

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

*OF*

**Notebook**

**MODEL No.: NBPC1330, NBPC1229, NBPC1160**

**BRAND NAME: COBY**

**FCC ID: S7INBPCCONGO**

**REPORT NO: ED10060058-1**

**ISSUE DATE: July 12, 2010**

*Prepared for*

**Coby Communications Ltd.**

**Unit C-E, 8/F, PO Shau Centre, 115 How Ming Stree, Kowloon, Hongkong**

*Prepared by*

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## VERIFICATION OF COMPLIANCE

|                      |                                                                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:           | Coby Communications Ltd.<br>Unit C-E, 8/F, PO Shau Centre, 115 How Ming Stree, Kowloon, Hongkong                                               |
| Manufacturer:        | SHENZHEN COBY COMMUNICATIONS LTD.<br>Block 2-3, TaoXia 2nd Industrial Zone, LongHua Town, BaoAn District,<br>ShenZhen City, China              |
| Product Description: | Notebook                                                                                                                                       |
| Brand Name:          | COBY                                                                                                                                           |
| Model Number:        | NBPC1330, NBPC1229, NBPC1160<br>(Note: Those models are the same except appearance and model names, all<br>models use the same FCC ID Number.) |
| Serial Number:       | N/A                                                                                                                                            |
| File Number:         | ED10060058-1                                                                                                                                   |
| Date of Test:        | June 11, 2010 to July 12, 2010                                                                                                                 |

### We hereby certify that:

The above equipment was tested by DONGGUAN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247. also, the model complies with Canadian RSS-210 Issue 6 standard.

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

*Approved By*



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**Nicol Lee / Q.A. Manager**  
**DONGGUAN EMTEK CO., LTD.**

## Table of Contents

|           |                                                    |           |
|-----------|----------------------------------------------------|-----------|
| <b>1.</b> | <b>GENERAL INFORMATION .....</b>                   | <b>5</b>  |
| 1.1       | PRODUCT DESCRIPTION .....                          | 5         |
| 1.2       | RELATED SUBMITTAL(S) / GRANT (S) .....             | 6         |
| 1.3       | TEST METHODOLOGY .....                             | 6         |
| 1.4       | SPECIAL ACCESSORIES .....                          | 6         |
| 1.5       | EQUIPMENT MODIFICATIONS .....                      | 6         |
| 1.6       | TEST FACILITY .....                                | 6         |
| <b>2.</b> | <b>SYSTEM TEST CONFIGURATION .....</b>             | <b>7</b>  |
| 2.1       | EUT CONFIGURATION .....                            | 7         |
| 2.2       | EUT EXERCISE .....                                 | 7         |
| 2.3       | TEST PROCEDURE .....                               | 7         |
| 2.4       | CONFIGURATION OF TESTED SYSTEM .....               | 7         |
| <b>3.</b> | <b>DESCRIPTION OF TEST MODES .....</b>             | <b>9</b>  |
| <b>4.</b> | <b>CONDUCTED EMISSIONS TEST .....</b>              | <b>10</b> |
| 4.1       | MEASUREMENT PROCEDURE: .....                       | 10        |
| 4.2       | TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) ..... | 10        |
| 4.3       | MEASUREMENT EQUIPMENT USED: .....                  | 10        |
| 4.4       | CONDUCTED EMISSION LIMIT .....                     | 11        |
| 4.5       | MEASUREMENT RESULT: .....                          | 11        |
| 4.6       | CONDUCTED MEASUREMENT PHOTOS: .....                | 14        |
| <b>5.</b> | <b>RADIATED EMISSION TEST .....</b>                | <b>15</b> |
| 5.1       | MEASUREMENT PROCEDURE .....                        | 15        |
| 5.2       | TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) ..... | 16        |
| 5.3       | MEASUREMENT EQUIPMENT USED: .....                  | 17        |
| 5.4       | RADIATED EMISSION LIMIT .....                      | 17        |
| 5.5       | MEASUREMENT RESULT .....                           | 18        |
| 5.6       | RADIATED MEASUREMENT PHOTOS: .....                 | 33        |
| <b>6.</b> | <b>OCCUPIED BANDWIDTH TEST .....</b>               | <b>34</b> |
| 6.1       | MEASUREMENT PROCEDURE .....                        | 34        |
| 6.2       | TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) ..... | 34        |
| 6.3       | MEASUREMENT EQUIPMENT USED: .....                  | 34        |
| 6.4       | LIMIT .....                                        | 34        |
| 6.5       | MEASUREMENT RESULTS: .....                         | 35        |
| <b>7.</b> | <b>MAX IMUM PEAK OUTPUT POWER TEST .....</b>       | <b>42</b> |
| 7.1       | MEASUREMENT PROCEDURE .....                        | 42        |
| 7.2       | TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) ..... | 42        |
| 7.3       | MEASUREMENT EQUIPMENT USED: .....                  | 42        |

|            |                                                    |           |
|------------|----------------------------------------------------|-----------|
| 7.4        | PEAK POWER OUTPUT LIMIT.....                       | 42        |
| 7.5        | MEASUREMENT RESULTS: .....                         | 43        |
| <b>8.</b>  | <b>BAND EDGE TEST.....</b>                         | <b>44</b> |
| 8.1        | MEASUREMENT PROCEDURE.....                         | 44        |
| 8.2        | TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) ..... | 44        |
| 8.3        | MEASUREMENT EQUIPMENT USED: .....                  | 44        |
| 8.4        | MEASUREMENT RESULTS:.....                          | 45        |
| <b>9.</b>  | <b>POWER DENSITY.....</b>                          | <b>51</b> |
| 9.1        | TEST EQUIPMENT .....                               | 51        |
| 9.2        | MEASURING INSTRUMENTS AND SETTING.....             | 51        |
| 9.3        | TEST PROCEDURES .....                              | 51        |
| 9.4        | BLOCK DIAGRAM OF TEST SETUP.....                   | 51        |
| 9.5        | LIMIT .....                                        | 51        |
| 9.6        | TEST RESULT .....                                  | 52        |
| <b>10.</b> | <b>ANTENNA APPLICATION.....</b>                    | <b>60</b> |
| 10.1       | ANTENNA REQUIREMENT .....                          | 60        |
| 10.2       | RESULT .....                                       | 60        |
| <b>11.</b> | <b>ANTENNA PORT EMISSION.....</b>                  | <b>61</b> |
| 11.1       | TEST EQUIPMENT .....                               | 61        |
| 11.2       | MEASURING INSTRUMENTS AND SETTING.....             | 61        |
| 11.3       | TEST PROCEDURES .....                              | 61        |
| 11.4       | BLOCK DIAGRAM OF TEST SETUP.....                   | 61        |
| 11.5       | TEST RESULT .....                                  | 61        |

## 1. GENERAL INFORMATION

### 1.1 Product Description

A major technical descriptions of EUT is described as following:

- A). Standards: WLAN802.11b/g/n
- B). Operation Frequency: 2400-2483.5MHz
- C). Modulation: OFDM (11g), BPSK, QPSK, CCK (11b), OFDM (11n)
- D). Number of Channel: 802.11b/g Mode:11 channels  
802.11n(20M) Mode: 11channels  
802.11n(40M) Mode: 7channels
- E). Data Rate: 54Mbps(11g), 11Mbps(11b), 150Mbps(11n)
- F). Transmit Power: 13dBm
- G). Antenna GAIN: 0dBi
- H). Antenna Type: WLAN 802.11b/g/n Mini-Card
- I). Power Supply: AC 100-240V 50/60Hz by AC adaptor or DC 11.1V 4800mA  
3 cell LI-ion recharge battery  
Adapter 1: Model:DSA-65W-3 19605  
Input: AC 100-240V~1.6A 50/60Hz  
Output: DC19V 3.42A  
Adapter 2: Model:ADP65S-1903420  
Input: AC 100-240V~2A 50/60Hz  
Output: DC19V 3.42A

Channel 1-11 for 802.11b, 802.11g, 802.11n(20M)  
Channel 3-9 for 802.11n(40M)

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

Note:

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

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

This submittal(s) (test report) is intended for FCC ID: S7INBPCCONGO filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. The composite system (receiver) is compliance with Subpart B is authorized under a DoC procedure.

## 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

## 1.4 Special Accessories

Not available for this EUT intended for grant.

## 1.5 Equipment Modifications

Not available for this EUT intended for grant.

## 1.6 Test Facility

### Site Description

#### EMC Lab.

: Accredited by CNAS, 2005.11.02  
The certificate is valid until 2010.11  
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2006(identical to ISO/IEC17025:2005)  
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Shenzhen, 2008.5  
The certificate is valid until 2009.12  
The Laboratory has been assessed according to the requirements ISO/IEC 17025

Accredited by FCC, Nov. 05, 2008  
The Certificate Registration Number is 247565.

Accredited by Industry Canada, May 24, 2008  
The Certificate Registration Number is 46405-4480

#### Name of Firm

: DONGGUAN EMTEK CO., LTD

#### Site Location

: No.281, Guantai Road, Nancheng District,  
Dongguan, Guangdong, China

## 2. System Test Configuration

### 2.1 EUT Configuration

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

### 2.2 EUT Exercise

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

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

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

#### 2.3.2 Radiated Emissions

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

### 2.4 Configuration of Tested System

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

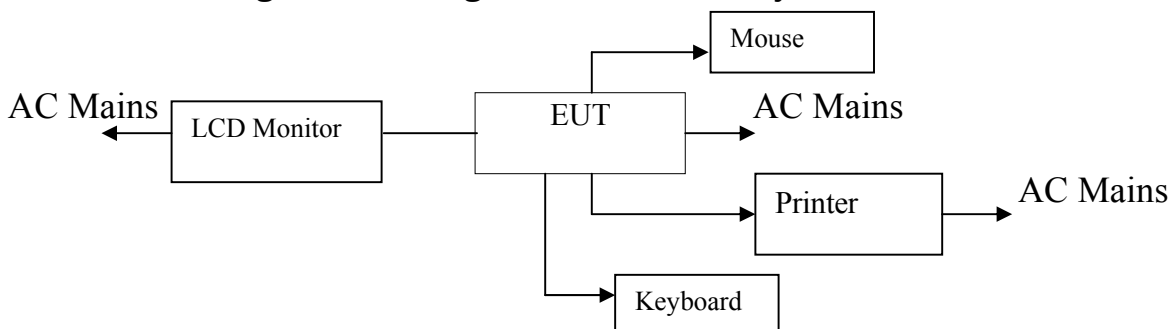


Table 2-1 Equipment Used in Tested System

| Item | Equipment   | Mfr/Brand | Model/Type No. | FCC ID       | Series No. | Note       |
|------|-------------|-----------|----------------|--------------|------------|------------|
| 1.   | Notebook    | COBY      | NBPC1330       | S7INBPCCONGO | N/A        | <b>EUT</b> |
| 2.   | LCD Monitor | DELL      | E1909WF        | N/A          | N/A        |            |
| 3.   | Printer     | HP        | Q5911A         | N/A          | CNCK512065 |            |
| 4.   | Keyboard    | DELL      | L30U           | N/A          | ON277F     |            |
| 5.   | Mouse       | DELL      | M-UAR DEL7     | N/A          | XN966      |            |
|      |             |           |                |              |            |            |

**Note:**

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



### 3. Description of test modes

The Transmitter of EUT is a Notebook and powered by host equipment. This is Digital Transmission system(DTS) and have four type of modulation DBPSK DQPSK CCK&OFDM. The data rates are 54Mbps and 150Mbps..

The equipment enables high-speed access without wires to network assets. This adapter uses the WLAN802.11b/g/n protocol to enable wireless communications between the host computer and computers, in the same way that the computer would use an Ethernet adapter.

#### **WLAN802.11b/g, WLAN802.11n(20M)**

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

#### **WLAN802.11n(40M)**

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

#### **EUT operating conditions:**

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to typical use, The exercise sequence is listed as below:

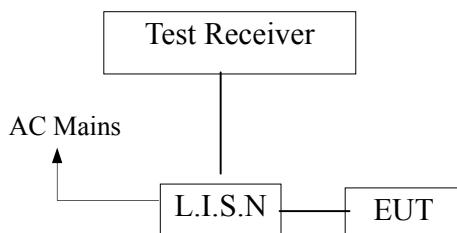
1. Setup the EUT and simulators as shown on 2.4.
2. Turn on the power of all equipments.
3. The EUT Ping with the wireless router.
4. Repeat the above steps.

## 4. Conducted Emissions Test

### 4.1 Measurement Procedure:

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

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



### 4.3 Measurement Equipment Used:

| Conducted Emission Test Site # 4 |                 |              |               |             |            |
|----------------------------------|-----------------|--------------|---------------|-------------|------------|
| EQUIPMENT TYPE                   | MFR             | MODEL NUMBER | SERIAL NUMBER | LAST CAL.   | CAL DUE.   |
| Test Receiver                    | Rohde & Schwarz | ESCS30       | 828985/018    | 05/29/2010  | 05/29/2011 |
| L.I.S.N                          | Rohde & Schwarz | ESH2-Z5      | 834549/005    | 05/29/2010  | 05/29/2011 |
| L.I.S.N                          | Rohde & Schwarz | ESH2-Z5      | 834549/005    | 05/29/2010  | 05/29/2011 |
| 50ΩCoaxial Switch                | Anritsu         | MP59B        | M20531        | 005/29/2010 | 05/29/2011 |

#### 4.4 Conducted Emission Limit

##### (7) Conducted Emission

| Frequency(MHz) | Quasi-peak | Average |
|----------------|------------|---------|
| 0.15-0.5       | 66-56      | 56-46   |
| 0.5-5.0        | 56         | 46      |
| 5.0-30.0       | 60         | 50      |

**Note:**

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

#### 4.5 Measurement Result:

**PASS ( The Worst Mode:Adapter 1)**

### Conducted Emission Measurement

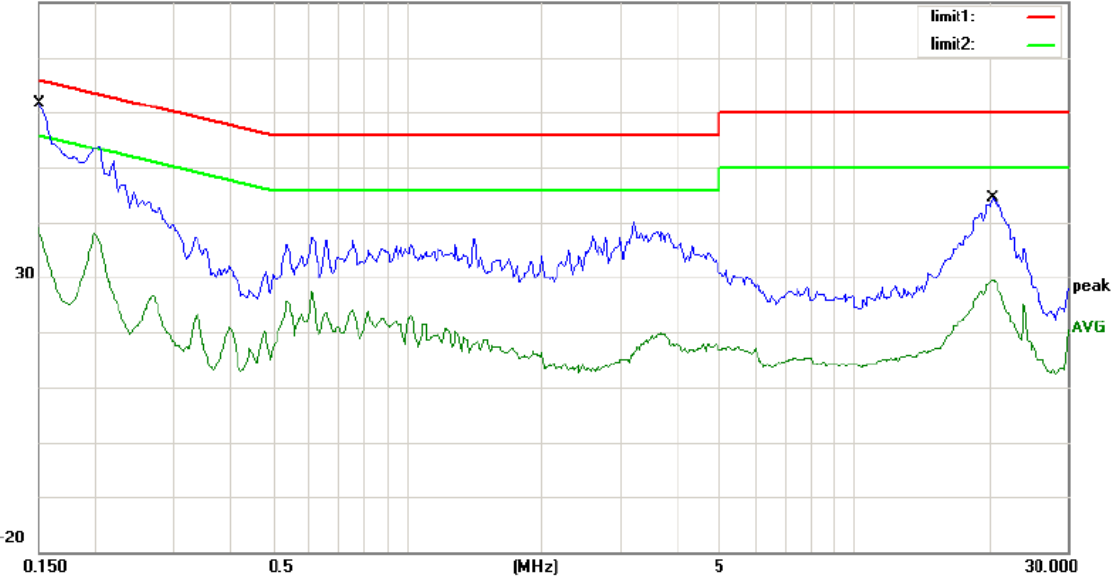
File :NBPC1330

Data :#3

Date: 2010/06/18

Time: 19:34:23

80.0 dBuV



Site site #1

Phase: **L1**

Temperature: 25

Limit: (CE)FCC PART 15 class B\_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: Notebook

M/N: NBPC1330

Mode: Running

Note: In ON mode running the brun in test soft ware to test all hard ware

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   | *   | 0.1500       | 55.65                    | 0.00                    | 55.65                    | 66.00         | -10.35     | QP       |         |
| 2   |     | 0.1500       | 39.05                    | 0.00                    | 39.05                    | 56.00         | -16.95     | AVG      |         |
| 3   |     | 20.4600      | 37.25                    | 0.00                    | 37.25                    | 60.00         | -22.75     | QP       |         |
| 4   |     | 20.4600      | 29.32                    | 0.00                    | 29.32                    | 50.00         | -20.68     | AVG      |         |

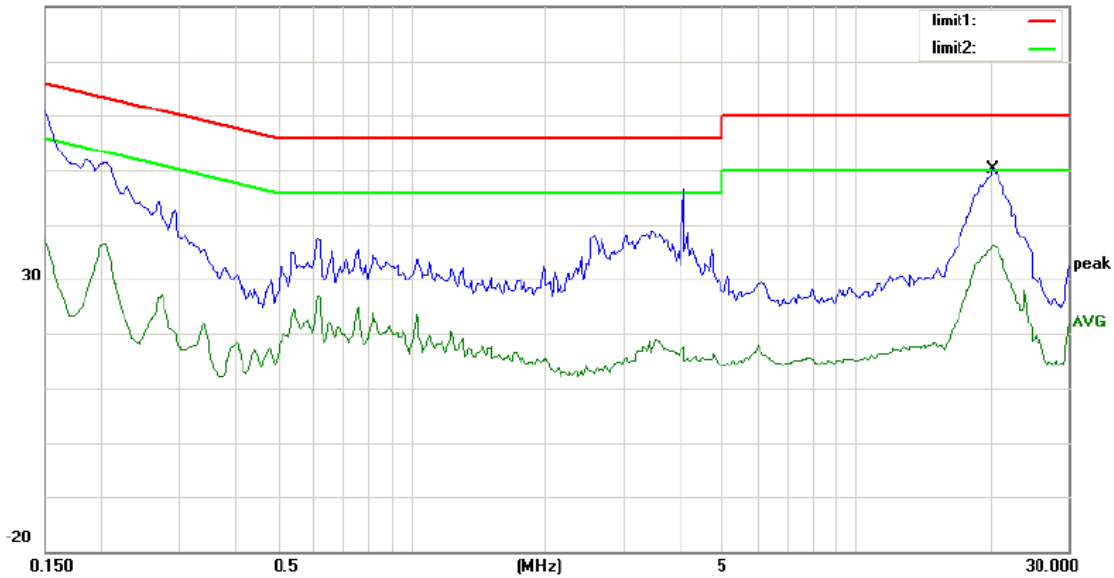
### Conducted Emission Measurement

File :NBPC1330  
 80.0 dBuV

Data :#4

Date: 2010/06/18

Time: 19:38:51



Site site #1

Phase: **N**

Temperature: 25

Limit: (CE)FCC PART 15 class B\_QP

Power: AC 120V/60Hz

Humidity: 50 %

EUT: Notebook

M/N: NBPC1330

Mode: Running

Note: In ON mode running the brun in test soft ware to test all hard ware

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   | *   | 20.2800      | 47.18                    | 0.00                    | 47.18                    | 60.00         | -12.82     | QP       |         |
| 2   |     | 20.2800      | 36.11                    | 0.00                    | 36.11                    | 50.00         | -13.89     | AVG      |         |

