

# APPLICATION FOR CERTIFICATION

On Behalf of

SMC Networks, Inc.

2.4GHz 802.11n 3T3R wifi module

Model No. : SMC-RT359333DB24

FCC ID : JI5-RT359333DB24

Brand : SMC Networks, Inc.

Prepared for : SMC Networks, Inc.  
20 Mason, Irvine, California, United States,  
92618

Prepared by : AUDIX Technology Corporation  
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File Number : C1M1211259  
Report Number : EM-F1010981  
Date of Test : Dec. 03 ~ Jan. 14, 2013  
Date of Report : Jan. 25, 2013

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## TEST REPORT CERTIFICATION

Applicant : SMC Networks, Inc.  
Manufacturer : MAINTEK COMPUTER  
EUT Description : 2.4GHz 802.11n 3T3R wifi module  
FCC ID : **JI5-RT359333DB24**  
(A) Model No. : SMC-RT359333DB24  
(B) Serial No. : N/A  
(C) Brand : SMC Networks, Inc.  
(D) Power Supply : DC 5V (Powered by Notebook PC)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct. 2010  
And ANSI C63.4:2003

(FCC 47 CFR Part 15C, §15.205 and §15.207 and §15.209 and §15.247)

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: Dec. 03 ~ Jan. 14, 2013

Date of Report: Jan. 25, 2013

Producer:   
(Julie Hsu/Administrator)

Signatory:   
(Leon Liu/Deputy General Manager)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

|                           |   |                                                                                                                          |
|---------------------------|---|--------------------------------------------------------------------------------------------------------------------------|
| Description               | : | 2.4GHz 802.11n 3T3R wifi module                                                                                          |
| Model Number              | : | SMC-RT359333DB24                                                                                                         |
| Serial Number             | : | N/A                                                                                                                      |
| Brand                     | : | SMC Networks, Inc.                                                                                                       |
| FCC ID                    | : | JI5-RT359333DB24                                                                                                         |
| Applicant                 | : | SMC Networks, Inc.<br>20 Mason, Irvine, California, United States,<br>92618                                              |
| Manufacturer              | : | MAINTEK COMPUTER<br>233 Jinfeng Rd., Suzhou, Jiangsu, PRC                                                                |
| Fundamental Range         | : | 2412MHz ~ 2462MHz                                                                                                        |
| Radio Technology          | : | 802.11b: DSSS Modulation<br>(DBPSK/DQPSK/CCK)<br>802.11g/n-HT20/n-HT40: OFDM Modulation<br>3T3R, (BPSK/QPSK/16QAM/64QAM) |
| Data Transfer Rate        | : | 802.11b: 1/2/5.5/11Mbps<br>802.11g: 6/9/12/18/24/48/54Mbps<br>802.11n: up to 450Mbps                                     |
| Antenna Gain              | : | 1.8dBi                                                                                                                   |
| Date of Receipt of Sample | : | Nov. 23, 2012                                                                                                            |
| Date of Test              | : | Dec. 03 ~ Jan. 14, 2013                                                                                                  |

## 1.2. Data Rate Relative to Output Power

| 802.11b |            |                 |            |
|---------|------------|-----------------|------------|
| Channel | Modulation | Date Rate(Mbps) | Power(dBm) |
| 1       | DBPSK      | 1               | 18.22      |
| 1       | DQPSK      | 2               | 18.19      |
| 1       | CCK        | 5.5             | 18.17      |
| 1       | CCK        | 11              | 18.16      |

| 802.11g |            |                  |             |
|---------|------------|------------------|-------------|
| Channel | Modulation | Date Rate (Mbps) | Power (dBm) |
| 1       | BPSK       | 6                | 15.57       |
| 1       | BPSK       | 9                | 15.55       |
| 1       | QPSK       | 12               | 15.53       |
| 1       | QPSK       | 18               | 15.49       |
| 1       | 16-QAM     | 24               | 15.44       |
| 1       | 16-QAM     | 36               | 15.48       |
| 1       | 64-QAM     | 48               | 15.45       |
| 1       | 64-QAM     | 54               | 15.44       |

| 802.11n-HT20 |            |                  |             |
|--------------|------------|------------------|-------------|
| Channel      | Modulation | Date Rate (Mbps) | Power (dBm) |
| 1            | BPSK       | 6.5              | 16.61       |
| 1            | QPSK       | 13               | 16.58/      |
| 1            | QPSK       | 19.5             | 16.53       |
| 1            | 16-QAM     | 26               | 16.51       |
| 1            | 16-QAM     | 39               | 16.47       |
| 1            | 64-QAM     | 52               | 16.49       |
| 1            | 64-QAM     | 58.6             | 16.50       |
| 1            | 64-QAM     | 65               | 16.46       |

| 802.11g-HT40 |            |                  |             |
|--------------|------------|------------------|-------------|
| Channel      | Modulation | Date Rate (Mbps) | Power (dBm) |
| 3            | BPSK       | 13.5             | 14.78       |
| 3            | QPSK       | 27               | 14.73       |
| 3            | QPSK       | 40.5             | 14.72       |
| 3            | 16-QAM     | 54               | 14.69       |
| 3            | 16-QAM     | 81               | 14.74       |
| 3            | 64-QAM     | 108              | 14.72       |
| 3            | 64-QAM     | 121.5            | 14.71       |
| 3            | 64-QAM     | 135              | 14.65       |

### 1.3. Test Configuration for Each Test Item

| Test Item                   | 802.11b                  | 802.11g | 802.11n-HT20 | 802.11n-HT40 |
|-----------------------------|--------------------------|---------|--------------|--------------|
|                             | Data Rate for Test(Mbps) |         |              |              |
| 6dB Bandwidth               | 1                        | 6       | 6.5          | 13.5         |
| Peak Power Spectral Density | 1                        | 6       | 6.5          | 13.5         |
| Peak Output Power           | 1                        | 6       | 6.5          | 13.5         |
| Band Edge                   | 1                        | 6       | 6.5          | 13.5         |

### 1.4. Tested Supporting System Details

#### 1.4.1. NOTEBOOK PC

Model Number : PP19S  
 Serial Number : 8285  
 FCC ID : MCLBCM92046  
 BSMI ID : R33002  
 Brand : DELL  
 AC Adapter : M/N:AD6513  
 DC Cord: Non-Shielded, Undetachable, 2.4m  
 USB Cable : Non-Shielded, Detachable, 0.25m  
 Power Cord : Non-Shielded, Detachable, 1.8m

### 1.5. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**  
 EMC Department  
 No. 53-11, Dingfu, Linkou Dist.,  
 New Taipei City 244, Taiwan, R.O.C.

Test Site : **No. 8 Shielded Room &**  
 (C8/Semi-AC) No. 53-11, Dingfu, Linkou Dist.,  
 New Taipei City 244, Taiwan, R.O.C.  
**Semi-Anechoic Chamber**  
 No. 53-11, Dingfu, Linkou Dist.,  
 New Taipei City 244, Taiwan, R.O.C.  
 May 14, 2009 Renewal on  
 Federal Communication Commission  
 Registration Number: 90993

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

## 1.6. Measurement Uncertainty

| Test Item                        | Frequency Range | Uncertainty (dB) |
|----------------------------------|-----------------|------------------|
| Conduction Test                  | 150kHz~30MHz    | ±1.73dB          |
| Radiation Test<br>(Distance: 3m) | 30MHz~300MHz    | ± 2.91dB         |
|                                  | 300MHz~1000MHz  | ± 2.74dB         |
|                                  | Above 1GHz      | ± 5.02dB         |

Remark : Uncertainty =  $k u_c(y)$

| Test Item                 | Uncertainty |
|---------------------------|-------------|
| 6dB Bandwidth             | ± 0.05kHz   |
| Maximum peak output power | ± 0.33dBm   |
| Band edges                | ± 0.13dB    |
| Power spectral density    | ± 0.13dB    |
| Emission Limitations      | ± 0.13dB    |

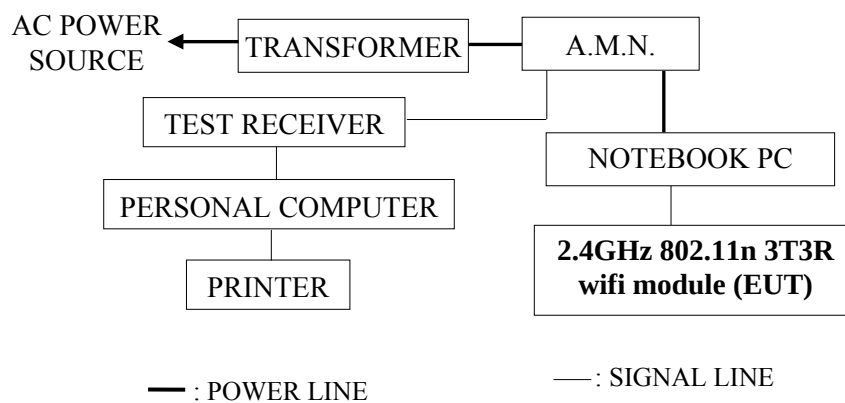
## 2. CONDUCTED EMISSION MEASUREMENT

### 2.1. Test Equipment

The following test equipment was used during the conducted emission measurement :  
(No. 8 Shielded Room)

| Item | Type          | Manufacturer | Model No. | Serial No. | Last Cal.    | Next Cal.    |
|------|---------------|--------------|-----------|------------|--------------|--------------|
| 1.   | Test Receiver | R&S          | ESCS30    | 100265     | Aug. 24, 12' | Aug. 23, 13' |
| 2.   | A.M.N.        | R&S          | ESH2-Z5   | 100366     | Mar. 26, 12' | Mar. 25, 13' |

### 2.2. Block Diagram of Test Setup



### 2.3. Powerline Conducted Emission Limit §15.207, Class B,

RSS-Gen §7.2.2/Table 2]

| Frequency       | Maximum RF Line Voltage |                    |
|-----------------|-------------------------|--------------------|
|                 | Quasi-Peak Level        | Average Level      |
| 150kHz ~ 500kHz | 66 ~ 56 dB $\mu$ V      | 56 ~ 46 dB $\mu$ V |
| 500kHz ~ 5MHz   | 56 dB $\mu$ V           | 46 dB $\mu$ V      |
| 5MHz ~ 30MHz    | 60 dB $\mu$ V           | 50 dB $\mu$ V      |

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

## 2.4. Operating Condition of EUT

- 2.4.1. Setup the EUT and simulator as shown on 2.2.
- 2.4.2. Turn on the power of all equipment.
- 2.4.3. The Notebook PC was running test software “RT3593QA” to set EUT (2.4GHz 802.11n 3T3R wifi module) on transmitting and receiving during all testing.

## 2.5. Test Procedure

The EUT (link Notebook PC) was placed on the table which was above the ground by 80cm and Notebook PC's adapter's power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation during conducted measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 9kHz.

The frequency range from 150kHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

## 2.6. Conducted Emission Measurement Results

### **PASSED.**

(All the emissions not reported below are too low against the prescribed limits.)

EUT was performed during this section testing and all the test results are attached in next pages.

EUT : 2.4GHz 802.11n 3T3R wifi module

M/N : SMC-RT359333DB24

Test Date : Dec. 20, 2013

Temperature : 25

Humidity : 52%

Reference Test Data : Neutral # 2; Line # 1

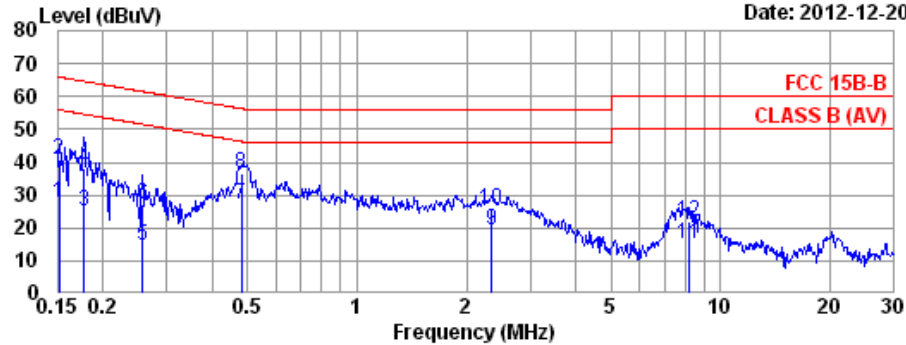


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 Email: emc@audixtech.com

Data: 2

File: D:\test data\REPORT\1M1211XXX\1M1211259-C-D-EM6 (2)

Date: 2012-12-20



Site no. : No.8 Shielded Room  
 Dis. / Ant. : ESH2-Z5 366  
 Limit : FCC 15B-B  
 Env. / Ins. : 25°C / 52%  
 EUT : SMC-RT359333DB24  
 Power Rating : 110Vac/60Hz  
 Test Mode : OPERATING

Data no. : 2  
 Ant. pol. : NEUTRAL  
 Engineer : Jack\_Wu

|    | Freq.<br>(MHz) | AMN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.152          | 0.10                   | 0.04                  | 27.82             | 27.96                       | 55.91            | 27.95          | Average |
| 2  | 0.152          | 0.10                   | 0.04                  | 40.86             | 41.00                       | 65.91            | 24.91          | QP      |
| 3  | 0.178          | 0.10                   | 0.04                  | 25.05             | 25.19                       | 54.59            | 29.40          | Average |
| 4  | 0.178          | 0.10                   | 0.04                  | 38.00             | 38.14                       | 64.59            | 26.45          | QP      |
| 5  | 0.258          | 0.10                   | 0.04                  | 14.61             | 14.75                       | 51.51            | 36.76          | Average |
| 6  | 0.258          | 0.10                   | 0.04                  | 27.22             | 27.36                       | 61.51            | 34.15          | QP      |
| 7  | 0.481          | 0.12                   | 0.04                  | 26.78             | 26.94                       | 46.32            | 19.38          | Average |
| 8  | 0.481          | 0.12                   | 0.04                  | 36.60             | 36.76                       | 56.32            | 19.56          | QP      |
| 9  | 2.346          | 0.20                   | 0.09                  | 18.95             | 19.24                       | 46.00            | 26.76          | Average |
| 10 | 2.346          | 0.20                   | 0.09                  | 25.36             | 25.65                       | 56.00            | 30.35          | QP      |
| 11 | 8.192          | 0.28                   | 0.17                  | 14.61             | 15.06                       | 50.00            | 34.94          | Average |
| 12 | 8.192          | 0.28                   | 0.17                  | 21.54             | 21.99                       | 60.00            | 38.01          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.

2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

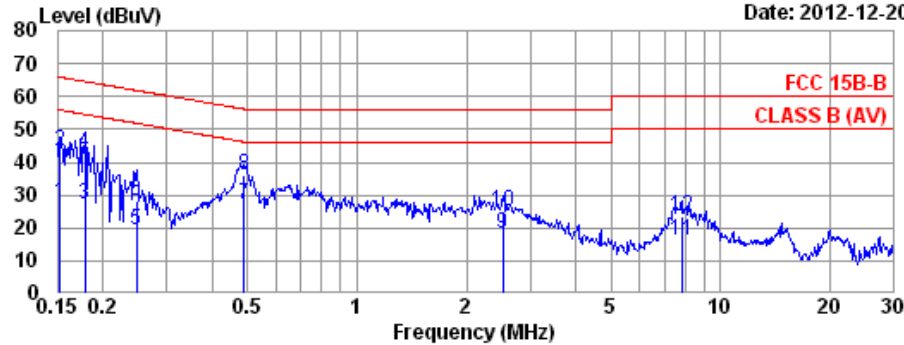


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 Email: emc@audixtech.com

Data: 1

File: D:\test data\REPORT\1M1211XXX\1M1211259-C-D.EM6 (2)

Date: 2012-12-20



Site no. : No.8 Shielded Room  
 Dis. / Ant. : ESH2-Z5 366  
 Limit : FCC 15B-B  
 Env. / Ins. : 25°C / 52%  
 EUT : SMC-RT359333DB24  
 Power Rating : 110Vac/60Hz  
 Test Mode : OPERATING

Data no. : 1  
 Ant. pol. : LINE  
 Engineer : Jack\_Wu

|    | Freq.<br>(MHz) | AMN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.152          | 0.10                   | 0.04                  | 27.65             | 27.79                       | 55.87            | 28.08          | Average |
| 2  | 0.152          | 0.10                   | 0.04                  | 43.06             | 43.20                       | 65.87            | 22.67          | QP      |
| 3  | 0.179          | 0.10                   | 0.04                  | 26.84             | 26.98                       | 54.55            | 27.57          | Average |
| 4  | 0.179          | 0.10                   | 0.04                  | 42.92             | 43.06                       | 64.55            | 21.49          | QP      |
| 5  | 0.248          | 0.10                   | 0.04                  | 19.19             | 19.33                       | 51.82            | 32.49          | Average |
| 6  | 0.248          | 0.10                   | 0.04                  | 28.12             | 28.26                       | 61.82            | 33.56          | QP      |
| 7  | 0.489          | 0.12                   | 0.04                  | 26.91             | 27.07                       | 46.19            | 19.12          | Average |
| 8  | 0.489          | 0.12                   | 0.04                  | 35.94             | 36.10                       | 56.19            | 20.09          | QP      |
| 9  | 2.513          | 0.20                   | 0.09                  | 18.06             | 18.35                       | 46.00            | 27.65          | Average |
| 10 | 2.513          | 0.20                   | 0.09                  | 24.70             | 24.99                       | 56.00            | 31.01          | QP      |
| 11 | 7.810          | 0.27                   | 0.17                  | 15.72             | 16.16                       | 50.00            | 33.84          | Average |
| 12 | 7.810          | 0.27                   | 0.17                  | 23.24             | 23.68                       | 60.00            | 36.32          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.

2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

### 3. RADIATED EMISSION MEASUREMENT

#### 3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

##### 3.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

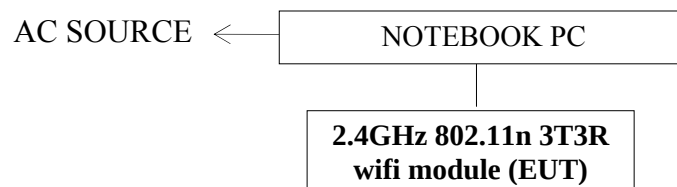
| Item | Type                 | Manufacturer | Model No.    | Serial No. | Last Cal.    | Next Cal.    |
|------|----------------------|--------------|--------------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer    | Agilent      | E4446A       | US44300366 | Aug. 07, 12' | Aug. 06, 13' |
| 2.   | Test Receiver        | R & S        | ESCS30       | 100338     | Jul. 04, 12' | Jul. 03, 13' |
| 3.   | Amplifier            | Agilent      | 8447D        | 2944A06305 | Feb. 13, 12' | Feb. 12, 13' |
| 4.   | Log Periodic Antenna | Schwarzbeck  | UHALP 9108-A | 0810       | Mar. 03, 12' | Mar. 02, 13' |
| 5.   | Biconical Antenna    | CHASE        | VBA6106 A    | 1264       | Mar. 03, 12' | Mar. 02, 13' |

##### 3.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

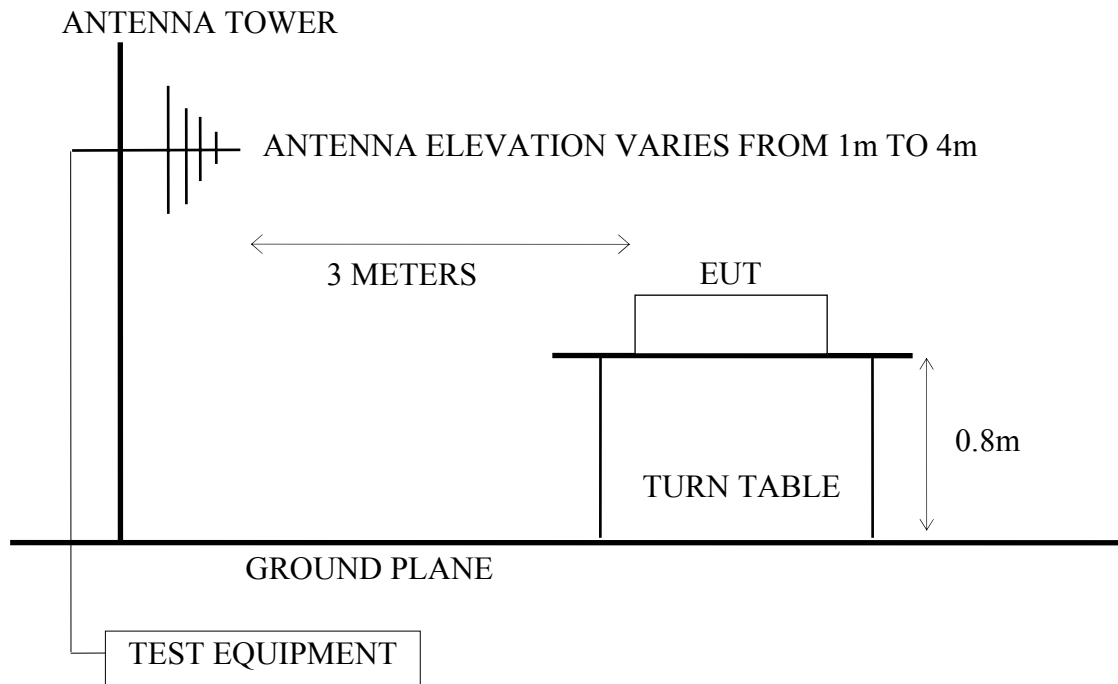
| Item | Type                  | Manufacturer | Model No.      | Serial No. | Last Cal.    | Next Cal.    |
|------|-----------------------|--------------|----------------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer     | Agilent      | E4446A         | US44300366 | Aug. 07, 12' | Aug. 06, 13' |
| 2.   | Pre-Amplifier         | HP           | 8449B          | 3008A02678 | Mar. 07, 12' | Mar. 06, 13' |
| 3.   | 3.5G High Pass Filter | HP           | 84300-80038    | 005        | Jan. 03, 13' | Jan. 02, 14' |
| 4.   | 2.4G Notch Filter     | EWT          | EWT-14-0070-R1 | G2         | Feb. 14, 12' | Feb. 13, 13' |
| 5.   | Horn Antenna          | EMCO         | 3115           | 9112-3775  | May 09, 12'  | May 08, 13'  |
| 6.   | Horn Antenna          | EMCO         | 3116           | 2653       | Oct. 15, 12' | Oct. 14, 13' |
| 7.   | Signal Generator      | HP           | 83732B         | US34490489 | May 16, 12'  | May 15, 13'  |

#### 3.2. Test Setup

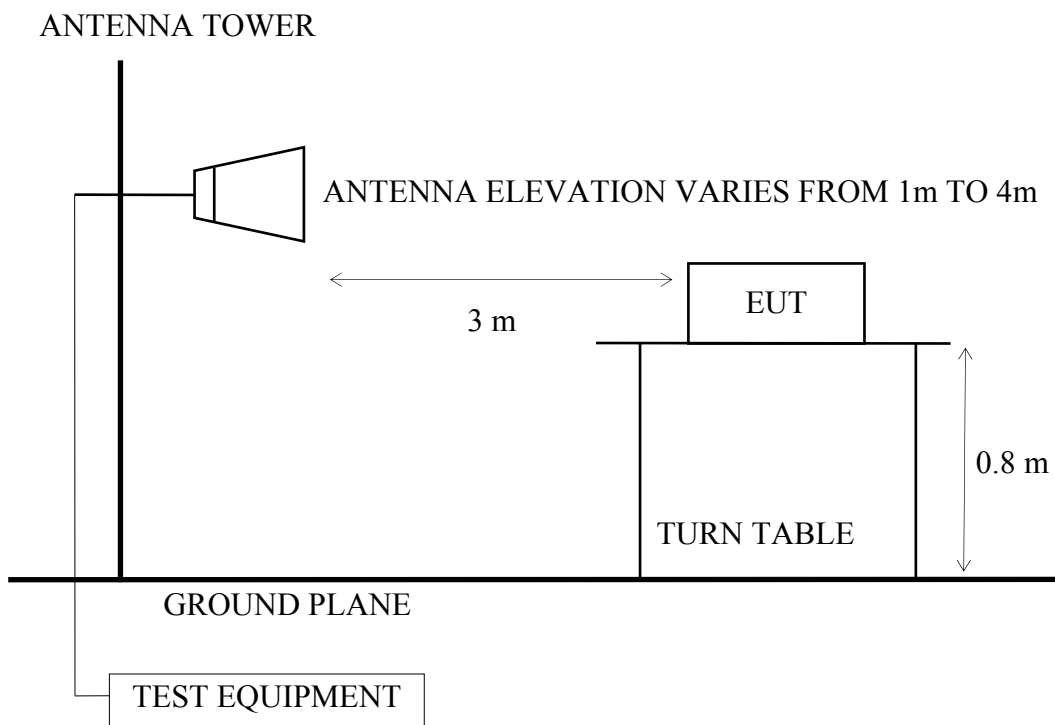
##### 3.2.1. Block Diagram of connection between EUT and simulators



## 3.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



## 3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



### 3.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2)

| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMITS                                                          |                          |
|------------------|--------------------|---------------------------------------------------------------------------------|--------------------------|
|                  |                    | $\mu\text{V/m}$                                                                 | $\text{dB}\mu\text{V/m}$ |
| 30 ~ 88          | 3                  | 100                                                                             | 40.0                     |
| 88 ~ 216         | 3                  | 150                                                                             | 43.5                     |
| 216 ~ 960        | 3                  | 200                                                                             | 46.0                     |
| Above 960        | 3                  | 500                                                                             | 54.0                     |
| Above 1000       | 3                  | 74.0 $\text{dB}\mu\text{V/m}$ (Peak)<br>54.0 $\text{dB}\mu\text{V/m}$ (Average) |                          |

- Remark :
- (1) Emission level ( $\text{dB}\mu\text{V/m}$ ) = 20 log Emission level ( $\mu\text{V/m}$ )
  - (2) The tighter limit applies at the edge between two frequency bands.
  - (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
  - (4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
  - (5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35(b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

### 3.4. Operating Condition of EUT

- 3.4.1. Set up the EUT (2.4GHz 802.11n 3T3R wifi module) via Notebook PC and simulator as shown on 3.2.
- 3.4.2. To turn on the power of all equipments.
- 3.4.3. The EUT was set the Notebook PC using test program “RT3593QA”.
- 3.4.4. The EUT supports 802.11b/g/n-HT20/n-HT40 modes, we performed pre-scan high, middle, low channels for each mode for spurious emission and listed the worst channel of each mode in test report.

