

# Test Report

## FCC Part15 Subpart C

Product Name : Wi-Fi Module  
Model No. : LW100  
FCC ID : Y2SLW100  
IC : 9452A-LW100

Applicant : LIBRATONE A/S  
Address : Marielundvej 43A, DK-2730 Herlev, Denmark

Date of Receipt : Dec. 09, 2015  
Test Date : Dec. 10, 2015~ Dec. 24, 2015  
Issued Date : Jan. 06, 2016  
Report No. : 15C2022R-RF-US-P06V01  
Report Version : V1.1

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by any agency of the government.

The test report shall not be reproduced without the written approval of QuieTek Corporation.

# Test Report Certification

Issued Date : Jan. 06, 2016  
Report No. : 15C2022R-RF-US-P06V01



Product Name : Wi-Fi Module  
Applicant : LIBRATONE A/S  
Address : Marielundvej 43A, DK-2730 Herlev, Denmark  
Manufacturer : Goertek Inc  
Address : No 268 Dongfang Rd., New&high-tech Industry Development  
Zone Weifang Shandong Province 261031, PRC.  
Model No. : LW100  
FCC ID : Y2SLW100  
IC : 9452A-LW100  
EUT Voltage : 3.8V DC  
Brand Name : LIBRATONE  
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2014  
ANSI C63.4:2014;  
ANSI C63.10:2013;  
KDB 558074 D01v03r03  
Industry Canada RSS-Gen Issue 4  
Industry Canada RSS-247 Issue 1  
Test Result : Complied  
Performed Location : Suzhou EMC Laboratory  
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FCC Registration Number: 800392; IC Lab Code: 4075B

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## Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>BSMI, NCC, TAF</b>
<b>USA</b>	<b>:</b>	<b>FCC</b>
<b>Japan</b>	<b>:</b>	<b>VCCI</b>
<b>China</b>	<b>:</b>	<b>CNAS</b>

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :  
<http://www.quietek.com/>

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### History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
15C2022R-RF-US-P06V01	V1.0	Initial Issued Report	Dec. 25, 2015
15C2022R-RF-US-P06V01	V1.1	Add item of power output	Jan. 06, 2016

## 1. General Information

### 1.1. EUT Description

Product Name	Wi-Fi Module
Brand Name	LIBRATONE
Model No.	LW100
EUT Voltage	3.8V DC
Frequency Range	<b>For 2.4GHz Band</b> 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz <b>For 5GHz Band</b> 802.11a/n(20MHz):5180~5240MHz, 5745~5825MHz 802.11n(40MHz): 5190~5230MHz, 5755~5795MHz
Channel Number	<b>For 2.4GHz Band</b> 802.11b/g/n(20MHz): 11 802.11n(40MHz): 9 <b>For 5GHz Band</b> 802.11a/n(20MHz): 9    802.11n(40MHz): 4
Type of Modulation	802.11b: DSSS 802.11a/g/n: OFDM
Data Rate	802.11a/g: 6/9/12/18/24/36/48/54 Mbps 802.11b: 1/2/5.5/11 Mbps 802.11n: up to 150 Mbps
Channel Control	Auto
Antenna Delivery	2*Tx + 2*Rx
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

Note: This report was based on Quietek report No: 1560632R. This is to verify the 2<sup>nd</sup> source DDR (model: IC43DR16320D-25DBL, Manufacturer: Integrated Silicon Solution Inc.)

**For 2.4GHz Band**

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	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	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	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	N/A	N/A

**Antenna List**

Antenna	Manufacturer	Model No.	Peak Gain
PIFA Antenna	Suzhou Walsin Technology Electronics Co.,Ltd	Z_2.4/5G_R_R4; Z_2.4/5G_L_R4	2.4GHz band: 3.5dBi 5GHz Band: 2dBi

. Power Parameter Value of the test software

Test Mode	Test Channel	Ant1	Ant2	MIMO MODE(Ant1+2)
802.11b	2412	7	7	x
	2437	18	18	x
	2462	9	9	x
802.11g	2412	12	12	x
	2437	16	16	x
	2462	13	13	x
802.11n(20MHz)	2412	12	12	x
	2437	15	15	x
	2462	13	13	x
802.11n(40MHz)	2422	13	13	x
	2437	13	13	x
	2452	13	13	x



The test mode of the test software can support.

Test Mode	Test Channel	Ant1	Ant2	MIMO MODE(Ant1+2)
802.11b	2412	√	√	×
	2437	√	√	×
	2462	√	√	×
802.11g	2412	√	√	×
	2437	√	√	×
	2462	√	√	×
802.11n(20MHz)	2412	√	√	×
	2437	√	√	×
	2462	√	√	×
802.11n(40MHz)	2422	√	√	×
	2437	√	√	×
	2452	√	√	×

Duty Cycle

2.4GHz Band

Test Mode	Duty Cycle
802.11b	99.4%
802.11g	98.1%
802.11n(20MHz)	97.6%
802.11n(40MHz)	96.7%

## 1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n(20MHz)
Mode 4: Transmit by 802.11n(40MHz)

Note:

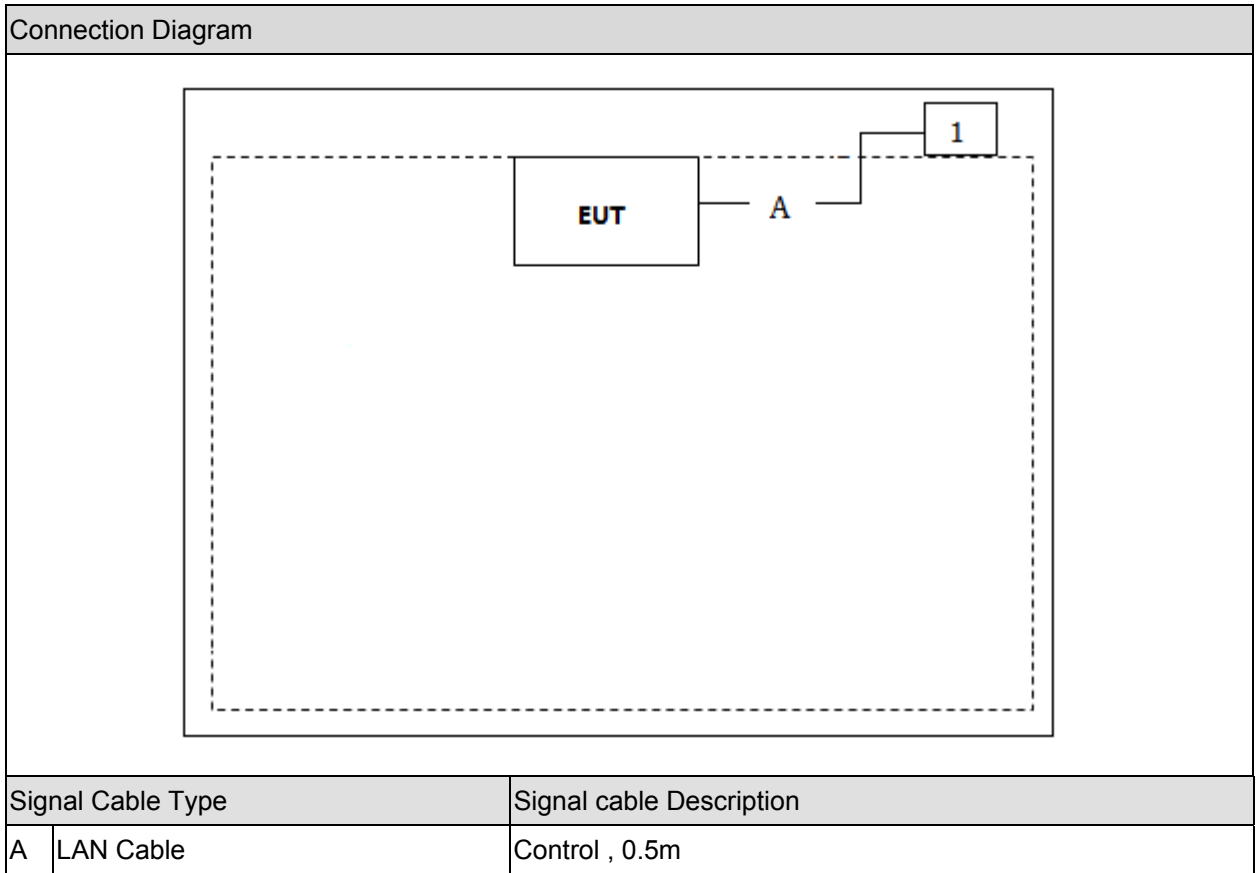
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

### 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Asus	N80V	8BN0AS226971468	N/A

### 1.4. Configuration of Tested System



### 1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Input the RF commands, and set the test mode and channel, then press OK to start continue Transmit or receive.

## 2. Technical Test

### 2.1. Summary of Test Result

- No deviations from the test standards  
 Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	Yes	No

For IC

Performed Test Item	Normative References	Test Performed	Deviation
Radiated Emission	RSS-247 Issue 1 May 2015 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 4 November 2014 Section 8.10	Yes	No
Power Output	RSS-247 Issue 1 May 2015 Section 5.4	Yes	No

## 2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000



### 3. Radiated Emission

#### 3.1. Test Equipment

##### Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2016.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2016.01.08

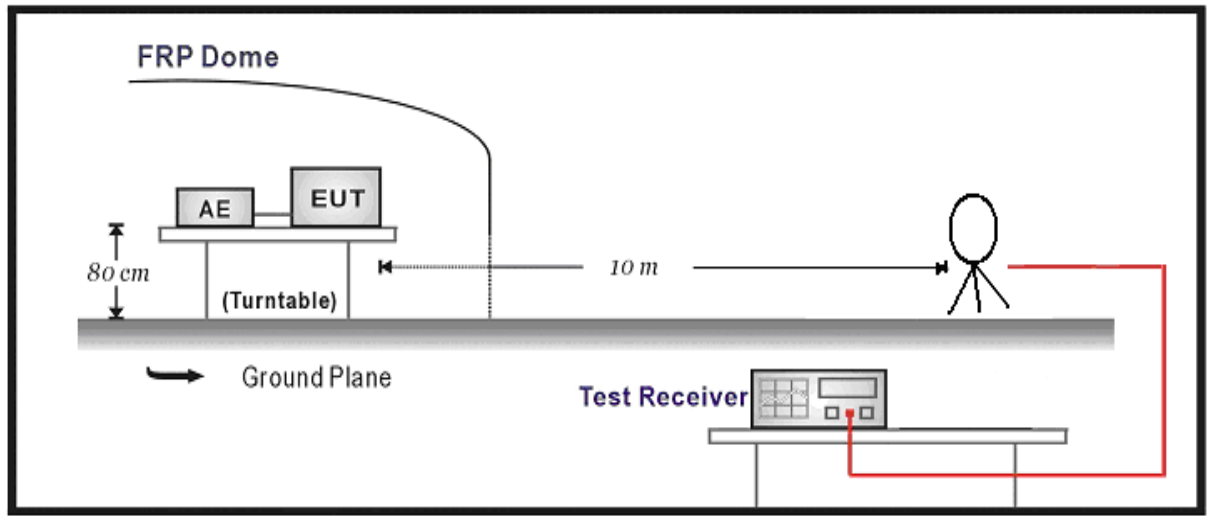
##### Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2016.03.28
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.05
Preamplifier	Quietek	AP-040G	CHM-0906001	2016.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.08

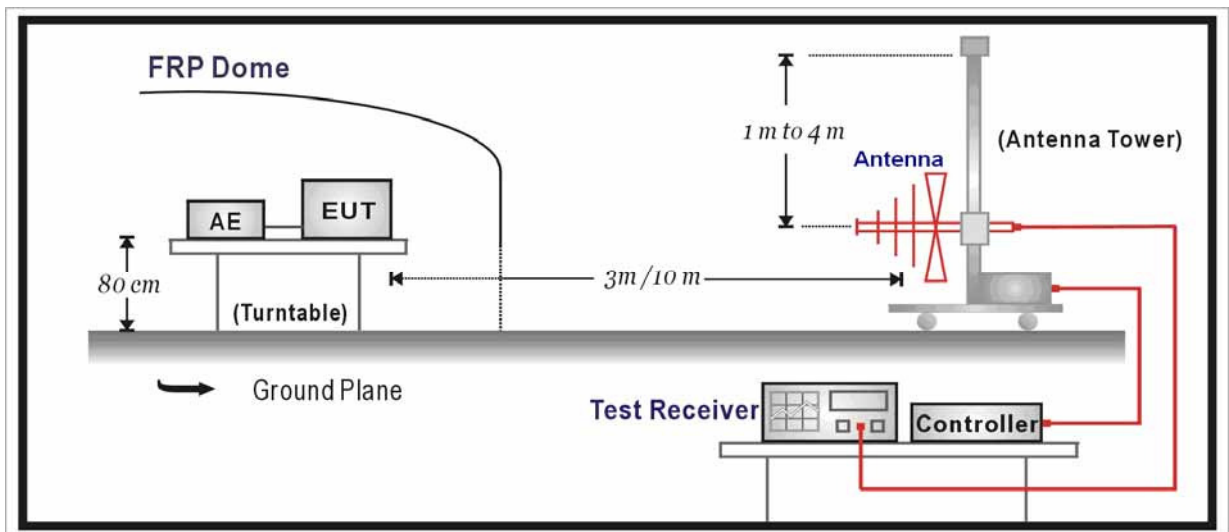
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 3.2. Test Setup

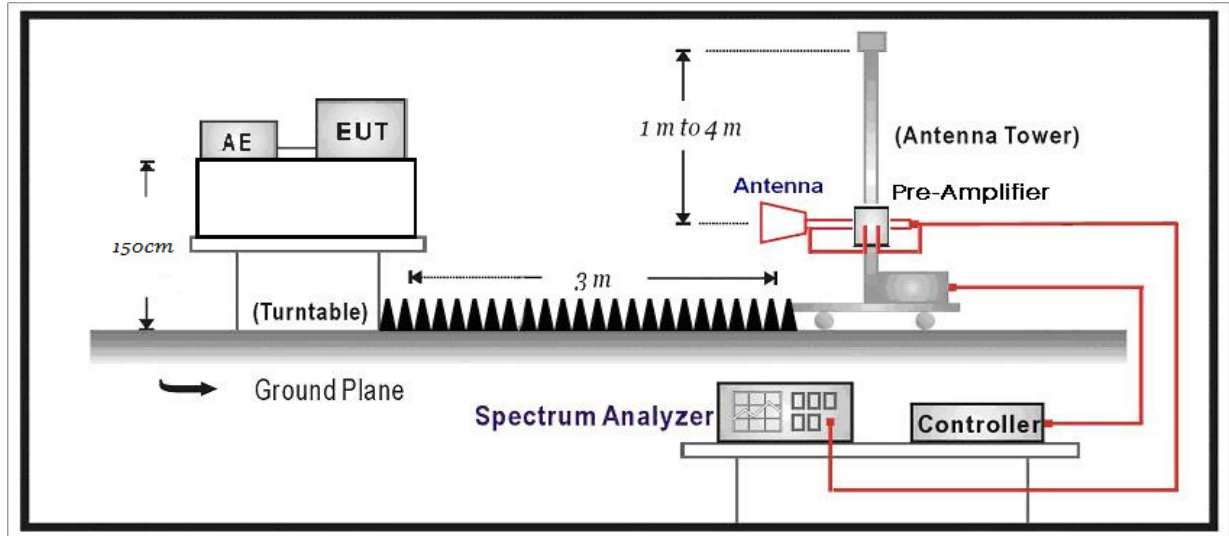
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



**3.3. Limit**

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument Antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

**3.4. Test Procedure**

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r03& ndustry Canada RSS-Gen Issue 4& RSS-247 Issue 1

FCC&IC

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from Antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the Antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2014 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn Antenna will be bended down a little (as horn Antenna has the narrow beamwidth) in order to keeping the Antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

### **3.5. Uncertainty**

The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB

below 1G is defined as  $\pm 3.8$  dB

### 3.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Mode1: Transmit by 802.11b-Ant0

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4825.0	33.5	7.6	41.1	54(note3)	-12.9	PK
	V	4825.0	36.4	7.6	44.0	54(note3)	-10.0	PK
	H	7236.0	26.5	12.6	39.1	54(note3)	-14.9	PK
	V	7236.0	27.3	12.6	39.9	54(note3)	-14.1	PK
	H	9648.0	24.5	14.9	39.4	54(note3)	-14.6	PK
	V	9648.0	25.0	14.9	39.9	54(note3)	-14.1	PK
6	H	4876.0	34.8	7.7	42.5	54(note3)	-11.5	PK
	V	4876.0	37.3	7.7	45.0	54(note3)	-9.0	PK
	H	7311.0	26.3	12.4	38.7	54(note3)	-15.3	PK
	V	7311.0	26.8	12.4	39.2	54(note3)	-14.8	PK
	H	9748.0	24.8	14.9	39.7	54(note3)	-14.3	PK
	V	9748.0	25.0	14.9	39.9	54(note3)	-14.1	PK
11	H	4927.0	35.5	7.9	43.4	54(note3)	-10.6	PK
	V	4927.0	36.2	7.9	44.1	54(note3)	-9.9	PK
	H	7386.0	25.7	12.3	38.0	54(note3)	-16.0	PK
	V	7386.0	26.3	12.3	38.6	54(note3)	-15.4	PK
	H	9848.0	25.1	15.3	40.4	54(note3)	-13.6	PK
	V	9848.0	25.4	15.3	40.7	54(note3)	-13.3	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## Mode2: Transmit by 802.11g-Ant0

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4825.0	41.5	7.6	49.1	54(note3)	-4.9	PK
	V	4825.0	44.7	7.6	52.3	54(note3)	-1.7	PK
	H	7236.0	26.5	12.6	39.1	54(note3)	-14.9	PK
	V	7236.0	26.6	12.6	39.2	54(note3)	-14.8	PK
	H	9648.0	24.3	14.9	39.2	54(note3)	-14.8	PK
	V	9648.0	24.5	14.9	39.4	54(note3)	-14.6	PK
6	H	4867.5	39.3	7.6	46.9	54(note3)	-7.1	PK
	V	4876.0	43.4	7.7	51.1	54(note3)	-2.9	PK
	H	7311.0	25.4	12.4	37.8	54(note3)	-16.2	PK
	V	7311.0	26.2	12.4	38.6	54(note3)	-15.4	PK
	H	9748.0	25.7	14.9	40.6	54(note3)	-13.4	PK
	V	9748.0	25.9	14.9	40.8	54(note3)	-13.2	PK
11	H	4924.0	35.7	7.9	43.6	54(note3)	-10.4	PK
	V	4924.0	38.2	7.9	46.1	54(note3)	-7.9	PK
	H	7386.0	26.3	12.3	38.6	54(note3)	-15.4	PK
	V	7386.0	27.4	12.3	39.7	54(note3)	-14.3	PK
	H	9848.0	26.0	15.3	41.3	54(note3)	-12.7	PK
	V	9848.0	25.9	15.3	41.2	54(note3)	-12.8	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## Mode3: Transmit by 802.11n(20MHz)-Ant0

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	26.1	7.6	33.7	54	-20.3	AV
	H	4833.5	44.3	7.8	52.1	74	-21.9	PK
	V	4824.9	34.3	7.6	41.9	54	-12.1	AV
	V	4833.5	47.5	7.8	55.3	74	-18.7	PK
	H	7236.0	26.3	12.6	38.9	54(note3)	-15.1	PK
	V	7236.0	26.2	12.6	38.8	54(note3)	-15.2	PK
	H	9648.0	24.5	14.9	39.4	54(note3)	-14.6	PK
	V	9648.0	25.6	14.9	40.5	54(note3)	-13.5	PK
6	H	4873.9	41.4	7.7	49.1	54	-4.9	AV
	H	4876.0	46.7	7.7	54.4	74	-19.6	PK
	V	4873.9	37.3	7.7	45.0	54	-9.0	AV
	V	4876.0	50.6	7.7	58.3	74	-15.7	PK
	H	7311.0	26.5	12.4	38.9	54(note3)	-15.1	PK
	V	7311.0	26.7	12.4	39.1	54(note3)	-14.9	PK
	H	9748.0	25.6	14.9	40.5	54(note3)	-13.5	PK
	V	9748.0	27.1	14.9	42.0	54(note3)	-12.0	PK
11	H	4917.6	34.2	7.9	42.1	54	-11.9	AV
	H	4918.5	47.5	7.9	55.4	74	-18.6	PK
	V	4917.7	34.7	7.9	42.6	54	-11.4	AV
	V	4918.5	47.1	7.9	55.0	74	-19.0	PK
	H	7386.0	26.7	12.3	39.0	54(note3)	-15.0	PK
	V	7386.0	26.1	12.3	38.4	54(note3)	-15.6	PK
	H	9848.0	24.5	15.3	39.8	54(note3)	-14.2	PK
	V	9848.0	25.4	15.3	40.7	54(note3)	-13.3	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## Mode4: Transmit by 802.11n(40MHz)-Ant0

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	H	4842.0	41.1	7.9	49.0	54(note3)	-5.0	PK
	V	4833.5	43.0	7.8	50.8	54(note3)	-3.2	PK
	H	7266.0	27.3	12.4	39.7	54(note3)	-14.3	PK
	V	7266.0	27.7	12.4	40.1	54(note3)	-13.9	PK
	H	9688.0	24.3	14.7	39.0	54(note3)	-15.0	PK
	V	9688.0	24.7	14.7	39.4	54(note3)	-14.6	PK
6	H	4876.0	40.1	7.7	47.8	54(note3)	-6.2	PK
	V	4867.5	42.6	7.6	50.2	54(note3)	-3.8	PK
	H	7311.0	26.1	12.4	38.5	54(note3)	-15.5	PK
	V	7311.0	26.2	12.4	38.6	54(note3)	-15.4	PK
	H	9748.0	25.9	14.9	40.8	54(note3)	-13.2	PK
	V	9748.0	25.8	14.9	40.7	54(note3)	-13.3	PK
9	H	4910.0	38.9	7.9	46.8	54(note3)	-7.2	PK
	V	4893.0	40.6	8.0	48.6	54(note3)	-5.4	PK
	H	7536.0	26.6	13.2	39.8	54(note3)	-14.2	PK
	V	7356.0	26.5	13.0	39.5	54(note3)	-14.5	PK
	H	9808.0	25.4	15.0	40.4	54(note3)	-13.6	PK
	V	9808.0	24.8	15.0	39.8	54(note3)	-14.2	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.



Mode1: Transmit by 802.11b-Ant1

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	33.3	7.6	40.9	54(note3)	-13.1	PK
	V	4824.0	36.6	7.6	44.2	54(note3)	-9.8	PK
	H	7236.0	26.7	12.6	39.3	54(note3)	-14.7	PK
	V	7236.0	27.7	12.6	40.3	54(note3)	-13.7	PK
	H	9648.0	25.1	14.9	40.0	54(note3)	-14.0	PK
	V	9648.0	25.7	14.9	40.6	54(note3)	-13.4	PK
6	H	4874.0	35.5	7.7	43.2	54(note3)	-10.8	PK
	V	4874.0	37.6	7.7	45.3	54(note3)	-8.7	PK
	H	7311.0	27.0	12.4	39.4	54(note3)	-14.6	PK
	V	7311.0	26.8	12.4	39.2	54(note3)	-14.8	PK
	H	9748.0	25.2	14.9	40.1	54(note3)	-13.9	PK
	V	9748.0	25.0	14.9	39.9	54(note3)	-14.1	PK
11	H	4924.0	34.6	7.9	42.5	54(note3)	-11.5	PK
	V	4924.0	36.6	7.9	44.5	54(note3)	-9.5	PK
	H	7386.0	26.2	12.3	38.5	54(note3)	-15.5	PK
	V	7386.0	27.5	12.3	39.8	54(note3)	-14.2	PK
	H	9848.0	25.3	15.3	40.6	54(note3)	-13.4	PK
	V	9848.0	25.3	15.3	40.6	54(note3)	-13.4	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## Mode2: Transmit by 802.11g-Ant1

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	41.4	7.6	49.0	54(note3)	-5.0	PK
	V	4824.0	42.4	7.6	50.0	54(note3)	-4.0	PK
	H	7236.0	26.8	12.6	39.4	54(note3)	-14.6	PK
	V	7236.0	27.3	12.6	39.9	54(note3)	-14.1	PK
	H	9648.0	25.1	14.9	40.0	54(note3)	-14.0	PK
	V	9648.0	24.6	14.9	39.5	54(note3)	-14.5	PK
6	H	4874.0	38.4	7.6	46.0	54(note3)	-8.0	PK
	V	4874.0	43.7	7.7	51.4	54(note3)	-2.6	PK
	H	7311.0	26.2	12.4	38.6	54(note3)	-15.4	PK
	V	7311.0	26.9	12.4	39.3	54(note3)	-14.7	PK
	H	9748.0	26.1	14.9	41.0	54(note3)	-13.0	PK
	V	9748.0	26.4	14.9	41.3	54(note3)	-12.7	PK
11	H	4924.0	35.7	7.9	43.6	54(note3)	-10.4	PK
	V	4924.0	37.2	7.9	45.1	54(note3)	-8.9	PK
	H	7386.0	26.8	12.3	39.1	54(note3)	-14.9	PK
	V	7386.0	28.0	12.3	40.3	54(note3)	-13.7	PK
	H	9848.0	26.4	15.3	41.7	54(note3)	-12.3	PK
	V	9848.0	26.1	15.3	41.4	54(note3)	-12.6	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode3: Transmit by 802.11n(20MHz)-Ant1

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	H	4824.0	37.7	7.8	45.5	54(note3)	-8.5	PK
	V	4824.0	39.8	7.8	47.6	54(note3)	-6.4	PK
	H	7236.0	26.5	12.6	39.1	54(note3)	-14.9	PK
	V	7236.0	27.2	12.6	39.8	54(note3)	-14.2	PK
	H	9648.0	25.2	14.9	40.1	54(note3)	-13.9	PK
	V	9648.0	25.9	14.9	40.8	54(note3)	-13.2	PK
6	H	4874.0	37.2	7.7	44.9	54(note3)	-9.1	PK
	V	4874.0	40.8	7.7	48.5	54(note3)	-5.5	PK
	H	7311.0	26.1	12.4	38.5	54(note3)	-15.5	PK
	V	7311.0	27.3	12.4	39.7	54(note3)	-14.3	PK
	H	9748.0	25.7	14.9	40.6	54(note3)	-13.4	PK
	V	9748.0	27.3	14.9	42.2	54(note3)	-11.8	PK
11	H	4924.0	37.9	7.9	45.8	54(note3)	-8.2	PK
	V	4924.0	37.1	7.9	45.0	54(note3)	-9.0	PK
	H	7386.0	26.9	12.3	39.2	54(note3)	-14.8	PK
	V	7386.0	26.4	12.3	38.7	54(note3)	-15.3	PK
	H	9848.0	25.7	15.3	41.0	54(note3)	-13.0	PK
	V	9848.0	26.1	15.3	41.4	54(note3)	-12.6	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