#### 4.6 Conducted Measurement Photos:



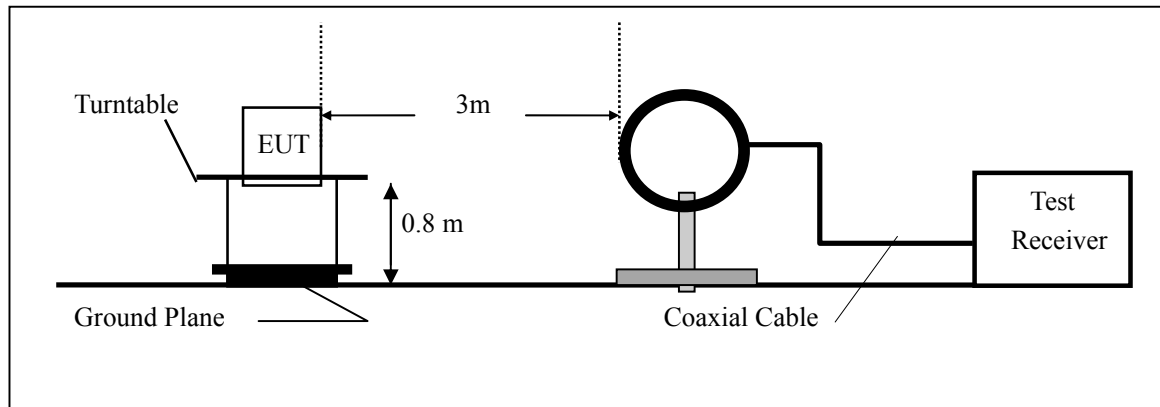
## **5. Radiated Emission Test**

### **5.1 Measurement Procedure**

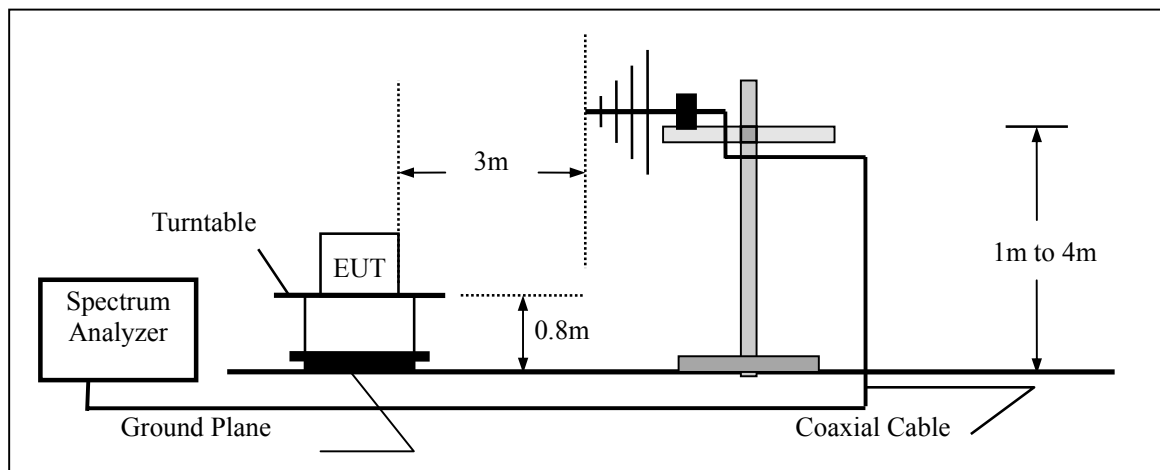
- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above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

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

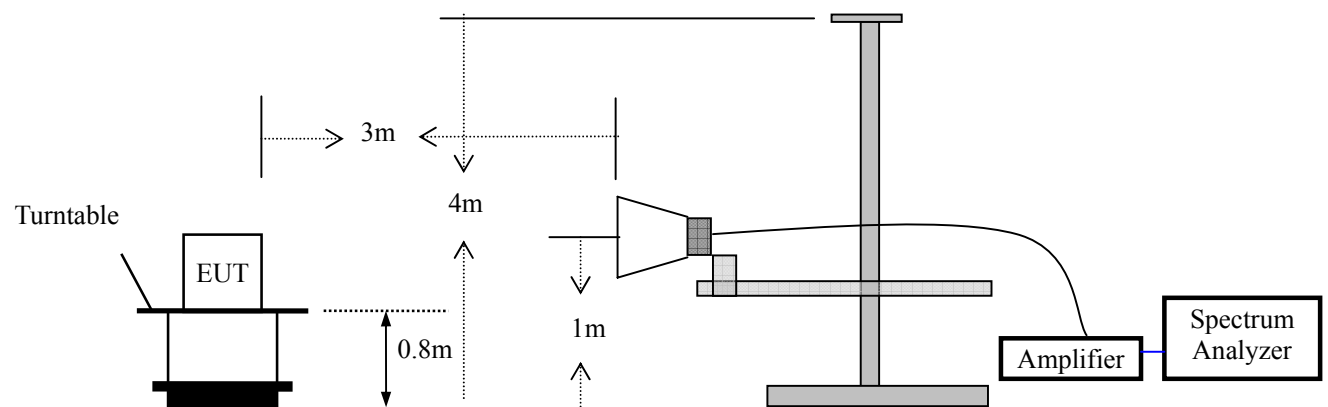
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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





### 5.3 Measurement Equipment Used:

| EQUIPMENT TYPE    | MFR             | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|-----------------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSP7         | 839511/010    | 05/29/2010 | 05/29/2011 |
| Spectrum Analyzer | HP              | E4407B       | 839840481     | 05/29/2010 | 05/29/2011 |
| EMI Test Receiver | Rohde & Schwarz | ESU          | 1302.6005.26  | 05/29/2010 | 05/29/2011 |
| Pre-Amplifier     | HP              | 8447D        | 2944A07999    | 05/29/2010 | 05/29/2011 |
| Bilog Antenna     | Schwarzbeck     | VULB9163     | 142           | 05/29/2010 | 05/29/2011 |
| Loop Antenna      | ARA             | PLA-1030/B   | 1029          | 05/29/2010 | 05/29/2011 |
| Horn Antenna      | Schwarzbeck     | BBHA9170     | BBHA9170399   | 05/29/2010 | 05/29/2011 |
| Horn Antenna      | Schwarzbeck     | BBHA 9120    | D143          | 05/29/2010 | 05/29/2011 |

### 5.4 Radiated emission limit

#### FCC Class B Limit at 3m

| Frequency<br>MHz | Distance<br>Meter | Field Strength<br>uV/m | Field Strength<br>dBuV/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                     |

Note: The frequencies above 1000MHz, as measured using instrumentation with a peak detector function was corresponding to 20dB above maximum permitted average limit.

## 5.5 Measurement Result

|                    |            |               |            |
|--------------------|------------|---------------|------------|
| Operation Mode:    | Channel 1  | Test Date :   | 06/29/2010 |
| Frequency Range:   | 30~1000MHz | Temperature : | 28 °C      |
| Test Result:       | PASS       | Humidity :    | 65 %       |
| Measured Distance: | 3m         | Test By:      | Jees       |

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 32.13          | V               | 35.26                    | 40                   | -4.74          | PK   |
| 137.39         | V               | 34.68                    | 43.5                 | -8.82          | PK   |
| 245.47         | V               | 38.24                    | 46                   | -7.76          | PK   |
| 526.74         | V               | 37.72                    | 46                   | -8.28          | PK   |
| 789.52         | V               | 38.46                    | 46                   | -7.54          | PK   |
| 846.35         | V               | 40.52                    | 46                   | -5.48          | PK   |
| 34.65          | H               | 34.95                    | 40                   | -5.05          | PK   |
| 172.64         | H               | 37.79                    | 43.5                 | -5.71          | PK   |
| 253.47         | H               | 39.57                    | 46                   | -6.43          | PK   |
| 526.05         | H               | 40.26                    | 46                   | -5.74          | PK   |
| 654.43         | H               | 39.83                    | 46                   | -6.17          | PK   |
| 828.48         | H               | 40.59                    | 46                   | -5.41          | PK   |

**Note:** (1) All Readings are Peak Value.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

|                    |            |               |            |
|--------------------|------------|---------------|------------|
| Operation Mode:    | Channel 6  | Test Date :   | 06/29/2010 |
| Frequency Range:   | 30~1000MHz | Temperature : | 28 °C      |
| Test Result:       | PASS       | Humidity :    | 65 %       |
| Measured Distance: | 3m         | Test By:      | Jees       |

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBUV) | Limit 3m<br>(dBUV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 33.56          | V               | 34.14                    | 40                   | -5.86          | PK   |
| 125.76         | V               | 37.59                    | 43.5                 | -5.91          | PK   |
| 242.37         | V               | 40.82                    | 46                   | -5.18          | PK   |
| 389.72         | V               | 39.46                    | 46                   | -6.54          | PK   |
| 465.32         | V               | 40.26                    | 46                   | -5.74          | PK   |
| 685.72         | V               | 39.63                    | 46                   | -6.37          | PK   |
| 34.58          | H               | 33.84                    | 40                   | -6.16          | PK   |
| 163.78         | H               | 37.54                    | 43.5                 | -5.96          | PK   |
| 268.75         | H               | 40.56                    | 46                   | -5.44          | PK   |
| 379.62         | H               | 41.38                    | 46                   | -4.62          | PK   |
| 540.85         | H               | 39.78                    | 46                   | -6.22          | PK   |
| 680.26         | H               | 39.70                    | 46                   | -6.30          | PK   |

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

|                    |            |               |            |
|--------------------|------------|---------------|------------|
| Operation Mode:    | Channel 11 | Test Date :   | 06/29/2010 |
| Frequency Range:   | 30~1000MHz | Temperature : | 28 °C      |
| Test Result:       | PASS       | Humidity :    | 65 %       |
| Measured Distance: | 3m         | Test By:      | Jees       |

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level<br>(dBuV) | Limit 3m<br>(dBuV/m) | Margin<br>(dB) | Note |
|----------------|-----------------|--------------------------|----------------------|----------------|------|
| 36.91          | V               | 35.89                    | 40                   | -4.11          | PK   |
| 134.21         | V               | 38.67                    | 43.5                 | -4.83          | PK   |
| 275.74         | V               | 39.25                    | 46                   | -6.75          | PK   |
| 339.62         | V               | 41.39                    | 46                   | -4.61          | PK   |
| 552.03         | V               | 40.06                    | 46                   | -5.94          | PK   |
| 742.26         | V               | 41.28                    | 46                   | -4.72          | PK   |
| 35.39          | H               | 34.44                    | 40                   | -5.56          | PK   |
| 121.42         | H               | 37.41                    | 43.5                 | -6.09          | PK   |
| 296.79         | H               | 41.86                    | 46                   | -4.14          | PK   |
| 378.25         | H               | 39.56                    | 46                   | -6.44          | PK   |
| 747.45         | H               | 40.11                    | 46                   | -5.89          | PK   |

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11b(Channel 1) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4824.13        | V               | 54.17                | 45.62 | 74.00            | 54.00 | -19.83     | -8.38  |
| 7236.25        | V               | 46.38                | 40.73 | 74.00            | 54.00 | -27.62     | -13.27 |
| 9648.68        | V               | 46.35                | 39.13 | 74.00            | 54.00 | -27.65     | -14.87 |
| 12060.15       | V               | 40.15                | 38.86 | 74.00            | 54.00 | -33.85     | -15.14 |
| 14472.44       | V               | 38.29                | 36.52 | 74.00            | 54.00 | -35.71     | -17.48 |
| 16884.03       | V               | 37.54                | 42.09 | 74.00            | 54.00 | -36.46     | -11.91 |
| 4824.34        | H               | 55.64                | 45.42 | 74.00            | 54.00 | -18.36     | -8.58  |
| 7236.22        | H               | 48.26                | 46.42 | 74.00            | 54.00 | -25.74     | -7.58  |
| 9647.47        | H               | 44.78                | 39.24 | 74.00            | 54.00 | -29.22     | -14.76 |
| 12060.27       | H               | 47.39                | 37.53 | 74.00            | 54.00 | -26.61     | -16.47 |
| 14472.35       | H               | 40.93                | 42.39 | 74.00            | 54.00 | -33.07     | -11.61 |
| 16884.39       | H               | 39.60                | 35.71 | 74.00            | 54.00 | -34.40     | -18.29 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11b(Channel 6) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4874.14        | V               | 52.76                | 42.76 | 74.00            | 54.00 | -21.24     | -11.24 |
| 7310.44        | V               | 46.78                | 43.48 | 74.00            | 54.00 | -27.22     | -10.52 |
| 9748.35        | V               | 48.25                | 42.56 | 74.00            | 54.00 | -25.75     | -11.44 |
| 12185.62       | V               | 45.63                | 40.84 | 74.00            | 54.00 | -28.37     | -13.16 |
| 14622.39       | V               | 43.46                | 39.53 | 74.00            | 54.00 | -30.54     | -14.47 |
| 17059.23       | V               | 38.72                | 40.12 | 74.00            | 54.00 | -35.28     | -13.88 |
| 4873.42        | H               | 50.76                | 39.76 | 74.00            | 54.00 | -23.24     | -14.24 |
| 7311.28        | H               | 52.54                | 46.63 | 74.00            | 54.00 | -21.46     | -7.37  |
| 9747.40        | H               | 48.75                | 42.85 | 74.00            | 54.00 | -25.25     | -11.15 |
| 12184.26       | H               | 46.21                | 39.78 | 74.00            | 54.00 | -27.79     | -14.22 |
| 14624.57       | H               | 42.39                | 40.44 | 74.00            | 54.00 | -31.61     | -13.56 |
| 17058.61       | H               | 40.54                | 36.52 | 74.00            | 54.00 | -33.46     | -17.48 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11b (Channel 11) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4923.41        | V               | 52.49                | 44.09 | 74.00            | 54.00 | -21.51     | -9.91  |
| 7386.12        | V               | 50.26                | 40.38 | 74.00            | 54.00 | -23.74     | -13.62 |
| 9848.54        | V               | 47.58                | 39.65 | 74.00            | 54.00 | -26.42     | -14.35 |
| 12310.40       | V               | 46.44                | 36.71 | 74.00            | 54.00 | -27.56     | -17.29 |
| 14772.39       | V               | 43.75                | 38.26 | 74.00            | 54.00 | -30.25     | -15.74 |
| 17234.24       | V               | 45.68                | 37.23 | 74.00            | 54.00 | -28.32     | -16.77 |
| 4923.19        | H               | 53.47                | 45.21 | 74.00            | 54.00 | -20.53     | -8.79  |
| 7386.35        | H               | 47.62                | 40.39 | 74.00            | 54.00 | -26.38     | -13.61 |
| 9848.36        | H               | 46.83                | 37.21 | 74.00            | 54.00 | -27.17     | -16.79 |
| 12310.53       | H               | 45.28                | 39.65 | 74.00            | 54.00 | -28.72     | -14.35 |
| 14772.28       | H               | 42.45                | 38.16 | 74.00            | 54.00 | -31.55     | -15.84 |
| 17234.46       | H               | 40.76                | 40.12 | 74.00            | 54.00 | -33.24     | -13.88 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11g(Channel 1) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4824.27        | V               | 54.75                | 45.27 | 74.00            | 54.00 | -19.25     | -8.73  |
| 7236.11        | V               | 50.13                | 42.32 | 74.00            | 54.00 | -23.87     | -10.68 |
| 9648.15        | V               | 46.54                | 40.97 | 74.00            | 54.00 | -27.46     | -13.03 |
| 12060.63       | V               | 42.20                | 39.15 | 74.00            | 54.00 | -31.80     | -14.85 |
| 14472.26       | V               | 39.72                | 36.48 | 74.00            | 54.00 | -34.28     | -17.52 |
| 16884.18       | V               | 40.62                | 33.26 | 74.00            | 54.00 | -33.38     | -20.74 |
| 4824.12        | H               | 53.25                | 45.60 | 74.00            | 54.00 | -20.75     | -8.40  |
| 7236.23        | H               | 45.32                | 42.05 | 74.00            | 54.00 | -28.68     | -11.95 |
| 9647.46        | H               | 43.26                | 39.52 | 74.00            | 54.00 | -30.74     | -14.48 |
| 12060.35       | H               | 40.63                | 36.35 | 74.00            | 54.00 | -33.37     | -17.65 |
| 14472.43       | H               | 39.75                | 37.62 | 74.00            | 54.00 | -34.25     | -16.38 |
| 16884.17       | H               | 39.60                | 38.18 | 74.00            | 54.00 | -34.40     | -15.82 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.



|                    |                    |               |            |
|--------------------|--------------------|---------------|------------|
| Operation Mode:    | 802.11g(Channel 6) | Test Date :   | 06/29/2010 |
| Frequency Range:   | Above 1GHz         | Temperature : | 28 °C      |
| Test Result:       | PASS               | Humidity :    | 65 %       |
| Measured Distance: | 3m                 | Test By:      | Jees       |

