

**(Configuration 5: Notebook + Vehicle Docking + WLAN + Bluetooth)**

**(with 8.1" LCD, resolution: 800X600)**

**Test Report**  
**for**  
**FCC Part 15 Subpart B & C**

*of*

*Product Name*

**Notebook Personal Computer;**  
**Notebook Personal Computer with Office Docking;**  
**Notebook Personal Computer with Vehicle Docking**

*Model*

**ML900;**  
**ML900 Office Docking;**  
**ML900 Vehicle Docking**  
**(Brand: MOTOROLA)**

*Applied by:*

MITAC Technology Corporation  
4F, No.1, R&D Road 2,  
Hsinchu Science-Based industrial Park, Hsinchu 300  
Taiwan, R. O. C.

*Test Performed by:*

**International Standards Laboratory**

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**Report Number: ISL-05LR022FC**

**Issue Date: 2005/09/21**

**HC LAB:**NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

**LT LAB:**NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

ISL-T10-R29-1

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## 1. General

### 1.1 Certification of Accuracy of Test Data

**Standards:** CFR 47 Part 15 Subpart B Class B  
CFR 47 Part 15 Subpart C (Section 15.247)

**Test Procedure:** ANSI C63.4:2003  
Notebook Personal Computer;  
Notebook Personal Computer with Office Docking;

**Equipment Tested:** Notebook Personal Computer with Vehicle Docking

**Model:** ML900; ML900 Office Docking; ML900 Vehicle Docking

**Applied by:** MITAC Technology Corporation

**Sample received Date:** 2005/07/26

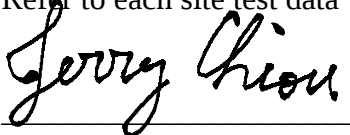
**Final test Date :** 2005/08/08-2005/09/05

**Test Result** PASS

**Test Site:** Chamber 02, Conduction 02

**Temperature** Refer to each site test data

**Humidity:** Refer to each site test data

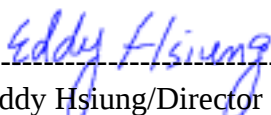
  
\_\_\_\_\_

**Test Engineer:** Jerry Chiou

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Approve & Signature

  
-----  
Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 81 pages, including 1 cover page, 3 contents page, and 77 pages for the test description. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard. International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

**International Standards Laboratory**

**Report Number: 05LR022FC**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178  
LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

## 2. Test Results Summary

The 802.11b functions of EUT has been tested according to the FCC regulations listed below:

| Tested Standards: 47 CFR Part 15 Subpart C |                                   |        |                     |
|--------------------------------------------|-----------------------------------|--------|---------------------|
| Standard Section                           | Test Type                         | Result | Remarks             |
| 15.207                                     | AC Power Line Emissions           | Pass   |                     |
| 15.247(a)(2)                               | Spectrum Bandwidth Of DSSS device | Pass   |                     |
| 15.247(b)                                  | Max. Peak Output Power            | Pass   |                     |
| 15.247( c )                                | Radiated Emissions 30MHz – 25 GHz | Pass   |                     |
| 15.247 ( c )                               | Band Edge Measurement             | Pass   |                     |
| 15.247(b)(4)                               | Radiation Exposure                | Pass   | MPE report attached |
| 15.247 (d)                                 | Power Spectral Density            | Pass   |                     |

The 802.11g functions of EUT has been tested according to the FCC regulations listed below:

| Tested Standards: 47 CFR Part 15 Subpart C |                                   |        |                     |
|--------------------------------------------|-----------------------------------|--------|---------------------|
| Standard Section                           | Test Type                         | Result | Remarks             |
| 15.207                                     | AC Power Line Emissions           | Pass   |                     |
| 15.247(a)(2)                               | Spectrum Bandwidth Of DSSS device | Pass   |                     |
| 15.247(b)                                  | Max. Peak Output Power            | Pass   |                     |
| 15.247( c )                                | Radiated Emissions 30MHz – 25 GHz | Pass   |                     |
| 15.247 ( c )                               | Band Edge Measurement             | Pass   |                     |
| 15.247(b)(4)                               | Radiation Exposure                | Pass   | MPE report attached |
| 15.247 (d)                                 | Power Spectral Density            | Pass   |                     |

The Bluetooth functions of EUT has been tested according to the FCC regulations listed below:

| Tested Standards: 47 CFR Part 15 Subpart C |                                   |        |         |
|--------------------------------------------|-----------------------------------|--------|---------|
| Standard Section                           | Test Type                         | Result | Remarks |
| 15.207(a)                                  | AC Power Line Emissions           | Pass   |         |
| 15.247(b) (1)                              | Max. Peak Output Power            | Pass   |         |
| 15.209( a )                                | Radiated Emissions 30MHz – 25 GHz | Pass   |         |
| 15.247 ( c )                               | Band Edge Measurement             | Pass   |         |
| 15.247(a)(1)(iii)                          | Number of Hopping Frequency Used  | Pass   |         |
| 15.247(a) (1)(ii)                          | Spectrum Bandwidth Of FHSS device | Pass   |         |
| 15.247(a)(1)                               | Hopping Channel Separation        | Pass   |         |
| 15.247(a)(1)(iii)                          | Dwell Time                        | Pass   |         |

### 3. TEST RESULTS (802.11b)

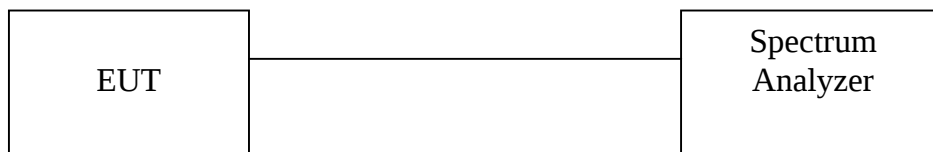
#### 3.1 Bandwidth for DSSS [Section 15.247 (a)(2)]

##### 3.1.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

|                   |                   |
|-------------------|-------------------|
| Equipment mode    | Spectrum analyzer |
| Detector function | Peak mode         |
| RBW               | 100KHz            |
| VBW               | 100KHz            |

##### 3.1.2 Test Setup



##### 3.1.3 Test Data:

###### 6dB Bandwidth

Test Engineer: Jerry Chiou

Temperature ( ): 27

Tx Data Rate=1Mbps

Humidity (%): 55

| Channel | Frequency<br>(MHz) | 6dB<br>Bandwidth<br>(MHz) | Limit<br>(MHz) | Pass/Fail |
|---------|--------------------|---------------------------|----------------|-----------|
| 1       | 2412               | 9.16                      | 0.5            | Pass      |
| 6       | 2437               | 9.60                      | 0.5            | Pass      |
| 11      | 2462               | 9.12                      | 0.5            | Pass      |

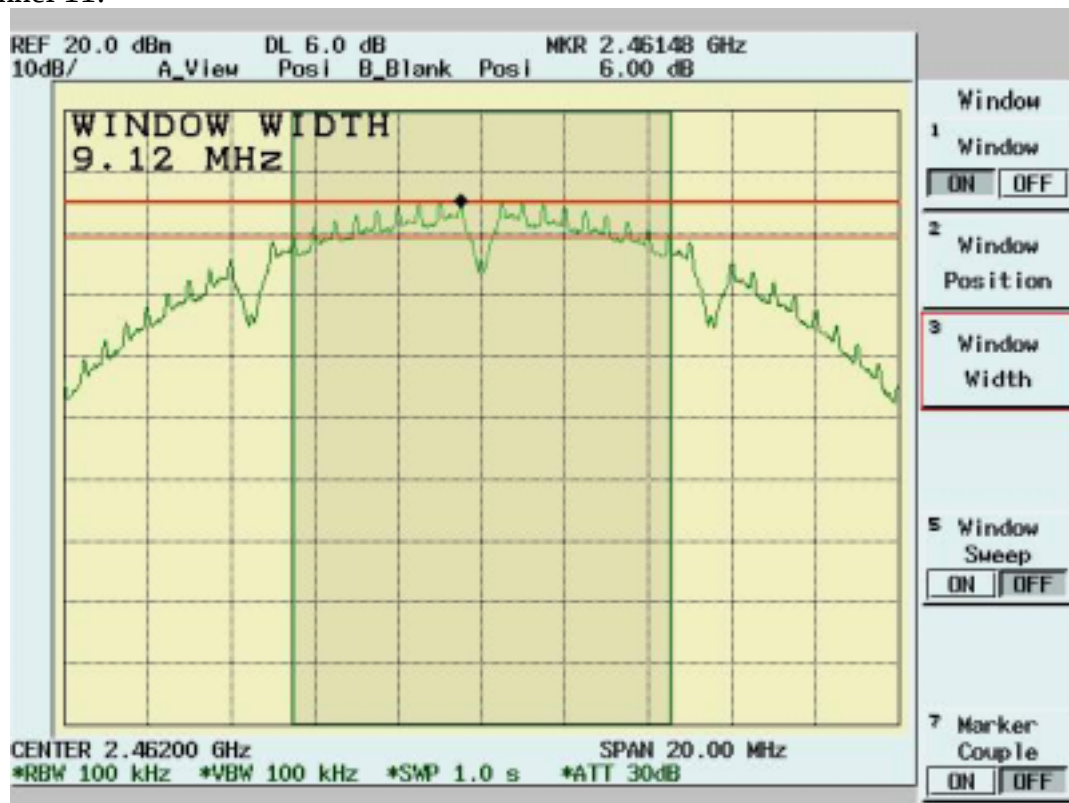
Channel 1:



Channel 6:



Channel 11:



## 3.2 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

### 3.2.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

### 3.2.2 Test Setup



### 3.2.3 Test Data

#### Maximum Peak Output Power

Test Engineer: Jerry  
Chiou

Temperature ( ): 27

Tx Data Rate=1Mbps

Humidity (%): 55

| Channel | Frequency<br>(Mhz) | Analyzer<br>Reading<br>(dBm) | Cable Loss<br>(dB) | Peak Power<br>Output<br>(mW) | Peak Power<br>Output<br>(dBm) | Limit<br>(dBm) | Pass/Fail |
|---------|--------------------|------------------------------|--------------------|------------------------------|-------------------------------|----------------|-----------|
| 1       | 2412               | 16.22                        | 1.10               | 53.93                        | 17.32                         | 30             | Pass      |
| 6       | 2437               | 15.69                        | 1.10               | 47.72                        | 16.79                         | 30             | Pass      |
| 11      | 2462               | 15.38                        | 1.10               | 44.41                        | 16.48                         | 30             | Pass      |

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

### 3.3 Radiated Emission Measurement [Section [15.247(c)(4)]

#### 3.3.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

#### 3.3.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

For the test of 2<sup>nd</sup> to 10<sup>th</sup> harmonics frequencies, the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

#### 3.3.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

|                             |                 |
|-----------------------------|-----------------|
| Frequency Range Tested:     | 30MHz~1000MHz   |
| Detector Function:          | Quasi-Peak Mode |
| Resolution Bandwidth (RBW): | 120KHz          |
| Video Bandwidth (VBW)       | 1MHz            |
| Frequency Range Tested:     | 1GHz – 25 GHz   |
| Detector Function:          | Peak Mode       |
| Resolution Bandwidth (RBW): | 1MHz            |
| Video Bandwidth (VBW)       | 3MHz            |
| Frequency Range Tested:     | 1GHz – 25 GHz   |
| Detector Function:          | Average Mode    |
| Resolution Bandwidth (RBW): | 1MHz            |
| Video Bandwidth (VBW)       | 10 Hz           |

**3.3.4 Test Data (30MHz – 1GHz):****30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 1, 6, 11**

Operator: Jerry Chiou

Temperature (C): 23

06:39:05 PM, Friday, August 12, 2005

Humidity (%): 54

| Frequency | Rx Amp. | Ant Fact | CableLoss | PreAmpGain | Corrct. Emi. | Limit    | Margin | Ant. Pos. | Table Pos. |
|-----------|---------|----------|-----------|------------|--------------|----------|--------|-----------|------------|
| MHz       | (dBuV)  | (dB/m)   | (dB)      | (dB)       | (dBuV/m)     | (dBuV/m) | (dB)   | (cm)      | (deg)      |
| 96.93     | 20.02   | 9.69     | 1.90      | 0.00       | 31.60        | 43.50    | -11.90 | 197.00    | 23.00      |
| 106.63    | 18.51   | 11.10    | 1.99      | 0.00       | 31.60        | 43.50    | -11.90 | 102.00    | 223.00     |
| 142.52    | 17.23   | 10.10    | 2.21      | 0.00       | 29.54        | 43.50    | -13.96 | 197.00    | 170.00     |
| 366.59    | 14.52   | 16.10    | 4.22      | 0.00       | 34.84        | 46.00    | -11.16 | 102.00    | 321.00     |
| 455.83    | 10.71   | 16.34    | 4.90      | 0.00       | 31.95        | 46.00    | -14.05 | 102.00    | 305.00     |
| 499.48    | 9.12    | 17.39    | 5.28      | 0.00       | 31.80        | 46.00    | -14.20 | 197.00    | 203.00     |
| 666.32    | 17.91   | 19.00    | 6.41      | 0.00       | 43.31        | 46.00    | -2.69  | 197.00    | 186.00     |
| 733.25    | 11.91   | 19.80    | 6.89      | 0.00       | 38.59        | 46.00    | -7.41  | 197.00    | 301.00     |

**30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 1, 6, 11**

Operator: Jerry Chiou

Temperature (C): 23

06:39:05 PM, Friday, August 12, 2005

Humidity (%): 54

| Frequency | Rx Amp. | Ant Fact | CableLoss | PreAmpGain | Corrct. Emi. | Limit    | Margin | Ant. Pos. | Table Pos. |
|-----------|---------|----------|-----------|------------|--------------|----------|--------|-----------|------------|
| MHz       | (dBuV)  | (dB/m)   | (dB)      | (dB)       | (dBuV/m)     | (dBuV/m) | (dB)   | (cm)      | (deg)      |
| 71.71     | 24.06   | 5.61     | 1.52      | 0.00       | 31.19        | 40.00    | -8.81  | 197.00    | 6.00       |
| 75.59     | 21.08   | 6.07     | 1.62      | 0.00       | 28.77        | 40.00    | -11.23 | 197.00    | 318.00     |
| 351.07    | 13.29   | 16.19    | 4.12      | 0.00       | 33.60        | 46.00    | -12.40 | 197.00    | 252.00     |
| 366.59    | 14.51   | 16.10    | 4.22      | 0.00       | 34.82        | 46.00    | -11.18 | 102.00    | 321.00     |
| 423.82    | 12.11   | 16.04    | 4.60      | 0.00       | 32.75        | 46.00    | -13.25 | 197.00    | 219.00     |
| 432.55    | 13.26   | 16.10    | 4.69      | 0.00       | 34.04        | 46.00    | -11.96 | 102.00    | 190.00     |
| 666.32    | 19.70   | 19.00    | 6.41      | 0.00       | 45.11        | 46.00    | -0.89  | 197.00    | 186.00     |
| 733.25    | 11.91   | 19.80    | 6.89      | 0.00       | 38.59        | 46.00    | -7.41  | 197.00    | 301.00     |

## NOTE:

- During the Pre-test, the EUT has been tested for Channel 1, 6, 11 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.

- Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

**All frequencies from 30MHz to 1GHz have been tested**

### 3.3.5 Test Data ( 1GHz – 25 GHz) .

#### 1GHz~ 25 GHz (Horizontal), Channel 1: 2412 MHz

Operator: Jerry Chiou

RBW: 1MHz

Humidity (%): 41

Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 46.44 pk | 25.11  | 2.19   | 34.00   | 39.73 pk | 54.00 av | -14.27 | 102     | 103     |
| 1164.84   | 46.16 pk | 25.26  | 2.19   | 34.02   | 39.59 pk | 54.00 av | -14.41 | 102     | 101     |
| 1332.17   | 48.02 pk | 26.03  | 2.21   | 34.11   | 42.14 pk | 54.00 av | -11.86 | 101     | 89      |
| 1364.64   | 44.75 pk | 26.18  | 2.21   | 34.13   | 39.01 pk | 54.00 av | -14.99 | 101     | 87      |
| 1664.34   | 43.55 pk | 28.18  | 2.35   | 34.52   | 39.56 pk | 54.00 av | -14.44 | 101     | 66      |
| 1811.69   | 41.98 pk | 29.42  | 2.46   | 34.81   | 39.05 pk | 54.00 av | -14.95 | 100     | 56      |
| 1846.65   | 41.83 pk | 29.71  | 2.49   | 34.88   | 39.15 pk | 54.00 av | -14.85 | 100     | 54      |
| 1999      | 40.88 pk | 30.99  | 2.60   | 35.18   | 39.30 pk | 54.00 av | -14.70 | 100     | 43      |
| 2301.2    | 45.27 pk | 30.94  | 1.68   | 35.19   | 42.70 pk | 54.00 av | -11.30 | 101     | 138     |
| 2311.19   | 50.80 pk | 30.94  | 1.65   | 35.19   | 48.20 pk | 54.00 av | -5.80  | 101     | 141     |
| 2333.67   | 47.18 pk | 30.93  | 1.58   | 35.19   | 44.50 pk | 54.00 av | -9.50  | 101     | 148     |
| 2510.99   | 45.31 pk | 30.90  | 1.36   | 35.19   | 42.39 pk | 54.00 av | -11.61 | 102     | 203     |
| 2610.89   | 43.23 pk | 30.94  | 1.38   | 35.10   | 40.45 pk | 54.00 av | -13.55 | 102     | 235     |
| 4823.74   | 46.95 pk | 34.93  | 2.12   | 37.72   | 46.29 pk | 54.00 av | -7.71  | 100.00  | 347.00  |
| 7235.92   | 46.22 pk | 39.48  | 2.68   | 36.83   | 51.55 pk | 54.00 av | -2.45  | 100.00  | 26.00   |
| 9648.18   | 46.82 pk | 40.57  | 3.25   | 34.33   | 56.31 pk | 74.00 pk | -17.69 | 100.00  | 352.00  |
| 9648.18   | 33.00 av | 40.57  | 3.25   | 34.33   | 42.49 av | 54.00 av | -11.51 | 100.00  | 352.00  |

**1GHz~ 25 GHz (Vertical), Channel 1: 2412 MHz**

Operator: Jerry Chiou

RBW: 1MHz  
Humidity (%): 41  
Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 47.38 pk | 25.11  | 2.19   | 34.00   | 40.67 pk | 54.00 av | -13.33 | 102     | 103     |
| 1164.84   | 46.88 pk | 25.26  | 2.19   | 34.02   | 40.31 pk | 54.00 av | -13.69 | 102     | 101     |
| 1219.78   | 46.54 pk | 25.51  | 2.20   | 34.05   | 40.20 pk | 54.00 av | -13.80 | 102     | 97      |
| 1264.74   | 47.27 pk | 25.72  | 2.20   | 34.07   | 41.11 pk | 54.00 av | -12.89 | 101     | 94      |
| 1332.17   | 47.51 pk | 26.03  | 2.21   | 34.11   | 41.64 pk | 54.00 av | -12.36 | 101     | 89      |
| 1392.11   | 46.34 pk | 26.30  | 2.22   | 34.14   | 40.71 pk | 54.00 av | -13.29 | 101     | 85      |
| 1666.83   | 44.17 pk | 28.20  | 2.35   | 34.53   | 40.20 pk | 54.00 av | -13.80 | 101     | 66      |
| 1811.69   | 44.34 pk | 29.42  | 2.46   | 34.81   | 41.40 pk | 54.00 av | -12.60 | 100     | 56      |
| 1831.67   | 43.16 pk | 29.59  | 2.48   | 34.85   | 40.37 pk | 54.00 av | -13.63 | 100     | 55      |
| 1846.65   | 44.81 pk | 29.71  | 2.49   | 34.88   | 42.13 pk | 54.00 av | -11.87 | 100     | 54      |
| 1999      | 41.99 pk | 30.99  | 2.60   | 35.18   | 40.41 pk | 54.00 av | -13.59 | 100     | 43      |
| 2311.19   | 50.38 pk | 30.94  | 1.65   | 35.19   | 47.78 pk | 54.00 av | -6.22  | 101     | 141     |
| 2510.99   | 44.32 pk | 30.90  | 1.36   | 35.19   | 41.40 pk | 54.00 av | -12.60 | 102     | 203     |
| 2798.2    | 44.97 pk | 31.02  | 1.41   | 34.93   | 42.47 pk | 54.00 av | -11.53 | 102     | 294     |
| 4824.28   | 47.05 pk | 34.93  | 2.12   | 37.72   | 46.39 pk | 54.00 av | -7.61  | 100.00  | 11.00   |
| 7236.12   | 46.08 pk | 39.48  | 2.68   | 36.83   | 51.41 pk | 54.00 av | -2.59  | 100.00  | 360.00  |
| 9647.64   | 46.37 pk | 40.58  | 3.25   | 34.33   | 55.86 pk | 74.00 pk | -18.14 | 100.00  | 260.00  |
| 9647.64   | 28.58 av | 40.58  | 3.25   | 34.33   | 38.08 av | 54.00 av | -15.92 | 100.00  | 260.00  |

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---“: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

**1GHz~ 25 GHz (Horizontal) , Channel 6 : 2437 MHz**

Operator: Jerry Chiou

RBW: 1MHz

Humidity (%): 41

Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 46.84 pk | 25.11  | 2.19   | 34.00   | 40.13 pk | 54.00 av | -13.87 | 102     | 103     |
| 1332.17   | 47.13 pk | 26.03  | 2.21   | 34.11   | 41.25 pk | 54.00 av | -12.75 | 101     | 89      |
| 1999      | 42.17 pk | 30.99  | 2.60   | 35.18   | 40.58 pk | 54.00 av | -13.42 | 100     | 43      |
| 2171.33   | 42.13 pk | 30.97  | 2.08   | 35.19   | 39.98 pk | 54.00 av | -14.02 | 101     | 97      |
| 2233.77   | 42.87 pk | 30.95  | 1.89   | 35.19   | 40.52 pk | 54.00 av | -13.48 | 101     | 116     |
| 2278.72   | 44.22 pk | 30.94  | 1.75   | 35.19   | 41.72 pk | 54.00 av | -12.28 | 101     | 131     |
| 2313.69   | 46.71 pk | 30.94  | 1.64   | 35.19   | 44.10 pk | 54.00 av | -9.90  | 101     | 141     |
| 2333.67   | 50.91 pk | 30.93  | 1.58   | 35.19   | 48.23 pk | 54.00 av | -5.77  | 101     | 148     |
| 2353.65   | 48.10 pk | 30.93  | 1.52   | 35.19   | 45.36 pk | 54.00 av | -8.64  | 101     | 154     |
| 2518.48   | 43.46 pk | 30.91  | 1.36   | 35.18   | 40.55 pk | 54.00 av | -13.45 | 102     | 206     |
| 2535.96   | 44.68 pk | 30.91  | 1.37   | 35.17   | 41.79 pk | 54.00 av | -12.21 | 102     | 211     |
| 2613.39   | 44.09 pk | 30.95  | 1.38   | 35.10   | 41.31 pk | 54.00 av | -12.69 | 102     | 236     |
| 2633.37   | 42.91 pk | 30.95  | 1.38   | 35.08   | 40.17 pk | 54.00 av | -13.83 | 102     | 242     |
| 4874      | 47.95 pk | 35.12  | 2.14   | 37.77   | 47.44 pk | 54.00 av | -6.56  | 100.00  | 43.00   |
| 7309.22   | 45.76 pk | 39.59  | 2.56   | 36.70   | 51.21 pk | 54.00 av | -2.79  | 100.00  | 25.00   |
| 9747.88   | 43.91 pk | 40.35  | 3.30   | 34.37   | 53.19 pk | 74.00 pk | -20.81 | 100.00  | 168.00  |
| 9747.88   | 27.38 av | 40.35  | 3.30   | 34.37   | 36.66 av | 54.00 av | -17.34 | 100.00  | 168.00  |

**1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz**

Operator: Jerry Chiou

RBW: 1MHz

Humidity (%): 41

Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1067.43   | 46.84 pk | 24.81  | 2.18   | 33.97   | 39.86 pk | 54.00 av | -14.14 | 102     | 107     |
| 1132.37   | 46.98 pk | 25.11  | 2.19   | 34.00   | 40.27 pk | 54.00 av | -13.73 | 102     | 103     |
| 1164.84   | 47.66 pk | 25.26  | 2.19   | 34.02   | 41.09 pk | 54.00 av | -12.91 | 102     | 101     |
| 1264.74   | 46.31 pk | 25.72  | 2.20   | 34.07   | 40.16 pk | 54.00 av | -13.84 | 101     | 94      |
| 1332.17   | 46.70 pk | 26.03  | 2.21   | 34.11   | 40.82 pk | 54.00 av | -13.18 | 101     | 89      |
| 1799.2    | 42.89 pk | 29.31  | 2.45   | 34.79   | 39.87 pk | 54.00 av | -14.13 | 100     | 57      |
| 1814.19   | 44.14 pk | 29.44  | 2.46   | 34.82   | 41.23 pk | 54.00 av | -12.77 | 100     | 56      |
| 1846.65   | 43.59 pk | 29.71  | 2.49   | 34.88   | 40.90 pk | 54.00 av | -13.10 | 100     | 54      |
| 1999      | 41.58 pk | 30.99  | 2.60   | 35.18   | 39.99 pk | 54.00 av | -14.01 | 100     | 43      |
| 2231.27   | 45.01 pk | 30.95  | 1.89   | 35.19   | 42.67 pk | 54.00 av | -11.33 | 101     | 116     |
| 2276.22   | 44.38 pk | 30.94  | 1.76   | 35.19   | 41.89 pk | 54.00 av | -12.11 | 101     | 130     |
| 2333.67   | 50.61 pk | 30.93  | 1.58   | 35.19   | 47.93 pk | 54.00 av | -6.07  | 101     | 148     |
| 2535.96   | 46.20 pk | 30.91  | 1.37   | 35.17   | 43.31 pk | 54.00 av | -10.69 | 102     | 211     |
| 2798.2    | 42.71 pk | 31.02  | 1.41   | 34.93   | 40.21 pk | 54.00 av | -13.79 | 102     | 294     |
| 4873.88   | 47.91 pk | 35.12  | 2.14   | 37.77   | 47.40 pk | 54.00 av | -6.60  | 100.00  | 326.00  |
| 7310      | 46.61 pk | 39.60  | 2.55   | 36.70   | 52.06 pk | 54.00 av | -1.94  | 100.00  | 360.00  |
| 9747.72   | 43.68 pk | 40.36  | 3.30   | 34.37   | 52.96 pk | 54.00 av | -1.04  | 100.00  | 258.00  |

## Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

**1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz**

Operator: Jerry Chiou

RBW: 1MHz  
Humidity (%): 41  
Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 46.21 pk | 25.11  | 2.19   | 34.00   | 39.50 pk | 54.00 av | -14.50 | 102     | 103     |
| 1232.27   | 45.72 pk | 25.57  | 2.20   | 34.06   | 39.43 pk | 54.00 av | -14.57 | 102     | 96      |
| 1332.17   | 47.27 pk | 26.03  | 2.21   | 34.11   | 41.39 pk | 54.00 av | -12.61 | 101     | 89      |
| 1844.16   | 42.02 pk | 29.69  | 2.48   | 34.87   | 39.32 pk | 54.00 av | -14.68 | 100     | 54      |
| 1999      | 41.43 pk | 30.99  | 2.60   | 35.18   | 39.84 pk | 54.00 av | -14.16 | 100     | 43      |
| 2196.3    | 41.77 pk | 30.96  | 2.00   | 35.19   | 39.54 pk | 54.00 av | -14.46 | 101     | 105     |
| 2256.24   | 44.66 pk | 30.95  | 1.82   | 35.19   | 42.24 pk | 54.00 av | -11.76 | 101     | 123     |
| 2286.21   | 48.27 pk | 30.94  | 1.73   | 35.19   | 45.75 pk | 54.00 av | -8.25  | 101     | 133     |
| 2298.7    | 46.52 pk | 30.94  | 1.69   | 35.19   | 43.96 pk | 54.00 av | -10.04 | 101     | 137     |
| 2318.68   | 46.34 pk | 30.94  | 1.63   | 35.19   | 43.71 pk | 54.00 av | -10.29 | 101     | 143     |
| 2358.64   | 50.16 pk | 30.93  | 1.51   | 35.19   | 47.40 pk | 54.00 av | -6.60  | 101     | 156     |
| 2378.62   | 46.80 pk | 30.92  | 1.44   | 35.20   | 43.98 pk | 54.00 av | -10.02 | 101     | 162     |
| 2560.94   | 43.91 pk | 30.92  | 1.37   | 35.15   | 41.06 pk | 54.00 av | -12.94 | 102     | 219     |
| 2615.88   | 43.03 pk | 30.95  | 1.38   | 35.10   | 40.26 pk | 54.00 av | -13.74 | 102     | 236     |
| 4923.78   | 51.34 pk | 35.31  | 2.15   | 37.83   | 50.97 pk | 54.00 av | -3.03  | 100.00  | 35.00   |
| 7388.42   | 45.95 pk | 39.72  | 2.42   | 36.56   | 51.53 pk | 54.00 av | -2.47  | 100.00  | 27.00   |
| 9848.12   | 45.66 pk | 40.13  | 3.35   | 34.41   | 54.74 pk | 74.00 pk | -19.26 | 100.00  | 360.00  |
| 9848.12   | 30.78 av | 40.13  | 3.35   | 34.41   | 39.85 av | 54.00 av | -14.15 | 100.00  | 360.00  |

