



RF MEASUREMENT REPORT

FCC ID: XMR2022HC08U
Applicant: Quectel Wireless Solutions Co., Ltd.
Product: Bluetooth Module
Model No.: HC08U
Brand Name: Quectel
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
Result: Complies
Received Date: 2024-09-03
Test Date: 2025-03-14 ~ 2025-03-20

Reviewed By:

Denise Zhou

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.

Revision History

Report No.	Version	Description	Issue Date	Note
R25S1025030-U201	V01	Initial Report	2025-04-27	Valid

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1. General Information

1.1. Applicant

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China, 200233

1.2. Manufacturer

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China, 200233

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 Location (Suzhou - Wujiang) Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of 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 Name	Bluetooth Module
Model No.	HC08U
Bluetooth Specification	BT 5.1 (BLE 1M&2M)
EUT Identification No.	20240903Sample#02
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Description of Host

Host Name	Power Amplifier
Model No.	UA 2-125 ARC
Company Name	Dana Innovations: SONANCE
Bluetooth Specification	BT 5.1 (BLE 1M&2M)
Antenna Information	Refer to section 1.6
Power Supply	100-240V ~ 50/60Hz
Integrated Modular Information	
BT Module	Module Name: Bluetooth Module FCC ID: XMR2022HC08U IC: 10224A-2022HC08U

Note: The report is based on the host to perform "Output Power and General Field Strength" test.

1.6. Radio Specification under Test

Bluetooth Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps & 2Mbps
Antenna Type	FPC
Antenna Gain	0.7 dBi

1.7. 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	--	--	--	--

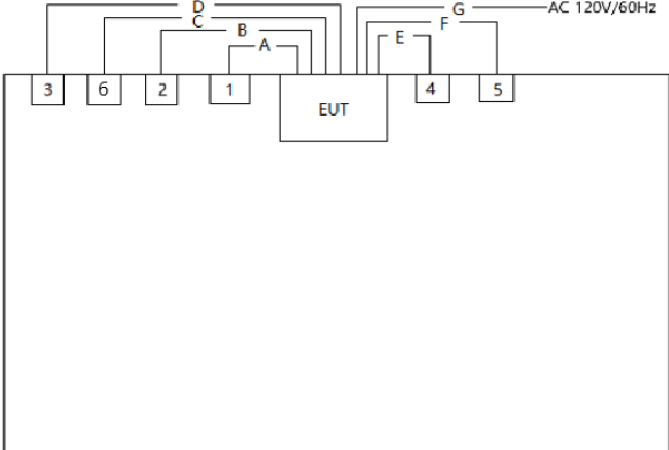
2. Test Configuration

2.1. Test Mode

Mode 1: Transmit by BLE-1Mbps
Mode 2: Transmit by BLE-2Mbps

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.

Connection Diagram – Radiated Emission testing			
			
No.	Cable Type	Cable Spec.	Length
A	IR Cable	Non-Shielding	1.0 m
B	HDMI Cable	Non-Shielding	1.5 m
C	Audio Cable	Non-Shielding	1.5 m
D	Audio Cable	Non-Shielding	1.5 m
E	Audio Cable	Non-Shielding	1.5 m
F	Audio Cable	Non-Shielding	1.5 m
G	Power Cable	Non-Shielding	1.8 m
No.	Product	Manufacturer	Model No.
1	IR Receiver	HANSONG	N/A
2	TV	Sony	KD-43X8500F
3	Loudspeaker	BOSE	Soundlink mini
4	Speaker	N/A	4Ω
5	Speaker	N/A	4Ω
6	Phone	Apple	iPhone 13

2.3. Test Software

The test utility software used during testing was “ssscm”, and the version was 5.13.1.

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
USB Power Sensor	Keysight	U2021XA	MRTSUE06446	1 year	2025-05-08	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11082	1 year	2025-06-05	WZ-SR5
Cable	UCwave	UCE500	24060015	Note	Note	WZ-SR5
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2025-12-05	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11039	1 year	2025-10-16	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2025-05-15	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2025-04-19	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2025-11-03	WZ-AC1
Preamplifier	EMCI	EMC184045SE	MRTSUE06640	1 year	2026-01-09	WZ-AC1
EMI Test Receiver	Agilent	N9038A	MRTSUE06125	1 year	2025-05-08	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2025-09-23	WZ-AC2
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2025-05-06	WZ-AC2
Anechoic Chamber	RIKEN	WZ-AC2	MRTSUE06213	1 year	2025-04-18	WZ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11263	1 year	2025-10-16	WZ-AC2
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2026-01-04	WZ-AC2

Note: The loss of the RF cable will be measured before testing.

Software	Version	Function
e3	230711	RE & CE
Controller_MF 7802	2.03C	RE Antenna & Turntable
Controller_MF 7802	1.02	RE Antenna & Turntable

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	
The maximum measurement uncertainty is evaluated as:	
Coaxial:	9kHz~30MHz: 2.35dB
Coplanar:	9kHz~30MHz: 2.37dB
Horizontal:	30MHz~200MHz: 3.46dB
	200MHz~1GHz: 3.78dB
	1GHz~40GHz: 4.97dB
Vertical:	30MHz~200MHz: 4.07dB
	200MHz~1GHz: 5.28dB
	1GHz~40GHz: 4.78dB
Output Power	
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$):	
1.3dB	

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(b)(3)	Output Power	Conducted	Pass
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Radiated	Pass

Note: 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. Output Power Measurement

6.2.1. 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.

6.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3

ANSI C63.10 - 2013 - Section 11.9.2.3.2

6.2.3. Test Setting

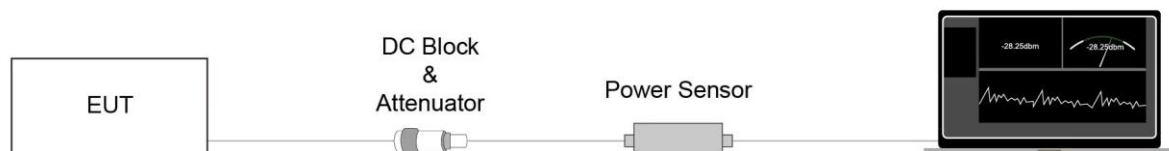
Method PKPM1 (Peak Power Measurement of Signals with DTS BW $\leq$ 50MHz)

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.

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.1.

6.3. Radiated Spurious Emission Measurement

6.3.1. 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

6.3.2. 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)

6.3.3. 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

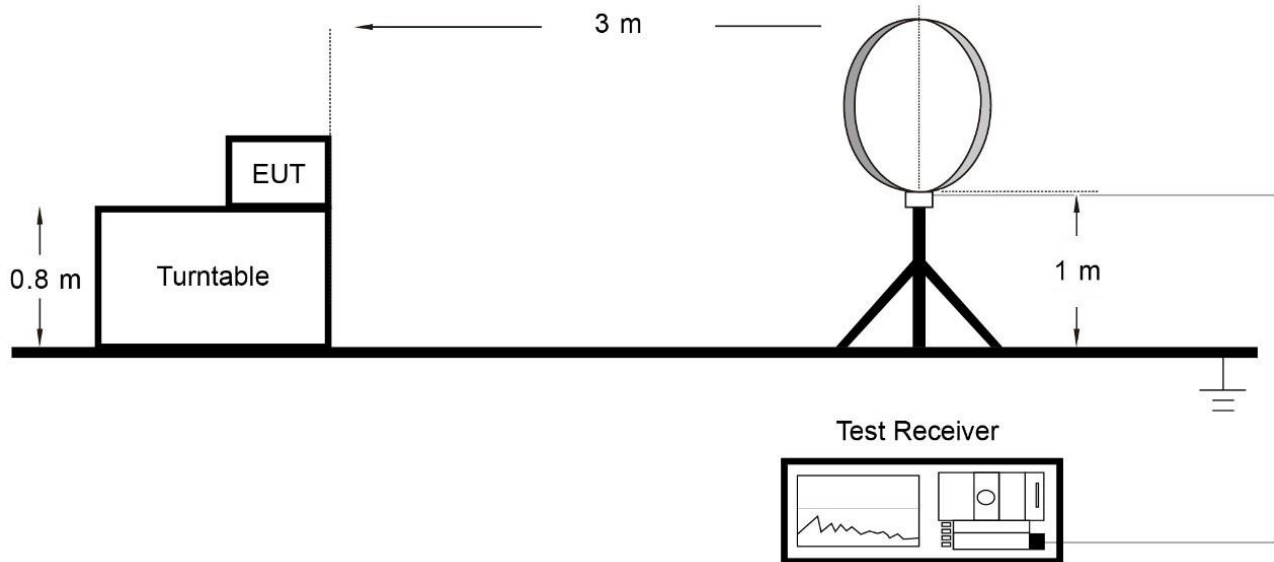
Average Measurements above 1GHz (Method VB)

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 = 10Hz

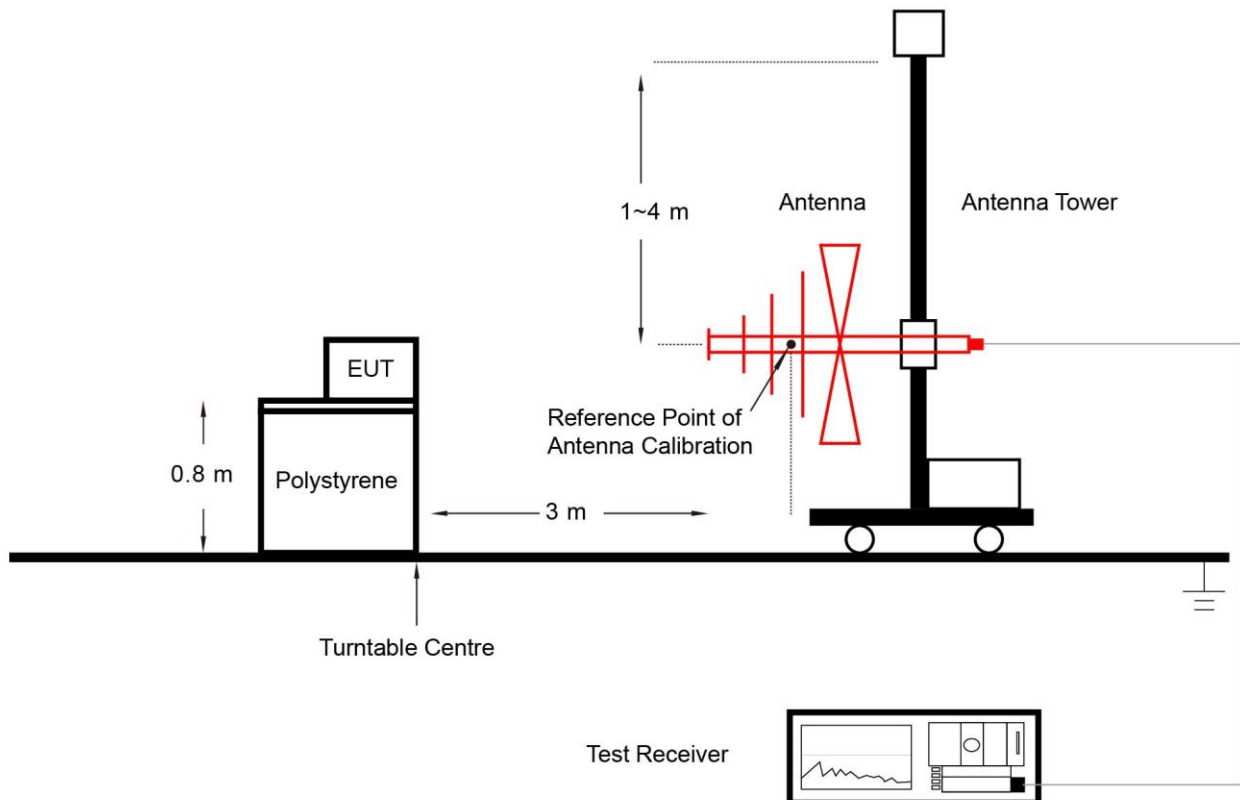
If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear 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. Trace was allowed to stabilize

