

MEASUREMENT REPORT

FCC PART 15.247 / RSS-247 WLAN 802.11b/g/n

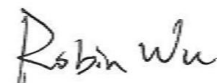
FCC ID: 2AN2O-RSW02
IC: 23317-RSW02
Applicant: Beijing Roborock Technology Co., Ltd.

Application Type: CLASS II PERMISSIVE CHANGE
Product: WIFI Module
Model No.: BL-R8189ME1 V1.2
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
IC Rule(s): RSS-247 Issue 2, RSS-GEN Issue 5
Test Procedure(s): ANSI C63.10-2013
Test Date: December 09 ~ 11, 2019

Reviewed By:


(Kevin Guo)

Approved By:


(Robin Wu)



The test results relate only to the samples tested.

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

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

Revision History

Report No.	Version	Description	Issue Date	Note
1909WSU020-U1	Rev. 01	Initial report	12-30-2019	Valid

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§2.1033 General Information

Applicant:	Beijing Roborock Technology Co., Ltd.
Applicant Address:	Floor 6, Suite 6016, 6017, 6018, Building C, Kangjian Baosheng Plaza, No.8 Heiquan Road, Haidian District, Beijing, P.R. China
Manufacturer:	Beijing Roborock Technology Co., Ltd.
Manufacturer Address:	Floor 6, Suite 6016, 6017, 6018, Building C, Kangjian Baosheng Plaza, No.8 Heiquan Road, Haidian District, Beijing, P.R. China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Designation No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name:	WIFI Module
Model No.:	BL-R8189ME1 V1.2
Wi-Fi Specification	802.11b/g/n
Power Type:	DC 3.3V

Note: Based on the original certification, EUT is changed the host and the Antenna Gain.

2.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2462 MHz
Channel Number:	802.11b/g/n-HT20: 11
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 150Mbps
Antenna Type:	Internal PCB antenna
Antenna Gain:	3.87dBi

2.3. Working Frequencies to this report

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	--	--	--	--

2.4. Test Mode

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 3: Transmit by 802.11n-HT40 (MCS0)

2.5. Test Software

The test utility software used during testing was the command provided by the customer.

2.6. Device Capabilities

This device contains the following capabilities:

802.11b/g/n

2.7. Test Configuration

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

2.8. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.9. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

RSP-100 Issue 12

The manufacturer, importer or distributor shall meet the labelling requirements set out in this section for every unit:

(i) prior to marketing in Canada, for products manufactured in Canada

(ii) prior to importation into Canada, for imported products

For information regarding the e-labelling option, see Notice 2014-DRS1003. The label for the certified product represents the manufacturer's or importer's compliance with Innovation, Science and Economic Development Canada's (ISED) regulatory requirements.

Please see attachment for IC label and label location.

3. DESCRIPTION of TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided were used in the measurement.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. 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.”

Conclusion:

The unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2020/02/24
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2020/08/01
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2020/02/24
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/18
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2020/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2020/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2020/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2020/06/13
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2020/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

6. 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 $k = 2$.

Conducted Emission Measurement - SR2	
The maximum measurement uncertainty is evaluated as:	
9kHz~150kHz: 3.84dB	
150kHz~30MHz: 3.46dB	
Radiated Emission Measurement - AC1	
The maximum measurement uncertainty is evaluated as:	
Horizontal:	30MHz~300MHz: 4.07dB
	300MHz~1GHz: 3.63dB
	1GHz~18GHz: 4.16dB
Vertical:	30MHz~300MHz: 4.18dB
	300MHz~1GHz: 3.60dB
	1GHz~18GHz: 4.76dB
Radiated Emission Measurement - AC2	
The maximum measurement uncertainty is evaluated as:	
Horizontal:	30MHz~300MHz: 3.75dB
	300MHz~1GHz: 3.53dB
	1GHz~18GHz: 4.28dB
Vertical:	30MHz~300MHz: 3.86dB
	300MHz~1GHz: 3.53dB
	1GHz~18GHz: 4.33dB

7. TEST RESULT

7.1. Summary

FCC Section(s)	IC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(b)(3)	RSS-247 [5.4(4)]	Output Power	$\leq 30\text{dBm}$	Conducted	Pass	Section 7.2
15.205 15.209	RSS-247 [5.5]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 7.3 & 7.4

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

7.2. Output Power Measurement

7.2.1. Test Limit

The maximum out power shall be less 1 Watt (30dBm) and the E.I.R.P shall not exceed 4 Watt (36dBm).

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 6dBi. If transmitting antennas of directional gain greater than 6dBi 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 6dBi.

7.2.2. Test Procedure Used

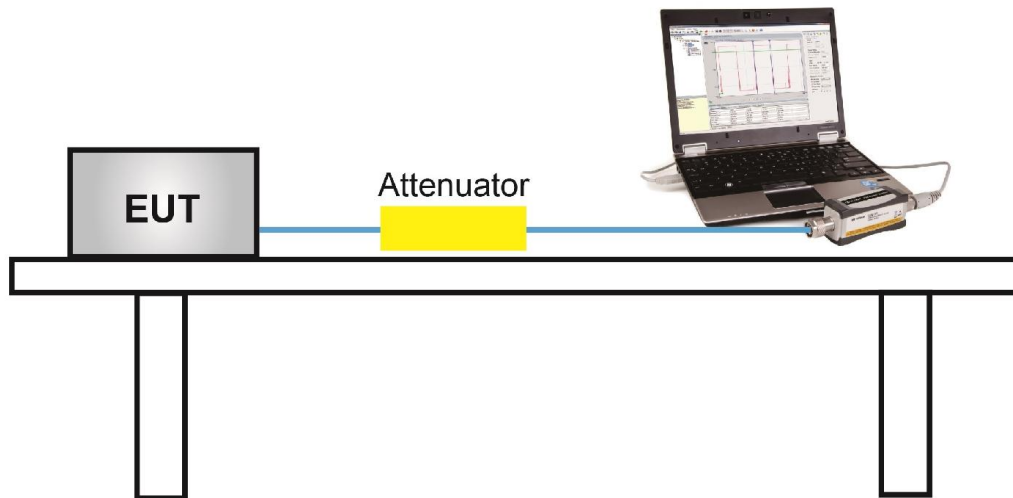
ANSI C63.10-2013 - Section 11.9.2.3.2

7.2.3. Test Setting

Method AVGPM-G (Measurement using a gated RF average-reading power meter)

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

7.2.4. Test Setup



7.2.5. Test Result of Output Power

Product	WIFI Module	Temperature	23°C
Test Engineer	Snake Ni	Relative Humidity	53%
Test Site	TR3	Test Date	2019/12/08

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Average Power (dBm)	Limit (dBm)	EIRP (dBm)	E.I.R.P Limit (dBm)	Result
11b	1Mbps	01	2412	18.40	≤ 30.00	22.27	≤ 36.00	Pass
11b	1Mbps	06	2437	18.12	≤ 30.00	21.99	≤ 36.00	Pass
11b	1Mbps	11	2462	18.67	≤ 30.00	22.54	≤ 36.00	Pass
11g	6Mbps	01	2412	14.97	≤ 30.00	18.84	≤ 36.00	Pass
11g	6Mbps	06	2437	14.61	≤ 30.00	18.48	≤ 36.00	Pass
11g	6Mbps	11	2462	15.33	≤ 30.00	19.20	≤ 36.00	Pass
11n-HT20	MCS0	01	2412	14.59	≤ 30.00	18.46	≤ 36.00	Pass
11n-HT20	MCS0	06	2437	14.39	≤ 30.00	18.26	≤ 36.00	Pass
11n-HT20	MCS0	11	2462	14.64	≤ 30.00	18.51	≤ 36.00	Pass
11n-HT20	MCS0	01	2412	12.91	≤ 30.00	16.78	≤ 36.00	Pass
11n-HT20	MCS0	06	2437	13.28	≤ 30.00	17.15	≤ 36.00	Pass
11n-HT20	MCS0	11	2462	14.27	≤ 30.00	18.14	≤ 36.00	Pass

Note 1: EIRP Average Power (dBm) = Average Power (dBm) + Antenna Gain (dBi), Antenna Gain = 3.87dBi.

7.3. Radiated Spurious Emission Measurement

7.3.1. 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 [V/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

7.3.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

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

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

7.3.3. Test Setting

Peak Field Strength Measurements

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

Table 1 - RBW as a function of frequency

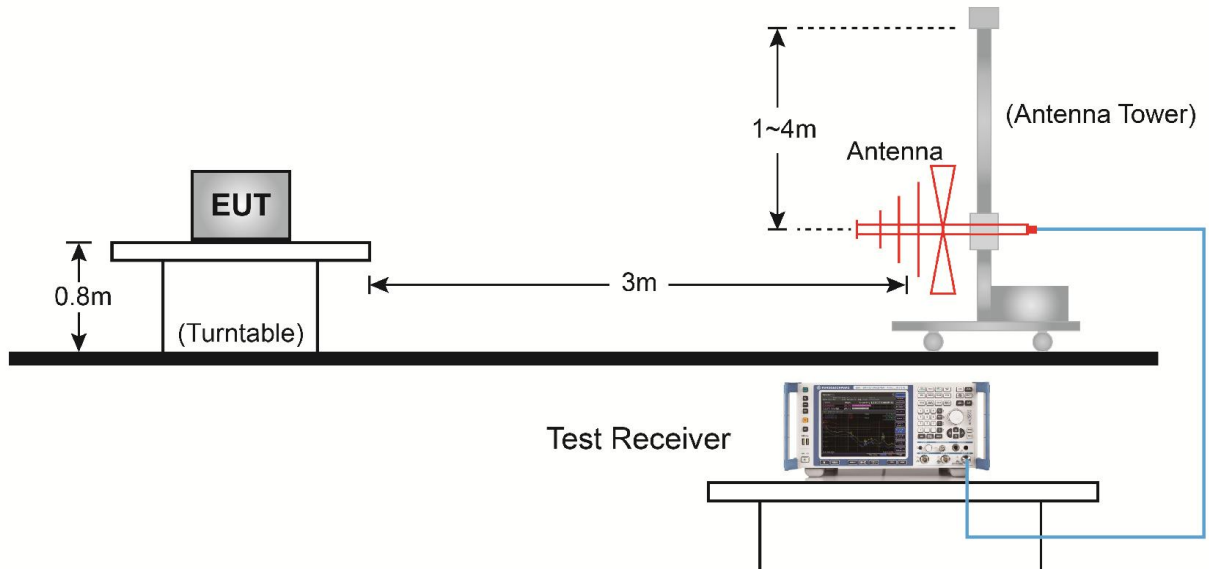
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

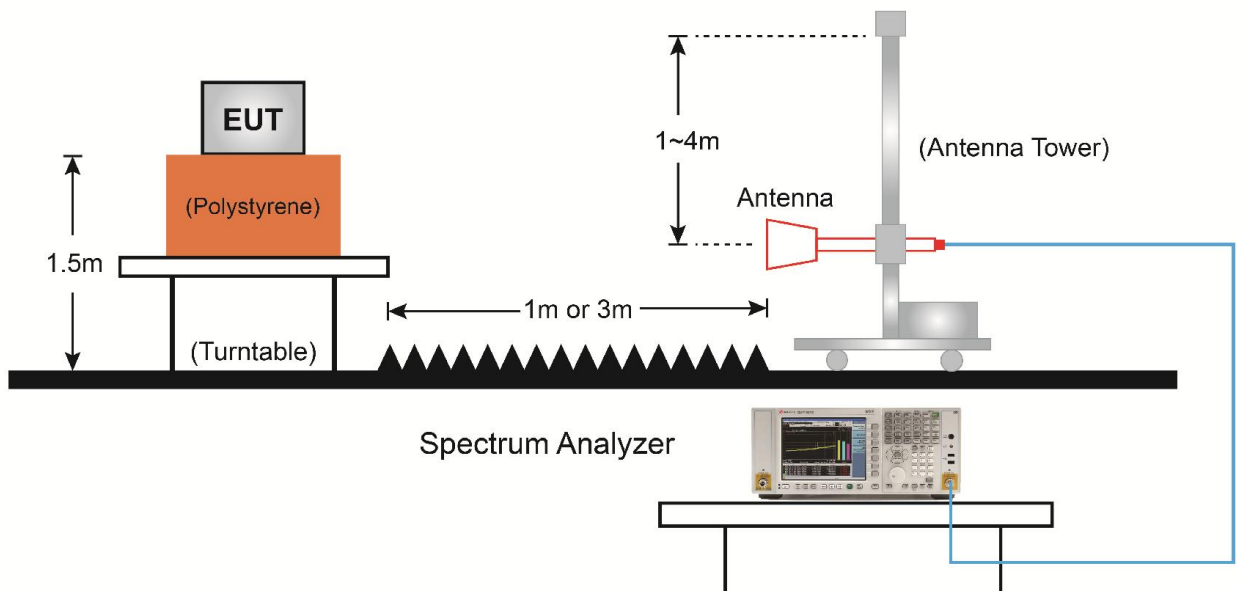
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). 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

