

# RF MEASUREMENT REPORT

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**FCC ID:** LNQ-WF825  
**Applicant:** Actiontec Electronics Inc.  
**Product:** Tri-band Wi-Fi 7 Wireless AP  
**Model No.:** GRBE330C, WF-825  
**FCC Classification:** Digital Transmission System (DTS)  
**FCC Rule Part(s):** Part 15 Subpart C (Section 15.247)  
**Result:** Complies  
**Received Date:** 2023-12-04  
**Test Date:** 2024-01-31 ~ 2024-03-04

**Reviewed By:**

\_\_\_\_\_  
Kevin Guo

**Approved By:**

\_\_\_\_\_  
Robin Wu



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.

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### Revision History

Report No.	Version	Description	Issue Date	Note
2312RSU008-U1	V01	Initial Report	2024-03-12	Valid

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#### 1.4. Product Information

Product Name	Tri-band Wi-Fi 7 Wireless AP
Model No.	GRBE330C, WF-825
EUT Identification No.	20240122Sample#01
Wi-Fi Specification	802.11a/b/g/n/ac/ax/be
Bluetooth Specification	V5.0 (Single mode, LE only)
Antenna Information	Refer to Section 1.5
Accessory	
Adapter	Model: KL-WA150400-Q1 Input: 100-240V ~ 50/60Hz 2.0A Output: 15.0V = 4.0A
Notes:	
<ol style="list-style-type: none"> <li>There is not any hardware or software differences between GRBE330C and WF-825, only for different brand.</li> <li>The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.</li> </ol>	

#### 1.5. Radio Specification under Test

Bluetooth Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps
Antenna Type	PCB Antenna
Antenna Gain	4.99dBi

**1.6. Working Frequencies**

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	--	--	--	--

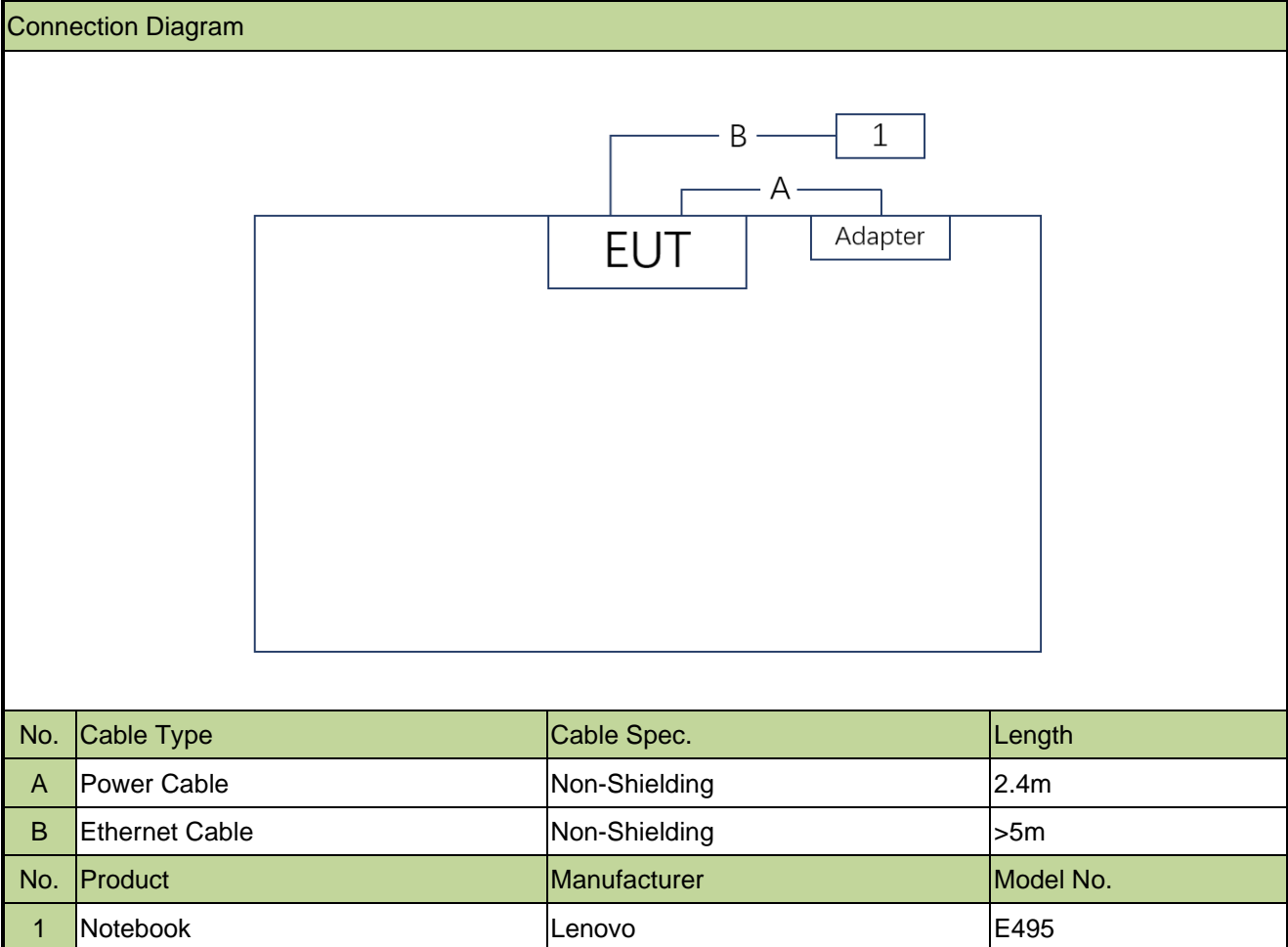
## 2. Test Configuration

### 2.1. Test Mode

Mode 1: Transmit by BLE-1Mbps

### 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.





### 2.3. Test Software

The test utility software used during testing was “QRCT”, and the version was 3.0.268.0.

### 2.4. Applied Standards

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

- FCC Part 15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

### 2.5. 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:**

The unit complies with the requirement of §15.203.

#### 4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2024-12-21	SIP-AC1
Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2024-06-17	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06616	1 year	2024-10-28	SIP-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06645	1 year	2024-07-13	SIP-AC1
Preamplifier	MRT	AMP-AC1	MRTSUE11265	1 year	2024-11-03	SIP-AC1
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2024-12-17	SIP-AC1
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2024-10-09	SIP-AC1
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2025-01-27	SIP-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE07028	1 year	2024-10-23	SIP-AC1
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2024-09-24	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE11022	1 year	2024-10-28	SIP-TR1
USB Power Sensor	Keysight	U2021XA	MRTSUE06596	1 year	2024-07-31	SIP-TR1
Signal Analyzer	Keysight	N9010B	MRTSUE07036	1 year	2025-02-03	SIP-TR1
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2024-05-23	SIP-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2024-05-23	SIP-SR2
Four-Line V-Network	R&S	ENV432	MRTSUE06614	1 year	2024-10-23	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2024-11-03	SIP-SR2
Shielding Room	MIX-BEP	SIP-SR2	MRTSUE06949	5 years	2024-10-23	SIP-SR2

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & Turntable
BenchVue Power Meter	2019	Power

## 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  $k = 2$ .

<b>AC Conducted Emission Measurement</b>
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.58dB 150kHz~30MHz: 3.20dB
<b>Radiated Emission Measurement</b>
The maximum measurement uncertainty is evaluated as: Coaxial: 9kHz~30MHz: 2.61dB Coplanar: 9kHz~30MHz: 2.62dB Horizontal: 30MHz~200MHz: 3.79dB 200MHz~1GHz: 3.91dB 1GHz~40GHz: 4.99dB Vertical: 30MHz~200MHz: 4.06dB 200MHz~1GHz: 5.21dB 1GHz~40GHz: 4.90dB
<b>Spurious Emissions, Conducted</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 2.2dB
<b>Output Power</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 1.4dB
<b>Power Spectrum Density</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 2.2dB
<b>Occupied Bandwidth</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 2.7%

## 6. Test Result

### 6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(a)(2)	6dB Bandwidth	Conducted	Pass
15.247(b)(3)	Output Power		Pass
15.247(e)	Power Spectral Density		Pass
15.247(d)	Band Edge / Out-of-Band Emissions		Pass
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Radiated	Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

#### Notes:

- 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.
- For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

## 6.2. 6dB Bandwidth Measurement

### 6.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

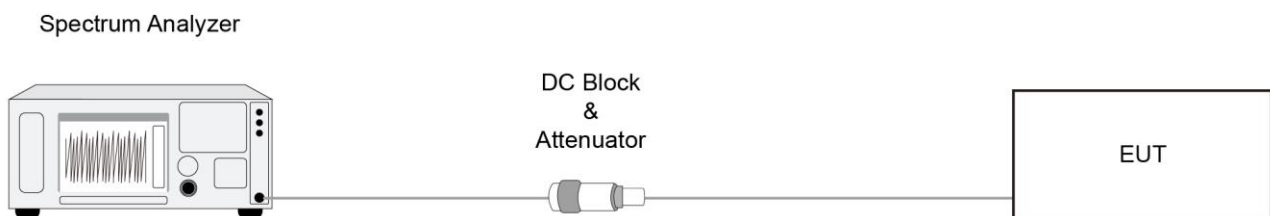
### 6.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.8

### 6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to  $X = 6$ . The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW  $\geq 3 \times$  RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

### 6.2.4. Test Setup



### 6.2.5. Test Result

Refer to Appendix A.2.

### 6.3. Output Power Measurement

#### 6.3.1. Test Limit

The maximum output power shall be less 1 Watt (30dBm).

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 6.3.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3

ANSI C63.10 - 2013 - Section 11.9.2.3.2

#### 6.3.3. Test Setting

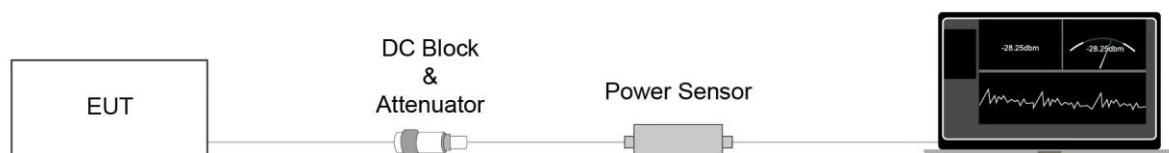
##### **Method PKPM1 (Peak Power Measurement of Signals with DTS BW $\leq$ 50MHz)**

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

##### **Average Power Measurement**

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

#### 6.3.4. Test Setup



#### 6.3.5. Test Result

Refer to Appendix A.3.