6.3.4. Test Setup

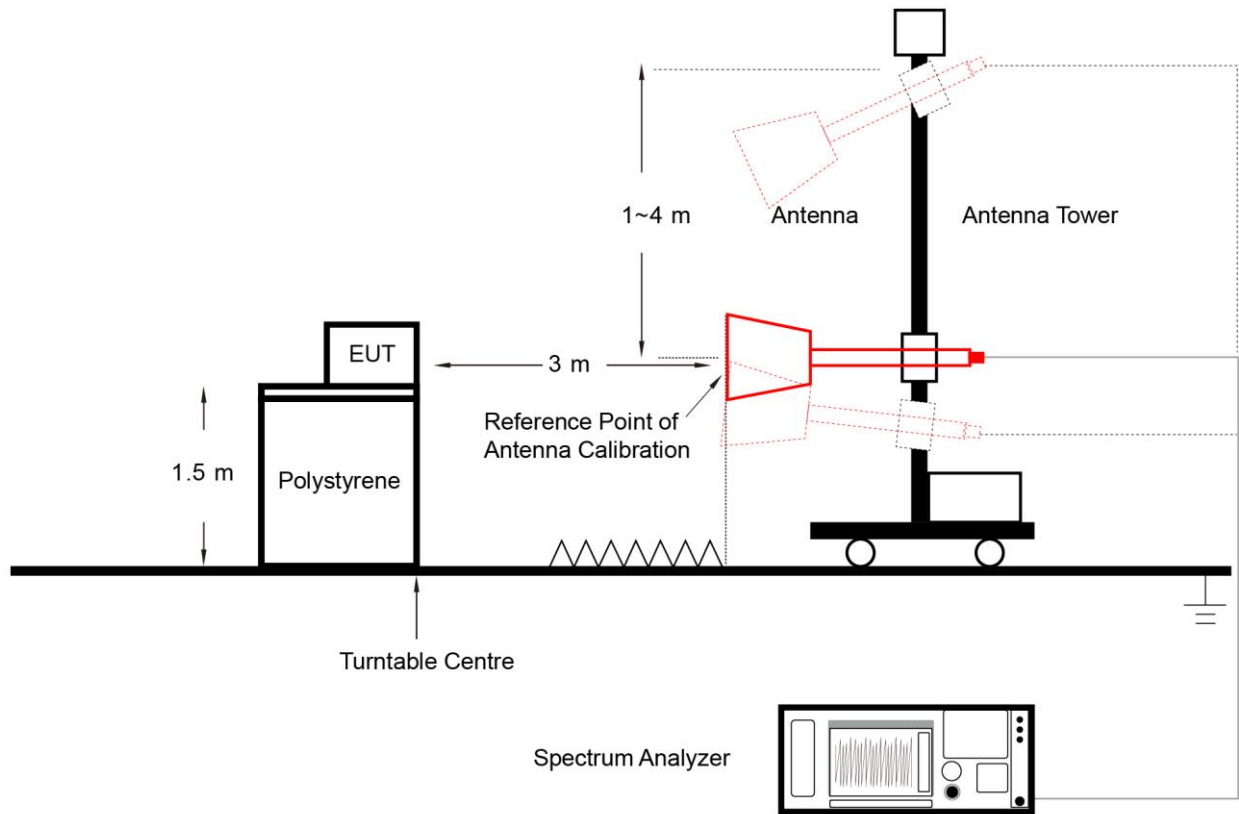
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.3.5. Test Result

Refer to Appendix A.2.

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	--	--	--

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

6.4.2. Test Procedure

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

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

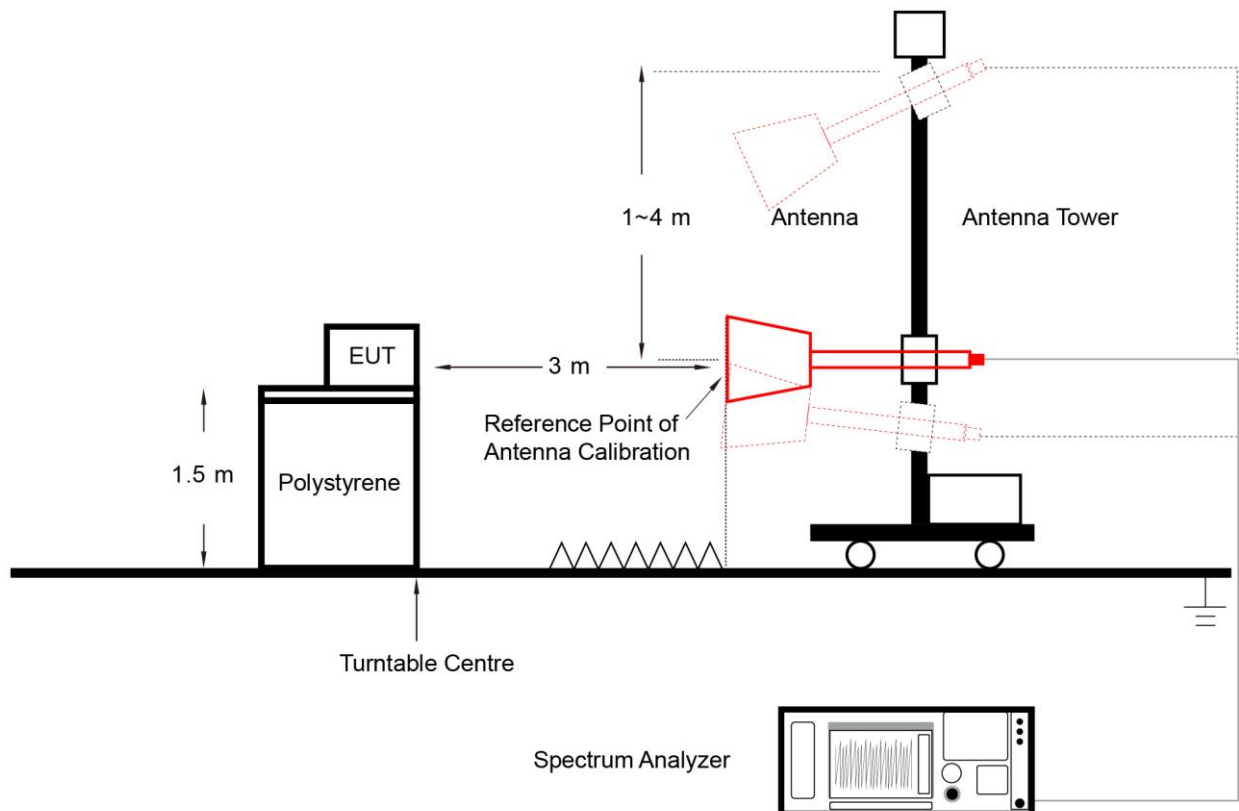
Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. 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. 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

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.3.

Appendix A - Test Result

A.1 Output Power Test Result

Test Site	WZ-SR5	Test Engineer	Cloud Guo
Test Date	2025-03-14 ~ 2025-03-19		

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	2.96	≤ 30.00	Pass
BLE	1Mbps	19	2440	2.70	≤ 30.00	Pass
BLE	1Mbps	39	2480	2.42	≤ 30.00	Pass
BLE	2Mbps	00	2402	2.97	≤ 30.00	Pass
BLE	2Mbps	19	2440	2.71	≤ 30.00	Pass
BLE	2Mbps	39	2480	2.44	≤ 30.00	Pass

A.2 Radiated Spurious Emission Test Result

Test Site	WZ-AC2	Test Engineer	Jerry Lu
Test Date	2025-03-17	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 show 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	4802.900	39.7	2.8	42.5	74.0	-31.5	Peak	Horizontal
	11324.100	31.3	16.5	47.8	74.0	-26.2	Peak	Horizontal
	17872.500	18.2	27.6	45.8	54.0	-8.2	Average	Horizontal
	17872.500	31.3	27.6	58.9	74.0	-15.1	Peak	Horizontal
	4802.900	40.0	2.8	42.8	74.0	-31.2	Peak	Vertical
	11738.900	31.6	16.6	48.2	74.0	-25.8	Peak	Vertical
	17916.700	18.3	27.8	46.1	54.0	-7.9	Average	Vertical
	17916.700	31.1	27.8	58.9	74.0	-15.1	Peak	Vertical
19	4879.400	39.9	2.6	42.5	74.0	-31.5	Peak	Horizontal
	11854.500	31.3	16.1	47.4	74.0	-26.6	Peak	Horizontal
	17906.500	18.4	28.1	46.5	54.0	-7.5	Average	Horizontal
	17906.500	31.6	28.1	59.7	74.0	-14.3	Peak	Horizontal
	4879.400	42.1	2.6	44.7	74.0	-29.3	Peak	Vertical
	11635.200	30.6	16.8	47.4	74.0	-26.6	Peak	Vertical
	17909.900	18.5	28.1	46.6	54.0	-7.4	Average	Vertical
	17909.900	30.9	28.1	59.0	74.0	-15.0	Peak	Vertical
39	4959.300	40.8	2.6	43.4	74.0	-30.6	Peak	Horizontal
	11616.500	31.5	16.4	47.9	74.0	-26.1	Peak	Horizontal
	17903.100	18.5	28.2	46.7	54.0	-7.3	Average	Horizontal
	17903.100	31.1	28.2	59.3	74.0	-14.7	Peak	Horizontal
	4959.300	41.9	2.6	44.5	74.0	-29.5	Peak	Vertical
	11341.100	31.2	16.5	47.7	74.0	-26.3	Peak	Vertical
	17887.800	18.8	28.1	46.9	54.0	-7.1	Average	Vertical
	17887.800	30.9	28.1	59.0	74.0	-15.0	Peak	Vertical

Notes:

- 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 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.