The worst channel of each mode as following:

| Mode | Type of Network | Channel |
|------|-----------------|---------|
| 1.   | 802.11b         | CH 1    |
| 2.   | 802.11g         | CH 6    |
| 3.   | 802.11n-HT20    | CH 6    |
| 4.   | 802.11n-HT40    | CH 6    |

### 3.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation.

The bandwidth of the R&S Test Receiver was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10<sup>th</sup> harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector. Pursuant to ANSI 4.2.2, peak detector is an alternate option for frequency from 30MHz to 1000MHz.

For emissions above 1GHz were measured with peak and average detectors, and performed measurement in 1 m distance for frequency range from 5500MHz up to 40000MHz where there is no emission be found.

Pursuant to ANSI C63.4 8.3.1.2, when peak value complies with the average limit, we didn't perform measurement in average detector.

### 3.6. Test Results

#### **PASSED.**

(All emissions not reported below are too low against the prescribed limits.)

EUT : 2.4GHz 802.11n 3T3R wifi module

M/N : SMC-RT359333DB24

#### **For Frequency Range 30MHz~1000MHz:**

The EUT with following test modes were performed during this section testing and all the test results are listed in section 3.6.1.

| Mode | Type of Network | Channel | Frequency | Test Mode | Reference Test Data |          |
|------|-----------------|---------|-----------|-----------|---------------------|----------|
|      |                 |         |           |           | Horizontal          | Vertical |
| 1.   | 802.11b         | CH 6    | 2437MHz   | Transmit  | # 14                | # 13     |
| 2.   | 802.11g         | CH 6    | 2437MHz   |           | # 14                | # 13     |
| 3.   | 802.11n-HT20    | CH 6    | 2437MHz   |           | # 14                | # 13     |
| 4.   | 802.11n-HT40    | CH 6    | 2437MHz   |           | # 14                | # 13     |

\* Above all final readings were measured with Quasi-Peak detector.

#### **2.4GHz for Frequency above 1GHz:**

The EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.2.

| Mode | Type of Network | Channel | Frequency | Test Mode | Reference Test Data |         |          |         |
|------|-----------------|---------|-----------|-----------|---------------------|---------|----------|---------|
|      |                 |         |           |           | Horizontal          |         | Vertical |         |
|      |                 |         |           |           | Peak                | Average | Peak     | Average |
| 1.   | 802.11b         | CH 1    | 2412MHz   | Transmit  | # 16                | # 9     | # 15     | # 3     |
| 2.   | 802.11g         | CH 6    | 2437MHz   |           | # 16                | # 9     | # 15     | # 3     |

Note: 1. Above all final readings were measured with Peak and Average detector.

2. The emissions (up to 25GHz) not reported are too low to be measured.

**For Restricted Bands:**

The EUT was tested in restricted bands and all the test results are listed in section 3.6.4. (The restricted bands defined in part 15.205(a))

| Mode | Type of Network | Channel | Frequency | Test Mode | Reference Test Data |          |
|------|-----------------|---------|-----------|-----------|---------------------|----------|
|      |                 |         |           |           | Horizontal          | Vertical |
| 1.   | 802.11b         | CH 1    | 2412MHz   | Transmit  | # 5, # 6            | # 7, # 8 |
| 2.   |                 | CH 11   | 2462MHz   |           | # 1, # 2            | # 3, # 4 |
| 3.   | 802.11g         | CH 1    | 2412MHz   | Transmit  | # 5, # 6            | # 7, # 8 |
| 4.   |                 | CH 11   | 2462MHz   |           | # 1, # 2            | # 3, # 4 |
| 5.   | 802.11n-HT20    | CH 1    | 2412MHz   | Transmit  | # 5, # 6            | # 7, # 8 |
| 6.   |                 | CH 11   | 2462MHz   |           | # 1, # 2            | # 3, # 4 |
| 7.   | 802.11n-HT40    | CH 3    | 2422MHz   | Transmit  | # 6, # 5            | # 7, # 8 |
| 8.   |                 | CH 9    | 2452MHz   |           | # 1, # 2            | # 3, # 4 |

## 3.6.1. For 30-1000MHz Frequency Range Measurement Results

**802.11b, Transmit, Frequency: 2412MHz**

Site no. : A/C Chamber  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11b (Tx2437MHz)

Data no. : 13  
 Ant. pol. : VERTICAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 35.820         | 22.49                    | 1.20                  | 13.33             | 37.01                         | 40.00              | 2.99           | QP     |
| 2 | 299.660        | 26.77                    | 3.90                  | -0.24             | 30.43                         | 46.00              | 15.57          | QP     |
| 3 | 495.600        | 18.69                    | 6.40                  | 5.19              | 30.28                         | 46.00              | 15.72          | QP     |
| 4 | 697.360        | 23.32                    | 6.50                  | -0.46             | 29.36                         | 46.00              | 16.64          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11b (Tx2437MHz)

Data no. : 14  
 Ant. pol. : HORIZONTAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 200.720        | 22.08                    | 3.00                  | 7.96              | 33.04                         | 43.50              | 10.46          | QP     |
| 2 | 301.600        | 14.59                    | 3.90                  | 13.91             | 32.40                         | 46.00              | 13.60          | QP     |
| 3 | 334.580        | 15.09                    | 4.20                  | 11.66             | 30.95                         | 46.00              | 15.05          | QP     |
| 4 | 700.270        | 23.46                    | 6.50                  | 1.84              | 31.80                         | 46.00              | 14.20          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

**802.11g, Transmit, Frequency: 2437MHz**

Site no. : A/C Chamber  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11g (Tx2437MHz)

Data no. : 14  
 Ant. pol. : HORIZONTAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 200.720        | 22.08                    | 3.00                  | 6.37              | 31.45                         | 43.50              | 12.05          | QP     |
| 2 | 299.660        | 26.77                    | 3.90                  | 5.65              | 36.32                         | 46.00              | 9.68           | QP     |
| 3 | 498.510        | 18.79                    | 6.50                  | 0.16              | 25.45                         | 46.00              | 20.55          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11g (Tx2437MHz)

Data no. : 13  
 Ant. pol. : VERTICAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 35.820         | 22.49                    | 1.20                  | 12.44             | 36.12                         | 40.00              | 3.88           | QP     |
| 2 | 299.660        | 26.77                    | 3.90                  | -0.08             | 30.59                         | 46.00              | 15.41          | QP     |
| 3 | 501.420        | 18.95                    | 6.52                  | 1.60              | 27.08                         | 46.00              | 18.92          | QP     |
| 4 | 667.290        | 22.80                    | 6.40                  | 0.26              | 29.46                         | 46.00              | 16.54          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

**802.11n-HT20, Transmit, Frequency: 2437MHz**

Site no. : A/C Chamber Data no. : 14  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61% Engineer : Johnny\_Hsueh  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11n (Tx2437MHz)

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 55.220         | 14.39                    | 1.50                  | 11.08             | 26.97                         | 40.00              | 13.03          | QP     |
| 2 | 199.750        | 22.09                    | 3.00                  | 8.41              | 33.49                         | 43.50              | 10.01          | QP     |
| 3 | 299.660        | 26.77                    | 3.90                  | 0.43              | 31.10                         | 46.00              | 14.90          | QP     |
| 4 | 501.420        | 18.95                    | 6.52                  | 4.54              | 30.02                         | 46.00              | 15.98          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber Data no. : 13  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61% Engineer : Johnny\_Hsueh  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11n (Tx2437MHz)

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 35.820         | 22.49                    | 1.20                  | 13.06             | 36.74                         | 40.00              | 3.26           | QP     |
| 2 | 200.720        | 22.08                    | 3.00                  | 0.01              | 25.09                         | 43.50              | 18.41          | QP     |
| 3 | 498.510        | 18.79                    | 6.50                  | 4.53              | 29.82                         | 46.00              | 16.18          | QP     |
| 4 | 700.270        | 23.46                    | 6.50                  | 0.05              | 30.01                         | 46.00              | 15.99          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

**802.11n-HT40, Transmit, Frequency: 2437MHz**

Site no. : A/C Chamber Data no. : 14  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61% Engineer : Johnny\_Hsueh  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11n40 (Tx2437MHz)

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 199.750        | 22.09                    | 3.00                  | 6.64              | 31.72                         | 43.50              | 11.78          | QP     |
| 2 | 299.660        | 26.77                    | 3.90                  | 5.37              | 36.04                         | 46.00              | 9.96           | QP     |
| 3 | 334.580        | 15.09                    | 4.20                  | 11.42             | 30.71                         | 46.00              | 15.29          | QP     |
| 4 | 501.420        | 18.95                    | 6.52                  | 5.15              | 30.63                         | 46.00              | 15.37          | QP     |
| 5 | 700.270        | 23.46                    | 6.50                  | 1.87              | 31.83                         | 46.00              | 14.17          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber Data no. : 13  
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : VERTICAL  
 Limit : FCC PART-15C  
 Env. / Ins. : E4446A 25°C/61% Engineer : Johnny\_Hsueh  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11n40 (Tx2437MHz)

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 35.820         | 22.49                    | 1.20                  | 14.33             | 38.01                         | 40.00              | 1.99           | QP     |
| 2 | 200.720        | 22.08                    | 3.00                  | 2.88              | 27.96                         | 43.50              | 15.54          | QP     |
| 3 | 299.660        | 26.77                    | 3.90                  | 0.83              | 31.50                         | 46.00              | 14.50          | QP     |
| 4 | 498.510        | 18.79                    | 6.50                  | 2.30              | 27.59                         | 46.00              | 18.41          | QP     |
| 5 | 700.270        | 23.46                    | 6.50                  | 0.00              | 29.96                         | 46.00              | 16.04          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

## 3.6.2. 2.4GHz for Above 1GHz Frequency Range Measurement Results

**802.11b Transmit, Frequency: 2412MHz**

|              |                        |           |                |
|--------------|------------------------|-----------|----------------|
| Site no.     | : A/C Chamber site     | Data no.  | : 16           |
| Dis. / Ant.  | : 3m 3115(4927)        | Ant. pol. | : HORIZONTAL   |
| Limit        | : FCC PART-15C (1G-PK) | Engineer  | : Johnny_Hsueh |
| Env. / Ins.  | : E4446A 25°C/61%      |           |                |
| EUT          | : SMC-RT359333DB24     |           |                |
| Power Rating | : DC 5V                |           |                |
| Test Mode    | : 802.11b (Tx2437MHz)  |           |                |

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 4880.500       | 33.18                    | 9.15                  | 12.38             | 54.70                         | 74.00              | 19.30          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

|              |                        |           |                |
|--------------|------------------------|-----------|----------------|
| Site no.     | : A/C Chamber site     | Data no.  | : 15           |
| Dis. / Ant.  | : 3m 3115(4927)        | Ant. pol. | : VERTICAL     |
| Limit        | : FCC PART-15C (1G-PK) | Engineer  | : Johnny_Hsueh |
| Env. / Ins.  | : E4446A 25°C/61%      |           |                |
| EUT          | : SMC-RT359333DB24     |           |                |
| Power Rating | : DC 5V                |           |                |
| Test Mode    | : 802.11b (Tx2437MHz)  |           |                |

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 4879.000       | 33.18                    | 9.15                  | 12.31             | 54.63                         | 74.00              | 19.37          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m 3115(4927)  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11b (Tx2437MHz)

Data no. : 9  
 Ant. pol. : HORIZONTAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 4880.500       | 33.18                    | 9.15                  | 6.38              | 48.70                         | 54.00              | 5.30           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m 3115(4927)  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11b (Tx2437MHz)

Data no. : 3  
 Ant. pol. : VERTICAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 4879.000       | 33.18                    | 9.15                  | 3.31              | 45.63                         | 54.00              | 8.37           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official  
 limit are not reported.

**802.11g, Transmit, Frequency: 2437MHz**

Site no. : A/C Chamber  
 Dis. / Ant. : 3m 3115(4927)  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11g (Tx2437MHz)

Data no. : 16  
 Ant. pol. : HORIZONTAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Gain<br>(dBμV) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|--------------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 4873.000       | 33.18                    | 9.15                  | 34.43                    | 46.80             | 54.70                         | 74.00              | 19.30          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m 3115(4927)  
 Limit : FCC PART-15C (1G-PK)  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11g (Tx2437MHz)

Data no. : 15  
 Ant. pol. : VERTICAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Preamp<br>Gain<br>(dBμV) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|--------------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 4756.000       | 32.97                    | 9.20                  | 34.45                    | 44.97             | 52.68                         | 74.00              | 21.32          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Preamp Gain + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m 3115(4927)  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11g (Tx2437MHz)

Data no. : 9  
 Ant. pol. : HORIZONTAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 4873.000       | 33.18                    | 9.15                  | 4.38              | 46.70                         | 54.00              | 7.30           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Site no. : A/C Chamber  
 Dis. / Ant. : 3m 3115(4927)  
 Limit : FCC PART-15C (1G-AV)  
 Env. / Ins. : E4446A 25°C/61%  
 EUT : SMC-RT359333DB24  
 Power Rating : DC 5V  
 Test Mode : 802.11g (Tx2437MHz)

Data no. : 3  
 Ant. pol. : VERTICAL  
 Engineer : Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 4756.000       | 32.97                    | 9.20                  | 2.52              | 44.68                         | 54.00              | 9.32           | Average |

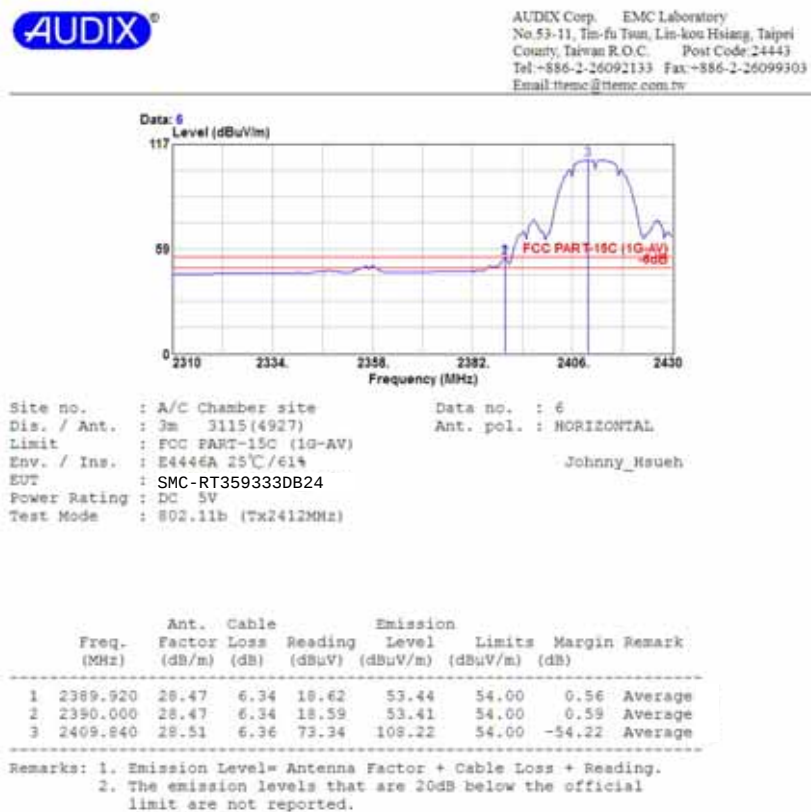
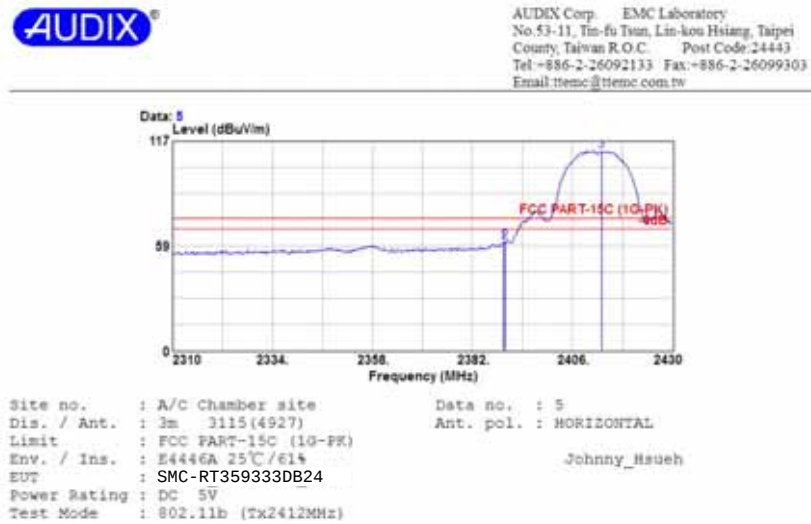
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

## 3.6.3. Restricted Bands Measurement Results

Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11b, Transmit, Channel: 01, Frequency: 2412MHz



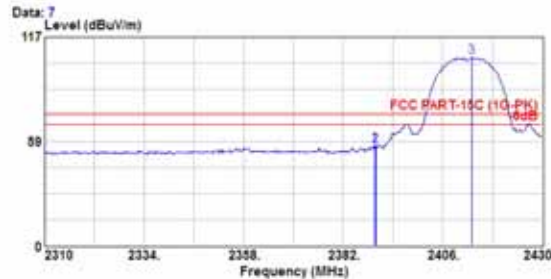
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11b, Transmit, Channel: 01, Frequency: 2412MHz



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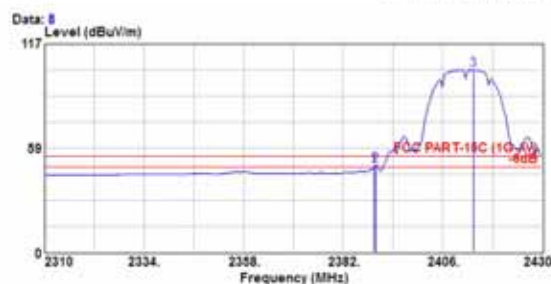
Site no. : A/C Chamber site Data no. : 7  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Haueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11b (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2389.680     | 28.47                    | 6.34                  | 21.45             | 56.27                         | 74.00              | 17.73          | Peak   |
| 2 2390.000     | 28.47                    | 6.34                  | 21.03             | 55.85                         | 74.00              | 18.15          | Peak   |
| 3 2413.080     | 28.51                    | 6.36                  | 70.84             | 105.72                        | 74.00              | -31.72         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Email:ttenc@ttenc.com.tw



Site no. : A/C Chamber site Data no. : 8  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Haueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11b (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2389.560     | 28.47                    | 6.34                  | 13.57             | 48.38                         | 54.00              | 5.62           | Average |
| 2 2390.000     | 28.47                    | 6.34                  | 13.98             | 48.80                         | 54.00              | 5.20           | Average |
| 3 2413.440     | 28.51                    | 6.36                  | 67.64             | 102.51                        | 54.00              | -48.51         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

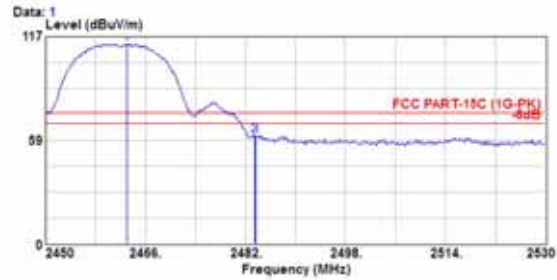
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11b, Transmit, Channel: 11, Frequency: 2462MHz



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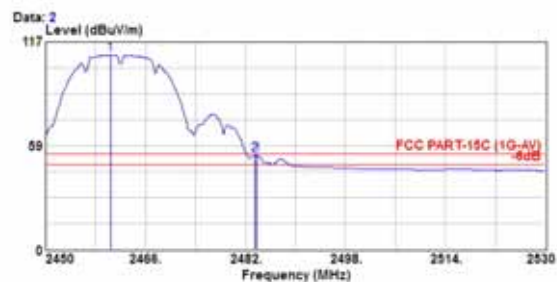
Site no. : A/C Chamber site Data no. : 1  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11b (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2462.960     | 28.62                    | 6.42                  | 77.69             | 112.74                        | 74.00              | -38.74         | Peak   |
| 2 2483.500     | 28.66                    | 6.45                  | 26.09             | 61.21                         | 74.00              | 12.79          | Peak   |
| 3 2483.600     | 28.66                    | 6.45                  | 25.94             | 61.05                         | 74.00              | 12.95          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 2  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11b (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2460.320     | 28.62                    | 6.42                  | 74.62             | 109.67                        | 54.00              | -55.67         | Average |
| 2 2483.500     | 28.66                    | 6.45                  | 18.18             | 53.30                         | 54.00              | 0.70           | Average |
| 3 2483.760     | 28.66                    | 6.45                  | 18.18             | 53.30                         | 54.00              | 0.70           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

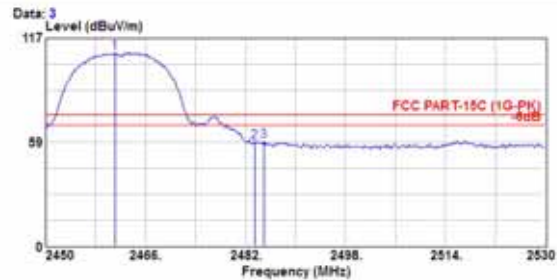
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11b, Transmit, Channel: 11, Frequency: 2462MHz



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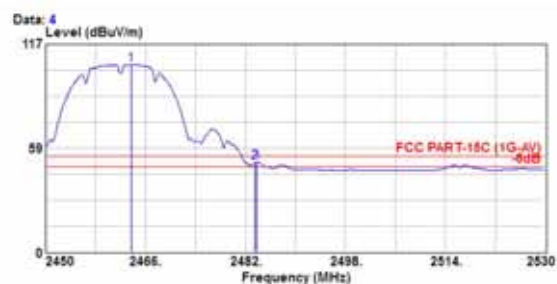
Site no. : A/C Chamber site Data no. : 3  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11b (Tx2462MHz)

