RF MEASUREMENT REPORT

FCC ID:	2ALJ3AP541
Applicant:	HAN Networks Co., Ltd.
Product:	HAN Access Point
Model No.:	AP541
Brand Name:	HAN NETWORKS, HANNETWORKS
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15 Subpart C (Section 15.247)
Result:	Complies
Received Date:	2025-11-25
Test Date:	2025-12-10 ~ 2026-02-26

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. Testing was performed in accordance with the applicable measurement procedures. The test results reported herein apply only to the specific 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
R26S1032073-U201	V01	Initial Report	2026-09-30	Valid

Note: This report is based on the original MRT report (No.: R25S1060119-U201). Only the applicant, manufacturer, and product information (including product name, model number, and brand name) have been updated. All other contents remain unchanged, and all test results are directly copied from the original report.

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1. General Information

1.1. Applicant

HAN Networks Co., Ltd.

101, 3rd Floor, Building 3, No.9 Compound, Yongfeng Road, Haidian District, Beijing, P.R. China

1.2. Manufacturer

HAN Networks Co., Ltd.

101, 3rd Floor, Building 3, No.9 Compound, Yongfeng Road, Haidian District, Beijing, P.R. China

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
☐	**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 FCC: CN1284 ISED: CN0105

1.4. Product Information

Product Name	HAN Access Point
Model No.	AP541
EUT Identification No.	20251125Sample#03 (Conducted) 20251125Sample#02 (Radiated)
Bluetooth Specification	Bluetooth_LE
ZigBee Specification	802.15.4
Wi-Fi Specification	802.11a/b/g/n/ac/ax/be
Operating Temperature	0 °C ~ 50 °C
Antenna Information	Refer to section 1.5
Power Type	AC/DC Adapter or PoE Injector
Accessory(ies)	
AC/DC Adapter	Model No.: AA65U-540A Input Power: 100-240 V ~ 50/60 Hz, 1.6 A Output Power: 54 V ⎓ 1.2 A, 64.8 W
PoE Injector	Model: POE60U-1BT-X Input: 100-240 V ~ 50/60 Hz, 1.5 A Output: 56 V, 0.535 A, 30 W PIN 3,6+ PIN 1,2 Return Output: 56 V, 0.535 A, 30 W PIN 4,5+ PIN 7,8 Return

Notes:

1. The information of the EUT (Equipment Under Test) was provided by the manufacturer. The accuracy, completeness, and validity of the information are solely the responsibility of the manufacturer.
2. AC/DC Adapter and PoE Injector are not marketed in conjunction with the device.

1.5. Radio Specification under Test

Frequency Range	2400 ~ 2483.5 MHz
Channel Number	40
Modulation Type	GFSK
Data Rate	1 Mbps, 2 Mbps
Antenna Type	PIFA
Antenna Gain	4.59 dBi

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

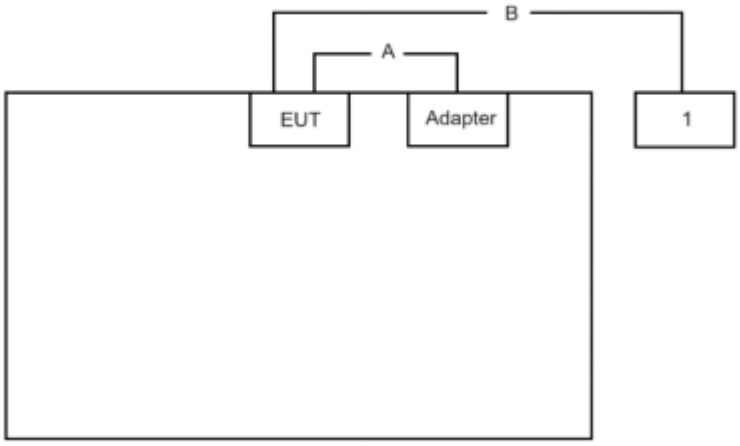
2.1. Test Mode

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

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10-2020 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram - Radiated Emission testing & AC Conducted Emissions



No.	Cable Type	Cable Description	Length
A	Power Cable	Non shielded	1.5 m
B	USB Cable	Shielded	> 10 m
No.	Product	Manufacturer	Model No.
1	Notebook	Lenovo	E430 C

2.3. Test Software

The test utility software used during testing was “PuTTY”, and the version was 0.67.0.0.

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 D01 v05r02
- ANSI C63.10-2020
- ANSI C63.10-2020/Cor1-2023
- ANSI C63.10a-2024

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
EMI Test Receiver	R&S	ESR3	MRTSUE07110	1 year	2026-04-19 2027-04-14	WJ-AC1
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07076	1 year	2026-11-18	WJ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11333	1 year	2026-06-16	WJ-AC1
Thermohygrometer	testo	608-H1	MRTSUE11402	1 year	2026-11-30	WJ-AC1
Anechoic Chamber	TDK	WJ-AC1	MRTSUE07115	1 year	2026-05-16	WJ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE07285	1 year	2026-02-18 2027-02-11	WJ-AC2
TRILOG Broad Band Antenna	Schwarzbeck	VULB 9163	MRTSUE07097	1 year	2026-04-20 2027-04-19	WJ-AC2
Horn Antenna	RFSPIN	DRH18-E	MRTSUE07105	1 year	2026-05-12	WJ-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2026-08-18	WJ-AC2
Preamplifier	EMCI	EMC118A45SE	MRTSUE07102	1 year	2026-04-09 2027-04-08	WJ-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE07103	1 year	2026-04-09 2027-04-08	WJ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11315	1 year	2026-06-16	WJ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11332	1 year	2026-06-05	WJ-AC2
Anechoic Chamber	TDK	WJ-AC2	MRTSUE07117	1 year	2026-05-12	WJ-AC2
USB Power Sensor	Keysight	U2021XA	MRTSUE07141	1 year	2026-03-15 2027-03-12	WJ-SR3
Signal Analyzer	Keysight	N9020B	MRTSUE07037	1 year	2026-08-31	WJ-SR3
Fixed Attenuator	MVE	MVE2213	MRTSUE07316	Note	Note	WJ-SR3
RF Cable	UCwave	UCE500	MRTSUE07340	Note	Note	WJ-SR3
Thermohygrometer	testo	608-H1	MRTSUE11331	1 year	2026-06-05	WJ-SR3
Shielding Room	TDK	WJ-SR3	MRTSUE07125	N/A	N/A	WJ-SR3
EMI Test Receiver	R&S	ESR3	MRTSUE07110	1 year	2026-04-19 2027-04-14	WJ-SR5
Two-Line V-Network	R&S	ENV216	MRTSUE07202	1 year	2026-05-26	WJ-SR5
Thermohygrometer	testo	608-H1	MRTSUE11317	1 year	2026-06-05	WJ-SR5
Shielding Room	TDK	WJ-SR5	MRTSUE07127	N/A	N/A	WJ-SR5

Note: The loss of the Attenuator & Cable will be measured before testing.

Software	Version	Function
e3	230711	RE & CE
CONTROLLER CO3000	V 1.03.02	RE Antenna & Turntable
Agilent Power Panel	V 3.9	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.

AC Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9 kHz ~ 150 kHz: 3.59 dB 150 kHz ~ 30 MHz: 3.20 dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Coaxial: 9 kHz ~ 30 MHz: 2.56 dB Coplanar: 9 kHz ~ 30 MHz: 2.55 dB Horizontal: 30 MHz ~ 200 MHz: 3.48 dB 200 MHz ~ 1 GHz: 4.17 dB 1 GHz ~ 40 GHz: 5.01 dB Vertical: 30 MHz ~ 200 MHz: 4.09 dB 200 MHz ~ 1 GHz: 5.30 dB 1 GHz ~ 40 GHz: 4.85 dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)): 2.9 dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)): 1.4 dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)): 2.9 dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)): 2.6%

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(a)(2)	6 dB 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 150 kHz - 30 MHz	Line Conducted	Pass

Notes:

1. The analyzer plots shown in this section were captured using a correction table to account for cable and attenuator losses in the system connecting the EUT to the analyzer across relevant frequencies.
2. 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. 6 dB Bandwidth Measurement

6.2.1. Test Limit

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

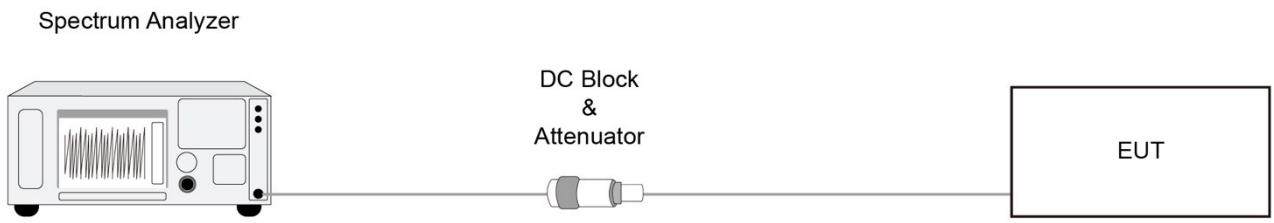
6.2.2. Test Procedure

ANSI C63.10-2020 - Section 11.8

6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6 dB 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. RBW = 1% to 5% of the OBW, but not less than 100 kHz
3. VBW ≥ 3 × 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 (30 dBm).

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 C63.10-2020 - Section 11.9.1.2

ANSI C63.10-2020 - Section 11.9.2.3.2

6.3.3. Test Setting

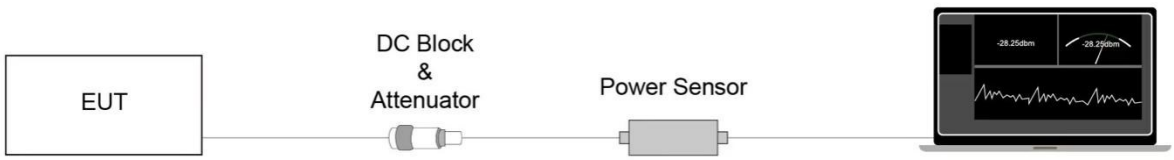
Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50 MHz)

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 = 50 MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50 MHz.

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 8 dBm in any 3 kHz band.

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

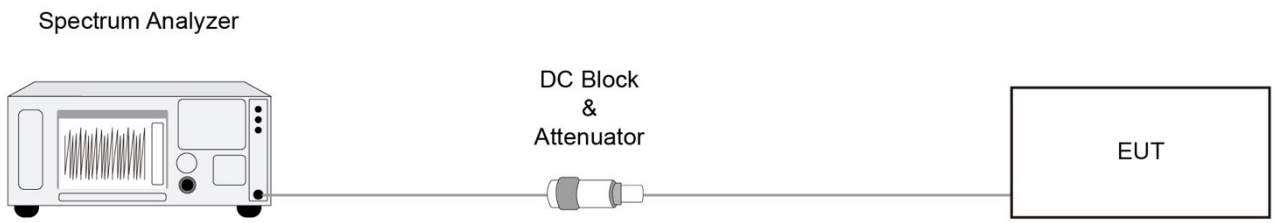
6.4.2. Test Procedure

ANSI C63.10-2020 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 = 3 kHz
4. VBW = 10 kHz
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 20 dB 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 C63.10-2020 - Section 11.11

6.5.3. Test Setting

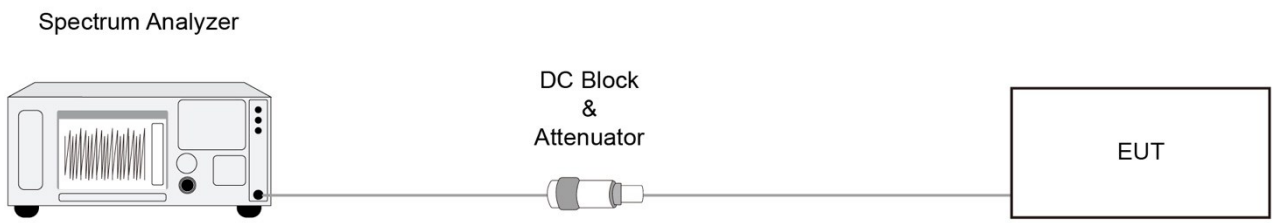
Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW ≥ 3 × 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 = 100 kHz
3. VBW = 300 kHz
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



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 [μV/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 C63.10-2020 - Section 11.11 & 11.12

ANSI C63.10-2020 - Section 6.3 (General Requirements)

ANSI C63.10-2020 - Section 6.4 (Standard test method below 30 MHz)

ANSI C63.10-2020 - Section 6.5 (Standard test method above 30 MHz to 1 GHz)

ANSI C63.10-2020 - Section 6.6 (Standard test method above 1 GHz)

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
> 1000 MHz	1 MHz

Quasi-Peak Measurements below 1 GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1 MHz
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 1 GHz

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

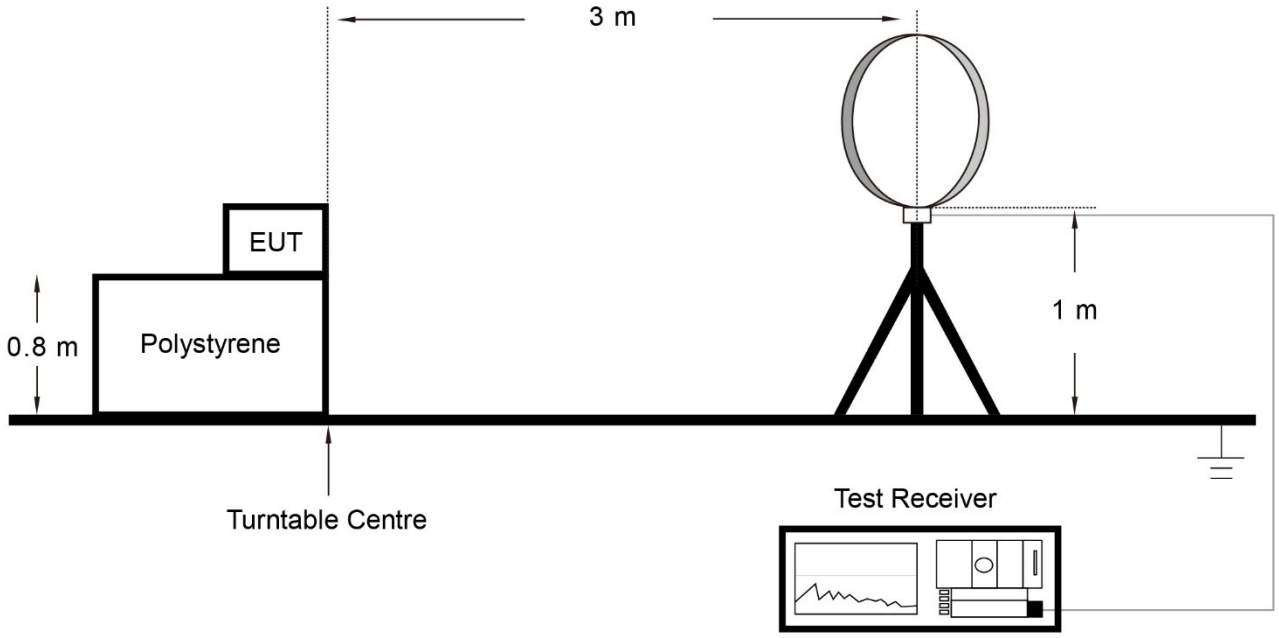
Average Measurements above 1 GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1 MHz
3. VBW; if the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz

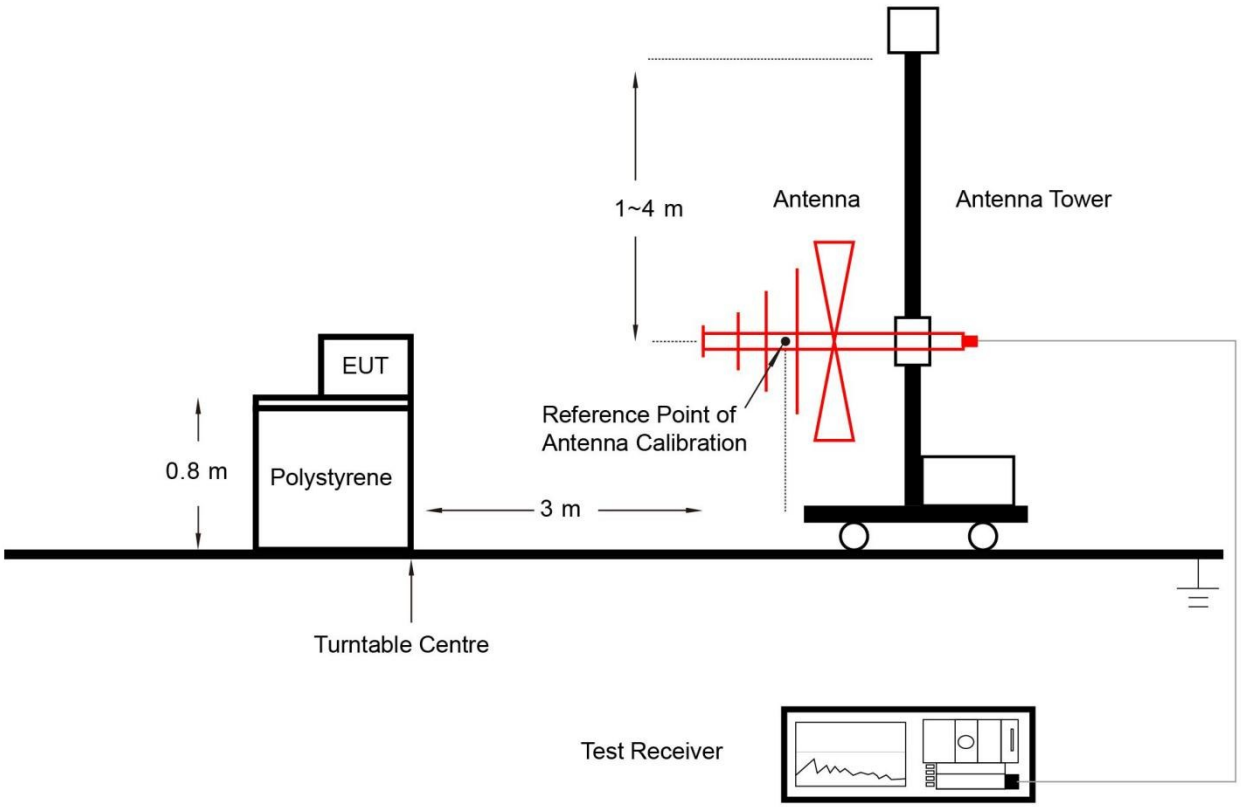
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display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