Test Site	WZ-AC2	Test Engineer	Jerry Lu & Lucas Wang
Test Date	2025-03-17	Test Mode:	BLE-2Mbps
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 show 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	4802.900	38.8	2.8	41.6	74.0	-32.4	Peak	Horizontal
	11647.100	30.4	16.9	47.3	74.0	-26.7	Peak	Horizontal
	17981.300	18.7	28.5	47.2	54.0	-6.8	Average	Horizontal
	17981.300	29.6	28.5	58.1	74.0	-15.9	Peak	Horizontal
	4802.900	39.6	2.8	42.4	74.0	-31.6	Peak	Vertical
	11636.900	30.8	16.8	47.6	74.0	-26.4	Peak	Vertical
	17889.500	18.5	28.1	46.6	54.0	-7.4	Average	Vertical
	17889.500	31.5	28.1	59.6	74.0	-14.4	Peak	Vertical
19	4879.400	41.0	2.6	43.6	74.0	-30.4	Peak	Horizontal
	11728.700	31.2	16.8	48.0	74.0	-26.0	Peak	Horizontal
	17908.200	18.2	28.1	46.3	54.0	-7.7	Average	Horizontal
	17908.200	31.0	28.1	59.1	74.0	-14.9	Peak	Horizontal
	4881.100	38.8	2.6	41.4	74.0	-32.6	Peak	Vertical
	11633.500	31.4	16.8	48.2	74.0	-25.8	Peak	Vertical
	17908.200	18.0	28.1	46.1	54.0	-7.9	Average	Vertical
	17908.200	30.8	28.1	58.9	74.0	-15.1	Peak	Vertical
39	4959.300	42.2	2.6	44.8	74.0	-29.2	Peak	Horizontal
	11461.800	31.3	16.4	47.7	74.0	-26.3	Peak	Horizontal
	17874.200	18.3	27.7	46.0	54.0	-8.0	Average	Horizontal
	17874.200	31.7	27.7	59.4	74.0	-14.6	Peak	Horizontal
	4959.300	38.0	2.6	40.6	74.0	-33.4	Peak	Vertical
	12199.600	30.5	16.5	47.0	74.0	-27.0	Peak	Vertical
	17903.100	18.0	28.2	46.2	54.0	-7.8	Average	Vertical
	17903.100	31.0	28.2	59.2	74.0	-14.8	Peak	Vertical

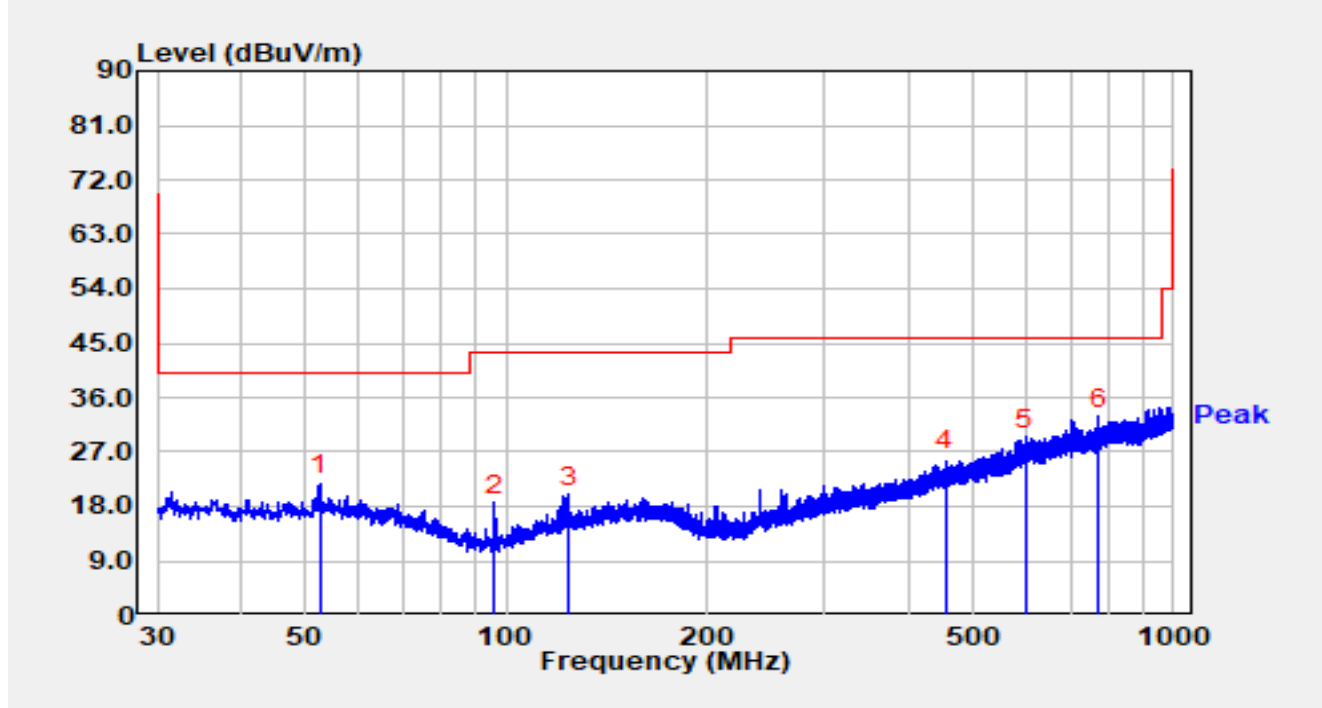
Notes:

- 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 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.

The Result of Radiated Emission 30MHz ~ 1GHz:

Site	WZ-AC1	Test Date	2025-03-20
Temperature	23.8 °C	Humidity	49.4 %
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Lucas
Factor	VULB 9168_00662	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2440MHz		

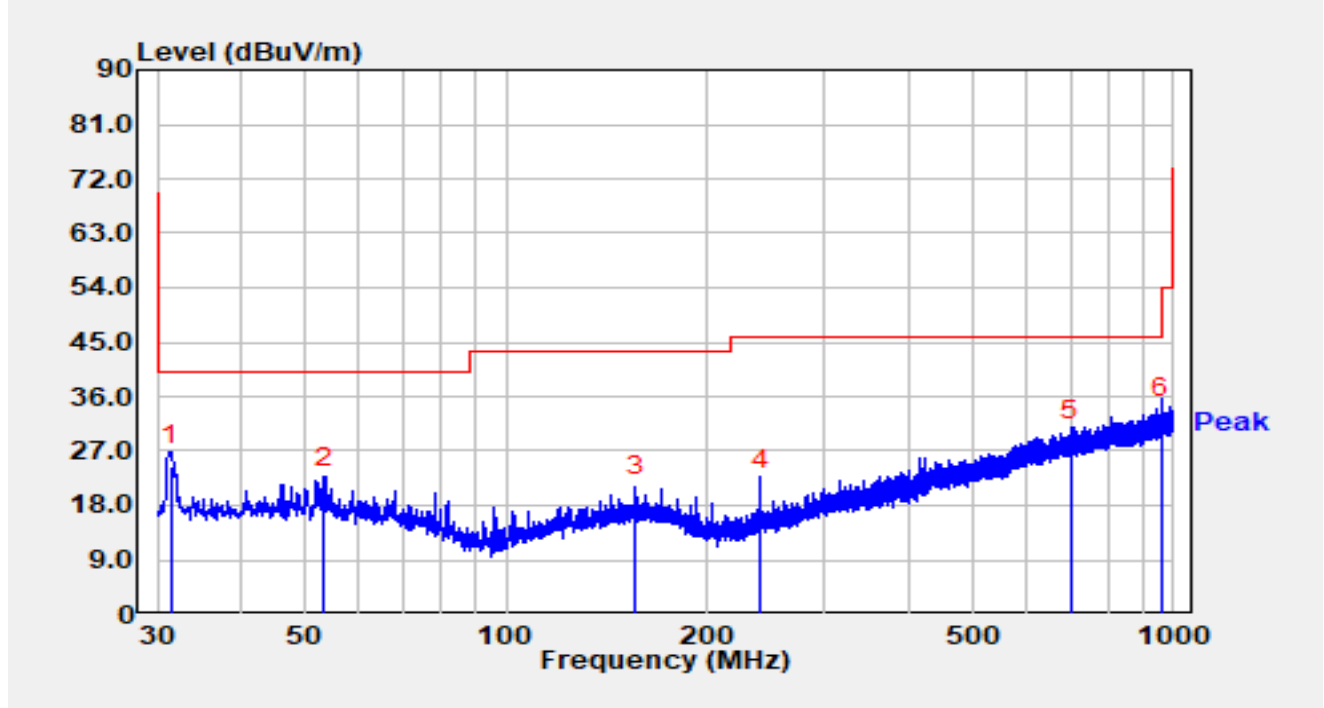


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		52.50	1.21	18.55	19.76	-20.24	40.00	QP
2		96.06	3.12	13.28	16.40	-27.10	43.50	QP
3		123.99	1.25	16.49	17.74	-25.76	43.50	QP
4		454.47	1.12	22.95	24.07	-21.93	46.00	QP
5		599.29	1.52	25.97	27.49	-18.51	46.00	QP
6	*	772.54	2.15	28.66	30.81	-15.19	46.00	QP

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC1	Test Date	2025-03-20
Temperature	23.8 °C	Humidity	49.4 %
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Lucas
Factor	VULB 9168_00662	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2440MHz		