## 6.4. Power Spectral Density Measurement

### 6.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

The same method of determining the conducted output power shall be used to determine the power spectral density.

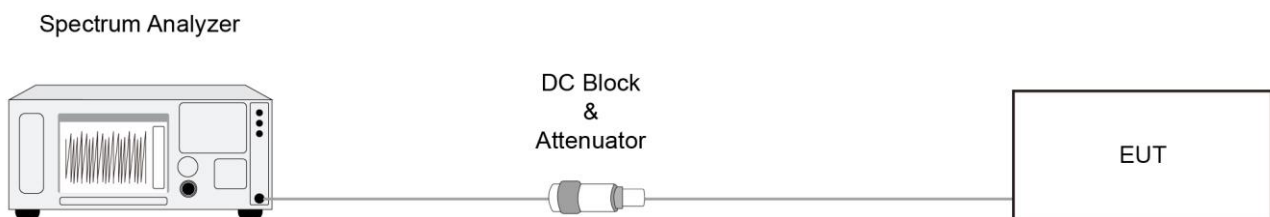
### 6.4.2. Test Procedure

ANSI C63.10-2013 Section 11.10.2

### 6.4.3. Test Setting

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

### 6.4.4. Test Setup



### 6.4.5. Test Result

Refer to Appendix A.4.



## **6.5. Conducted Band Edge and Out-of-Band Emissions Measurement**

### **6.5.1. Test Limit**

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

### **6.5.2. Test Procedure**

ANSI C63.10-2013 - Section 11.11

### **6.5.3. Test Setting**

#### **Reference level measurement**

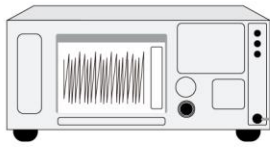
1. Set instrument center frequency to DTS channel center frequency
2. Set the span to  $\geq 1.5$  times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW  $\geq 3 \times$  RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

#### **Emission level measurement**

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

#### 6.5.4. Test Setup

Spectrum Analyzer



DC Block  
&  
Attenuator



#### 6.5.5. Test Result

Refer to Appendix A.5.

## 6.6. Radiated Spurious Emission Measurement

### 6.6.1. Test Limit

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 [uV/m]	Measured Distance [Meters]
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

### 6.6.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.11 & 11.12

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - 2013 - Section 6.6 (Standard test method above 1GHz)

### 6.6.3. Test Setting

**Table 1 - RBW as a function of frequency**

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000MHz	1MHz

**Quasi-Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

**Peak Measurements above 1GHz**

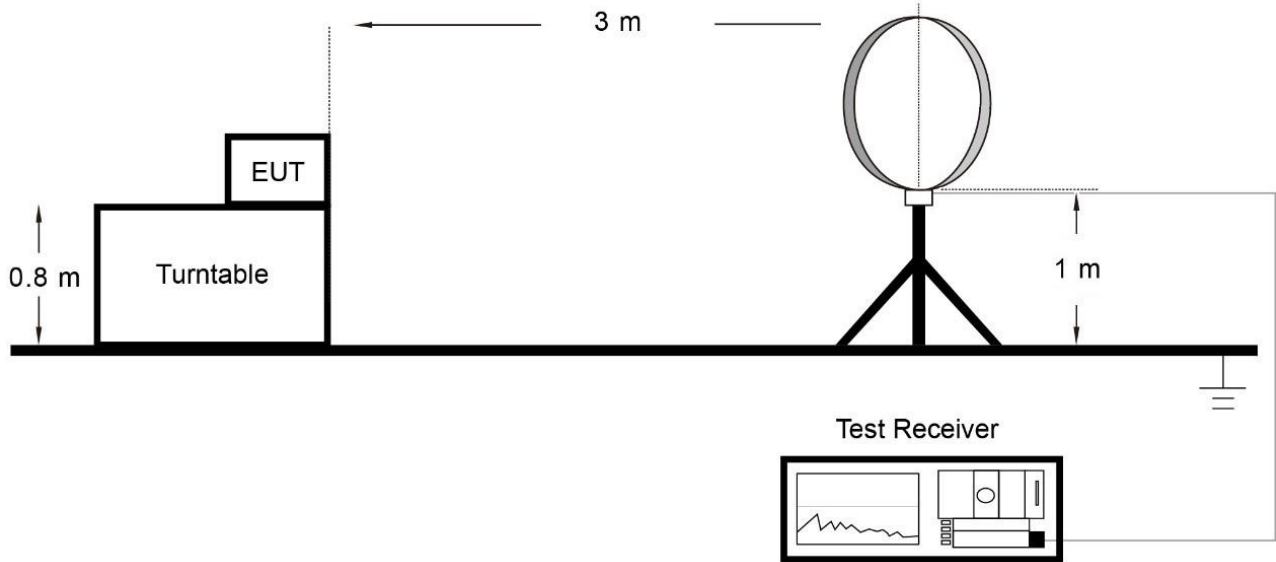
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

**Average Measurements above 1GHz (Method VB)**

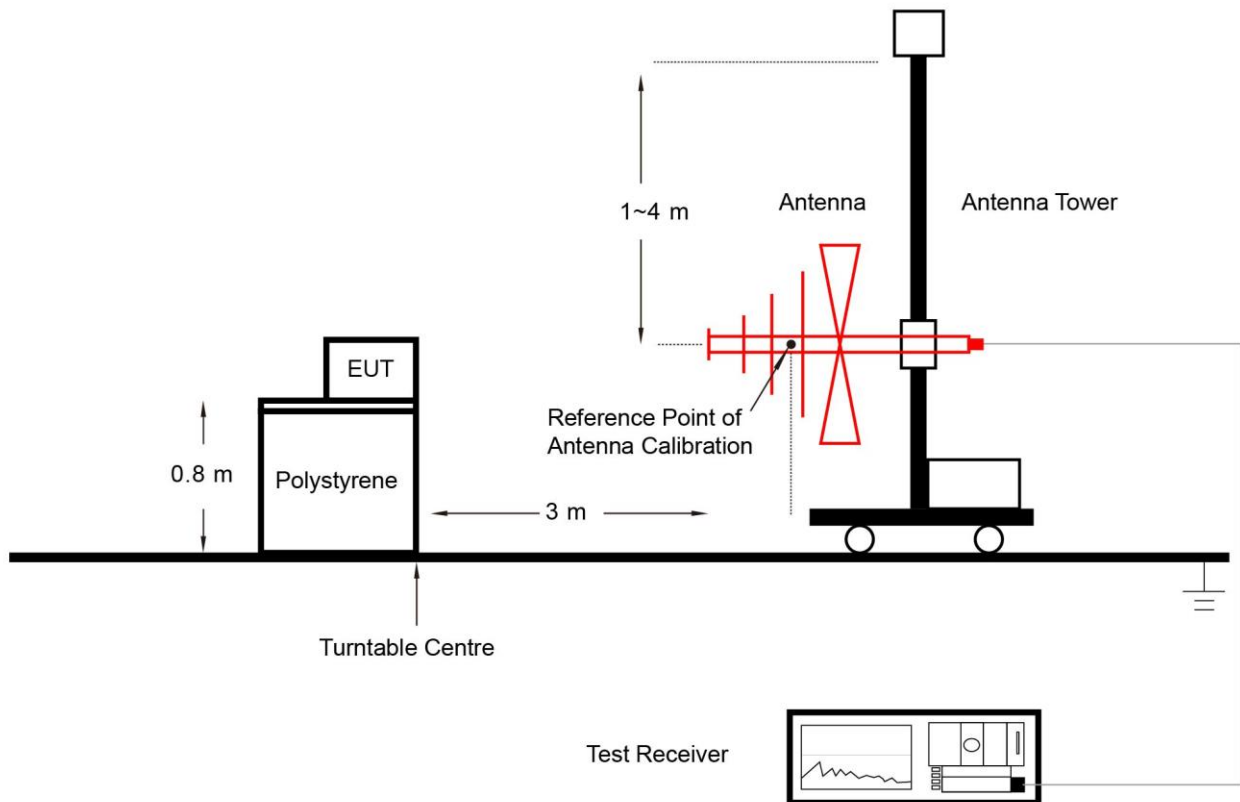
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle  $\geq 98\%$ , set VBW = 10 Hz.  
If the EUT duty cycle is  $< 98\%$ , set VBW  $\geq 1/T$ . T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

### 6.6.4. Test Setup

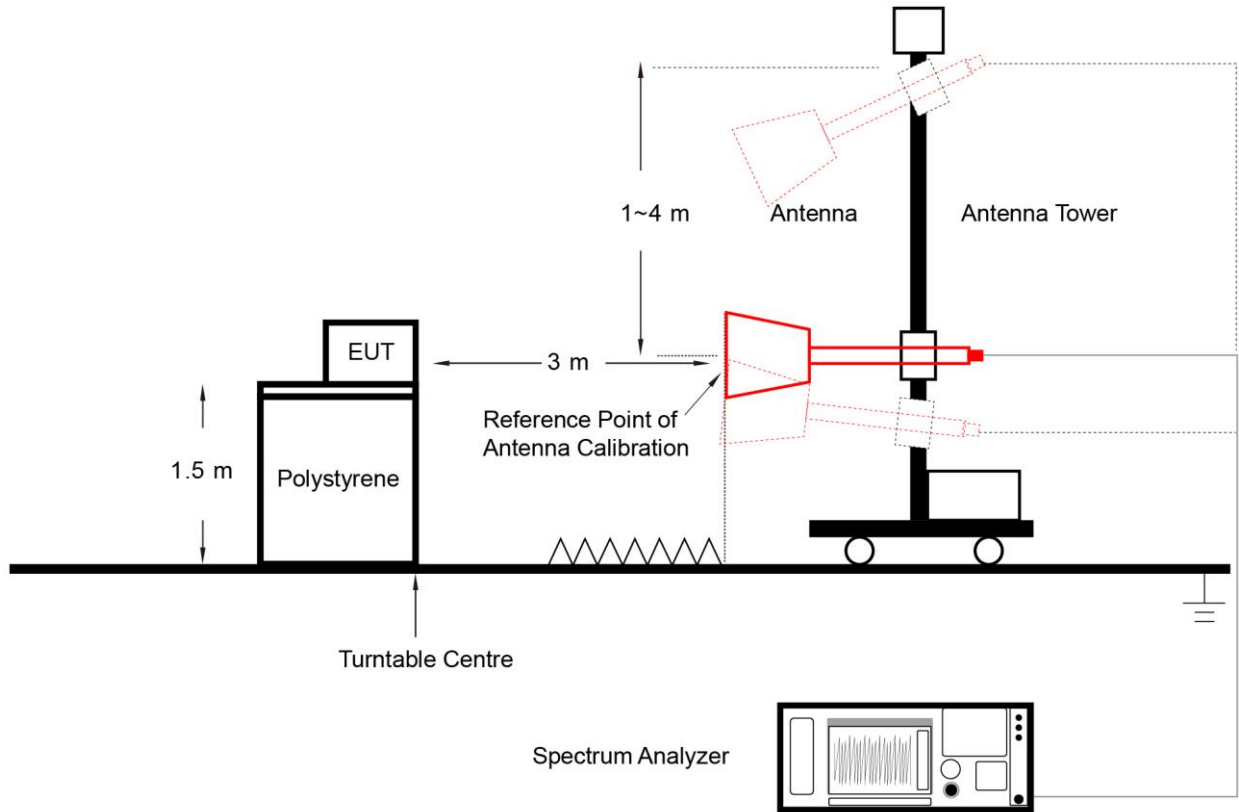
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



**6.6.5. Test Result**

Refer to Appendix A.6.

