



TEST REPORT



Report No. : KES-EM251028

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KES Co., Ltd.

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1. Client

Applicant : Hanwha Vision Co., Ltd

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

2. Sample Description

Product name : NETWORK THERMAL CAMERA

Model/Type No. : TNO-C3050T

Variant Model : TNO-C3052T, TNO-C3040T, TNO-C3042T

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 : Mar. 18, 2025

4. Test date : Mar. 24, 2025 ~ Mar. 27, 2025

5. Date of Issue : Apr. 15, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Eun Gu, Jeon
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
Apr. 15, 2025	KES-EM251028	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Division		Specificity
Internal highest clock frequency		1 GHz
Power	Rated Power	DC 12 V, PoE
	Test Power	AC 120 V, 60 Hz
Ports	I/O Port	DC(2 Pin) 1 EA, RJ-45 1 EA, Audio IN 1 EA, Audio OUT 1 EA, Alarm IN 1 EA, Alarm OUT 1 EA, RS485 1 EA, Micro SD Slot 1EA
	Unused Port	VIDEO 1 EA, USB 1 EA
Components		USB 1 EA
Ethernet Speed		1 000 Mbps

Video	
Imaging Device	Uncooled micro bolometer (Spectral range: 8~14μm)
Resolution	768x576, 384x288(original)
Max. Framerate	H.265/H.264/MJPEG: Max. 30fps
NETD	< 20mK
Pixel Size	17μm
Min. Illumination	None
Video Out	USB: Micro USB Type B, 768x576 for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	19mm fixed focal
Max. Aperture Ratio	F1.0
Angular Field of View	H: 19.3° / V: 14.6° / D: 23.9° iFoV: 0.895 mRad
Min. Object Distance	10.6m
Focus Control	Fixed
Lens Type	Athermalized
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0°~350° / 0°~90° / 0°~350°
Operational	
Camera Title	Displayed up to 85 characters
Motion Detection	8ea. 8point polygonal zones
Privacy Masking	6ea. Rectangle zones - color : Grey, Black, White
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Classified object type: Person/Vehicle Support BestShot Analytics events based on AI engine - Motion detection, Object detection, Virtual line*(Crossing/Direction), Virtual area*(Loitering/Intrusion/Enter/Exit)
	Analytics events - Tampering, Audio detection, Sound classification, Shock detection, Virtual area(Appear/Disappear)
Business Intelligence	None
Serial Interface	RS-485
Alarm I/O	2 configurable I/O ports * Support extra alarm I/O via optional SPM-4210 I/O box
Alarm Triggers	Analytics, Network disconnect, Alarm input, Time schedule, MQTT subscription
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 - MQTT: publication



Report No. : KES-EM251028

Audio Streaming	None
Audio In	Selectable(mic in/line in)
Audio Out	Line out
Color Palettes	Whitehot, Blackhot, Rainbow, Rainbow2, Sepia, Red, Iron, Custom, Hybrid palettes
Radiometry	
Temperature Detect Range	None
Temperature Accuracy	None
Temperature Detection	None
Additional	Temperature change detection (3 areas)
Network	
Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Audio Compression	G.711 u-law / G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 48Kbps at 16KHz
Smart Codec	Manual(Sea area), WiseStreamⅡ, WiseStreamⅢ(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 10 profiles)
SIP support (VoIP, Peer-to-peer, SIP/PBX integration)	None
Security	None
Application Programming Interface	ONVIF Profile S/G/T/M SUNAPI(HTTP API) Wisenet open platform
Security	
OS / Firmware Protect	Secure boot, Signed firmware, Firmware encryption
User authentication	Digest Authentication, Prevent brute-force attack
Network authentication	802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)
Secure Communication	HTTPS, SRTP, WSS(Websocket secure)
Access Control	Access control based on IP address
Data Protect	Authentication information encryption, ZIP compression encryption
Audit	User Access/System/Event log management
Device ID	Device Certificate(Hanwha Private Root CA)
Secure Storage	Secure element, SDcard partition encrypt
Security Certificate	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 1slot Max. 1TB
Memory	2GB RAM, 512MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-40°C~+60°C(-40°F~+140°F); +74°C(+165°F)(MAX) based on NEMA-TS 2(2.2.7) / 0~95% RH(non-condensing)
Storage Temperature / Humidity	-50°C~+60°C(-58°F~+140°F) / Less than 95% RH
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 10.8W, typical 9W 12VDC: Max 9.4W, typical 7.7W
Mechanical	
Color / Material	White / Aluminum + PC
RAL Code	RAL9003
Product Dimensions / Weight	ø93.8 x 233.5mm(ø3.69/9.19"), 1730g(3.81 lb)
Compatible Conduit hole / Gangbox	Conduit hole : SBP-0608A(Sold seperately) Gangbox : single, double, 4" octagon, 4" square
Backbox	Included
Pole Mount	SBD-180PMW, SBP-300PMW2
Corner Mount	SBP-300KMW1
Tilt Mount	None
Housing (Box)	None
Cabinet	SBP-300NBW
Gang Plate	None
Conduit Adaptor	SBP-0608A
Other Compatible Models	None
Ver	
Ver	1.0

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

KES Co., Ltd.

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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

TNO-C3052T : SW difference

TNO-C3040T : Fixed Lens (non-electronic/focal distance specification difference)

TNO-C3042T : Fixed Lens (non-electronic/focal distance specification difference)
and SW difference

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK THERMAL CAMERA	TNO-C3050T	-	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	-	-	-	-
Controller	SPC-1010	C50E67WG10100F	SamSung Techwin Co.,Ltd.	-
Controller Adapter	AP-12005A	-	A Power Co., Ltd	-
Headset	K550	-	Britz®	-
Micro SD Card	-	-	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 THERMAL CAMERA (EUT)	RJ-45 (LAN)	Laptop	RJ-45 (LAN)	3.1	U
	Micro SD Slot	Micro SD Card	Micro SD Slot	-	-
	Alarm OUT	Alarm	Alarm IN	3.1	U
	Alarm IN	Button Alarm	Alarm OUT	3.1	U
	RS485	Controller	RS485	3.1	U
	Audio IN	Headset	Line	1.8	U
	Audio OUT				
	DC(2 Pin)	AC/DC Adapter	Line	1.0	U
Laptop	DC Jack	Laptop Adapter	Line	1.7	U
Controller	DC Jack	Controller Adapter	Line	1.4	U

* Unshielded=U, Shielded=S

mode 2

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK THERMAL CAMERA (EUT)	RJ-45 (PoE)	PoE Adaptor	RJ-45 (PoE)	3.1	U
	Micro SD Slot	Micro SD Card	Micro SD Slot	-	-
	Alarm OUT	Alarm	Alarm IN	3.1	U
	Alarm IN	Button Alarm	Alarm OUT	3.1	U
	RS485	Controller	RS485	3.1	U
	Audio IN	Headset	Line	1.8	U
	Audio OUT				
Laptop	RJ-45 (LAN)	PoE Adapter	RJ-45 (LAN)	1.0	U
	DC Jack	Laptop Adapter	Line	1.7	U
Controller	DC Jack	Controller Adapter	Line	1.4	U

* Unshielded=U, Shielded=S



1.7 EUT Operating Mode(s)

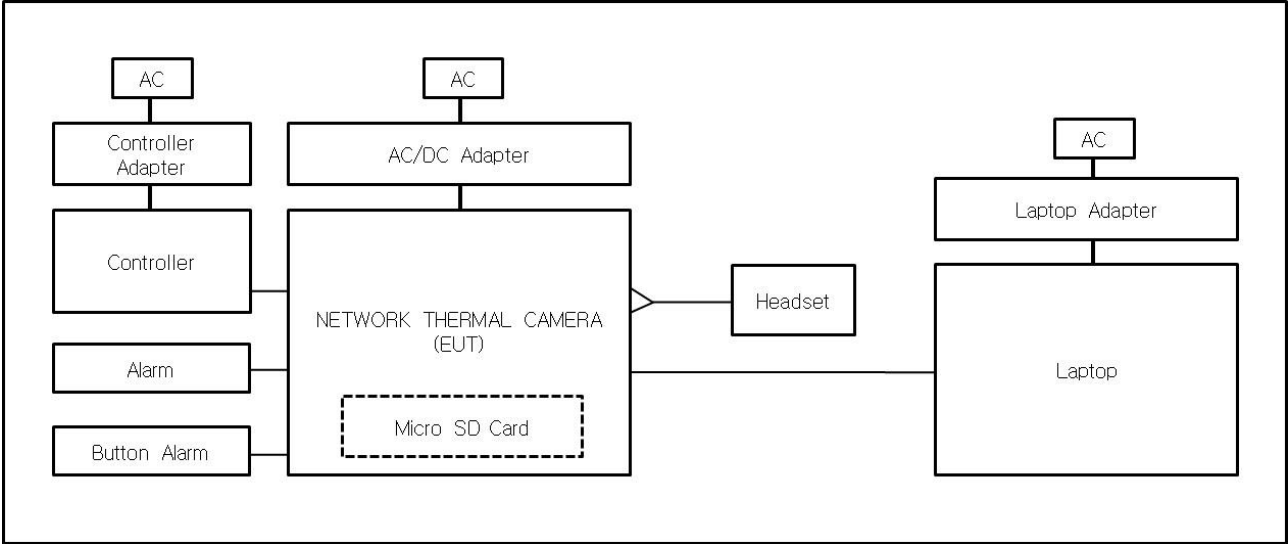
Test mode	Normal operating
mode 1	- Check the network behavior of the EUT with the laptop's ping test - View images of the camera through the Web Viewer - Play the 1 kHz tone through the web viewer to see the sound output with the headset - Check the operation of the Audio IN port through microphone input on the headset - When the alarm is pressed, make sure the button alarm is working - Check the operation of the RS485 port through the operation of the controller - 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