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBUV) | Emission Level (dBUV/m) | Limits (dBUV/m) | Margin (dB) | Remark |
|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|--------|
| 1 2461.120  | 28.62              | 6.42            | 73.70          | 108.75                  | 74.00           | -34.75      | Peak   |
| 2 2483.500  | 28.66              | 6.45            | 23.24          | 58.36                   | 74.00           | 15.64       | Peak   |
| 3 2484.960  | 28.66              | 6.45            | 24.09          | 59.20                   | 74.00           | 14.80       | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 4  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11b (Tx2462MHz)

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBUV) | Emission Level (dBUV/m) | Limits (dBUV/m) | Margin (dB) | Remark  |
|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|---------|
| 1 2463.760  | 28.62              | 6.42            | 70.57          | 105.62                  | 54.00           | -51.62      | Average |
| 2 2483.500  | 28.66              | 6.45            | 15.41          | 50.53                   | 54.00           | 3.47        | Average |
| 3 2484.960  | 28.66              | 6.45            | 15.48          | 50.60                   | 54.00           | 3.40        | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

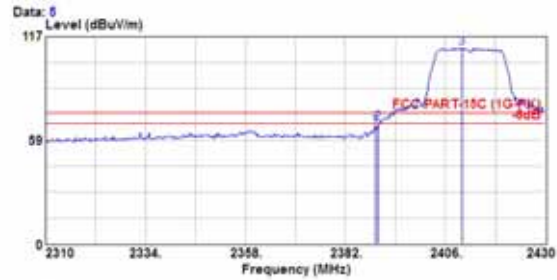
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11g, Transmit, Channel: 01, Frequency: 2412MHz



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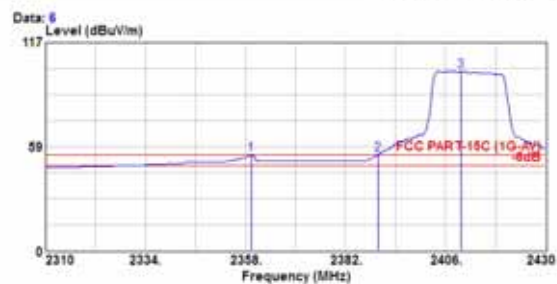
Site no. : A/C Chamber site Data no. : 5  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-FK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2389.200     | 28.47                    | 6.34                  | 31.47             | 66.28                         | 74.00              | 7.72           | Peak   |
| 2 2390.000     | 28.47                    | 6.34                  | 33.49             | 68.31                         | 74.00              | 5.69           | Peak   |
| 3 2410.880     | 28.51                    | 6.36                  | 75.63             | 110.51                        | 74.00              | -36.51         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 6  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2359.440     | 28.40                    | 6.30                  | 19.06             | 53.76                         | 54.00              | 0.24           | Average |
| 2 2390.000     | 28.47                    | 6.34                  | 19.09             | 53.90                         | 54.00              | 0.10           | Average |
| 3 2409.840     | 28.51                    | 6.36                  | 65.94             | 100.82                        | 54.00              | -46.82         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

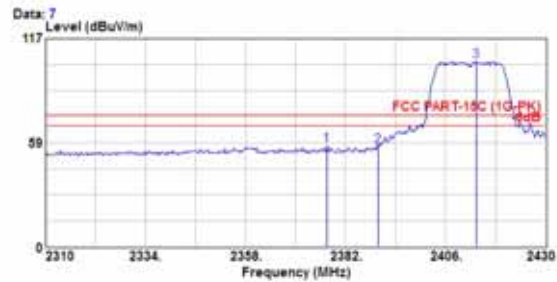
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11g, Transmit, Channel: 01, Frequency: 2412MHz



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Site no. : A/C Chamber site  
Dis. / Ant. : 3m 3115(4927)  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61%  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2412MHz)

Data no. : 7  
Ant. pol. : VERTICAL

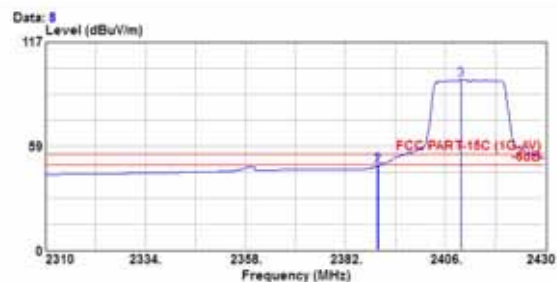
Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 2377.680       | 28.43                    | 6.32                  | 22.39             | 57.15                         | 74.00              | 16.85          | Peak   |
| 2 | 2390.000       | 28.47                    | 6.34                  | 21.52             | 56.34                         | 74.00              | 17.66          | Peak   |
| 3 | 2412.440       | 28.51                    | 6.36                  | 69.44             | 104.31                        | 74.00              | -30.31         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site  
Dis. / Ant. : 3m 3115(4927)  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61%  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2412MHz)

Data no. : 8  
Ant. pol. : VERTICAL

Johnny\_Hsueh

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 2389.680       | 28.47                    | 6.34                  | 12.58             | 47.40                         | 54.00              | 6.60           | Average |
| 2 | 2390.000       | 28.47                    | 6.34                  | 12.77             | 47.59                         | 54.00              | 6.41           | Average |
| 3 | 2409.840       | 28.51                    | 6.36                  | 60.87             | 95.75                         | 54.00              | -41.75         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

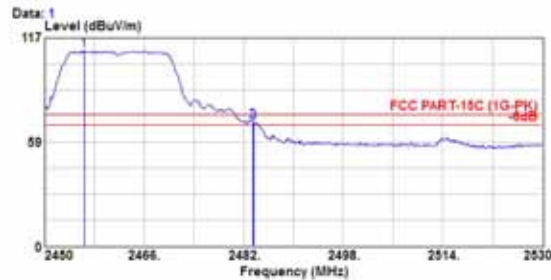
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11g, Transmit, Channel: 11, Frequency: 2462MHz



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Email:tiemc@tiemc.com.tw



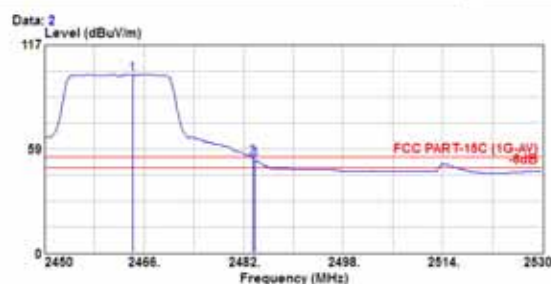
Site no. : A/C Chamber site Data no. : 1  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2456.320     | 28.62                    | 6.42                  | 74.79             | 109.83                        | 74.00              | -35.83         | Peak   |
| 2 2483.500     | 28.66                    | 6.45                  | 34.78             | 69.90                         | 74.00              | 4.10           | Peak   |
| 3 2483.600     | 28.66                    | 6.45                  | 34.68             | 69.79                         | 74.00              | 4.21           | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 2  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2464.160     | 28.62                    | 6.42                  | 65.33             | 100.36                        | 54.00              | -46.36         | Average |
| 2 2483.500     | 28.66                    | 6.45                  | 18.12             | 53.24                         | 54.00              | 0.76           | Average |
| 3 2483.840     | 28.66                    | 6.45                  | 17.27             | 52.38                         | 54.00              | 1.62           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

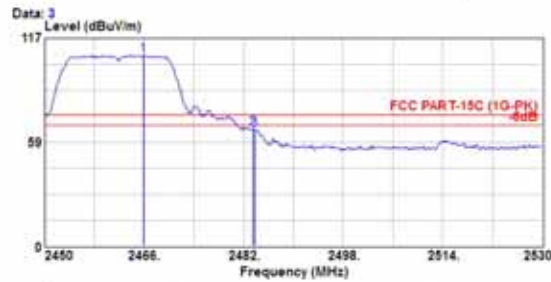
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11g, Transmit, Channel: 11, Frequency: 2462MHz



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Email: tiemc@tiemc.com.tw



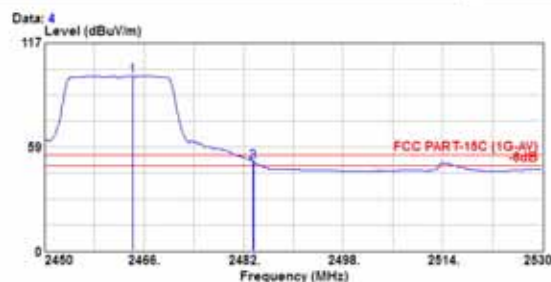
Site no. : A/C Chamber site Data no. : 3  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2462MHz)

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBUV) | Emission Level (dBUV/m) | Limits (dBUV/m) | Margin (dB) | Remark |
|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|--------|
| 1 2465.920  | 28.62              | 6.42            | 72.42          | 107.47                  | 74.00           | -33.47      | Peak   |
| 2 2483.500  | 28.66              | 6.45            | 31.21          | 66.33                   | 74.00           | 7.67        | Peak   |
| 3 2483.760  | 28.66              | 6.45            | 30.27          | 65.39                   | 74.00           | 8.61        | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 4  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11g (Tx2462MHz)

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBUV) | Emission Level (dBUV/m) | Limits (dBUV/m) | Margin (dB) | Remark  |
|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|---------|
| 1 2464.160  | 28.62              | 6.42            | 63.34          | 98.39                   | 54.00           | -44.39      | Average |
| 2 2483.500  | 28.66              | 6.45            | 15.05          | 50.17                   | 54.00           | 3.83        | Average |
| 3 2483.680  | 28.66              | 6.45            | 14.81          | 49.92                   | 54.00           | 4.08        | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

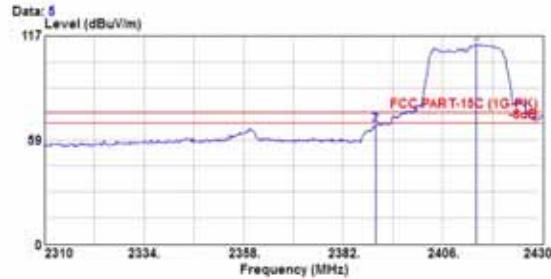
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT20, Transmit, Channel: 01, Frequency: 2412MHz



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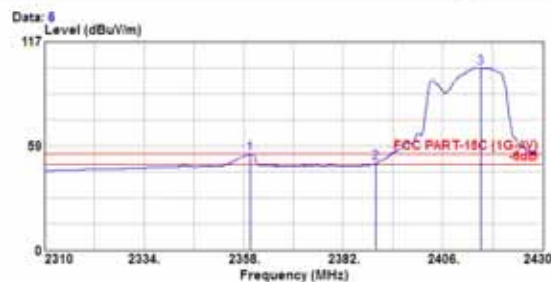
Site no. : A/C Chamber site Data no. : 5  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV/m) | Limits<br>(dBUV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2389.920     | 28.47                    | 6.34                  | 32.20             | 67.02                         | 74.00              | 6.98           | Peak   |
| 2 2390.000     | 28.47                    | 6.34                  | 32.39             | 67.21                         | 74.00              | 6.79           | Peak   |
| 3 2414.280     | 28.51                    | 6.36                  | 77.43             | 112.30                        | 74.00              | -38.30         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 6  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV/m) | Limits<br>(dBUV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2359.680     | 28.40                    | 6.30                  | 19.24             | 53.95                         | 54.00              | 0.05           | Average |
| 2 2390.000     | 28.47                    | 6.34                  | 13.93             | 46.75                         | 54.00              | 5.25           | Average |
| 3 2415.240     | 28.51                    | 6.36                  | 67.76             | 102.64                        | 54.00              | -48.64         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

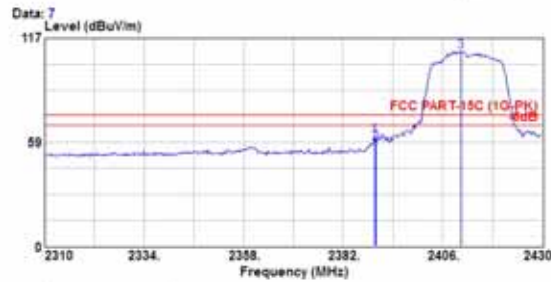
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT20, Transmit, Channel: 01, Frequency: 2412MHz



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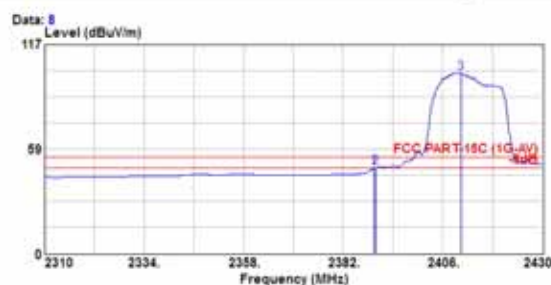
Site no. : A/C Chamber site Data no. : 7  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2389.680     | 28.47                    | 6.34                  | 27.41             | 42.23                         | 74.00              | 11.77          | Peak   |
| 2 2390.000     | 28.47                    | 6.34                  | 29.36             | 58.18                         | 74.00              | 15.82          | Peak   |
| 3 2410.440     | 28.51                    | 6.36                  | 74.65             | 109.52                        | 74.00              | -35.52         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 8  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2412MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2389.560     | 28.47                    | 6.34                  | 12.87             | 47.68                         | 54.00              | 6.32           | Average |
| 2 2390.000     | 28.47                    | 6.34                  | 13.05             | 47.87                         | 54.00              | 6.13           | Average |
| 3 2410.440     | 28.51                    | 6.36                  | 66.20             | 101.07                        | 54.00              | -47.07         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

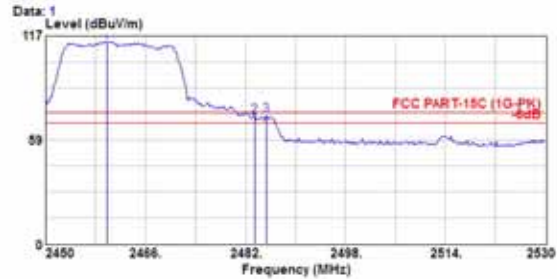
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT20, Transmit, Channel: 11, Frequency: 2462MHz



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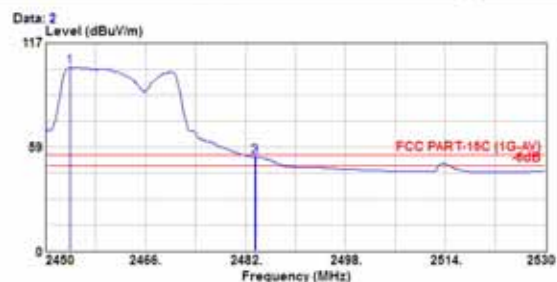
Site no. : A/C Chamber site Data no. : 1  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2459.760     | 28.62                    | 6.42                  | 78.55             | 113.59                        | 74.00              | -39.59         | Peak   |
| 2 2483.500     | 28.66                    | 6.45                  | 36.75             | 71.87                         | 74.00              | 2.13           | Peak   |
| 3 2485.360     | 28.66                    | 6.45                  | 37.15             | 72.26                         | 74.00              | 1.74           | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 2  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2459.920     | 28.62                    | 6.42                  | 68.40             | 103.44                        | 54.00              | -49.44         | Average |
| 2 2483.500     | 28.66                    | 6.45                  | 17.88             | 53.00                         | 54.00              | 1.00           | Average |
| 3 2485.360     | 28.66                    | 6.45                  | 17.85             | 52.96                         | 54.00              | 1.04           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

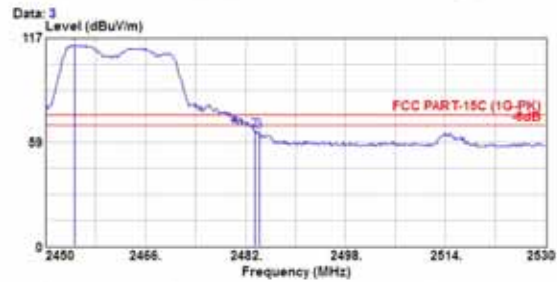
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT20, Transmit, Channel: 11, Frequency: 2462MHz



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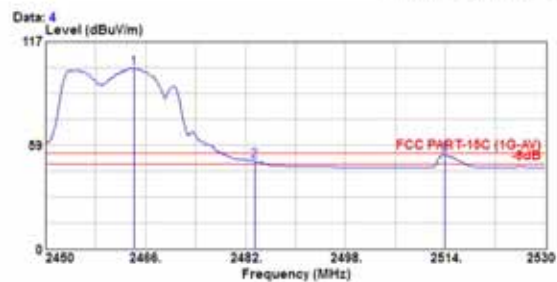
Site no. : A/C Chamber site Data no. : 3  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2454.560     | 28.62                    | 6.42                  | 78.30             | 113.35                        | 74.00              | -39.35         | Peak   |
| 2 2483.500     | 28.66                    | 6.45                  | 29.72             | 64.84                         | 74.00              | 9.16           | Peak   |
| 3 2484.160     | 28.66                    | 6.45                  | 29.58             | 64.70                         | 74.00              | 9.30           | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 4  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n (Tx2462MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2464.160     | 28.62                    | 6.42                  | 66.80             | 101.85                        | 54.00              | -47.85         | Average |
| 2 2483.500     | 28.66                    | 6.45                  | 14.30             | 49.42                         | 54.00              | 4.58           | Average |
| 3 2513.920     | 28.76                    | 6.49                  | 17.73             | 52.98                         | 54.00              | 1.02           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

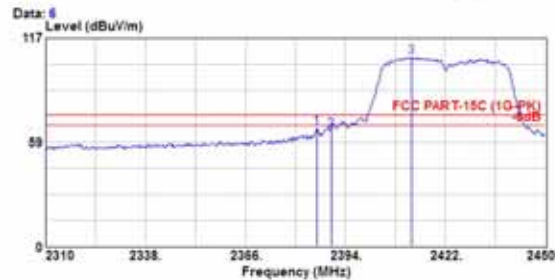
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT40, Transmit, Channel: 03, Frequency: 2422MHz



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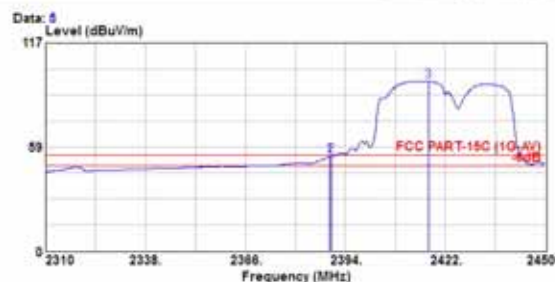
Site no. : A/C Chamber site Data no. : 6  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2422MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2386.160     | 28.47                    | 6.33                  | 31.98             | 66.78                         | 74.00              | 7.22           | Peak   |
| 2 2390.000     | 28.47                    | 6.34                  | 30.34             | 65.15                         | 74.00              | 8.85           | Peak   |
| 3 2412.480     | 28.51                    | 6.36                  | 71.39             | 106.27                        | 74.00              | -32.27         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 5  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2422MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2389.660     | 28.47                    | 6.34                  | 18.56             | 53.38                         | 54.00              | 0.62           | Average |
| 2 2390.000     | 28.47                    | 6.34                  | 18.64             | 53.46                         | 54.00              | 0.54           | Average |
| 3 2417.380     | 28.51                    | 6.37                  | 60.51             | 95.39                         | 54.00              | -41.39         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

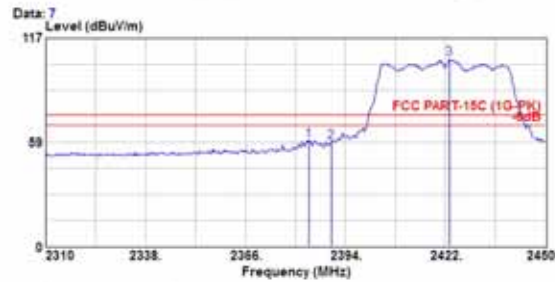
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT40, Transmit, Channel: 03, Frequency: 2422MHz



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Email: tiemc@tiemc.com.tw



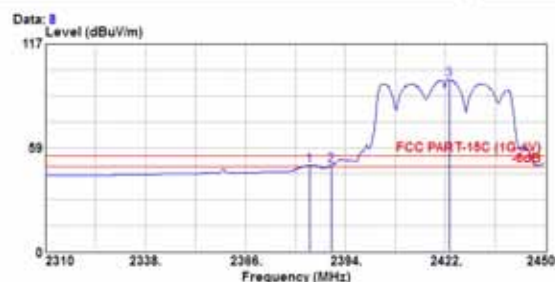
Site no. : A/C Chamber site Data no. : 7  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-FK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2422MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2383.780     | 28.43                    | 6.33                  | 24.84             | 59.61                         | 74.00              | 14.39          | Peak   |
| 2 2390.000     | 28.47                    | 6.34                  | 23.50             | 58.31                         | 74.00              | 15.69          | Peak   |
| 3 2423.260     | 28.55                    | 6.37                  | 70.59             | 105.51                        | 74.00              | -31.51         | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 8  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2422MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2384.060     | 28.43                    | 6.33                  | 13.64             | 48.41                         | 54.00              | 5.59           | Average |
| 2 2390.000     | 28.47                    | 6.34                  | 13.74             | 48.56                         | 54.00              | 5.44           | Average |
| 3 2423.260     | 28.55                    | 6.37                  | 61.86             | 96.78                         | 54.00              | -42.78         | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

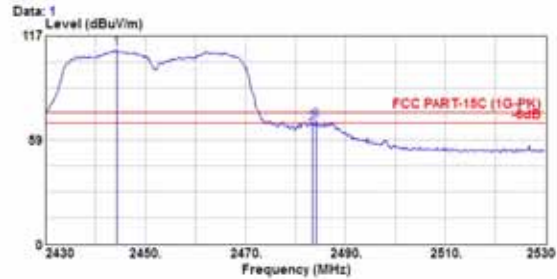
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT40, Transmit, Channel: 09, Frequency: 2452MHz



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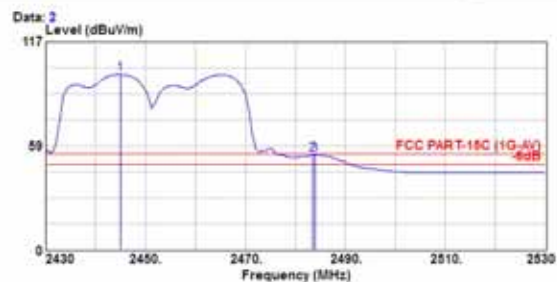
Site no. : A/C Chamber site Data no. : 1  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2452MHz)

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 2444.200       | 28.59                    | 6.40                  | 74.30             | 109.29                        | 74.00              | -35.29         | Peak   |
| 2 | 2483.500       | 28.66                    | 6.45                  | 32.47             | 67.58                         | 74.00              | 6.42           | Peak   |
| 3 | 2484.200       | 28.66                    | 6.45                  | 33.82             | 68.94                         | 74.00              | 5.06           | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 2  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2452MHz)

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 | 2444.900       | 28.59                    | 6.40                  | 63.72             | 98.70                         | 54.00              | -44.70         | Average |
| 2 | 2483.500       | 28.66                    | 6.45                  | 18.43             | 53.54                         | 54.00              | 0.46           | Average |
| 3 | 2483.900       | 28.66                    | 6.45                  | 18.47             | 53.59                         | 54.00              | 0.41           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

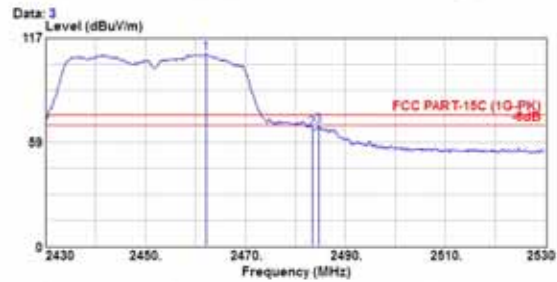
Date of Test : Jan. 14, 2013 Temperature : 25

EUT : 2.4GHz 802.11n 3T3R wifi module Humidity : 61%

Test Mode : 802.11n-HT40, Transmit, Channel: 09, Frequency: 2452MHz



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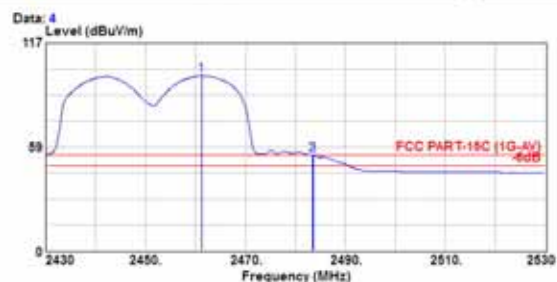
Site no. : A/C Chamber site Data no. : 3  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-PK)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2452MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 2462.200     | 28.62                    | 6.42                  | 73.59             | 108.64                        | 74.00              | -34.64         | Peak   |
| 2 2483.500     | 28.66                    | 6.45                  | 31.22             | 66.33                         | 74.00              | 7.67           | Peak   |
| 3 2484.700     | 28.66                    | 6.45                  | 32.26             | 67.37                         | 74.00              | 6.63           | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : A/C Chamber site Data no. : 4  
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL  
Limit : FCC PART-15C (1G-AV)  
Env. / Ins. : E4446A 25°C/61% Johnny\_Hsueh  
EUT : SMC-RT359333DB24  
Power Rating : DC 5V  
Test Mode : 802.11n40 (Tx2452MHz)

| Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark  |
|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|---------|
| 1 2461.200     | 28.62                    | 6.42                  | 63.79             | 98.84                         | 54.00              | -44.84         | Average |
| 2 2483.500     | 28.66                    | 6.45                  | 18.65             | 53.76                         | 54.00              | 0.24           | Average |
| 3 2483.600     | 28.66                    | 6.45                  | 18.63             | 53.74                         | 54.00              | 0.26           | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. The emission levels that are 20dB below the official limit are not reported.