**1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz**

Operator: Jerry Chiou

RBW: 1MHz  
Humidity (%): 41  
Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 47.05 pk | 25.11  | 2.19   | 34.00   | 40.35 pk | 54.00 av | -13.65 | 102     | 103     |
| 1167.33   | 47.68 pk | 25.27  | 2.19   | 34.02   | 41.12 pk | 54.00 av | -12.88 | 102     | 100     |
| 1237.26   | 46.02 pk | 25.59  | 2.20   | 34.06   | 39.75 pk | 54.00 av | -14.25 | 102     | 96      |
| 1332.17   | 47.34 pk | 26.03  | 2.21   | 34.11   | 41.47 pk | 54.00 av | -12.53 | 101     | 89      |
| 1389.61   | 48.87 pk | 26.29  | 2.22   | 34.14   | 43.24 pk | 54.00 av | -10.76 | 101     | 85      |
| 1811.69   | 43.06 pk | 29.42  | 2.46   | 34.81   | 40.13 pk | 54.00 av | -13.87 | 100     | 56      |
| 1841.66   | 43.80 pk | 29.67  | 2.48   | 34.87   | 41.08 pk | 54.00 av | -12.92 | 100     | 54      |
| 2256.24   | 44.70 pk | 30.95  | 1.82   | 35.19   | 42.28 pk | 54.00 av | -11.72 | 101     | 123     |
| 2286.21   | 48.13 pk | 30.94  | 1.73   | 35.19   | 45.61 pk | 54.00 av | -8.39  | 101     | 133     |
| 2303.7    | 46.16 pk | 30.94  | 1.67   | 35.19   | 43.58 pk | 54.00 av | -10.42 | 101     | 138     |
| 2358.64   | 48.60 pk | 30.93  | 1.51   | 35.19   | 45.84 pk | 54.00 av | -8.16  | 101     | 156     |
| 2376.12   | 46.57 pk | 30.92  | 1.45   | 35.20   | 43.75 pk | 54.00 av | -10.25 | 101     | 161     |
| 2798.2    | 44.06 pk | 31.02  | 1.41   | 34.93   | 41.56 pk | 54.00 av | -12.44 | 102     | 294     |
| 4923.88   | 49.23 pk | 35.31  | 2.15   | 37.83   | 48.86 pk | 54.00 av | -5.14  | 100.00  | 330.00  |
| 7385.26   | 45.28 pk | 39.72  | 2.42   | 36.56   | 50.85 pk | 54.00 av | -3.15  | 100.00  | 360.00  |
| 9848.04   | 45.13 pk | 40.13  | 3.35   | 34.41   | 54.21 pk | 74.00 pk | -19.79 | 100.00  | 295.00  |
| 9848.04   | 29.73 av | 40.13  | 3.35   | 34.41   | 38.80 av | 54.00 av | -15.20 | 100.00  | 295.00  |

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

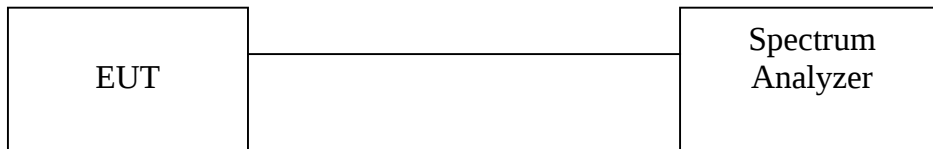
**All frequencies from 1GHz to 25 GHz have been tested.**

### 3.4 Band Edge Measurement

#### 3.4.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 100KHz  
VBW: 100KHz  
Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

#### 3.4.2 Test Setup (Conducted)



#### 3.4.3 Test Data:

**Table: Band Edge measurement (Conducted)**

Test Engineer: Jerry Chiou

Temperature ( ): 27

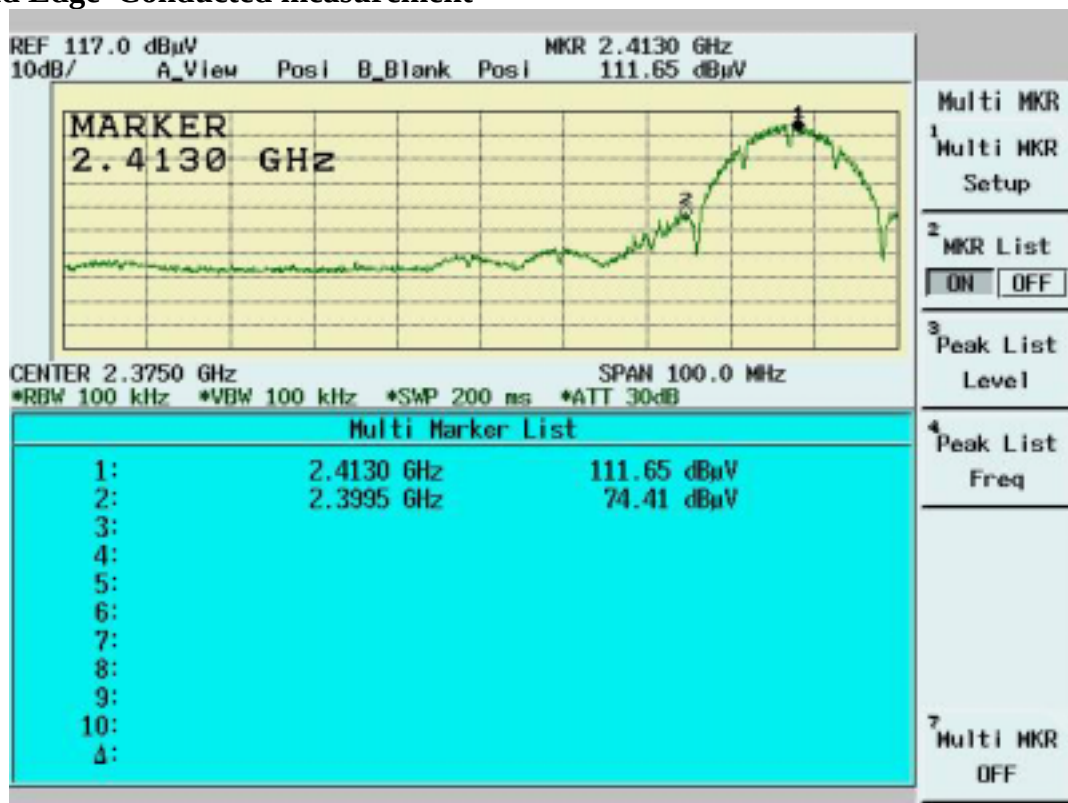
Tx Data Rate=1Mbps

Humidity (%): 55

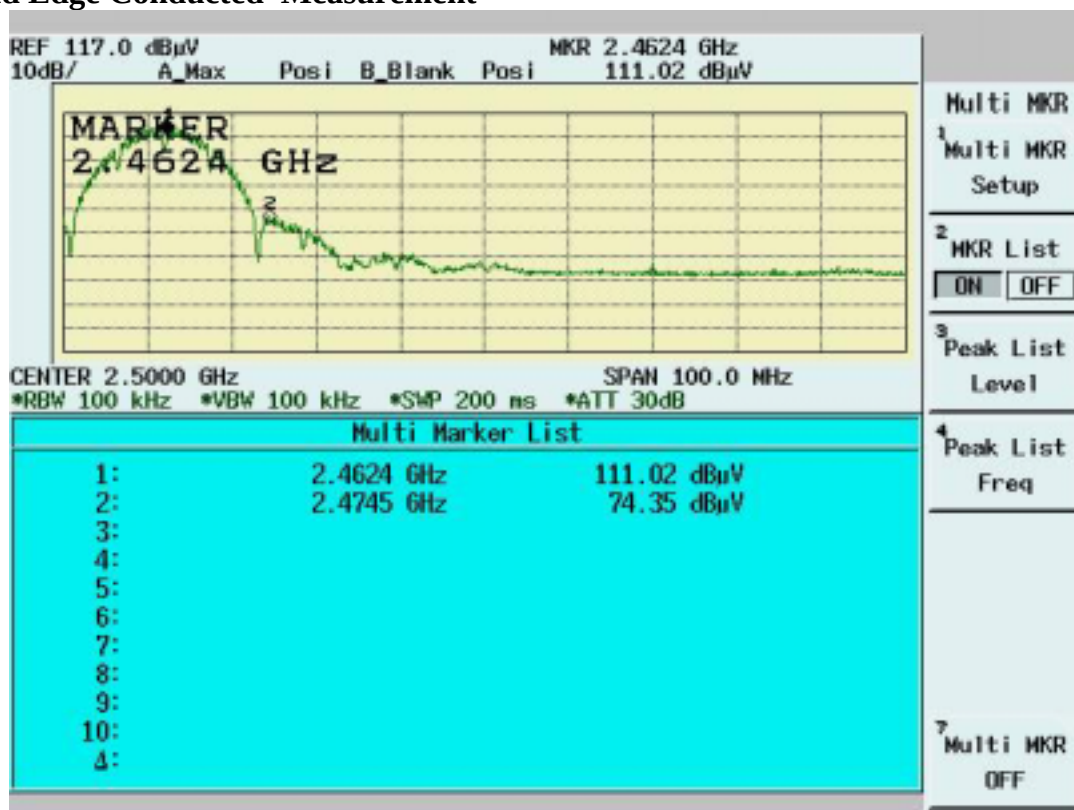
| Channel      | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBuV) | Carrier -<br>Outsideband<br>Limit: >20dB<br>(dB) | Pass/Fail |
|--------------|--------------------|-------------------------------|--------------------------------------------------|-----------|
| 1            | 2413.0             | 111.65                        | ---                                              | ---       |
| Outside band | 2399.5             | 74.41                         | 37.24                                            | Pass      |
| 11           | 2462.4             | 111.02                        | ---                                              | ---       |
| Outside band | 2474.5             | 74.35                         | 36.67                                            | Pass      |

Note: Two RF output( MAIN & AUX) have been test, the worse data shown above.

# Band Edge Conducted measurement



# Band Edge Conducted Measurement



#### 3.4.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 1MHz  
VBW: 3MHz  
Center frequency: 2.395GHz, 2.48GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band
4. For peak frequency emission level measurement in Restricted Band  
Change RBW: 1MHz  
VBW: 10Hz  
Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

#### 3.4.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

## 3.4.6 Test Data

Table Band Edge measurement (Radiated)

Test Engineer: Jerry Chiou

Temperature ( ): 26

Tx Data Rate=1Mbps

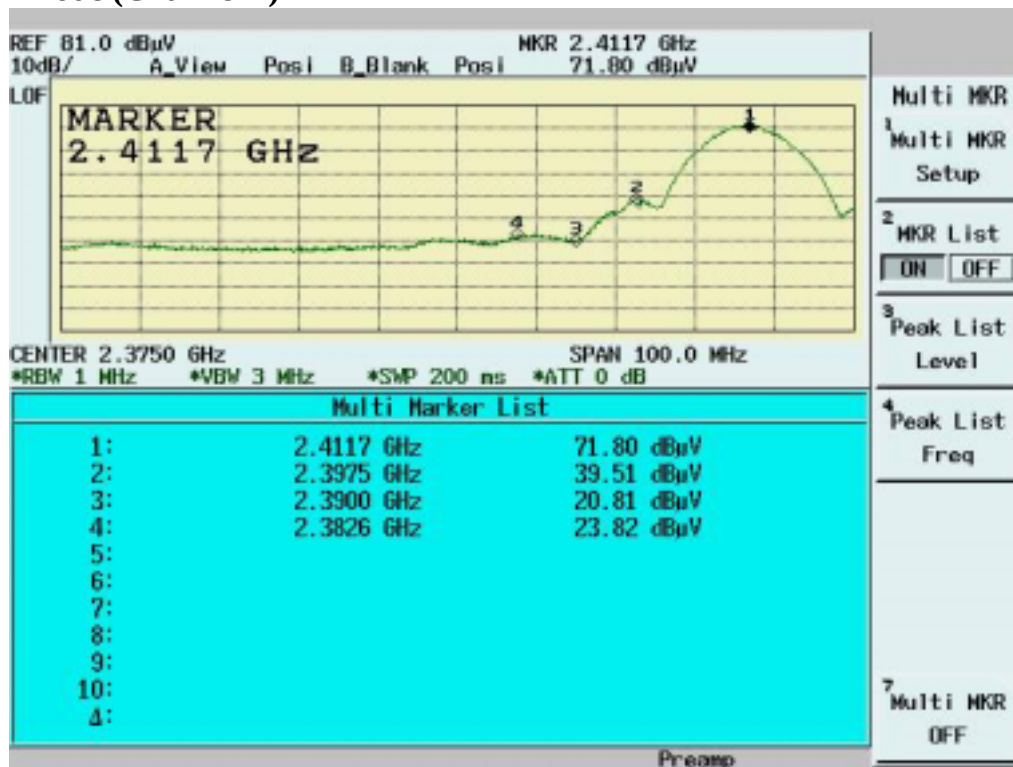
Humidity (%): 43

| Description                                  | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBuV) | Correction<br>Factor<br>(dB/m) | Emission<br>Level<br>(dBuV/m) | dBc<br>( Limit:<br>> 20dBc) | Limit<br>(dBuV/m) | Equip.<br>Setup<br>VBW | Pass<br>or<br>Fail |
|----------------------------------------------|--------------------|-------------------------------|--------------------------------|-------------------------------|-----------------------------|-------------------|------------------------|--------------------|
| Channel_1<br>(average mode)                  | 2410.7             | 64.92                         | 35.48                          | 100.40                        | ---                         | ---               | 10Hz                   | ---                |
| Channel_1<br>(peak mode)                     | 2411.7             | 71.80                         | 35.48                          | 107.28                        | ---                         | ---               | 3MHz                   | ---                |
| Outside band<br>(peak mode)                  | 2397.5             | 39.51                         | 35.48                          | 74.99                         | 32.29                       | ---               | 3MHz                   | Pass               |
|                                              |                    |                               |                                |                               |                             |                   |                        |                    |
| Channel_11<br>(average mode)                 | 2462.8             | 63.17                         | 35.50                          | 98.67                         | ---                         | ---               | 10Hz                   | ---                |
| Channel_11<br>(peak mode)                    | 2462.9             | 70.09                         | 35.50                          | 105.59                        | ---                         | ---               | 3MHz                   | ---                |
| Outside band<br>(peak mode)                  | 2474.8             | 34.44                         | 35.51                          | 69.95                         | 35.64                       | ---               | 3MHz                   | Pass               |
|                                              |                    |                               |                                |                               |                             |                   |                        |                    |
| Channel_1<br>Restricted band<br>(peak mode)  | 2382.6             | 23.82                         | 35.47                          | 59.29                         | ---                         | 74                | 3MHz                   | Pass               |
| Restricted band<br>(average mode)            | 2383.6             | 13.55                         | 35.47                          | 49.02                         | ---                         | 54                | 10Hz                   | Pass               |
|                                              |                    |                               |                                |                               |                             |                   |                        |                    |
| Channel_11<br>Restricted band<br>(peak mode) | 2487.9             | 22.79                         | 35.51                          | 58.30                         | ---                         | 74                | 3MHz                   | Pass               |
| Restricted band<br>(average mode)            | 2488.2             | 11.80                         | 35.51                          | 47.31                         | ---                         | 54                | 10Hz                   | Pass               |

## Note:

- The Spectrum plot of emission level measurement in Restricted band is attached.
- Emission Level=Spectrum Reading+Correction Factor
- Correction Factor=Antenna Factor+cable loss–amplifier gain
- Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.