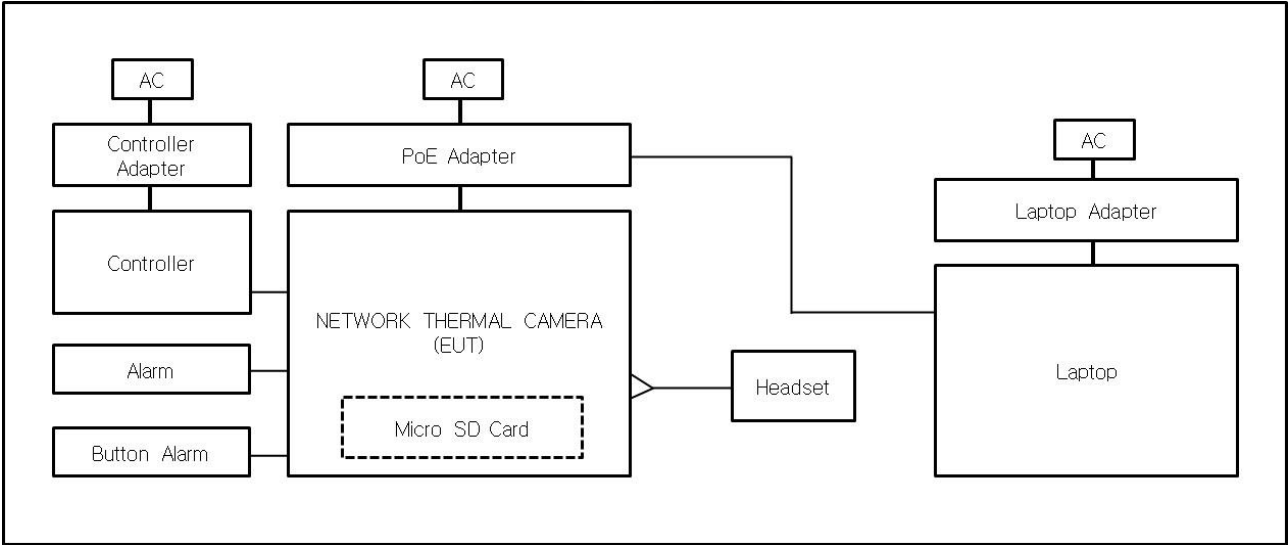


1.8 Configuration

■mode 1



■mode 2





1.9 Remarks when standards applied

- The USB port of the EUT was a management port, so the test was not applied.



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

Mar. 24, 2025

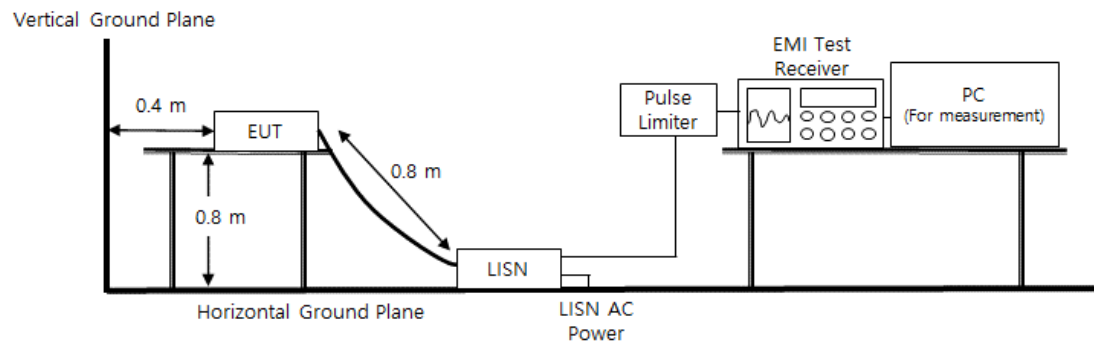
Test Location

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 ± 0,1) °C
Relative Humidity: (46,0 ± 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.





2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Mar. 27, 2025

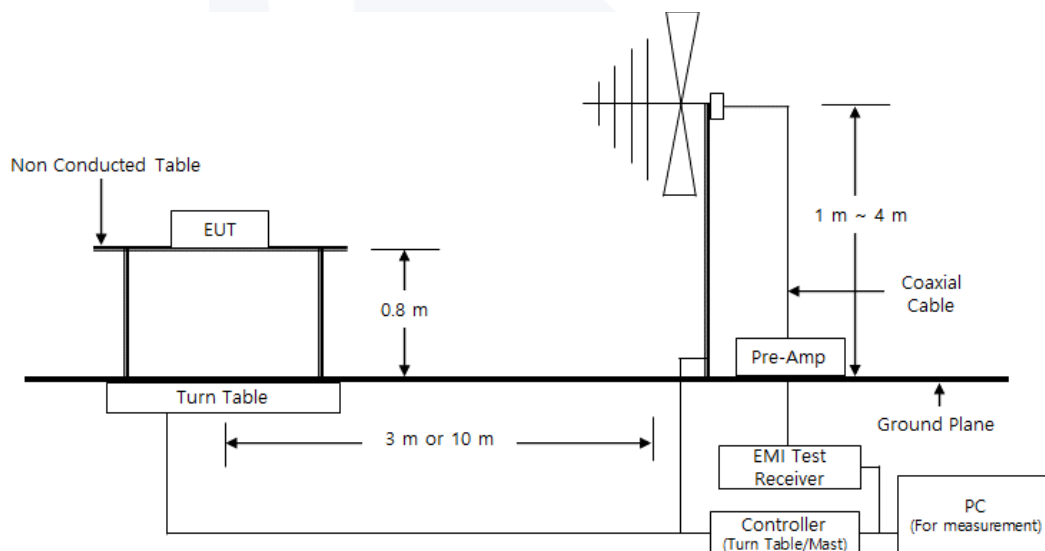
Test Location

☐ 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: (23,1 ± 0,1) °C
Relative Humidity: (46,4 ± 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

Mar. 25, 2025

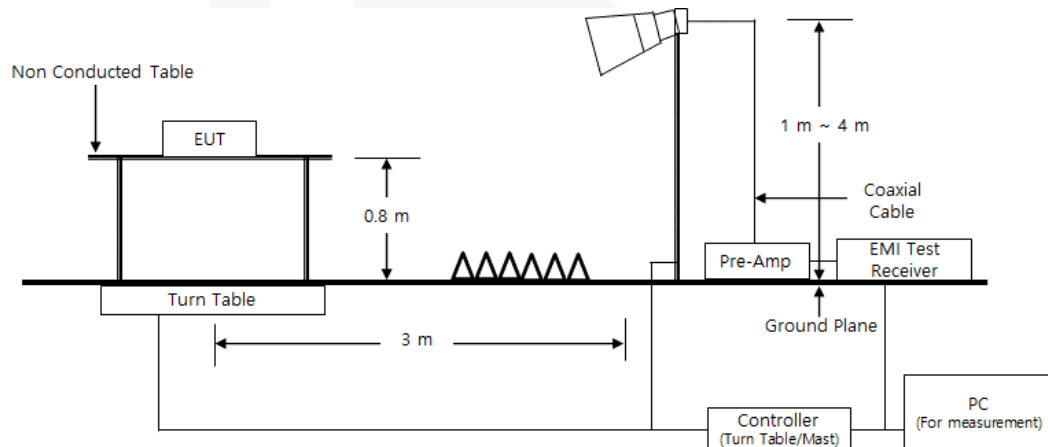
Test Location

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: (23,0 ± 0,1)°C
Relative Humidity: (46,0 ± 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

Common Information

Test Description:

Conducted Emission

Job No.:

KES-EM251028

Phase:

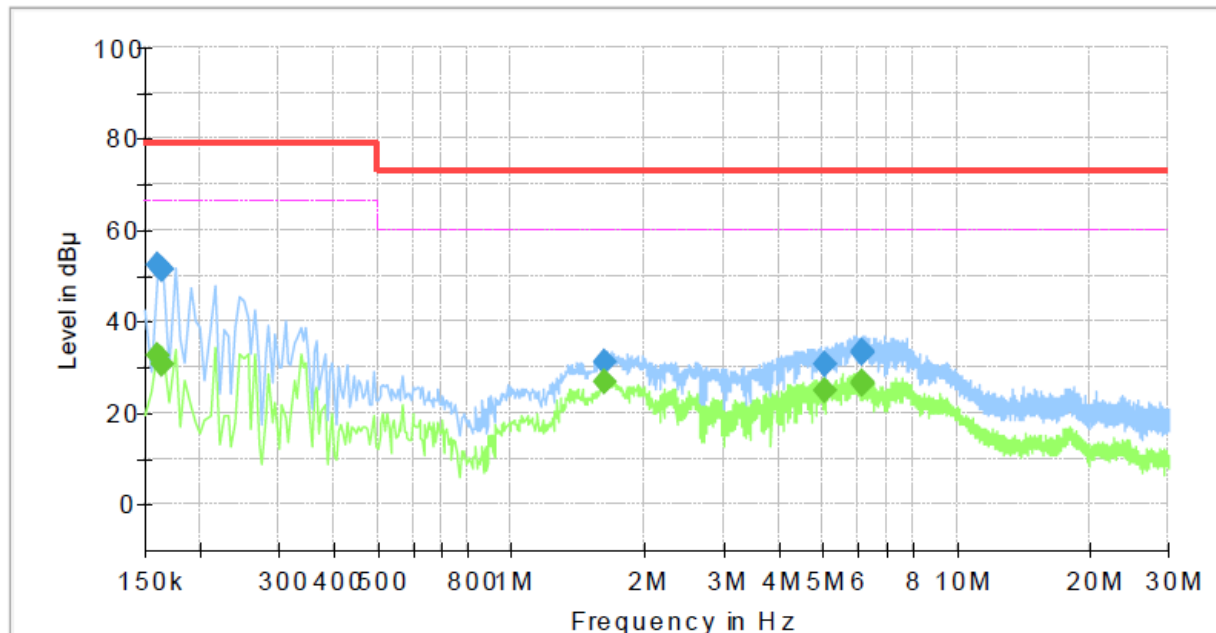
L

Mode:

mode 1

Operator Name:

