

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT  
INTENTIONAL RADIATOR CERTIFICATION TO  
FCC PART 15 SUBPART C REQUIREMENT**

*OF*

**LED TV**

**Model No.:LE-60GCL-B, LC-60LE644U**

**FCC ID: 2ACWILC-60LE**

**Trademark: THTF, Fluid, Westinghouse, Seiki, Element, SANYO, SHARP**

**Report No.: KAD140805027E**

**Issue Date: August 18, 2014**

*Prepared for*

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*Prepared by*

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## VERIFICATION OF COMPLIANCE

|                      |                                                                                                                                               |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:           | Shenyang Tongfang Multimedia Technology Co., Limited<br>No.10 Nanping East Road Hunnan New District Shenyang,<br>Liaoning Province P.R .China |
| Manufacturer:        | Shenyang Tongfang Multimedia Technology Co., Limited<br>No.10 Nanping East Road Hunnan New District Shenyang,<br>Liaoning Province P.R .China |
| Product Description: | LED TV                                                                                                                                        |
| Model Number:        | LE-60GCL-B, LC-60LE644U                                                                                                                       |
| File Number:         | KAD140805027E                                                                                                                                 |
| Date of Test:        | August 05, 2014 to August 18, 2014                                                                                                            |

### We hereby certify that:

The above equipment was tested by DONGGUAN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247(2013).

The test results of this report relate only to the tested sample identified in this report.

***Approved By***



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**Sam Lv / Q.A. Manager  
DONGGUAN EMTEK CO., LTD.**

## Modified Information

| Version | Summary         | Revision Date | Report No.    |
|---------|-----------------|---------------|---------------|
| Ver.1.0 | Original Report | /             | KAD140805027E |

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APPENDIX I (PHOTOS OF EUT)(6 PAGES)

## 1. General Information

### 1.1 Product Description

A major technical descriptions of EUT is described as following:

- A). Operation Frequency: 2412-2462MHz for 802.11b/g/n(H20) ;  
2422-2452MHz for 802.11n(H40)
- B). Modulation: OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n,  
DSSS with DBPSK/DQPSK/CCK for 802.11b;
- C). Number of Channel: 11 Channels for 802.11b/g/n(H20)  
7 Channels for 802.11n(H40)
- D). Antenna Type: PCB antenna
- E). Antenna Gain: 2dBi
- F). Power Supply: AC 120V, 60Hz, 150W

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|
| 1       | 2412            | 5       | 2432            | 9       | 2452            |
| 2       | 2417            | 6       | 2437            | 10      | 2457            |
| 3       | 2422            | 7       | 2442            | 11      | 2462            |
| 4       | 2427            | 8       | 2447            |         |                 |

Note:

- 1. This device is included 802.11b, 802.11g and 802.11n(H20), 802.11n(H40) 2.4GHz transceiver function.
- 2. Test of channel was included the lowest middle and highest frequency in lowest data rate and to perform the test, then record on this report.

### 1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. The composite system is compliance with Subpart B is authorized under a DOC procedure.

### 1.3 Test Methodology

All the test program has follow FCC new test procedure KDB558074 D01 v03r02, Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2009). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 1.4 Special Accessories

Not available for this EUT intended for grant.

### 1.5 Equipment Modifications

Not available for this EUT intended for grant.

### 1.6 Test Facility

#### Site Description

EMC Lab :

Accredited by FCC, June 18, 2014  
The Certificate Number is 247565

Accredited by Industry Canada, February 19, 2014  
The Certificate Number is 9444A

Name of Firm : DONGGUAN EMTEK CO., LTD.  
Site Location : No.281, Guantai Road, Nancheng District,  
Dongguan, Guangdong, China

## 2. System Test Configuration

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

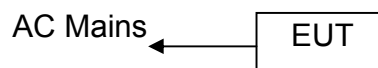
The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2009 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. Emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2009.

### 2.4 Configuration of Tested System

**Fig. 2-1 Configuration of Tested System**



**Table 2-1 Equipment Used in Tested System**

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID       | Note |
|------|-----------|-----------|----------------|--------------|------|
| 1.   | LED TV    | SHARP     | LC-60LE644U    | 2ACWILC-60LE | EUT  |

**Note:**

- (1) Unless otherwise denoted as EUT in 『Remark』 column, device(s) used in tested system is a support equipment.

### 3. Description of Test Modes

The Transmitter of EUT is powered by host equipment; these is Digital Transmission system (DTS) and have modulation OFDM, DSSS, DBPSK, DQPSK, CCK, 16QAM, 64QAM. According exploratory test, EUT will have maximum output power in those data rate (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n : MCS0), so those data rate were used for all test.

For 802.11b/g/n(H20) :

1. For lowest channel : 2412MHz (Channel 1)
2. For middle channel : 2437MHz (Channel 6)
3. For highest channel: 2462MHz (Channel 11)

For 802.11n(H40):

1. For lowest channel : 2422MHz (Channel 3)
2. For middle channel : 2437MHz (Channel 6)
3. For highest channel: 2452MHz (Channel 9)

#### 4. Summary of Test Results

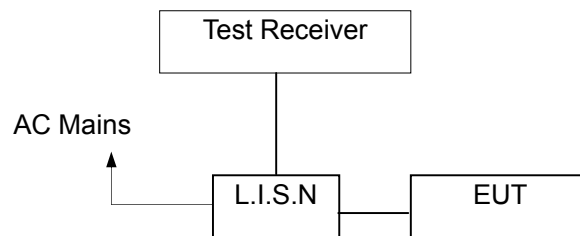
| FCC Rules              | Description Of Test         | Result |
|------------------------|-----------------------------|--------|
| §15.247(a)(2)          | 6dB bandwidth               | Pass   |
| §15.247(b)(3)          | Max Peak output Power test  | Pass   |
| §15.247(e)             | Power density               | Pass   |
| §15.247(d)             | Band edge test              | Pass   |
| §15.207                | AC Power Conducted Emission | Pass   |
| §15.247(d),<br>§15.209 | Radiated Emission           | Pass   |
| §15.247(d)             | Antenna Port Emission       | Pass   |
| §15.247(b)&§15.203     | Antenna Application         | Pass   |

## 5. Conducted Emissions Test

### 5.1 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### 5.2 Test SET-UP (Block Diagram of Configuration)



### 5.3 Measurement Equipment Used

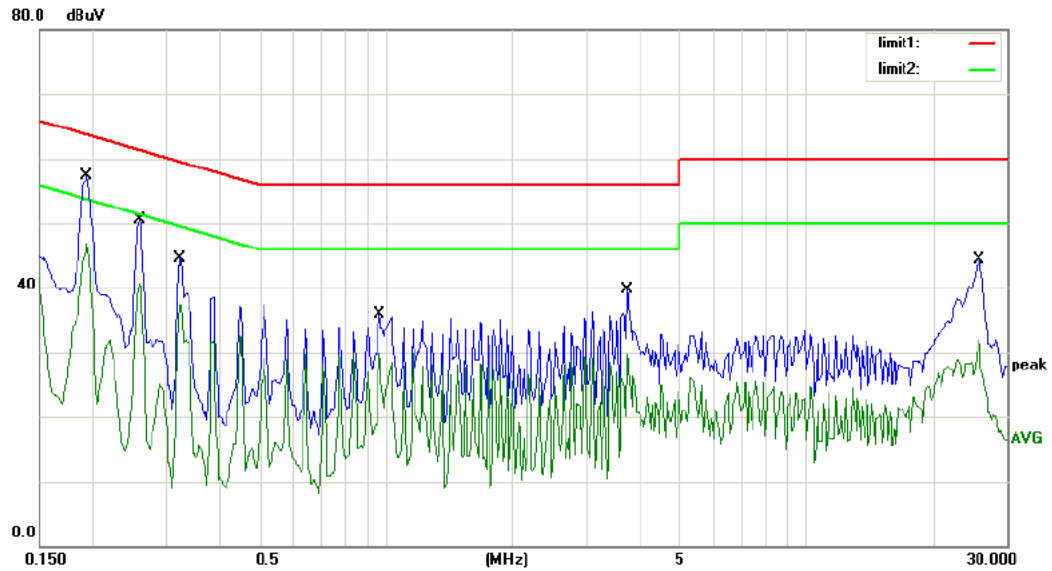
| Item | Equipment         | Manufacturer  | Model No. | Serial No. | Last Cal.    | Cal. Interval |
|------|-------------------|---------------|-----------|------------|--------------|---------------|
| 1.   | Test Receiver     | Rohde&Schwarz | ESCS30    | 100018     | May 16, 2014 | 1 Year        |
| 2.   | L.I.S.N.          | Rohde&Schwarz | ENV216    | 100017     | May 16, 2014 | 1Year         |
| 3.   | RF Switching Unit | CDS           | RSU-M2    | 38401      | May 16, 2014 | 1Year         |

### 5.4 Conducted Emission Limit

| Conducted Emission<br>Frequency(MHz) | Quasi-peak | Average |
|--------------------------------------|------------|---------|
| 0.15-0.5                             | 66-56      | 56-46   |
| 0.5-5.0                              | 56         | 46      |
| 5.0-30.0                             | 60         | 50      |

- Note:** 1. The lower limit shall apply at the transition frequencies  
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

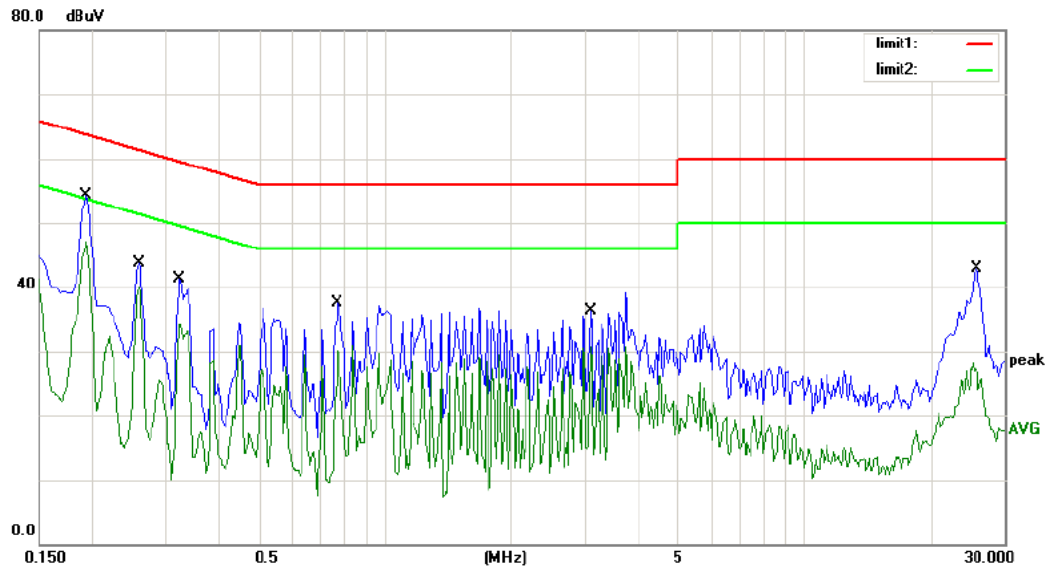
## 5.5 Measurement Result



Site site #1 Phase: **L1** Temperature: 24  
Limit: (CE)FCC Part 15 B\_QP Power: AC 120V/60Hz Humidity: 55 %  
Mode: WIFI Link  
Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   | *   | 0.1950       | 57.31                    | 0.00                    | 57.31                    | 63.82         | -6.51      | QP       |         |
| 2   |     | 0.1950       | 46.96                    | 0.00                    | 46.96                    | 53.82         | -6.86      | AVG      |         |
| 3   |     | 0.2600       | 50.42                    | 0.00                    | 50.42                    | 61.43         | -11.01     | QP       |         |
| 4   |     | 0.2600       | 40.72                    | 0.00                    | 40.72                    | 51.43         | -10.71     | AVG      |         |
| 5   |     | 0.3250       | 44.55                    | 0.00                    | 44.55                    | 59.58         | -15.03     | QP       |         |
| 6   |     | 0.3250       | 37.37                    | 0.00                    | 37.37                    | 49.58         | -12.21     | AVG      |         |
| 7   |     | 0.9650       | 35.81                    | 0.00                    | 35.81                    | 56.00         | -20.19     | QP       |         |
| 8   |     | 0.9650       | 29.96                    | 0.00                    | 29.96                    | 46.00         | -16.04     | AVG      |         |
| 9   |     | 3.7500       | 39.71                    | 0.00                    | 39.71                    | 56.00         | -16.29     | QP       |         |
| 10  |     | 3.7500       | 29.71                    | 0.00                    | 29.71                    | 46.00         | -16.29     | AVG      |         |
| 11  |     | 25.7850      | 44.40                    | 0.00                    | 44.40                    | 60.00         | -15.60     | QP       |         |
| 12  |     | 25.7850      | 31.97                    | 0.00                    | 31.97                    | 50.00         | -18.03     | AVG      |         |

\*:Maximum data x:Over limit l:over margin Comment: Factor build in receiver.



Site site #1 Phase: **N** Temperature: 24  
Limit: (CE)FCC Part 15 B\_QP Power: AC 120V/60Hz Humidity: 55 %  
Mode: WIFI Link  
Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.1950       | 54.39                    | 0.00                    | 54.39                    | 63.82         | -9.43      | QP       |         |
| 2   | *   | 0.1950       | 47.19                    | 0.00                    | 47.19                    | 53.82         | -6.63      | AVG      |         |
| 3   |     | 0.2600       | 43.76                    | 0.00                    | 43.76                    | 61.43         | -17.67     | QP       |         |
| 4   |     | 0.2600       | 40.01                    | 0.00                    | 40.01                    | 51.43         | -11.42     | AVG      |         |
| 5   |     | 0.3250       | 41.25                    | 0.00                    | 41.25                    | 59.58         | -18.33     | QP       |         |
| 6   |     | 0.3250       | 34.33                    | 0.00                    | 34.33                    | 49.58         | -15.25     | AVG      |         |
| 7   |     | 0.7750       | 37.44                    | 0.00                    | 37.44                    | 56.00         | -18.56     | QP       |         |
| 8   |     | 0.7750       | 30.89                    | 0.00                    | 30.89                    | 46.00         | -15.11     | AVG      |         |
| 9   |     | 3.1000       | 36.22                    | 0.00                    | 36.22                    | 56.00         | -19.78     | QP       |         |
| 10  |     | 3.1000       | 30.64                    | 0.00                    | 30.64                    | 46.00         | -15.36     | AVG      |         |
| 11  |     | 25.7850      | 42.99                    | 0.00                    | 42.99                    | 60.00         | -17.01     | QP       |         |
| 12  |     | 25.7850      | 28.31                    | 0.00                    | 28.31                    | 50.00         | -21.69     | AVG      |         |

\*:Maximum data x:Over limit l:over margin Comment: Factor build in receiver.

## 6. Radiated Emission Test

### 6.1 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured was complete.

When spectrum scanned from 30MHz to 1GHz setting resolution bandwidth 120KHz and video bandwidth 300KHz:

| EMI Test Receiver | Setting  |
|-------------------|----------|
| Attenuation       | Auto     |
| RB                | 120KHz   |
| VB                | 300KHz   |
| Detector          | QP       |
| Trace             | Max hold |

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

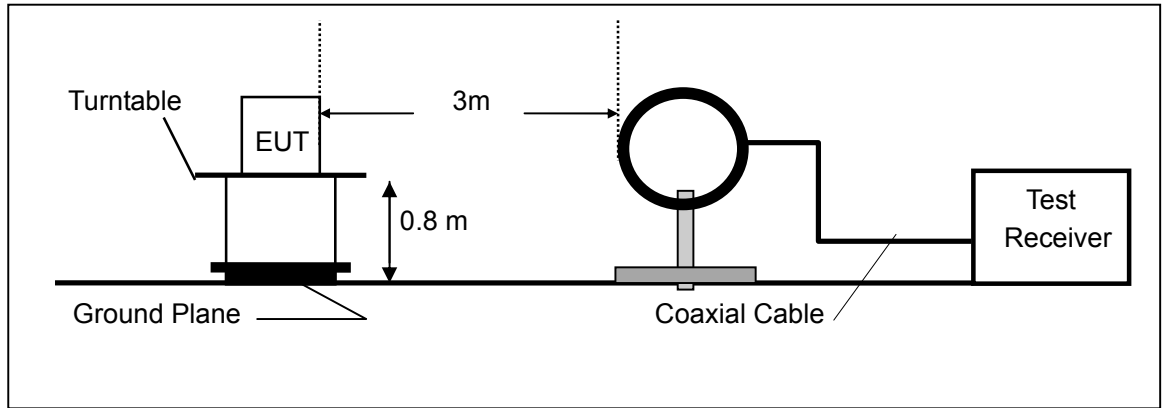
| EMI Test Receiver | Setting  |
|-------------------|----------|
| Attenuation       | Auto     |
| RB                | 1MHz     |
| VB                | 3MHz     |
| Detector          | Peak     |
| Trace             | Max hold |

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz:

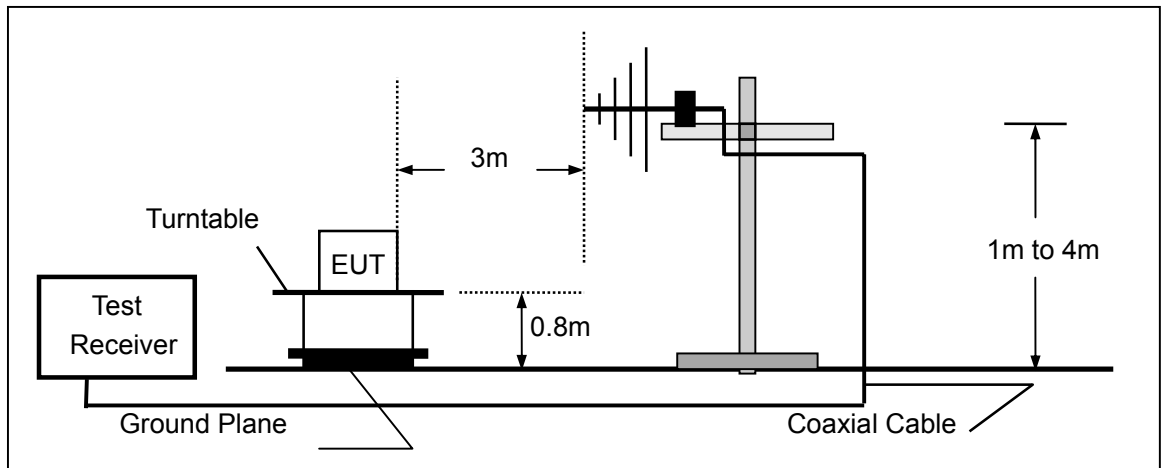
| EMI Test Receiver | Setting  |
|-------------------|----------|
| Attenuation       | Auto     |
| RB                | 1MHz     |
| VB                | 10Hz     |
| Detector          | AVG      |
| Trace             | Max hold |

## 6.2 Test SET-UP (Block Diagram of Configuration)

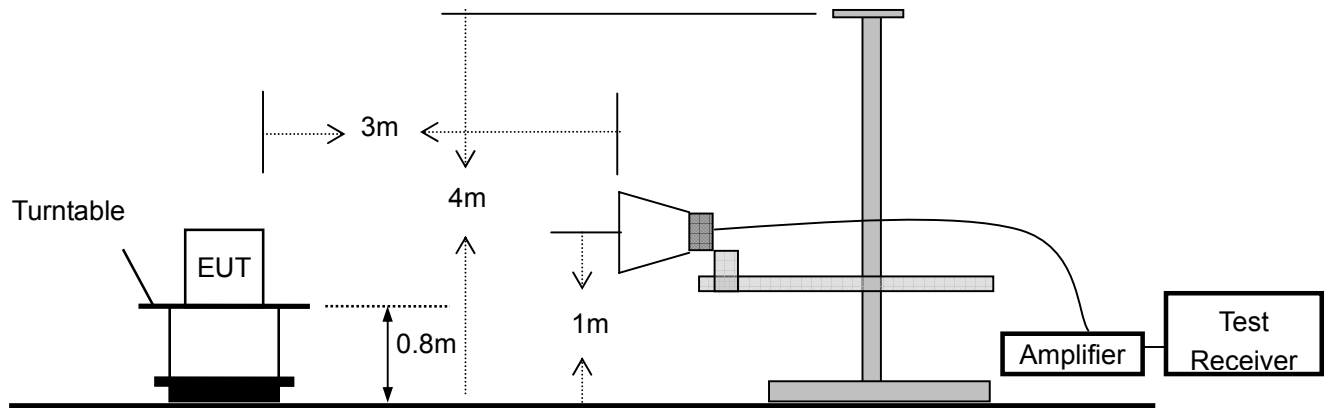
### (A) Radiated Emission Test Set-Up, Frequency Below 30MHz



### (B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



### (C) Radiated Emission Test Set-Up, Frequency above 1000MHz



### 6.3 Measurement Equipment Used

| EQUIPMENT TYPE    | MFR             | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|-----------------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSV30        | 1321.3008K    | 05/16/2014 | 05/15/2015 |
| Spectrum Analyzer | HP              | FSV30        | 839840481     | 05/16/2014 | 05/15/2015 |
| EMI Test Receiver | Rohde & Schwarz | ESU          | 1302.6005.26  | 05/16/2014 | 05/15/2015 |
| Pre-Amplifier     | HP              | 8447D        | 2944A07999    | 05/16/2014 | 05/15/2015 |
| Bilog Antenna     | Schwarzbeck     | VULB9163     | 142           | 05/19/2014 | 05/18/2015 |
| Loop Antenna      | Schwarzbeck     | FMZB 1519    | 012           | 05/19/2014 | 05/18/2015 |
| Horn Antenna      | Schwarzbeck     | BBHA 9170    | BBHA9170399   | 05/19/2014 | 05/18/2015 |
| Horn Antenna      | Schwarzbeck     | BBHA 9120    | D143          | 05/19/2014 | 05/18/2015 |
| Spectrum Analyzer | Agilent         | E4446A       | US44300399    | 05/16/2014 | 05/15/2015 |

### 6.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490       | 2400/F(KHz)                       | 300                           |
| 0.490~1.705       | 24000/F(KHz)                      | 30                            |
| 1.705~30.0        | 30                                | 30                            |
| 30~88             | 100                               | 3                             |
| 88~216            | 150                               | 3                             |
| 216~960           | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

#### 15.205 Restricted bands of operation

| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

Remark 1. Emission level in dBuV/m=20 log (uV/m)

- :
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
  3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

## 6.5 Measurement Result

Below 1GHz:

All the modulation modes were tested the data of the test mode are recorded in the following pages.