6.6.4. Test Setup

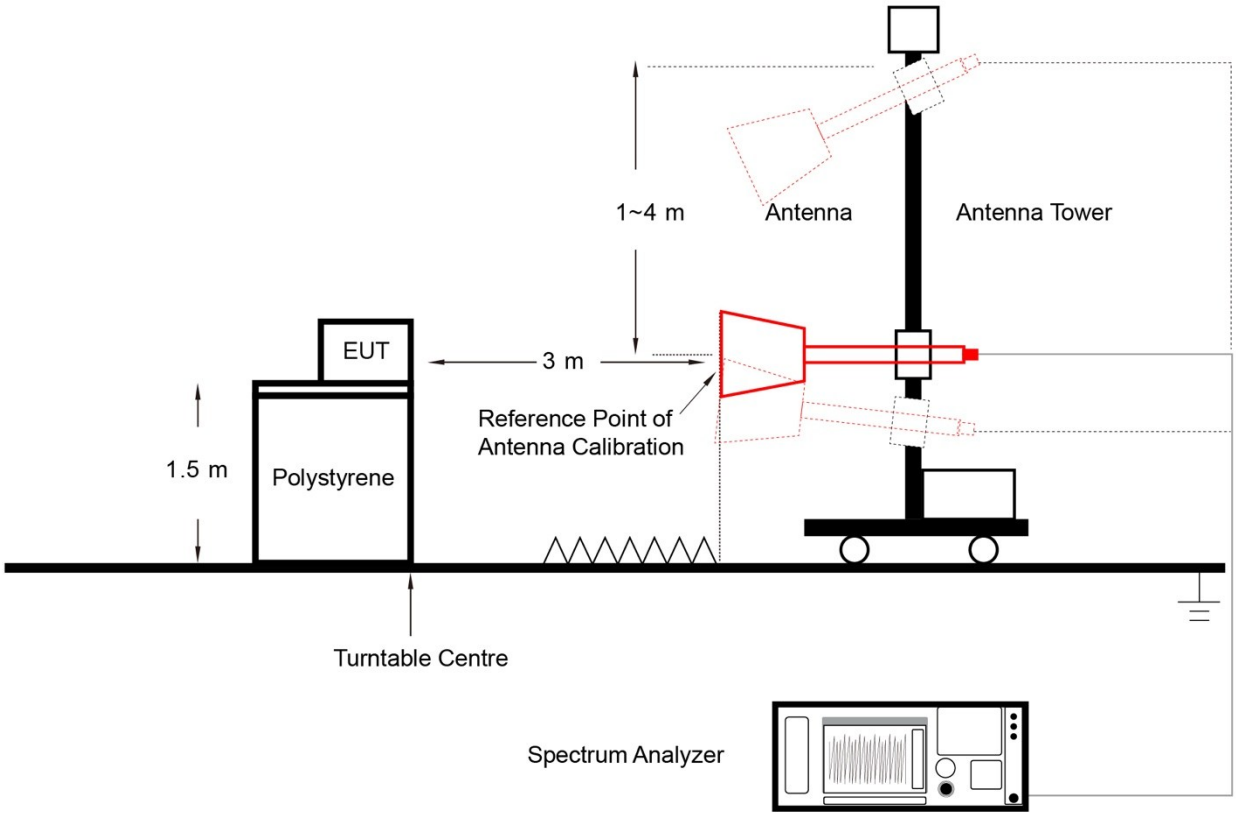
Below 30 MHz Test Setup:



Below 1 GHz Test Setup:



Above 1 GHz 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
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 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 [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 C63.10-2020 - Section 6.3 & 6.6 & 11.12

6.7.3. Test Setting

Peak Field Strength Measurements

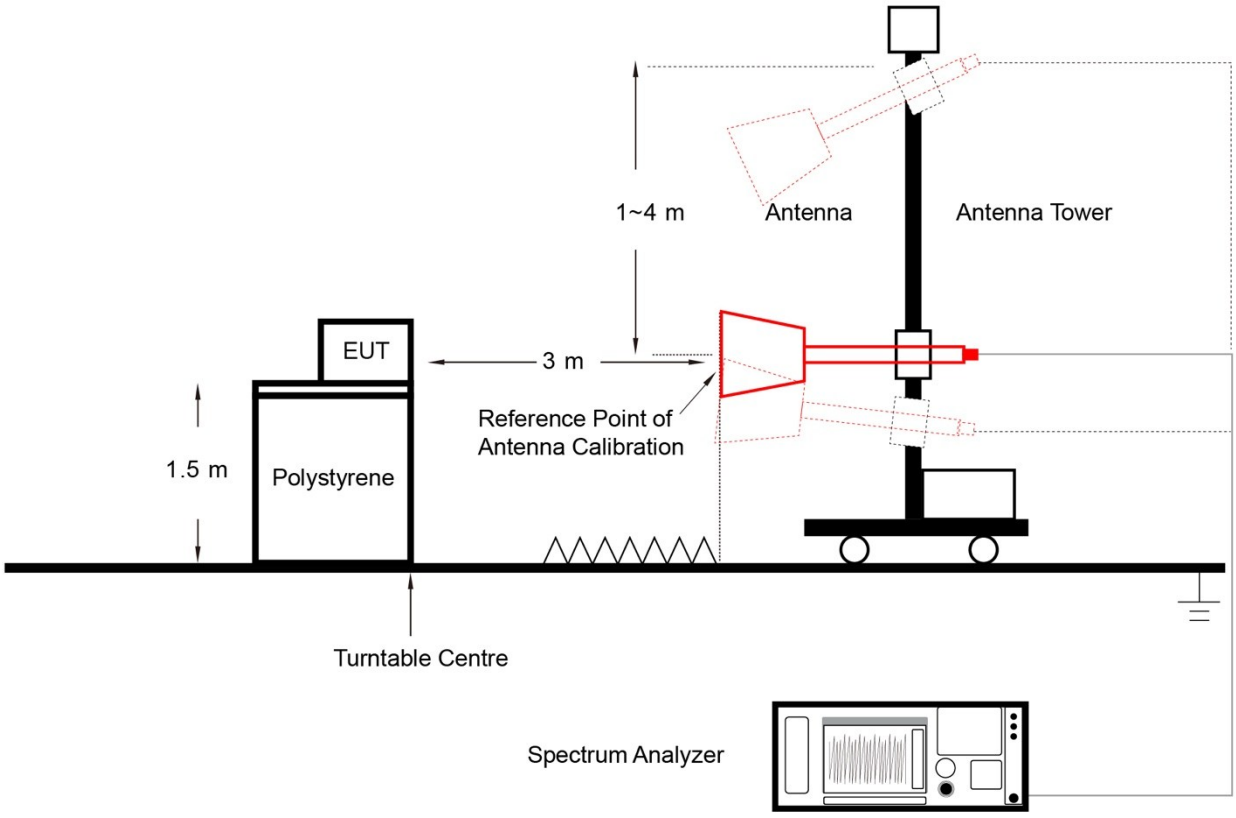
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1 MHz
3. VBW = 3 MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1 MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

   If the EUT duty cycle is < 98%, set VBW ≥ 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

6.7.4. Test Setup



6.7.5. Test Result

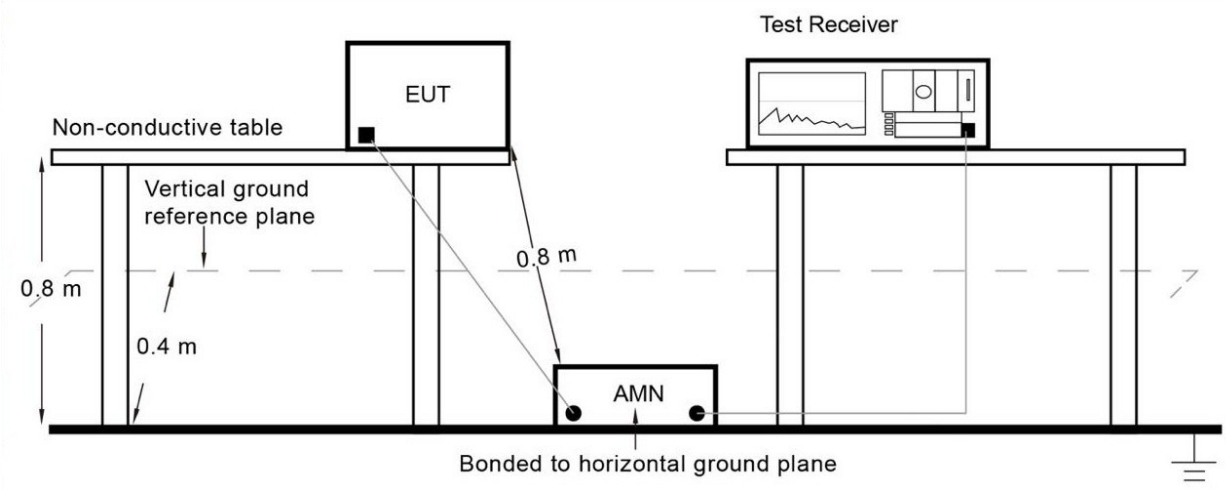
Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBμV)	AV (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 0.15 MHz to 0.5 MHz.		

6.8.2. Test Setup



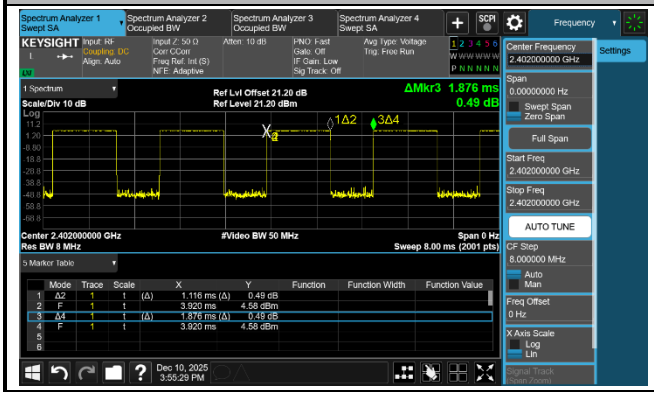
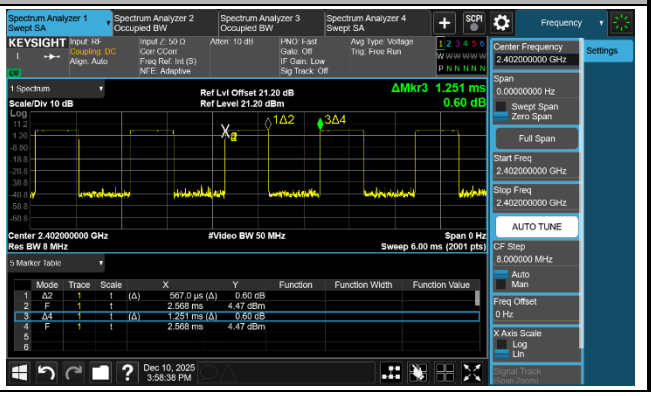
6.8.3. Test Result

Refer to Appendix A.8.

Appendix A - Test Result

A.1 Duty Cycle Test Result

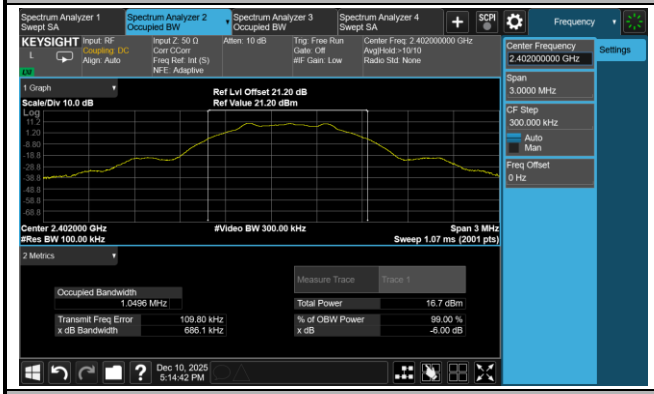
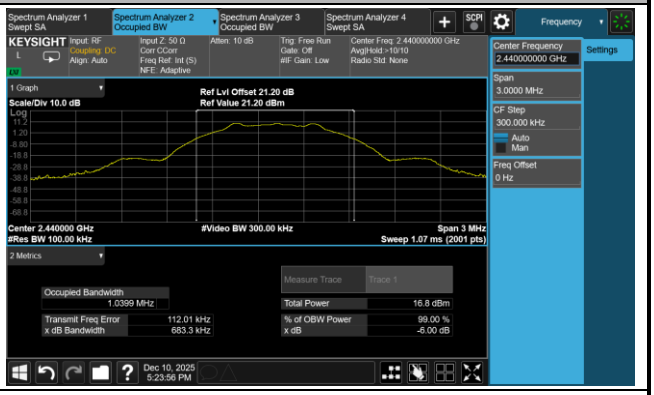
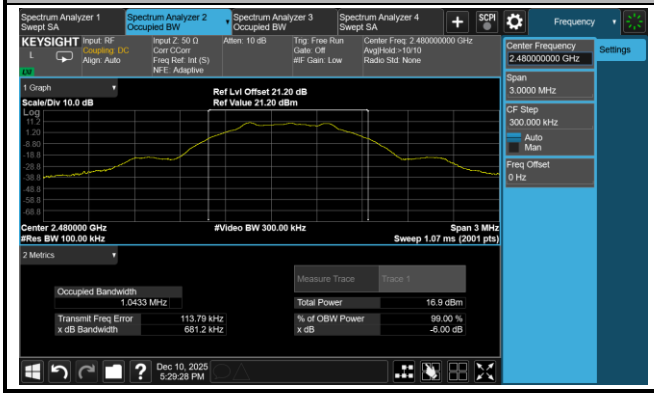
Test Site	WJ-SR3	Test Engineer	Ellie Wang
Test Date	2025-12-10	Model No.	AP541

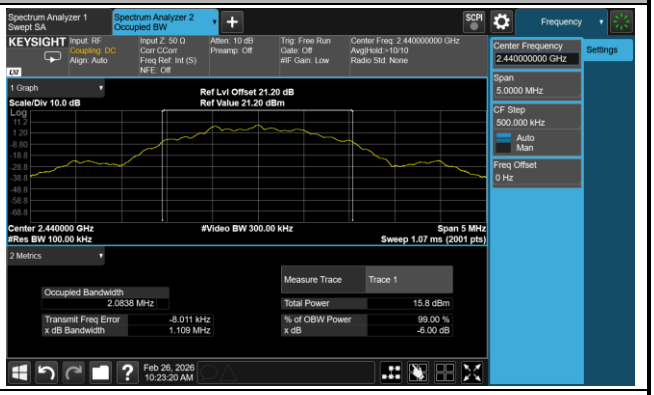
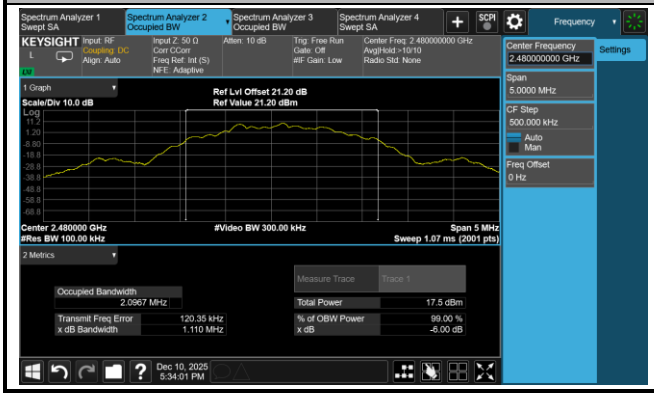
Test Mode	Duty Cycle
BLE-1 Mbps	59.49%
BLE-2 Mbps	45.32%
Duty Cycle (T = Transmission Duration)	
BLE-1 Mbps (T = 1.116 ms)	BLE-2 Mbps (T = 567.0 μs)
	

A.2 6 dB Bandwidth Test Result

Test Site	WJ-SR3	Test Engineer	Ellie Wang
Test Date	2025-12-10 ~ 2026-02-26	Model No.	AP541

Test Mode	Data Rate	Channel No.	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
BLE	1 Mbps	00	2402	0.6861	≥ 0.5
BLE	1 Mbps	19	2440	0.6833	≥ 0.5
BLE	1 Mbps	39	2480	0.6812	≥ 0.5
BLE	2 Mbps	00	2402	1.110	≥ 0.5
BLE	2 Mbps	19	2440	1.109	≥ 0.5
BLE	2 Mbps	39	2480	1.110	≥ 0.5

BLE-1 Mbps 6 dB Bandwidth	
Channel 00 (2402 MHz)	Channel 19 (2440 MHz)
	
Channel 39 (2480 MHz)	
	

BLE-2 Mbps 6 dB Bandwidth	
Channel 00 (2402 MHz)	Channel 19 (2440 MHz)
	
Channel 39 (2480 MHz)	
	

A.3 Output Power Test Result

Test Site	WJ-SR3	Test Engineer	Ellie Wang
Test Date	2025-12-10 ~ 2025-12-11	Model No.	AP541

Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1 Mbps	00	2402	10.08	≤ 30.00	Pass
BLE	1 Mbps	19	2440	10.17	≤ 30.00	Pass
BLE	1 Mbps	39	2480	10.21	≤ 30.00	Pass
BLE	2 Mbps	00	2402	10.08	≤ 30.00	Pass
BLE	2 Mbps	19	2440	10.17	≤ 30.00	Pass
BLE	2 Mbps	39	2480	10.22	≤ 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	1 Mbps	00	2402	9.81	≤ 30.00	Pass
BLE	1 Mbps	19	2440	9.91	≤ 30.00	Pass
BLE	1 Mbps	39	2480	9.96	≤ 30.00	Pass
BLE	2 Mbps	00	2402	9.82	≤ 30.00	Pass
BLE	2 Mbps	19	2440	9.91	≤ 30.00	Pass
BLE	2 Mbps	39	2480	9.96	≤ 30.00	Pass

