



TEST REPORT



Report No. : KES-EM251561

Page 1 / 38

KES Co., Ltd.

#3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea
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. : PNV-A7082RZ

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. 03, 2025 ~ May. 04, 2025

5. Date of Issue : May. 23, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Dae Soo, Kim
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-EM251561	Issued

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



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)	7
1.8	Configuration	8
1.9	Remarks when standards applied	9
1.10	Calibration Details of Equipment Used for Measurement	9
1.11	Test Facility	9
1.12	Laboratory Accreditations and Listings	10
2.0	Test Regulations	11
2.1	Conducted Emissions at Mains Power Ports	12
2.2	Radiated Electric Field Emissions(Below 1 GHz)	14
2.3	Radiated Electric Field Emissions(Above 1 GHz)	16
APPENDIX A – TEST DATA		18
Conducted Emissions at Mains Power Ports		18
Radiated Electric Field Emissions(Below 1 GHz)		20
Radiated Electric Field Emissions(Above 1 GHz)		22
Test Setup Photos and Configuration		24
Conducted Emissions at Mains Power Ports		24
Radiated Electric Field Emissions(Below 1 GHz)		25
Radiated Electric Field Emissions(Above 1 GHz)		25
EUT External Photographs		26
EUT Internal Photographs		28



1.0 General Product Description

Main Specifications of EUT are:

Video		Operational	
Imaging Device	1/1.8" CMOS	Camera Title	Displayed up to 85 characters
Resolution	2592x1520, 2560x1440, 1920x1080, 1600x1200, 1280x960, 1280x720, 1024x768, 800x600, 640x480, 640x360, 320x240, 320x180	Direction Indicator	None
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MPEG: Max. 30fps@4MP Max. 5fps	Day & Night	Auto(ICR)
NETD	None	Backlight Compensation	BLC, HLC, WDR, SSDR
Pixel Size	None	Wide Dynamic Range	120dB
Video Out	None	Digital Noise Reduction	SSNR V, WiseNR II (Based on AI engine)
Video Transmission Distance	None	Digital Image Stabilization	Support
Lens		Defog	Support
Focal Length (Zoom Ratio)	4.6~9.35mm(2.0x) motorized varifocal	Motion Detection	8ea, 8point polygonal zones
Optical Zoom	None		32ea, 8point polygonal zones
Max. Aperture Ratio	F1.3(Wide)~F2.15(Tele)	Privacy Masking	- Color: gray/green/red/blue/black/white/purple/yellow - Mosaic
Angular Field of View	H: 105°(Wide)~47°(Tele) V: 58°(Wide)~27°(Tele) D: 128°(Wide)~55°(Tele)		Dynamic Privacy Mask(Based on AI engine) - Color: gray/green/red/blue/black/white/purple/yellow - Mosaic
Min. Object Distance	1.5m(4.92ft)	Gain Control	Off / Max Gain / Manual
Focus Control	Simple focus	White Balance	ATW / NarrowATW / AWC / Manual / Indoor / Outdoor
Lens Type	P-iris(R corrected)	LDC	Support(Fill/Stretch mode)
Mount Type	None	Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/30,000sec)
Optional Lens	None	Digital PTZ	Prefer shutter control(Based on AI engine)
Pan / Tilt / Rotate		Video Rotation	None
Pan / Tilt / Rotate Range	Remote adjustment(Max. 3,650cycles) 0°~350° / 0°~85° / 0°~180°		Flip, mirror, hallway view(90°/270°)
Pan Range	None		Classified object type: Person/Face/Vehicle(Type: car/bus/truck/motorcycle/bicycle)/License plate
Pan Speed	None		Attributes: Person(Gender, Clothing top/bottom color, Bag), Face(Age, Gender, Mask, Glasses), Vehicle(Type: car/bus/truck/motorcycle/bicycle, Color)
Tilt Range	None		Support BestShot
Tilt Speed	None		Support Re-ID(Person)
Rotate Range	None		Analytics events based on AI engine
Sequence	None		- 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)
Preset Accuracy	None		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
			None
			Alarm Triggers
			Analytics, Network disconnection, Alarm input, Time schedule, MQTT subscription, Day/Night, Storage disruption, Case tampering
			* Alarm input(with NW I/O Box SPM-4210)
			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
			Alarm Events
			None
			Audio Streaming
			None
			Audio In
			None
			Audio Out
			None
			Light Type
			IR LED
			Light Viewable Length
			WiseIR 30m(98.43ft)
			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



Report No. : KES-EM251561

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	None
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 Inter	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)	0.017m²
Certification	IP66/IP67/IP6K9K, NEMA4X, IK11, NEMA-TS 2(2.2.7.2-8, 2.2.8, 2.2.9)
Input Voltage	PoE+(IEEE802.3at type2, Class4)
Power Consumption	PoE: Max. 15.0W, typical 9.0W Support Wisepower - Power monitoring(Max/Current/Avg.)
Mechanical	
Color / Material	White / Aluminum Bubble: Hard-coated dome
RAL Code	RAL9003
Product Dimensions / Weight	ø180x135mm(ø7.09x5.31"), 2.100g(4.63lb)
Compatible Conduit hole / Gasket	19.1mm(3/4")(M25) single, double, 4" octagon, 4" square
Certifications & Standards	
Network	None FCC 47 CFR 15 Subpart B Class A ICES-3(A)/NMB-3(A) CE/AUKCA - EN 55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3 VCCI C1SPR 32 Class A RCM AS/NZS C1SPR 32 Class A KS C 9832 Class A, KS C 9835
EMC	UL 62368-1, CAN/CSA C22.2 NO. 62368-1 IEC/EN 62471
Safety	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)
Environment	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-180HWW1
Back Box	SBV-180BW, SBV-180WW
Ceiling Mount (Assy)	SBP-150CMI, SBP-300CMI, SBP-300CMW1, SBP-900CMW, SBP-300CMTW, SBP-300CMTS, SBP-156CMW
Ceiling Mount (Single Unit)	SBP-180CMB, SBP-140CMB, SBP-180CMS, SBP-900CMP, SBP-300CMP, SBP-150CMP, SBP-C15P, SBP-C15H
Wall Mount	SBP-400WMW, SBP-250WMW, SBP-156WMW
Wall Mount Adaptor	None
Pole Mount	SBD-180PMW
In-ceiling Mount	SHD-1370FPW
Corner Mount	SBD-180KMA
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 (included)
Dome Cover	SPB-VAN87W
Conduit Adaptor	None
Power Module	None
Interface Box	SPM-4210
Other Compatible Models	SPB-VAN88W, 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	PNV-A7082RZ	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adapter	GS728TPP	-	NETGEAR	-
LAPTOP	LG15U47	-	Tech-Front (Chongqing) Computer Co., Ltd.	-
LAPTOP Adapter	A13-040N3A	-	CHICONY POWER TECHNOLOGY (Chongqing) CO., LTD.	-
Micro SD Card 1	-	-	SanDisk	-
Micro SD Card 2	-	-	SanDisk	-



1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (EUT)	RJ-45 (PoE)	PoE Adapter	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	-	-
PoE Adapter	RJ-45 (LAN)	LAPTOP	RJ-45 (LAN)	2.0	U
LAPTOP	DC JACK	LAPTOP Adapter	DC JACK	1.6	U

* Unshielded=U, Shielded=S

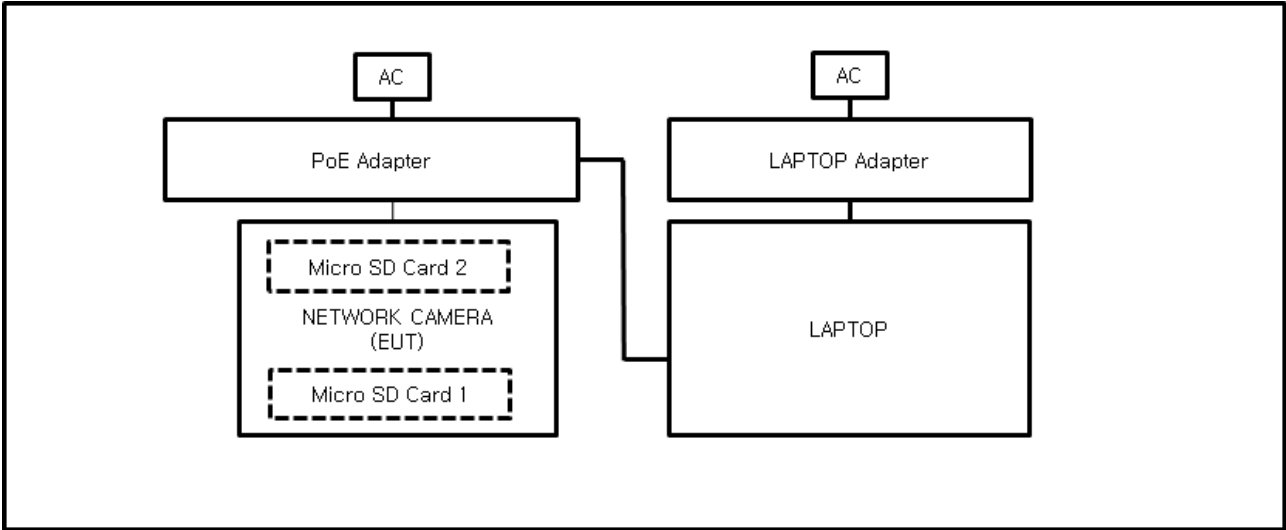
1.7 EUT Operating Mode(s)

Test mode	Normal operating
Operating	- 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 1, 2.