7.3.4. Test Setup

30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



7.3.5. Test Result

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11b	Test Channel	01
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	39.4	4.0	43.4	74.0	-30.6	Peak	Horizontal
*	7222.0	34.5	12.3	46.8	75.1	-28.3	Peak	Horizontal
	7681.0	33.4	12.2	45.6	74.0	-28.4	Peak	Horizontal
*	10001.5	34.5	15.0	49.5	75.1	-25.6	Peak	Horizontal
	4825.0	38.0	4.0	42.0	74.0	-32.0	Peak	Vertical
*	6610.0	34.1	9.1	43.2	75.1	-31.9	Peak	Vertical
	7621.5	34.7	11.9	46.6	74.0	-27.4	Peak	Vertical
*	9772.0	32.8	14.9	47.7	75.1	-27.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (105.1dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11b	Test Channel	06
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4876.0	45.9	3.7	49.6	74.0	-24.4	Peak	Horizontal
*	5743.0	44.3	5.6	49.9	75.5	-25.6	Peak	Horizontal
	7655.5	33.6	11.8	45.4	74.0	-28.6	Peak	Horizontal
*	10307.5	34.2	16.5	50.7	75.5	-24.8	Peak	Horizontal
	4876.0	42.7	3.7	46.4	74.0	-27.6	Peak	Vertical
*	7077.5	33.4	11.7	45.1	75.5	-30.4	Peak	Vertical
	9083.5	33.5	14.4	47.9	74.0	-26.1	Peak	Vertical
*	10197.0	33.2	15.6	48.8	75.5	-26.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (105.5dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11b	Test Channel	11
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4924.0	47.0	4.3	51.3	54.0	-2.7	Peak	Horizontal
	4927.0	48.1	4.3	52.4	74.0	-21.6		
*	6261.5	35.6	7.2	42.8	75.9	-33.1	Peak	Horizontal
	7579.0	34.1	12.1	46.2	74.0	-27.8	Peak	Horizontal
*	10239.5	33.6	15.9	49.5	75.9	-26.4	Peak	Horizontal
	4927.0	47.0	4.3	51.3	74.0	-22.7	Peak	Vertical
*	5743.0	44.0	5.6	49.6	75.9	-26.3	Peak	Vertical
	7545.0	33.9	12.3	46.2	74.0	-27.8	Peak	Vertical
*	9678.5	33.3	14.4	47.7	75.9	-28.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (105.9dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11g	Test Channel	01
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	35.9	4.0	39.9	74.0	-34.1	Peak	Horizontal
*	5760.0	43.6	5.9	49.5	74.0	-24.5	Peak	Horizontal
	7519.5	33.6	11.9	45.5	74.0	-28.5	Peak	Horizontal
*	9772.0	32.7	14.9	47.6	74.0	-26.4	Peak	Horizontal
	4689.0	36.2	4.2	40.4	74.0	-33.6	Peak	Vertical
*	5785.5	39.8	5.8	45.6	74.0	-28.4	Peak	Vertical
	7630.0	33.3	11.9	45.2	74.0	-28.8	Peak	Vertical
*	10146.0	33.5	15.1	48.6	74.0	-25.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (102.5dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11g	Test Channel	06
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4876.0	37.0	3.7	40.7	74.0	-33.3	Peak	Horizontal
*	6635.5	34.7	8.9	43.6	74.0	-30.4	Peak	Horizontal
	8080.5	32.6	12.6	45.2	74.0	-28.8	Peak	Horizontal
*	9636.0	33.7	14.4	48.1	74.0	-25.9	Peak	Horizontal
	5071.5	36.7	4.5	41.2	74.0	-32.8	Peak	Vertical
*	6278.5	35.7	7.0	42.7	74.0	-31.3	Peak	Vertical
	7664.0	34.1	11.8	45.9	74.0	-28.1	Peak	Vertical
*	9780.5	32.9	14.9	47.8	74.0	-26.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (103.0dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11g	Test Channel	11
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4918.5	38.4	4.2	42.6	74.0	-31.4	Peak	Horizontal
*	5250.0	44.7	4.0	48.7	74.0	-25.3	Peak	Horizontal
	6933.0	34.1	10.4	44.5	74.0	-29.5	Peak	Horizontal
*	7434.5	33.1	12.1	45.2	74.0	-28.8	Peak	Horizontal
	4927.0	36.3	4.3	40.6	74.0	-33.4	Peak	Vertical
*	5981.0	35.0	6.5	41.5	74.0	-32.5	Peak	Vertical
	7638.5	33.9	11.8	45.7	74.0	-28.3	Peak	Vertical
*	9695.5	33.8	14.6	48.4	74.0	-25.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (103.5dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11n-HT20	Test Channel	01
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4323.5	37.3	2.4	39.7	74.0	-34.3	Peak	Horizontal
*	5156.5	37.4	4.5	41.9	74.0	-32.1	Peak	Horizontal
	7562.0	33.4	12.0	45.4	74.0	-28.6	Peak	Horizontal
*	9755.0	33.0	15.0	48.0	74.0	-26.0	Peak	Horizontal
	4927.0	35.7	4.3	40.0	74.0	-34.0	Peak	Vertical
*	5743.0	41.7	5.6	47.3	74.0	-26.7	Peak	Vertical
	7366.5	31.7	12.0	43.7	74.0	-30.3	Peak	Vertical
*	9755.0	33.5	15.0	48.5	74.0	-25.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (102.5dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11n-HT20	Test Channel	06
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4119.5	37.5	1.8	39.3	74.0	-34.7	Peak	Horizontal
*	5675.0	36.2	5.4	41.6	74.0	-32.4	Peak	Horizontal
	8284.5	34.9	12.2	47.1	74.0	-26.9	Peak	Horizontal
*	10367.0	33.1	16.5	49.6	74.0	-24.4	Peak	Horizontal
	4578.5	38.2	3.5	41.7	74.0	-32.3	Peak	Vertical
*	6499.5	35.2	8.6	43.8	74.0	-30.2	Peak	Vertical
	7502.5	33.9	12.0	45.9	74.0	-28.1	Peak	Vertical
*	10571.0	33.0	17.0	50.0	74.0	-24.0	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (102.9dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11n-HT20	Test Channel	11
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4927.0	37.1	4.3	41.4	74.0	-32.6	Peak	Horizontal
*	6593.0	35.3	9.2	44.5	74.0	-29.5	Peak	Horizontal
	7451.5	33.1	12.2	45.3	74.0	-28.7	Peak	Horizontal
*	10095.0	33.8	14.7	48.5	74.0	-25.5	Peak	Horizontal
	3890.0	41.4	0.8	42.2	74.0	-31.8	Peak	Vertical
*	5760.0	35.1	5.9	41.0	74.0	-33.0	Peak	Vertical
	7392.0	33.1	11.8	44.9	74.0	-29.1	Peak	Vertical
*	9542.5	33.5	14.3	47.8	74.0	-26.2	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (103.4dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11n-HT40	Test Channel	03
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4621.0	35.8	3.4	39.2	74.0	-34.8	Peak	Horizontal
*	6210.5	35.1	7.2	42.3	74.0	-31.7	Peak	Horizontal
	7596.0	33.6	12.1	45.7	74.0	-28.3	Peak	Horizontal
*	9763.5	33.3	15.0	48.3	74.0	-25.7	Peak	Horizontal
	3550.0	41.9	0.2	42.1	74.0	-31.9	Peak	Vertical
*	4680.5	36.0	4.1	40.1	74.0	-33.9	Peak	Vertical
	6125.5	34.5	7.0	41.5	74.0	-32.5	Peak	Vertical
*	7426.0	33.5	12.1	45.6	74.0	-28.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (100.0dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11n-HT40	Test Channel	06
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4876.0	36.7	3.7	40.4	74.0	-33.6	Peak	Horizontal
*	5743.0	35.9	5.6	41.5	74.0	-32.5	Peak	Horizontal
	7545.0	33.5	12.3	45.8	74.0	-28.2	Peak	Horizontal
*	10214.0	33.0	15.9	48.9	74.0	-25.1	Peak	Horizontal
	5139.5	36.6	4.4	41.0	74.0	-33.0	Peak	Vertical
*	6134.0	34.9	6.9	41.8	74.0	-32.2	Peak	Vertical
	7553.5	33.6	12.1	45.7	74.0	-28.3	Peak	Vertical
*	9738.0	33.4	14.7	48.1	74.0	-25.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (99.8dBμV/m) or 15.209 which is higher.

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

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

Product	WIFI Module	Temperature	25°C
Test Engineer	Kyrie Xie	Relative Humidity	56%
Test Site	AC2	Test Date	2019/12/09
Test Mode	802.11n-HT40	Test Channel	09
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.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4901.5	36.5	4.1	40.6	74.0	-33.4	Peak	Horizontal
*	7196.5	34.1	12.1	46.2	74.0	-27.8	Peak	Horizontal
	7638.5	33.7	11.8	45.5	74.0	-28.5	Peak	Horizontal
*	10256.5	33.1	16.2	49.3	74.0	-24.7	Peak	Horizontal
	4901.5	36.3	4.1	40.4	74.0	-33.6	Peak	Vertical
*	6236.0	34.7	7.1	41.8	74.0	-32.2	Peak	Vertical
	7426.0	34.2	12.1	46.3	74.0	-27.7	Peak	Vertical
*	9695.5	35.1	14.6	49.7	74.0	-24.3	Peak	Vertical

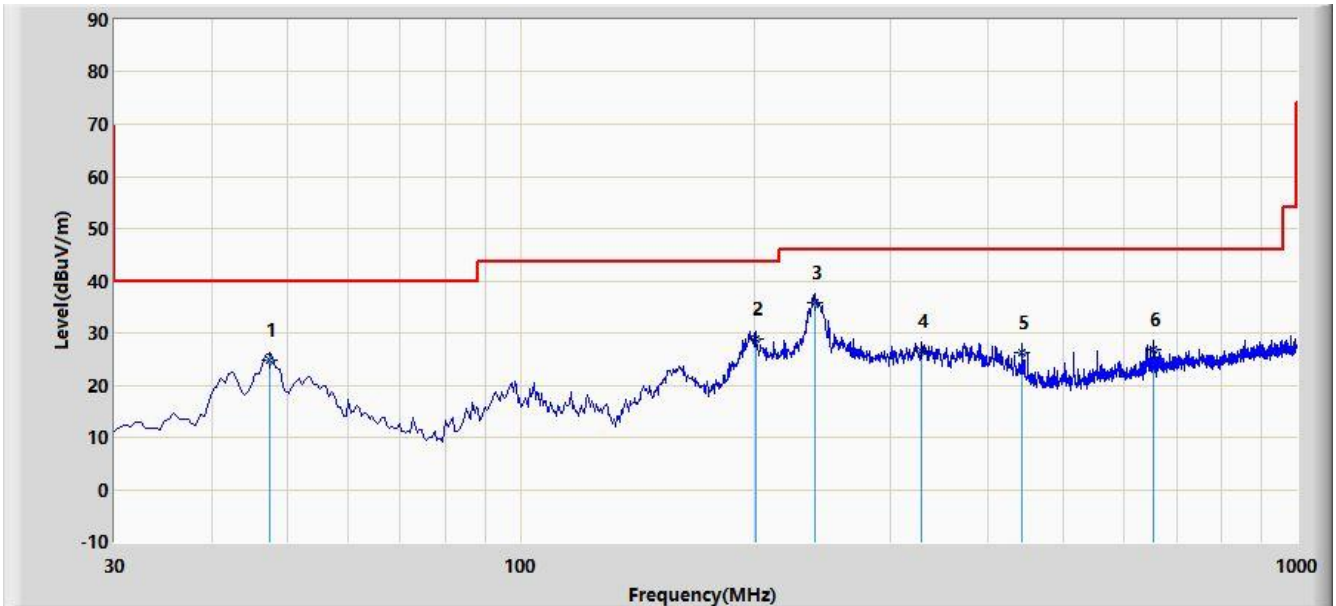
Note 1: “*” is not in restricted band, its limit is 30dBc of the fundamental emission level (99.7dBμV/m) or 15.209 which is higher.

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

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

The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2019/12/10 - 07:20
Limit: FCC_Part15.209_RSE(3m)	Margin: 0
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Worst Case Mode: There is the worst case within frequency range 30MHz~1GHz.	



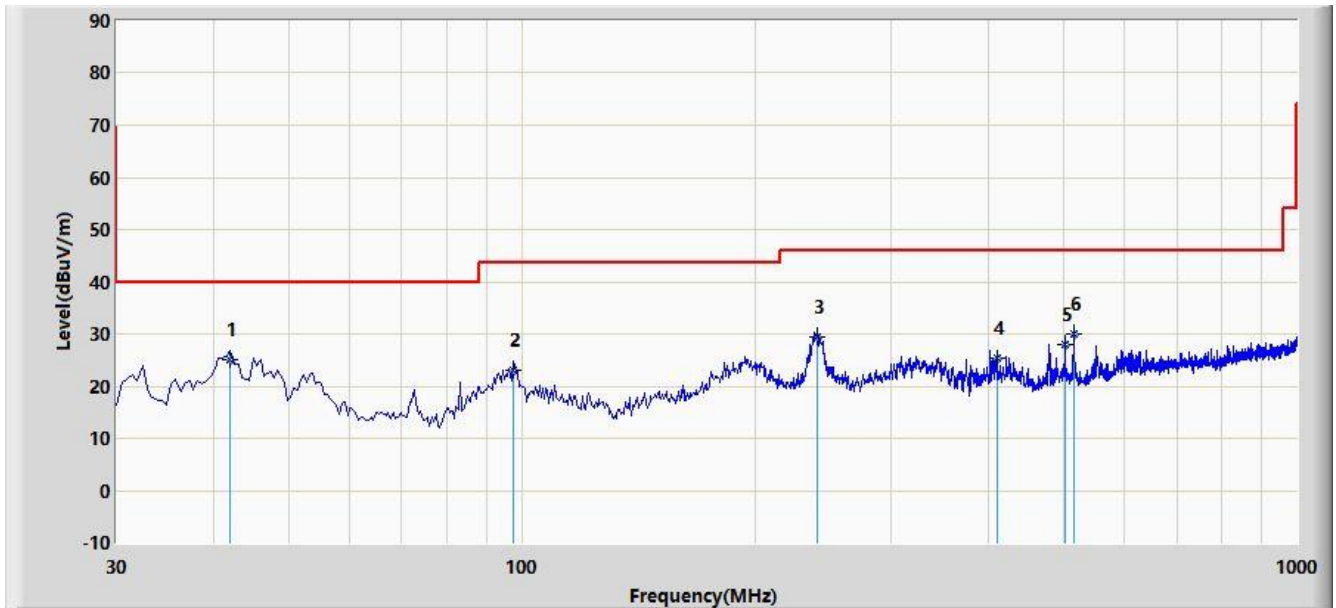
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor	Type
1			47.460	24.838	10.330	-15.162	40.000	14.508	QP
2			200.720	28.771	16.020	-14.729	43.500	12.751	QP
3		*	239.520	35.810	22.270	-10.190	46.000	13.540	QP
4			328.275	26.489	10.670	-19.511	46.000	15.819	QP
5			443.220	26.168	8.150	-19.832	46.000	18.018	QP
6			653.710	26.873	5.210	-19.127	46.000	21.663	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

Site: AC2	Time: 2019/12/10 - 07:21
Limit: FCC_Part15.209_RSE(3m)	Margin: 0
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Worst Case Mode: There is the worst case within frequency range 30MHz~1GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor	Type
1		*	42.125	25.063	11.150	-14.937	40.000	13.914	QP
2			97.415	23.083	10.970	-20.417	43.500	12.113	QP
3			240.975	29.298	15.700	-16.702	46.000	13.599	QP
4			410.240	25.353	7.760	-20.647	46.000	17.593	QP
5			502.875	28.026	8.740	-17.974	46.000	19.286	QP
6			515.970	29.919	10.620	-16.081	46.000	19.299	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

7.4. Radiated Restricted Band Edge Measurement

7.4.1. 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 - 156.525	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

For RSS-Gen Section 8.10 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.009 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.525225	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	--
8.37625 - 8.38675	1718.8 -1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 -2390	
12.51975 - 12.52025	2655 - 2900	
12.57675 - 12.57725	3260 - 3267	
13.36 -13.41	3332 -3339	
16.42 - 16.423	334.5 - 3358	
16.69475 - 16.69525	3500 - 4400	
16.80425 - 16.80475	4500 - 5150	
25.5 - 25.67	5350 - 5460	
37.5 - 38.25	7250 - 7750	
73 - 74.6	8025 - 8500	
74.8 - 75.2	--	
108 - 138		

All out of band emissions appearing in a restricted band as specified in Section 8.10 of the RSS-Gen must not exceed the limits shown in Table per Section 8.9.