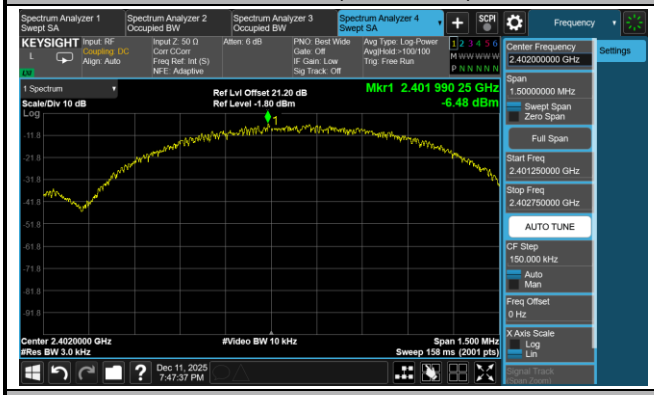
A.4 Power Spectral Density Test Result

Test Site	WJ-SR3	Test Engineer	Ellie Wang
Test Date	2025-12-10 ~ 2025-12-11	Model No.	AP541

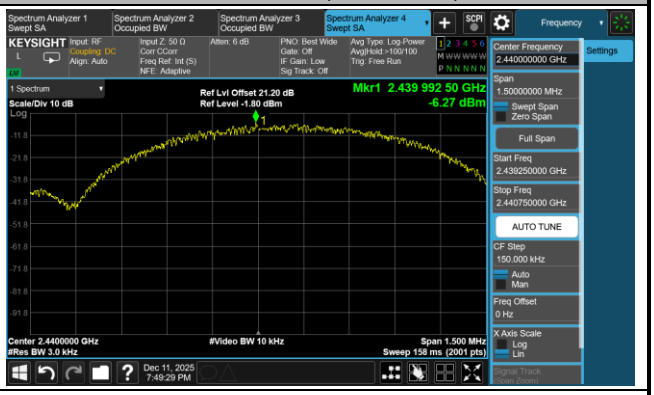
Test Mode	Data Rate	Channel No.	Frequency (MHz)	PSD Result (dBm/3 kHz)	Limit (dBm/3 kHz)	Result
BLE	1 Mbps	00	2402	-6.48	≤ 8.00	Pass
BLE	1 Mbps	19	2440	-6.27	≤ 8.00	Pass
BLE	1 Mbps	39	2480	-6.22	≤ 8.00	Pass
BLE	2 Mbps	00	2402	-7.10	≤ 8.00	Pass
BLE	2 Mbps	19	2440	-6.96	≤ 8.00	Pass
BLE	2 Mbps	39	2480	-6.92	≤ 8.00	Pass

BLE-1 Mbps PSD

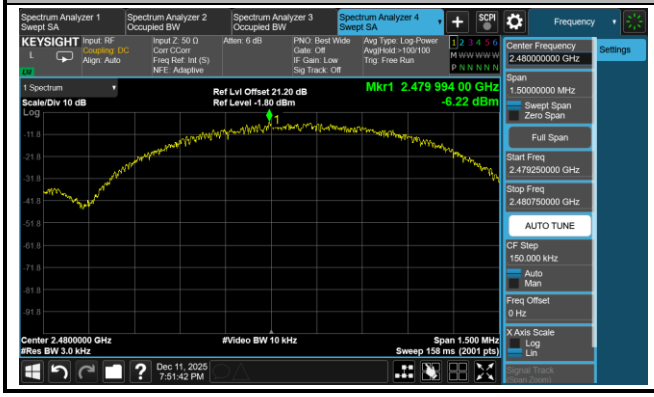
Channel 00 (2402 MHz)

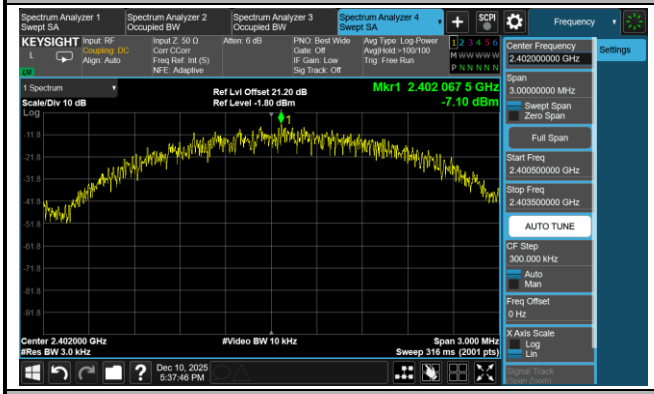
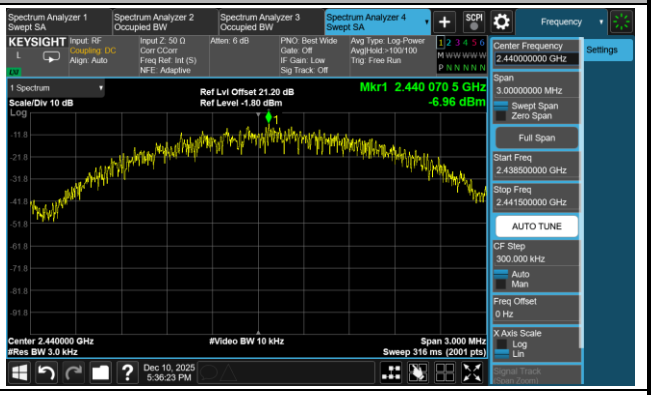
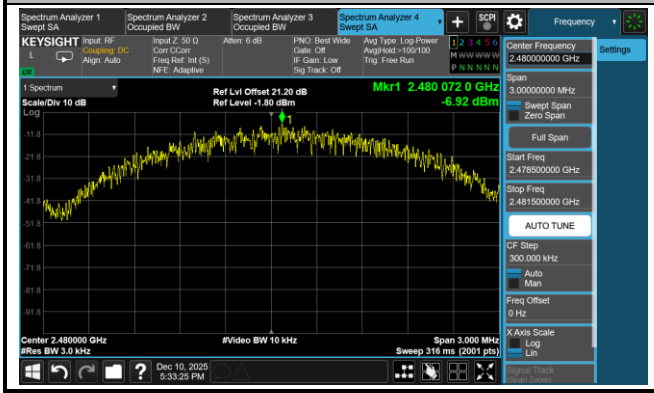


Channel 19 (2440 MHz)



Channel 39 (2480 MHz)

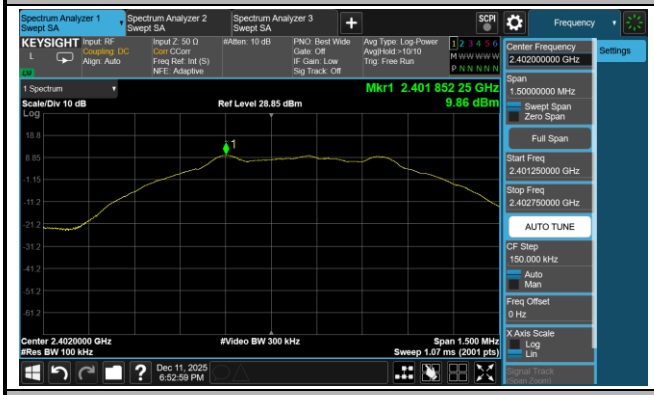
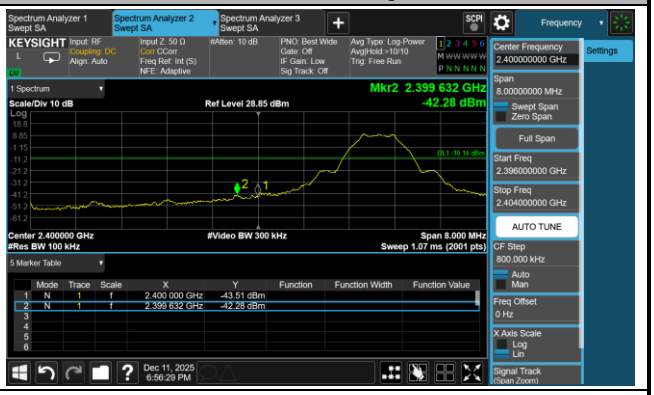
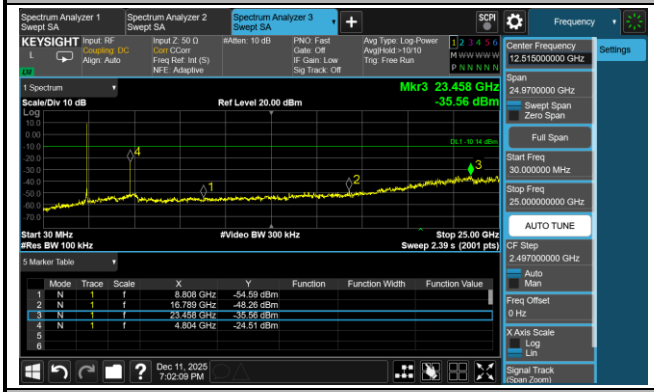
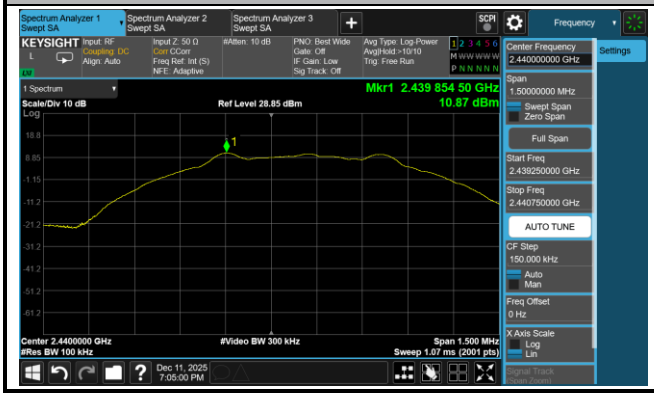


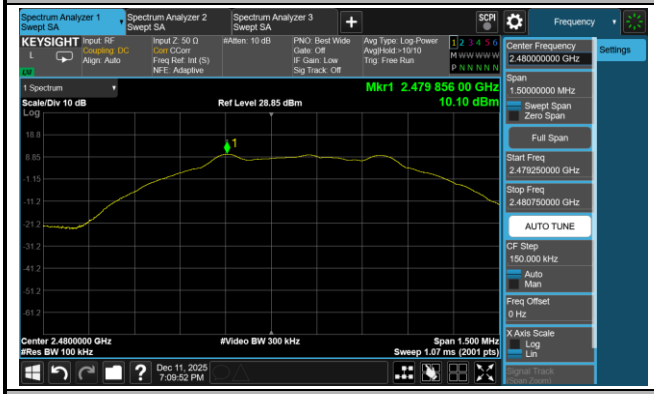
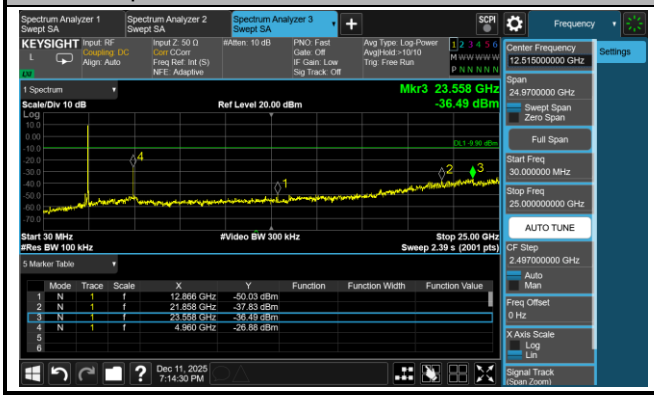
BLE-2 Mbps PSD	
Channel 00 (2402 MHz)	Channel 19 (2440 MHz)
	
Channel 39 (2480 MHz)	
	

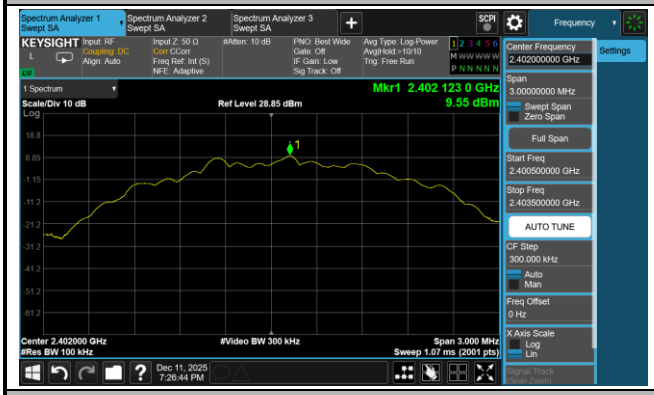
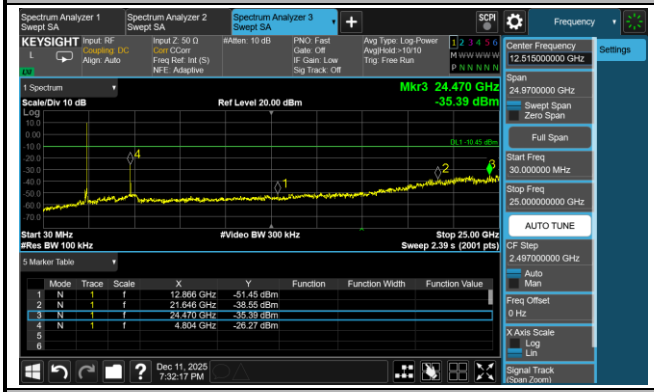
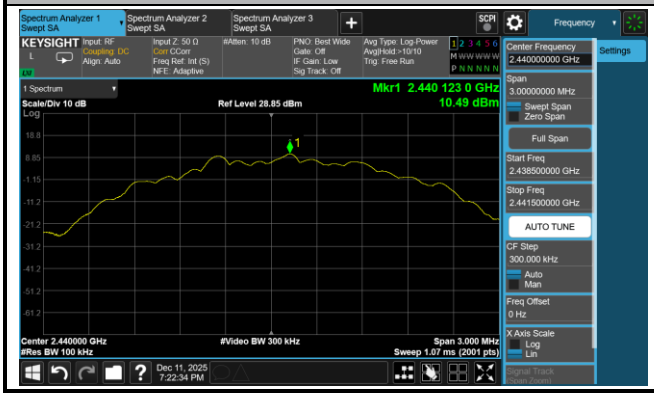
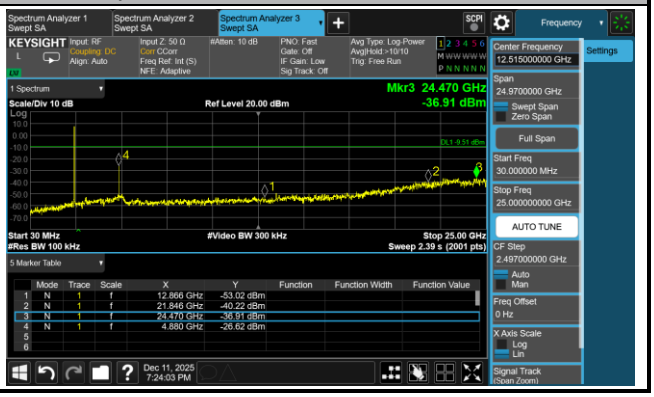
A.5 Conducted Band Edge and Out-of-Band Emissions Test Result

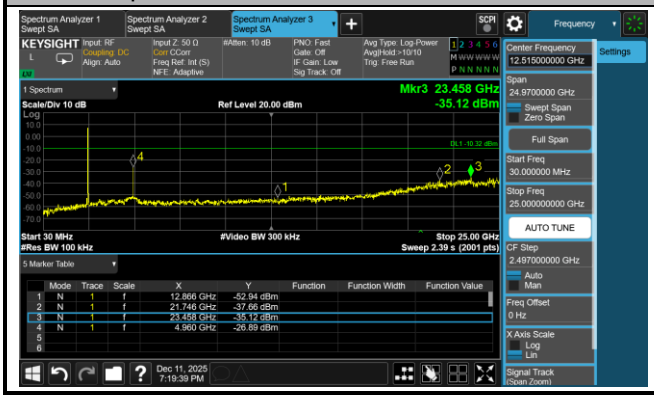
Test Site	WJ-SR3	Test Engineer	Ellie Wang
Test Date	2025-12-11	Model No.	AP541

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Limit (dBc)	Result
BLE	1 Mbps	00	2402	20	Pass
BLE	1 Mbps	19	2440	20	Pass
BLE	1 Mbps	39	2480	20	Pass
BLE	2 Mbps	00	2402	20	Pass
BLE	2 Mbps	19	2440	20	Pass
BLE	2 Mbps	39	2480	20	Pass

BLE-1 Mbps Out-of-Band Emissions	
Channel 00 (2402 MHz)	
100 kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30 MHz ~ 25 GHz	
	
Channel 19 (2440 MHz)	
100 kHz PSD Reference Level	Spurious Emission 30 MHz ~ 25 GHz
	

Channel 39 (2480 MHz)	
100 kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30 MHz ~ 25 GHz	
	

BLE-2 Mbps Out-of-Band Emissions	
Channel 00 (2402 MHz)	
100 kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30 MHz ~ 25 GHz	
	
Channel 19 (2440 MHz)	
100 kHz PSD Reference Level	Spurious Emission 30 MHz ~ 25 GHz
	

Channel 39 (2480 MHz)	
100 kHz PSD Reference Level	High Band Edge
Spurious Emission 30 MHz ~ 25 GHz	
	

A.6 Radiated Spurious Emission Test Result

Test Site	WJ-AC2	Test Engineer	Bob Zhang
Test Date	2026-01-21	Test Mode	BLE-1 Mbps
Model No.	AP541		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20 dB below limit line within 1-18 GHz, 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	4804.60	50.67	0.04	50.71	74.00	-23.29	Peak	Horizontal
	8036.30	39.53	5.70	45.23	74.00	-28.77	Peak	Horizontal
	12056.80	42.83	5.22	48.05	74.00	-25.95	Peak	Horizontal
	4802.90	48.35	0.04	48.39	54.00	-5.61	Average	Vertical
	4802.90	51.73	0.04	51.77	74.00	-22.23	Peak	Vertical
	8435.80	38.92	6.25	45.17	74.00	-28.83	Peak	Vertical
	12316.90	43.37	4.89	48.26	74.00	-25.74	Peak	Vertical
19	4879.40	45.28	0.04	45.32	74.00	-28.68	Peak	Horizontal
	7318.90	40.99	5.25	46.24	74.00	-27.76	Peak	Horizontal
	12570.20	43.39	5.23	48.62	74.00	-25.38	Peak	Horizontal
	4879.40	49.75	0.04	49.79	74.00	-24.21	Peak	Vertical
	7318.90	41.41	5.25	46.66	74.00	-27.34	Peak	Vertical
	12519.20	43.36	5.07	48.43	74.00	-25.57	Peak	Vertical
39	4959.30	43.70	0.14	43.84	74.00	-30.16	Peak	Horizontal
	7330.80	39.68	5.29	44.97	74.00	-29.03	Peak	Horizontal
	12311.80	42.83	4.86	47.69	74.00	-26.31	Peak	Horizontal
	4961.00	46.36	0.15	46.51	74.00	-27.49	Peak	Vertical
	7439.60	41.17	5.25	46.42	74.00	-27.58	Peak	Vertical
	12357.70	43.05	4.97	48.02	74.00	-25.98	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)

Test Site	WJ-AC2	Test Engineer	Bob Zhang
Test Date	2026-01-21	Test Mode	BLE-2 Mbps
Model No.	AP541		
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20 dB below limit line within 1-18 GHz, there is not show in the report.		

