



TEST REPORT



Report No. : KES-EM261909-R1

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KES Co., Ltd.

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1. Client

- Name : SC Solution Global Co., Ltd.
- Address : 329 B-15L, Daegu National Industrial Complex, 49, Gukgasandan-daero 28-gil, Guji-Myeon, Dalseong-gun, Daegu, Republic of Korea

2. Sample Description

- Product item : LeakMaster
- Model name : SWF-LM01U
- Variant model : -
- Manufacturer etc. : SC Solution Global Co., Ltd.
- Manufacturer address : 329 B-15L, Daegu National Industrial Complex, 49, Gukgasandan-daero 28-gil, Guji-Myeon, Dalseong-gun, Daegu, Republic of Korea

3. FCC ID : 2BXOOSWF-LM01U

4. Date of test : 2026. 07. 03. ~ 2026. 07. 03.

5. Location of Test : Permanent Testing Lab

- Address : 473-21, Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Republic of Korea

6. Test method used : FCC 47 CFR Part 15, Subpart B (ANSI C63.4a-2017)

7. Test result : PASS

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

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This laboratory is not accredited for the test results marked *.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager by
	Name : SeonHo Choi	Name : DongHun Jang

2026. 08. 27.

KES Co., Ltd.

**REPORT REVISION HISTORY**

Date	Test Report No.	Revision History
2026. 08. 25.	KES-EM261909	Issued
2026. 08. 27.	KES-EM261909-R1	Add FCC ID

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Use of uncertainty of measurement for decisions on conformity (decision rule):

- ☒ No decision rule is specified by the standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty("simple acceptance" decision rule, previously known as "accuracy method").
- ☐ Other (to be specified, for example when required by the standard or client)



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1 Laboratory Information

1.1 Test Location

Category	Details
Address	473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Republic of Korea
Telephone Number	031-883-5092
Facsimile Number	031-883-5169

The measurement facility is located at 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Republic of Korea. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.2 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 Test Summary

2.1 Class and Voltage

Test Class	Test Voltage
Class A	Battery(DC 3.6 V / 10.05 Ah)

2.2 Summary of Test Results

Regulation			
47 CFR Part 15, Subpart B			
Test Item	Test Standard	Test Result	Remark
Conducted Emissions at Mains Power Ports	ANSI C63.4a-2017	N/A	NOTE 1
Radiated Emissions(Below 1 GHz)		PASS	-
Radiated Emissions(Above 1 GHz)		PASS	-
* N/A: Not Applicable (NOTE 1) No power port, it uses batteries.			

2.3 Remarks when standards applied

N/A

2.4 Variant Model Differences

N/A

2.5 Device Modifications

N/A



3 General Product Description

LeakMaster Fixed	Communication mode	LTE Cat.1
	Operating Temperature	-10°C ~ +75°C
	Charging Temperature	0°C ~ 45°C
	Battery	10,050mAh(Recharge)/ 5 years of use
	Sensor	Piezoelectric Sound Components
	Memory	4M-bit Serial Flash Memory
	Frequency	4KHz
	Standby Current	80uA
	Size	ø66mm x 106mm
	WEIGHT	607g



4 EUT Setup and Operation Mode

4.1 EUT Configuration

Description	Model Number	Serial Number	Manufacturer	Remarks
LeakMaster	SWF-LM01U	-	SC Solution Global Co., Ltd.	EUT
RADIO COMMUNICATION Analyzer	Mt8821C	6261915476	Anritsu	-
USIM	-	-	-	-

4.2 System Configuration

Product Name	Model Number	Serial Number	Manufacturer	Remarks
Antenna	-	-	-	-
Battery	LV0103-35E	-	Luna Bolt Co., Ltd.	XH100254-23004C

4.3 External I/O Cabling

Start		End		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
EUT	Wireless	RADIO COMMUNICATION Analyzer	Wireless	-	-
	USIM Slot	USIM	USIM Slot	-	-
	Antenna Connector	Antenna (EUT)	Antenna Connector	1.0	U

