

RF MEASUREMENT REPORT

FCC ID: 2AR82-SKIWB7638U1
Applicant: Guangzhou Shikun Electronics Co., Ltd
Product: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module
Model No.: SKI.WB7638U.1_ MT7638BU
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
Result: Complies
Test Date: 2022-08-16 ~ 2022-08-24

Reviewed By:

Jame Yuan

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
2208RSU019-U1	Rev. 01	Initial Report	2022-08-31	Valid

Note: This is a Class II permissive Change project due to the product adding two antennas with higher gain than before. After evaluation, output power, band edge, and radiated spurious emission need to be evaluated.

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1.4. Product Information

Product Name	IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module
Model No.	SKI.WB7638U.1_MT7638BU
Sample No.	20220808Sample#05
Wi-Fi Specification	802.11a/b/g/n
Antenna Information	Refer to Selection 1.7
Working Voltage	DC 3.3V
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. Radio Specification under Test

Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462MHz 802.11n-HT40: 2422 ~ 2452MHz
Channel Number	802.11b/g/n-HT20: 11 802.11n-HT40: 7
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps

1.6. Working Frequencies

802.11b/g/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	--	--	--	--

1.7. Antenna Details

Antenna Type	Frequency Band (MHz)	Max Peak Gain (dBi)	CDD Directional Gain (dBi)	
			For Power	For PSD
Antenna 1# (2*2 MIMO)				
PIFA	2400 ~ 2483.5	3.91	3.91	6.92
	5150 ~ 5250	2.80	2.80	5.81
	5250 ~ 5350	2.59	2.59	5.60
	5470 ~ 5725	3.10	3.10	6.11
	5725 ~ 5850	3.53	3.53	6.54
Antenna 2# (2*2 MIMO)				
PIFA	2400 ~ 2483.5	4.43	4.43	7.44
	5150 ~ 5250	3.26	3.26	6.27
	5250 ~ 5350	3.52	3.52	6.53
	5470 ~ 5725	4.39	4.39	7.40
	5725 ~ 5850	4.60	4.60	7.61

Note:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

For CDD transmissions, directional gain is calculated as follows, $N_{ANT} = 2$, $N_{SS} = 1$.

If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

$$\text{Array Gain} = 10 \log (N_{ANT} / N_{SS}) \text{ dB} = 3.01;$$

- For power measurements on IEEE 802.11 devices,

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 4;$$

2. We selected the max peak gain antenna 2# to perform all RF testing.

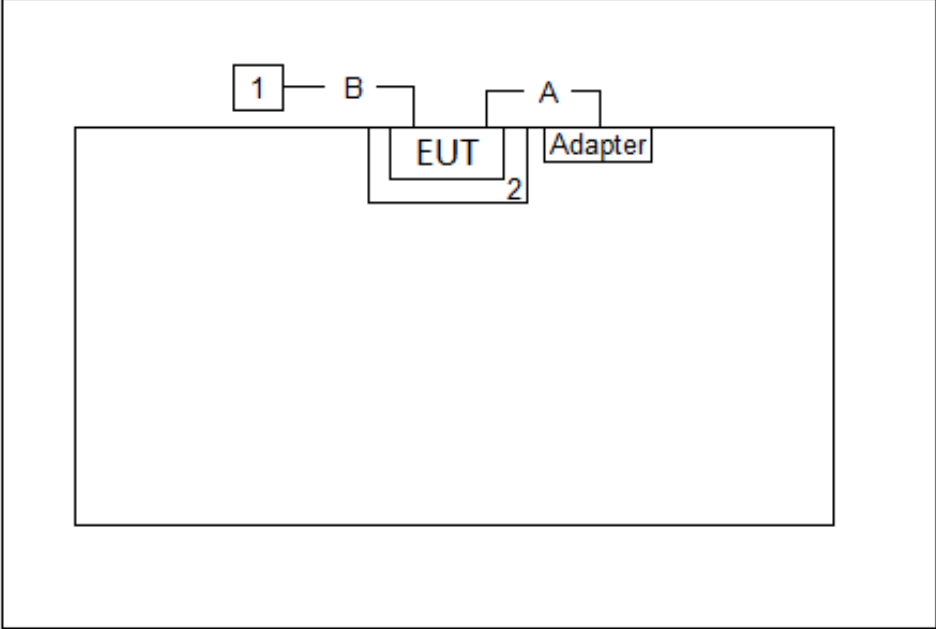
2. Test Configuration

2.1. Test Mode

Mode 1: Transmit by 802.11b (1Mbps)
Mode 2: Transmit by 802.11g (6Mbps)
Mode 3: Transmit by 802.11n-HT20 (MCS0)
Mode 4: Transmit by 802.11n-HT40 (MCS0)

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	Power Cable	Non-Shielding	1.5m
B	USB Cable	Shielding	> 10.0m
No.	Product	Manufacturer	Model No.
1	PC	DELL	Vostro.270
2	Test Load Board	N/A	A18305

2.3. Test Software

The test utility software used during testing was “QA-Tool_package_UIv2.06_DLLv4.09”.

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. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
TRILOG Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2023-05-20	WZ-AC2
EMI Test Receiver	Agilent	N9038A	MRTSUE06125	1 year	2023-06-04	WZ-AC2
Thermohygrometer	Mingle	ETH529	MRTSUE06170	1 year	2022-12-01	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2022-10-21	WZ-AC2
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2022-11-12	WZ-AC2
Anechoic Chamber	RIKEN	WZ-AC2	MRTSUE06213	1 year	2023-04-21	WZ-AC2
Thermohygrometer	testo	Testo 608-H1	MRTSUE11038	1 year	2022-11-11	WZ-AC2
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2023-06-06	WZ-SR5
Shielding Room	HUAMING	WZ-SR5	MRTSUE06442	N/A	N/A	WZ-SR5
USB Power Sensor	Agilent	U2021XA	MRTSUE06030	1 year	2022-10-10	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11074	1 year	2023-06-09	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11080	1 year	2023-06-09	WZ-SR5
Attenuator	MVE	MVE2213	MRTSUE11086	1 year	2023-06-09	WZ-SR5

Software	Version	Function
EMI V3	V3.0.0	EMI Test Software
Controller_MF 7802	1.02	RE Antenna & Turntable
BenchVue Power Meter	2018.1	Power

4. Decision Rules and Measurement Uncertainty

4.1. 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.)

4.2. 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 Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB

5. Test Result

5.1. 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

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

5.2. Output Power Measurement

5.2.1. 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.

5.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3 & 11.9.2.3.2

5.2.3. Test Setting

PKPM1 Peak power meter method

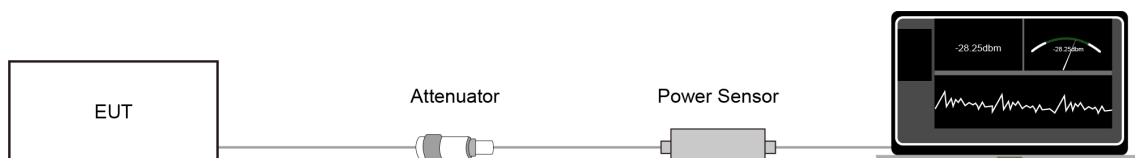
The maximum peak conducted output power may be measured using a broadband peak RF power meter.

The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast responding diode detector

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.

5.2.4. Test Setup



5.2.5. Test Result

Refer to Appendix A.1.

5.3. Radiated Spurious Emission Measurement

5.3.1. 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

5.3.2. 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)

5.3.3. 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

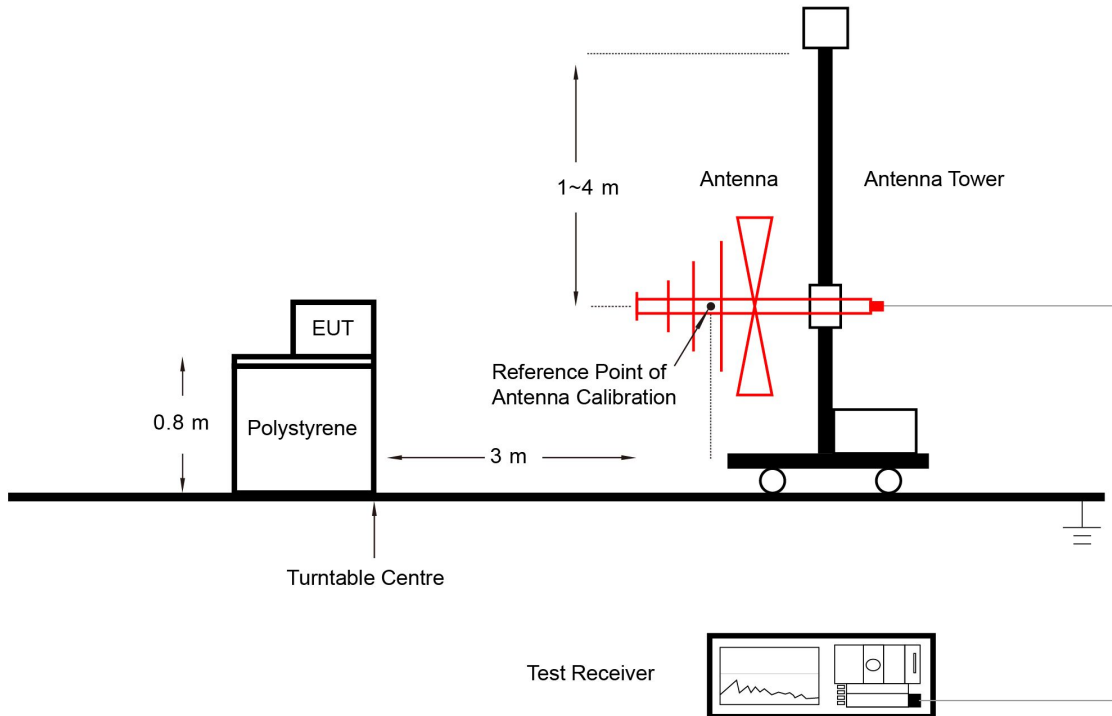
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

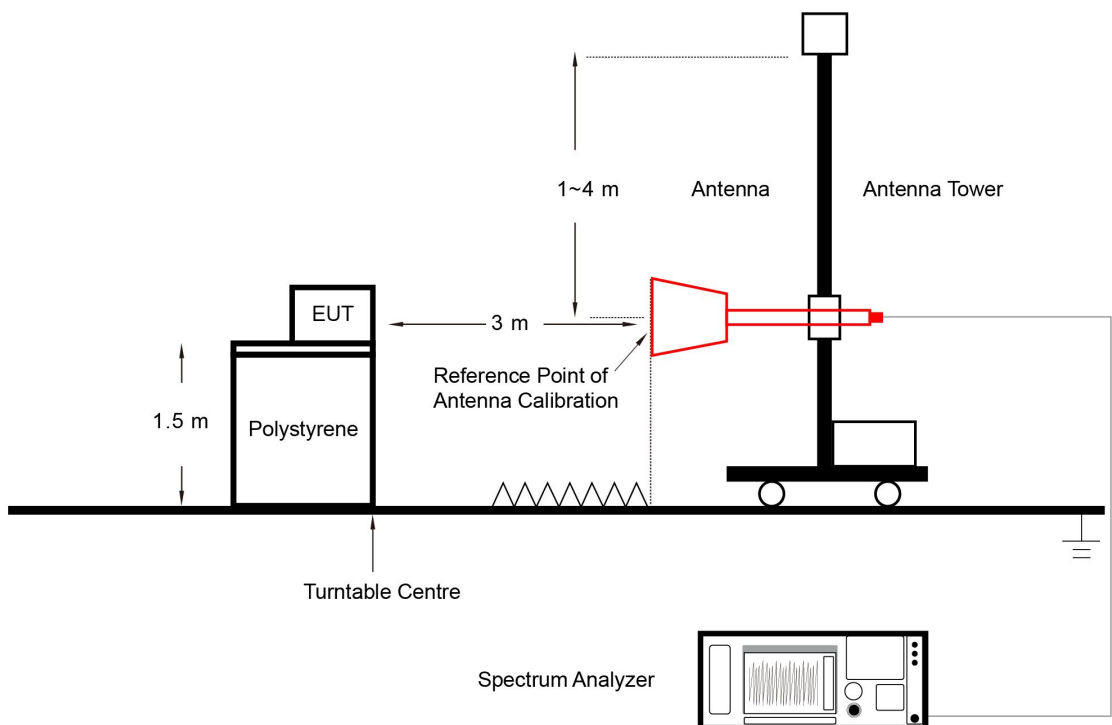
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4.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

5.3.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.3.5. Test Result

Refer to Appendix A.2.