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4874.13        | V               | 54.16                | 46.26 | 74.00            | 54.00 | -19.84     | -7.74  |
| 7310.26        | V               | 50.78                | 42.08 | 74.00            | 54.00 | -23.22     | -11.92 |
| 9748.19        | V               | 48.29                | 40.85 | 74.00            | 54.00 | -45.71     | -13.15 |
| 12185.54       | V               | 47.58                | 39.56 | 74.00            | 54.00 | -26.42     | -14.44 |
| 14622.18       | V               | 43.56                | 37.75 | 74.00            | 54.00 | -30.44     | -16.65 |
| 17059.42       | V               | 40.54                | 40.52 | 74.00            | 54.00 | -33.46     | -13.48 |
| 4874.03        | H               | 52.23                | 42.74 | 74.00            | 54.00 | -21.77     | -11.26 |
| 7310.26        | H               | 53.37                | 44.37 | 74.00            | 54.00 | -20.63     | -9.63  |
| 9748.08        | H               | 49.28                | 43.02 | 74.00            | 54.00 | -24.72     | -10.98 |
| 12185.37       | H               | 47.36                | 40.04 | 74.00            | 54.00 | -26.64     | -13.96 |
| 14622.39       | H               | 43.39                | 39.63 | 74.00            | 54.00 | -30.61     | -14.37 |
| 17059.54       | H               | 40.32                | 38.30 | 74.00            | 54.00 | -33.68     | -15.70 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11g(Channel 11) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4924.19        | V               | 54.02                | 45.28 | 74.00            | 54.00 | -19.98     | -8.72  |
| 7386.21        | V               | 52.36                | 42.73 | 74.00            | 54.00 | -21.64     | -11.27 |
| 9848.32        | V               | 48.45                | 40.57 | 74.00            | 54.00 | -25.55     | -13.43 |
| 12310.26       | V               | 47.26                | 39.86 | 74.00            | 54.00 | -26.74     | -14.14 |
| 14772.37       | V               | 45.63                | 35.85 | 74.00            | 54.00 | -28.37     | -18.15 |
| 17234.52       | V               | 39.56                | 40.21 | 74.00            | 54.00 | -34.44     | -13.79 |
| 4924.11        | H               | 52.46                | 46.54 | 74.00            | 54.00 | -21.54     | -7.46  |
| 7386.43        | H               | 49.83                | 44.15 | 74.00            | 54.00 | -24.17     | -9.85  |
| 9848.72        | H               | 46.54                | 43.06 | 74.00            | 54.00 | -27.46     | -10.94 |
| 12310.29       | H               | 44.62                | 42.46 | 74.00            | 54.00 | -29.38     | -11.54 |
| 14772.36       | H               | 40.68                | 37.86 | 74.00            | 54.00 | -33.32     | -16.14 |
| 17234.43       | H               | 39.45                | 39.93 | 74.00            | 54.00 | -34.55     | -14.07 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11n(20M)(Channel 1) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4824.07        | V               | 53.47                | 45.59 | 74.00            | 54.00 | -20.53     | -8.41  |
| 7236.37        | V               | 49.38                | 40.28 | 74.00            | 54.00 | -24.62     | -13.72 |
| 9648.35        | V               | 46.14                | 39.41 | 74.00            | 54.00 | -27.86     | -14.59 |
| 12060.27       | V               | 44.32                | 36.83 | 74.00            | 54.00 | -29.68     | -17.17 |
| 14472.39       | V               | 39.35                | 37.32 | 74.00            | 54.00 | -34.65     | -16.68 |
| 16884.46       | V               | 38.86                | 34.75 | 74.00            | 54.00 | -35.14     | -19.25 |
| 4824.54        | H               | 54.60                | 46.15 | 74.00            | 54.00 | -19.40     | -7.85  |
| 7236.37        | H               | 48.37                | 41.24 | 74.00            | 54.00 | -25.63     | -12.76 |
| 9647.56        | H               | 47.07                | 39.76 | 74.00            | 54.00 | -26.93     | -14.24 |
| 12060.60       | H               | 45.38                | 40.02 | 74.00            | 54.00 | -28.62     | -13.98 |
| 14472.34       | H               | 40.75                | 39.36 | 74.00            | 54.00 | -33.25     | -14.64 |
| 16884.70       | H               | 39.65                | 37.64 | 74.00            | 54.00 | -34.35     | -16.36 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11n(20M) (Channel 6) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4874.24        | V               | 54.62                | 45.31 | 74.00            | 54.00 | -19.38     | -8.69  |
| 7310.75        | V               | 50.64                | 44.25 | 74.00            | 54.00 | -23.36     | -9.75  |
| 9748.15        | V               | 42.36                | 40.46 | 74.00            | 54.00 | -31.64     | -13.54 |
| 12185.64       | V               | 44.76                | 39.69 | 74.00            | 54.00 | -29.24     | -14.31 |
| 14622.07       | V               | 40.56                | 38.26 | 74.00            | 54.00 | -33.44     | -15.74 |
| 17059.85       | V               | 39.67                | 37.29 | 74.00            | 54.00 | -34.33     | -16.71 |
| 4873.36        | H               | 52.15                | 43.33 | 74.00            | 54.00 | -21.85     | -10.67 |
| 7311.27        | H               | 50.93                | 42.71 | 74.00            | 54.00 | -23.07     | -11.29 |
| 9747.25        | H               | 49.85                | 39.54 | 74.00            | 54.00 | -24.15     | -14.46 |
| 12184.32       | H               | 51.02                | 40.71 | 74.00            | 54.00 | -22.98     | -13.29 |
| 14624.13       | H               | 46.75                | 38.52 | 74.00            | 54.00 | -27.25     | -15.48 |
| 17058.46       | H               | 40.24                | 36.29 | 74.00            | 54.00 | -33.76     | -17.71 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11n(20M)(Channel 11) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4923.16        | V               | 55.06                | 43.57 | 74.00            | 54.00 | -18.94     | -10.43 |
| 7386.29        | V               | 50.86                | 42.36 | 74.00            | 54.00 | -23.14     | -11.64 |
| 9848.32        | V               | 49.23                | 40.48 | 74.00            | 54.00 | -24.77     | -13.52 |
| 12310.43       | V               | 44.12                | 39.52 | 74.00            | 54.00 | -29.88     | -14.48 |
| 14772.40       | V               | 42.29                | 36.46 | 74.00            | 54.00 | -31.71     | -17.54 |
| 17234.39       | V               | 40.27                | 38.69 | 74.00            | 54.00 | -33.73     | -15.31 |
| 4923.34        | H               | 54.31                | 44.49 | 74.00            | 54.00 | -19.69     | -9.51  |
| 7386.51        | H               | 50.74                | 39.45 | 74.00            | 54.00 | -23.26     | -14.55 |
| 9848.27        | H               | 49.62                | 40.27 | 74.00            | 54.00 | -24.38     | -13.73 |
| 12310.39       | H               | 47.84                | 41.56 | 74.00            | 54.00 | -26.16     | -12.44 |
| 14772.42       | H               | 40.49                | 39.51 | 74.00            | 54.00 | -33.51     | -14.49 |
| 17234.61       | H               | 39.55                | 37.12 | 74.00            | 54.00 | -34.45     | -16.88 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11n(40M) (Channel 3) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4844.15        | V               | 54.36                | 45.52 | 74.00            | 54.00 | -19.64     | -8.48  |
| 7266.32        | V               | 52.47                | 44.65 | 74.00            | 54.00 | -21.53     | -9.35  |
| 9688.42        | V               | 49.56                | 42.36 | 74.00            | 54.00 | -24.44     | -11.64 |
| 12110.37       | V               | 46.38                | 39.75 | 74.00            | 54.00 | -27.62     | -14.25 |
| 14532.36       | V               | 40.54                | 38.14 | 74.00            | 54.00 | -33.46     | -15.86 |
| 16954.27       | V               | 38.46                | 36.42 | 74.00            | 54.00 | -35.54     | -17.58 |
| 4844.23        | H               | 53.24                | 44.70 | 74.00            | 54.00 | -20.76     | -9.30  |
| 7266.31        | H               | 50.54                | 42.55 | 74.00            | 54.00 | -23.46     | -11.45 |
| 9688.24        | H               | 48.25                | 40.13 | 74.00            | 54.00 | -25.75     | -13.87 |
| 12110.52       | H               | 42.09                | 38.42 | 74.00            | 54.00 | -31.91     | -15.58 |
| 14532.61       | H               | 40.46                | 39.51 | 74.00            | 54.00 | -33.54     | -14.49 |
| 16954.54       | H               | 39.75                | 36.11 | 74.00            | 54.00 | -34.25     | -17.89 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11n(40M) (Channel 6) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4874.24        | V               | 54.29                | 45.59 | 74.00            | 54.00 | -19.71     | -8.41  |
| 7310.18        | V               | 52.18                | 42.07 | 74.00            | 54.00 | -22.82     | -11.93 |
| 9748.21        | V               | 48.63                | 40.14 | 74.00            | 54.00 | 25.37      | -13.86 |
| 12185.54       | V               | 44.75                | 39.52 | 74.00            | 54.00 | -29.25     | -14.48 |
| 14622.46       | V               | 42.19                | 37.13 | 74.00            | 54.00 | -31.81     | -16.87 |
| 17059.57       | V               | 39.46                | 38.45 | 74.00            | 54.00 | -34.54     | -15.55 |
| 4874.29        | H               | 52.76                | 44.31 | 74.00            | 54.00 | -21.24     | -9.69  |
| 7310.26        | H               | 53.18                | 43.84 | 74.00            | 54.00 | -20.82     | -10.16 |
| 9748.36        | H               | 48.51                | 40.25 | 74.00            | 54.00 | -25.49     | -13.75 |
| 12185.43       | H               | 43.53                | 41.47 | 74.00            | 54.00 | -30.47     | -12.53 |
| 14622.53       | H               | 40.84                | 39.71 | 74.00            | 54.00 | -33.16     | -14.29 |
| 17059.42       | H               | 39.86                | 36.94 | 74.00            | 54.00 | -34.14     | -17.06 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

Operation Mode: 802.11n(40M)(Channel 9) Test Date : 06/29/2010  
Frequency Range: Above 1GHz Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: Jeess

| Freq.<br>(MHz) | Ant.Pol.<br>H/V | Emission Level(dBuV) |       | Limit 3m(dBuV/m) |       | Margin(dB) |        |
|----------------|-----------------|----------------------|-------|------------------|-------|------------|--------|
|                |                 | PK                   | AV    | PK               | AV    | PK         | AV     |
| 4904.23        | V               | 54.46                | 45.46 | 74.00            | 54.00 | -19.54     | -8.54  |
| 7356.13        | V               | 52.41                | 43.79 | 74.00            | 54.00 | -21.59     | -10.21 |
| 9808.58        | V               | 49.05                | 40.41 | 74.00            | 54.00 | -24.95     | -13.59 |
| 12260.21       | V               | 47.59                | 37.83 | 74.00            | 54.00 | -26.41     | -16.17 |
| 14712.16       | V               | 46.32                | 38.59 | 74.00            | 54.00 | -27.68     | -15.41 |
| 17164.25       | V               | 40.41                | 36.05 | 74.00            | 54.00 | -33.59     | -17.95 |
| 4904.26        | H               | 53.59                | 44.23 | 74.00            | 54.00 | -20.41     | -9.77  |
| 7356.32        | H               | 50.57                | 42.41 | 74.00            | 54.00 | -23.53     | -11.59 |
| 9808.58        | H               | 49.19                | 39.37 | 74.00            | 54.00 | -24.81     | -14.63 |
| 12260.32       | H               | 47.13                | 40.08 | 74.00            | 54.00 | -26.87     | -13.92 |
| 14712.16       | H               | 43.34                | 38.57 | 74.00            | 54.00 | -30.66     | -15.43 |
| 17164.41       | H               | 39.94                | 39.11 | 74.00            | 54.00 | -34.06     | -14.89 |

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

**Note:** (1) All Readings are Peak Value and AV.  
(2) Emission Level= Reading Level+Probe Factor +Cable Loss  
(3) The average measurement was not performed when the peak measured data under the limit of average detection.



## 5.6 Radiated Measurement Photos:

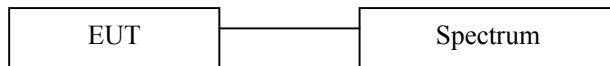


## 6. Occupied Bandwidth test

### 6.1 Measurement Procedure

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

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



### 6.3 Measurement Equipment Used:

Same as 5.3 Radiated Emission Measurement.

### 6.4 Limit

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

## 6.5 Measurement Results:

Refer to attached data chart.

|                    |      |               |            |
|--------------------|------|---------------|------------|
| Spectrum Detector: | PK   | Test Date :   | 06/29/2010 |
| Test By:           | Andy | Temperature : | 28 °C      |
| Test Result:       | PASS | Humidity :    | 65 %       |

802.11b:

| Channel number | Channel frequency (MHz) | Measurement level (MHz) | Required Limit (KHz) |
|----------------|-------------------------|-------------------------|----------------------|
| 1              | 2412                    | 10.12                   | >500                 |
| 6              | 2437                    | 10.11                   | >500                 |
| 11             | 2462                    | 10.16                   | >500                 |

802.11g:

| Channel number | Channel frequency (MHz) | Measurement level (MHz) | Required Limit (KHz) |
|----------------|-------------------------|-------------------------|----------------------|
| 1              | 2412                    | 16.48                   | >500                 |
| 6              | 2437                    | 16.54                   | >500                 |
| 11             | 2462                    | 16.48                   | >500                 |

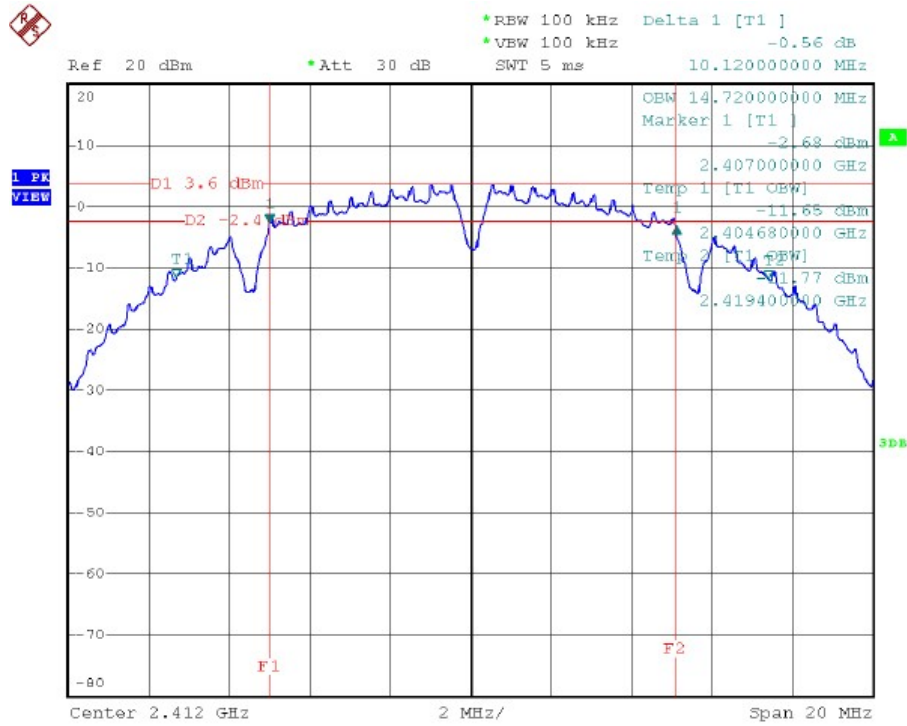
802.11n(20M):

| Channel number | Channel frequency (MHz) | Measurement level (MHz) | Required Limit (KHz) |
|----------------|-------------------------|-------------------------|----------------------|
| 1              | 2412                    | 17.68                   | >500                 |
| 6              | 2437                    | 17.68                   | >500                 |
| 11             | 2462                    | 17.62                   | >500                 |

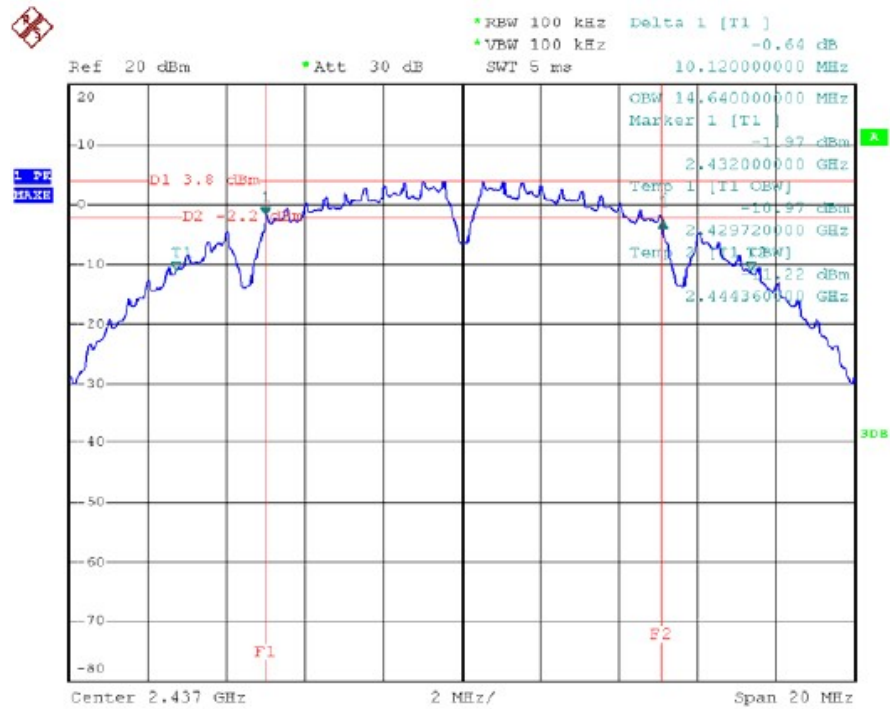
802.11n(40M):

| Channel number | Channel frequency (MHz) | Measurement level (MHz) | Required Limit (KHz) |
|----------------|-------------------------|-------------------------|----------------------|
| 3              | 2422                    | 36.6                    | >500                 |
| 6              | 2437                    | 36.6                    | >500                 |
| 9              | 2452                    | 36.6                    | >500                 |