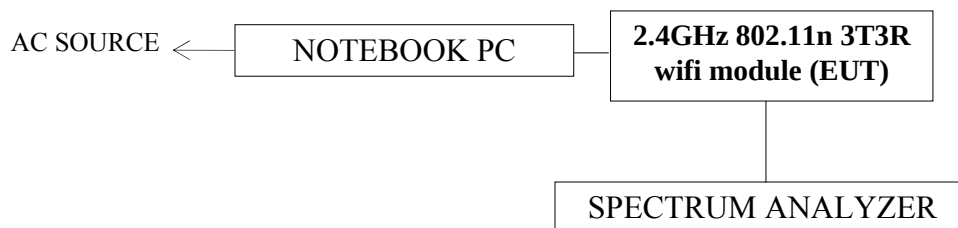
## 4. 6dB BANDWIDTH MEASUREMENT

### 4.1. Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

| Item | Type              | Manufacturer | Model No.  | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|------------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | Agilent      | N9030A-544 | US51350140 | Oct. 17, 12' | Oct. 16, 13' |

### 4.2. Block Diagram of Test Setup



### 4.3. Specification Limits [§15.247(a)(2), RSS-210 §A8.2 (a)]

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

### 4.4. Operating Condition of EUT

The test program “RT3593QA” was used to enable the EUT to transmit data at different channel frequency individually.

### 4.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 1.5% EBW,  $VBW \geq 3 \times RBW$ . The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

The measurement guideline was according to KDB 558074 D02.

#### 4.6. Test Results

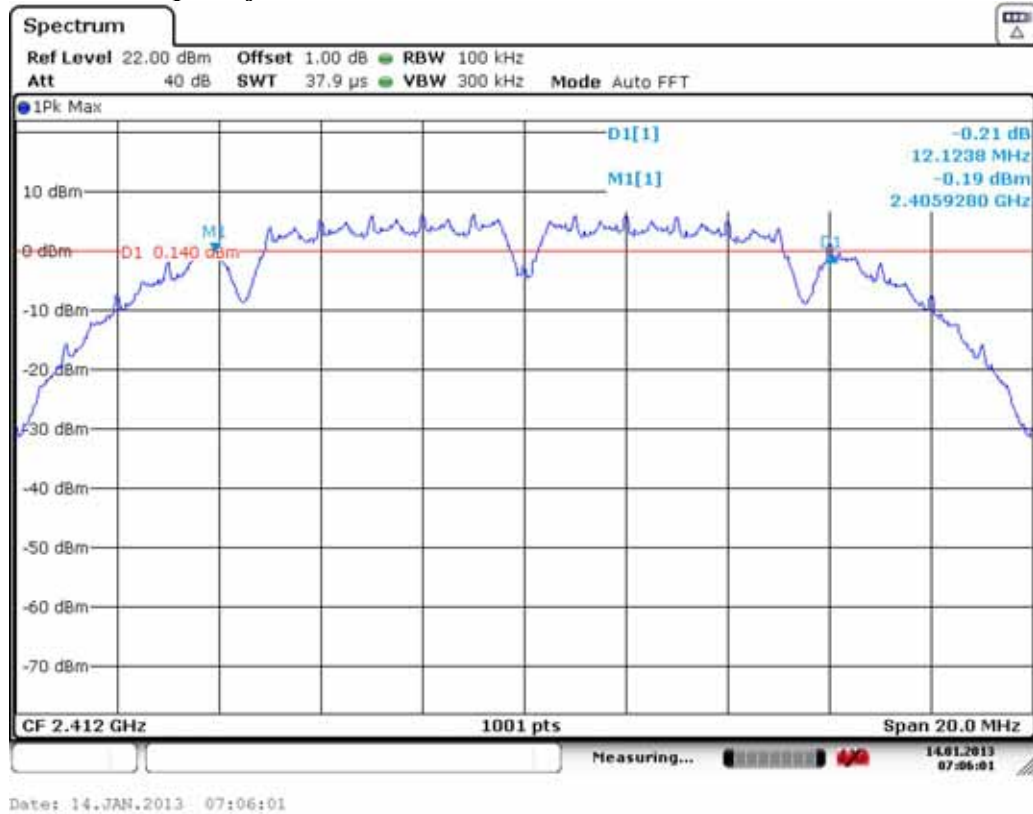
**PASSED.** All the test results are attached in next pages.

(Test Date : Jan. 14, 2013    Temperature : 26       Humidity : 50%)

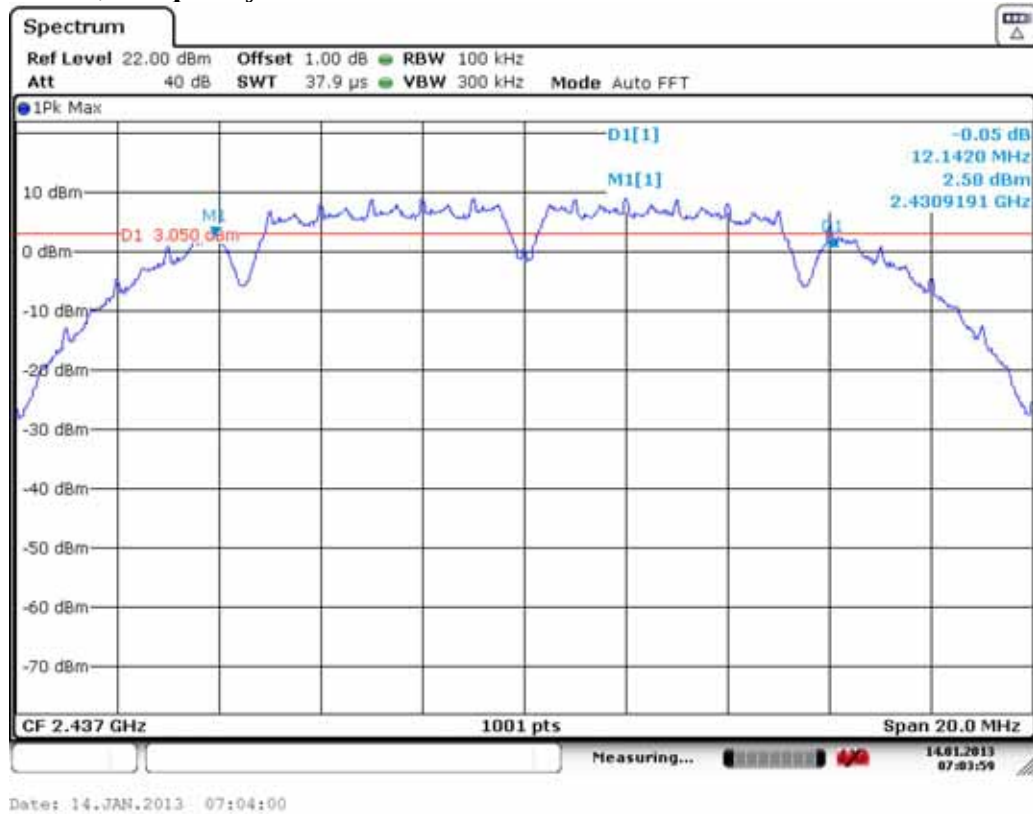
| Mode | Type of Network | Channel | Frequency | 6dB Bandwidth     |
|------|-----------------|---------|-----------|-------------------|
| 1.   | 802.11b         | CH 1    | 2412MHz   | <b>12.1238MHz</b> |
| 2.   |                 | CH 6    | 2437MHz   | <b>12.1420MHz</b> |
| 3.   |                 | CH 11   | 2462MHz   | <b>12.1000MHz</b> |
| 4.   | 802.11g         | CH 1    | 2412MHz   | <b>16.4850MHz</b> |
| 5.   |                 | CH 6    | 2437MHz   | <b>16.5520MHz</b> |
| 6.   |                 | CH 11   | 2462MHz   | <b>16.5500MHz</b> |
| 7.   | 802.11n-HT20    | CH 1    | 2412MHz   | <b>17.5930MHz</b> |
| 8.   |                 | CH 6    | 2437MHz   | <b>17.6920MHz</b> |
| 9.   |                 | CH 11   | 2462MHz   | <b>17.7190MHz</b> |
| 10.  | 802.11n-HT40    | CH 3    | 2422MHz   | <b>36.2910MHz</b> |
| 11.  |                 | CH 6    | 2437MHz   | <b>36.2630MHz</b> |
| 12.  |                 | CH 9    | 2452MHz   | <b>36.2460MHz</b> |

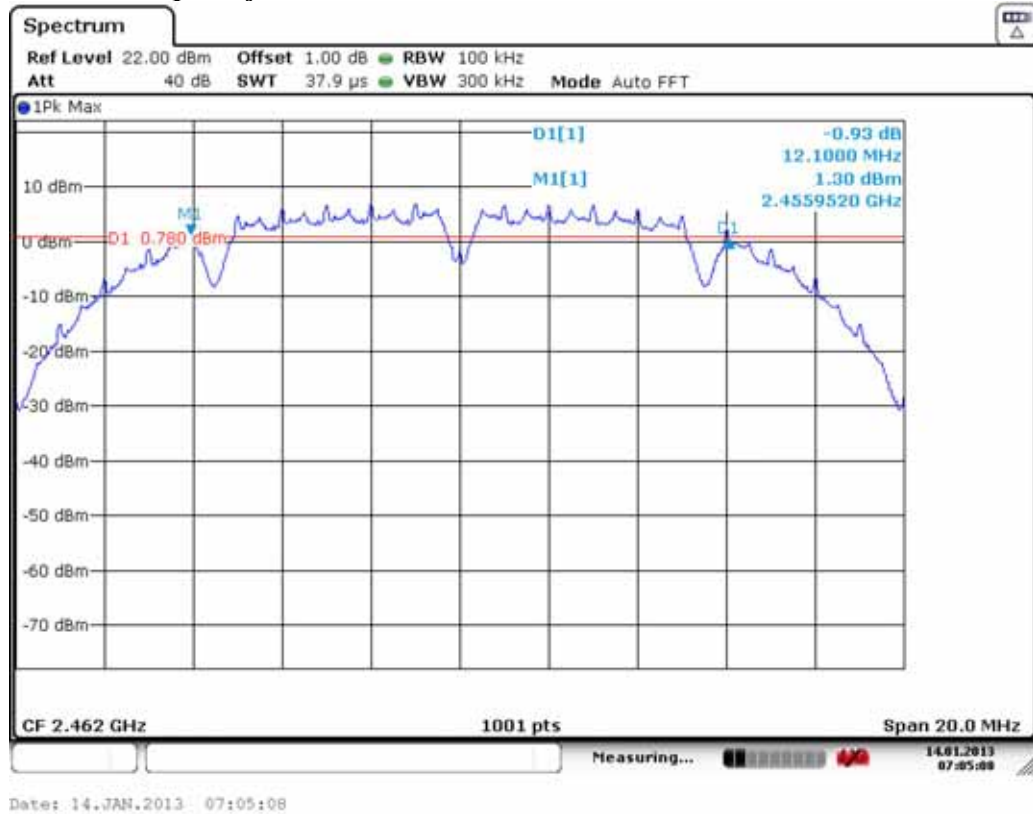
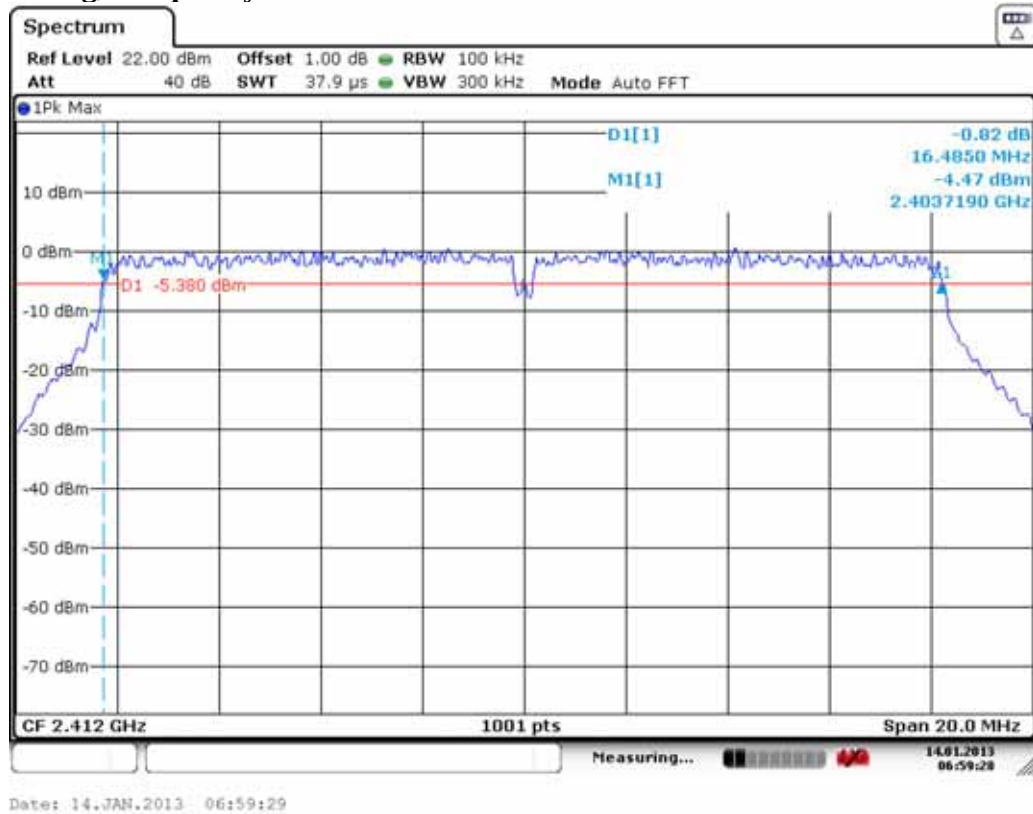
**[Limit: least 500kHz]**

### 802.11b, Frequency: 2412MHz

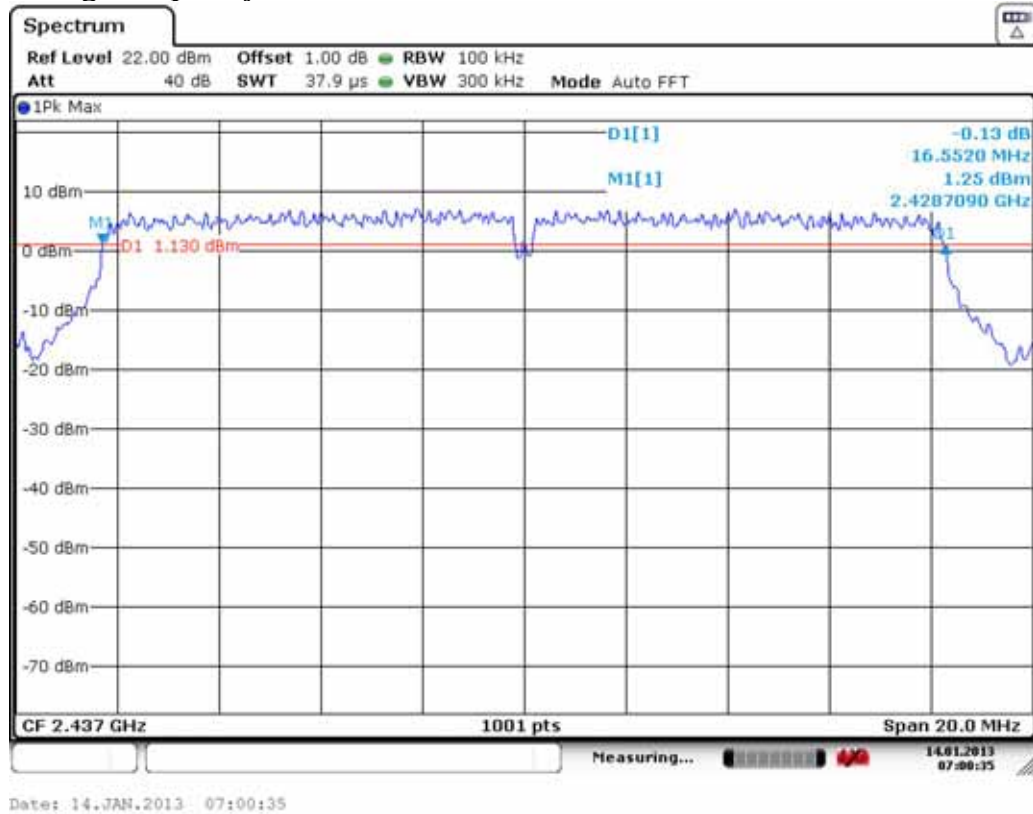


### 802.11b, Frequency: 2437MHz

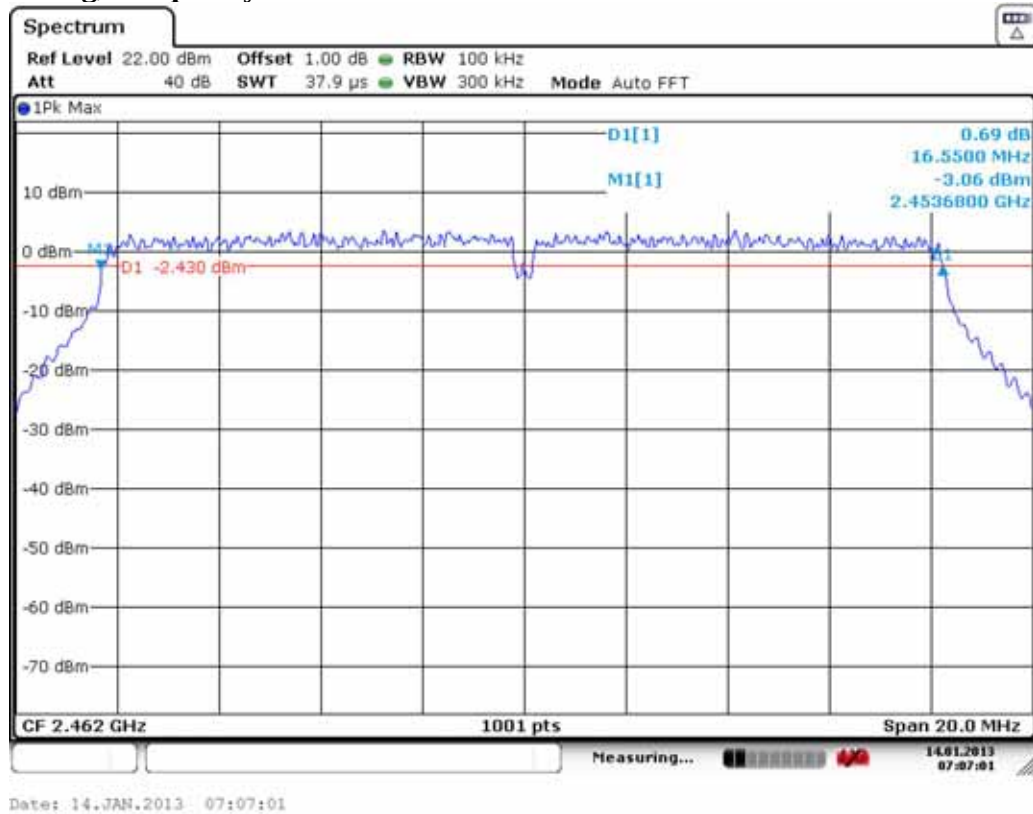


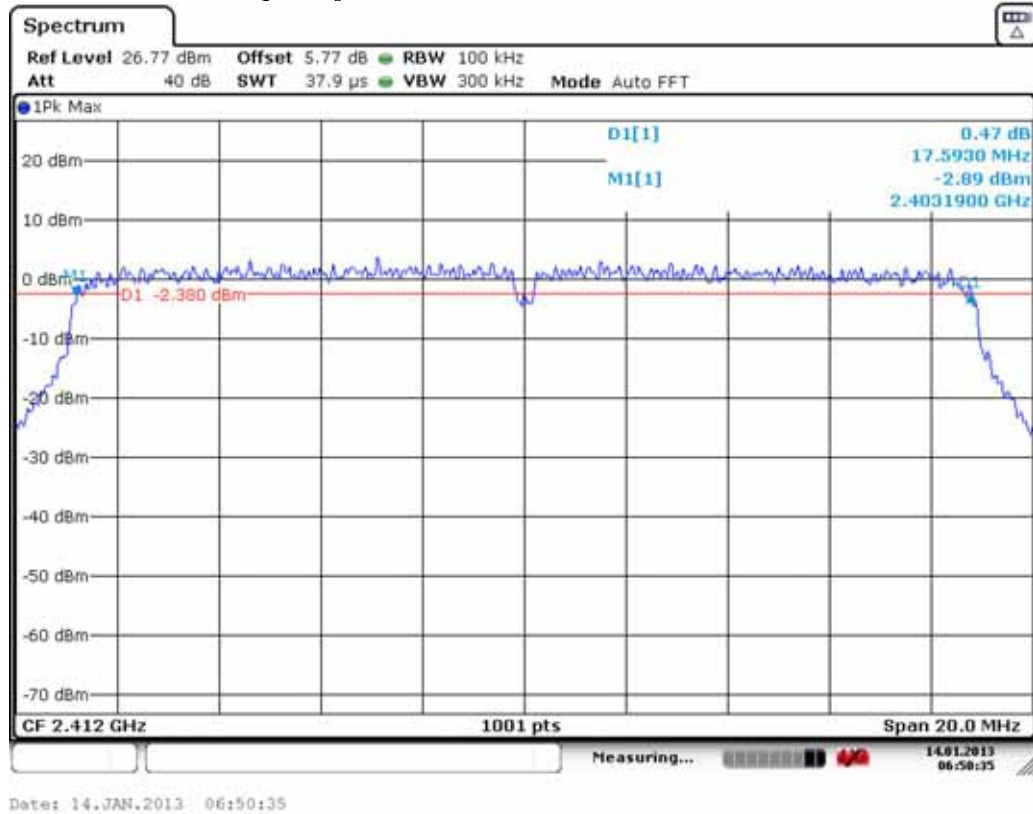
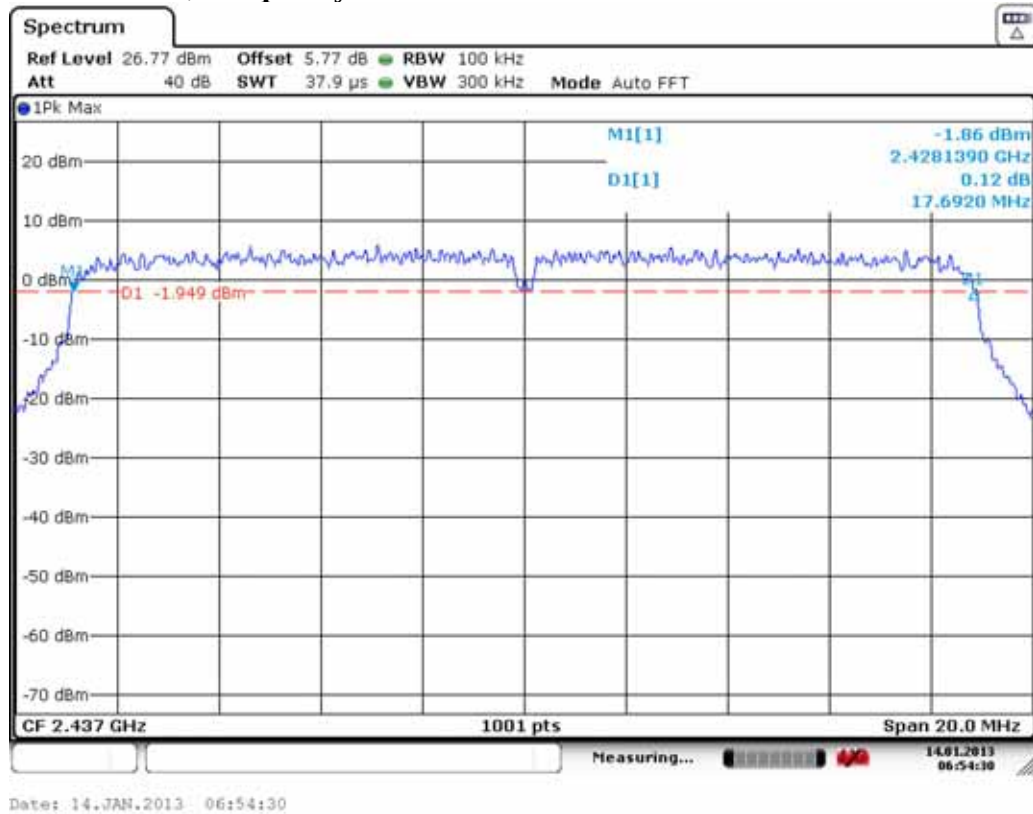
**802.11b, Frequency: 2462MHz****802.11g, Frequency: 2412MHz**