RSS-Gen Section 8.9		
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

7.4.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

7.4.3. Test Setting

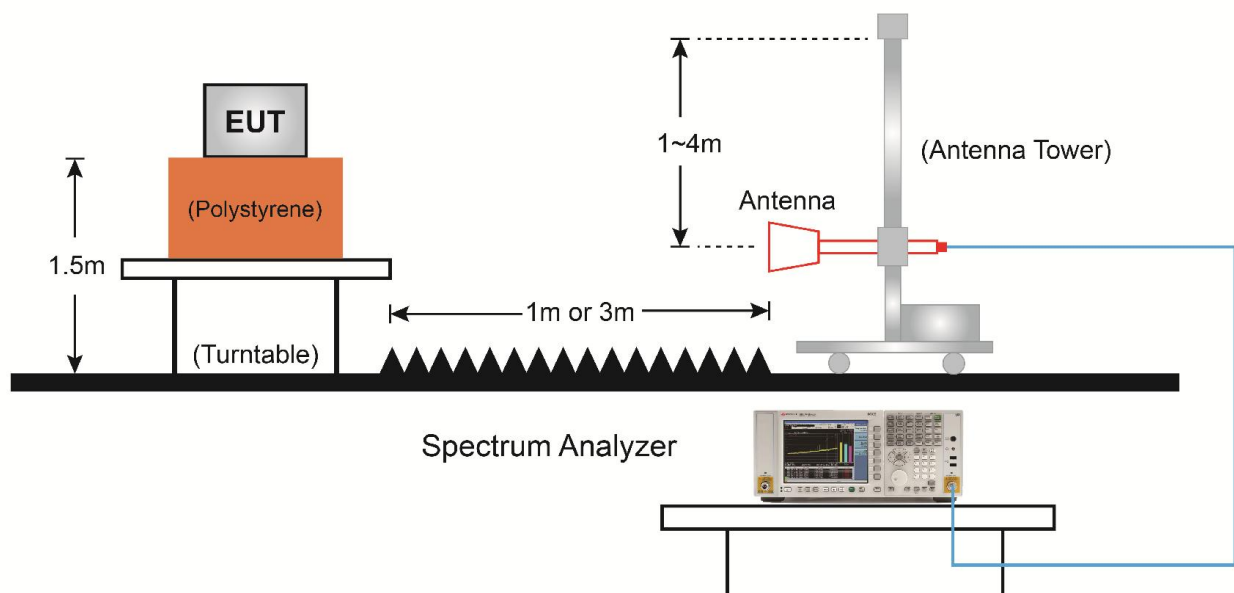
Peak Field Strength Measurements

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

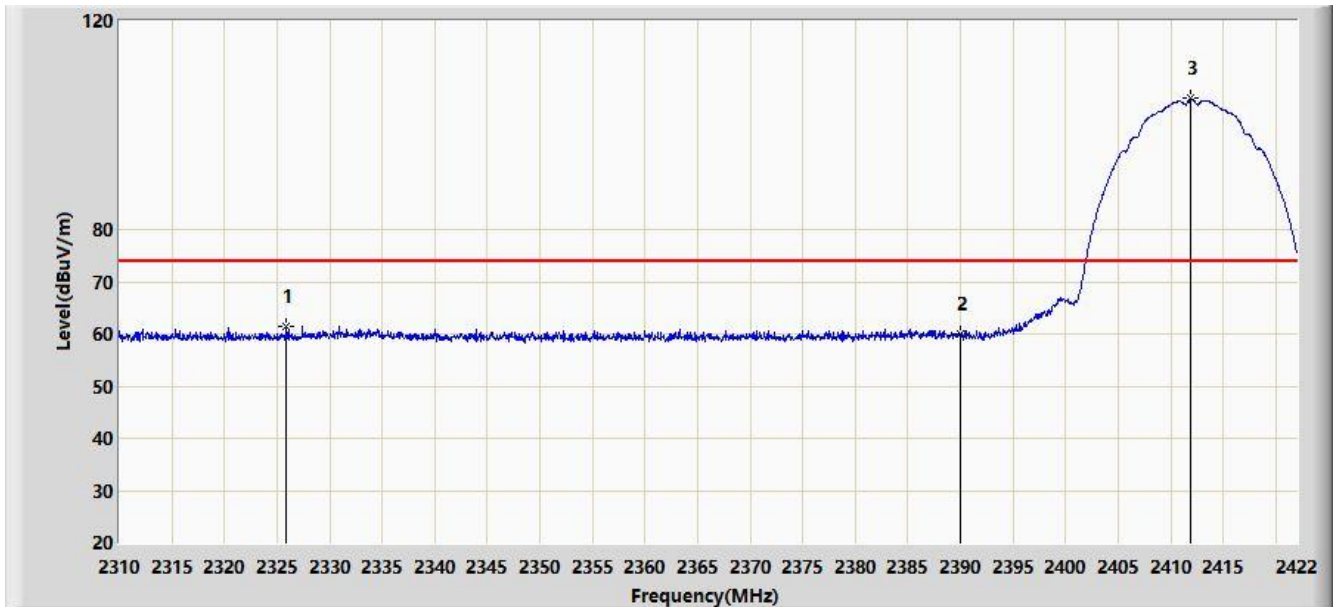
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). 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

7.4.4.Test Setup



7.4.5. Test Result

Site: AC2	Time: 2019/12/09 - 22:54
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2412MHz	

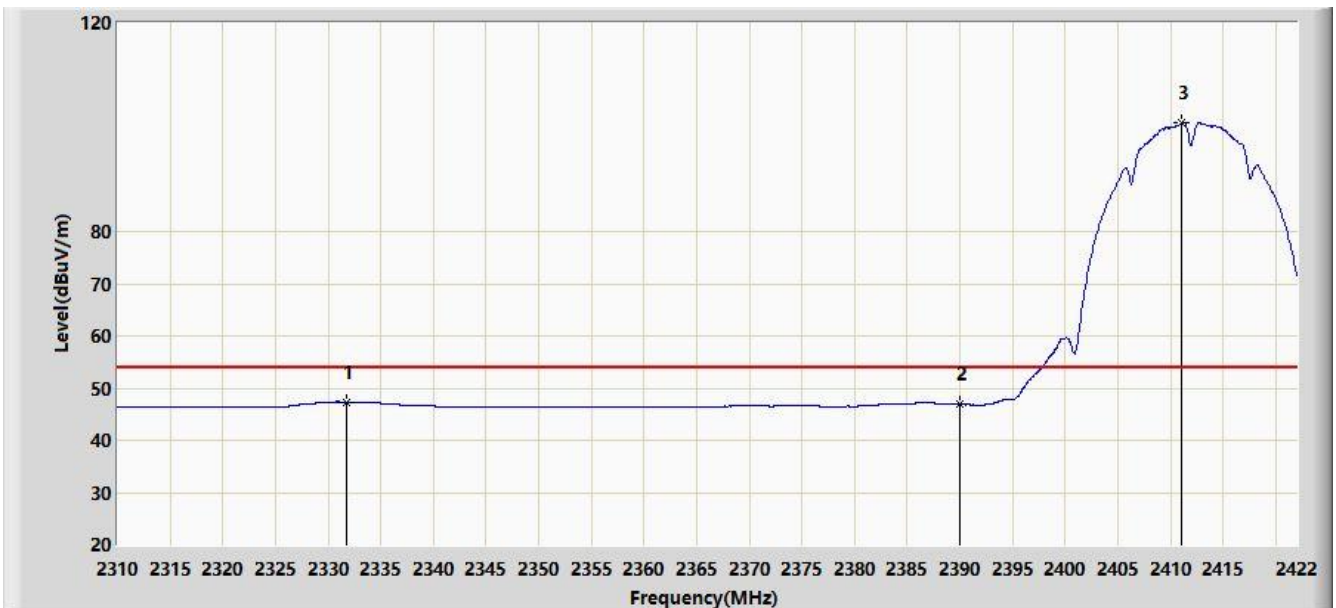


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2325.904	61.547	28.963	-12.453	74.000	32.584	PK
2			2390.000	59.922	27.437	-14.078	74.000	32.485	PK
3		*	2411.864	105.083	72.549	N/A	N/A	32.534	PK

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

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

Site: AC2	Time: 2019/12/09 - 22:56
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2412MHz	

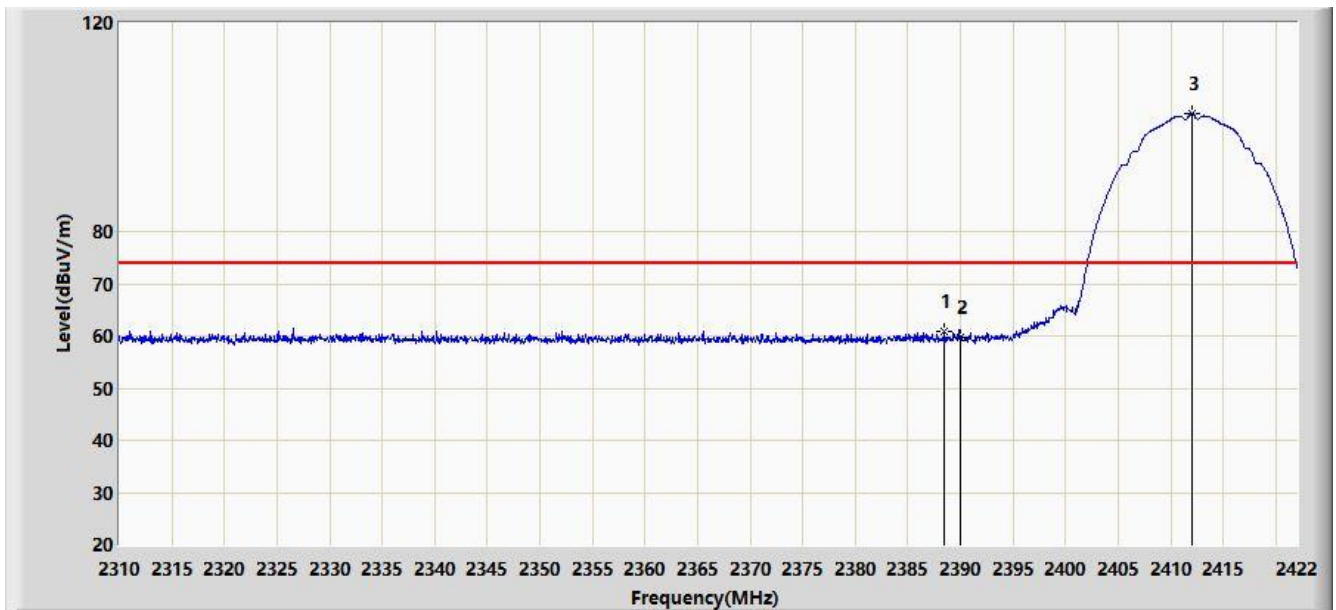


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2331.728	47.352	14.754	-6.648	54.000	32.598	AV
2			2390.000	46.887	14.402	-7.113	54.000	32.485	AV
3		*	2411.080	100.923	68.383	N/A	N/A	32.541	AV

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

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

Site: AC2	Time: 2019/12/09 - 22:57
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2412MHz	

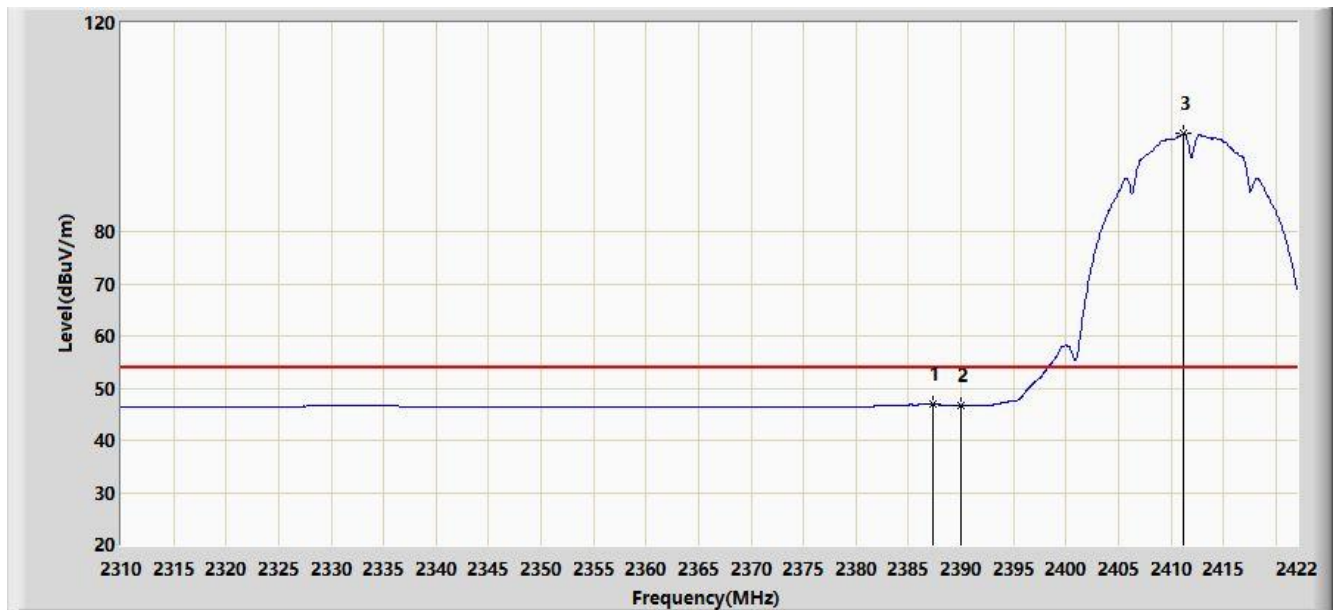


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.512	60.933	28.449	-13.067	74.000	32.484	PK
2			2390.000	59.686	27.201	-14.314	74.000	32.485	PK
3		*	2412.032	102.645	70.113	N/A	N/A	32.532	PK

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

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

Site: AC2	Time: 2019/12/09 - 22:59
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2412MHz	