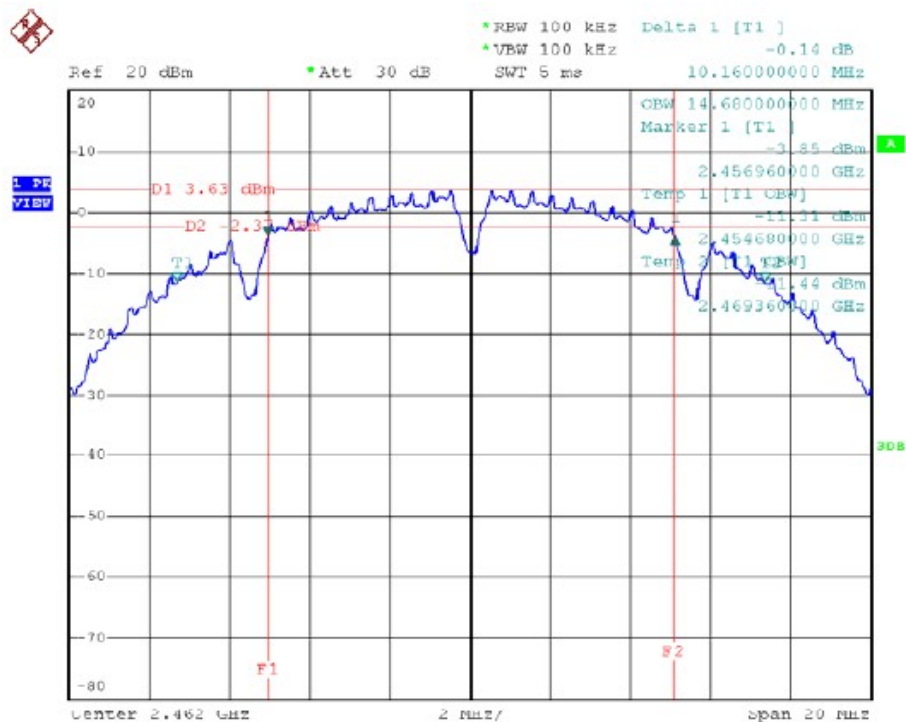
## 802.11b Channel 1



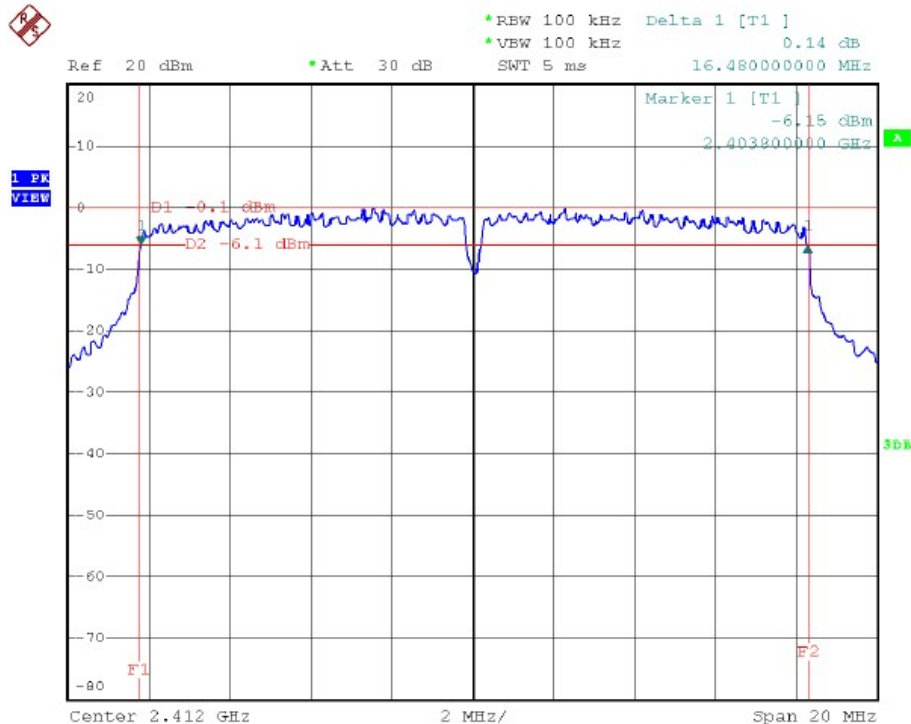
## Channel 6



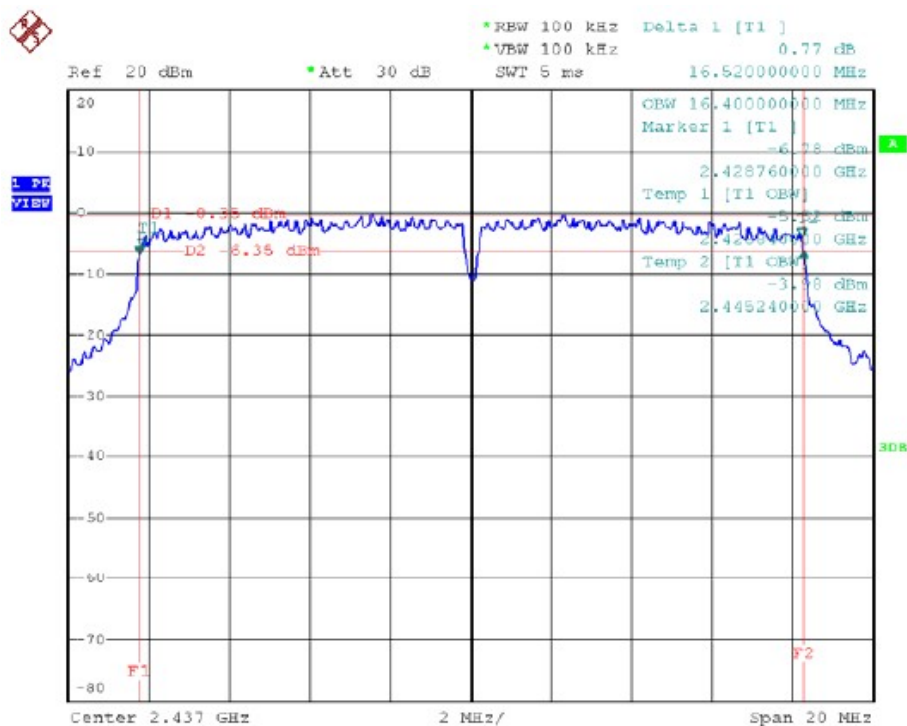
# Channel 11



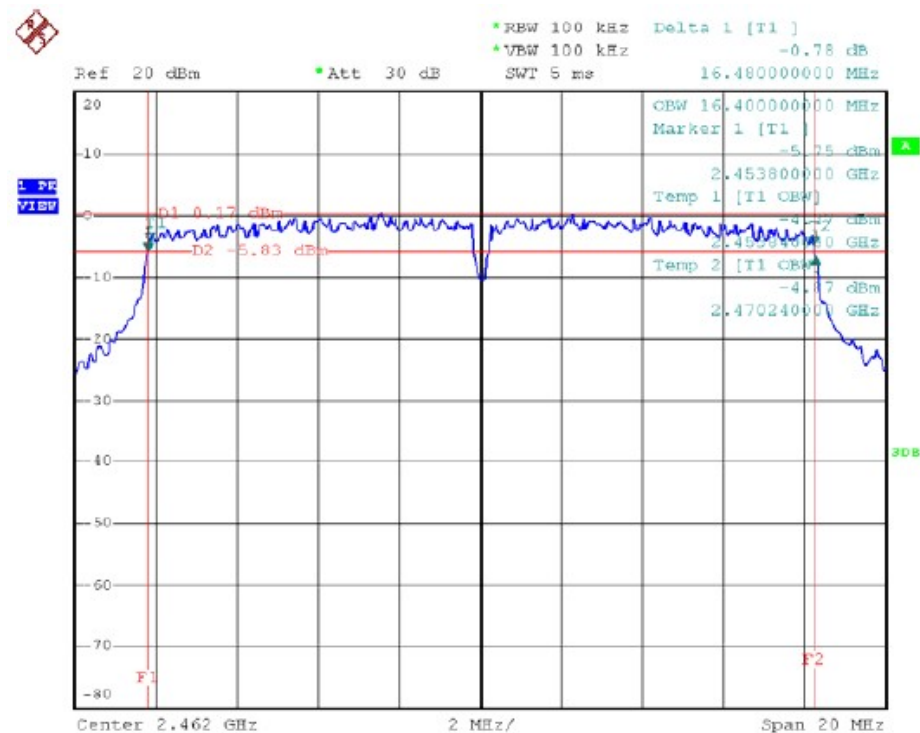
# 802.11g Channel 1



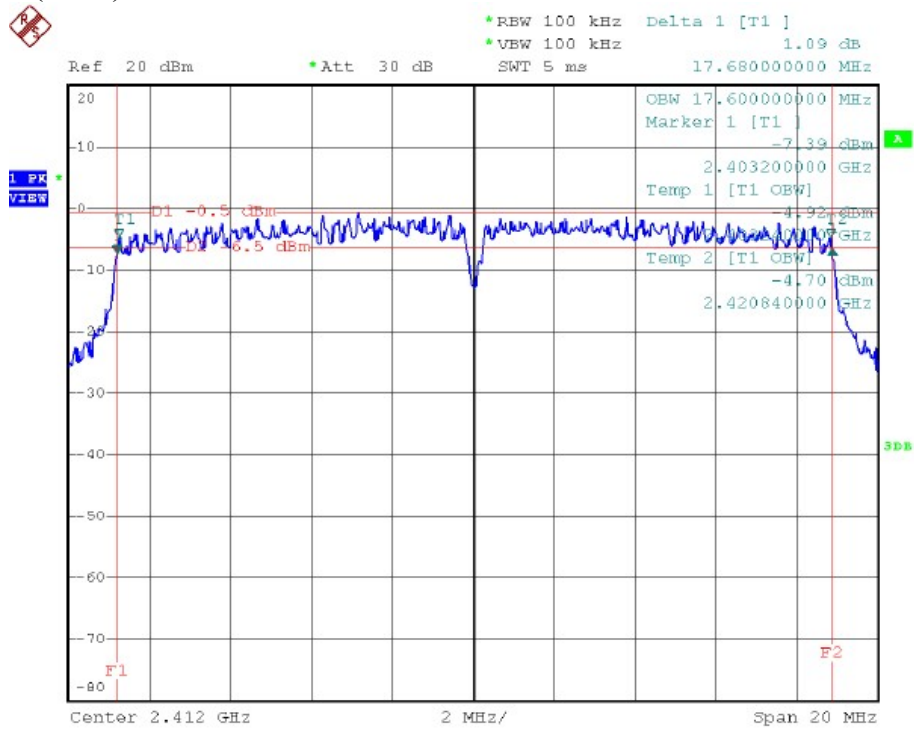
# Channel 6



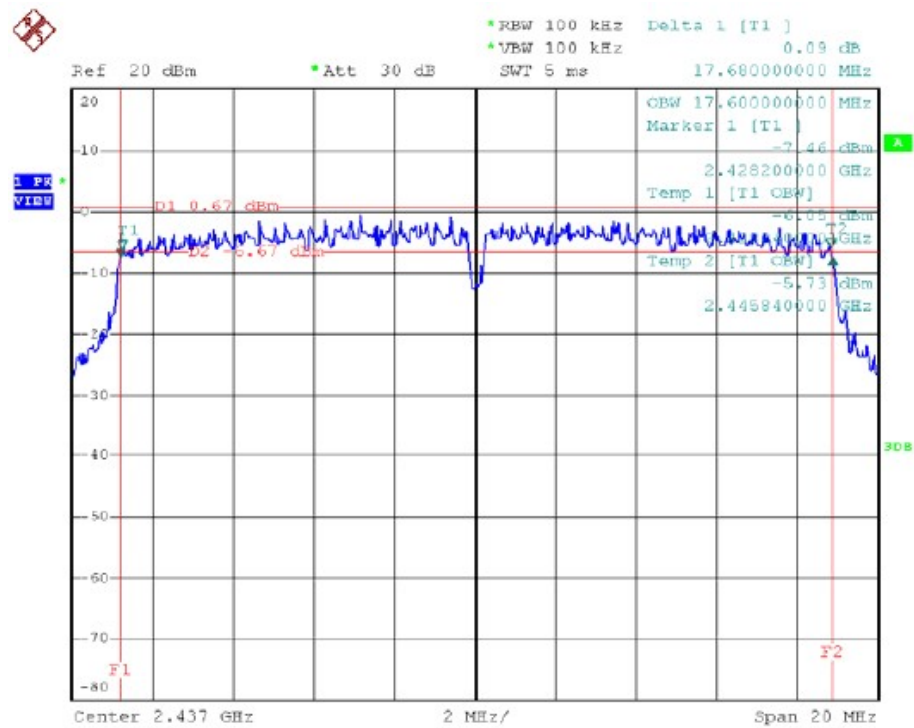
# Channel 11



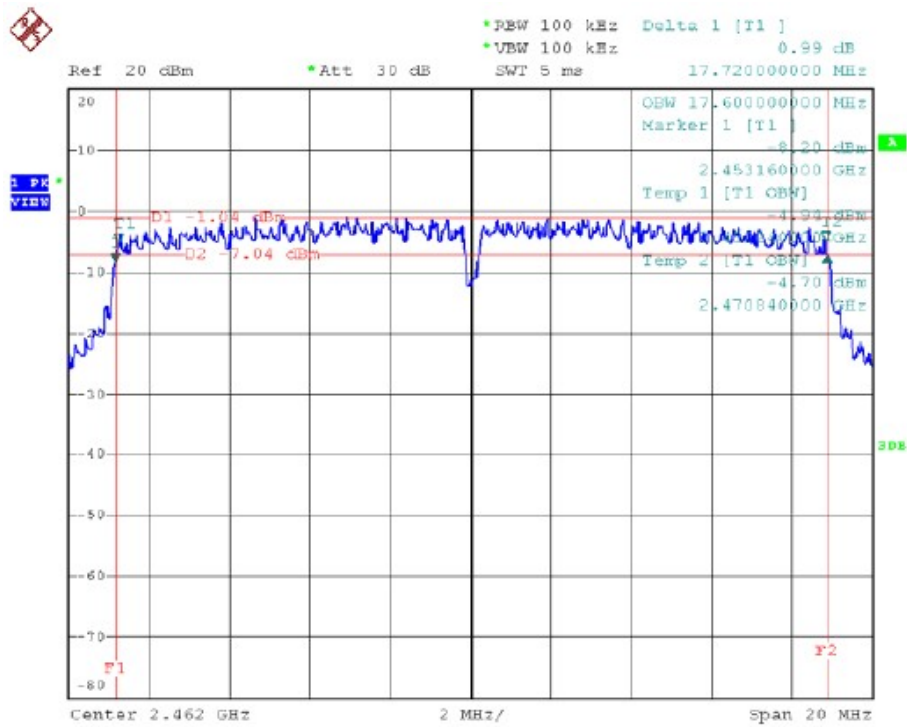
### 802.11n(20M)Channel 1



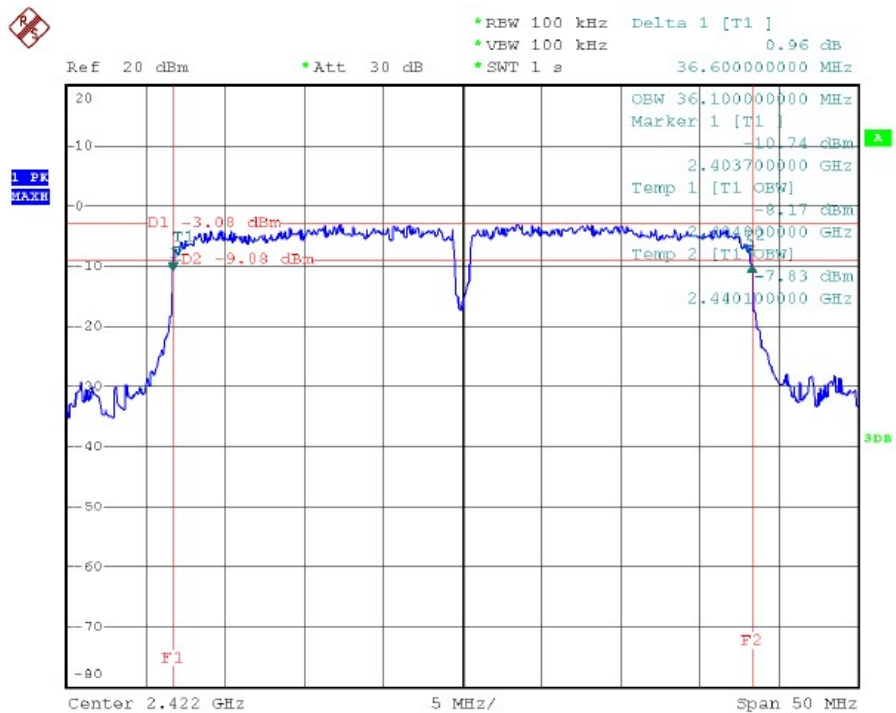
### Channel 6



Channel 9

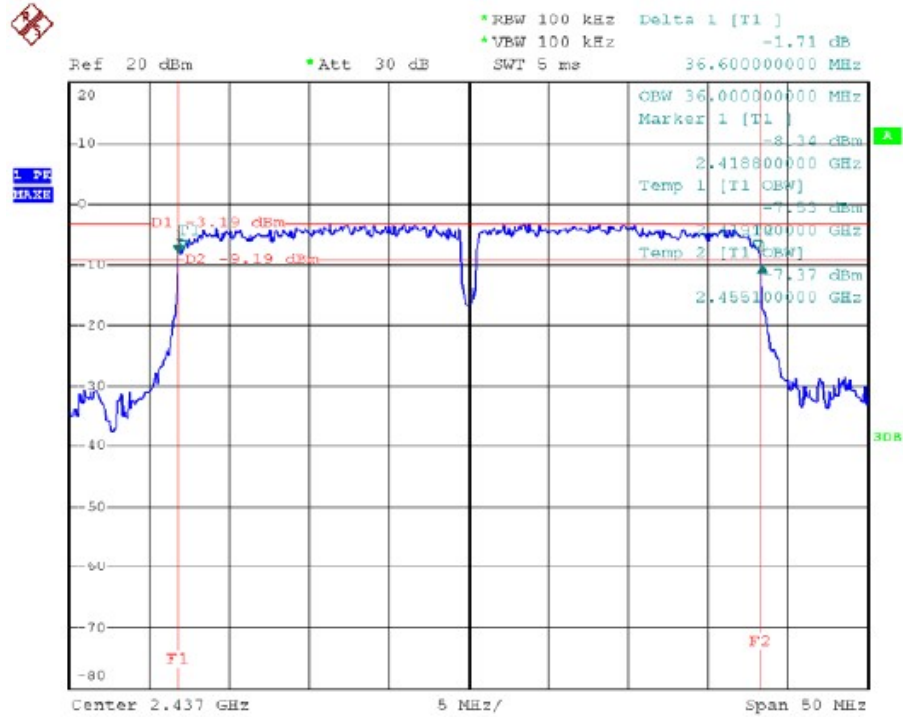


802.11n(40M)Channel 3

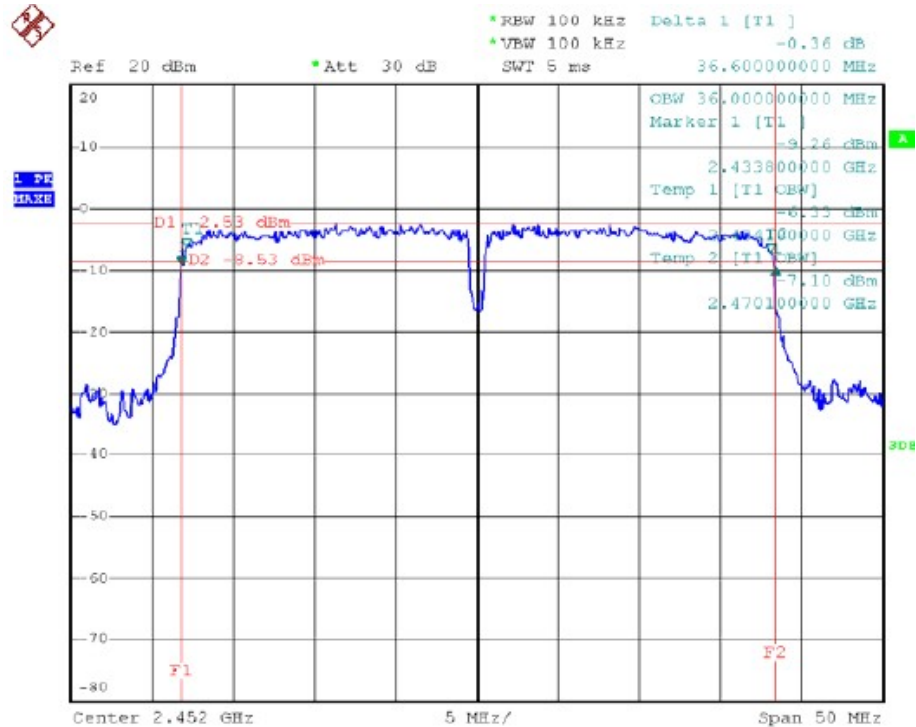




Channel 6



Channel 9

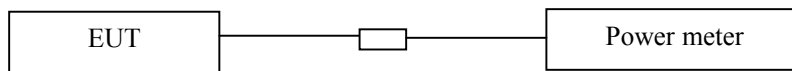


## 7. MAXIMUM PEAK OUTPUT POWER TEST

### 7.1 Measurement Procedure

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

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



### 7.3 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR     | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|----------------|---------|--------------|---------------|------------|------------|
| Power meter    | Boonton | 4232A        | 29001         | 05/29/2010 | 05/29/2011 |
| Power sensor   | Boonton | 51011-EMC    | 31184         | 05/29/2010 | 05/29/2011 |

### 7.4 Peak Power output limit

The maximum peak power shall be less 1Watt.

### 7.5 Measurement Results:

Refer to attached data chart.