## Mode4: Transmit by 802.11n(40MHz)-Ant1

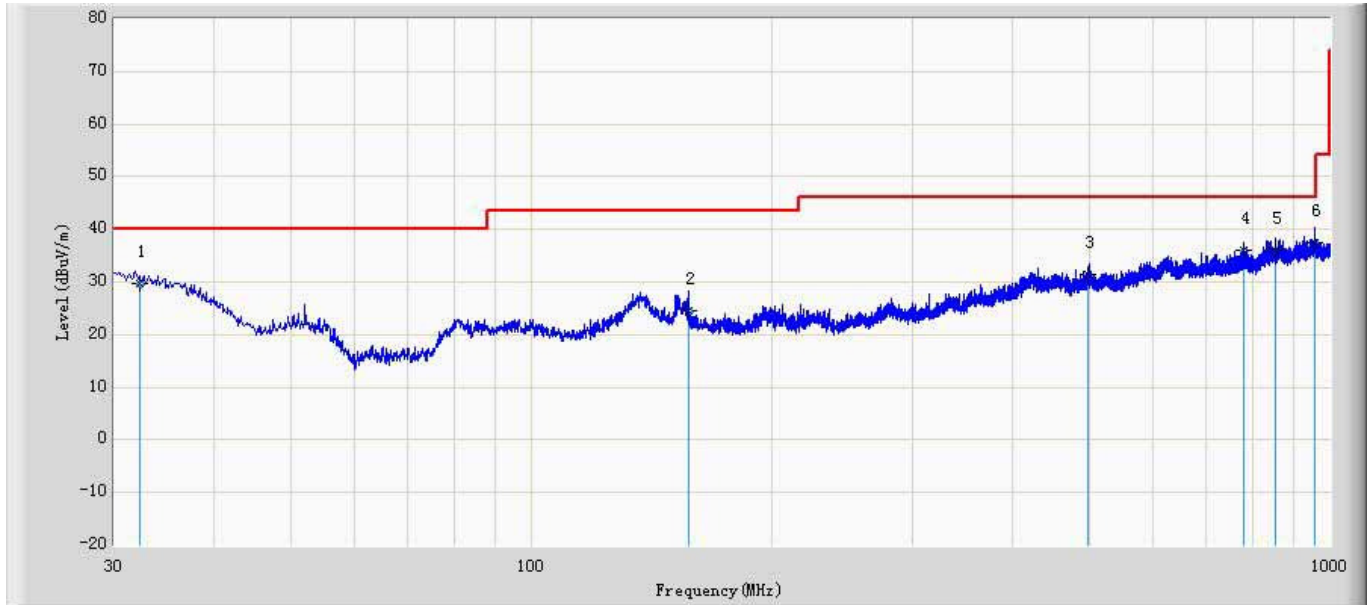
CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	H	4842.0	42.0	7.9	49.9	54(note3)	-4.1	PK
	V	4833.5	42.8	7.8	50.6	54(note3)	-3.4	PK
	H	7266.0	27.4	12.4	39.8	54(note3)	-14.2	PK
	V	7266.0	27.4	12.4	39.8	54(note3)	-14.2	PK
	H	9688.0	24.2	14.7	38.9	54(note3)	-15.1	PK
	V	9688.0	24.9	14.7	39.6	54(note3)	-14.4	PK
6	H	4876.0	39.9	7.7	47.6	54(note3)	-6.4	PK
	V	4867.5	42.5	7.6	50.1	54(note3)	-3.9	PK
	H	7311.0	25.5	12.4	37.9	54(note3)	-16.1	PK
	V	7311.0	26.1	12.4	38.5	54(note3)	-15.5	PK
	H	9748.0	26.7	14.9	41.6	54(note3)	-12.4	PK
	V	9748.0	26.3	14.9	41.2	54(note3)	-12.8	PK
9	H	4910.0	39.8	7.9	47.7	54(note3)	-6.3	PK
	V	4893.0	40.6	8.0	48.6	54(note3)	-5.4	PK
	H	7536.0	27.3	13.2	40.5	54(note3)	-13.5	PK
	V	7356.0	26.6	13.0	39.6	54(note3)	-14.4	PK
	H	9808.0	24.6	15.0	39.6	54(note3)	-14.4	PK
	V	9808.0	25.2	15.0	40.2	54(note3)	-13.8	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

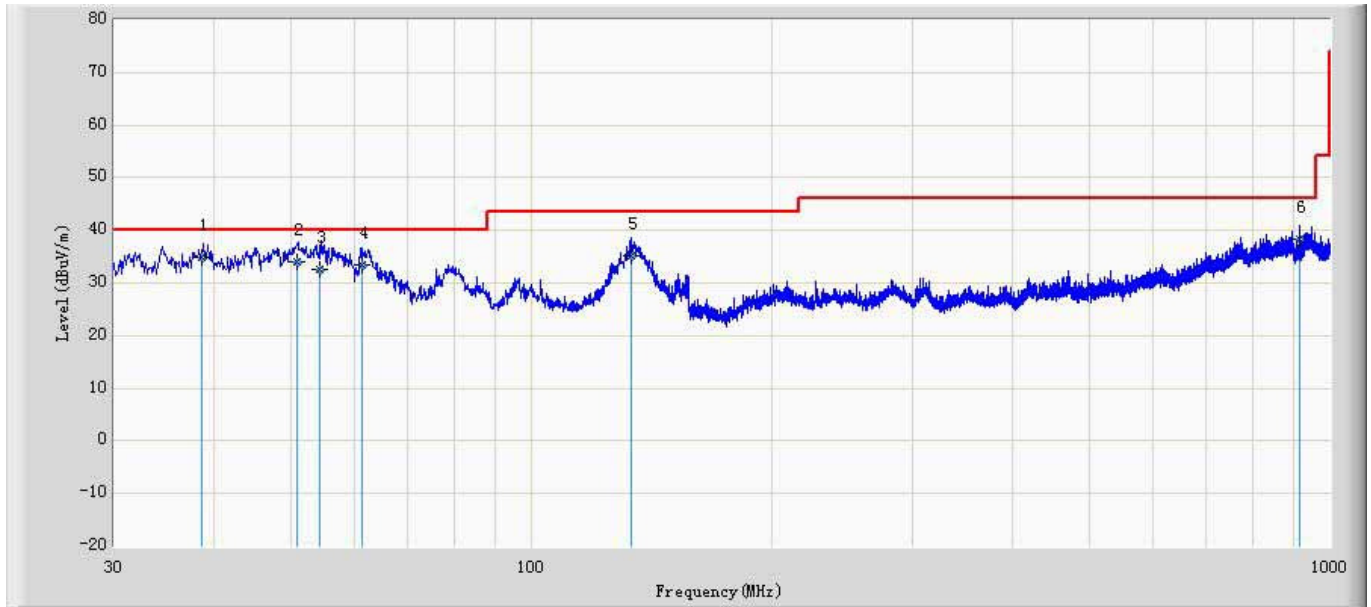
**The worst case of Radiated Emission below 1GHz:**

Engineer: Scott	
Site: AC2	Time: 2015/12/15 - 09:57
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC2_10M(30-1000M)20150408	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		32.250	29.781	34.786	-10.219	40.000	-5.005	QP
2		157.250	24.584	36.179	-18.916	43.500	-11.595	QP
3		498.250	31.366	33.934	-14.634	46.000	-2.568	QP
4	*	781.250	35.903	35.338	-10.097	46.000	0.565	QP
5		855.260	35.951	34.868	-10.049	46.000	1.083	QP
6		955.260	37.578	35.526	-8.422	46.000	2.052	QP

Engineer: Scott	
Site: AC2	Time: 2015/12/15 - 09:57
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC2_10M(30-1000M)20150408	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	38.650	34.903	43.670	-5.097	40.000	-8.767	QP
2		50.926	34.067	48.277	-5.933	40.000	-14.210	QP
3		54.250	32.466	47.208	-7.534	40.000	-14.742	QP
4		61.250	33.576	49.299	-6.424	40.000	-15.723	QP
5		133.250	35.051	45.221	-8.449	43.500	-10.170	QP
6		917.250	38.466	37.121	-7.534	46.000	1.345	QP

## 4. Radiated Emission Band Edge

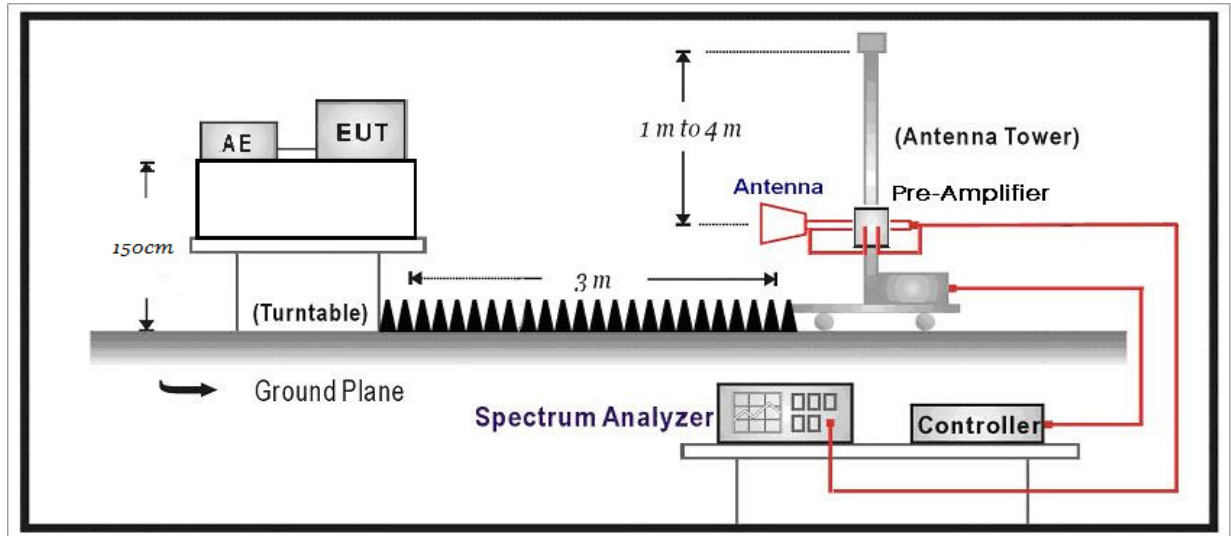
### 4.1. Test Equipment

Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03
Preamplifier	Quietek	AP-040G	CHM-0906001	2016.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2016.10.15
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.08

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

## 4.2. Test Setup



## 4.3. Limit

FCC&IC

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) (see Section 15.205(c)).

## 4.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013 & FCC 47CFR 15.247 & KDB 558074 D01v03r03 & Industry Canada RSS-Gen Issue 4 & RSS-247 Issue 1

This test is required for any spurious emission or modulation product that falls in a Restricted Band, as defined in Section 15.205 of FCC part 15. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a



high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b) of FCC part 15.

Now set the VBW  $\geq 1 / T$  (the minimum transmission duration), while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209 of FCC Part 15.

If the emission on which a radiated measurement must be made is located at the edge of the authorized band of operation, then the alternative “marker-Wi-Fi Module” method may be employed.

#### **4.5. Uncertainty**

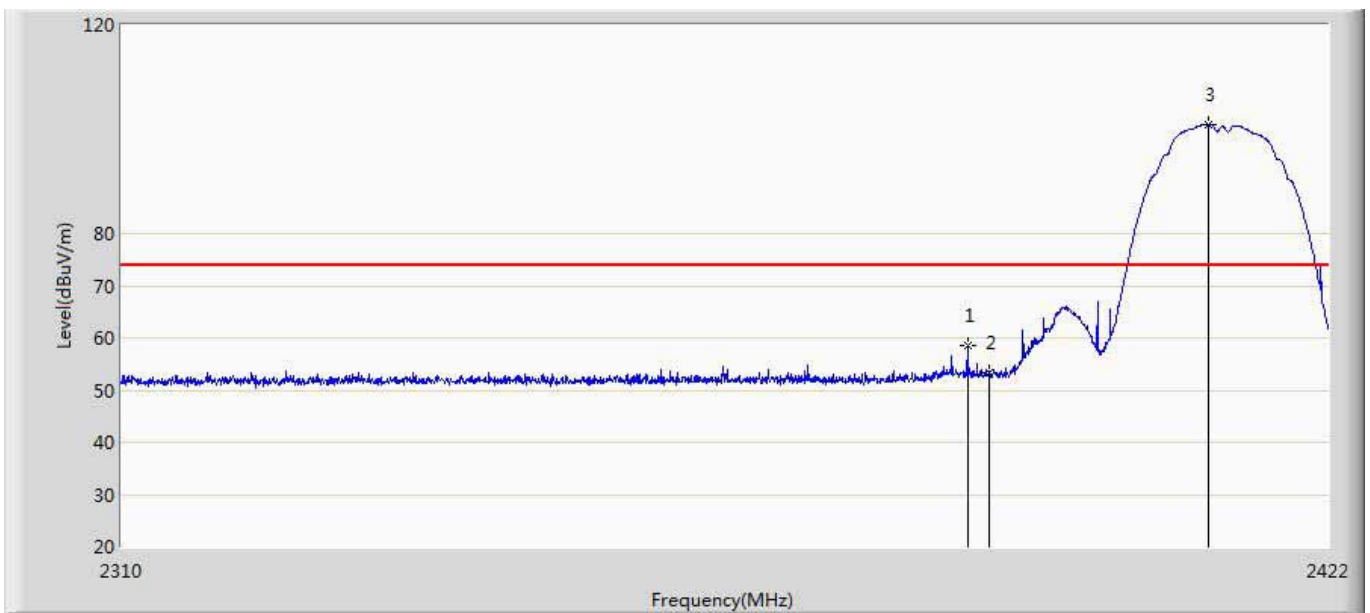
The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB

### 4.6. Test Result

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

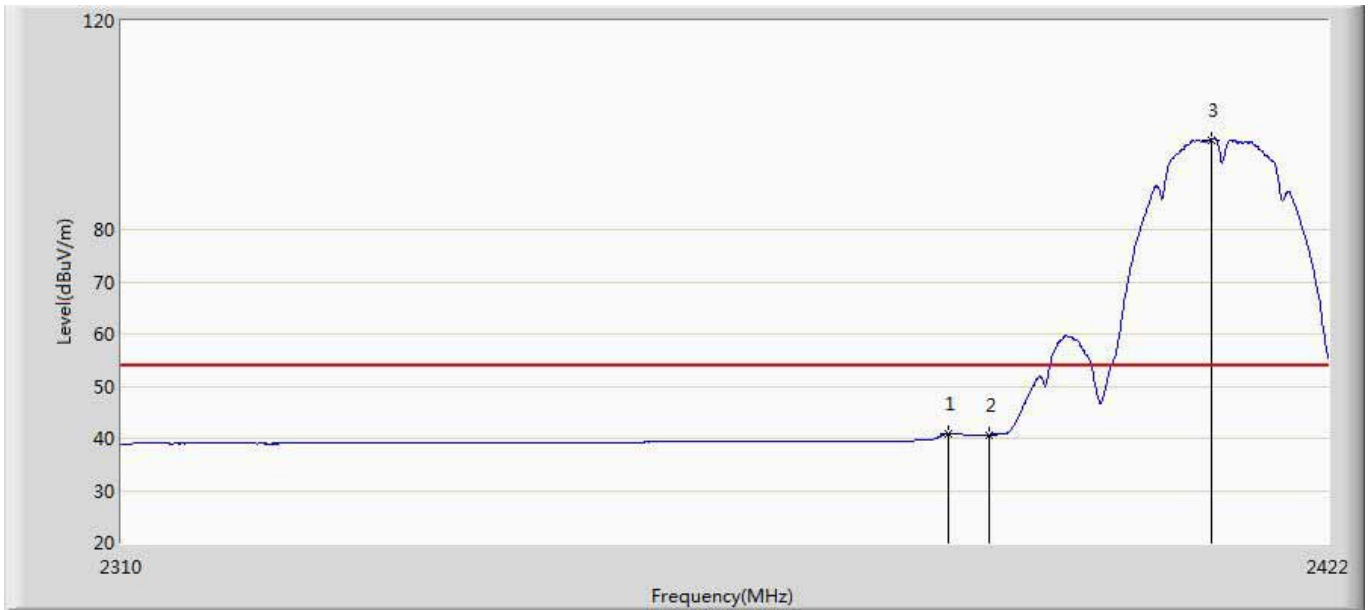
Note: when the duty cycle is less than 98%, a duty cycle factor is calculated in the correction factor.

Site: AC5	Time: 2015/12/15 - 17:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant0	



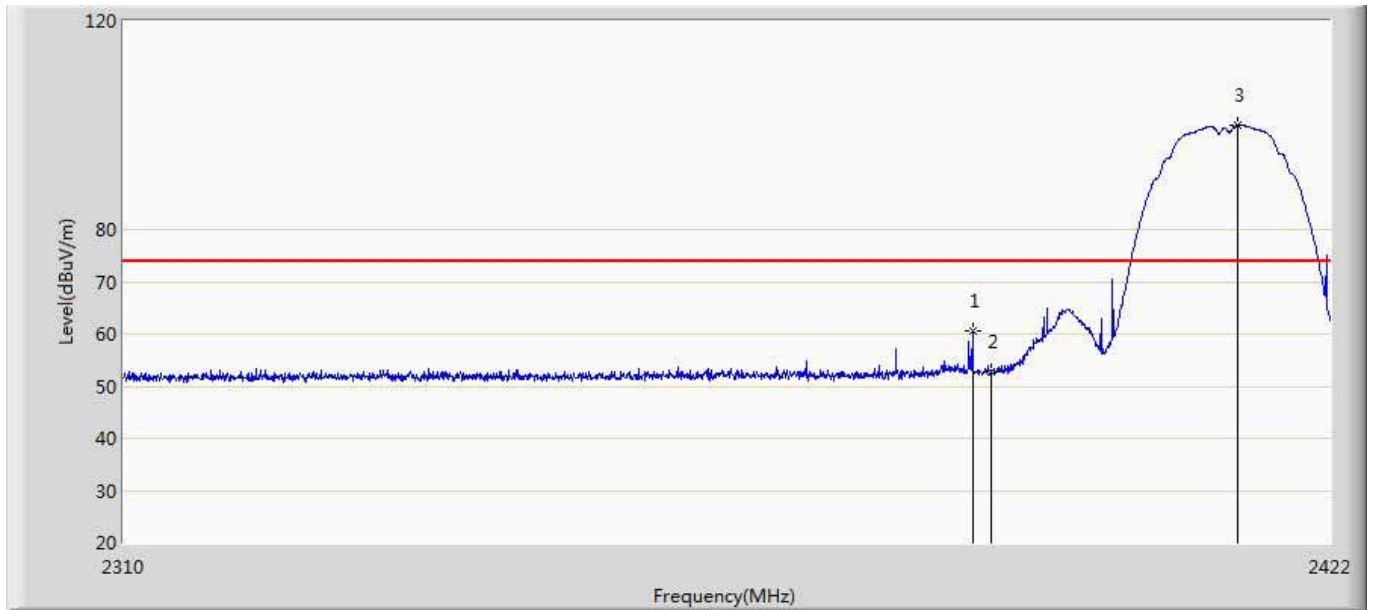
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.008	58.546	21.190	-15.454	74.000	37.356	PK
2		2390.000	53.309	15.954	-20.691	74.000	37.355	PK
3	*	2410.632	100.974	63.646	26.974	74.000	37.329	PK

Site: AC5	Time: 2015/12/15 - 17:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant0	



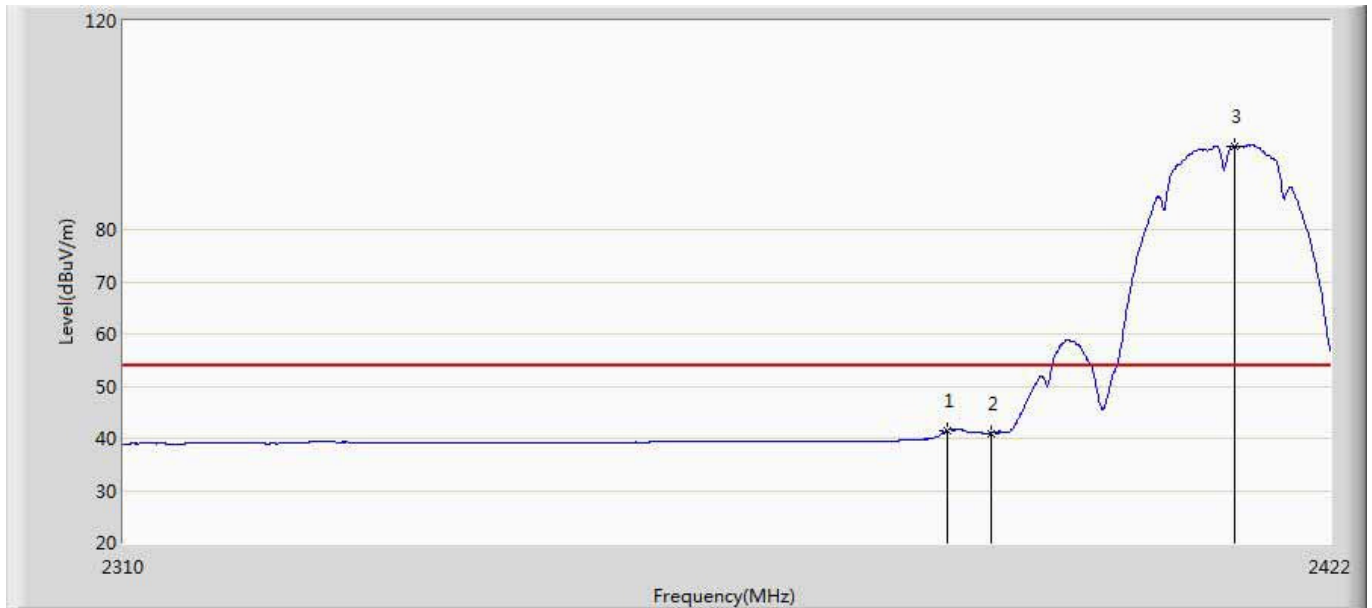
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2386.216	40.963	3.607	-13.037	54.000	37.356	AV
2		2390.000	40.570	3.215	-13.430	54.000	37.355	AV
3	*	2410.968	97.184	59.856	43.184	54.000	37.328	AV

Site: AC5	Time: 2015/12/15 - 17:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant0	



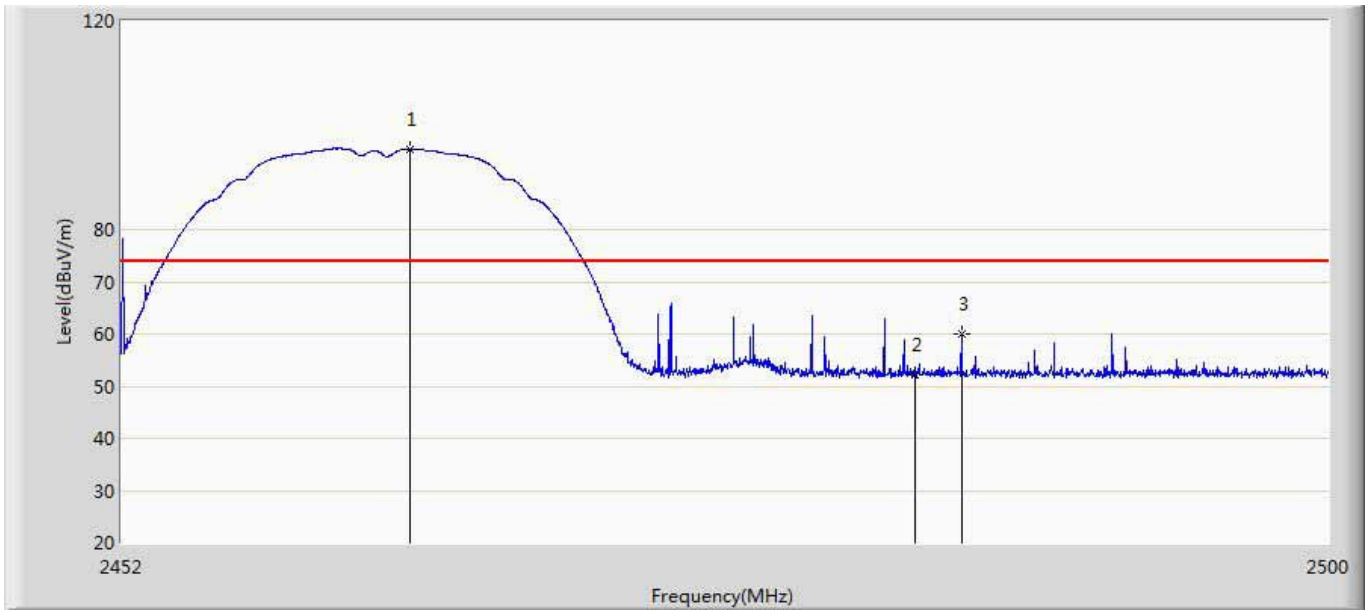
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.288	60.676	23.320	-13.324	74.000	37.356	PK
2		2390.000	52.786	15.431	-21.214	74.000	37.355	PK
3	*	2413.320	100.071	62.728	26.071	74.000	37.343	PK

Site: AC5	Time: 2015/12/15 - 17:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant0	



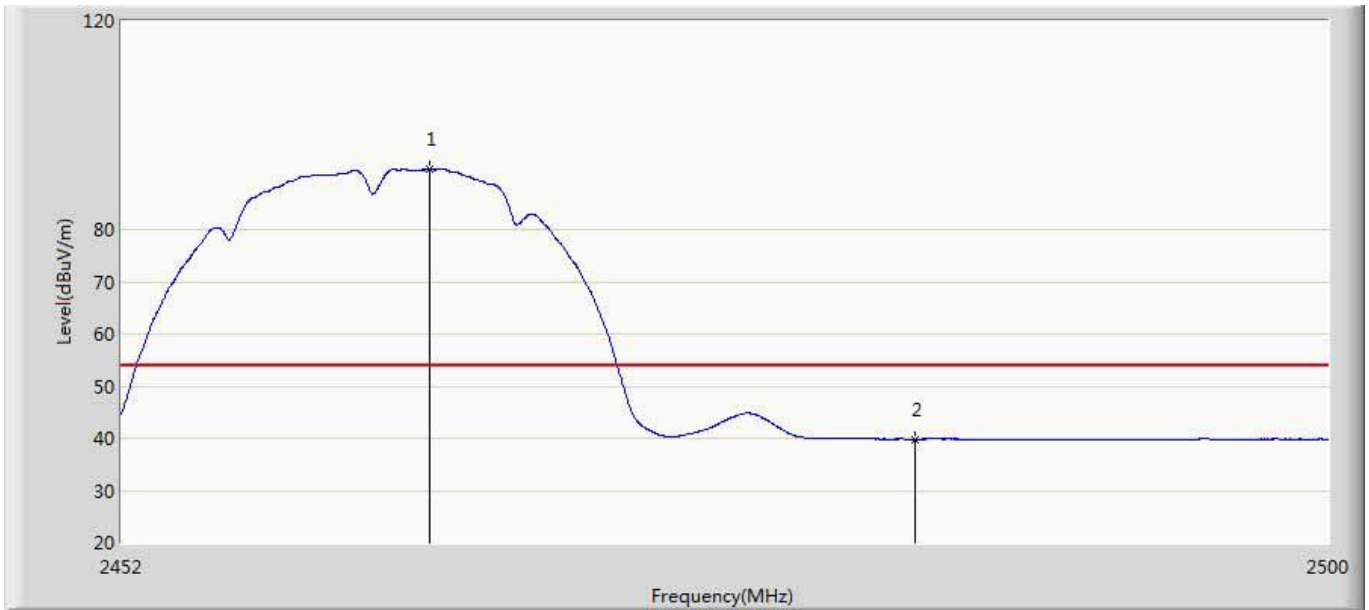
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2385.936	41.585	4.229	-12.415	54.000	37.356	AV
2		2390.000	40.997	3.642	-13.003	54.000	37.355	AV
3	*	2412.984	95.943	58.602	41.943	54.000	37.340	AV

Site: AC5	Time: 2015/12/15 - 17:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant0	