Operation Mode: TX Mode      Test Date : August 08, 2014  
Frequency Range: 9KHz~300MHz      Temperature : 28℃  
Test Result: PASS      Humidity : 60 %  
Measured Distance: 3m      Test By: WOLF

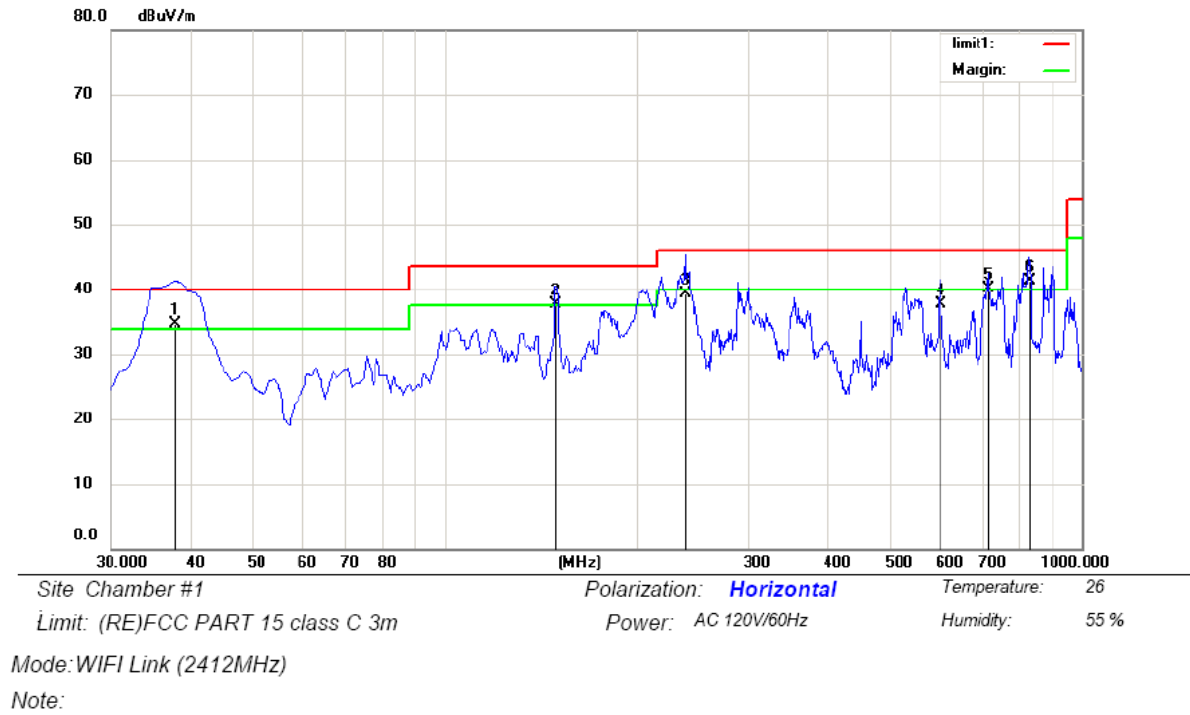
| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV/m) | Limit 3m<br>(dBuV/m) | Over<br>(dB) |
|----------------|-----------------|----------------------------|----------------------|--------------|
| --             | --              | --                         | --                   | --           |

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =  $40\log(\text{Specific distance/ test distance})$  (dB);

Limit line = Specific limits(dBuV) + distance extrapolation factor.

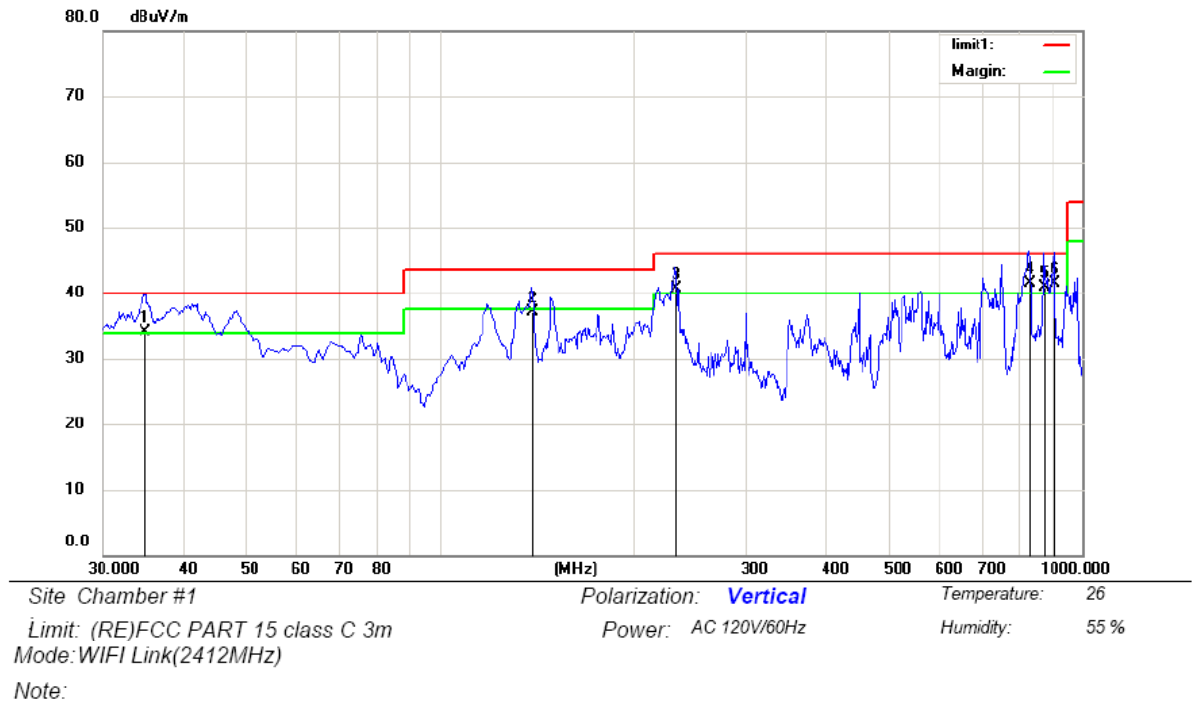
All the modulation modes were tested the data of the worst mode (TX 802.11b) are recorded in the following pages and the others modulation methods do not exceed the limits.



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|-----------------|---------|
| 1   | !   | 37.7600      | 48.60                    | -13.84                  | 34.76                      | 40.00           | -5.24      | QP                      |                 |         |
| 2   | !   | 149.3100     | 55.30                    | -17.68                  | 37.62                      | 43.50           | -5.88      | QP                      |                 |         |
| 3   |     | 239.5200     | 55.00                    | -15.68                  | 39.32                      | 46.00           | -6.68      | QP                      |                 |         |
| 4   |     | 600.3600     | 46.10                    | -8.40                   | 37.70                      | 46.00           | -8.30      | QP                      |                 |         |
| 5   | !   | 714.8200     | 46.90                    | -6.80                   | 40.10                      | 46.00           | -5.90      | QP                      |                 |         |
| 6   | *   | 829.2800     | 45.80                    | -4.48                   | 41.32                      | 46.00           | -4.68      | QP                      |                 |         |

\*:Maximum data x:Over limit !:over margin

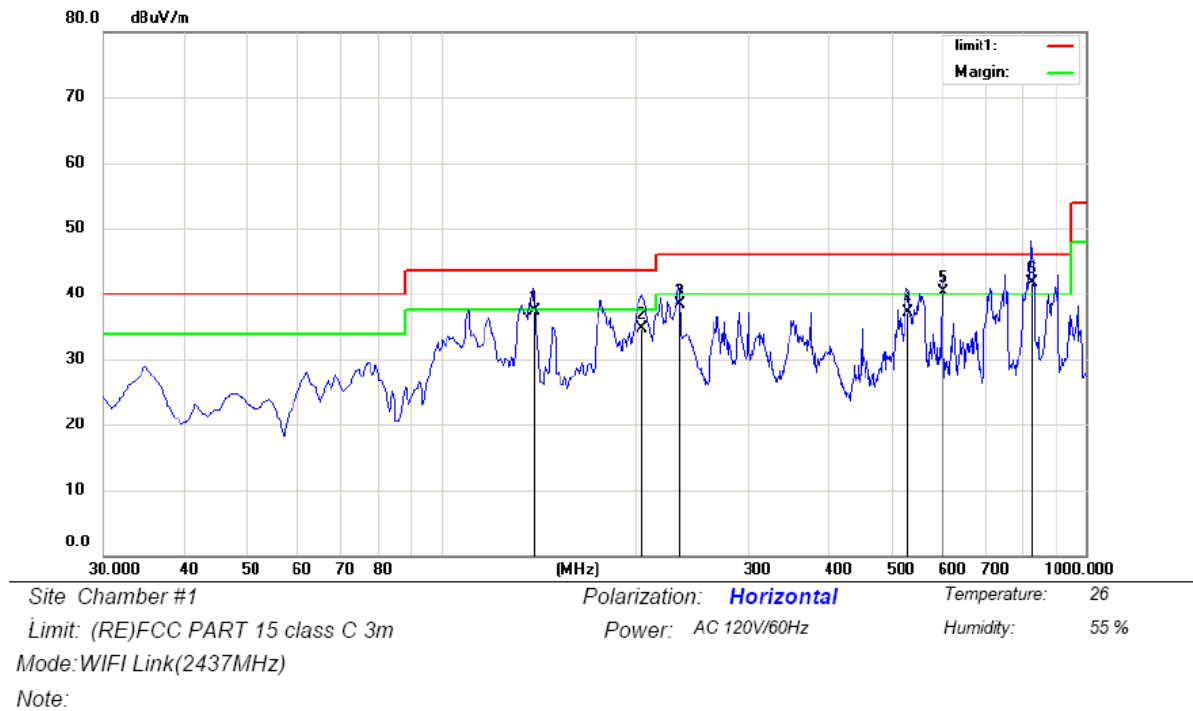
Operator: QIU



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|---------------------------|---------|
| 1   | !   | 34.8500      | 48.30                    | -14.19                  | 34.11                      | 40.00           | -5.89      | QP                      |                           |         |
| 2   |     | 139.6100     | 54.20                    | -17.00                  | 37.20                      | 43.50           | -6.30      | QP                      |                           |         |
| 3   | !   | 233.7000     | 56.70                    | -15.92                  | 40.78                      | 46.00           | -5.22      | QP                      |                           |         |
| 4   | !   | 830.2500     | 46.00                    | -4.56                   | 41.44                      | 46.00           | -4.56      | QP                      |                           |         |
| 5   | !   | 874.8700     | 45.10                    | -4.23                   | 40.87                      | 46.00           | -5.13      | QP                      |                           |         |
| 6   | *   | 907.8500     | 44.90                    | -3.30                   | 41.60                      | 46.00           | -4.40      | QP                      |                           |         |

\*:Maximum data x:Over limit !:over margin

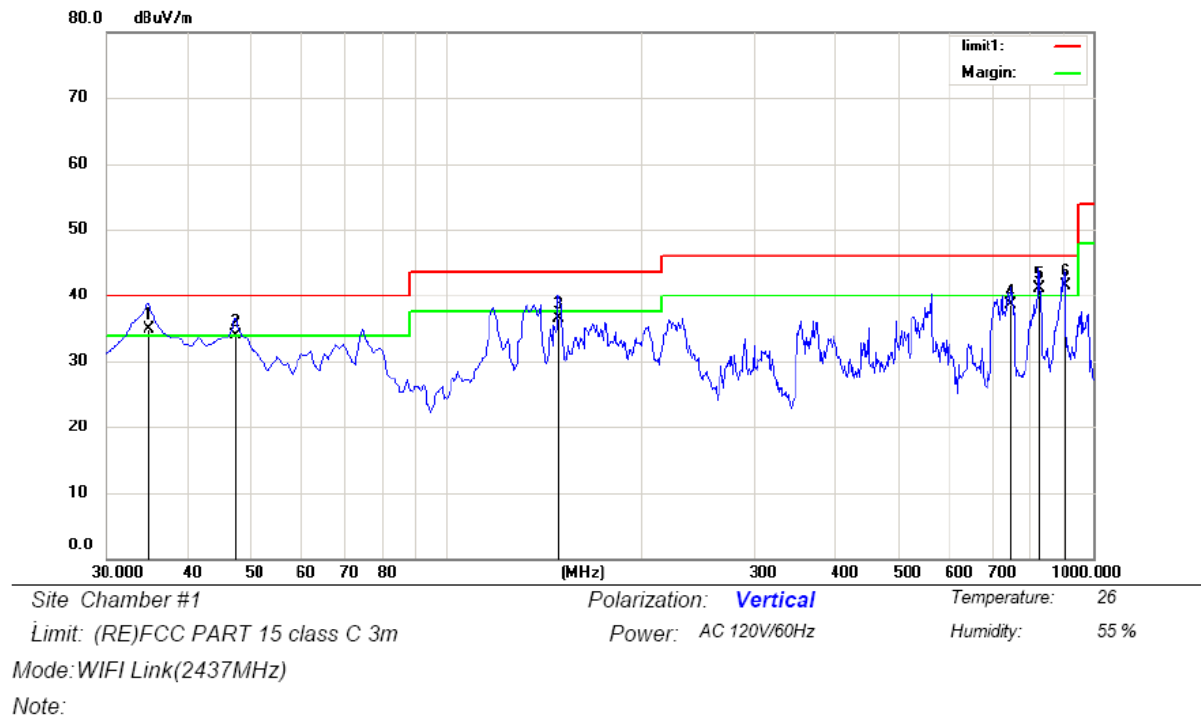
Operator: QIU



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measure-ment | Limit  | Over  | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|--------------|--------|-------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB             | dBuV/m       | dBuV/m | dB    | Detector       | cm           | degree |
| 1   |     | 139.6100 | 54.30         | -17.00         | 37.30        | 43.50  | -6.20 | QP             |              |        |
| 2   |     | 205.5700 | 52.10         | -17.34         | 34.76        | 43.50  | -8.74 | QP             |              |        |
| 3   |     | 234.6700 | 54.20         | -15.91         | 38.29        | 46.00  | -7.71 | QP             |              |        |
| 4   |     | 528.5800 | 46.90         | -9.70          | 37.20        | 46.00  | -8.80 | QP             |              |        |
| 5   | !   | 600.3600 | 48.70         | -8.40          | 40.30        | 46.00  | -5.70 | QP             |              |        |
| 6   | *   | 825.4000 | 46.10         | -4.45          | 41.65        | 46.00  | -4.35 | QP             |              |        |

\*:Maximum data x:Over limit !:over margin

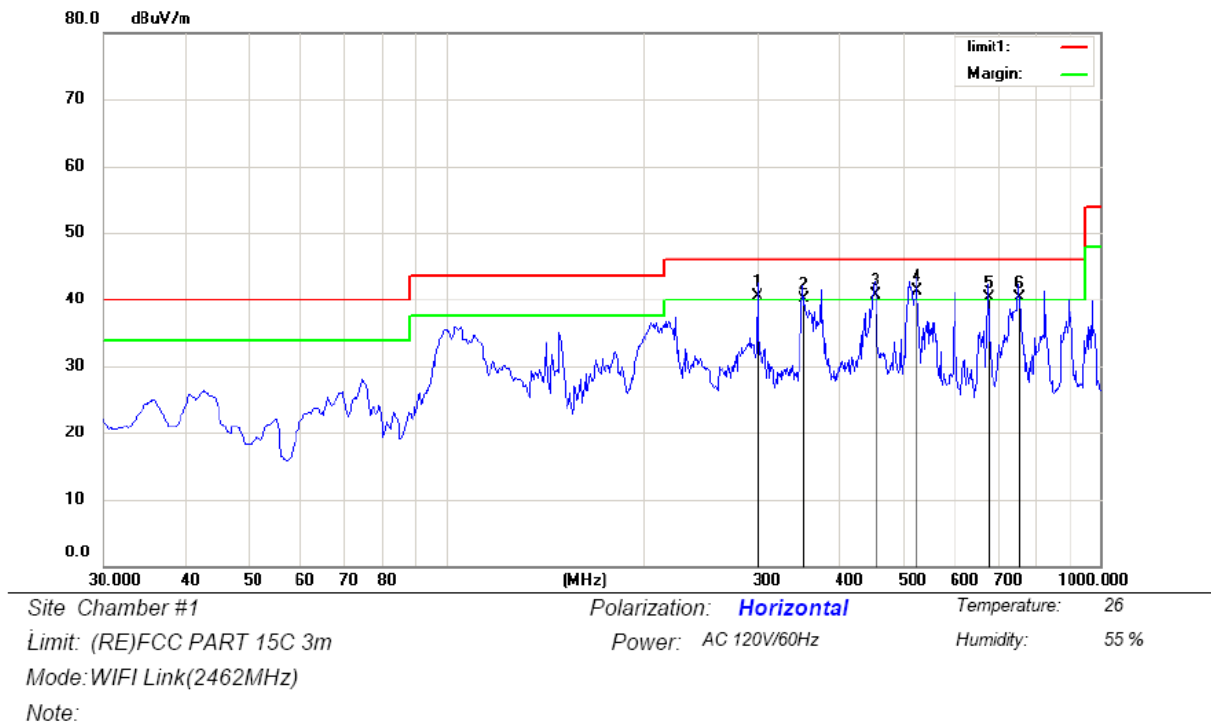
Operator: QIU



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   | !   | 34.8500  | 49.10         | -14.19         | 34.91       | 40.00  | -5.09 | QP             |              |         |
| 2   |     | 47.4600  | 48.30         | -14.38         | 33.92       | 40.00  | -6.08 | QP             |              |         |
| 3   |     | 149.3100 | 54.20         | -17.68         | 36.52       | 43.50  | -6.98 | QP             |              |         |
| 4   |     | 744.8900 | 44.60         | -6.01          | 38.59       | 46.00  | -7.41 | QP             |              |         |
| 5   | !   | 826.3700 | 45.70         | -4.51          | 41.19       | 46.00  | -4.81 | QP             |              |         |
| 6   | *   | 905.9100 | 44.90         | -3.37          | 41.53       | 46.00  | -4.47 | QP             |              |         |

\*:Maximum data x:Over limit !:over margin

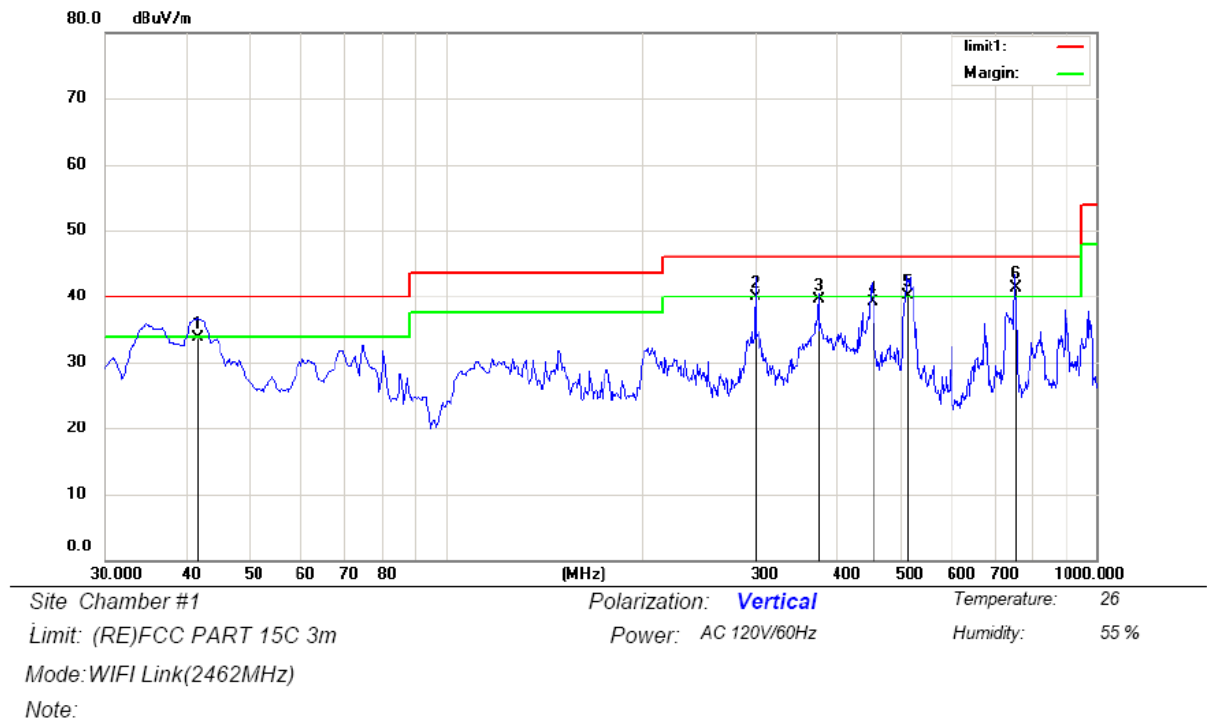
Operator: QIU



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   | !   | 299.6600 | 54.76         | -14.34         | 40.42       | 46.00  | -5.58 | QP             |              |         |
| 2   | !   | 352.0400 | 52.92         | -12.90         | 40.02       | 46.00  | -5.98 | QP             |              |         |
| 3   | !   | 452.9200 | 51.85         | -11.14         | 40.71       | 46.00  | -5.29 | QP             |              |         |
| 4   | *   | 524.7000 | 51.16         | -9.83          | 41.33       | 46.00  | -4.67 | QP             |              |         |
| 5   | !   | 675.0500 | 47.86         | -7.62          | 40.24       | 46.00  | -5.76 | QP             |              |         |
| 6   | !   | 750.7100 | 46.10         | -5.75          | 40.35       | 46.00  | -5.65 | QP             |              |         |

\*:Maximum data x:Over limit !:over margin

Operator: Missing



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 41.6400  | 47.30         | -13.58         | 33.72       | 40.00  | -6.28 | QP             |              |         |
| 2   |     | 299.6600 | 54.17         | -14.34         | 39.83       | 46.00  | -6.17 | QP             |              |         |
| 3   |     | 375.3200 | 51.85         | -12.27         | 39.58       | 46.00  | -6.42 | QP             |              |         |
| 4   |     | 452.9200 | 50.34         | -11.15         | 39.19       | 46.00  | -6.81 | QP             |              |         |
| 5   | !   | 513.0600 | 50.18         | -10.11         | 40.07       | 46.00  | -5.93 | QP             |              |         |
| 6   | *   | 750.7100 | 47.36         | -6.00          | 41.36       | 46.00  | -4.64 | QP             |              |         |