* Unshielded=U, Shielded=S

4.4 EUT Operating Mode(s)

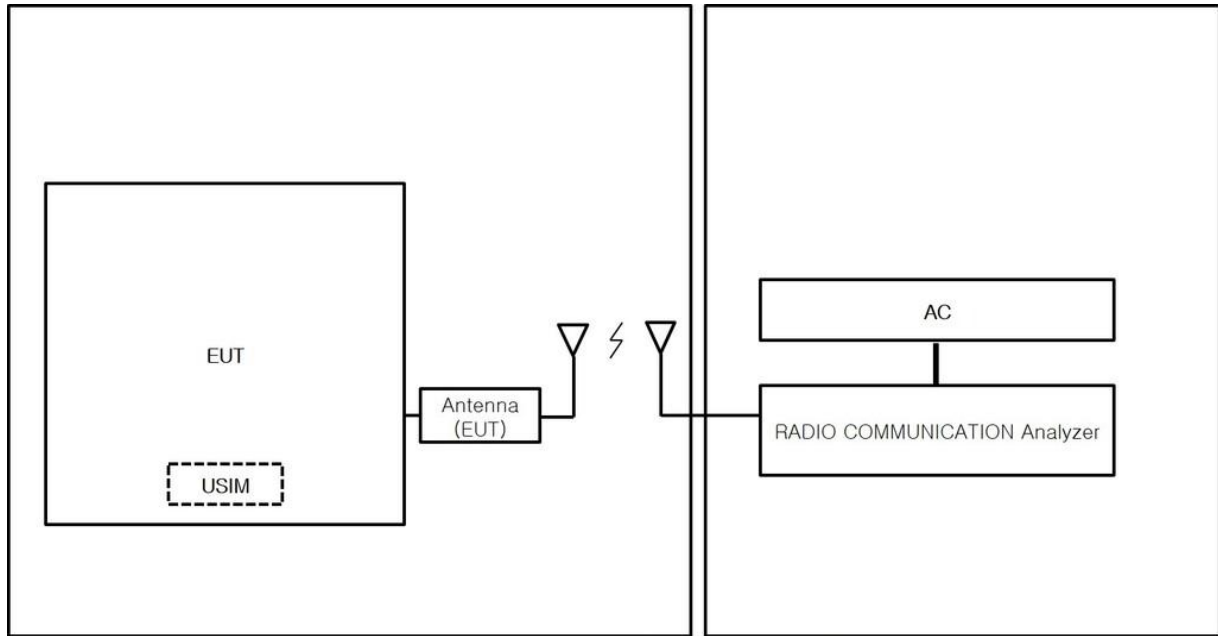
Category	Mode	Operating
Mode 1	LTE 2 Band	After connecting the test equipment and the RADIO COMMUNICATION Analyzer wirelessly, we checked if the communication was working normally.
Mode 2	LTE 4 Band	
Mode 3	LTE 12 Band	

4.5 Test operating S/W

Name	Version	Manufacture Company
-	-	-



4.6 Configuration



EUT – RADIO COMMUNICATION Analyzer : LTE Cat 1

Mode 1



5 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 exceeded 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 or CISPR 32.

◆ Calculation

- Conducted Emissions

$\text{QuasiPeak[dBuV]} / \text{CAverage[dBuV]} = \text{Reading Value[dBuV]} + \text{Corr. [dB]}$

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

- Radiated Emissions(Below 1 GHz)

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

$\text{Margin(QP)}[\text{dB}] = \text{Limit}[\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$

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 Emissions(Above 1 GHz)

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

$\text{Margin(PK/CAV)}[\text{dB}] = \text{Limit}[\text{dB}(\mu\text{V/m})] - \text{Result(PK/CAV)} [\text{dB}(\mu\text{V/m})]$

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

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



6 Test Item

6.1 Radiated Emissions(Below 1 GHz)

6.1.1 Test Equipment

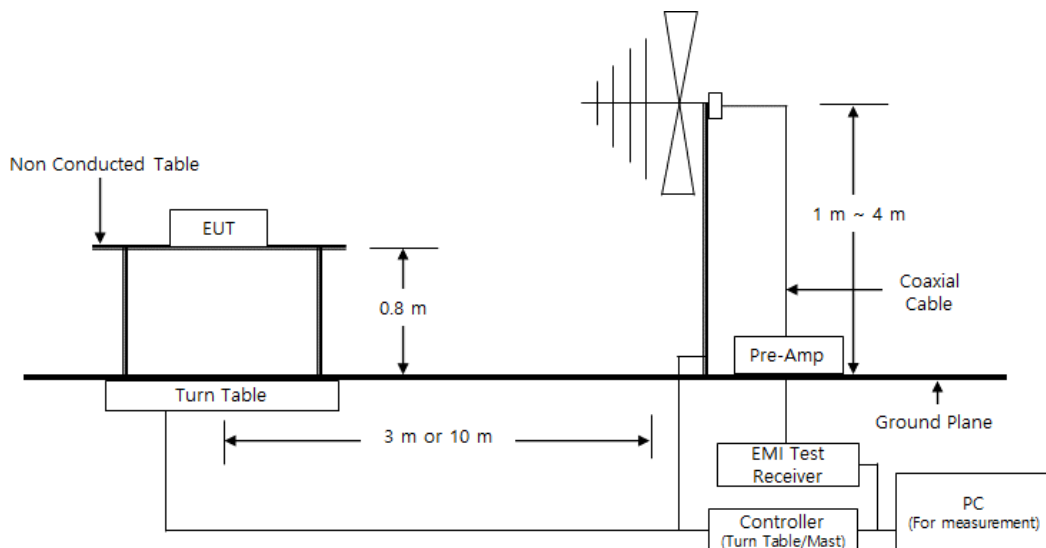
Equipment Name	Model Number	Manufacturer	Serial No.	Cal. Date	Next Cal. Date	Used
SEMI ANECHOIC CHAMBER #4(10 m)	-	DYMSTEC	-	-	-	■
EP5/RE Software	EP5/RE	TOYO	6.0.0	-	-	■
EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100551	2026-02-12	2027-02-12	■
AMPLIFIER	SCU 01	Rohde & Schwarz	100574	2026-04-24	2027-04-24	■
TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	2024-11-08	2026-11-08	■
Cable	NMS111-GL200sC-NMS111	GIGALANE	-	2026-01-25	2026-07-25	■
Cable	SUCOFLEX104	HUBER_SUHNER	-	2026-01-25	2026-07-25	■
Cable	RG 400	-	-	2026-01-25	2026-07-25	■

6.1.2 Test Location : SEMI ANECHOIC CHAMBER #4(10 m) Measurement Distance : □ 3 m, ■ 10 m

6.1.3 Test Conditions :

Temperature	Relative Humidity
(25.3 ~ 25.5) °C	(59.0 ~ 59.3) % R.H.