5.4. Radiated Restricted Band Edge Measurement

5.4.1. 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

5.4.2. Test Procedure

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

5.4.3. Test Setting

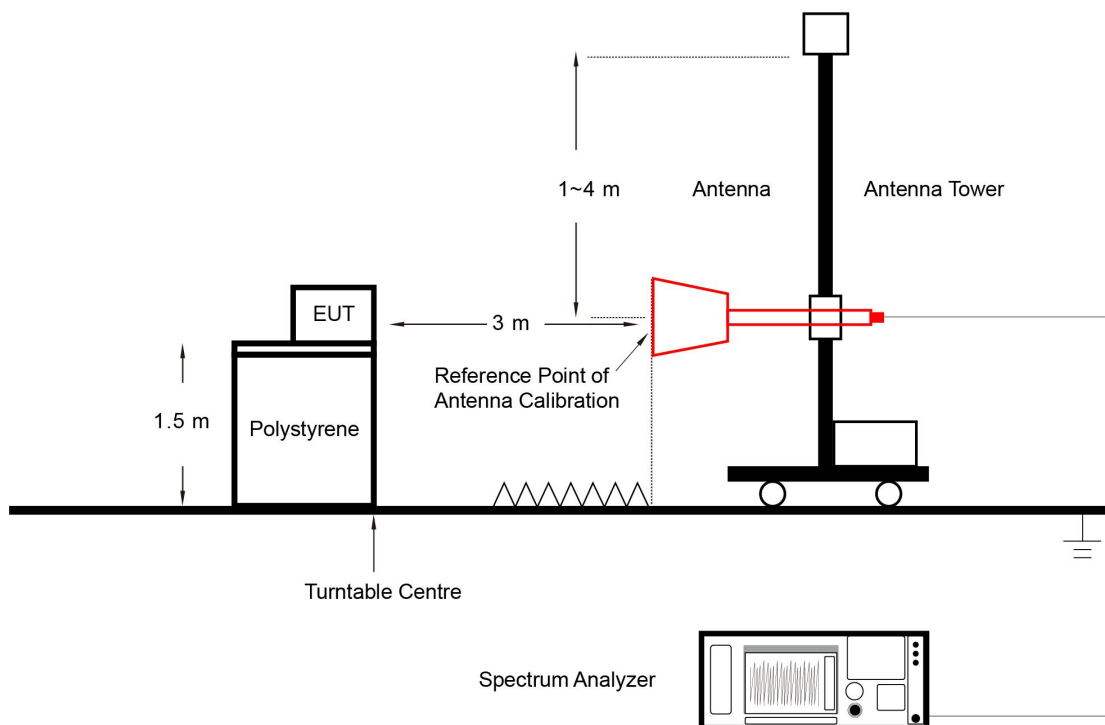
Peak Field Strength Measurements

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 $\geq 1/T$
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

5.4.4. Test Setup



5.4.5. Test Result

Refer to Appendix A.3.

Appendix A – Test Result

A.1 Output Power Test Result

Test Site	WZ-SR5	Test Engineer	Lynn Yang
Test Date	2022-08-16		

Test Result of Peak Output Power

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Peak Power (dBm)	Ant 1 Peak Power (dBm)	Total Peak Power (dBm)	Limit (dBm)	Result
802.11b	1Mbps	01	2412	16.85	17.08	19.98	≤ 30.00	Pass
802.11b	1Mbps	06	2437	17.49	17.70	20.61	≤ 30.00	Pass
802.11b	1Mbps	11	2462	16.99	17.73	20.39	≤ 30.00	Pass
802.11g	6Mbps	01	2412	22.83	23.52	26.20	≤ 30.00	Pass
802.11g	6Mbps	06	2437	21.71	22.13	24.94	≤ 30.00	Pass
802.11g	6Mbps	11	2462	21.16	22.24	24.74	≤ 30.00	Pass
802.11n-HT20	MCS0	01	2412	22.41	22.82	25.63	≤ 30.00	Pass
802.11n-HT20	MCS0	06	2437	22.29	22.52	25.42	≤ 30.00	Pass
802.11n-HT20	MCS0	11	2462	22.02	22.51	25.28	≤ 30.00	Pass
802.11n-HT40	MCS0	03	2422	21.69	21.93	24.82	≤ 30.00	Pass
802.11n-HT40	MCS0	06	2437	22.30	22.64	25.48	≤ 30.00	Pass
802.11n-HT40	MCS0	09	2452	21.97	22.15	25.07	≤ 30.00	Pass

Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Result
802.11b	1Mbps	01	2412	14.56	14.87	17.73	Pass
802.11b	1Mbps	06	2437	15.10	15.43	18.28	Pass
802.11b	1Mbps	11	2462	14.74	15.49	18.14	Pass
802.11g	6Mbps	01	2412	14.20	14.40	17.31	Pass
802.11g	6Mbps	06	2437	13.69	14.02	16.87	Pass
802.11g	6Mbps	11	2462	13.11	13.98	16.58	Pass
802.11n-HT20	MCS0	01	2412	13.01	13.67	16.36	Pass
802.11n-HT20	MCS0	06	2437	12.47	13.10	15.81	Pass
802.11n-HT20	MCS0	11	2462	12.13	13.25	15.74	Pass
802.11n-HT40	MCS0	03	2422	12.21	13.70	16.03	Pass
802.11n-HT40	MCS0	06	2437	12.48	13.17	15.85	Pass
802.11n-HT40	MCS0	09	2452	12.22	12.56	15.40	Pass

A.2 Radiated Spurious Emission Test Result

Test Site	WZ-AC2	Test Engineer	Luis Yang
Test Date	2022-08-24	Test Mode:	802.11b
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 (dB μ V)	Factor (dB/m)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
01	4825.0	36.9	4.0	40.9	74.0	-33.1	Peak	Horizontal
	7477.0	32.6	11.4	44.0	74.0	-30.0	Peak	Horizontal
	11438.0	31.3	17.7	49.0	74.0	-25.0	Peak	Horizontal
	4825.0	35.8	4.0	39.8	74.0	-34.2	Peak	Vertical
	7358.0	32.1	11.6	43.7	74.0	-30.3	Peak	Vertical
	11591.0	30.8	17.9	48.7	74.0	-25.3	Peak	Vertical
06	4876.0	36.5	3.8	40.3	74.0	-33.7	Peak	Horizontal
	7409.0	32.0	11.7	43.7	74.0	-30.3	Peak	Horizontal
	11574.0	30.0	18.1	48.1	74.0	-25.9	Peak	Horizontal
	4995.0	36.5	3.8	40.3	74.0	-33.7	Peak	Vertical
	7375.0	32.3	11.5	43.8	74.0	-30.2	Peak	Vertical
	11489.0	31.2	17.5	48.7	74.0	-25.3	Peak	Vertical
11	4927.0	36.4	3.8	40.2	74.0	-33.8	Peak	Horizontal
	7341.0	31.9	11.4	43.3	74.0	-30.7	Peak	Horizontal
	11132.0	31.2	17.1	48.3	74.0	-25.7	Peak	Horizontal
	4978.0	37.0	3.7	40.7	74.0	-33.3	Peak	Vertical
	8480.0	32.2	12.0	44.2	74.0	-29.8	Peak	Vertical
	11693.0	30.2	17.7	47.9	74.0	-26.1	Peak	Vertical

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB/m)

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

Test Site	WZ-AC2	Test Engineer	Luis Yang
Test Date	2022-08-24	Test Mode:	802.11g
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
01	7409.0	31.9	11.7	43.6	74.0	-30.4	Peak	Horizontal
	8089.0	32.2	11.8	44.0	74.0	-30.0	Peak	Horizontal
	11506.0	30.0	17.7	47.7	74.0	-26.3	Peak	Horizontal
	7647.0	31.2	11.4	42.6	74.0	-31.4	Peak	Vertical
	8446.0	32.2	11.9	44.1	74.0	-29.9	Peak	Vertical
	11115.0	31.7	17.2	48.9	74.0	-25.1	Peak	Vertical
06	7630.0	32.8	11.4	44.2	74.0	-29.8	Peak	Horizontal
	8480.0	32.4	12.0	44.4	74.0	-29.6	Peak	Horizontal
	11659.0	30.8	17.9	48.7	74.0	-25.3	Peak	Horizontal
	7375.0	33.6	11.5	45.1	74.0	-28.9	Peak	Vertical
	8157.0	32.7	12.0	44.7	74.0	-29.3	Peak	Vertical
	11523.0	30.5	17.6	48.1	74.0	-25.9	Peak	Vertical
11	7477.0	31.9	11.4	43.3	74.0	-30.7	Peak	Horizontal
	8191.0	32.9	11.6	44.5	74.0	-29.5	Peak	Horizontal
	11200.0	30.8	17.7	48.5	74.0	-25.5	Peak	Horizontal
	7341.0	32.2	11.4	43.6	74.0	-30.4	Peak	Vertical
	8089.0	32.2	11.8	44.0	74.0	-30.0	Peak	Vertical
	10979.0	31.4	17.1	48.5	74.0	-25.5	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	WZ-AC2	Test Engineer	Luis Yang
Test Date	2022-08-24	Test Mode:	802.11n-HT20
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
01	4825.0	37.3	4.0	41.3	74.0	-32.7	Peak	Horizontal
	7681.0	32.4	11.1	43.5	74.0	-30.5	Peak	Horizontal
	10979.0	30.9	17.1	48.0	74.0	-26.0	Peak	Horizontal
	7715.0	31.8	11.3	43.1	74.0	-30.9	Peak	Vertical
	8191.0	32.5	11.6	44.1	74.0	-29.9	Peak	Vertical
	11438.0	30.9	17.7	48.6	74.0	-25.4	Peak	Vertical
06	7426.0	32.0	11.9	43.9	74.0	-30.1	Peak	Horizontal
	8140.0	32.5	12.0	44.5	74.0	-29.5	Peak	Horizontal
	11523.0	30.6	17.6	48.2	74.0	-25.8	Peak	Horizontal
	7460.0	31.4	11.3	42.7	74.0	-31.3	Peak	Vertical
	8378.0	32.7	11.5	44.2	74.0	-29.8	Peak	Vertical
	10792.0	32.0	16.5	48.5	74.0	-25.5	Peak	Vertical
11	7443.0	32.9	11.6	44.5	74.0	-29.5	Peak	Horizontal
	8157.0	32.2	12.0	44.2	74.0	-29.8	Peak	Horizontal
	11183.0	31.6	17.3	48.9	74.0	-25.1	Peak	Horizontal
	7511.0	32.6	11.5	44.1	74.0	-29.9	Peak	Vertical
	8361.0	32.7	11.4	44.1	74.0	-29.9	Peak	Vertical
	11523.0	31.0	17.6	48.6	74.0	-25.4	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	WZ-AC2	Test Engineer	Luis Yang
Test Date	2022-08-24	Test Mode:	802.11n-HT40
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.		

