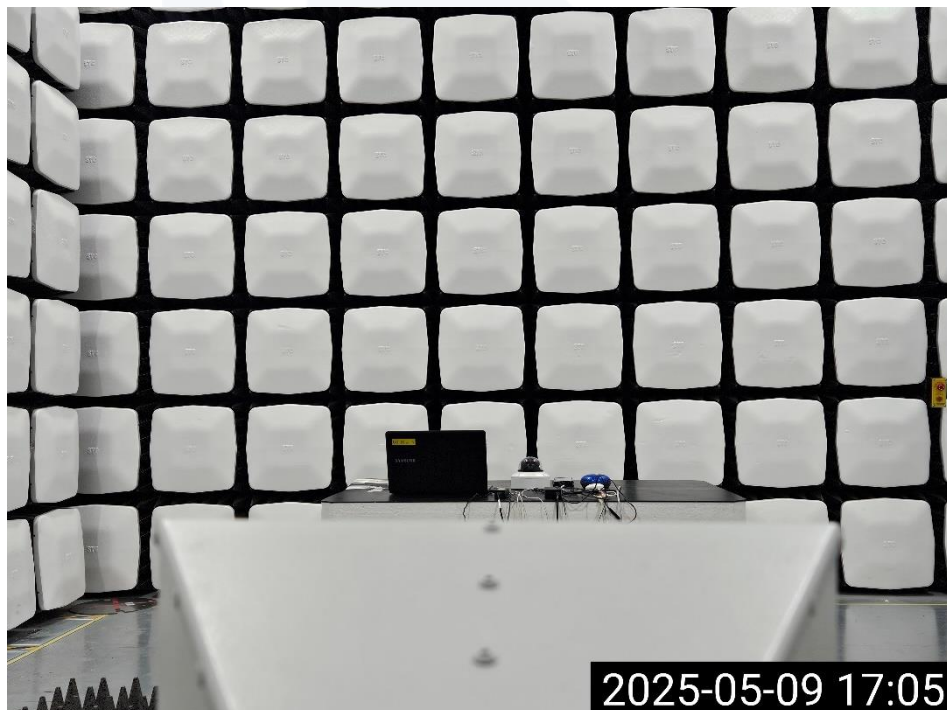
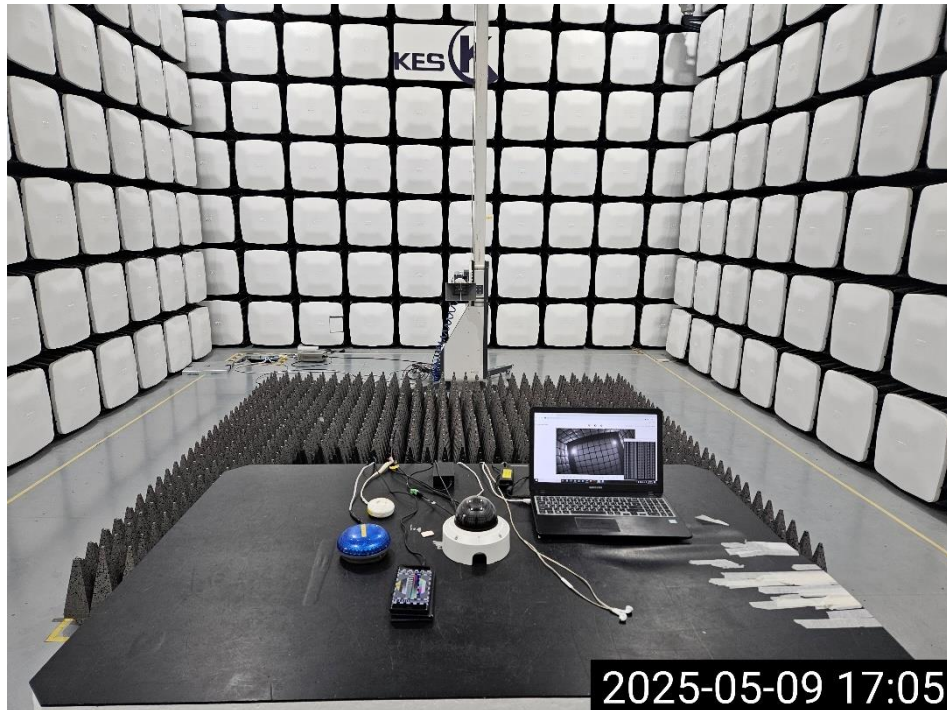
■ mode 2





