RF MEASUREMENT REPORT

FCC ID:	2BGFA-TFW5-ADS27
Applicant:	Shenzhen Quansheng Technology Co. Ltd
Product:	Microwave sensor
Model No.:	TFW5-ADS27
FCC Classification:	Part 15 Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s):	Part 15.249
Result:	Complies
Received Date:	2024-04-26
Test Date:	2024-05-04 ~ 2024-05-08

Reviewed By: Vincent Yu

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY CERTIFICATE #3628.01

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2404RSU015-U1	V01	Initial Report	2024-05-15	Valid

CONTENTS

Description Page

1. General Information 5

1.1. Applicant 5

1.2. Manufacturer 5

1.3. Testing Facility 5

1.4. Product Information 6

1.5. Radio Specification 6

2. Test Configuration 7

2.1. Test Mode 7

2.2. Test System Connection Diagram 7

2.3. Applied Standards 7

2.4. Test Environment Condition 8

3. Antenna Requirements 9

4. Measuring Instrument 10

5. Decision Rules and Measurement Uncertainty 11

5.1. Decision Rules 11

5.2. Measurement Uncertainty 11

6. Test Result 12

6.1. Summary 12

6.2. AC Conducted Emissions Measurement 13

6.2.1. Test Limit 13

6.2.2. Test Setup 13

6.2.3. Test Result 13

6.3. Radiated Emission 14

6.3.1. Test Limit 14

6.3.2. Test Procedure 15

6.3.3. Test Setting 15

6.3.4. Test Setup 18

6.3.5. Test Result 20

6.4. Radiated Restricted Band Edge Measurement 21

6.4.1. Test Limit 21

6.4.2. Test Procedure 22

6.4.3. Test Setting 22

6.4.4. Test Setup 23

6.4.5. Test Result 23

6.5. 20dB Spectrum Bandwidth Measurement 24

6.5.1. Test Limit 24

6.5.2. Test Procedure 24

6.5.3. Test Setting 24
6.5.4. Test Setup 25
6.5.5. Test Result 25
Appendix A - Test Result 26
A.1 Fundamental & Radiated Emission Test Result 26
A.2 Radiated Restricted Band Edge Test Result 33
A.3 20dB Bandwidth Test Result 45
Appendix B - Test Setup Photograph 46
Appendix C - EUT Photograph 47

1. General Information

1.1. Applicant

Shenzhen Quansheng Technology Co. Ltd

202, Building P, 163 Banxuegang Avenue, Gangtou Community, Bantian Street, Longgang District

1.2. Manufacturer

Shenzhen Quansheng Technology Co. Ltd

202, Building P, 163 Banxuegang Avenue, Gangtou Community, Bantian Street, Longgang District

1.3. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: 3261				
	FCC: 291082, TW3261		ISED: TW3261		

1.4. Product Information

Product	Microwave sensor
Model No.	TFW5-ADS27
EUT Identification No.	20240426Sample#02(Low Channel) 20240429Sample#02(Middle Channel) 20240426Sample#03(High Channel)
Wireless Specification	24.00~24.25GHz
Antenna Information	Refer to section 1.5
Operating Temperature	-20~60°C
Power Type	4.75 ~ 5.25VDC (Nominal 5VDC)

Notes:

1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.
2. This device will actually support multiple frequencies. In this report, only the lowest frequency, the middle frequency and the highest frequency under the maximum bandwidth range were selected for testing.

1.5. Radio Specification

Working Frequency Range	24.00~24.25GHz
Modulation type	FSK
Antenna Type	PCB Antenna

2. Test Configuration

2.1. Test Mode

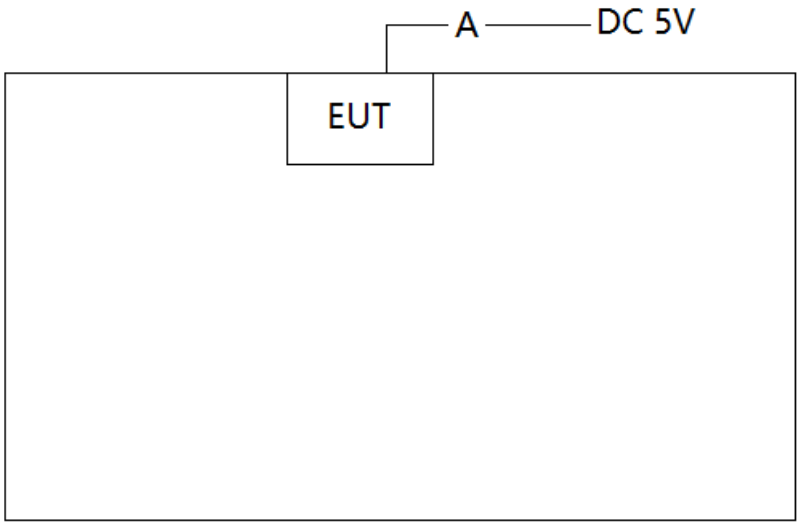
Mode 1: Transmit at low channel.
Mode 2: Transmit at middle channel.
Mode 3: Transmit at high channel.

Note: The test sample was provided by the manufacturer, which was configured into Collocated T_X/R_X mode after power on.

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram



Cable Type		Cable Description	Length
A	Coaxial Cable	Non-Shielding	0.5m

2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.249
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of the device is **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

This unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2024-12-17	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2024-10-09	SIP-AC2
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2025-01-27	SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE07028	1 year	2024-10-23	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06598	1 year	2024-11-04	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06601	1 year	2024-11-02	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2024-11-03	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2024-06-17	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2024-12-21	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2024-10-21	SIP-AC2
Waveguide Harmonic Mixer	Keysight	M1970V	MRTSUE06271	3 years	2025-09-22	SIP-TR2
Waveguide Harmonic Mixer	Keysight	M1970W	MRTSUE06272	3 years	2025-09-29	SIP-TR2
mmWave Antenna	MI-WWAVE	261U-25/383	MRTSUE06273	N/A	N/A	SIP-TR2
mmWave Antenna	A-INFO	LB-15-25-A	MRTSUE06409	N/A	N/A	SIP-TR2
mmWave Antenna	A-INFO	LB-10-25-A	MRTSUE06410	N/A	N/A	SIP-TR2
Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2024-06-29	SIP-TR2
Thermohygrometer	testo	608-H1	MRTSUE11109	1 year	2025-03-05	SIP-TR2

Note 1: Standard gain horns need not be periodically calibrated. Antenna appearance and connector were checked and no damage.

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & turntable
MotorContor	V 2	mmw

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Radiated Emission Measurement	
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):	
Coaxial:	9kHz~30MHz: 2.61dB
Coplanar:	9kHz~30MHz: 2.62dB
Horizontal:	30MHz~200MHz: 3.79dB
	200MHz~1GHz: 3.91dB
	1GHz~40GHz: 4.99dB
	40GHz~50GHz: 3.96dB
	50GHz~75GHz: 4.01dB
	75GHz~110GHz: 3.99dB
Vertical:	30MHz~200MHz: 4.06dB
	200MHz~1GHz: 5.21dB
	1GHz~40GHz: 4.90dB
	40GHz~50GHz: 3.86dB
	50GHz~75GHz: 3.89dB
	75GHz~110GHz: 3.87dB

6. Test Result

6.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Verdict
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	N/A
15.209 15.249	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Radiated	Pass
15.215(c)	20dB Spectrum Bandwidth	Radiated	Pass

Notes:

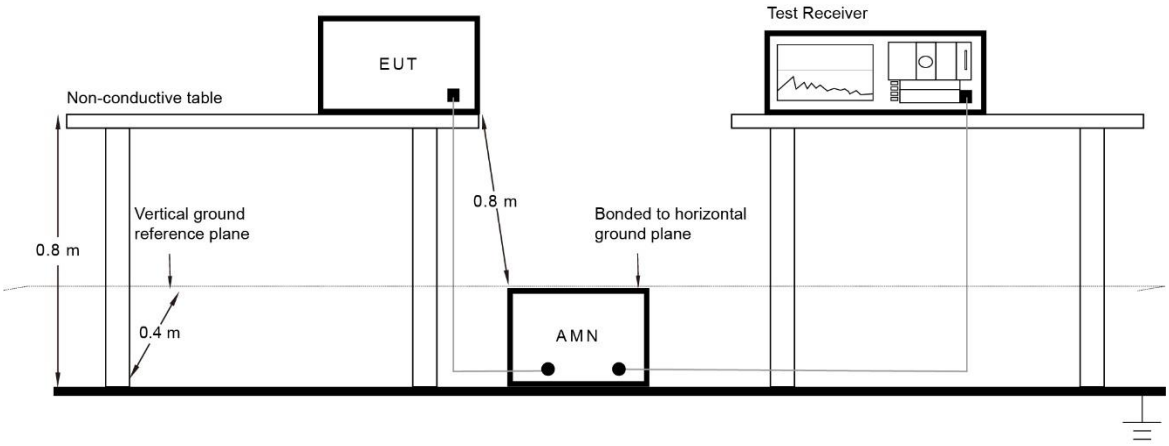
1. The radiation measurements are performed in X, Y, Z axis positioning. The test results shown in the following sections represent the worst-case emissions.
2. The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3. “N/A” means that this item is not applicable, and the detail information refer to relevant section.

6.2. AC Conducted Emissions Measurement

6.2.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBμV)	Average (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.2.2.Test Setup



6.2.3.Test Result

The EUT is powered by DC power supply, so this requirement does not apply.

6.3. Radiated Emission

6.3.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902 ~ 928	50	500
2400 ~ 2483.5	50	500
5725 ~ 5875	50	500
24000 ~ 24250	250	2500
Note: FCC Part 15.249 (d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.		

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBμV/m) = 20 log E field strength (μV/m).		

6.3.2.Test Procedure

ANSI C63.10-2013 Section 6.3

ANSI C63.10-2013 Section 6.4

ANSI C63.10-2013 Section 6.5

ANSI C63.10-2013 Section 6.6

ANSI C63.10-2013 Section 9.12

Note: Far-field boundary calculation as below.

According to ANSI C63.10-2013, Clause 9, All measurements shall be made in the far-field of the measurement antenna. The far-field boundary for mm-wave antennas is $2D^2/\lambda$.

- For spurious and harmonic emissions testing, D is the largest antenna dimension of the measurement antenna in m;

  For fundamental or out-of-band emissions, D is the largest antenna dimension of the EUT antenna or measurement antenna, whichever is largest.
- λ is the wavelength in m.