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



1.8 Configuration





1.9 Remarks when standards applied

N/A

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

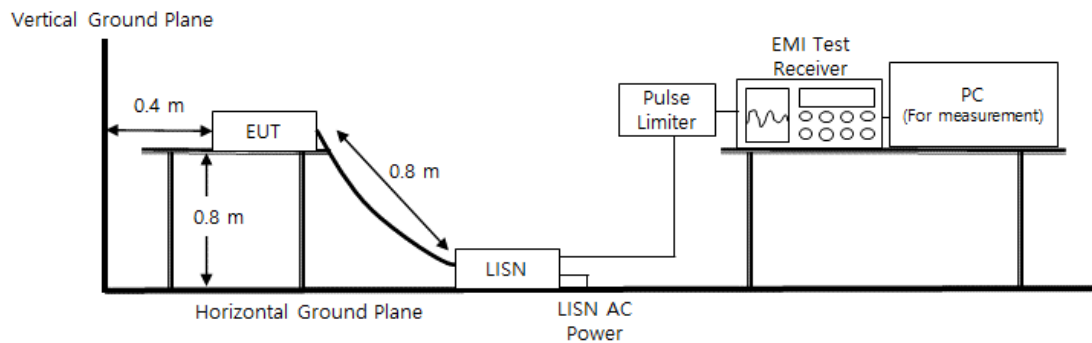
May. 03, 2025

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: (23,5 ± 0,0) °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

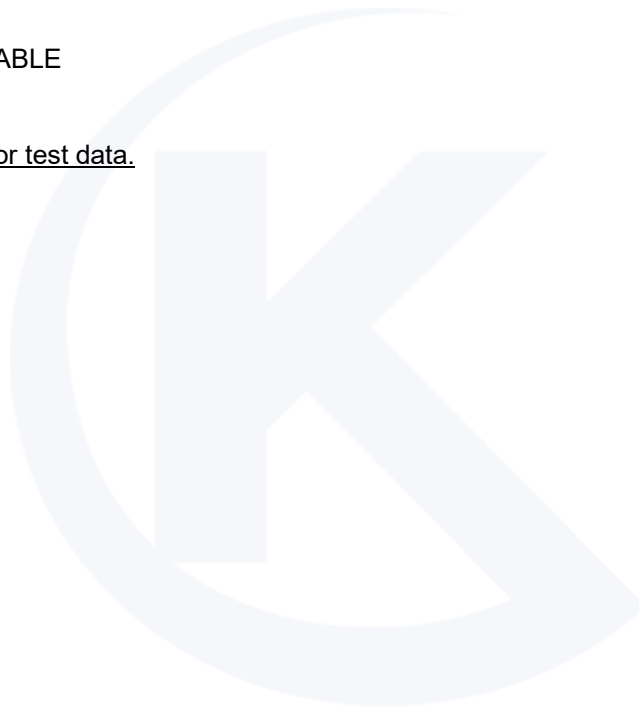
Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





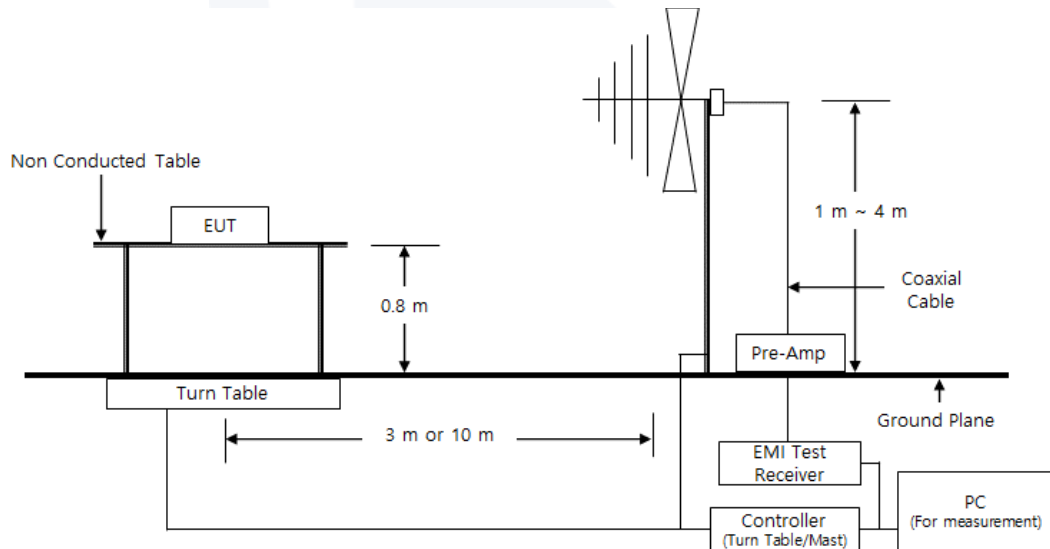
2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

May. 03, 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: (46,0 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

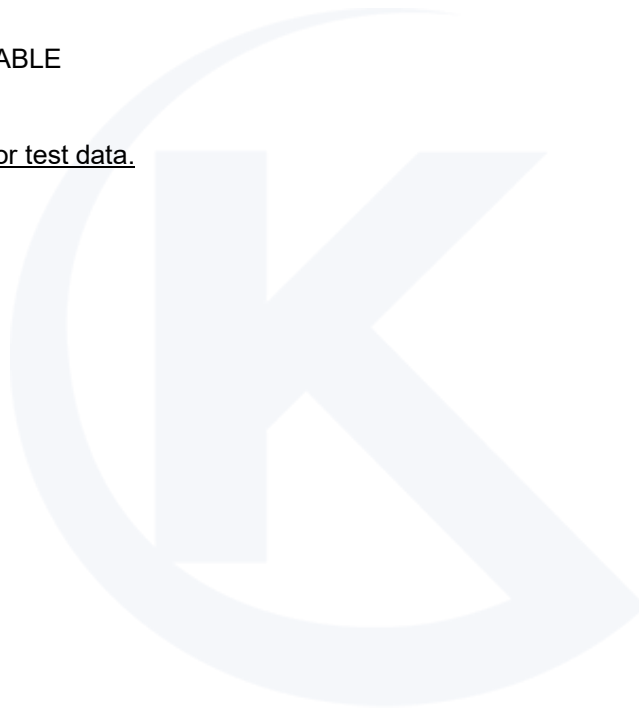
Test Results

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. 04, 2025

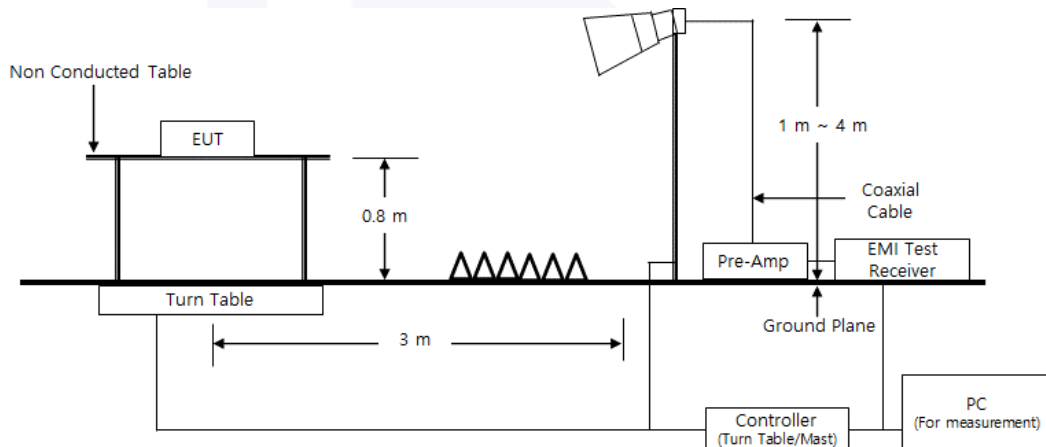
Test Location

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

Diagram of test setup





Test Conditions

Temperature: (23,0 ± 0,1)°C
Relative Humidity: (46,8 ± 0,1) % R.H.