\*:Maximum data x:Over limit !:over margin

Operator: Missing

# **Above 1GHz:**

Operation Mode: 802.11b Lowest

Test Date : August 08, 2014

| Freq.<br>(MHz) | Ant.Pol<br>H/V | Emission Level(dBuV/m) |       | Limit<br>3m(dBuV/m) |    | Over(dB) |        |
|----------------|----------------|------------------------|-------|---------------------|----|----------|--------|
|                |                | PK                     | AV    | PK                  | AV | PK       | AV     |
| 4824           | V              | 68.75                  | 48.72 | 74                  | 54 | -5.25    | -5.28  |
| 7236           | V              | 67.15                  | 47.56 | 74                  | 54 | -6.85    | -6.44  |
| 9648           | V              | 66.23                  | 46.25 | 74                  | 54 | -7.77    | -7.75  |
| 12060          | V              | 65.08                  | 45.13 | 74                  | 54 | -8.92    | -8.87  |
| 14472          | V              | 64.48                  | 44.08 | 74                  | 54 | -9.52    | -9.92  |
| 16884          | V              | 63.25                  | 43.29 | 74                  | 54 | -10.75   | -10.71 |
| 4824           | H              | 67.46                  | 47.49 | 74                  | 54 | -6.54    | -6.51  |
| 7236           | H              | 66.08                  | 46.25 | 74                  | 54 | -7.92    | -7.75  |
| 9648           | H              | 65.13                  | 45.13 | 74                  | 54 | -8.87    | -8.87  |
| 12060          | H              | 64.28                  | 44.08 | 74                  | 54 | -9.72    | -9.92  |
| 14472          | H              | 63.72                  | 43.29 | 74                  | 54 | -10.28   | -10.71 |
| 16884          | H              | 62.75                  | 42.17 | 74                  | 54 | -11.25   | -11.83 |

Operation Mode: 802.11b Middle

Test Date : August 08, 2014

| Freq.<br>(MHz) | Ant.Pol<br>H/V | Emission Level(dBuV/m) |       | Limit<br>3m(dBuV/m) |    | Over(dB) |        |
|----------------|----------------|------------------------|-------|---------------------|----|----------|--------|
|                |                | PK                     | AV    | PK                  | AV | PK       | AV     |
| 4874           | V              | 67.46                  | 47.42 | 74                  | 54 | -6.54    | -6.58  |
| 7311           | V              | 66.28                  | 46.28 | 74                  | 54 | -7.72    | -7.72  |
| 9688           | V              | 65.13                  | 45.15 | 74                  | 54 | -8.87    | -8.85  |
| 12185          | V              | 64.85                  | 44.95 | 74                  | 54 | -9.15    | -9.05  |
| 14622          | V              | 63.17                  | 43.08 | 74                  | 54 | -10.83   | -10.92 |
| 17059          | V              | 62.85                  | 42.19 | 74                  | 54 | -11.15   | -11.81 |
| 4874           | H              | 68.42                  | 46.85 | 74                  | 54 | -5.58    | -7.15  |
| 7311           | H              | 67.13                  | 45.25 | 74                  | 54 | -6.87    | -8.75  |
| 9688           | H              | 66.85                  | 44.13 | 74                  | 54 | -7.15    | -9.87  |
| 12185          | H              | 65.08                  | 43.28 | 74                  | 54 | -8.92    | -10.72 |
| 14622          | H              | 64.13                  | 42.95 | 74                  | 54 | -9.87    | -11.05 |
| 17059          | H              | 63.92                  | 41.28 | 74                  | 54 | -10.08   | -12.72 |

Operation Mode: 802.11b Highest

Test Date : August 08, 2014

| Freq.<br>(MHz) | Ant.Pol<br>H/V | Emission Level(dBuV/m) |       | Limit<br>3m(dBuV/m) |    | Over(dB) |        |
|----------------|----------------|------------------------|-------|---------------------|----|----------|--------|
|                |                | PK                     | AV    | PK                  | AV | PK       | AV     |
| 4924           | V              | 68.15                  | 46.72 | 74                  | 54 | -5.85    | -7.28  |
| 7386           | V              | 67.28                  | 45.82 | 74                  | 54 | -6.72    | -8.18  |
| 9848           | V              | 66.25                  | 44.13 | 74                  | 54 | -7.75    | -9.87  |
| 12310          | V              | 65.13                  | 43.28 | 74                  | 54 | -8.87    | -10.72 |
| 14772          | V              | 64.28                  | 42.19 | 74                  | 54 | -9.72    | -11.81 |
| 17234          | V              | 63.17                  | 41.08 | 74                  | 54 | -10.83   | -12.92 |
| 4924           | H              | 67.16                  | 45.13 | 74                  | 54 | -6.84    | -8.87  |
| 7386           | H              | 66.08                  | 44.85 | 74                  | 54 | -7.92    | -9.15  |
| 9848           | H              | 65.13                  | 43.62 | 74                  | 54 | -8.87    | -10.38 |
| 12310          | H              | 64.28                  | 42.17 | 74                  | 54 | -9.72    | -11.83 |
| 14772          | H              | 63.72                  | 41.08 | 74                  | 54 | -10.28   | -12.92 |
| 17234          | H              | 62.75                  | 40.39 | 74                  | 54 | -11.25   | -13.61 |

**All emissions not reported were more than 20dB below the specified limit or in the noise floor.**

**No others harmonics emissions are higher than 20 dB below the limits of 47 CFR Part 15.247.**

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.  
(3) Data of measurement within this frequency range shown “ – ” in the table above means the reading of emissions are attenuated more than 20Db below the permissible limits or the field strength is too small to be measured.

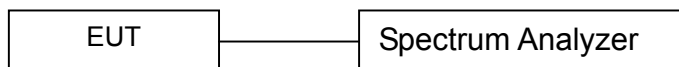
## 7. 6dB Bandwidth Test

### 7.1 Measurement Procedure

The EUT was operating in IEEE 802.11b, 802.11g, 802.11n(H20), 802.11n(H40) mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

1. Set resolution bandwidth (RBW) = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequency) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.2 Test SET-UP (Block Diagram of Configuration)



### 7.3 Measurement Equipment Used

| EQUIPMENT TYPE    | MFR     | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|---------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Agilent | FSV30        | 1321.3008K    | 05/16/2014 | 05/15/2015 |

### 7.4 Measurement Results

6 Bandwidth Test Data Chart:

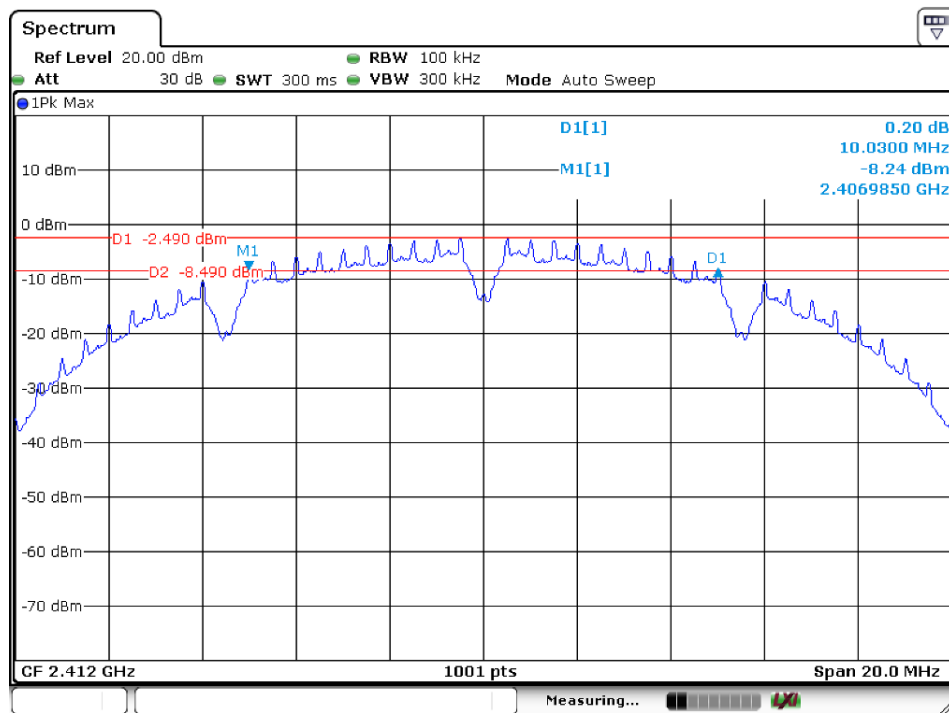
Refer to attached data chart.

Spectrum Detector: PK Test Date : August 08, 2014  
Test By: Jack Temperature : 28℃  
Test Result: PASS Humidity : 60%

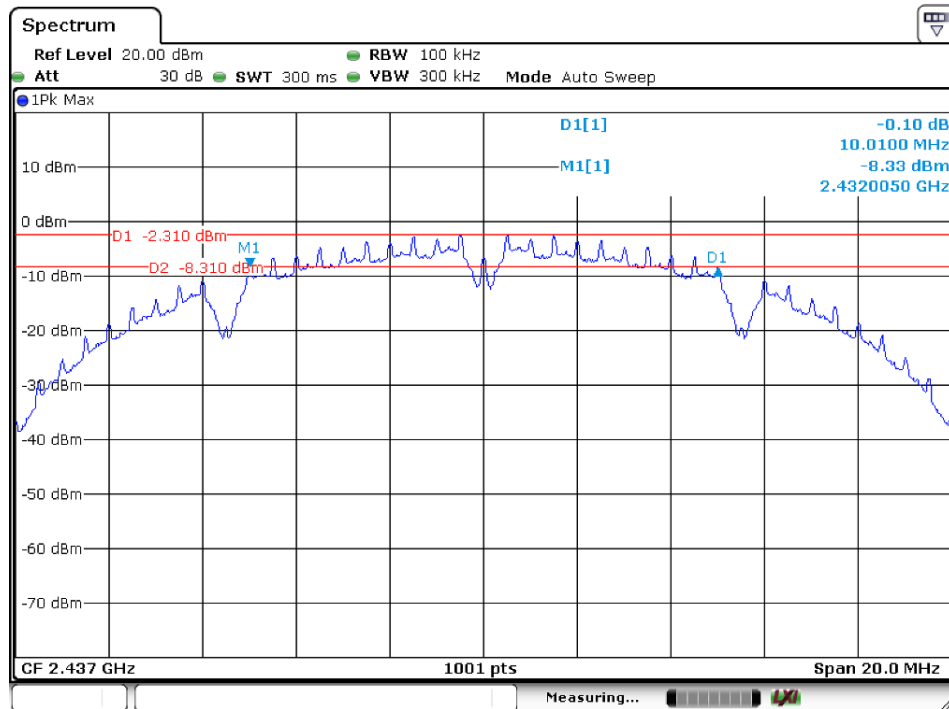
| Test Channel | 6dB Occupy Bandwidth(MHz) |         |              |              | Limit(KHz) | Result |
|--------------|---------------------------|---------|--------------|--------------|------------|--------|
|              | 802.11b                   | 802.11g | 802.11n(H20) | 802.11n(H40) |            |        |
| Lowest       | 10.03                     | 16.36   | 17.58        | 35.08        | >500       | Pass   |
| Middle       | 10.01                     | 16.36   | 17.58        | 35.12        |            |        |
| Highest      | 10.05                     | 16.36   | 17.58        | 35.12        |            |        |

Test Plots as follow:

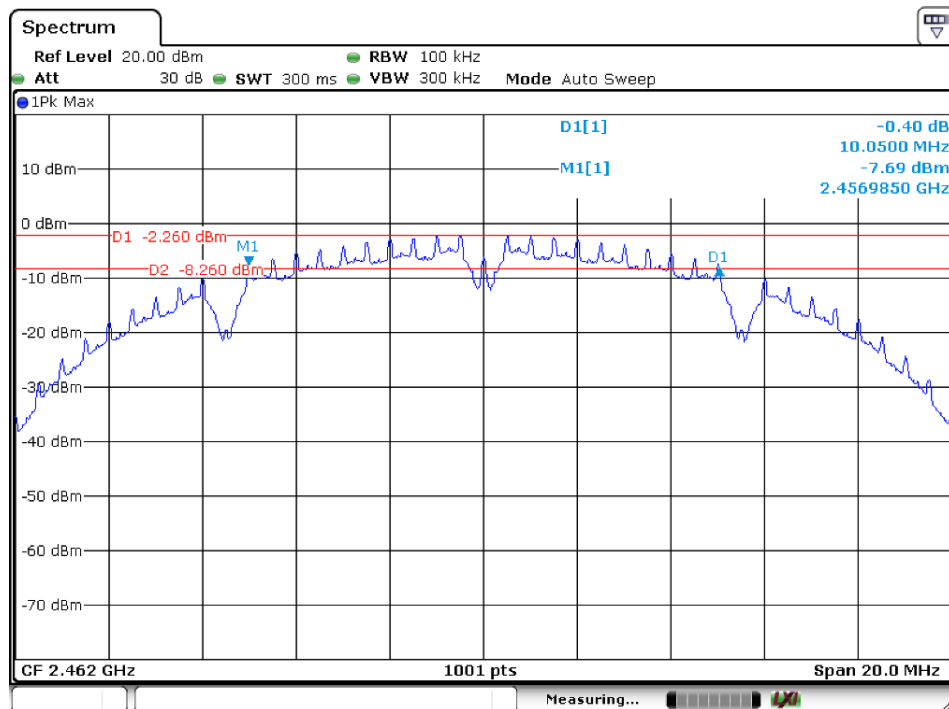
Test Mode: 802.11b



Lowest Channel

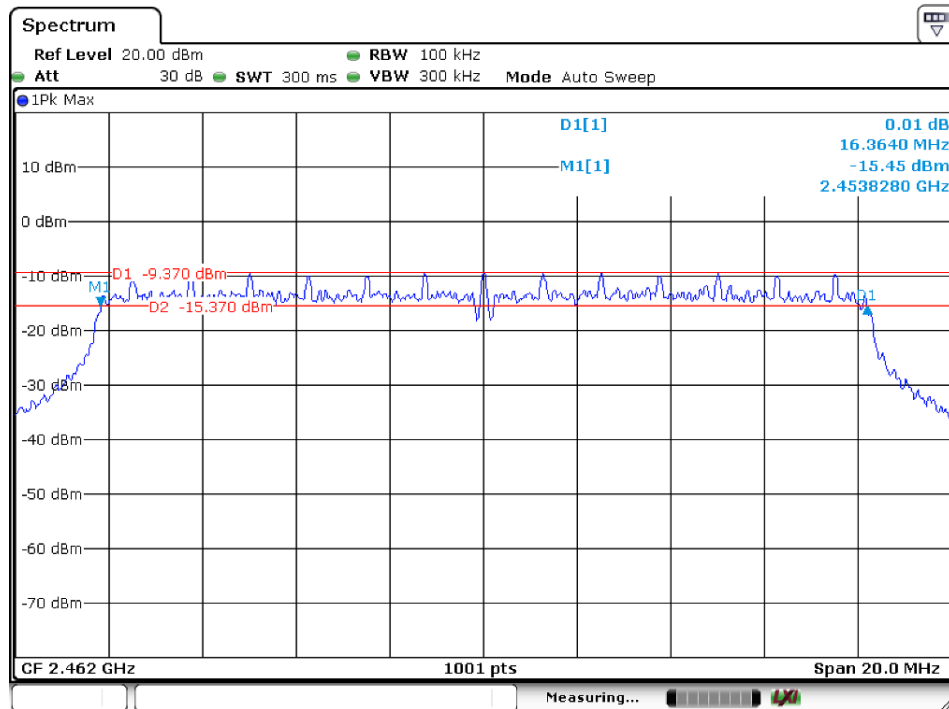


Middle Channel



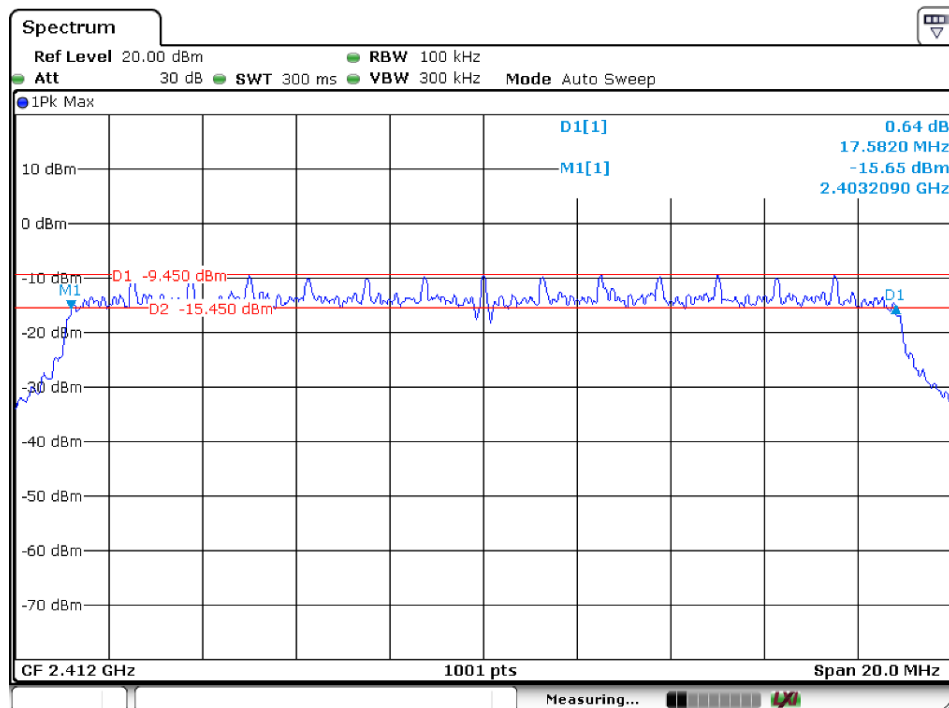
Highest Channel



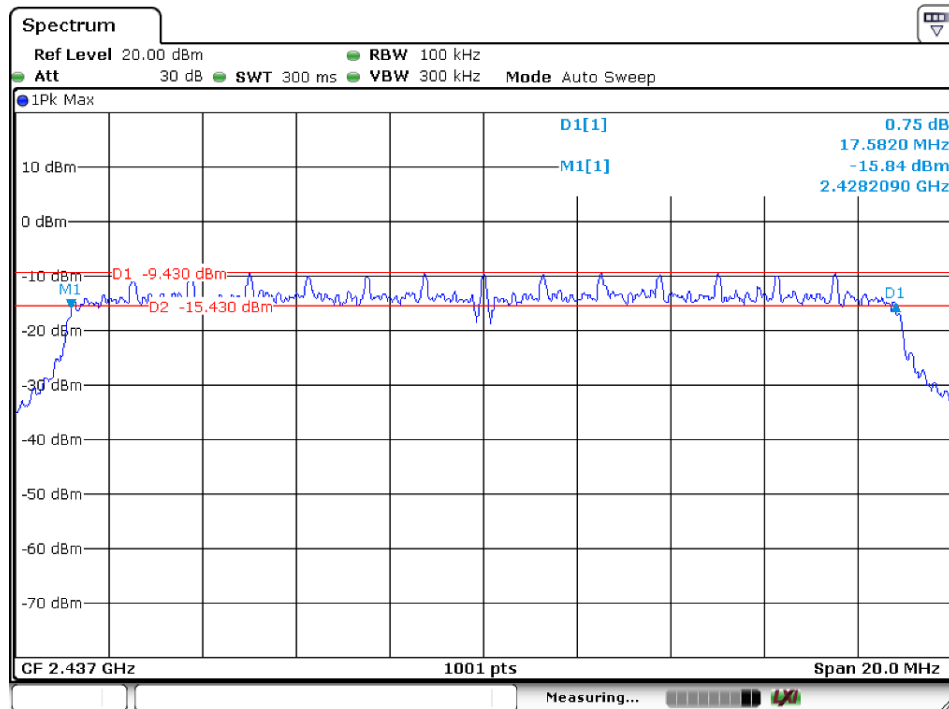


Highest Channel

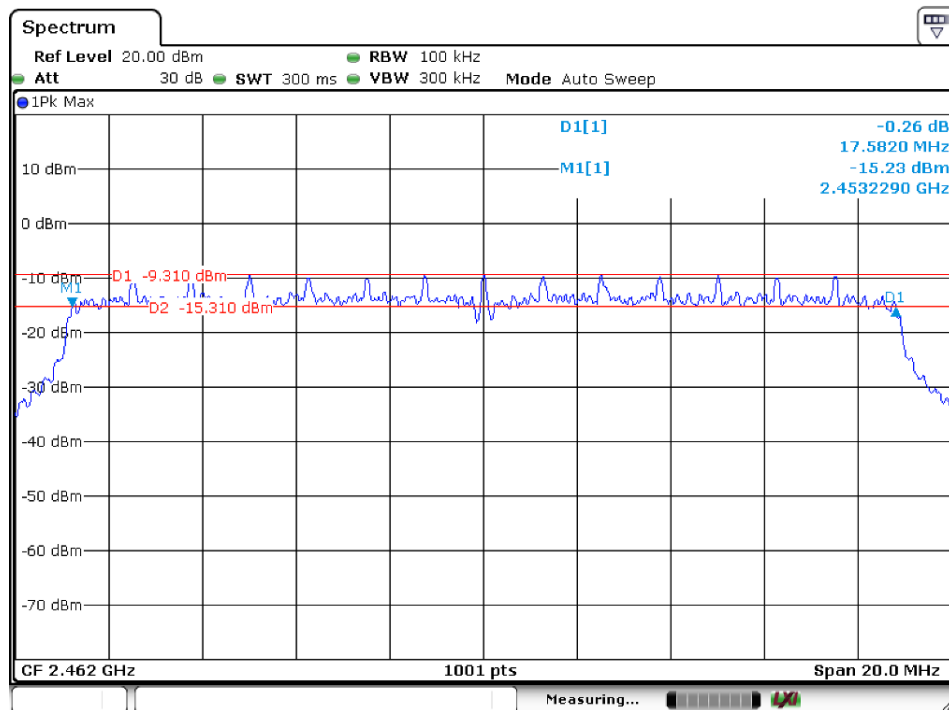
Test Mode: 802.11n(H20)