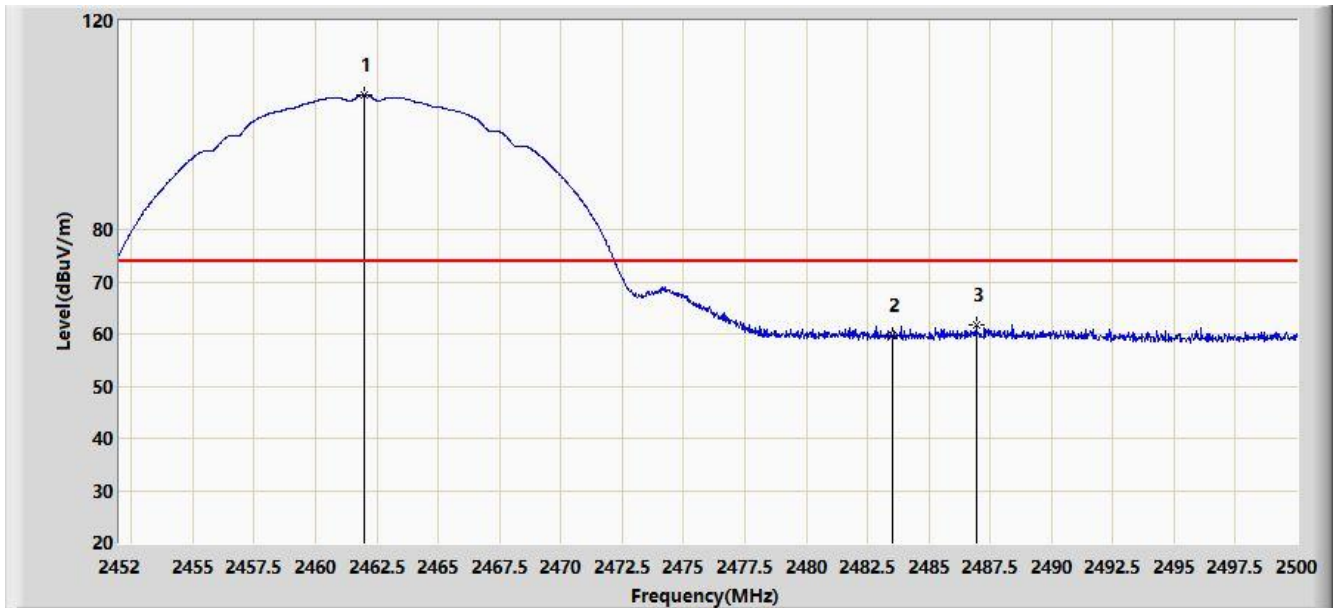


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.280	46.924	14.442	-7.076	54.000	32.482	AV
2			2390.000	46.706	14.221	-7.294	54.000	32.485	AV
3		*	2411.136	98.741	66.201	N/A	N/A	32.540	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:01
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.984	105.884	73.566	N/A	N/A	32.318	PK
2			2483.500	59.733	27.358	-14.267	74.000	32.375	PK
3			2486.920	61.813	29.446	-12.187	74.000	32.367	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:01
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2462MHz	

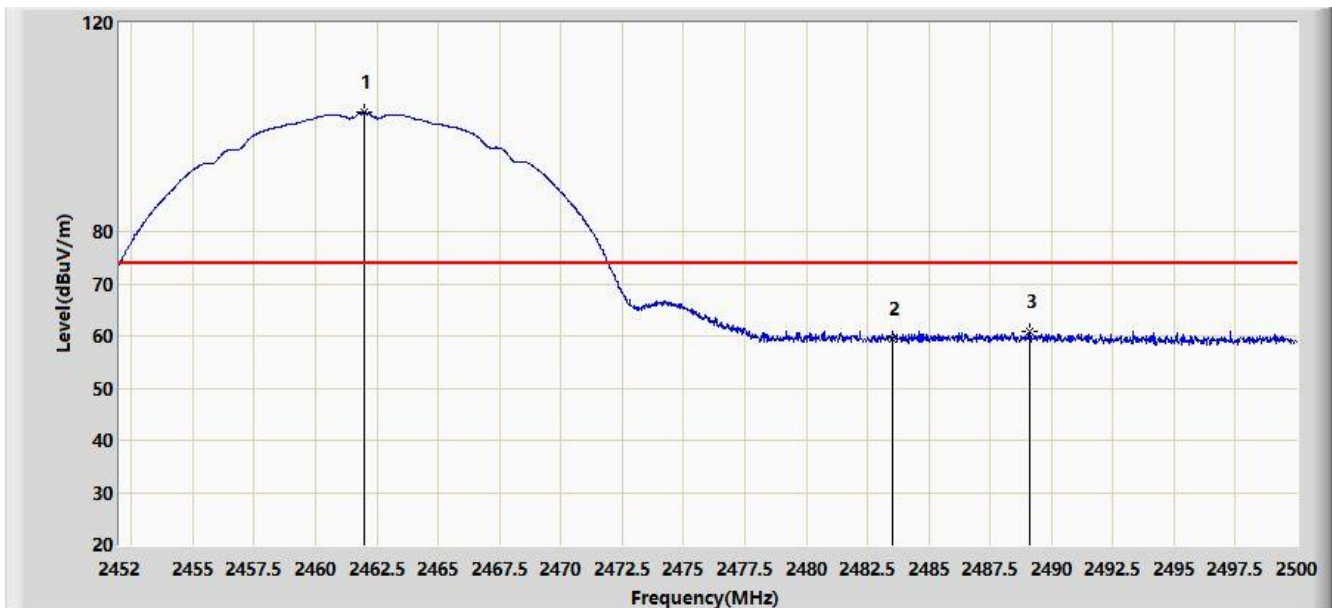


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.704	101.838	69.517	N/A	N/A	32.321	AV
2			2483.500	47.103	14.728	-6.897	54.000	32.375	AV
3			2486.992	47.490	15.123	-6.510	54.000	32.367	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:02
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2462MHz	

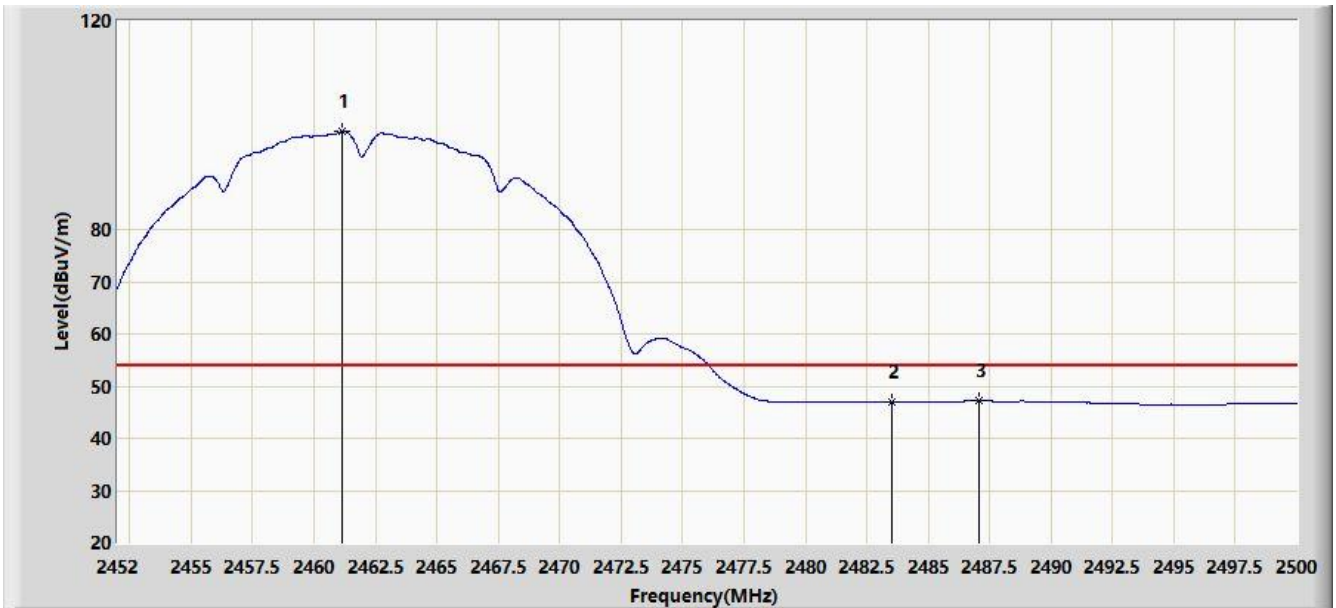


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.984	102.892	70.574	N/A	N/A	32.318	PK
2			2483.500	59.377	27.002	-14.623	74.000	32.375	PK
3			2489.128	60.865	28.503	-13.135	74.000	32.362	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:03
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11b at channel 2462MHz	

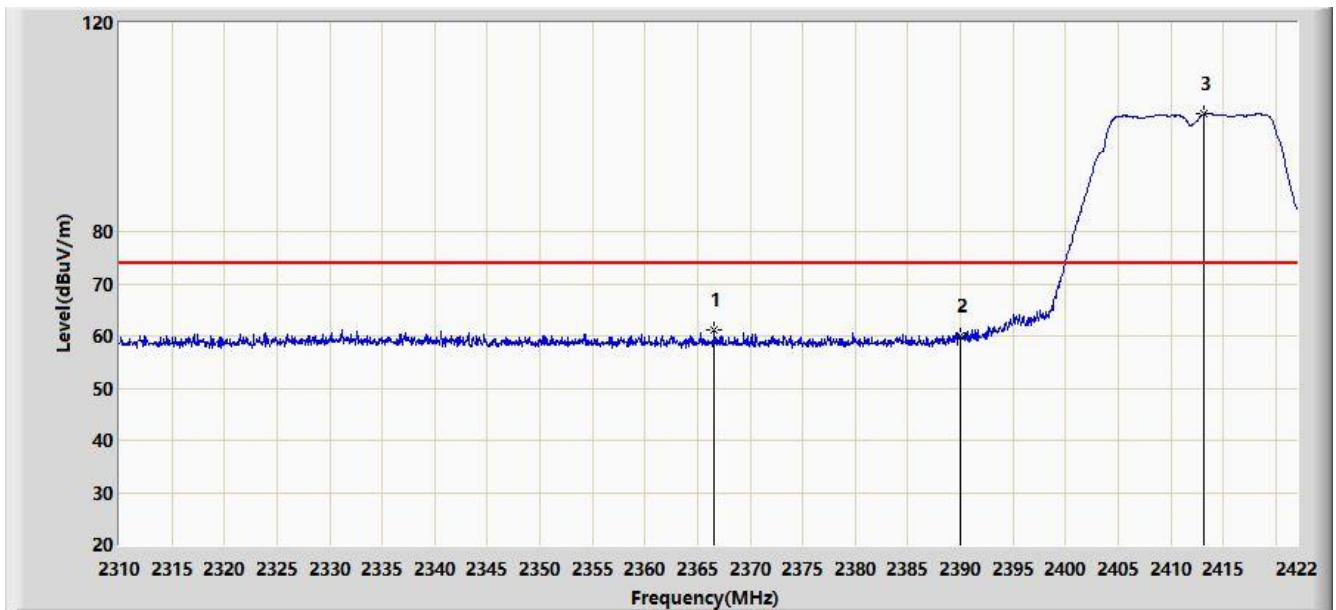


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.120	98.744	66.425	N/A	N/A	32.319	AV
2			2483.500	46.880	14.505	-7.120	54.000	32.375	AV
3			2487.064	47.195	14.828	-6.805	54.000	32.367	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:04
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2412MHz	

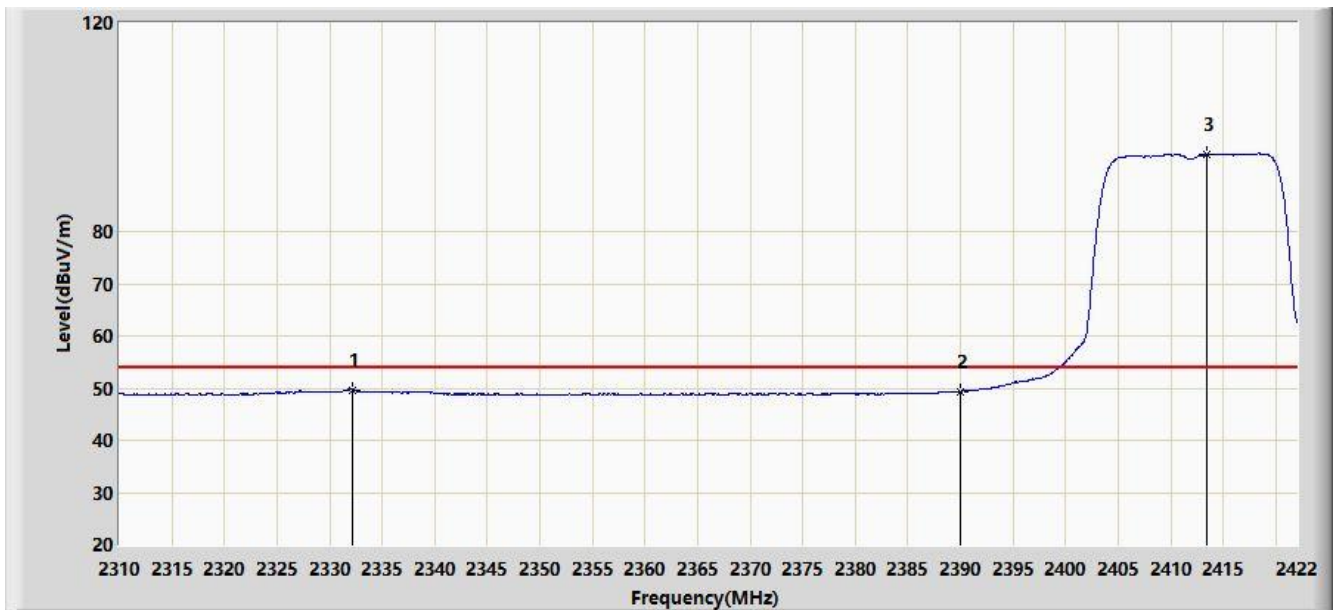


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2366.616	61.110	28.571	-12.890	74.000	32.539	PK
2			2390.000	60.079	27.594	-13.921	74.000	32.485	PK
3		*	2413.152	102.517	69.994	N/A	N/A	32.522	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:05
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2412MHz	

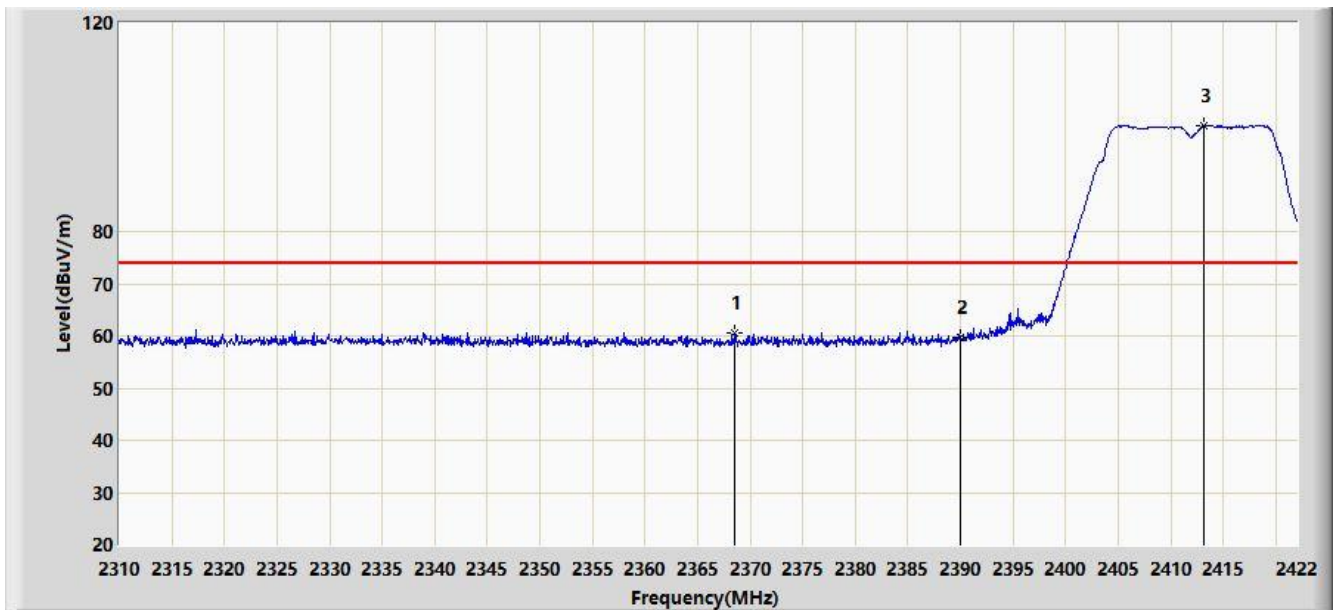


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2332.232	49.681	17.082	-4.319	54.000	32.600	AV
2			2390.000	49.367	16.882	-4.633	54.000	32.485	AV
3		*	2413.488	94.706	62.186	N/A	N/A	32.520	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:06
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2412MHz	