KES



Final Result

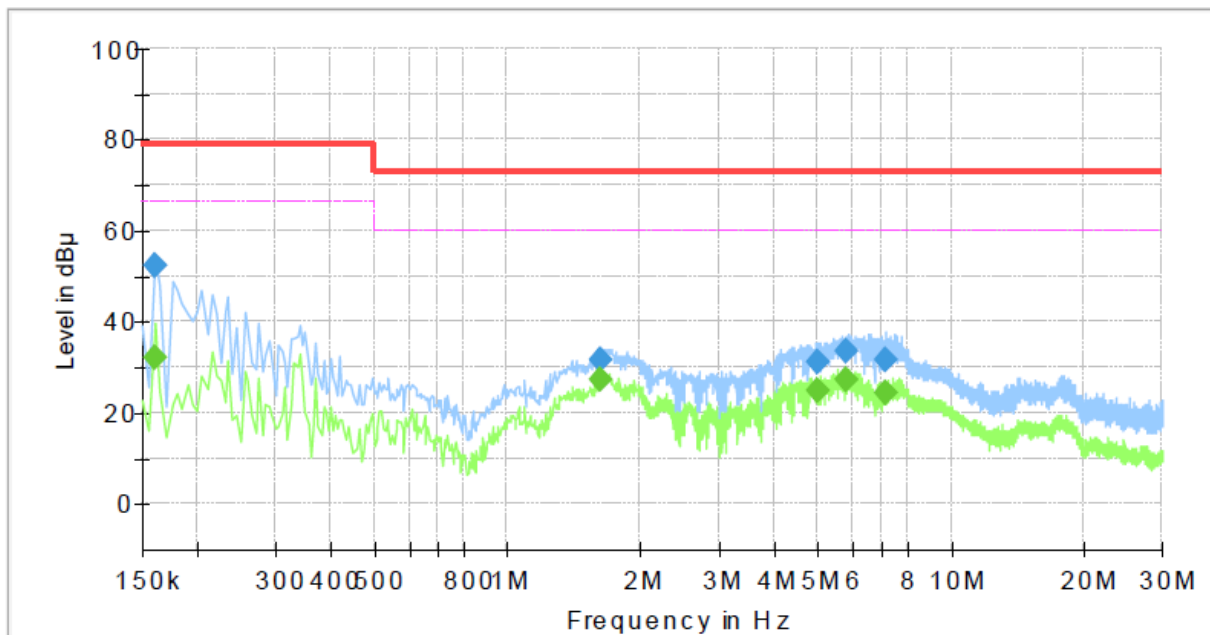
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	32.30	66.00	33.70	1000.0	9.000	L1	19.5
0.160000	52.25	---	79.00	26.75	1000.0	9.000	L1	19.5
0.165000	---	30.69	66.00	35.31	1000.0	9.000	L1	19.5
0.165000	51.37	---	79.00	27.63	1000.0	9.000	L1	19.5
1.625000	---	26.81	60.00	33.19	1000.0	9.000	L1	19.6
1.625000	30.87	---	73.00	42.13	1000.0	9.000	L1	19.6
5.085000	---	24.65	60.00	35.35	1000.0	9.000	L1	19.9
5.085000	30.42	---	73.00	42.58	1000.0	9.000	L1	19.9
6.130000	---	26.19	60.00	33.81	1000.0	9.000	L1	20.0
6.130000	32.91	---	73.00	40.09	1000.0	9.000	L1	20.0
6.180000	---	26.43	60.00	33.57	1000.0	9.000	L1	20.0
6.180000	33.31	---	73.00	39.69	1000.0	9.000	L1	20.0



NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM251028
Phase: N
Mode: mode 1
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	32.07	66.00	33.93	1000.0	9.000	N	19.5
0.160000	52.07	---	79.00	26.93	1000.0	9.000	N	19.5
1.625000	---	27.23	60.00	32.77	1000.0	9.000	N	19.6
1.625000	31.34	---	73.00	41.66	1000.0	9.000	N	19.6
4.995000	---	24.65	60.00	35.35	1000.0	9.000	N	19.9
4.995000	31.18	---	73.00	41.82	1000.0	9.000	N	19.9
5.840000	---	27.27	60.00	32.73	1000.0	9.000	N	19.9
5.840000	33.47	---	73.00	39.53	1000.0	9.000	N	19.9
7.115000	---	24.43	60.00	35.57	1000.0	9.000	N	20.0
7.115000	31.56	---	73.00	41.44	1000.0	9.000	N	20.0



■mode 2

HOT LINE

Common Information

Test Description:

Job No.:

Phase:

Mode:

Operator Name:

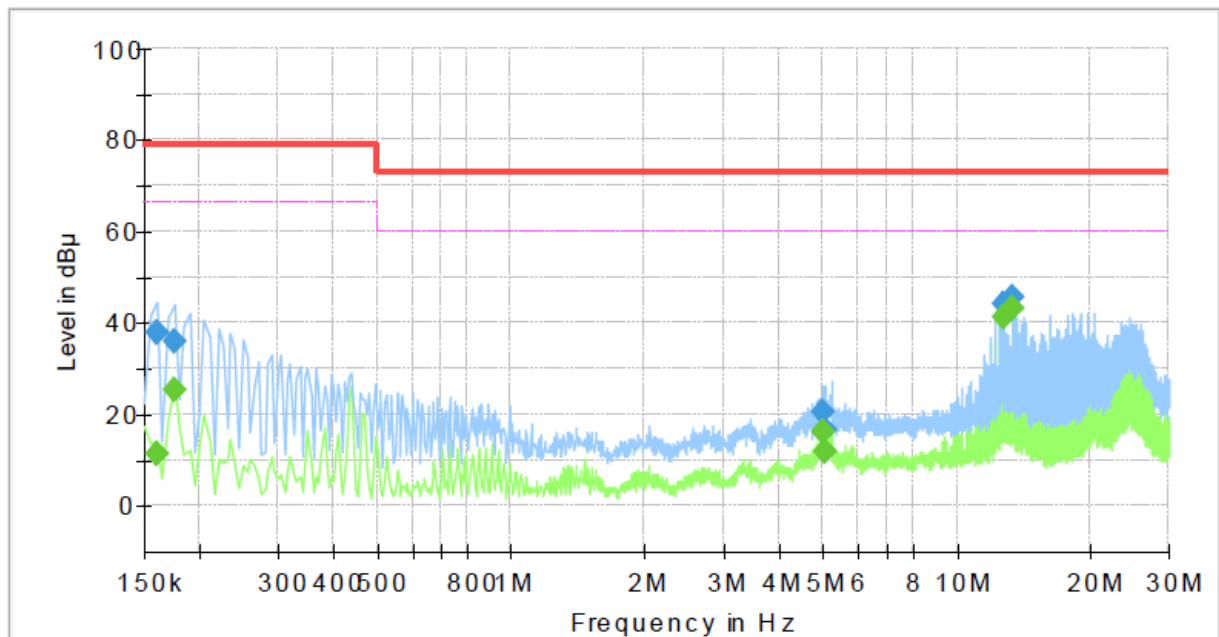
Conducted Emission

KES-EM251028

L

mode 2

KES



Final Result

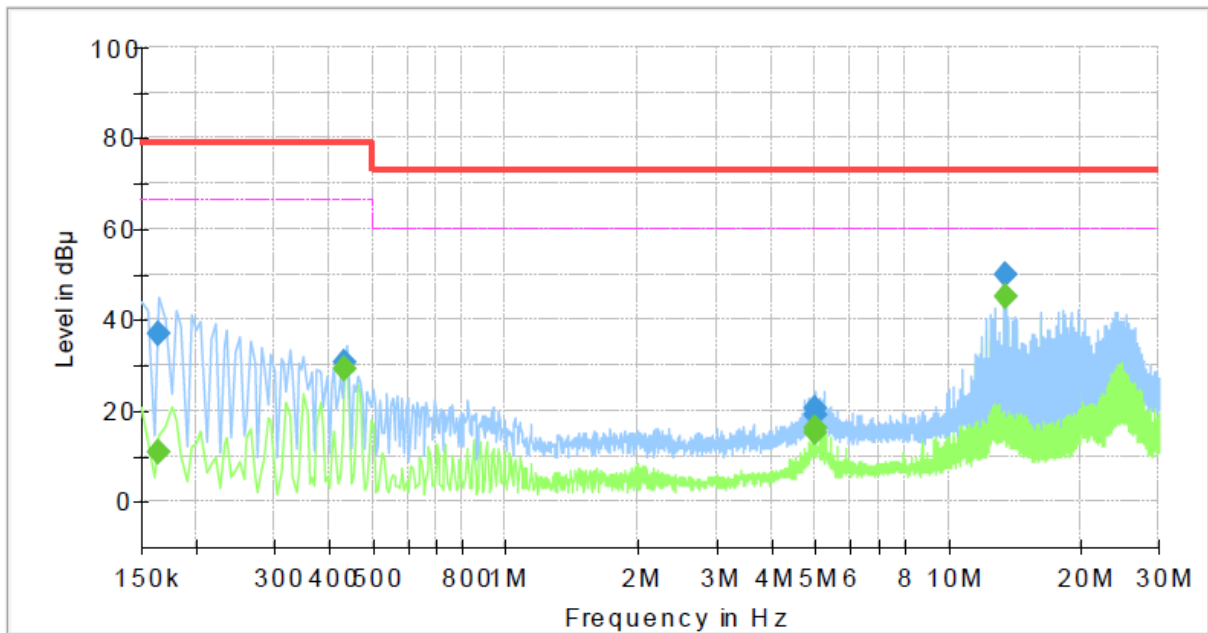
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	11.12	66.00	54.88	1000.0	9.000	L1	19.5
0.160000	37.55	---	79.00	41.45	1000.0	9.000	L1	19.5
0.175000	---	25.37	66.00	40.63	1000.0	9.000	L1	19.5
0.175000	35.95	---	79.00	43.05	1000.0	9.000	L1	19.5
5.025000	---	16.15	60.00	43.85	1000.0	9.000	L1	19.9
5.025000	20.27	---	73.00	52.73	1000.0	9.000	L1	19.9
5.070000	---	11.91	60.00	48.09	1000.0	9.000	L1	19.9
5.070000	16.51	---	73.00	56.49	1000.0	9.000	L1	19.9
12.745000	---	41.21	60.00	18.79	1000.0	9.000	L1	20.2
12.745000	43.98	---	73.00	29.02	1000.0	9.000	L1	20.2
13.420000	---	42.87	60.00	17.13	1000.0	9.000	L1	20.2
13.420000	45.54	---	73.00	27.46	1000.0	9.000	L1	20.2



NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM251028
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)
0.165000	---	10.90	66.00	55.10	1000.0	9.000	N	19.5
0.165000	37.01	---	79.00	41.99	1000.0	9.000	N	19.5
0.435000	---	28.99	66.00	37.01	1000.0	9.000	N	19.5
0.435000	30.72	---	79.00	48.28	1000.0	9.000	N	19.5
4.990000	---	15.08	60.00	44.92	1000.0	9.000	N	19.9
4.990000	19.18	---	73.00	53.82	1000.0	9.000	N	19.9
5.020000	---	16.25	60.00	43.75	1000.0	9.000	N	19.9
5.020000	20.44	---	73.00	52.56	1000.0	9.000	N	19.9
13.480000	---	44.78	60.00	15.22	1000.0	9.000	N	20.2
13.480000	50.06	---	73.00	22.94	1000.0	9.000	N	20.2

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

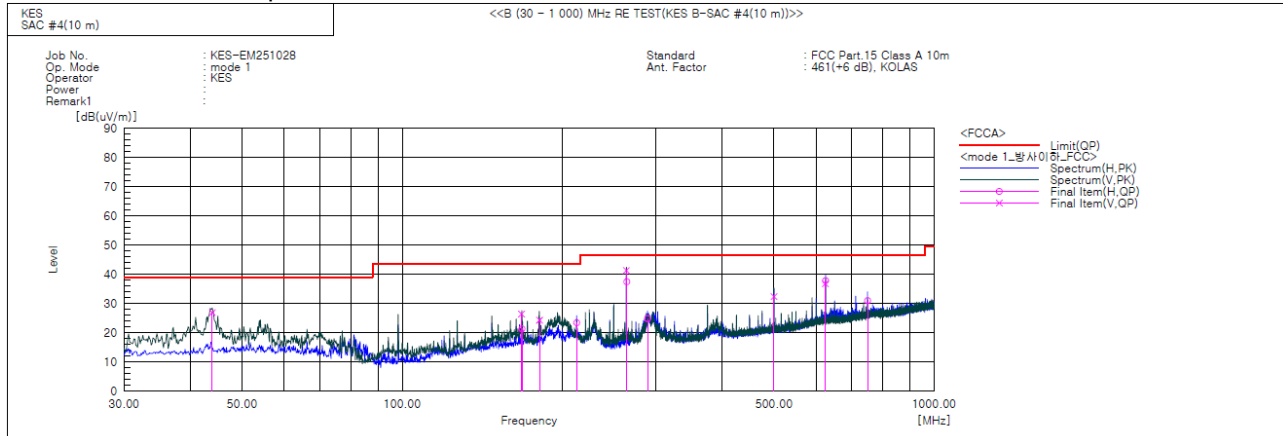
Reading Value : Not shown in the table.

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

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

■ mode 1

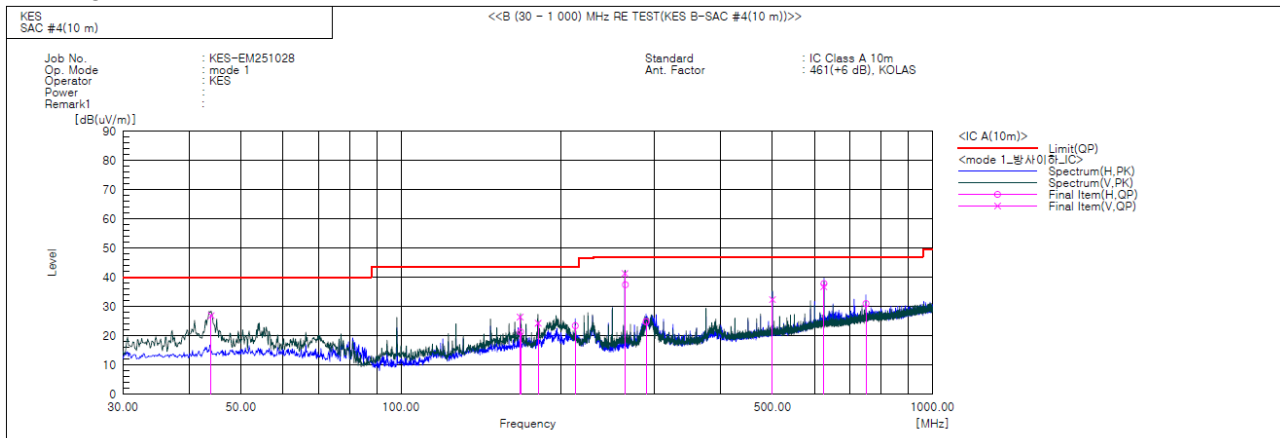
- 47 CFR Part 15, Subpart B

**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	43.944	V	48.3	-21.4	26.9	39.0	12.1	100.0	287.0	
2	167.571	V	46.2	-19.8	26.4	43.5	17.1	133.0	358.0	
3	167.983	H	41.2	-19.9	21.3	43.5	22.2	400.0	257.0	
4	181.271	V	45.2	-20.9	24.3	43.5	19.2	114.0	193.0	
5	212.966	H	44.9	-21.5	23.4	43.5	20.1	371.0	234.0	
6	263.794	V	59.9	-18.6	41.3	46.5	5.2	133.0	221.0	
7	264.421	H	56.0	-18.6	37.4	46.5	9.1	351.0	49.0	
8	289.111	H	42.2	-17.4	24.8	46.5	21.7	328.0	296.0	
9	499.965	V	42.5	-10.1	32.4	46.5	14.1	107.0	189.0	
10	624.571	V	43.3	-6.5	36.8	46.5	9.7	103.0	357.0	
11	624.988	H	44.3	-6.5	37.8	46.5	8.7	366.0	332.0	
12	749.983	H	34.8	-3.8	31.0	46.5	15.5	331.0	351.0	



- IC Regulation ICES-003 Issue 7



Final Result

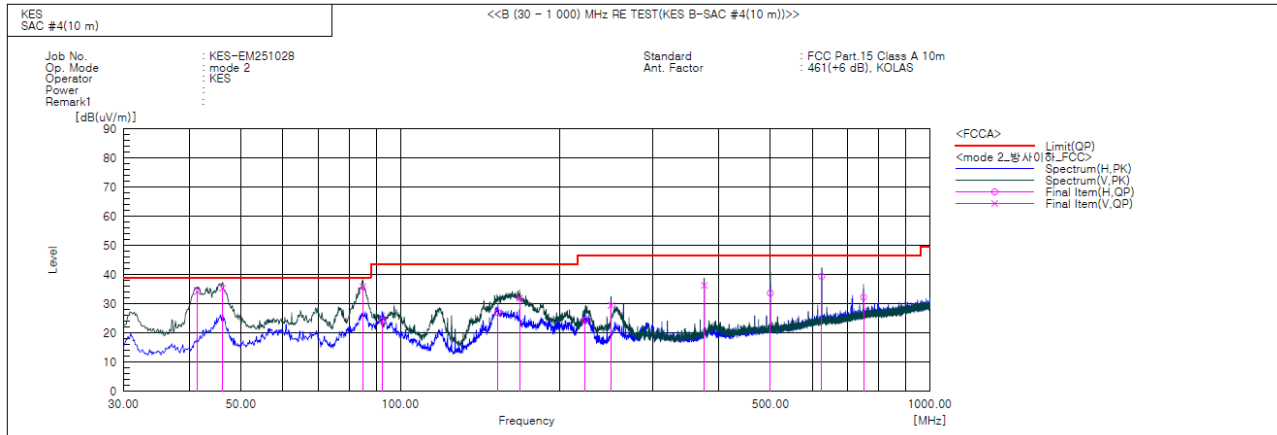
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	43.944	V	48.3	-21.4	26.9	40.0	13.1	100.0	287.0	
2	167.571	V	46.2	-19.8	26.4	43.5	17.1	133.0	358.0	
3	167.983	H	41.2	-19.9	21.3	43.5	22.2	400.0	257.0	
4	181.271	V	45.2	-20.9	24.3	43.5	19.2	114.0	193.0	
5	212.966	H	44.9	-21.5	23.4	43.5	20.1	371.0	234.0	
6	263.794	V	59.9	-18.6	41.3	47.0	5.7	133.0	221.0	
7	264.421	H	56.0	-18.6	37.4	47.0	9.6	351.0	49.0	
8	289.111	H	42.2	-17.4	24.8	47.0	22.2	328.0	296.0	
9	499.965	V	42.5	-10.1	32.4	47.0	14.6	107.0	189.0	
10	624.571	V	43.3	-6.5	36.8	47.0	10.2	103.0	357.0	
11	624.988	H	44.3	-6.5	37.8	47.0	9.2	366.0	332.0	
12	749.983	H	34.8	-3.8	31.0	47.0	16.0	331.0	351.0	