Spectrum Detector: PK Test Date : 06/29/2010  
Test By: Andy Temperature : 28 °C  
Test Result: PASS Humidity : 65 %  
802.11b

| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power Limit(W) | Pass/Fail |
|----------------|-------------------------|------------------------|---------------------|-----------|
| 1              | 2412.00                 | 11.92                  | 1W(30dBm)           | PASS      |
| 6              | 2437.00                 | 12.36                  | 1W(30dBm)           | PASS      |
| 11             | 2462.00                 | 12.23                  | 1W(30dBm)           | PASS      |

802.11g

| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power Limit(W) | Pass/Fail |
|----------------|-------------------------|------------------------|---------------------|-----------|
| 1              | 2412.00                 | 12.15                  | 1W(30dBm)           | PASS      |
| 6              | 2437.00                 | 12.38                  | 1W(30dBm)           | PASS      |
| 11             | 2462.00                 | 12.29                  | 1W(30dBm)           | PASS      |

802.11n(20M)

| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power Limit(W) | Pass/Fail |
|----------------|-------------------------|------------------------|---------------------|-----------|
| 1              | 2412.00                 | 12.24                  | 1W(30dBm)           | PASS      |
| 6              | 2437.00                 | 12.62                  | 1W(30dBm)           | PASS      |
| 11             | 2462.00                 | 12.21                  | 1W(30dBm)           | PASS      |

802.11N(40M)

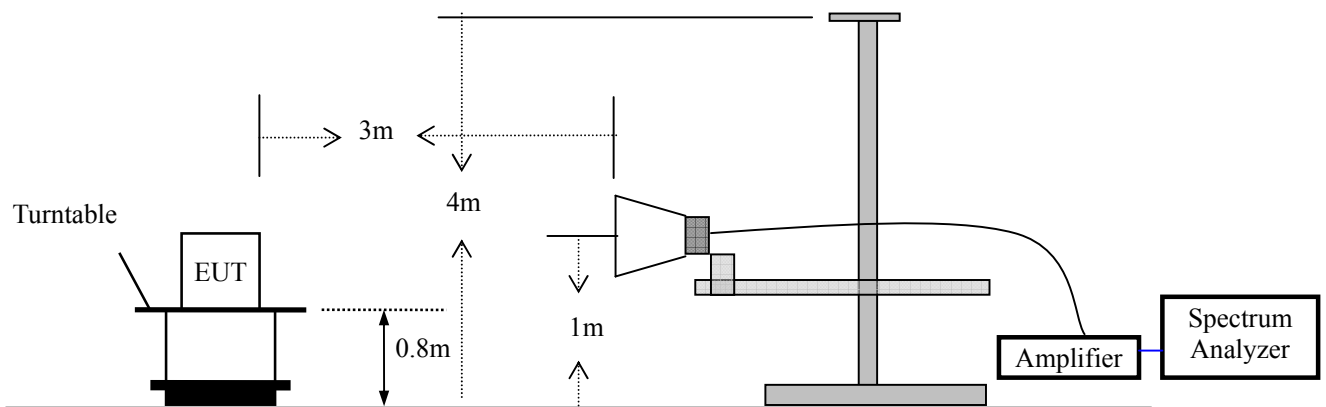
| Channel number | Channel Frequency (MHz) | Peak Power output(dBm) | Peak Power Limit(W) | Pass/Fail |
|----------------|-------------------------|------------------------|---------------------|-----------|
| 3              | 2422.00                 | 12.31                  | 1W(30dBm)           | PASS      |
| 6              | 2437.00                 | 12.68                  | 1W(30dBm)           | PASS      |
| 9              | 2452.00                 | 12.30                  | 1W(30dBm)           | PASS      |

## 8. Band EDGE test

### 8.1 Measurement Procedure

1. The EUT was Operating in hopping mode or could be controlled its channel. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

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



### 8.3 Measurement Equipment Used:

Same as 4.3 Radiated Emission Measurement.

#### 8.4 Measurement Results:

Refer to attached data chart.

Spectrum Detector: PK                      Test Date : June 30, 2010  
Test By: Andy                                  Temperature : 28 °C  
Test Result: PASS                              Humidity : 65 %

#### 802.11b:

##### 1. Conducted Test

| Frequency (MHz) | Peak Power Output(dBm) | Emission read Value(dBm) | Result of Band edge(dBc) | Band edge Limit(dBc) |
|-----------------|------------------------|--------------------------|--------------------------|----------------------|
| <2400           | 3.61                   | -48.88                   | 52.49                    | >20dBc               |
| >2483.5         | 3.78                   | -49.16                   | 52.94                    | >20dBc               |

##### 2. Radiated emission test

| Frequency (MHz) | Antenna polarization (H/V) | Emission (dBuV/m) |       | Band edge Limit (dBuV/m) |       |
|-----------------|----------------------------|-------------------|-------|--------------------------|-------|
|                 |                            | PK                | AV    | PK                       | AV    |
| <2400           | V                          | 47.89             | 39.65 | 74.00                    | 54.00 |
| >2483.5         | V                          | 44.56             | 38.51 | 74.00                    | 54.00 |

#### 802.11g:

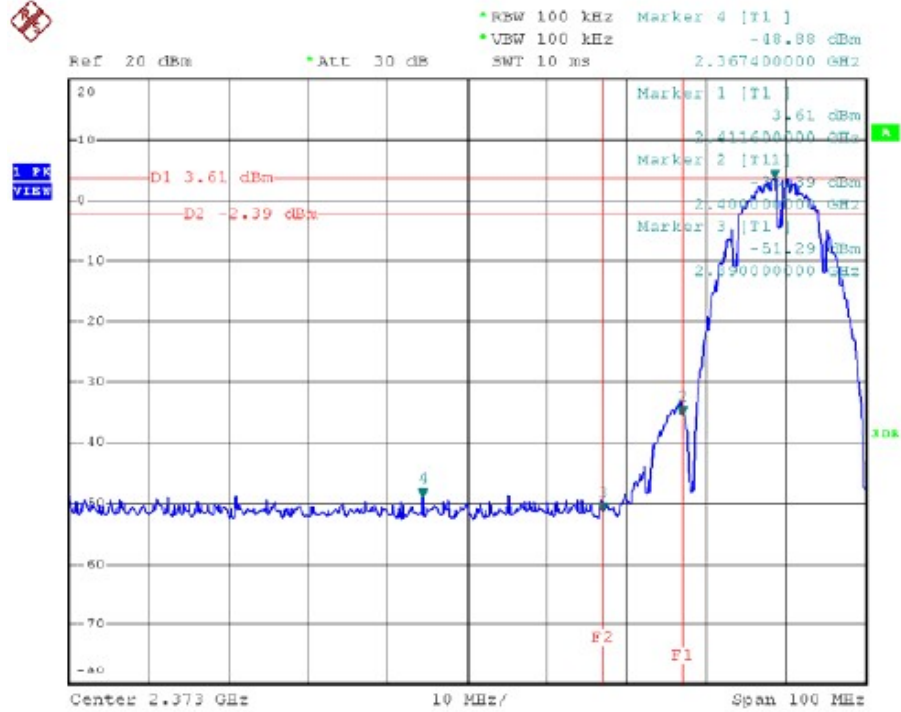
##### 1. Conducted Test

| Frequency (MHz) | Peak Power Output(dBm) | Emission read Value(dBm) | Result of Band edge(dBc) | Band edge Limit(dBc) |
|-----------------|------------------------|--------------------------|--------------------------|----------------------|
| <2400           | 0.34                   | -47.19                   | 47.53                    | >20dBc               |
| >2483.5         | 0.52                   | -44.43                   | 44.95                    | >20dBc               |

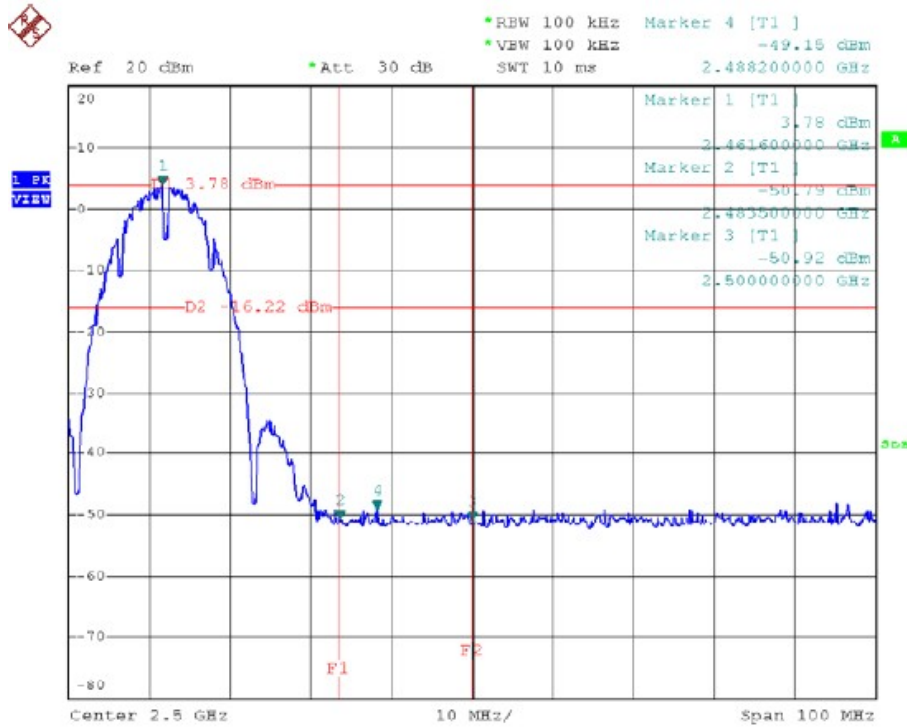
##### 2. Radiated emission test

| Frequency (MHz) | Antenna polarization (H/V) | Emission (dBuV/m) |       | Band edge Limit (dBuV/m) |       |
|-----------------|----------------------------|-------------------|-------|--------------------------|-------|
|                 |                            | PK                | AV    | PK                       | AV    |
| <2400           | V                          | 47.48             | 40.21 | 74.00                    | 54.00 |
| >2483.5         | V                          | 45.26             | 40.04 | 74.00                    | 54.00 |

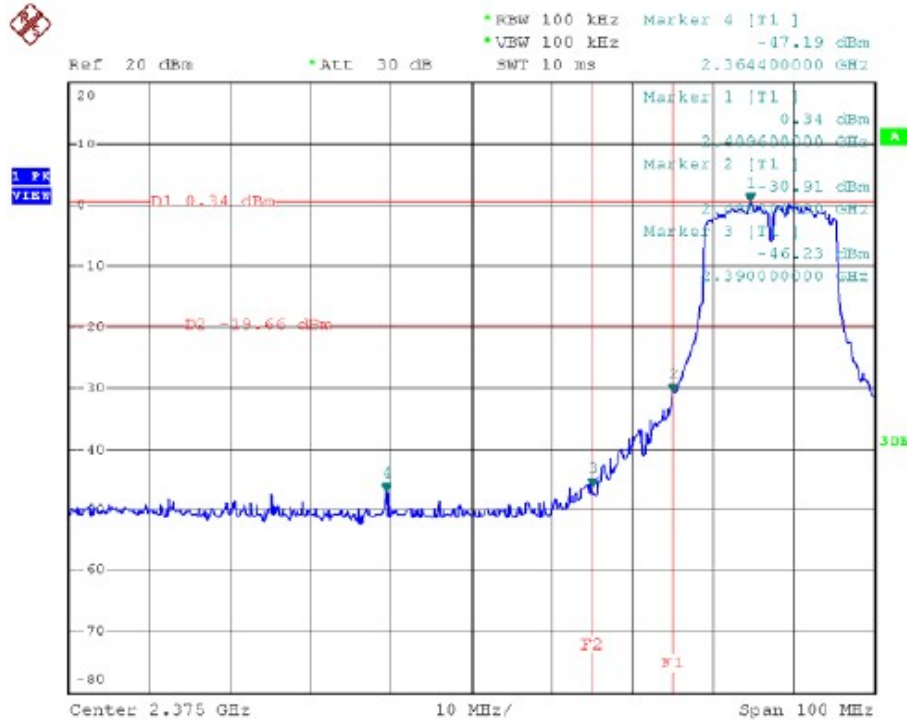
802.11b CH1



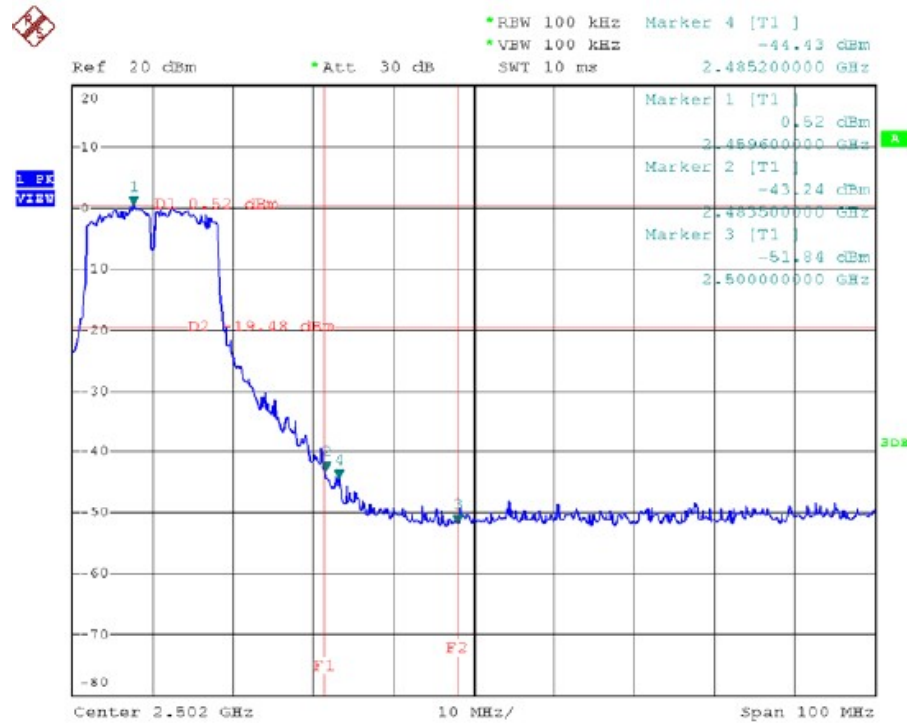
CH11



802.11g CH1



CH11



Spectrum Detector: PK Test Date : June 30, 2010  
Test By: Andy Temperature : 28 °C  
Test Result: PASS Humidity : 65 %

### 802.11n(20M):

#### 1. Conducted Test

| Frequency (MHz) | Peak Power Output(dBm) | Emission read Value(dBm) | Result of Band edge(dBc) | Band edge Limit(dBc) |
|-----------------|------------------------|--------------------------|--------------------------|----------------------|
| <2400           | -1.98                  | -50.16                   | 48.18                    | >20dBc               |
| >2483.5         | -1.67                  | -47.44                   | 45.77                    | >20dBc               |

#### 2. Radiated emission test

| Frequency (MHz) | Antenna polarization (H/V) | Emission (dBuV/m) |       | Band edge Limit (dBuV/m) |       |
|-----------------|----------------------------|-------------------|-------|--------------------------|-------|
|                 |                            | PK                | AV    | PK                       | AV    |
| <2400           | V                          | 48.52             | 39.58 | 74.00                    | 54.00 |
| >2483.5         | V                          | 45.17             | 39.24 | 74.00                    | 54.00 |

### 802.11n(40M):

#### 1. Conducted Test

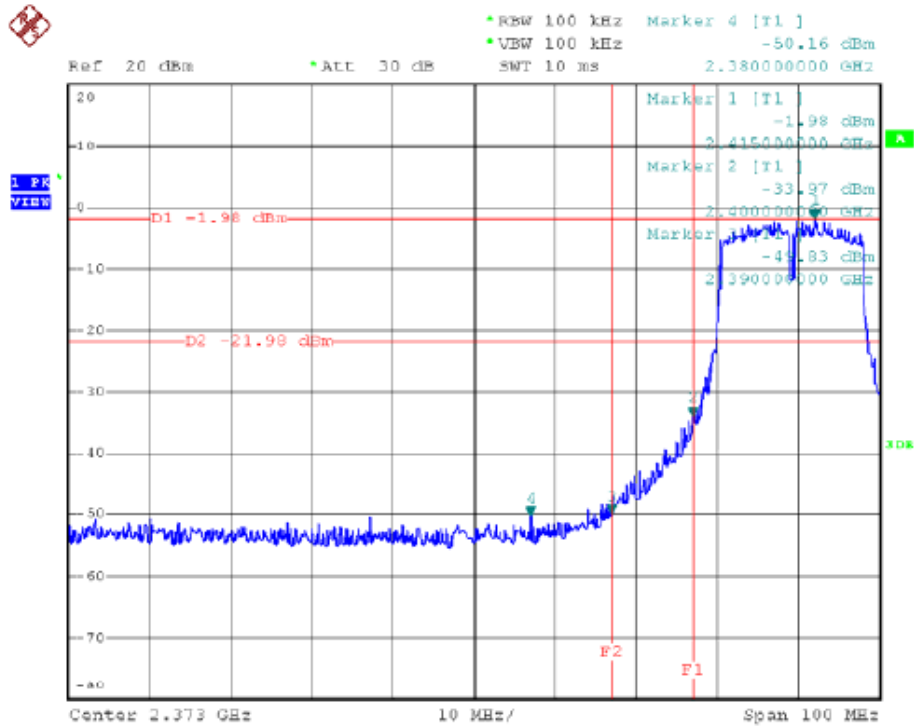
| Frequency (MHz) | Peak Power Output(dBm) | Emission read Value(dBm) | Result of Band edge(dBc) | Band edge Limit(dBc) |
|-----------------|------------------------|--------------------------|--------------------------|----------------------|
| <2400           | -2.96                  | -37.08                   | 34.12                    | >20dBc               |
| >2483.5         | -2.73                  | -33.05                   | 30.02                    | >20dBc               |

#### 2. Radiated emission test

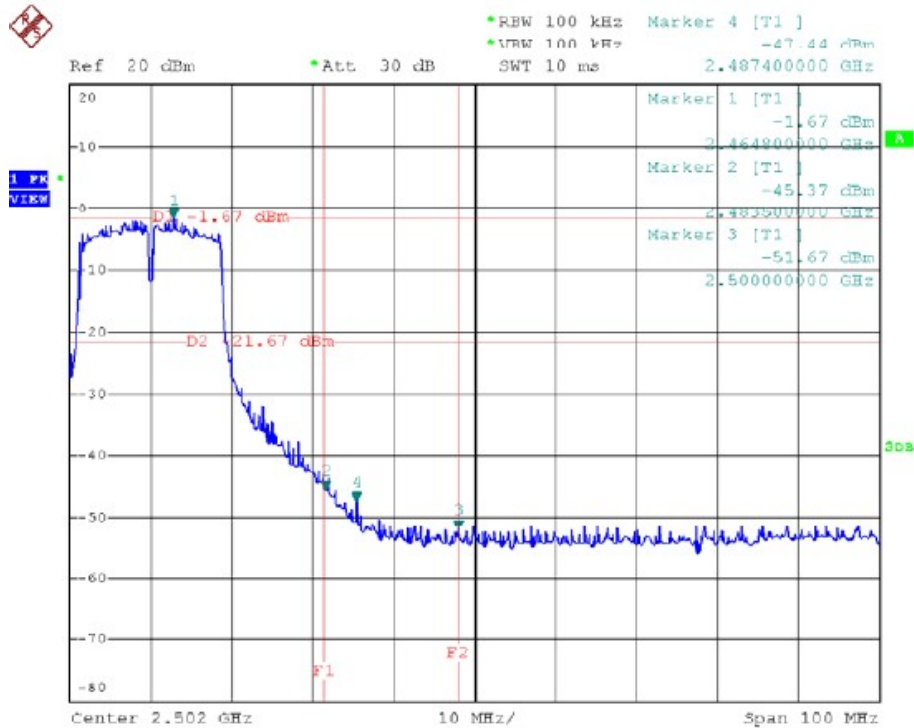
| Frequency (MHz) | Antenna polarization (H/V) | Emission (dBuV/m) |       | Band edge Limit (dBuV/m) |       |
|-----------------|----------------------------|-------------------|-------|--------------------------|-------|
|                 |                            | PK                | AV    | PK                       | AV    |
| <2400           | V                          | 48.29             | 40.15 | 74.00                    | 54.00 |
| >2483.5         | V                          | 46.52             | 39.61 | 74.00                    | 54.00 |