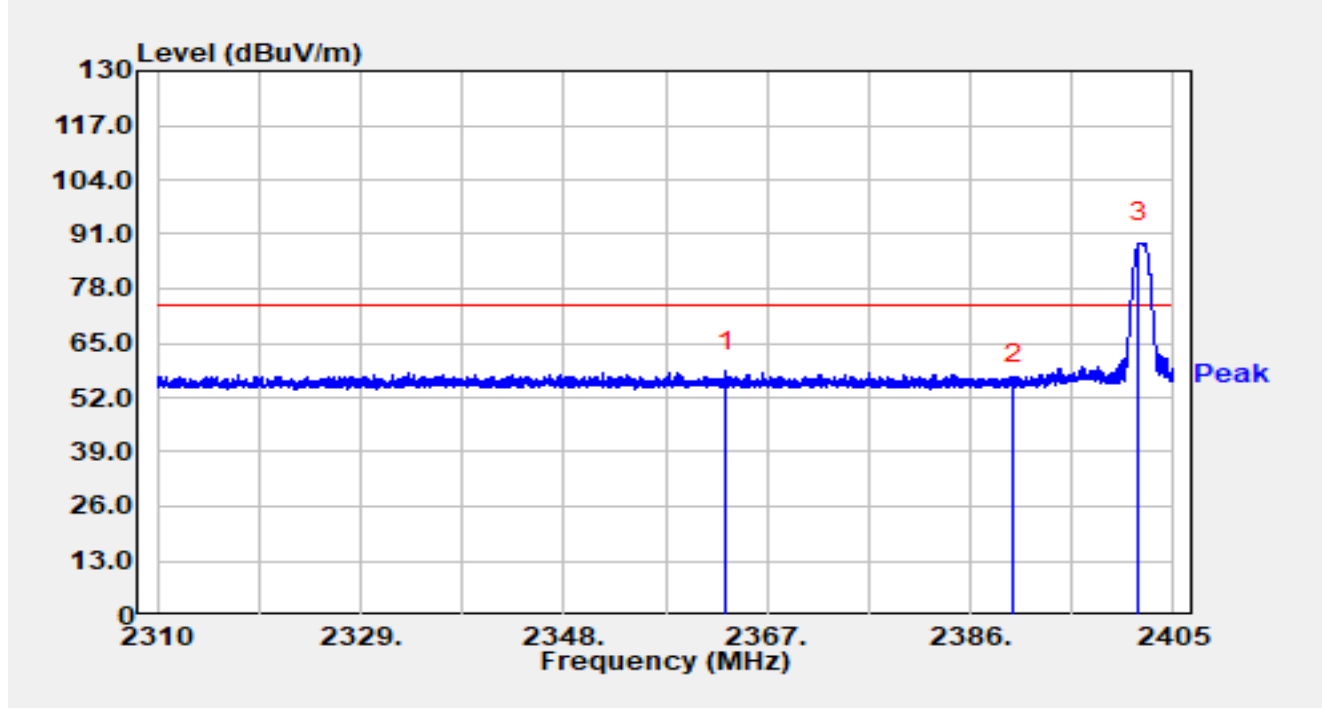
No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		31.46	7.12	17.42	24.54	-15.46	40.00	QP
2		53.38	2.21	18.57	20.78	-19.22	40.00	QP
3		156.00	1.15	18.31	19.46	-24.04	43.50	QP
4		240.01	4.12	16.48	20.60	-25.40	46.00	QP
5		701.24	1.24	27.55	28.79	-17.21	46.00	QP
6	*	956.54	1.52	30.75	32.27	-13.73	46.00	QP

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

A.3 Radiated Restricted Band Edge Test Result

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2402MHz		

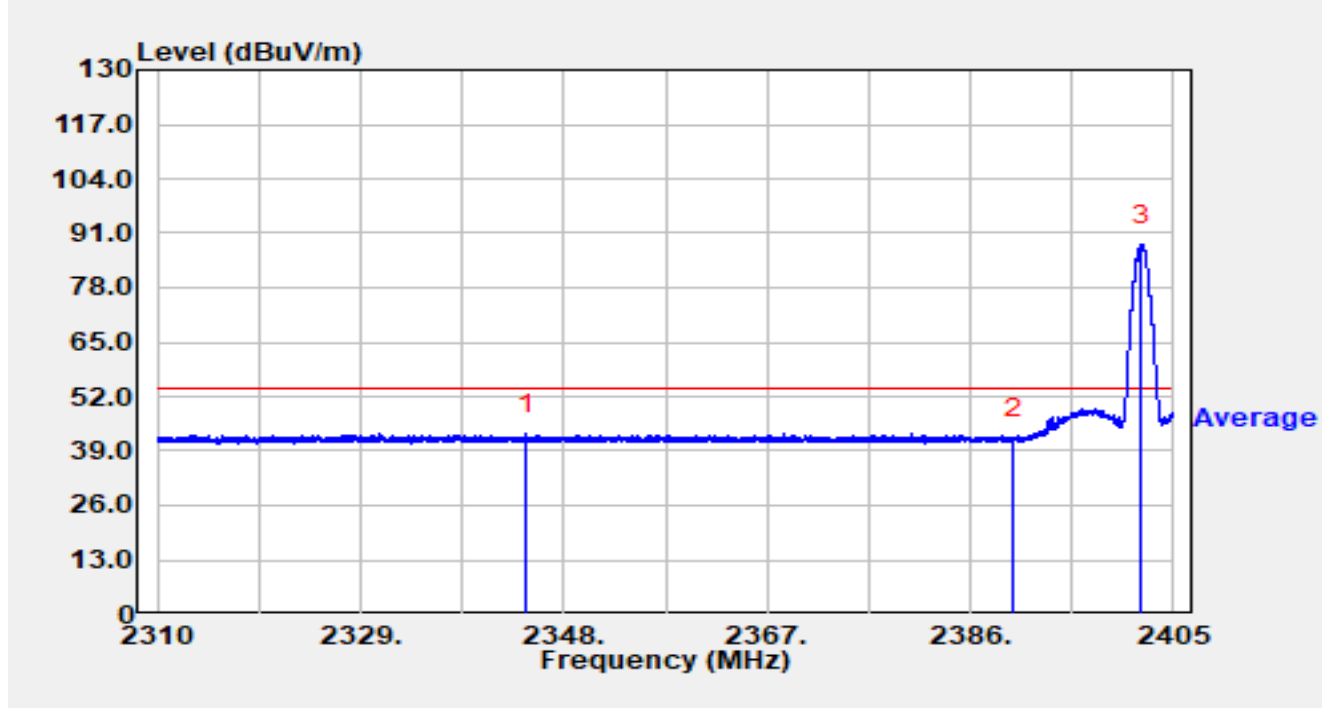


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2363.190	25.55	32.64	58.18	-15.82	74.00	Peak
2		2390.000	22.62	32.52	55.13	-18.87	74.00	Peak
3		2401.789	56.32	32.49	88.81	N/A	N/A	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2402MHz		

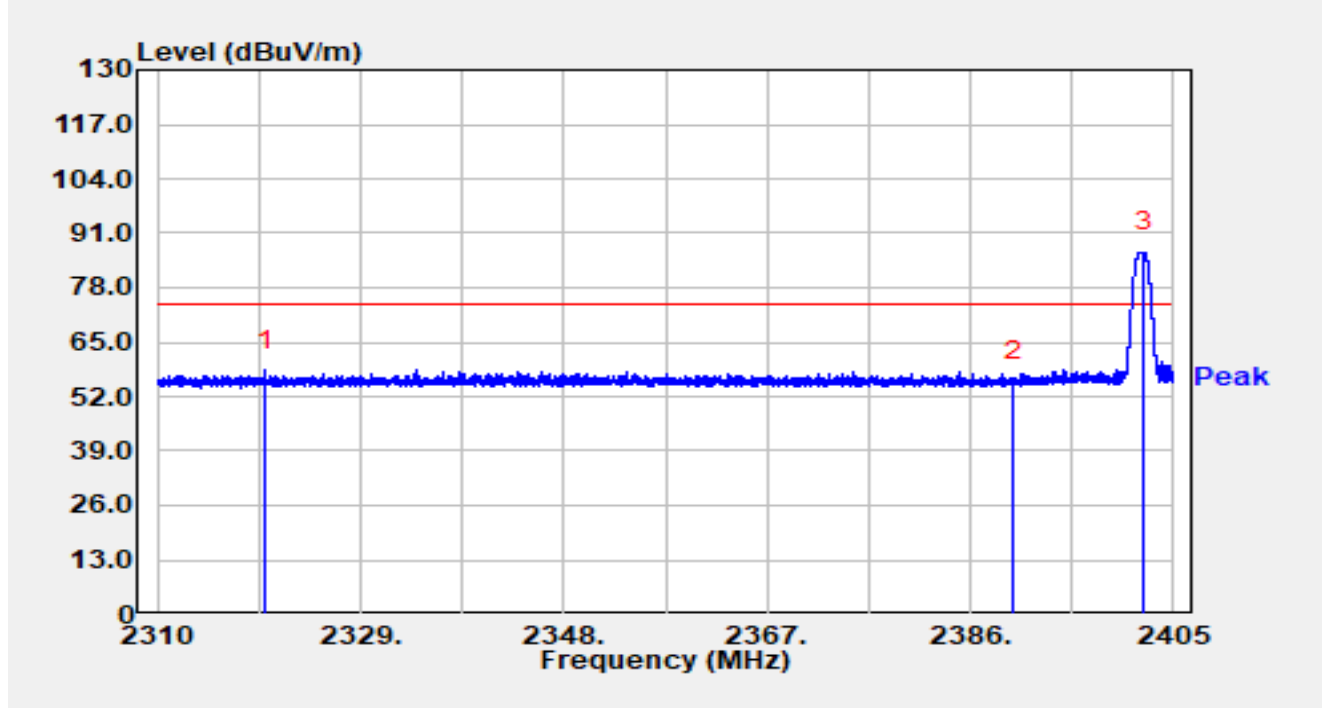


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2344.438	10.40	32.75	43.15	-10.85	54.00	Average
2		2390.000	9.30	32.52	41.82	-12.18	54.00	Average
3		2401.989	55.68	32.49	88.17	N/A	N/A	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2402MHz		