Report No. : KES-EM251028

■ mode 2

- 47 CFR Part 15, Subpart B



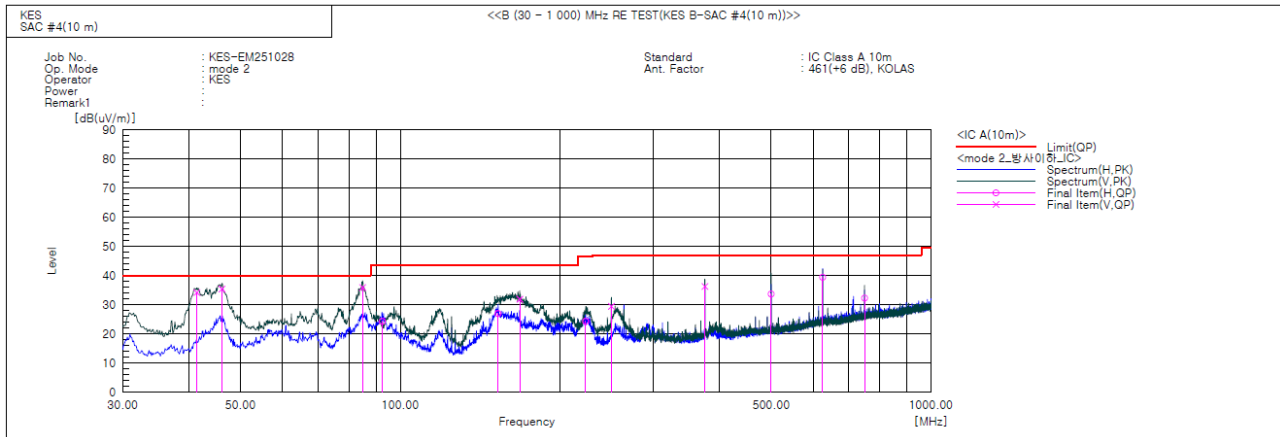
Final Result

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	41.398	V	55.9	-21.7	34.2	39.0	4.8	100.0	88.0	
2	46.126	V	56.6	-21.2	35.4	39.0	3.6	111.0	92.0	
3	84.926	V	62.0	-26.1	35.9	39.0	3.1	145.0	320.0	
4	92.481	H	50.3	-26.0	24.3	43.5	19.2	323.0	335.0	
5	152.826	H	46.3	-19.3	27.0	43.5	16.5	297.0	240.0	
6	167.983	V	51.8	-19.9	31.9	43.5	11.6	100.0	316.0	
7	223.562	H	45.3	-21.0	24.3	46.5	22.2	374.0	36.0	
8	249.916	V	48.9	-19.4	29.5	46.5	17.0	133.0	218.0	
9	374.956	V	50.9	-14.6	36.3	46.5	10.2	131.0	175.0	
10	499.965	H	43.8	-10.1	33.7	46.5	12.8	388.0	142.0	
11	624.974	H	45.9	-6.5	39.4	46.5	7.1	336.0	33.0	
12	749.961	H	36.1	-3.8	32.3	46.5	14.2	307.0	48.0	



Report No. : KES-EM251028

- IC Regulation ICES-003 Issue 7



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	41.398	V	55.9	-21.7	34.2	40.0	5.8	100.0	88.0	
2	46.126	V	56.6	-21.2	35.4	40.0	4.6	111.0	92.0	
3	84.926	V	62.0	-26.1	35.9	40.0	4.1	145.0	320.0	
4	92.481	H	50.3	-26.0	24.3	43.5	19.2	323.0	335.0	
5	152.826	H	46.3	-19.3	27.0	43.5	16.5	297.0	240.0	
6	167.983	V	51.8	-19.9	31.9	43.5	11.6	100.0	316.0	
7	223.562	H	45.3	-21.0	24.3	46.4	22.1	374.0	36.0	
8	249.916	V	48.9	-19.4	29.5	47.0	17.5	133.0	218.0	
9	374.956	V	50.9	-14.6	36.3	47.0	10.7	131.0	175.0	
10	499.965	H	43.8	-10.1	33.7	47.0	13.3	388.0	142.0	
11	624.974	H	45.9	-6.5	39.4	47.0	7.6	336.0	33.0	
12	749.961	H	36.1	-3.8	32.3	47.0	14.7	307.0	48.0	

◆ Calculation

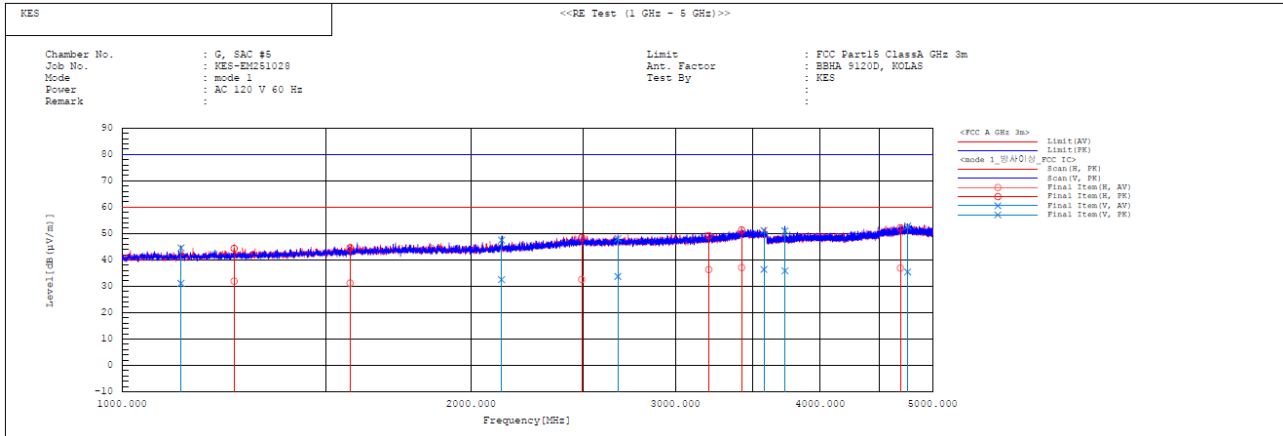
$$\text{Result(QP)} [\text{dB}(\mu\text{V/m})] = (\text{Reading(QP)} [\text{dB}(\mu\text{V})] + \text{c.f} [\text{dB}(1/\text{m})])$$
$$\text{Margin(QP)} [\text{dB}] = \text{Limit} [\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$$

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)**

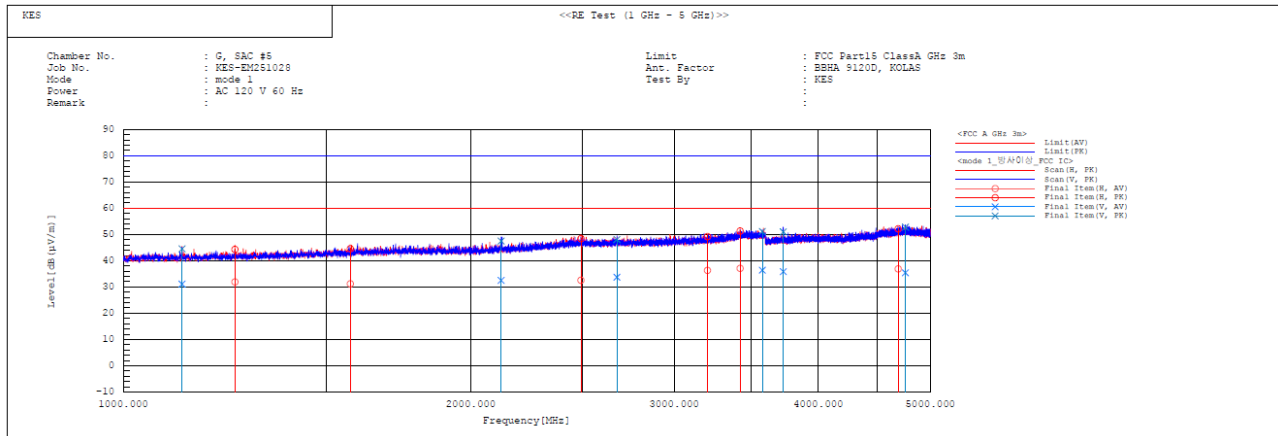
■ mode 1

**Final Result**

No.	Frequency [MHz]	Pol	Reading AV [dB (μV)]	Reading PK [dB (μV)]	c.f [dB (1/m)]	Result AV [dB (μV/m)]	Result PK [dB (μV/m)]	Limit AV [dB (μV/m)]	Limit PK [dB (μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	1124.612	V	32.1	45.5	-1.0	31.1	44.5	60.0	80.0	28.9	35.5	141.0	353.9	
2	1249.604	H	32.2	44.6	-0.3	31.9	44.3	60.0	80.0	28.1	35.7	207.0	348.3	
3	1572.844	H	29.7	43.1	1.5	31.2	44.6	60.0	80.0	28.8	35.4	184.0	352.0	
4	2124.921	V	28.9	43.9	3.6	32.5	47.5	60.0	80.0	27.5	32.5	137.0	201.4	
5	2492.062	H	27.6	43.4	5.0	32.6	48.4	60.0	80.0	27.4	31.6	186.0	44.9	
6	2677.461	V	28.2	42.6	5.5	33.7	48.1	60.0	80.0	26.3	31.9	122.0	148.1	
7	3207.235	H	29.6	42.5	6.7	36.3	49.2	60.0	80.0	23.7	30.8	196.0	359.2	
8	3422.062	H	30.0	44.2	7.1	37.1	51.3	60.0	80.0	22.9	28.7	301.0	119.1	
9	3577.633	V	29.1	43.8	7.3	36.4	51.1	60.0	80.0	23.6	28.9	107.0	201.4	
10	3730.159	V	27.8	43.0	8.0	35.8	51.0	60.0	80.0	24.2	29.0	155.0	196.5	
11	4691.623	H	25.4	40.7	11.5	36.9	52.2	60.0	80.0	23.1	27.8	231.0	136.6	
12	4759.215	V	23.8	41.2	11.6	35.4	52.8	60.0	80.0	24.6	27.2	113.0	342.8	



mode 2



Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB (μV)]	Reading PK [dB (μV)]	c.f [dB (1/m)]	Result AV [dB (μV/m)]	Result PK [dB (μV/m)]	Limit AV [dB (μV/m)]	Limit PK [dB (μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	1124.612	V	32.1	45.5	-1.0	31.1	44.5	60.0	80.0	28.9	35.5	141.0	353.9	
2	1249.604	H	32.2	44.6	-0.3	31.9	44.3	60.0	80.0	28.1	35.7	207.0	348.3	
3	1572.844	H	29.7	43.1	1.5	31.2	44.6	60.0	80.0	28.8	35.4	184.0	352.0	
4	2124.921	V	28.9	43.9	3.6	32.5	47.5	60.0	80.0	27.5	32.5	137.0	201.4	
5	2492.062	H	27.6	43.4	5.0	32.6	48.4	60.0	80.0	27.4	31.6	186.0	44.9	
6	2677.461	V	28.2	42.6	5.5	33.7	48.1	60.0	80.0	26.3	31.9	122.0	148.1	
7	3207.235	H	29.6	42.5	6.7	36.3	49.2	60.0	80.0	23.7	30.8	196.0	359.2	
8	3422.062	H	30.0	44.2	7.1	37.1	51.3	60.0	80.0	22.9	28.7	301.0	119.1	
9	3577.633	V	29.1	43.8	7.3	36.4	51.1	60.0	80.0	23.6	28.9	107.0	201.4	
10	3730.159	V	27.8	43.0	8.0	35.8	51.0	60.0	80.0	24.2	29.0	155.0	196.5	
11	4691.623	H	25.4	40.7	11.5	36.9	52.2	60.0	80.0	23.1	27.8	231.0	136.6	
12	4759.215	V	23.8	41.2	11.6	35.4	52.8	60.0	80.0	24.6	27.2	113.0	342.8	