Far-field boundary calculation			
Frequency Range (GHz)	λ (m)	D (m)	$R_{(Far\ Field)}$ (m)
24.00 ~ 24.25	0.012	0.096	1.536
40.00 ~ 50.00	0.006	0.046	0.705
50.00 ~ 75.00	0.004	0.036	0.648
75.00 ~ 100.00	0.0027	0.026	0.501

For 24.00 ~ 24.25GHz, The measurement is performed at a minimum distance of 3.0m > $R_{(Far\ Field)}$.

For 40.00 ~ 50.00GHz, The measurement is performed at a minimum distance of 1.0m > $R_{(Far\ Field)}$.

For 50.00 ~ 100.00GHz, The measurement is performed at a minimum distance of 0.7m > $R_{(Far\ Field)}$.

6.3.3.Test Setting

Measurement of harmonic and spurious emissions above 40 GHz

1. Connect the test antenna covering the appropriate frequency range to a spectrum analyzer via an external mixer.
2. Set spectrum analyzer RBW = 1MHz, VBW = 3MHz, peak & average detector.
3. Maximize all observed emissions. Note the maximum power indicated on the spectrum analyzer. Adjust this reading, if necessary, by the conversion loss of the external mixer used at the frequency under investigation and the external mixer IF cable loss.

4. Calculate the maximum field strength of the emission at the measurement distance.

5. Calculate the power density at the distance specified by the limit from the field strength at the distance specified by the limit.

6. Repeat the preceding sequence for every emission observed in the frequency band under investigation.

Measurement of harmonic and spurious emissions below 40 GHz

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3 x RBW
4. Detector = Peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

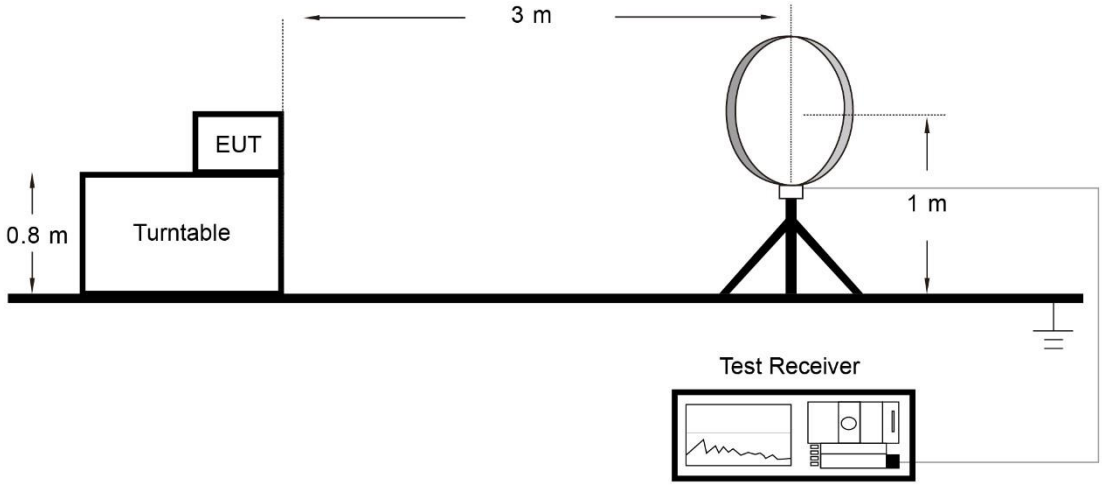
Frequency	RBW
9 ~ 150 kHz	200 Hz
0.15 ~ 30 MHz	9 kHz
30 ~ 1000 MHz	120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

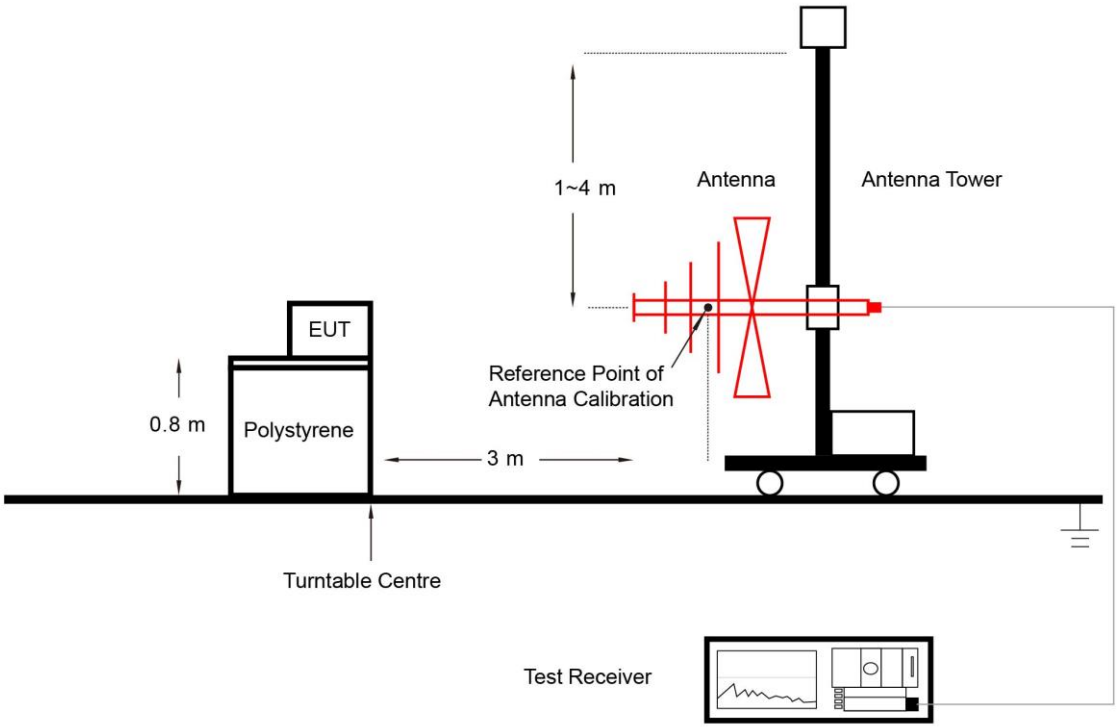
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. Set the VBW ≥ 3 × RBW
4. Detector function = Average
5. Sweep time = auto couple
6. Trace mode = Max Hold
7. Allow max hold to run for suitable traces until the trace tend to stabilize.

6.3.4.Test Setup

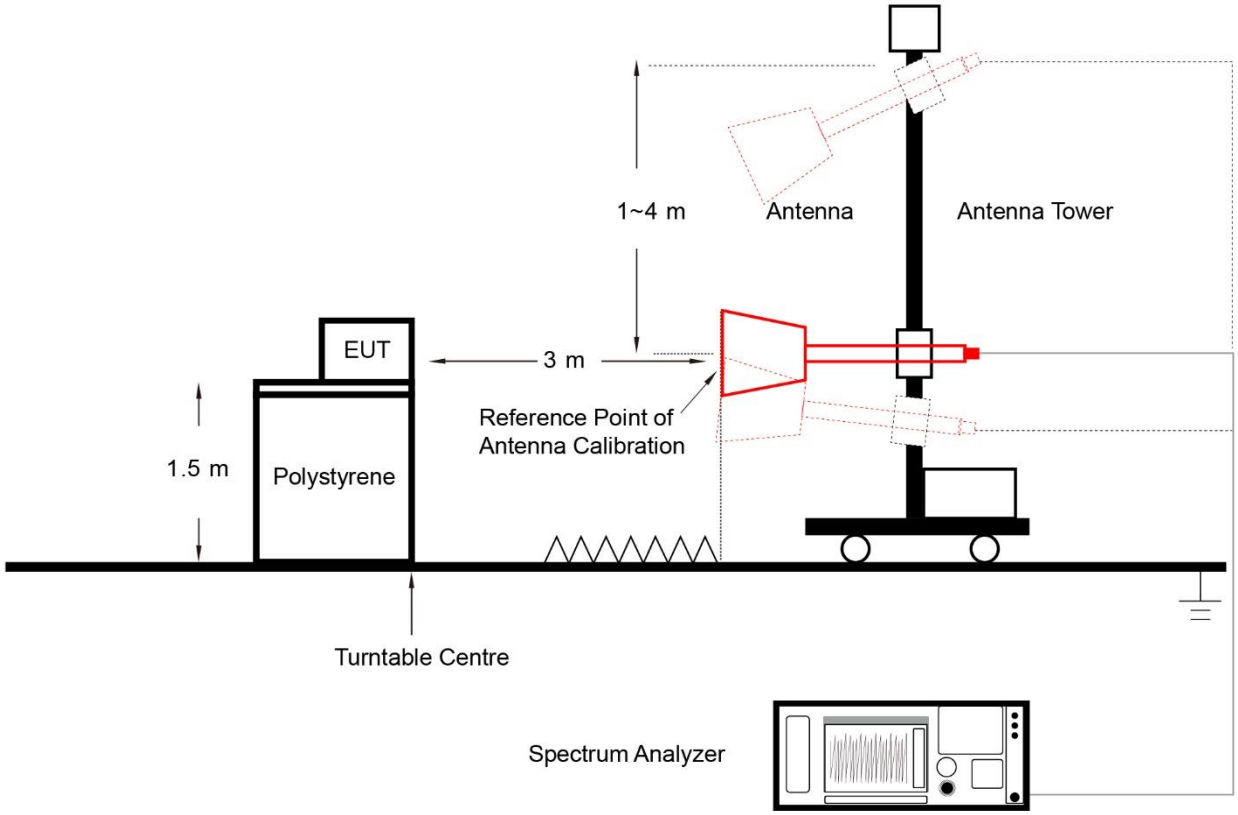
Below 30MHz Test Setup:



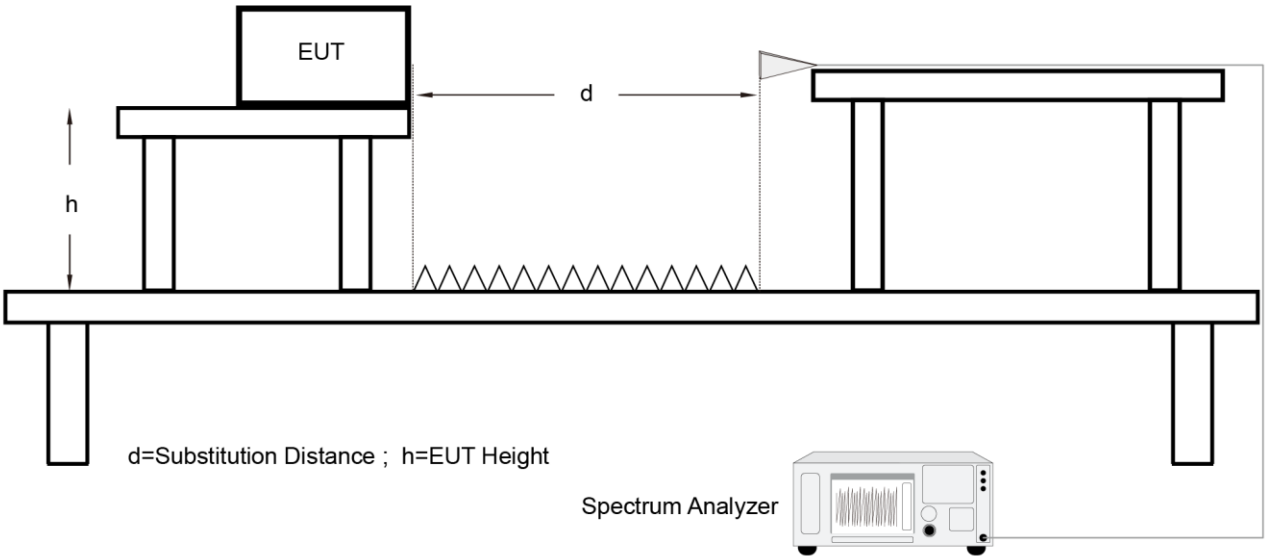
Below 1GHz Test Setup:



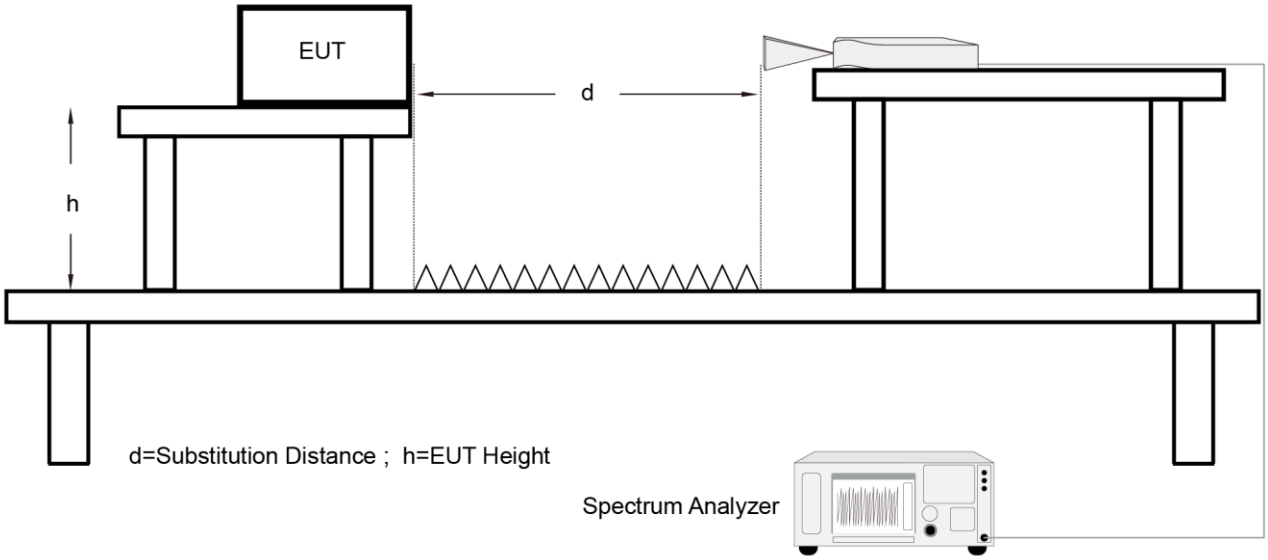
1GHz ~ 40GHz Test Setup:



40GHz ~ 50GHz Test Setup:



Above 50GHz Test Setup:



6.3.5.Test Result

Refer to Appendix A.1.

6.4. Radiated Restricted Band Edge Measurement

6.4.1.Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1] 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 – 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41	--	--	--

[1] Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.

[2] Above 38.6

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [μV/m]	Measured Distance [Meter]
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

6.4.2.Test Procedure

ANSI C63.10-2013 Section 6.3

ANSI C63.10-2013 Section 6.6

ANSI C63.10-2013 Section 6.10

6.4.3.Test Setting

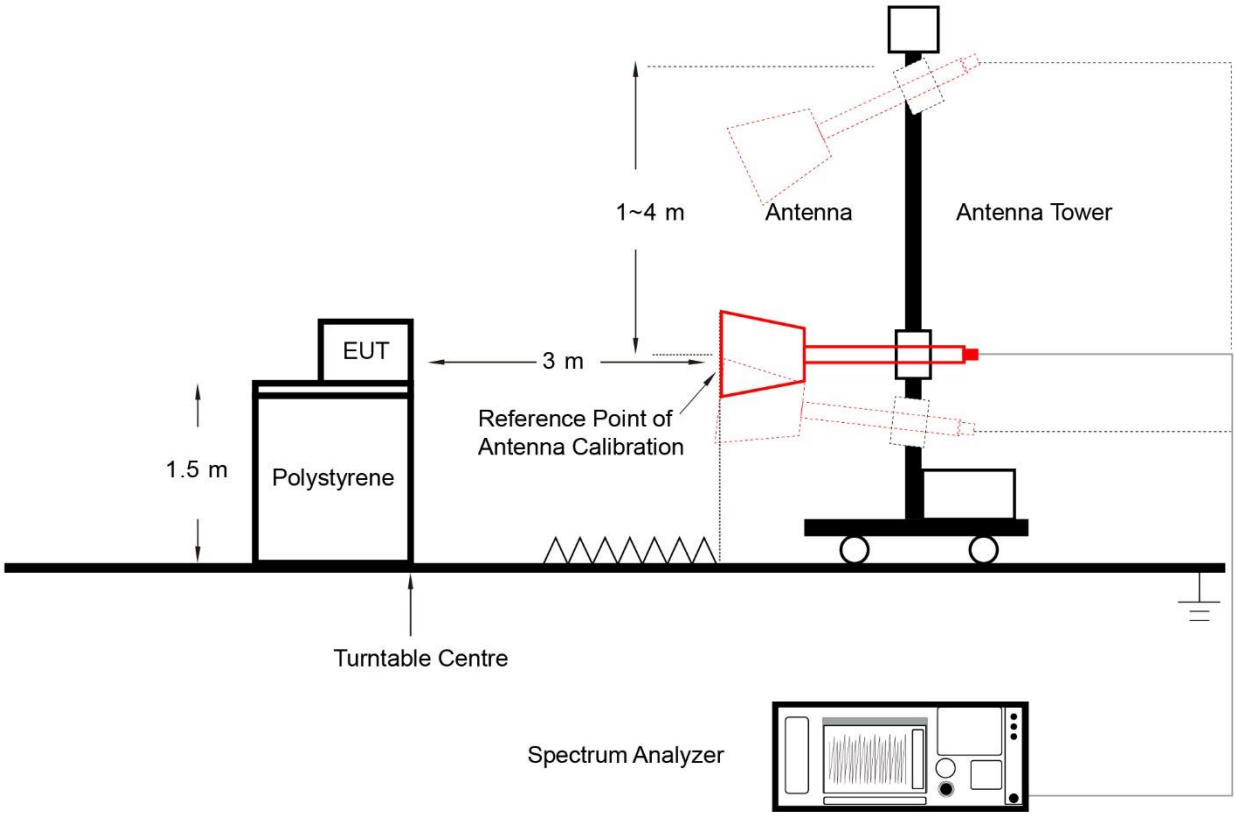
Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. Set the VBW ≥ 3 × RBW
4. Detector function = Average
5. Sweep time ≥ (number of points in sweep) × (transmission symbol period).
6. Trace mode = Average
7. Allow max hold to run for suitable traces until the trace tend to stabilize.

6.4.4.Test Setup



6.4.5.Test Result

Refer to Appendix A.2.

6.5. 20dB Spectrum Bandwidth Measurement

6.5.1.Test Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission in the specific band.

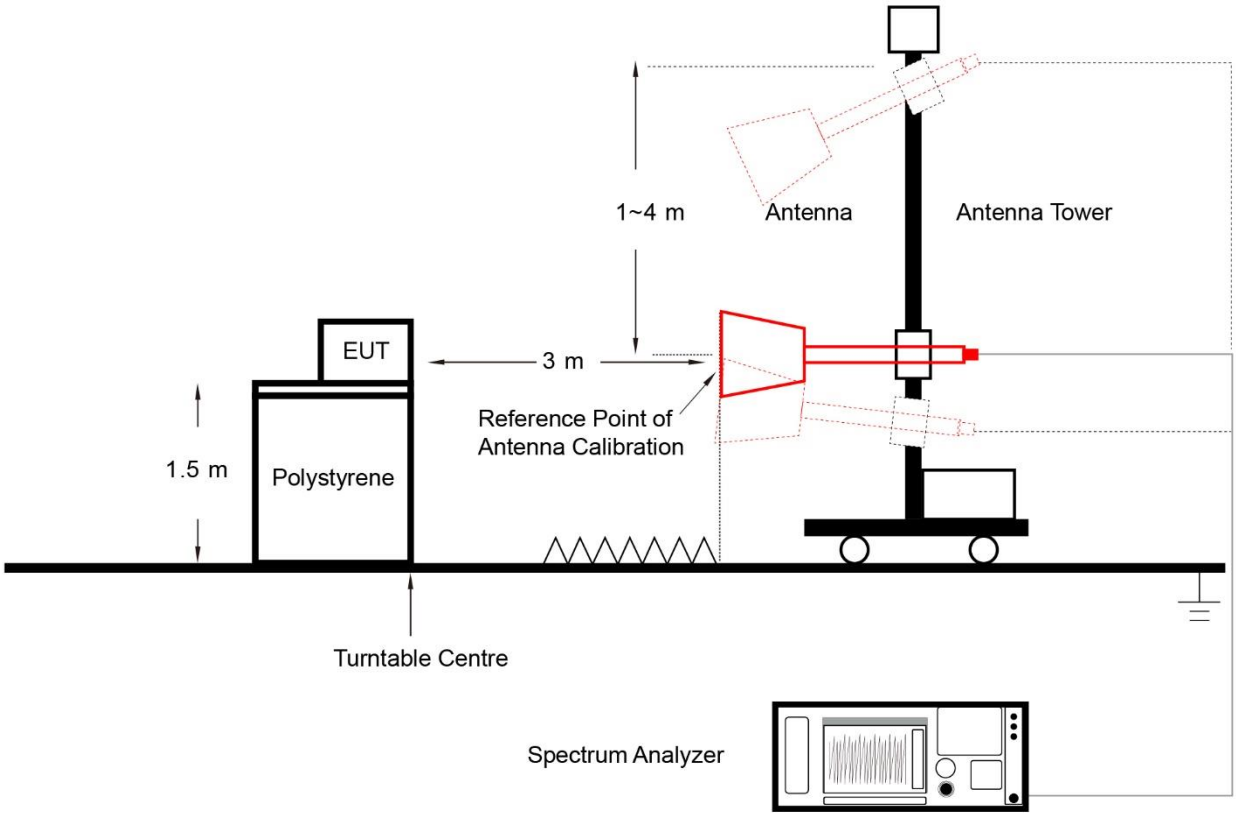
6.5.2.Test Procedure

ANSI C63.10-2013 Clause 6.9.2

6.5.3.Test Setting

1. Set the spectrum span range to overlap the nominal center frequency
2. Set RBW = 1% ~ 5% of the OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize and marker the highest level
8. Use Occupied BW function to determine two frequencies, one at the lowest frequency and the other at the highest frequency

6.5.4.Test Setup



6.5.5.Test Result

Refer to Appendix A.3.