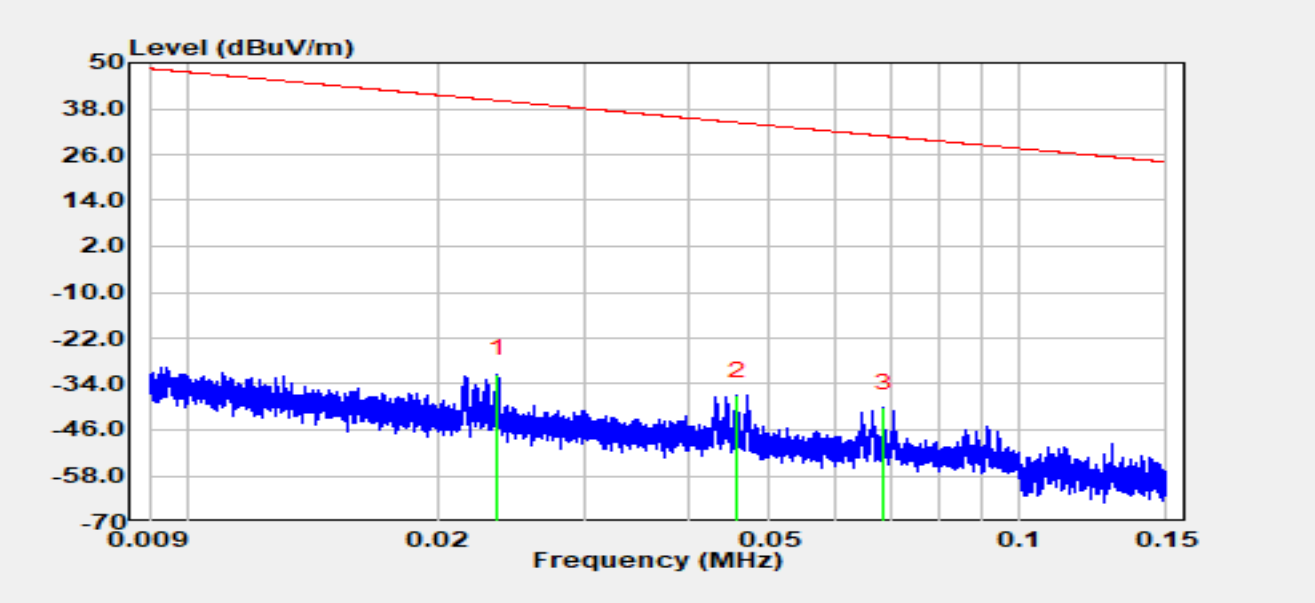
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
00	4804.60	49.85	0.04	49.89	74.00	-24.11	Peak	Horizontal
	8323.60	38.59	6.28	44.87	74.00	-29.13	Peak	Horizontal
	12250.60	43.11	4.97	48.08	74.00	-25.92	Peak	Horizontal
	4804.60	46.11	0.04	46.15	54.00	-7.85	Average	Vertical
	4804.60	52.11	0.04	52.15	74.00	-21.85	Peak	Vertical
	8158.70	39.06	5.84	44.90	74.00	-29.10	Peak	Vertical
	12510.70	42.74	5.03	47.77	74.00	-26.23	Peak	Vertical
19	4879.40	46.52	0.04	46.56	74.00	-27.44	Peak	Horizontal
	7604.50	40.59	4.99	45.58	74.00	-28.42	Peak	Horizontal
	12687.50	42.73	5.50	48.23	74.00	-25.77	Peak	Horizontal
	4879.40	48.01	0.04	48.05	74.00	-25.95	Peak	Vertical
	7318.90	42.69	5.25	47.94	74.00	-26.06	Peak	Vertical
	11512.80	42.73	5.73	48.46	74.00	-25.54	Peak	Vertical
39	4961.00	42.66	0.15	42.81	74.00	-31.19	Peak	Horizontal
	7456.60	40.18	5.28	45.46	74.00	-28.54	Peak	Horizontal
	12587.20	43.68	5.41	49.09	74.00	-24.91	Peak	Horizontal
	4959.30	45.16	0.14	45.30	74.00	-28.70	Peak	Vertical
	8337.20	39.97	6.36	46.33	74.00	-27.67	Peak	Vertical
	11958.20	43.16	5.22	48.38	74.00	-25.62	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 Worst-case Result of Radiated Emission for 9 kHz ~ 30 MHz

Site	WJ-AC1	Test Date	2026-01-26
Temperature	18.4 °C	Humidity	37.8%
Limit	FCC_Part 15.209_RSE	Test Engineer	Alex Liu
Test Voltage	AC 120 V/60 Hz	Polarity	Coaxial
Test Mode	Transmit by BLE-2M at 2480 MHz	Model No.	AP541

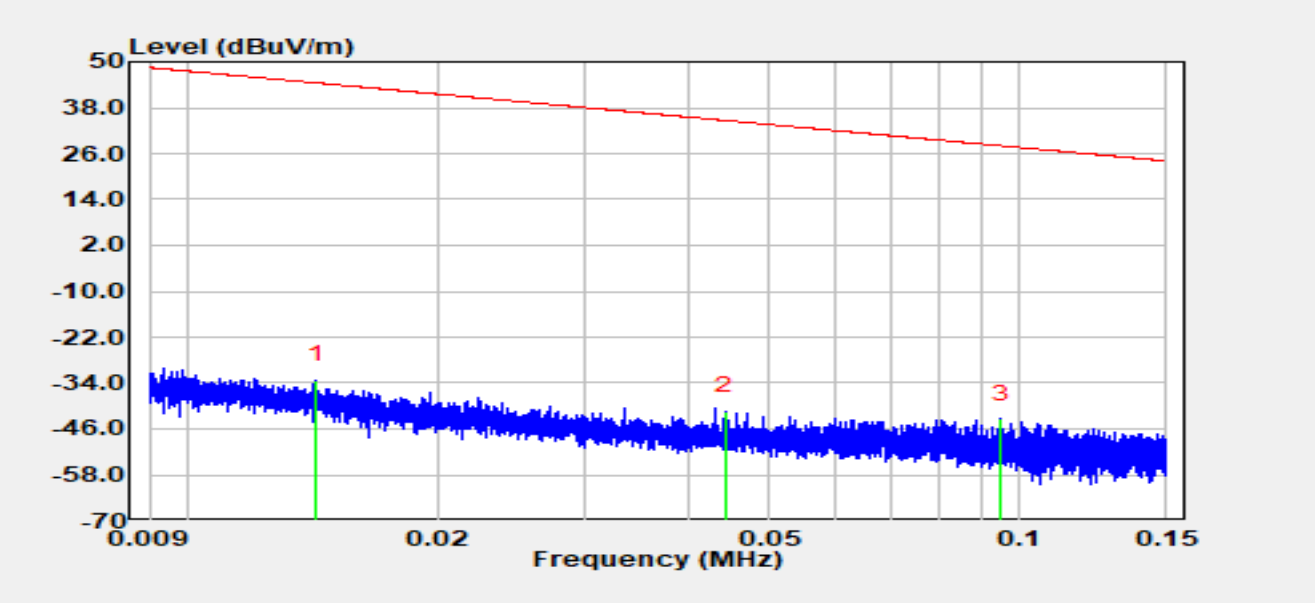


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		0.02	28.52	-59.98	-31.45	-71.58	40.13	Peak
2		0.05	23.15	-60.16	-37.01	-71.40	34.39	Peak
3	*	0.07	20.00	-60.19	-40.19	-71.07	30.88	Peak

Notes:

1. "*" indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) + 40log(d1/d2) (dB), d1 = 3 m, d2 = 300 m (9 kHz - 490 kHz) or 30 m (490 kHz - 30 MHz).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC1	Test Date	2026-01-26
Temperature	18.4 °C	Humidity	37.8%
Limit	FCC_Part 15.209_RSE	Test Engineer	Alex Liu
Test Voltage	AC 120 V/60 Hz	Polarity	Coplanar
Test Mode	Transmit by BLE-2M at 2480 MHz	Model No.	AP541

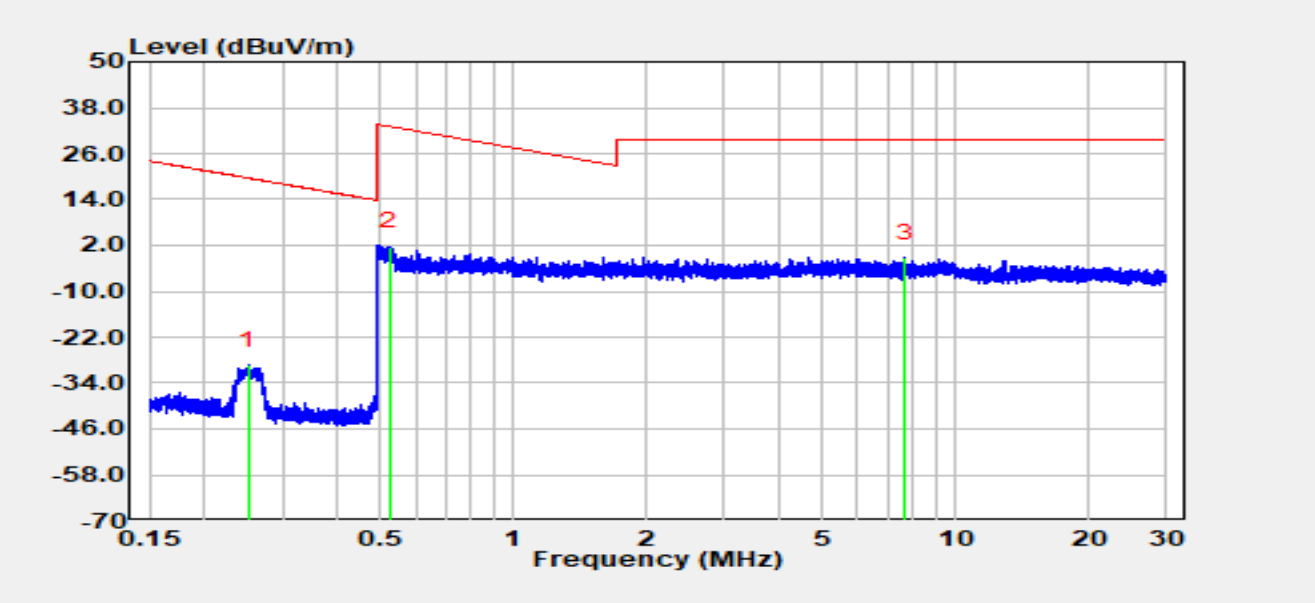


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		0.01	26.36	-59.55	-33.19	-77.70	44.51	Peak
2		0.04	18.89	-60.16	-41.26	-75.93	34.66	Peak
3	*	0.09	16.91	-60.21	-43.30	-71.35	28.05	Peak

Notes:

1. "*" indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) + 40log(d1/d2) (dB), d1 = 3 m, d2 = 300 m (9 kHz - 490 kHz) or 30 m (490 kHz - 30 MHz).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC1	Test Date	2026-01-26
Temperature	18.4 °C	Humidity	37.8%
Limit	FCC_Part 15.209_RSE	Test Engineer	Alex Liu
Test Voltage	AC 120 V/60 Hz	Polarity	Coaxial
Test Mode	Transmit by BLE-2M at 2480 MHz	Model No.	AP541

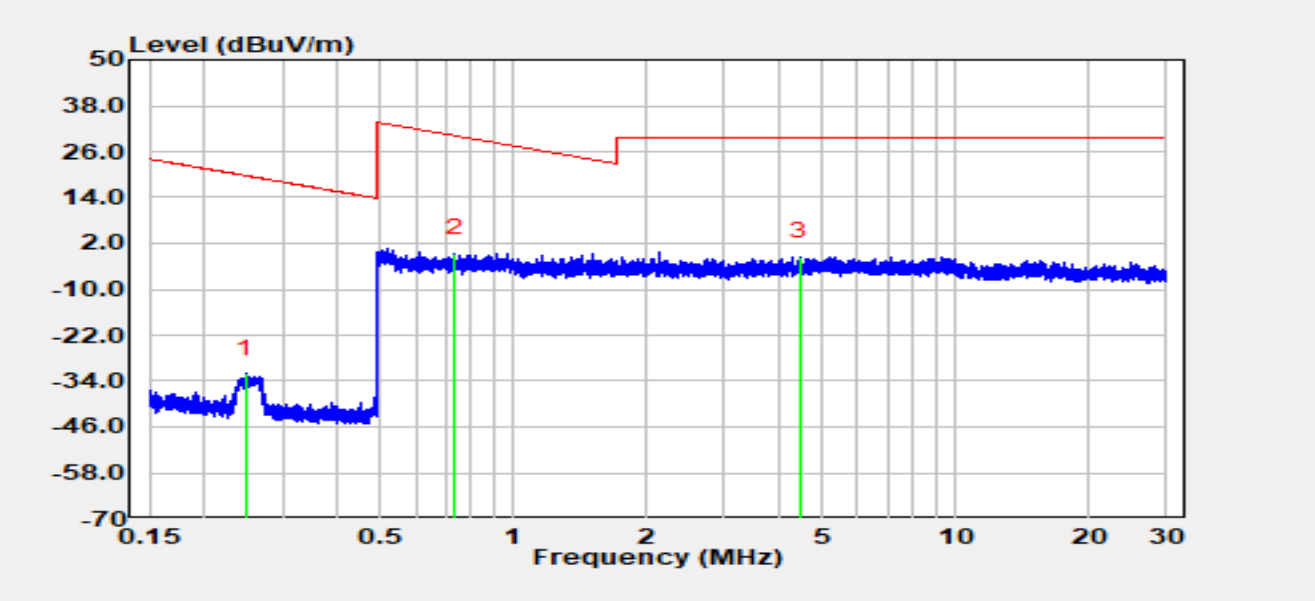


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		0.25	31.00	-60.29	-29.29	-48.90	19.61	Peak
2		0.52	22.06	-20.33	1.73	-31.48	33.21	Peak
3	*	7.69	18.96	-20.32	-1.35	-30.85	29.50	Peak

Notes:

1. "*" indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) + 40log(d1/d2) (dB), d1 = 3 m, d2 = 300 m (9 kHz - 490 kHz) or 30 m (490 kHz - 30 MHz).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC1	Test Date	2026-01-26
Temperature	18.4 °C	Humidity	37.8%
Limit	FCC_Part 15.209_RSE	Test Engineer	Alex Liu
Test Voltage	AC 120 V/60 Hz	Polarity	Coplanar
Test Mode	Transmit by BLE-2M at 2480 MHz	Model No.	AP541



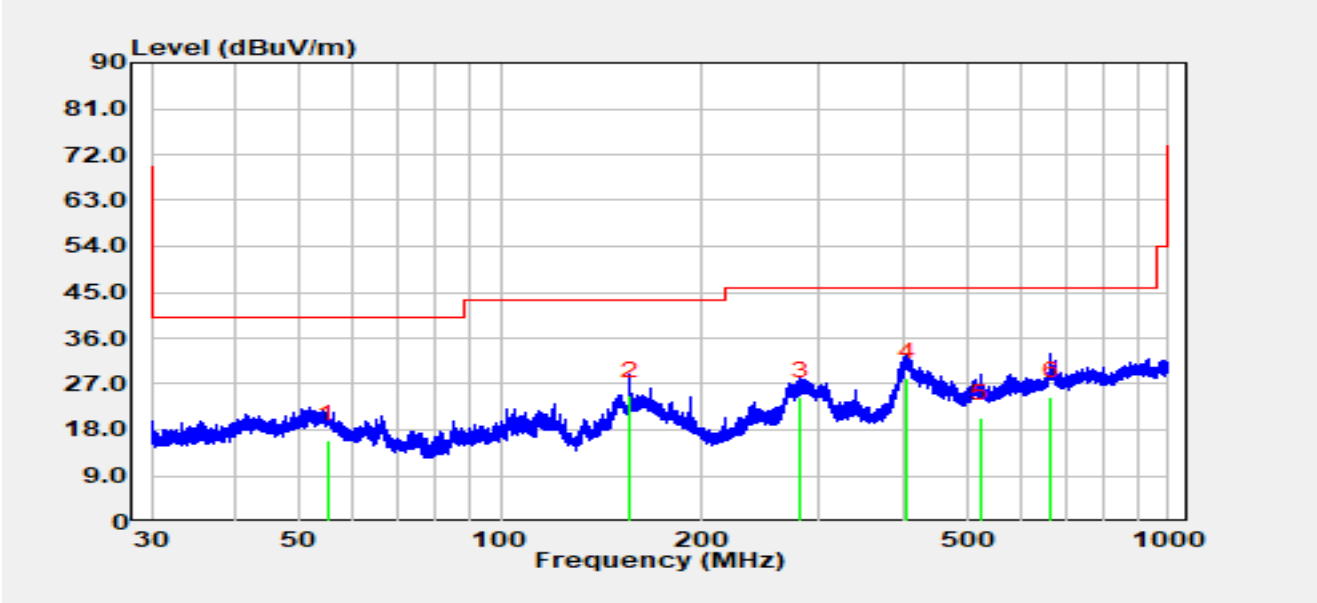
No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		0.25	28.23	-60.29	-32.06	-51.79	19.73	Peak
2	*	0.74	19.79	-20.37	-0.58	-30.85	30.27	Peak
3		4.43	19.00	-20.44	-1.44	-30.94	29.50	Peak