◆ 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





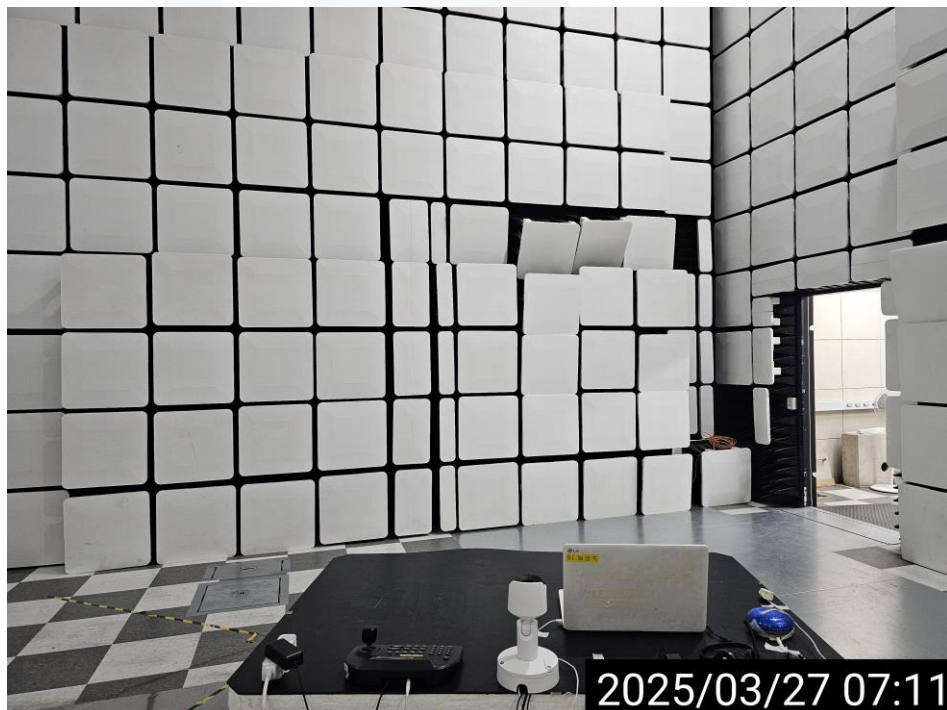
■ mode 2





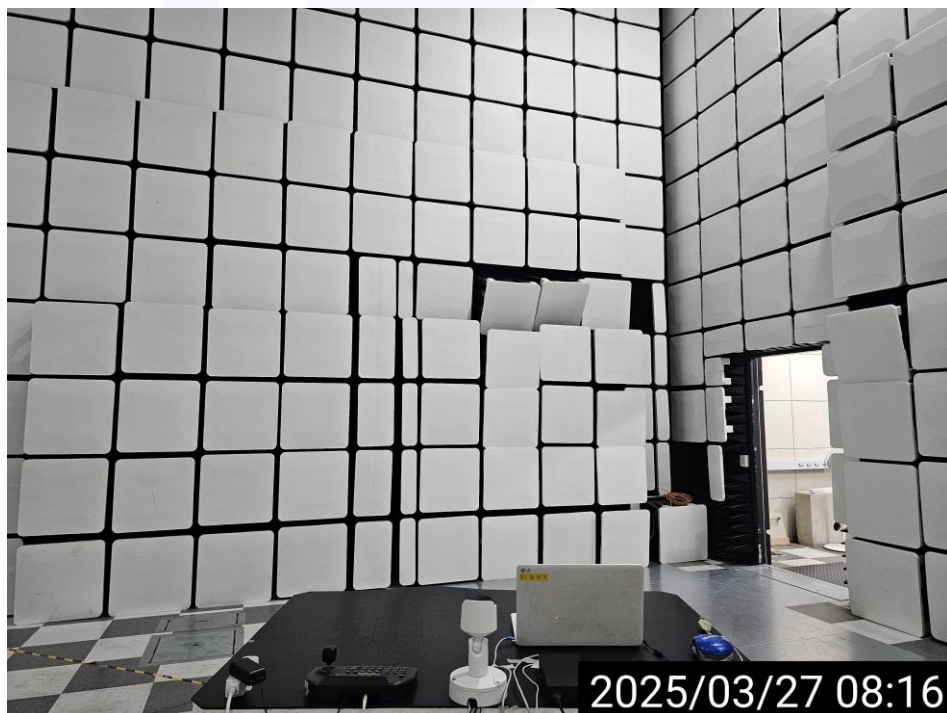
Radiated Electric Field Emissions(Below 1 GHz)

■ mode 1





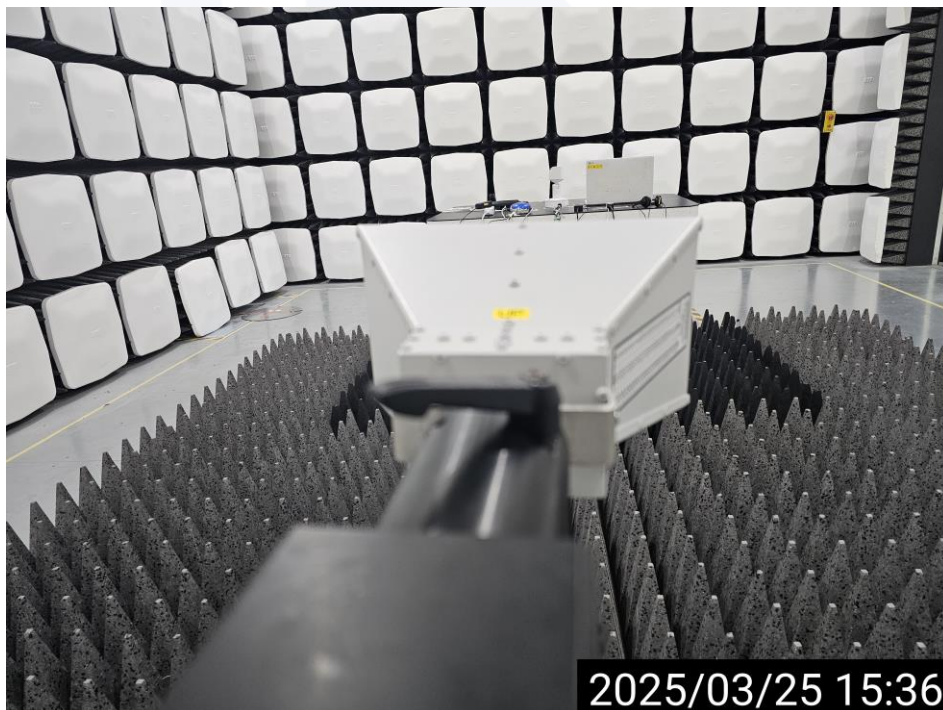
■ mode 2





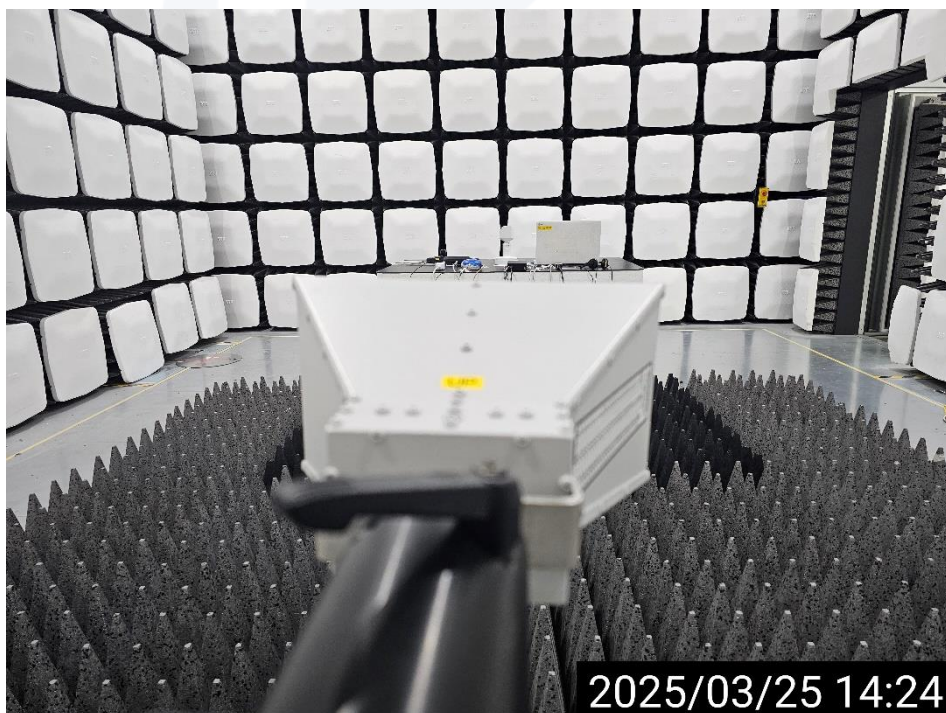
Radiated Electric Field Emissions(Above 1 GHz)

■ mode 1





■ mode 2





EUT External Photographs

(Top)