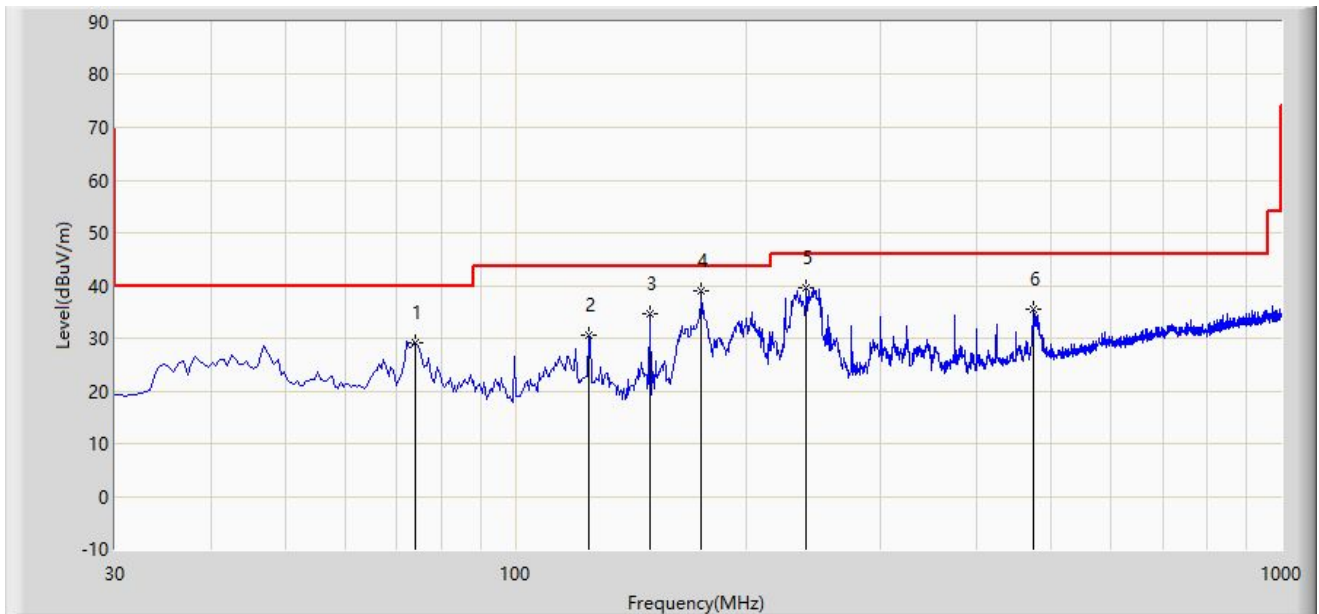
Test Channel	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
03	7375.0	32.2	11.5	43.7	74.0	-30.3	Peak	Horizontal
	8191.0	32.3	11.6	43.9	74.0	-30.1	Peak	Horizontal
	10996.0	31.9	16.9	48.8	74.0	-25.2	Peak	Horizontal
	7273.0	32.8	11.4	44.2	74.0	-29.8	Peak	Vertical
	8191.0	32.8	11.6	44.4	74.0	-29.6	Peak	Vertical
	11217.0	30.5	17.6	48.1	74.0	-25.9	Peak	Vertical
06	7443.0	32.5	11.6	44.1	74.0	-29.9	Peak	Horizontal
	8429.0	32.8	11.8	44.6	74.0	-29.4	Peak	Horizontal
	11285.0	30.5	17.8	48.3	74.0	-25.7	Peak	Horizontal
	7562.0	32.0	11.6	43.6	74.0	-30.4	Peak	Vertical
	8157.0	32.0	12.0	44.0	74.0	-30.0	Peak	Vertical
	11557.0	31.1	17.5	48.6	74.0	-25.4	Peak	Vertical
09	7443.0	31.7	11.6	43.3	74.0	-30.7	Peak	Horizontal
	8055.0	33.7	12.1	45.8	74.0	-28.2	Peak	Horizontal
	11200.0	30.7	17.7	48.4	74.0	-25.6	Peak	Horizontal
	7443.0	32.0	11.6	43.6	74.0	-30.4	Peak	Vertical
	8157.0	32.3	12.0	44.3	74.0	-29.7	Peak	Vertical
	11200.0	30.2	17.7	47.9	74.0	-26.1	Peak	Vertical

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

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

The Test Data of Radiated Emission below 1GHz:

Site: WZ-AC2	Test Date: 2022-08-23
Limit: FCC_Part15.209_RSE(3m)	Engineer: Luis Yang
Probe: VULB9162_30-7000MHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2412MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		74.135	29.070	13.685	-10.930	40.000	15.385	PK
2		124.575	30.475	14.560	-13.025	43.500	15.915	PK
3		149.795	34.659	19.380	-8.841	43.500	15.279	PK
4	*	175.015	39.081	22.880	-4.419	43.500	16.201	PK
5		240.005	39.702	19.920	-6.298	46.000	19.782	PK
6		475.230	35.539	11.008	-10.461	46.000	24.531	PK

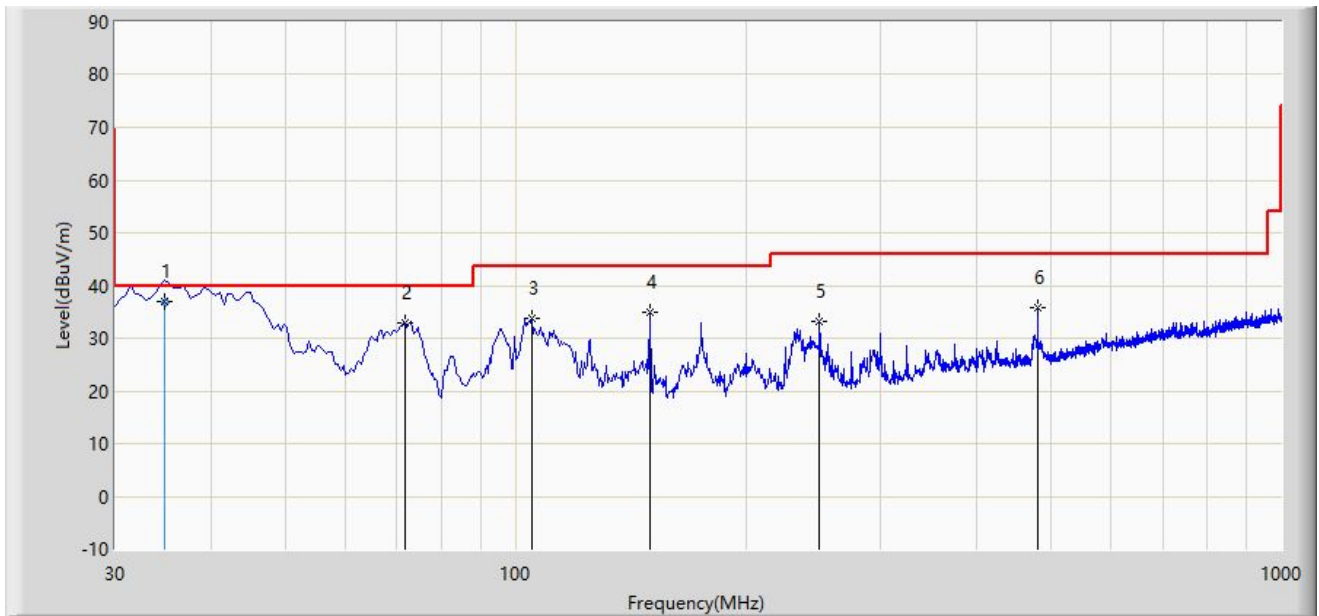
Note 1: " * ", means this data is the worst emission level.

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

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

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

Site: WZ-AC2	Test Date: 2022-08-23
Limit: FCC_Part15.209_RSE(3m)	Engineer: Luis Yang
Probe: VULB9162_30-7000MHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2412MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	34.810	36.816	19.600	-3.184	40.000	17.216	QP
2		71.710	32.920	16.681	-7.080	40.000	16.239	PK
3		105.175	33.760	15.217	-9.740	43.500	18.543	PK
4		149.795	34.935	19.656	-8.565	43.500	15.279	PK
5		249.705	33.046	13.102	-12.954	46.000	19.944	PK
6		480.565	35.671	10.866	-10.329	46.000	24.804	PK

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

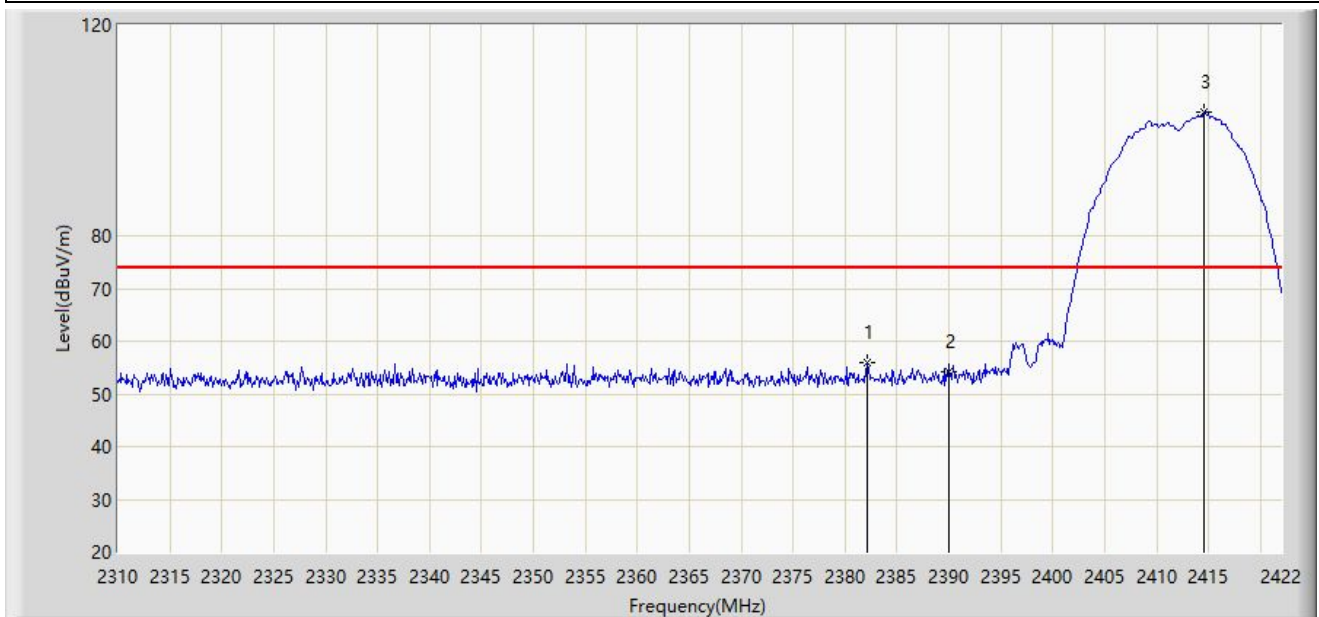
Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB/m).

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

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

A.3 Radiated Restricted Band Edge Test Result

Site: WZ-AC2	Test Date: 2022-08-23
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2412MHz	



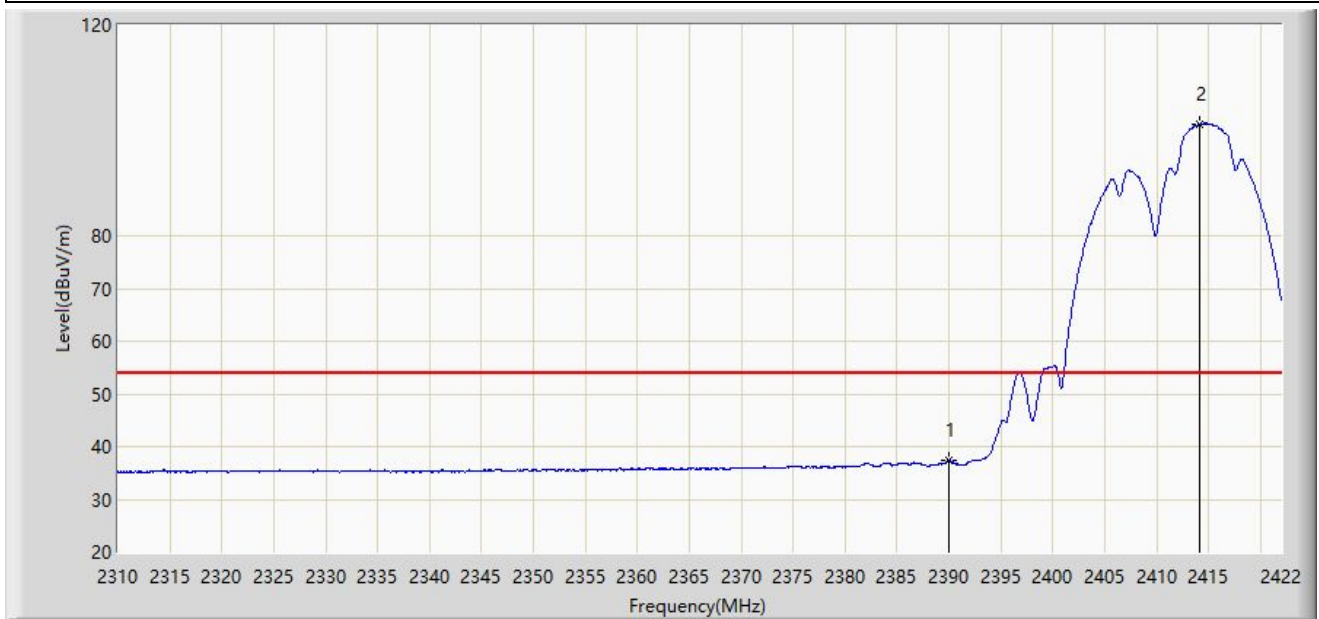
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2382.128	55.974	24.505	-18.026	74.000	31.468	PK
2		2390.000	54.279	22.846	-19.721	74.000	31.433	PK
3		2414.608	103.484	72.132	N/A	N/A	31.352	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-23
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2412MHz	