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

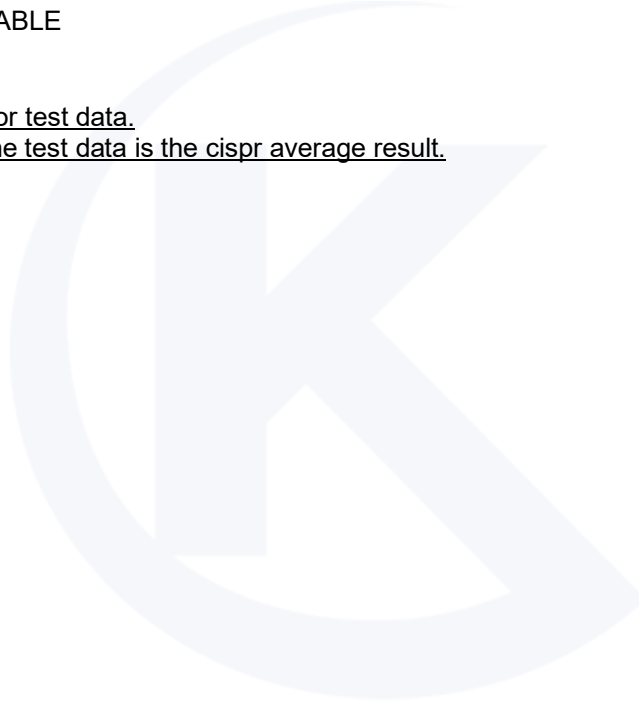
The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

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

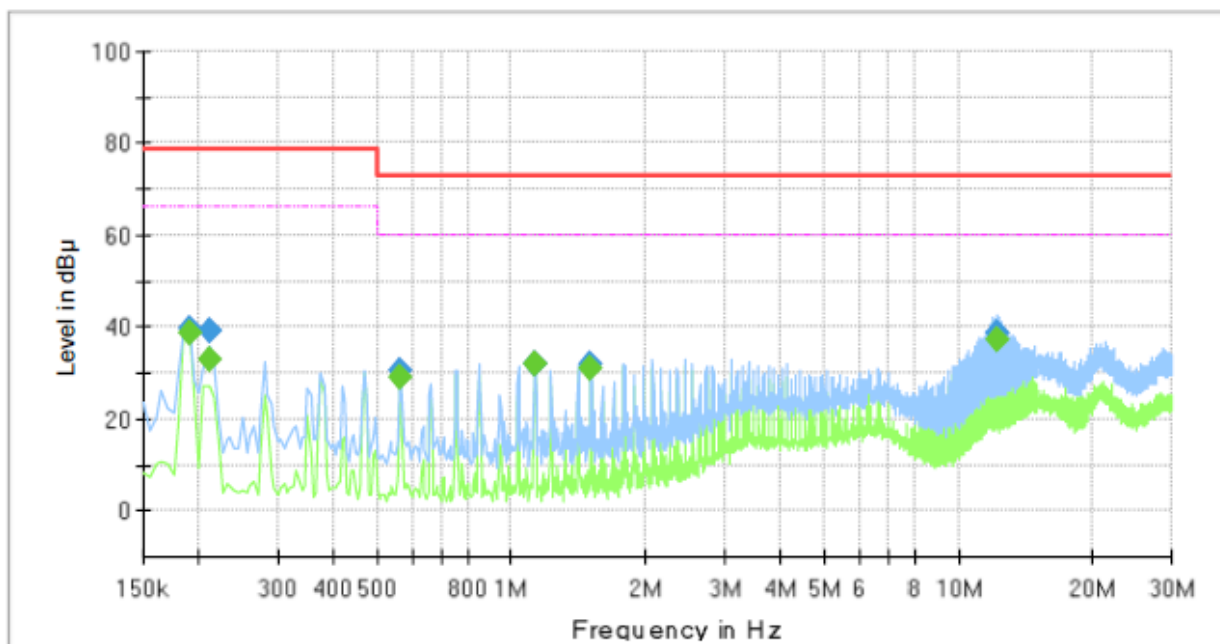




APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

Test Description: HOT LINE
Job No.: Conducted Emission
Phase: KES-EM251561
Mode: L
Operator Name: mode 1
KES

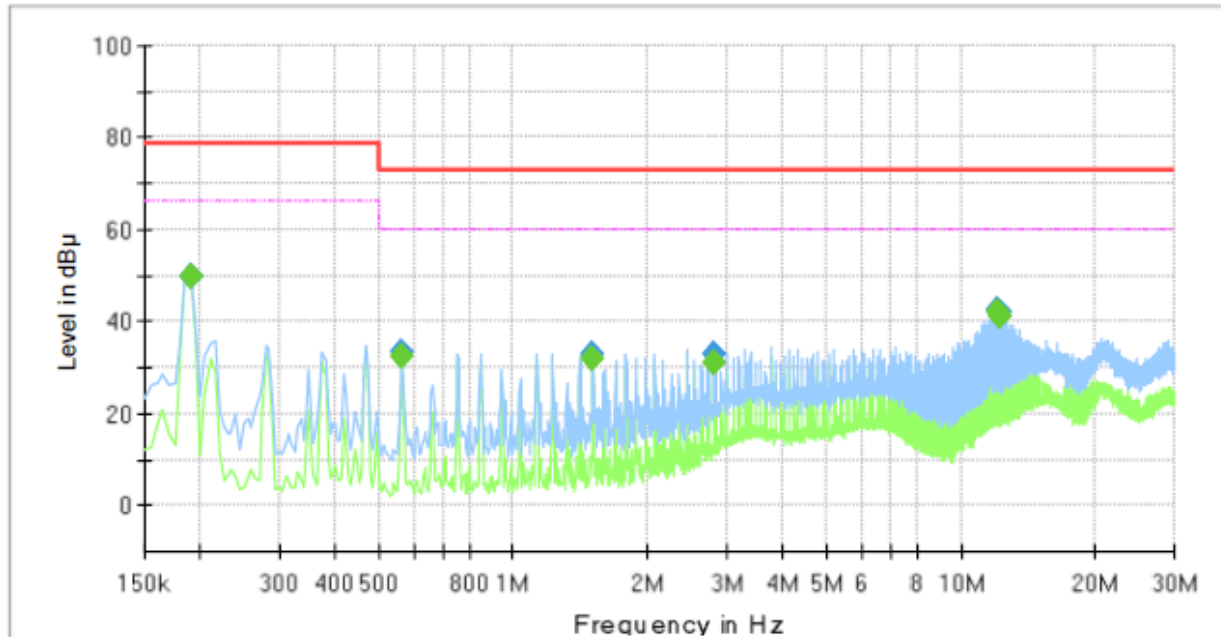


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190000	39.56	---	79.00	39.44	1000.0	9.000	L1	19.5
0.190000	---	38.85	66.00	27.15	1000.0	9.000	L1	19.5
0.210000	39.33	---	79.00	39.67	1000.0	9.000	L1	19.5
0.210000	---	32.87	66.00	33.13	1000.0	9.000	L1	19.5
0.565000	30.54	---	73.00	42.46	1000.0	9.000	L1	19.6
0.565000	---	28.94	60.00	31.06	1000.0	9.000	L1	19.6
1.130000	32.09	---	73.00	40.91	1000.0	9.000	L1	19.6
1.130000	---	31.89	60.00	28.11	1000.0	9.000	L1	19.6
1.505000	32.19	---	73.00	40.81	1000.0	9.000	L1	19.6
1.505000	---	31.08	60.00	28.92	1000.0	9.000	L1	19.6
12.135000	38.60	---	73.00	34.40	1000.0	9.000	L1	20.1
12.135000	---	37.21	60.00	22.79	1000.0	9.000	L1	20.1