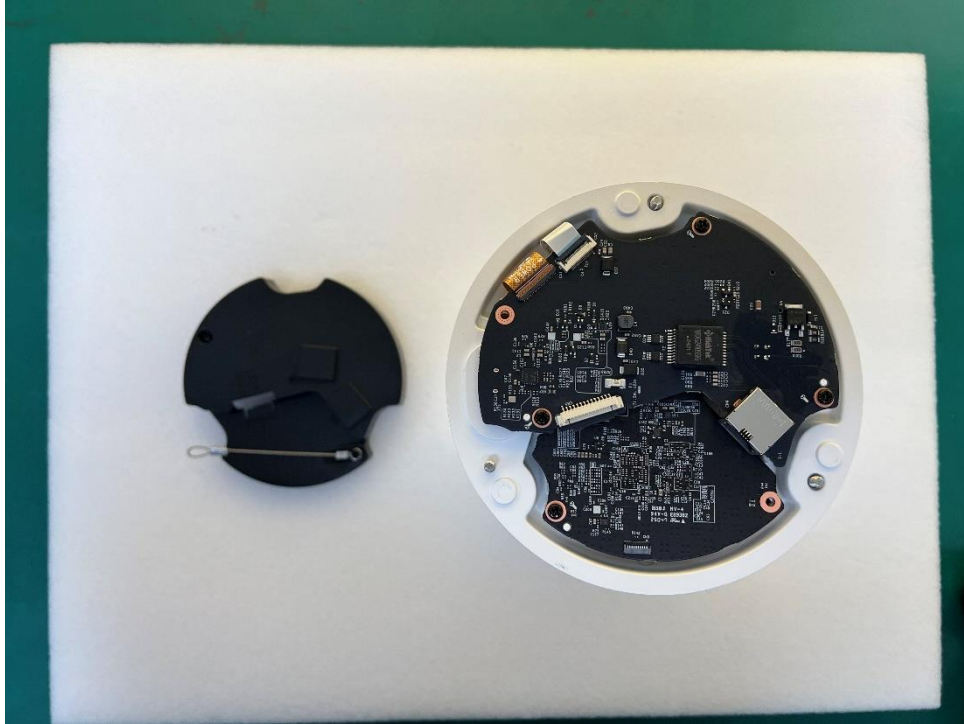
(Bottom)





EUT Internal Photographs

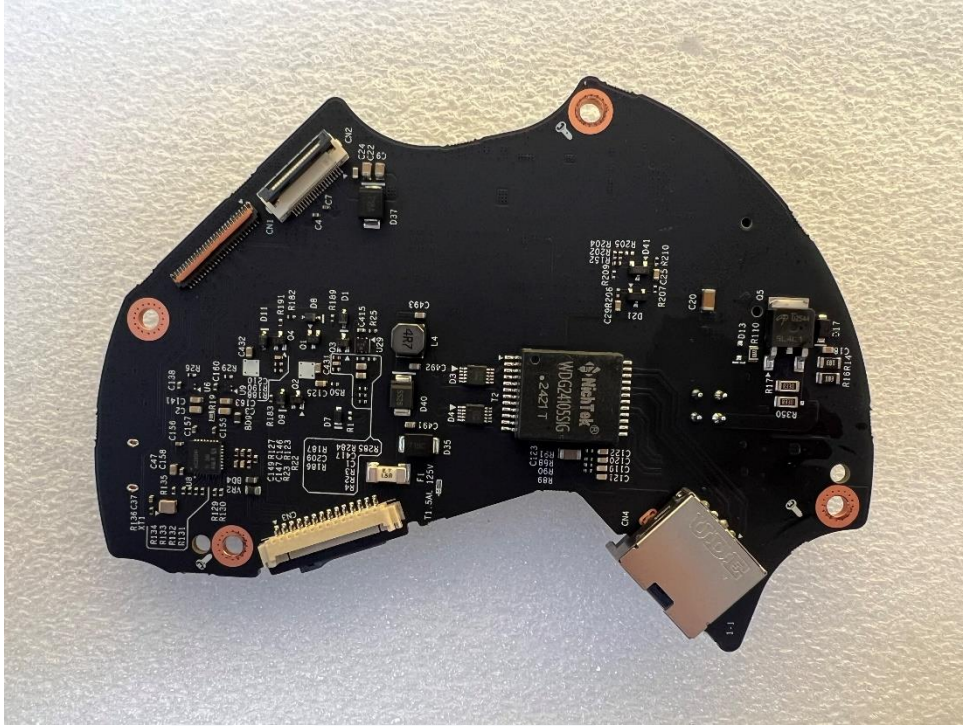
(Internal View)



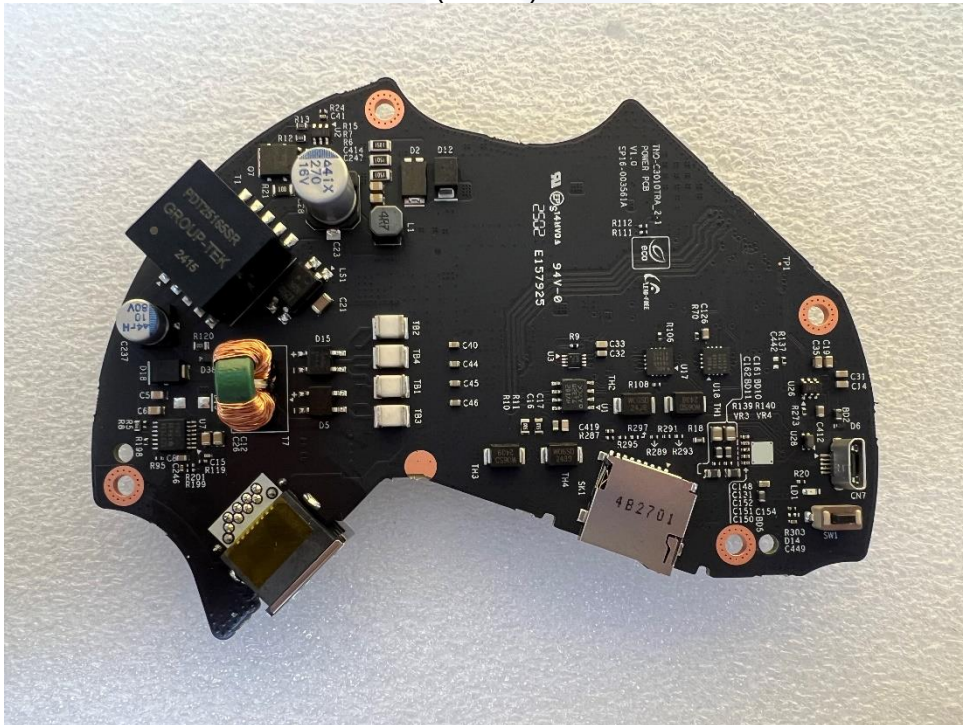


EUT Internal View – Board 1

(Top)



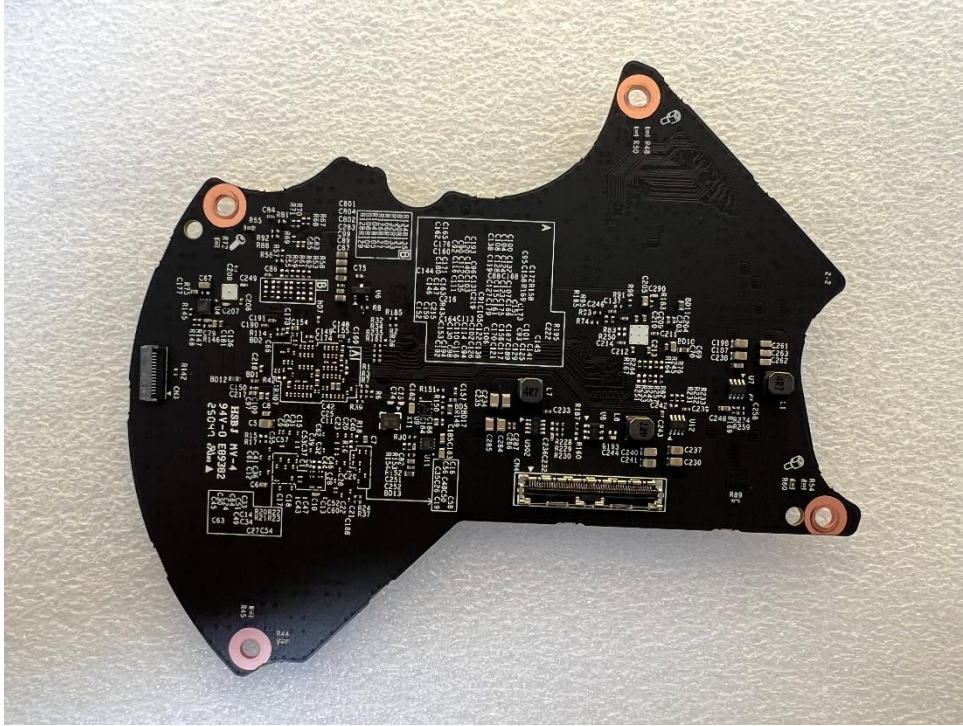
(Bottom)



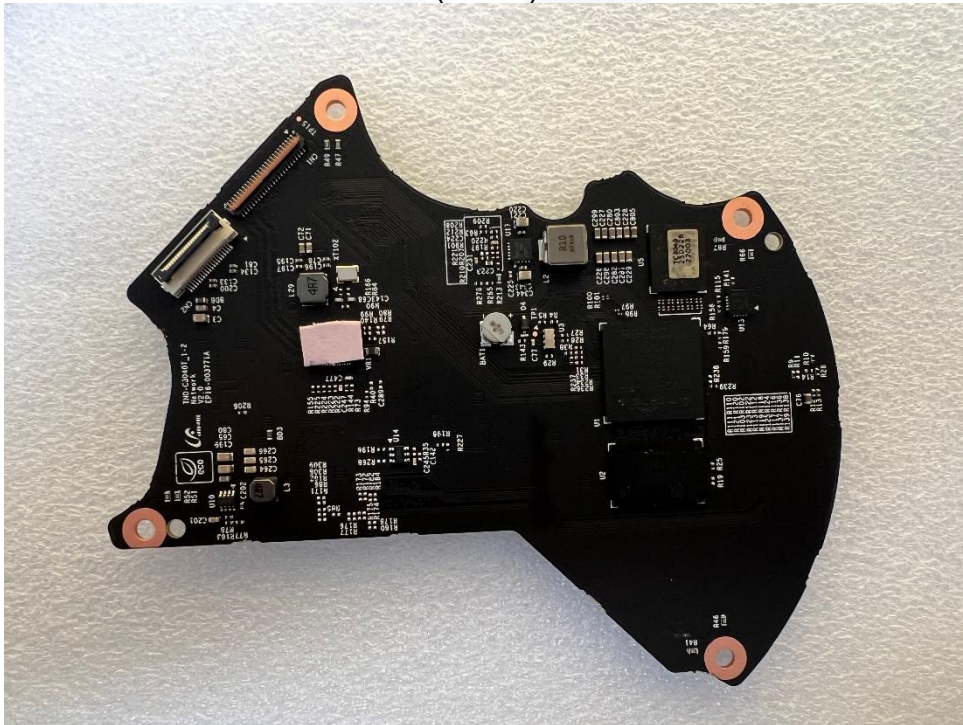


EUT Internal View – Board 2

(Top)