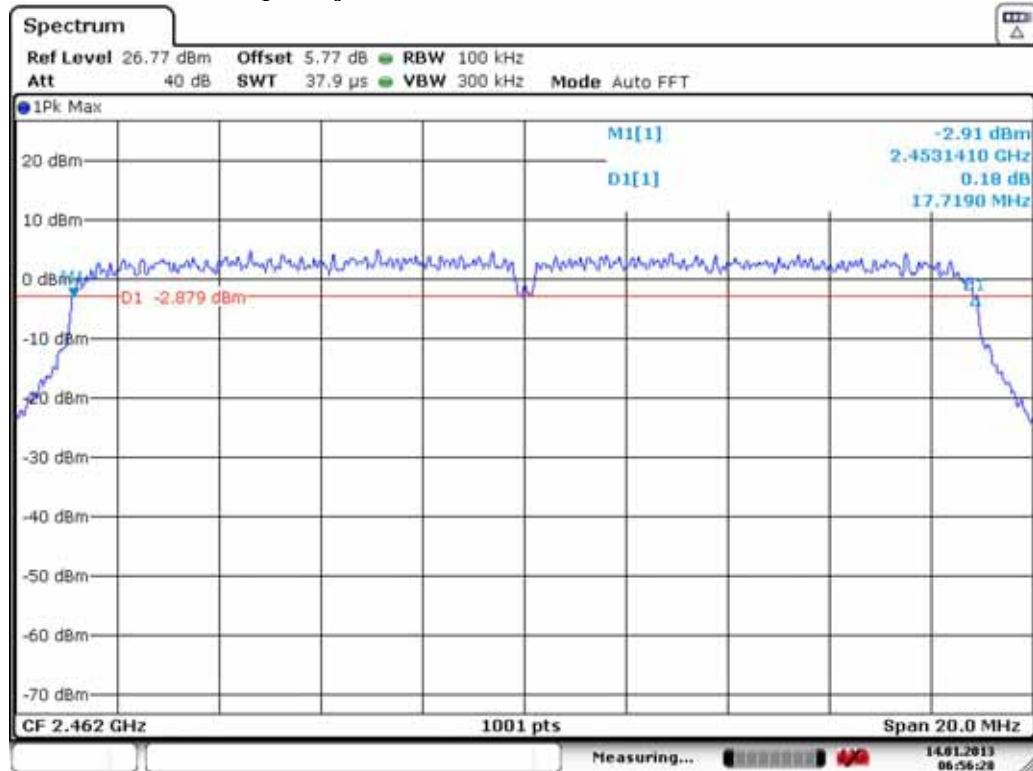
### 802.11g, Frequency: 2437MHz



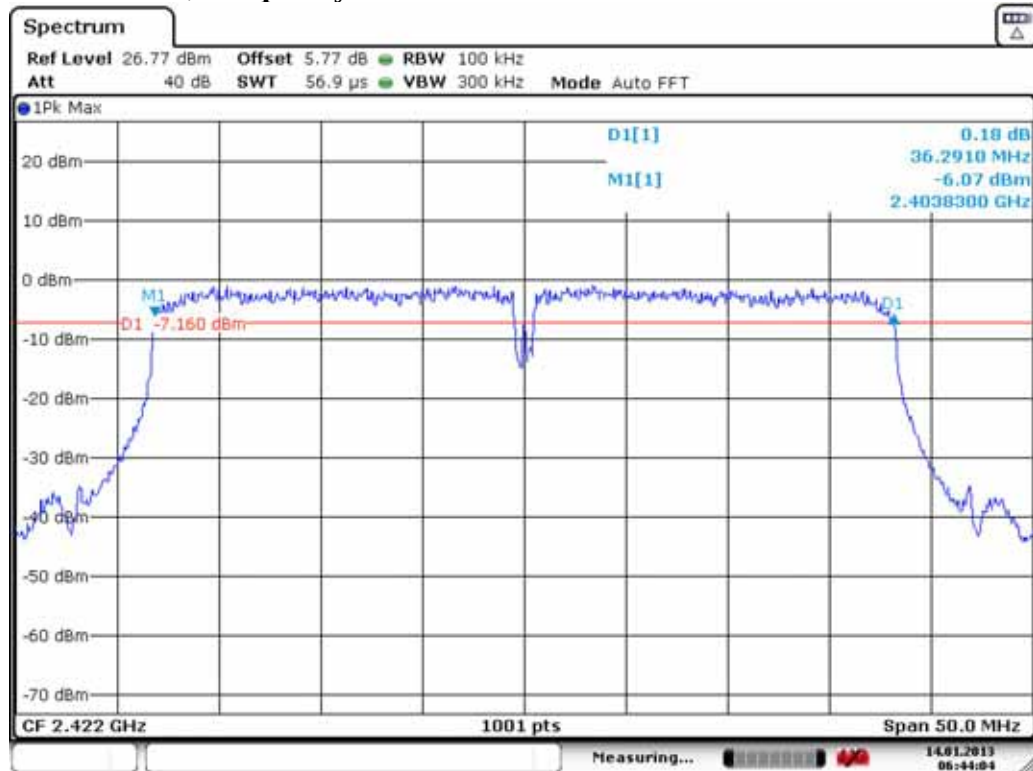
### 802.11g, Frequency: 2462MHz



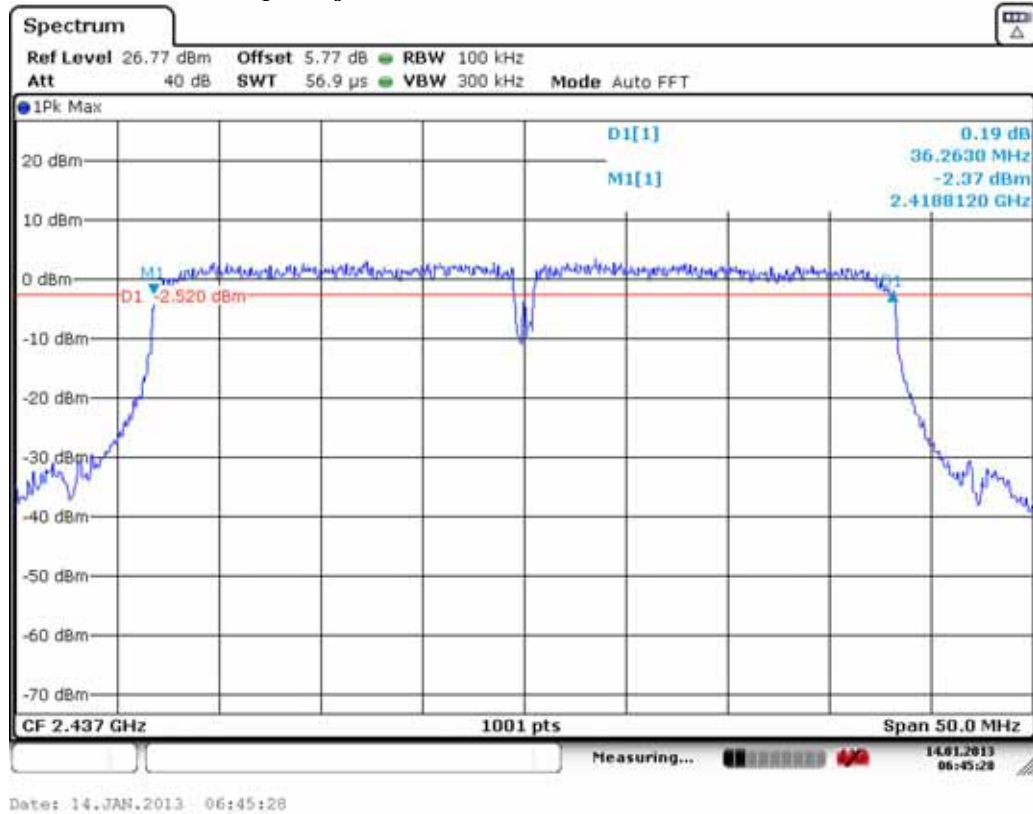
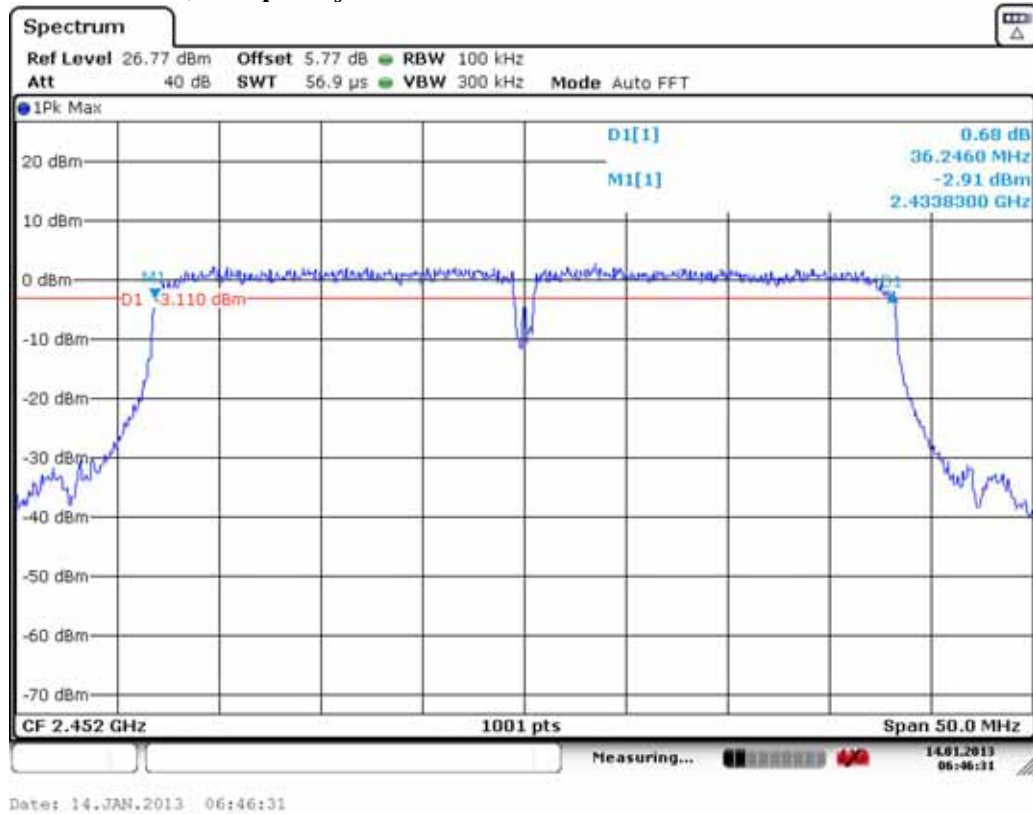
**802.11n-HT20, Frequency: 2412MHz****802.11n-HT20, Frequency: 2437MHz**

**802.11n-HT20, Frequency: 2462MHz**

Date: 14.JAN.2013 06:56:28

**802.11n-HT40, Frequency: 2422MHz**

Date: 14.JAN.2013 06:44:04

**802.11n-HT40, Frequency: 2437MHz****802.11n-HT40, Frequency: 2452MHz**

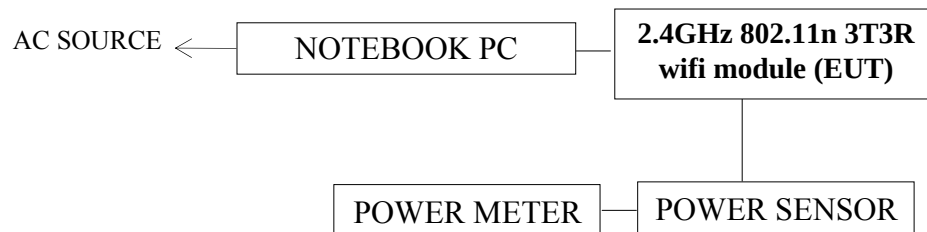
## 5. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

### 5.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

| Item | Type         | Manufacturer | Model No. | Serial No. | Last Cal.    | Next Cal.    |
|------|--------------|--------------|-----------|------------|--------------|--------------|
| 1.   | Power Meter  | Anritsu      | ML2487A   | 6K00005406 | Feb. 13, 12' | Feb. 12, 13' |
| 2.   | Power Sensor | Anritsu      | MA2491A   | 030873     | Feb. 13, 12' | Feb. 12, 13' |

### 5.2. Block Diagram of Test Setup



### 5.3. Specification Limits (§15.247(b)-(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is : 1Watt. (30dBm)

### 5.4. Operating Condition of EUT

The test program “RT3593QA” was used to enable the EUT to transmit data at different channel frequency individually.

### 5.5. Test Procedure

The transmitter output was connected to the power sensor and record the reading of power meter.

The measurement guideline was according to KDB 558074 D02.

## 5.6. Test Results

**PASSED.** All the test results are listed below.

(Test Date : Jan. 14, 2013    Temperature : 26       Humidity : 50%)

### 5.6.1. For 802.11b

| Mode | Channel | Frequency | Total 1 Peak Output Power (dBm) | Power Setting | Total 2 Peak Output Power (dBm) | Power Setting | Total 0 Peak Output Power (dBm) | Power Setting |
|------|---------|-----------|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|
| 1.   | CH 1    | 2412MHz   | <b>21.24</b>                    | 0D            | 21.02                           | 0D            | 20.89                           | 0D            |
| 2.   | CH 6    | 2437MHz   | <b>26.60</b>                    | 15            | 26.16                           | 13            | 26.35                           | 14            |
| 3.   | CH 11   | 2462MHz   | <b>24.32</b>                    | 12            | 24.52                           | 12            | 24.37                           | 12            |

### 5.6.2. For 802.11g

| Mode | Channel | Frequency | Total 1 Peak Output Power (dBm) | Power Setting | Total 2 Peak Output Power (dBm) | Power Setting | Total 0 Peak Output Power (dBm) | Power Setting |
|------|---------|-----------|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|
| 4.   | CH 1    | 2412MHz   | <b>22.69</b>                    | 10            | 23.25                           | 10            | 22.91                           | 10            |
| 5.   | CH 6    | 2437MHz   | <b>27.32</b>                    | 1F            | 27.04                           | 1F            | 27.11                           | 1F            |
| 6.   | CH 11   | 2462MHz   | <b>23.30</b>                    | 17            | 22.26                           | 16            | 25.25                           | 16            |

### 5.6.3. For 802.11n-HT20

| Mode | Channel | Frequency | Ant.1 | Ant.2 | Ant.0 | Total Peak Output Power (dBm) | Power Setting |
|------|---------|-----------|-------|-------|-------|-------------------------------|---------------|
| 7.   | CH 1    | 2412MHz   | 20.68 | 20.69 | 19.43 | <b>25.08</b>                  | 0B-0B-0B      |
| 8.   | CH 6    | 2437MHz   | 22.08 | 22.71 | 21.83 | <b>26.99</b>                  | 13-15-16      |
| 9.   | CH 11   | 2462MHz   | 21.23 | 21.42 | 21.38 | <b>26.16</b>                  | 12-14-14      |

### 5.6.4. For 802.11n-HT40

| Mode | Channel | Frequency | Ant.1 | Ant.2 | Ant.0 | Total Peak Output Power (dBm) | Power Setting |
|------|---------|-----------|-------|-------|-------|-------------------------------|---------------|
| 10.  | CH 3    | 2422MHz   | 19.1  | 18.67 | 18.51 | <b>23.53</b>                  | 03 06 06      |
| 11.  | CH 6    | 2437MHz   | 21.36 | 21.47 | 21.82 | <b>26.33</b>                  | 12-14-14      |
| 12.  | CH 9    | 2452MHz   | 21.17 | 19.42 | 21.85 | <b>25.70</b>                  | 0F-0F-0F      |

## **6. EMISSION LIMITATIONS MEASUREMENT**

**Pursuant to KDB558074 D01 that emission levels below limits specified in 15.209 would not be required.**

## 7. BAND EDGES MEASUREMENT

### 7.1. Test Equipment

The following test equipment was used during the band edges measurement:

| Item | Type              | Manufacturer | Model No.  | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|------------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | Agilent      | N9030A-544 | US51350140 | Oct. 17, 12' | Oct. 16, 13' |

### 7.2. Block Diagram of Test Setup

The same as section.4.2.

### 7.3. Specification Limits [§15.247(c), RSS-210 §A8.5]

7.3.1. The highest level should be at least 20 dB below of reference level

### 7.4. Operating Condition of EUT

The test program “RT3593QA” was used to enable the EUT to transmit data at different channel frequency individually.

### 7.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100kHz bandwidth from band edge.

The measurement guideline was according to KDB 558074 D02.

Pursuant to KDB 662911, we performed conducted tests for both antenna chains and submit test data measured on chain 0 as worse performance.

## 7.6. Test Results

**PASSED.** All the test results are attached in next pages.

Pursuant to KDB 662911, the test result of n20 and n40 have been included 4.77 dB is calculated from  $10\log(N)$ , where N is the number of outputs.

(Test Date : Dec. 03, 2012    Temperature : 26        Humidity : 52%)

### **802.11b**

Below Band edge: The highest emission level is -42.37dBm on 2.39990GHz.

Upper Band edge : The highest emission level is -50.84dBm on 2.48360GHz.

### **802.11g**

Below Band edge: The highest emission level is -38.54dBm on 2.39990GHz.

Upper Band edge : The highest emission level is -51.24dBm on 2.48360GHz.

### **802.11n-HT20**

Below Band edge: The highest emission level is -35.61dBm on 2.39990GHz.

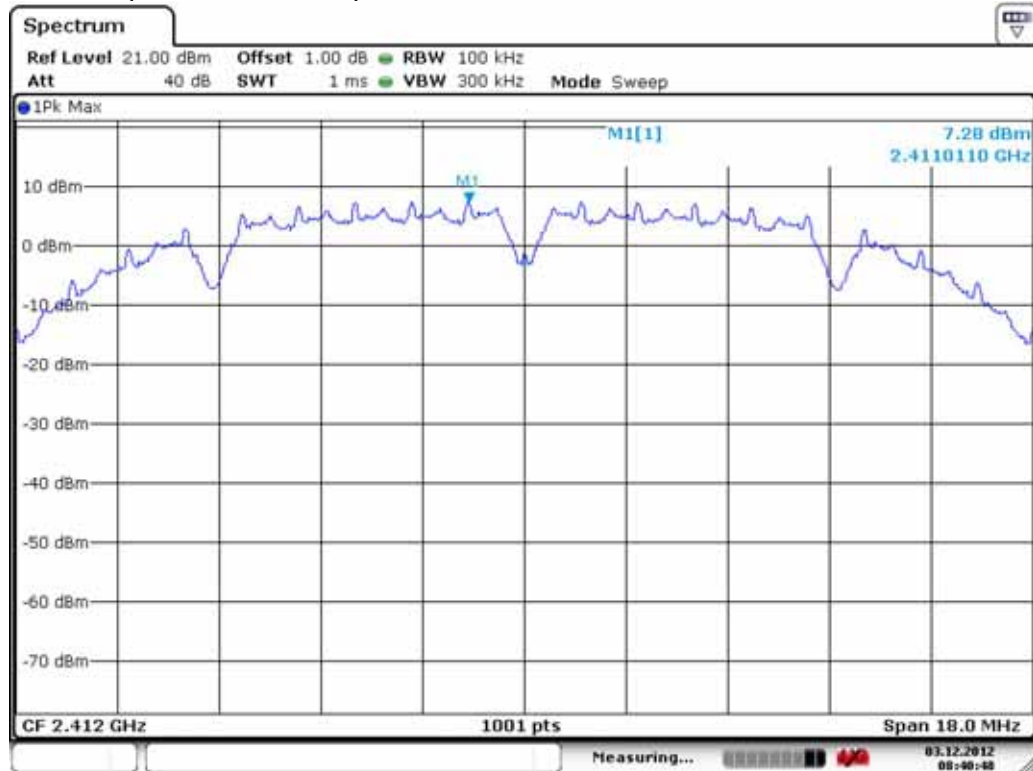
Upper Band edge : The highest emission level is -48.69dBm on 2.48360GHz.

### **802.11n-HT40**

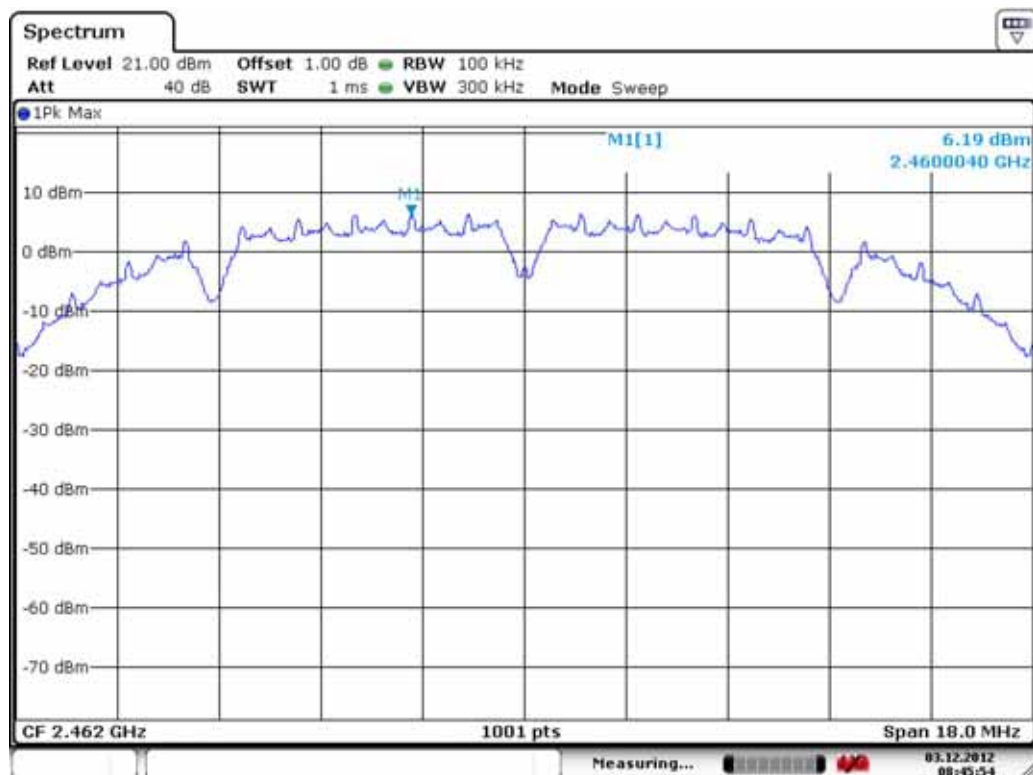
Below Band edge: The highest emission level is -38.73dBm on 2.39990GHz.