Notes:

1. "*" indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) + 40log(d1/d2) (dB), d1 = 3 m, d2 = 300 m (9 kHz - 490 kHz) or 30 m (490 kHz - 30 MHz).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

The Worst-case Result of Radiated Emission for 30 MHz ~ 1 GHz

Site	WJ-AC2	Test Date	2026-01-29
Temperature	20.6 °C	Humidity	22.3%
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Test Voltage	By PoE	Polarity	Horizontal
Test Mode	Transmit by BLE 2M at 2480 MHz	Model No.	AP541

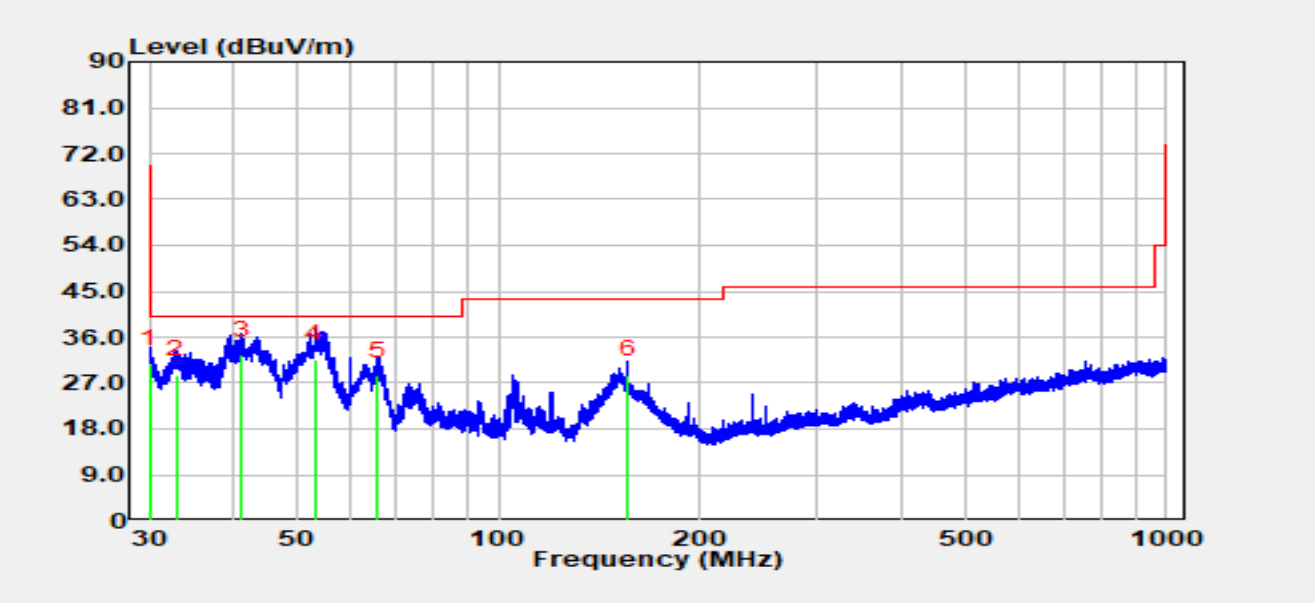


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		54.97	-3.40	19.53	16.13	-23.87	40.00	QP
2		156.02	9.90	14.74	24.64	-18.86	43.50	QP
3		280.81	4.90	19.65	24.55	-21.45	46.00	QP
4	*	406.80	5.50	22.85	28.35	-17.65	46.00	QP
5		522.17	-4.10	24.42	20.32	-25.68	46.00	QP
6		666.97	-2.30	26.88	24.58	-21.42	46.00	QP

Notes:

1. "*" indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-29
Temperature	20.6 °C	Humidity	22.3%
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Test Voltage	By PoE	Polarity	Vertical
Test Mode	Transmit by BLE 2M at 2480 MHz	Model No.	AP541



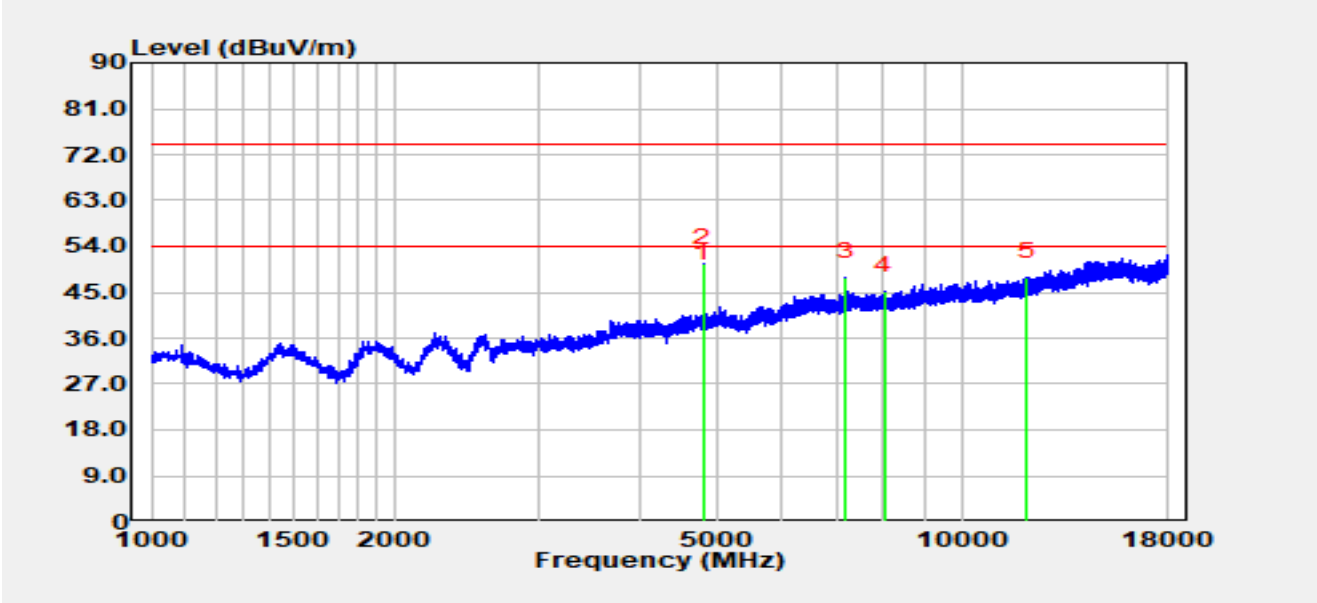
No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		30.07	14.20	16.47	30.67	-9.33	40.00	QP
2		32.85	12.40	16.16	28.56	-11.44	40.00	QP
3	*	41.19	13.50	19.02	32.52	-7.48	40.00	QP
4		52.98	11.90	19.76	31.66	-8.34	40.00	QP
5		65.78	11.50	16.89	28.39	-11.61	40.00	QP
6		156.02	13.80	14.74	28.54	-14.96	43.50	QP

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

The Worst-case Result of Radiated Emission for 1 GHz ~ 18 GHz

Site	WJ-AC2	Test Date	2026-01-21
Temperature	25.7 °C	Humidity	25.3%
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120V/60Hz	Polarity	Horizontal
Test Mode	Transmit by BLE-1M at 2402 MHz	Model No.	AP541

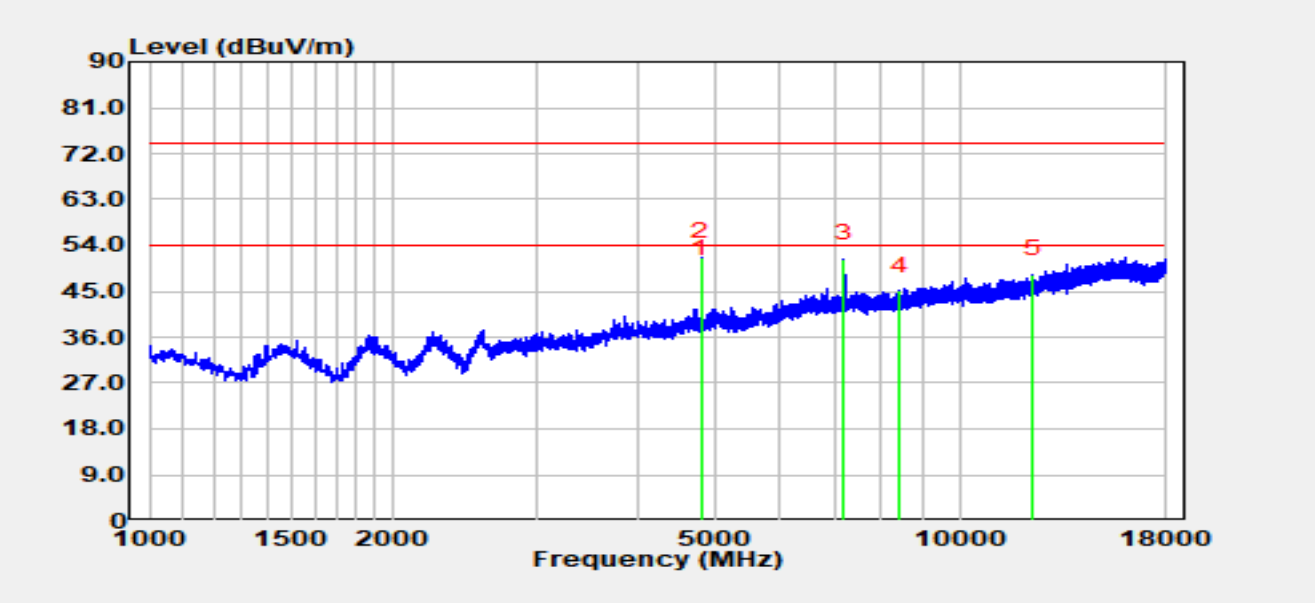


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	4804.60	47.67	0.04	47.71	-6.29	54.00	Average
2		4804.60	50.67	0.04	50.71	-23.29	74.00	Peak
3		7205.00	43.24	4.74	47.98	Note 4	Note 4	Peak
4		8036.30	39.53	5.70	45.23	-28.77	74.00	Peak
5		12056.80	42.83	5.22	48.05	-25.95	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).
4. Point 3 is not in the restricted bands specified in FCC Part 15.205. For testing of non-restricted bands, refer to the test item "Conducted Band Edge and Out-of-Band Emissions".

Site	WJ-AC2	Test Date	2026-01-21
Temperature	25.7 °C	Humidity	25.3%
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120V/60Hz	Polarity	Vertical
Test Mode	Transmit by BLE-1M at 2402 MHz	Model No.	AP541



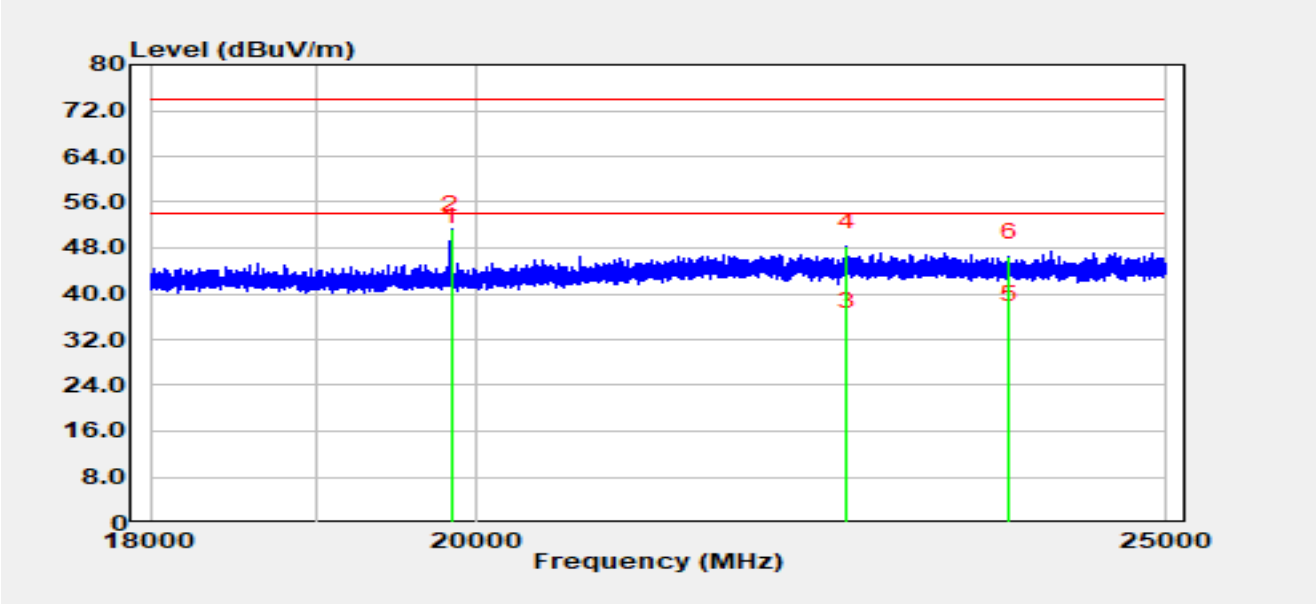
No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	4802.90	48.35	0.04	48.39	-5.61	54.00	Average
2		4802.90	51.73	0.04	51.78	-22.22	74.00	Peak
3		7206.70	46.63	4.74	51.36	Note 4	Note 4	Peak
4		8435.80	38.92	6.25	45.17	-28.83	74.00	Peak
5		12316.90	43.37	4.89	48.26	-25.74	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).
4. Point 3 is not in the restricted bands specified in FCC Part 15.205. For testing of non-restricted bands, refer to the test item "Conducted Band Edge and Out-of-Band Emissions".

The Worst-case Result of Radiated Emission for above 18 GHz:

Site	WJ-AC2	Test Date	2026-01-24
Temperature	20.6 °C	Humidity	22.3%
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE-2M at 2480 MHz	Model No.	AP541

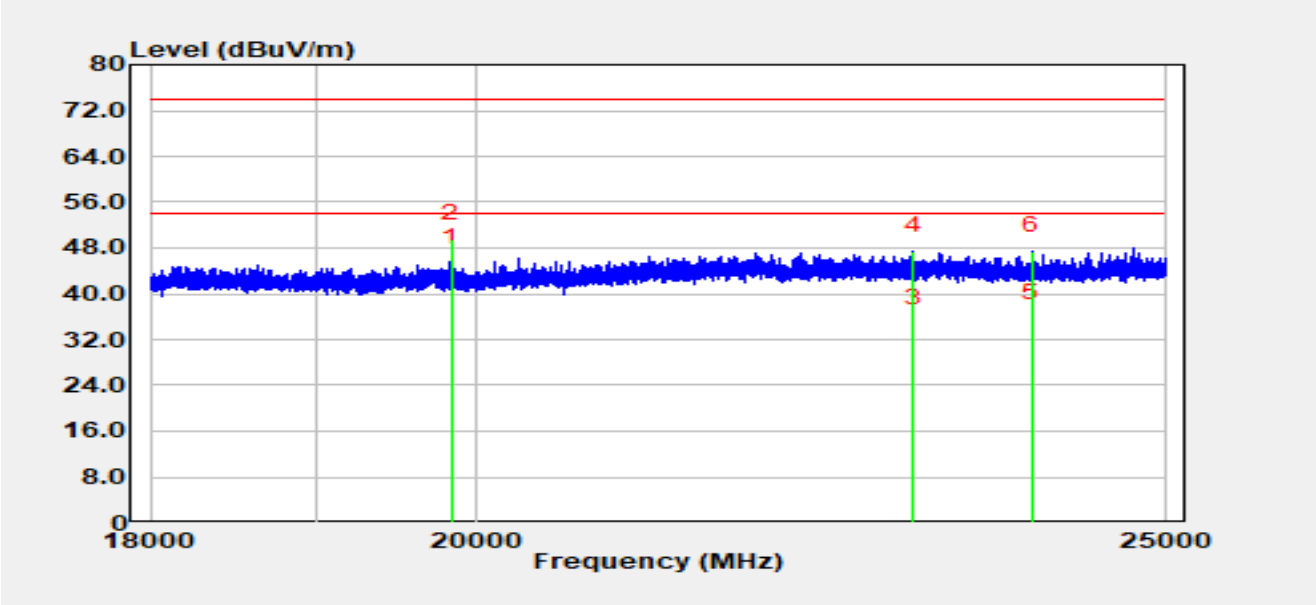


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	19843.80	57.21	-8.19	49.02	-4.98	54.00	Average
2		19843.80	59.47	-8.19	51.28	-22.72	74.00	Peak
3		22543.00	38.95	-4.54	34.41	-19.59	54.00	Average
4		22543.00	52.75	-4.54	48.21	-25.79	74.00	Peak
5		23764.50	50.46	-4.04	46.42	-27.58	74.00	Peak
6		24015.80	39.45	-4.15	35.29	-18.71	54.00	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-24
Temperature	20.6 °C	Humidity	22.3%
Limit	FCC_Part 15.209_RSE (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE-2M at 2480 MHz	Model No.	AP541