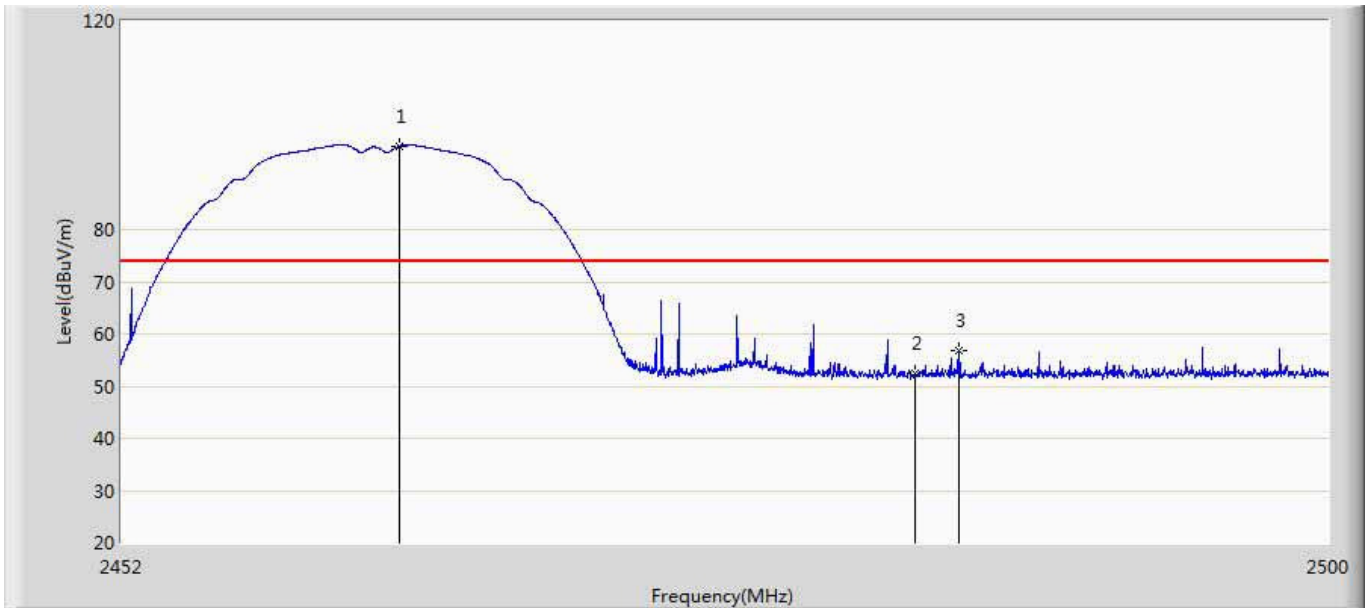
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.376	95.425	58.000	21.425	74.000	37.425	PK
2		2483.500	52.154	14.643	-21.846	74.000	37.511	PK
3		2485.336	60.044	22.519	-13.956	74.000	37.524	PK

Site: AC5	Time: 2015/12/15 - 17:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.168	91.591	54.163	37.591	54.000	37.428	AV
2		2483.500	39.813	2.302	-14.187	54.000	37.511	AV

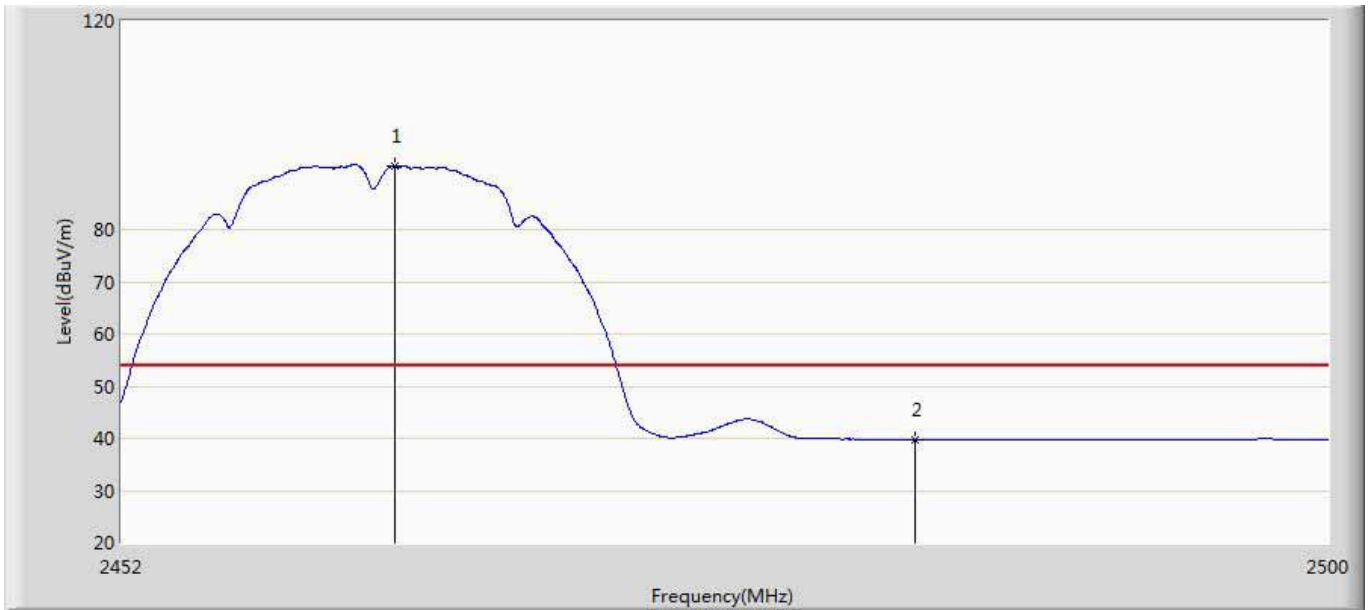
Site: AC5	Time: 2015/12/15 - 18:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.968	95.975	58.551	21.975	74.000	37.424	PK
2		2483.500	52.348	14.837	-21.652	74.000	37.511	PK
3		2485.240	56.850	19.326	-17.150	74.000	37.523	PK

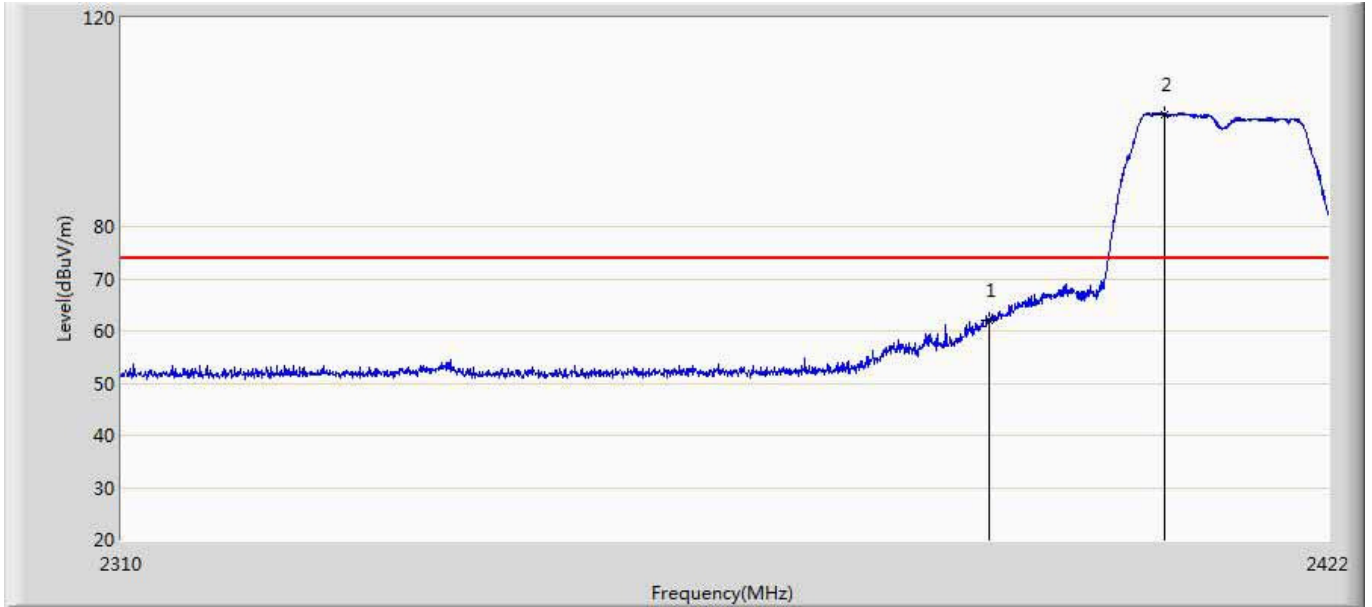


Site: AC5	Time: 2015/12/15 - 18:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant0	



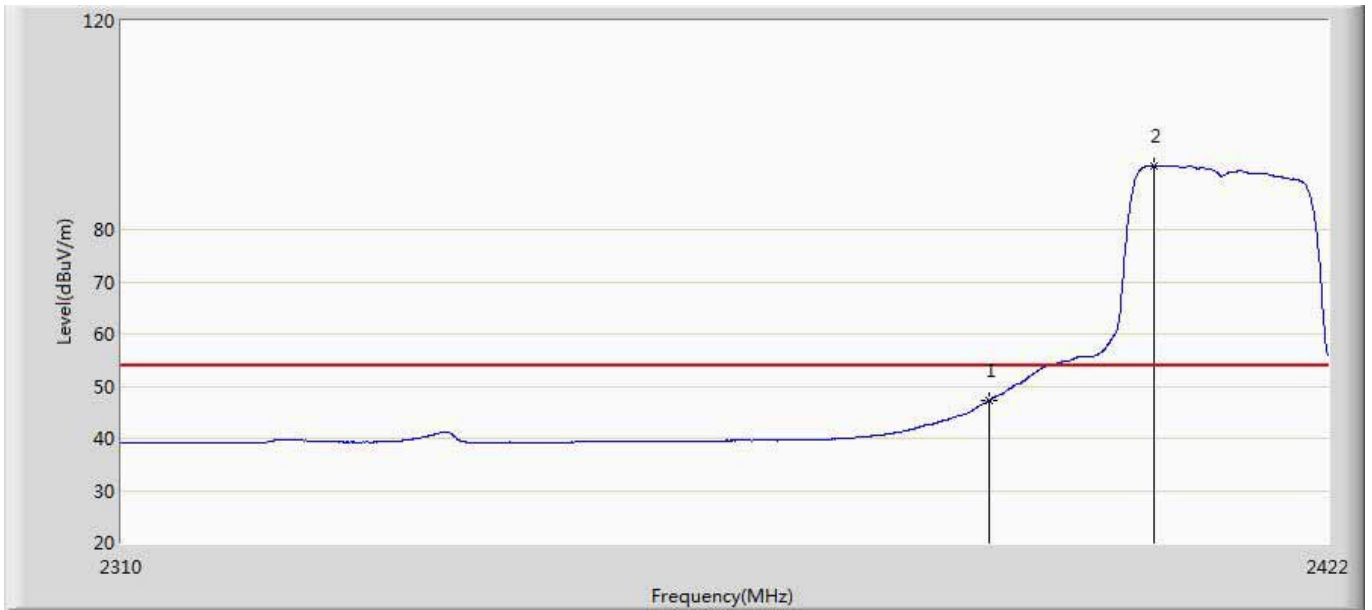
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.776	92.227	54.804	38.227	54.000	37.423	AV
2		2483.500	39.746	2.235	-14.254	54.000	37.511	AV

Site: AC5	Time: 2015/12/15 - 18:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant0	



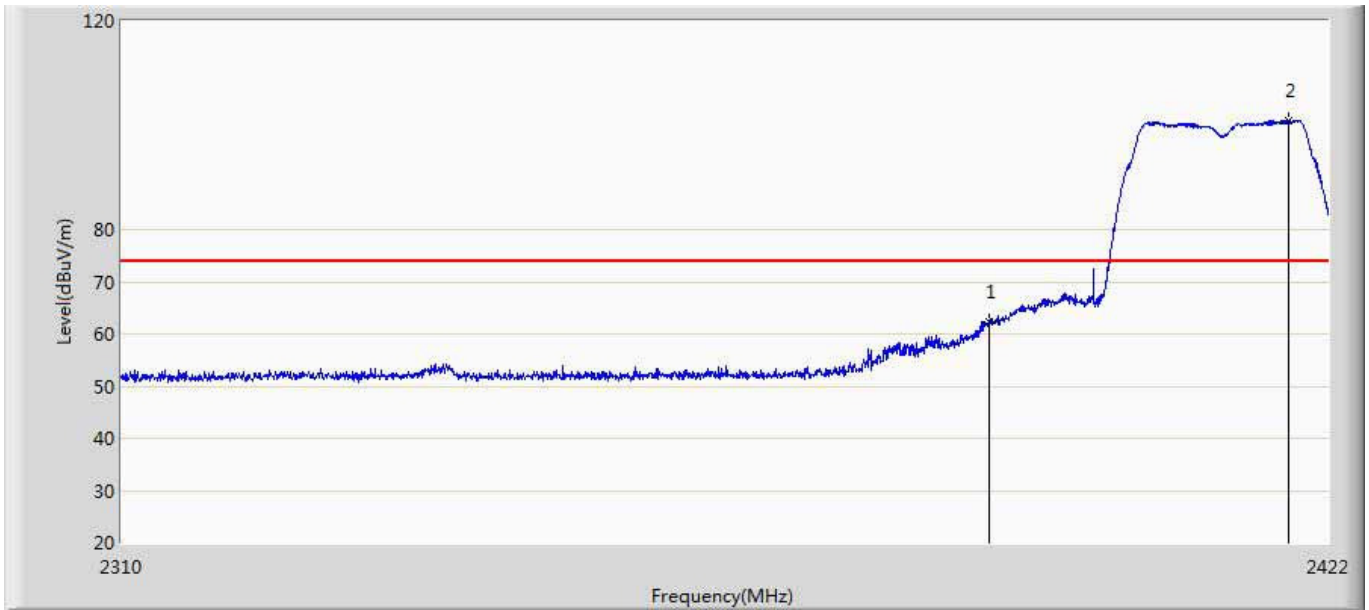
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	62.099	24.744	-11.901	74.000	37.355	PK
2	*	2406.600	101.583	64.249	27.583	74.000	37.335	PK

Site: AC5	Time: 2015/12/15 - 18:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant0	



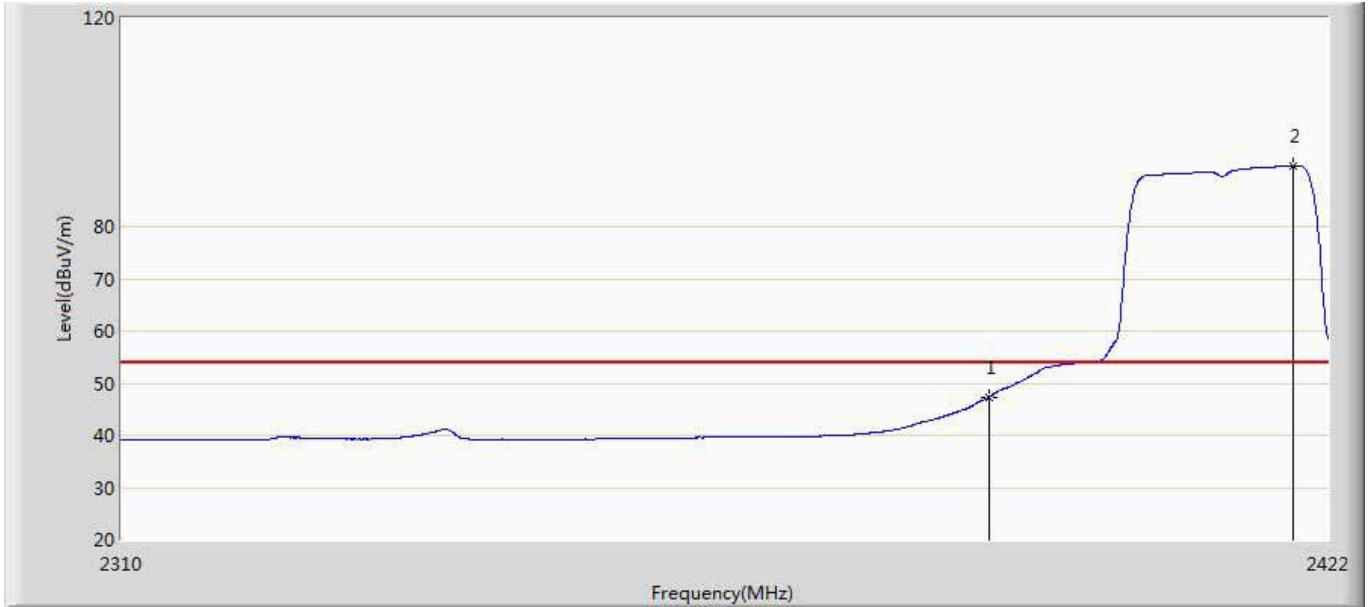
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.199	9.844	-6.801	54.000	37.355	AV
2	*	2405.480	92.212	54.876	38.212	54.000	37.337	AV

Site: AC5	Time: 2015/12/15 - 18:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant0	



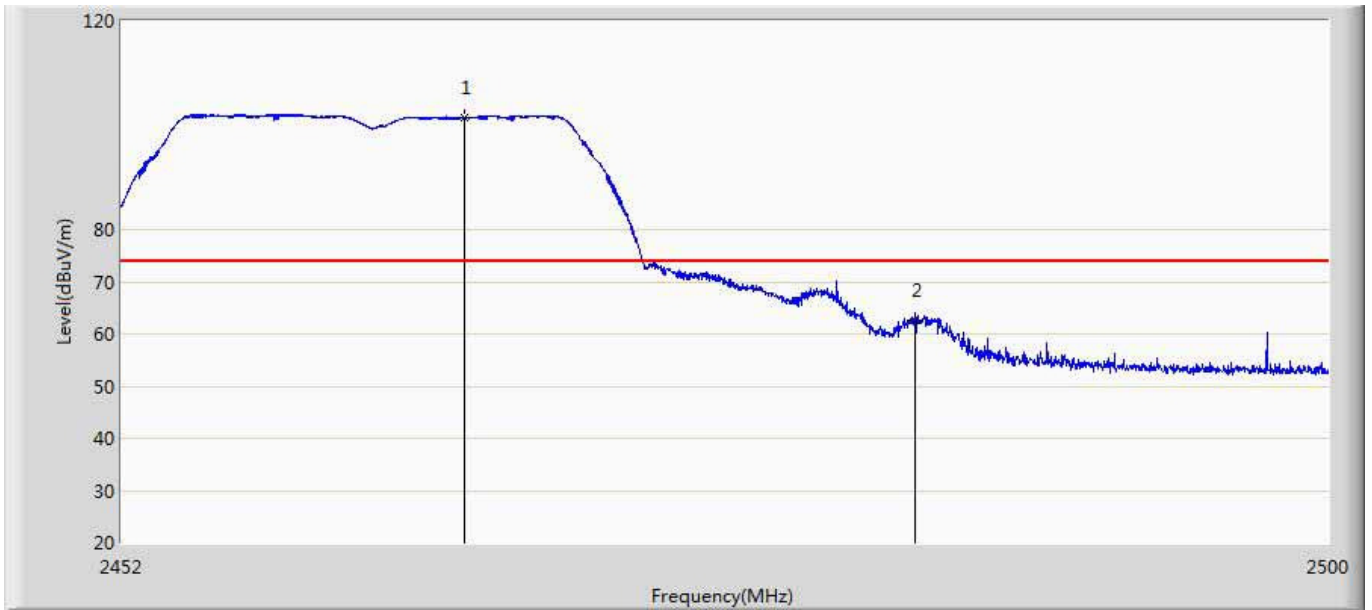
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	62.266	24.911	-11.734	74.000	37.355	PK
2	*	2418.248	100.925	63.549	26.925	74.000	37.376	PK

Site: AC5	Time: 2015/12/15 - 18:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant0	



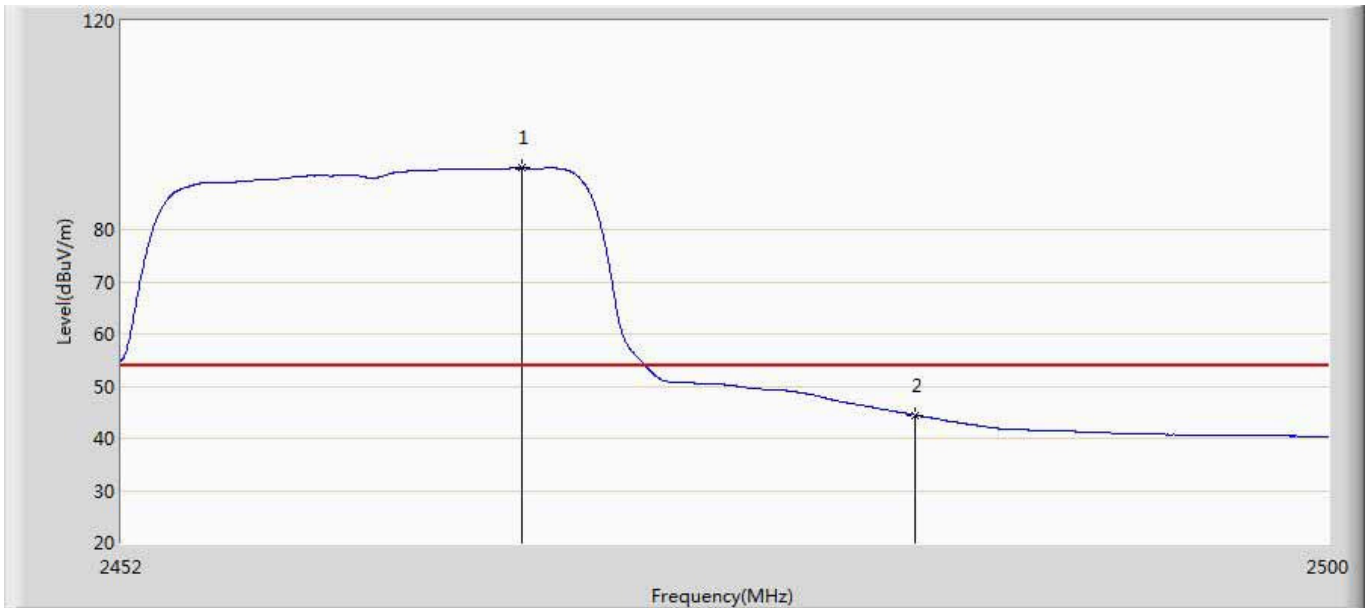
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.315	9.960	-6.685	54.000	37.355	AV
2	*	2418.696	91.686	54.307	37.686	54.000	37.380	AV

Site: AC5	Time: 2015/12/15 - 18:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant0	



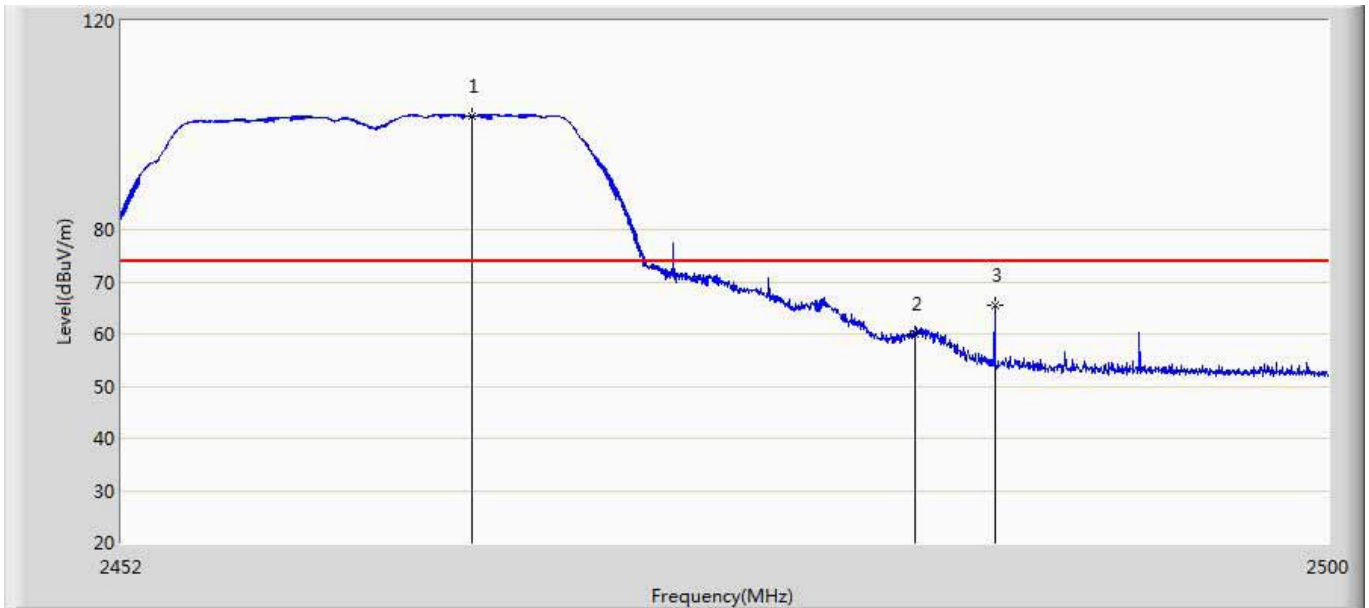
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.584	101.527	64.094	27.527	74.000	37.432	PK
2		2483.500	62.679	25.168	-11.321	74.000	37.511	PK

Site: AC5	Time: 2015/12/15 - 18:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2467.864	91.766	54.325	37.766	54.000	37.440	AV
2		2483.500	44.416	6.905	-9.584	54.000	37.511	AV

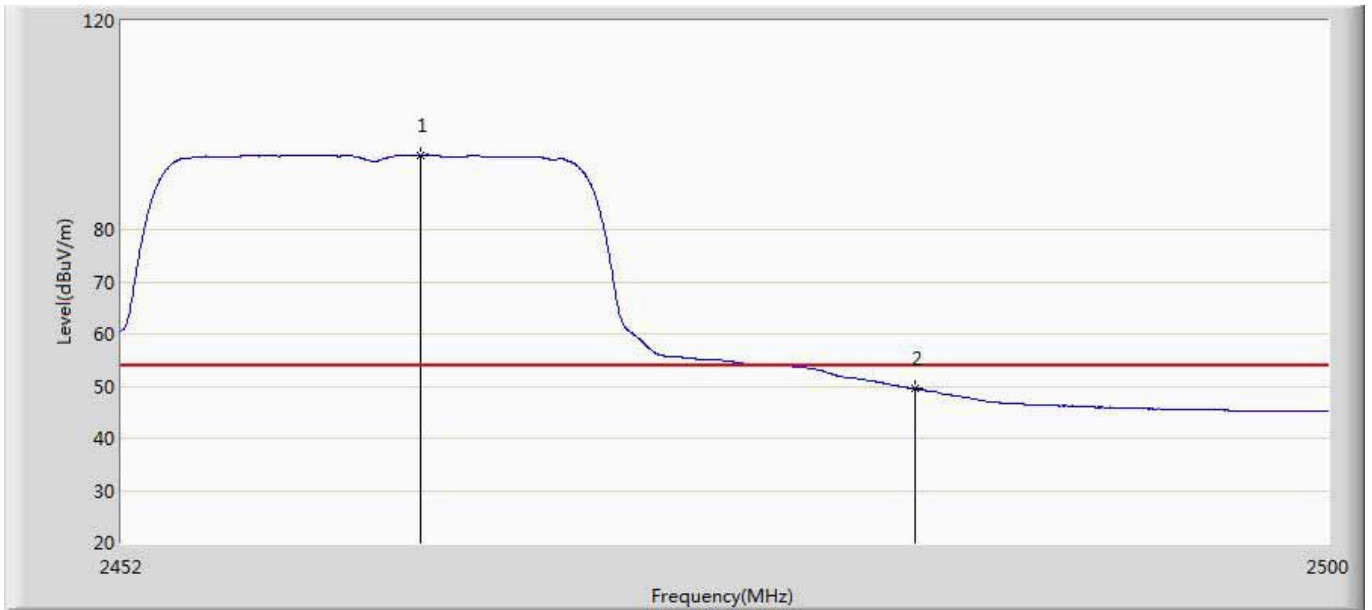
Site: AC5	Time: 2015/12/15 - 18:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.872	101.833	64.399	27.833	74.000	37.434	PK
2		2483.500	60.083	22.572	-13.917	74.000	37.511	PK
3		2486.656	65.439	27.905	-8.561	74.000	37.534	PK