## 6.7. Radiated Restricted Band Edge Measurement

### 6.7.1. 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
<sup>1</sup> 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	( <sup>2</sup> )
13.36 - 13.41	--	--	--

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

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
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

### 6.7.2. Test Procedure

ANSI C63.10-2013 Section 6.3 & 6.6 & 11.13

### 6.7.3. 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

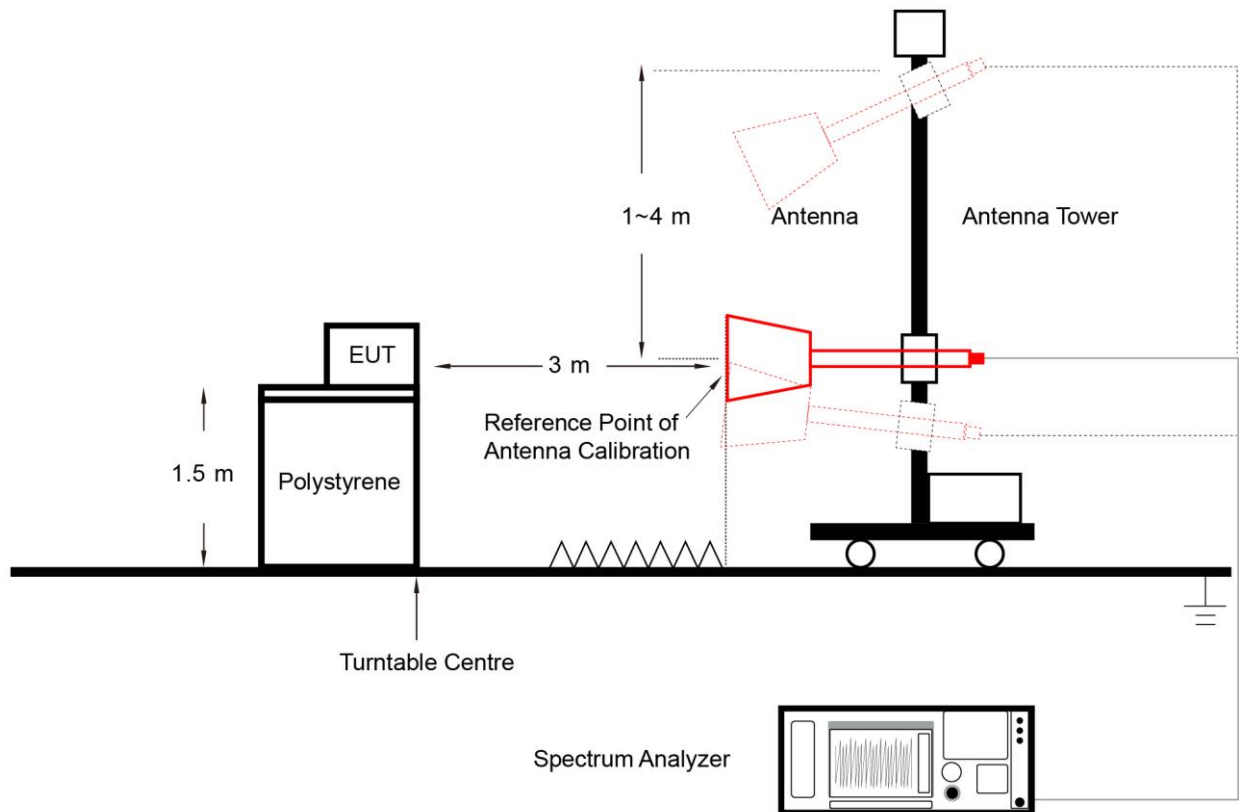
#### Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW  $\geq 1/T$
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak



6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

#### 6.7.4. Test Setup



#### 6.7.5. Test Result

Refer to Appendix A.7.

## 6.8. AC Conducted Emissions Measurement

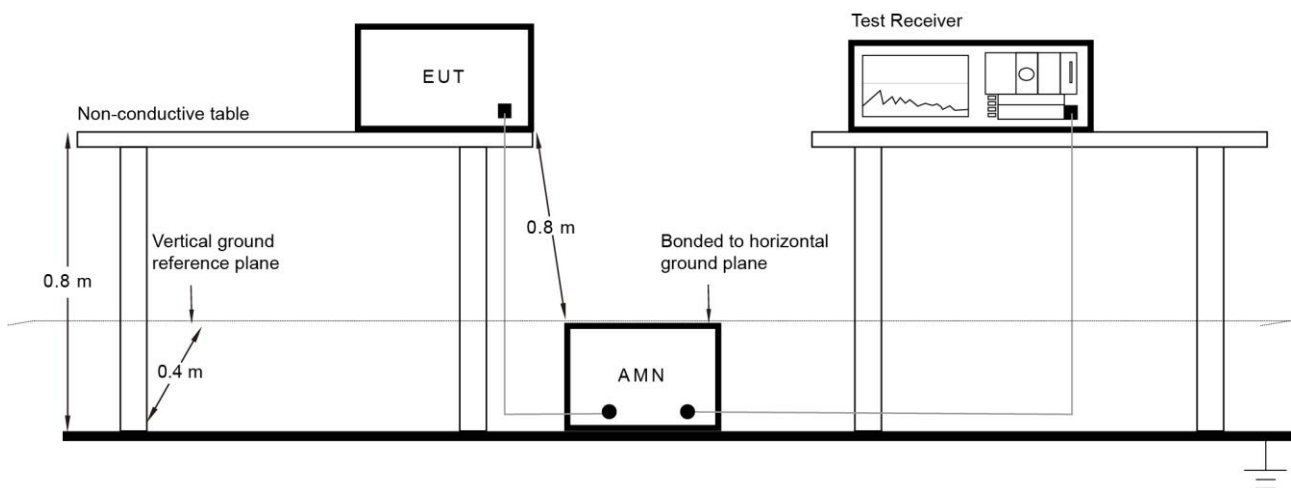
### 6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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.

### 6.8.2. Test Setup




### 6.8.3. Test Result

Refer to Appendix A.8.

## Appendix A - Test Result

### A.1 Duty Cycle Test Result

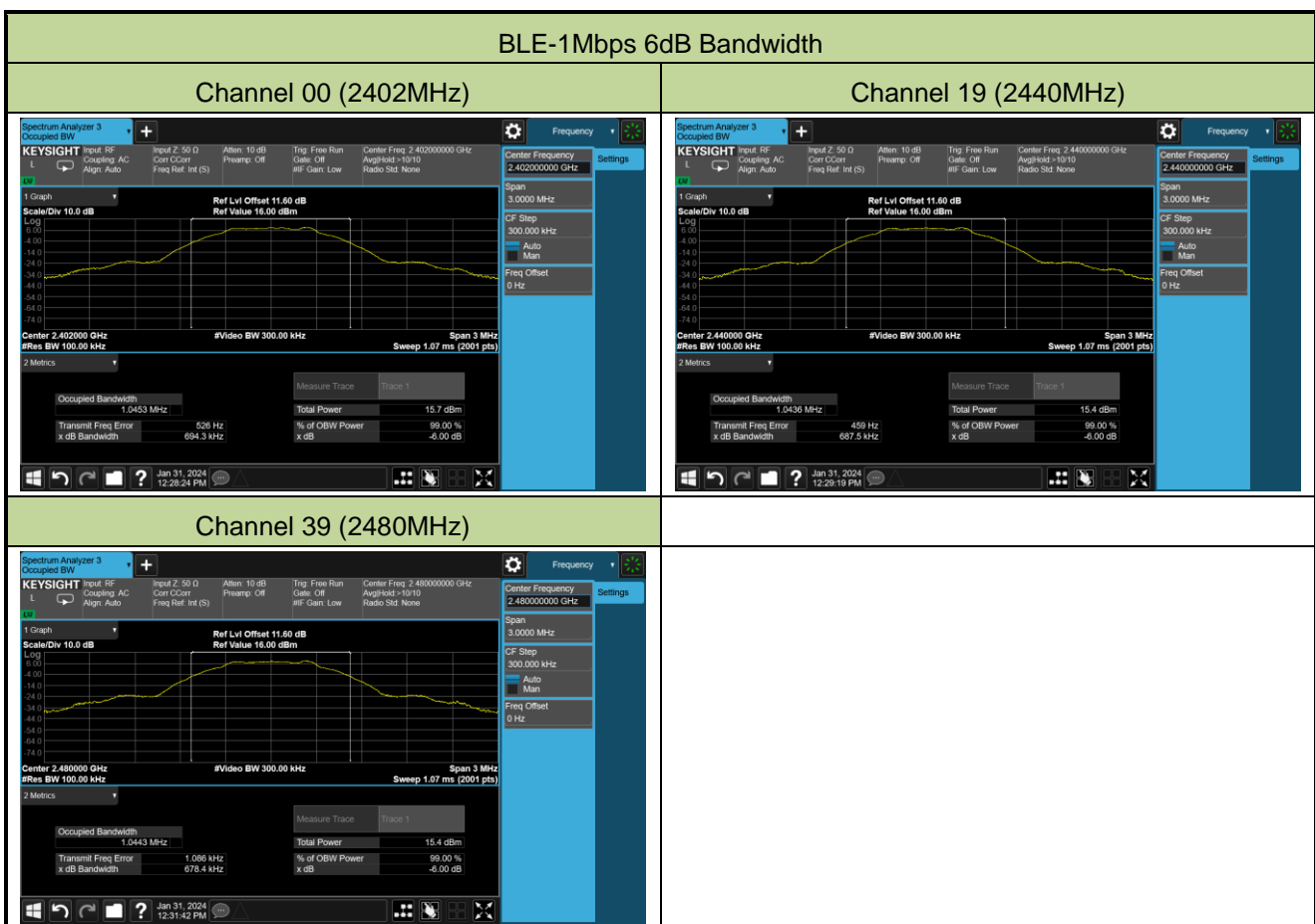
Test Site	SIP-TR1	Test Engineer	Ryan Wang
Test Date	2024-01-31		