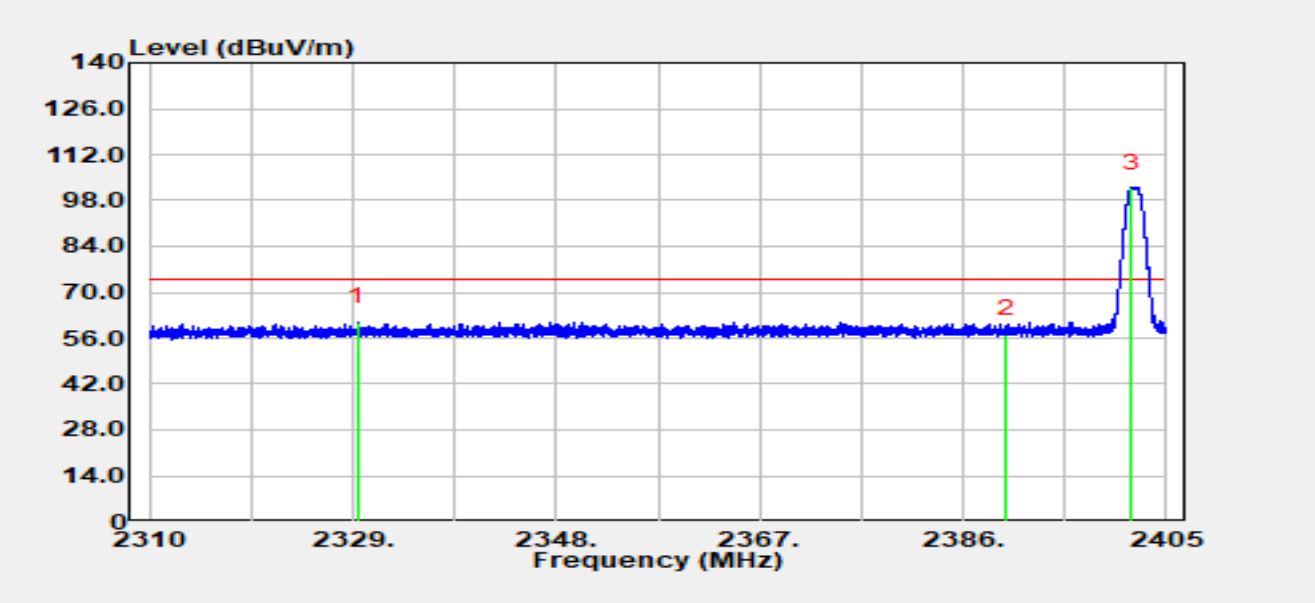
No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	19843.80	53.77	-8.19	45.58	-8.42	54.00	Average
2		19843.80	57.78	-8.19	49.59	-24.41	74.00	Peak
3		23030.90	38.94	-4.09	34.85	-19.15	54.00	Average
4		23030.90	51.49	-4.09	47.40	-26.60	74.00	Peak
5		23932.50	39.75	-4.02	35.73	-18.27	54.00	Average
6		23932.50	51.43	-4.02	47.40	-26.60	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

A.7 Radiated Restricted Band Edge Test Result

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 1M at 2402 MHz	Model No.	AP541

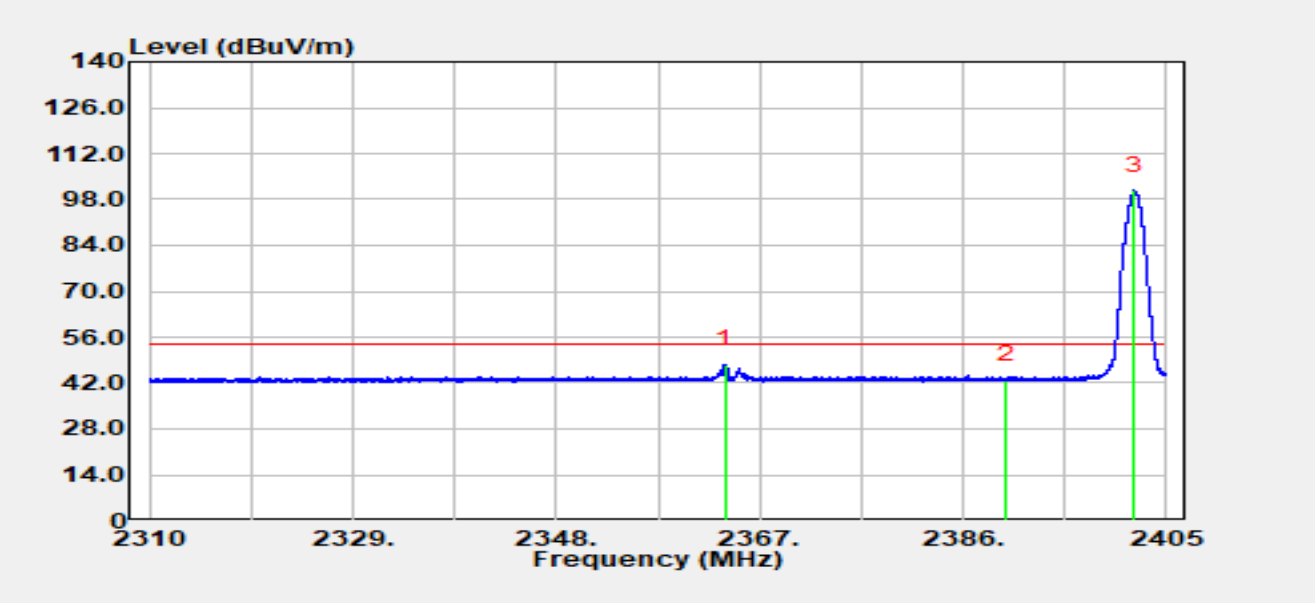


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2329.44	31.35	29.52	60.87	-13.13	74.00	Peak
2		2390.00	27.64	29.53	57.17	-16.83	74.00	Peak
3		2401.76	72.41	29.55	101.96	N/A	N/A	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 1M at 2402 MHz	Model No.	AP541

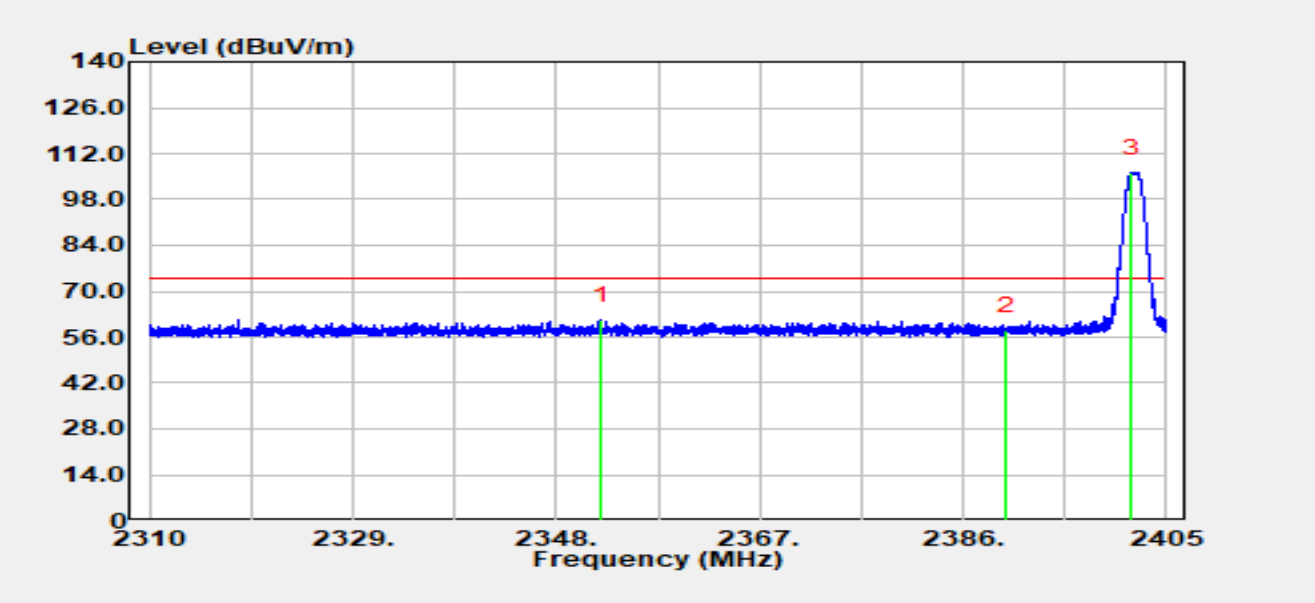


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2363.82	18.09	29.55	47.65	-6.35	54.00	Average
2		2390.00	13.52	29.53	43.04	-10.96	54.00	Average
3		2402.05	71.12	29.55	100.67	N/A	N/A	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 1M at 2402 MHz	Model No.	AP541

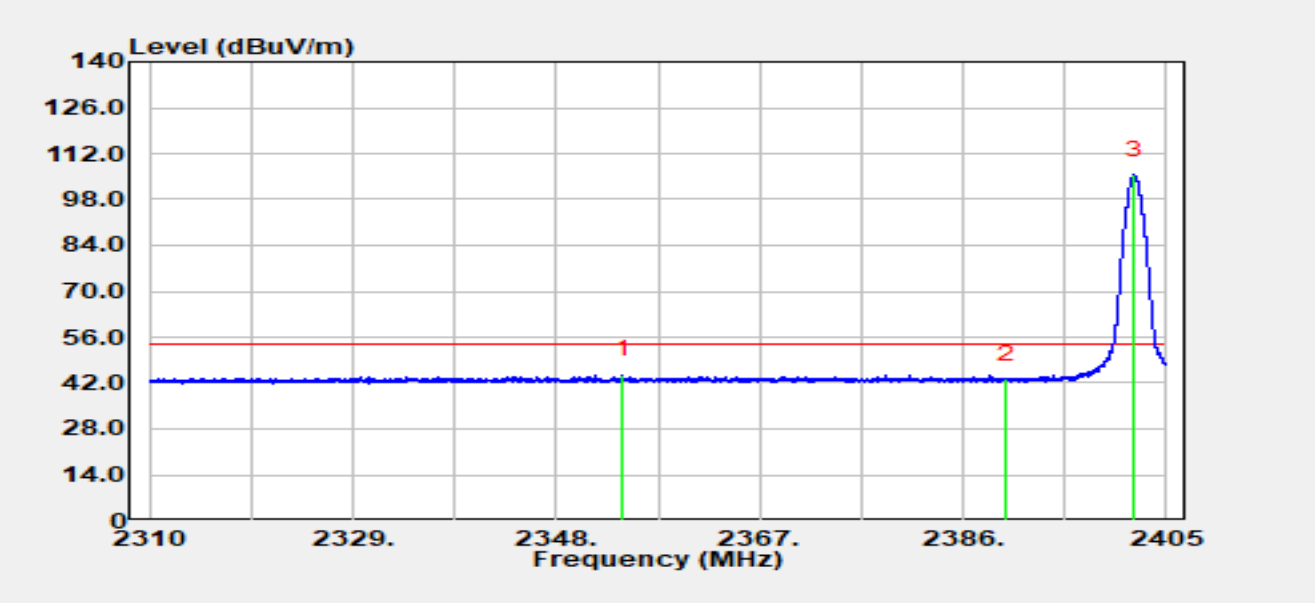


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2352.20	31.68	29.55	61.24	-12.76	74.00	Peak
2		2390.00	28.42	29.53	57.95	-16.05	74.00	Peak
3		2401.77	76.62	29.55	106.17	N/A	N/A	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 1M at 2402 MHz	Model No.	AP541

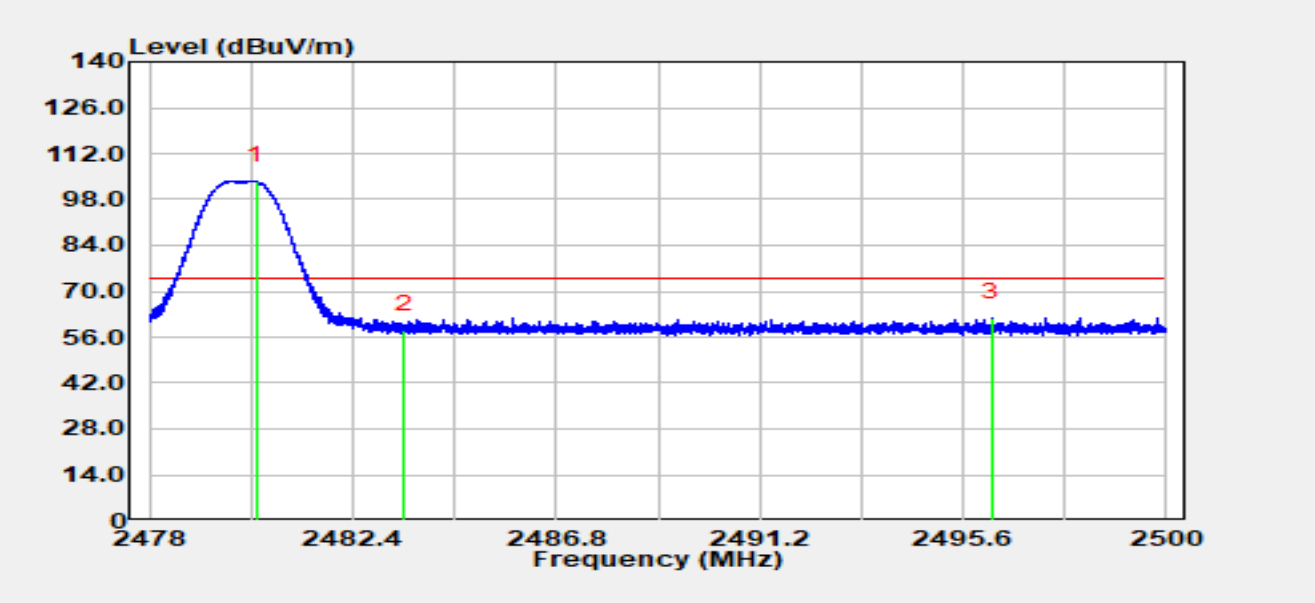


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2354.16	15.08	29.55	44.64	-9.36	54.00	Average
2		2390.00	13.70	29.53	43.23	-10.77	54.00	Average
3		2401.99	75.87	29.55	105.42	N/A	N/A	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 1M at 2480 MHz	Model No.	AP541

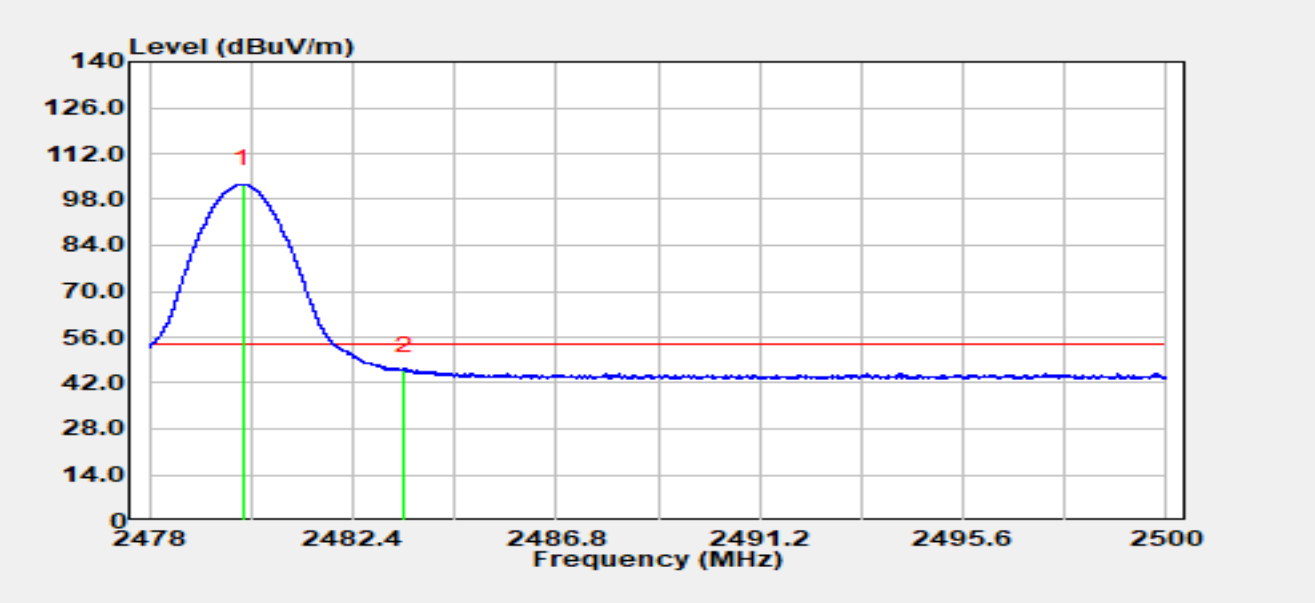


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.30	74.02	29.58	103.61	N/A	N/A	Peak
2		2483.50	28.62	29.59	58.22	-15.78	74.00	Peak
3	*	2496.23	32.43	29.62	62.05	-11.95	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 1M at 2480 MHz	Model No.	AP541