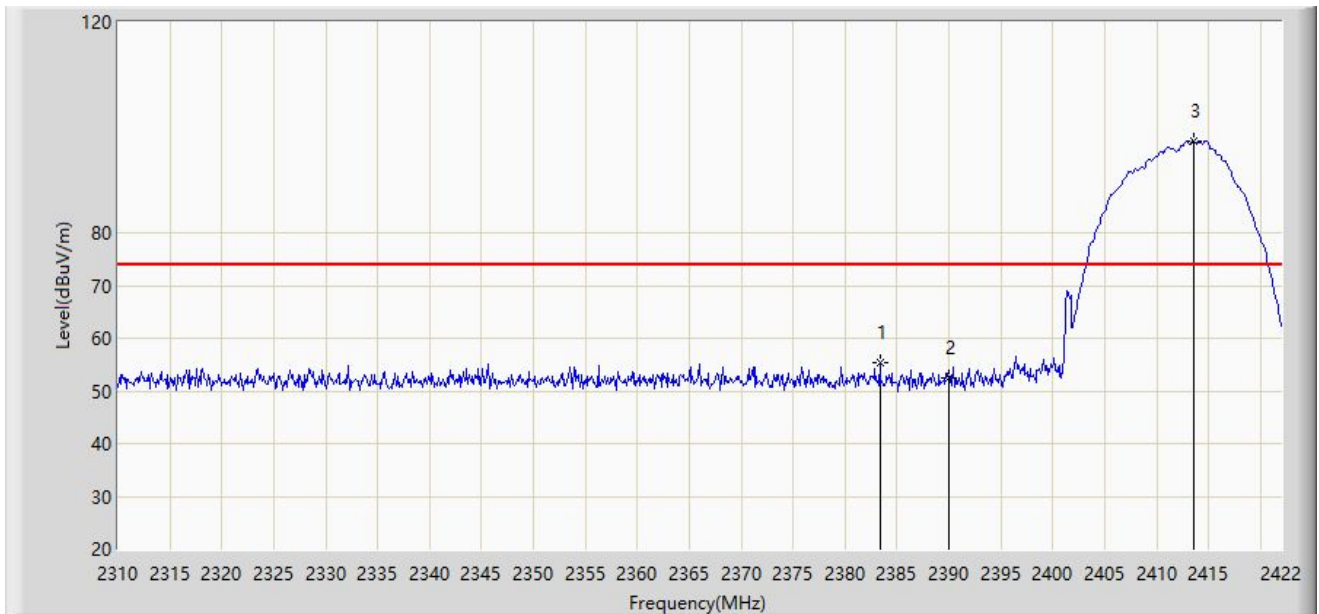
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2390.000	37.354	5.921	-16.646	54.000	31.433	AV
2		2414.160	101.244	69.891	N/A	N/A	31.354	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-23
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2412MHz	



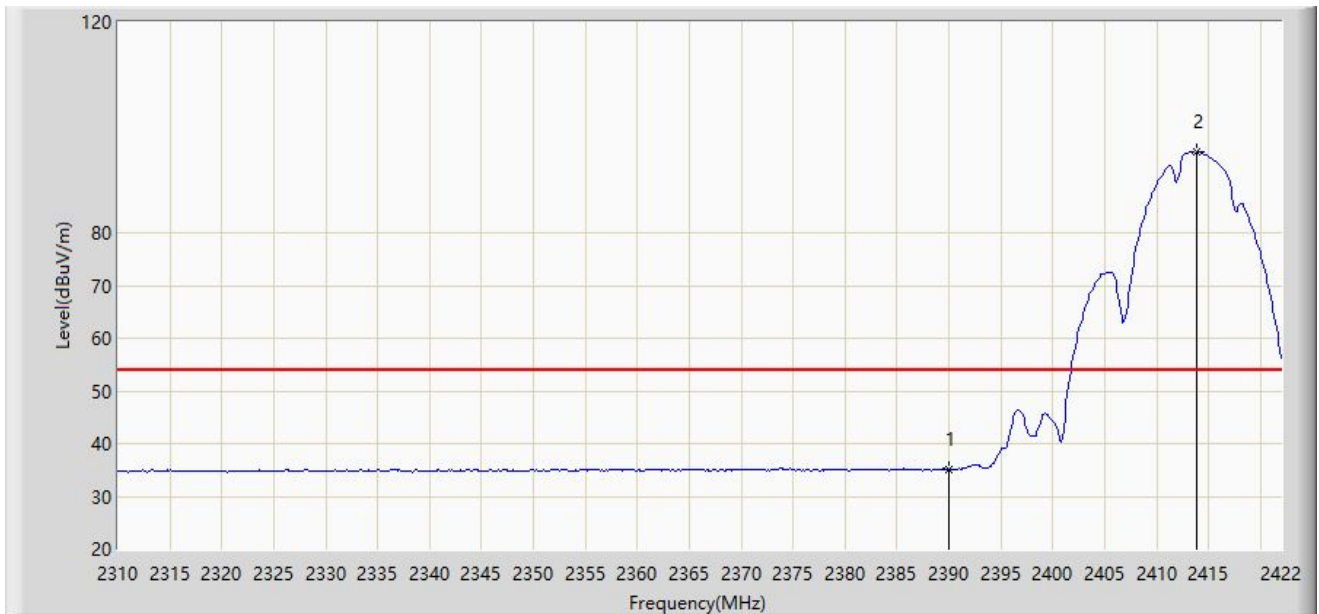
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2383.360	55.233	23.768	-18.767	74.000	31.465	PK
2		2390.000	52.560	21.127	-21.440	74.000	31.433	PK
3		2413.600	97.284	65.929	N/A	N/A	31.355	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-23
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2412MHz	



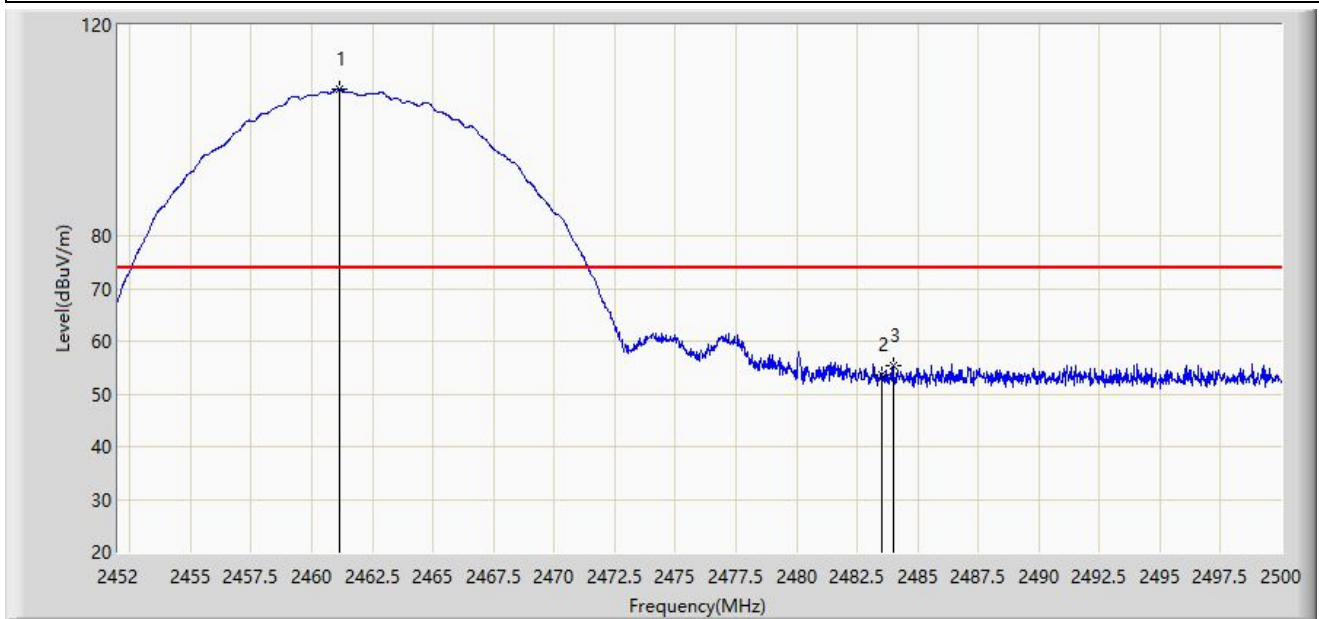
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2390.000	35.101	3.668	-18.899	54.000	31.433	AV
2		2413.824	95.481	64.127	N/A	N/A	31.355	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2461.168	107.881	76.550	N/A	N/A	31.331	PK
2		2483.500	53.700	22.385	-20.300	74.000	31.315	PK
3	*	2483.992	55.315	23.999	-18.685	74.000	31.316	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2461.168	105.774	74.443	N/A	N/A	31.331	AV
2		2483.500	37.795	6.480	-16.205	54.000	31.315	AV
3	*	2484.064	38.518	7.202	-15.482	54.000	31.316	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2461.240	104.992	73.661	N/A	N/A	31.331	PK
2		2483.500	53.192	21.877	-20.808	74.000	31.315	PK
3	*	2488.864	56.334	25.010	-17.666	74.000	31.324	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11b at 2462MHz	



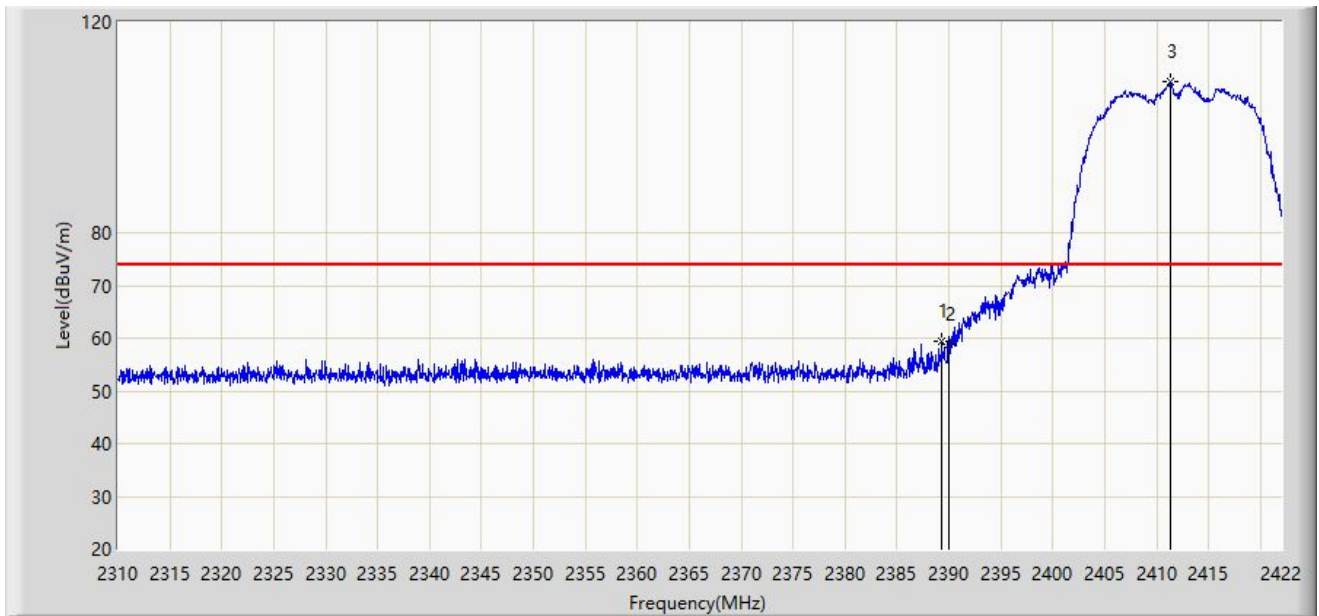
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2461.240	103.162	71.831	N/A	N/A	31.331	AV
2		2483.500	37.209	5.894	-16.791	54.000	31.315	AV
3	*	2483.848	37.673	6.358	-16.327	54.000	31.315	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2412MHz	