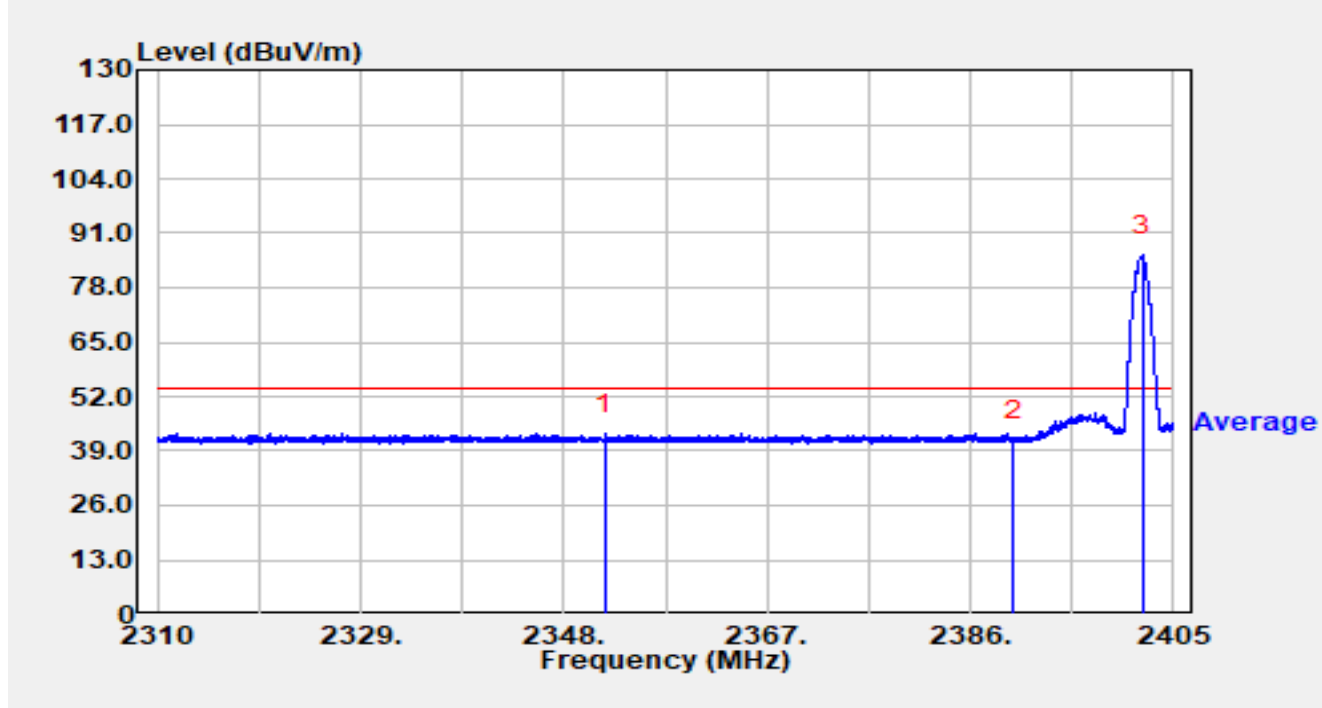


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2320.080	25.43	32.74	58.17	-15.83	74.00	Peak
2		2390.000	23.10	32.52	55.62	-18.38	74.00	Peak
3		2402.236	53.86	32.49	86.35	N/A	N/A	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2402MHz		

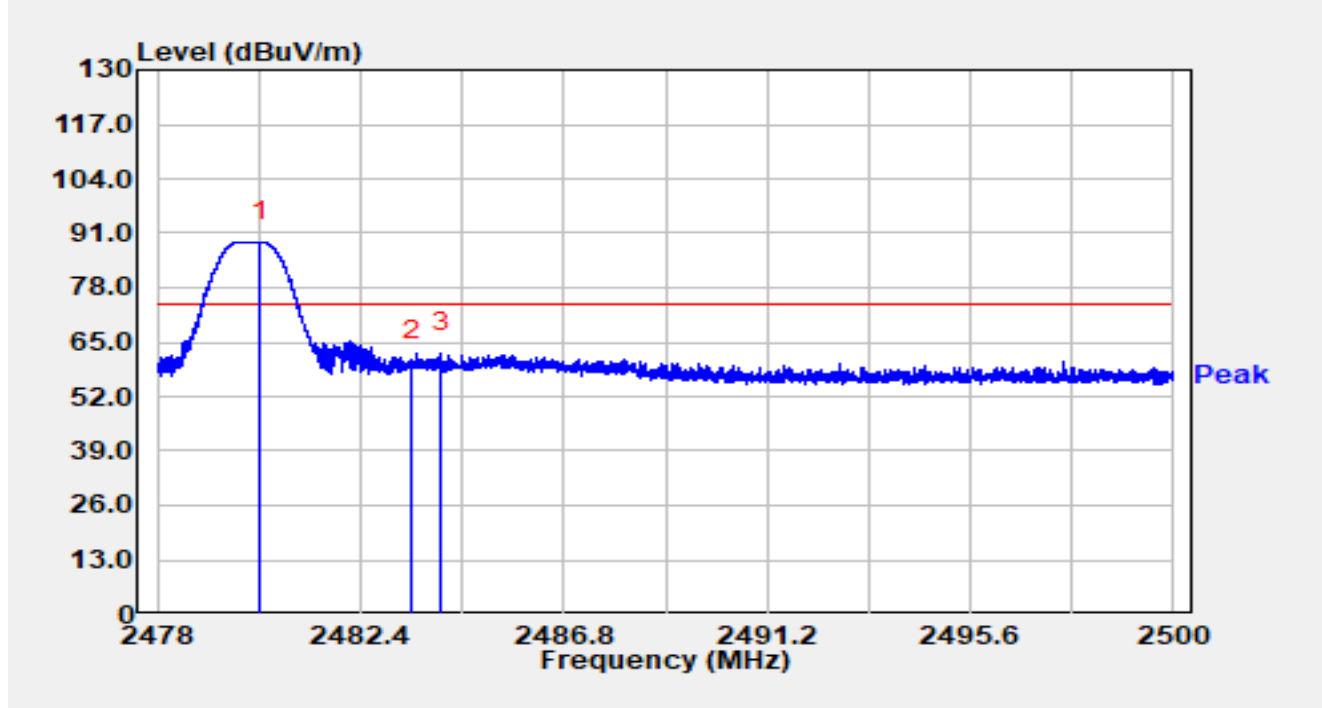


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2351.885	10.40	32.72	43.12	-10.88	54.00	Average
2		2390.000	9.04	32.52	41.56	-12.44	54.00	Average
3		2402.083	53.12	32.49	85.62	N/A	N/A	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2480MHz		

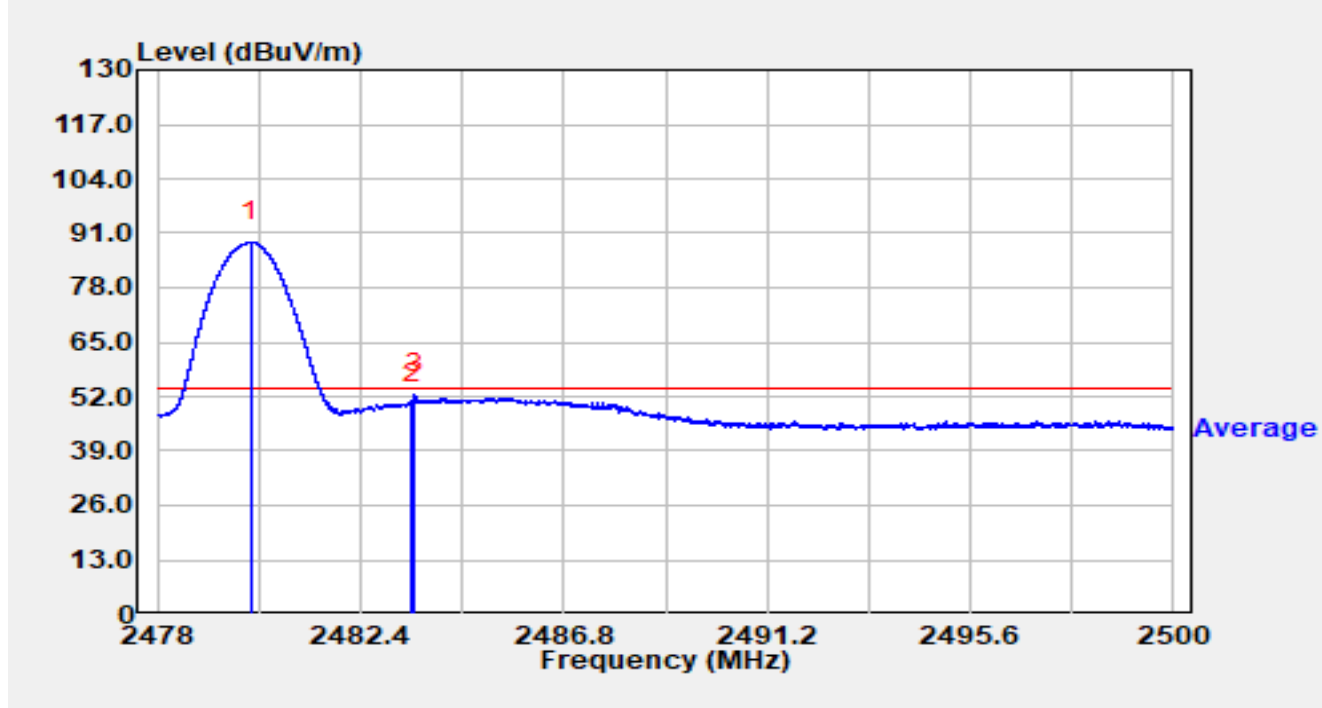


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.226	56.54	32.40	88.95	N/A	N/A	Peak
2		2483.500	28.43	32.40	60.83	-13.17	74.00	Peak
3	*	2484.142	29.94	32.40	62.33	-11.67	74.00	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2480MHz		

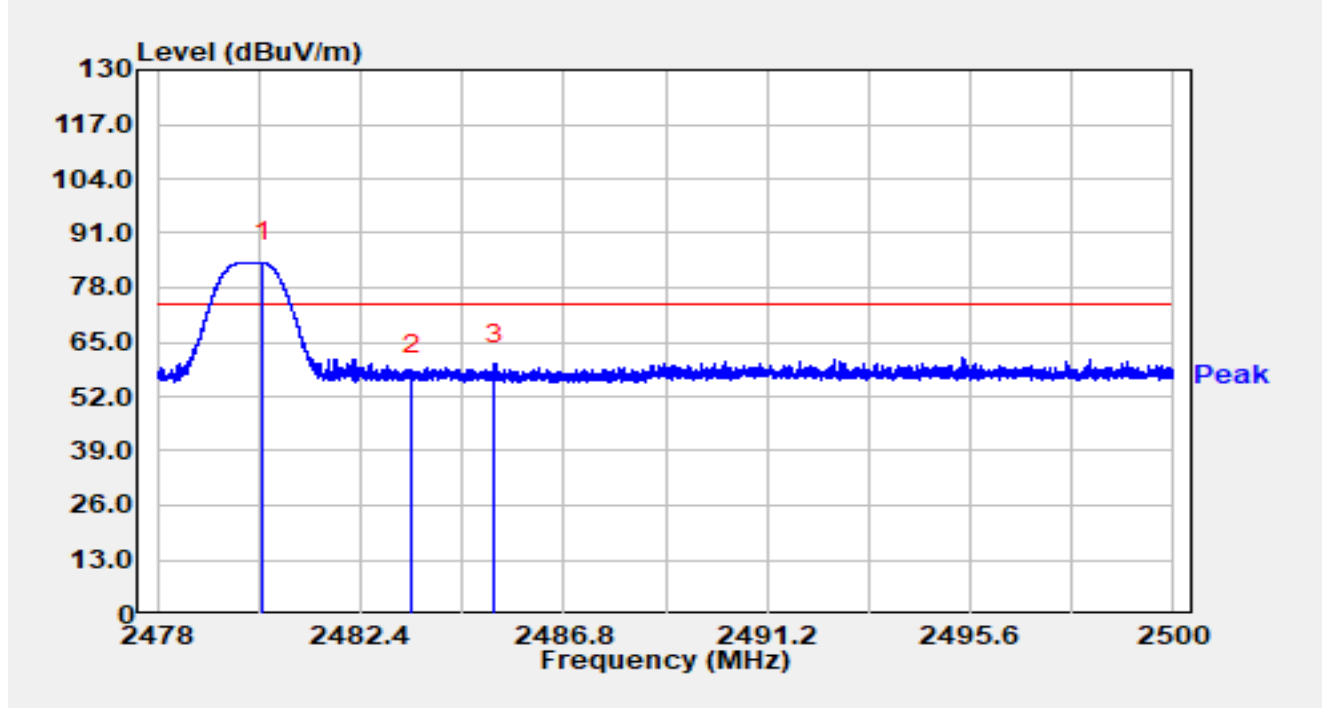


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.015	56.44	32.40	88.84	N/A	N/A	Average
2		2483.500	17.89	32.40	50.29	-3.71	54.00	Average
3	*	2483.568	20.15	32.40	52.55	-1.45	54.00	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2480MHz		