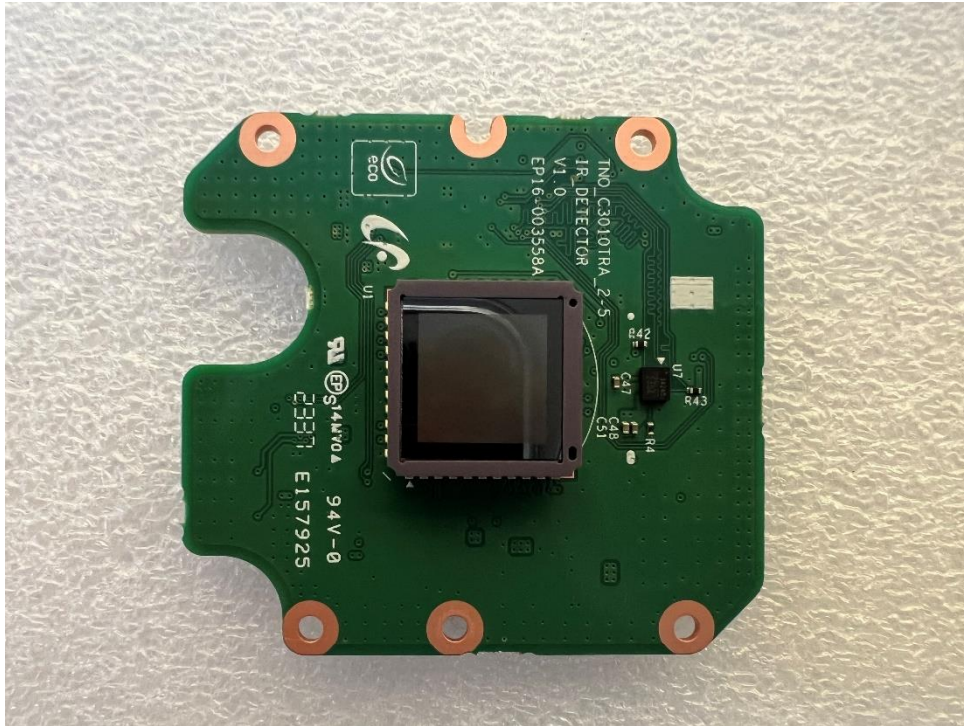
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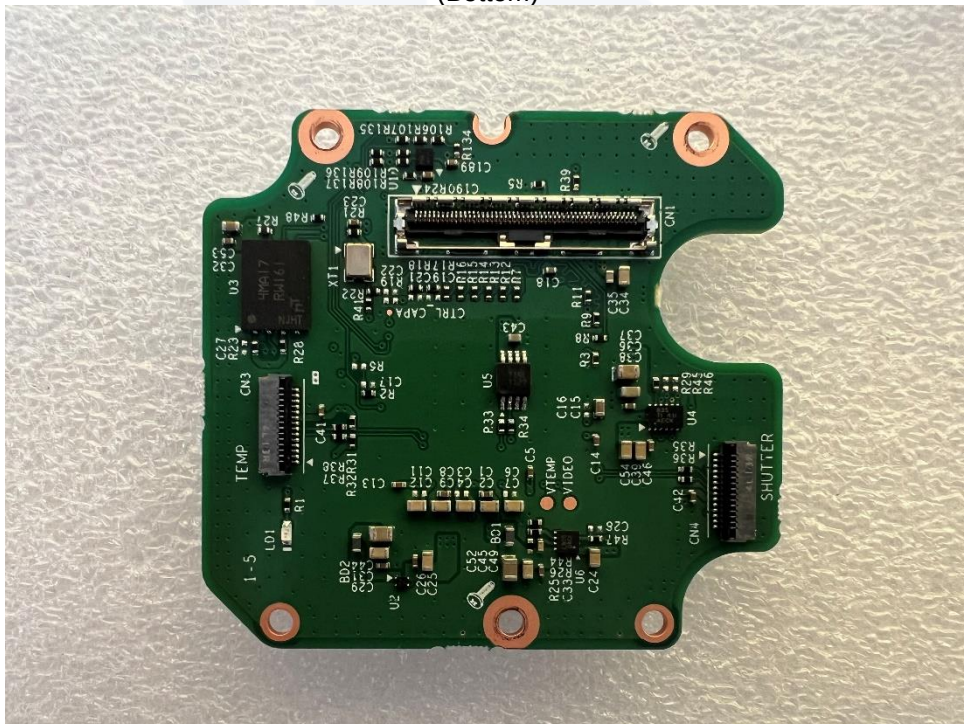


EUT Internal View – Lens Board

(Top)



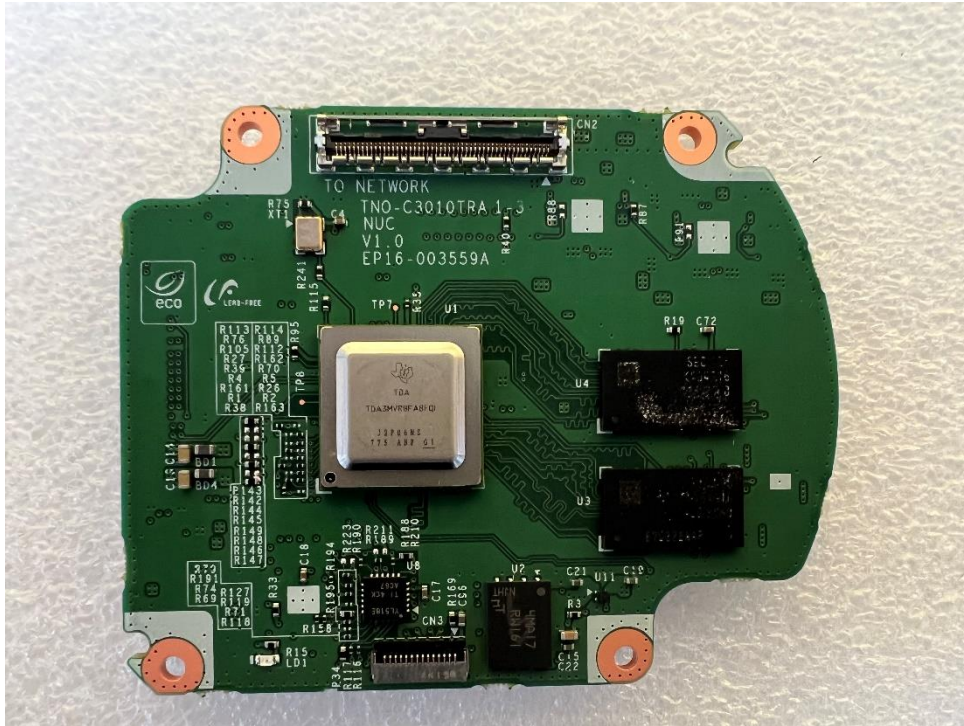
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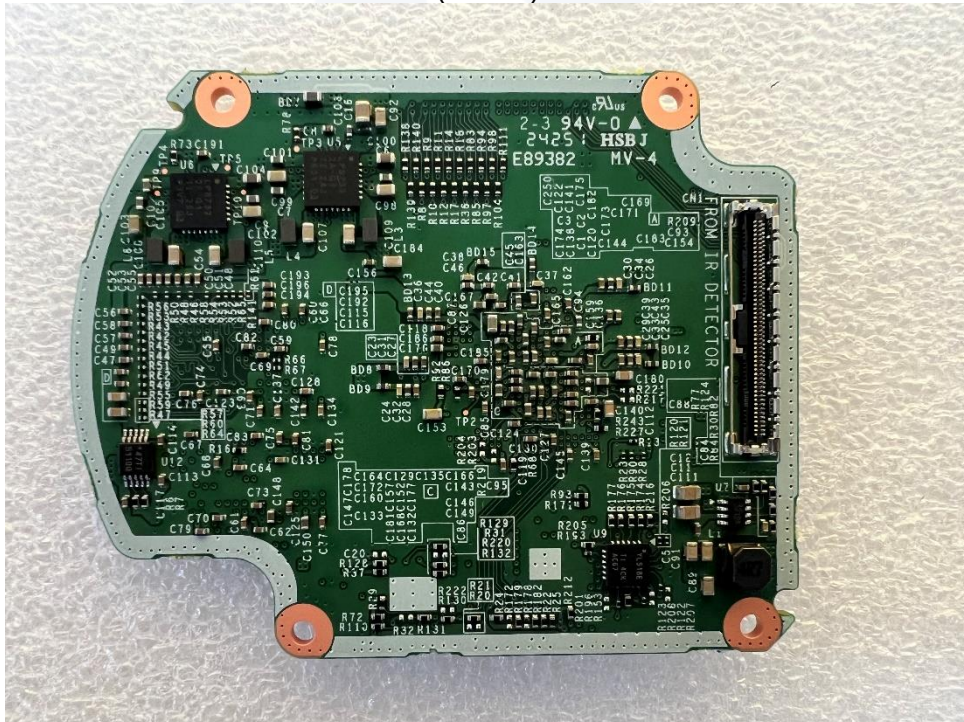


EUT Internal View – Main Board

(Top)



(Bottom)





Label Photographs

FCC Label



NETWORK THERMAL CAMERA

TNO-C3050T

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.