Test Mode	Duty Cycle
BLE-1Mbps	100%
Duty Cycle (T = Transmission Duration)	
BLE-1Mbps	
	

**A.2 6dB Bandwidth Test Result**

Test Site	SIP-TR1	Test Engineer	Ryan Wang
Test Date	2024-01-31		

Test Mode	Data Rate	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
BLE	1Mbps	00	2402	0.6943	≥ 0.5
BLE	1Mbps	19	2440	0.6875	≥ 0.5
BLE	1Mbps	39	2480	0.6784	≥ 0.5



### A.3 Output Power Test Result

Test Site	SIP-TR1	Test Engineer	Ryan Wang
Test Date	2024-01-31		

#### Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	9.31	≤ 30.00	Pass
BLE	1Mbps	19	2440	9.06	≤ 30.00	Pass
BLE	1Mbps	39	2480	8.96	≤ 30.00	Pass

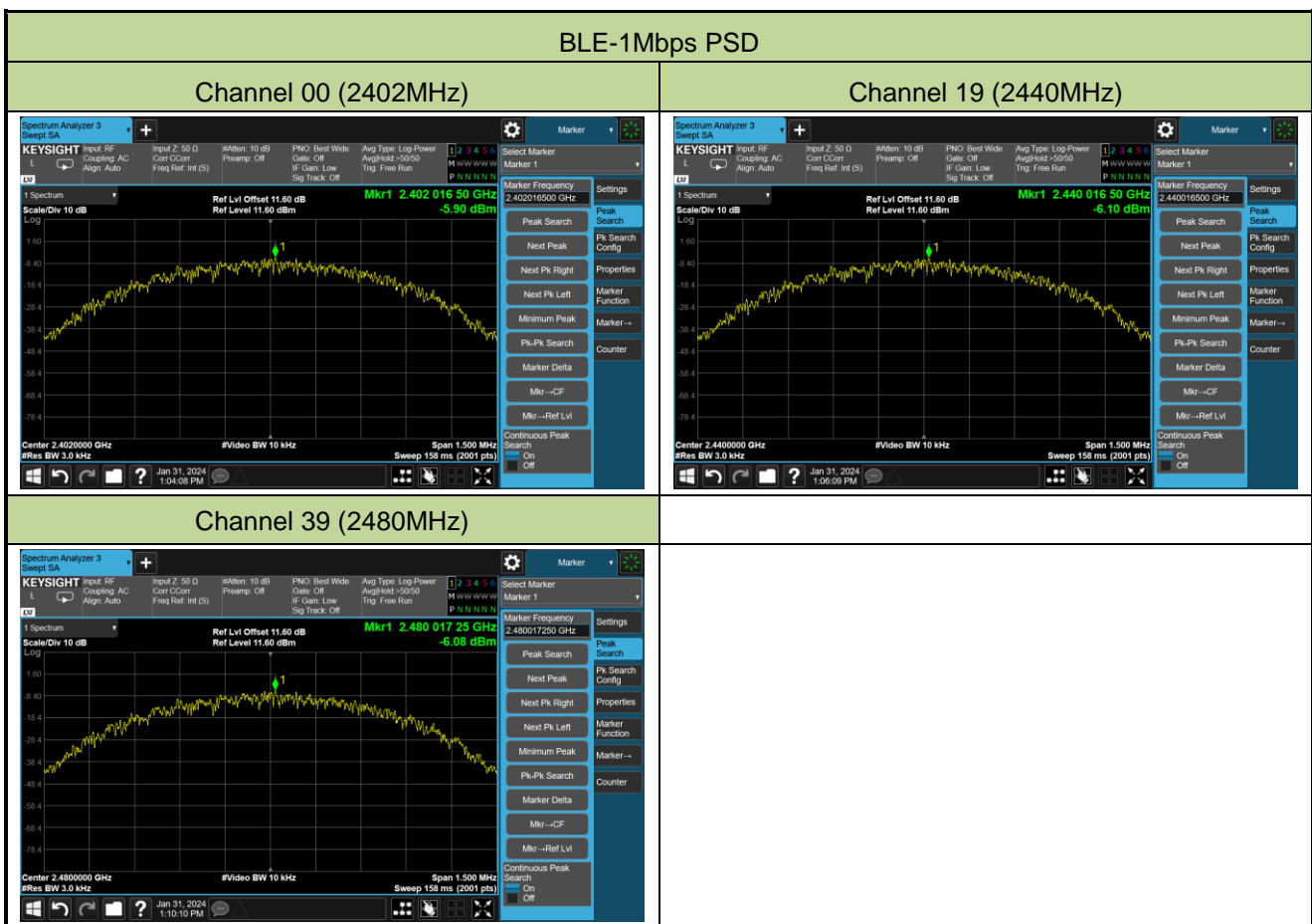
#### Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	9.27	≤ 30.00	Pass
BLE	1Mbps	19	2440	9.01	≤ 30.00	Pass
BLE	1Mbps	39	2480	8.91	≤ 30.00	Pass

**A.4 Power Spectral Density Test Result**

Test Site	SIP-TR1	Test Engineer	Ryan Wang
Test Date	2024-01-31		

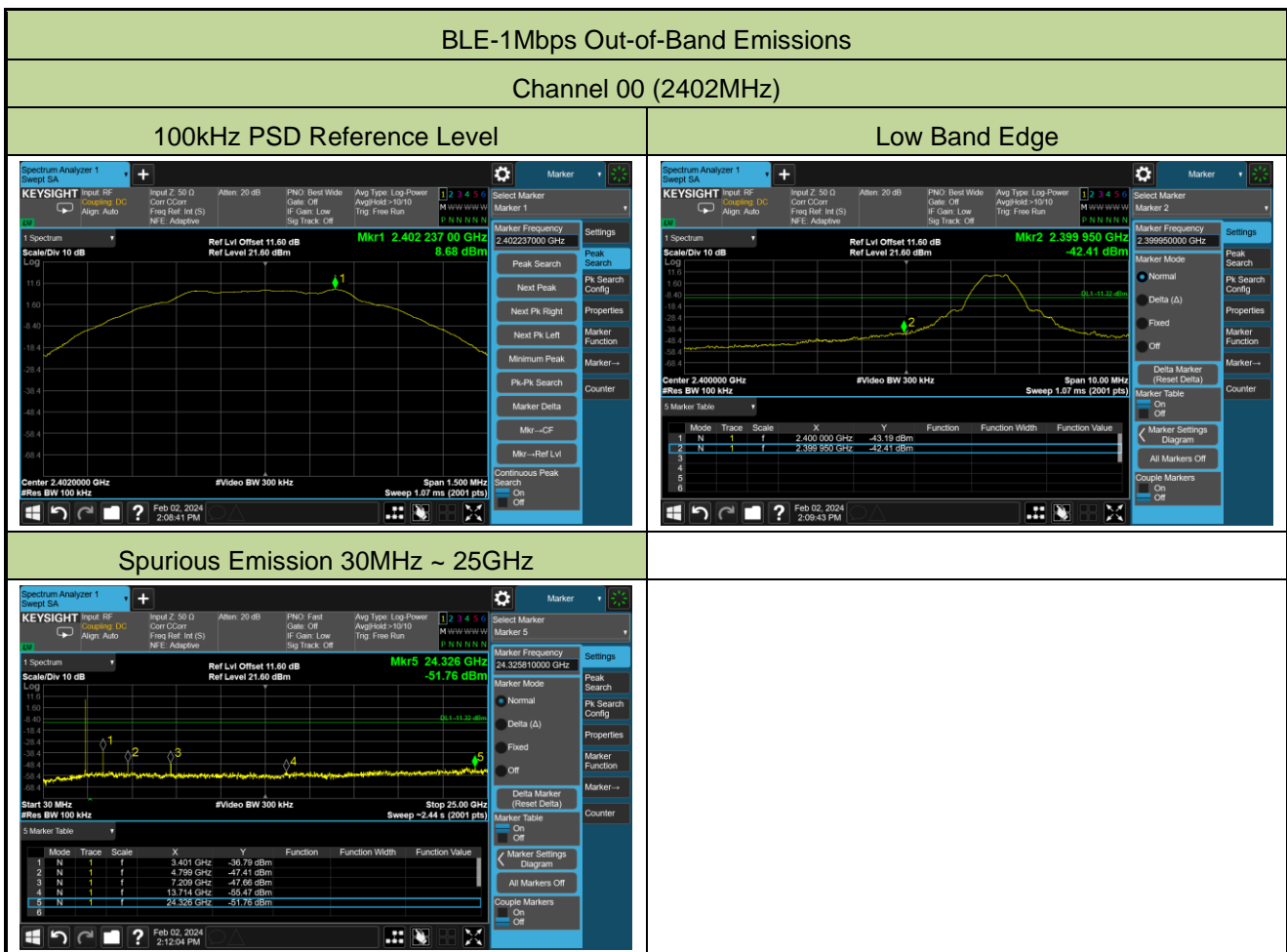
Test Mode	Data Rate	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1Mbps	00	2402	-5.90	≤ 8.00	Pass
BLE	1Mbps	19	2440	-6.10	≤ 8.00	Pass
BLE	1Mbps	39	2480	-6.08	≤ 8.00	Pass



**A.5 Conducted Band Edge and Out-of-Band Emissions Test Result**

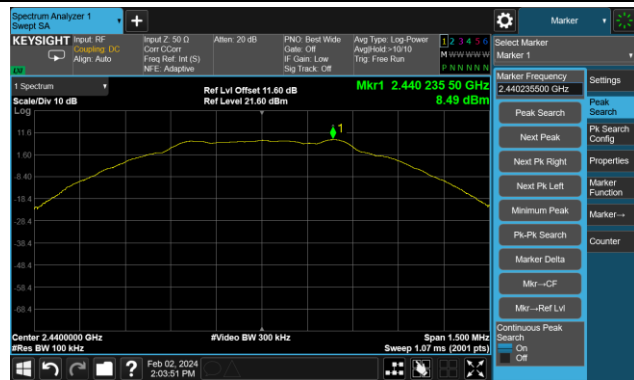
Test Site	SIP-TR1	Test Engineer	Ryan Wang
Test Date	2024-02-02		