Test Description: NEUTRAL LINE
Job No.: Conducted Emission
Phase: KES-EM251561
Mode: N
Operator Name: mode 1
KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190000	49.89	---	79.00	29.11	1000.0	9.000	N	19.5
0.190000	---	49.74	66.00	16.26	1000.0	9.000	N	19.5
0.565000	33.46	---	73.00	39.54	1000.0	9.000	N	19.5
0.565000	---	32.27	60.00	27.73	1000.0	9.000	N	19.5
1.505000	33.04	---	73.00	39.96	1000.0	9.000	N	19.6
1.505000	---	32.10	60.00	27.90	1000.0	9.000	N	19.6
2.820000	33.02	---	73.00	39.98	1000.0	9.000	N	19.7
2.820000	---	30.91	60.00	29.09	1000.0	9.000	N	19.7
12.125000	42.78	---	73.00	30.22	1000.0	9.000	N	20.1
12.125000	---	42.15	60.00	17.85	1000.0	9.000	N	20.1
12.220000	42.28	---	73.00	30.72	1000.0	9.000	N	20.1
12.220000	---	41.35	60.00	18.65	1000.0	9.000	N	20.1

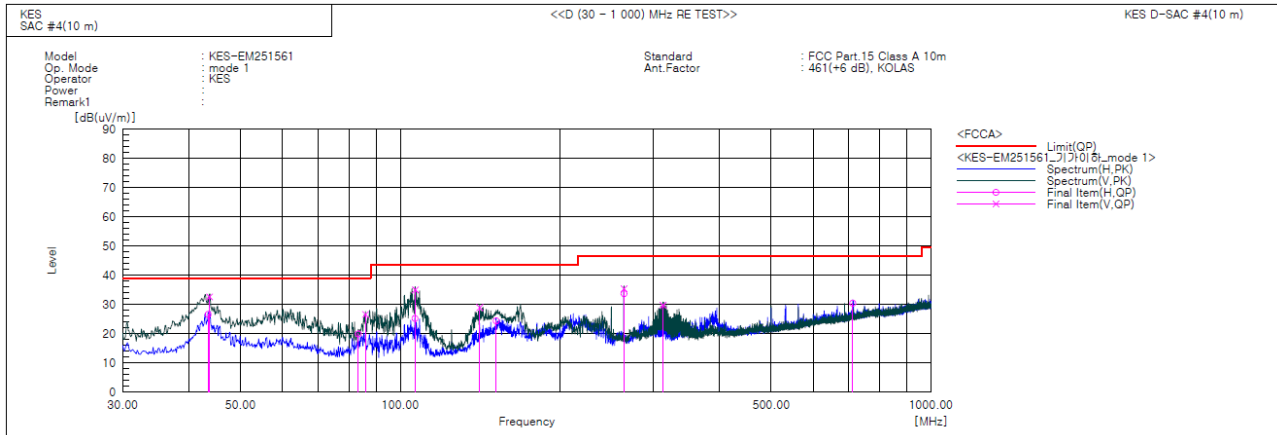
◆ Calculation

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))

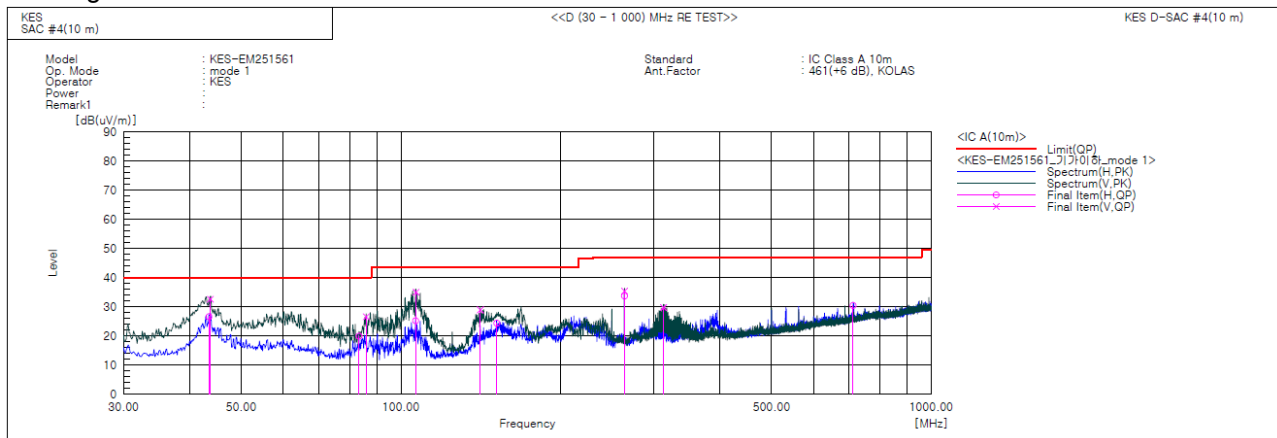
**Radiated Electric Field Emissions(Below 1 GHz)****- 47 CFR Part 15, Subpart B****Final Result**

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	43.459	H	48.0	-21.4	26.6	39.0	12.4	351.0	330.0	
2	43.701	V	54.0	-21.4	32.6	39.0	6.4	129.0	103.0	
3	83.350	H	45.9	-26.0	19.9	39.0	19.1	298.0	200.0	
4	86.018	V	52.7	-26.1	26.6	39.0	12.4	100.0	122.0	
5	106.630	H	49.1	-23.9	25.2	43.5	18.3	400.0	28.0	
6	106.751	V	58.9	-23.9	35.0	43.5	8.5	112.0	169.0	
7	141.186	V	48.8	-19.9	28.9	43.5	14.6	154.0	95.0	
8	151.614	H	43.7	-19.3	24.4	43.5	19.1	357.0	322.0	
9	264.013	V	54.0	-18.6	35.4	46.5	11.1	106.0	248.0	
10	264.013	H	52.3	-18.6	33.7	46.5	12.8	318.0	91.0	
11	312.755	V	46.3	-16.6	29.7	46.5	16.8	100.0	193.0	
12	712.153	H	35.0	-4.6	30.4	46.5	16.1	289.0	315.0	



Report No. : KES-EM251561

- 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	43.459	H	48.0	-21.4	26.6	40.0	13.4	351.0	330.0	
2	43.701	V	54.0	-21.4	32.6	40.0	7.4	129.0	103.0	
3	83.350	H	45.9	-26.0	19.9	40.0	20.1	298.0	200.0	
4	86.018	V	52.7	-26.1	26.6	40.0	13.4	100.0	122.0	
5	106.630	H	49.1	-23.9	25.2	43.5	18.3	400.0	28.0	
6	106.751	V	58.9	-23.9	35.0	43.5	8.5	112.0	169.0	
7	141.186	V	48.8	-19.9	28.9	43.5	14.6	154.0	95.0	
8	151.614	H	43.7	-19.3	24.4	43.5	19.1	357.0	322.0	
9	264.013	V	54.0	-18.6	35.4	47.0	11.6	106.0	248.0	
10	264.013	H	52.3	-18.6	33.7	47.0	13.3	318.0	91.0	
11	312.755	V	46.3	-16.6	29.7	47.0	17.3	100.0	193.0	
12	712.153	H	35.0	-4.6	30.4	47.0	16.6	289.0	315.0	