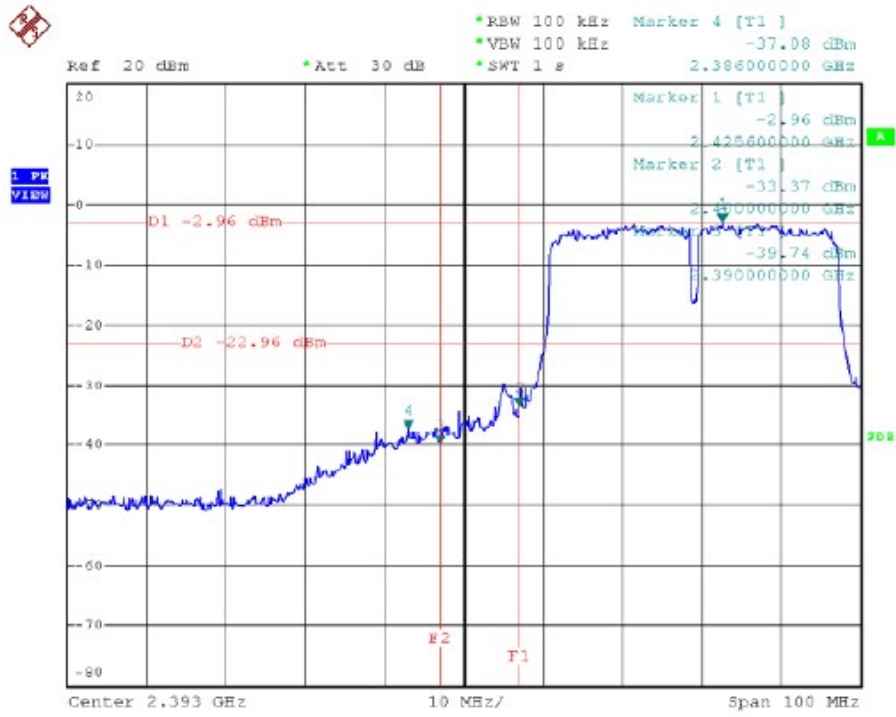
802.11n(20M) Channel 1



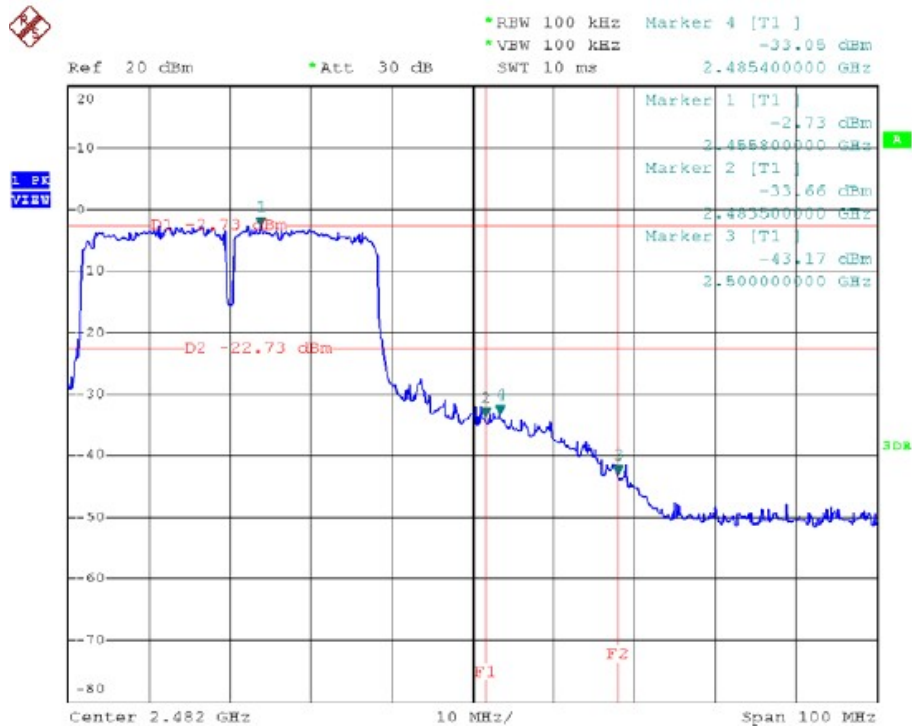
802.11n(20M) Channel 11



802.11n(40M) Channel 3



802.11n(40M) Channel 9



## 9. Power density

### 9.1 Test Equipment

| EQUIPMENT TYPE    | MFR             | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|-----------------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSP7         | 839511/010    | 05/29/2010 | 05/29/2011 |

### 9.2 Measuring Instruments and setting

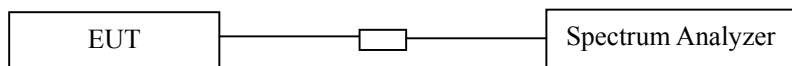
The following table is the setting of spectrum analyzer.

|                   |          |
|-------------------|----------|
| Spectrum analyzer | Setting  |
| Attenuation       | Auto     |
| Span Frequency    | 1.5MHz   |
| RB                | 3kHz     |
| VB                | 30kHz    |
| Detector          | Peak     |
| Trace             | Max hold |
| Sweep Time        | 500s     |

### 9.3 Test Procedures

- The transmitter output (antenna port) was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 3kHz and VBW to 30kHz, Set Detector to Peak, Trace to Max Hold.
- Mark the frequency with maximum peak power as the center of the display of the spectrum.
- Set the span to 1.5MHz and the sweep time to 500s and record the maximum peak value.

### 9.4 Block Diagram of Test setup



### 9.5 Limit

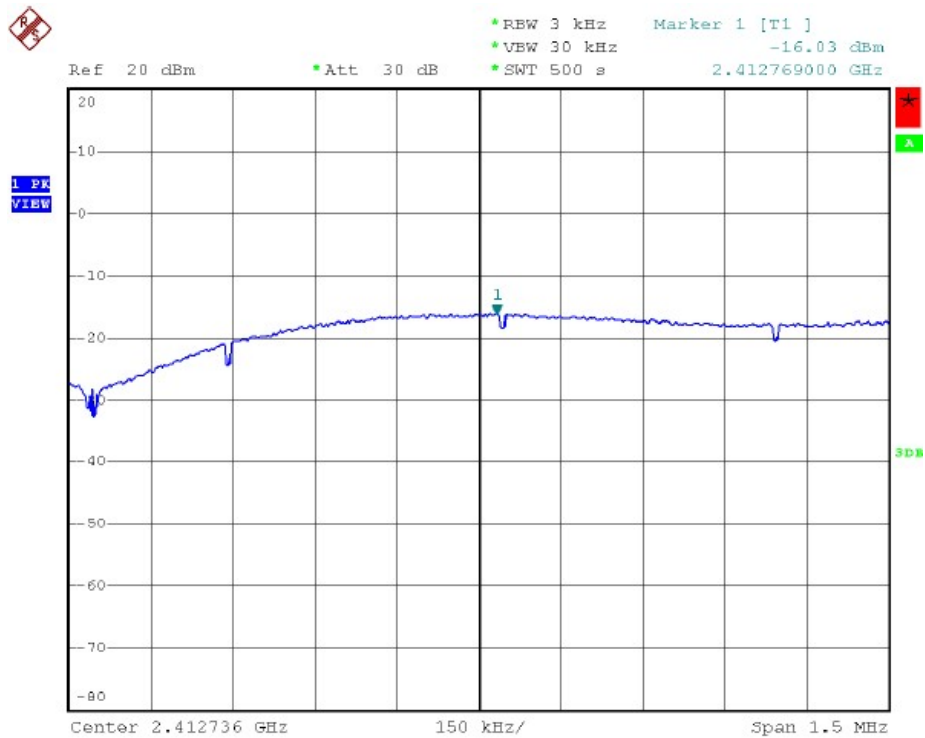
The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3KHz bandwidth.

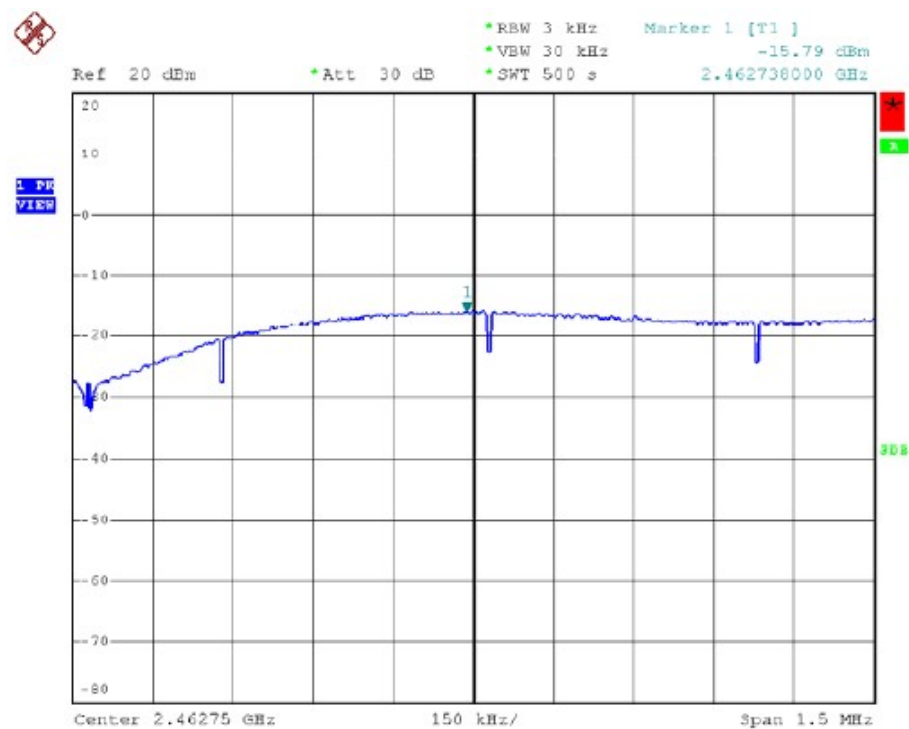
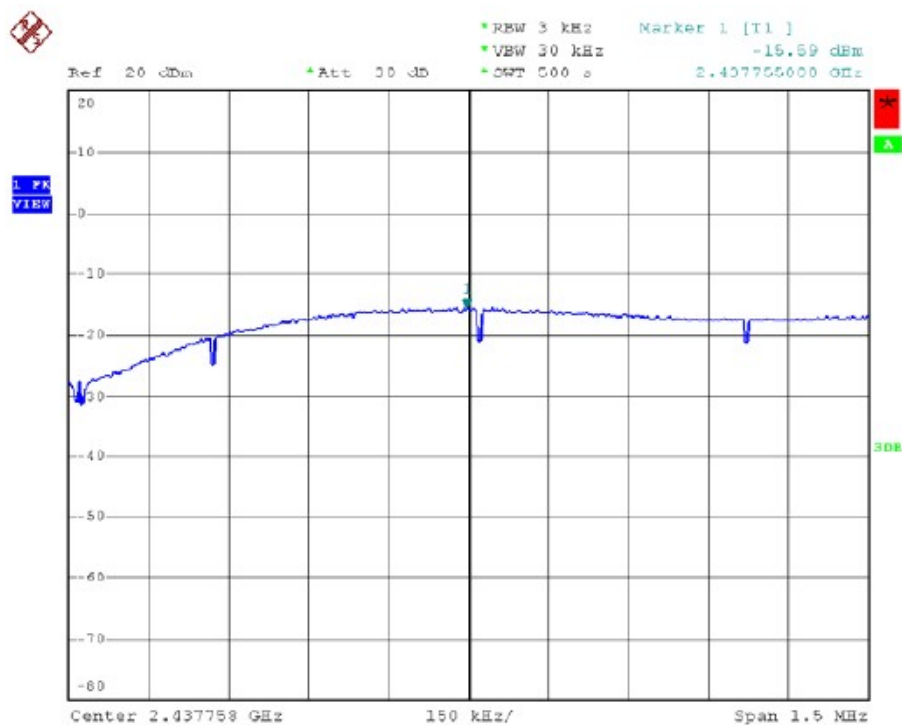
## 9.6. Test Result

Spectrum Detector: PK                      Test Date : 07/02/2010  
 Test By: Andy                      Temperature : 28 °C  
 Test Result: PASS                      Humidity : 65 %

802.11b

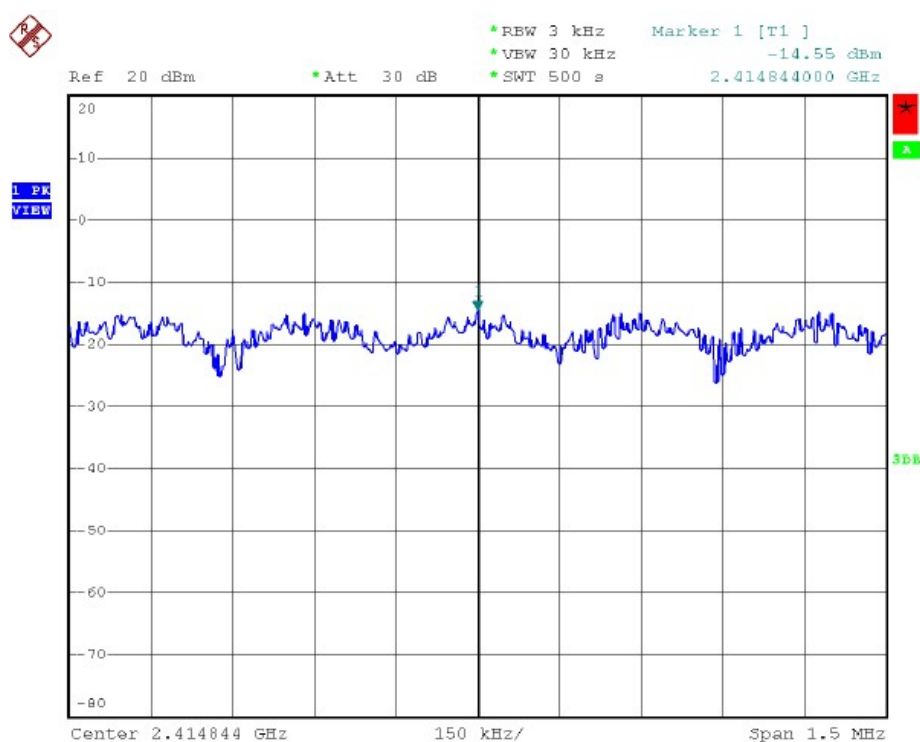
| Frequency (MHz) | Measurement Level (dBm) | Required limit (dBm) | Result |
|-----------------|-------------------------|----------------------|--------|
| 2412.00         | -16.03                  | <8dBm                | PASS   |
| 2437.00         | -15.59                  | <8dBm                | PASS   |
| 2462.00         | -15.79                  | <8dBm                | PASS   |

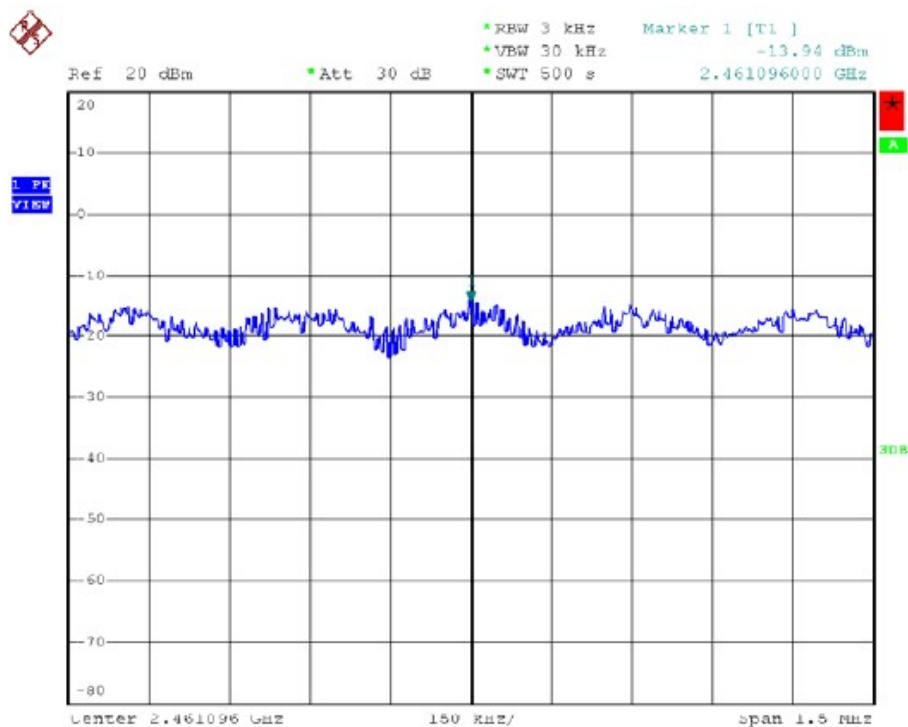
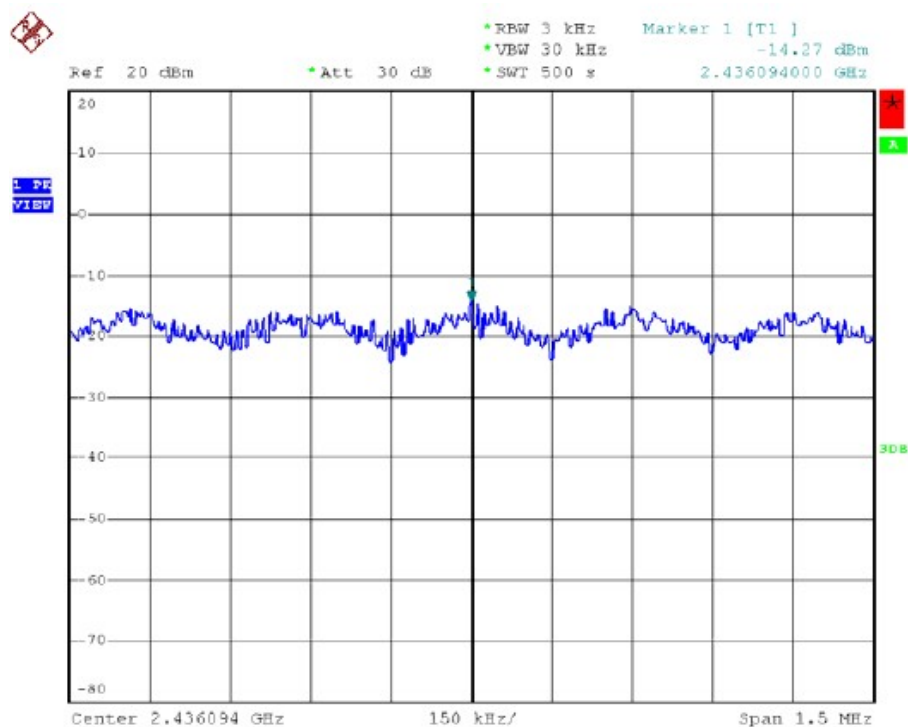