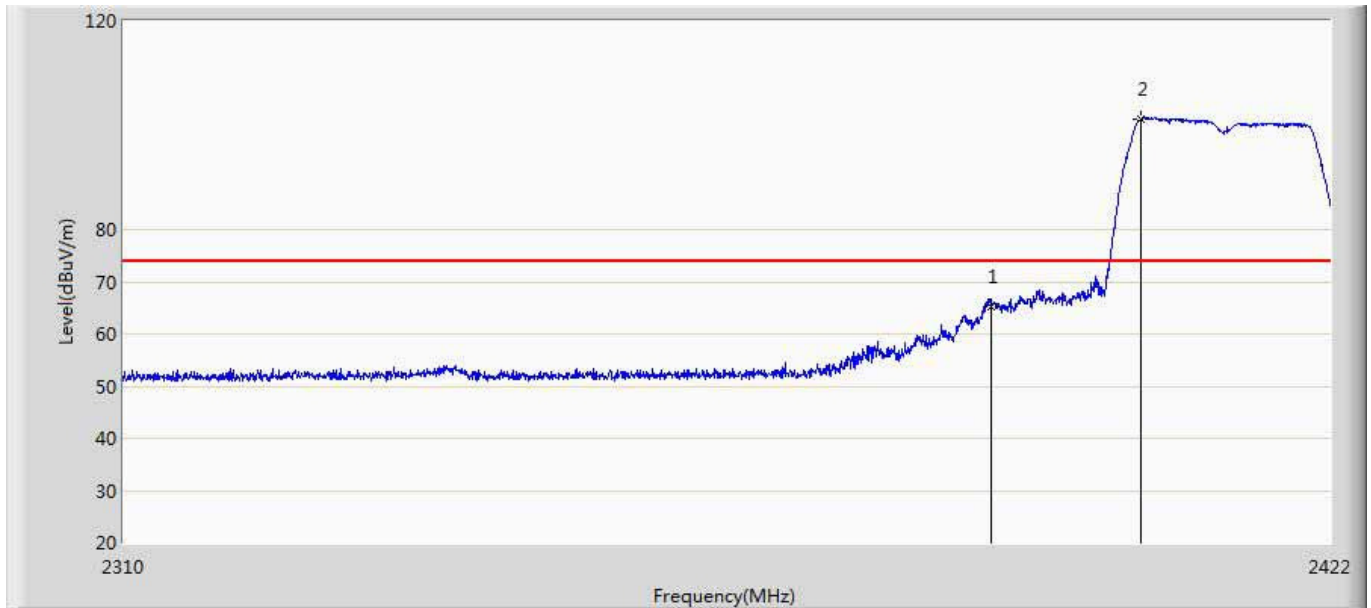


Site: AC5	Time: 2015/12/15 - 18:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant0	



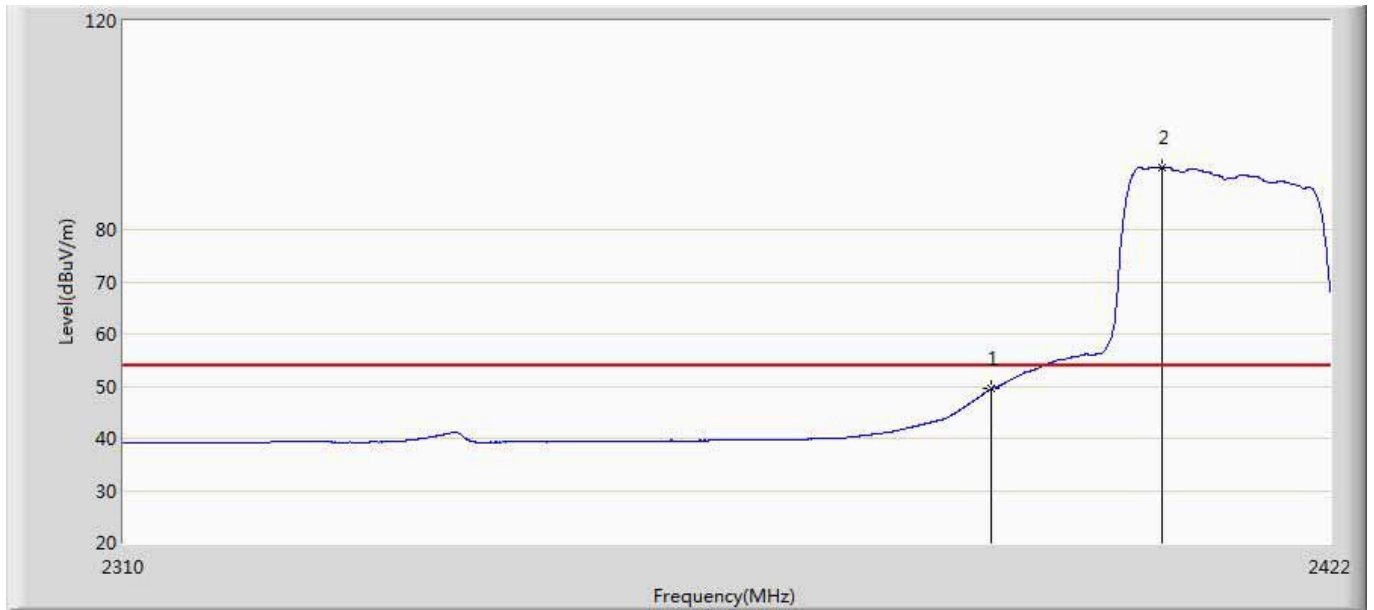
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.920	92.022	54.588	38.022	54.000	37.434	AV
2		2483.500	44.204	6.693	-9.796	54.000	37.511	AV

Site: AC5	Time: 2015/12/15 - 18:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant0	



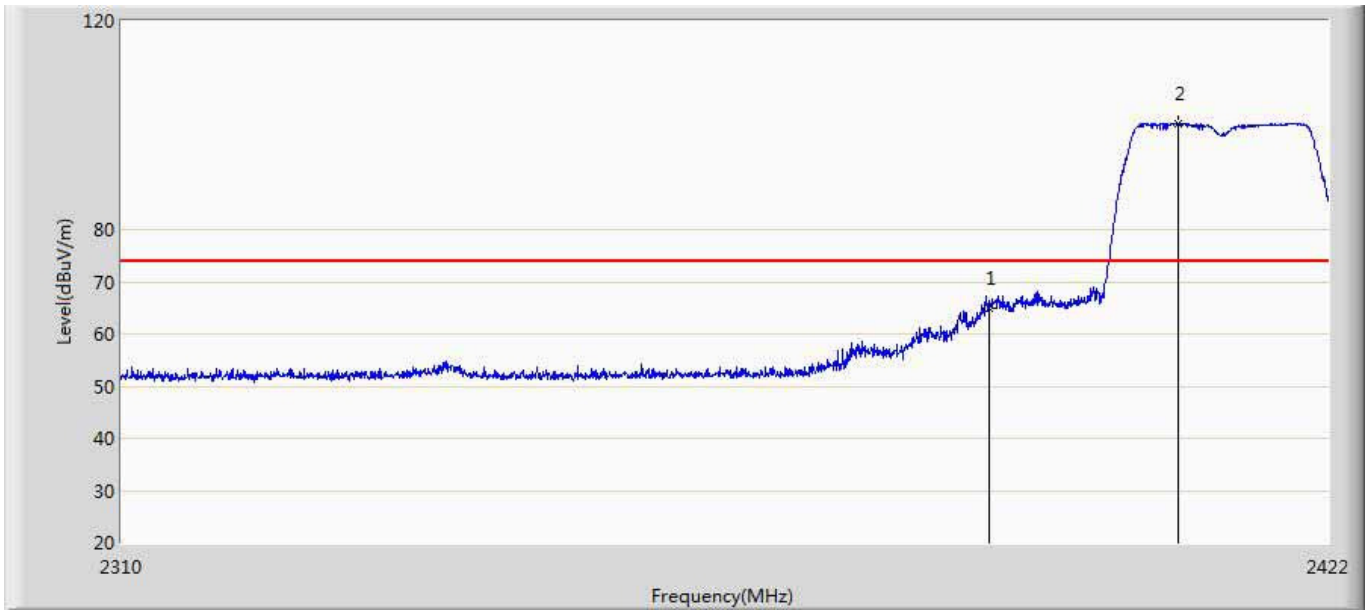
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.251	27.896	-8.749	74.000	37.355	PK
2	*	2404.136	101.229	63.891	27.229	74.000	37.338	PK

Site: AC5	Time: 2015/12/15 - 18:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant0	



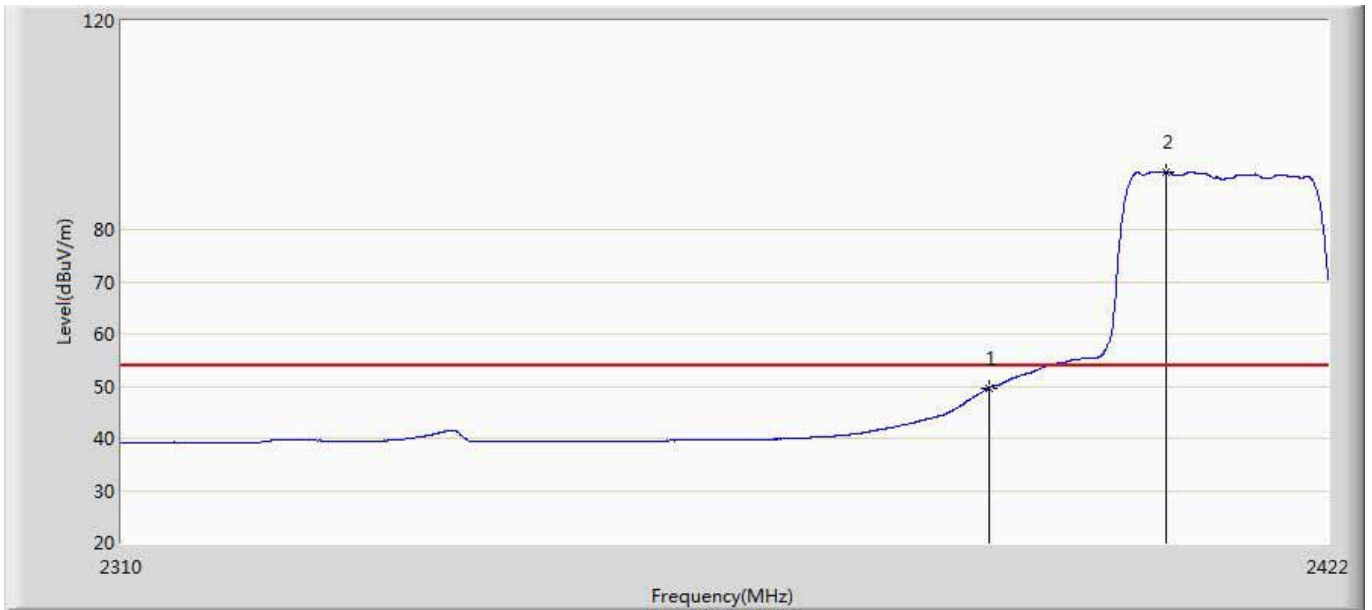
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.480	12.125	-4.520	54.000	37.355	AV
2	*	2406.152	91.912	54.577	37.912	54.000	37.335	AV

Site: AC5	Time: 2015/12/15 - 18:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant0	



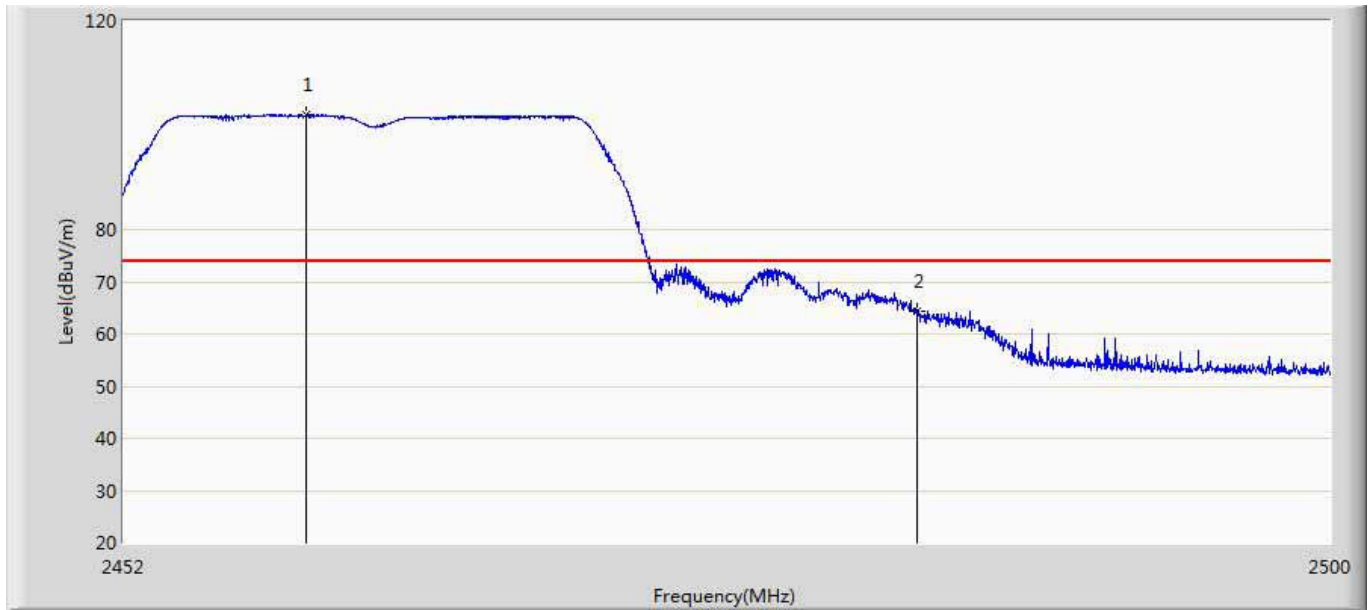
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.956	31.601	-13.044	74.000	37.355	PK
2	*	2407.832	100.283	62.950	26.283	74.000	37.332	PK

Site: AC5	Time: 2015/12/15 - 18:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant0	



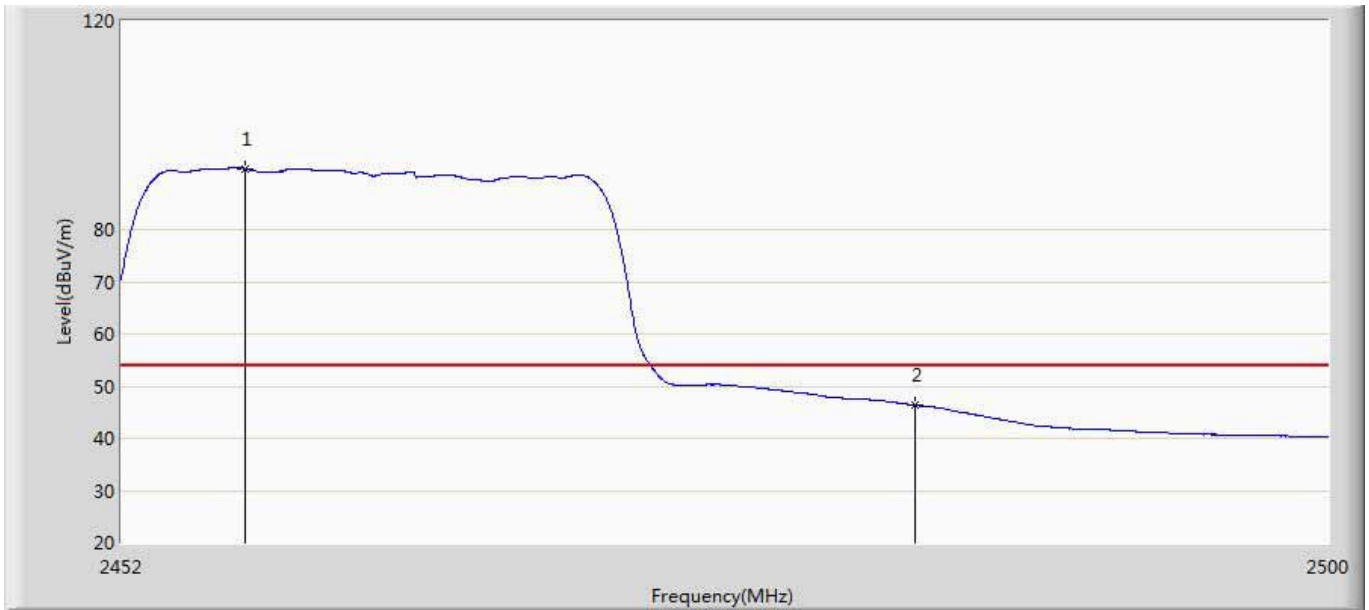
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.671	10.316	-6.329	54.000	37.355	AV
2	*	2406.712	91.107	53.773	37.107	54.000	37.334	AV

Site: AC5	Time: 2015/12/15 - 18:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant0	



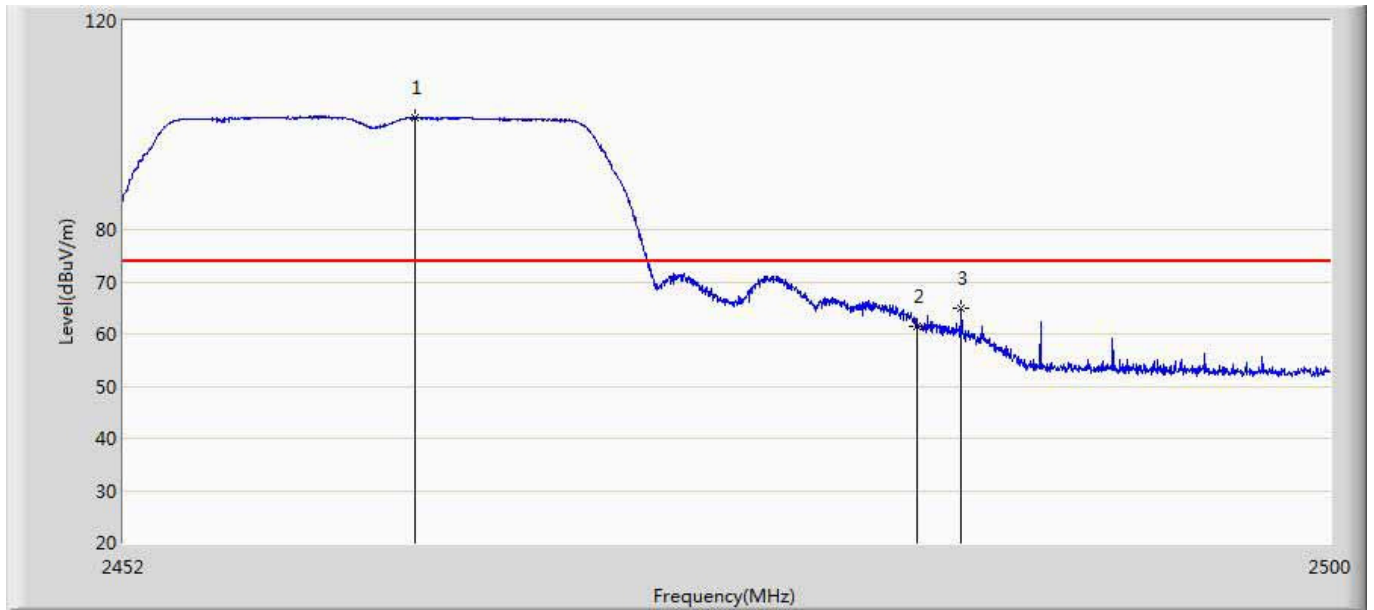
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2459.224	101.934	64.511	27.934	74.000	37.423	PK
2		2483.500	64.359	26.848	-9.641	74.000	37.511	PK

Site: AC5	Time: 2015/12/15 - 19:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2456.896	91.644	54.220	37.644	54.000	37.424	AV
2		2483.500	46.325	8.814	-7.675	54.000	37.511	AV

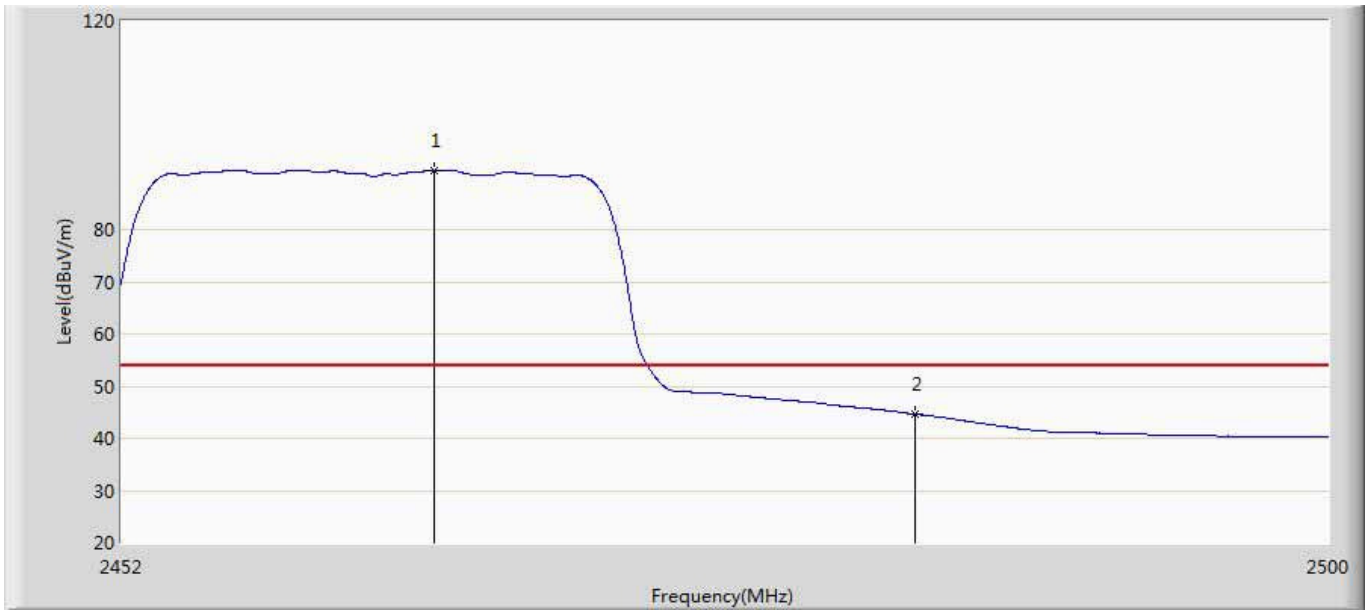
Site: AC5	Time: 2015/12/15 - 19:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.496	101.531	64.105	27.531	74.000	37.426	PK
2		2483.500	61.571	24.060	-12.429	74.000	37.511	PK
3		2485.240	65.020	27.496	-8.980	74.000	37.523	PK

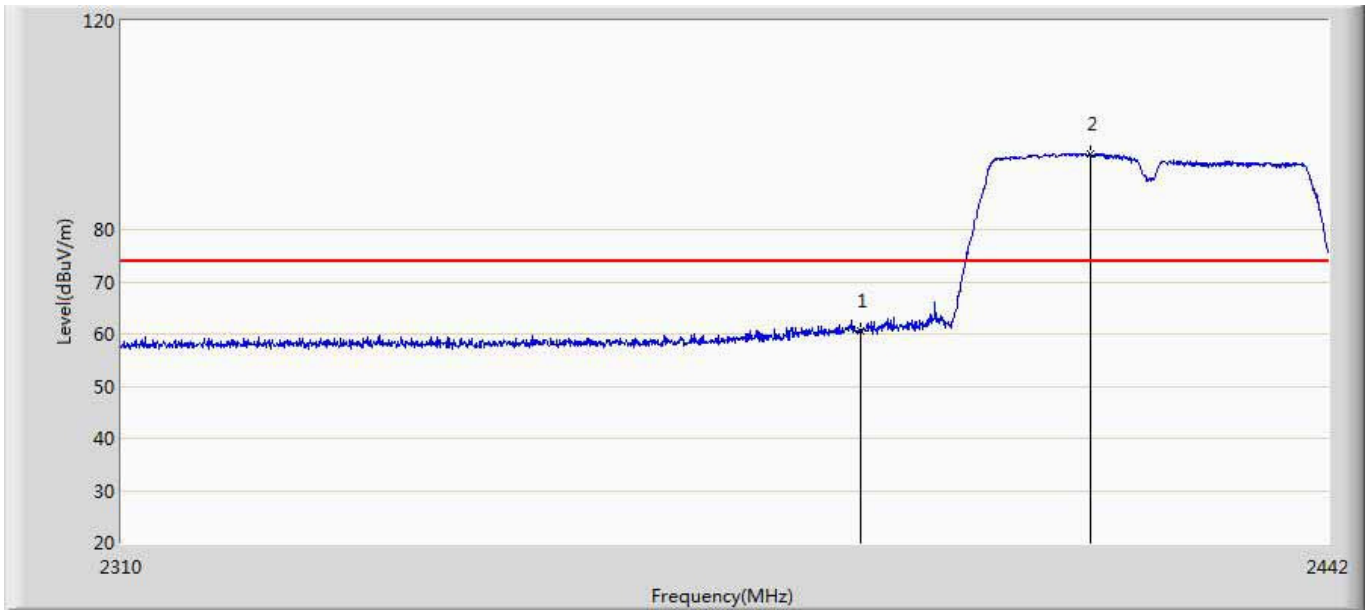


Site: AC5	Time: 2015/12/15 - 19:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant0	



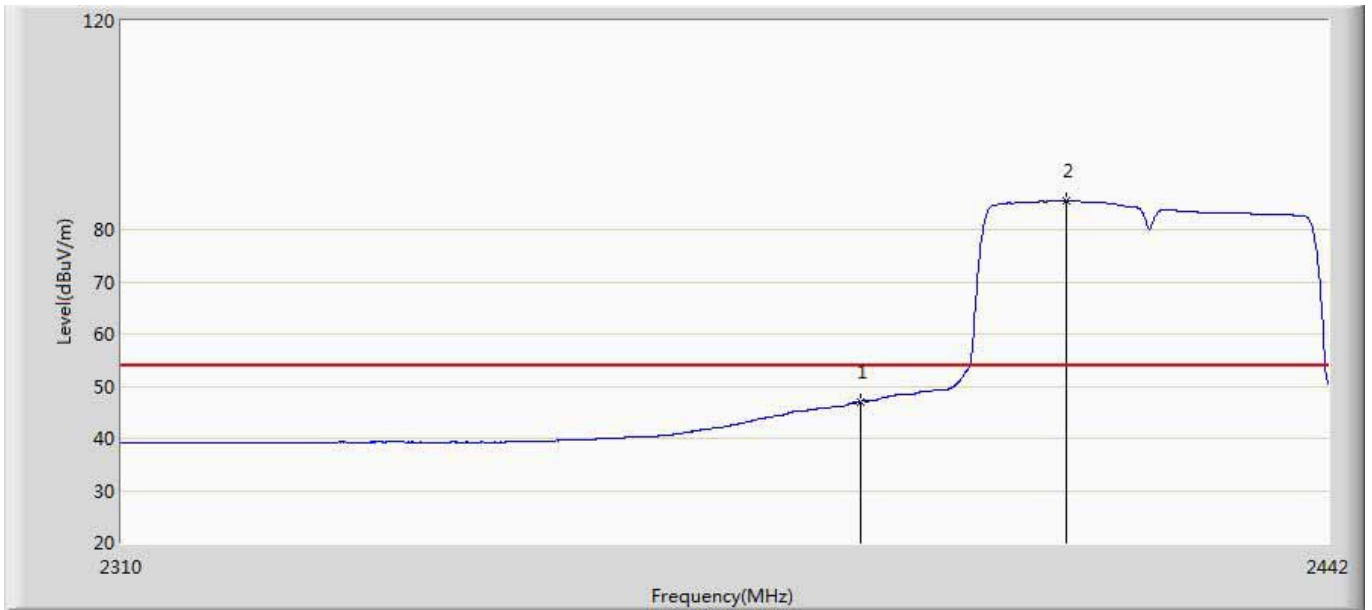
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.360	91.274	53.845	37.274	54.000	37.429	AV
2		2483.500	44.591	7.080	-9.409	54.000	37.511	AV