◆ Calculation

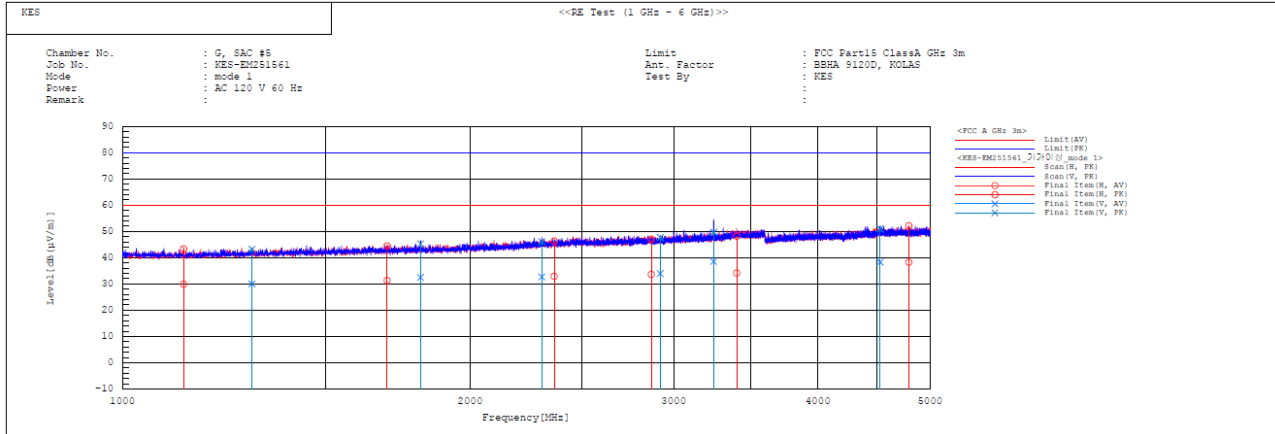
$$\text{Result(QP)} [\text{dB}(\mu\text{V/m})] = (\text{Reading(QP)} [\text{dB}(\mu\text{V})] + \text{c.f} [\text{dB}(1/\text{m})])$$
$$\text{Margin(QP)} [\text{dB}] = \text{Limit} [\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$$

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

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

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

(1~6) 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	1130.179	H	30.0	43.5	-0.1	43.4	60.0	80.0	30.1	36.6	214.0	8.8	
2	1295.099	V	29.3	42.5	0.7	43.2	60.0	80.0	30.0	36.8	100.0	34.8	
3	1695.328	H	29.1	42.2	2.3	44.5	60.0	80.0	28.6	35.5	227.0	165.2	
4	1812.122	V	29.9	42.7	2.6	45.3	60.0	80.0	27.5	34.7	127.0	64.6	
5	2307.067	V	28.3	41.7	4.4	46.1	60.0	80.0	27.3	33.9	100.0	265.3	
6	2365.232	H	28.3	41.8	4.6	46.4	60.0	80.0	27.1	33.6	196.0	182.0	
7	2870.385	H	27.7	41.1	5.9	47.0	60.0	80.0	26.4	33.0	254.0	133.9	
8	2921.064	V	28.0	41.7	6.0	47.7	60.0	80.0	26.0	32.3	116.0	83.4	
9	3250.082	V	31.8	42.9	6.8	49.7	60.0	80.0	21.4	30.3	106.0	182.6	
10	3402.565	H	27.0	41.0	7.2	48.2	60.0	80.0	25.8	31.8	281.0	10.3	
11	4529.002	V	27.7	40.4	10.6	51.0	60.0	80.0	21.7	29.0	107.0	130.9	
12	4795.050	H	27.3	41.2	11.0	52.2	60.0	80.0	21.7	27.8	307.0	261.6	



(6~18) 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)
6 575,600	41,100	H	1,000	34,260	8,810	34,780	49,390	80,000	30,610
7 918,500	40,900	V	1,000	36,550	10,260	33,990	53,720	80,000	26,280

- 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)
6 575,600	27,100	H	1,000	34,260	8,810	34,780	35,390	60,000	24,610
7 918,500	26,800	V	1,000	36,550	10,260	33,990	39,620	60,000	20,380

◆ 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



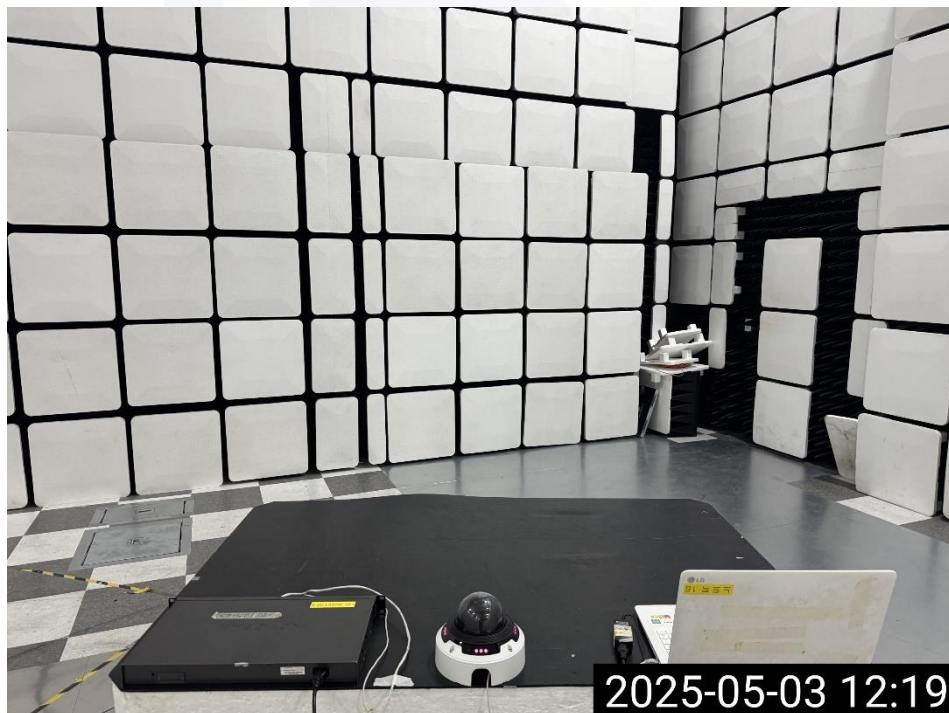
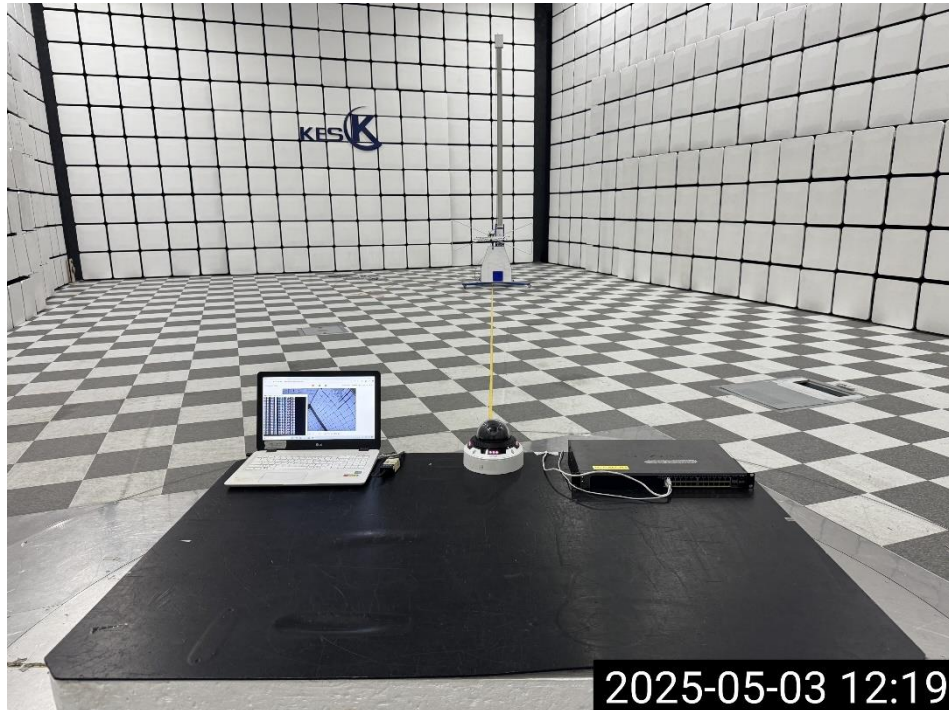
Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports



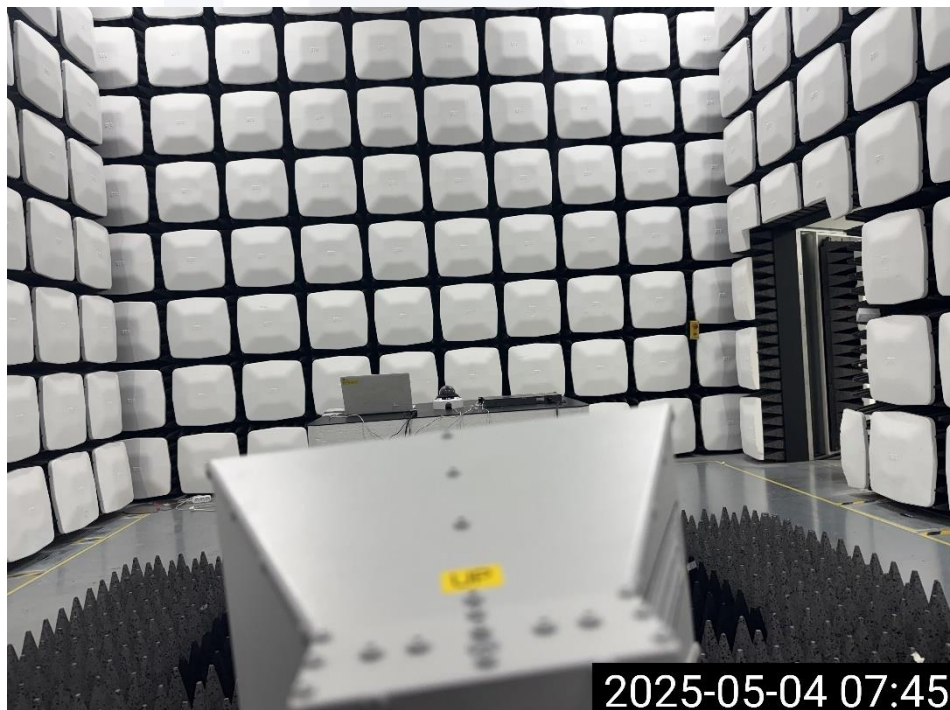
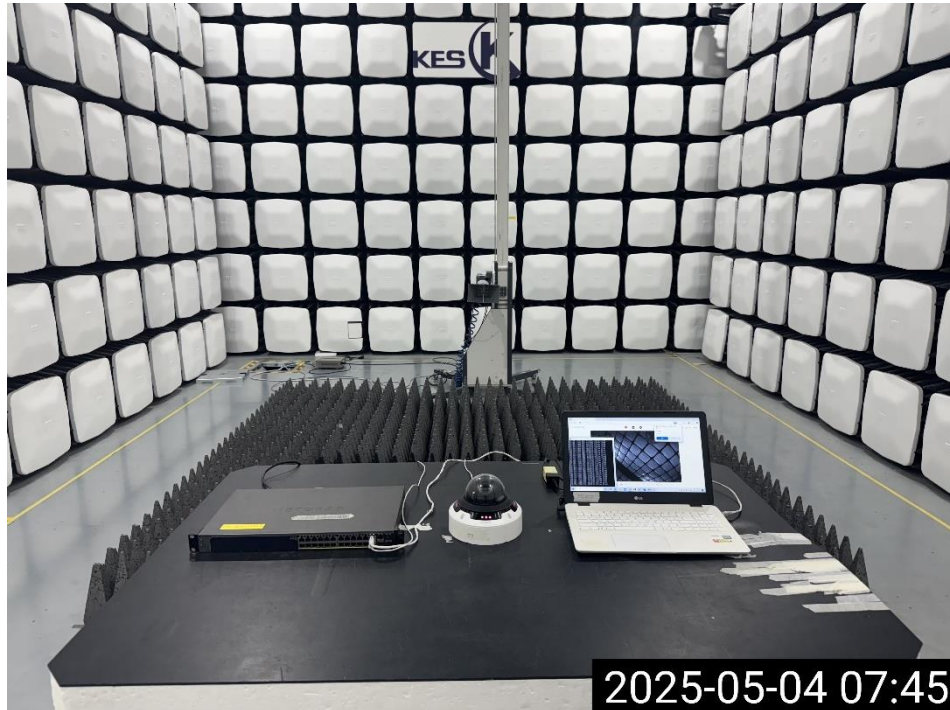


Radiated Electric Field Emissions(Below 1 GHz)





Radiated Electric Field Emissions(Above 1 GHz)





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs

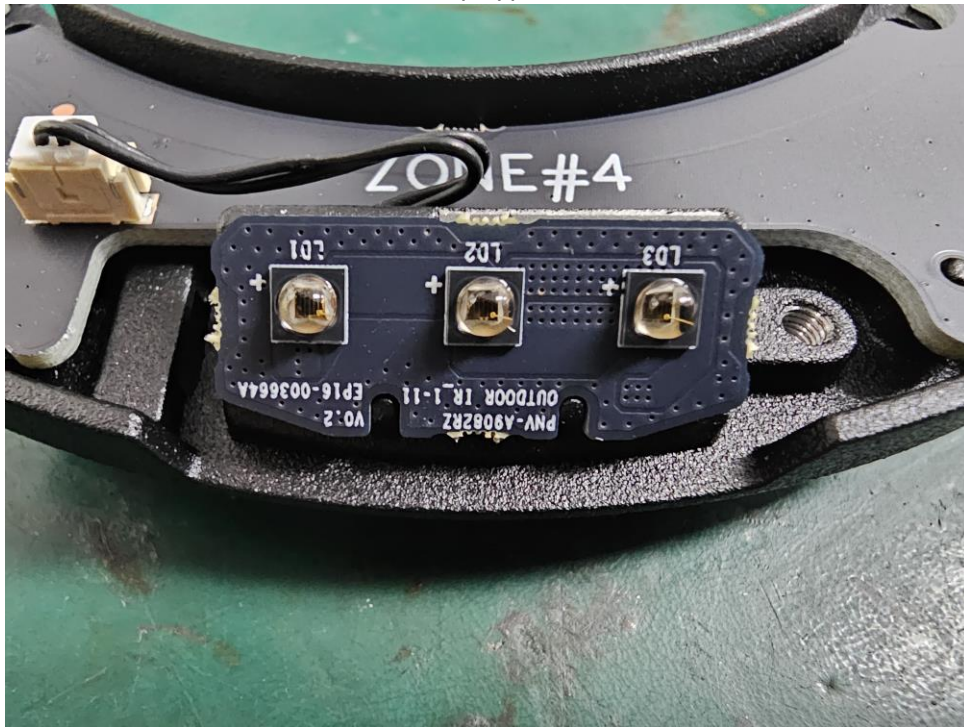
(Internal View)



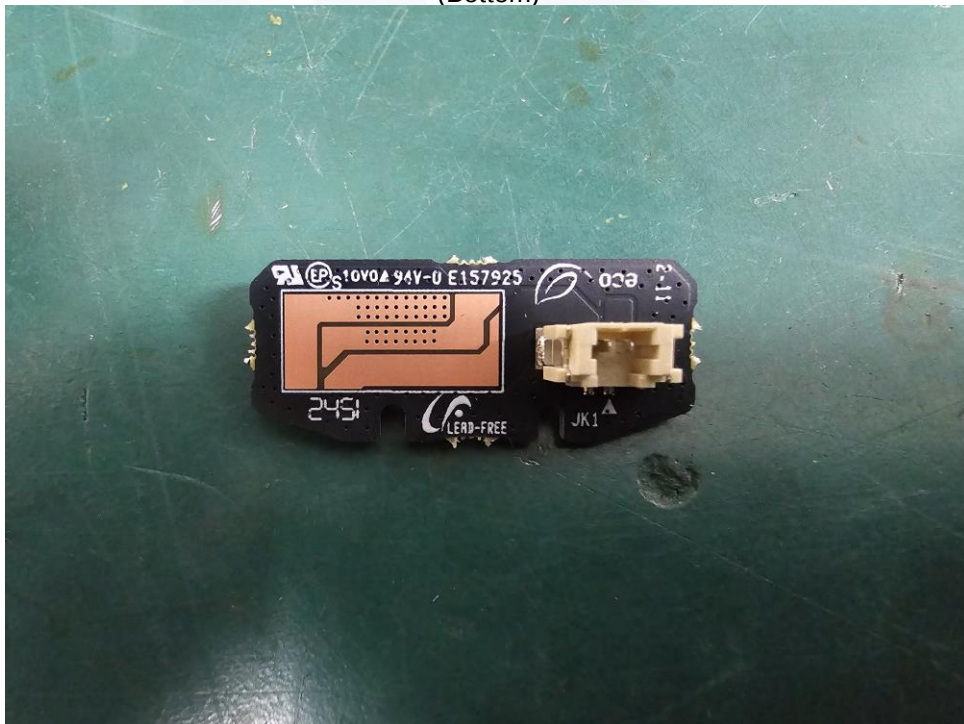


EUT Internal View – Board 1

(Top)