Lowest Channel

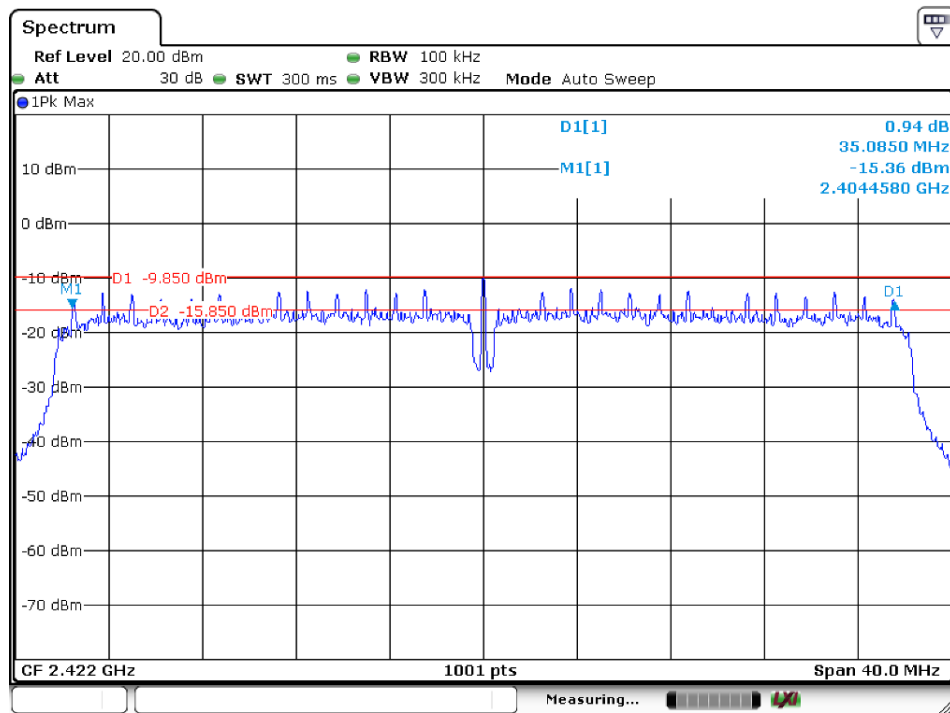


Middle Channel

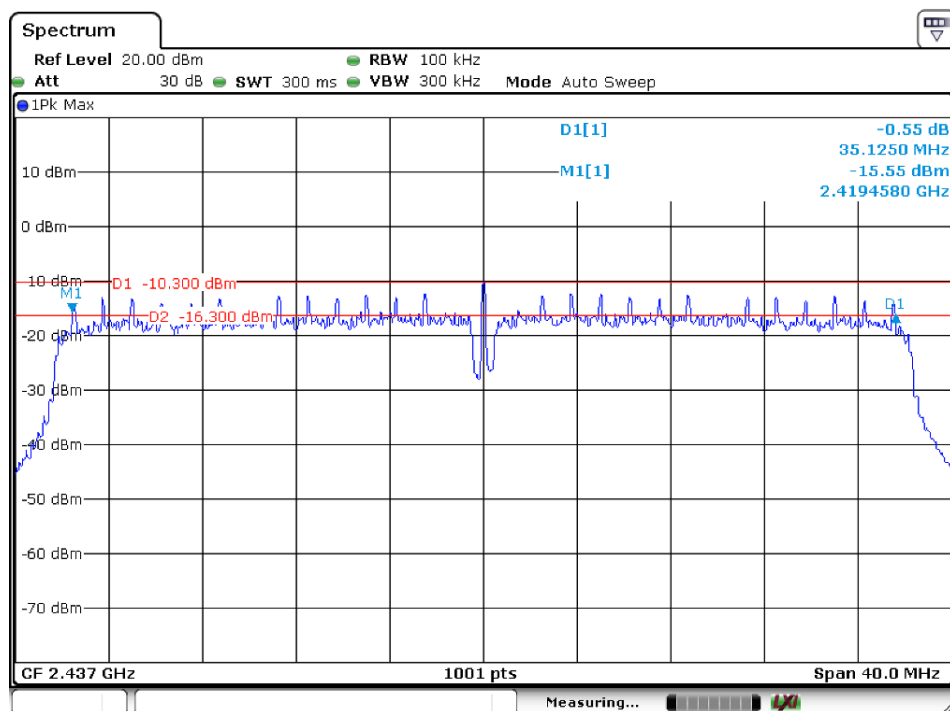


Highest Channel

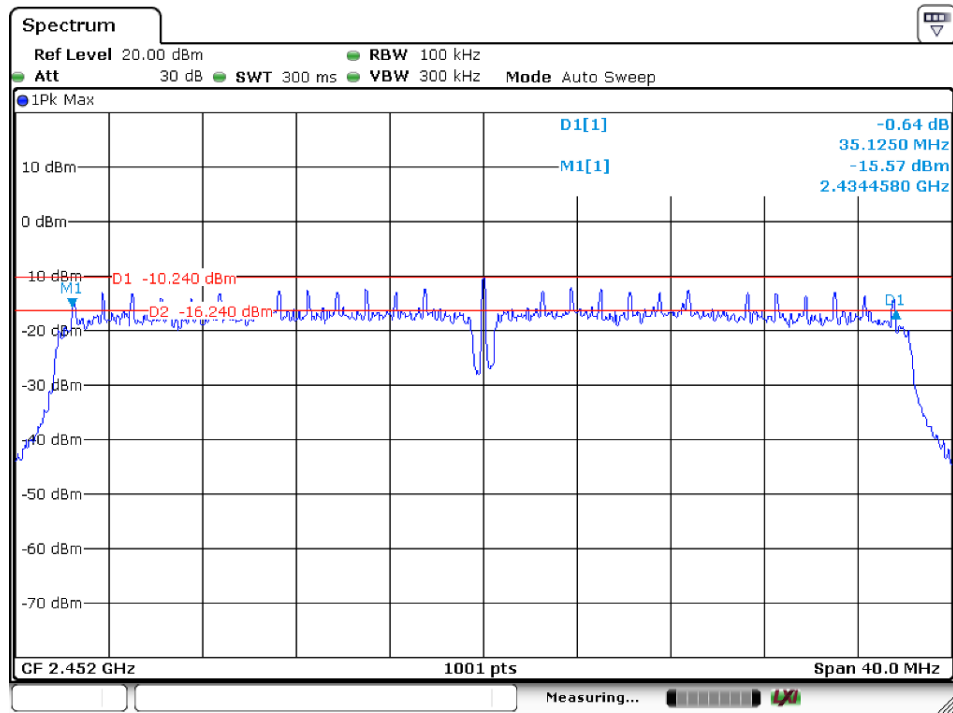
Test Mode: 802.11n(H40)



Lowest Channel



Middle Channel



Highest Channel

## 8. Maximum Peak Output Power Test

### 8.1 Measurement Procedure

The maximum peak conducted output power can be measured using a broadband peak RF power meter. The power meter must have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast, average-responding diode type sensor.

- The Transmitter output (antenna port) was connected to the power meter.
- Turn on the EUT and power meter and then record the peak power value.
- Repeat above procedures on all channels needed to be tested.

### 8.2 Test SET-UP (Block Diagram of Configuration)



### 8.3 Measurement Equipment Used

| EQUIPMENT TYPE | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|----------------|--------------|---------------|------------|------------|
| Power meter    | ML2495A      | 0824006       | 05/16/2014 | 05/15/2015 |
| Power sensor   | MA2411B      | 0738172       | 05/16/2014 | 05/15/2015 |

### 8.4 Peak Power output limit

The maximum peak power shall be less 1Watt.

### 8.5 Measurement Results

|                    |      |               |                 |
|--------------------|------|---------------|-----------------|
| Spectrum Detector: | PK   | Test Date :   | August 08, 2014 |
| Test By:           | Jack | Temperature : | 28℃             |
| Test Result:       | PASS | Humidity :    | 60%             |

| Test Channel | Average Output Power (dBm) |         |              |              | Limit(dBm) | Result |
|--------------|----------------------------|---------|--------------|--------------|------------|--------|
|              | 802.11b                    | 802.11g | 802.11n(H20) | 802.11n(H40) |            |        |
| Lowest       | 10.69                      | 10.70   | 10.38        | 10.05        | 30         | Pass   |
| Middle       | 11.19                      | 10.71   | 10.76        | 10.28        |            |        |
| Highest      | 11.25                      | 10.73   | 10.94        | 10.52        |            |        |

## 9. Band Edge Test

### 9.1 Measurement Procedure

#### For Conducted Test

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. Measure and record the results in the test report.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

#### For Radiated emission Test

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Repeat above procedures until all frequency measured were complete.

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz.

| EMI Test Receiver | Setting  |
|-------------------|----------|
| Attenuation       | Auto     |
| RB                | 1MHz     |
| VB                | 3MHz     |
| Detector          | Peak     |
| Trace             | Max hold |

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz.

| EMI Test Receiver | Setting  |
|-------------------|----------|
| Attenuation       | Auto     |
| RB                | 1MHz     |
| VB                | 10Hz     |
| Detector          | AVG      |
| Trace             | Max hold |

## 9.2 Test SET-UP (Block Diagram of Configuration)

As 6.2 Test set up (B) and (C)

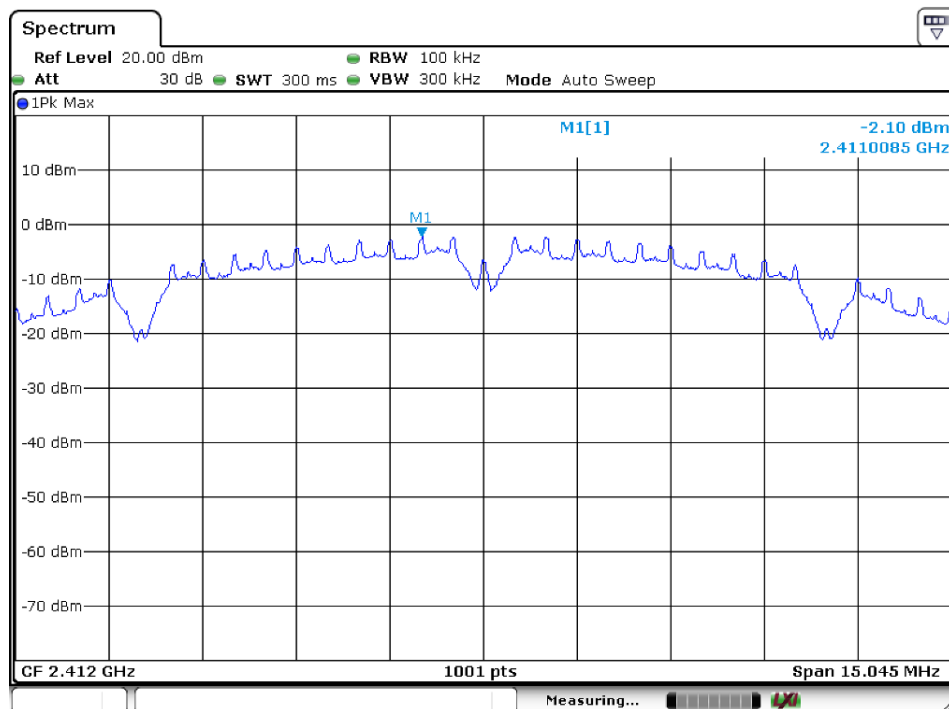
## 9.3 Measurement Equipment Used

Same as 6.3 Radiated Emission Measurement.