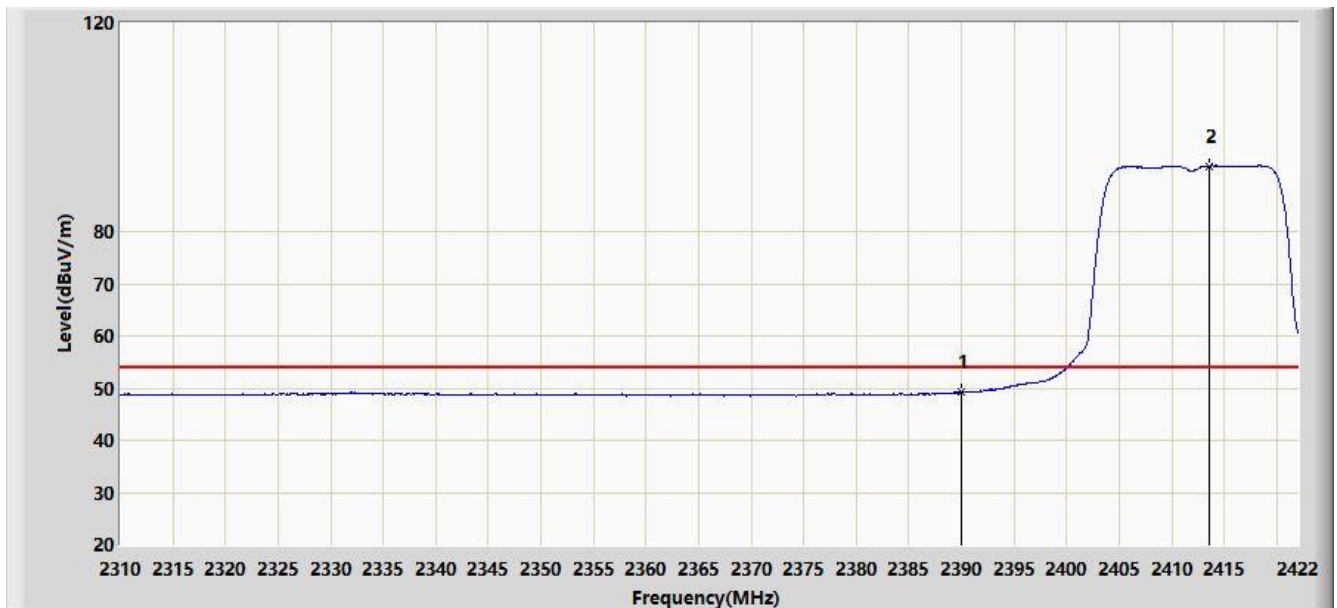


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2368.464	60.623	28.096	-13.377	74.000	32.527	PK
2			2390.000	59.812	27.327	-14.188	74.000	32.485	PK
3		*	2413.208	100.288	67.766	N/A	N/A	32.522	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:07
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2412MHz	

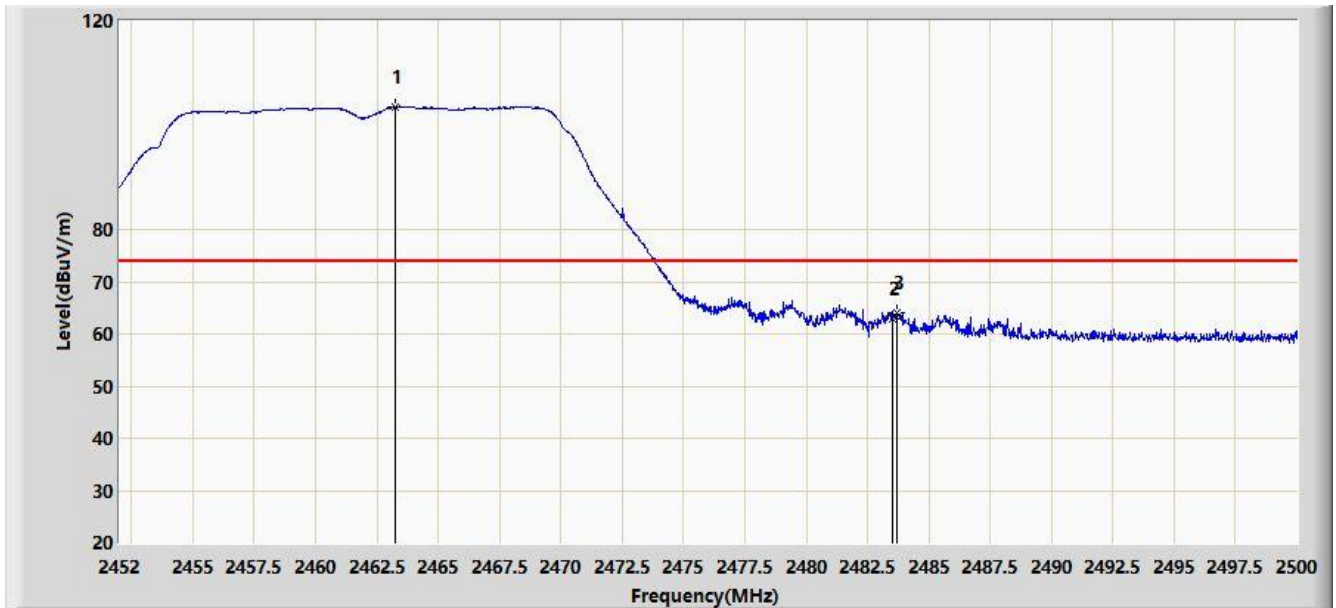


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.231	16.746	-4.769	54.000	32.485	AV
2		*	2413.600	92.521	60.002	N/A	N/A	32.519	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:08
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2462MHz	

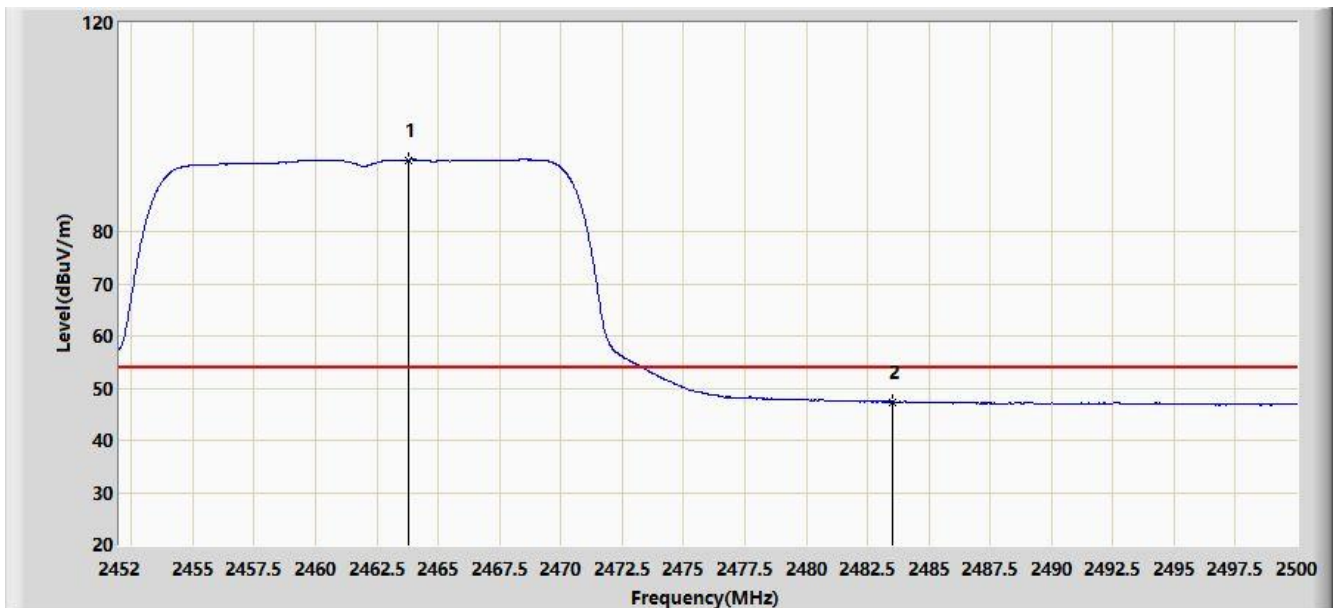


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.256	103.495	71.172	N/A	N/A	32.323	PK
2			2483.500	62.843	30.468	-11.157	74.000	32.375	PK
3			2483.680	64.011	31.637	-9.989	74.000	32.374	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:10
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2462MHz	

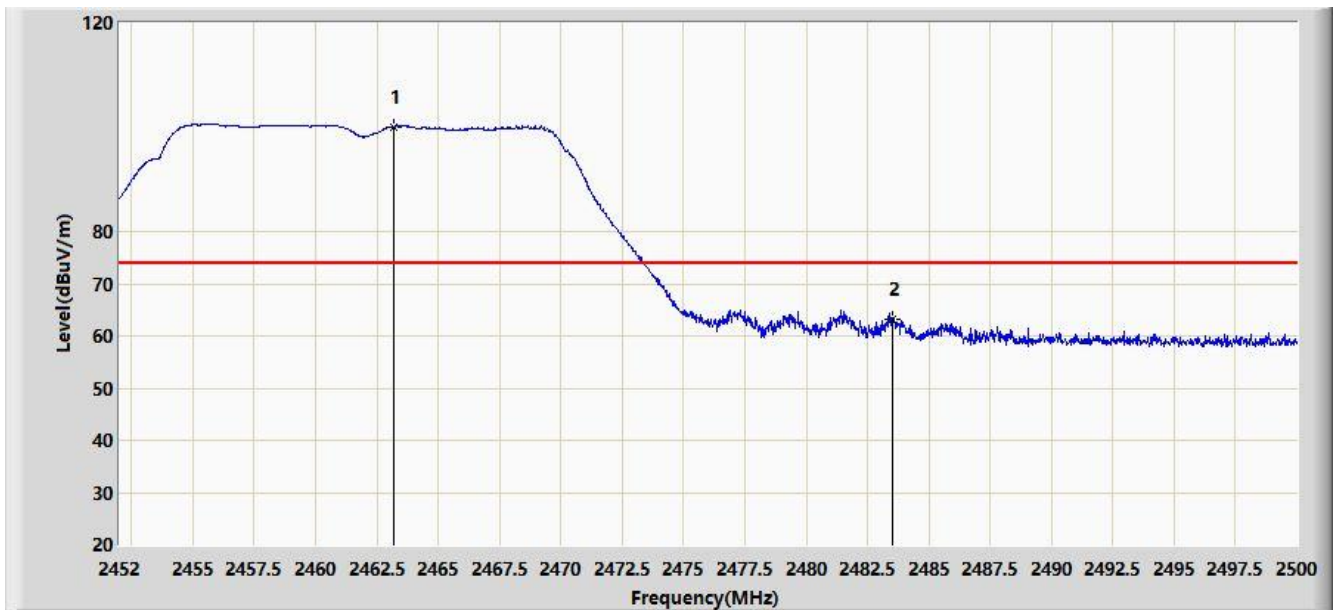


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.784	93.759	61.434	N/A	N/A	32.325	AV
2			2483.500	47.336	14.961	-6.664	54.000	32.375	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:10
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2462MHz	

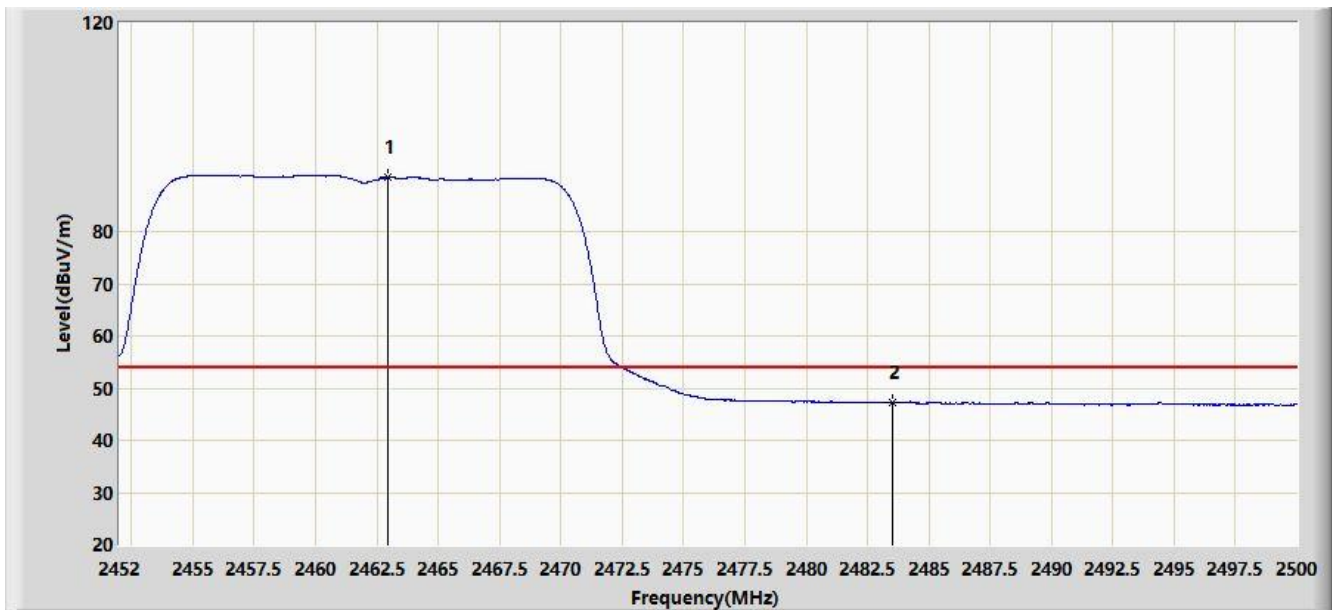


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.184	100.136	67.813	N/A	N/A	32.323	PK
2			2483.500	63.197	30.822	-10.803	74.000	32.375	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:11
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11g at channel 2462MHz	