Appendix A - Test Result

A.1 Fundamental & Radiated Emission Test Result

Test Site	SIP-AC2	Test Date	2024-05-04
Test Engineer	Arvin Ding		

Test Mode	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level@3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Result
Fundamental Radiated Emission (Horizontal)								
Mode 1	24046.039	107.113	-8.520	98.593	127.960	-29.367	Peak	Pass
	24045.961	101.765	-8.521	93.244	107.960	-14.716	Average	Pass
Mode 2	24115.631	105.588	-8.495	97.093	127.960	-30.867	Peak	Pass
	24115.561	100.087	-8.494	91.592	107.960	-16.368	Average	Pass
Mode 3	24233.439	105.111	-8.394	96.716	127.960	-31.244	Peak	Pass
	24233.381	98.592	-8.394	90.197	107.960	-17.763	Average	Pass
Fundamental Radiated Emission (Vertical)								
Mode 1	24046.199	115.730	-8.518	107.212	127.960	-20.748	Peak	Pass
	24045.881	110.594	-8.523	102.072	107.960	-5.888	Average	Pass
Mode 2	24115.631	115.461	-8.495	106.966	127.960	-20.994	Peak	Pass
	24115.631	109.858	-8.495	101.363	107.960	-6.597	Average	Pass
Mode 3	24233.439	114.500	-8.394	106.105	127.960	-21.855	Peak	Pass
	24233.320	107.765	-8.394	99.370	107.960	-8.590	Average	Pass

Note:

Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Arvin Ding
Test Date	2024-05-04	Test Frequency Range	Below 1GHz

Test Mode	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Mode 1	40.670	-5.365	17.887	12.522	40.0	-27.478	Quasi-Peak	Horizontal
	51.825	-6.540	18.408	11.868	40.0	-28.132	Quasi-Peak	Horizontal
	158.040	-5.754	18.219	12.464	43.5	-31.036	Quasi-Peak	Horizontal
	485.900	-4.021	23.636	19.614	46.0	-26.386	Quasi-Peak	Horizontal
	722.580	-3.624	28.085	24.461	46.0	-21.539	Quasi-Peak	Horizontal
	870.990	-3.924	30.282	26.358	46.0	-19.642	Quasi-Peak	Horizontal
	34.365	-4.213	17.029	12.816	40.0	-27.184	Quasi-Peak	Vertical
	50.855	-4.862	18.443	13.581	40.0	-26.419	Quasi-Peak	Vertical
	152.220	-4.658	18.242	13.584	43.5	-29.916	Quasi-Peak	Vertical
	426.730	-4.287	21.991	17.704	46.0	-28.296	Quasi-Peak	Vertical
	656.620	-3.965	26.457	22.492	46.0	-23.508	Quasi-Peak	Vertical
	881.175	-3.056	30.164	27.108	46.0	-18.892	Quasi-Peak	Vertical
Mode 2	39.215	-4.365	17.574	13.209	40.0	-26.791	Quasi-Peak	Horizontal
	52.795	-5.964	18.368	12.403	40.0	-27.597	Quasi-Peak	Horizontal
	151.250	-4.265	18.182	13.917	43.5	-29.583	Quasi-Peak	Horizontal
	612.485	-3.612	26.814	23.202	46.0	-22.798	Quasi-Peak	Horizontal
	754.590	-3.214	28.931	25.717	46.0	-20.283	Quasi-Peak	Horizontal
	893.785	-4.021	30.126	26.105	46.0	-19.895	Quasi-Peak	Horizontal
	55.705	-4.965	18.165	13.200	40.0	-26.800	Quasi-Peak	Vertical
	147.370	-4.387	18.096	13.709	43.5	-29.791	Quasi-Peak	Vertical
	439.340	-3.687	22.483	18.796	46.0	-27.204	Quasi-Peak	Vertical
	610.545	-4.278	26.681	22.403	46.0	-23.597	Quasi-Peak	Vertical
	753.135	-4.021	28.942	24.921	46.0	-21.079	Quasi-Peak	Vertical
	892.815	-4.657	30.127	25.470	46.0	-20.530	Quasi-Peak	Vertical
Mode 3	40.185	-5.658	17.810	12.152	40.0	-27.848	Quasi-Peak	Horizontal
	55.705	-5.021	18.165	13.144	40.0	-26.856	Quasi-Peak	Horizontal
	151.250	-5.357	18.182	12.825	43.5	-30.675	Quasi-Peak	Horizontal
	467.470	-4.021	23.061	19.040	46.0	-26.960	Quasi-Peak	Horizontal
	725.975	-4.102	28.140	24.038	46.0	-21.962	Quasi-Peak	Horizontal
	944.710	-4.365	30.279	25.914	46.0	-20.086	Quasi-Peak	Horizontal
	43.095	-4.365	18.140	13.775	40.0	-26.225	Quasi-Peak	Vertical

	56.190	-5.876	18.120	12.244	40.0	-27.756	Quasi-Peak	Vertical
	155.130	-4.358	18.292	13.934	43.5	-29.566	Quasi-Peak	Vertical
	427.215	-3.875	22.009	18.134	46.0	-27.866	Quasi-Peak	Vertical
	617.335	-4.765	27.027	22.263	46.0	-23.737	Quasi-Peak	Vertical
	879.235	-4.368	30.199	25.831	46.0	-20.169	Quasi-Peak	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

2. The amplitude of radiated emissions (frequency range from 9KHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Test Site	SIP-AC2	Test Engineer	Arvin Ding
Test Date	2024-05-04	Test Frequency Range	1 ~ 40 GHz

Test Mode	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Mode 1	2462.000	59.342	-13.526	45.817	74.0	-28.183	Peak	Horizontal
	14430.000	40.362	9.489	49.851	74.0	-24.149	Peak	Horizontal
	17974.500	40.152	15.795	55.948	74.0	-18.052	Peak	Horizontal
	17974.500	27.160	15.795	42.956	54.0	-11.044	Average	Horizontal
	2462.000	62.891	-13.526	49.366	74.0	-24.634	Peak	Vertical
	14370.500	41.311	8.773	50.083	74.0	-23.917	Peak	Vertical
	18000.000	39.639	16.670	56.309	74.0	-17.691	Peak	Vertical
	18000.000	27.220	16.670	43.890	54.0	-10.110	Average	Vertical
	22928.000	58.938	-8.702	50.236	74.0	-23.764	Peak	Horizontal
	30672.000	59.349	-8.854	50.495	74.0	-23.505	Peak	Horizontal
	39516.000	56.585	-0.856	55.729	74.0	-18.271	Peak	Horizontal
	39516.000	43.690	-0.856	42.834	54.0	-11.166	Average	Horizontal
	26613.000	58.026	-9.091	48.936	74.0	-25.064	Peak	Vertical
	29836.000	58.723	-8.802	49.921	74.0	-24.079	Peak	Vertical
	39054.000	56.895	-0.446	56.449	74.0	-17.551	Peak	Vertical
	39054.000	44.550	-0.446	44.104	54.0	-9.896	Average	Vertical
Mode 2	2470.500	59.980	-13.533	46.448	74.0	-27.552	Peak	Horizontal
	14353.500	42.743	8.847	51.590	74.0	-22.410	Peak	Horizontal
	14353.500	30.930	8.847	39.777	54.0	-14.223	Average	Horizontal
	17923.500	39.652	16.559	56.211	74.0	-17.789	Peak	Horizontal
	17923.500	26.410	16.559	42.969	54.0	-11.031	Average	Horizontal
	2436.500	60.554	-13.792	46.762	74.0	-27.238	Peak	Vertical
	14370.500	41.090	8.773	49.862	74.0	-24.138	Peak	Vertical
	17991.500	39.804	16.313	56.117	74.0	-17.883	Peak	Vertical
	17991.500	26.960	16.313	43.273	54.0	-10.727	Average	Vertical
	26976.000	57.864	-8.528	49.336	74.0	-24.664	Peak	Horizontal
	30397.000	59.299	-8.554	50.745	74.0	-23.255	Peak	Horizontal
	39241.000	55.813	0.274	56.088	74.0	-17.912	Peak	Horizontal
	39241.000	43.750	0.274	44.025	54.0	-9.975	Average	Horizontal
	26822.000	58.369	-8.830	49.539	74.0	-24.461	Peak	Vertical
	31948.000	60.641	-10.056	50.585	74.0	-23.415	Peak	Vertical

	39263.000	55.946	0.407	56.352	74.0	-17.648	Peak	Vertical
	39263.000	43.920	0.407	44.327	54.0	-9.673	Average	Vertical
Mode 3	2462.000	62.730	-13.526	49.205	74.0	-24.795	Peak	Horizontal
	11149.000	43.481	5.134	48.615	74.0	-25.385	Peak	Horizontal
	17915.000	39.732	16.937	56.669	74.0	-17.331	Peak	Horizontal
	17915.000	25.730	16.937	42.667	54.0	-11.333	Average	Horizontal
	2462.000	61.705	-13.526	48.180	74.0	-25.820	Peak	Vertical
	11701.500	43.953	4.870	48.823	74.0	-25.177	Peak	Vertical
	17991.500	39.901	16.313	56.214	74.0	-17.786	Peak	Vertical
	17991.500	26.960	16.313	43.273	54.0	-10.727	Average	Vertical
	26756.000	57.825	-8.617	49.208	74.0	-24.792	Peak	Horizontal
	30650.000	58.853	-8.324	50.529	74.0	-23.471	Peak	Horizontal
	39395.000	56.634	-0.674	55.960	74.0	-18.040	Peak	Horizontal
	39395.000	44.460	-0.674	43.786	54.0	-10.214	Average	Horizontal
	28208.000	58.914	-9.289	49.625	74.0	-24.375	Peak	Vertical
	33026.000	60.347	-9.811	50.536	74.0	-23.464	Peak	Vertical
	39252.000	54.848	0.928	55.776	74.0	-18.224	Peak	Vertical
	39252.000	43.800	0.928	44.728	54.0	-9.272	Average	Vertical