Site: AC5	Time: 2015/12/15 - 19:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant0	



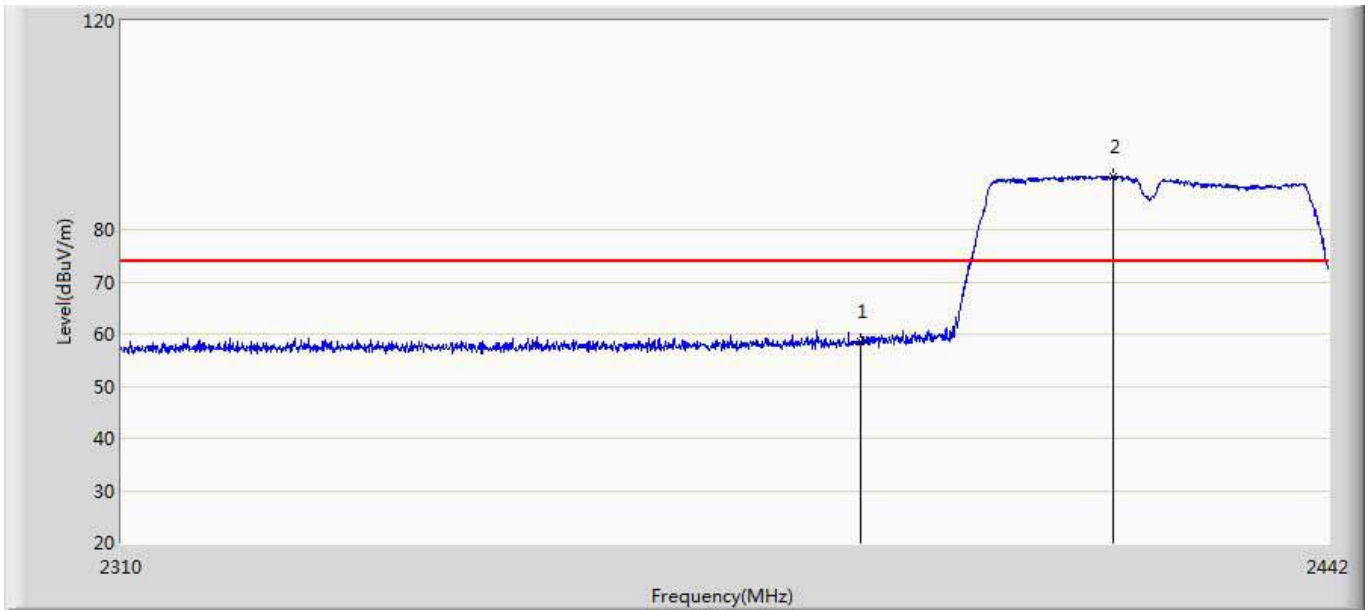
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.479	23.124	-13.521	74.000	37.355	PK
2	*	2415.402	94.447	57.090	20.447	74.000	37.357	PK

Site: AC5	Time: 2015/12/15 - 19:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant0	



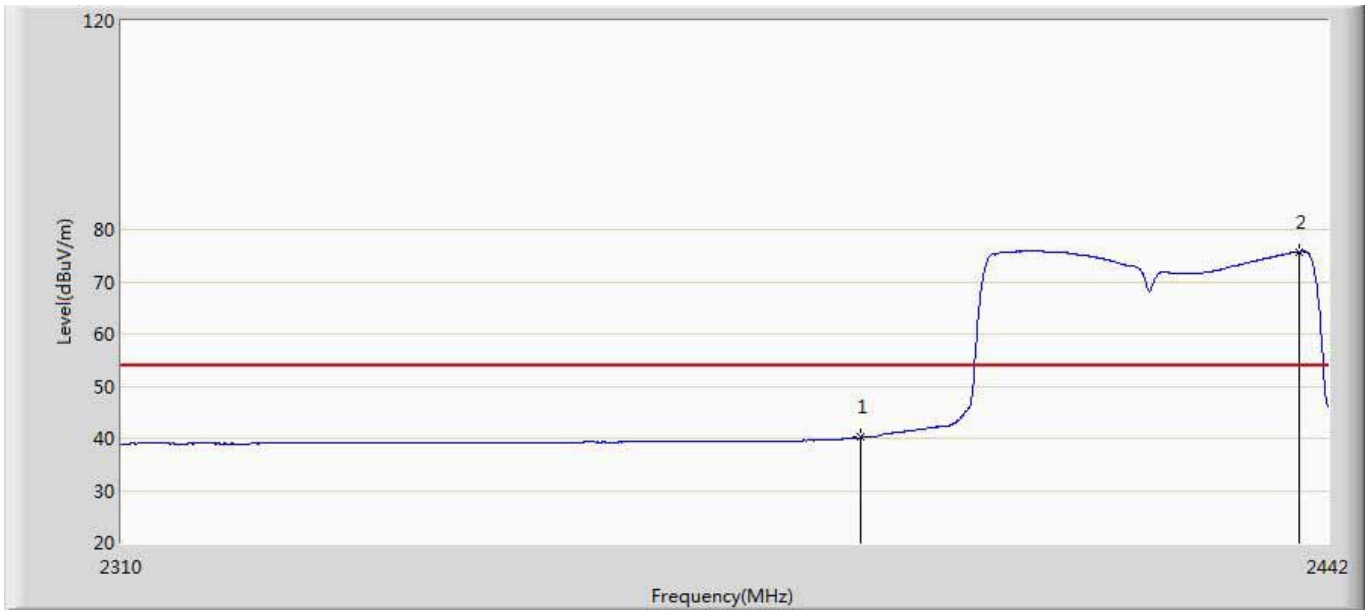
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.070	9.715	-6.930	54.000	37.355	AV
2	*	2412.696	85.469	48.130	31.469	54.000	37.339	AV

Site: AC5	Time: 2015/12/15 - 19:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant0	



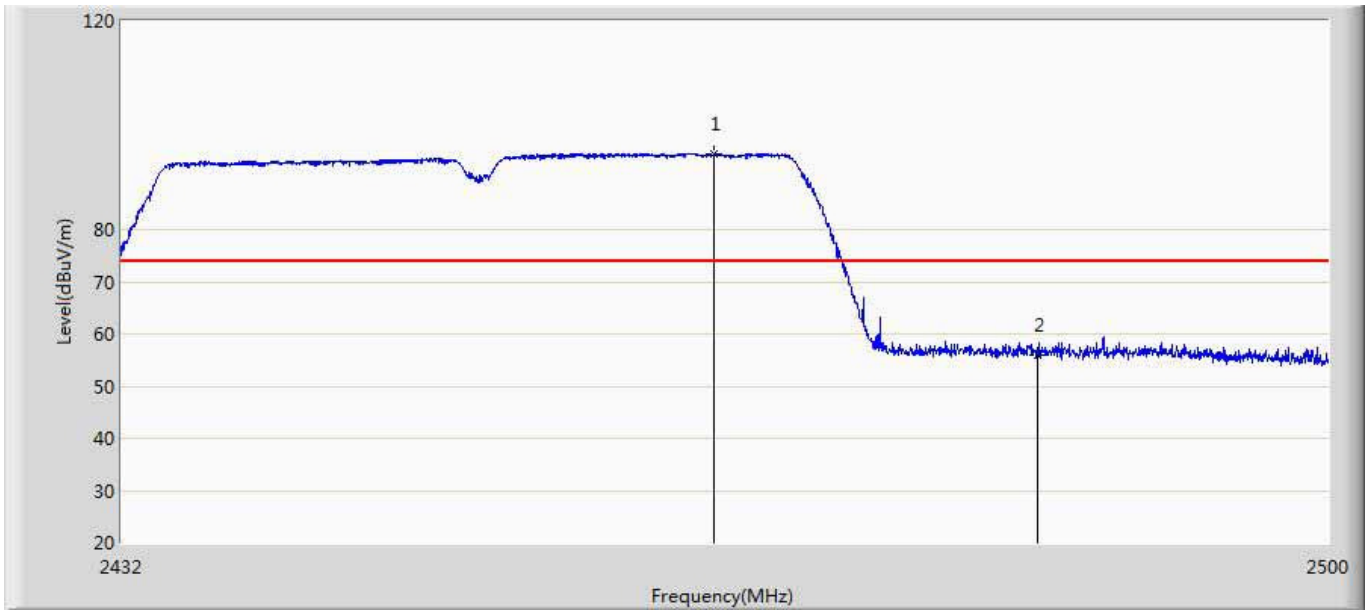
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.495	21.140	-15.505	74.000	37.355	PK
2	*	2418.042	90.117	52.742	16.117	74.000	37.375	PK

Site: AC5	Time: 2015/12/15 - 19:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant0	



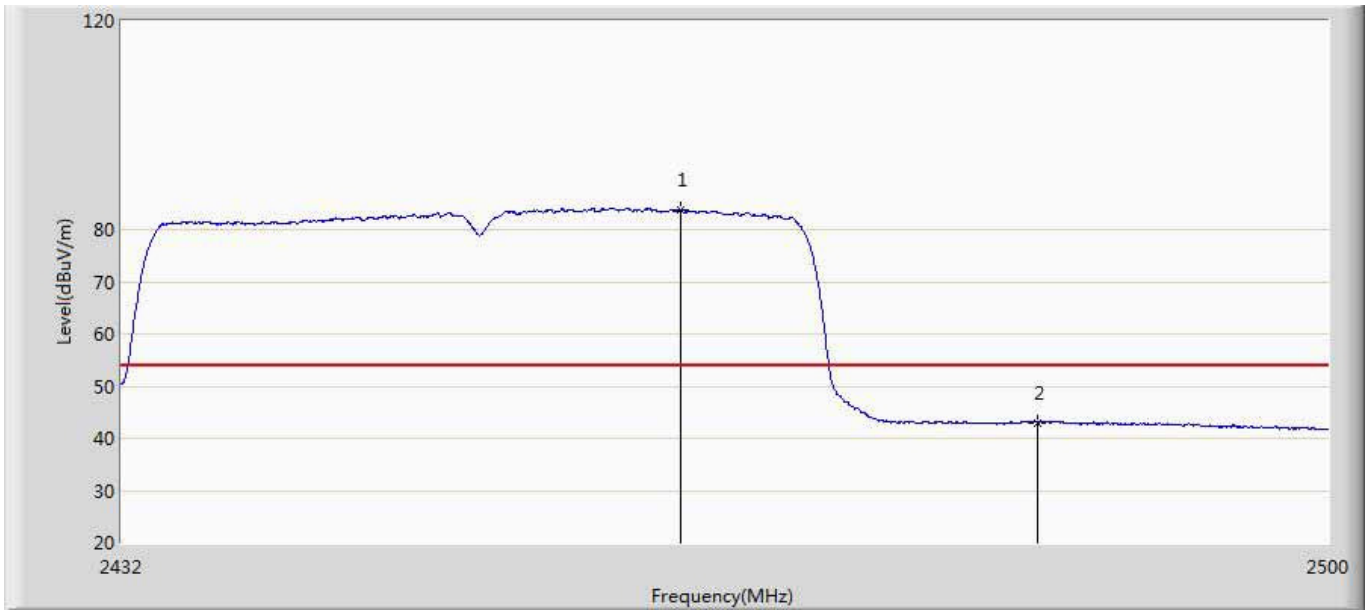
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.145	2.790	-13.855	54.000	37.355	AV
2	*	2438.700	75.755	38.318	21.755	54.000	37.437	AV

Site: AC5	Time: 2015/12/15 - 19:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant0	



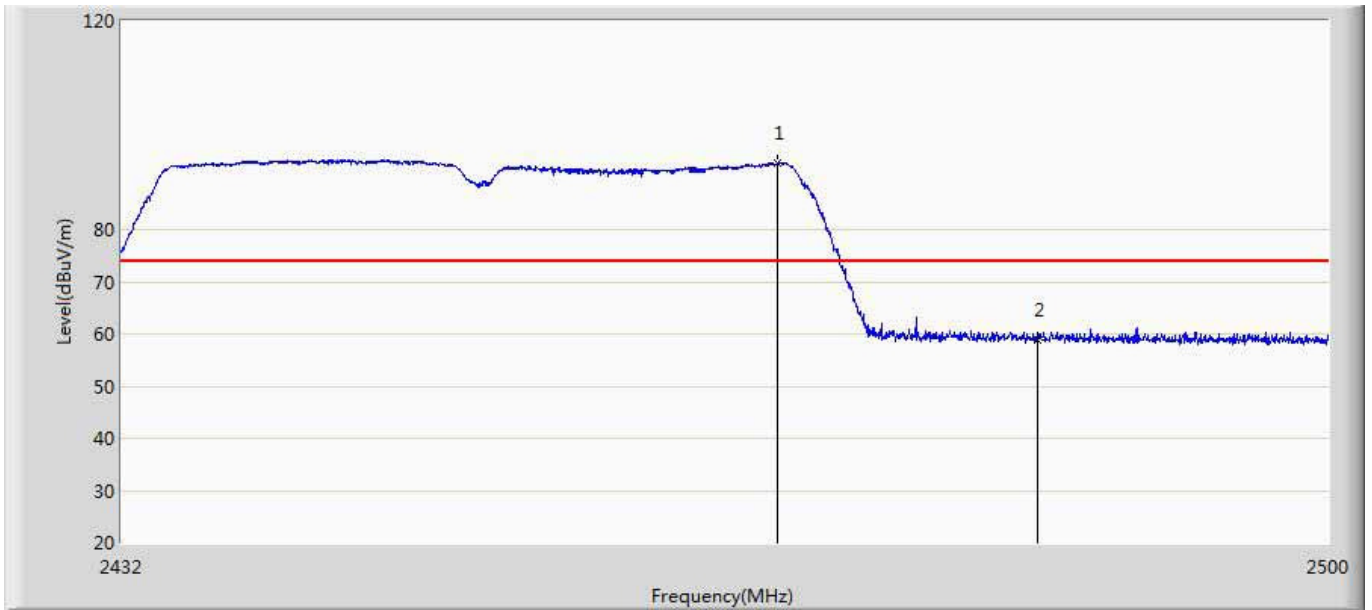
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.150	94.414	56.983	20.414	74.000	37.431	PK
2		2483.500	56.039	18.528	-17.961	74.000	37.511	PK

Site: AC5	Time: 2015/12/15 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.280	83.856	46.431	29.856	54.000	37.425	AV
2		2483.500	43.007	5.496	-10.993	54.000	37.511	AV

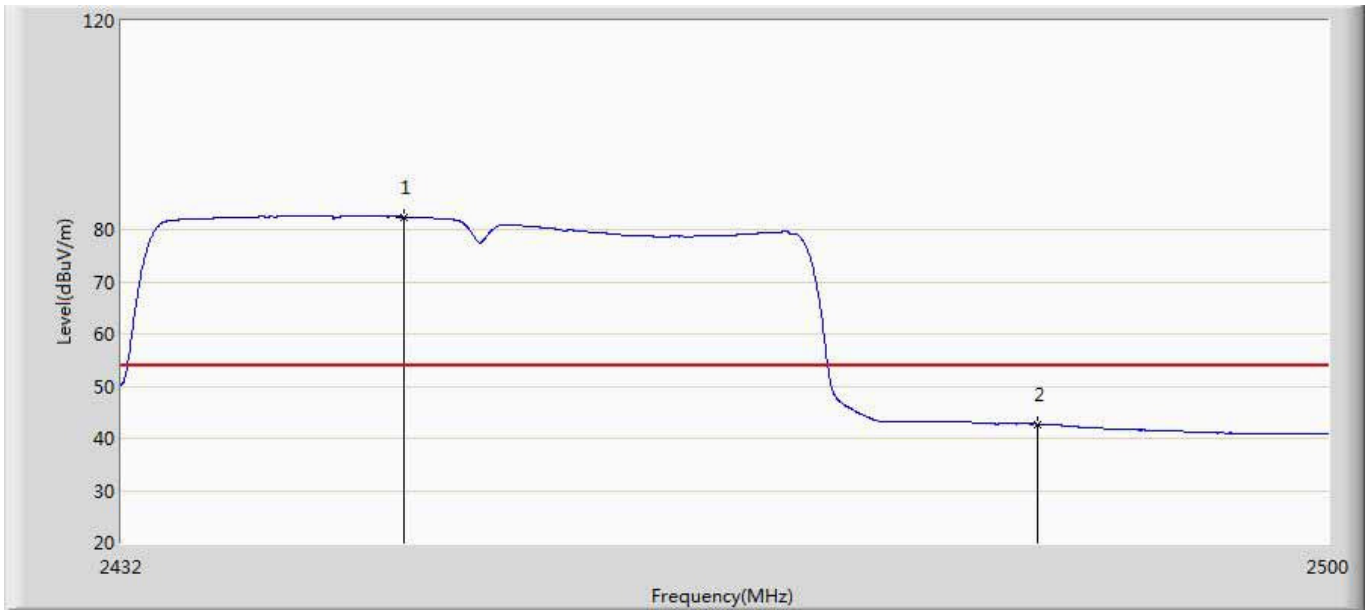
Site: AC5	Time: 2015/12/15 - 19:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.788	92.863	55.419	18.863	74.000	37.443	PK
2		2483.500	58.924	21.413	-15.076	74.000	37.511	PK

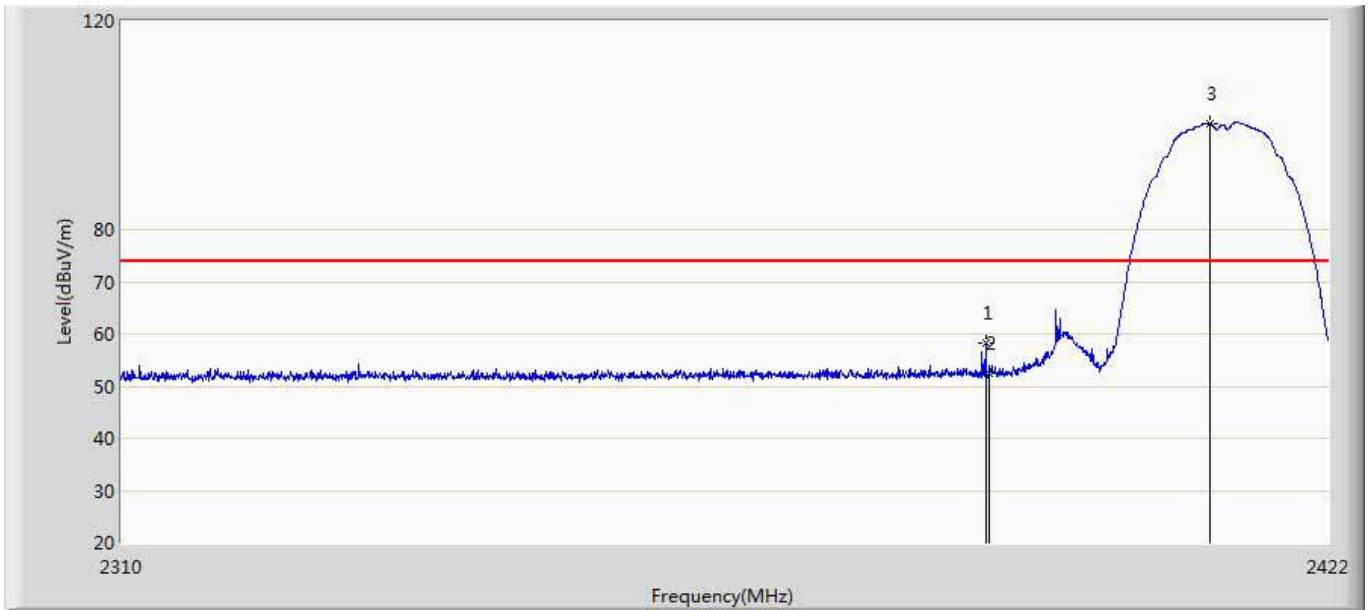


Site: AC5	Time: 2015/12/15 - 19:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant0	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2447.742	82.419	44.988	28.419	54.000	37.431	AV
2		2483.500	42.696	5.185	-11.304	54.000	37.511	AV

Site: AC5	Time: 2015/12/15 - 19:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant1	



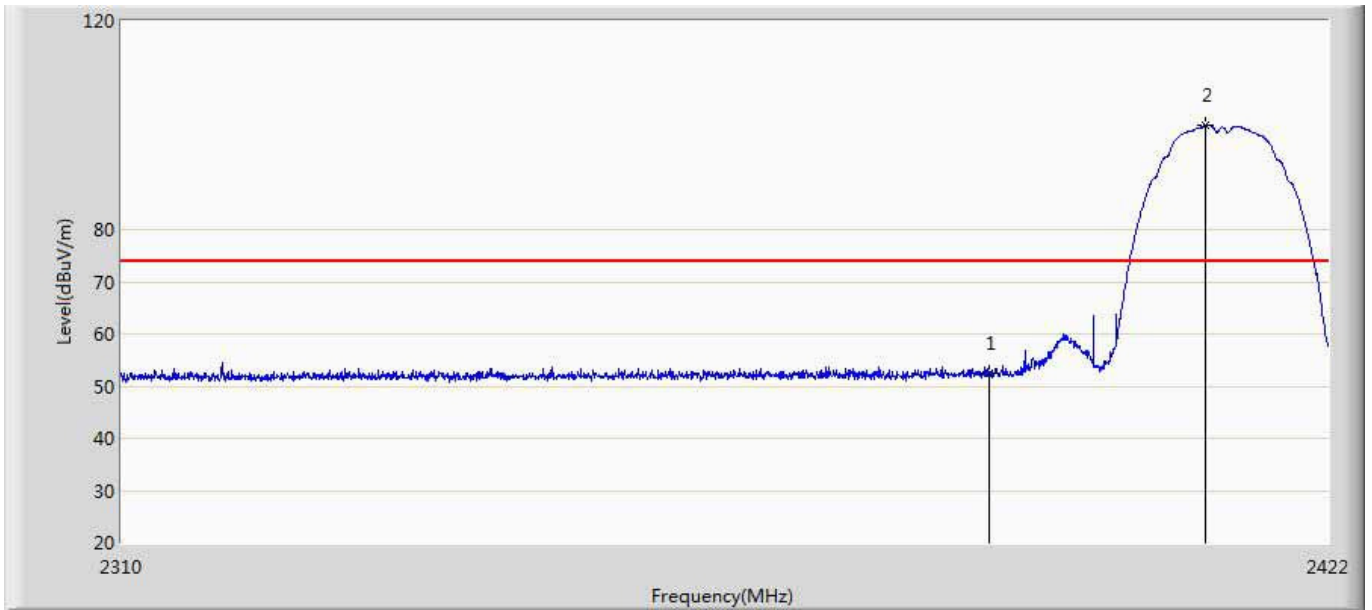
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2389.688	58.160	20.804	-15.840	74.000	37.356	PK
2		2390.000	52.584	15.229	-21.416	74.000	37.355	PK
3	*	2410.856	100.371	63.043	26.371	74.000	37.328	PK

Site: AC5	Time: 2015/12/15 - 19:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant1	



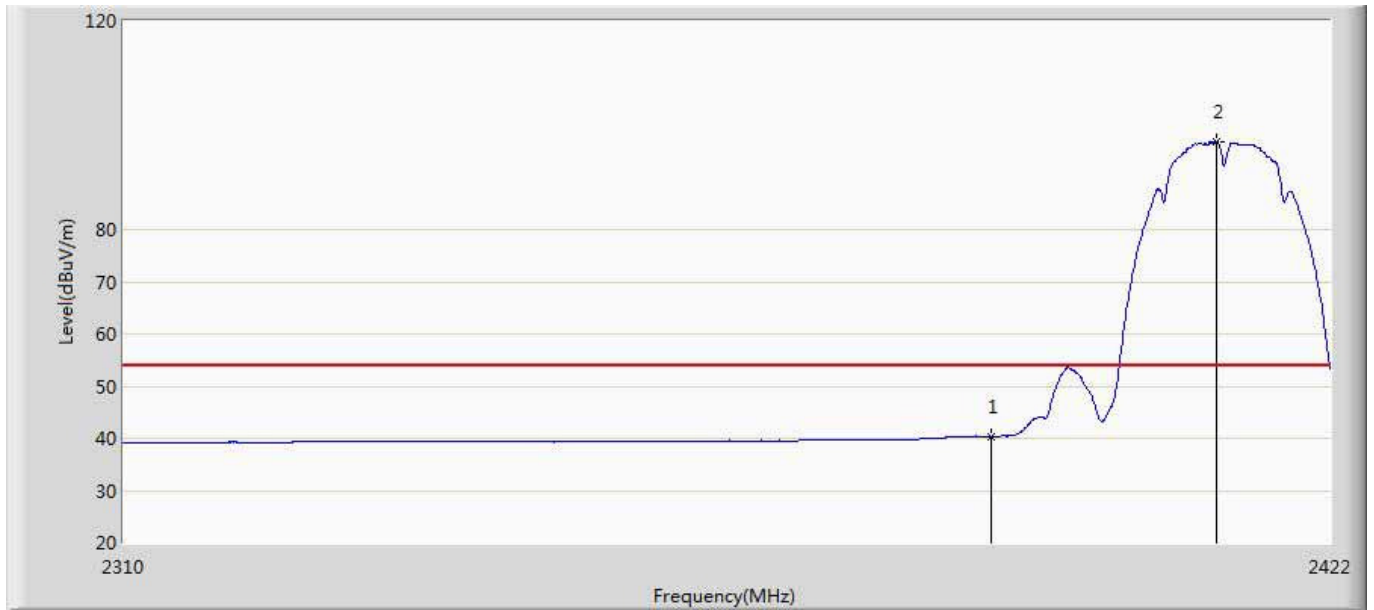
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.348	2.993	-13.652	54.000	37.355	AV
2	*	2412.704	96.874	59.535	42.874	54.000	37.339	AV

Site: AC5	Time: 2015/12/15 - 19:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant1	



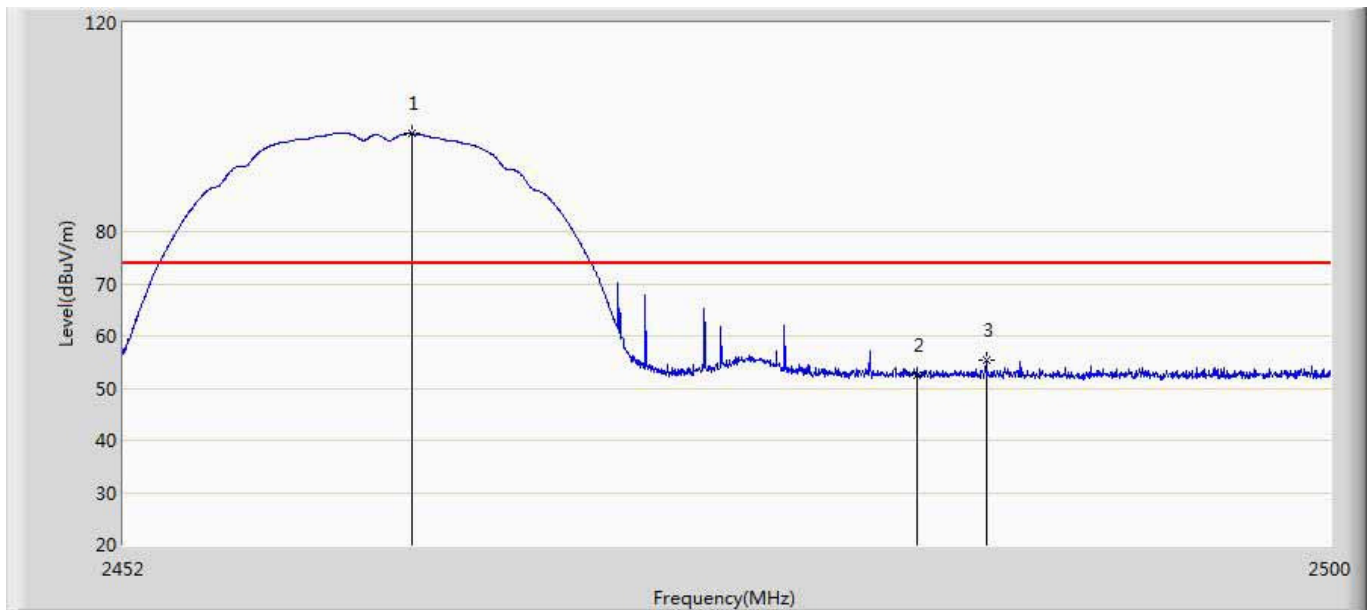
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.538	15.183	-21.462	74.000	37.355	PK
2	*	2410.408	99.969	62.641	25.969	74.000	37.328	PK