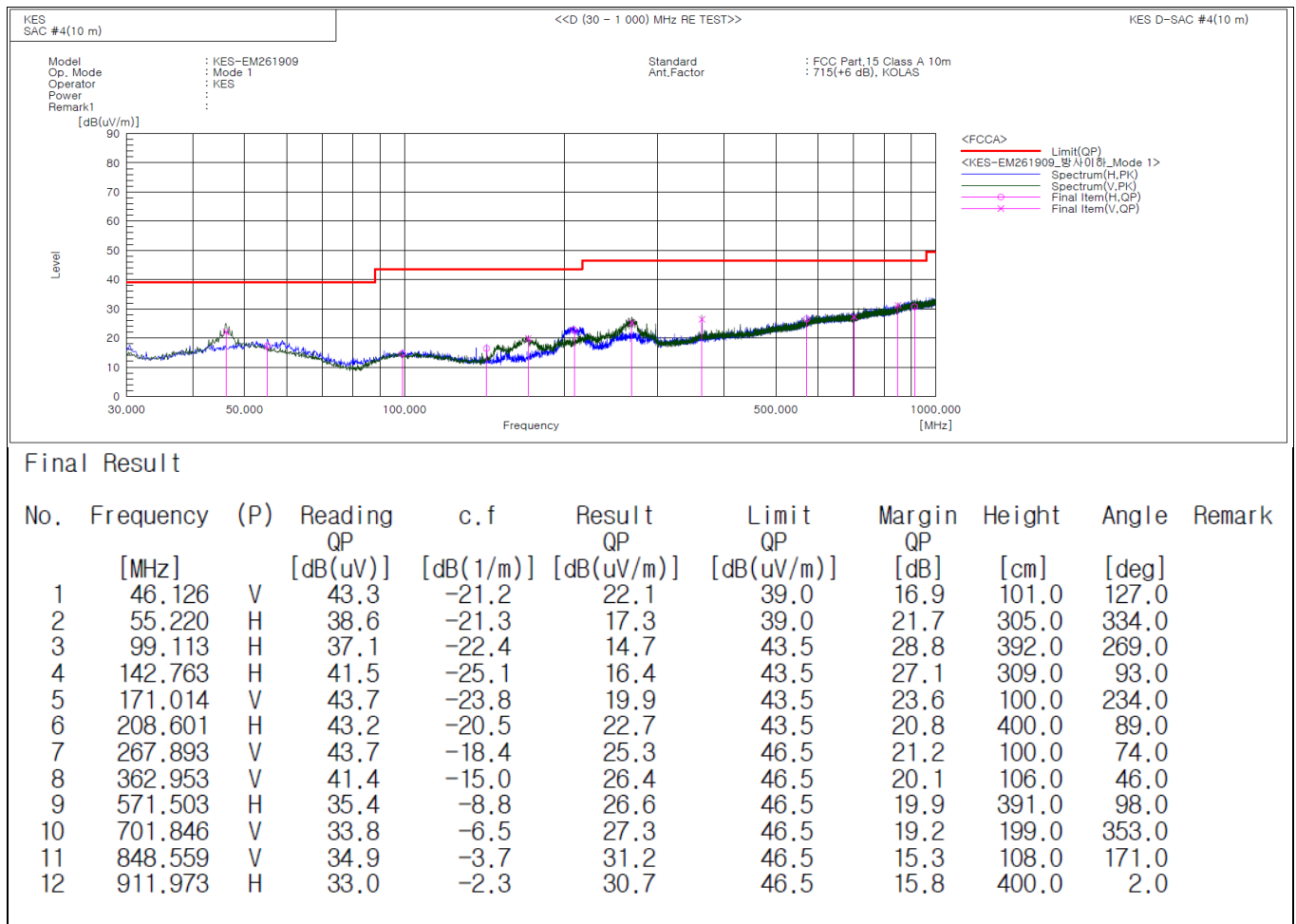
6.1.4 Diafram of test setup





6.1.5 Test Result

- Test Date : 2026-07-03
- Test Mode : Mode 1



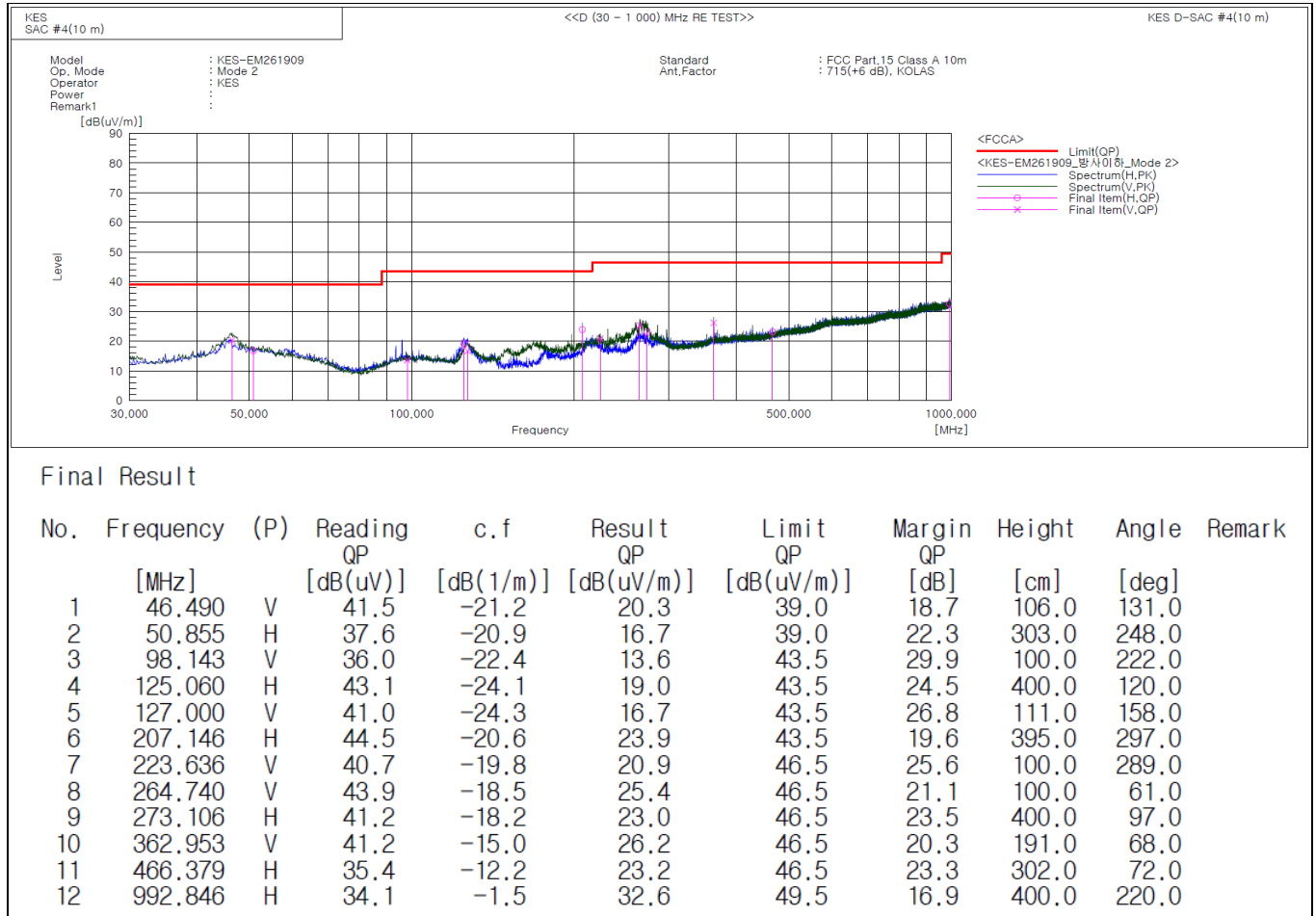
※ The data is the result measured by the detector in Quasi-Peak mode on the Peak graph.



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- Test Date : 2026-07-03
- Test Mode : Mode 2