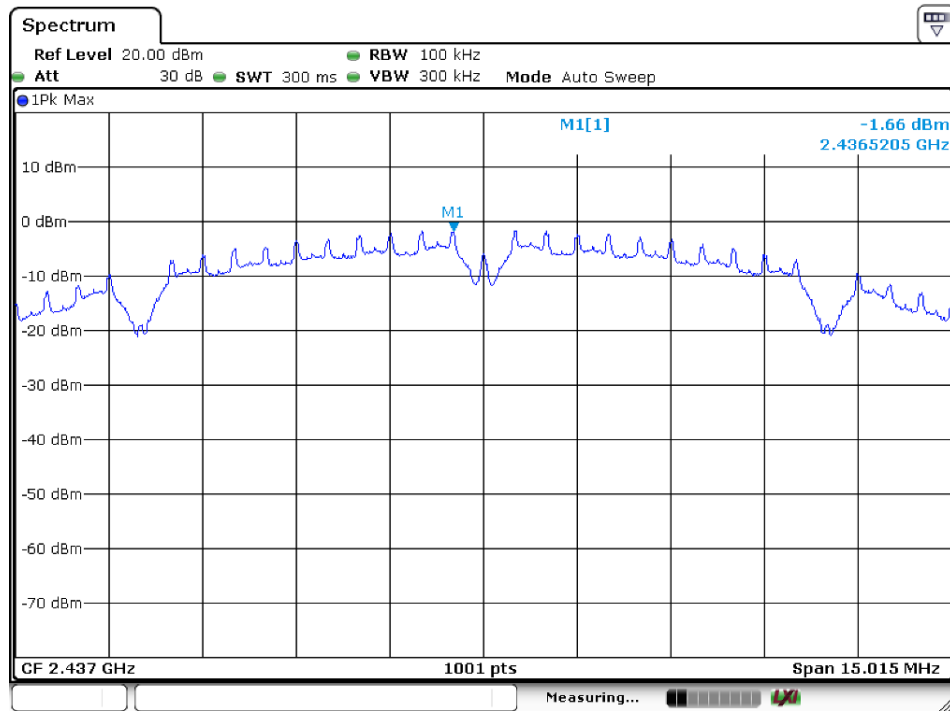
## 9.4 Measurement Results

### 1. Conducted Test

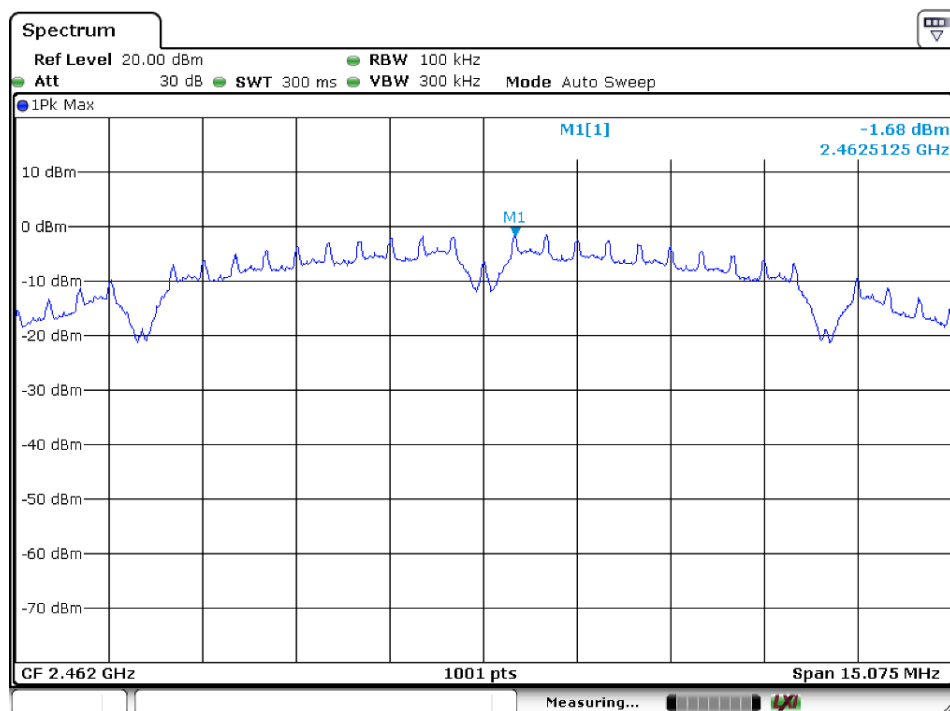
Test Mode: 802.11b



Lowest Channel

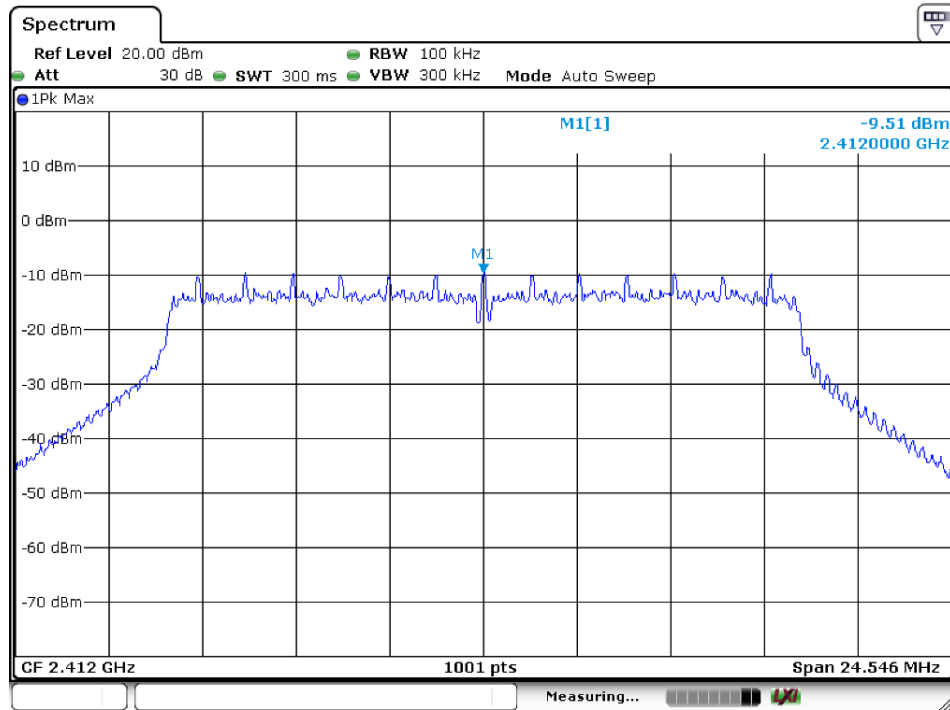


Middle Channel

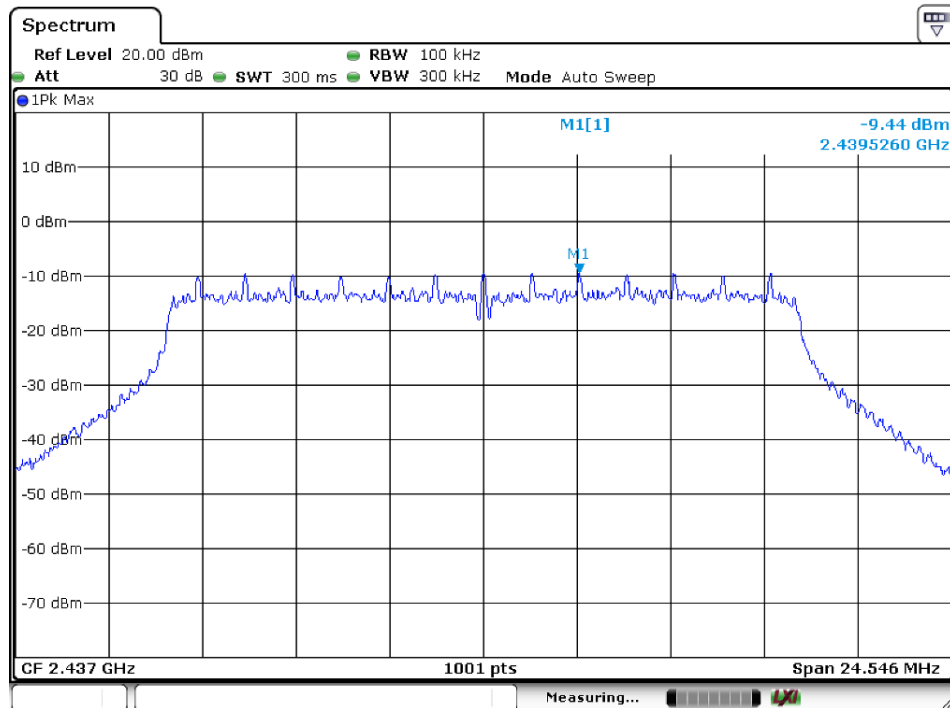


Highest Channel

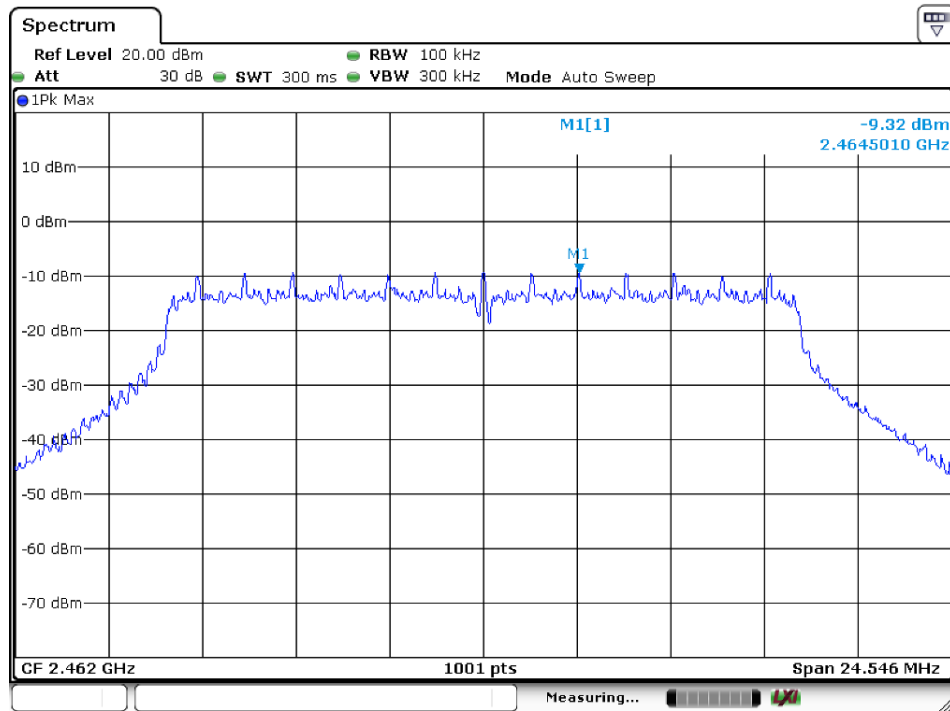
### Test Mode: 802.11g



### Lowest Channel

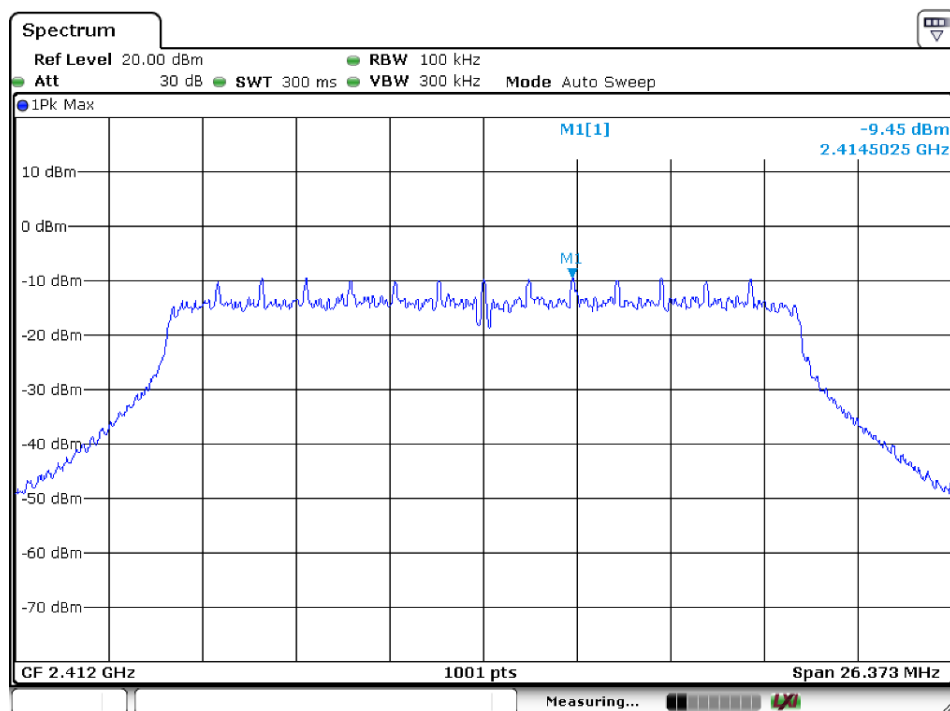


### Middle Channel

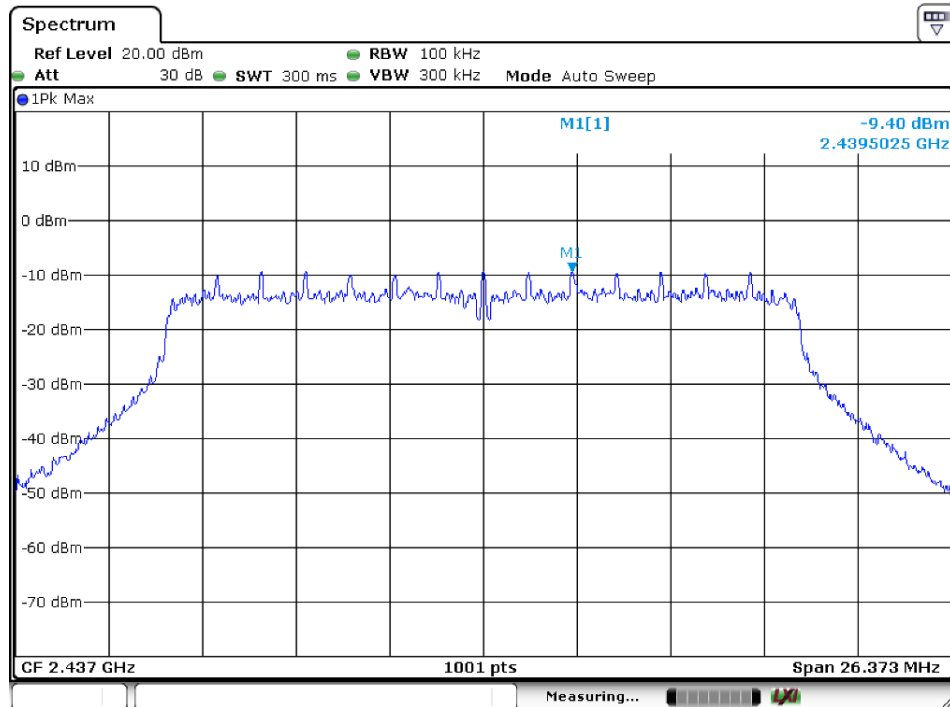


Highest Channel

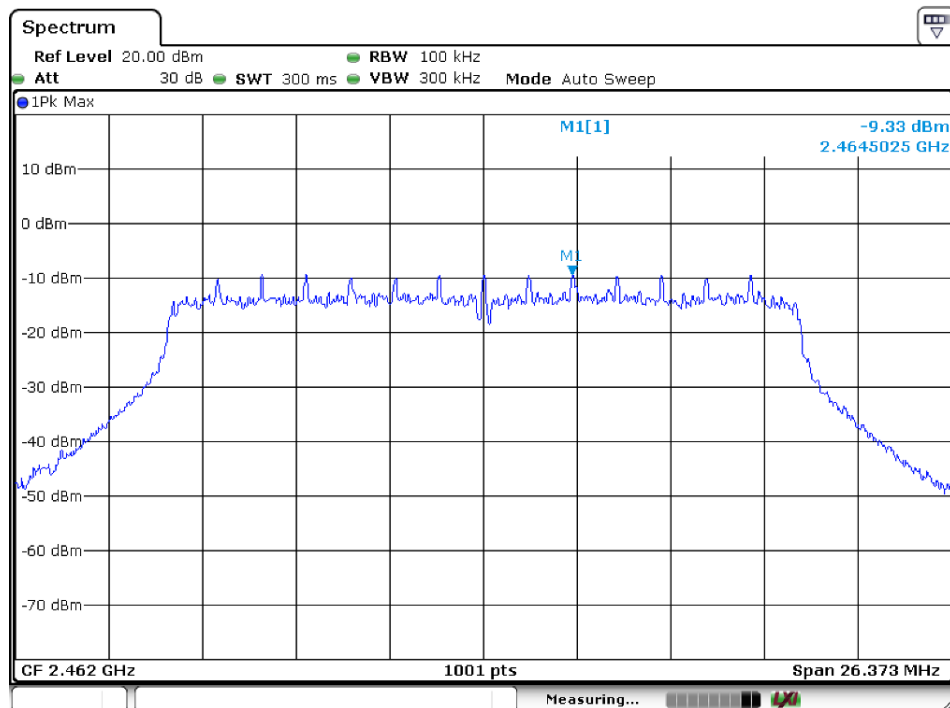
Test Mode: 802.11n(H20)



## Lowest Channel

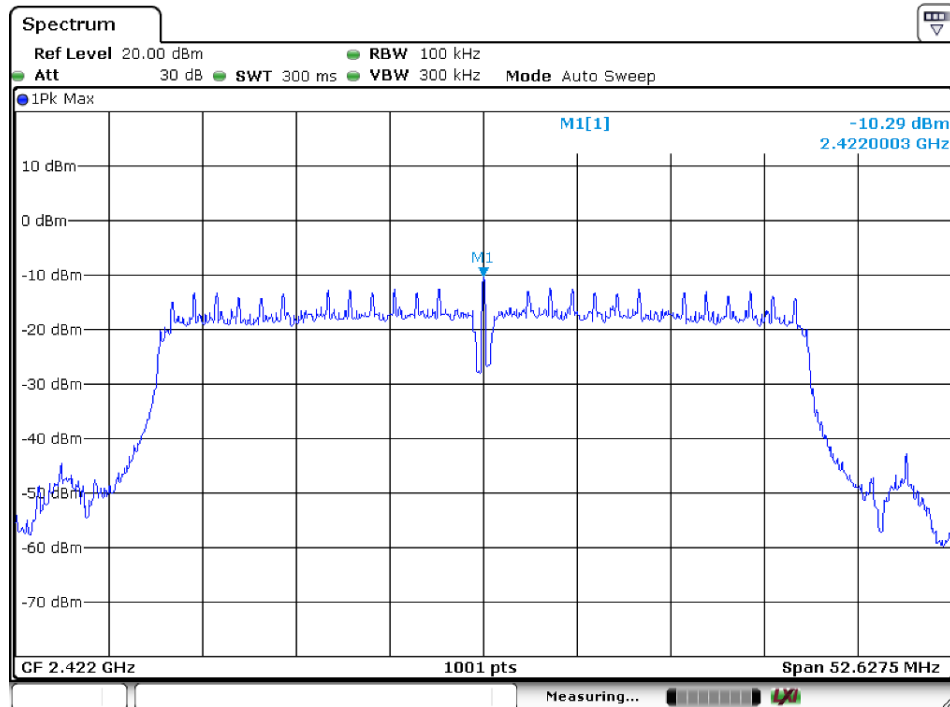


## Middle Channel

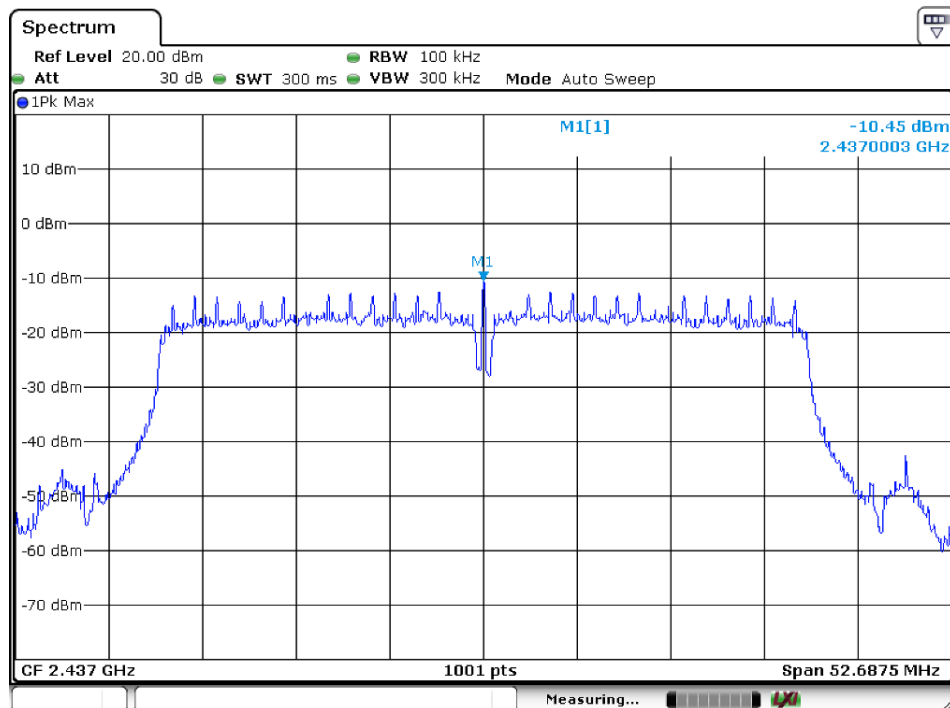


## Highest Channel

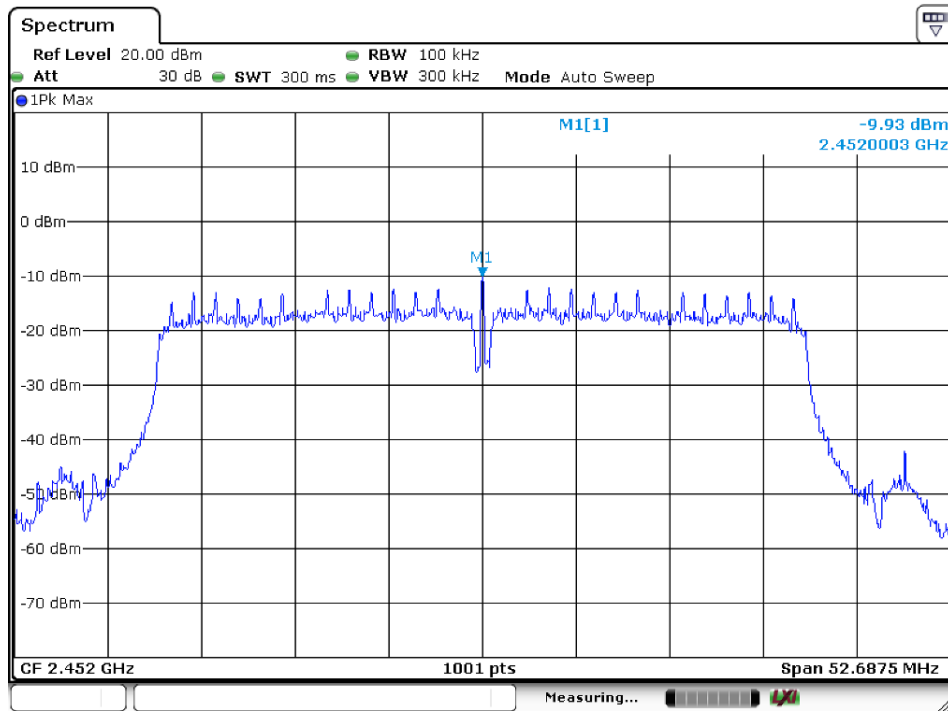
Test Mode: 802.11n(H40)