Site: AC5	Time: 2015/12/15 - 19:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2412 by ant1	



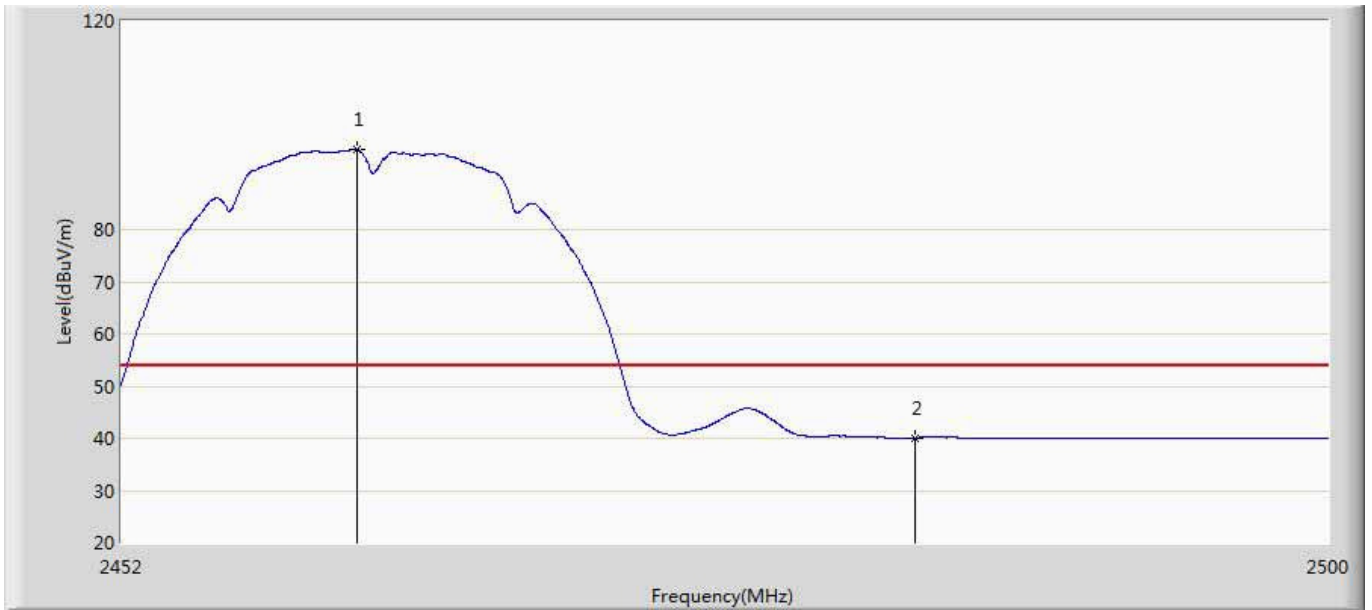
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.253	2.898	-13.747	54.000	37.355	AV
2	*	2411.192	96.867	59.538	42.867	54.000	37.329	AV

Site: AC5	Time: 2015/12/15 - 19:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant1	



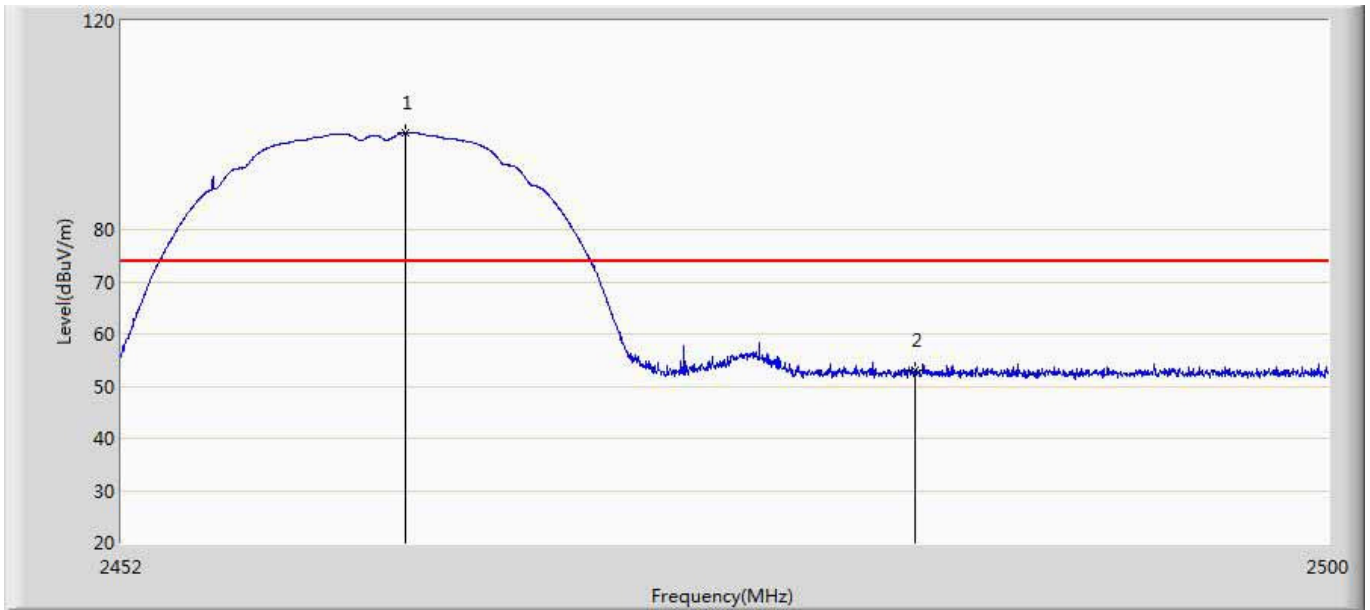
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.376	98.702	61.277	24.702	74.000	37.425	PK
2		2483.500	52.542	15.031	-21.458	74.000	37.511	PK
3		2486.224	55.334	17.803	-18.666	74.000	37.530	PK

Site: AC5	Time: 2015/12/15 - 19:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.288	95.413	57.992	41.413	54.000	37.421	AV
2		2483.500	40.099	2.588	-13.901	54.000	37.511	AV

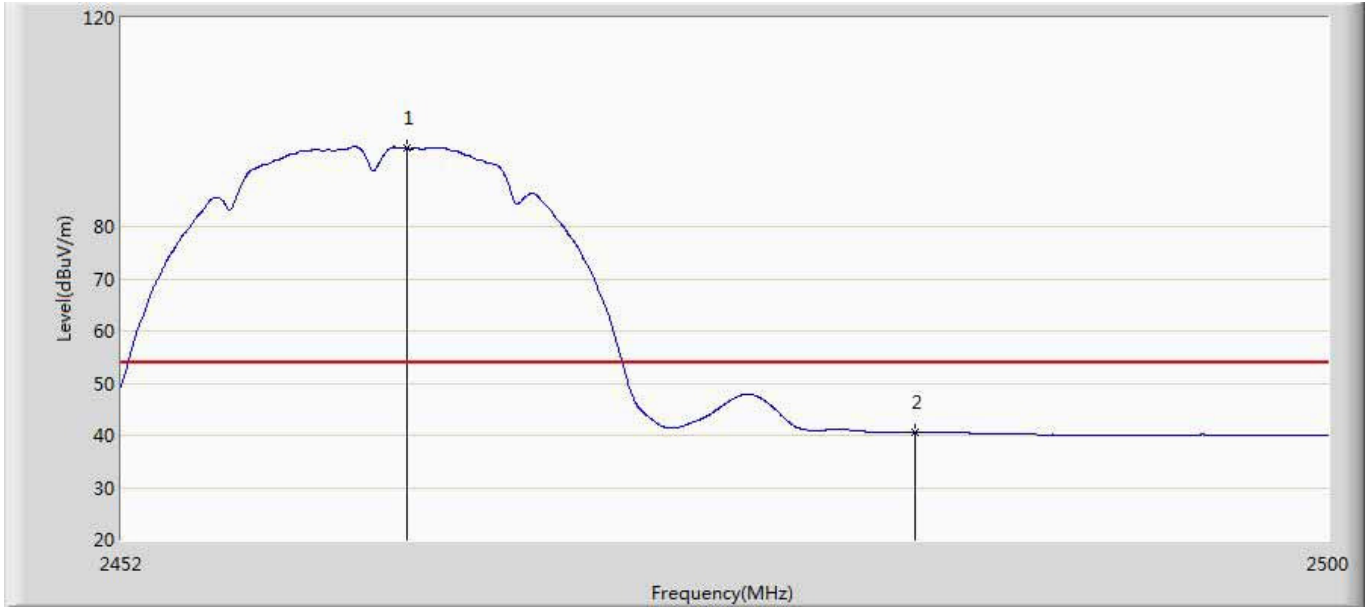
Site: AC5	Time: 2015/12/15 - 19:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.232	98.490	61.065	24.490	74.000	37.425	PK
2		2483.500	52.998	15.487	-21.002	74.000	37.511	PK

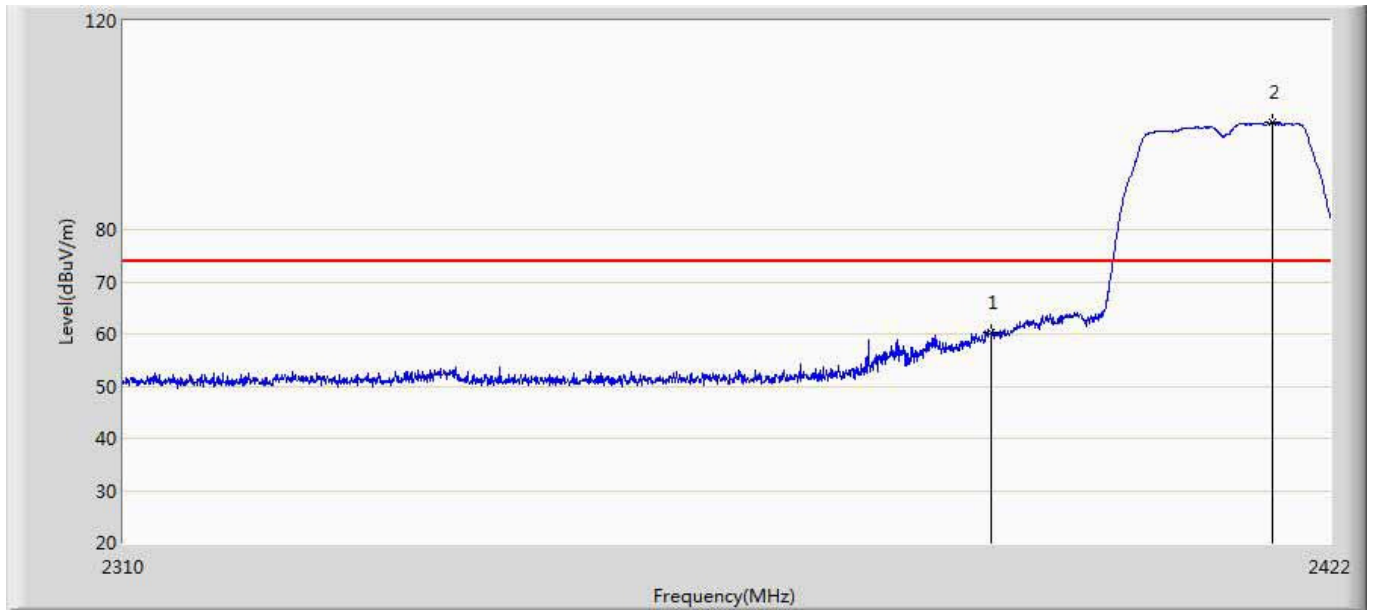


Site: AC5	Time: 2015/12/15 - 19:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 1 Transmit at 802.11b CH2462 by ant1	



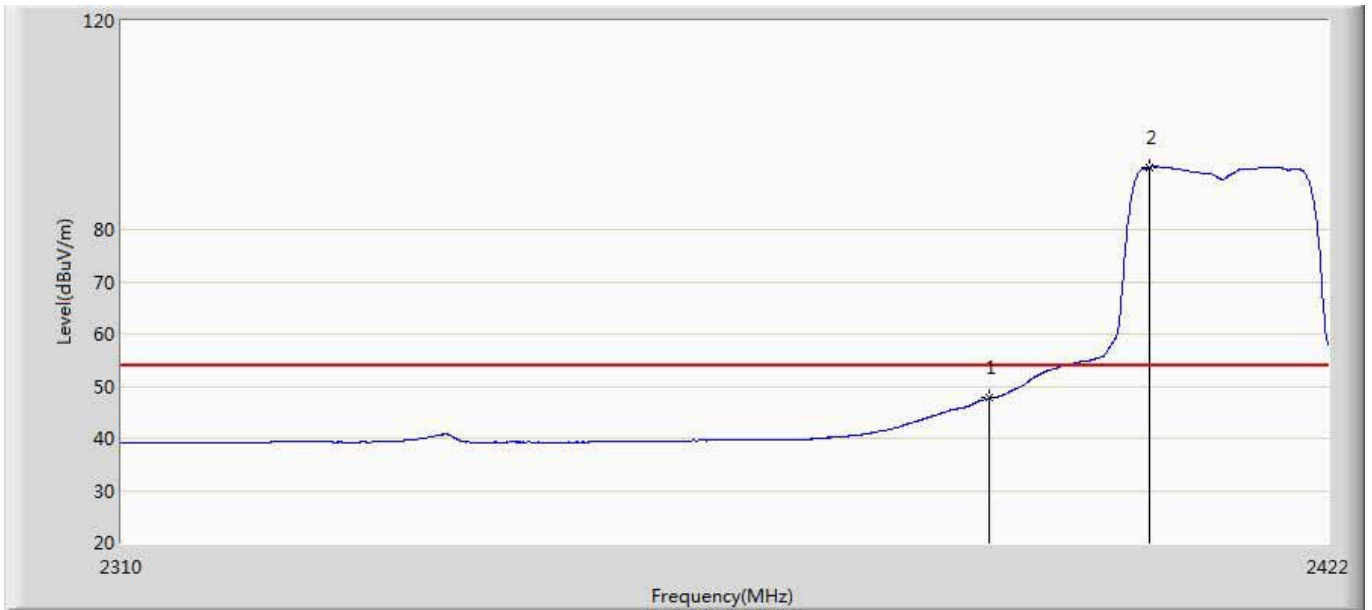
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.304	95.033	57.608	41.033	54.000	37.425	AV
2		2483.500	40.501	2.990	-13.499	54.000	37.511	AV

Site: AC5	Time: 2015/12/17 - 10:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant1	



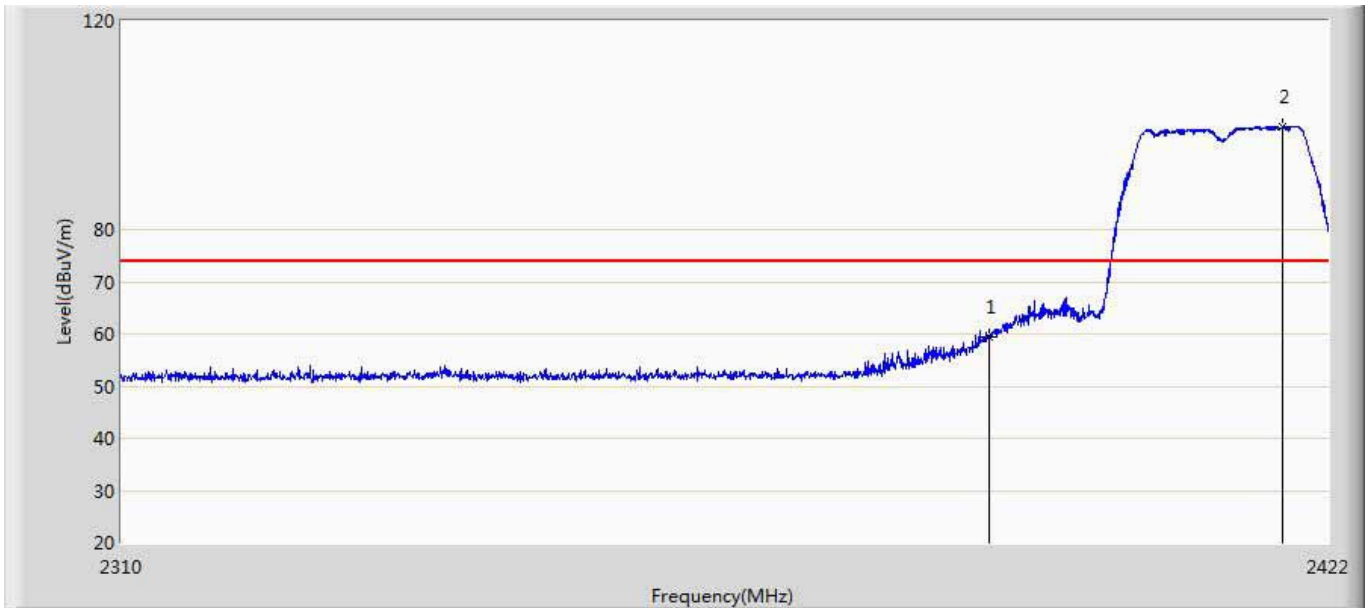
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.309	22.954	-13.691	74.000	37.355	PK
2	*	2416.568	100.503	63.138	26.503	74.000	37.365	PK

Site: AC5	Time: 2015/12/17 - 10:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant1	



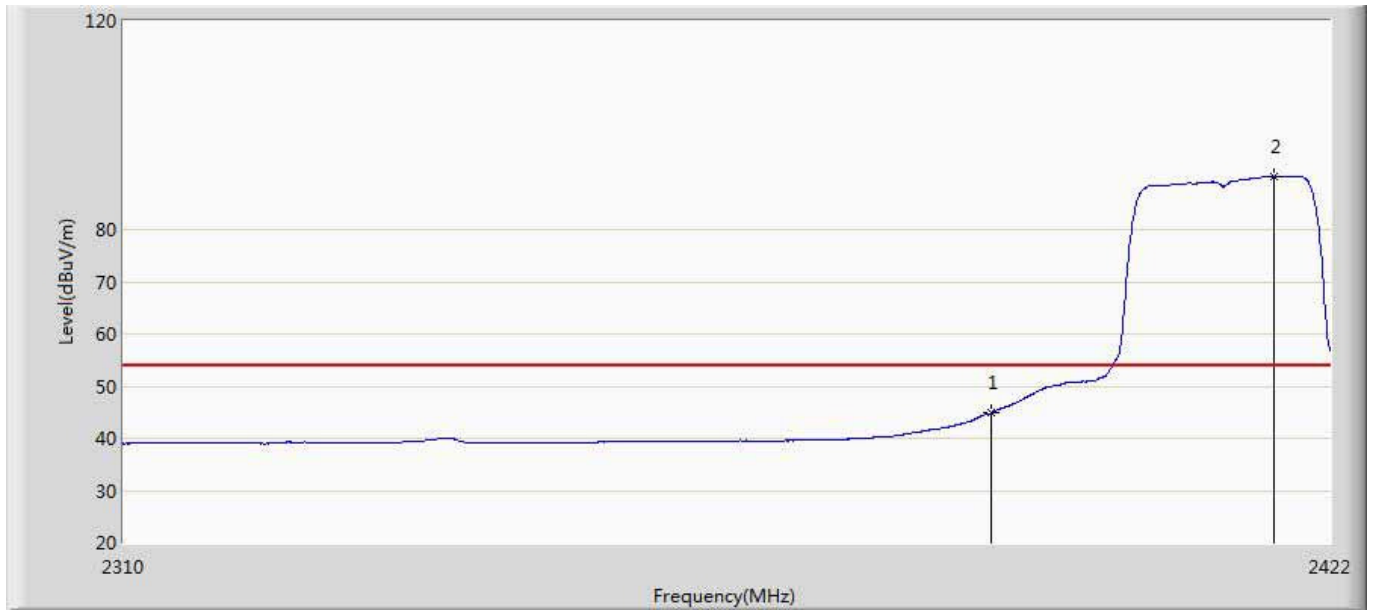
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.696	10.341	-6.304	54.000	37.355	AV
2	*	2405.088	91.906	54.569	37.906	54.000	37.337	AV

Site: AC5	Time: 2015/12/17 - 10:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant1	



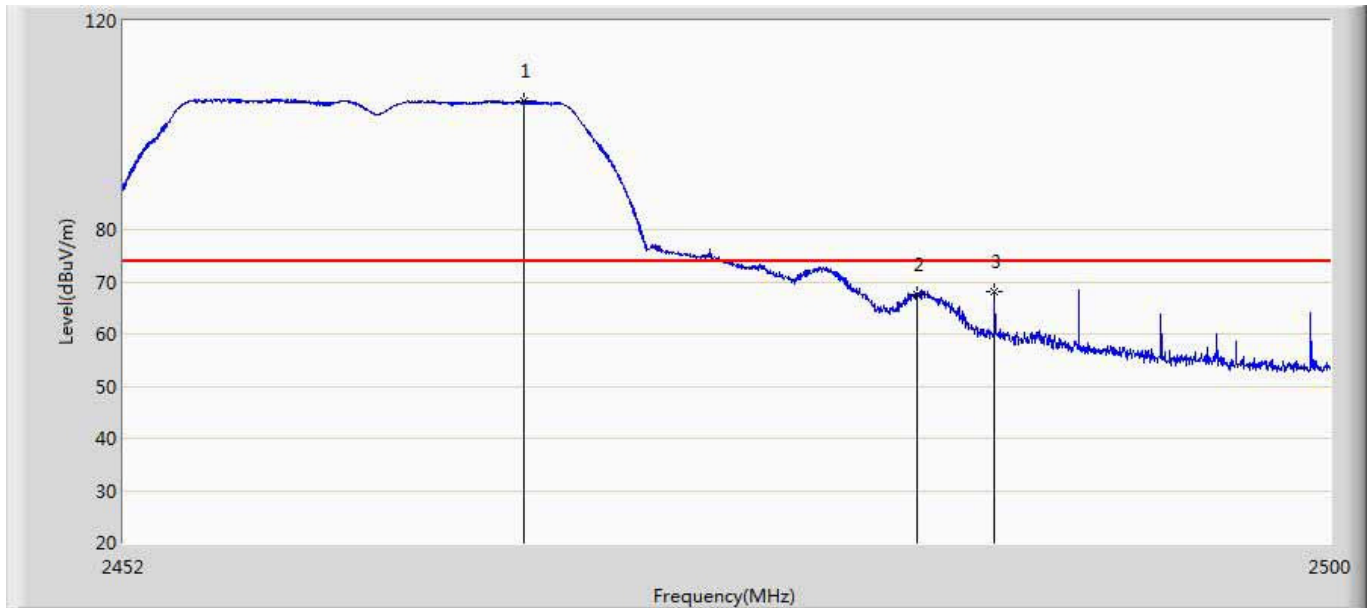
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.347	21.992	-14.653	74.000	37.355	PK
2	*	2417.744	99.740	62.367	25.740	74.000	37.373	PK

Site: AC5	Time: 2015/12/17 - 10:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2412 by ant1	



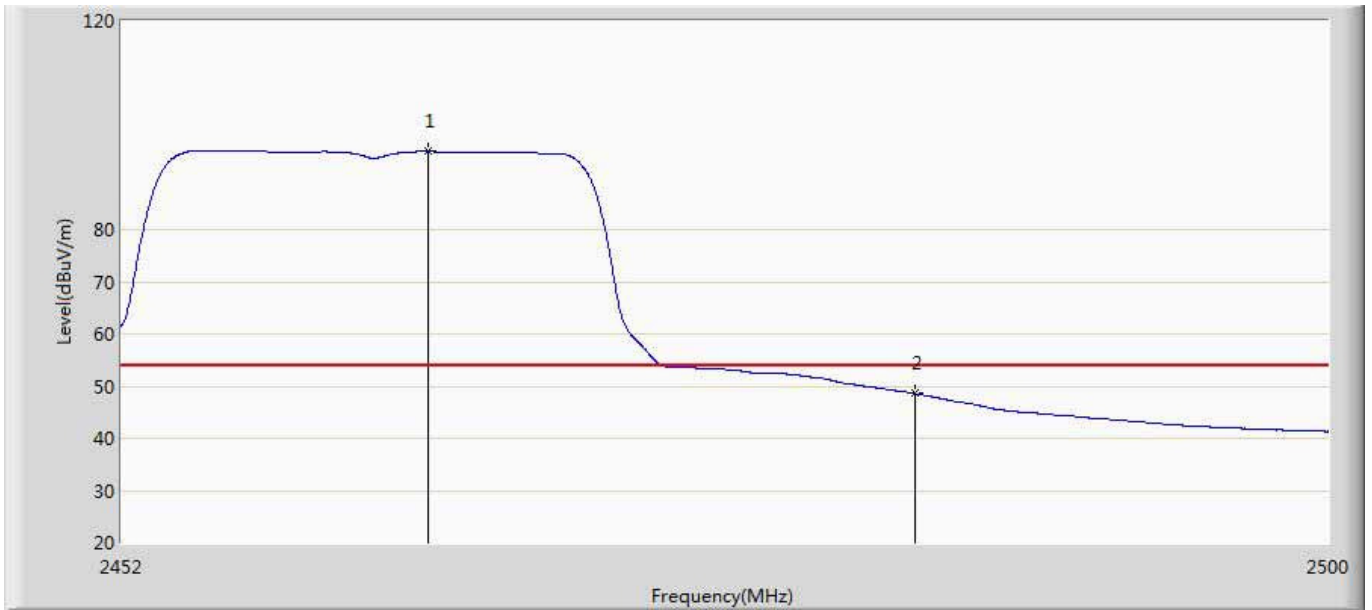
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.801	7.446	-9.199	54.000	37.355	AV
2	*	2416.736	90.118	52.752	36.118	54.000	37.366	AV

Site: AC5	Time: 2015/12/17 - 10:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant1	