Test Mode	Data Rate / Mbps	Channel No.	Frequency (MHz)	Limit (dBc)	Result
BLE	1	00	2402	20	Pass
BLE	1	19	2440	20	Pass
BLE	1	39	2480	20	Pass

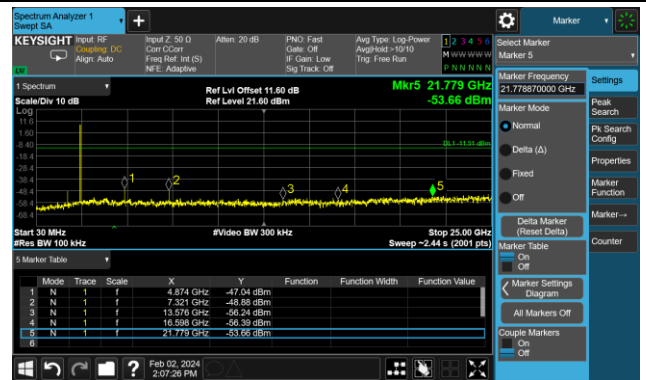


### Channel 19 (2440MHz)

#### 100kHz PSD Reference Level

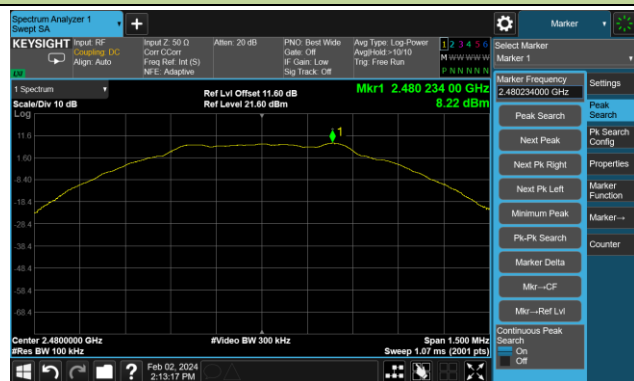


#### Spurious Emission 30MHz ~ 25GHz

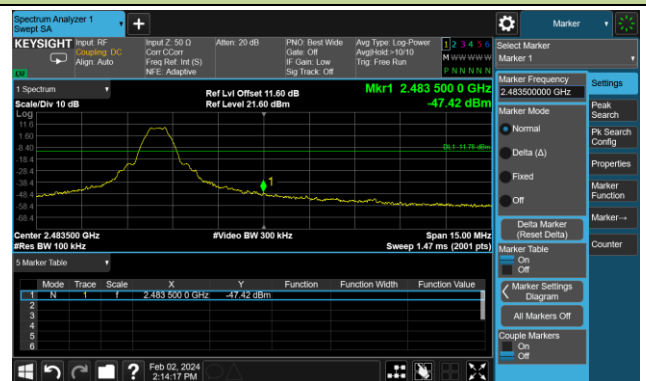


### Channel 39 (2480MHz)

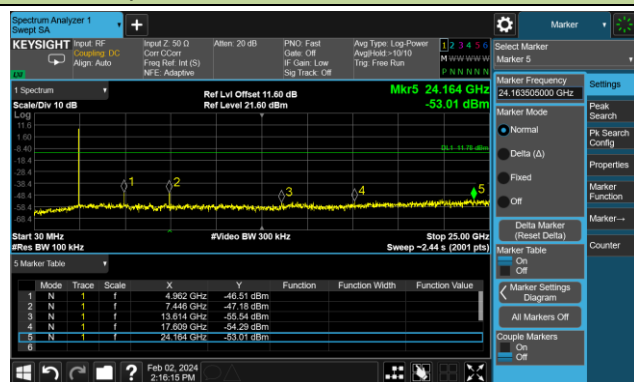
#### 100kHz PSD Reference Level



#### High Band Edge



#### Spurious Emission 30MHz ~ 25GHz





**A.6 Radiated Spurious Emission Test Result**

Test Site	SIP-AC1	Test Engineer	Mero Zhou
Test Date	2024-02-05	Test Mode	BLE-1Mbps
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not shown in the report.		

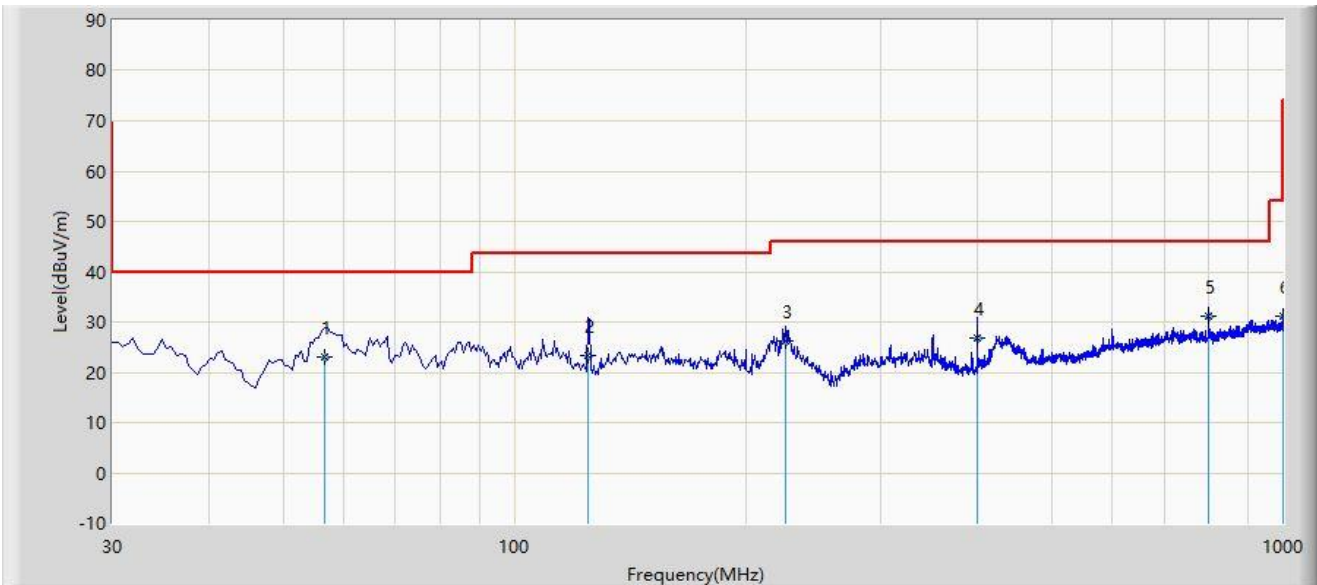
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	3847.5	38.3	2.3	40.6	74.0	-33.4	Peak	Horizontal
	4799.5	37.6	4.7	42.3	74.0	-31.7	Peak	Horizontal
	11914.0	35.8	12.2	48.0	74.0	-26.0	Peak	Horizontal
	3881.5	38.6	2.9	41.5	74.0	-32.5	Peak	Vertical
	5003.5	37.9	5.3	43.2	74.0	-30.8	Peak	Vertical
	11472.0	34.4	12.9	47.3	74.0	-26.7	Peak	Vertical
19	4196.0	39.8	3.6	43.4	74.0	-30.6	Peak	Horizontal
	5020.5	37.9	5.4	43.3	74.0	-30.7	Peak	Horizontal
	11480.5	35.5	12.7	48.2	74.0	-25.8	Peak	Horizontal
	4153.5	39.7	3.2	42.9	74.0	-31.1	Peak	Vertical
	4748.5	38.9	4.5	43.4	74.0	-30.6	Peak	Vertical
	11939.5	34.9	12.4	47.3	74.0	-26.7	Peak	Vertical
39	3703.0	40.1	1.7	41.8	74.0	-32.2	Peak	Horizontal
	4723.0	37.9	4.4	42.3	74.0	-31.7	Peak	Horizontal
	11149.0	35.1	12.6	47.7	74.0	-26.3	Peak	Horizontal
	4374.5	38.3	3.9	42.2	74.0	-31.8	Peak	Vertical
	5071.5	36.2	5.2	41.4	74.0	-32.6	Peak	Vertical
	11234.0	34.5	12.4	46.9	74.0	-27.1	Peak	Vertical

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)

**The Result of Radiated Emission below 1GHz:**

Site: SIP-AC1	Test Date: 2024-02-06
Limit: FCC_Part15.209_RSE(3m)	Engineer: Mero Zhou
Probe: VULB 9168_00998_25-2000MHz	Polarity: Horizontal
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
<b>Test Mode:</b> Transmit by BLE-1M at 2402MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		56.675	23.164	5.500	-16.836	40.000	17.664	QP
2		124.575	23.448	7.600	-20.052	43.500	15.849	QP
3		224.970	26.303	11.500	-19.697	46.000	14.803	QP
4		400.055	26.949	6.200	-19.051	46.000	20.748	QP
5	*	800.180	31.242	3.200	-14.758	46.000	28.043	QP
6		1000.000	31.263	1.300	-22.737	54.000	29.963	QP

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

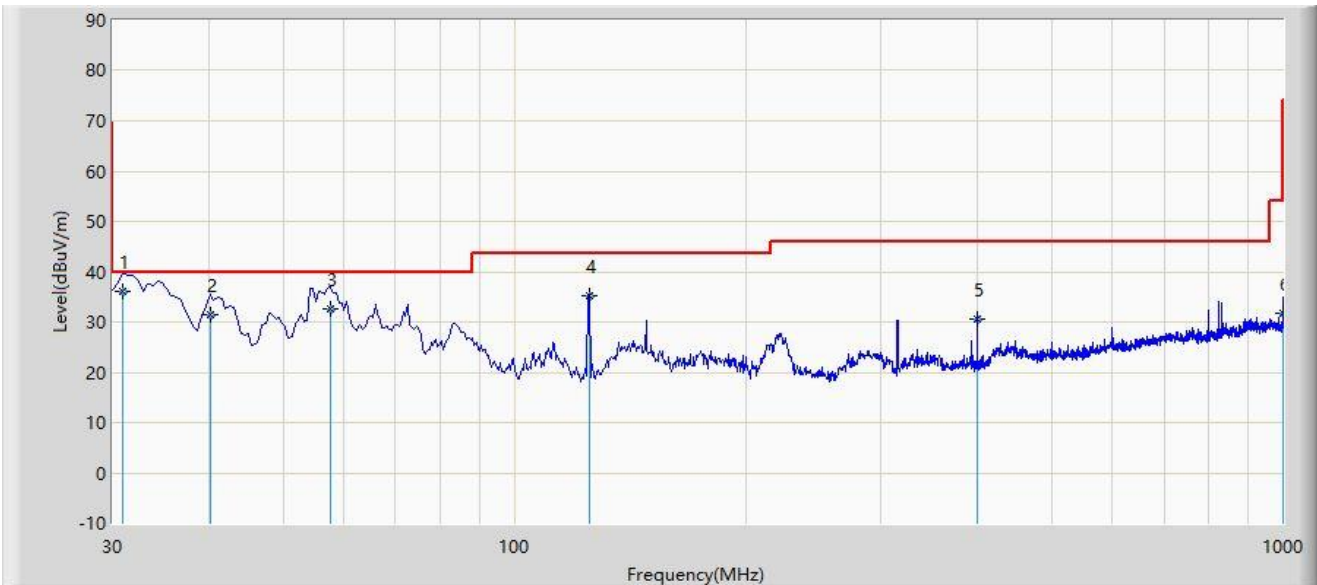
Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

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

Note 4: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) 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.