802.11g

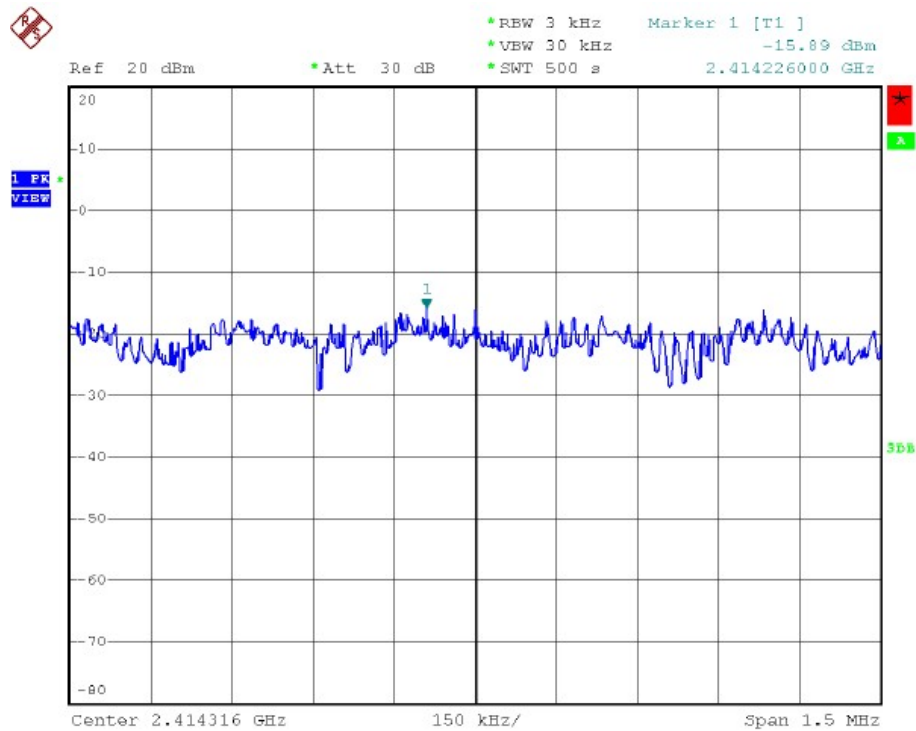
| Frequency (MHz) | Measurement Level (dBm) | Required limit (dBm) | Result |
|-----------------|-------------------------|----------------------|--------|
| 2412.00         | -14.55                  | <8dBm                | PASS   |
| 2437.00         | -14.27                  | <8dBm                | PASS   |
| 2462.00         | -13.34                  | <8dBm                | PASS   |



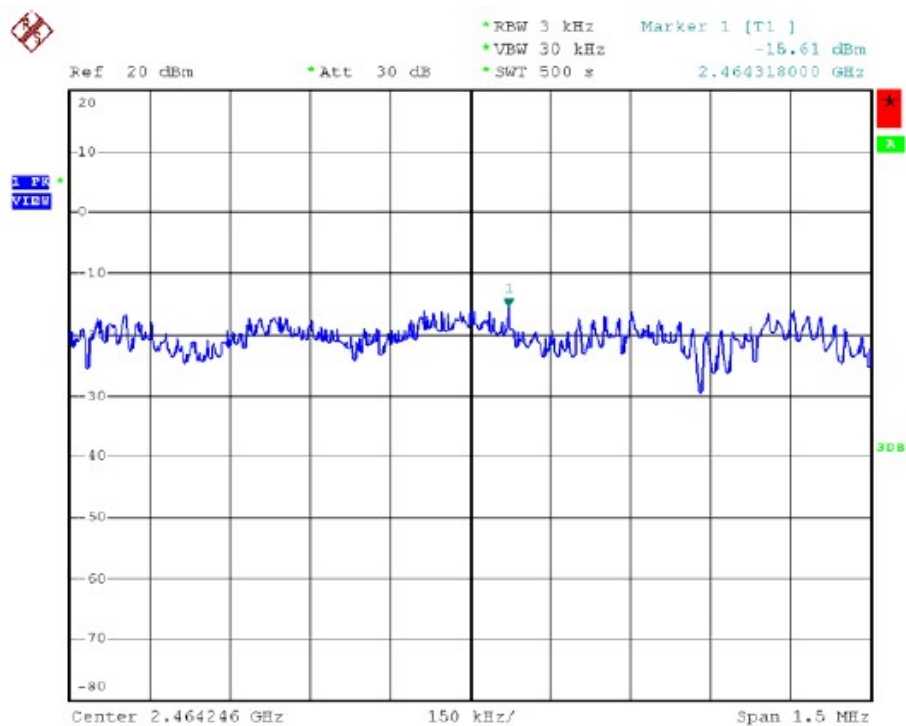
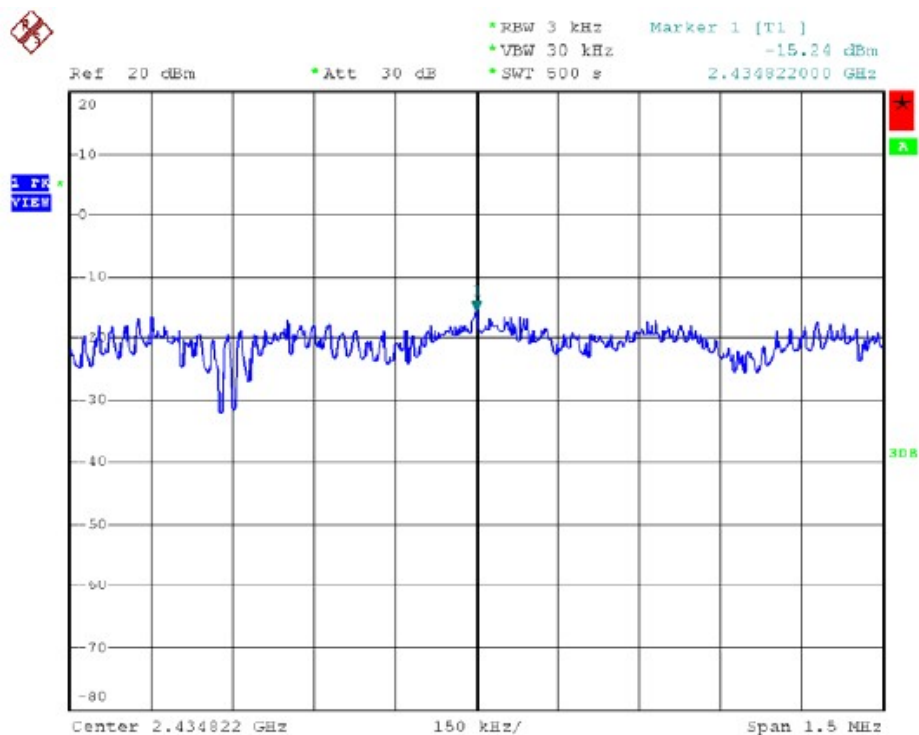


802.11n(20M)

| Frequency (MHz) | Measurement Level (dBm) | Required limit (dBm) | Result |
|-----------------|-------------------------|----------------------|--------|
| 2412.00         | -15.89                  | <8dBm                | PASS   |
| 2437.00         | -15.34                  | <8dBm                | PASS   |
| 2462.00         | -15.61                  | <8dBm                | PASS   |

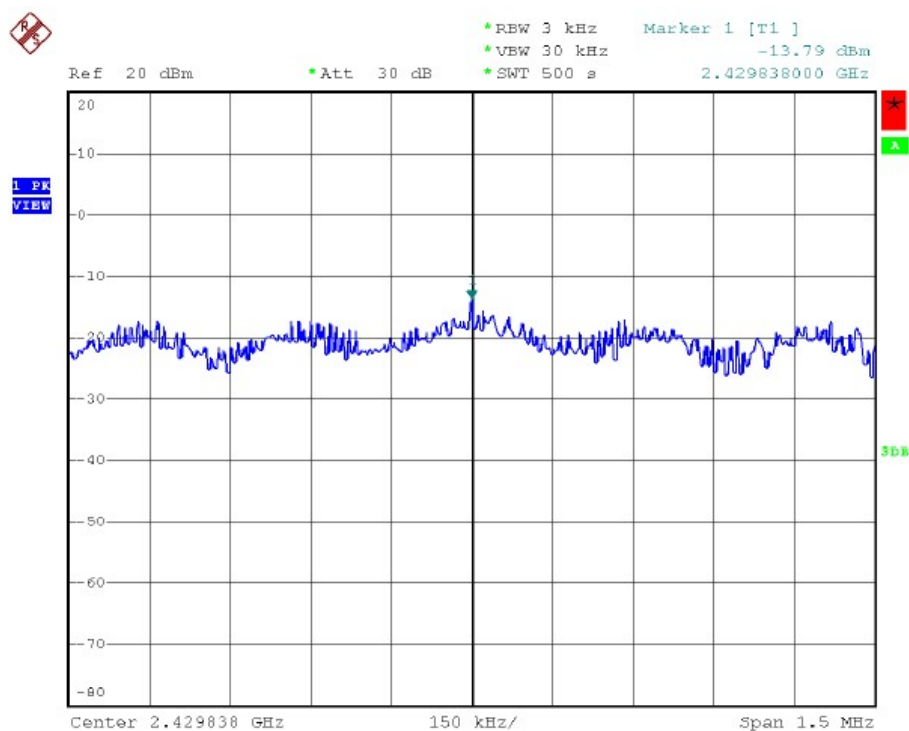


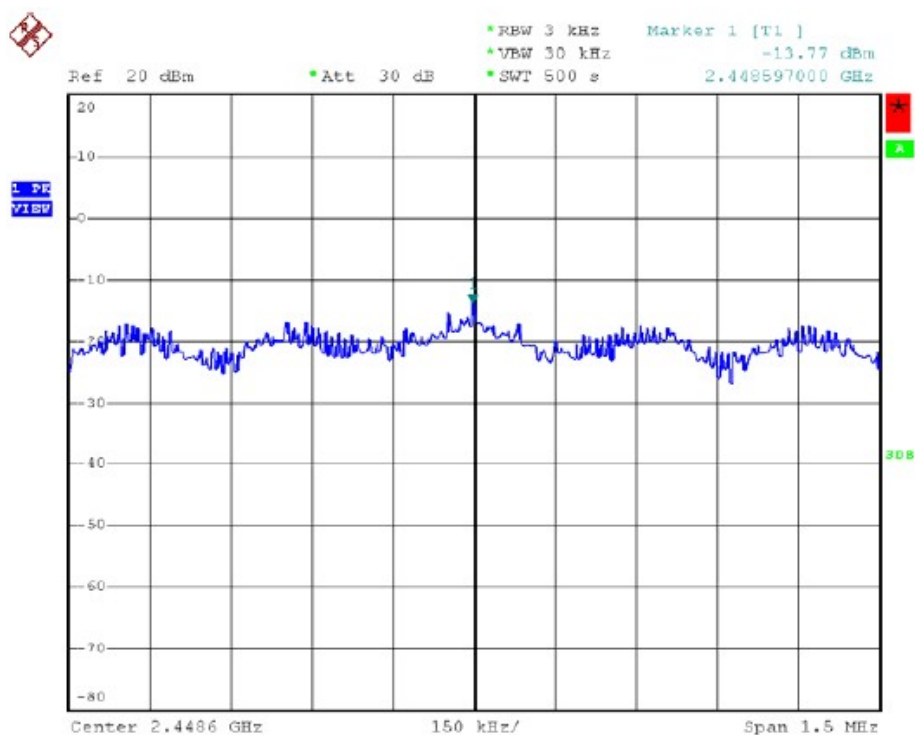
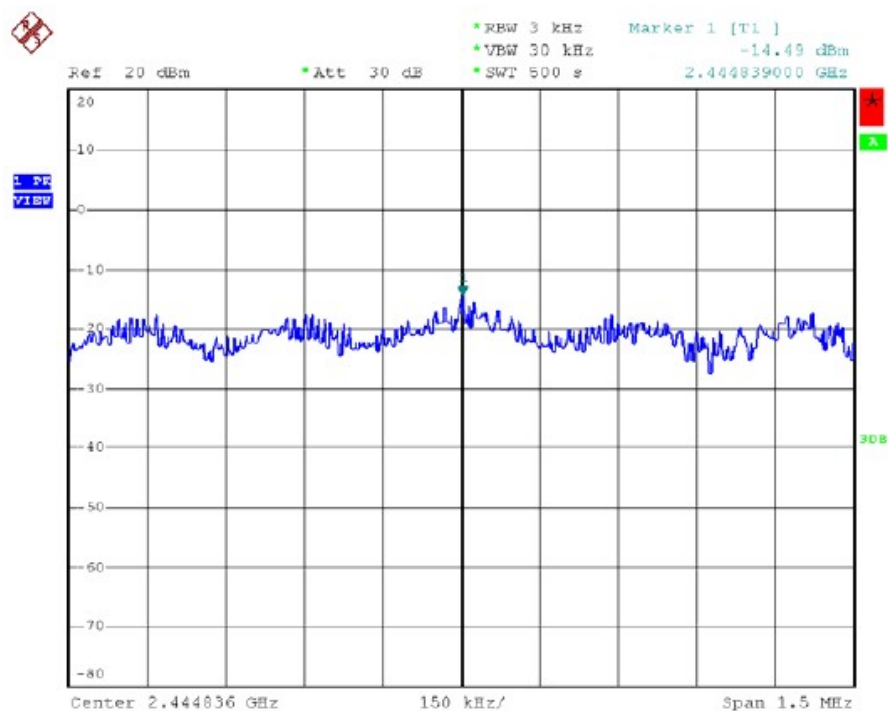




802.11n(40M)

| Frequency (MHz) | Measurement Level (dBm) | Required limit (dBm) | Result |
|-----------------|-------------------------|----------------------|--------|
| 2422.00         | -13.79                  | <8dBm                | PASS   |
| 2437.00         | -14.49                  | <8dBm                | PASS   |
| 2462.00         | -13.77                  | <8dBm                | PASS   |





## **10 Antenna Application**

### **10.1 Antenna requirement**

The EUT'S antenna is met the requirement of FCC part 15C section 15.203.

### **10.2 Result**

The antenna is detached which the model name is NBPC1330 and no consideration of replacement. The best case gain of the antenna is 0 dBi

## 11. Antenna Port Emission

### 11.1 Test Equipment

| EQUIPMENT TYPE    | MFR             | MODEL NUMBER | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
|-------------------|-----------------|--------------|---------------|------------|------------|
| Spectrum Analyzer | Rohde & Schwarz | FSP7         | 839511/010    | 05/29/2010 | 05/29/2011 |

### 11.2 Measuring Instruments and setting

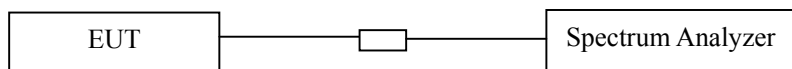
The following table is the setting of spectrum analyzer.

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

### 11.3 Test Procedures

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

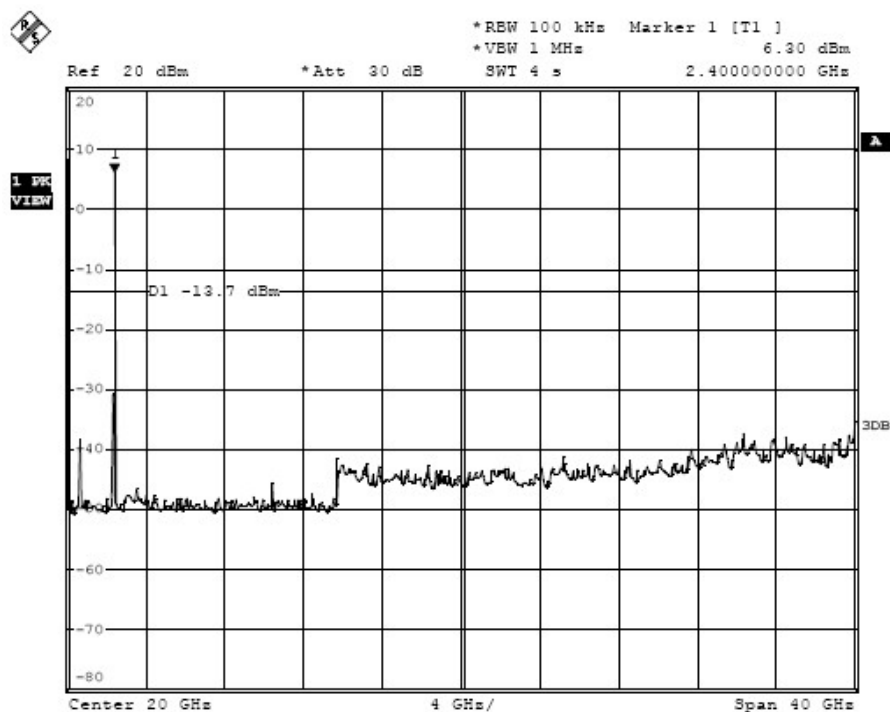
### 11.4 Block Diagram of Test setup



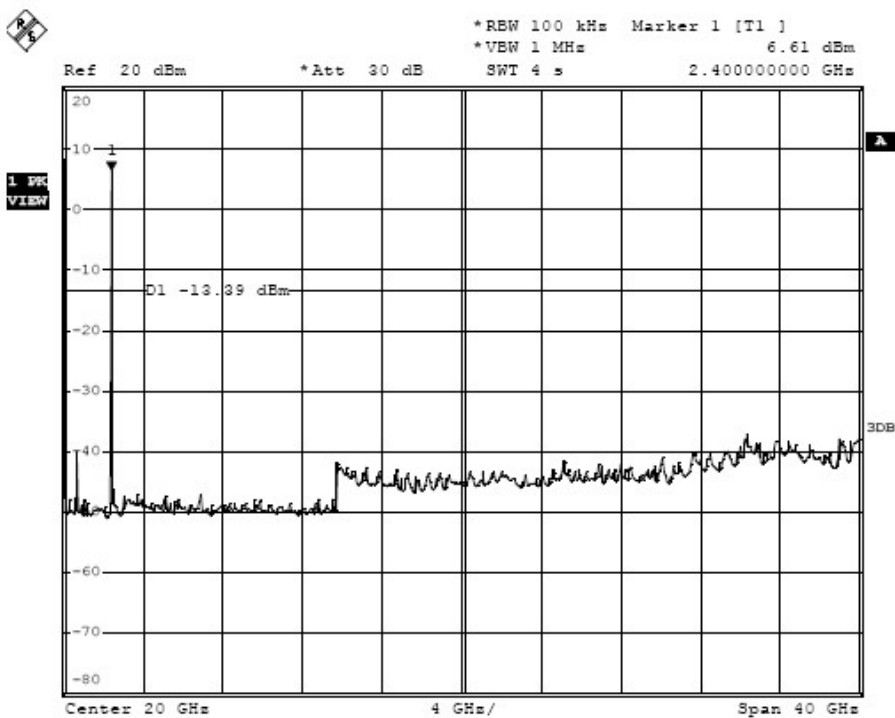
### 11.5. Test Result

PASS.