Notes:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

2. Average measurement was not performed when the peak level lower than average limit

Test Site	SIP-TR2	Test Engineer	Chase Zhu
Test Date	2024-05-06~2024-05-08	Test Frequency Range	Above 40 GHz

Test Mode	Frequency (GHz)	Reading Level@ 1m&0.7m (dBμV)	Factor (dB/m)	Measure Level@ 1m&0.7m (dBμV/m)	Measure Level@3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Mode 1	48.086	34.490	46.140	80.630	71.088	88.0	-16.912	Peak	Horizontal
	48.056	25.802	46.140	71.942	62.400	68.0	-5.600	Average	Horizontal
	48.060	33.800	46.140	79.940	70.398	88.0	-17.602	Peak	Vertical
	48.081	24.577	46.140	70.717	61.175	68.0	-6.825	Average	Vertical
	72.121	71.910	8.570	80.480	67.840	88.0	-20.160	Peak	Horizontal
	72.120	62.903	8.570	71.473	58.833	68.0	-9.167	Average	Horizontal
	72.089	74.560	8.570	83.130	70.490	88.0	-17.510	Peak	Vertical
	72.088	65.288	8.570	73.858	61.218	68.0	-6.782	Average	Vertical
	96.233	33.820	44.470	78.290	65.650	88.0	-22.350	Peak	Horizontal
	96.269	30.400	44.470	74.870	62.230	68.0	-5.770	Average	Horizontal
	96.277	32.640	44.470	77.110	64.470	88.0	-23.530	Peak	Vertical
	96.295	30.330	44.470	74.800	62.160	68.0	-5.840	Average	Vertical
Mode 2	48.226	33.180	46.040	79.220	69.678	88.0	-18.322	Peak	Horizontal
	48.227	24.313	46.040	70.353	60.811	68.0	-7.189	Average	Horizontal
	48.207	30.260	46.040	76.300	66.758	88.0	-21.242	Peak	Vertical
	48.210	23.025	46.040	69.065	59.523	68.0	-8.477	Average	Vertical
	72.341	77.320	8.610	85.930	73.290	88.0	-14.710	Peak	Horizontal
	72.340	67.888	8.610	76.498	63.858	68.0	-4.142	Average	Horizontal
	72.339	70.520	8.610	79.130	66.490	88.0	-21.510	Peak	Vertical
	72.338	60.585	8.610	69.195	56.555	68.0	-11.445	Average	Vertical
	96.542	33.640	44.500	78.140	65.500	88.0	-22.500	Peak	Horizontal
	96.538	30.140	44.500	74.640	62.000	68.0	-6.000	Average	Horizontal
	96.625	32.400	44.500	76.900	64.260	88.0	-23.740	Peak	Vertical
	96.584	29.460	44.500	73.960	61.320	68.0	-6.680	Average	Vertical
Mode 3	48.457	30.510	45.590	76.100	66.558	88.0	-21.442	Peak	Horizontal
	48.456	23.756	45.590	69.346	59.804	68.0	-8.196	Average	Horizontal
	48.455	30.140	45.590	75.730	66.188	88.0	-21.812	Peak	Vertical
	48.430	21.260	45.590	66.850	57.308	68.0	-10.692	Average	Vertical
	72.692	74.230	8.640	82.870	70.230	88.0	-17.770	Peak	Horizontal
	72.692	61.817	8.640	70.457	57.817	68.0	-10.183	Average	Horizontal

	72.691	77.780	8.640	86.420	73.780	88.0	-14.220	Peak	Vertical
	72.689	65.224	8.640	73.864	61.224	68.0	-6.776	Average	Vertical
	97.037	33.060	44.500	77.560	64.920	88.0	-23.080	Peak	Horizontal
	97.039	30.900	44.500	75.400	62.760	68.0	-5.240	Average	Horizontal
	96.981	34.060	44.500	78.560	65.920	88.0	-22.080	Peak	Vertical
	96.982	31.040	44.500	75.540	62.900	68.0	-5.100	Average	Vertical

Notes:

1. For Emission between 40GHz and 50GHz:

   Measure Level @1.0m (dBμV/m) = Reading Level @1.0m (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

   For Emission between 50GHz and 75GHz:

   Measure Level @0.7m (dBμV/m) = Reading Level @0.7m (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

   For Emission between 75GHz and 100GHz:

   Measure Level @0.7m (dBμV/m) = Reading Level @0.7m (dBμV) + Factor (dB/m)

   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

2. For Emission between 40GHz and 50GHz:

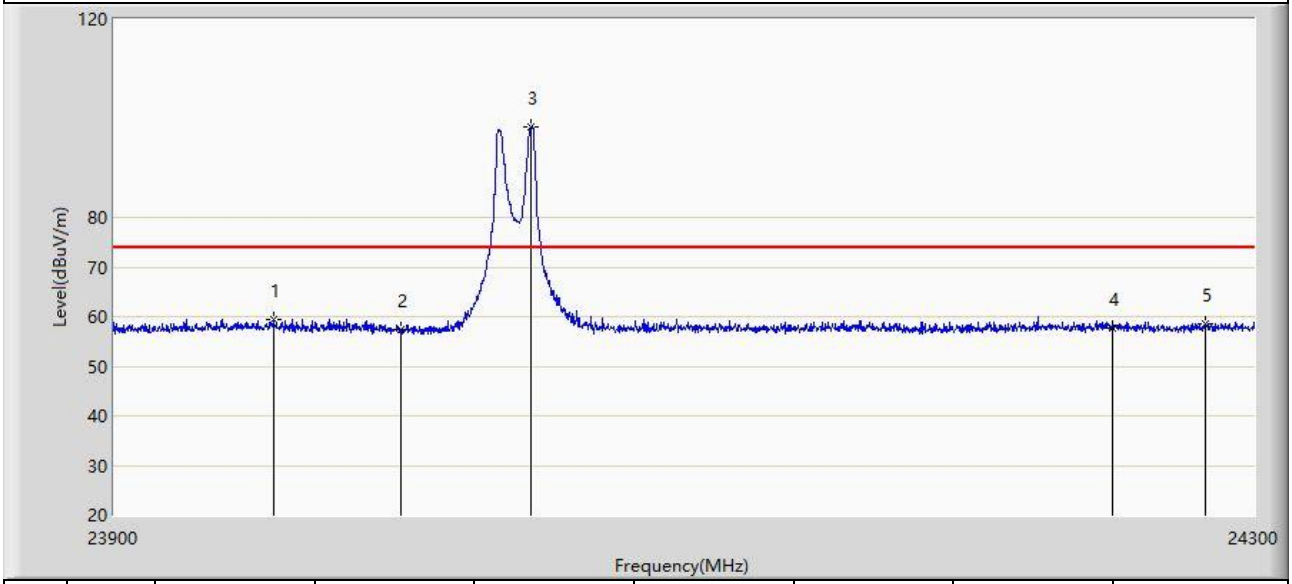
   Measure Level @3m = Measure Level @1.0m + 20 * log(1m / 3m)

   For Emission between 50GHz and 100GHz:

   Measure Level @3m = Measure Level @0.7m + 20 * log(0.7m / 3m)

A.2 Radiated Restricted Band Edge Test Result

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Horizontal
EUT: Microwave sensor	Power: By DC 5V
Test Mode 1	



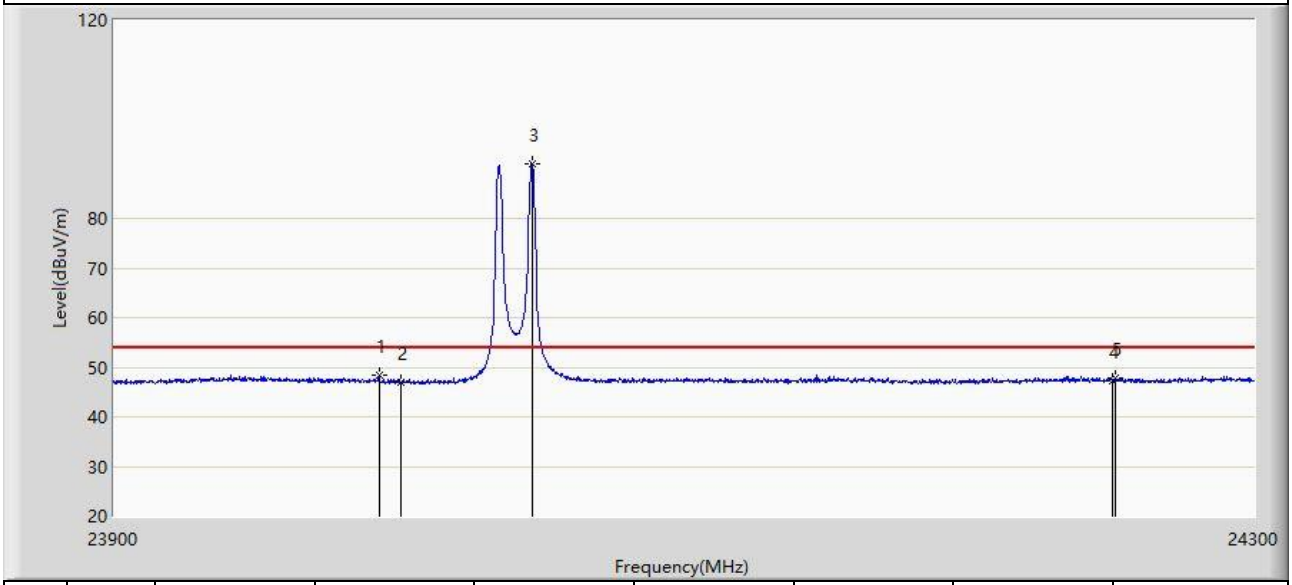
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23955.600	59.446	67.682	-14.554	74.000	-8.237	PK
2		24000.000	57.525	66.153	-16.475	74.000	-8.627	PK
3		24045.801	98.211	106.735	N/A	N/A	-8.524	PK
4		24250.000	57.619	66.010	-16.381	74.000	-8.391	PK
5		24282.600	58.533	66.901	-15.467	74.000	-8.369	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Horizontal
EUT: Microwave sensor	Power: By DC 5V
Test Mode 1	