Site: SIP-AC1	Test Date: 2024-02-06
Limit: FCC_Part15.209_RSE(3m)	Engineer: Mero Zhou
Probe: VULB 9168_00998_25-2000MHz	Polarity: Vertical
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
<b>Test Mode:</b> Transmit by BLE-1M at 2402MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	30.970	36.085	19.300	-3.915	40.000	16.785	QP
2		40.185	31.478	14.000	-8.522	40.000	17.478	QP
3		57.645	32.532	15.000	-7.468	40.000	17.532	QP
4		125.060	35.297	19.400	-8.203	43.500	15.897	QP
5		400.000	30.646	9.900	-15.354	46.000	20.745	QP
6		1000.000	31.763	1.800	-22.237	54.000	29.963	QP

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

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

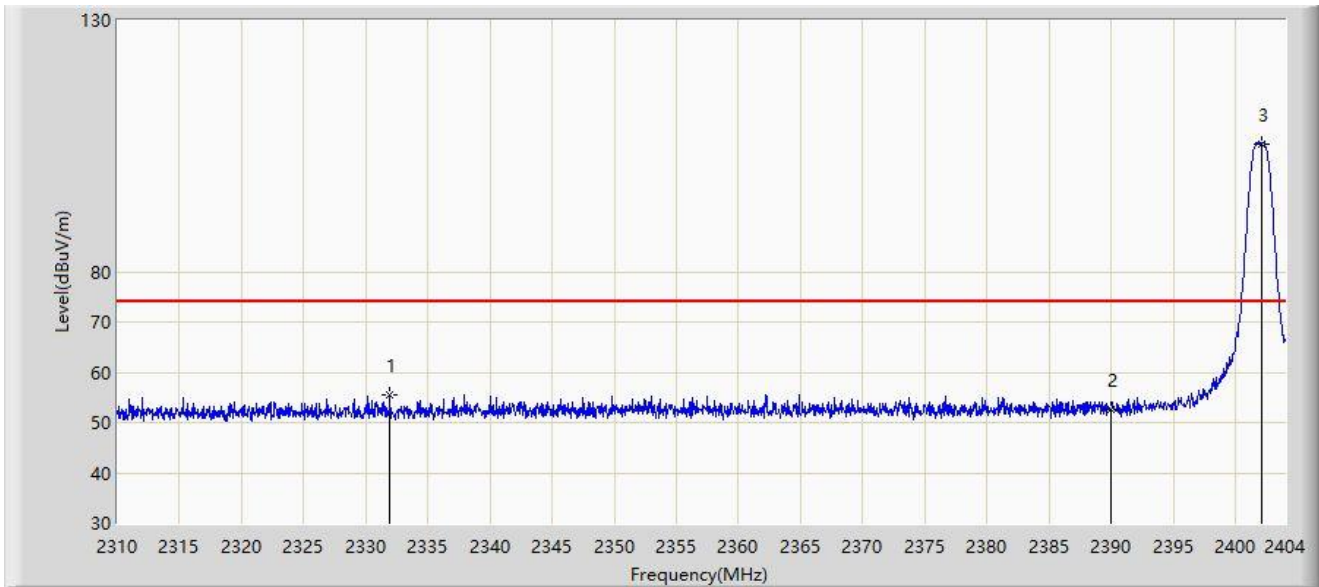
Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) 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.

### A.7 Radiated Restricted Band Edge Test Result

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2402MHz	



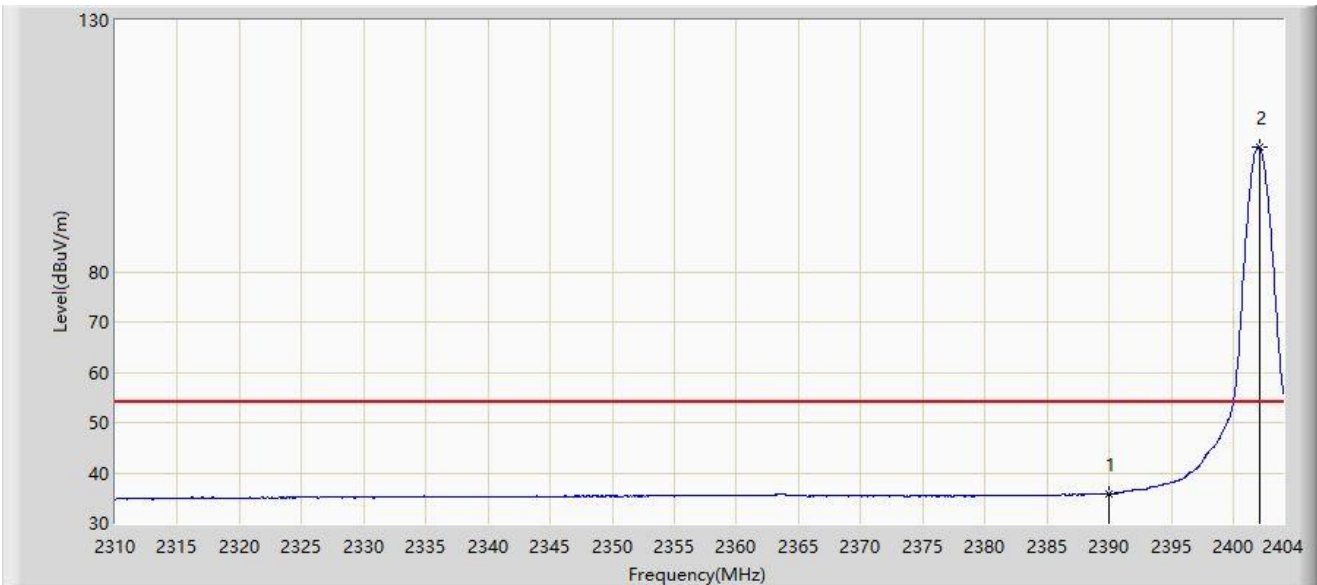
No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1	*	2331.949	55.472	23.954	-18.528	74.000	31.518	PK
2		2390.000	52.692	20.977	-21.308	74.000	31.715	PK
3		2402.073	105.496	73.701	N/A	N/A	31.795	PK

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

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2402MHz	



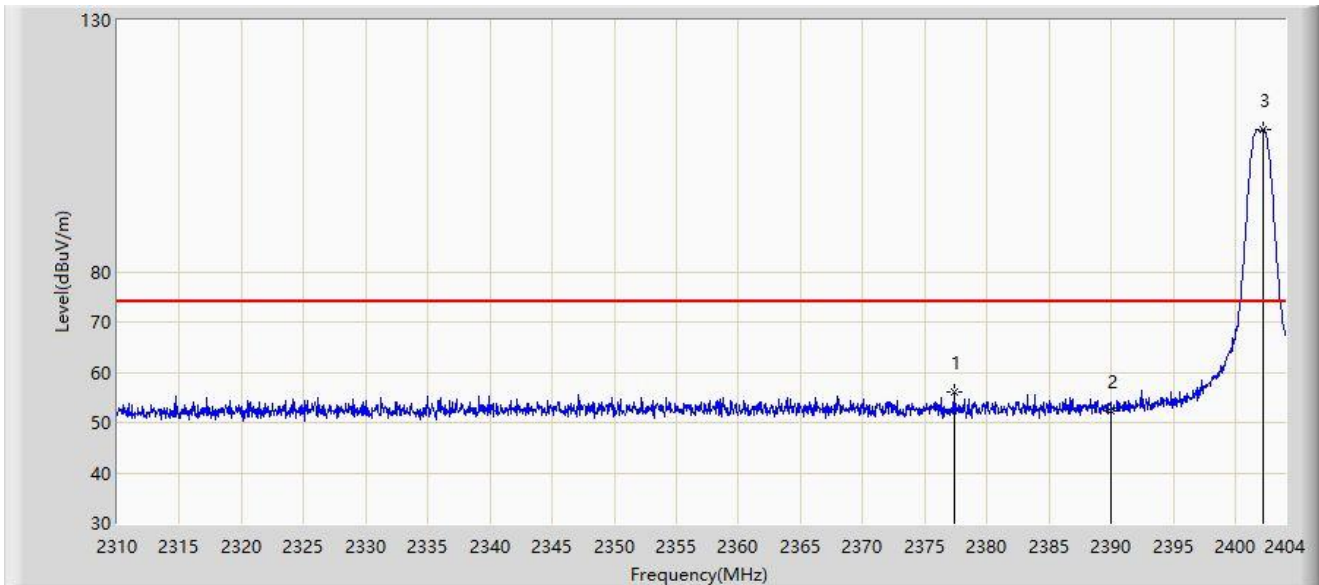
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2390.000	35.860	4.145	-18.140	54.000	31.715	AV
2		2402.073	104.763	72.968	N/A	N/A	31.795	AV

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).