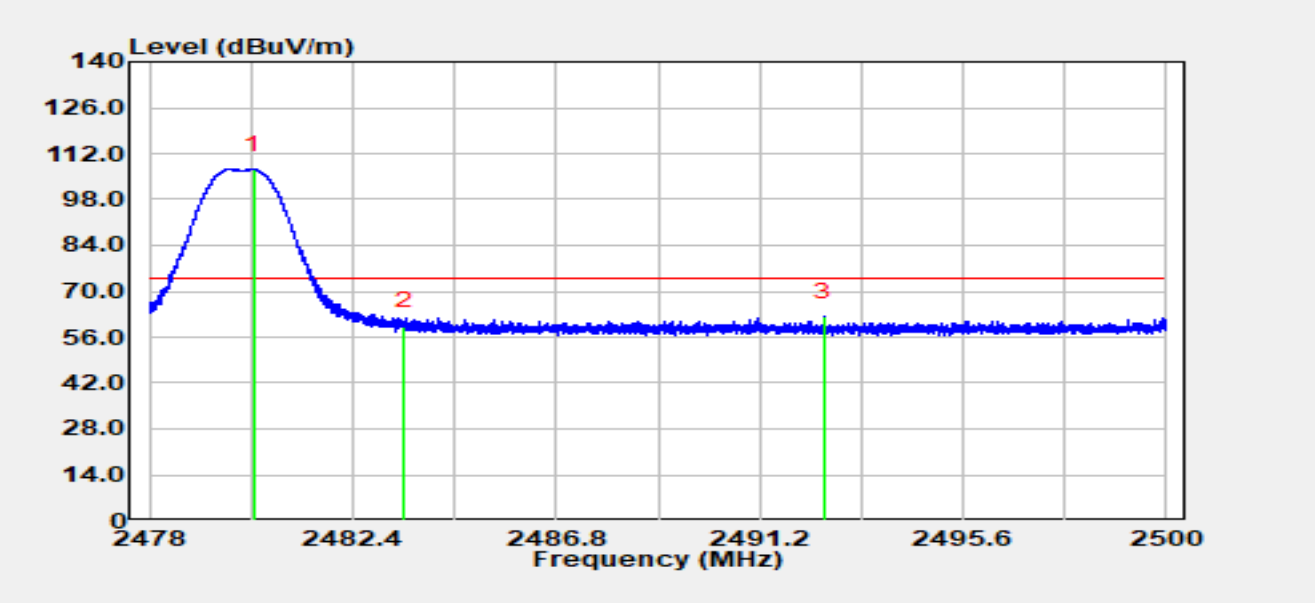


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.02	72.94	29.58	102.52	N/A	N/A	Average
2	*	2483.50	16.35	29.59	45.95	-8.05	54.00	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 1M at 2480 MHz	Model No.	AP541

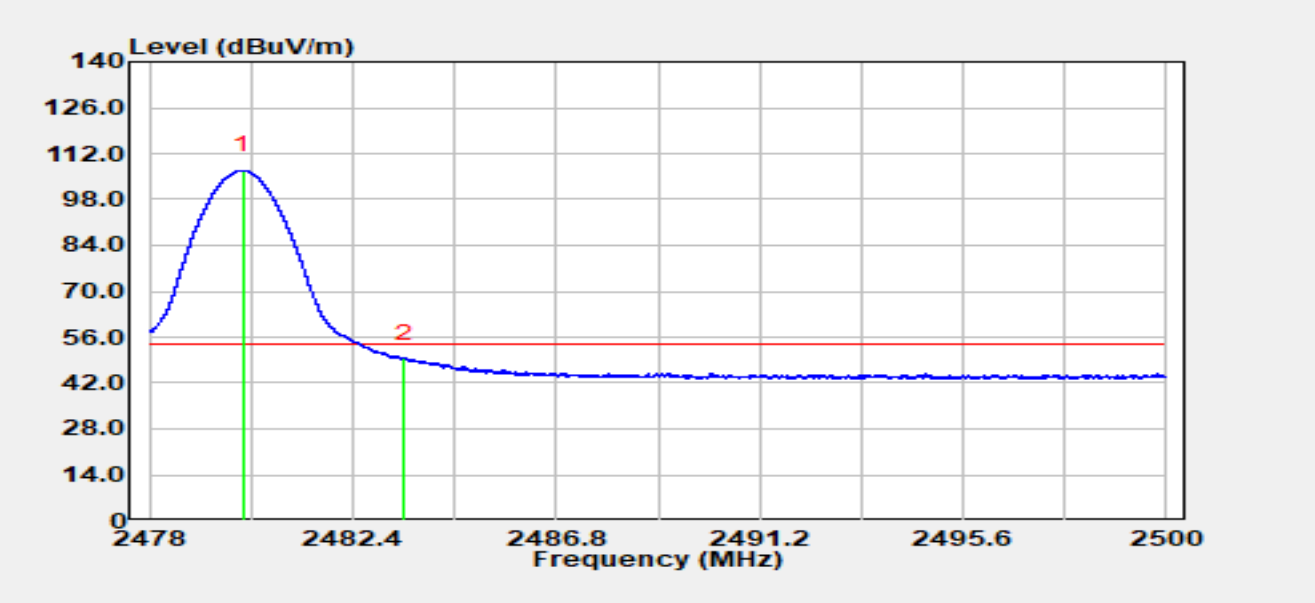


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.24	77.54	29.58	107.12	N/A	N/A	Peak
2		2483.50	29.60	29.59	59.20	-14.80	74.00	Peak
3	*	2492.60	32.56	29.62	62.18	-11.82	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 1M at 2480 MHz	Model No.	AP541

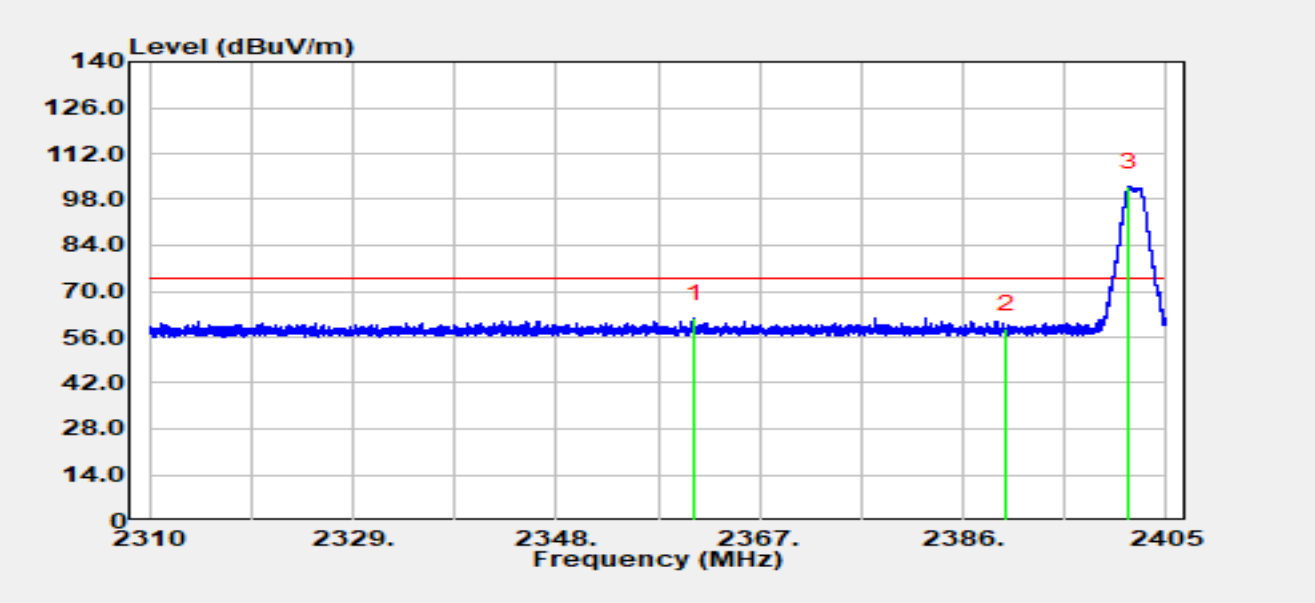


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.02	77.24	29.58	106.82	N/A	N/A	Average
2	*	2483.50	19.94	29.59	49.53	-4.47	54.00	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 2M at 2402 MHz	Model No.	AP541

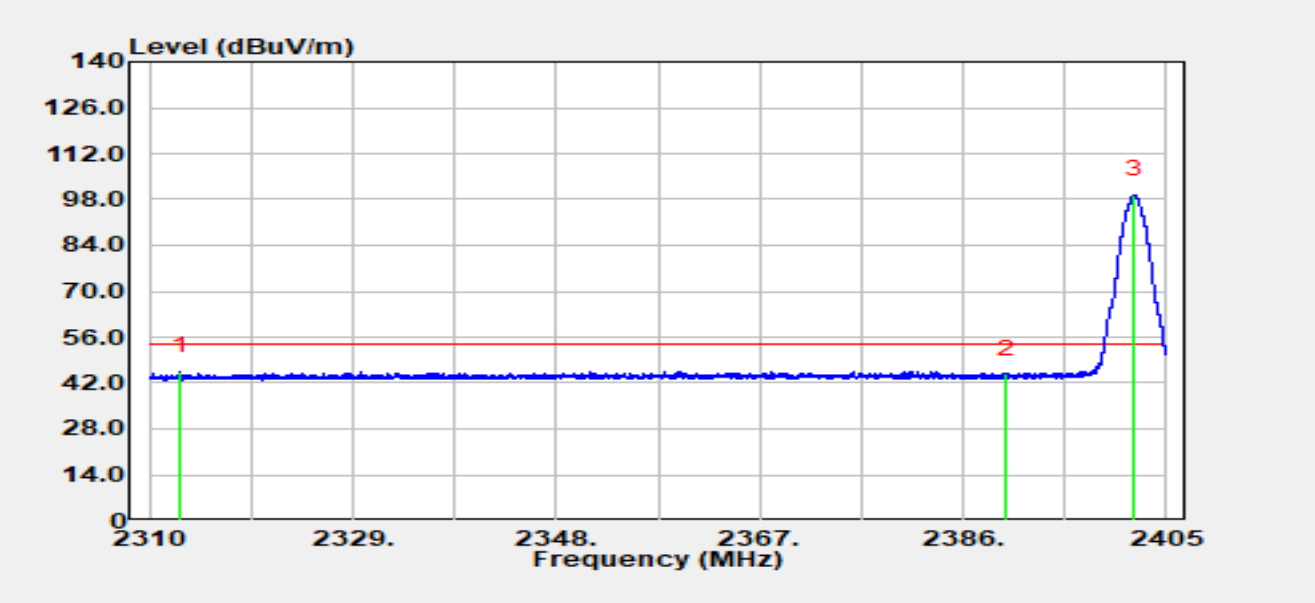


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2360.94	32.25	29.55	61.80	-12.20	74.00	Peak
2		2390.00	29.04	29.53	58.57	-15.43	74.00	Peak
3		2401.51	72.31	29.55	101.85	N/A	N/A	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 2M at 2402 MHz	Model No.	AP541

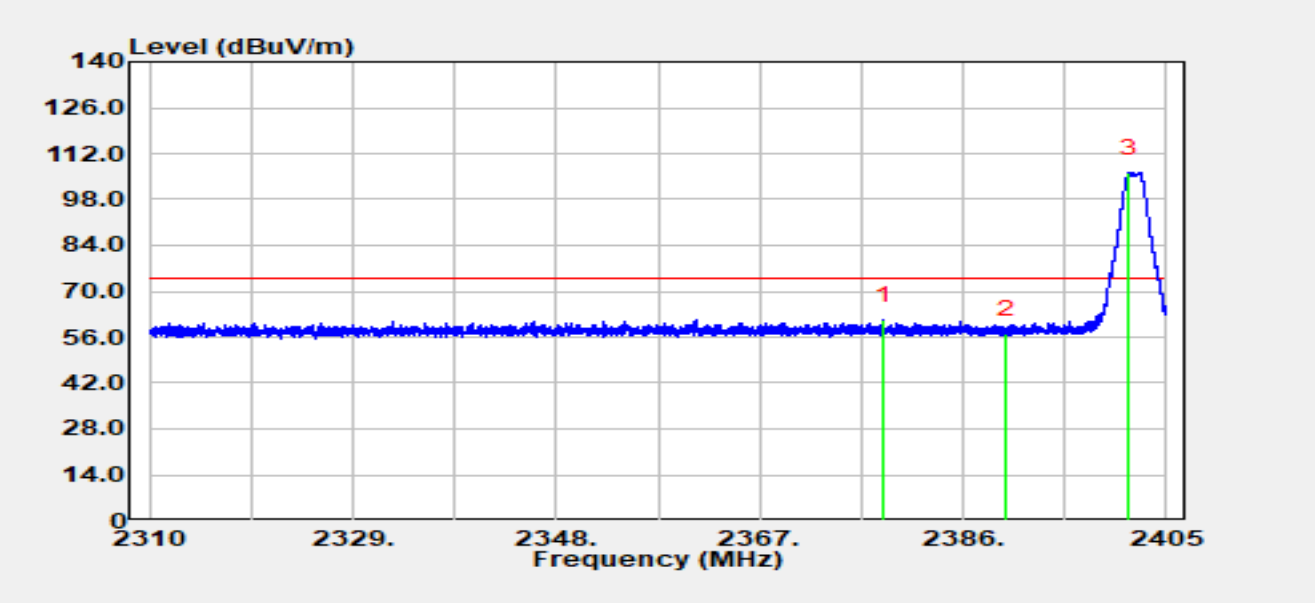


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2312.89	15.96	29.53	45.49	-8.51	54.00	Average
2		2390.00	15.14	29.53	44.67	-9.33	54.00	Average
3		2401.94	70.01	29.55	99.55	N/A	N/A	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 2M at 2402 MHz	Model No.	AP541

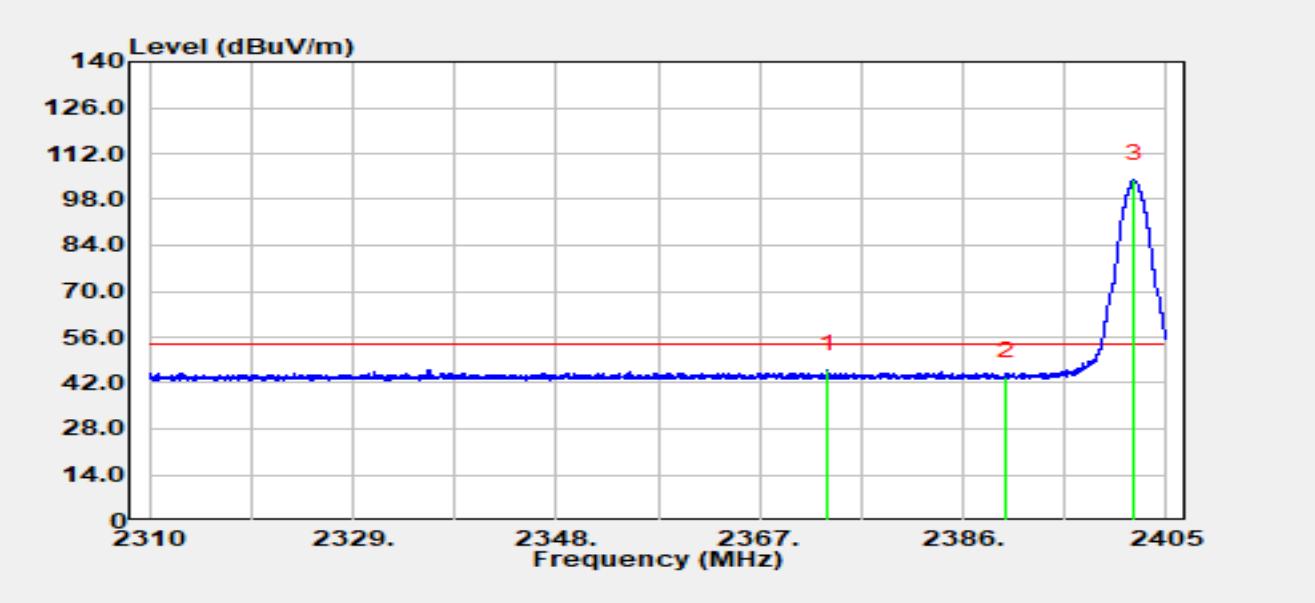


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2378.59	31.54	29.53	61.07	-12.93	74.00	Peak
2		2390.00	27.48	29.53	57.00	-17.00	74.00	Peak
3		2401.53	76.64	29.55	106.18	N/A	N/A	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 2M at 2402 MHz	Model No.	AP541

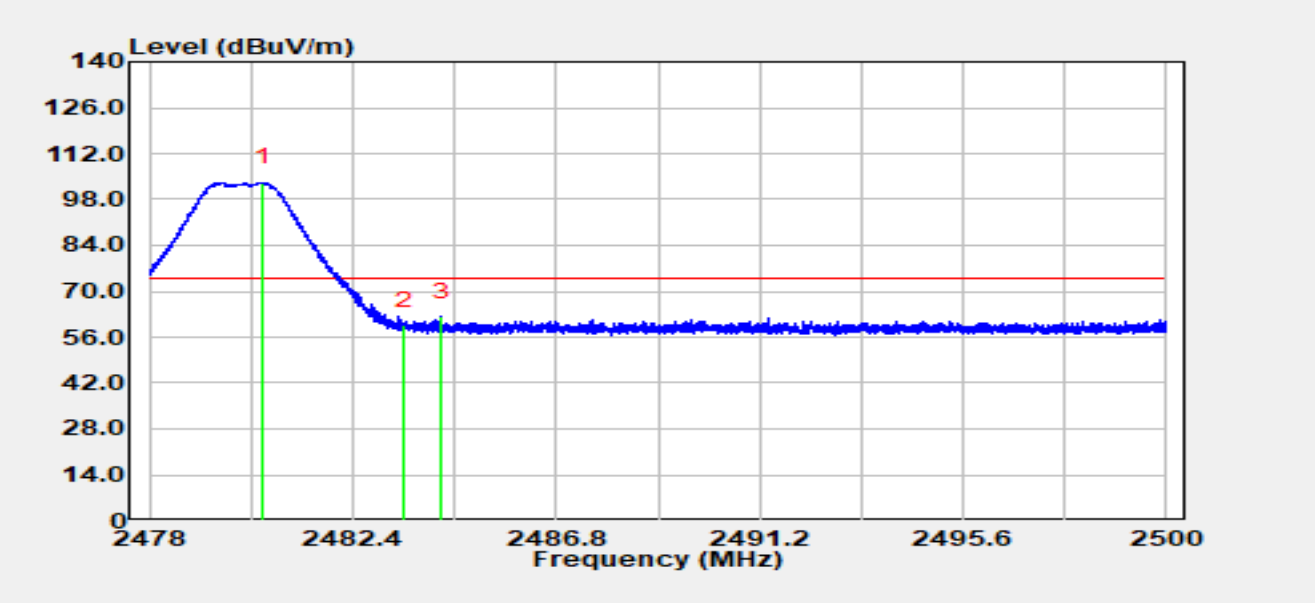


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1	*	2373.37	16.50	29.54	46.03	-7.97	54.00	Average
2		2390.00	14.36	29.53	43.89	-10.11	54.00	Average
3		2402.04	74.56	29.55	104.11	N/A	N/A	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 2M at 2480 MHz	Model No.	AP541