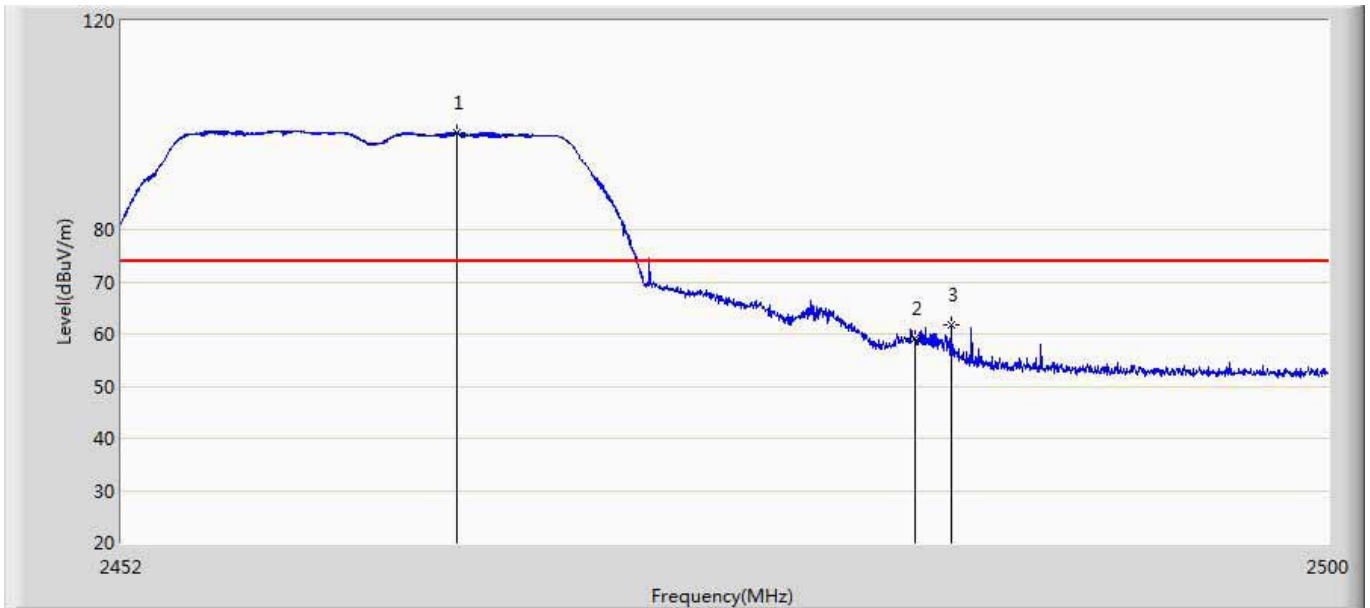
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2467.816	104.584	67.144	30.584	74.000	37.440	PK
2		2483.500	67.505	29.994	-6.495	74.000	37.511	PK
3		2486.560	68.167	30.634	-5.833	74.000	37.533	PK

Site: AC5	Time: 2015/12/17 - 10:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.120	95.036	57.608	41.036	54.000	37.428	AV
2		2483.500	48.557	11.046	-5.443	54.000	37.511	AV

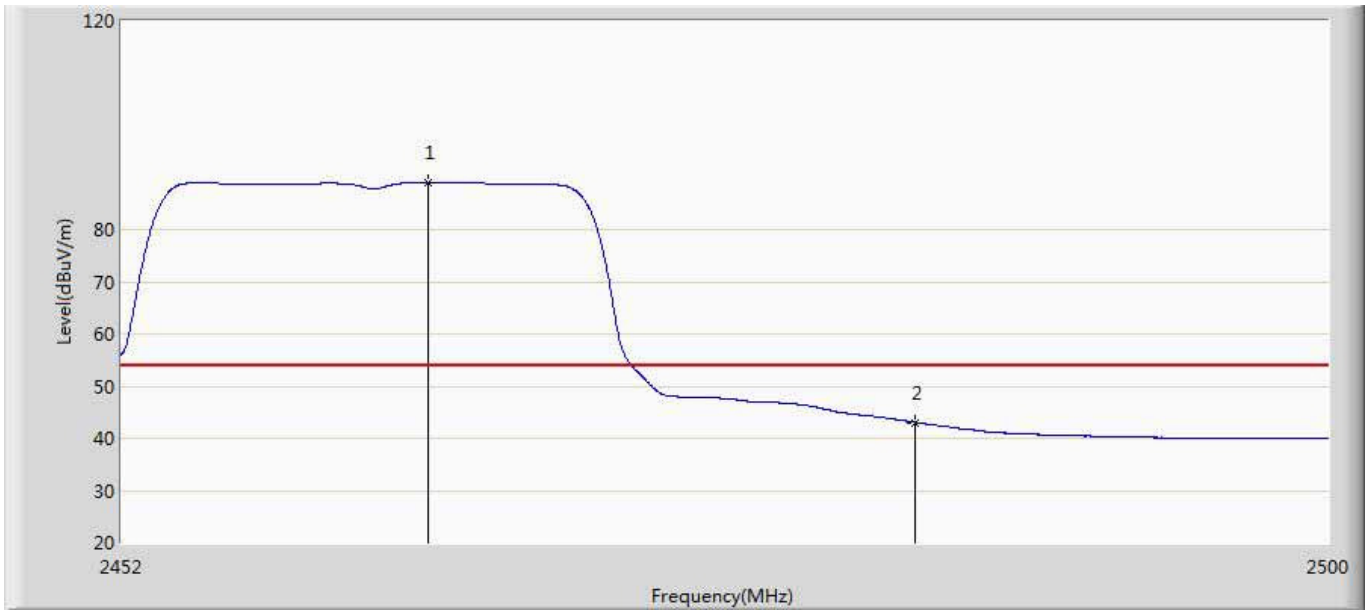
Site: AC5	Time: 2015/12/17 - 10:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.248	98.539	61.107	24.539	74.000	37.432	PK
2		2483.500	59.086	21.575	-14.914	74.000	37.511	PK
3		2484.928	61.698	24.176	-12.302	74.000	37.522	PK

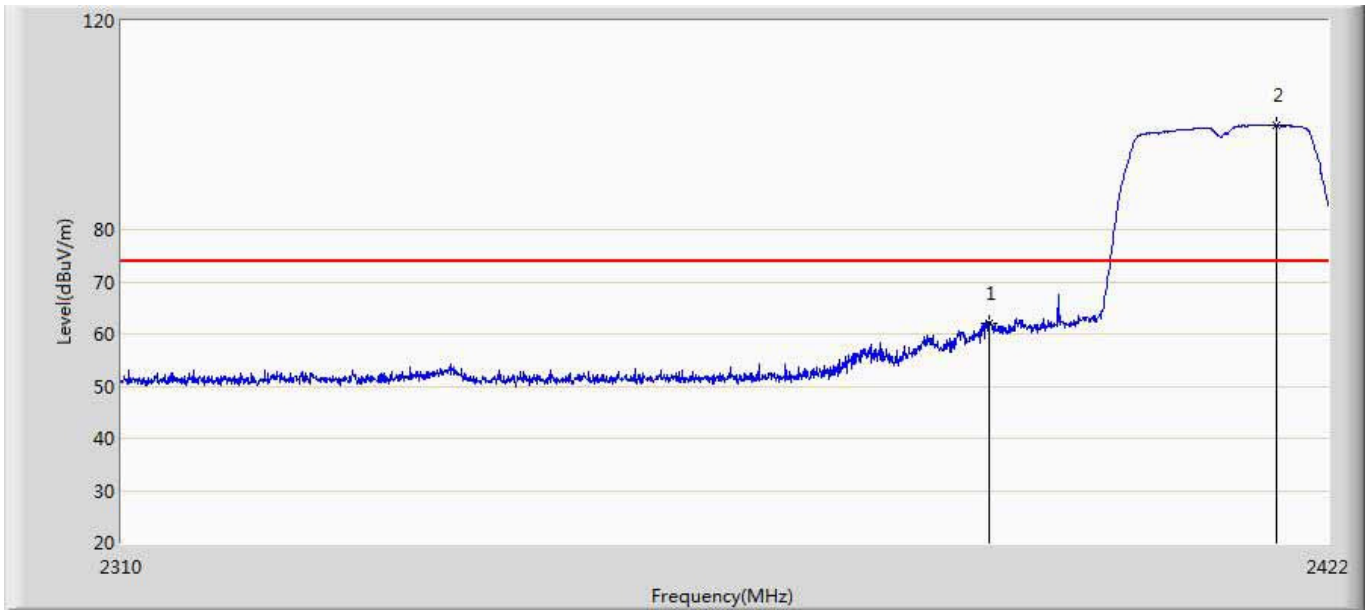


Site: AC5	Time: 2015/12/17 - 10:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 2 Transmit at 802.11g CH2462 by ant1	



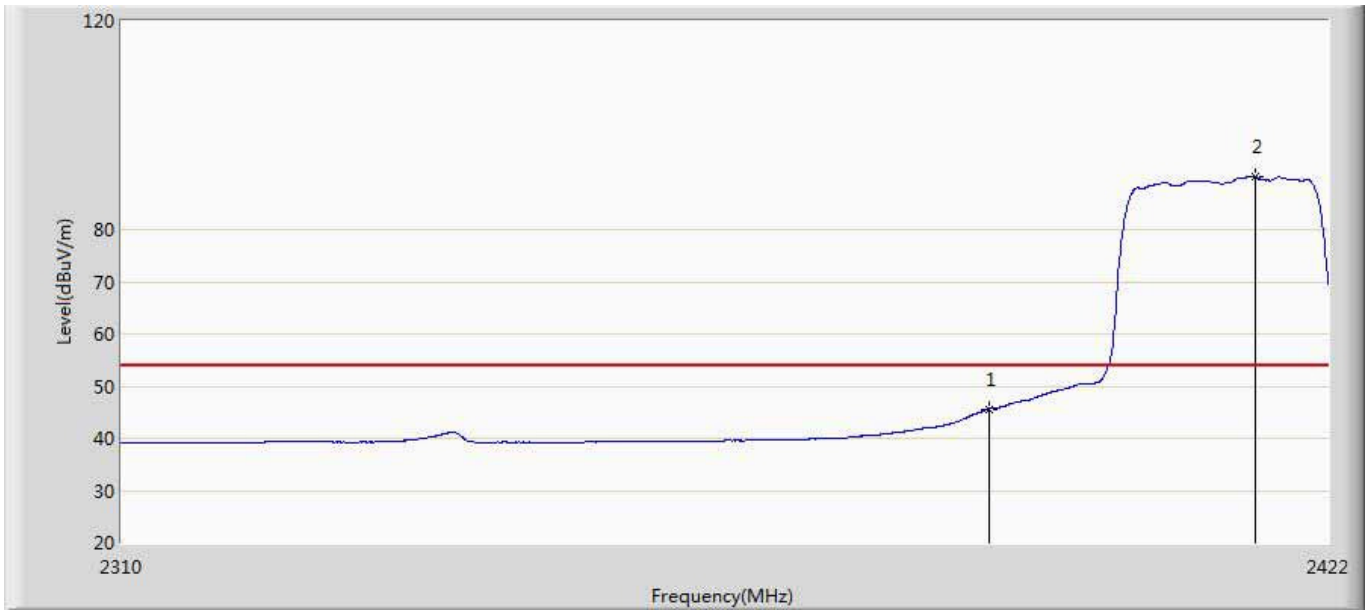
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.120	88.912	51.484	34.912	54.000	37.428	AV
2		2483.500	43.041	5.530	-10.959	54.000	37.511	AV

Site: AC5	Time: 2015/12/17 - 11:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant1	



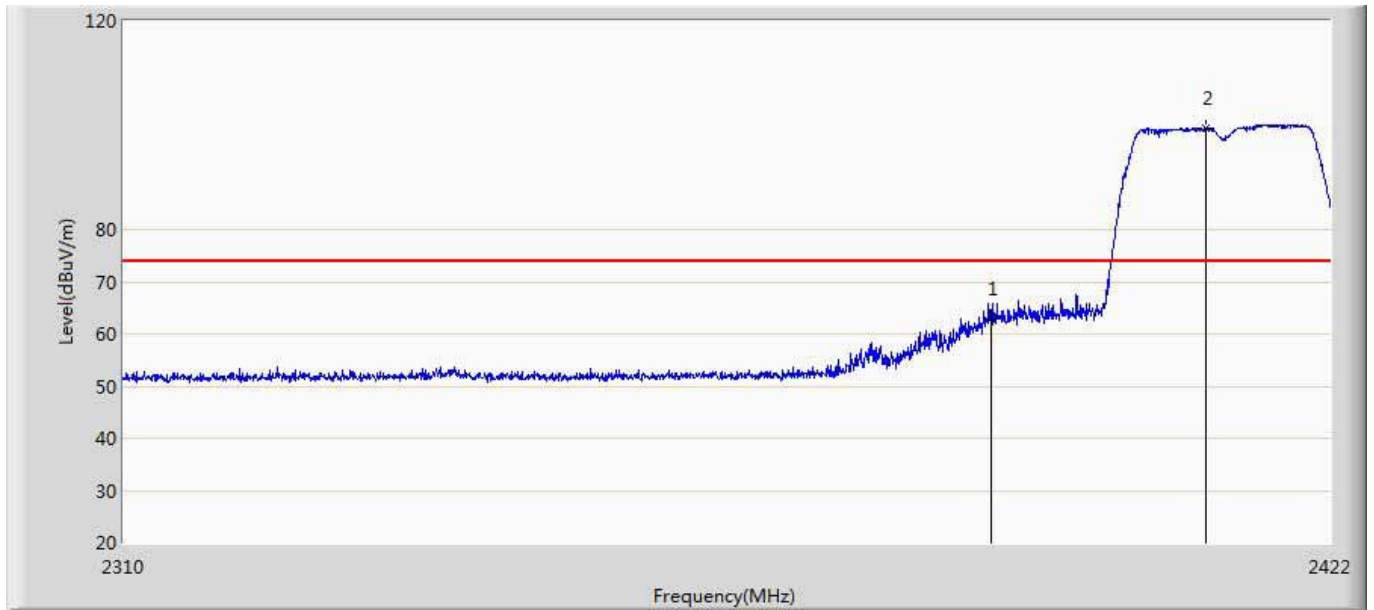
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	62.098	24.743	-11.902	74.000	37.355	PK
2	*	2417.072	99.994	62.626	25.994	74.000	37.369	PK

Site: AC5	Time: 2015/12/17 - 11:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant1	



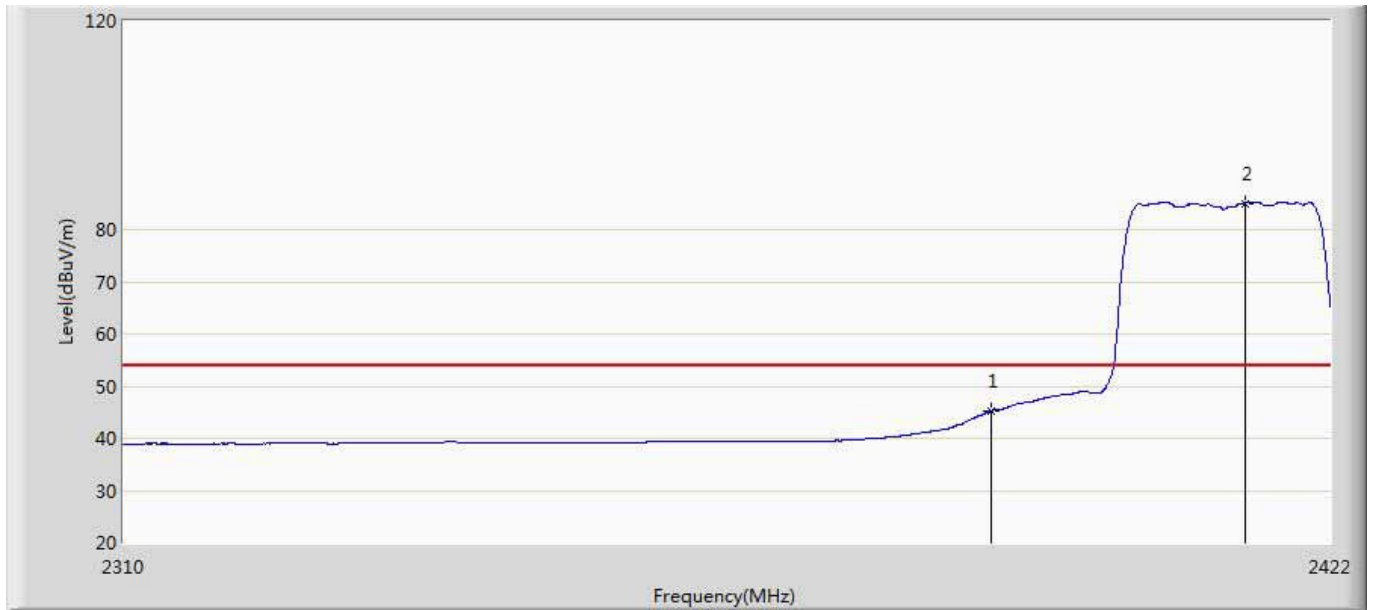
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.635	8.280	-8.365	54.000	37.355	AV
2	*	2415.112	90.036	52.681	36.036	54.000	37.355	AV

Site: AC5	Time: 2015/12/17 - 11:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant1	



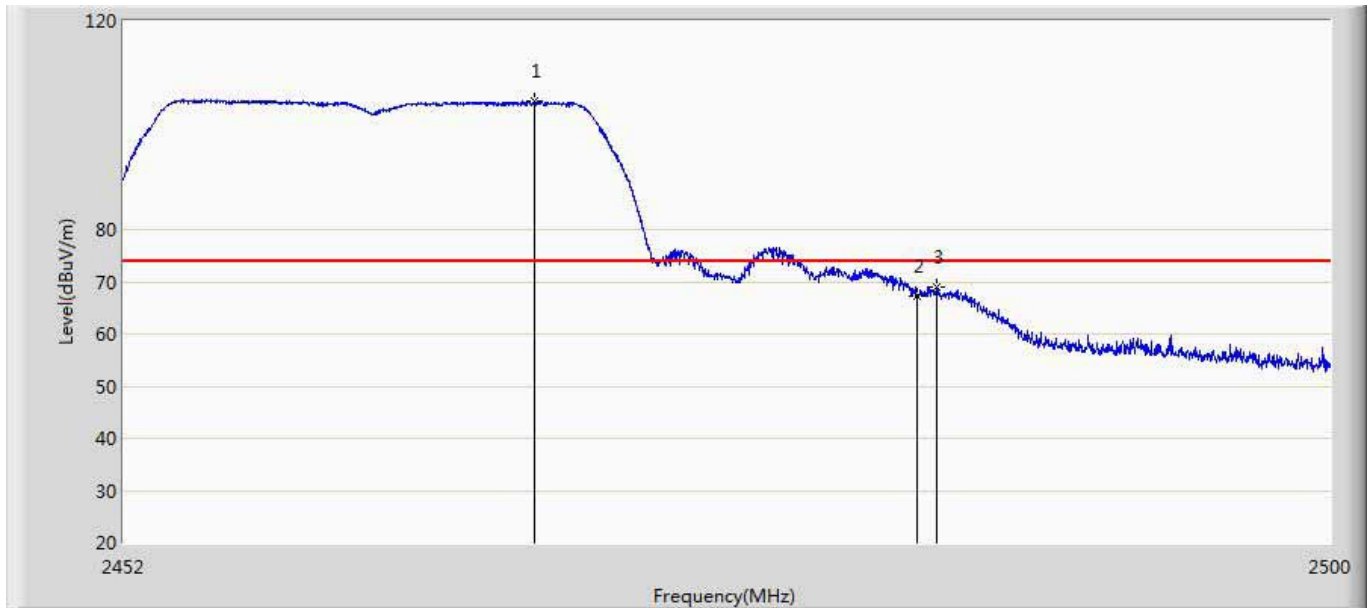
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	63.041	25.686	-10.959	74.000	37.355	PK
2	*	2410.240	99.360	62.031	25.360	74.000	37.329	PK

Site: AC5	Time: 2015/12/17 - 11:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2412 by ant1	



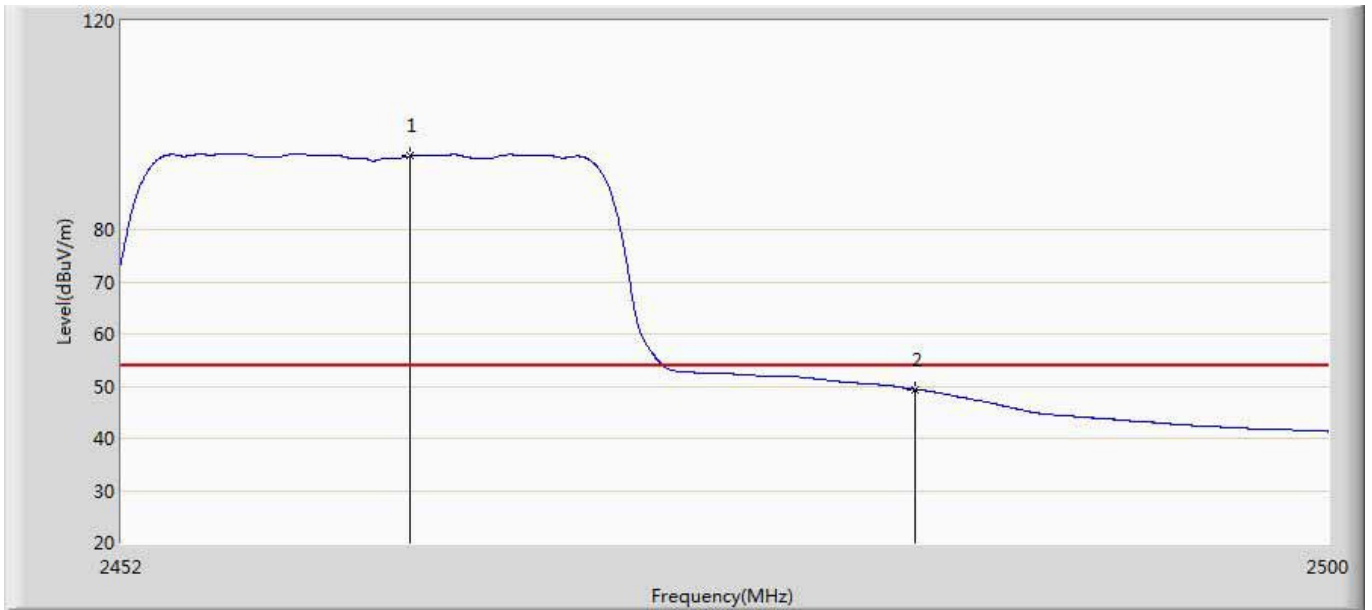
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.243	7.888	-8.757	54.000	37.355	AV
2	*	2413.936	85.065	47.718	31.065	54.000	37.348	AV

Site: AC5	Time: 2015/12/17 - 11:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant1	



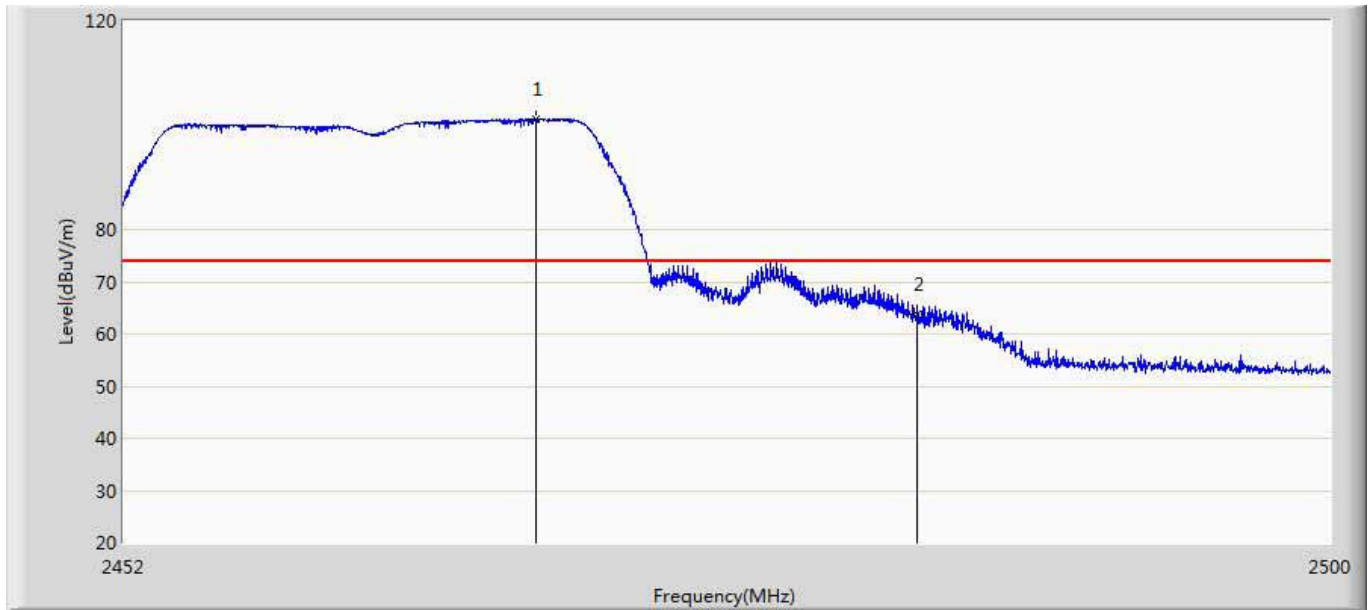
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.272	104.496	67.054	30.496	74.000	37.442	PK
2		2483.500	67.372	29.861	-6.628	74.000	37.511	PK
3		2484.280	68.961	31.444	-5.039	74.000	37.517	PK

Site: AC5	Time: 2015/12/17 - 11:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.424	94.078	56.653	40.078	54.000	37.426	AV
2		2483.500	49.385	11.874	-4.615	54.000	37.511	AV

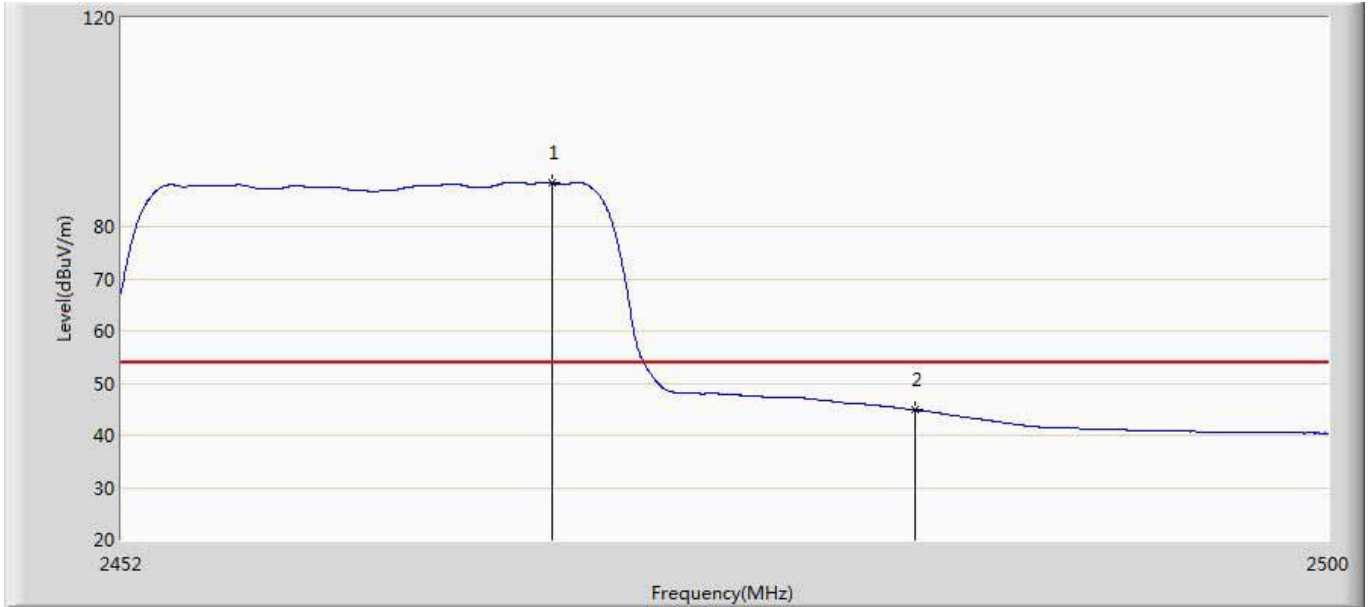
Site: AC5	Time: 2015/12/17 - 11:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.320	101.132	63.690	27.132	74.000	37.442	PK
2		2483.500	63.873	26.362	-10.127	74.000	37.511	PK