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2402MHz	



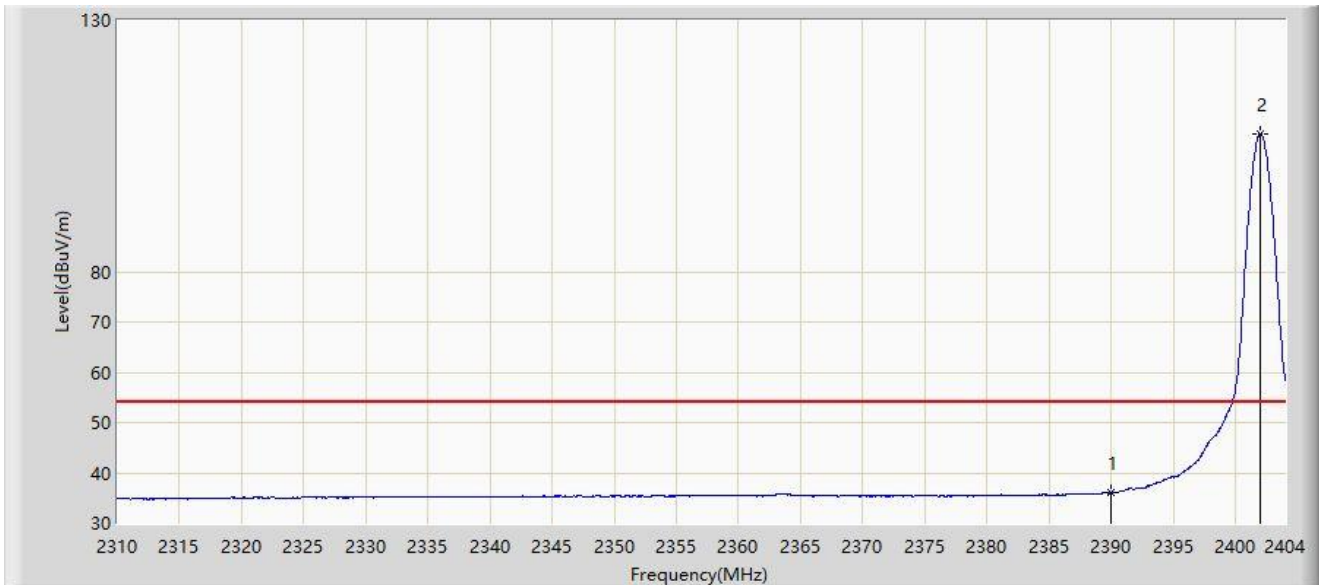
No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1	*	2377.351	56.088	24.603	-17.912	74.000	31.485	PK
2		2390.000	52.261	20.546	-21.739	74.000	31.715	PK
3		2402.214	108.187	76.391	N/A	N/A	31.796	PK

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

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2402MHz	



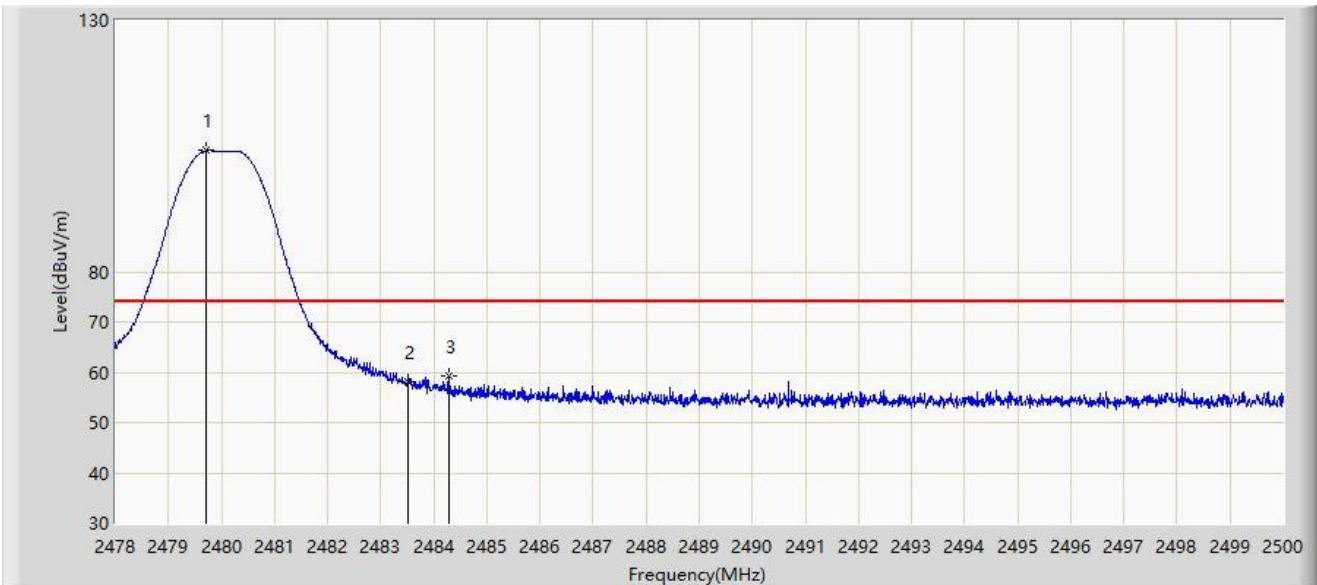
No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1	*	2390.000	35.986	4.271	-18.014	54.000	31.715	AV
2		2402.026	107.367	75.572	N/A	N/A	31.795	AV

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

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1		2479.716	104.075	71.990	N/A	N/A	32.084	PK
2		2483.500	58.007	25.917	-15.993	74.000	32.090	PK
3	*	2484.281	59.149	27.058	-14.851	74.000	32.091	PK

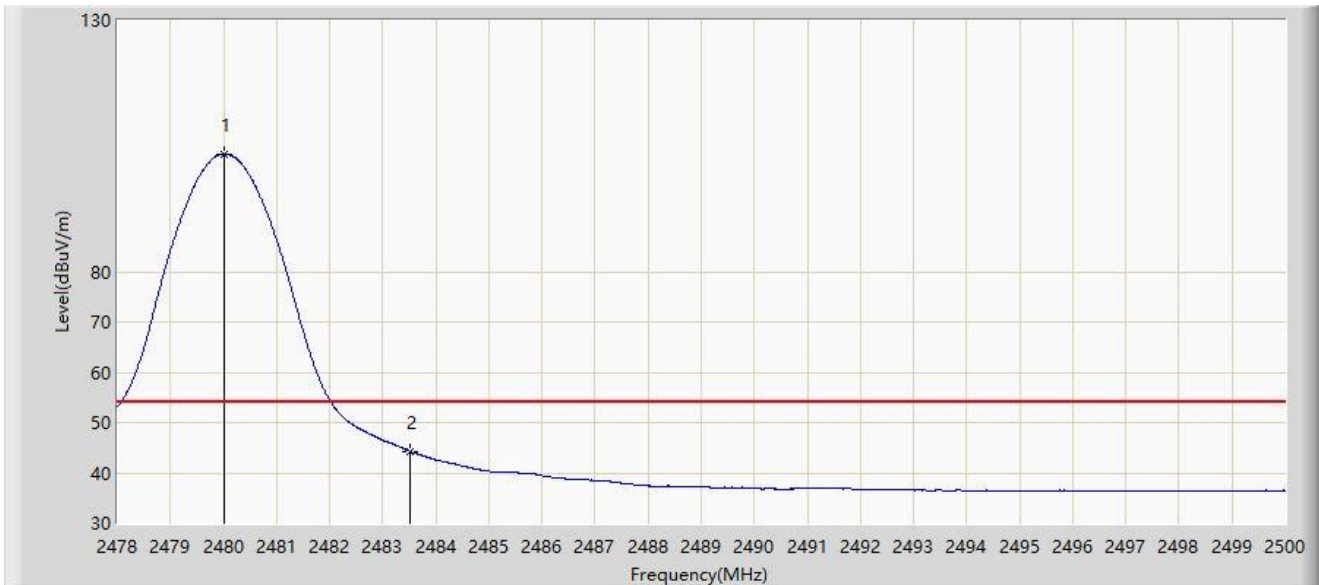
Note 1: " \* ", means this data is the worst emission level.

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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



Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Horizontal
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2480MHz	



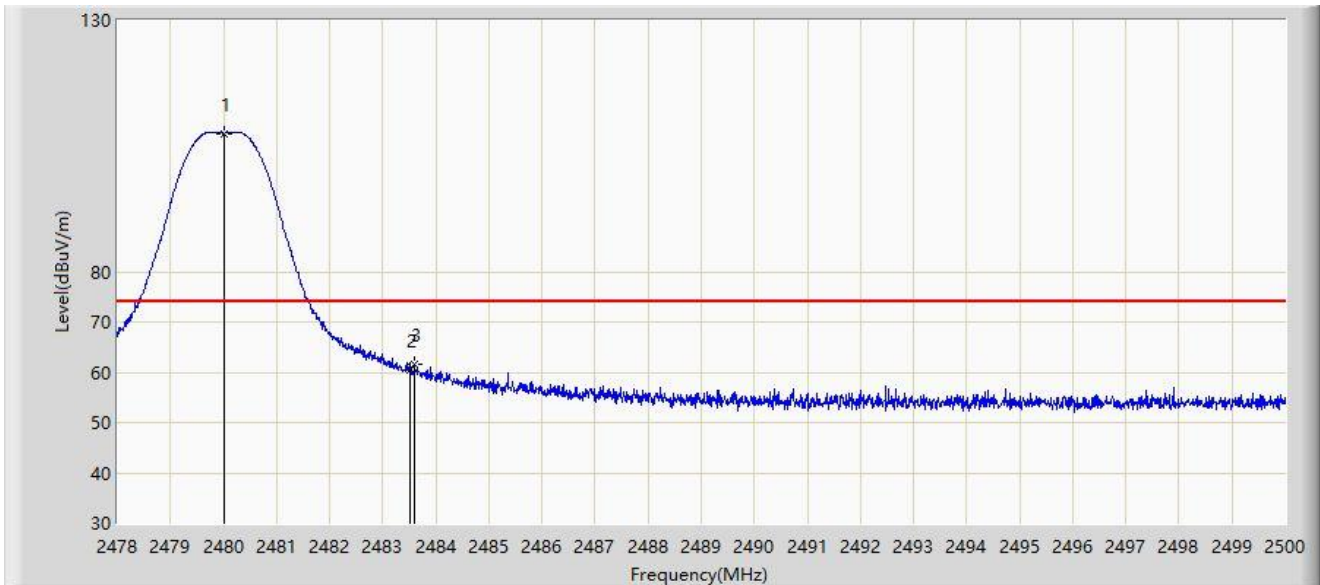
No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1		2480.002	103.375	71.290	N/A	N/A	32.085	AV
2	*	2483.500	44.330	12.240	-9.670	54.000	32.090	AV