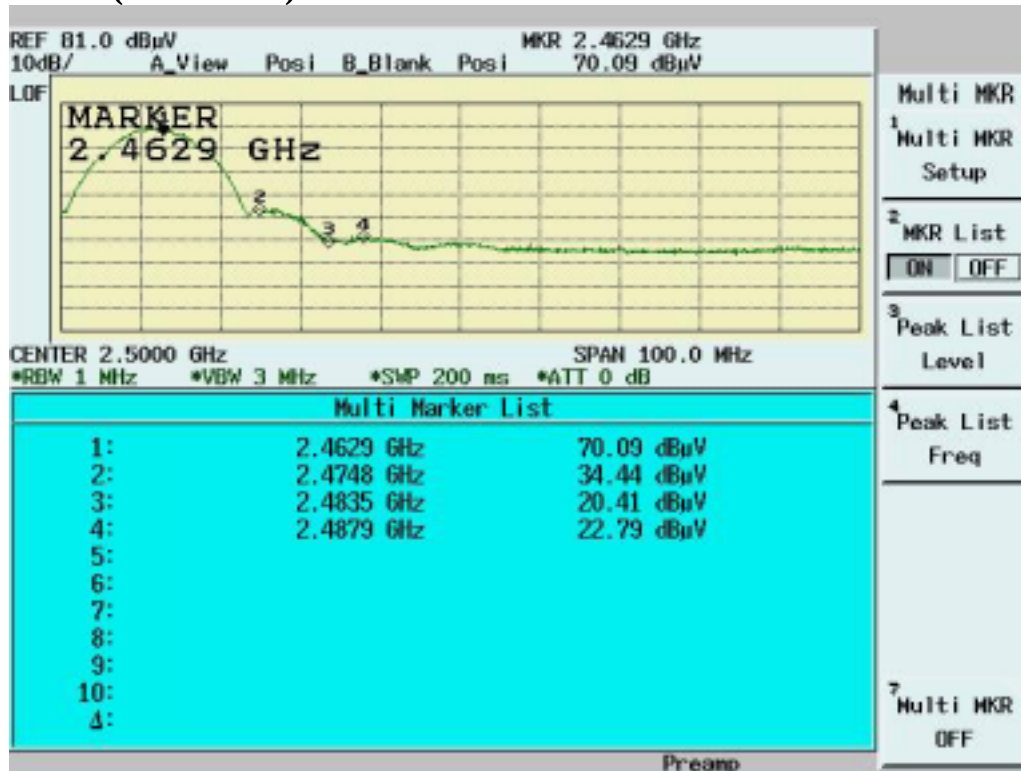
**Band Edge measurement for radiated emission in Restricted Band(Radiated)  
Peak Mode (Channel 1)**



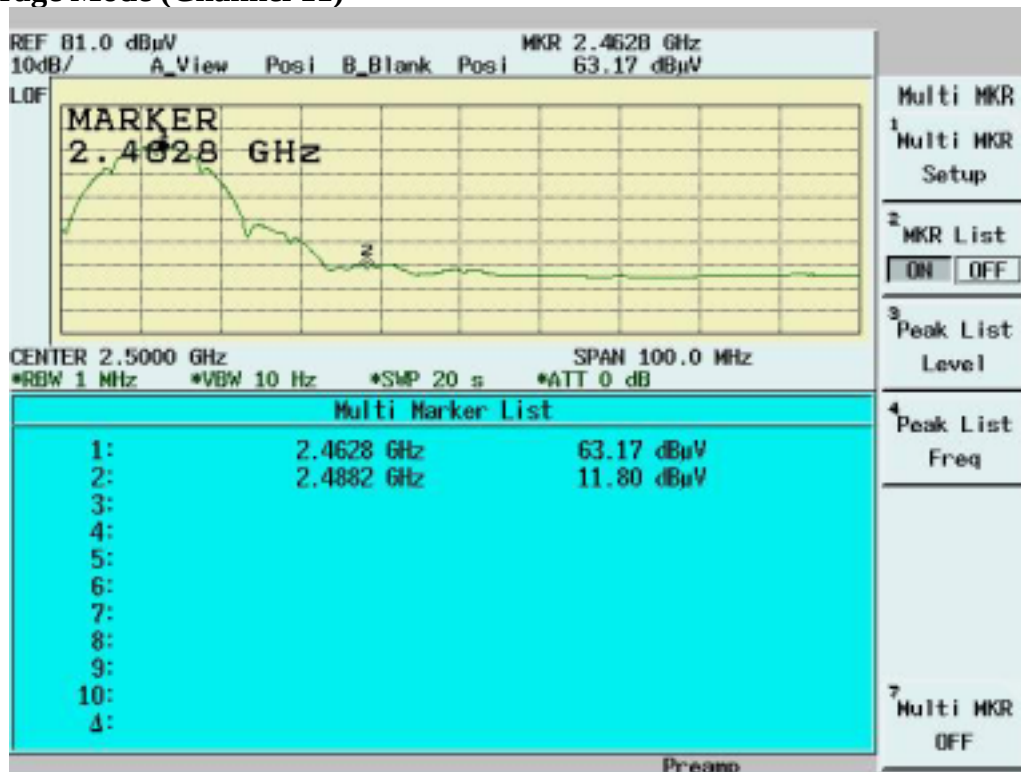
**Band Edge measurement for radiated emission in Restricted Band(Radiated)  
Average Mode (Channel 1)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 11)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 11)**



### **3.5 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]**

**See MPE report**

### 3.6 DSSS Peak Power Spectral Density [Section 15.247(d) ]

#### 3.6.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN:1.5MHz  
RBW: 3KHz  
VBW: 30KHz  
Center frequency: fundamental frequency tested.  
Sweep time= 500 sec.
2. Using Peak Search to read the peak power after Maximum Hold function is completed.

#### 3.6.2 Test Setup



#### 3.6.3 Test Data

##### Maximum Peak Output Power Density

Test Engineer: Jerry  
Chiou

Temperature ( ): 27

Tx Data Rate=1Mbps

Humidity (%): 55

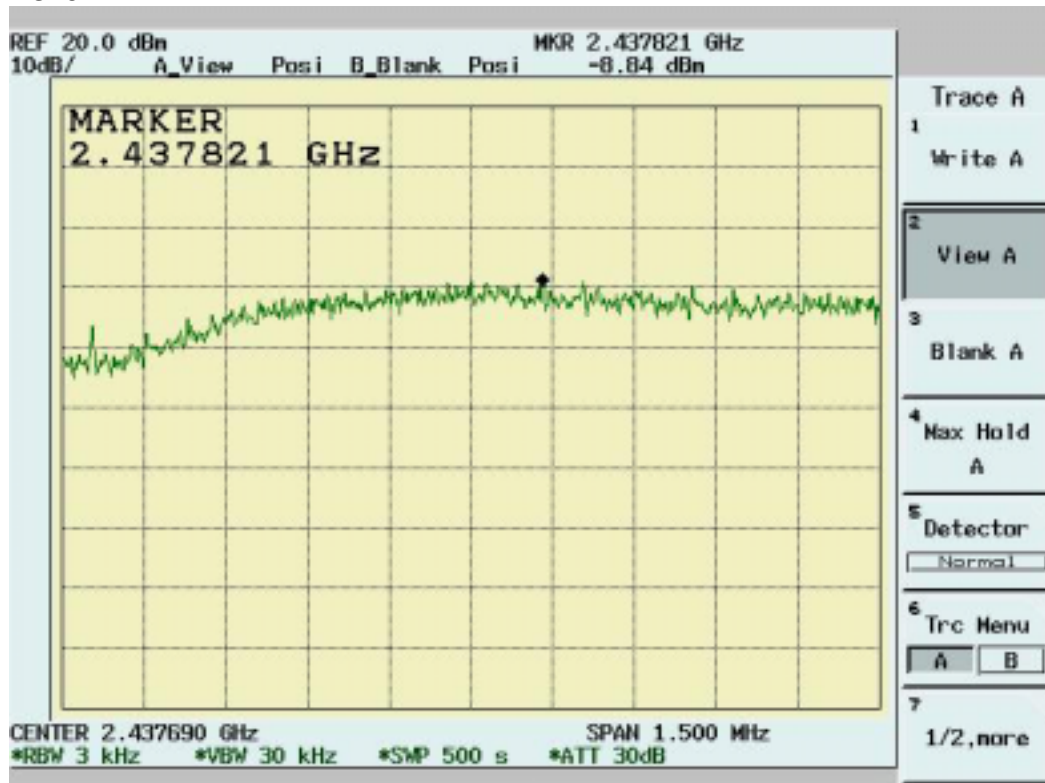
| Channel | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBm/3KHz) | Cable Loss<br>(dB) | Peak Power<br>Output<br>(dBm/3KHz) | Limit<br>(dBm/3KHz) | Pass/Fail |
|---------|--------------------|-----------------------------------|--------------------|------------------------------------|---------------------|-----------|
| 1       | 2412               | -7.75                             | 1.10               | -6.65                              | 8                   | Pass      |
| 6       | 2437               | -8.84                             | 1.10               | -7.74                              | 8                   | Pass      |
| 11      | 2462               | -7.94                             | 1.10               | -6.84                              | 8                   | Pass      |

Note: Two RF output( MAIN & AUX) have been test, the worse data shown above.

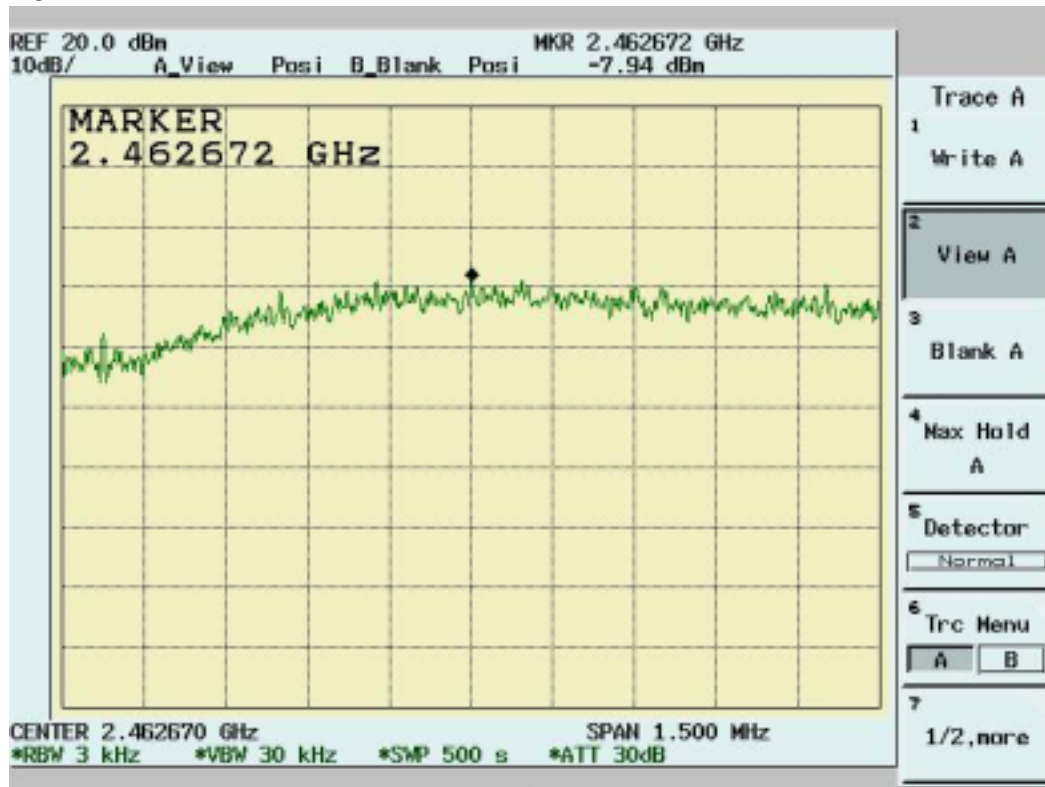
Channel 1



Channel 6



Channel 11



## 4. TEST RESULTS (802.11g)

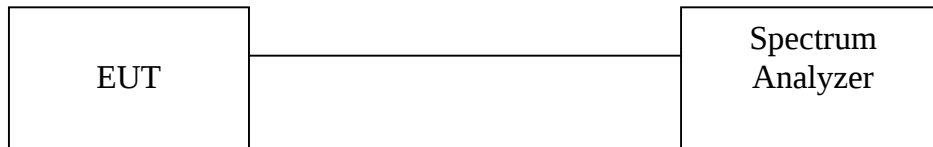
### 4.1 Bandwidth for DSSS [Section 15.247 (a)(2)]

#### 4.1.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

|                   |                   |
|-------------------|-------------------|
| Equipment mode    | Spectrum analyzer |
| Detector function | Peak mode         |
| RBW               | 100KHz            |
| VBW               | 100KHz            |