Lowest Channel

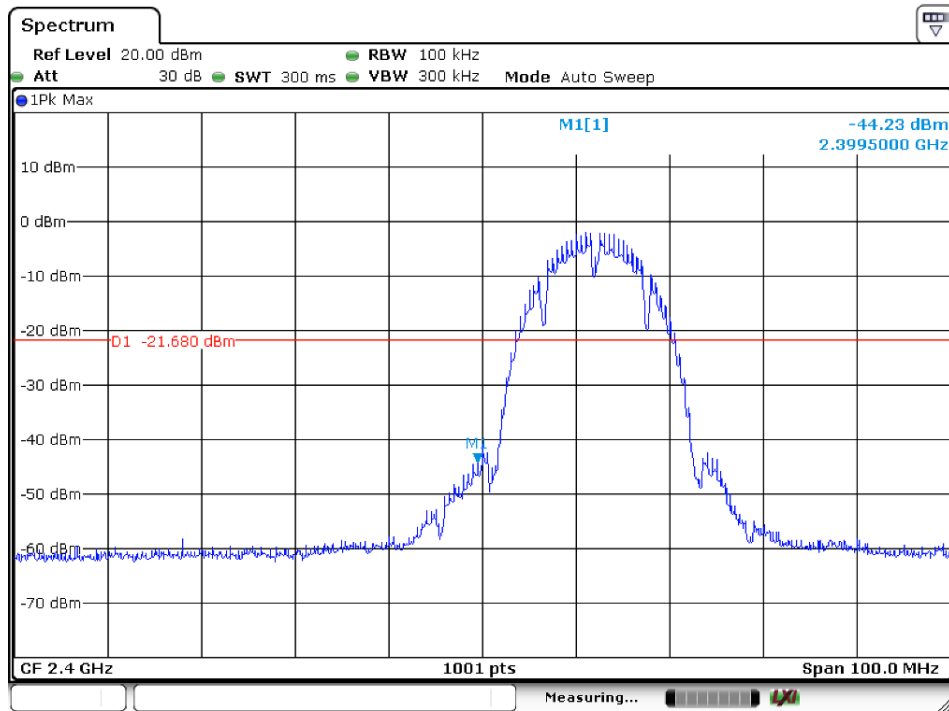


Middel Channel

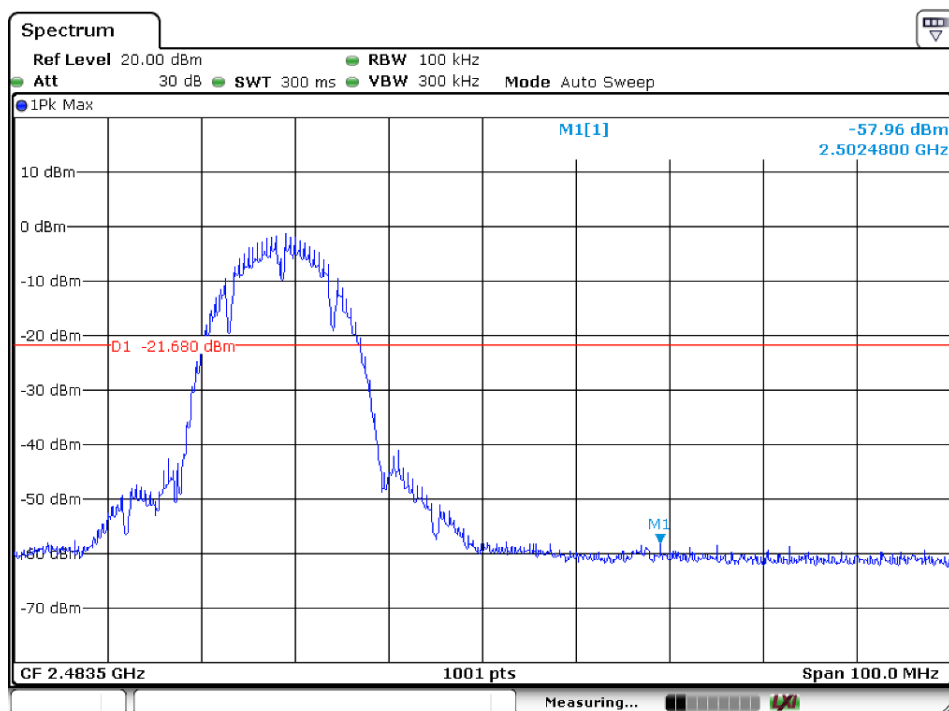


Highest Channel

Test mode: 802.11b

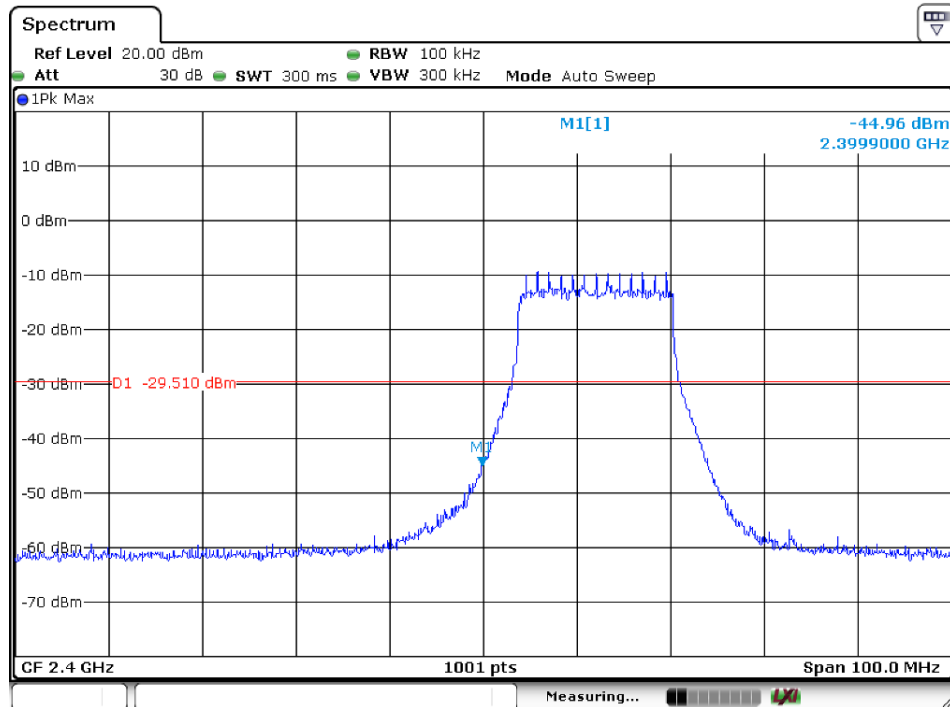


Lowest Channel

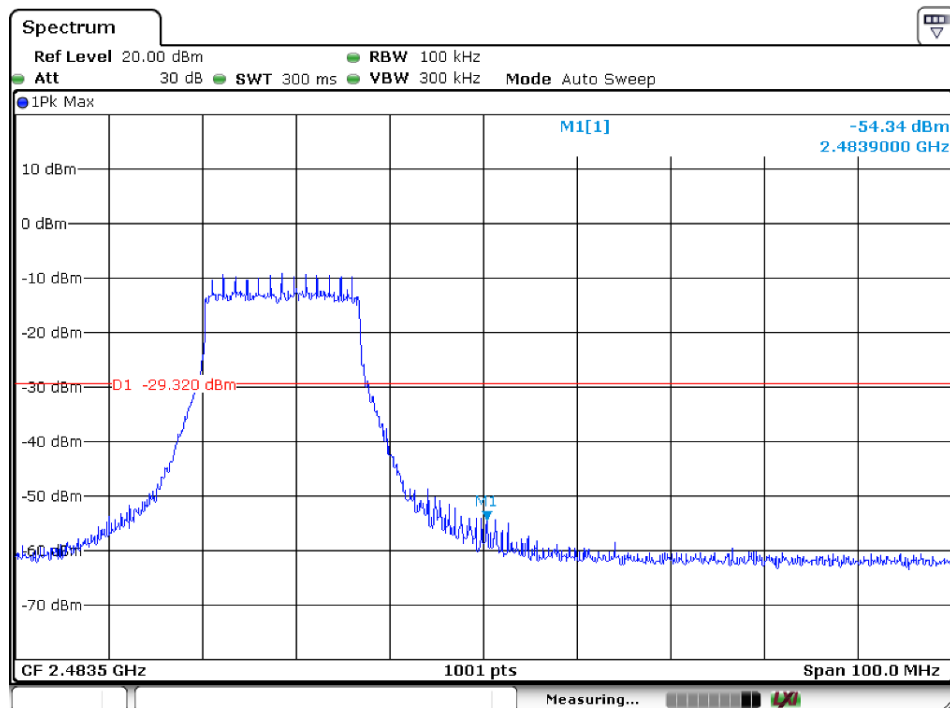


Highest Channel

Test mode: 802.11g

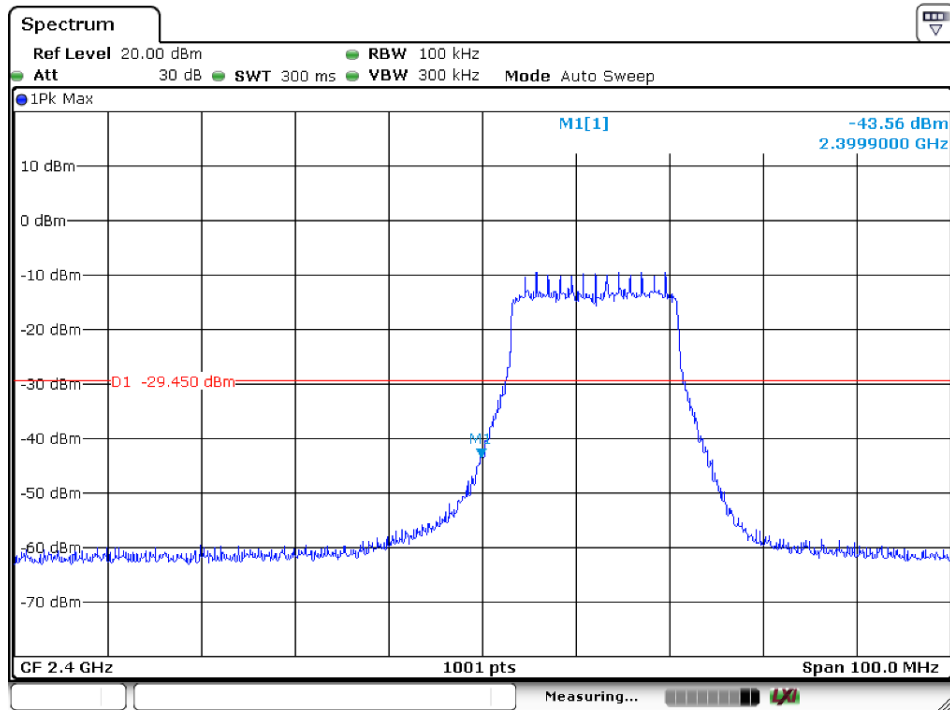


Lowest Channel

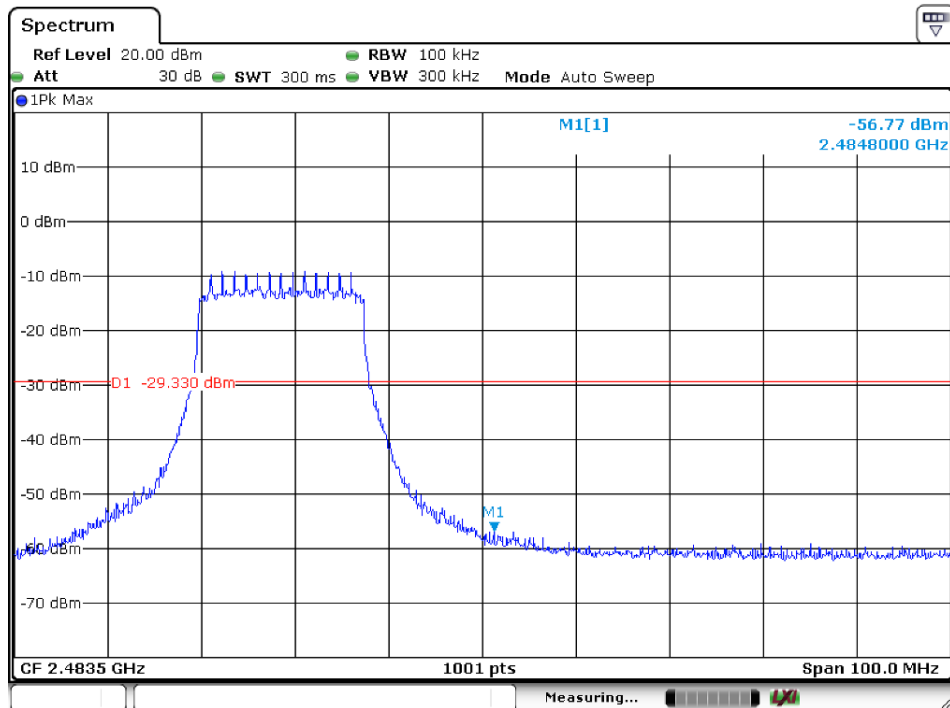


Highest Channel

Test mode: 802.11n(H20)

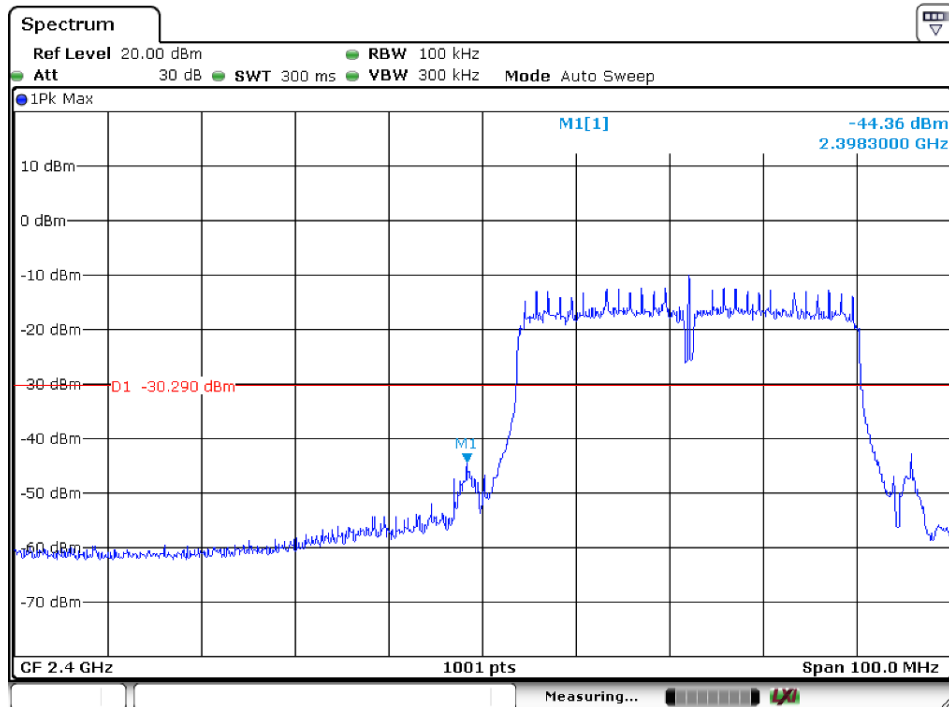


Lowest Channel

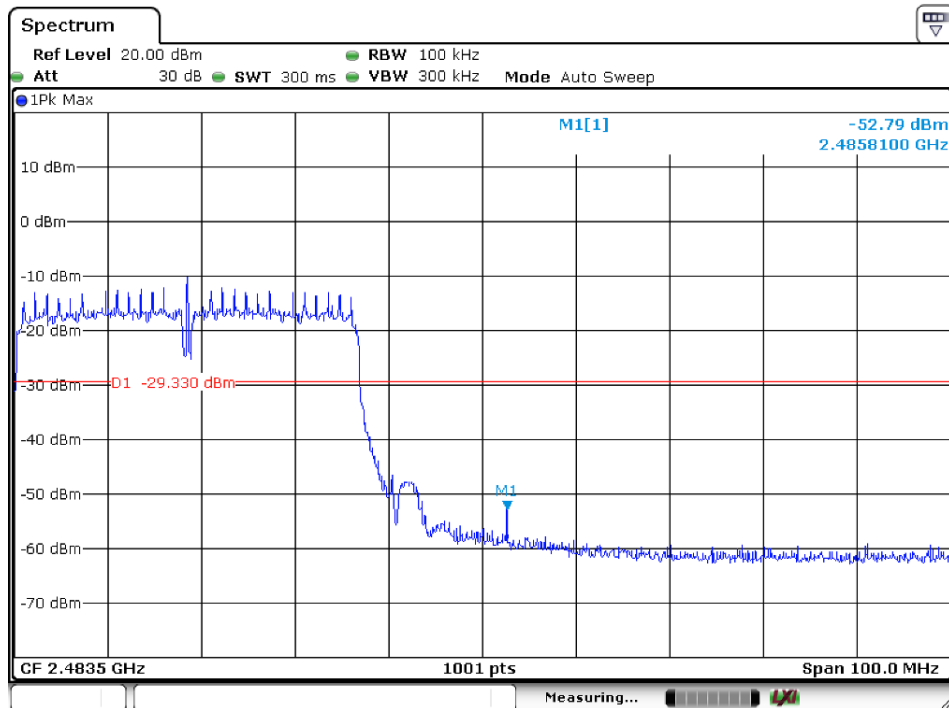


Highest Channel

Test mode: 802.11n(H40)



Lowest Channel



Highest Channel

## 2. Radiated emission Test

Test mode: 802.11b

Spectrum Detector: PK/AV      Test Date : August 08, 2014  
Test By: Joe      Temperature : 28 °C  
Humidity : 65 %

| Frequency<br>(MHz) | Antenna<br>polarization<br>(H/V) | Emission<br>(dBuV/m) |       | Band edge Limit<br>(dBuV/m) |       |
|--------------------|----------------------------------|----------------------|-------|-----------------------------|-------|
|                    |                                  | PK                   | AV    | PK                          | AV    |
| <2400              | H                                | 61.28                | 45.58 | 74.00                       | 54.00 |
| <2400              | V                                | 57.52                | 37.44 | 74.00                       | 54.00 |
| >2483.5            | H                                | 62.85                | 47.92 | 74.00                       | 54.00 |
| >2483.5            | V                                | 58.19                | 38.19 | 74.00                       | 54.00 |

Test mode: 802.11g

Spectrum Detector: PK/AV      Test Date : August 08, 2014  
Test By: Joe      Temperature : 28 °C  
Humidity : 65 %

| Frequency<br>(MHz) | Antenna<br>polarization<br>(H/V) | Emission<br>(dBuV/m) |       | Band edge Limit<br>(dBuV/m) |       |
|--------------------|----------------------------------|----------------------|-------|-----------------------------|-------|
|                    |                                  | PK                   | AV    | PK                          | AV    |
| <2400              | H                                | 64.11                | 46.57 | 74.00                       | 54.00 |
| <2400              | V                                | 56.54                | 36.53 | 74.00                       | 54.00 |
| >2483.5            | H                                | 66.33                | 48.11 | 74.00                       | 54.00 |
| >2483.5            | V                                | 54.68                | 40.67 | 74.00                       | 54.00 |

Test mode: 802.11n(H20)

Spectrum Detector: PK/AV      Test Date : August 08, 2014  
Test By: Joe      Temperature : 28 °C  
Humidity : 65 %

| Frequency<br>(MHz) | Antenna<br>polarization<br>(H/V) | Emission<br>(dBuV/m) |       | Band edge Limit<br>(dBuV/m) |       |
|--------------------|----------------------------------|----------------------|-------|-----------------------------|-------|
|                    |                                  | PK                   | AV    | PK                          | AV    |
| <2400              | H                                | 66.56                | 46.53 | 74.00                       | 54.00 |
| <2400              | V                                | 58.52                | 38.67 | 74.00                       | 54.00 |
| >2483.5            | H                                | 68.78                | 47.46 | 74.00                       | 54.00 |
| >2483.5            | V                                | 55.16                | 37.17 | 74.00                       | 54.00 |

Test mode: 802.11n(H40)

Spectrum Detector: PK/AV  
Test By: Joe

Test Date : August 08, 2014  
Temperature : 28 °C  
Humidity : 65 %

| Frequency<br>(MHz) | Antenna<br>polarization<br>(H/V) | Emission<br>(dBuV/m) |       | Band edge Limit<br>(dBuV/m) |       |
|--------------------|----------------------------------|----------------------|-------|-----------------------------|-------|
|                    |                                  | PK                   | AV    | PK                          | AV    |
| <2400              | H                                | 63.76                | 46.66 | 74.00                       | 54.00 |
| <2400              | V                                | 58.52                | 38.22 | 74.00                       | 54.00 |
| >2483.5            | H                                | 62.77                | 47.91 | 74.00                       | 54.00 |
| >2483.5            | V                                | 56.55                | 37.67 | 74.00                       | 54.00 |

## 10. Power Density

### 10.1 Test Equipment

| EQUIPMENT TYPE    | MFR     | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|---------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Agilent | FSV30        | 1321.3008K    | 05/16/2014 | 05/15/2015 |

### 10.2 Measuring Instruments and Setting

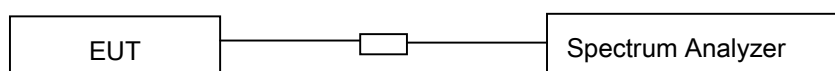
The following table is the setting of spectrum analyzer.

| Spectrum analyzer | Setting                                      |
|-------------------|----------------------------------------------|
| Attenuation       | Auto                                         |
| Span Frequency    | Set the span to 1.5 times the DTS bandwidth. |
| RB                | 3kHz $\geq$ RBW $\leq$ 100KHz                |
| VB                | 3 x RBW                                      |
| Detector          | Peak                                         |
| Trace             | Max hold                                     |
| Sweep Time        | Automatic                                    |

### 10.3 Test Procedures

- The transmitter output (antenna port) was connected to the spectrum analyzer.
- Set analyzer center frequency to DTS channel center frequency.
- Set the analyzer span to a minimum of 1.5 times the DTS bandwidth.
- Set the RBW  $\geq$  3 kHz. Set the VBW  $\geq$  3 x RBW.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

### 10.4 Block Diagram of Test Setup



### 10.5 Limit

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3 kHz bandwidth.

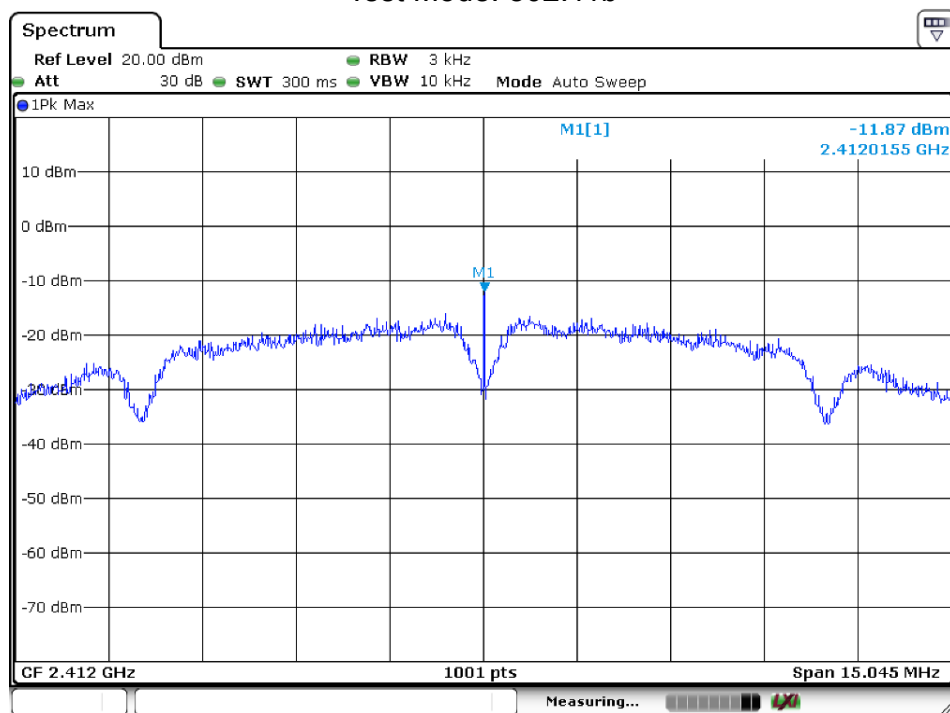
## 10.6 Test Result

|                    |      |               |                 |
|--------------------|------|---------------|-----------------|
| Spectrum Detector: | PK   | Test Date :   | August 08, 2014 |
| Test By:           | Jack | Temperature : | 28°C            |
| Test Result:       | PASS | Humidity :    | 60%             |

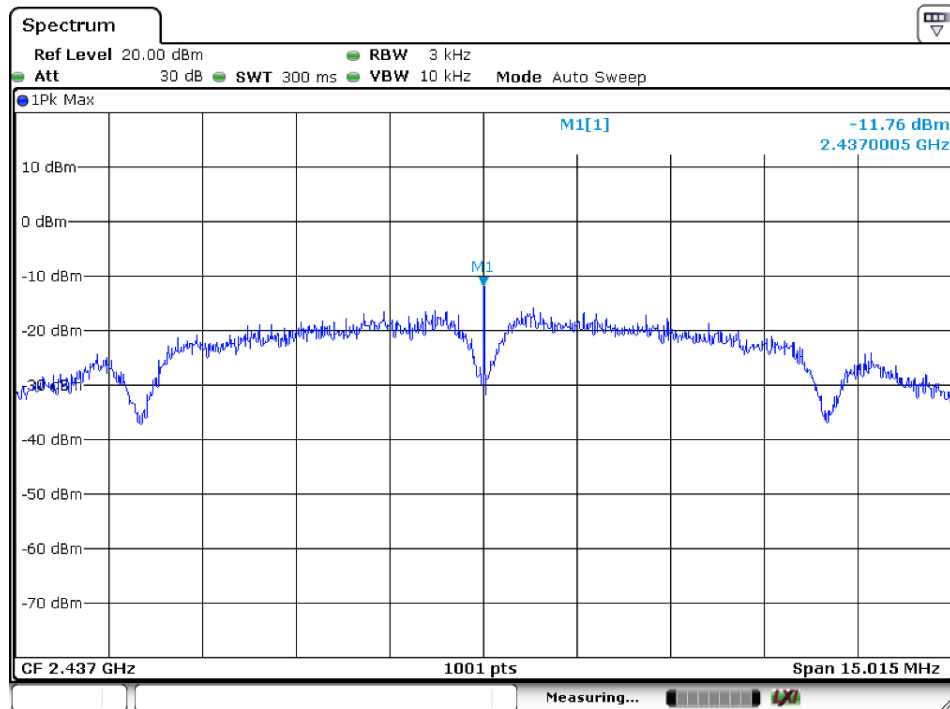
| Test Channel | Power Spectral Density(dBm) |         |              |              | Limit(dBm) | Result |
|--------------|-----------------------------|---------|--------------|--------------|------------|--------|
|              | 802.11b                     | 802.11g | 802.11n(H20) | 802.11n(H40) |            |        |
| Lowest       | -11.87                      | -11.59  | -11.20       | -11.43       | 8          | Pass   |
| Middle       | -11.76                      | -10.99  | -11.29       | -11.31       |            |        |
| Highest      | -11.55                      | -11.19  | -11.10       | -11.23       |            |        |

Test Plots as follow:

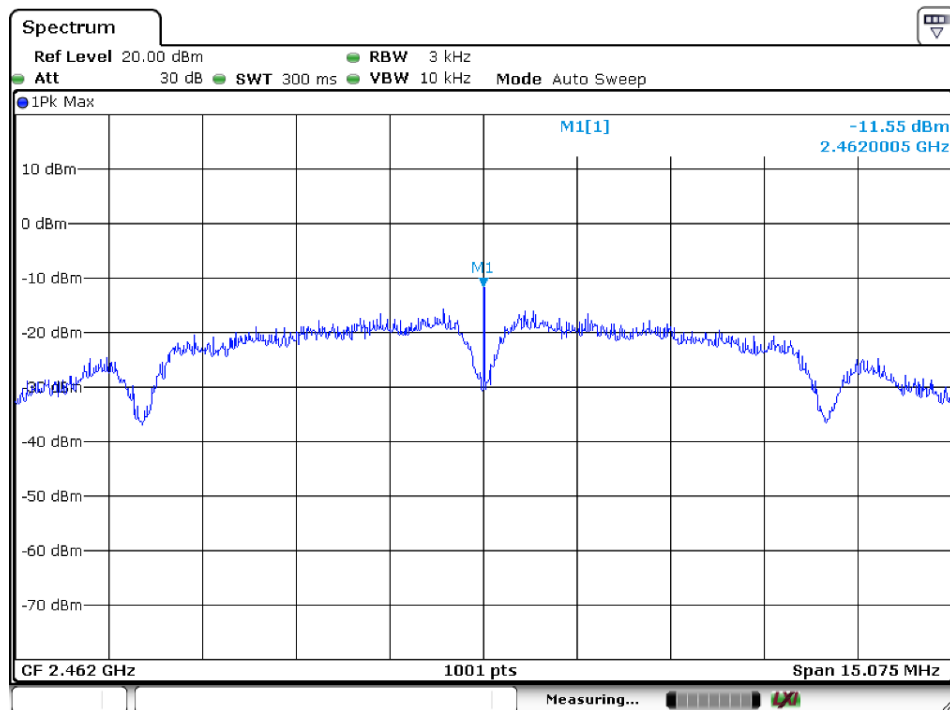
Test Mode: 802.11b



Lowest

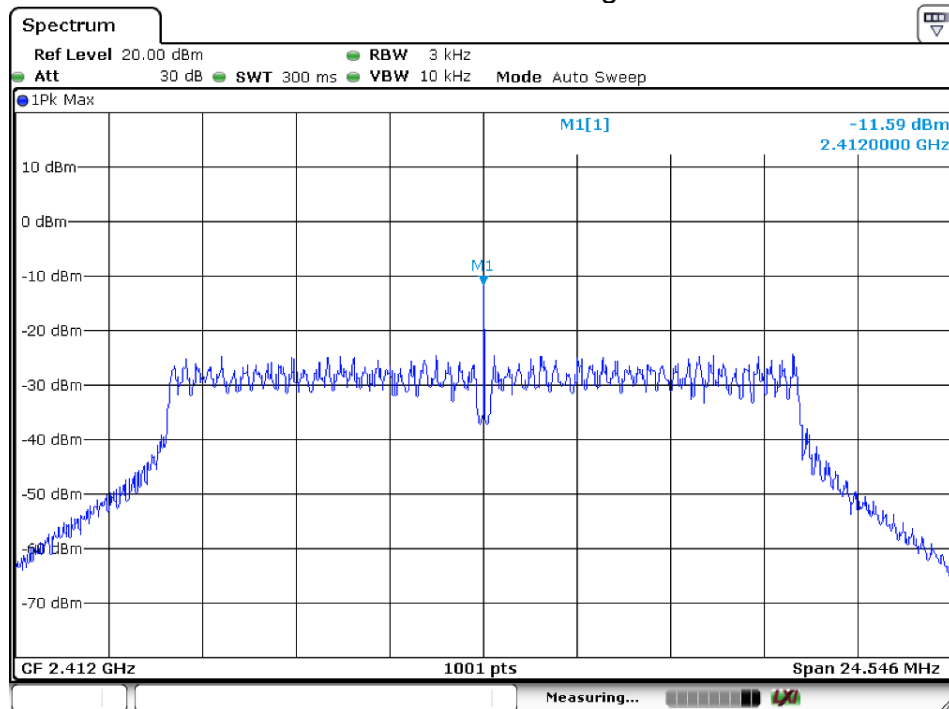


Middle

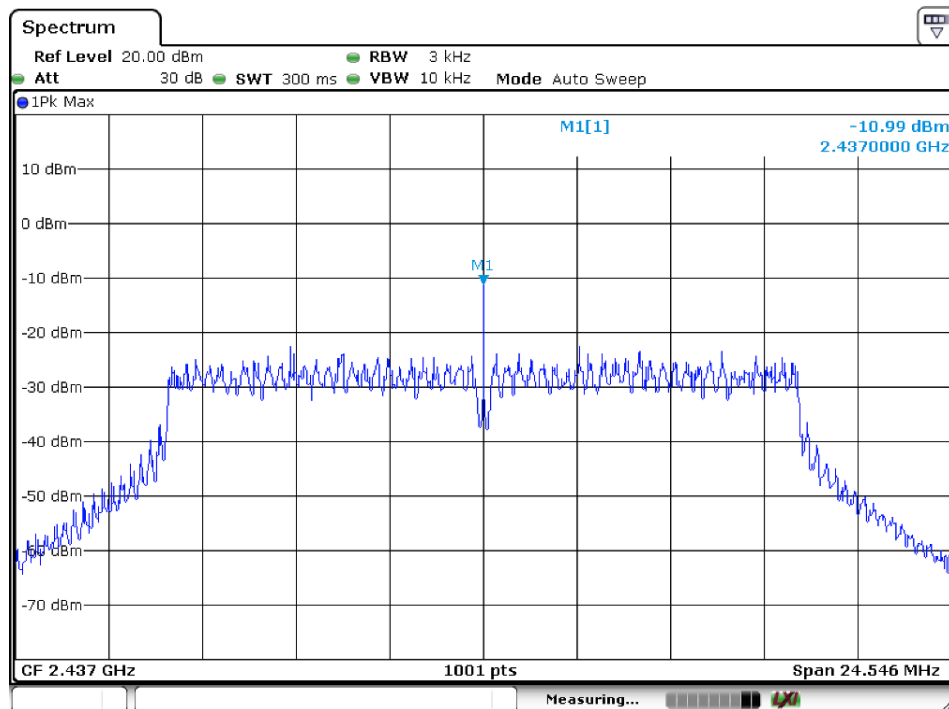


Highest

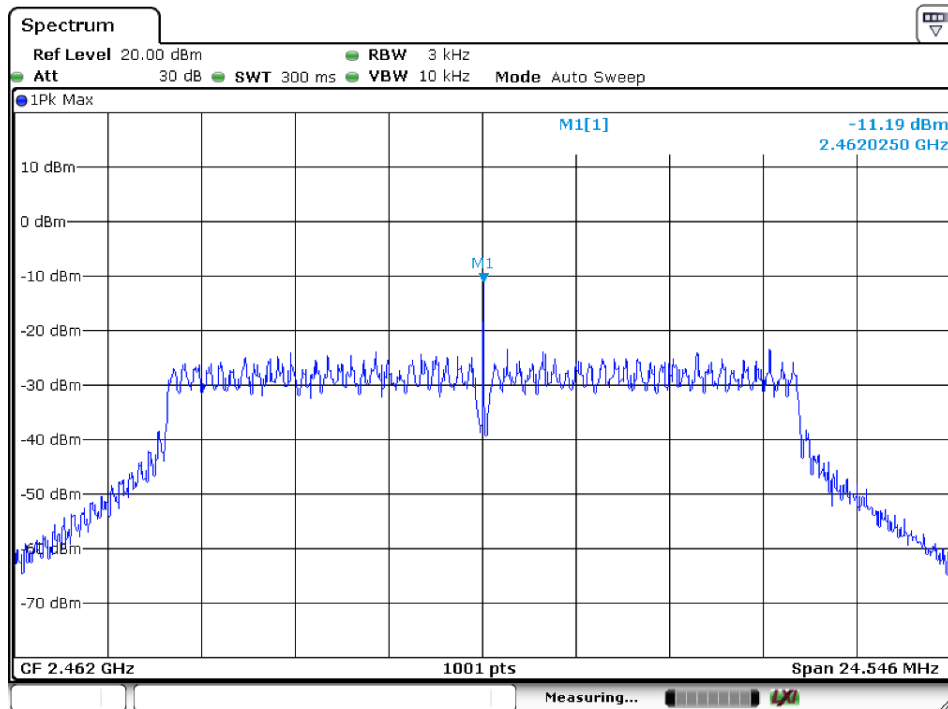
### Test Mode: 802.11g



Lowest

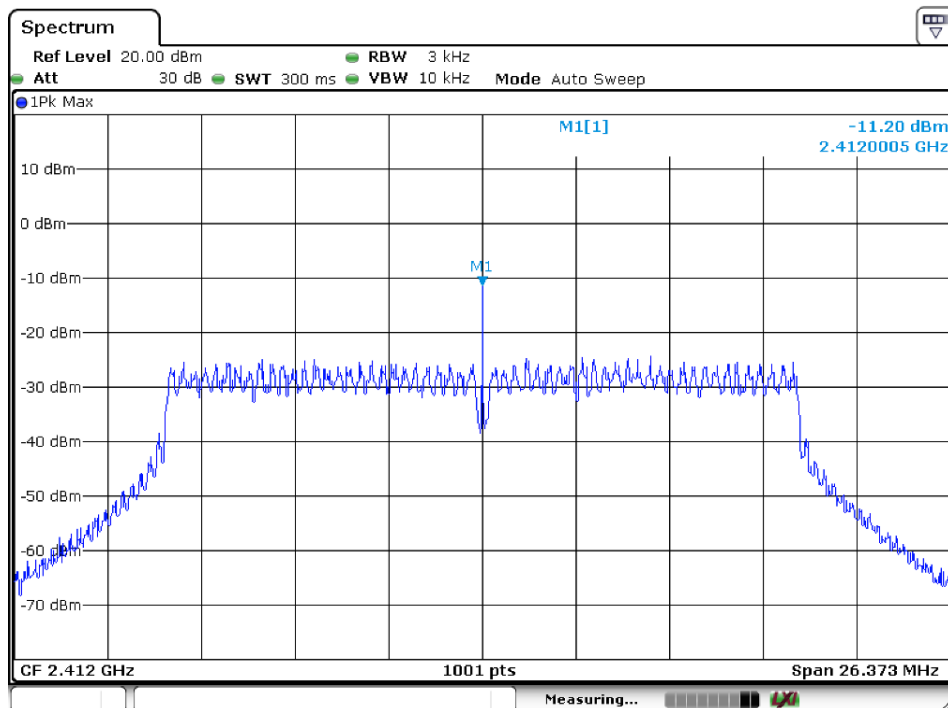


Middle

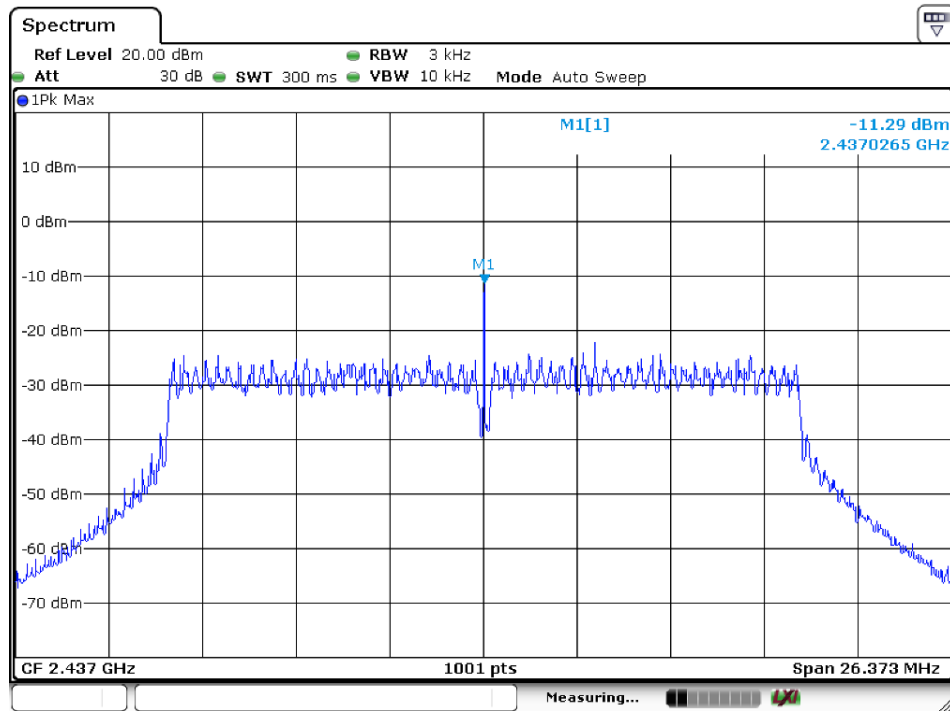


Highest

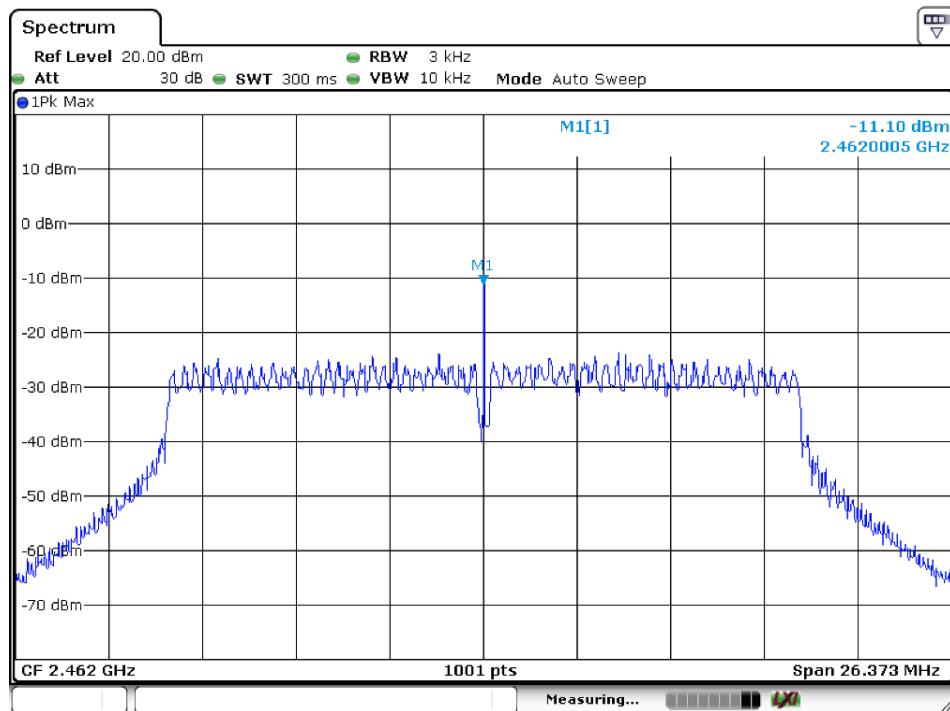
Test Mode: 802.11n(H20)



Lowest

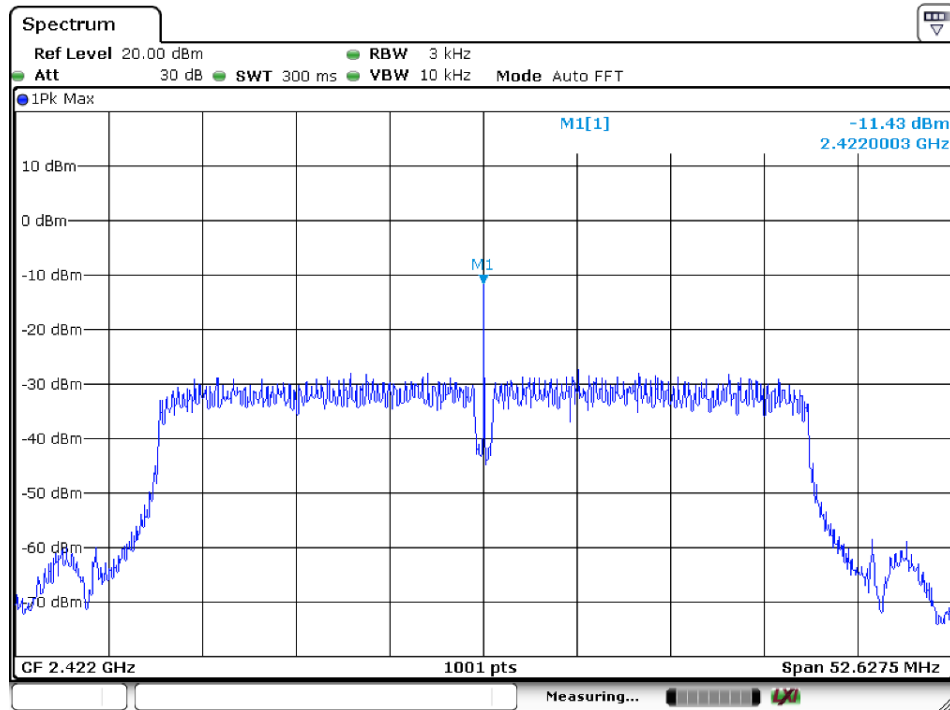


Middle

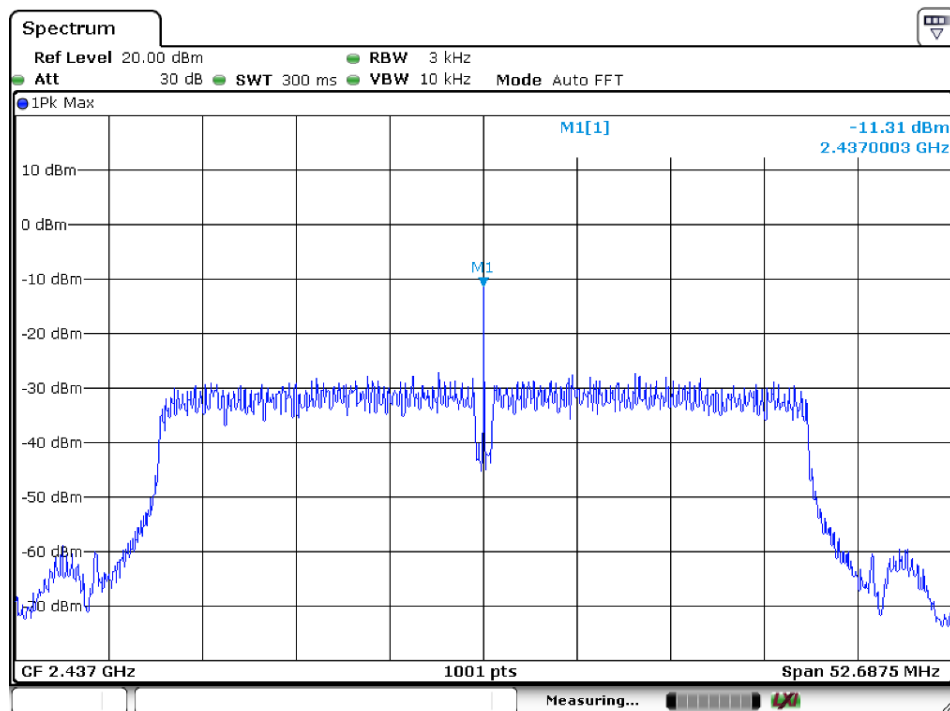


Highest

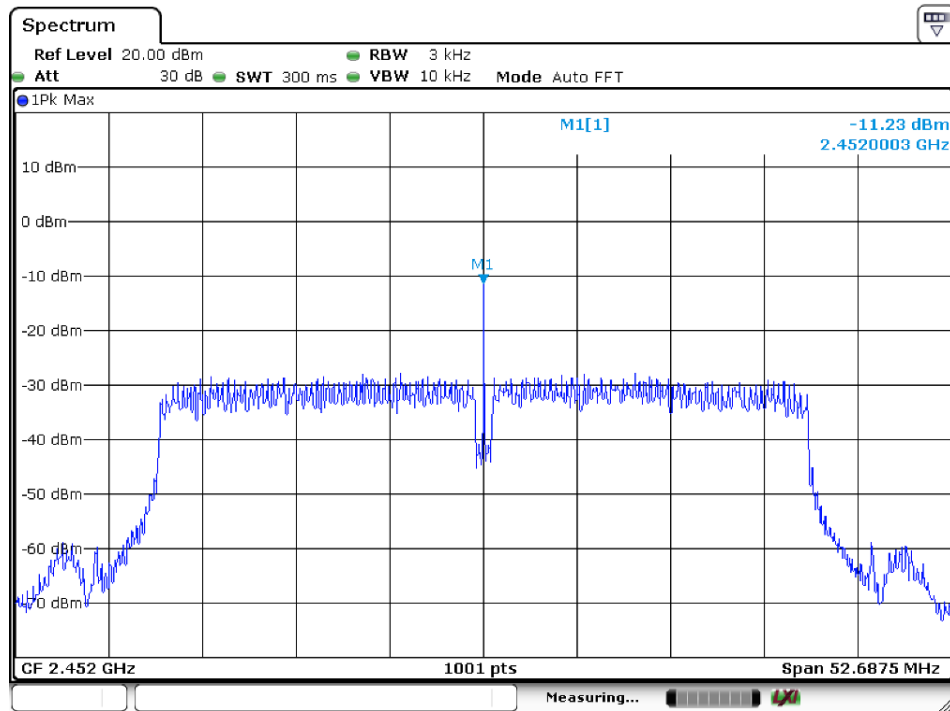
Test Mode: 802.11n(H40)



Lowest



Middle



Highest

## 11. Antenna Port Emission

### 11.1 Test Equipment

| EQUIPMENT TYPE    | MFR     | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|---------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Agilent | FSV30        | 1321.3008K    | 05/16/2014 | 05/15/2015 |

### 11.2 Measuring Instruments and Setting

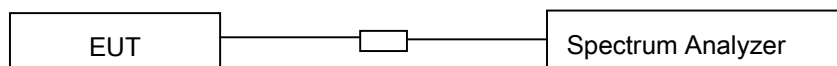
The following table is the setting of spectrum analyzer.

|                   |          |
|-------------------|----------|
| Spectrum analyzer | Setting  |
| Attenuation       | Auto     |
| RB                | 100kHz   |
| VB                | 300kHz   |
| Detector          | Peak     |
| Trace             | Max hold |

### 11.3 Test Procedures

The conducted spurious emissions were measured conducted using a spectrum analyzer at low, Middle, and high channels, the limit was determined by attenuation 20dB of the RF peak power output.