Upper Band edge : The highest emission level is -45.57dBm on 2.48360GHz.

# 802.11b (Reference Level)

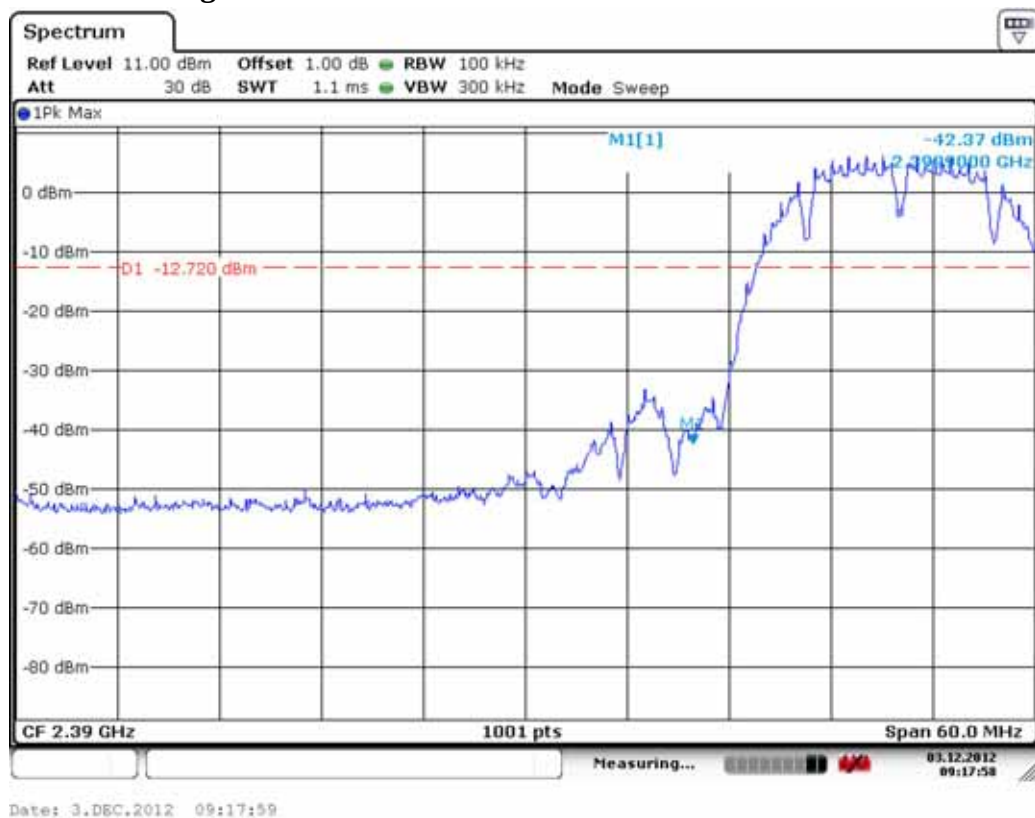


Date: 3.DEC.2012 08:40:48

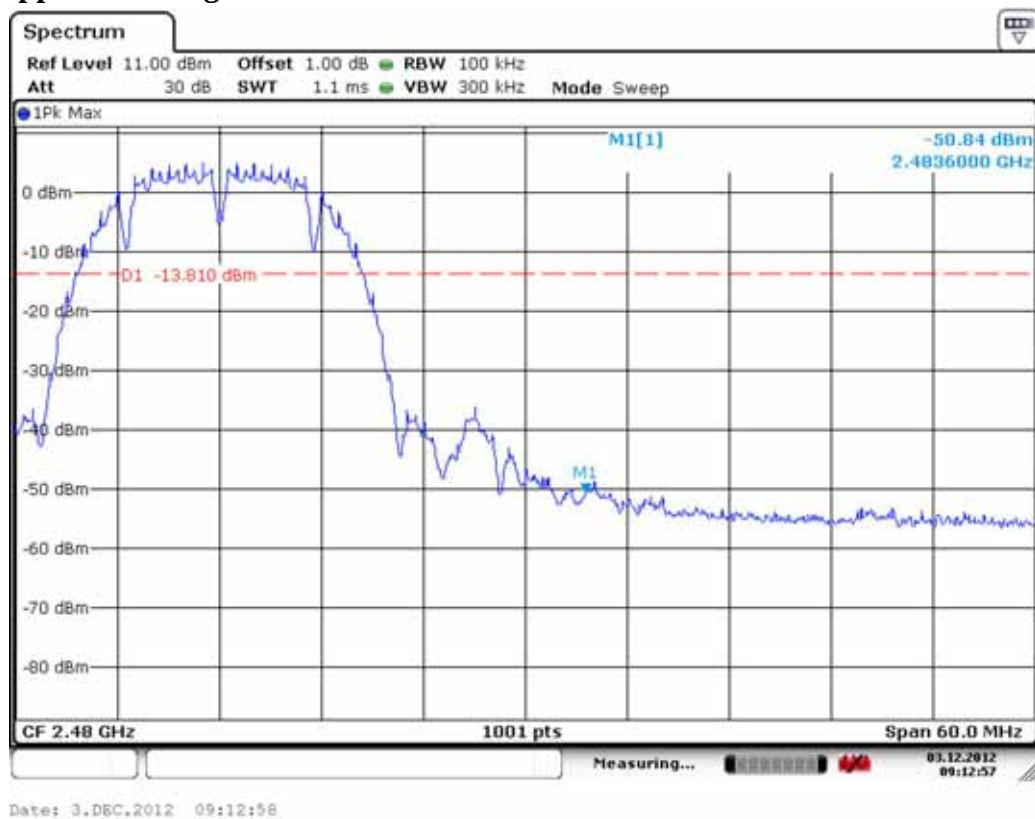


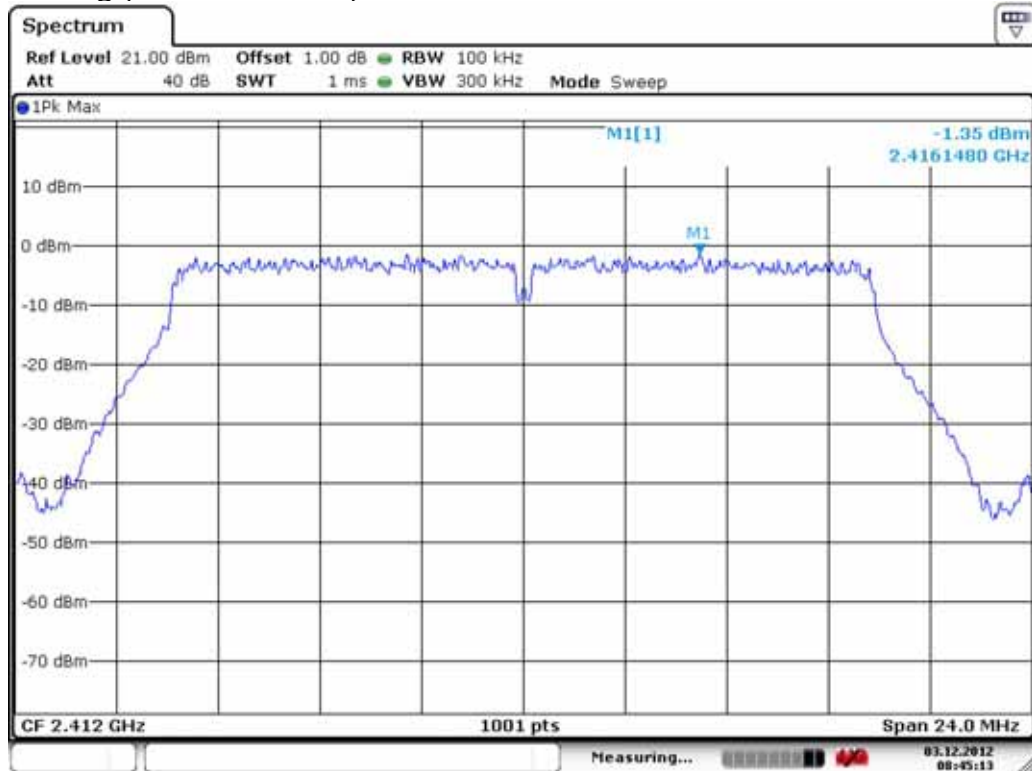
Date: 3.DEC.2012 08:45:54

## 802.11b (Band edge) Below Band edge

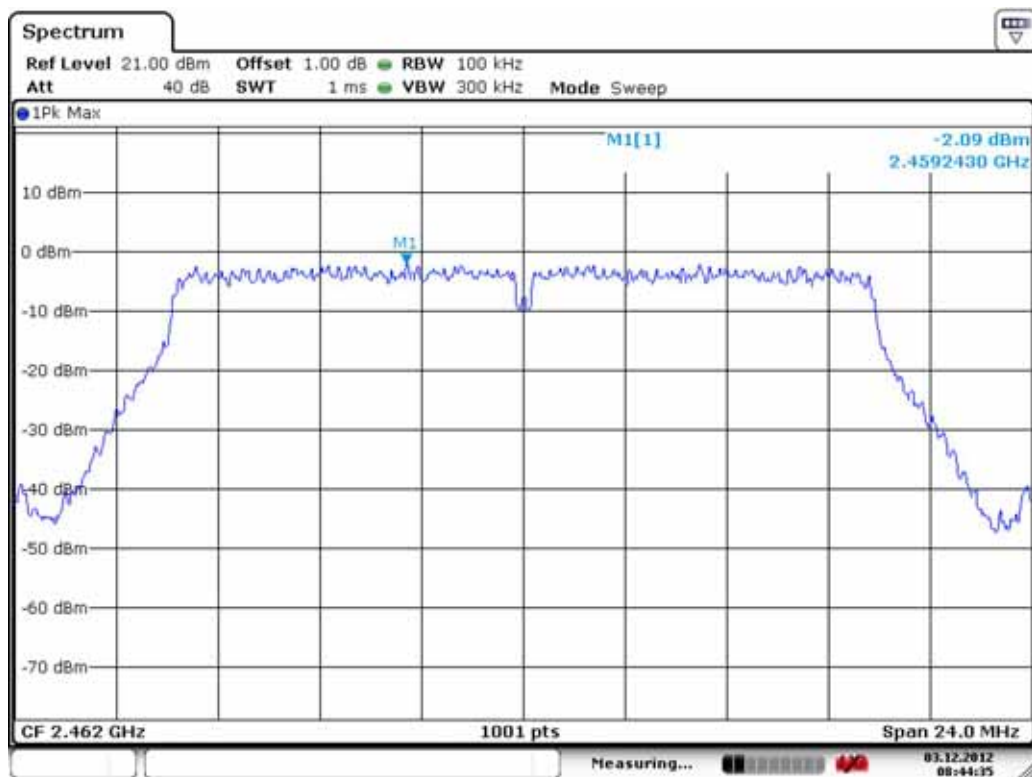


## Upper Band edge



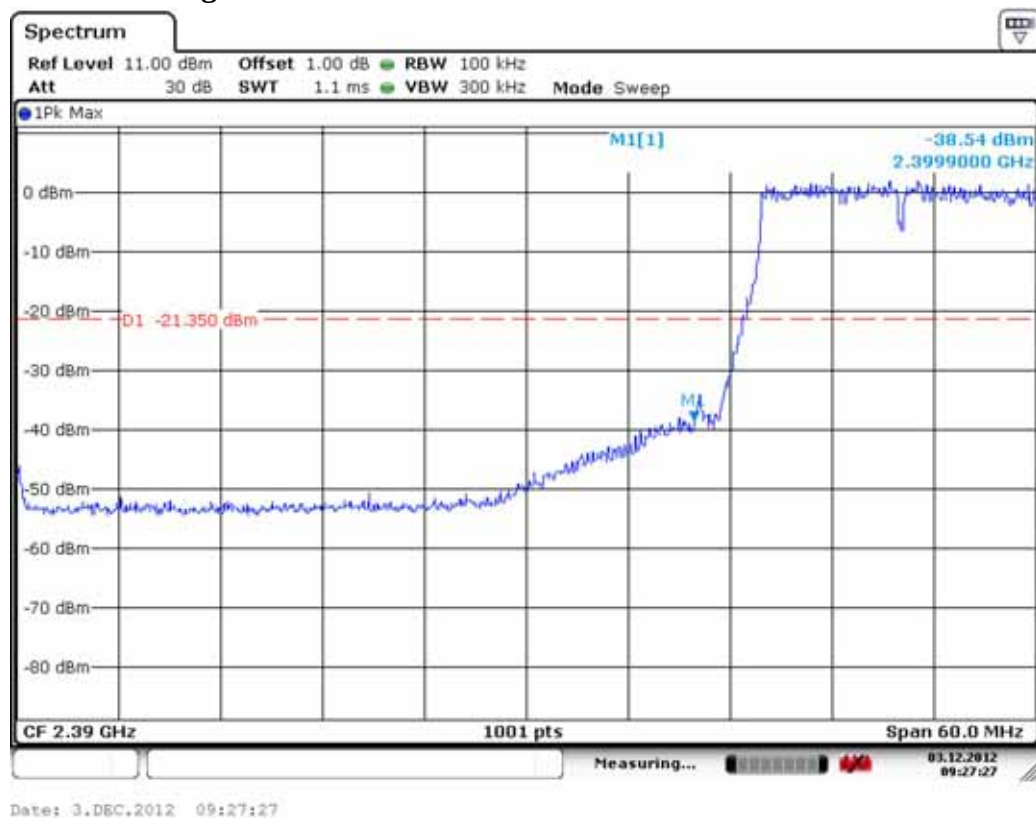
**802.11g (Reference Level)**

Date: 3.DEC.2012 08:45:13

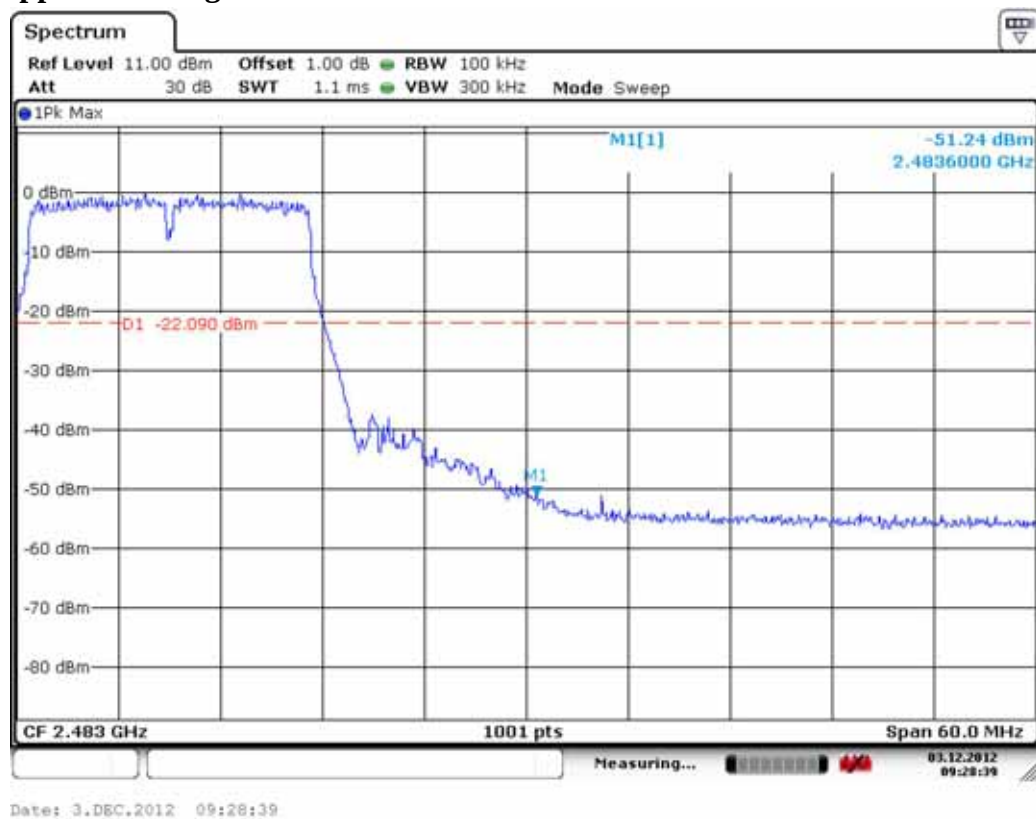


Date: 3.DEC.2012 08:44:35

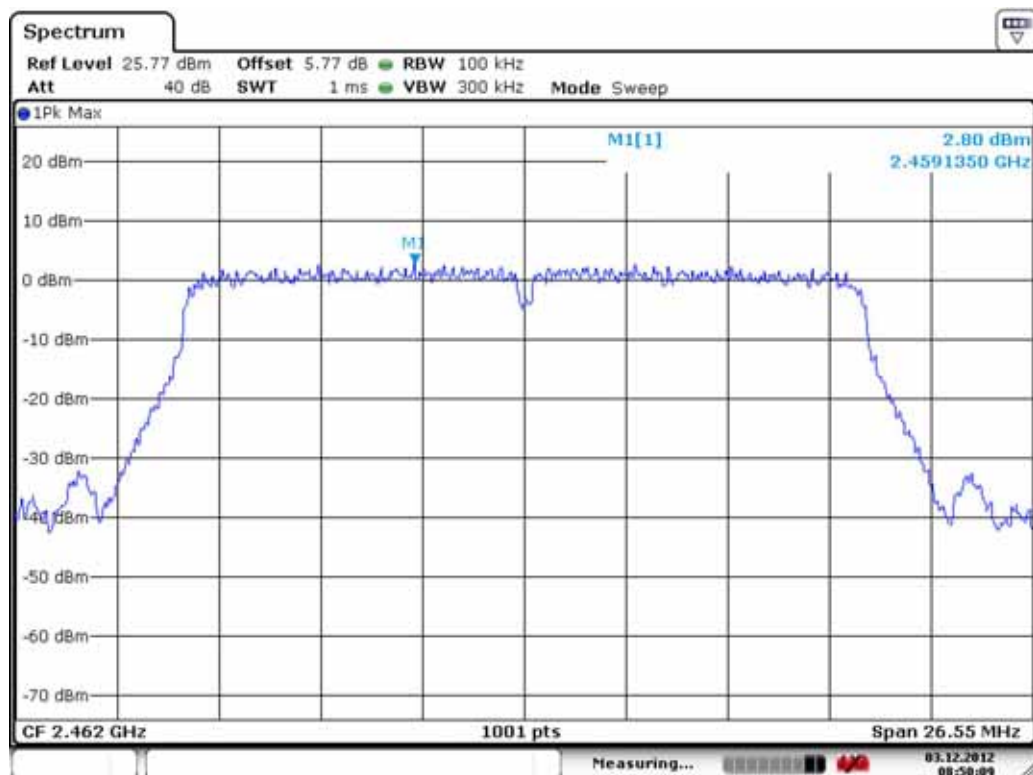
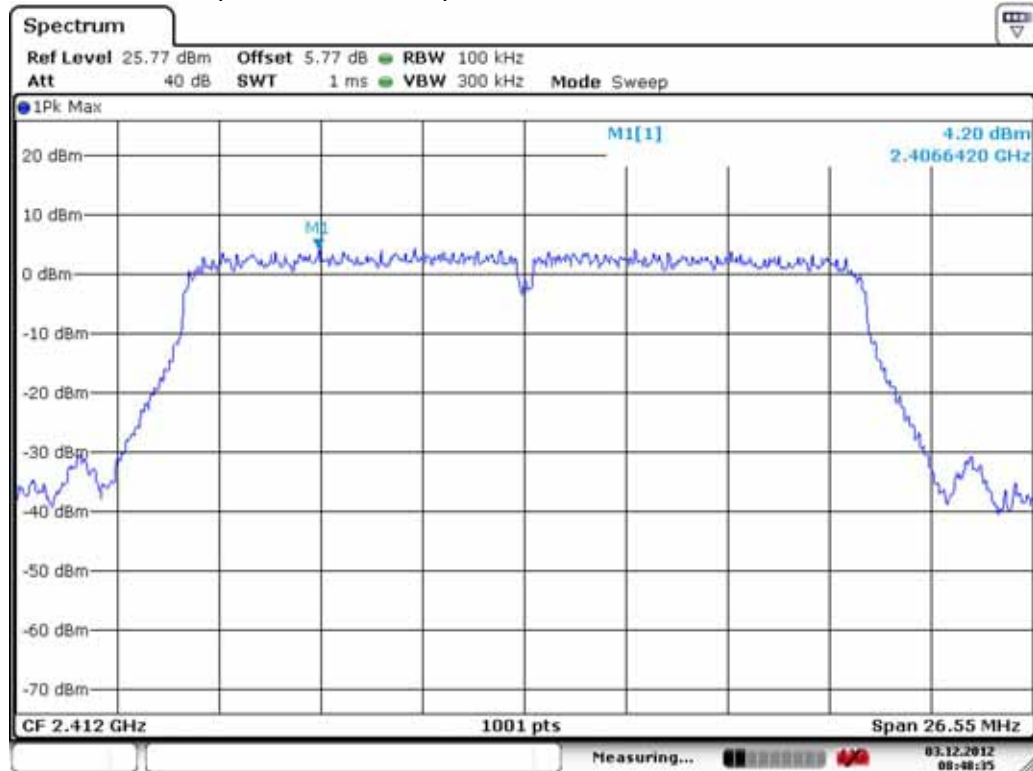
## 802.11g (Band edge) Below Band edge