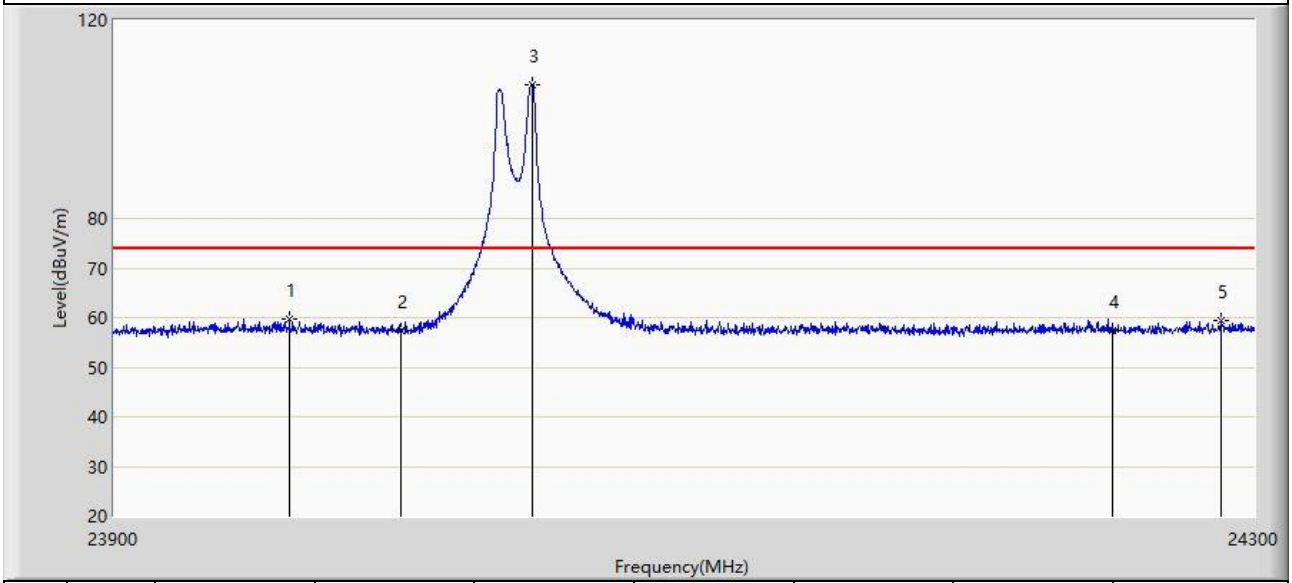
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23992.400	48.281	56.816	-5.719	54.000	-8.535	AV
2		24000.000	47.090	55.718	-6.910	54.000	-8.627	AV
3		24046.000	91.114	99.635	N/A	N/A	-8.521	AV
4		24250.000	47.247	55.638	-6.753	54.000	-8.391	AV
5		24251.199	47.937	56.338	-6.063	54.000	-8.401	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Vertical
EUT: Microwave sensor	Power: By DC 5V
Test Mode 1	



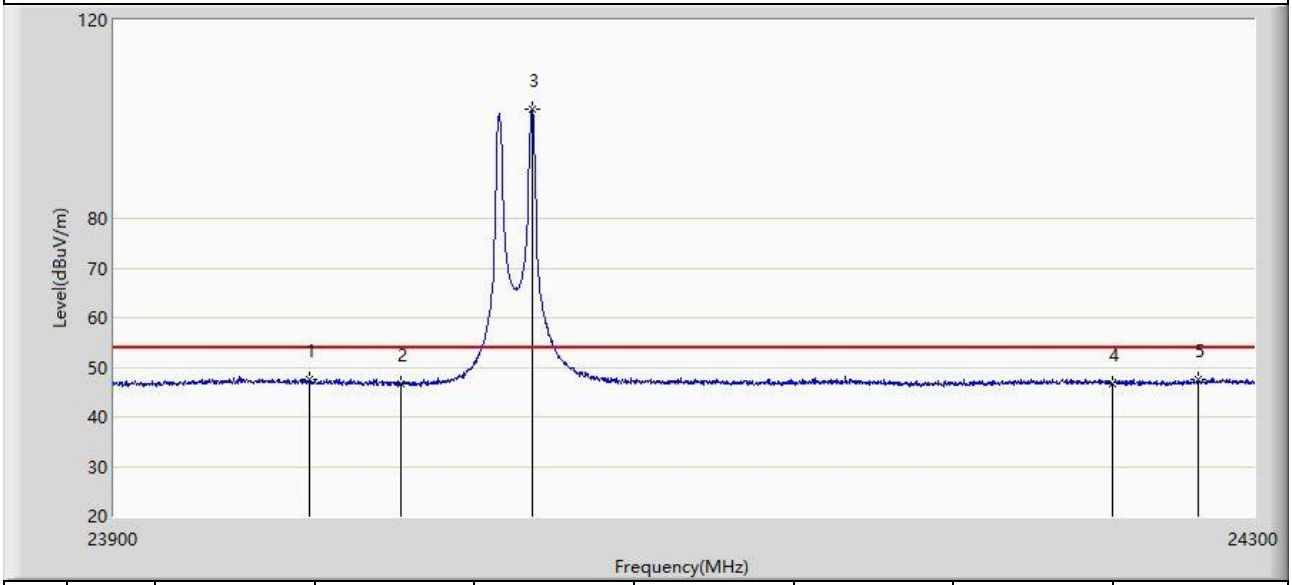
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23961.199	59.620	67.869	-14.380	74.000	-8.249	PK
2		24000.000	57.485	66.113	-16.515	74.000	-8.627	PK
3		24046.000	106.945	115.466	N/A	N/A	-8.521	PK
4		24250.000	57.434	65.825	-16.566	74.000	-8.391	PK
5		24288.199	59.495	67.778	-14.505	74.000	-8.284	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Vertical
EUT: Microwave sensor	Power: By DC 5V
Test Mode 1	



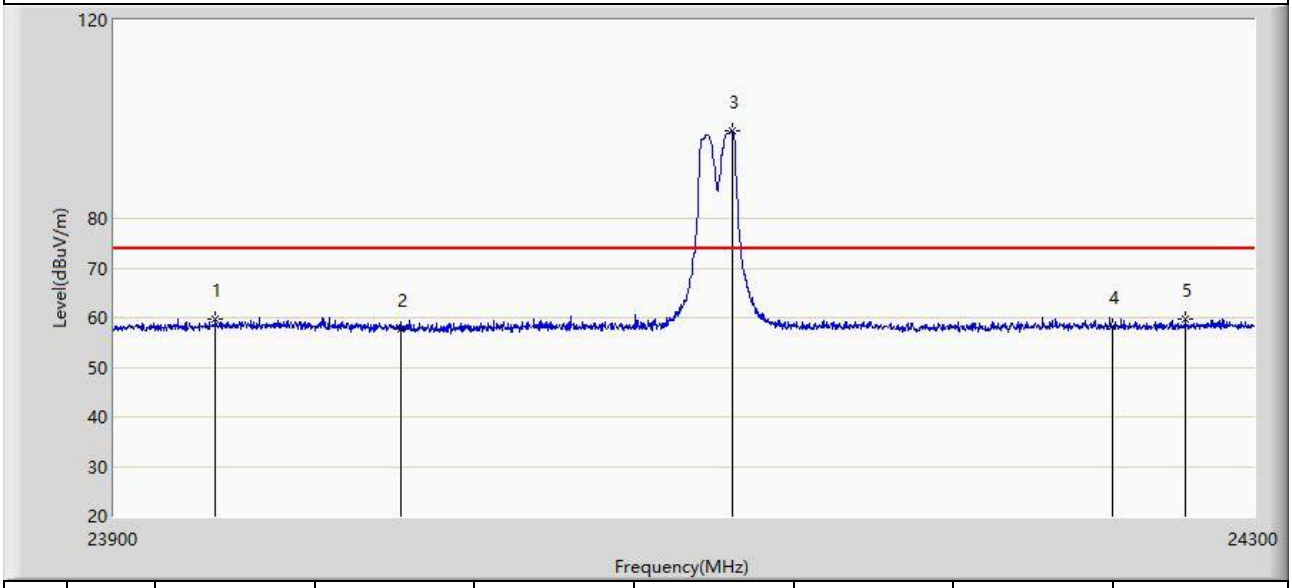
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23968.199	47.587	55.889	-6.413	54.000	-8.302	AV
2		24000.000	46.645	55.273	-7.355	54.000	-8.627	AV
3		24046.000	101.896	110.417	N/A	N/A	-8.521	AV
4		24250.000	46.541	54.932	-7.459	54.000	-8.391	AV
5		24280.199	47.487	55.892	-6.513	54.000	-8.405	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Horizontal
EUT: Microwave sensor	Power: By DC 5V
Test Mode 2	



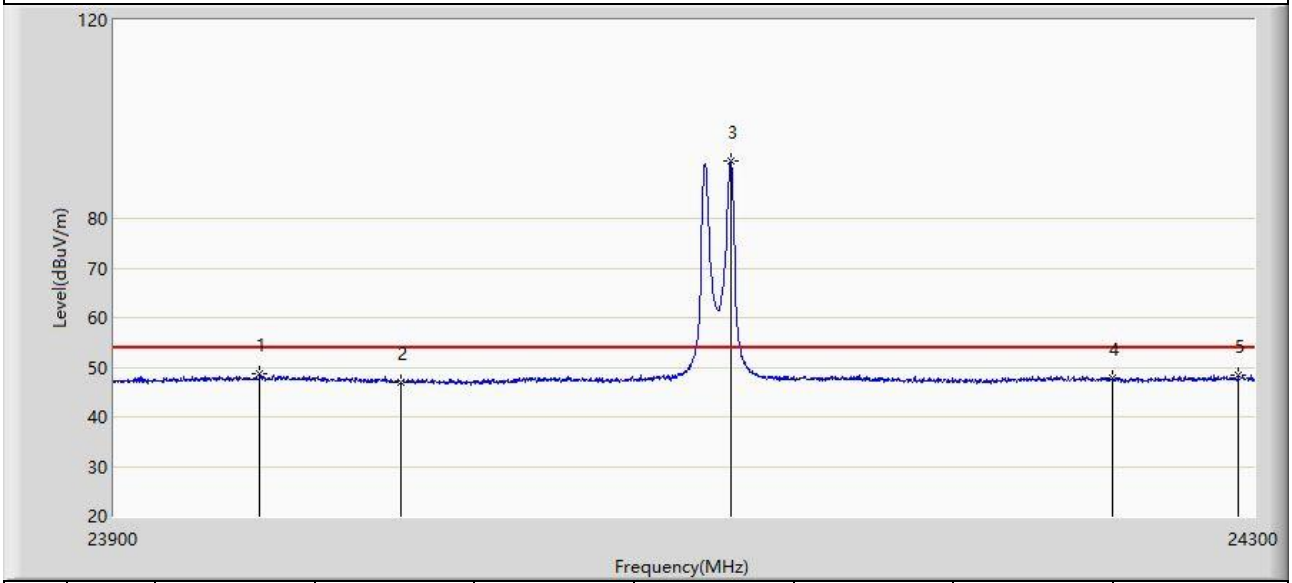
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		23935.400	59.820	68.116	-14.180	74.000	-8.295	PK
2		24000.000	57.821	66.449	-16.179	74.000	-8.627	PK
3		24116.199	97.639	106.136	N/A	N/A	-8.498	PK
4		24250.000	58.228	66.619	-15.772	74.000	-8.391	PK
5	*	24275.801	59.838	68.310	-14.162	74.000	-8.471	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Horizontal
EUT: Microwave sensor	Power: By DC 5V
Test Mode 2	