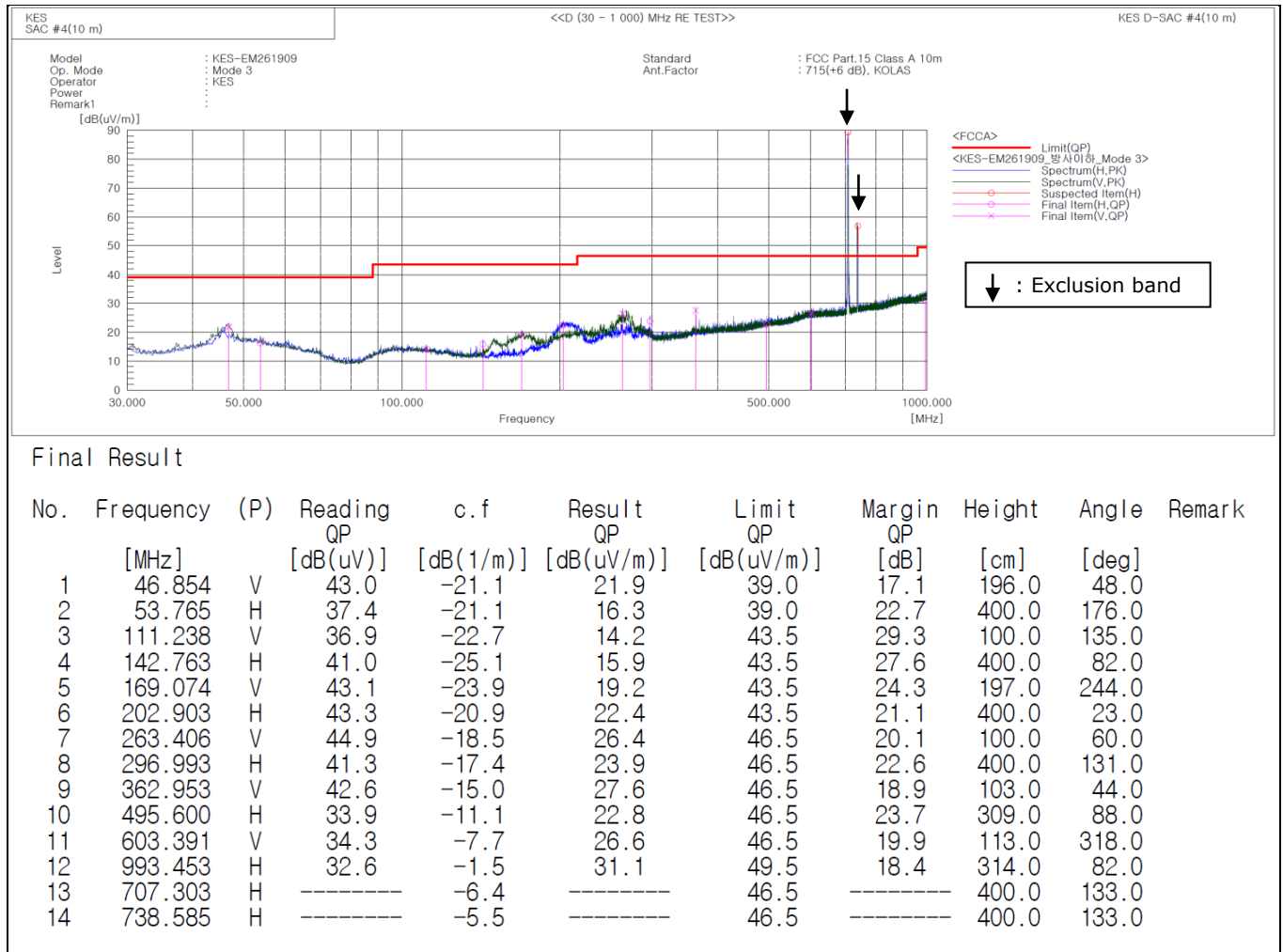


※ The data is the result measured by the detector in Quasi-Peak mode on the Peak graph.



○ Test Date : 2026-07-03

● Test Mode : Mode 3



※ The data is the result measured by the detector in Quasi-Peak mode on the Peak graph.

6.1.6 Remark

Complies with the test requirements.

Mode 3 : (707, 738) MHz (Exclusion band)



6.2 Radiated Emissions(Above 1 GHz)

6.2.1 Test Equipment

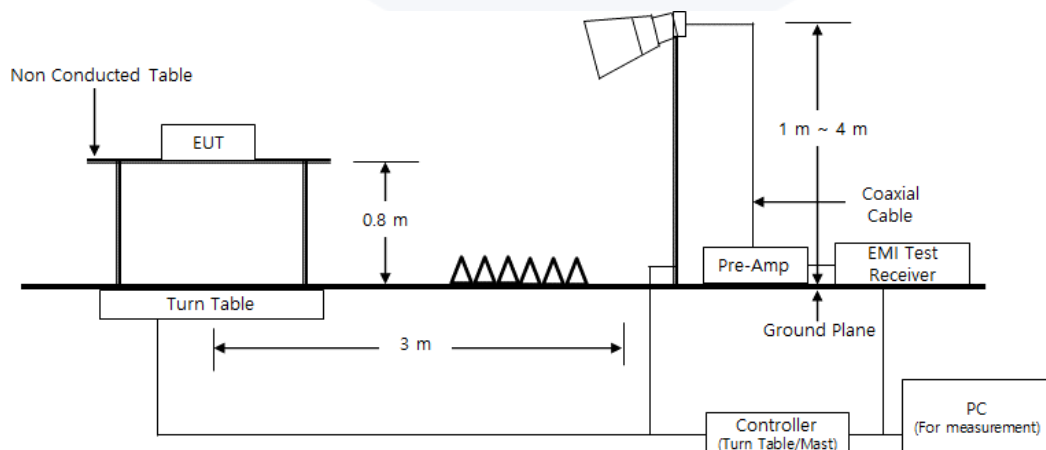
Equipment Name	Model Number	Manufacturer	Serial No.	Cal. Date	Next Cal. Date	Used
SEMI ANECHOIC CHAMBER #5	-	SY Corporation	-	-	-	■
ES10/RE Software	ES10/RE	TOYO	2022.01.000	-	-	■
EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	2026-02-12	2027-02-12	■
PREAMPLIFIER	8449B	HP	3008A00538	2026-04-29	2027-04-29	■
HORN ANTENNA	BBHA 9120D	SCHWARZBEC K	9120D-1802	2025-11-05	2026-11-05	■
ATTENUATOR	8491B	HP	23094	2026-02-12	2027-02-12	■
Cable	SUCOFLEX10 6	HUBER_SUHNE R	-	2026-01-25	2026-07-25	■
Cable	SUCOFLEX10 6	HUBER_SUHNE R	-	2026-01-25	2026-07-25	■
Cable	LH21D/2Xsma(m)	OSI Cable	-	2026-01-25	2026-07-25	■

6.2.2 Test Location : SEMI ANECHOIC CHAMBER #5

6.2.3 Test Conditions :

Temperature	Relative Humidity
(25.0 ~ 25.2) °C	(56.5 ~ 56.8) % R.H.