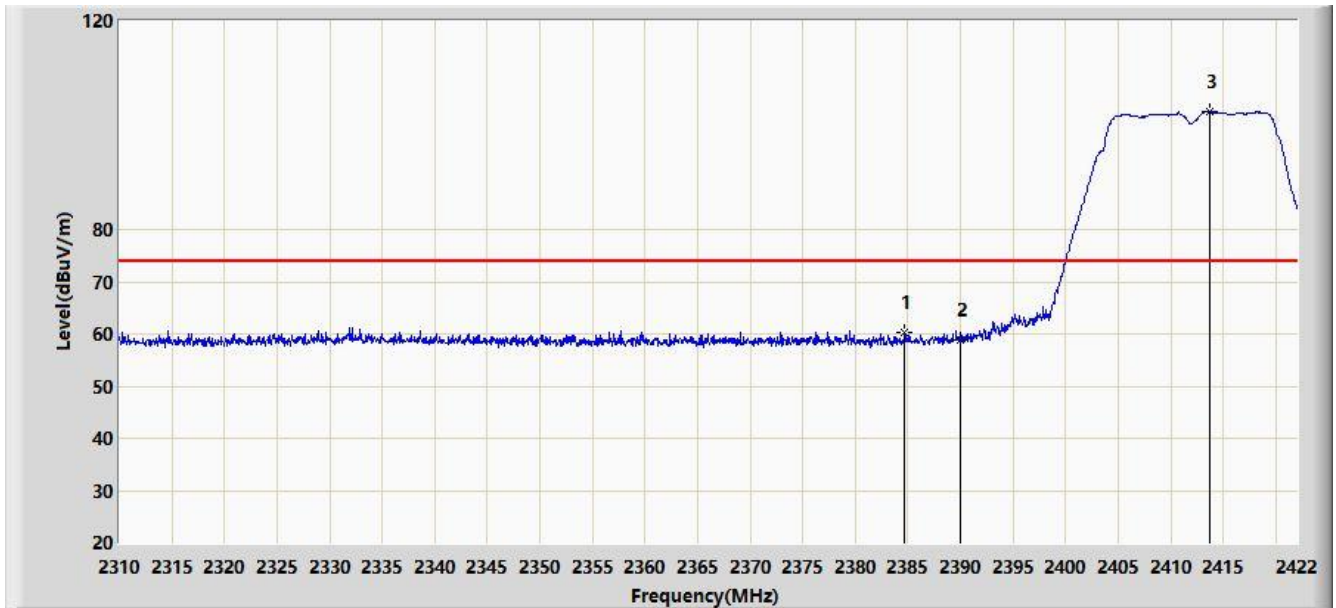


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.944	90.354	58.032	N/A	N/A	32.322	AV
2			2483.500	47.174	14.799	-6.826	54.000	32.375	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:12
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2412MHz	

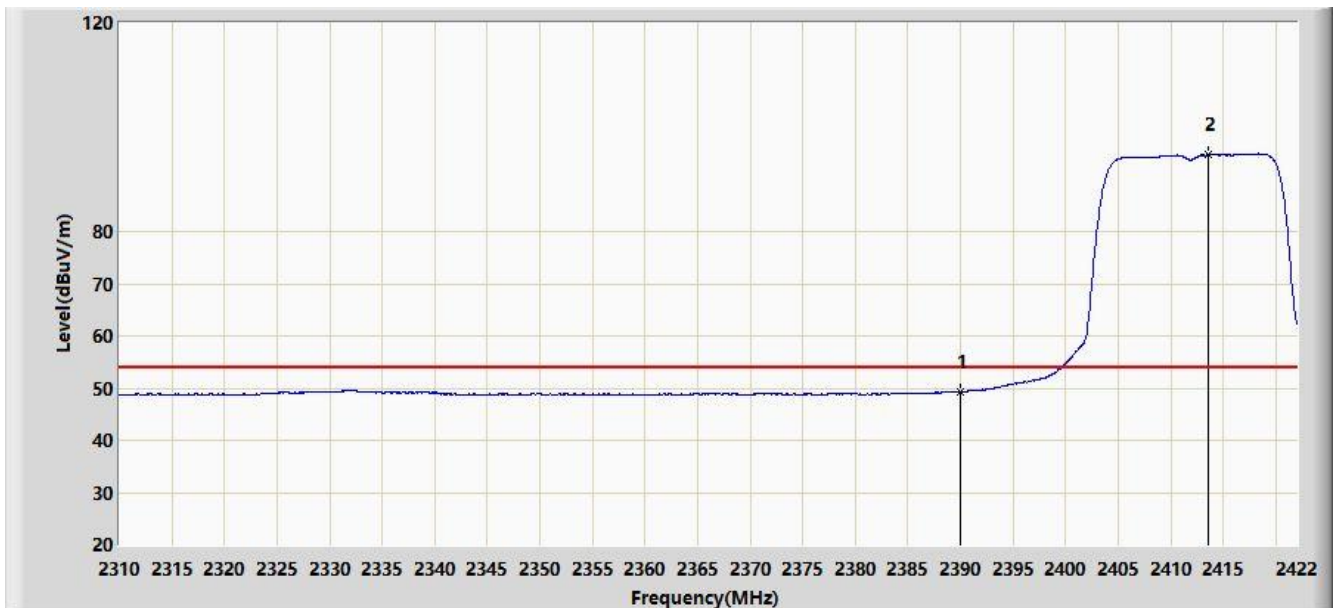


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2384.704	60.286	27.806	-13.714	74.000	32.480	PK
2			2390.000	58.736	26.251	-15.264	74.000	32.485	PK
3		*	2413.768	102.530	70.013	N/A	N/A	32.517	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:13
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2412MHz	

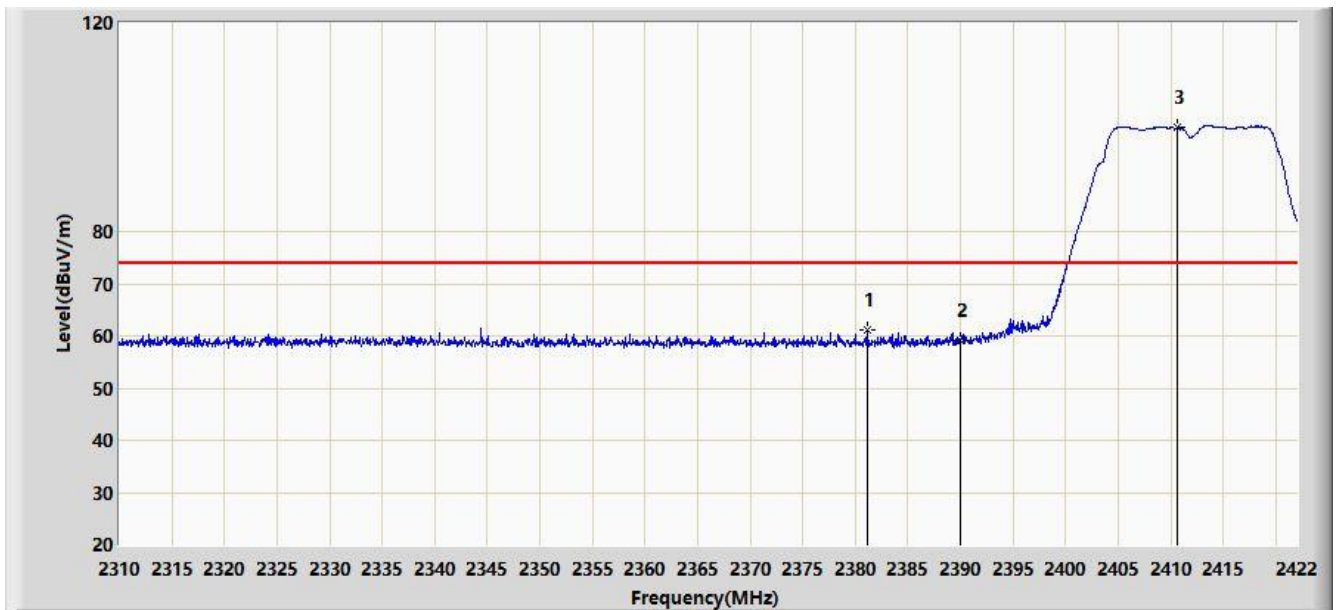


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.362	16.877	-4.638	54.000	32.485	AV
2		*	2413.544	94.694	62.175	N/A	N/A	32.519	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:13
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2412MHz	

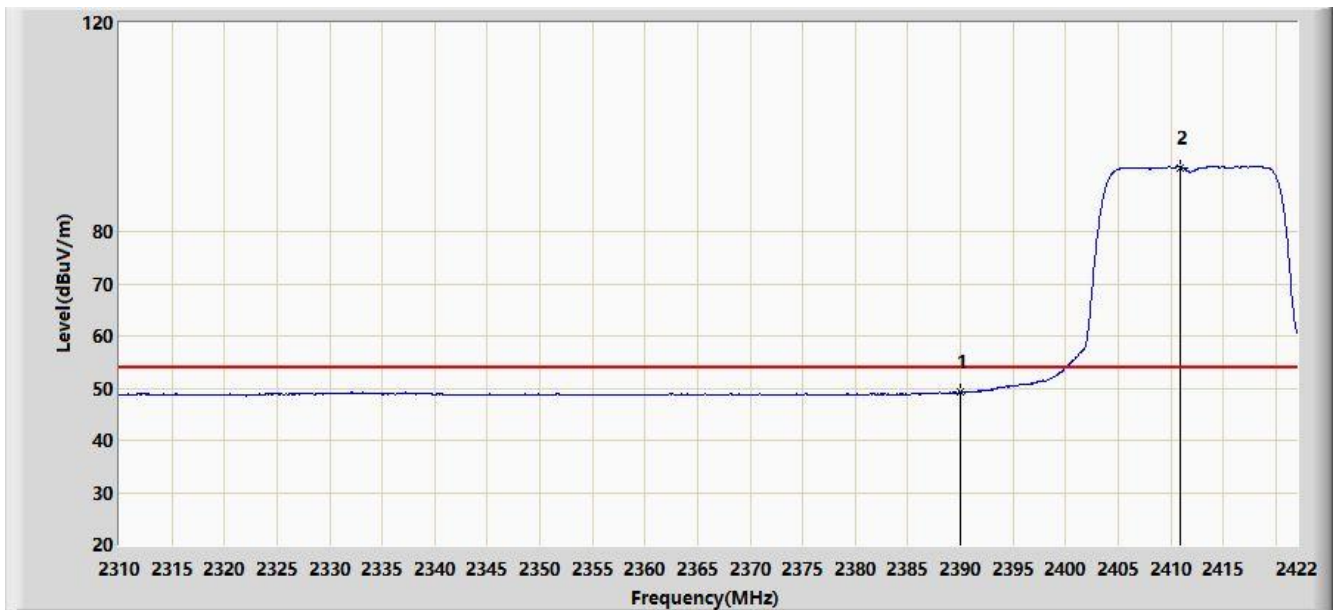


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2381.120	61.061	28.585	-12.939	74.000	32.476	PK
2			2390.000	59.216	26.731	-14.784	74.000	32.485	PK
3		*	2410.632	99.958	67.418	N/A	N/A	32.540	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:14
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2412MHz	

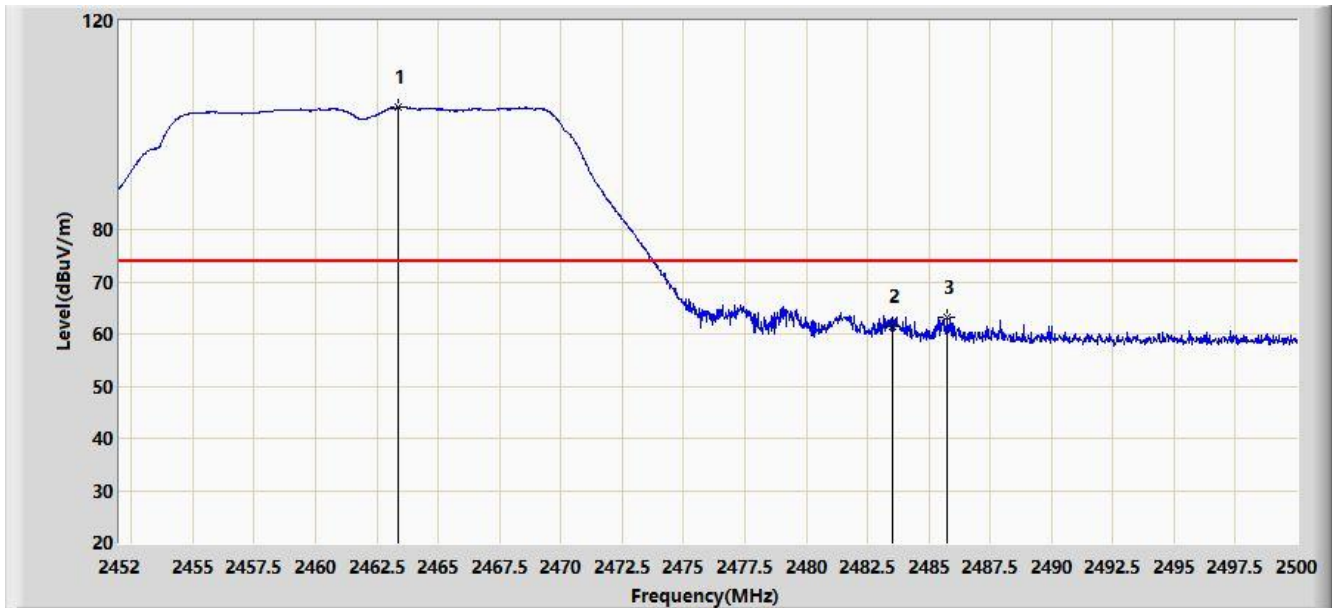


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.241	16.756	-4.759	54.000	32.485	AV
2		*	2410.968	92.244	59.703	N/A	N/A	32.541	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:15
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2462MHz	