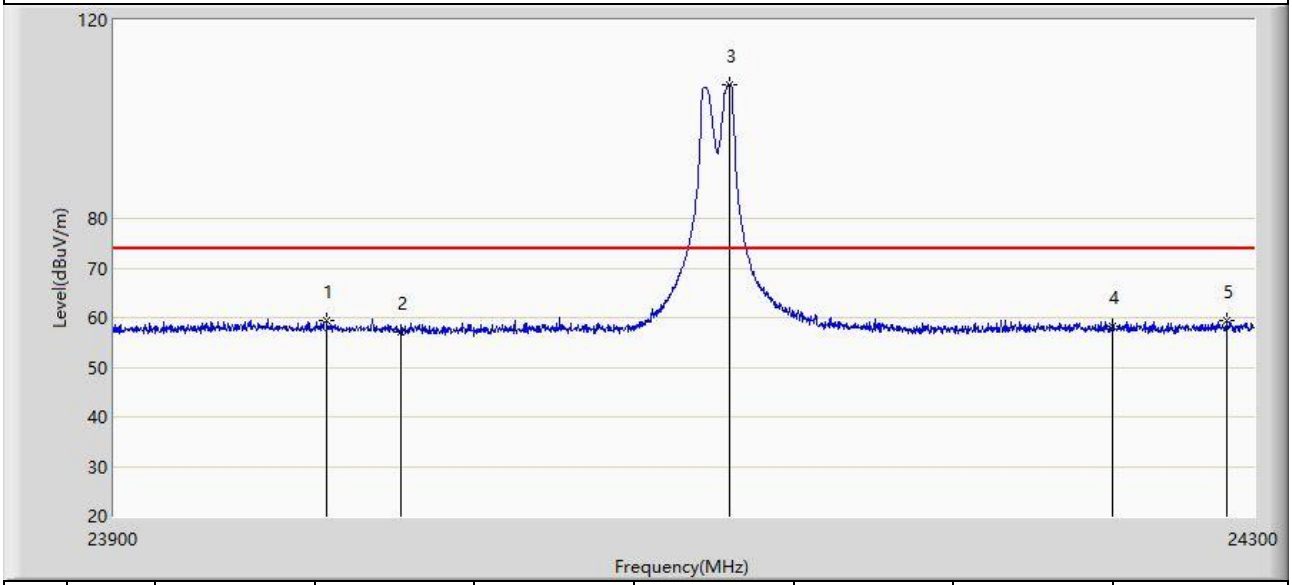
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23950.801	48.646	56.872	-5.354	54.000	-8.225	AV
2		24000.000	46.997	55.625	-7.003	54.000	-8.627	AV
3		24115.600	91.490	99.985	N/A	N/A	-8.495	AV
4		24250.000	47.815	56.206	-6.185	54.000	-8.391	AV
5		24294.400	48.522	56.752	-5.478	54.000	-8.230	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Vertical
EUT: Microwave sensor	Power: By DC 5V
Test Mode 2	



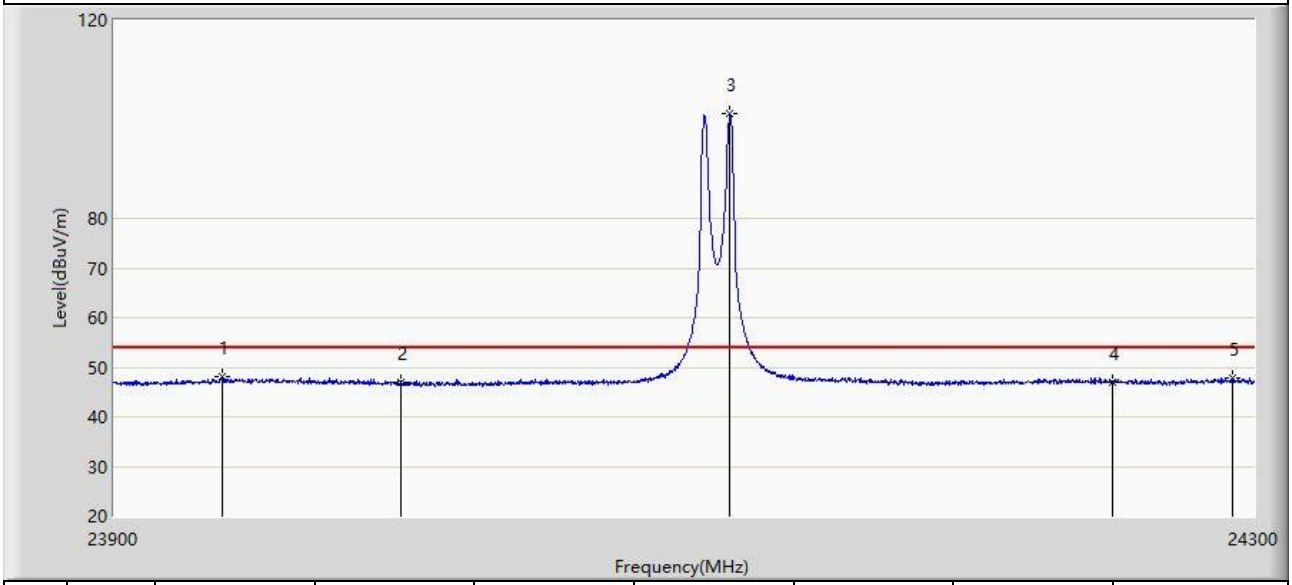
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23974.199	59.562	67.914	-14.438	74.000	-8.352	PK
2		24000.000	57.209	65.837	-16.791	74.000	-8.627	PK
3		24115.400	106.993	115.486	N/A	N/A	-8.493	PK
4		24250.000	58.117	66.508	-15.883	74.000	-8.391	PK
5		24290.600	59.328	67.574	-14.672	74.000	-8.246	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Vertical
EUT: Microwave sensor	Power: By DC 5V
Test Mode 2	



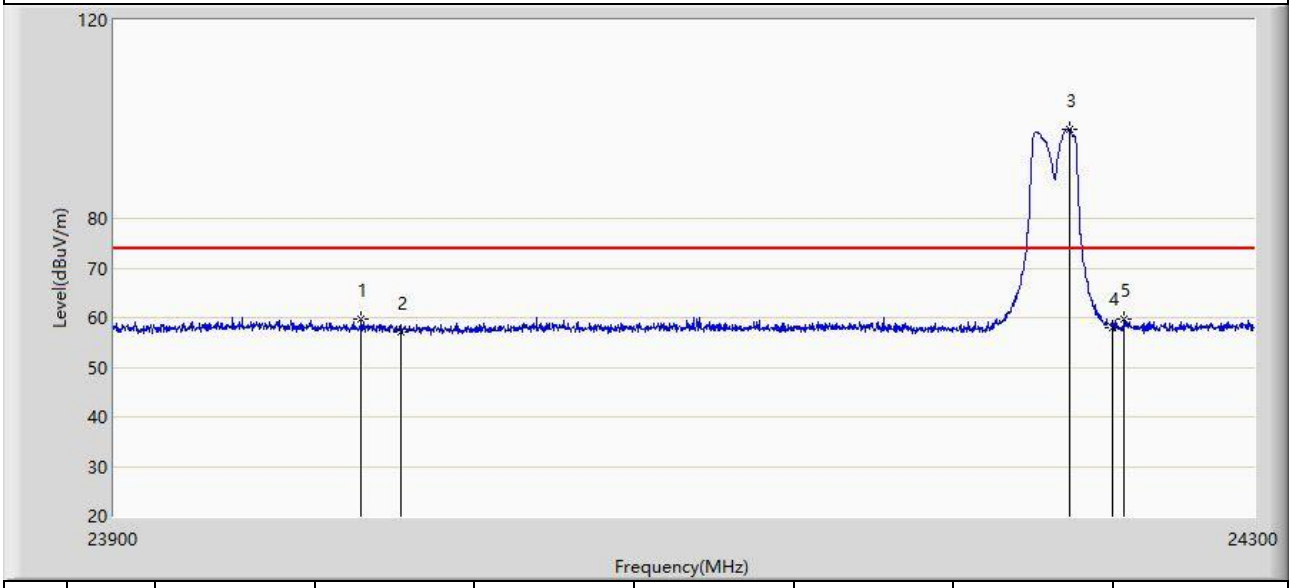
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23937.600	48.099	56.349	-5.901	54.000	-8.250	AV
2		24000.000	47.095	55.723	-6.905	54.000	-8.627	AV
3		24115.400	101.244	109.737	N/A	N/A	-8.493	AV
4		24250.000	46.966	55.357	-7.034	54.000	-8.391	AV
5		24292.199	47.807	56.032	-6.193	54.000	-8.226	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Horizontal
EUT: Microwave sensor	Power: By DC 5V
Test Mode 3	