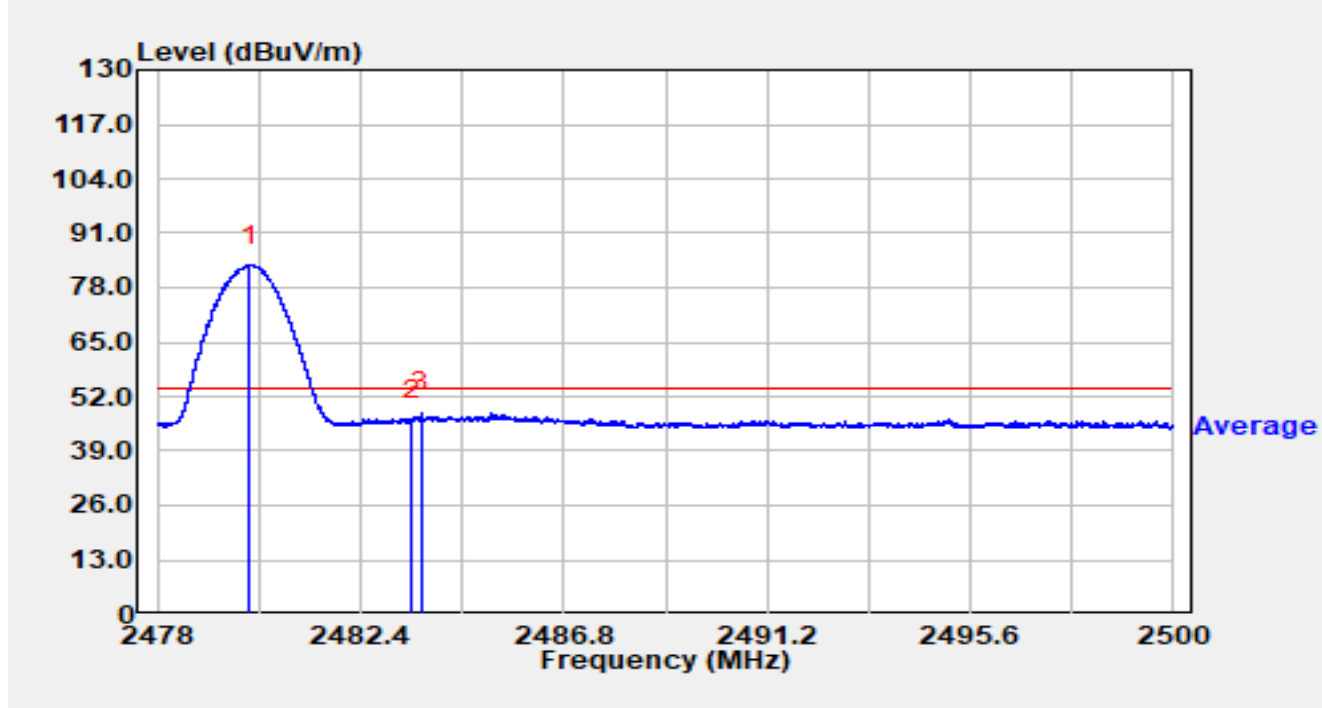


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.273	51.70	32.40	84.10	N/A	N/A	Peak
2		2483.500	24.68	32.40	57.08	-16.92	74.00	Peak
3	*	2485.311	27.45	32.40	59.84	-14.16	74.00	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-14
Temperature	22.8 °C	Humidity	41.4 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Jerry Lu
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 1M at 2480MHz		

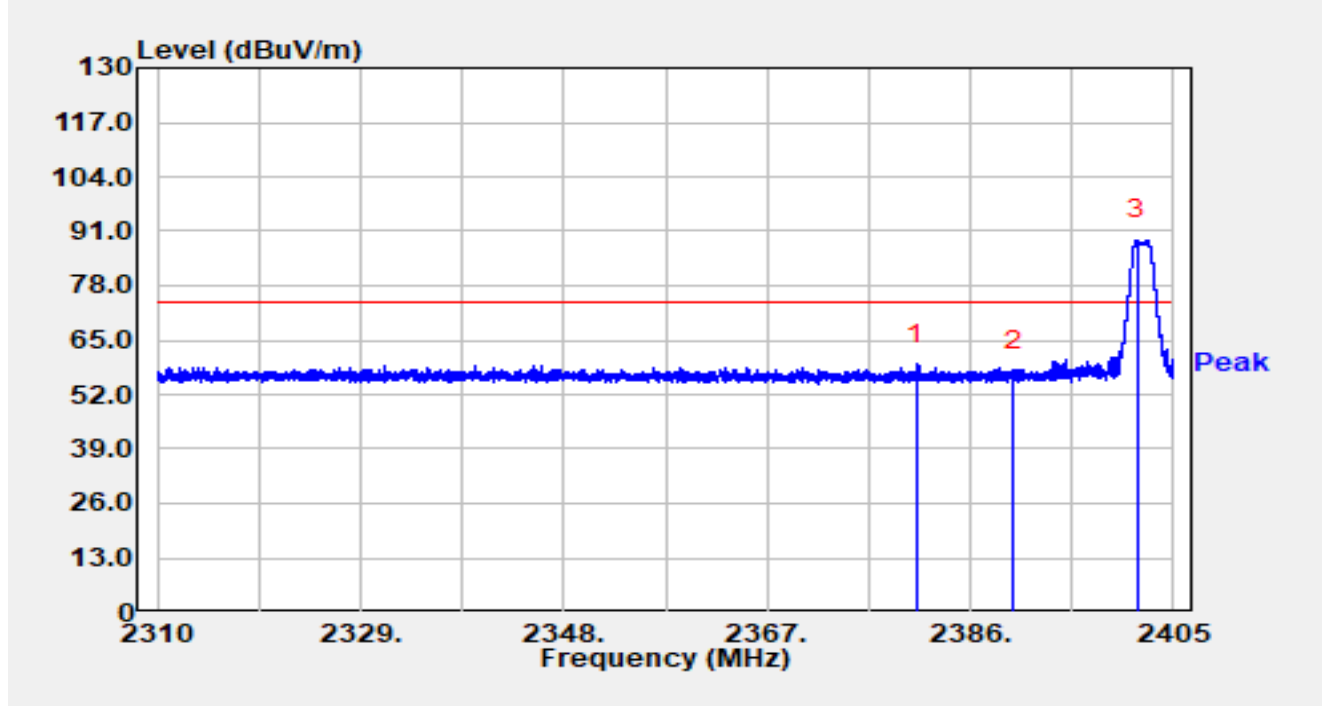


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.009	50.88	32.40	83.28	N/A	N/A	Average
2		2483.500	13.73	32.40	46.13	-7.87	54.00	Average
3	*	2483.718	15.86	32.40	48.26	-5.74	54.00	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2402MHz		

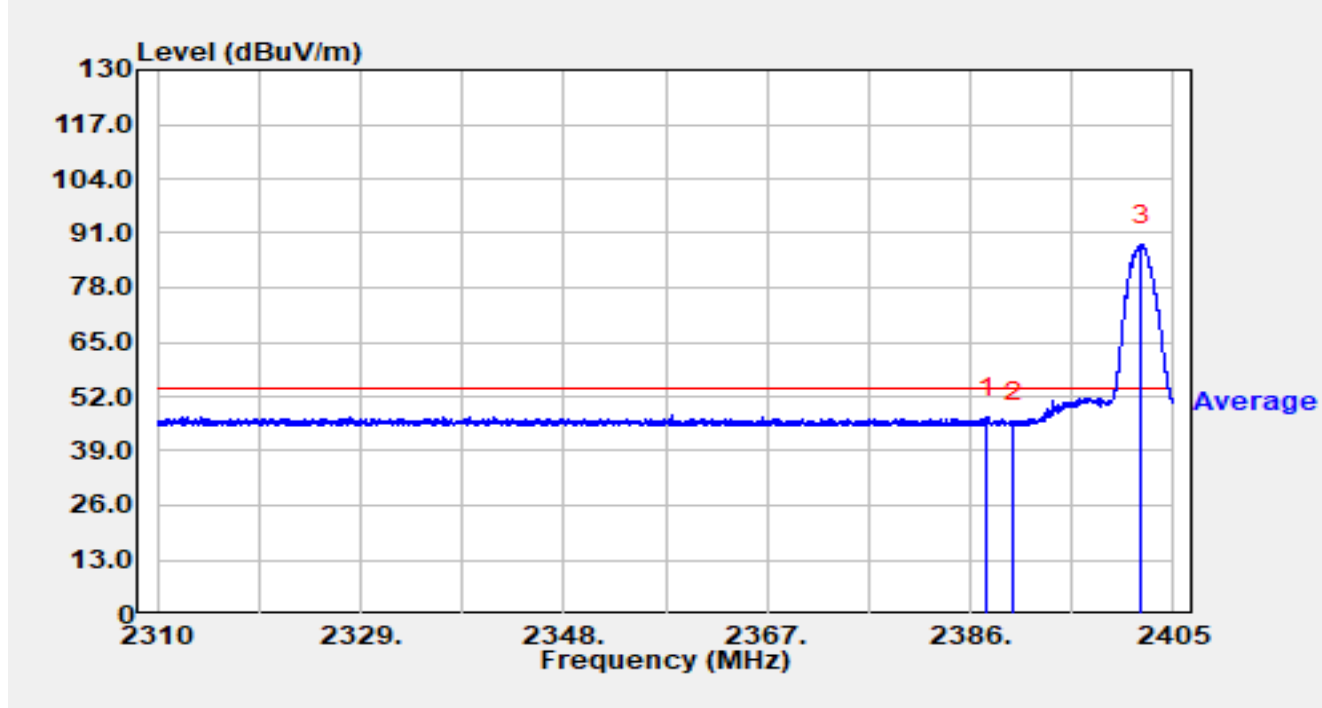


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2380.965	26.62	32.54	59.16	-14.84	74.00	Peak
2		2390.000	25.13	32.52	57.65	-16.35	74.00	Peak
3		2401.571	56.46	32.49	88.95	N/A	N/A	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2402MHz		