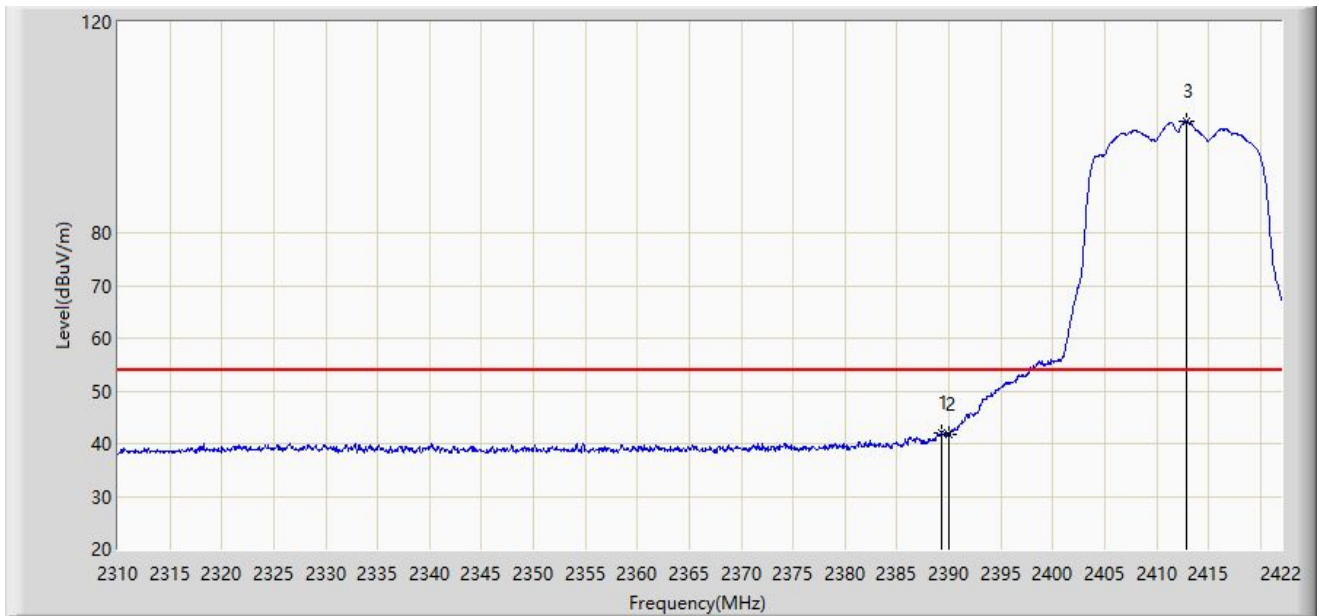
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2389.296	59.352	27.915	-14.648	74.000	31.437	PK
2		2390.000	58.899	27.466	-15.101	74.000	31.433	PK
3		2411.304	108.729	77.368	N/A	N/A	31.361	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2412MHz	



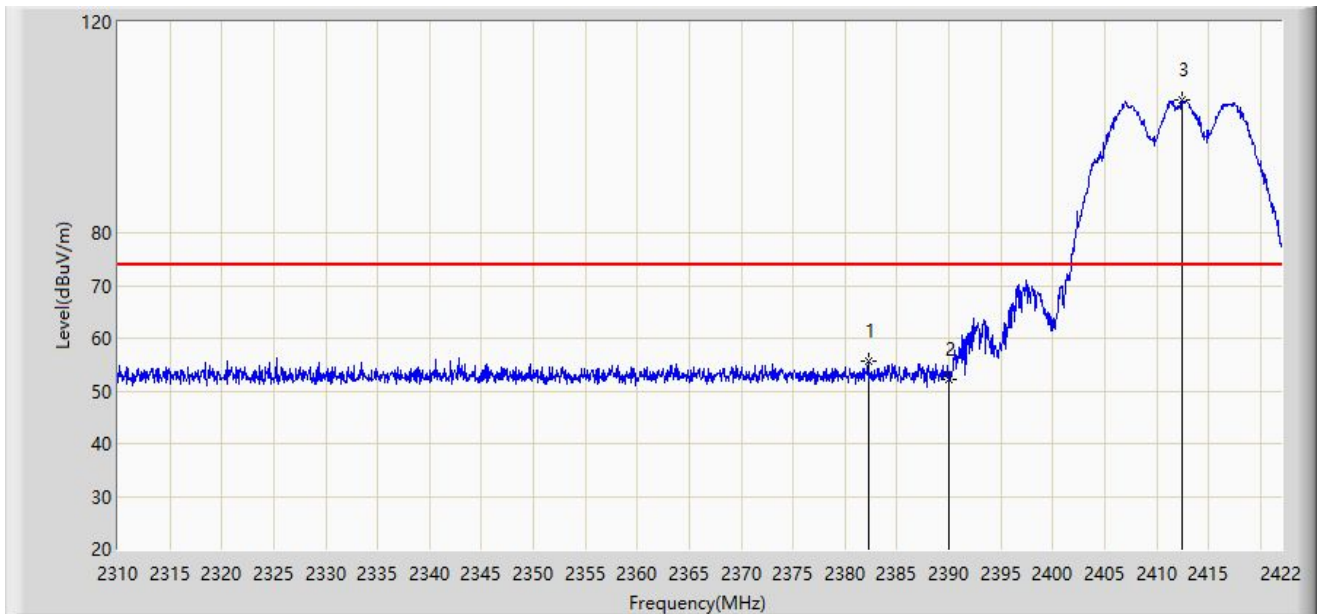
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2389.296	42.164	10.727	-11.836	54.000	31.437	AV
2		2390.000	41.855	10.422	-12.145	54.000	31.433	AV
3		2412.816	101.232	69.875	N/A	N/A	31.357	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2412MHz	



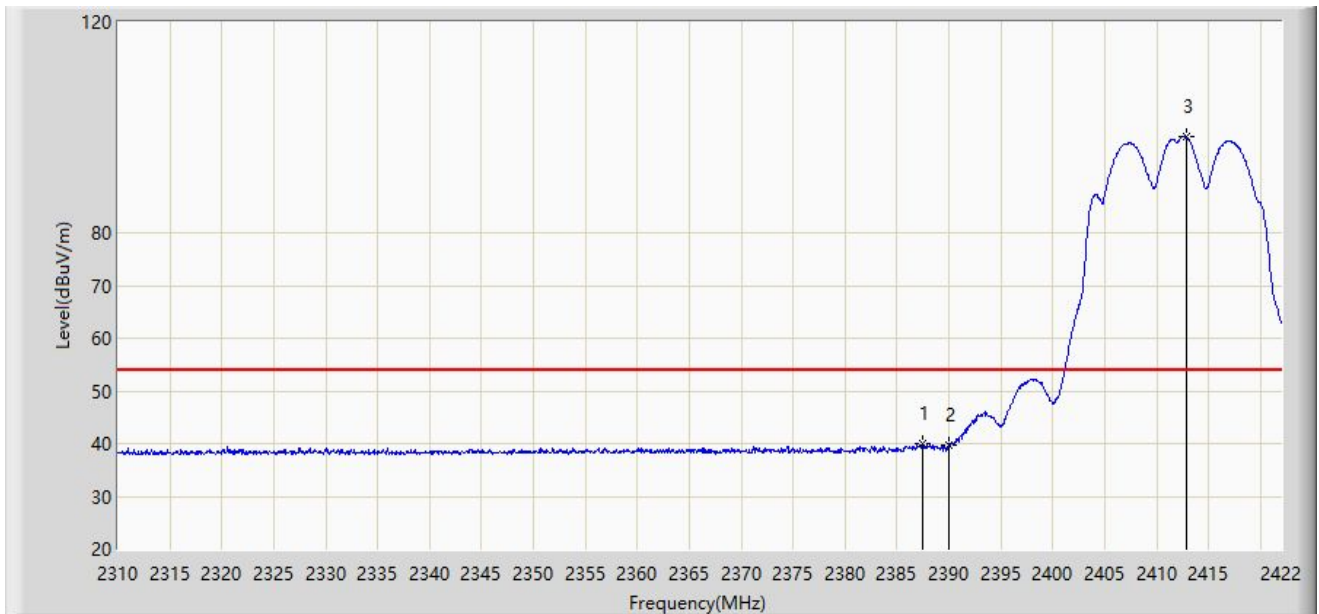
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2382.240	55.681	24.213	-18.319	74.000	31.468	PK
2		2390.000	52.181	20.748	-21.819	74.000	31.433	PK
3		2412.424	105.284	73.926	N/A	N/A	31.358	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2412MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2387.504	39.856	8.410	-14.144	54.000	31.446	AV
2		2390.000	39.808	8.375	-14.192	54.000	31.433	AV
3		2412.872	98.156	66.799	N/A	N/A	31.356	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2461.120	108.438	77.106	N/A	N/A	31.332	PK
2		2483.500	62.311	30.996	-11.689	74.000	31.315	PK
3	*	2483.824	64.193	32.878	-9.807	74.000	31.315	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2461.072	101.112	69.780	N/A	N/A	31.332	AV
2		2483.500	45.488	14.173	-8.512	54.000	31.315	AV
3	*	2483.608	45.850	14.535	-8.150	54.000	31.315	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2460.280	105.672	74.338	N/A	N/A	31.334	PK
2		2483.500	56.851	25.536	-17.149	74.000	31.315	PK
3	*	2484.088	61.734	30.418	-12.266	74.000	31.316	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11g at 2462MHz	



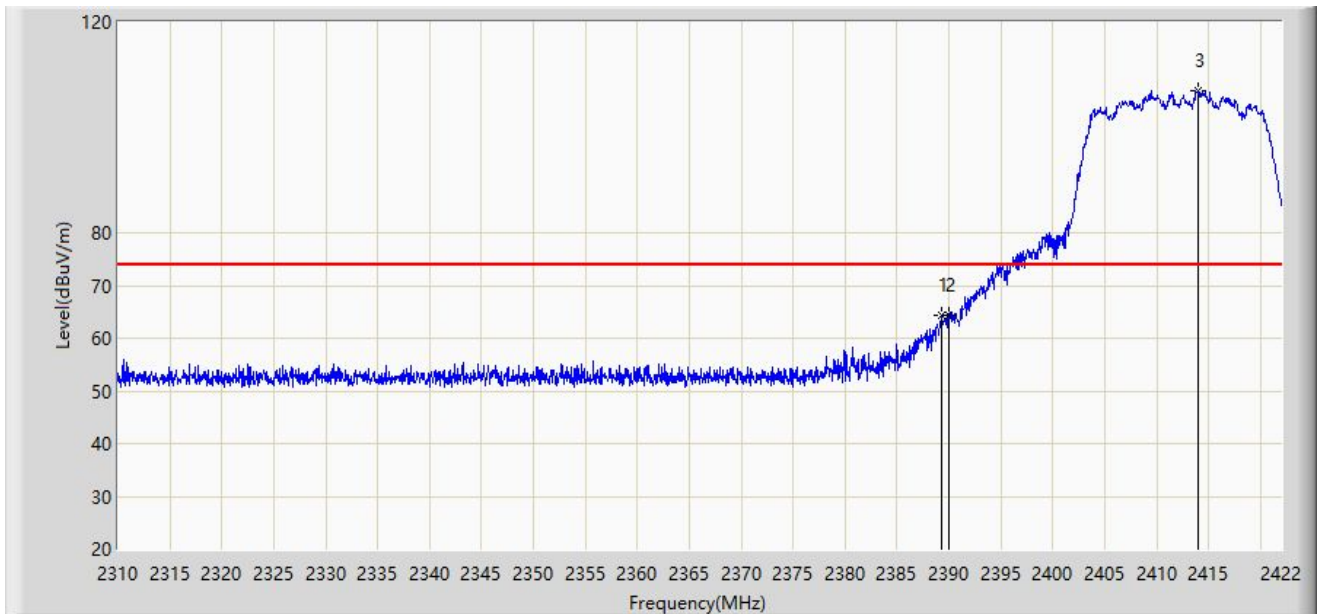
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2460.184	97.677	66.343	N/A	N/A	31.334	AV
2		2483.500	43.278	11.963	-10.722	54.000	31.315	AV
3	*	2483.848	43.746	12.431	-10.254	54.000	31.315	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2412MHz	