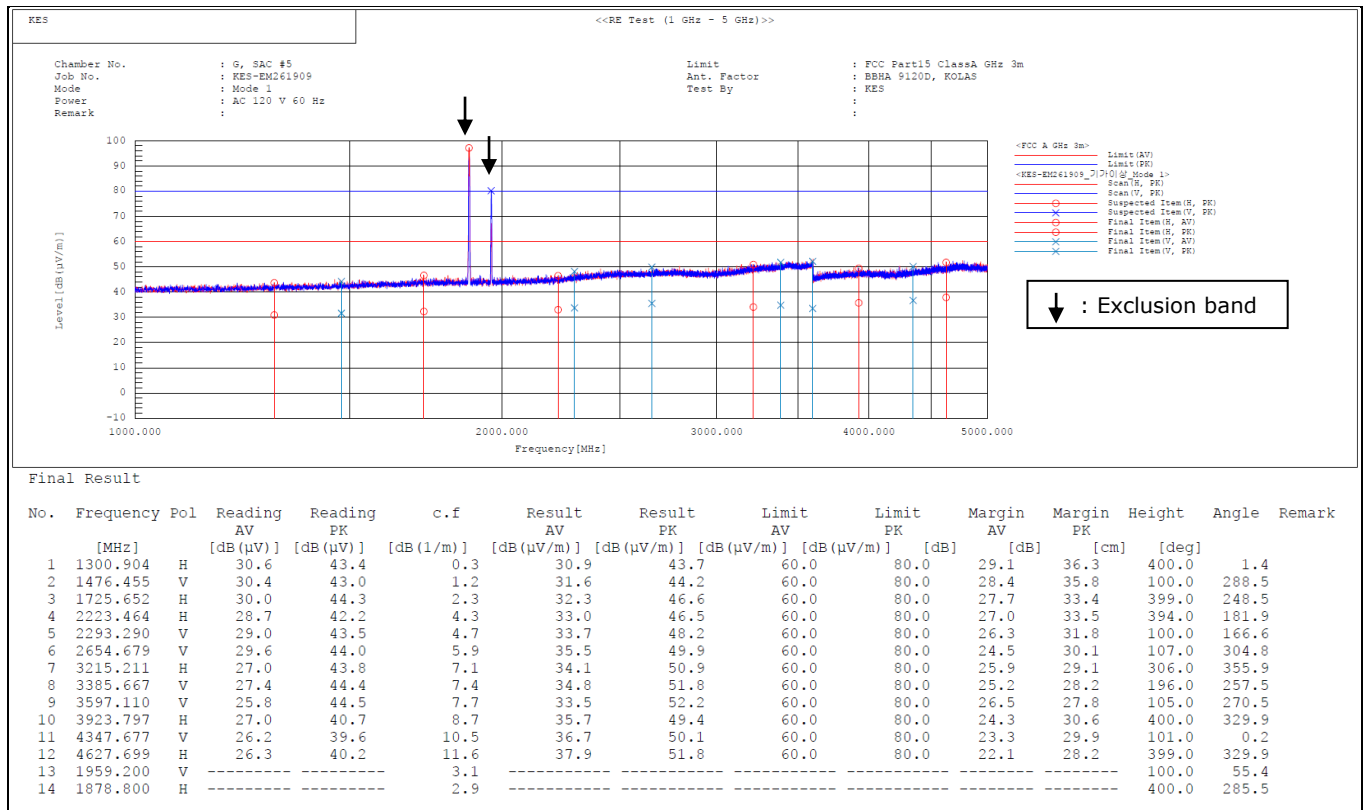
6.2.4 Diagram of test setup





6.2.5 Test Result

- Test Date : 2026-07-03
- Test Mode : Mode 1



- ※ The data is the result of measured by the detector in PK and CISPR Average on the Peak graph.
- ※ The Average of the test data is the cispr average result.



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○ Test Date : 2026-07-03

● Test Mode : Mode 1

(5 ~ 10) 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)
6 820.221	40.100	H	1.000	35.570	9.730	34.750	50.650	80.000	29.350
7 784.602	40.800	V	1.000	36.570	11.300	33.750	54.920	80.000	25.080

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)
6 820.221	26.500	H	1.000	35.570	9.730	34.750	37.050	60.000	22.950
7 784.602	25.700	V	1.000	36.570	11.300	33.750	39.820	60.000	20.180