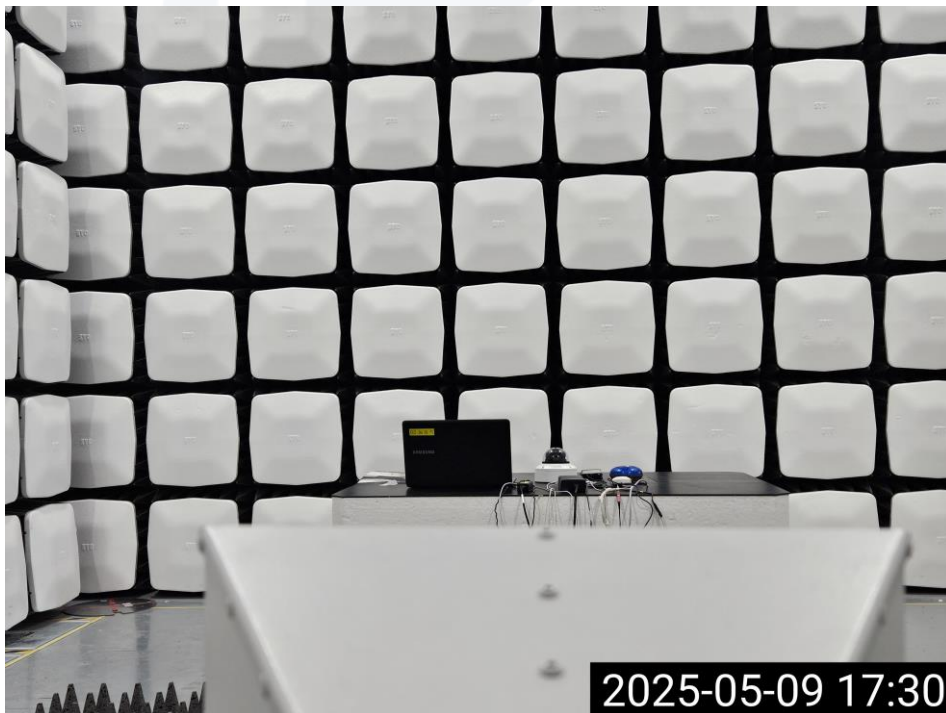
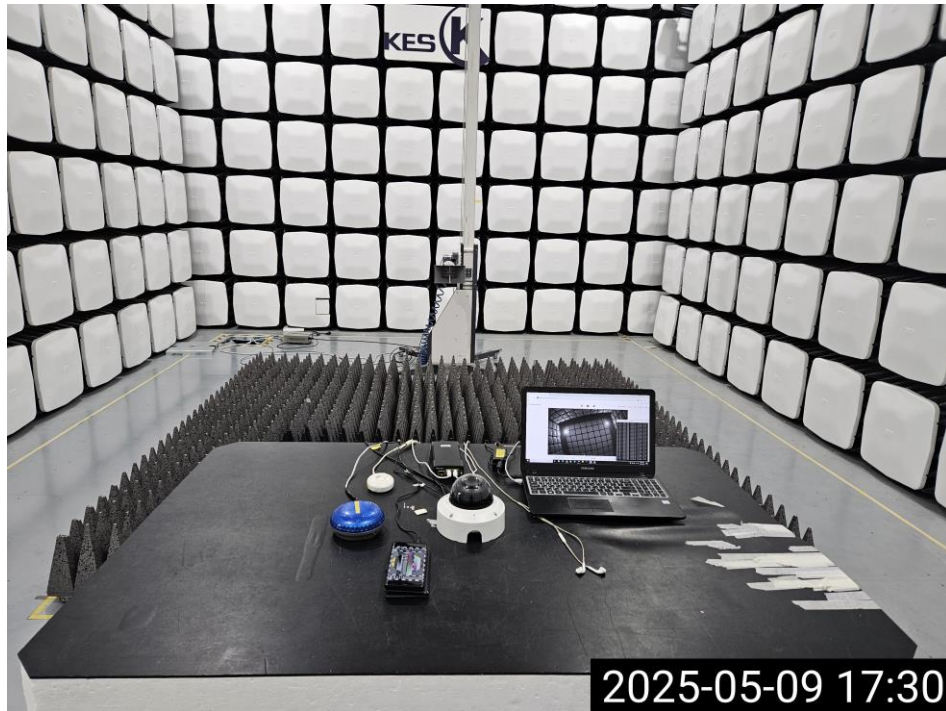
Radiated Electric Field Emissions(Above 1 GHz)