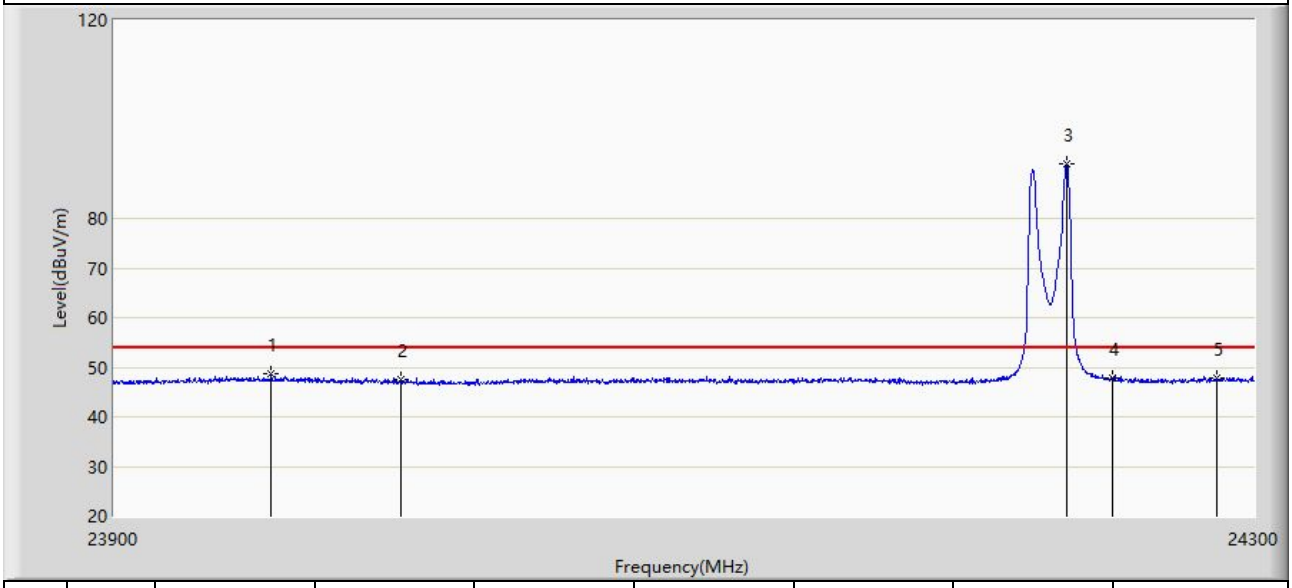
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		23986.199	59.566	68.026	-14.434	74.000	-8.460	PK
2		24000.000	57.085	65.713	-16.915	74.000	-8.627	PK
3		24234.801	97.970	106.363	N/A	N/A	-8.393	PK
4		24250.000	58.046	66.437	-15.954	74.000	-8.391	PK
5	*	24254.199	59.749	68.175	-14.251	74.000	-8.427	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Horizontal
EUT: Microwave sensor	Power: By DC 5V
Test Mode 3	



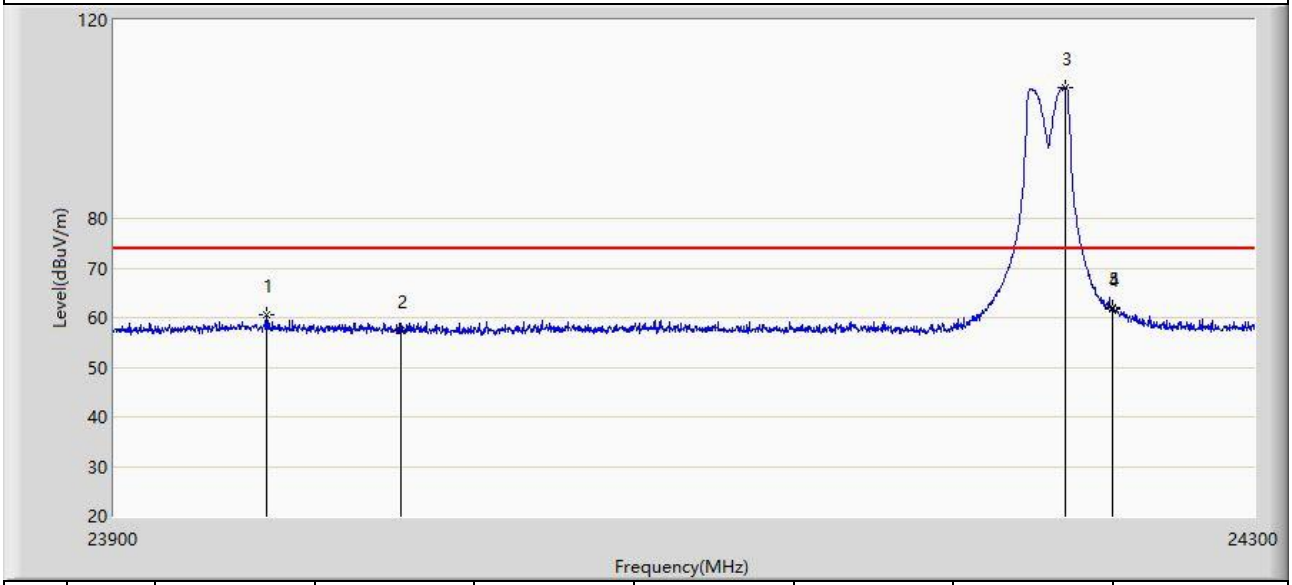
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	23954.801	48.594	56.829	-5.406	54.000	-8.235	AV
2		24000.000	47.502	56.130	-6.498	54.000	-8.627	AV
3		24234.000	90.875	99.269	N/A	N/A	-8.393	AV
4		24250.000	47.698	56.089	-6.302	54.000	-8.391	AV
5		24286.801	47.889	56.193	-6.111	54.000	-8.304	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Vertical
EUT: Microwave sensor	Power: By DC 5V
Test Mode 3	



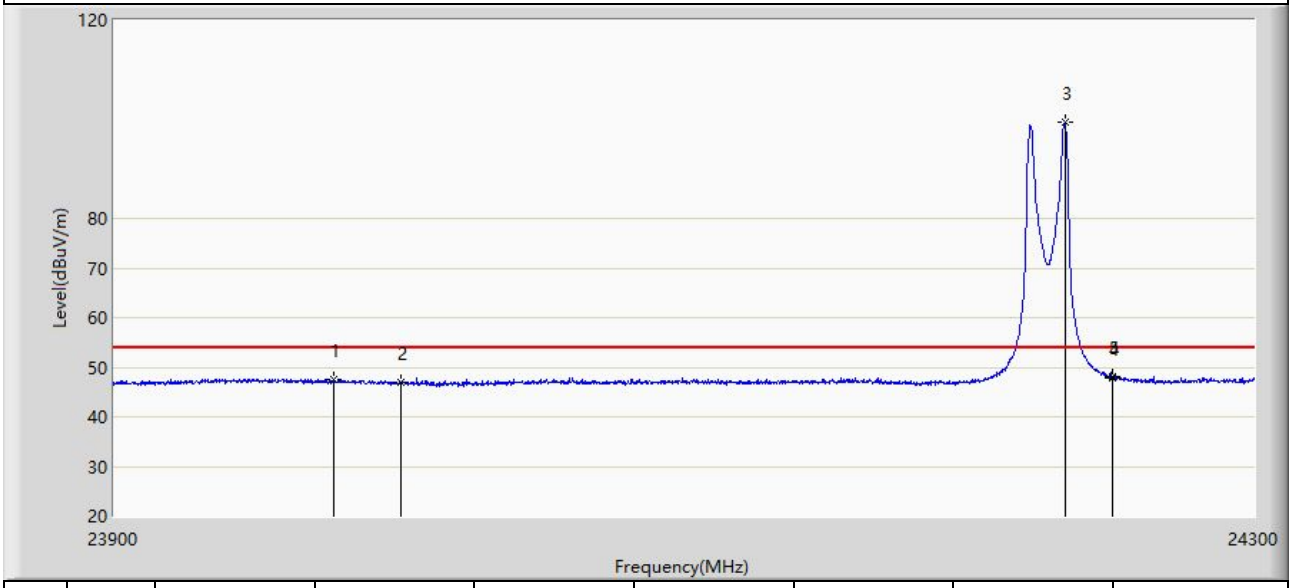
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		23953.199	60.462	68.693	-13.538	74.000	-8.232	PK
2		24000.000	57.285	65.913	-16.715	74.000	-8.627	PK
3		24233.400	106.502	114.897	N/A	N/A	-8.394	PK
4		24250.000	61.710	70.101	-12.290	74.000	-8.391	PK
5	*	24250.199	61.991	70.384	-12.009	74.000	-8.393	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Site: SIP-AC2	Test Date: 2024-05-04
Limit: FCC_Part15.249_Bandedge(3m)	Engineer: Arvin Ding
Probe: BBHA 9170_00934_18-40GHz	Polarity: Vertical
EUT: Microwave sensor	Power: By DC 5V
Test Mode 3	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		23976.801	47.639	56.012	-6.361	54.000	-8.373	AV
2		24000.000	47.093	55.721	-6.907	54.000	-8.627	AV
3		24233.199	99.337	107.732	N/A	N/A	-8.394	AV
4		24250.000	47.762	56.153	-6.238	54.000	-8.391	AV
5	*	24250.199	48.148	56.541	-5.852	54.000	-8.393	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

A.3 20dB Bandwidth Test Result

Test Site	SIP-AC2	Test Date	2024-05-04
Test Engineer	Avrin Ding		

Test Mode	20dB Bandwidth (MHz)	F_L (MHz)	F_L Limit (MHz)	F_H (MHz)	F_H Limit (MHz)	Result
Mode 1	13.3774	24033.6169	≥ 24000	24046.9943	≤ 24250	Pass
Mode 2	11.0242	24105.7932	≥ 24000	24116.8174	≤ 24250	Pass
Mode 3	14.1902	24221.0092	≥ 24000	24235.1994	≤ 24250	Pass

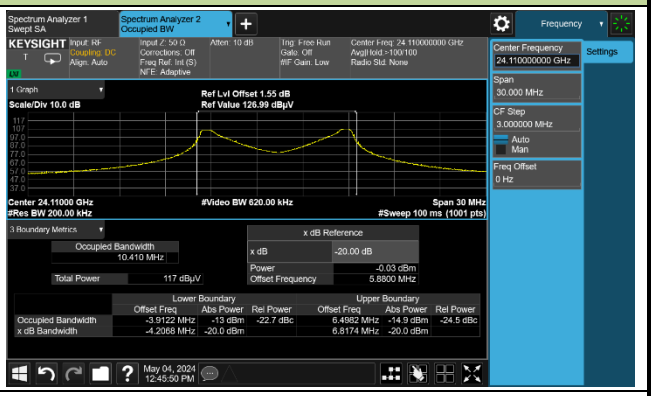
Note: Low Frequency (F_L) = Center Frequency + Lower Boundary;

High Frequency (F_H) = Center Frequency + Upper Boundary.

20dB Bandwidth Measurement

Mode 1

Mode 2



Mode 3

Appendix B - Test Setup Photograph

Refer to “2404RSU015-UT” file.

Appendix C - EUT Photograph

Refer to “2404RSU015-UE” file.