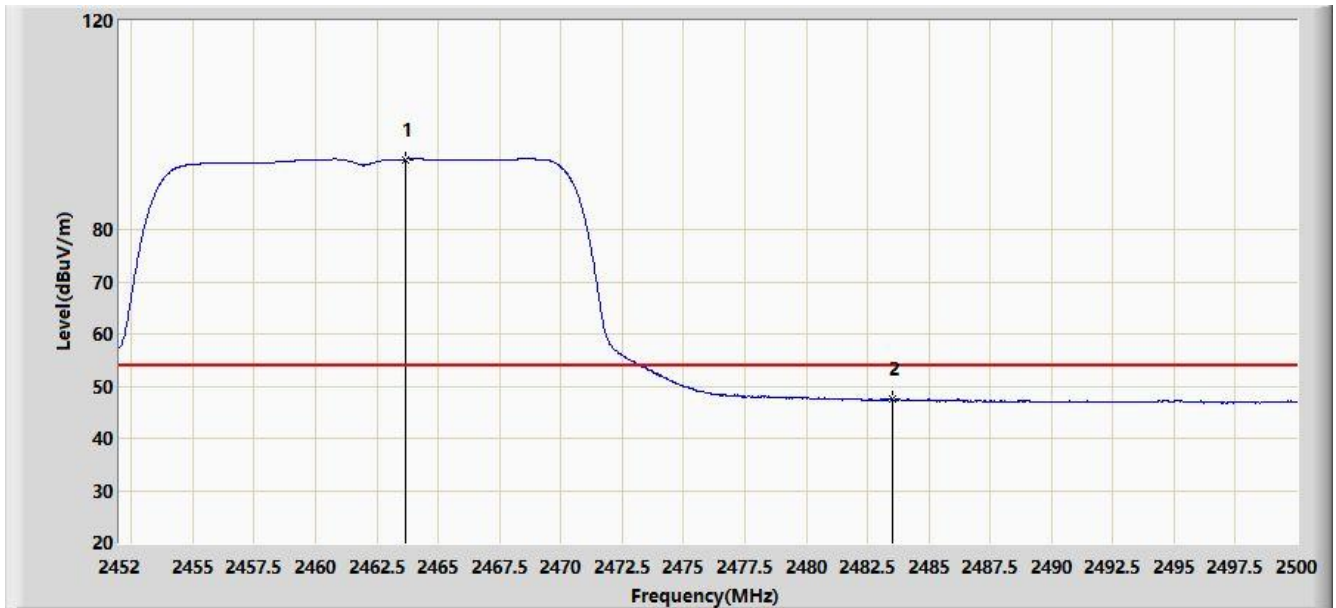


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.352	103.396	71.073	N/A	N/A	32.323	PK
2			2483.500	61.546	29.171	-12.454	74.000	32.375	PK
3			2485.720	63.196	30.826	-10.804	74.000	32.370	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:16
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2462MHz	

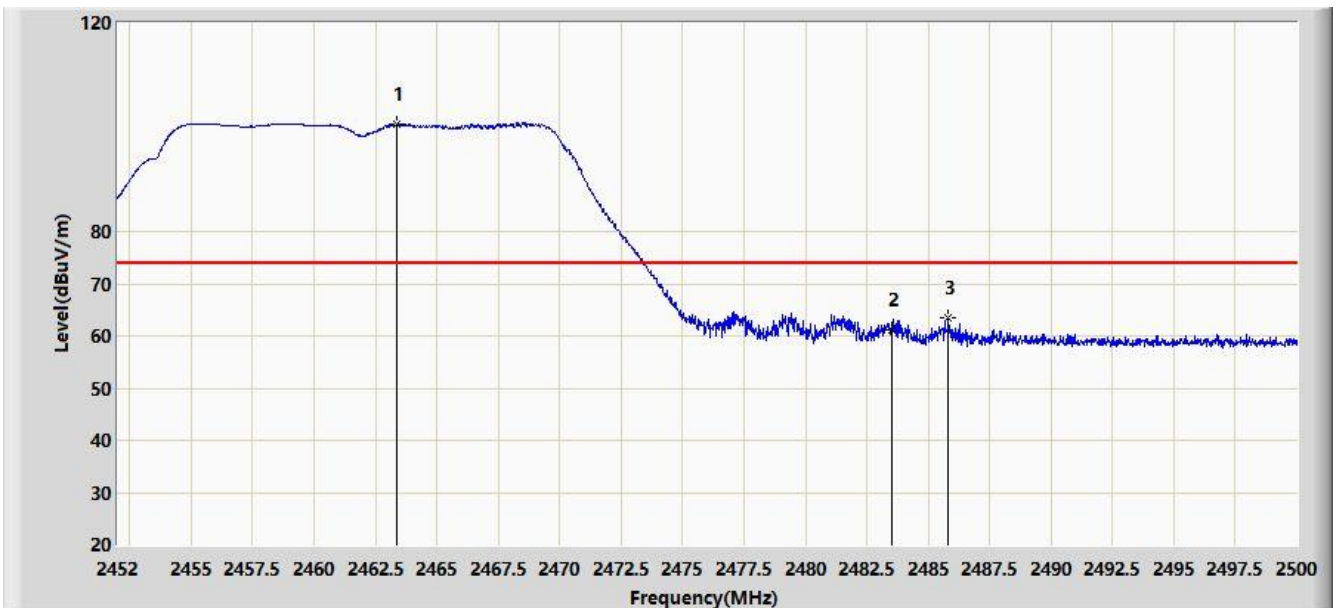


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.688	93.476	61.151	N/A	N/A	32.325	AV
2			2483.500	47.418	15.043	-6.582	54.000	32.375	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:16
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2462MHz	

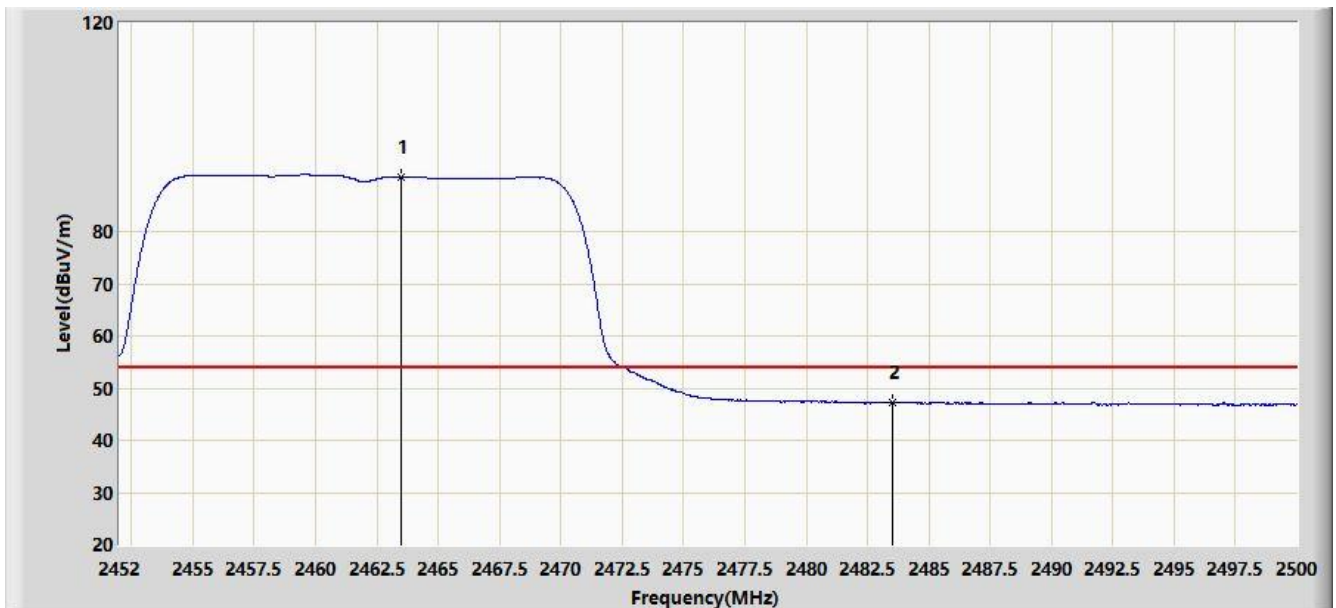


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.376	100.626	68.303	N/A	N/A	32.323	PK
2			2483.500	61.255	28.880	-12.745	74.000	32.375	PK
3			2485.816	63.491	31.122	-10.509	74.000	32.369	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:17
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT20 at channel 2462MHz	

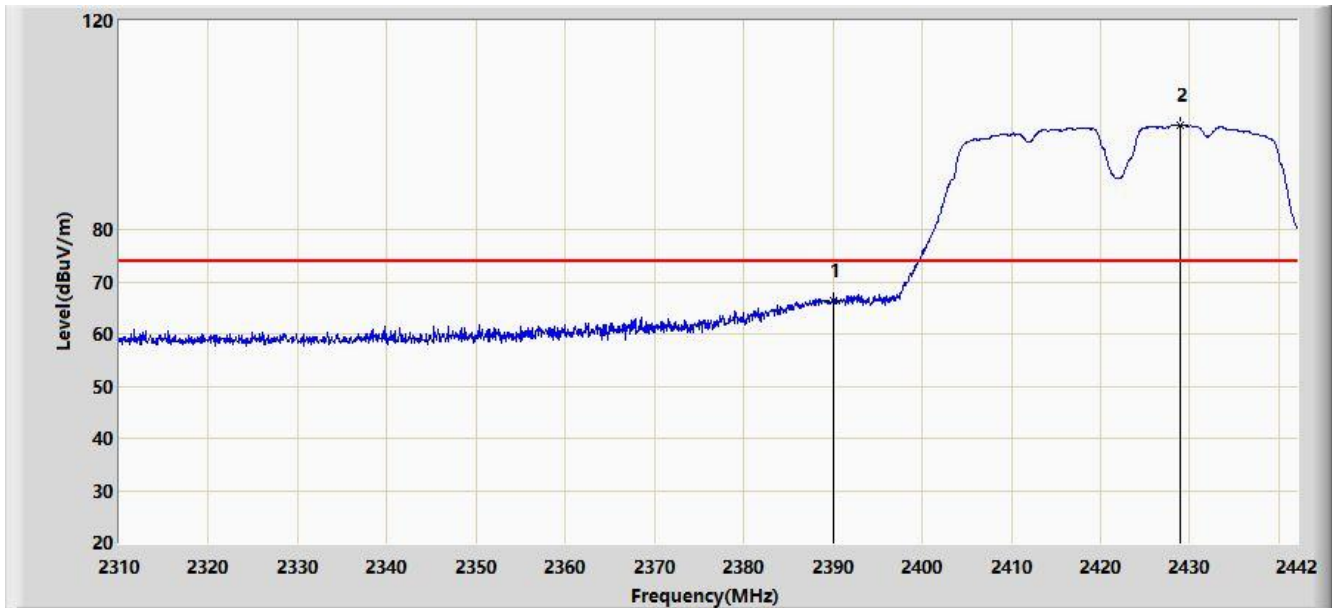


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2463.472	90.378	58.054	N/A	N/A	32.324	AV
2			2483.500	47.157	14.782	-6.843	54.000	32.375	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:18
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2422MHz	

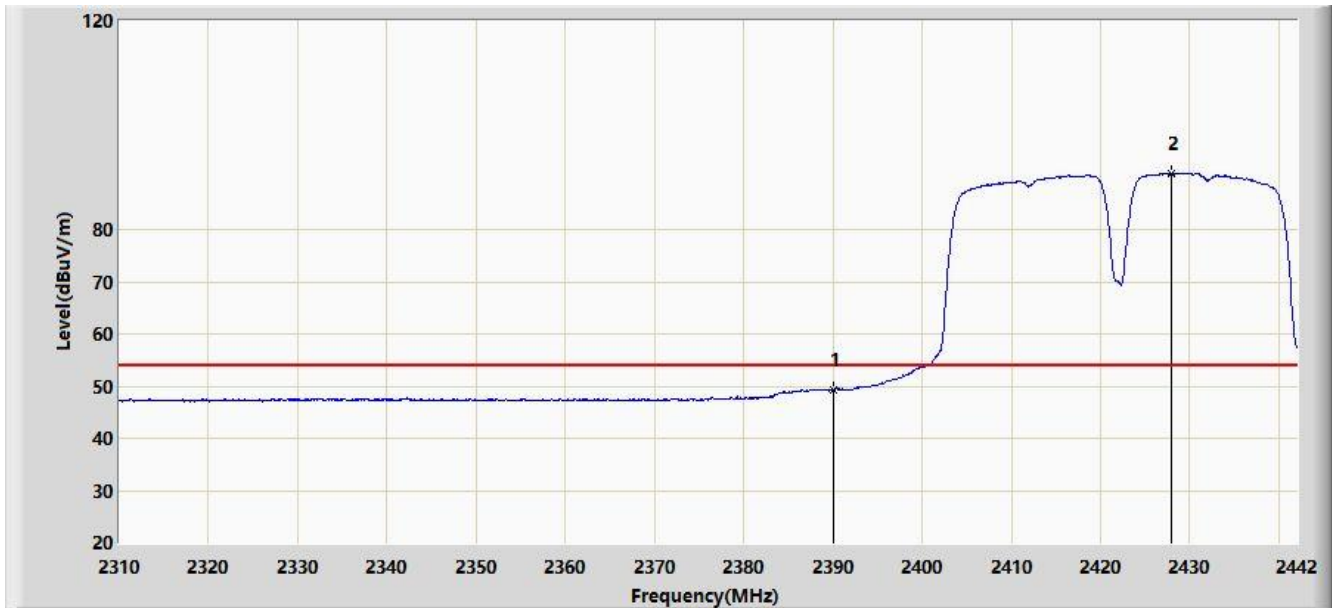


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	66.473	33.988	-7.527	74.000	32.485	PK
2		*	2428.998	100.012	67.621	N/A	N/A	32.391	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:18
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2422MHz	

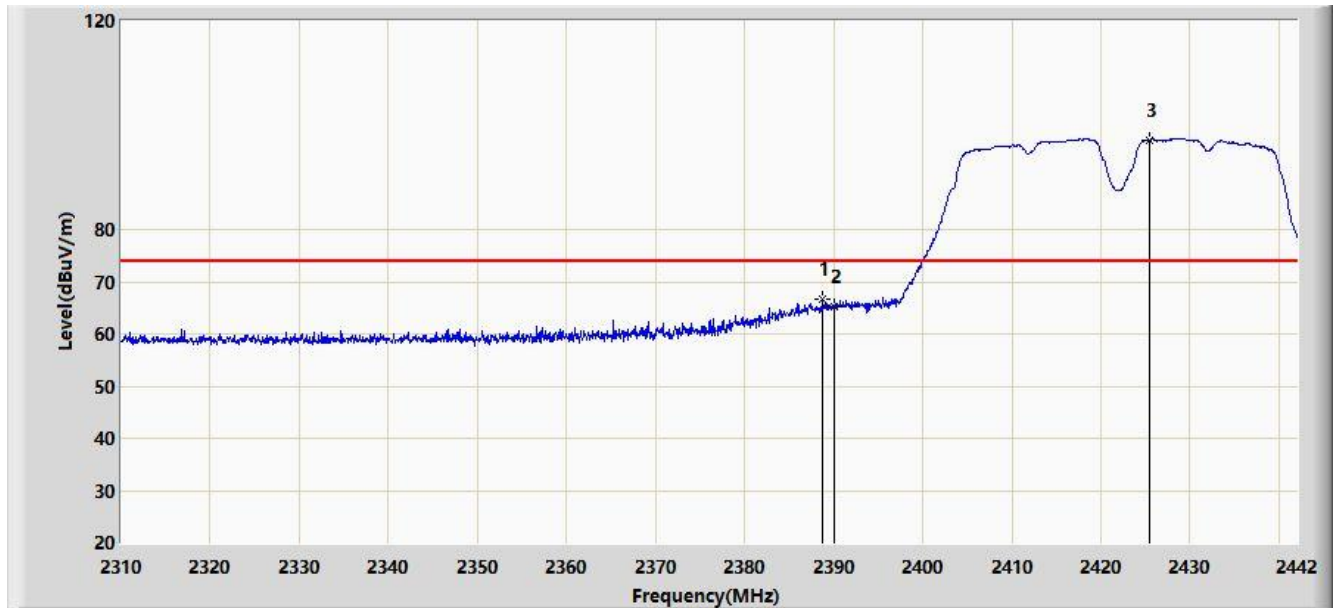


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.179	16.694	-4.821	54.000	32.485	AV
2		*	2427.942	90.714	58.319	N/A	N/A	32.395	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:19
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2422MHz	