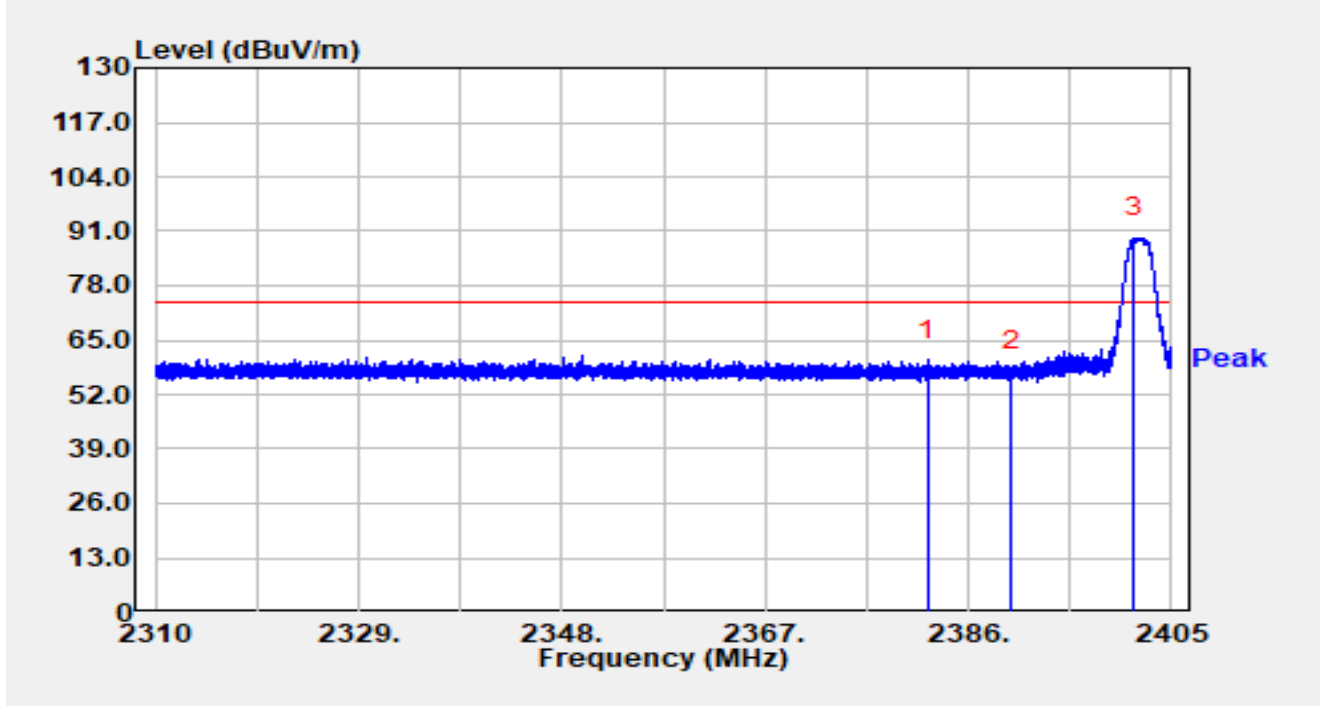


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2387.567	14.43	32.52	46.95	-7.05	54.00	Average
2		2390.000	13.12	32.52	45.64	-8.36	54.00	Average
3		2402.045	55.70	32.49	88.19	N/A	N/A	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2402MHz		

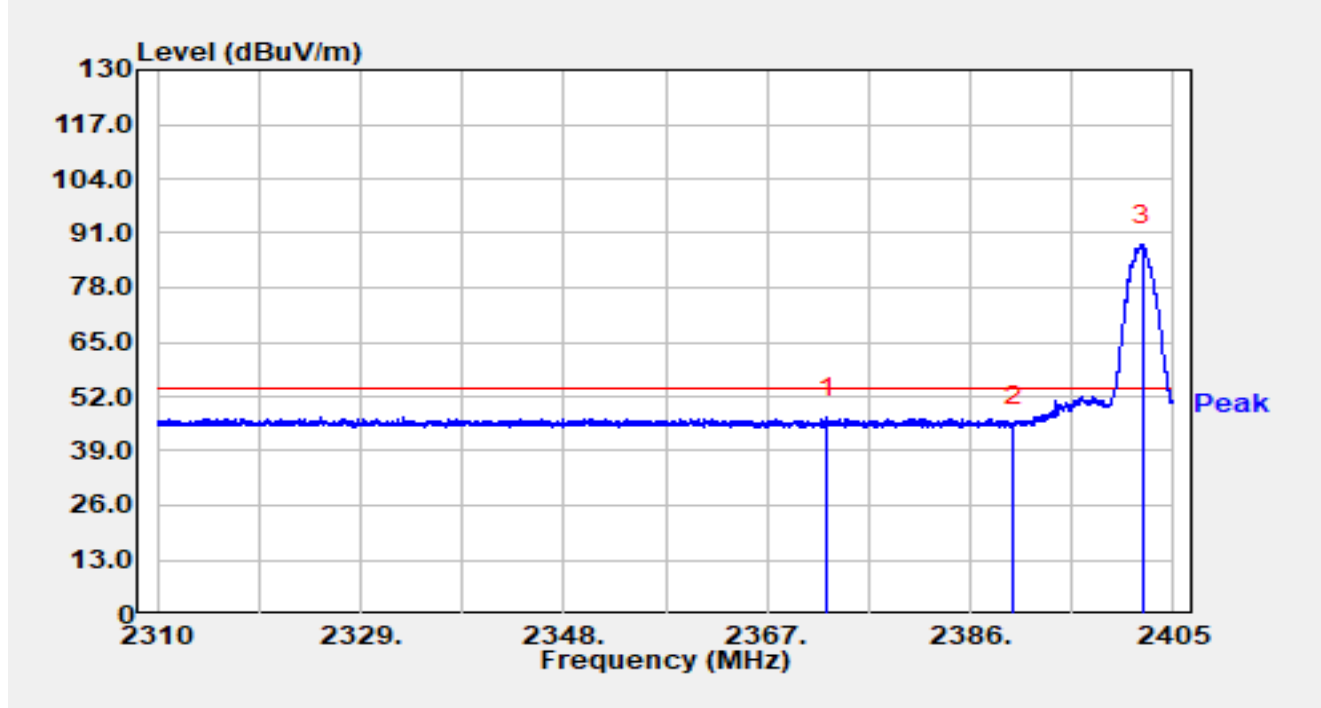


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2382.153	27.72	32.54	60.26	-13.74	74.00	Peak
2		2390.000	24.95	32.52	57.47	-16.53	74.00	Peak
3		2401.476	56.89	32.50	89.39	N/A	N/A	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2402MHz		

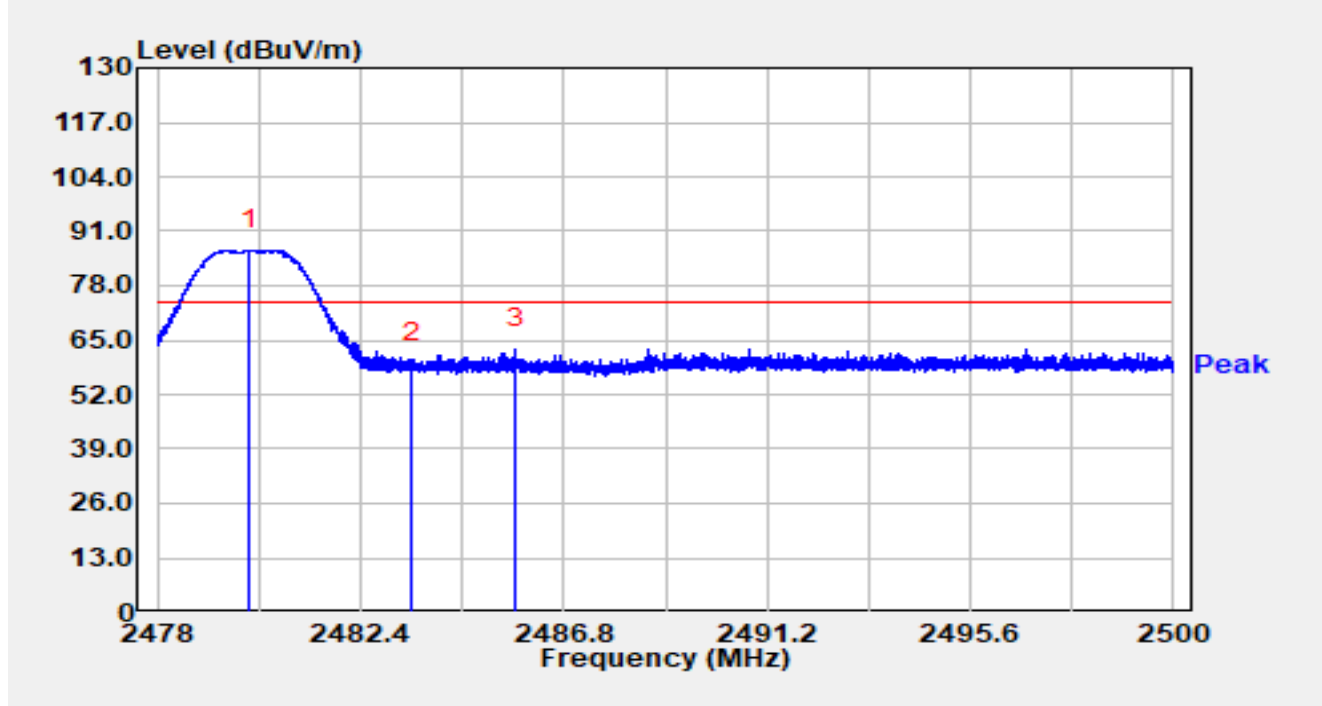


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2372.662	14.27	32.58	46.85	-7.15	54.00	Peak
2		2390.000	12.40	32.52	44.92	-9.08	54.00	Peak
3		2402.093	55.71	32.49	88.20	N/A	N/A	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2480MHz		