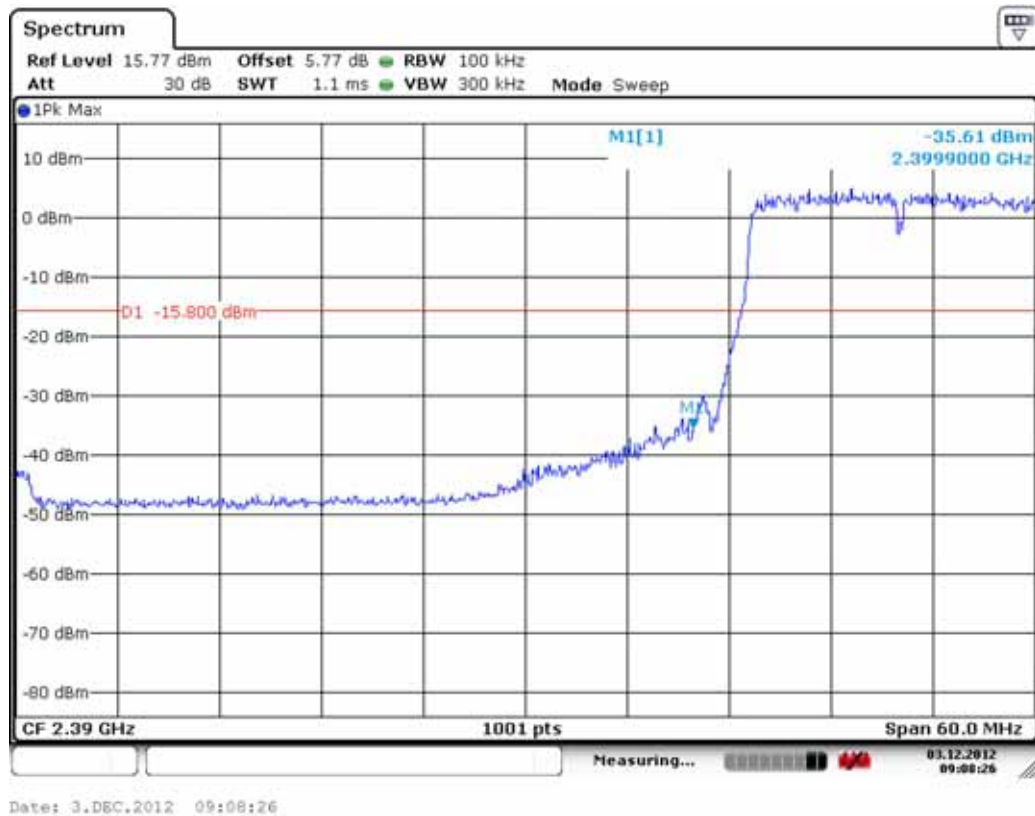
## Upper Band edge



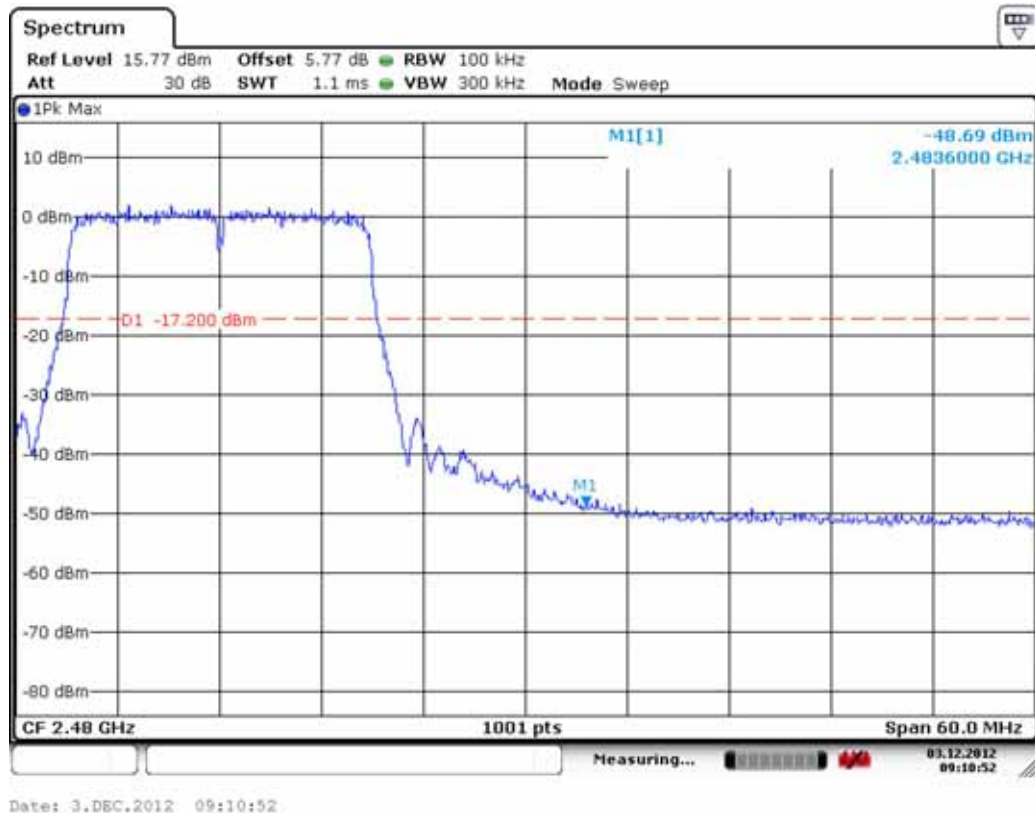
# 802.11n-HT20 (Reference Level)



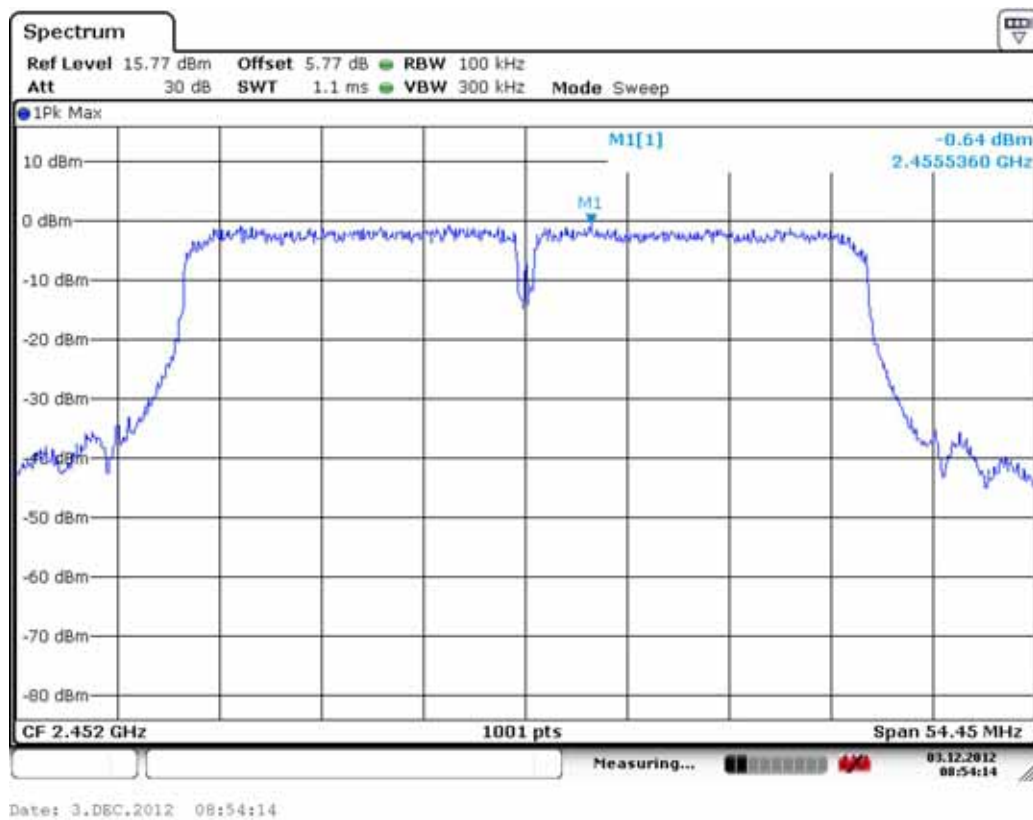
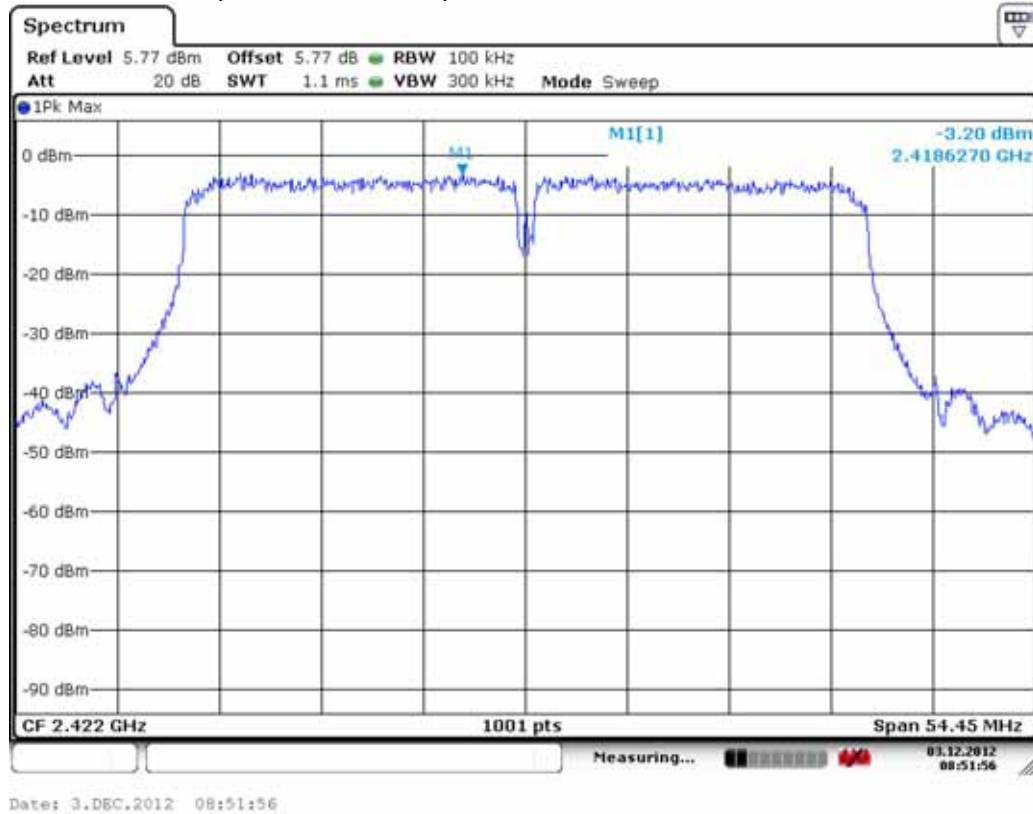
### 802.11n-HT20 (Band edge) Below Band edge



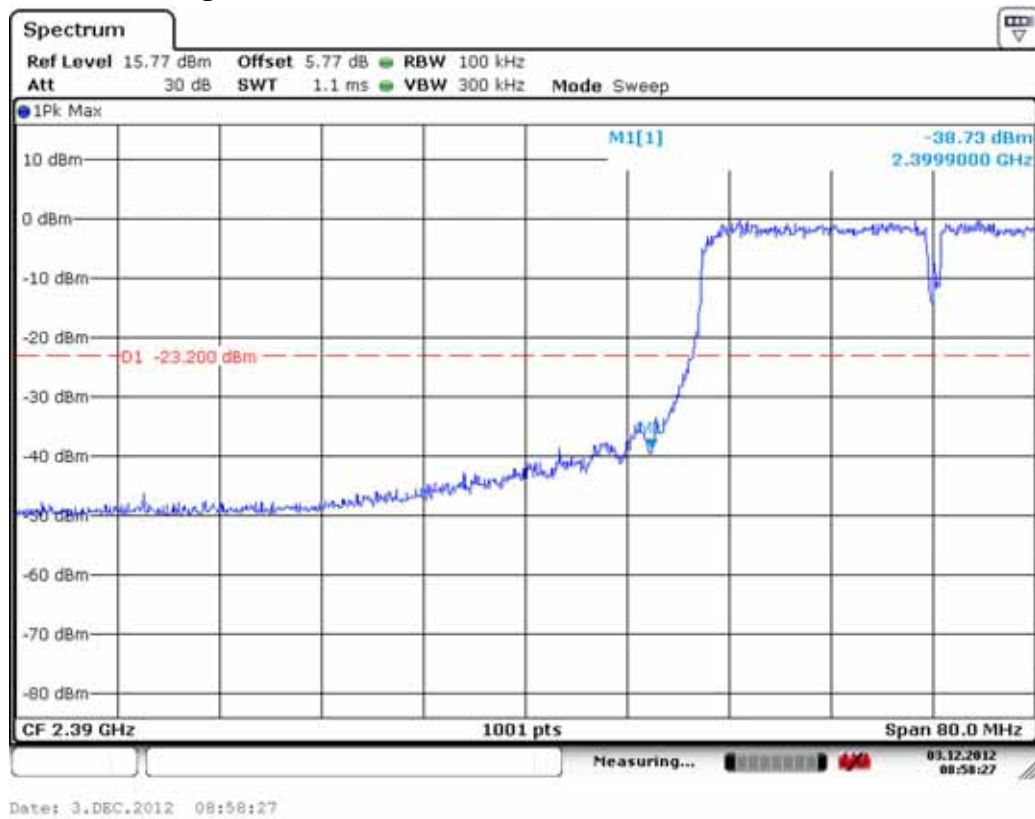
### Upper Band edge



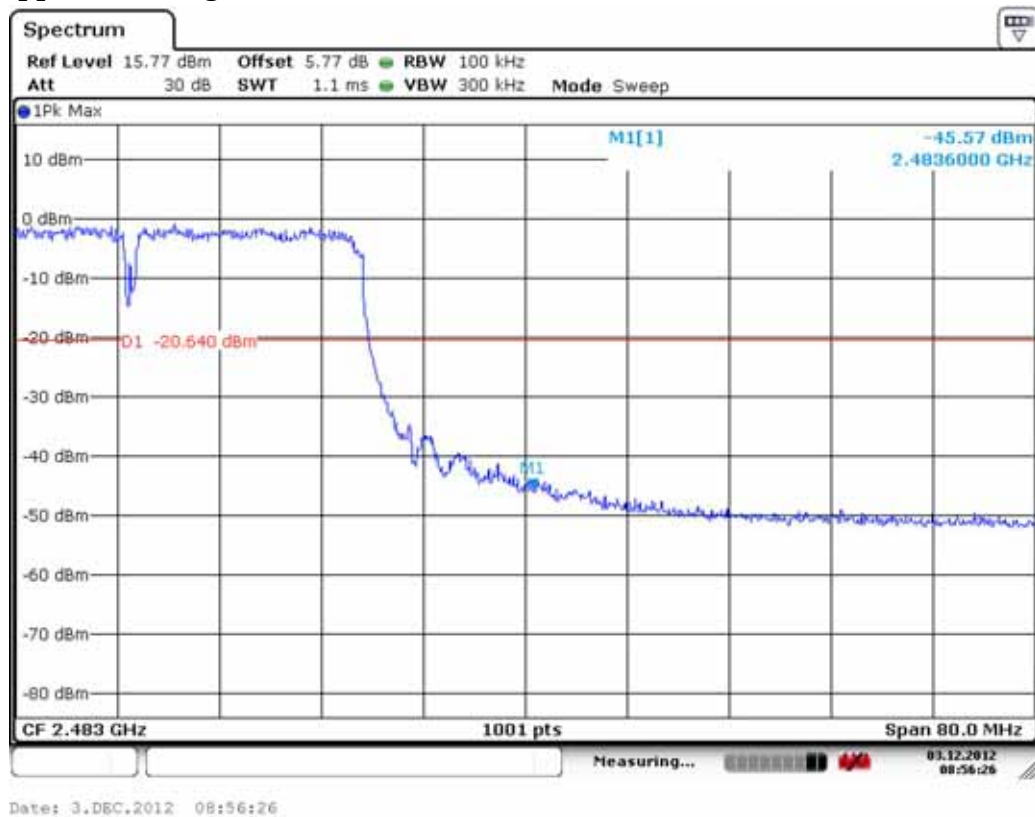
# 802.11n-HT40 (Reference Level)



### 802.11n-HT40 (Band edge) Below Band edge



### Upper Band edge



## 8. POWER SPECTRAL DENSITY MEASUREMENT

### 8.1. Test Equipment

The following test equipment was used during the power spectral density measurement:

| Item | Type              | Manufacturer | Model No.  | Serial No. | Last Cal.    | Next Cal.    |
|------|-------------------|--------------|------------|------------|--------------|--------------|
| 1.   | Spectrum Analyzer | Agilent      | N9030A-544 | US51350140 | Oct. 17, 12' | Oct. 16, 13' |

### 8.2. Block Diagram of Test Setup

The same as section.4.2.

### 8.3. Specification Limits [§15.247(d), RSS-210 §A8.2 (b)]

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

### 8.4. Operating Condition of EUT

The test program “RT3593QA” was used to enable the EUT to transmit data at different channel frequency individually.

### 8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 100kHz RBW and  $\geq 300$ kHz VBW, set sweep time = Auto.

The measurement guideline was according to KDB 558074 D02.

Pursuant to KDB 662911, we performed conducted tests for both antenna chains and submit test data measured on chain 0 as worse performance.

## 8.6. Test Results

**PASSED.** All the test results are attached in next pages.

Pursuant to KDB 662911, the test result of n20 and n40 have been included 4.77 dB is calculated from  $10\log(N)$ , where N is the number of outputs.

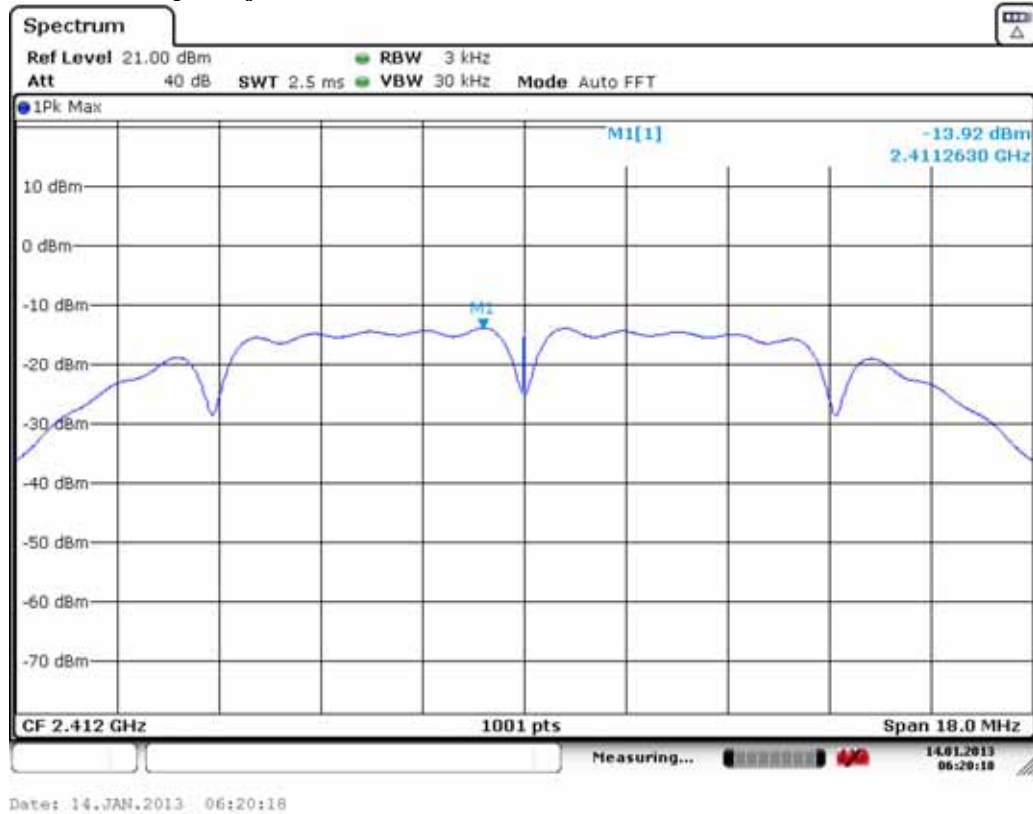
(Test Date : Jan. 14, 2013    Temperature : 26    Humidity : 50%)

### 8.6.1. For 802.11b/802.11g/802.11a

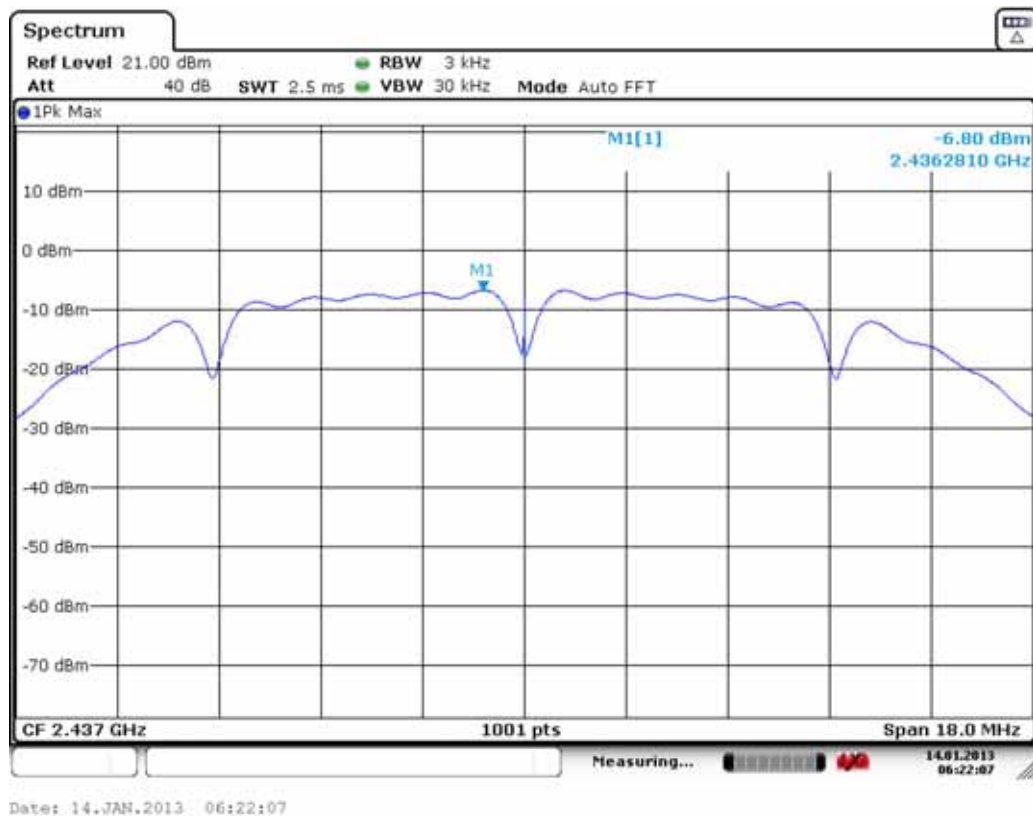
| Mode | Type of Network | Channel | Frequency | Power Spectral Density (dBm) |
|------|-----------------|---------|-----------|------------------------------|
| 1.   | 802.11b         | CH 1    | 2412MHz   | -13.92                       |
| 2.   |                 | CH 6    | 2437MHz   | -6.80                        |
| 3.   |                 | CH 11   | 2462MHz   | -13.23                       |
| 4.   | 802.11g         | CH 1    | 2412MHz   | -13.38                       |
| 5.   |                 | CH 6    | 2437MHz   | -6.33                        |
| 6.   |                 | CH 11   | 2462MHz   | -10.72                       |
| 7.   | 802.11n-HT20    | CH 1    | 2412MHz   | -9.89                        |
| 8.   |                 | CH 6    | 2437MHz   | -6.37                        |
| 9.   |                 | CH 11   | 2462MHz   | -6.54                        |
| 10.  | 802.11n-HT40    | CH 3    | 2422MHz   | -12.27                       |
| 11.  |                 | CH 6    | 2437MHz   | -6.73                        |
| 12.  |                 | CH 9    | 2452MHz   | -8.74                        |