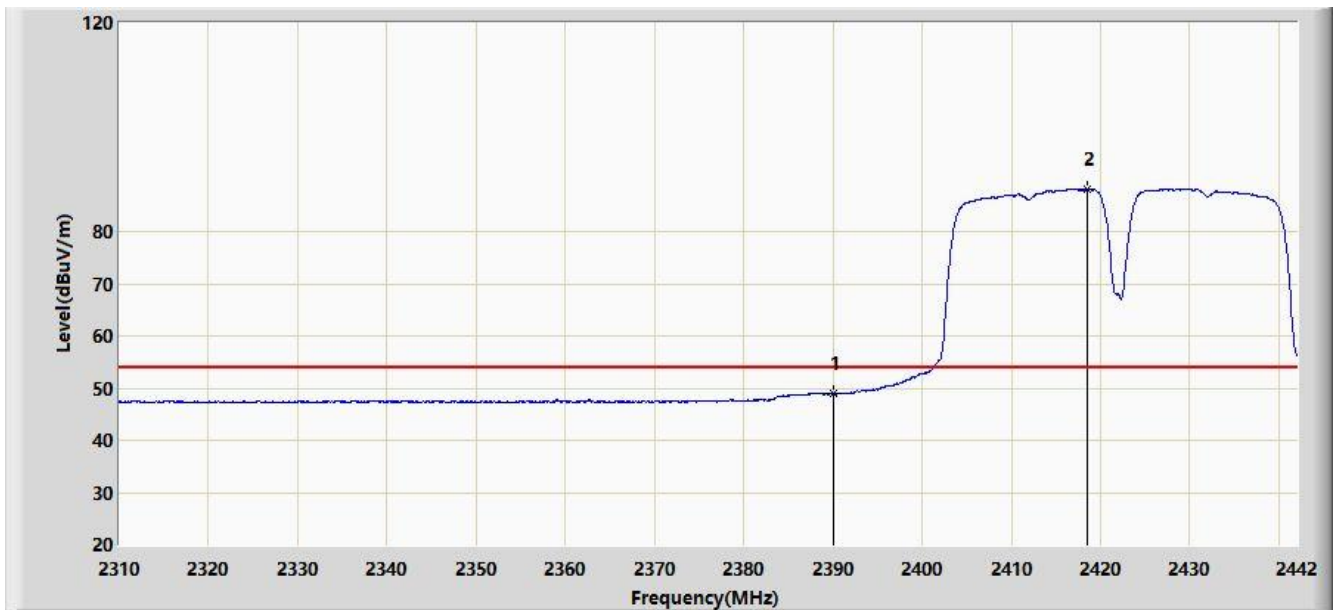


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.738	66.703	34.219	-7.297	74.000	32.484	PK
2			2390.000	65.085	32.600	-8.915	74.000	32.485	PK
3		*	2425.434	97.199	64.782	N/A	N/A	32.417	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:20
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2422MHz	

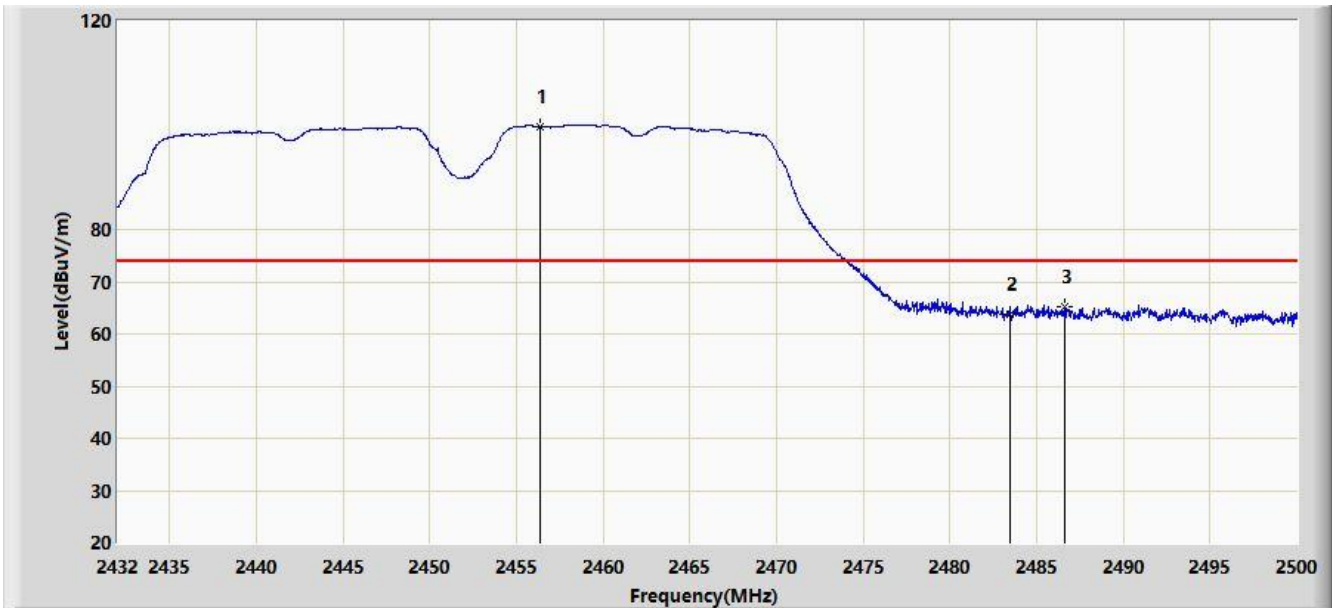


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	48.889	16.404	-5.111	54.000	32.485	AV
2		*	2418.504	88.220	55.743	N/A	N/A	32.476	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:22
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2452MHz	

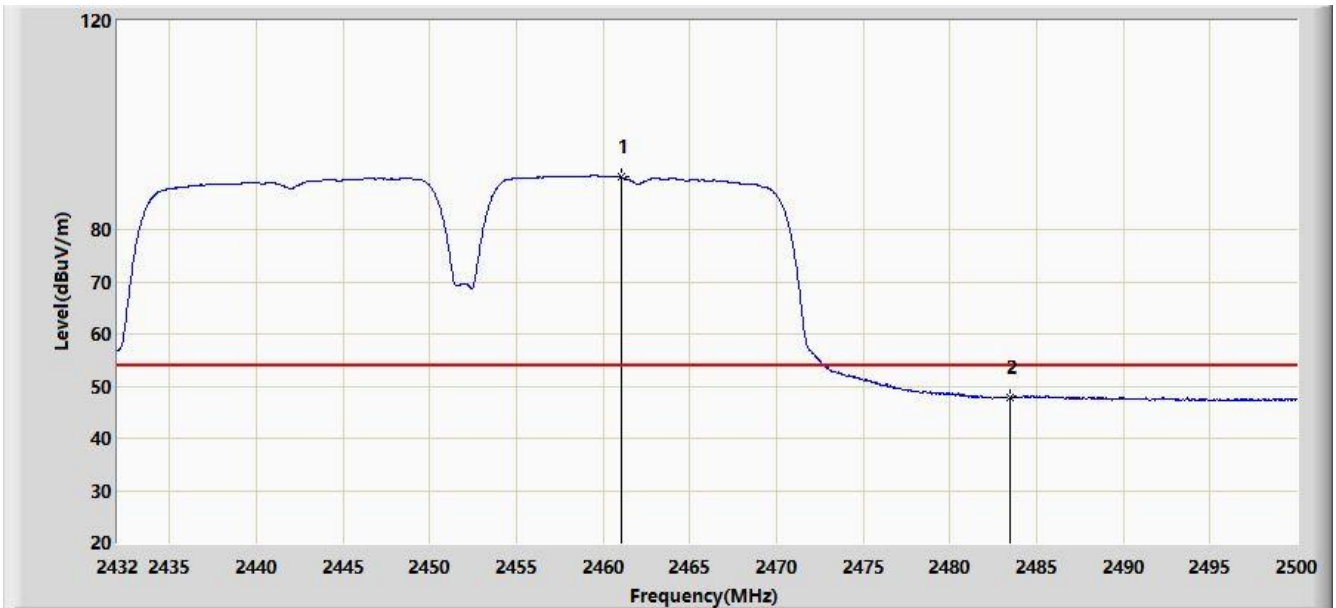


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2456.412	99.667	67.346	N/A	N/A	32.321	PK
2			2483.500	63.902	31.527	-10.098	74.000	32.375	PK
3			2486.638	65.266	32.899	-8.734	74.000	32.367	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:22
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2452MHz	

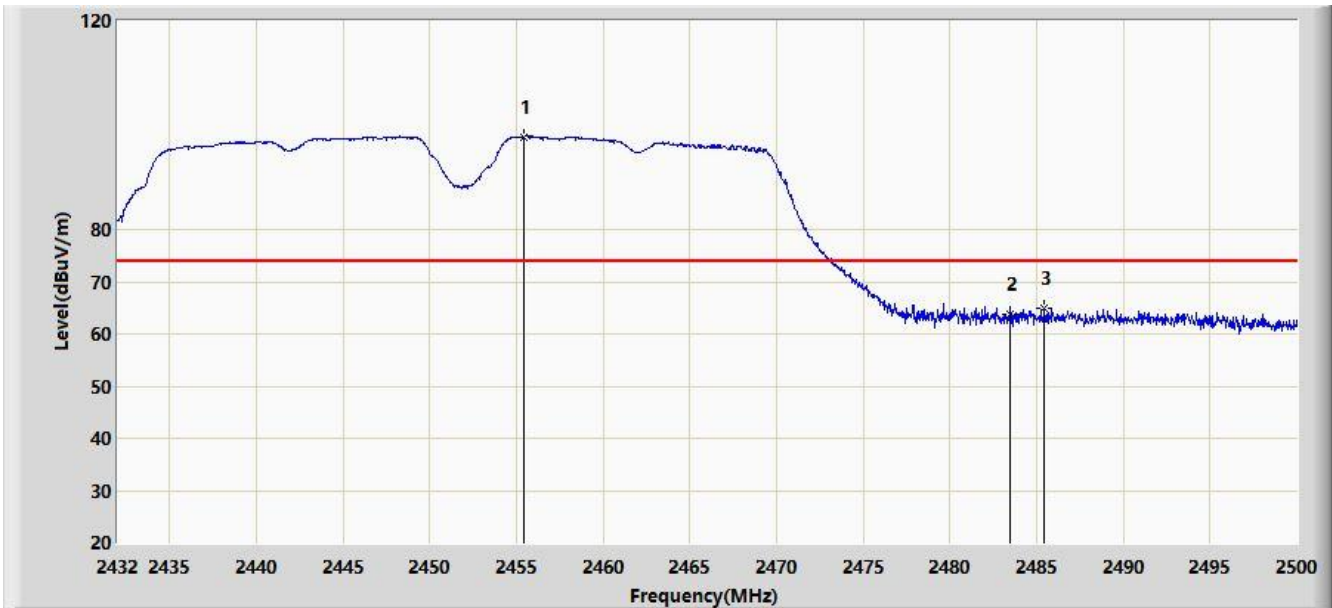


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.036	90.080	57.761	N/A	N/A	32.319	AV
2			2483.500	47.807	15.432	-6.193	54.000	32.375	AV

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

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

Site: AC2	Time: 2019/12/09 - 23:22
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2452MHz	

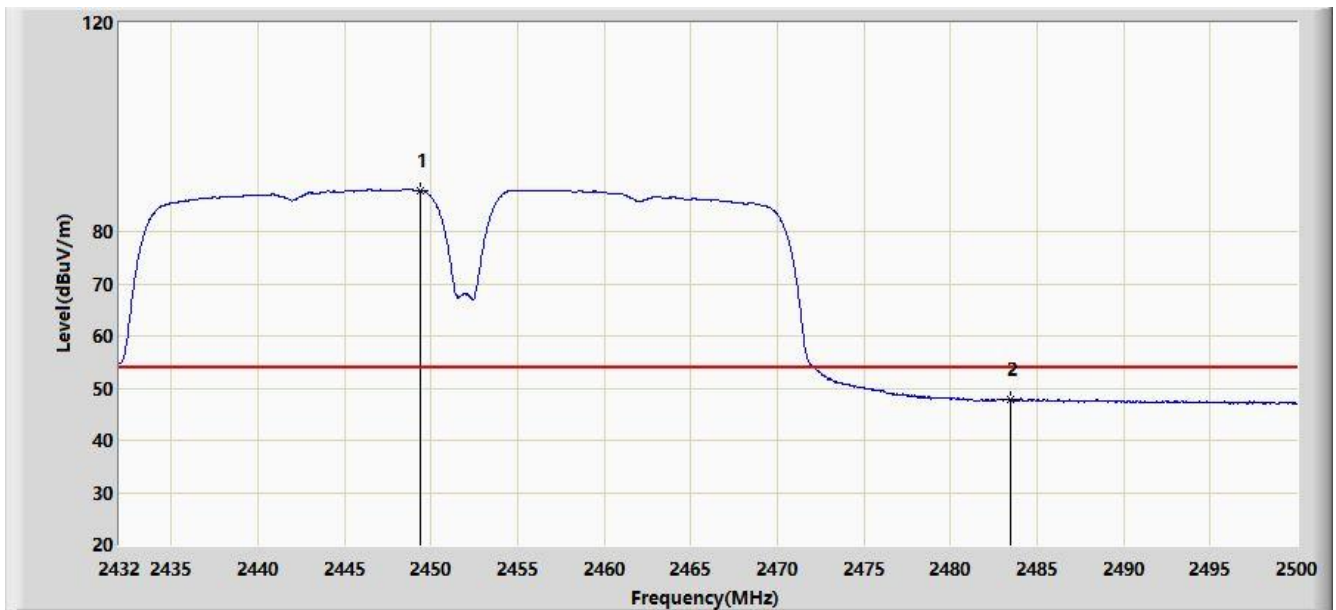


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2455.392	97.797	65.475	N/A	N/A	32.322	PK
2			2483.500	63.783	31.408	-10.217	74.000	32.375	PK
3			2485.448	65.022	32.652	-8.978	74.000	32.370	PK

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

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

Site: AC2	Time: 2019/12/09 - 23:23
Limit: FCC_Part15_Band Edge(3m)	Engineer: Kyrie Xie
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: WIFI Module	Power: By Battery
Note: Transmit by 802.11n-HT40 at channel 2452MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2449.408	87.913	55.588	N/A	N/A	32.325	AV
2			2483.500	47.809	15.434	-6.191	54.000	32.375	AV

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

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

8. CONCLUSION

The data collected relate only the item(s) tested and show that the unit is in compliance with Part 15C of the FCC rules and ISED rules.

_____ The End _____

Appendix A - Test Setup Photograph

Refer to “1909WSU021-UT” file.

Appendix B - EUT Photograph

Refer to "1909RSU021-UE" file.