■ mode 1





■ mode 2





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs

(Internal View)





EUT Internal View – Board 1

(Top)



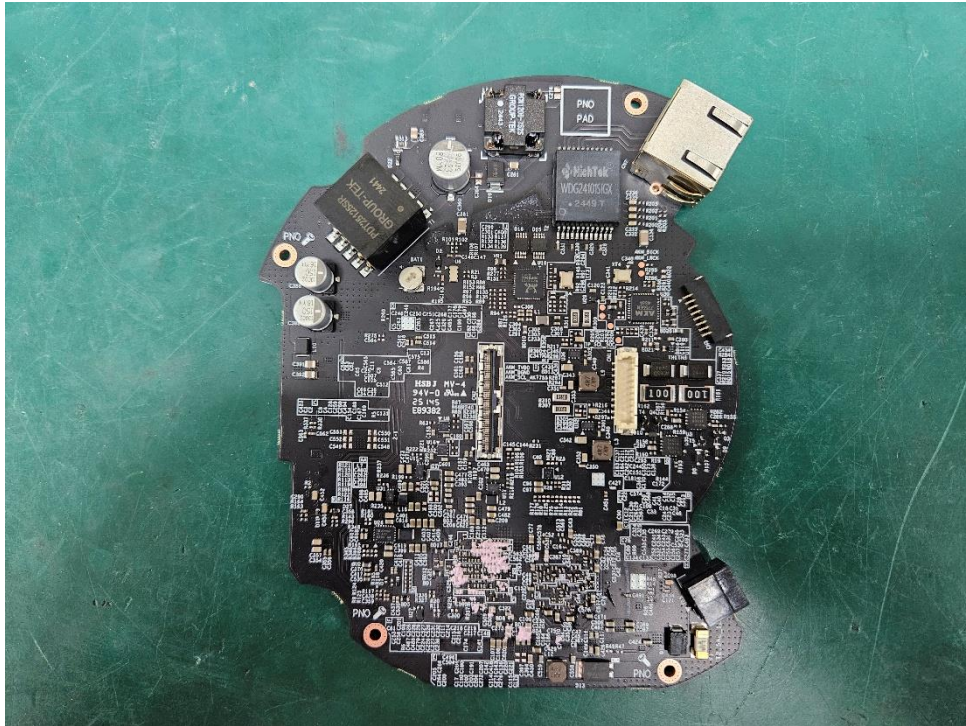
(Bottom)