(Bottom)





EUT Internal View – Board 2

(Top)



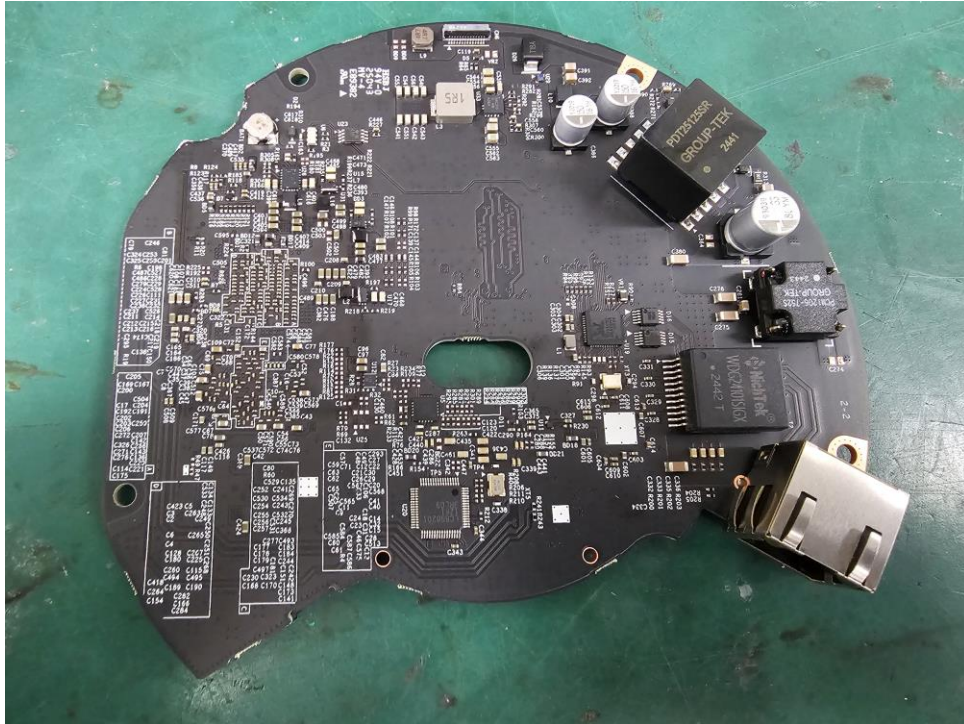
(Bottom)





EUT Internal View – Board 3

(Top)



(Bottom)





EUT Internal View – Board 4

(Top)



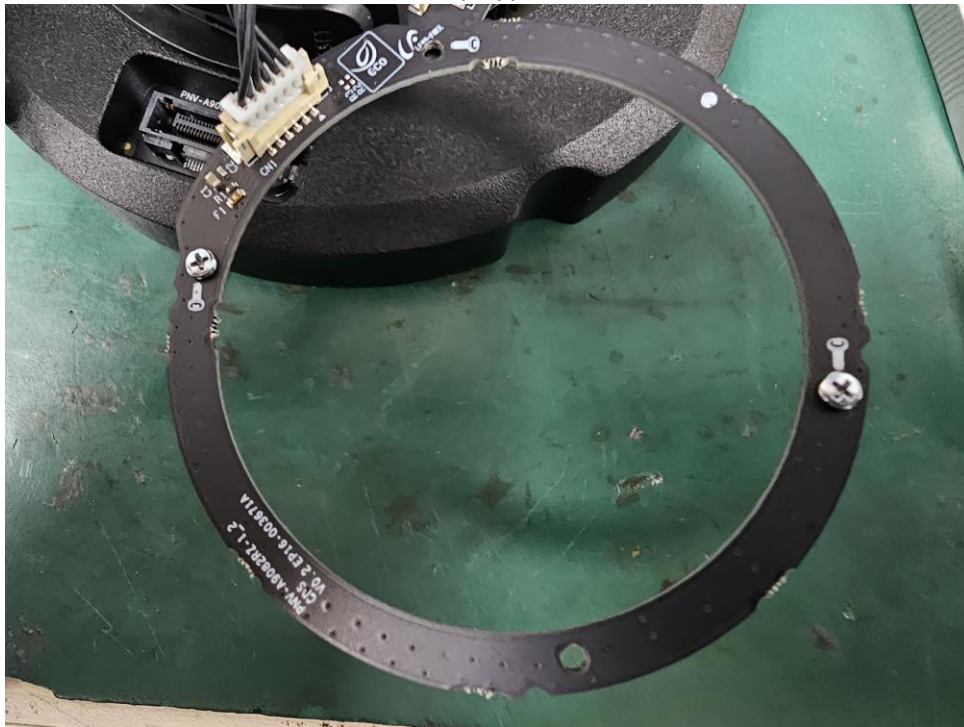
(Bottom)





EUT Internal View – Board 5

(Top)



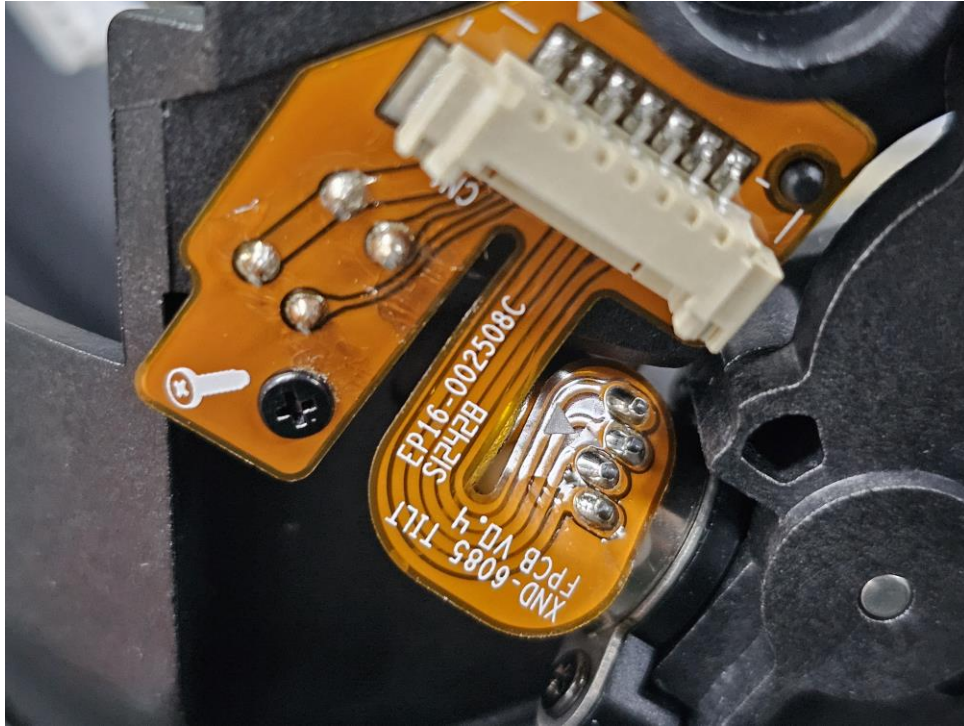
(Bottom)