#### 4.1.2 Test Setup



#### 4.1.3 Test Data:

##### 6dB Bandwidth

Test Engineer: Jerry Chiou

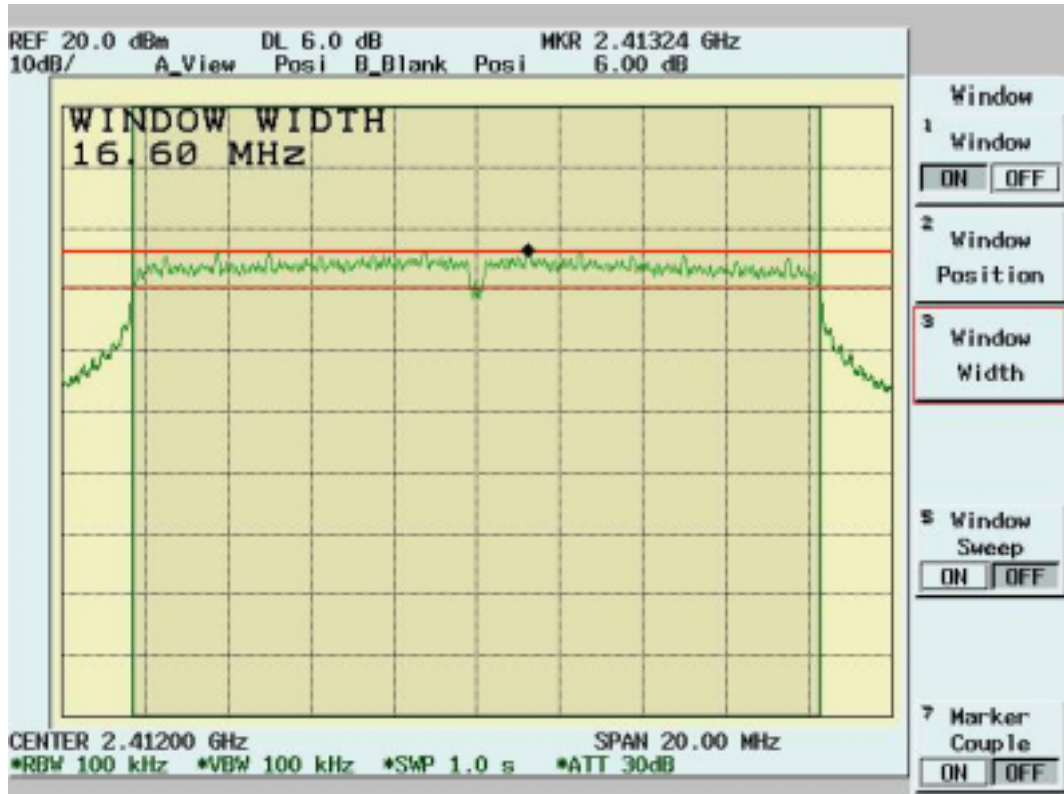
Temperature ( ): 27

Tx Data Rate=6Mbps

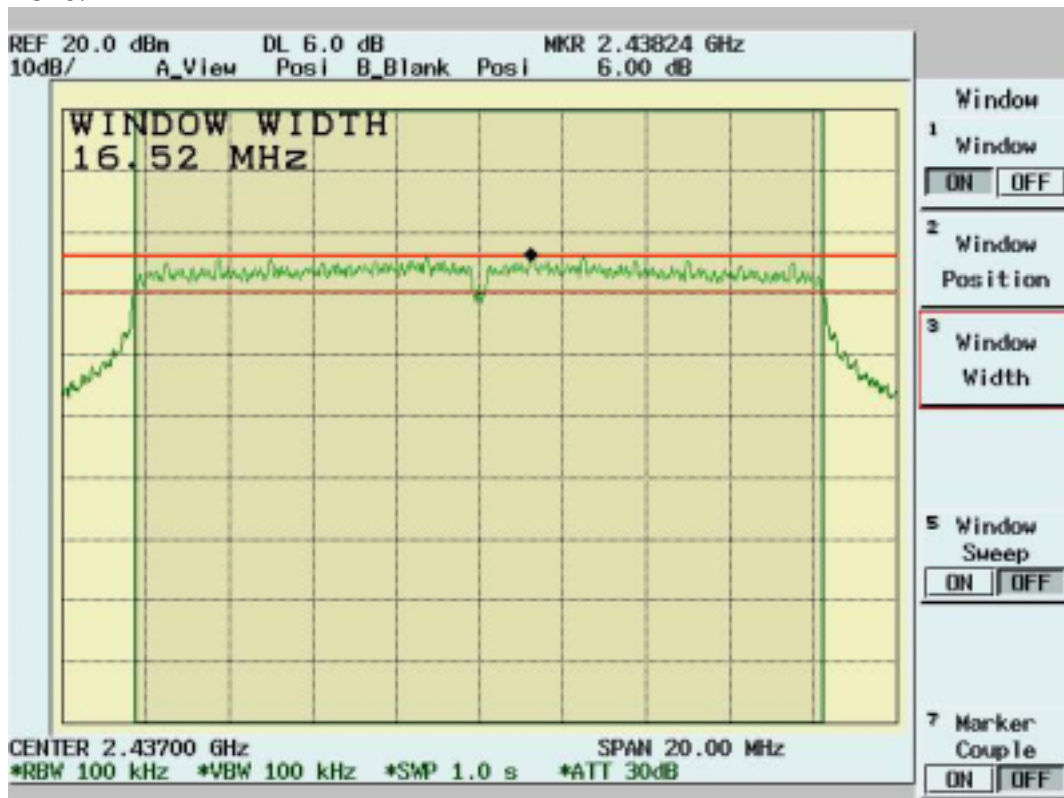
Humidity (%): 55

| Channel | Frequency<br>(MHz) | 6dB<br>Bandwidth<br>(MHz) | Limit<br>(MHz) | Pass/Fail |
|---------|--------------------|---------------------------|----------------|-----------|
| 1       | 2412               | 16.60                     | 0.5            | Pass      |
| 6       | 2437               | 16.52                     | 0.5            | Pass      |
| 11      | 2462               | 16.60                     | 0.5            | Pass      |

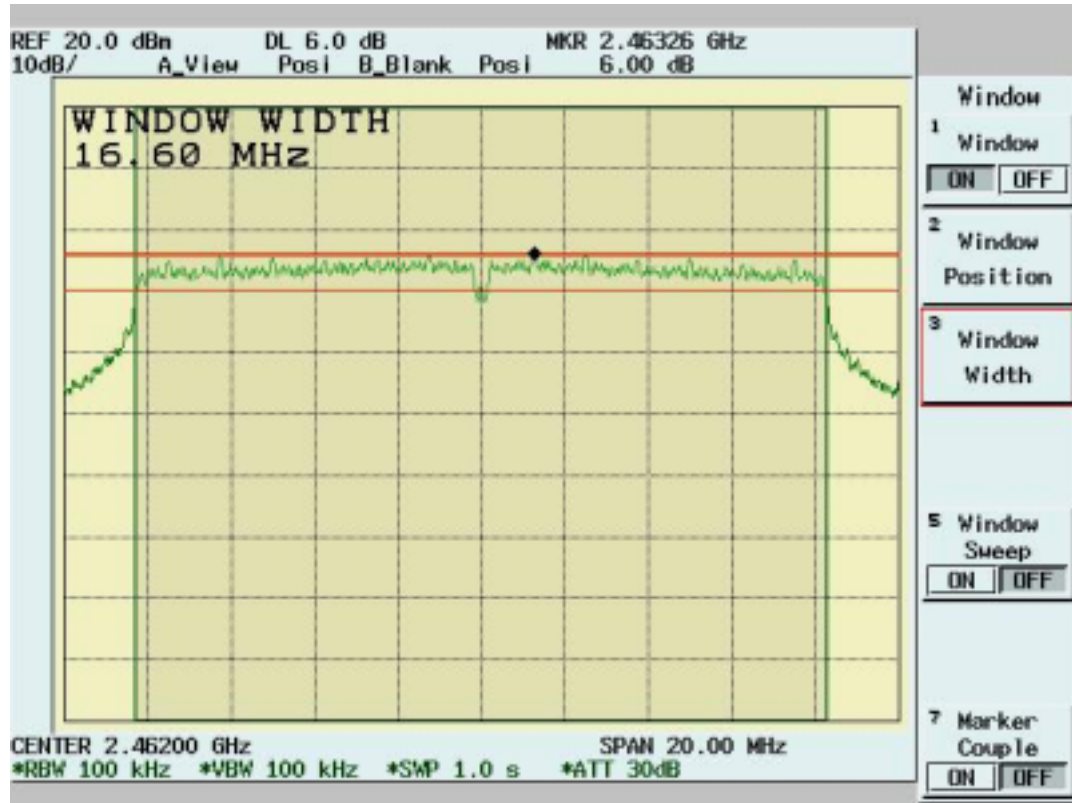
Channel 1:



Channel 6:



Channel 11:



## 4.2 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

### 4.2.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

### 4.2.2 Test Setup



### 4.2.3 Test Data

#### Maximum Peak Output Power

Test Engineer: Jerry  
Chiou

Temperature ( ): 27

Tx Data Rate=6Mbps

Humidity (%): 55

| Channel | Frequency<br>(Mhz) | Analyzer<br>Reading<br>(dBm) | Cable Loss<br>(dB) | Peak Power<br>Output<br>(mW) | Peak Power<br>Output<br>(dBm) | Limit<br>(dBm) | Pass/Fail |
|---------|--------------------|------------------------------|--------------------|------------------------------|-------------------------------|----------------|-----------|
| 1       | 2412               | 15.75                        | 1.10               | 48.42                        | 16.85                         | 30             | Pass      |
| 6       | 2437               | 15.56                        | 1.10               | 46.37                        | 16.66                         | 30             | Pass      |
| 11      | 2462               | 15.16                        | 1.10               | 42.23                        | 16.26                         | 30             | Pass      |

Note: Two RF output( MAIN & AUX) have been test,the worse data shown above.

### 4.3 Radiated Emission Measurement [Section [15.247(c)(4)]

#### 4.3.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

#### 4.3.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

For the test of 2<sup>nd</sup> to 10<sup>th</sup> harmonics frequencies, the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

#### 4.3.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

|                             |                 |
|-----------------------------|-----------------|
| Frequency Range Tested:     | 30MHz~1000MHz   |
| Detector Function:          | Quasi-Peak Mode |
| Resolution Bandwidth (RBW): | 120KHz          |
| Video Bandwidth (VBW)       | 1MHz            |
| Frequency Range Tested:     | 1GHz – 25 GHz   |
| Detector Function:          | Peak Mode       |
| Resolution Bandwidth (RBW): | 1MHz            |
| Video Bandwidth (VBW)       | 3MHz            |
| Frequency Range Tested:     | 1GHz – 25 GHz   |
| Detector Function:          | Average Mode    |
| Resolution Bandwidth (RBW): | 1MHz            |
| Video Bandwidth (VBW)       | 10 Hz           |

**4.3.4 Test Data (30MHz – 1GHz):****30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 1, 6, 11**

Operator: Jerry Chiou

Temperature (C): 23

06:47:33 PM, Friday, August 12, 2005

Humidity (%): 54

| Frequency | Rx<br>Amp. | Ant<br>Fact | CableLoss | PreAmpGain | Corrct.<br>Emi. | Limit    | Margin | Ant.<br>Pos. | Table<br>Pos. |
|-----------|------------|-------------|-----------|------------|-----------------|----------|--------|--------------|---------------|
| MHz       | (dBuV)     | (dB/m)      | (dB)      | (dB)       | (dBuV/m)        | (dBuV/m) | (dB)   | (cm)         | (deg)         |
| 41.64     | 13.84      | 11.38       | 1.13      | 0.00       | 26.35           | 40.00    | -13.65 | 102.00       | 337.00        |
| 53.28     | 20.46      | 6.81        | 1.26      | 0.00       | 28.53           | 40.00    | -11.47 | 102.00       | 255.00        |
| 106.63    | 20.89      | 11.10       | 1.99      | 0.00       | 33.98           | 43.50    | -9.52  | 102.00       | 190.00        |
| 142.52    | 16.58      | 10.10       | 2.21      | 0.00       | 28.89           | 43.50    | -14.61 | 102.00       | 287.00        |
| 322.94    | 12.09      | 16.04       | 3.86      | 0.00       | 31.98           | 46.00    | -14.02 | 196.00       | 237.00        |
| 366.59    | 13.53      | 16.10       | 4.22      | 0.00       | 33.85           | 46.00    | -12.15 | 102.00       | 337.00        |
| 512.09    | 8.64       | 17.69       | 5.31      | 0.00       | 31.64           | 46.00    | -14.36 | 196.00       | 253.00        |
| 666.32    | 17.24      | 19.00       | 6.41      | 0.00       | 42.65           | 46.00    | -3.35  | 102.00       | 141.00        |
| 733.25    | 12.43      | 19.80       | 6.89      | 0.00       | 39.12           | 46.00    | -6.88  | 196.00       | 303.00        |

**30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 1, 6, 11**

Operator: Jerry Chiou

Temperature (C): 23

06:47:33 PM, Friday, August 12, 2005

Humidity (%): 54

| Frequency | Rx<br>Amp. | Ant<br>Fact | CableLoss | PreAmpGain | Corrct.<br>Emi. | Limit    | Margin | Ant.<br>Pos. | Table<br>Pos. |
|-----------|------------|-------------|-----------|------------|-----------------|----------|--------|--------------|---------------|
| MHz       | (dBuV)     | (dB/m)      | (dB)      | (dB)       | (dBuV/m)        | (dBuV/m) | (dB)   | (cm)         | (deg)         |
| 71.71     | 24.50      | 5.61        | 1.52      | 0.00       | 31.63           | 40.00    | -8.37  | 196.00       | 351.00        |
| 76.56     | 21.40      | 6.19        | 1.62      | 0.00       | 29.21           | 40.00    | -10.79 | 196.00       | 351.00        |
| 354.95    | 13.09      | 16.17       | 4.14      | 0.00       | 33.40           | 46.00    | -12.60 | 196.00       | 220.00        |
| 357.86    | 13.62      | 16.15       | 4.16      | 0.00       | 33.93           | 46.00    | -12.07 | 196.00       | 204.00        |
| 366.59    | 13.71      | 16.10       | 4.22      | 0.00       | 34.03           | 46.00    | -11.97 | 102.00       | 337.00        |
| 432.55    | 12.43      | 16.10       | 4.69      | 0.00       | 33.21           | 46.00    | -12.79 | 102.00       | 206.00        |
| 666.32    | 17.16      | 19.00       | 6.41      | 0.00       | 42.57           | 46.00    | -3.43  | 102.00       | 141.00        |
| 733.25    | 11.35      | 19.80       | 6.89      | 0.00       | 38.04           | 46.00    | -7.96  | 196.00       | 303.00        |
| 833.16    | 5.39       | 20.43       | 7.71      | 0.00       | 33.53           | 46.00    | -12.47 | 196.00       | 270.00        |

**NOTE:**

- During the Pre-test, the EUT has been tested for Channel 1, 6, 11 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.

- Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

**All frequencies from 30MHz to 1GHz have been tested**

**4.3.5 Test Data ( 1GHz – 25 GHz) .****1GHz~ 25 GHz (Horizontal), Channel 1: 2412 MHz**

Operator: Jerry Chiou

RBW: 1MHz

Humidity (%): 41

Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1332.17   | 48.73 pk | 26.03  | 2.21   | 34.11   | 42.86 pk | 54.00 av | -11.14 | 101     | 89      |
| 1844.16   | 45.37 pk | 29.69  | 2.48   | 34.87   | 42.67 pk | 54.00 av | -11.33 | 100     | 54      |
| 2208.79   | 44.98 pk | 30.96  | 1.96   | 35.19   | 42.72 pk | 54.00 av | -11.28 | 101     | 109     |
| 2248.75   | 46.07 pk | 30.95  | 1.84   | 35.19   | 43.67 pk | 54.00 av | -10.33 | 101     | 121     |
| 2256.24   | 46.40 pk | 30.95  | 1.82   | 35.19   | 43.98 pk | 54.00 av | -10.02 | 101     | 123     |
| 2510.99   | 51.68 pk | 30.90  | 1.36   | 35.19   | 48.76 pk | 54.00 av | -5.24  | 102     | 203     |
| 2518.48   | 48.33 pk | 30.91  | 1.36   | 35.18   | 45.42 pk | 54.00 av | -8.58  | 102     | 206     |
| 2558.44   | 45.77 pk | 30.92  | 1.37   | 35.15   | 42.92 pk | 54.00 av | -11.08 | 102     | 218     |
| 2610.89   | 47.76 pk | 30.94  | 1.38   | 35.10   | 44.98 pk | 54.00 av | -9.02  | 102     | 235     |
| 2633.37   | 45.21 pk | 30.95  | 1.38   | 35.08   | 42.47 pk | 54.00 av | -11.53 | 102     | 242     |
| 2645.85   | 44.01 pk | 30.96  | 1.39   | 35.07   | 41.28 pk | 54.00 av | -12.72 | 102     | 246     |
| 4823.4    | 47.07 pk | 34.93  | 2.12   | 37.72   | 46.41 pk | 54.00 av | -7.59  | 100.00  | 165.00  |
| 9647.02   | 43.07 pk | 40.58  | 3.25   | 34.33   | 52.56 pk | 54.00 av | -1.44  | 100.00  | 97.00   |

**1GHz~ 25 GHz (Vertical), Channel 1: 2412 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1267.23   | 51.71 pk | 25.73  | 2.20   | 34.07   | 45.57 pk | 54.00 av | -8.43  | 101     | 94      |
| 1744.26   | 48.97 pk | 28.85  | 2.41   | 34.68   | 45.55 pk | 54.00 av | -8.45  | 101     | 61      |
| 1844.16   | 47.83 pk | 29.69  | 2.48   | 34.87   | 45.13 pk | 54.00 av | -8.87  | 100     | 54      |
| 1854.15   | 47.97 pk | 29.77  | 2.49   | 34.89   | 45.34 pk | 54.00 av | -8.66  | 100     | 53      |
| 2208.79   | 49.27 pk | 30.96  | 1.96   | 35.19   | 47.01 pk | 54.00 av | -6.99  | 101     | 109     |
| 2241.26   | 50.01 pk | 30.95  | 1.86   | 35.19   | 47.63 pk | 54.00 av | -6.37  | 101     | 119     |
| 2311.19   | 60.58 pk | 30.94  | 1.65   | 35.19   | 57.97 pk | 74.00 pk | -16.03 | 101     | 141     |
| 2311.19   | 36.84 av | 30.94  | 1.65   | 35.19   | 34.22 av | 54.00 av | -19.78 | 101     | 141     |
| 2318.68   | 53.99 pk | 30.94  | 1.63   | 35.19   | 51.36 pk | 54.00 av | -2.64  | 101     | 143     |
| 2358.64   | 53.49 pk | 30.93  | 1.51   | 35.19   | 50.73 pk | 54.00 av | -3.27  | 101     | 156     |
| 2491.01   | 51.53 pk | 30.90  | 1.41   | 35.20   | 48.64 pk | 54.00 av | -5.36  | 101     | 197     |
| 2510.99   | 53.48 pk | 30.90  | 1.36   | 35.19   | 50.56 pk | 54.00 av | -3.44  | 102     | 203     |
| 2518.48   | 51.36 pk | 30.91  | 1.36   | 35.18   | 48.45 pk | 54.00 av | -5.55  | 102     | 206     |
| 2610.89   | 49.76 pk | 30.94  | 1.38   | 35.10   | 46.98 pk | 54.00 av | -7.02  | 102     | 235     |
| 4823.5    | 45.71 pk | 34.93  | 2.12   | 37.72   | 45.05 pk | 54.00 av | -8.95  | 100.00  | 5.00    |
| 9648.58   | 42.71 pk | 40.57  | 3.25   | 34.33   | 52.20 pk | 54.00 av | -1.80  | 100.00  | 12.00   |

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

**1GHz~ 25 GHz (Horizontal) , Channel 6 : 2437 MHz**

Operator: Jerry Chiou

RBW: 1MHz  
Humidity (%): 41  
Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1332.17   | 49.65 pk | 26.03  | 2.21   | 34.11   | 43.78 pk | 54.00 av | -10.22 | 101     | 89      |
| 1754.25   | 46.47 pk | 28.94  | 2.42   | 34.70   | 43.12 pk | 54.00 av | -10.88 | 100     | 60      |
| 1856.64   | 47.14 pk | 29.80  | 2.49   | 34.90   | 44.53 pk | 54.00 av | -9.47  | 100     | 53      |
| 1886.61   | 46.13 pk | 30.05  | 2.52   | 34.96   | 43.74 pk | 54.00 av | -10.26 | 100     | 51      |
| 2126.37   | 45.57 pk | 30.97  | 2.21   | 35.19   | 43.57 pk | 54.00 av | -10.43 | 100     | 83      |
| 2231.27   | 50.00 pk | 30.95  | 1.89   | 35.19   | 47.66 pk | 54.00 av | -6.34  | 101     | 116     |
| 2535.96   | 50.76 pk | 30.91  | 1.37   | 35.17   | 47.87 pk | 54.00 av | -6.13  | 102     | 211     |
| 2593.41   | 48.16 pk | 30.94  | 1.38   | 35.12   | 45.35 pk | 54.00 av | -8.65  | 102     | 229     |
| 2638.36   | 48.29 pk | 30.96  | 1.38   | 35.08   | 45.55 pk | 54.00 av | -8.45  | 102     | 243     |
| 2693.31   | 46.57 pk | 30.98  | 1.39   | 35.03   | 43.92 pk | 54.00 av | -10.08 | 102     | 261     |
| 2975.52   | 46.62 pk | 31.09  | 1.45   | 34.77   | 44.38 pk | 54.00 av | -9.62  | 103     | 349     |
| 3152.85   | 46.50 pk | 31.22  | 1.53   | 35.08   | 44.17 pk | 54.00 av | -9.83  | 103     | 318     |
| 3267.73   | 47.06 pk | 31.31  | 1.59   | 35.33   | 44.63 pk | 54.00 av | -9.37  | 103     | 288     |
| 4873.16   | 48.80 pk | 35.12  | 2.14   | 37.77   | 48.28 pk | 54.00 av | -5.72  | 100.00  | 198.00  |
| 9748.66   | 44.27 pk | 40.35  | 3.30   | 34.37   | 53.55 pk | 54.00 av | -0.45  | 100.00  | 185.00  |

**1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1264.74   | 51.68 pk | 25.72  | 2.20   | 34.07   | 45.53 pk | 54.00 av | -8.47  | 101     | 94      |
| 1844.16   | 48.14 pk | 29.69  | 2.48   | 34.87   | 45.44 pk | 54.00 av | -8.56  | 100     | 54      |
| 2201.3    | 46.94 pk | 30.96  | 1.99   | 35.19   | 44.69 pk | 54.00 av | -9.31  | 101     | 106     |
| 2231.27   | 52.79 pk | 30.95  | 1.89   | 35.19   | 50.45 pk | 54.00 av | -3.55  | 101     | 116     |
| 2296.2    | 52.85 pk | 30.94  | 1.70   | 35.19   | 50.30 pk | 54.00 av | -3.70  | 101     | 136     |
| 2318.68   | 52.92 pk | 30.94  | 1.63   | 35.19   | 50.29 pk | 54.00 av | -3.71  | 101     | 143     |
| 2358.64   | 52.20 pk | 30.93  | 1.51   | 35.19   | 49.43 pk | 54.00 av | -4.57  | 101     | 156     |
| 2518.48   | 51.09 pk | 30.91  | 1.36   | 35.18   | 48.18 pk | 54.00 av | -5.82  | 102     | 206     |
| 2535.96   | 50.97 pk | 30.91  | 1.37   | 35.17   | 48.08 pk | 54.00 av | -5.92  | 102     | 211     |
| 2578.42   | 48.88 pk | 30.93  | 1.37   | 35.13   | 46.05 pk | 54.00 av | -7.95  | 102     | 225     |
| 2600.9    | 48.57 pk | 30.94  | 1.38   | 35.11   | 45.78 pk | 54.00 av | -8.22  | 102     | 232     |
| 2890.61   | 46.60 pk | 31.06  | 1.43   | 34.85   | 44.24 pk | 54.00 av | -9.76  | 103     | 323     |
| 2973.03   | 46.59 pk | 31.09  | 1.45   | 34.77   | 44.35 pk | 54.00 av | -9.65  | 103     | 349     |
| 4874.88   | 46.49 pk | 35.12  | 2.14   | 37.77   | 45.98 pk | 54.00 av | -8.02  | 100.00  | 217.00  |
| 9748.67   | 43.91 pk | 40.35  | 3.30   | 34.37   | 53.19 pk | 54.00 av | -0.81  | 100.00  | 325.00  |

## Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.
- “\*”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

**1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz**

Operator: Jerry Chiou

RBW: 1MHz  
Humidity (%): 41  
Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1332.17   | 50.55 pk | 26.03  | 2.21   | 34.11   | 44.68 pk | 54.00 av | -9.32  | 101     | 89      |
| 1844.16   | 48.00 pk | 29.69  | 2.48   | 34.87   | 45.30 pk | 54.00 av | -8.70  | 100     | 54      |
| 2233.77   | 47.57 pk | 30.95  | 1.89   | 35.19   | 45.22 pk | 54.00 av | -8.78  | 101     | 116     |
| 2253.75   | 51.91 pk | 30.95  | 1.83   | 35.19   | 49.49 pk | 54.00 av | -4.51  | 101     | 123     |
| 2286.21   | 55.65 pk | 30.94  | 1.73   | 35.19   | 53.13 pk | 54.00 av | -0.87  | 101     | 133     |
| 2318.68   | 51.45 pk | 30.94  | 1.63   | 35.19   | 48.82 pk | 54.00 av | -5.18  | 101     | 143     |
| 2331.17   | 50.56 pk | 30.93  | 1.59   | 35.19   | 47.89 pk | 54.00 av | -6.11  | 101     | 147     |
| 2383.62   | 51.44 pk | 30.92  | 1.43   | 35.20   | 48.59 pk | 54.00 av | -5.41  | 101     | 163     |
| 2518.48   | 50.70 pk | 30.91  | 1.36   | 35.18   | 47.79 pk | 54.00 av | -6.21  | 102     | 206     |
| 2540.96   | 48.43 pk | 30.92  | 1.37   | 35.16   | 45.55 pk | 54.00 av | -8.45  | 102     | 213     |
| 2560.94   | 48.54 pk | 30.92  | 1.37   | 35.15   | 45.69 pk | 54.00 av | -8.31  | 102     | 219     |
| 2578.42   | 48.75 pk | 30.93  | 1.37   | 35.13   | 45.93 pk | 54.00 av | -8.07  | 102     | 225     |
| 4923.81   | 46.45 pk | 35.31  | 2.15   | 37.83   | 46.08 pk | 54.00 av | -7.92  | 100.00  | 326.00  |
| 9847.62   | 43.87 pk | 40.14  | 3.35   | 34.41   | 52.95 pk | 54.00 av | -1.05  | 100.00  | 259.00  |

**1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1264.74   | 51.70 pk | 25.72  | 2.20   | 34.07   | 45.54 pk | 54.00 av | -8.46  | 101     | 94      |
| 1846.65   | 48.31 pk | 29.71  | 2.49   | 34.88   | 45.63 pk | 54.00 av | -8.37  | 100     | 54      |
| 2151.35   | 46.19 pk | 30.97  | 2.14   | 35.19   | 44.11 pk | 54.00 av | -9.89  | 100     | 91      |
| 2226.27   | 47.92 pk | 30.95  | 1.91   | 35.19   | 45.60 pk | 54.00 av | -8.40  | 101     | 114     |
| 2253.75   | 52.24 pk | 30.95  | 1.83   | 35.19   | 49.83 pk | 54.00 av | -4.17  | 101     | 123     |
| 2286.21   | 55.67 pk | 30.94  | 1.73   | 35.19   | 53.15 pk | 54.00 av | -0.85  | 101     | 133     |
| 2358.64   | 56.21 pk | 30.93  | 1.51   | 35.19   | 53.45 pk | 54.00 av | -0.55  | 101     | 156     |
| 2386.11   | 53.17 pk | 30.92  | 1.42   | 35.20   | 50.32 pk | 54.00 av | -3.68  | 101     | 164     |
| 2403.6    | 51.83 pk | 30.92  | 1.49   | 35.20   | 49.05 pk | 54.00 av | -4.95  | 101     | 170     |
| 2518.48   | 49.73 pk | 30.91  | 1.36   | 35.18   | 46.82 pk | 54.00 av | -7.18  | 102     | 206     |
| 2535.96   | 48.29 pk | 30.91  | 1.37   | 35.17   | 45.40 pk | 54.00 av | -8.60  | 102     | 211     |
| 2560.94   | 48.77 pk | 30.92  | 1.37   | 35.15   | 45.92 pk | 54.00 av | -8.08  | 102     | 219     |
| 2915.58   | 46.73 pk | 31.07  | 1.43   | 34.83   | 44.40 pk | 54.00 av | -9.60  | 103     | 330     |
| 3250.25   | 47.25 pk | 31.30  | 1.58   | 35.30   | 44.83 pk | 54.00 av | -9.17  | 103     | 293     |
| 4924.02   | 46.48 pk | 35.31  | 2.15   | 37.83   | 46.12 pk | 54.00 av | -7.88  | 100.00  | 5.00    |
| 9848.23   | 43.69 pk | 40.13  | 3.35   | 34.41   | 52.77 pk | 54.00 av | -1.23  | 100.00  | 281.00  |

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

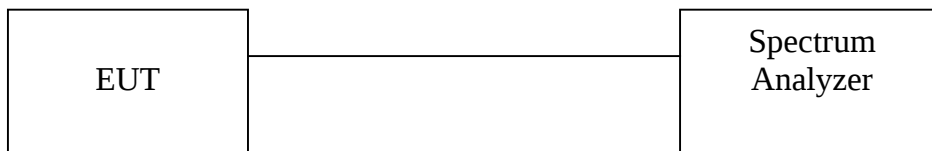
**All frequencies from 1GHz to 25 GHz have been tested.**

## 4.4 Band Edge Measurement

### 4.4.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 100KHz  
VBW: 100KHz  
Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