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

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2480MHz	



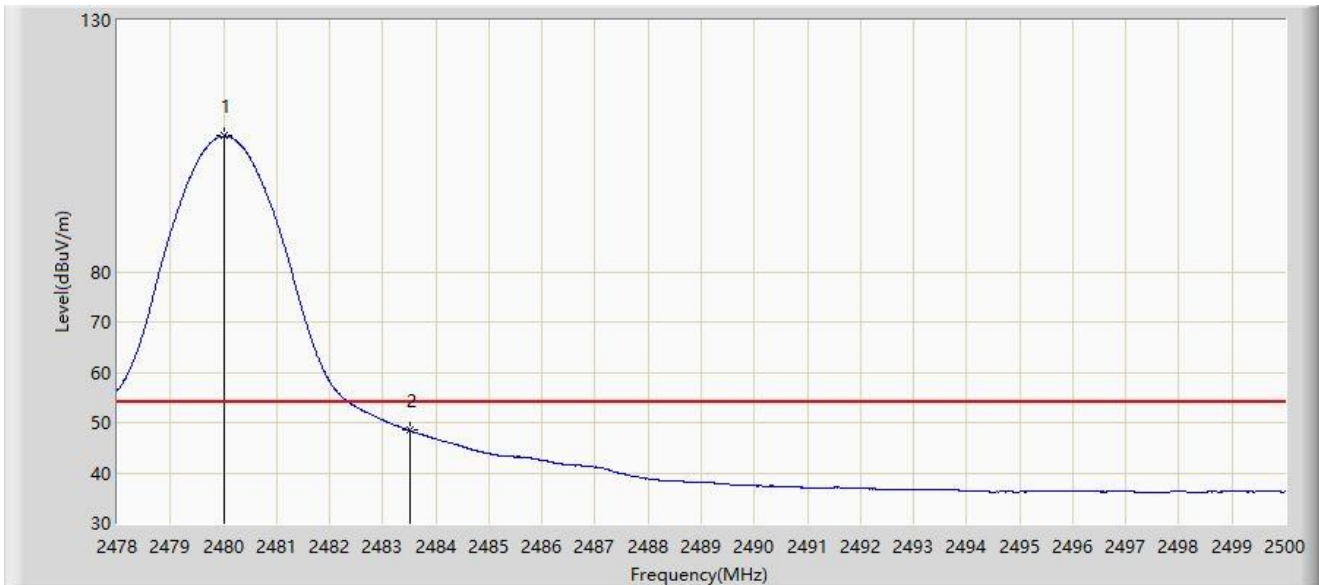
No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1		2480.002	107.513	75.428	N/A	N/A	32.085	PK
2		2483.500	60.422	28.332	-13.578	74.000	32.090	PK
3	*	2483.599	61.578	29.488	-12.422	74.000	32.090	PK

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

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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

Site: SIP-AC1	Test Date: 2024-02-05
Limit: FCC_2.4G_RE(3m)	Engineer: Mero Zhou
Probe: HF907_102862_1-18GHz	Polarity: Vertical
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
Test Mode: Transmit by BLE1M at 2480MHz	



No	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB/m)	Type
1		2480.013	106.960	74.875	N/A	N/A	32.085	AV
2	*	2483.500	48.450	16.360	-5.550	54.000	32.090	AV

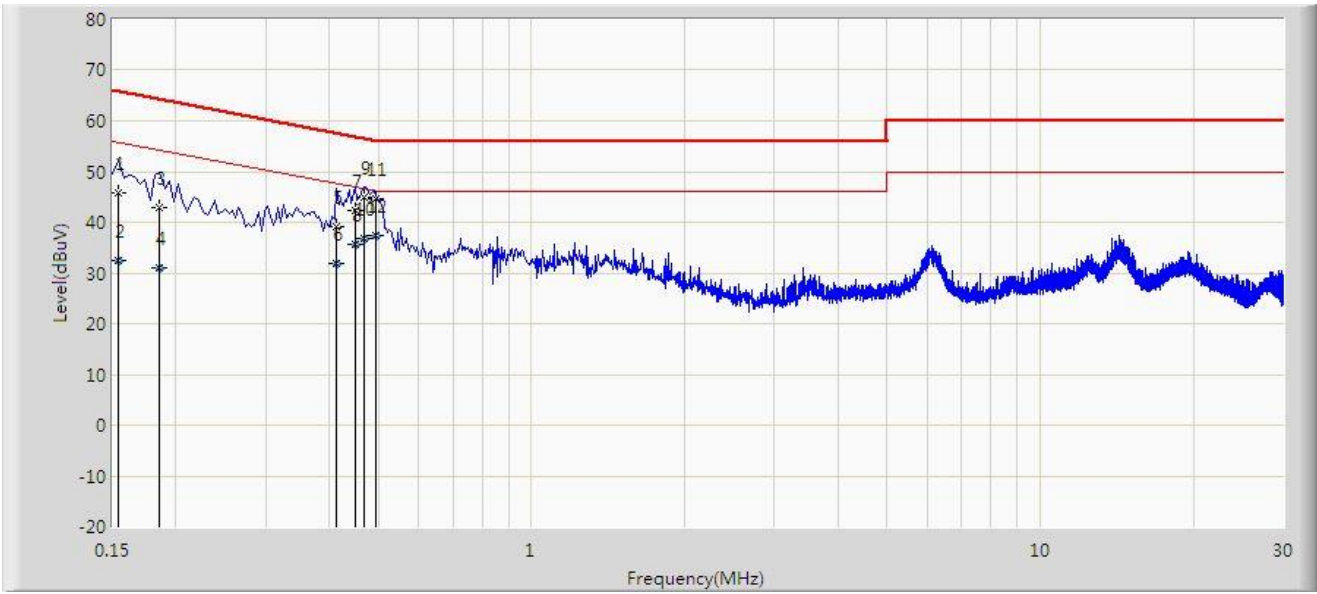
Note 1: " \* ", means this data is the worst emission level.

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB/m).

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

### A.8 AC Conducted Emissions Test Result

Site: SIP-SR2	Test Date: 2024-03-04
Limit: FCC_Part15.207_CE_AC Power	Engineer: Mark Long
Probe: SIP-SR2-ENV216_101684_E	Polarity: Line
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
<b>Test Mode:</b> Transmit by BLE-1M at 2402MHz	



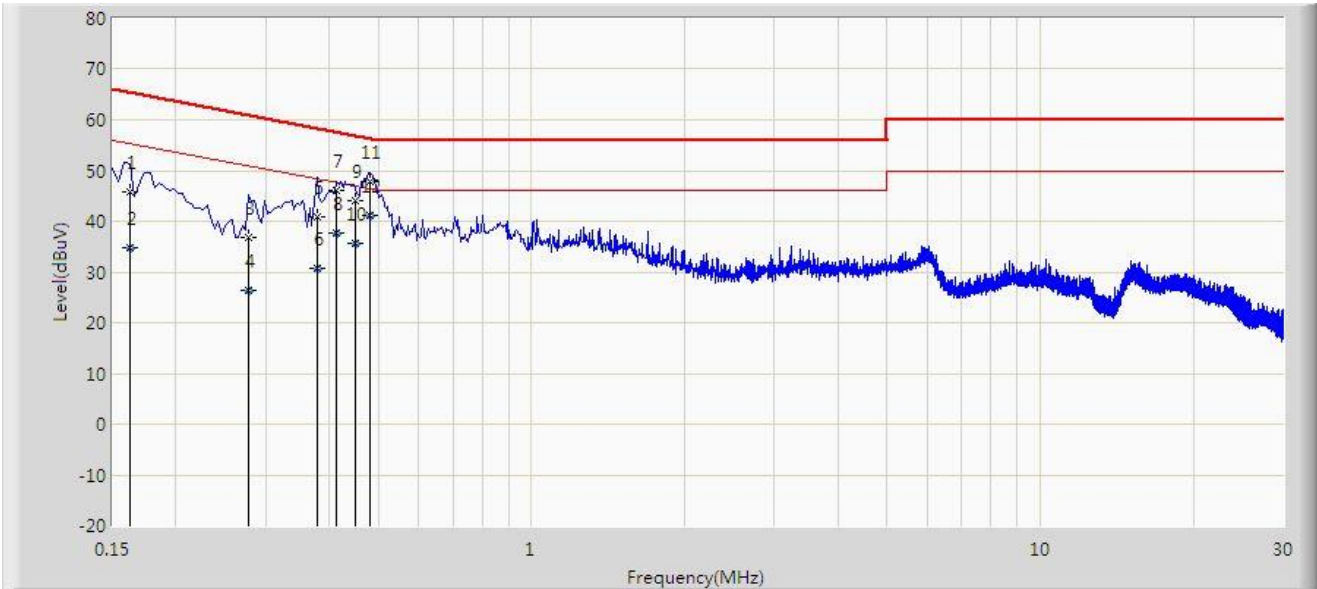
No	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1		0.154	45.854	36.204	-19.927	65.781	9.651	QP
2		0.154	32.564	22.913	-23.217	55.781	9.651	AV
3		0.186	43.015	33.352	-21.198	64.213	9.663	QP
4		0.186	31.028	21.365	-23.185	54.213	9.663	AV
5		0.414	39.118	29.387	-18.450	57.568	9.732	QP
6		0.414	31.770	22.038	-15.798	47.568	9.732	AV
7		0.450	42.223	32.487	-14.653	56.875	9.735	QP
8		0.450	35.568	25.833	-11.307	46.875	9.735	AV
9		0.470	44.879	35.141	-11.635	56.514	9.737	QP
10		0.470	36.759	27.022	-9.755	46.514	9.737	AV
11		0.494	44.510	34.771	-11.591	56.100	9.739	QP
12	*	0.494	37.370	27.631	-8.730	46.100	9.739	AV

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

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

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SIP-SR2	Test Date: 2024-03-04
Limit: FCC_Part15.207_CE_AC Power	Engineer: Mark Long
Probe: SIP-SR2-ENV216_101684_E	Polarity: Neutral
EUT: Tri-band Wi-Fi 7 Wireless AP	Power: AC 120V/60Hz
<b>Test Mode:</b> Transmit by BLE-1M at 2402MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1		0.162	45.928	36.278	-19.432	65.361	9.650	QP
2		0.162	34.900	25.250	-20.461	55.361	9.650	AV
3		0.278	36.716	27.003	-24.160	60.875	9.713	QP
4		0.278	26.269	16.556	-24.606	50.875	9.713	AV
5		0.378	40.955	31.228	-17.369	58.323	9.726	QP
6		0.378	30.767	21.041	-17.556	48.323	9.726	AV
7		0.414	46.049	36.319	-11.518	57.568	9.730	QP
8		0.414	37.656	27.926	-9.912	47.568	9.730	AV
9		0.450	44.037	34.307	-12.838	56.875	9.730	QP
10		0.450	35.542	25.812	-11.333	46.875	9.730	AV
11		0.482	47.905	38.175	-8.399	56.305	9.730	QP
12	*	0.482	41.148	31.418	-5.157	46.305	9.730	AV

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

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

Note 3: Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

## **Appendix B - Test Setup Photograph**

Refer to "2312RSU008-UT" file.

## Appendix C - EUT Photograph

Refer to "2312RSU008-UE" file.

\_\_\_\_\_ The End \_\_\_\_\_