※ No spurious emission were detected above 10 GHz

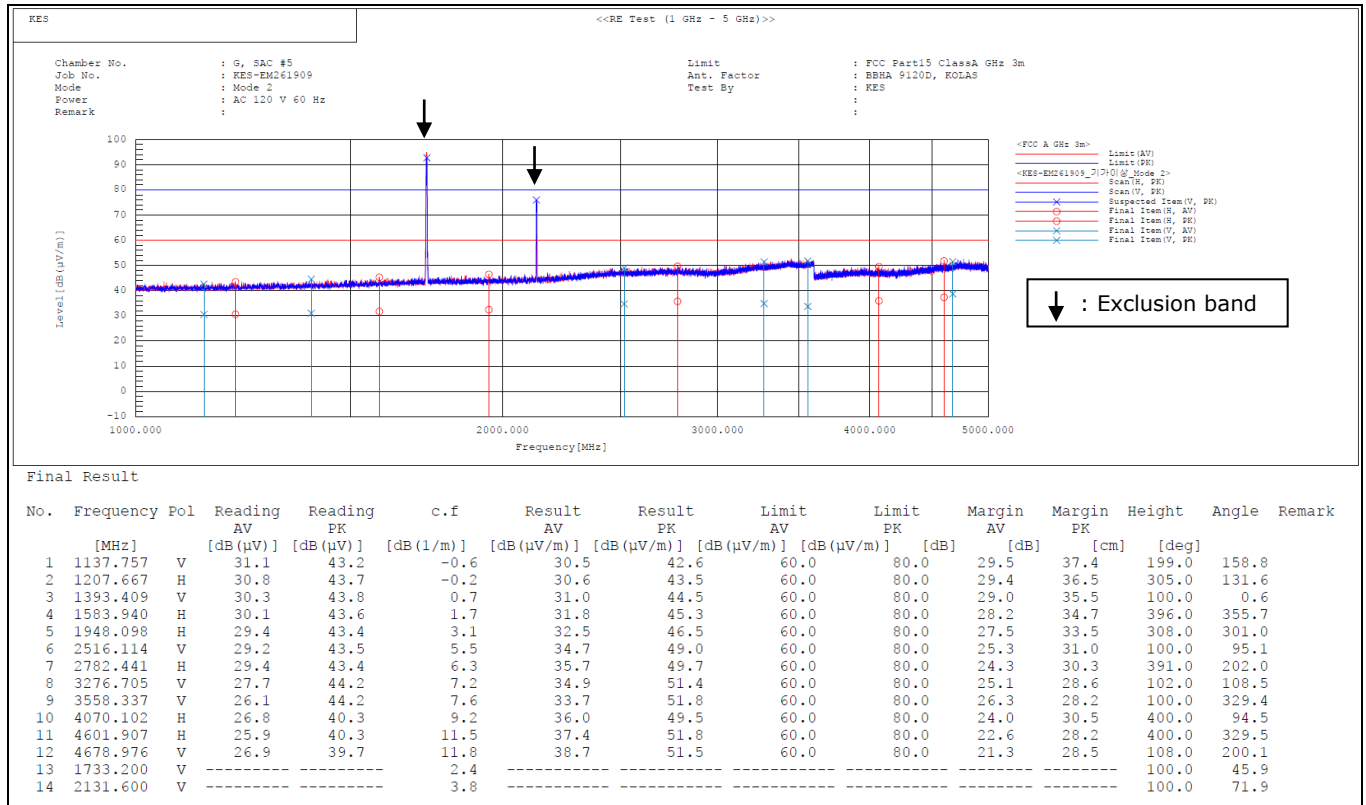


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○ Test Date : 2026-07-03

● Test Mode : Mode 2



※ The data is the result of measured by the detector in PK and CISPR Average on the Peak graph.

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



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○ Test Date : 2026-07-03

● Test Mode : Mode 2

(5 ~ 11) 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)
8 838.902	39.800	H	1.000	38.120	15.090	34.320	58.690	80.000	21.310
9 869.151	39.900	V	1.000	39.610	12.550	33.940	58.120	80.000	21.880

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)
8 838.902	26.000	H	1.000	38.120	15.090	34.320	44.890	60.000	15.110
9 869.151	25.500	V	1.000	39.610	12.550	33.940	43.720	60.000	16.280

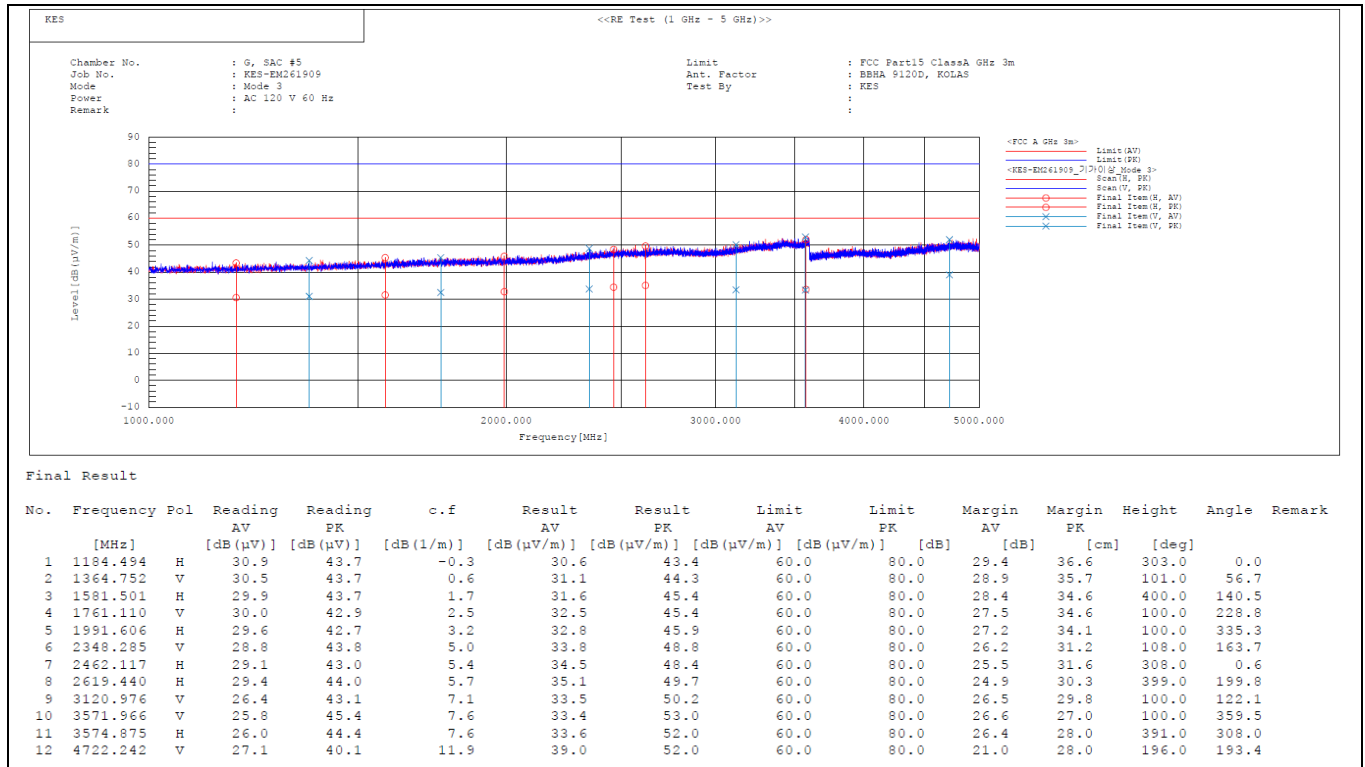
※ No spurious emission were detected above 11 GHz



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- Test Date : 2026-07-03
- Test Mode : Mode 3



- ※ The data is the result of measured by the detector in PK and CISPR Average on the Peak graph.
- ※ The Average of the test data is the cispr average result.