### 4.4.2 Test Setup (Conducted)



### 4.4.3 Test Data:

**Table: Band Edge measurement (Conducted)**

Test Engineer: Jerry Chiou

Temperature ( ): 27

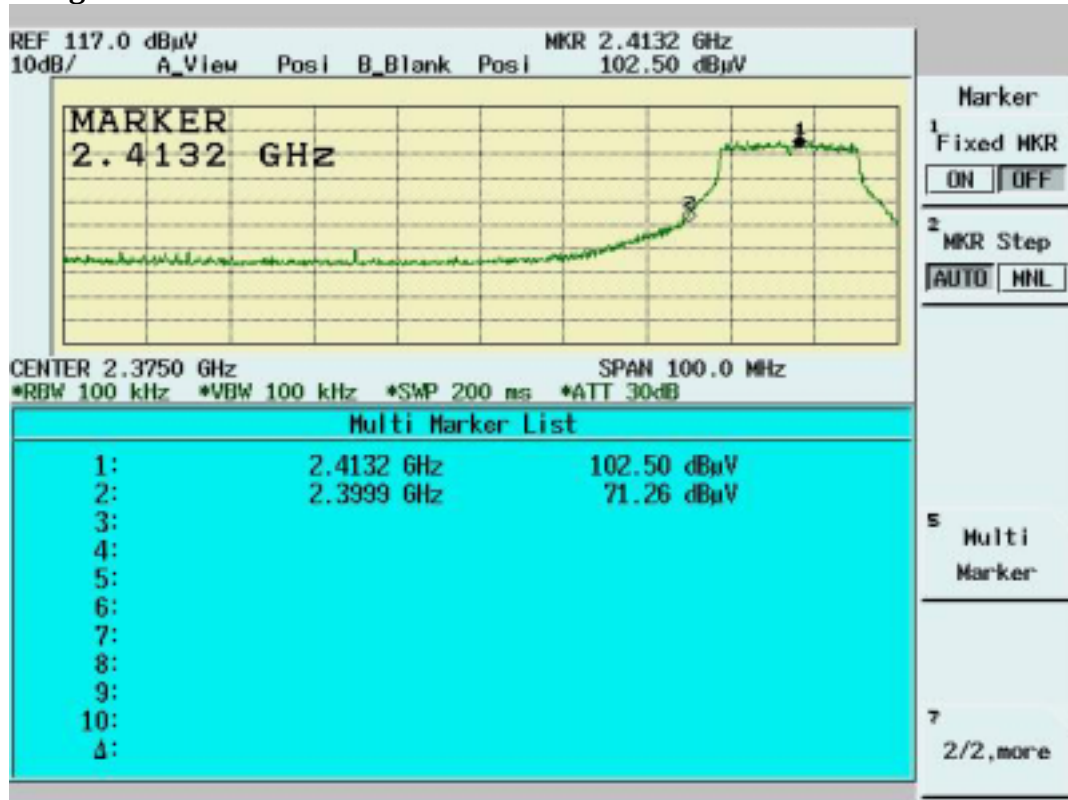
Tx Data Rate=6Mbps

Humidity (%): 55

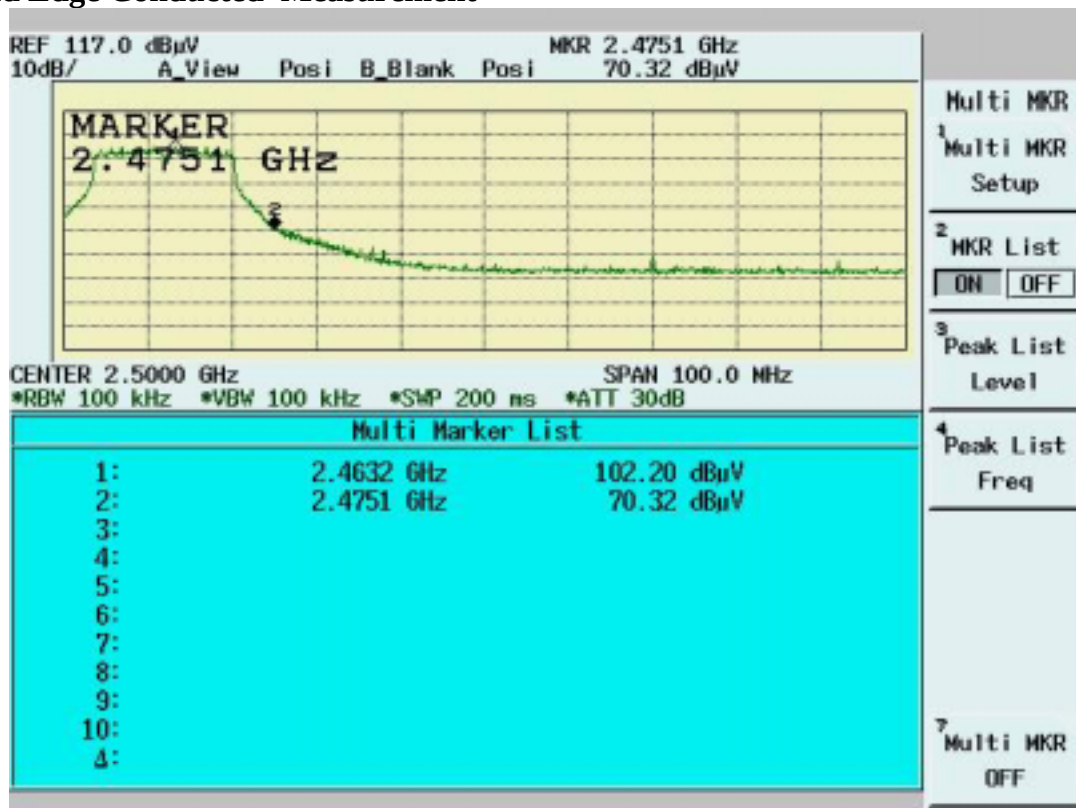
| Channel      | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBuV) | Carrier -<br>Outsideband<br>Limit: >20dB<br>(dB) | Pass/Fail |
|--------------|--------------------|-------------------------------|--------------------------------------------------|-----------|
| 1            | 2413.2             | 102.50                        | ---                                              | ---       |
| Outside band | 2399.9             | 71.26                         | 31.24                                            | Pass      |
| 11           | 2463.2             | 102.20                        | ---                                              | ---       |
| Outside band | 2475.1             | 70.32                         | 31.88                                            | Pass      |

Note: Two RF output( MAIN & AUX) have been test, the worse data shown above.

### Band Edge Conducted measurement



### Band Edge Conducted Measurement



#### 4.4.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 1MHz  
VBW: 3MHz  
Center frequency: 2.395GHz, 2.48GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band
4. For peak frequency emission level measurement in Restricted Band ,  
Change RBW: 1MHz  
VBW: 10Hz  
Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

#### 4.4.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

## 4.4.6 Test Data

Table Band Edge measurement (Radiated)

Test Engineer: Jerry Chiou

Temperature ( ): 26

Tx Data Rate=6Mbps

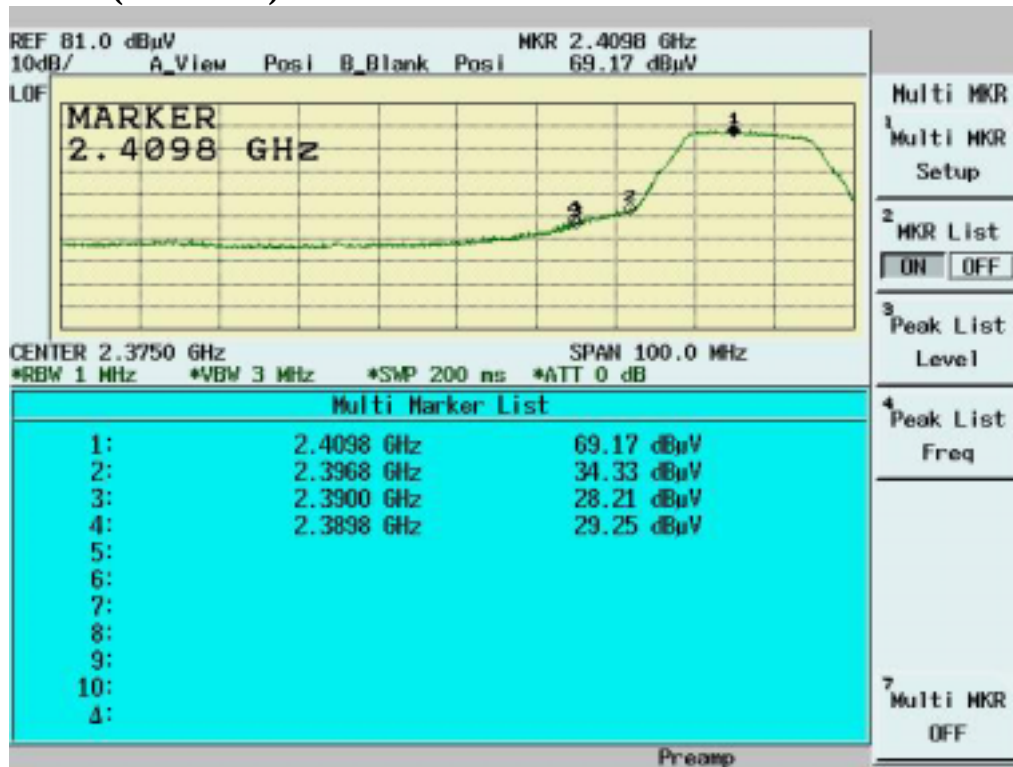
Humidity (%): 43

| Description                                  | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBuV) | Correction<br>Factor<br>(dB/m) | Emission<br>Level<br>(dBuV/m) | dBc<br>( Limit:<br>> 20dBc) | Limit<br>(dBuV/m) | Equip.<br>Setup<br>VBW | Pass<br>or<br>Fail |
|----------------------------------------------|--------------------|-------------------------------|--------------------------------|-------------------------------|-----------------------------|-------------------|------------------------|--------------------|
| Channel_1<br>(average mode)                  | 2410.1             | 54.38                         | 35.48                          | 89.86                         | ---                         | ---               | 10Hz                   | ---                |
| Channel_1<br>(peak mode)                     | 2409.8             | 69.17                         | 35.48                          | 104.65                        | ---                         | ---               | 3MHz                   | ---                |
| Outside band<br>(peak mode)                  | 2396.8             | 34.33                         | 35.48                          | 69.81                         | 34.84                       | ---               | 3MHz                   | Pass               |
| Channel_11<br>(average mode)                 | 2463.2             | 52.73                         | 35.50                          | 88.23                         | ---                         | ---               | 10Hz                   | ---                |
| Channel_11<br>(peak mode)                    | 2461.9             | 67.95                         | 35.50                          | 103.45                        | ---                         | ---               | 3MHz                   | ---                |
| Outside band<br>(peak mode)                  | 2476.9             | 36.64                         | 35.51                          | 72.15                         | 31.30                       | ---               | 3MHz                   | Pass               |
| Channel_1<br>Restricted band<br>(peak mode)  | 2389.8             | 29.25                         | 35.47                          | 64.72                         | ---                         | 74                | 3MHz                   | Pass               |
| Restricted band<br>(average mode)            | 2390.0             | 10.81                         | 35.47                          | 46.28                         | ---                         | 54                | 10Hz                   | Pass               |
| Channel_11<br>Restricted band<br>(peak mode) | 2483.7             | 31.77                         | 35.51                          | 67.28                         | ---                         | 74                | 3MHz                   | Pass               |
| Restricted band<br>(average mode)            | 2483.5             | 12.53                         | 35.51                          | 48.04                         | ---                         | 54                | 10Hz                   | Pass               |

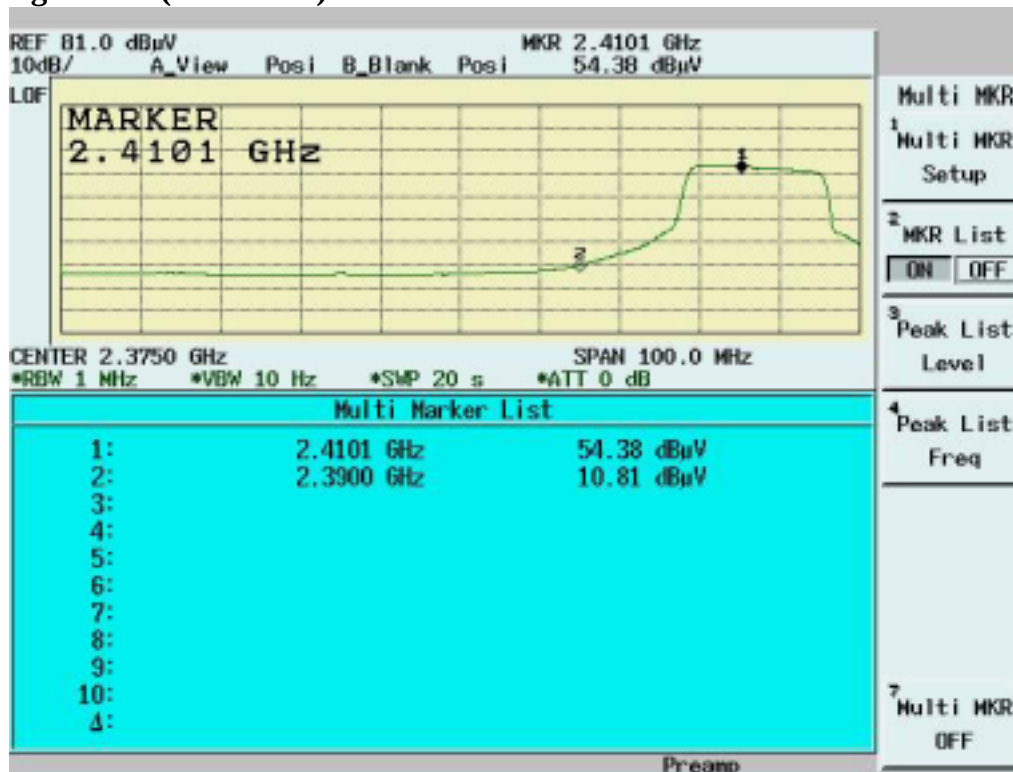
## Note:

- The Spectrum plot of emission level measurement in Restricted band is attached.
- Emission Level=Spectrum Reading+Correction Factor
- Correction Factor=Antenna Factor+cable loss–amplifier gain
- Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.

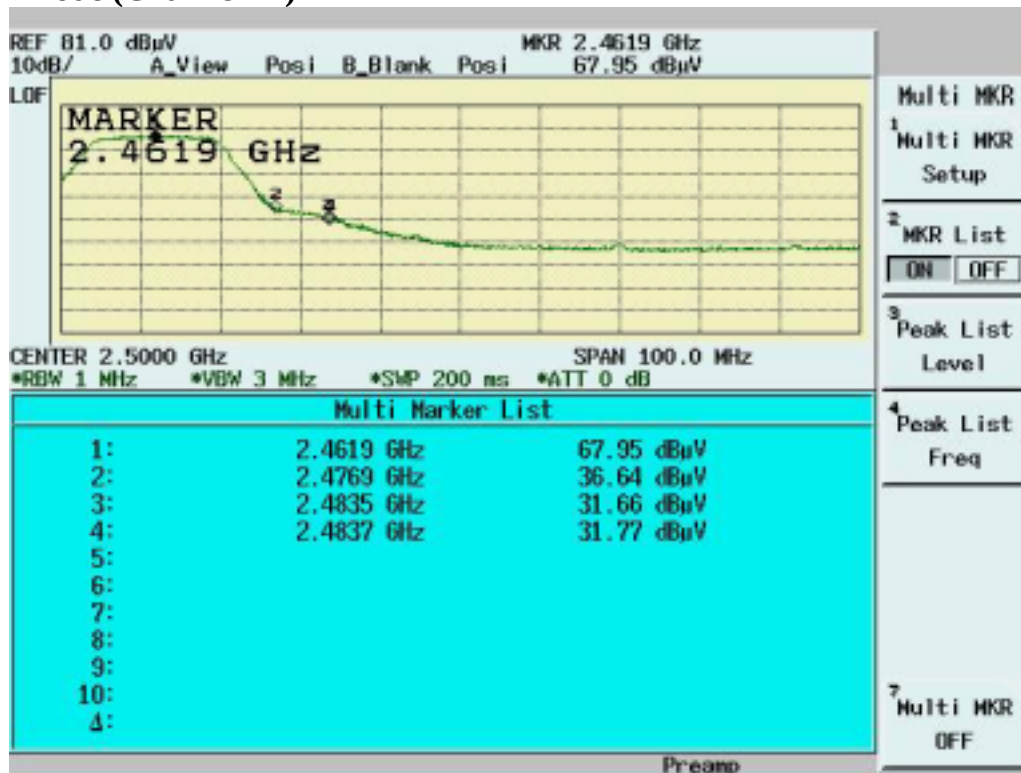
**Band Edge measurement for radiated emission in Restricted Band(Radiated)  
Peak Mode (Channel 1)**