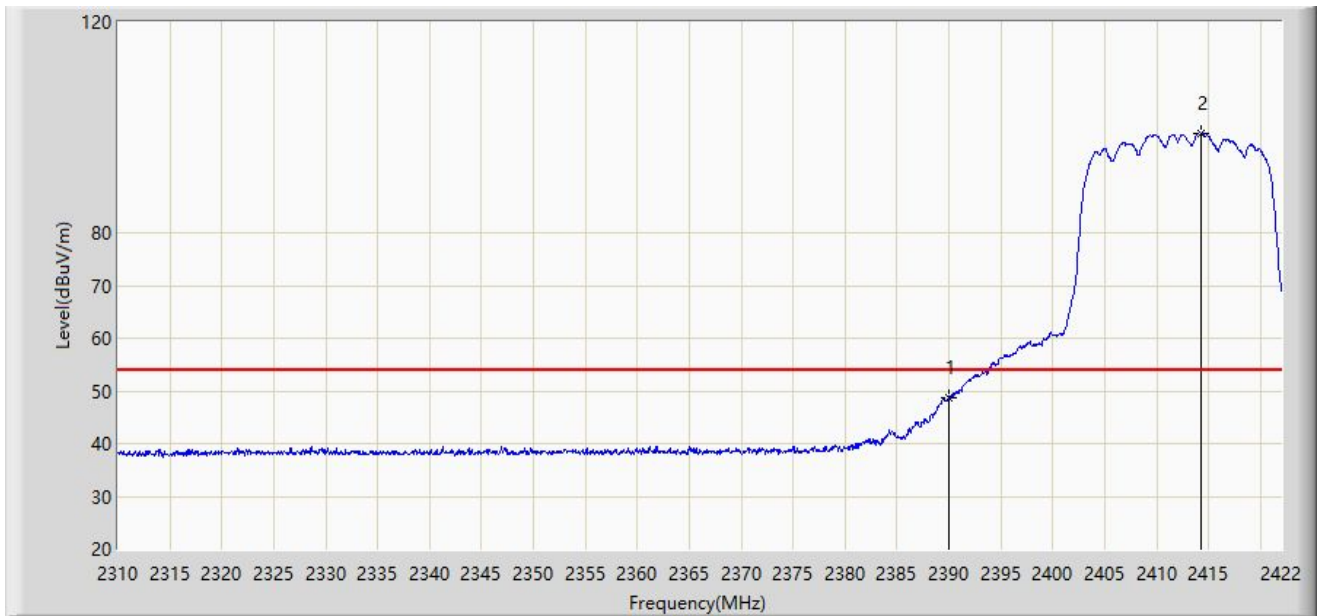
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2389.296	64.293	32.856	-9.707	74.000	31.437	PK
2	*	2390.000	64.339	32.906	-9.661	74.000	31.433	PK
3		2413.992	106.870	75.516	N/A	N/A	31.354	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2412MHz	



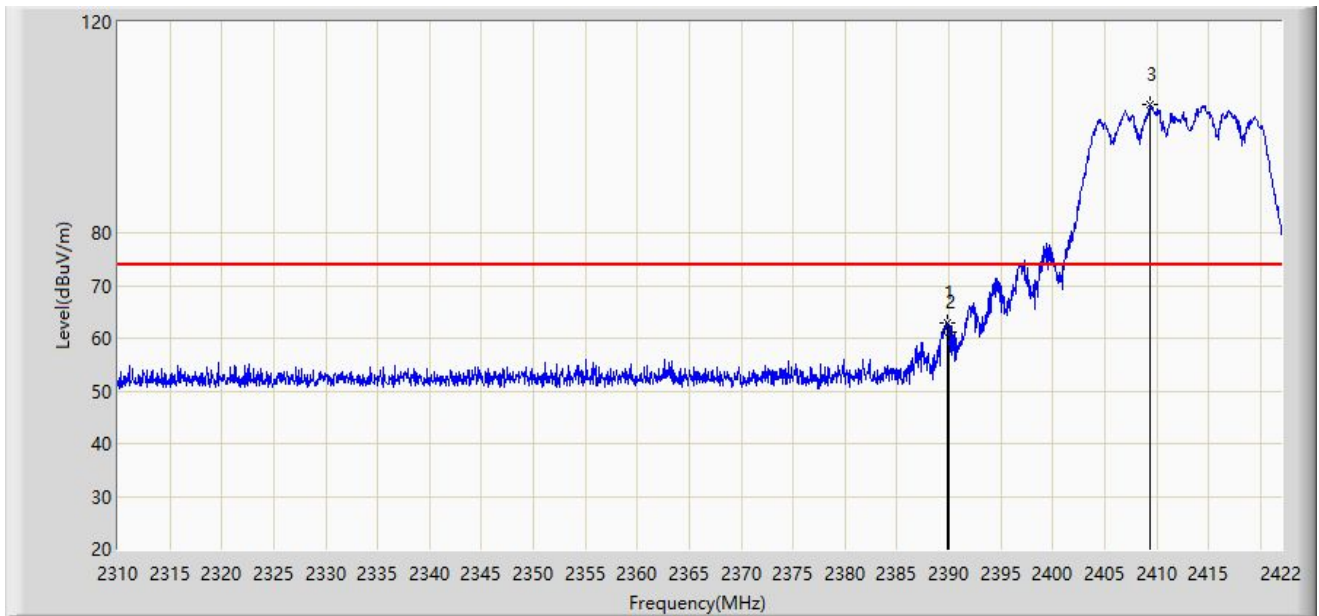
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2390.000	48.734	17.301	-5.266	54.000	31.433	AV
2		2414.272	98.971	67.618	N/A	N/A	31.353	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2412MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2389.912	62.890	31.456	-11.110	74.000	31.433	PK
2		2390.000	61.035	29.602	-12.965	74.000	31.433	PK
3		2409.400	104.344	72.978	N/A	N/A	31.365	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2412MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2390.000	46.746	15.313	-7.254	54.000	31.433	AV
2		2414.440	96.667	65.314	N/A	N/A	31.353	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2462MHz	



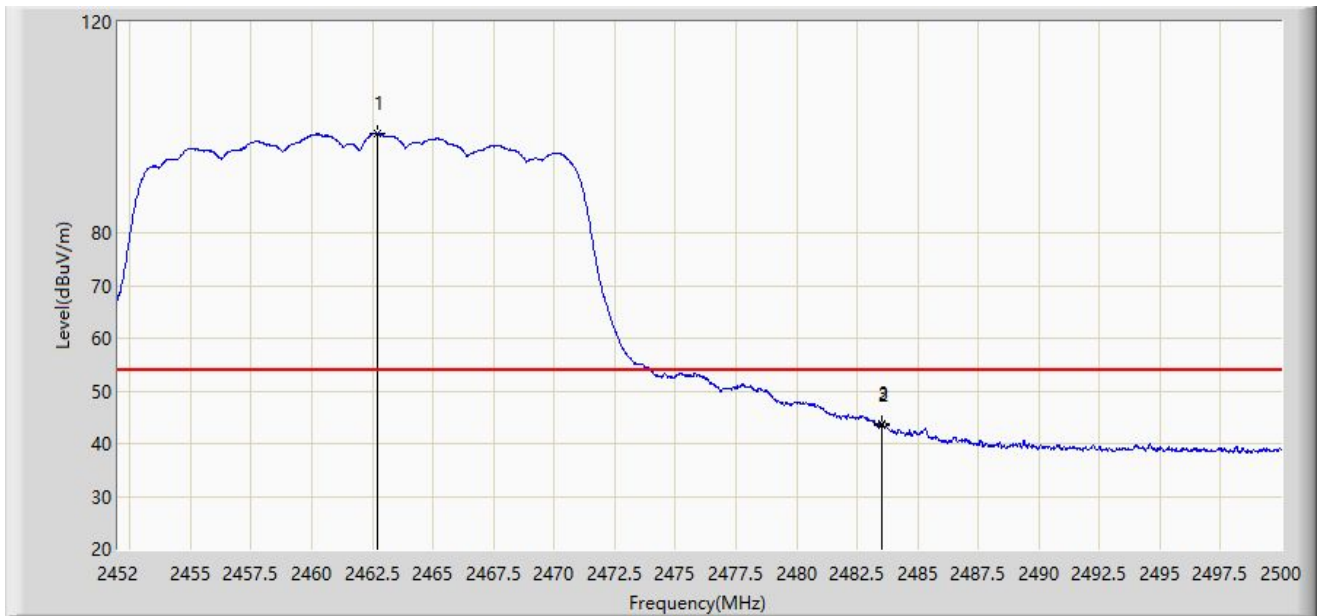
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2460.088	106.632	75.298	N/A	N/A	31.334	PK
2		2483.500	58.069	26.754	-15.931	74.000	31.315	PK
3	*	2485.168	59.177	27.859	-14.823	74.000	31.318	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2462MHz	



No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2462.728	98.787	67.459	N/A	N/A	31.327	AV
2		2483.500	43.600	12.285	-10.400	54.000	31.315	AV
3	*	2483.512	43.666	12.351	-10.334	54.000	31.315	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2462MHz	



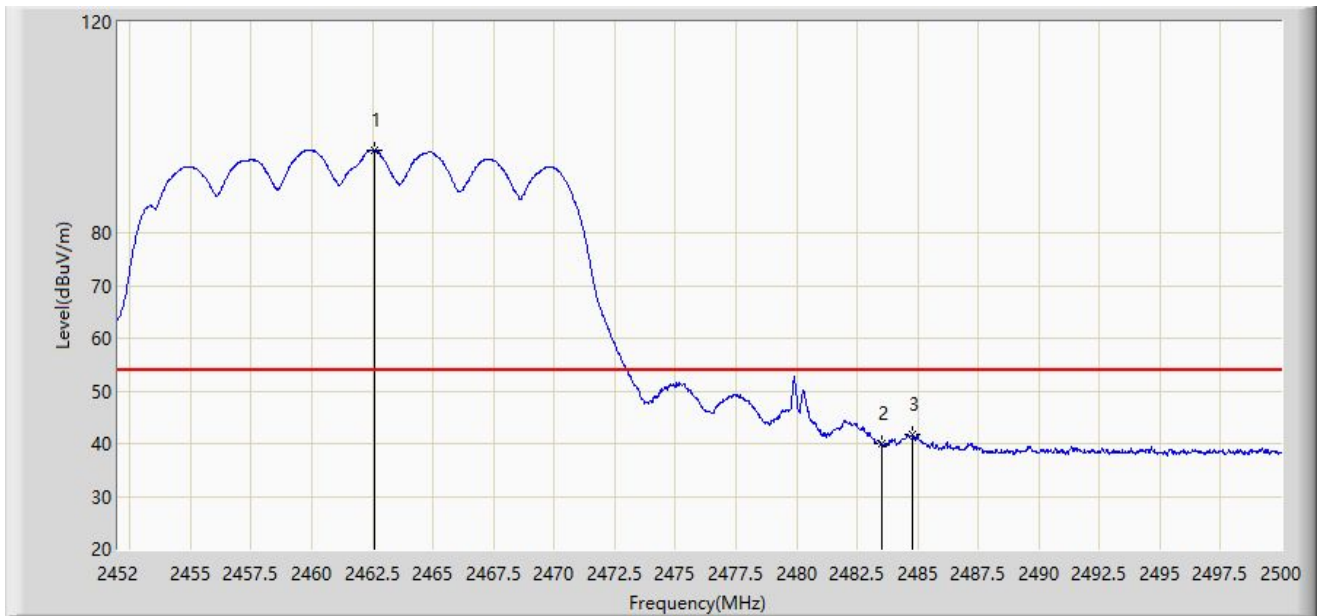
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2460.112	103.605	72.271	N/A	N/A	31.334	PK
2		2483.500	53.476	22.161	-20.524	74.000	31.315	PK
3	*	2484.160	56.639	25.323	-17.361	74.000	31.316	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT20 at 2462MHz	