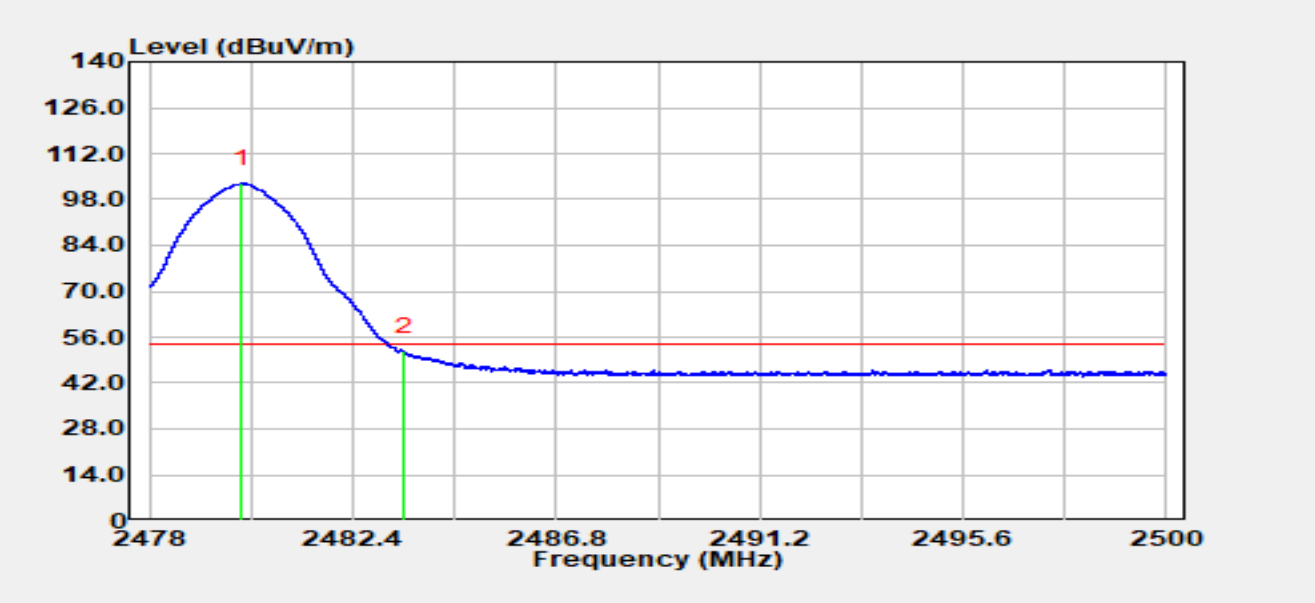


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.46	73.58	29.58	103.16	N/A	N/A	Peak
2		2483.50	30.06	29.59	59.66	-14.34	74.00	Peak
3	*	2484.32	32.49	29.60	62.09	-11.91	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Horizontal
Test Mode	Transmit by BLE 2M at 2480 MHz	Model No.	AP541

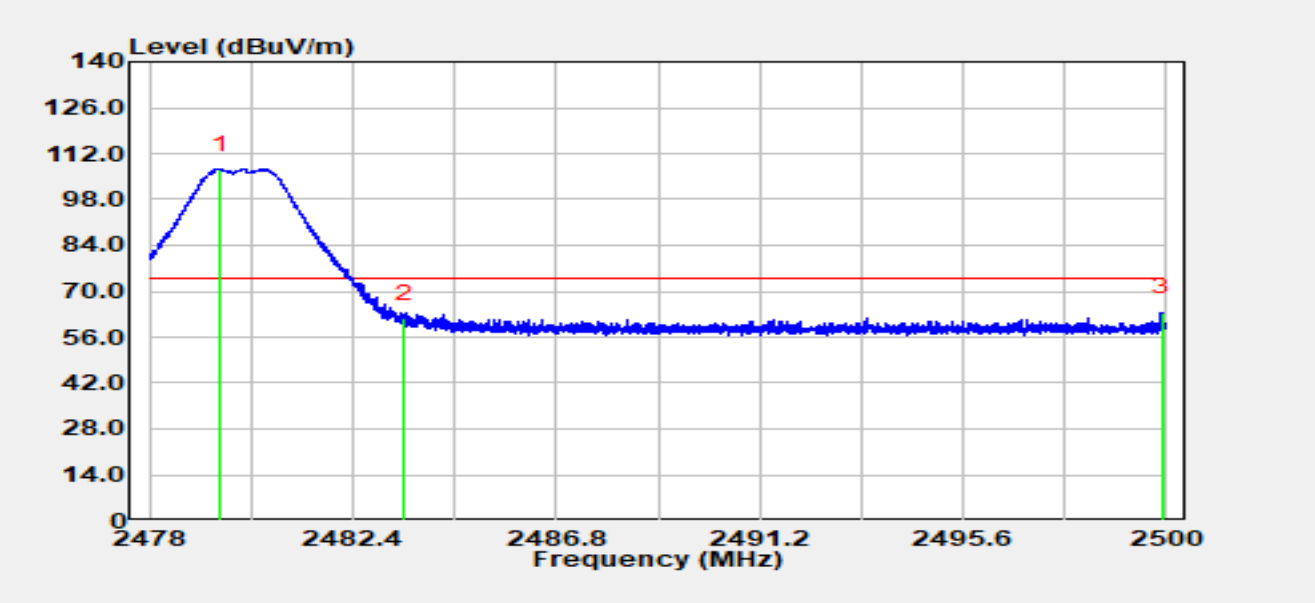


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.00	73.27	29.58	102.85	N/A	N/A	Average
2	*	2483.50	21.94	29.59	51.53	-2.47	54.00	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 2M at 2480 MHz	Model No.	AP541

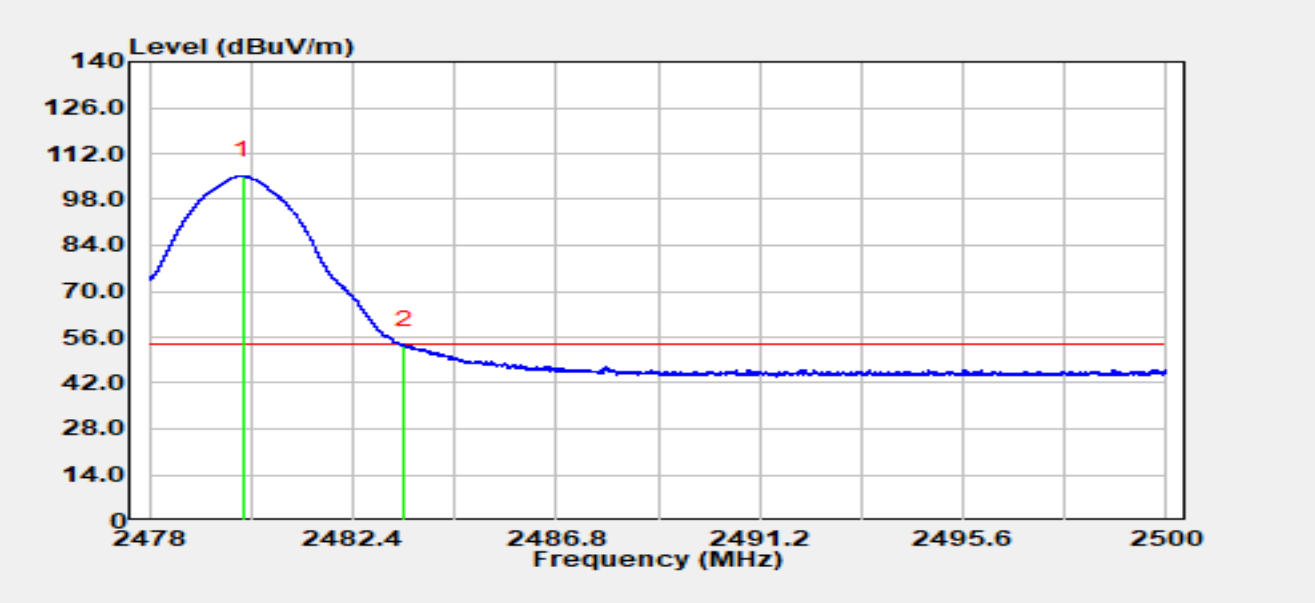


No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2479.54	77.65	29.58	107.23	N/A	N/A	Peak
2		2483.50	32.21	29.59	61.80	-12.20	74.00	Peak
3	*	2499.91	33.89	29.62	63.51	-10.49	74.00	Peak

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

Site	WJ-AC2	Test Date	2026-01-16
Temperature	19.7 °C	Humidity	32.3%
Limit	FCC_Part 15_Band Edge (3m)	Test Engineer	Bob Zhang
Test Voltage	AC 120 V/60 Hz	Polarity	Vertical
Test Mode	Transmit by BLE 2M at 2480 MHz	Model No.	AP541



No	Mark	Frequency (MHz)	Reading (dBμV)	C.F (dB/m)	Measurement (dBμV/m)	Margin (dB)	Limit (dBμV/m)	Detector
1		2480.02	75.69	29.58	105.28	N/A	N/A	Average
2	*	2483.50	23.77	29.59	53.36	-0.64	54.00	Average

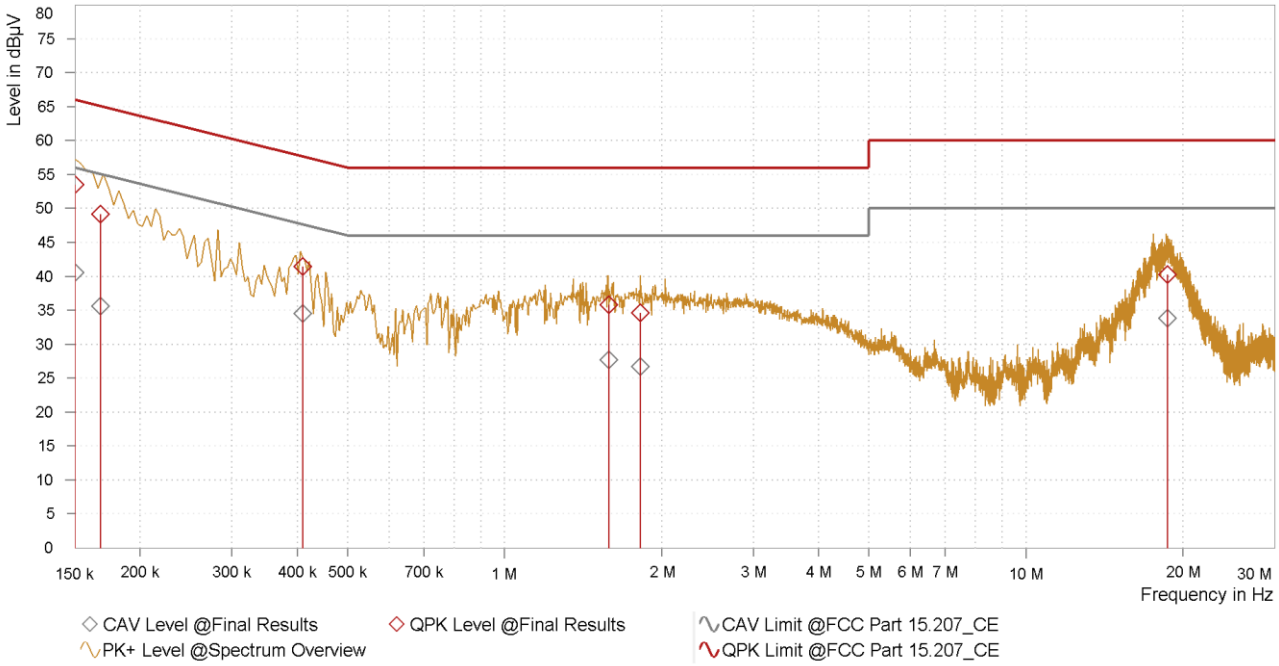
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBμV/m) = Reading (dBμV) + C.F (dB/m).

A.8 AC Conducted Emissions Test Result

Model No.	AP541
Note	Transmit by BLE-2M at 2480 MHz
Test Voltage	AC 120 V/60 Hz
Test Engineer	Carl Jiang
Test Date	2026-01-23
Temp	15.7 ℃
Humi	30.3%
Polarity	L
Test Site	WJ-SR5

Spectrum Overview



Final Results

Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	CAV Level [dBµV]	CAV Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	Correction [dB]	Line
0.150	53.47	66.00	12.53	43.77	40.53	56.00	15.47	30.83	9.70	L1
0.168	49.17	65.06	15.89	39.47	35.59	55.06	19.46	25.89	9.70	L1
0.410	41.44	57.65	16.21	31.77	34.56	47.65	13.09	24.88	9.68	L1
1.586	35.81	56.00	20.19	26.04	27.66	46.00	18.34	17.89	9.77	L1
1.824	34.58	56.00	21.42	24.80	26.68	46.00	19.32	16.90	9.78	L1
18.668	40.26	60.00	19.74	30.17	33.78	50.00	16.22	23.69	10.09	L1

Notes:

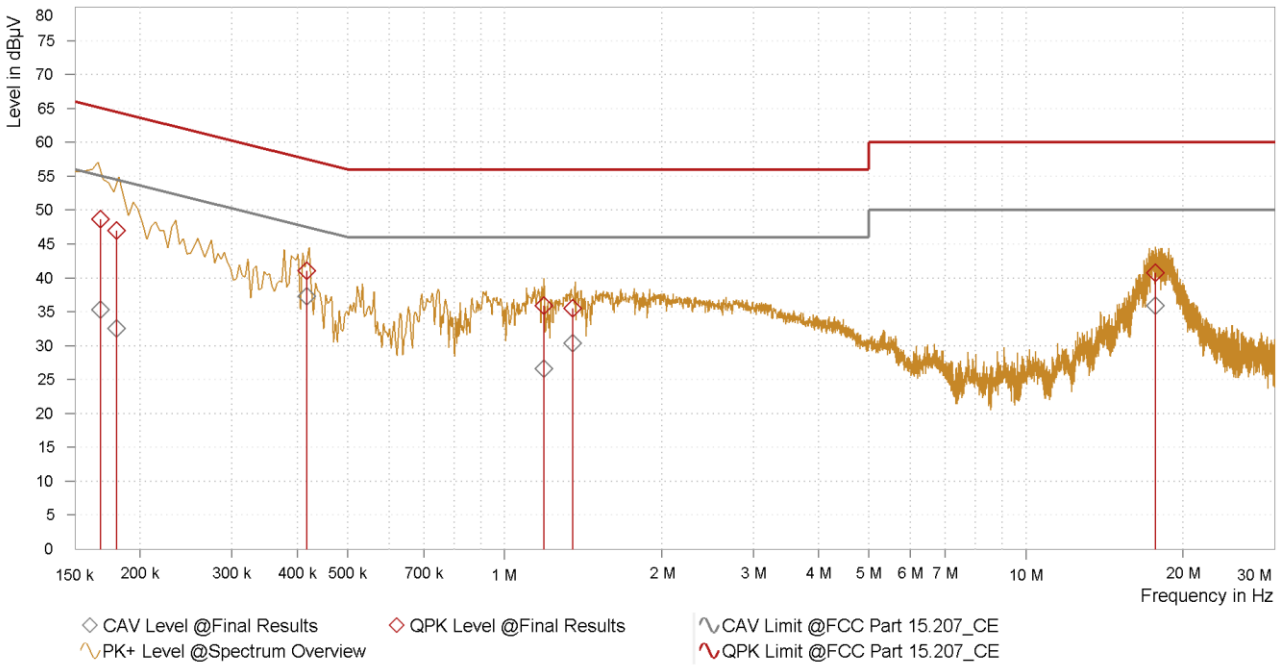
1. QPK Level [dBμV] = QPK Raw Lvl [dBμV] + Correction [dB]

2. CAV Level [dBμV] = CAV Raw Lvl [dBμV] + Correction [dB]

3. Correction [dB] = LISN Factor [dB] + Cable Loss [dB]

Model No.	AP541
Note	Transmit by BLE-2M at 2480 MHz
Test Voltage	AC 120 V/60 Hz
Test Engineer	Carl Jiang
Test Date	2026-01-23
Temp	15.7 ℃
Humi	30.3%
Polarity	N
Test Site	WJ-SR5

Spectrum Overview



Final Results

Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	QPK Raw Lvl [dBµV]	CAV Level [dBµV]	CAV Limit [dBµV]	CAV Margin [dB]	CAV Raw Lvl [dBµV]	Correction [dB]	Line
0.168	48.64	65.06	16.42	38.99	35.31	55.06	19.75	25.66	9.65	N
0.180	46.99	64.49	17.50	37.32	32.52	54.49	21.96	22.86	9.66	N
0.418	40.99	57.49	16.50	31.32	37.29	47.49	10.20	27.61	9.68	N
1.190	35.88	56.00	20.12	26.14	26.59	46.00	19.41	16.85	9.75	N
1.352	35.52	56.00	20.48	25.77	30.37	46.00	15.63	20.62	9.75	N
17.713	40.76	60.00	19.24	30.60	35.87	50.00	14.13	25.72	10.16	N

Notes:

1. QPK Level [dBμV] = QPK Raw Lvl [dBμV] + Correction [dB]

2. CAV Level [dBμV] = CAV Raw Lvl [dBμV] + Correction [dB]

3. Correction [dB] = LISN Factor [dB] + Cable Loss [dB]

Appendix B - Test Setup Photograph

Refer to “R26S1032073-UT” file.

Appendix C - EUT Photograph

Refer to “R26S1032073-UE” file.

The End