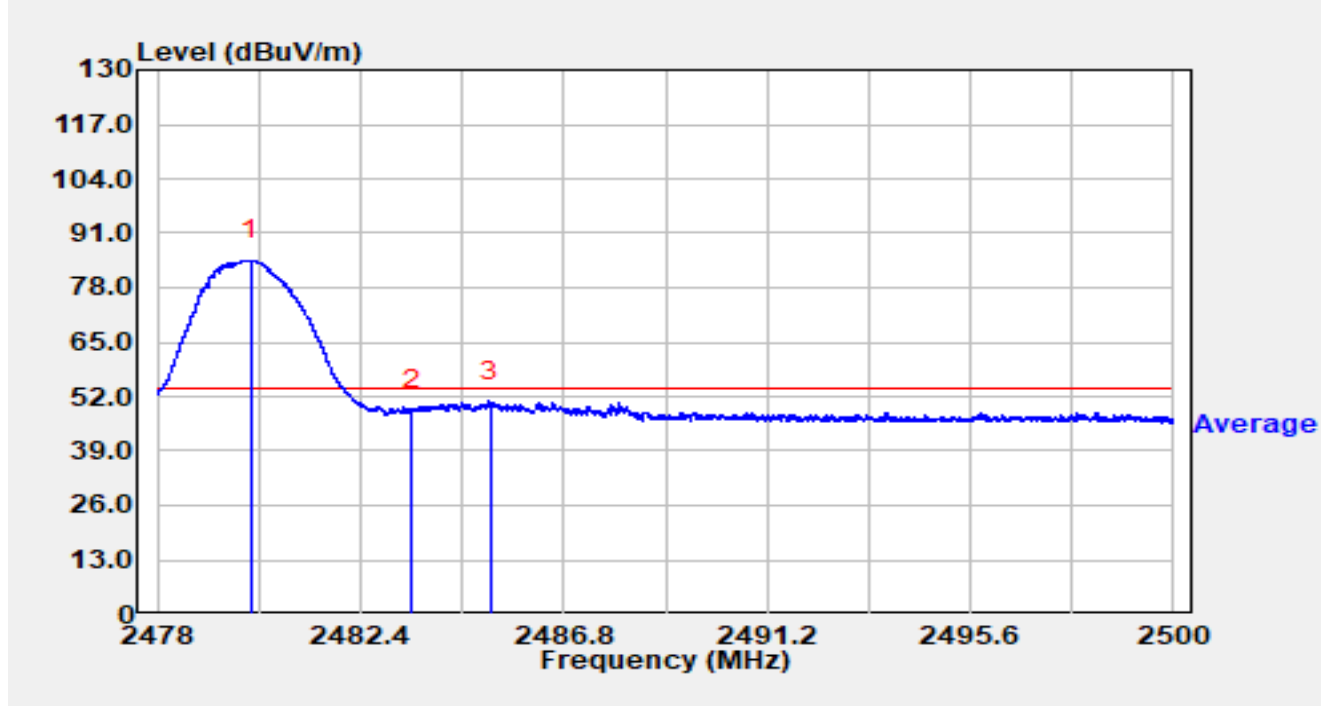


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2479.993	54.17	32.40	86.57	N/A	N/A	Peak
2		2483.500	27.18	32.40	59.57	-14.43	74.00	Peak
3	*	2485.748	30.62	32.40	63.01	-10.99	74.00	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Horizontal
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2480MHz		

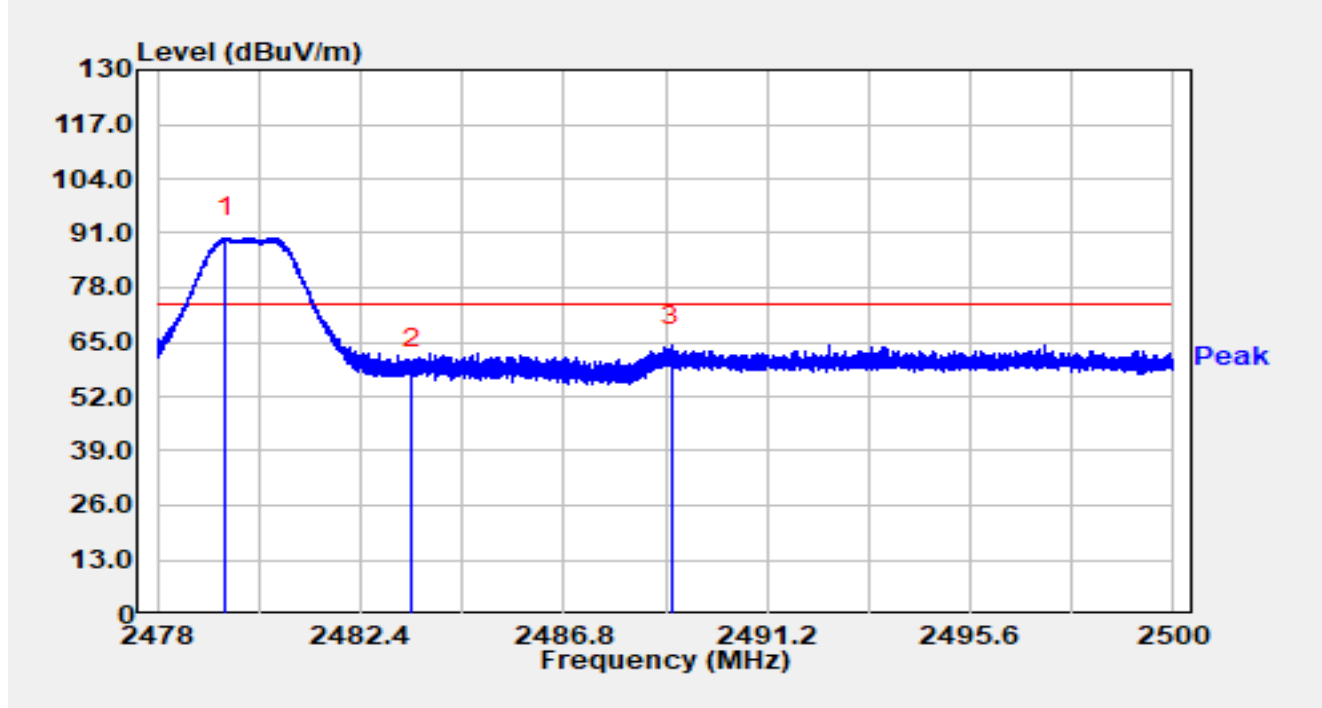


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.035	52.15	32.40	84.55	N/A	N/A	Average
2		2483.500	16.53	32.40	48.93	-5.07	54.00	Average
3	*	2485.196	18.44	32.40	50.83	-3.17	54.00	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2480MHz		

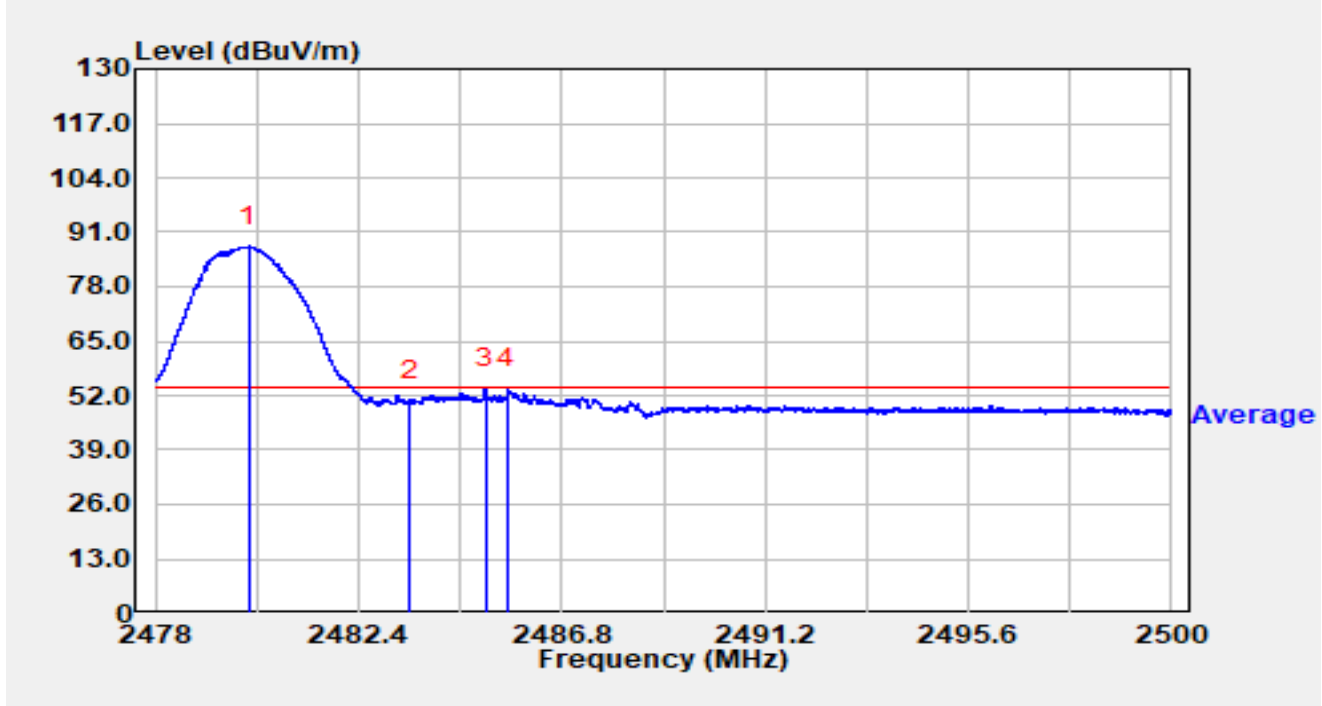


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2479.490	57.43	32.40	89.83	N/A	N/A	Peak
2		2483.500	26.40	32.40	58.80	-15.20	74.00	Peak
3	*	2489.134	31.77	32.39	64.16	-9.84	74.00	Peak

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WZ-AC2	Test Date	2025-03-17
Temperature	22.8 °C	Humidity	33.6 %
Limit	FCC_Part 15.209_RE(3m)	Test Engineer	Ajin Fan
Factor	BBHA 9120D_01457	Polarity	Vertical
EUT	Power Amplifier	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE 2M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2480.035	55.18	32.40	87.58	33.58	54.00	Average
2		2483.500	18.19	32.40	50.59	-3.41	54.00	Average
3		2485.139	21.11	32.40	53.51	-0.49	54.00	Average
4		2485.625	21.12	32.40	53.51	-0.49	54.00	Average

Notes:

1. " * ", means this data is the worst emission level.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Appendix B - Test Setup Photograph

Refer to "R25S1025030-UT" file.

Appendix C - EUT Photograph

Refer to "R25S1025030-UE" file.

The End