6.2.6 Remark

Complies with the test requirements.

Mode 1 : (1 878, 1 959) MHz (Exclusion band)

Mode 2 : (1 733, 2 131) MHz (Exclusion band)

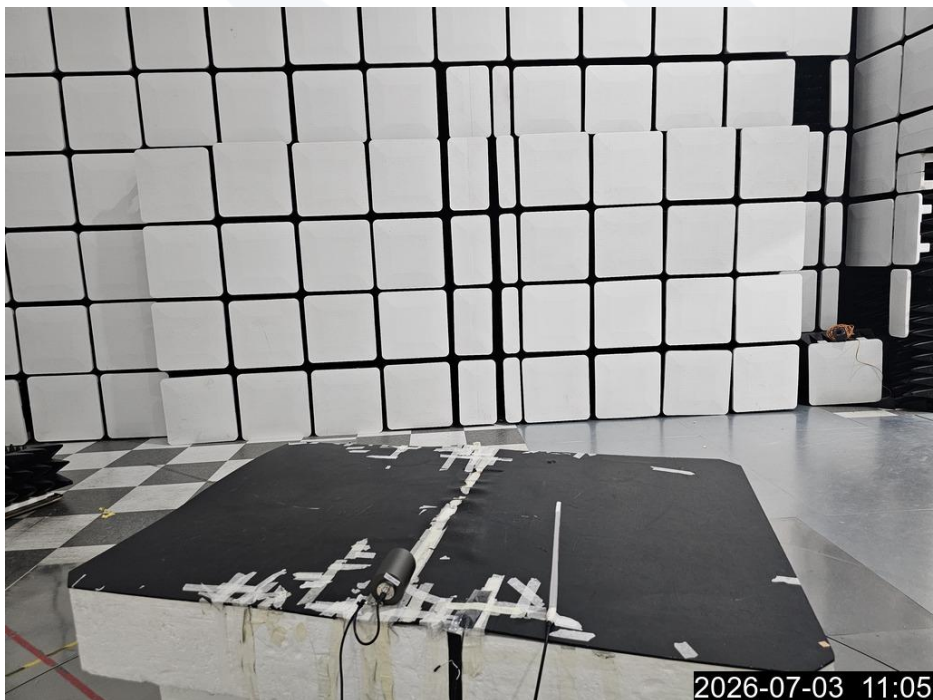


7 Test Setup Photos and EUT Photographs

7.1 Test Setup Photos



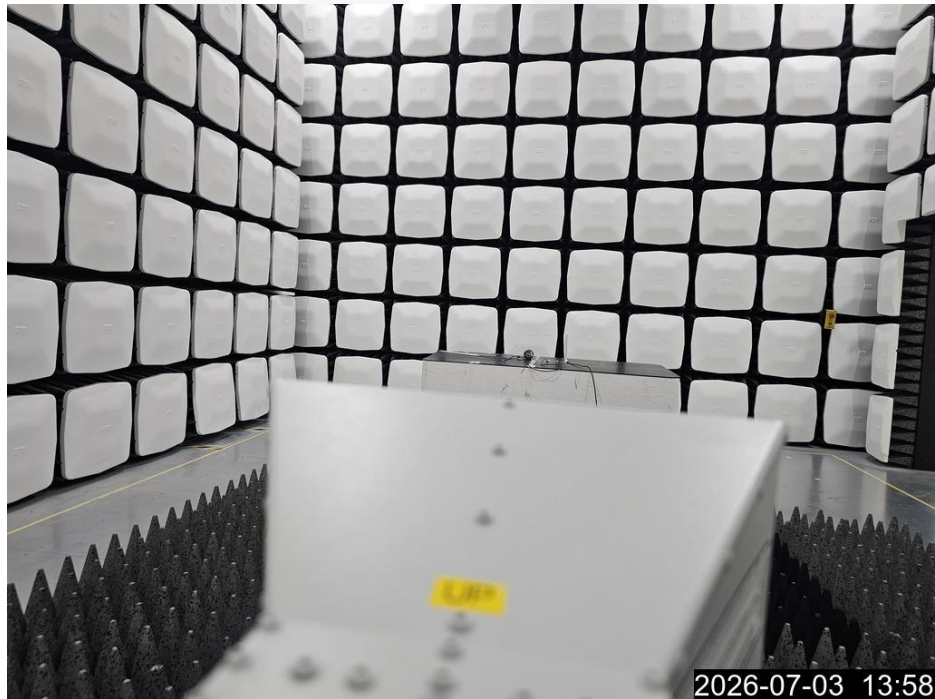
<Radiated Emissions(Below 1 GHz) - Front>



<Radiated Emissions(Below 1 GHz) - Rear>



<Radiated Emissions(Above 1 GHz) - Front>



<Radiated Emissions(Above 1 GHz) - Rear>

The End.