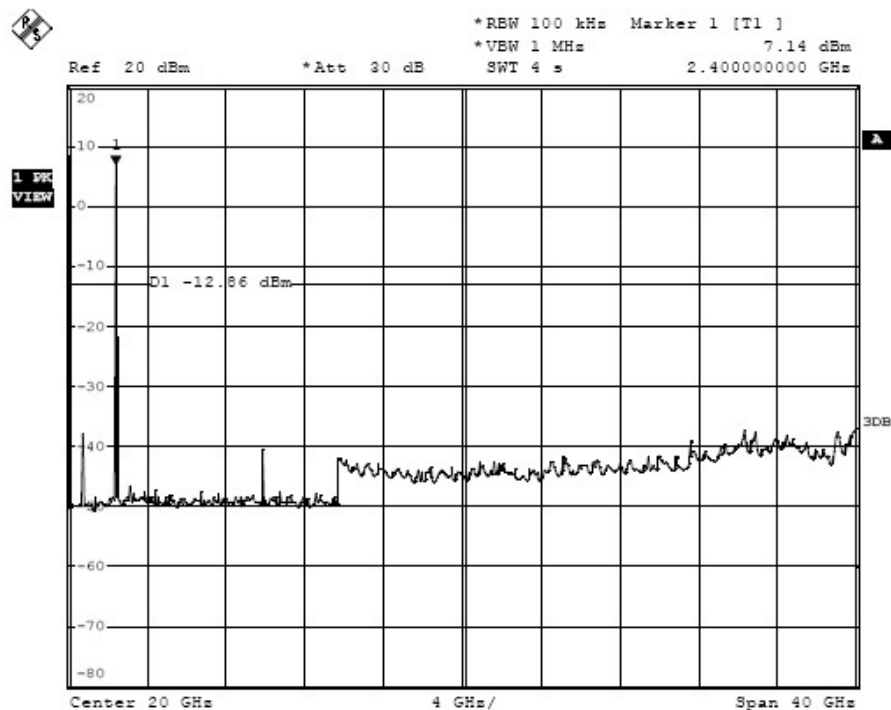
802.11b CH1



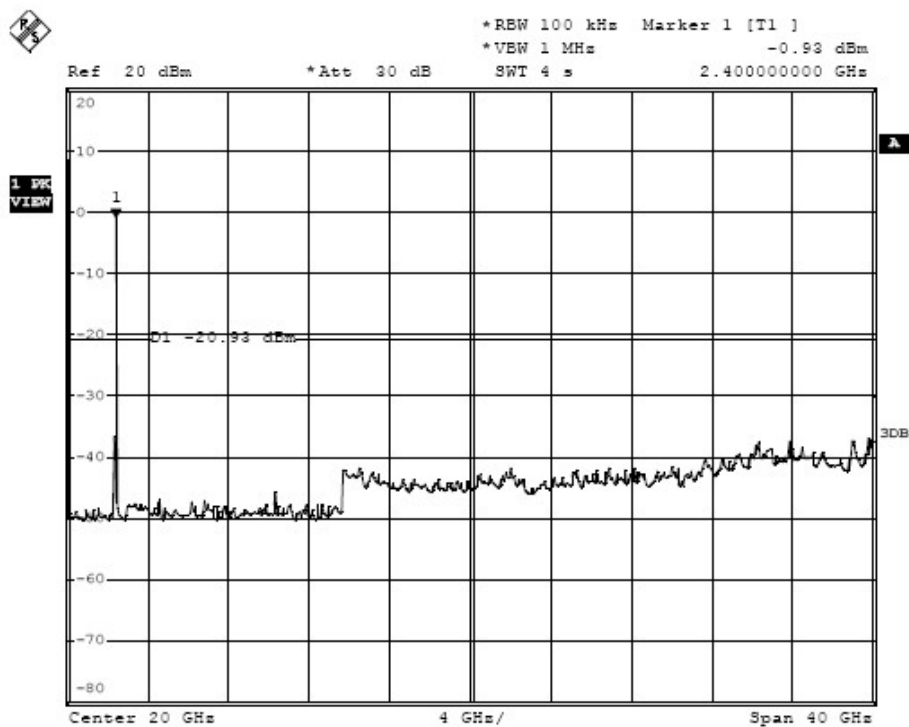
802.11b CH6



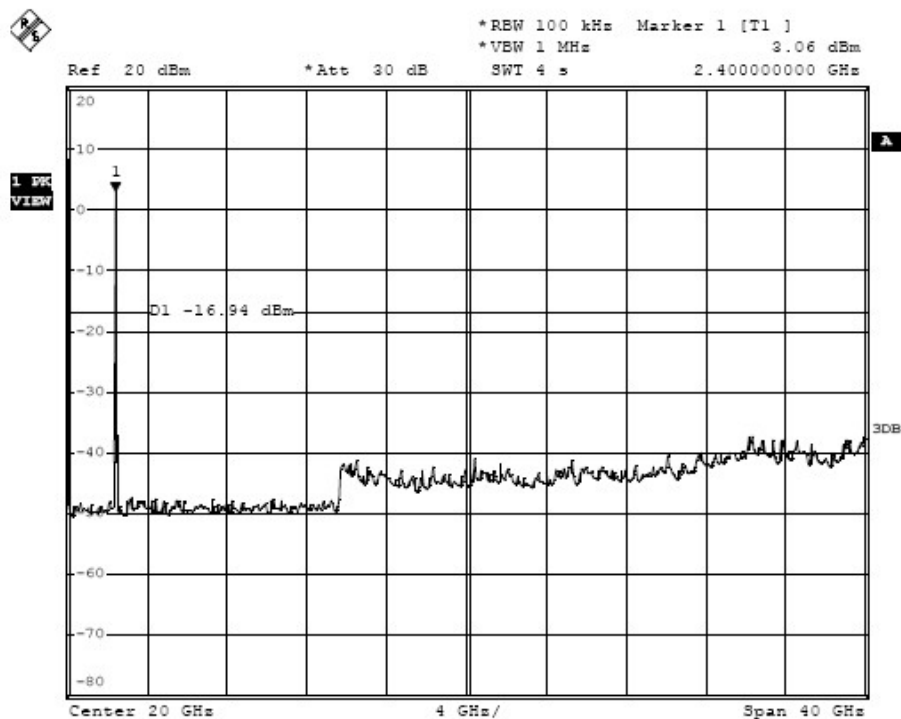
802.11b CH11



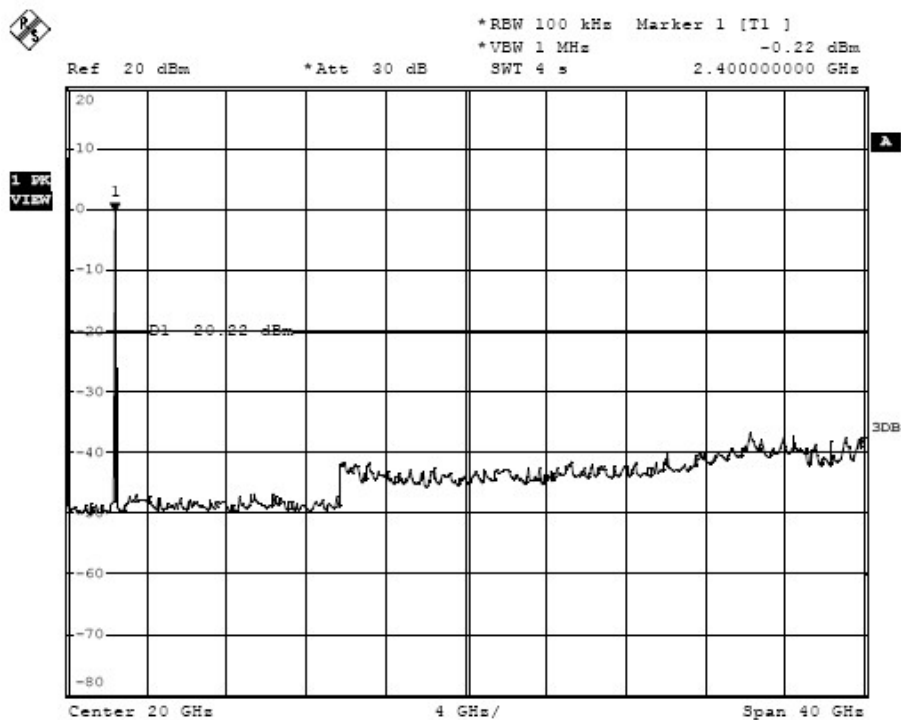
802.11g CH1



802.11g CH6

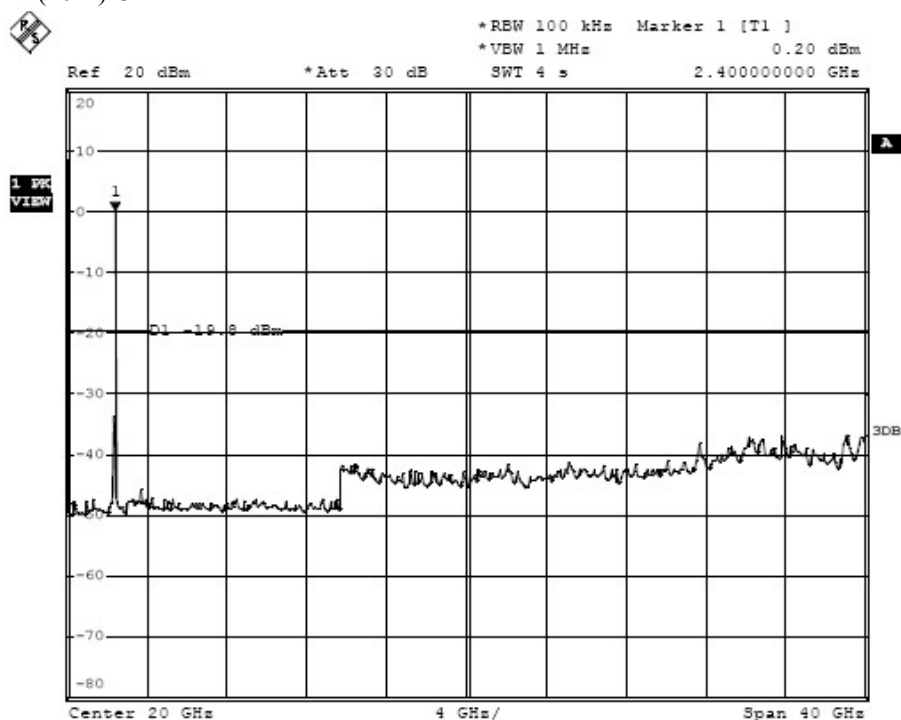


802.11g CH11

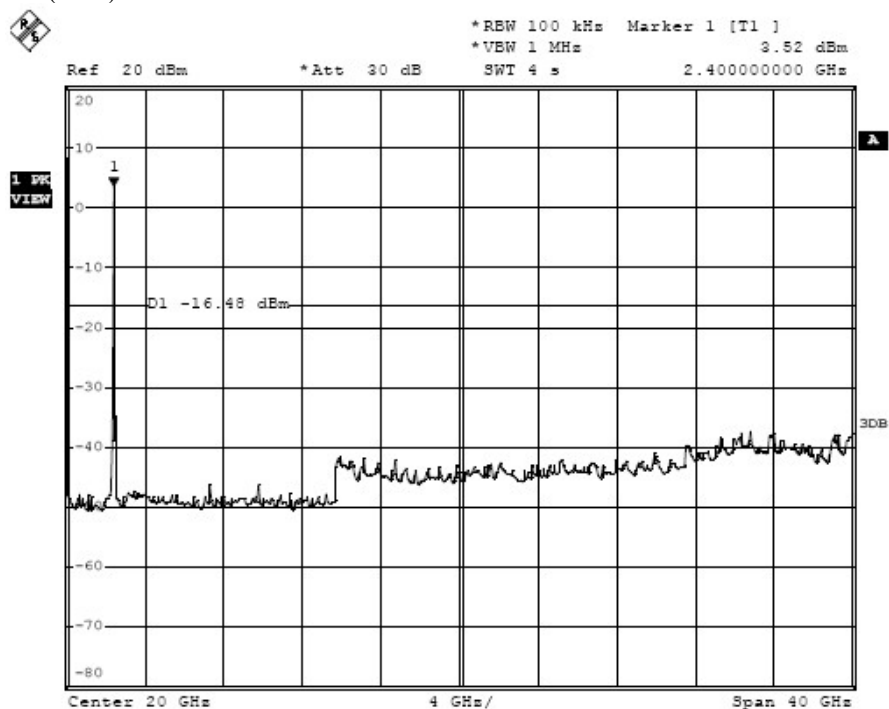




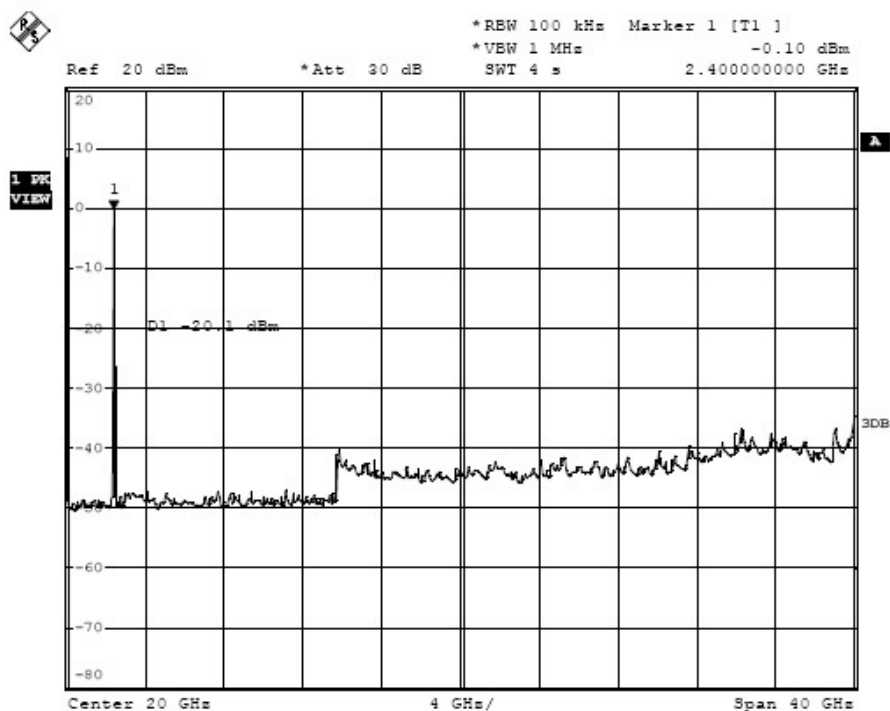
802.11n(20M) CH1



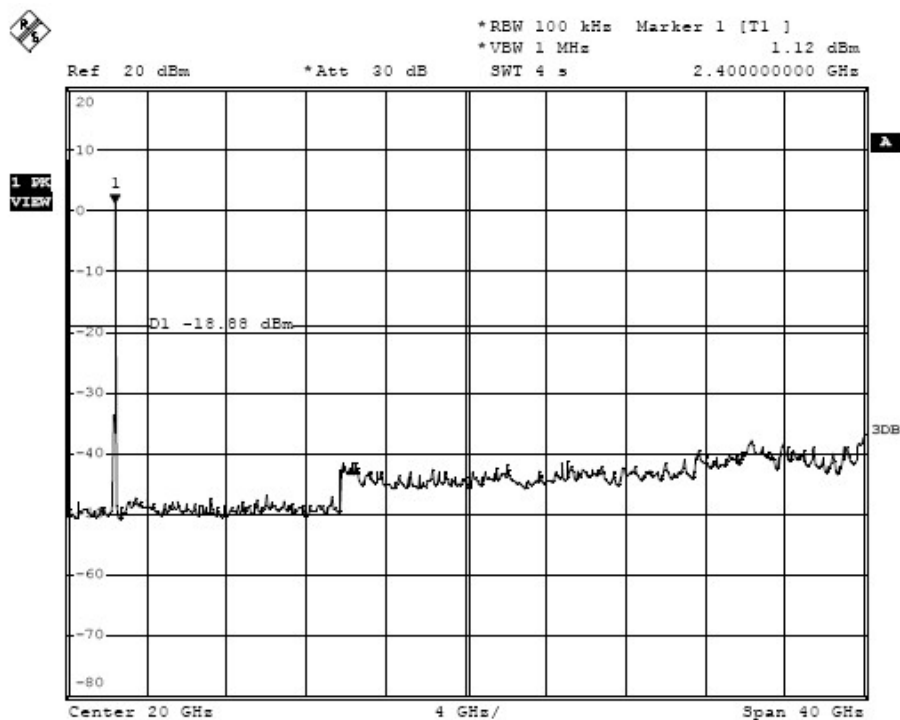
802.11n(20M) CH6



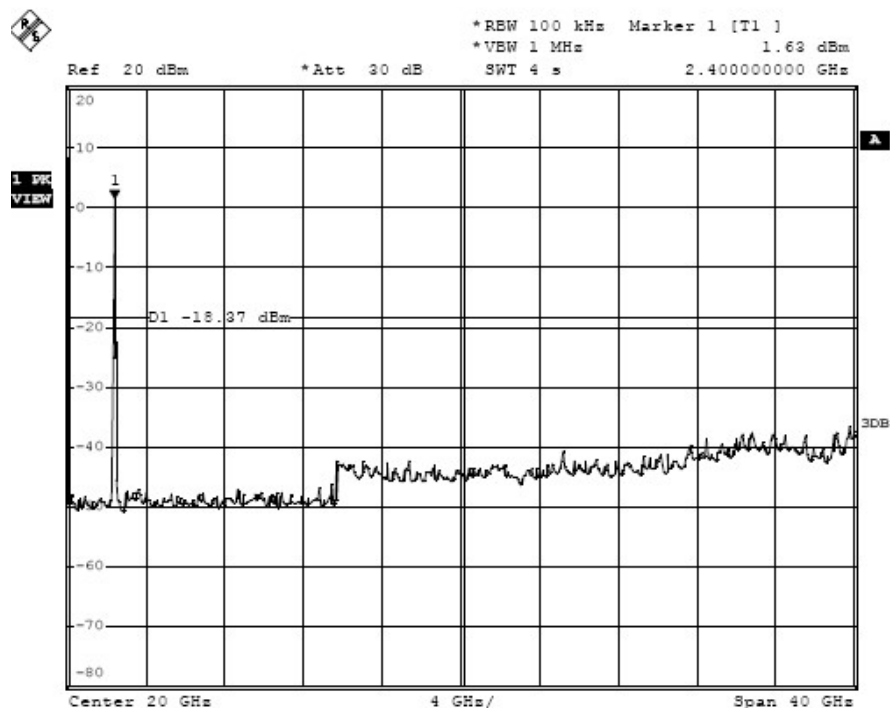
802.11n(20M) CH11



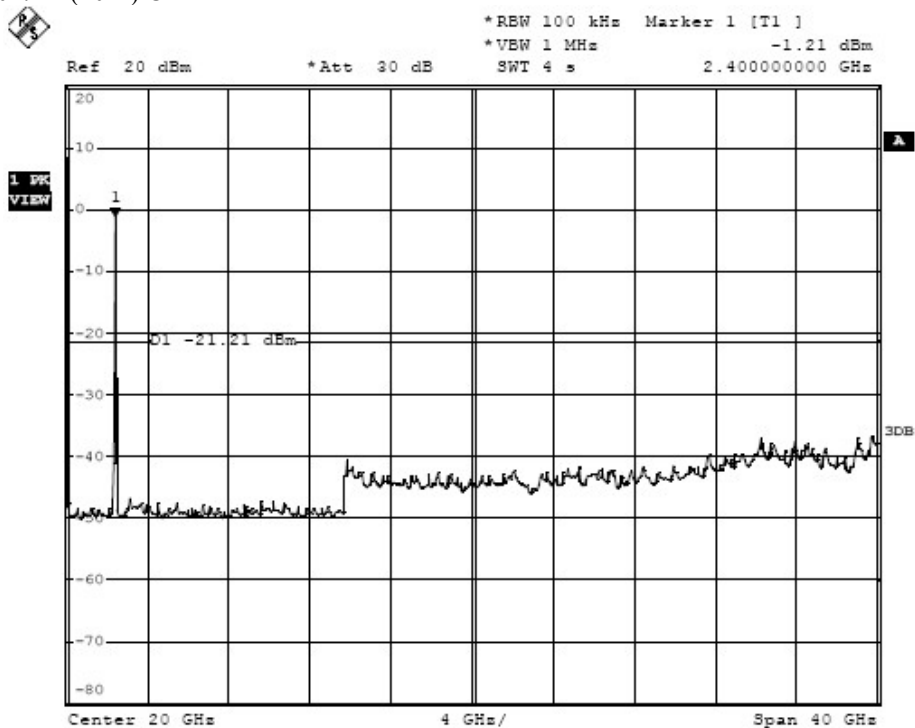
802.11n(40M) CH1



802.11n(40M) CH6



802.11n(40M) CH11



## General Appearance of the EUT