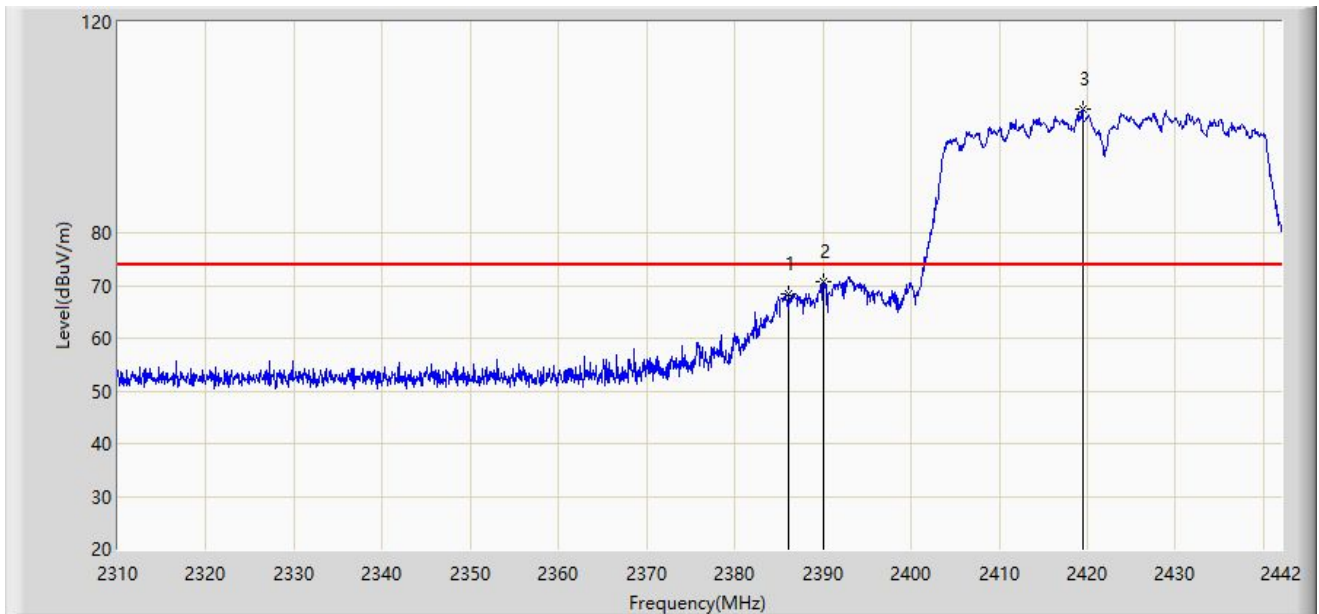
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2462.584	95.660	64.332	N/A	N/A	31.328	AV
2		2483.500	39.965	8.650	-14.035	54.000	31.315	AV
3	*	2484.808	41.654	10.337	-12.346	54.000	31.317	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2422MHz	



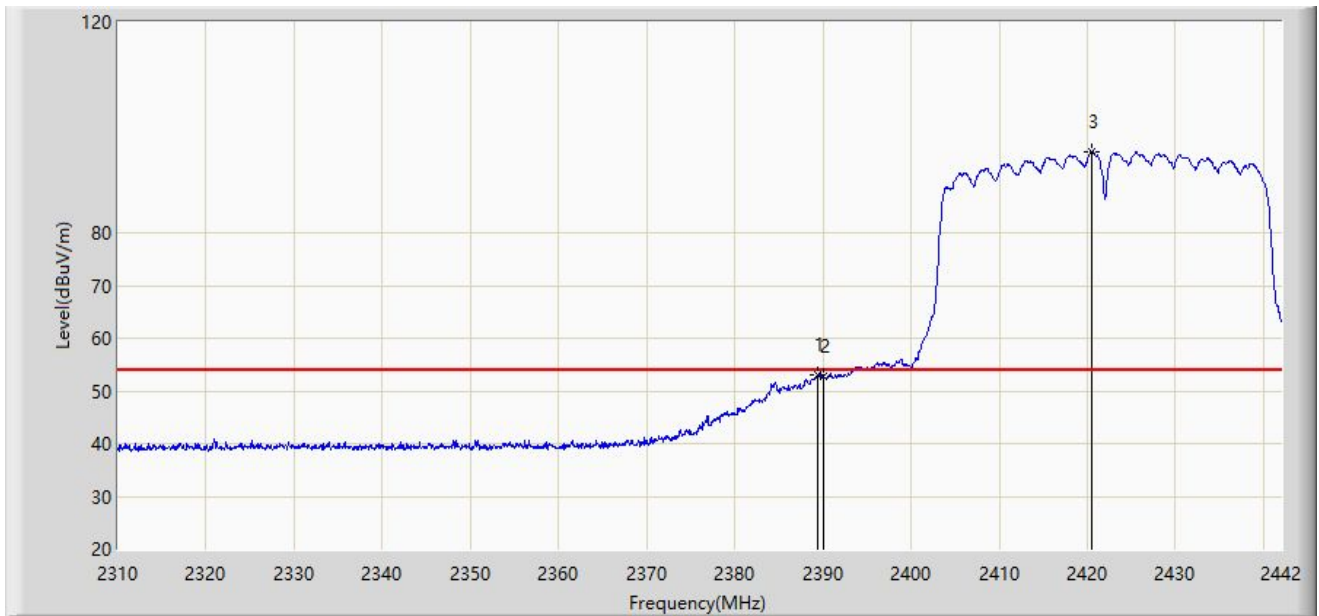
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2386.098	68.541	37.088	-5.459	74.000	31.453	PK
2	*	2390.000	70.586	39.153	-3.414	74.000	31.433	PK
3		2419.428	103.596	72.256	N/A	N/A	31.340	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2422MHz	



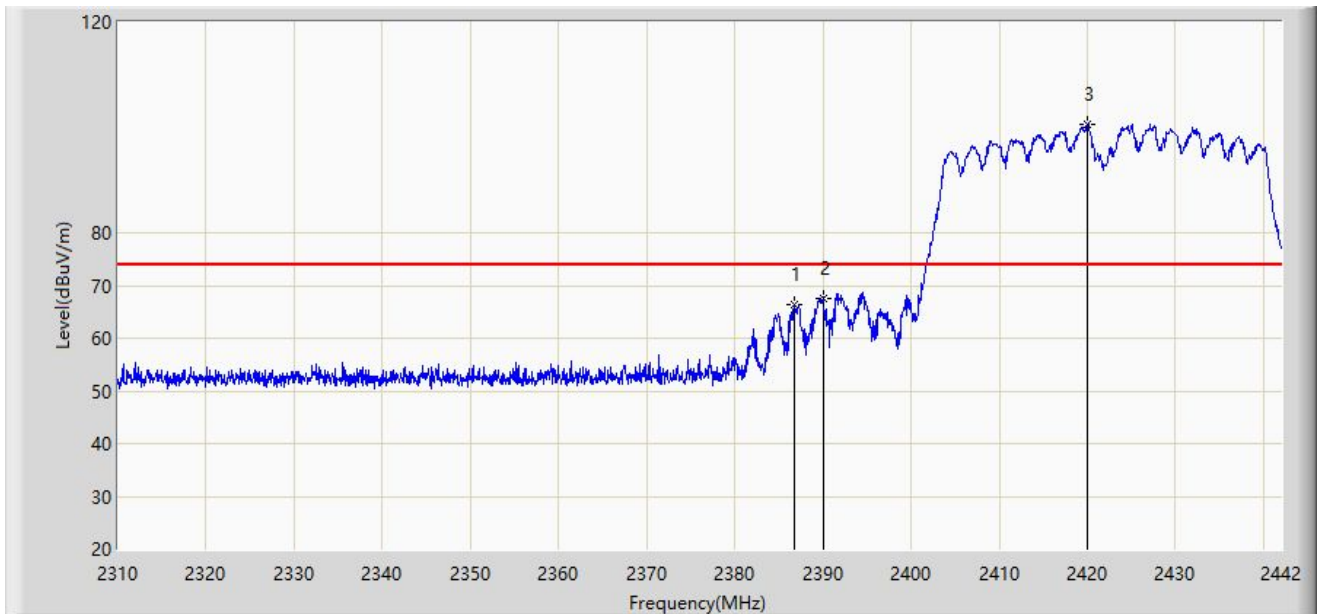
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1	*	2389.464	53.157	21.721	-0.843	54.000	31.436	AV
2		2390.000	52.669	21.236	-1.331	54.000	31.433	AV
3		2420.550	95.458	64.121	N/A	N/A	31.337	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2422MHz	



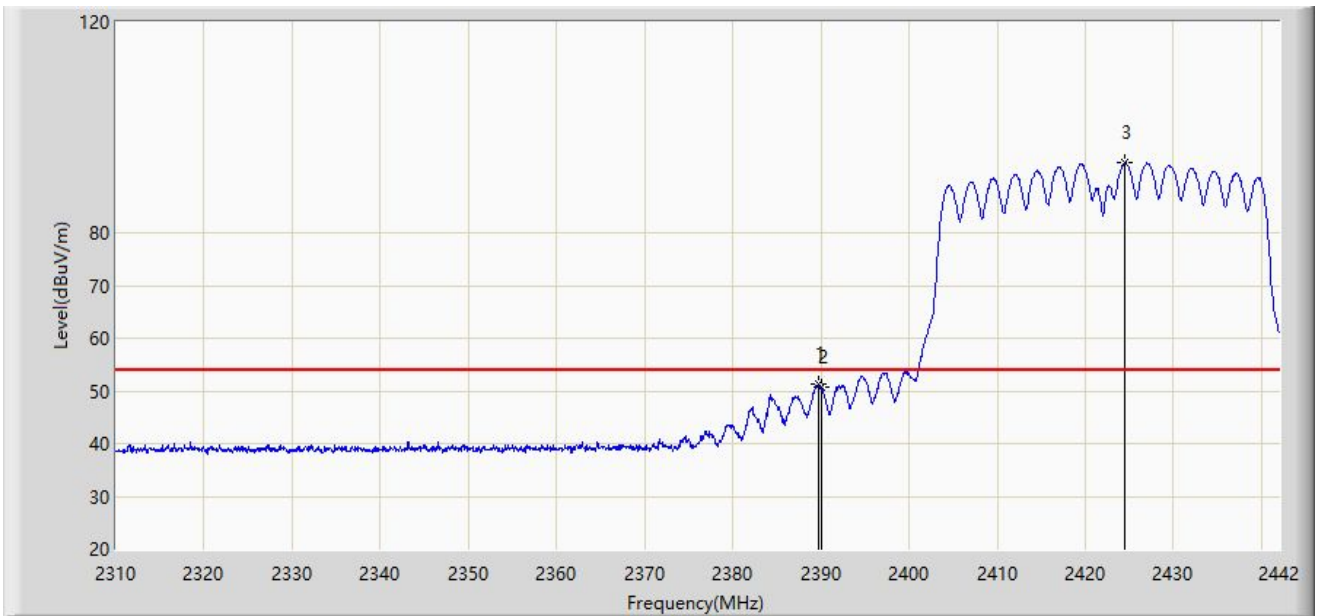
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2386.758	66.452	35.003	-7.548	74.000	31.449	PK
2	*	2390.000	67.674	36.241	-6.326	74.000	31.433	PK
3		2420.022	100.632	69.294	N/A	N/A	31.338	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2422MHz	