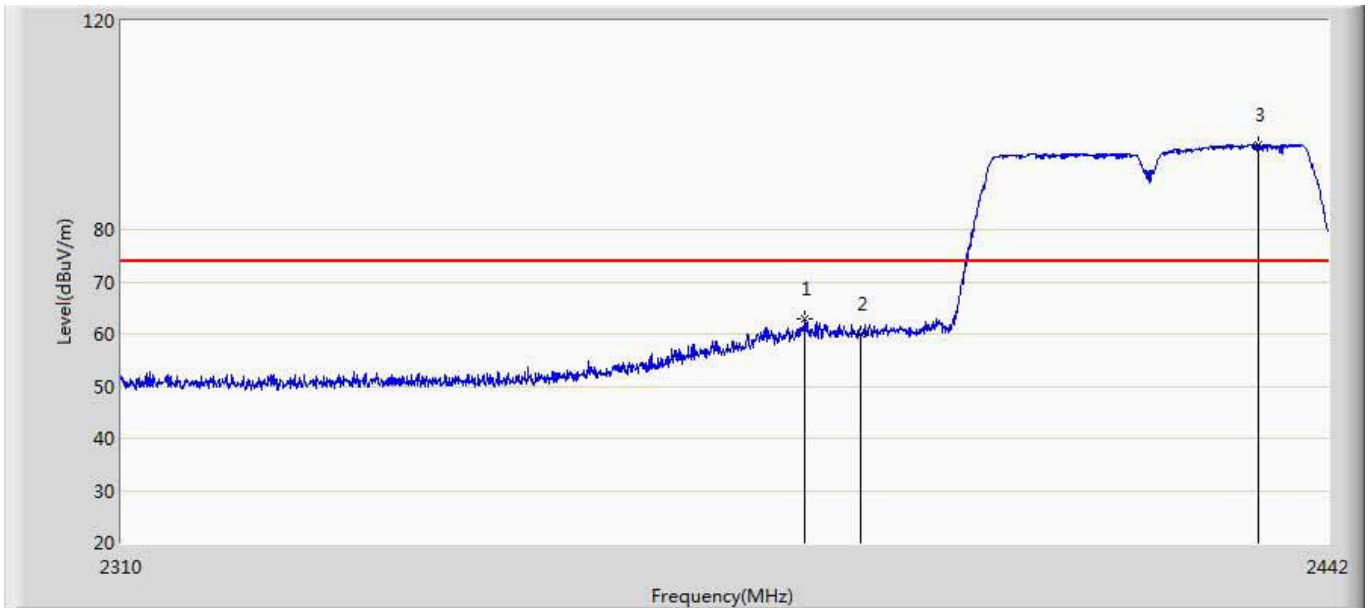


Site: AC5	Time: 2015/12/17 - 11:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 3 Transmit at 802.11n20 CH2462 by ant1	



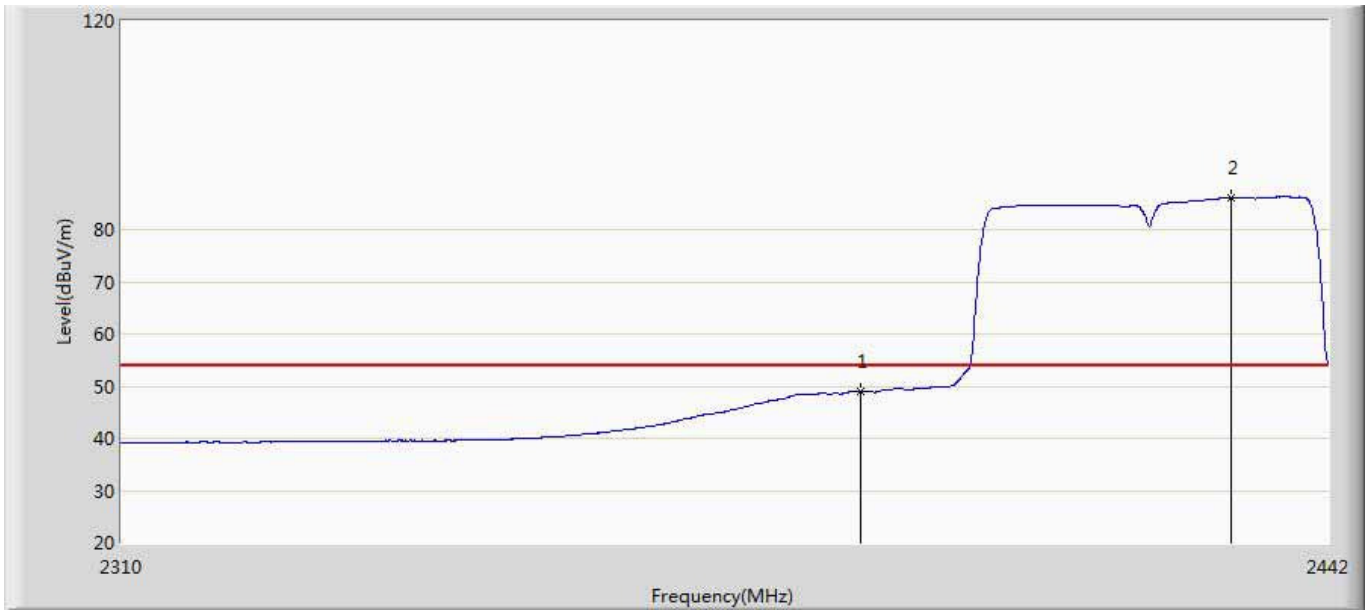
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2469.064	88.354	50.909	34.354	54.000	37.445	AV
2		2483.500	44.833	7.322	-9.167	54.000	37.511	AV

Site: AC5	Time: 2015/12/17 - 11:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant1	



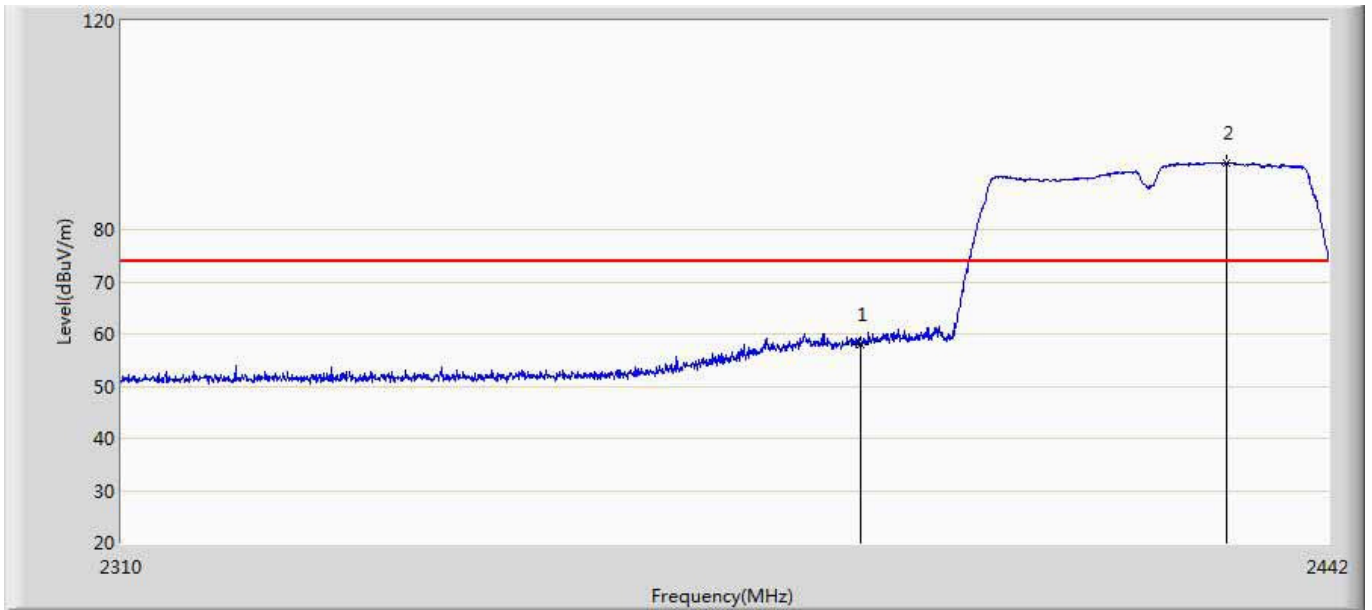
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2383.920	62.970	25.613	-11.030	74.000	37.357	PK
2		2390.000	59.874	22.519	-14.126	74.000	37.355	PK
3	*	2434.146	96.249	58.810	22.249	74.000	37.439	PK

Site: AC5	Time: 2015/12/17 - 11:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant1	



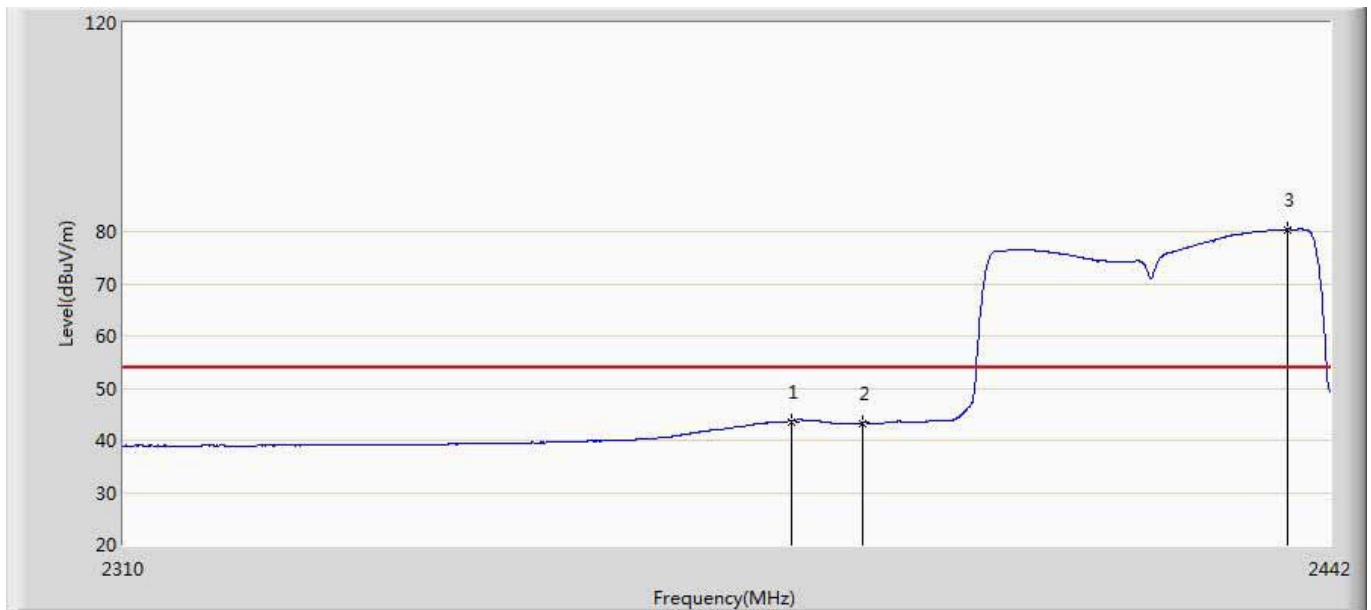
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.118	11.763	-4.882	54.000	37.355	AV
2	*	2431.110	86.164	48.723	32.164	54.000	37.441	AV

Site: AC5	Time: 2015/12/17 - 11:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant1	



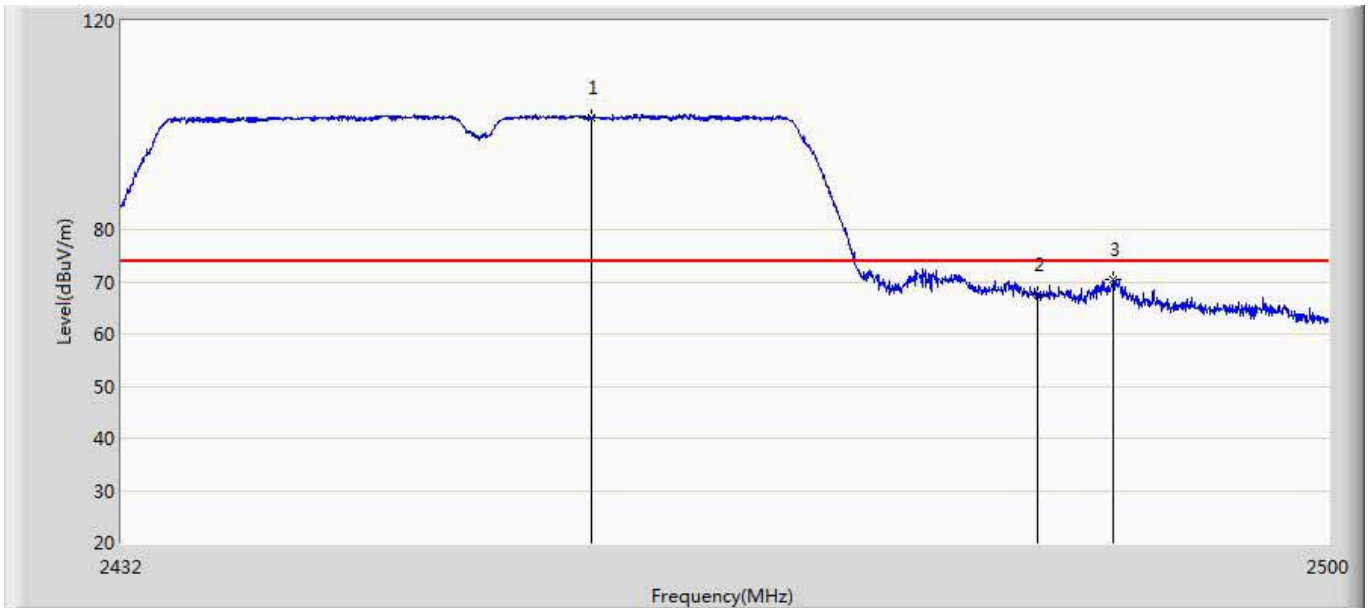
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.095	20.740	-15.905	74.000	37.355	PK
2	*	2430.714	92.876	55.435	18.876	74.000	37.441	PK

Site: AC5	Time: 2015/12/17 - 11:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2422 by ant1	



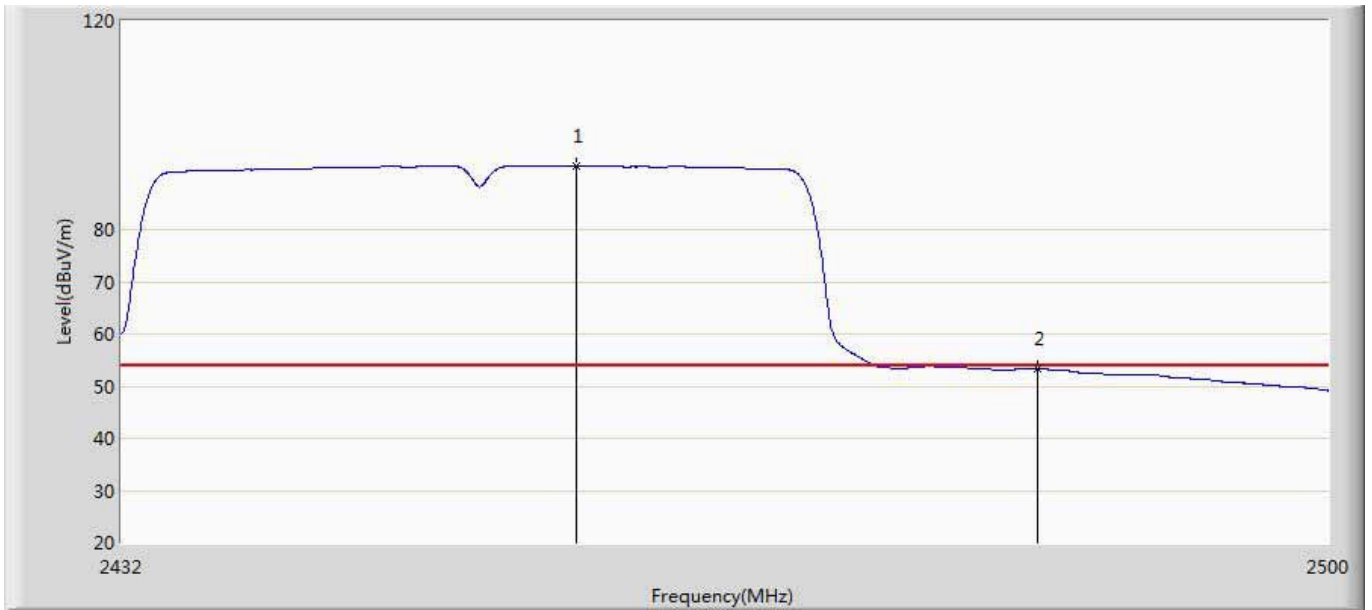
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2382.204	43.388	6.031	-10.612	54.000	37.357	AV
2		2390.000	43.171	5.816	-10.829	54.000	37.355	AV
3	*	2437.182	80.419	42.982	26.419	54.000	37.438	AV

Site: AC5	Time: 2015/12/17 - 11:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant1	



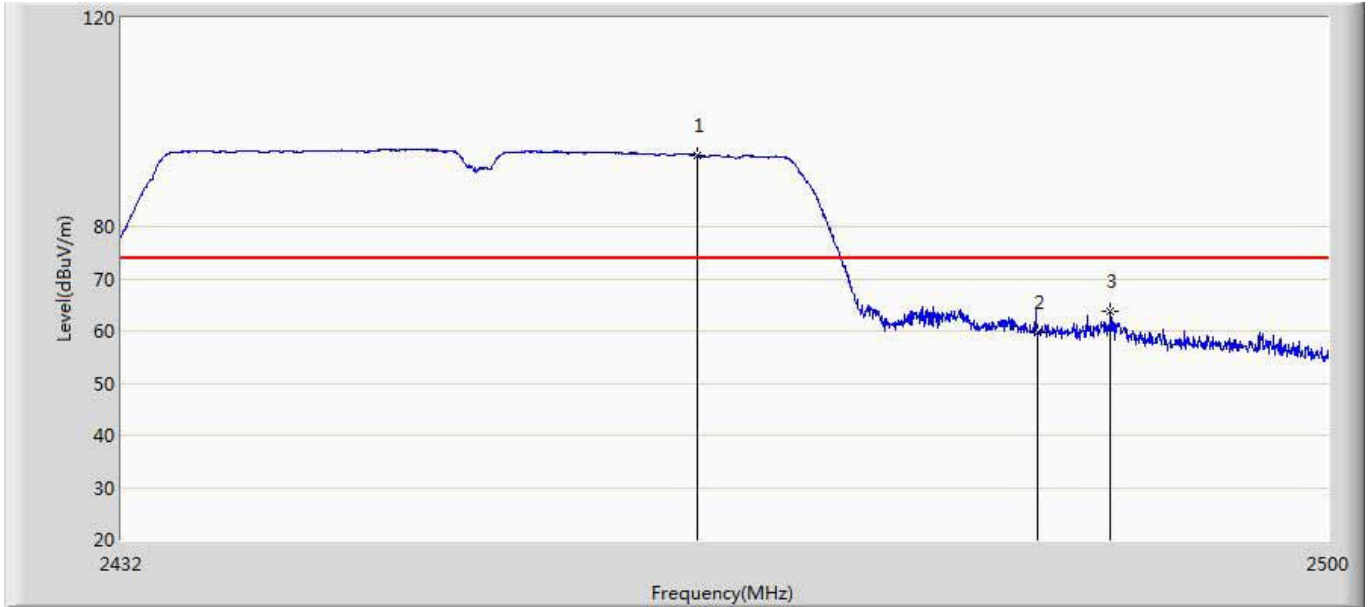
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.316	101.569	64.146	27.569	74.000	37.424	PK
2		2483.500	67.609	30.098	-6.391	74.000	37.511	PK
3		2487.726	70.320	32.778	-3.680	74.000	37.541	PK

Site: AC5	Time: 2015/12/17 - 11:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2457.398	92.221	54.797	38.221	54.000	37.424	AV
2		2483.500	53.290	15.779	-0.710	54.000	37.511	AV

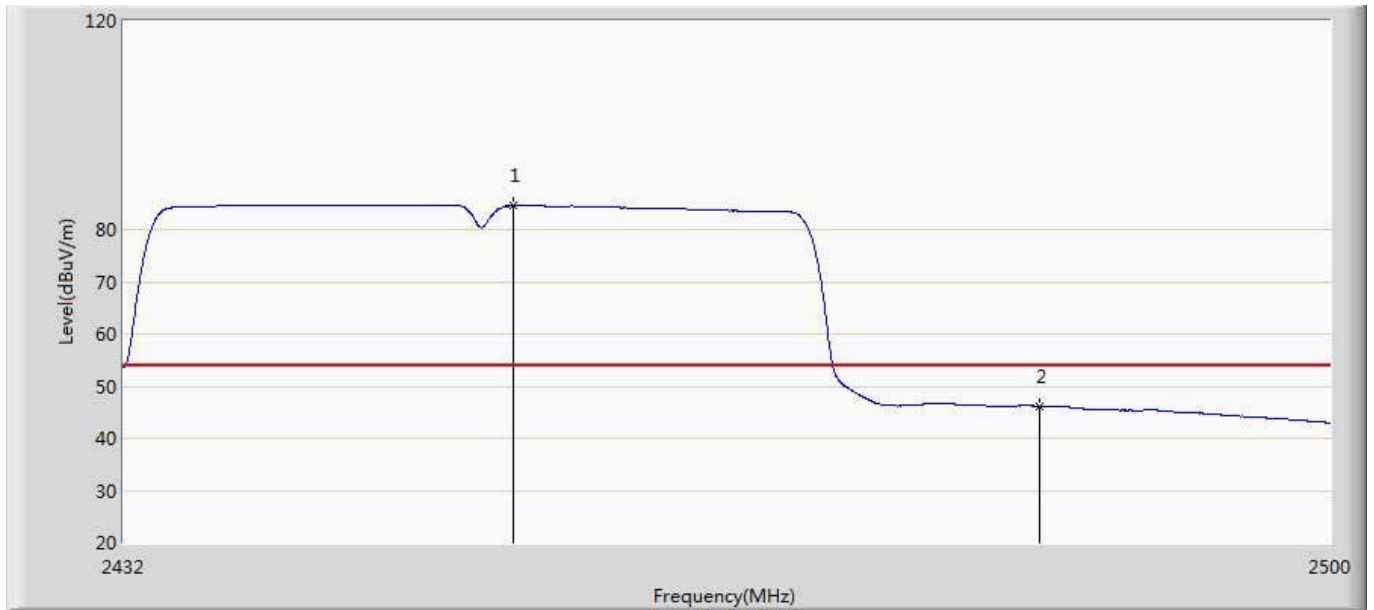
Site: AC5	Time: 2015/12/17 - 11:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.198	93.759	56.331	19.759	74.000	37.428	PK
2		2483.500	59.605	22.094	-14.395	74.000	37.511	PK
3		2487.590	63.746	26.205	-10.254	74.000	37.541	PK



Site: AC5	Time: 2015/12/17 - 11:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Wi-Fi Module	Power: AC 120V/60Hz
Note: Mode 4 Transmit at 802.11n40 CH2452 by ant1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.794	84.516	47.089	30.516	54.000	37.426	AV
2		2483.500	46.215	8.704	-7.785	54.000	37.511	AV

## 5. Power Output

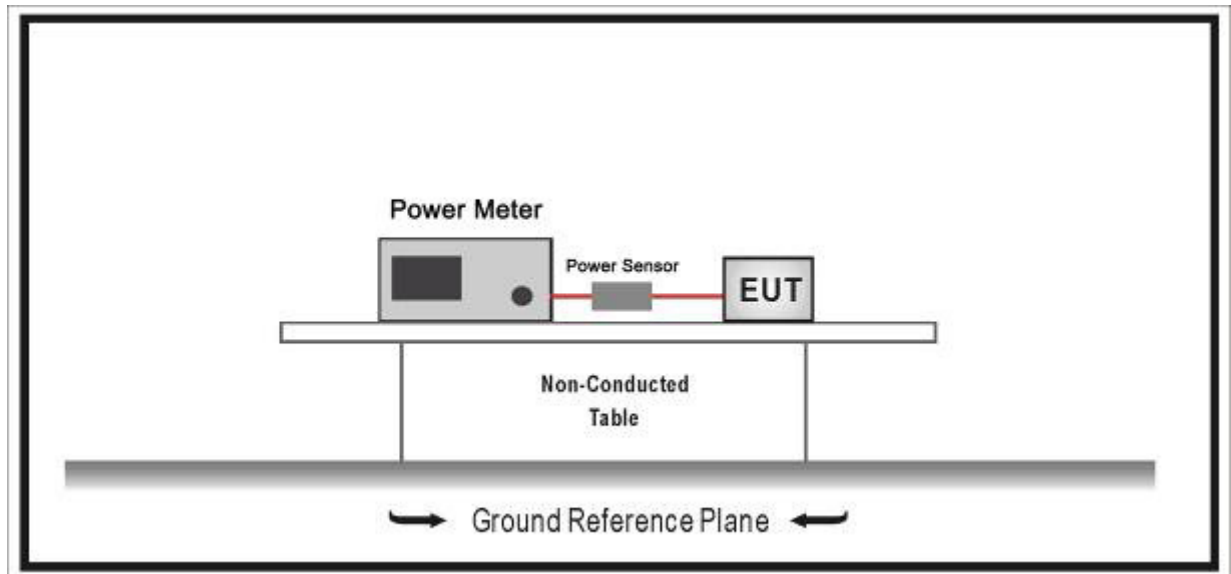
### 5.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2016.11.10
Power Sensor	Anritsu	MA2411B	0846014	2016.11.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 5.2. Test Setup



### 5.3. Limit

For FCC&IC

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

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

## 5.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r03& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1

1. Power meter and sensor's minimum video bandwidth is 50MHz, larger than 802.11n(40MHz) bandwidth;
2. Fast responding diode sensors respond immediately to changes in power level to reduce total test time.
3. Use PK detector to test.

## 5.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1.27$  dB

## 5.6. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (blue marker) for final test of each channel.

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	24.89
				5.5	24.84
				11	24.77
802.11g	20	2437	6	6	22.88
				24	22.83
				54	22.81
802.11n	20	2437	6	MCS0	21.89
				MCS4	21.91
				MCS7	21.82
802.11n	40	2437	6	MCS0	21.44
				MCS4	21.35
				MCS7	21.38

Product	:	Wi-Fi Module
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11b

Ant 0

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	15.33	N/A	15.33	30.00	Pass
6	2437	24.89	N/A	24.89	30.00	Pass
11	2462	15.63	N/A	15.63	30.00	Pass

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	N/A	15.11	15.11	30.00	Pass
6	2437	N/A	23.66	23.66	30.00	Pass
11	2462	N/A	15.25	15.25	30.00	Pass

Product	:	Wi-Fi Module
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11g

Ant 0

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	20.56	N/A	20.56	30.00	Pass
6	2437	22.88	N/A	22.88	30.00	Pass
11	2462	21.22	N/A	21.22	30.00	Pass

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	N/A	20.30	20.30	30.00	Pass
6	2437	N/A	22.86	22.86	30.00	Pass
11	2462	N/A	21.05	21.05	30.00	Pass

Product	:	Wi-Fi Module
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Ant 0

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	20.77	N/A	20.77	30.00	Pass
6	2437	21.89	N/A	21.89	30.00	Pass
11	2462	21.02	N/A	21.02	30.00	Pass

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	N/A	20.44	20.44	30.00	Pass
6	2437	N/A	21.76	21.76	30.00	Pass
11	2462	N/A	20.88	20.88	30.00	Pass

Product	:	Wi-Fi Module
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Ant 0

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
3	2422	21.33	N/A	21.33	30.00	Pass
6	2437	21.44	N/A	21.44	30.00	Pass
9	2452	21.45	N/A	21.45	30.00	Pass

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
3	2422	N/A	21.11	21.11	30.00	Pass
6	2437	N/A	21.23	21.23	30.00	Pass
9	2452	N/A	21.08	21.08	30.00	Pass

————— The End —————