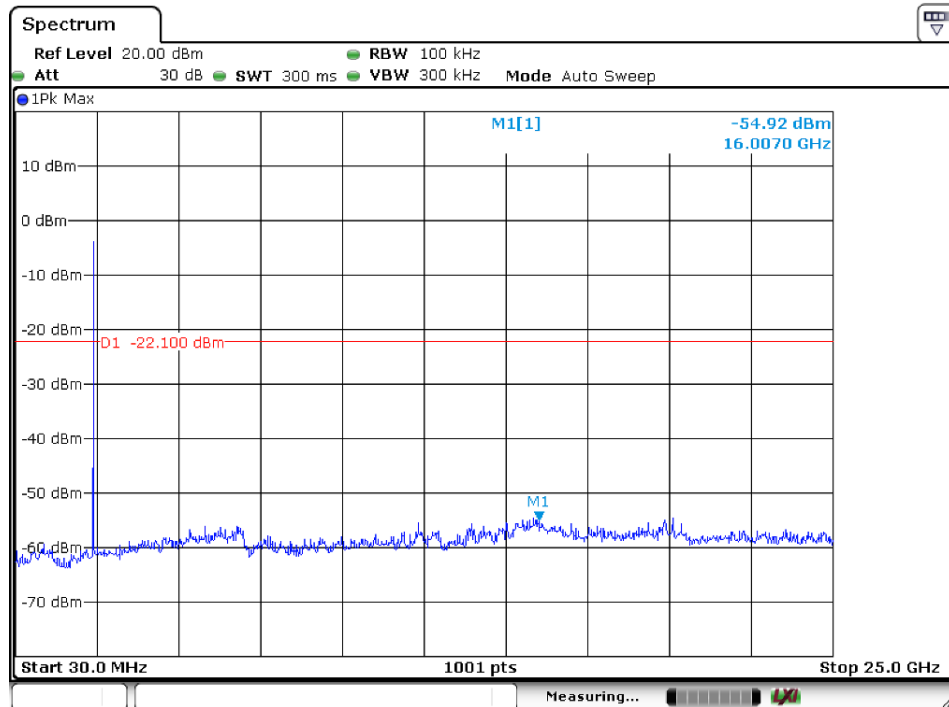
### 11.4 Block Diagram of Test setup



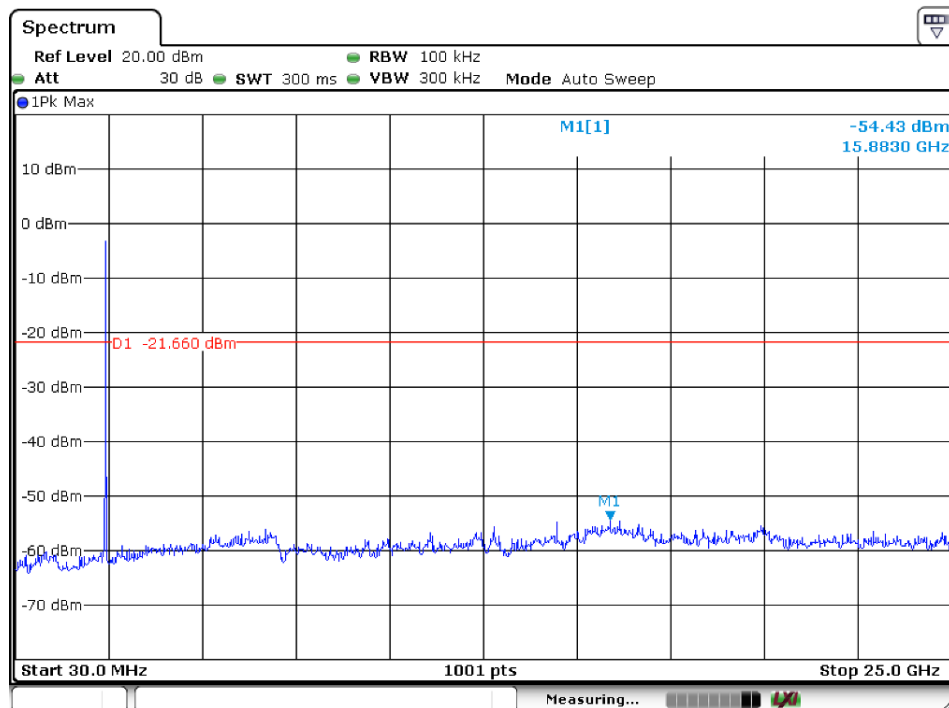
### 11.5 Test Result

**PASS.**

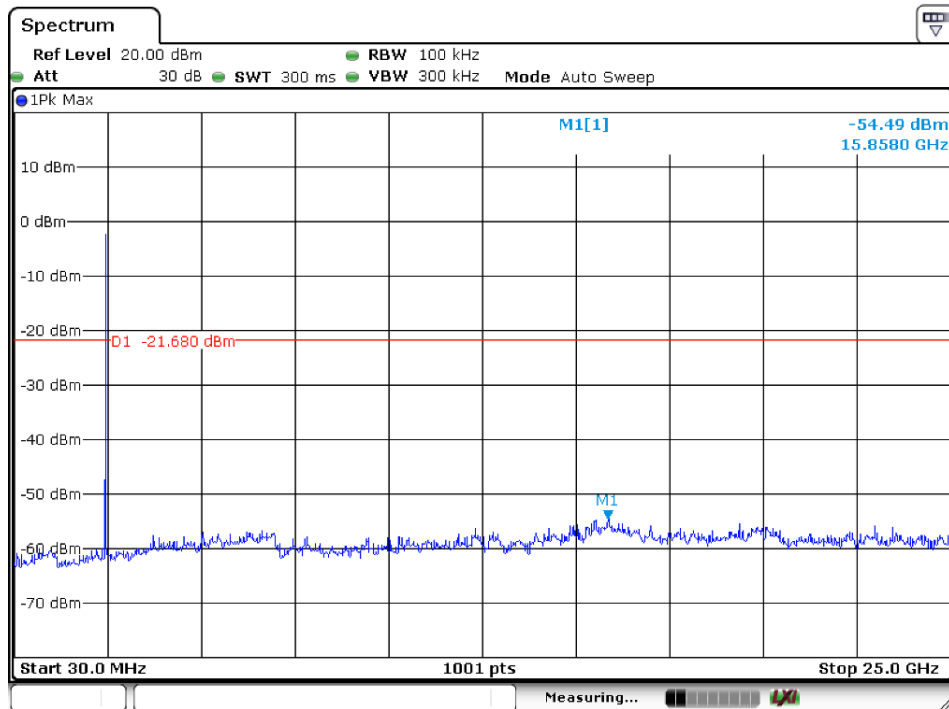
## Test Mode: 802.11b



## Lowest Channel

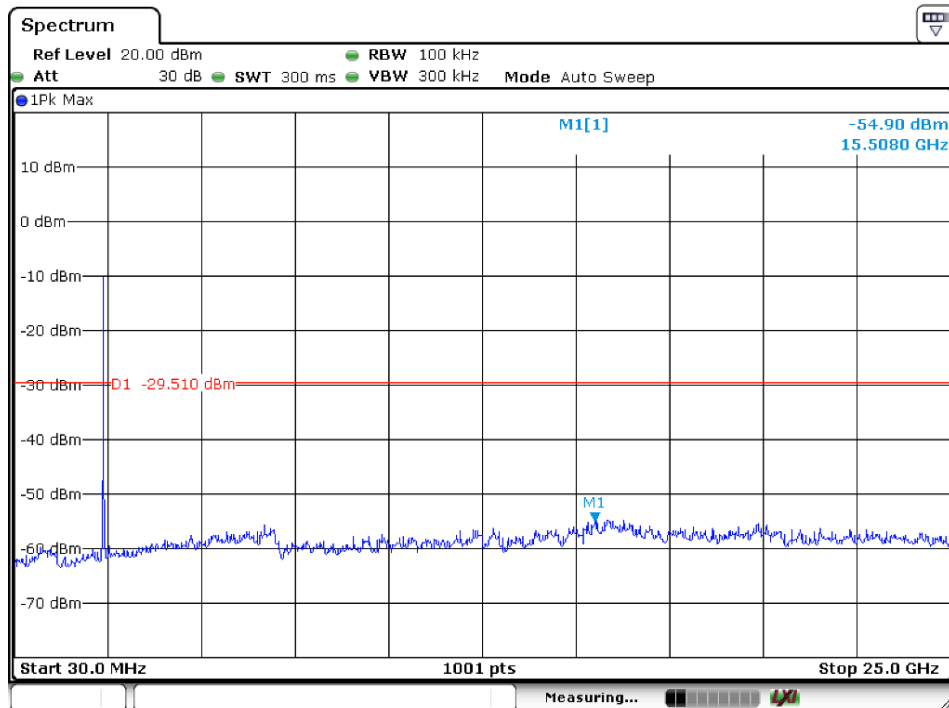


## Middel Channel

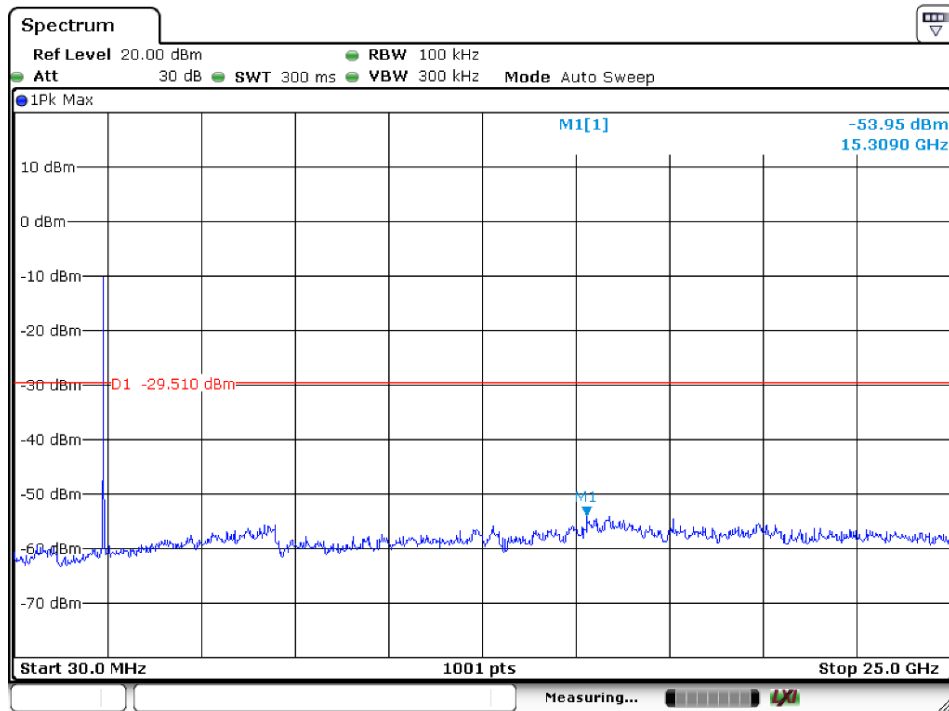


Highest Channel

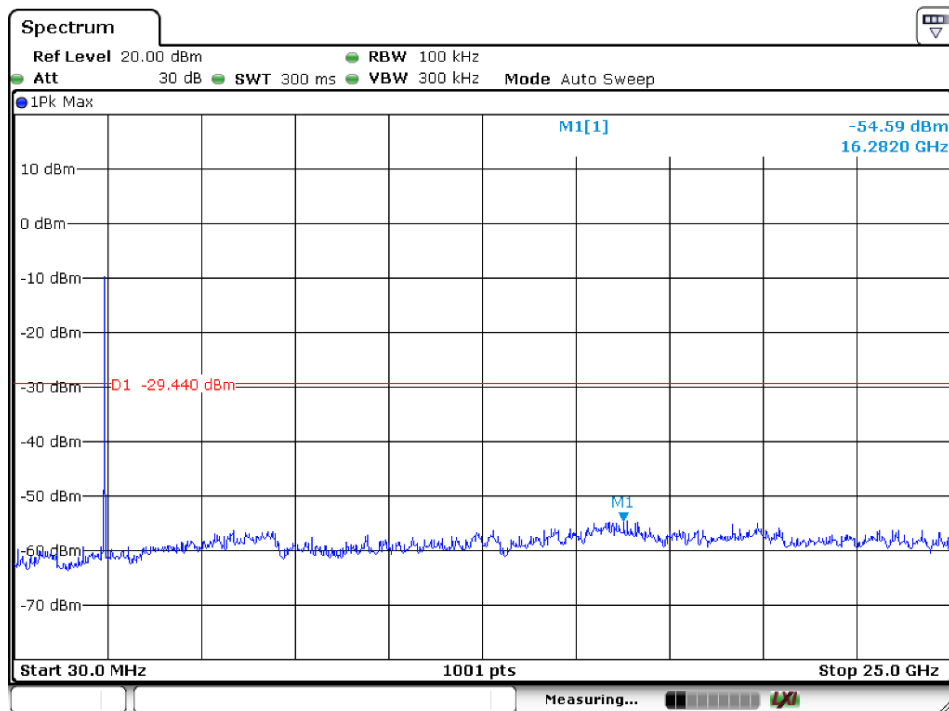
Test Mode: 802.11g



Lowest Channel

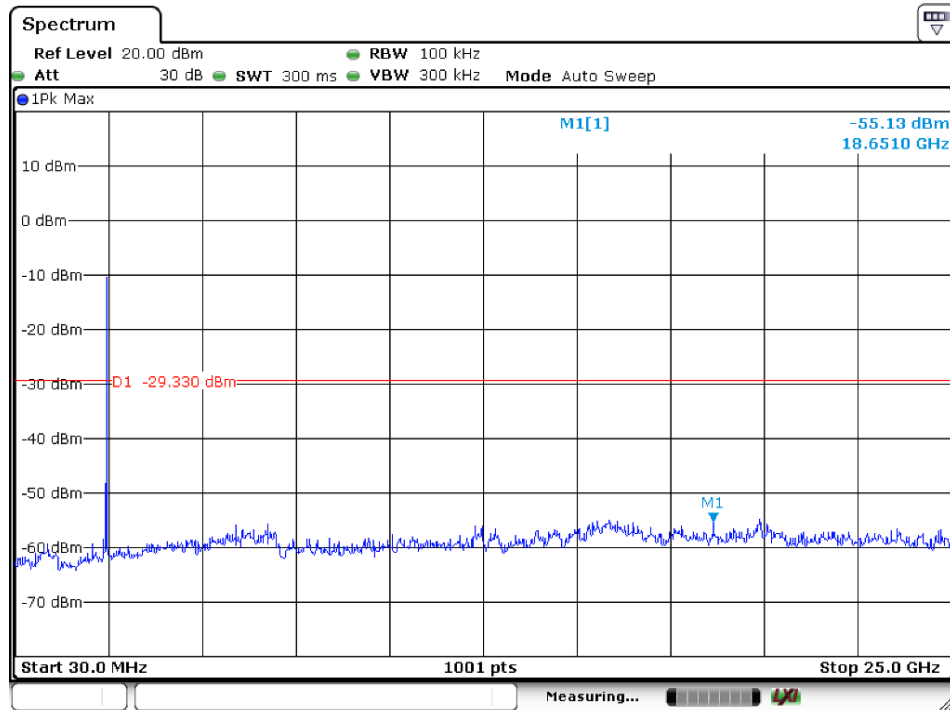


Middle Channel

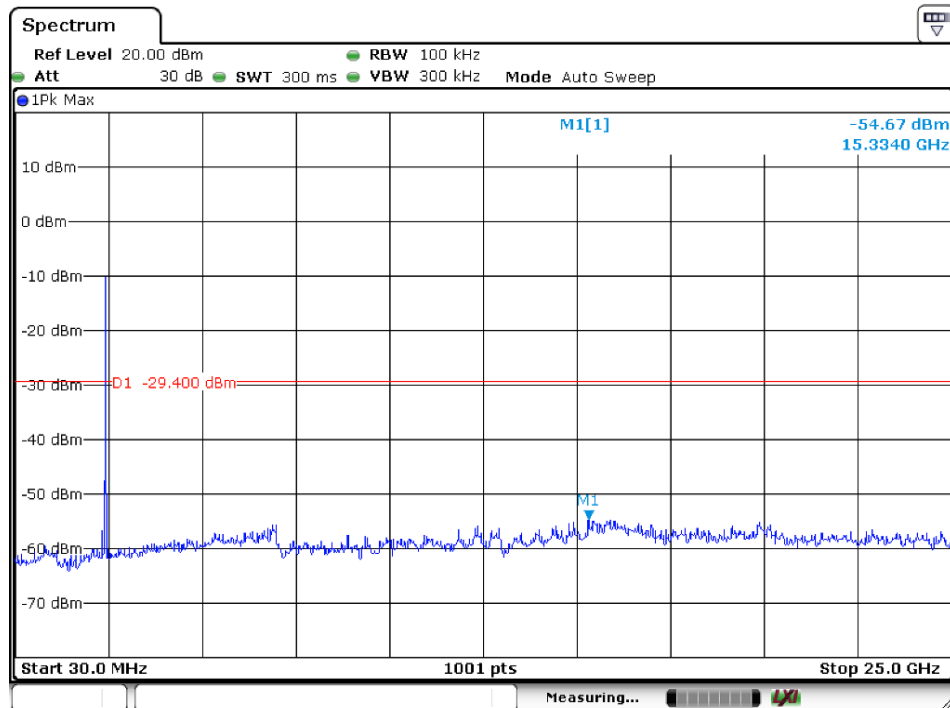


Highest Channel

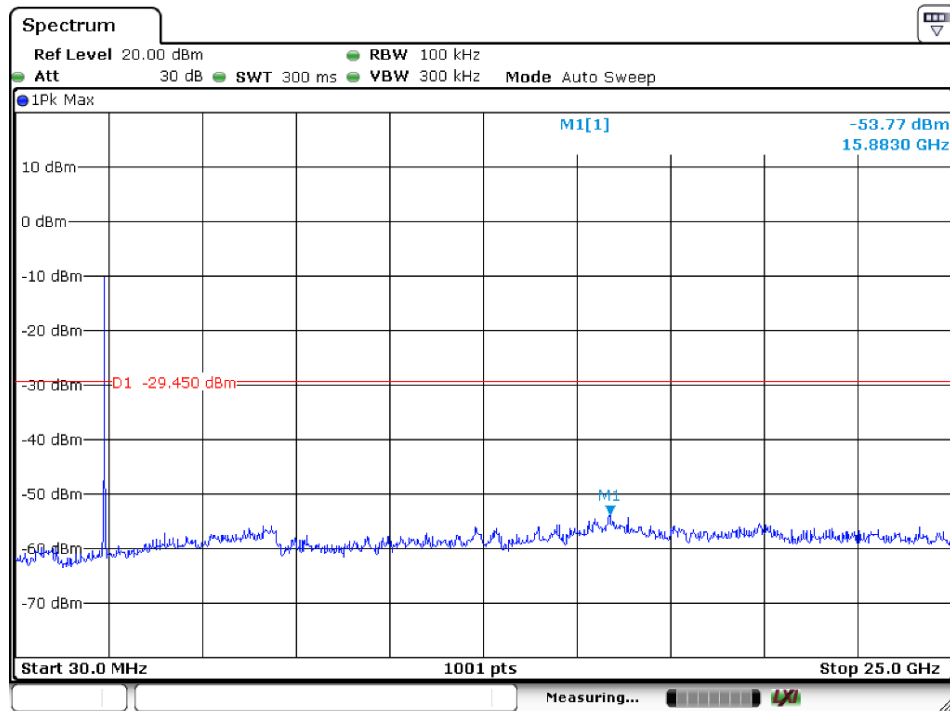
Test Mode: 802.11n(H20)



Lowest Channel

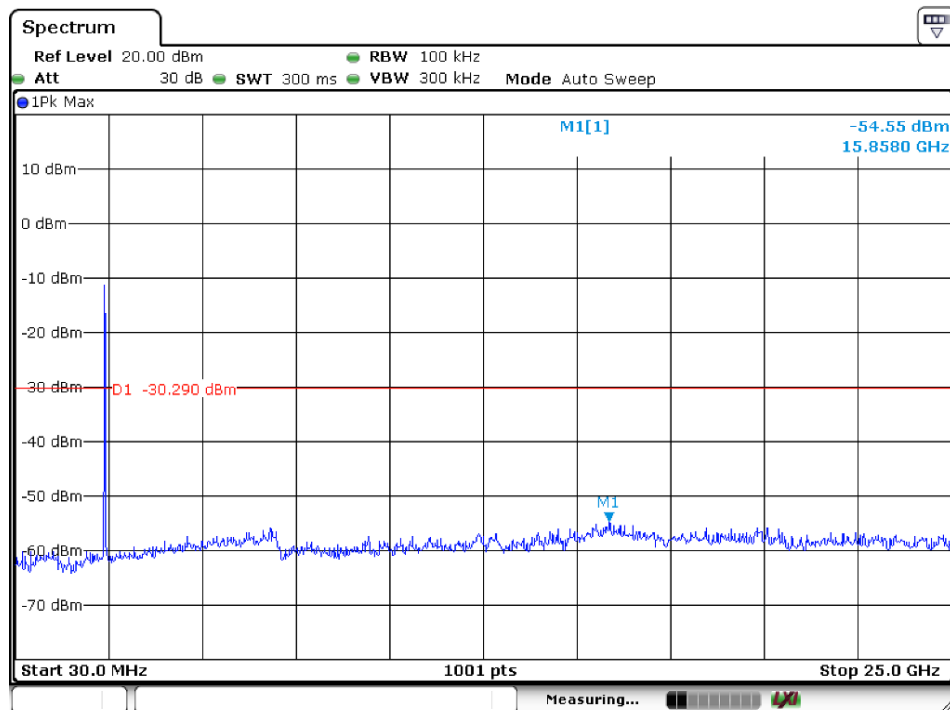


Middle Channel

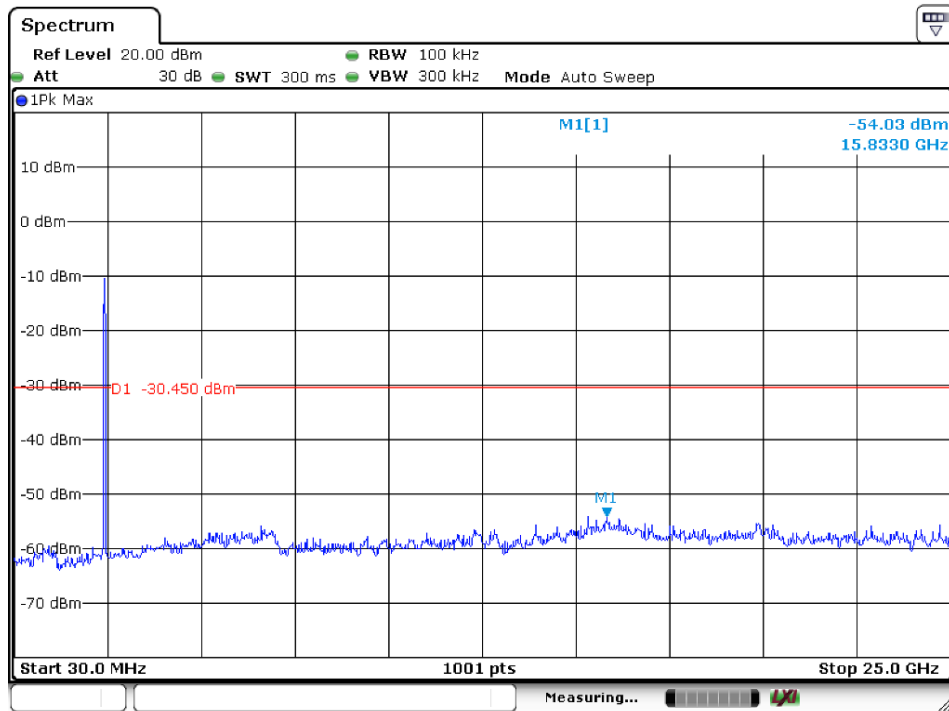


Highest Channel

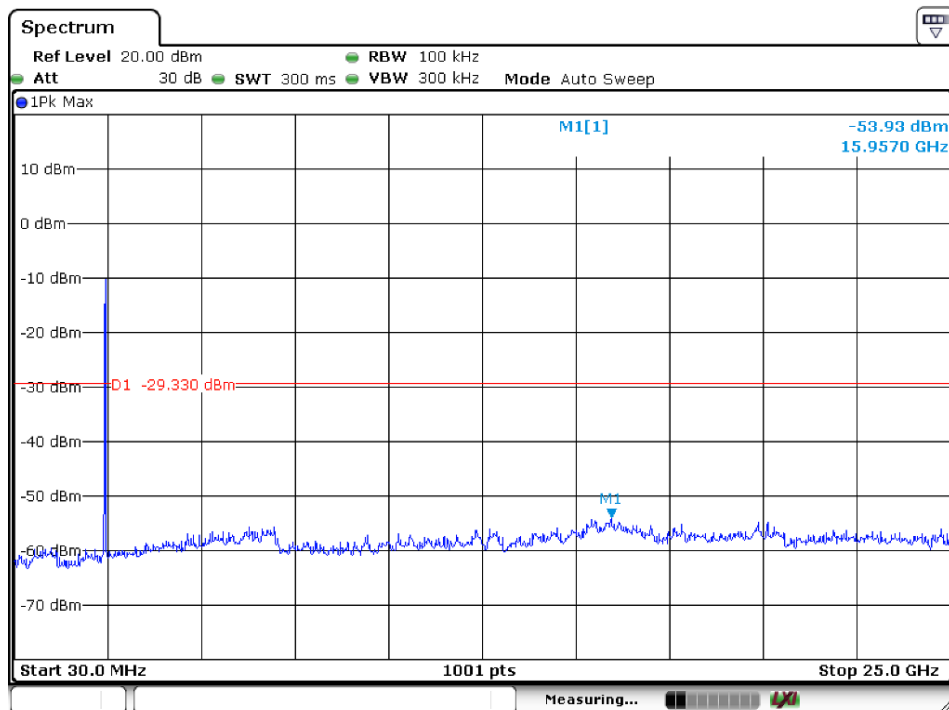
Test Mode: 802.11n(H40)



Lowest Channel



Middle Channel



Highest Channel

## **12. Antenna Application**

### **12.1 Antenna Requirement**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **12.2 Result**

The EUT'S antenna is an internap PCB antenna. The antenna's gain is 2 dBi and meets the requirement.

# APPENDIX I (PHOTOS OF EUT)