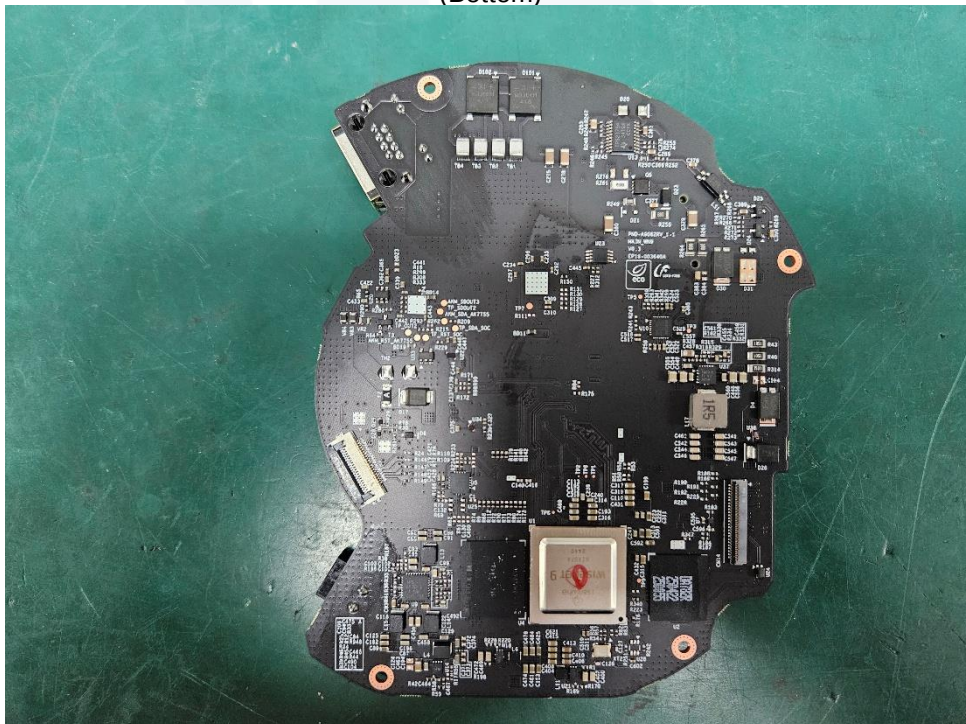


EUT Internal View – Board 2

(Top)



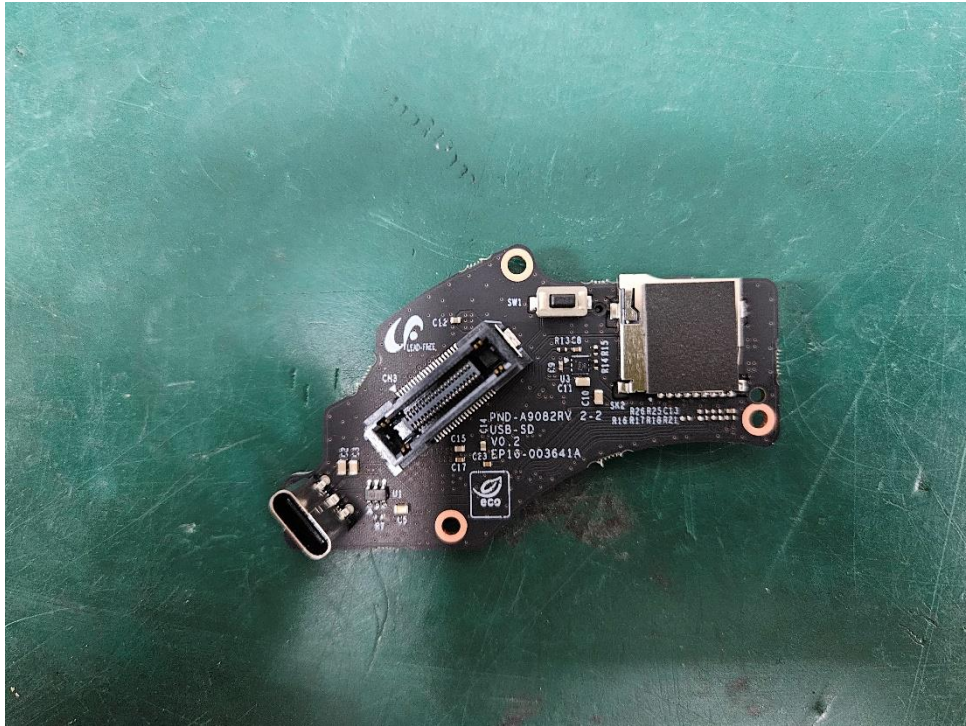
(Bottom)





EUT Internal View – Board 3

(Top)