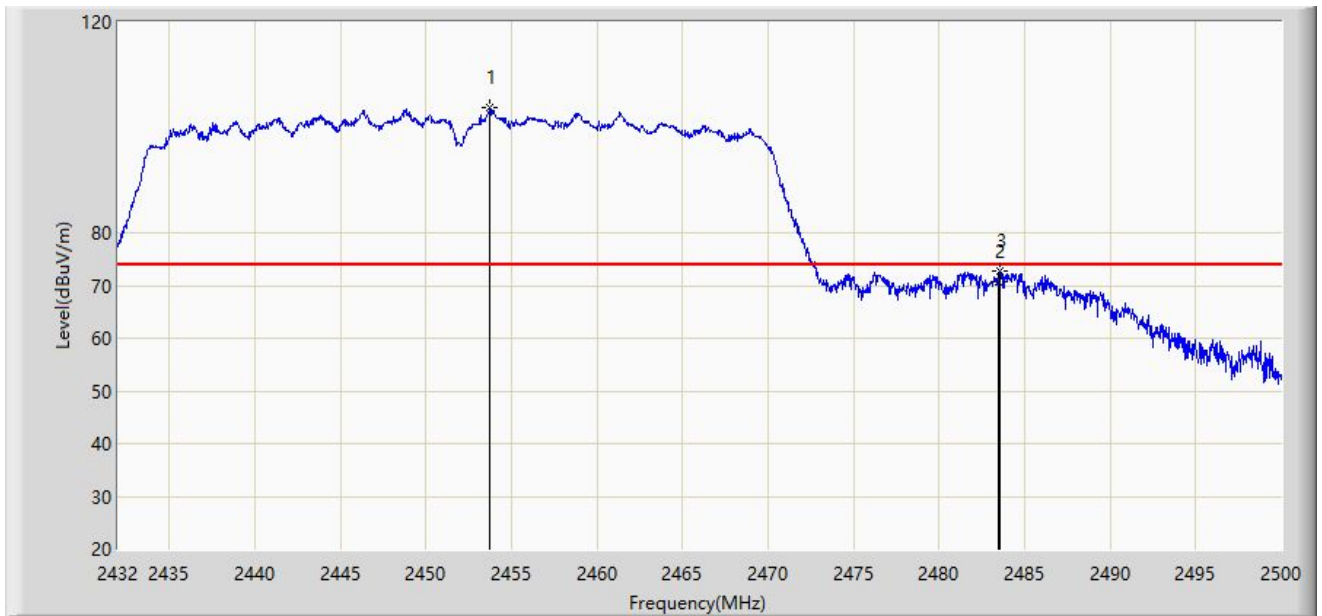
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	2389.662	51.202	19.767	-2.798	54.000	31.435	AV
2		2390.000	50.772	19.339	-3.228	54.000	31.433	AV
3		2424.510	93.189	61.859	N/A	N/A	31.329	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2452MHz	



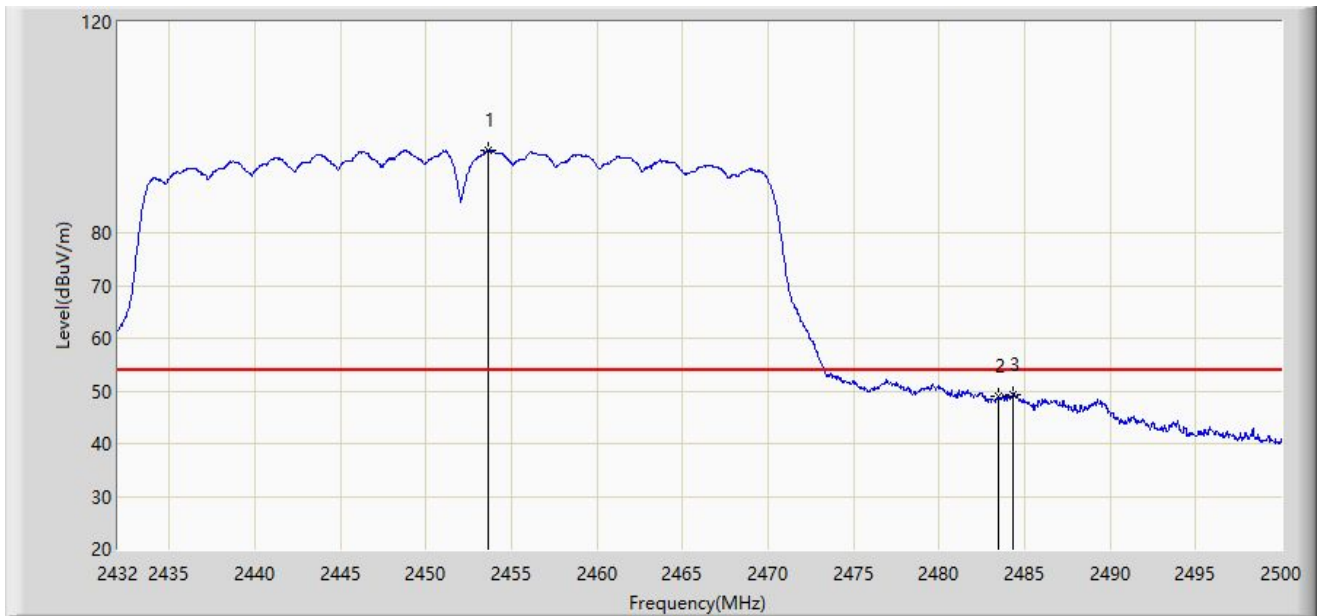
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2453.726	103.630	72.290	N/A	N/A	31.340	PK
2		2483.500	70.757	39.442	-3.243	74.000	31.315	PK
3	*	2483.578	72.775	41.460	-1.225	74.000	31.315	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Horizontal
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2452MHz	



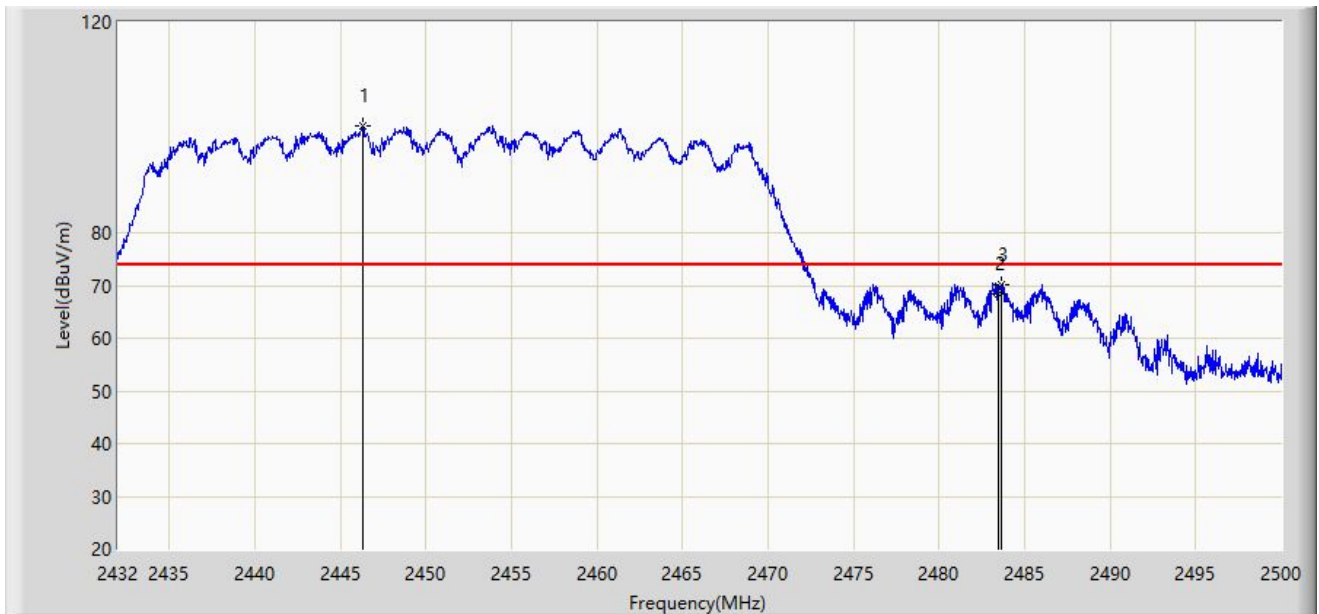
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2453.658	95.659	64.319	N/A	N/A	31.340	AV
2		2483.500	48.909	17.594	-5.091	54.000	31.315	AV
3	*	2484.326	49.410	18.094	-4.590	54.000	31.316	AV

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2452MHz	



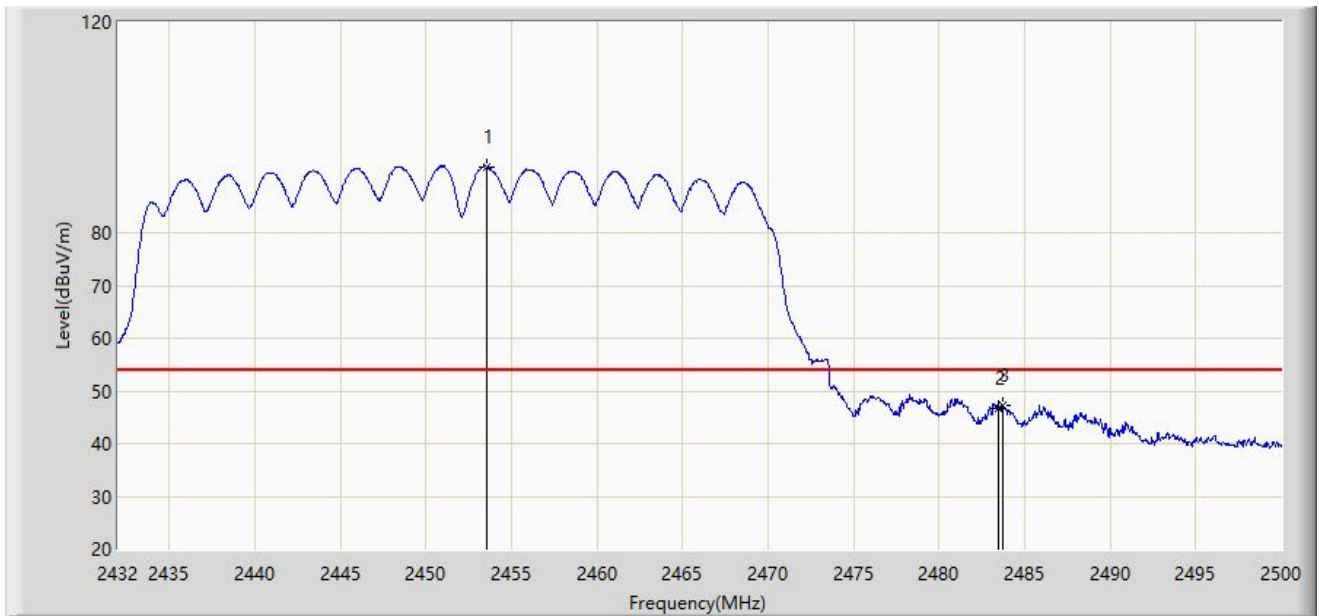
No	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Margin (dB)	Limit (dB μ V/m)	Factor (dB/m)	Type
1		2446.348	100.312	68.986	N/A	N/A	31.326	PK
2		2483.500	68.547	37.232	-5.453	74.000	31.315	PK
3	*	2483.612	70.209	38.894	-3.791	74.000	31.315	PK

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

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

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

Site: WZ-AC2	Test Date: 2022-08-21
Limit: FCC_2.4G_RE(3m)	Engineer: Luis Yang
Probe: BBHA9120D_1457_1-18GHz	Polarity: Vertical
EUT: IEEE 802.11a/b/g/n 2T2R USB Wi-Fi Module	Power: Powered by test jig
Test Mode: Transmit by 802.11n-HT40 at 2452MHz	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		2453.556	92.536	61.196	N/A	N/A	31.339	AV
2		2483.500	46.775	15.460	-7.225	54.000	31.315	AV
3	*	2483.748	47.193	15.878	-6.807	54.000	31.315	AV

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

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

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

Appendix B – Test Setup Photograph

Refer to “2208RSU019-UT” file.

Appendix C – EUT Photograph

Refer to “2208RSU019-UE” file.

_____ The End _____