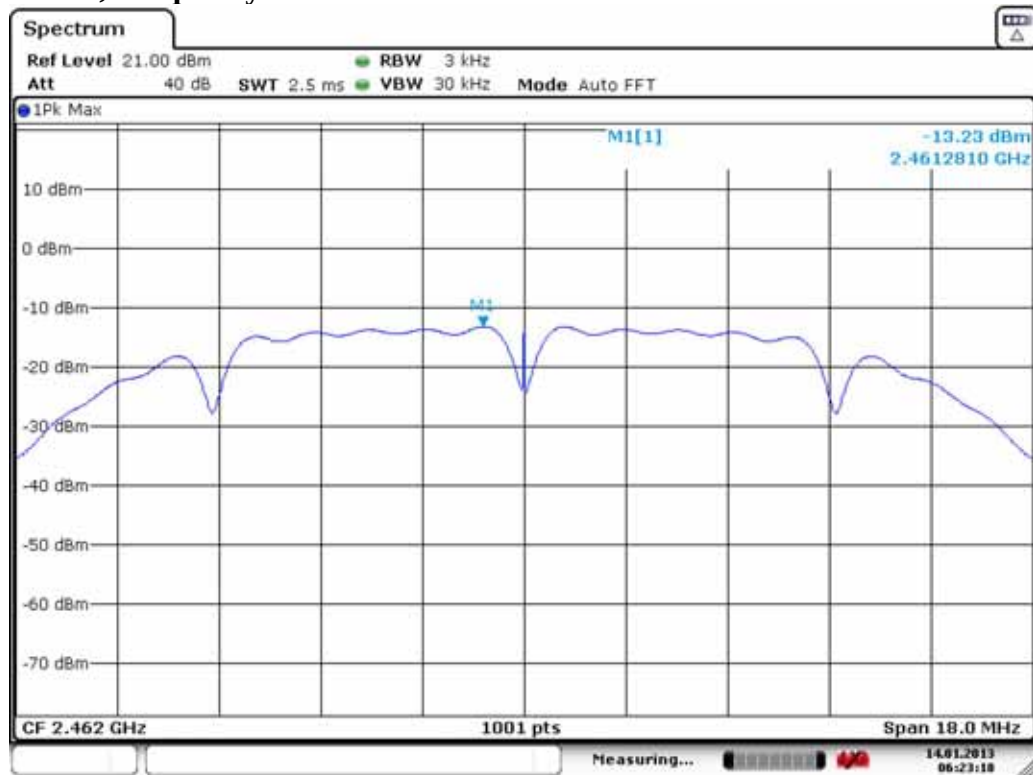
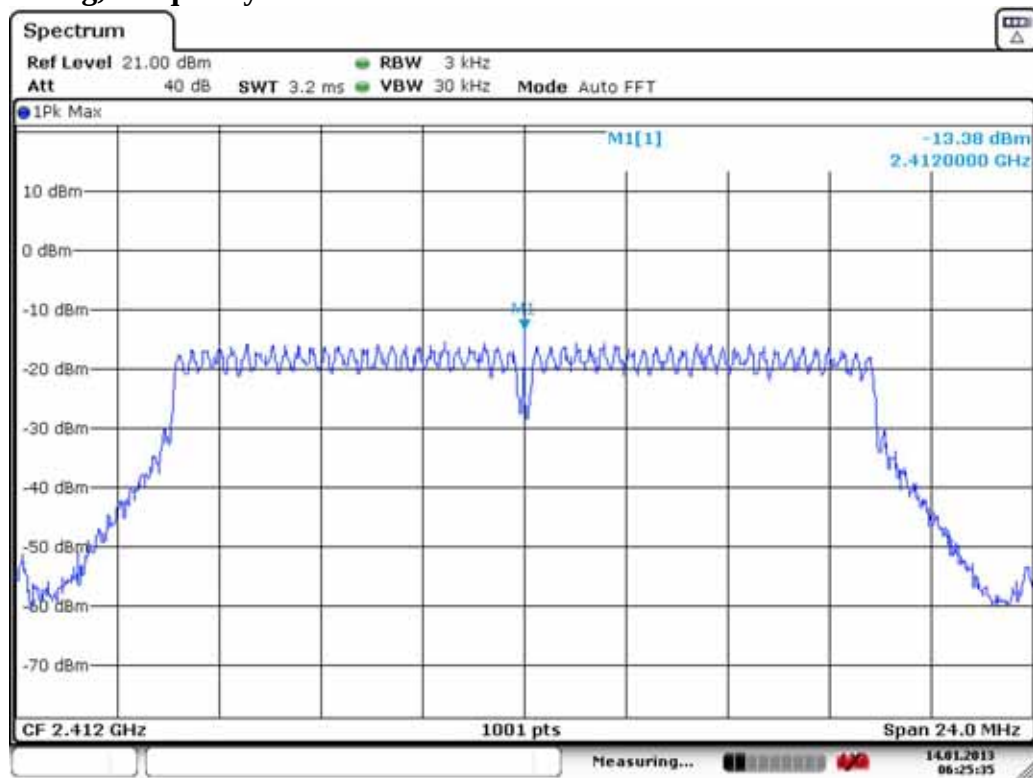
[Limit: 8dBm]

### 802.11b, Frequency: 2412MHz

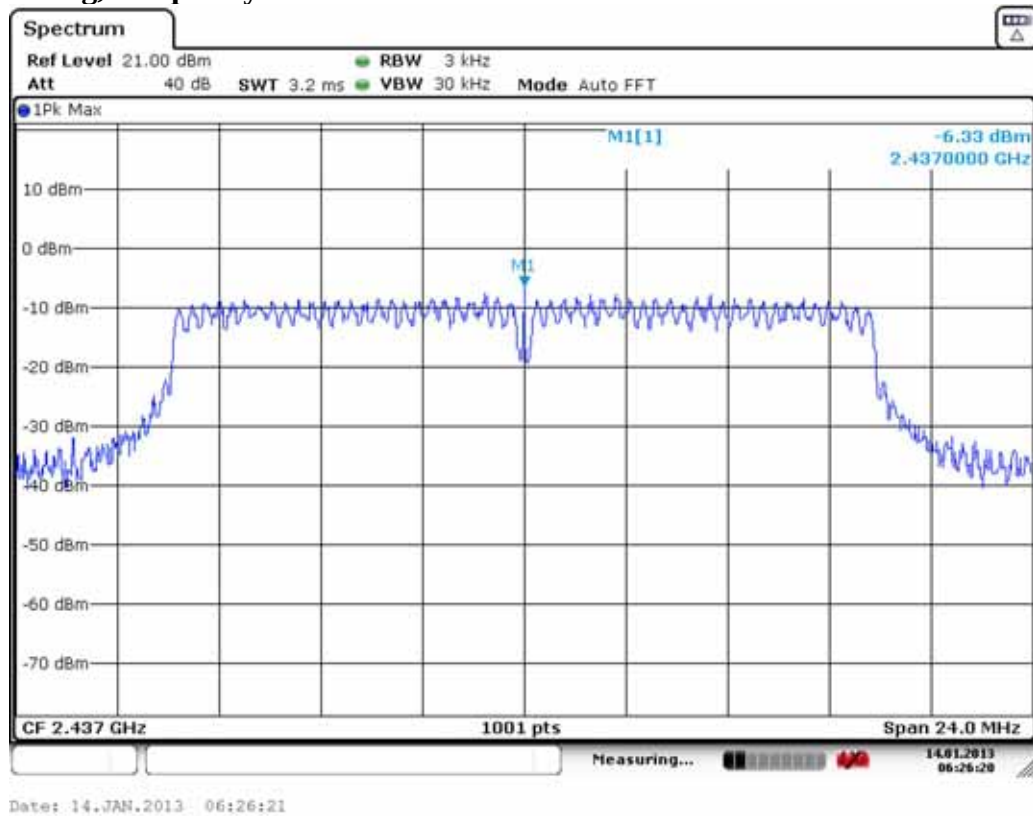


### 802.11b, Frequency: 2437MHz

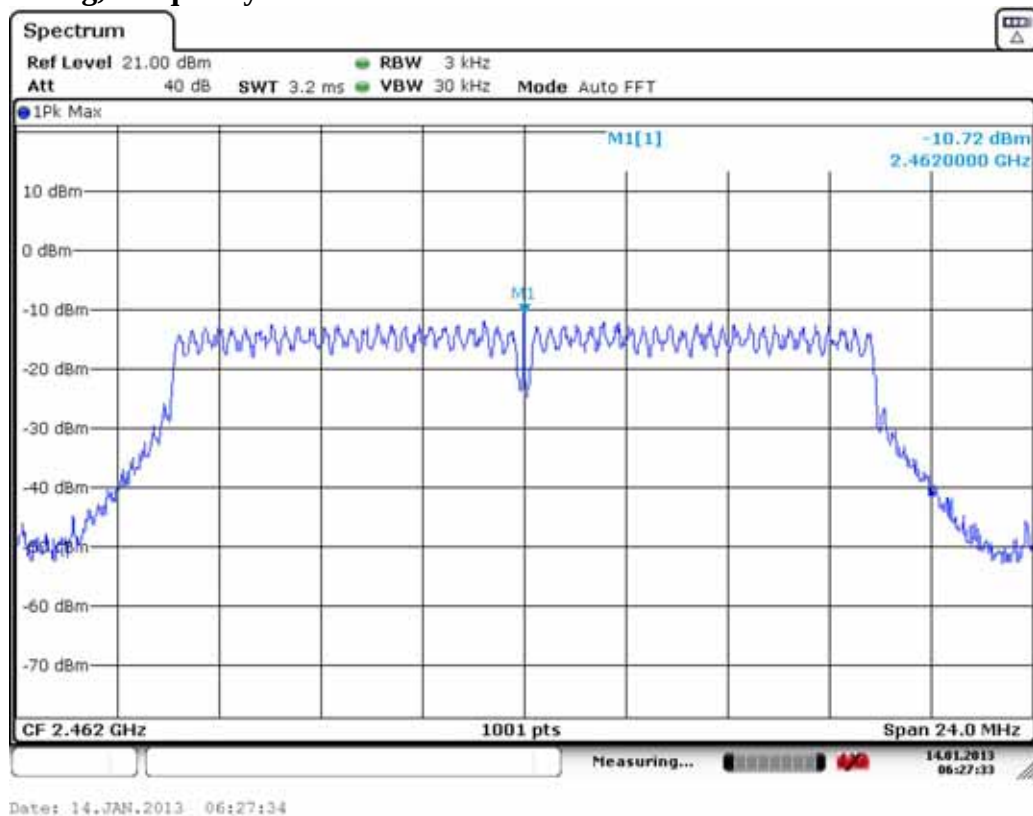


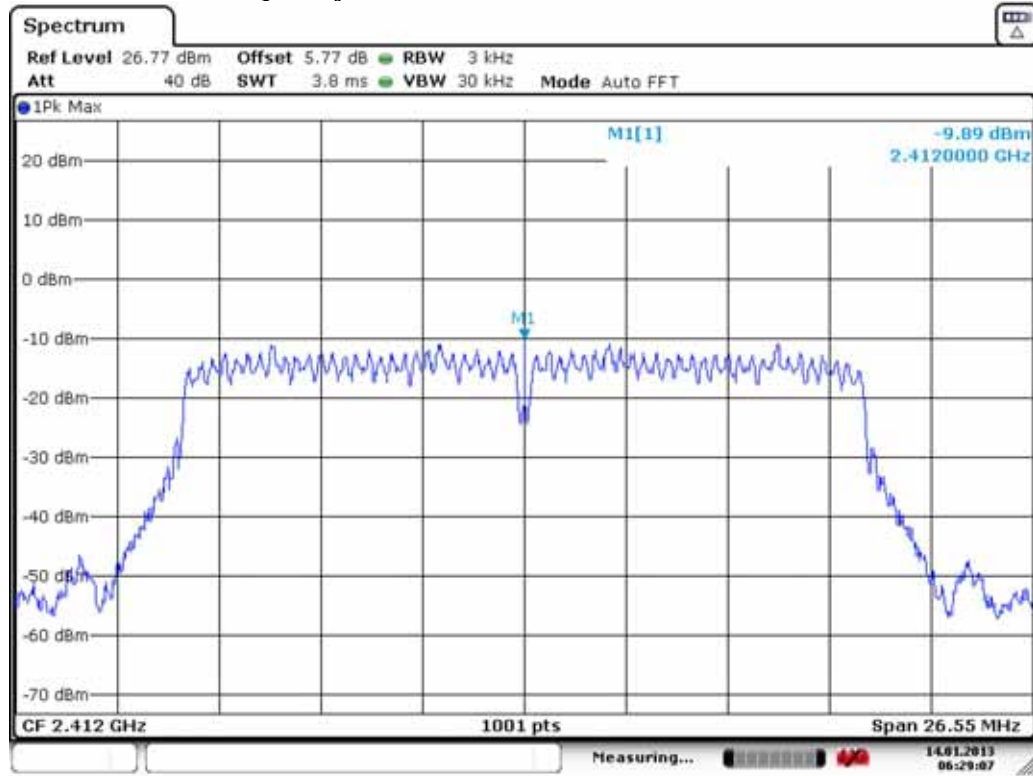
**802.11b, Frequency: 2462MHz****802.11g, Frequency: 2412MHz**

## 802.11g, Frequency: 2437MHz

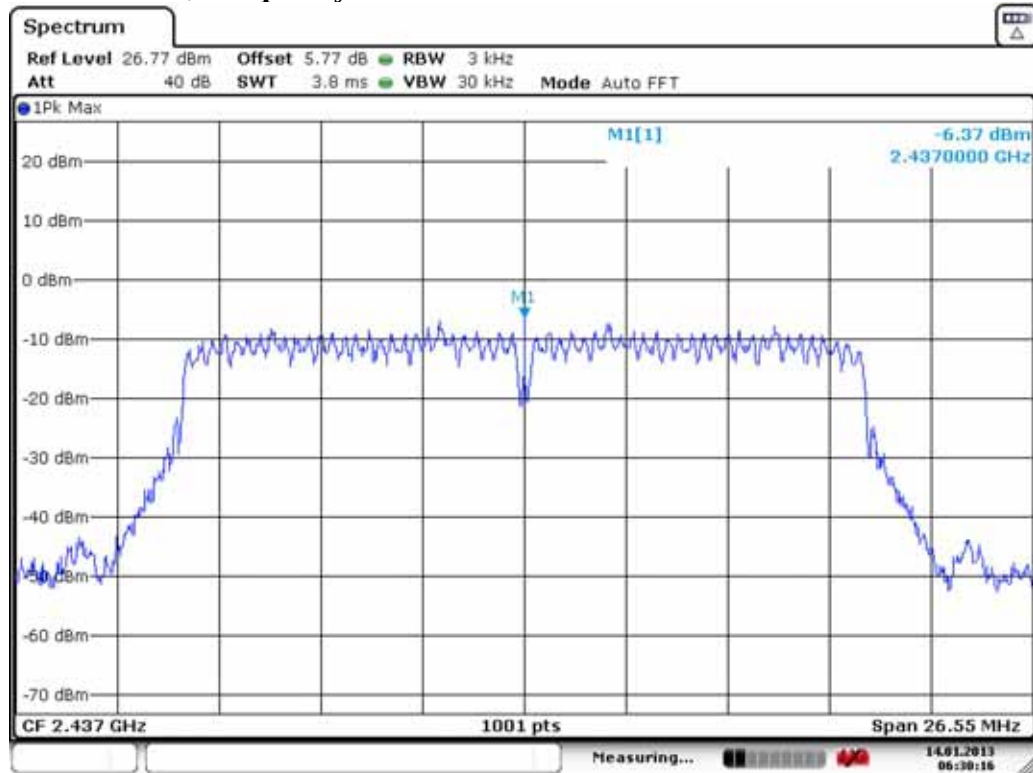


## 802.11g, Frequency: 2462MHz

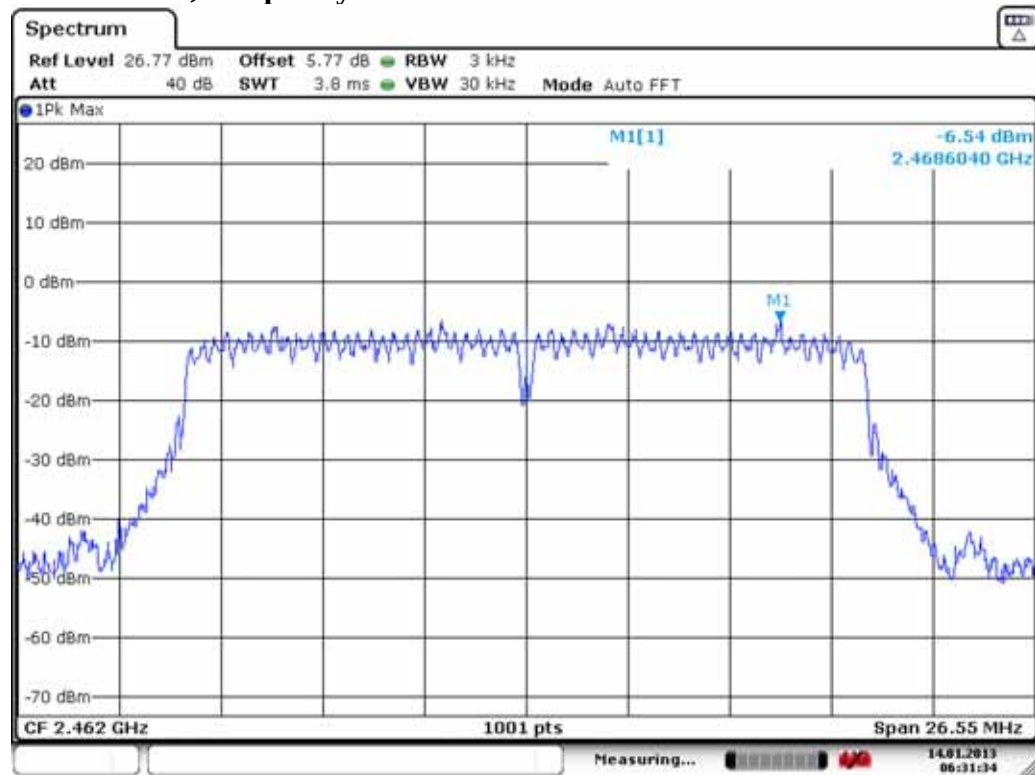


**802.11n-HT20, Frequency: 2412MHz**

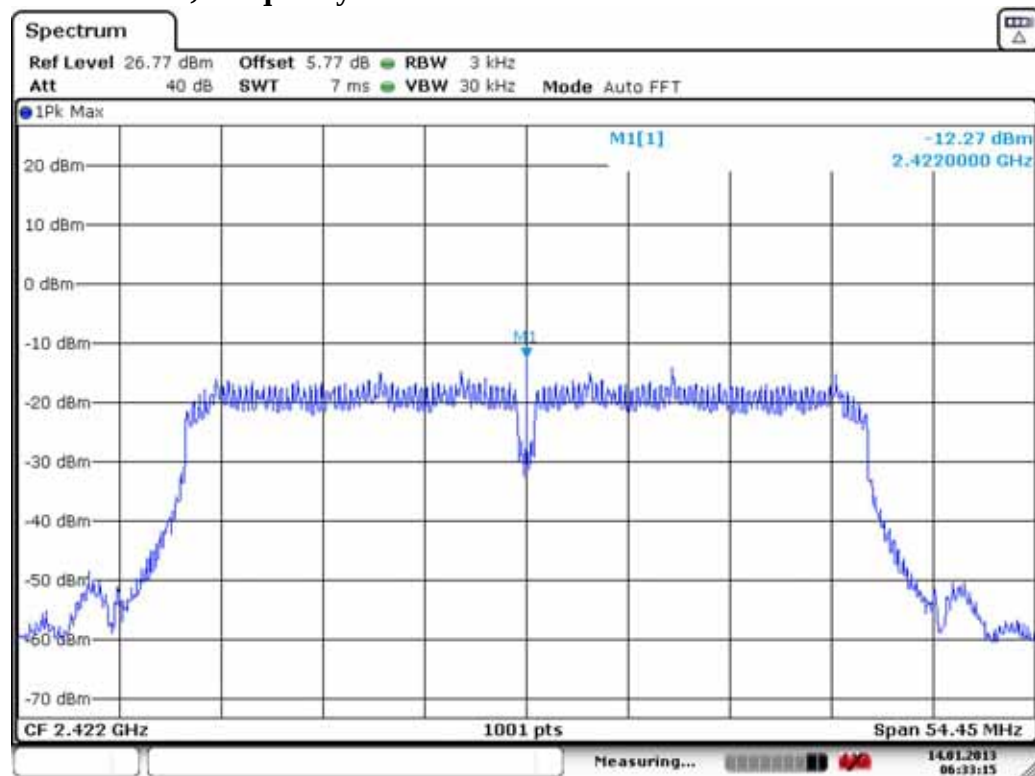
Date: 14.JAN.2013 06:29:07

**802.11n-HT20, Frequency: 2437MHz**

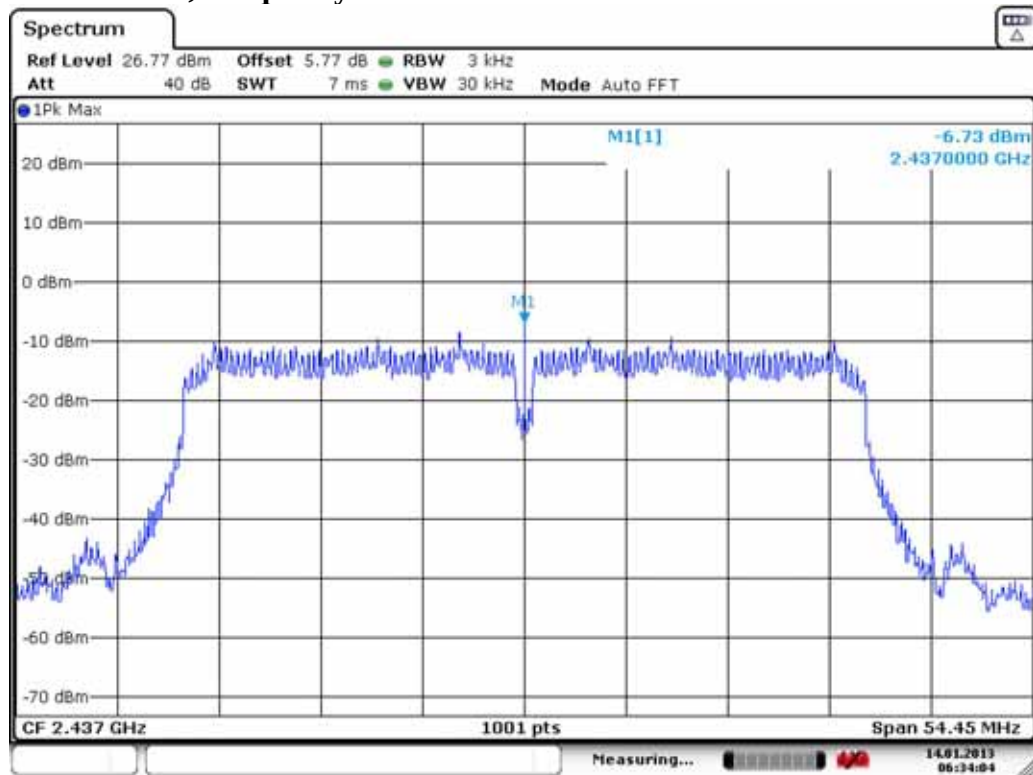
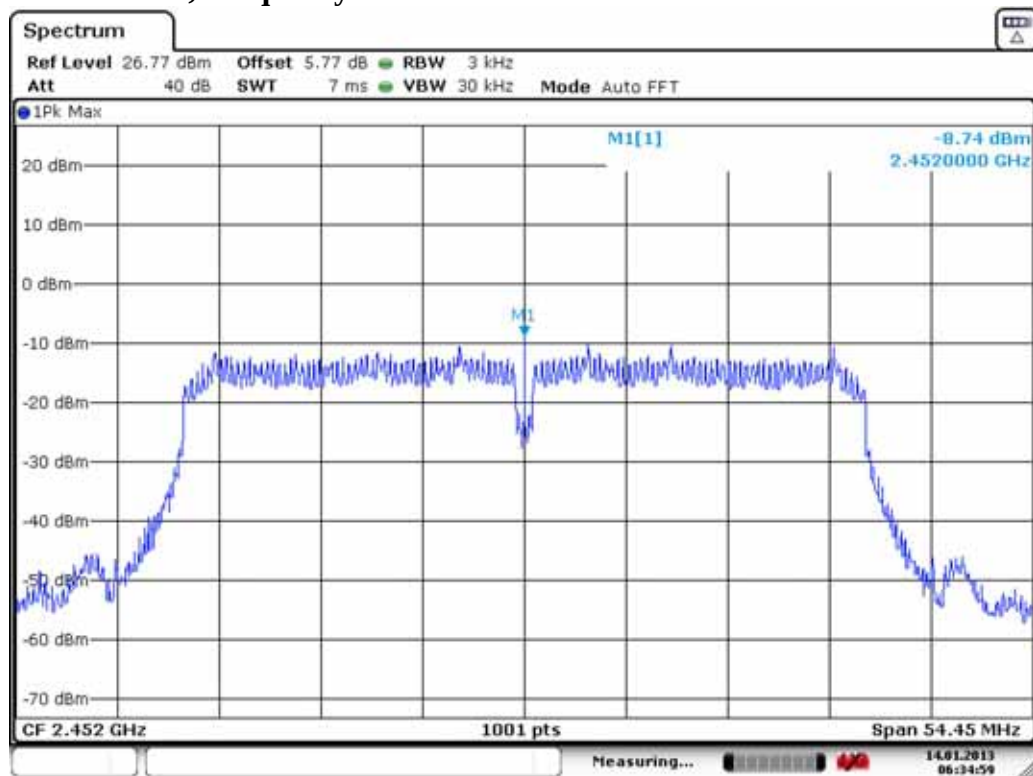
Date: 14.JAN.2013 06:30:16

**802.11n-HT20, Frequency: 2462MHz**

Date: 14.JAN.2013 06:31:35

**802.11n-HT40, Frequency: 2422MHz**

Date: 14.JAN.2013 06:33:16

**802.11n-HT40, Frequency: 2437MHz****802.11n-HT40, Frequency: 2452MHz**

## **9. DEVIATION TO TEST SPECIFICATIONS**

**【NONE】**