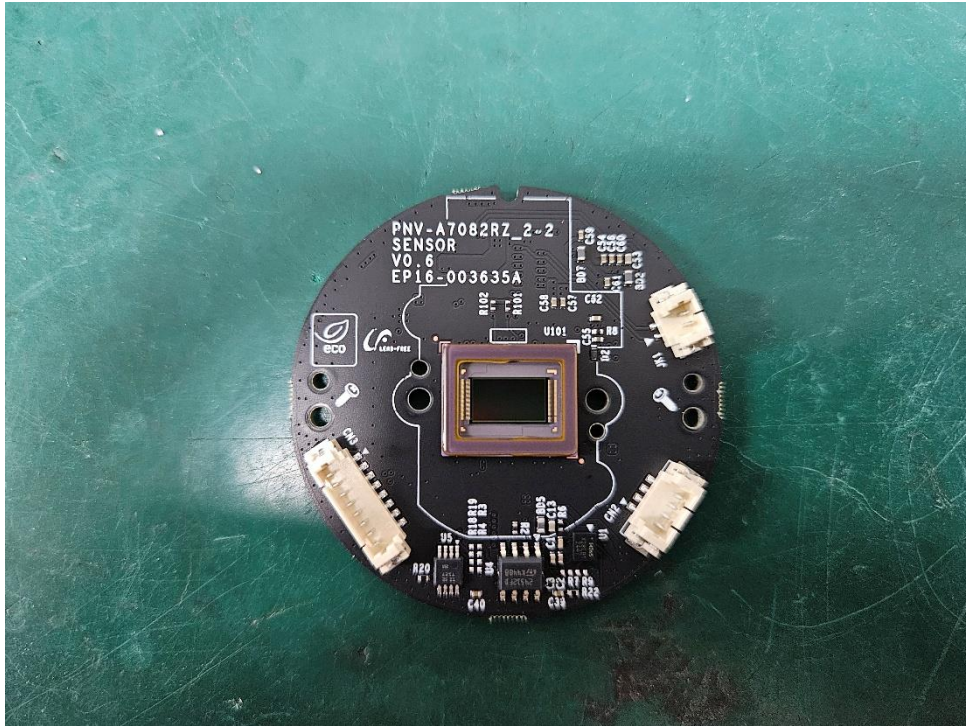
(Bottom)





EUT Internal View – Board 4

(Top)



(Bottom)





EUT Internal View – Board 5

(Top)



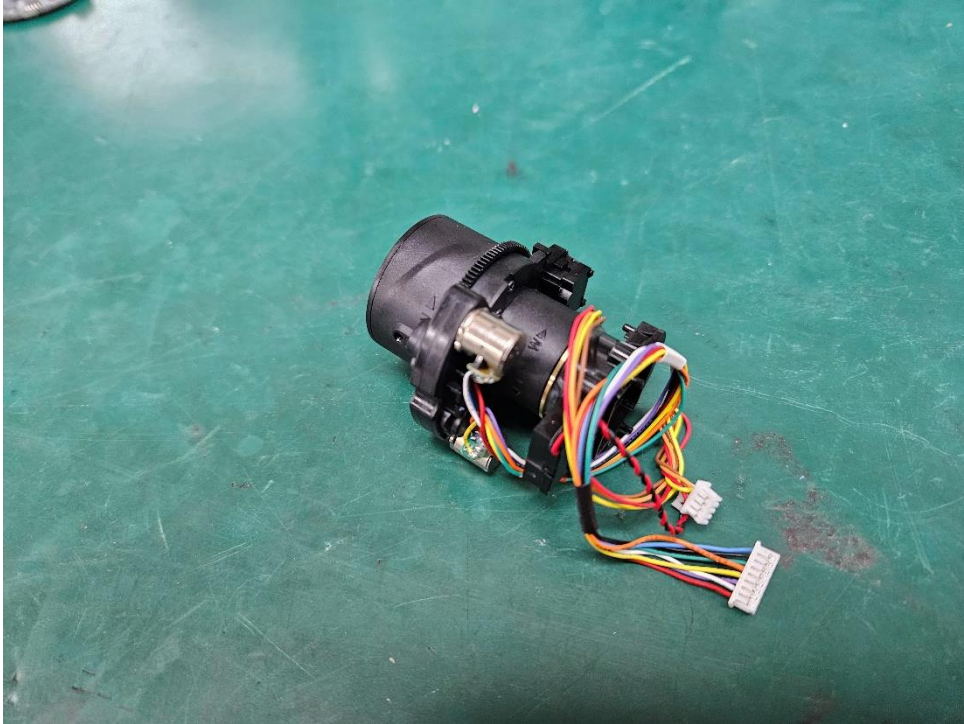
(Bottom)





EUT Internal View – Camera

(Top)



(Bottom)





Label Photographs

FCC Label



NETWORK CAMERA

PND-A7082RV

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.