EUT Internal View – Board 6

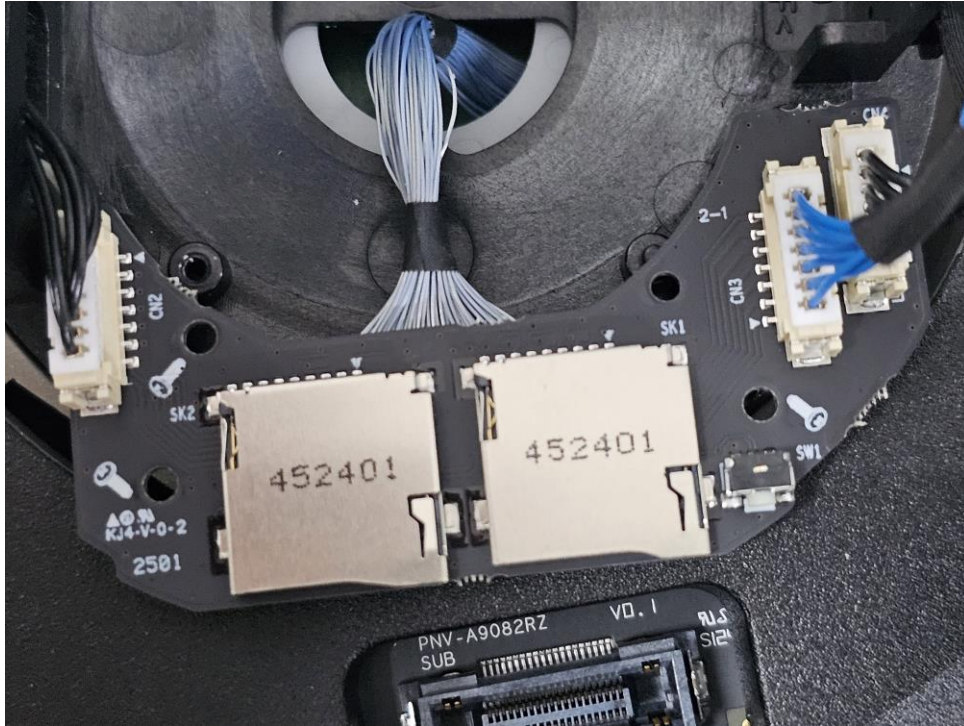
(Top)



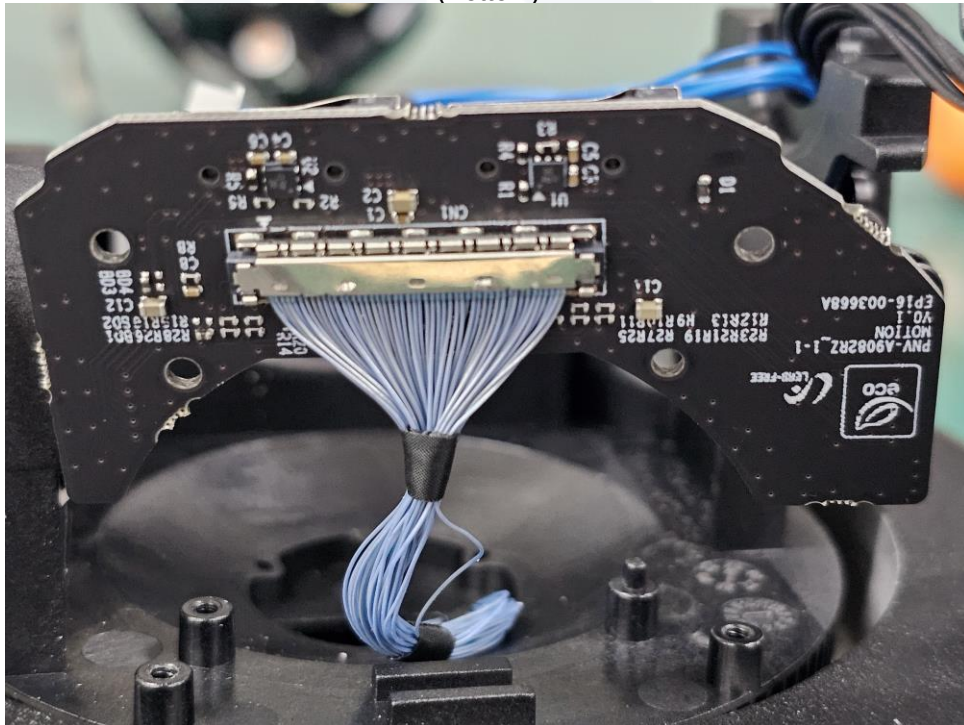


EUT Internal View – Board 7

(Top)



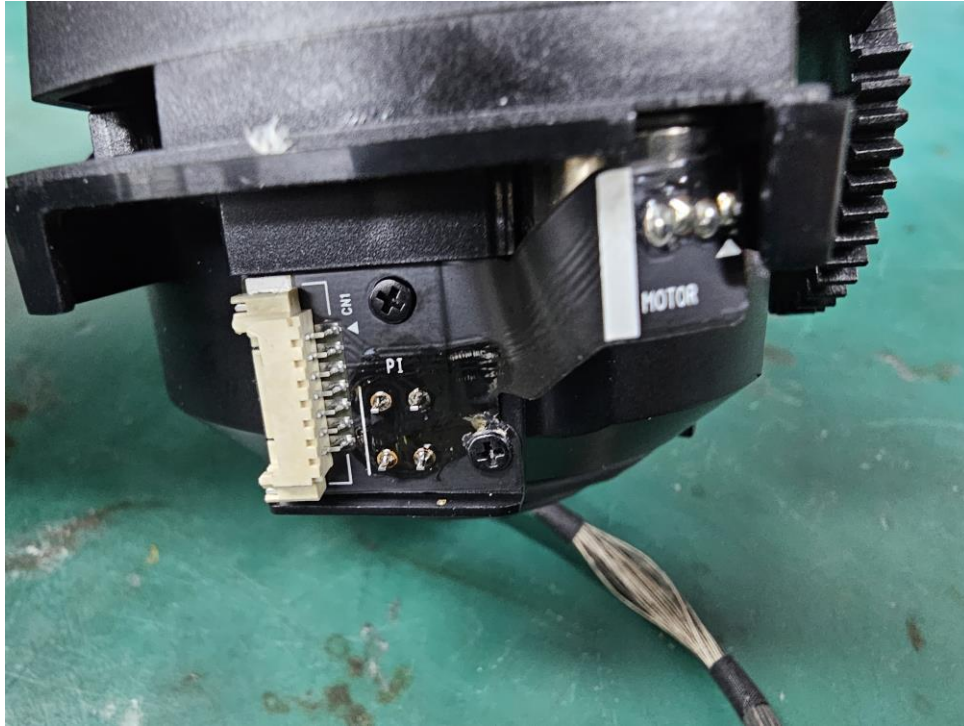
(Bottom)





EUT Internal View – Board 8

(Top)



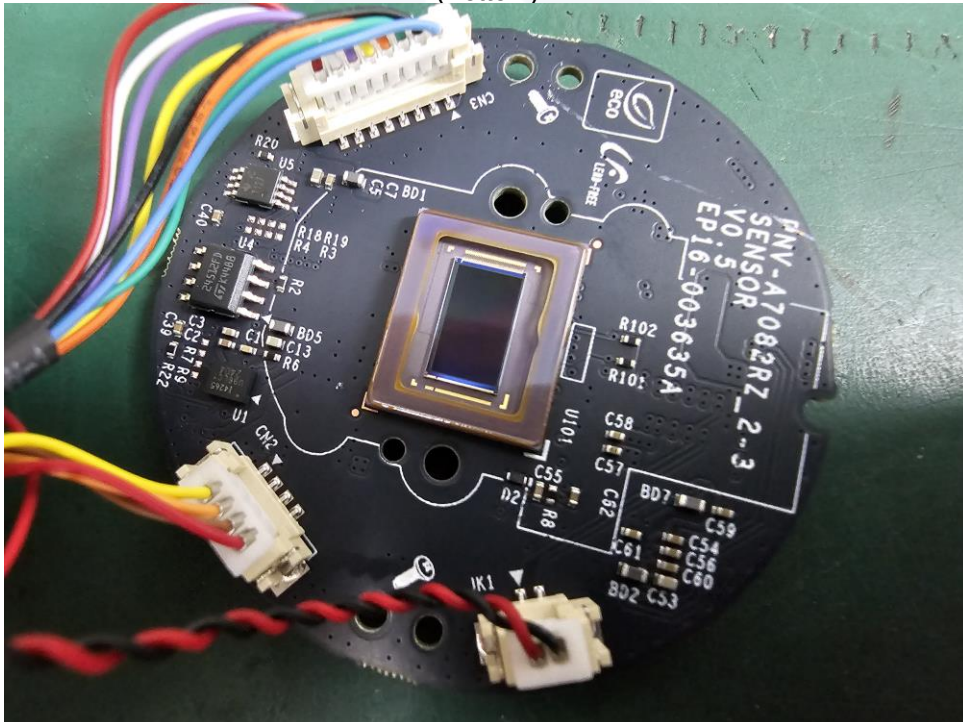


EUT Internal View – Board 9

(Top)



(Bottom)





Label Photographs

FCC Label



NETWORK CAMERA

PNV-A7082RZ

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.