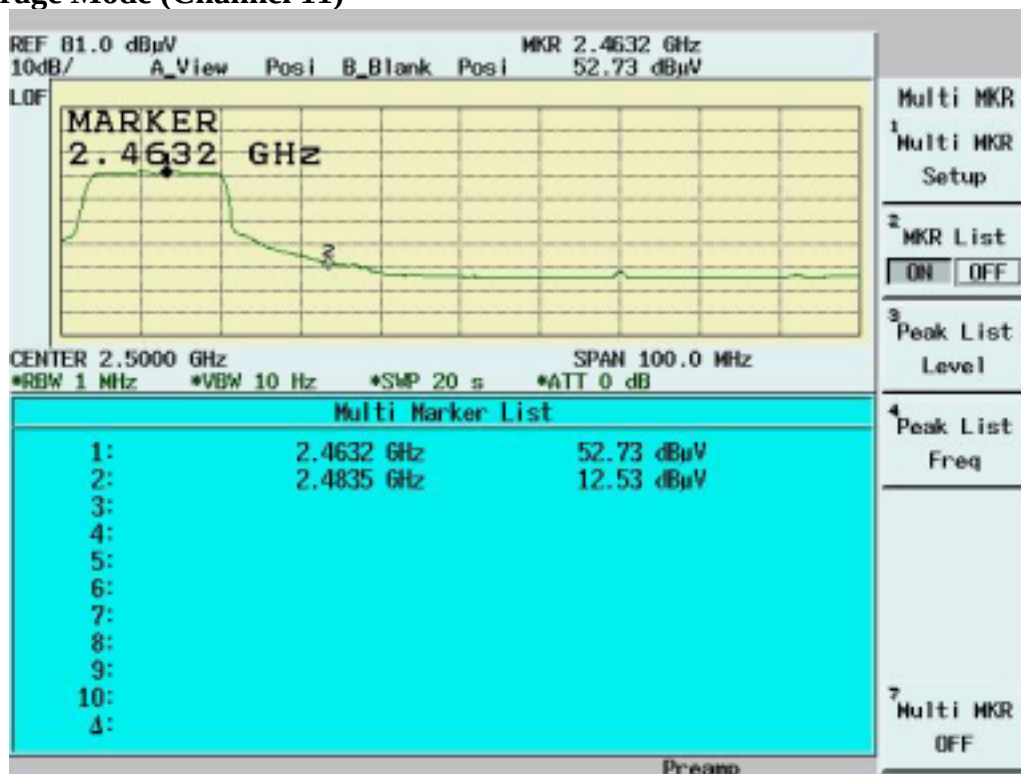
**Band Edge measurement for radiated emission in Restricted Band(Radiated)  
Average Mode (Channel 1)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 11)**



**Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 11)**



#### **4.5 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]**

**See MPE report**

## 4.6 DSSS Peak Power Spectral Density [Section 15.247(d) ]

### 4.6.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN:1.5MHz  
RBW: 3KHz  
VBW: 30KHz  
Center frequency: fundamental frequency tested.  
Sweep time= 500 sec.
2. Using Peak Search to read the peak power after Maximum Hold function is completed.

### 4.6.2 Test Setup



### 4.6.3 Test Data

#### Maximum Peak Output Power Density

Test Engineer: Jerry  
Chiou

Temperature ( ): 27

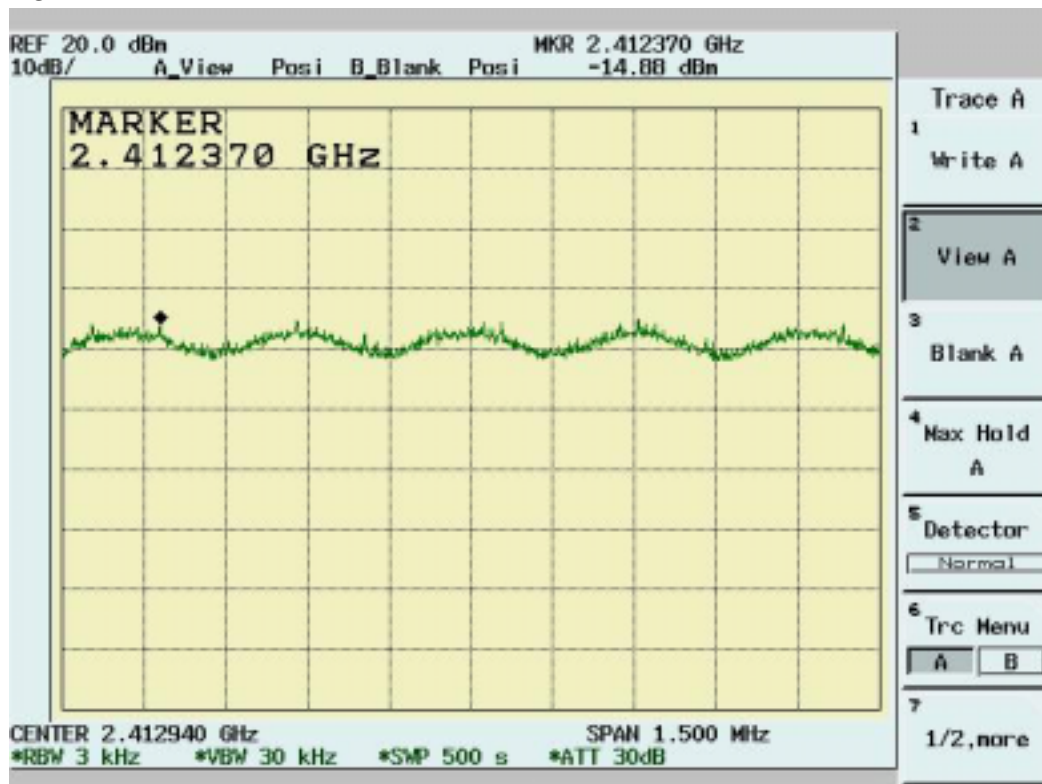
Tx Data Rate=6Mbps

Humidity (%): 55

| Channel | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBm/3KHz) | Cable Loss<br>(dB) | Peak Power<br>Output<br>(dBm/3KHz) | Limit<br>(dBm/3KHz) | Pass/Fail |
|---------|--------------------|-----------------------------------|--------------------|------------------------------------|---------------------|-----------|
| 1       | 2412               | -14.88                            | 1.10               | -13.78                             | 8                   | Pass      |
| 6       | 2437               | -15.50                            | 1.10               | -14.40                             | 8                   | Pass      |
| 11      | 2462               | -15.76                            | 1.10               | -14.66                             | 8                   | Pass      |

Note: Two RF output( MAIN & AUX) have been test, the worse data shown above.

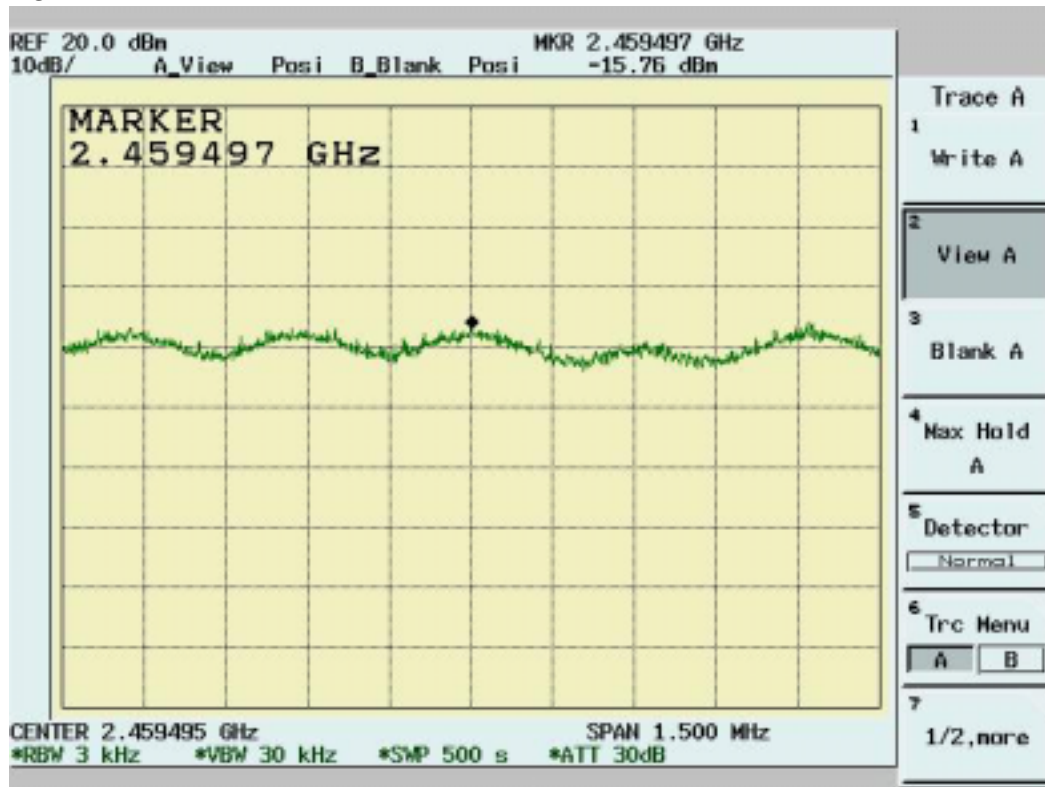
Channel 1



Channel 6



Channel 11



## 5. TEST RESULTS (Bluetooth)

### 5.1 FHSS Maximum Peak Output Power

#### 5.1.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

#### 5.1.2 Test Setup



#### 5.1.3 Test Data

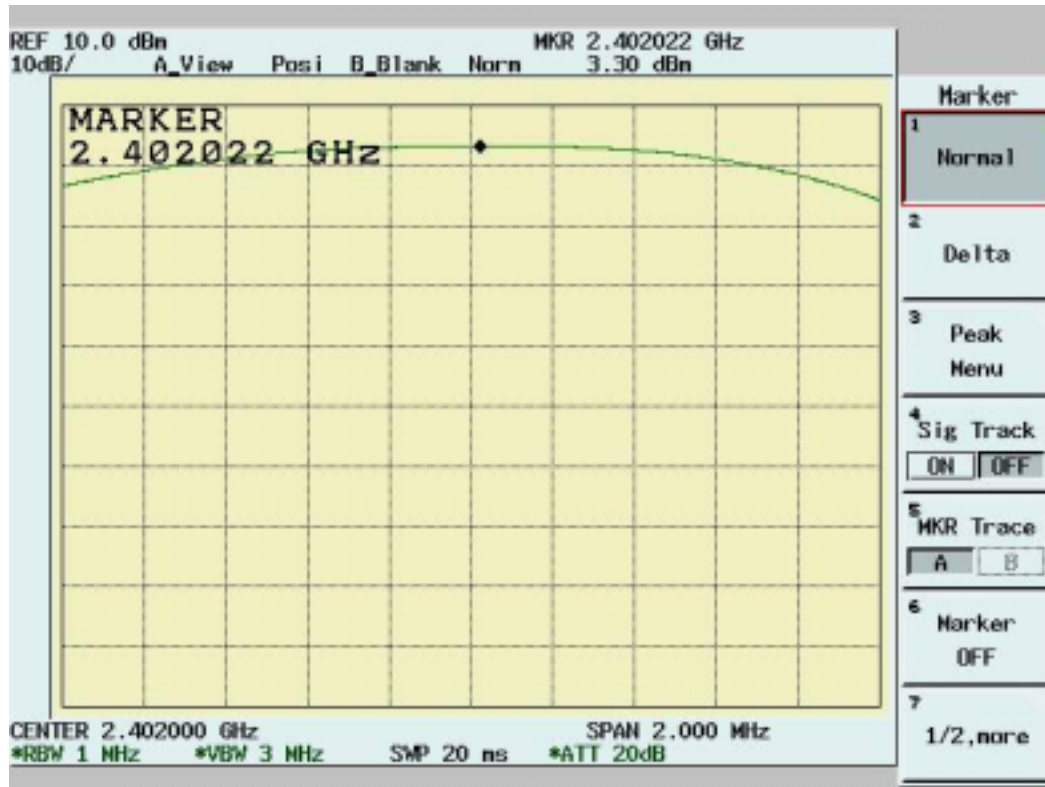
##### Maximum Peak Output Power

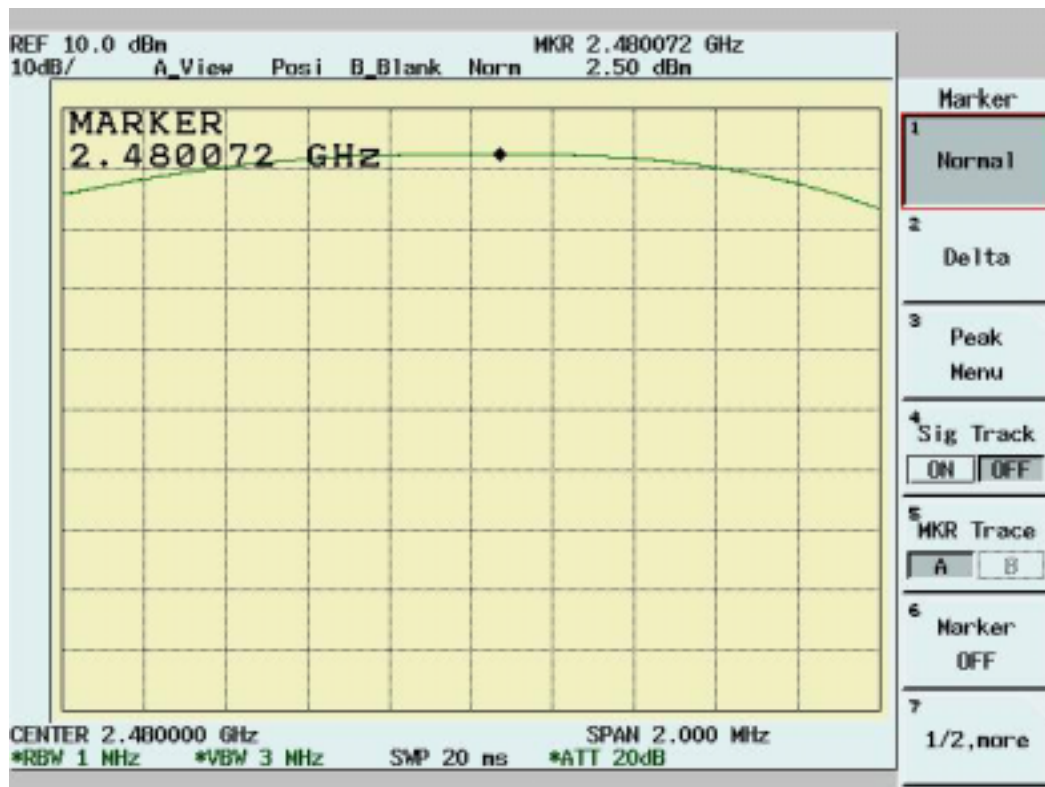
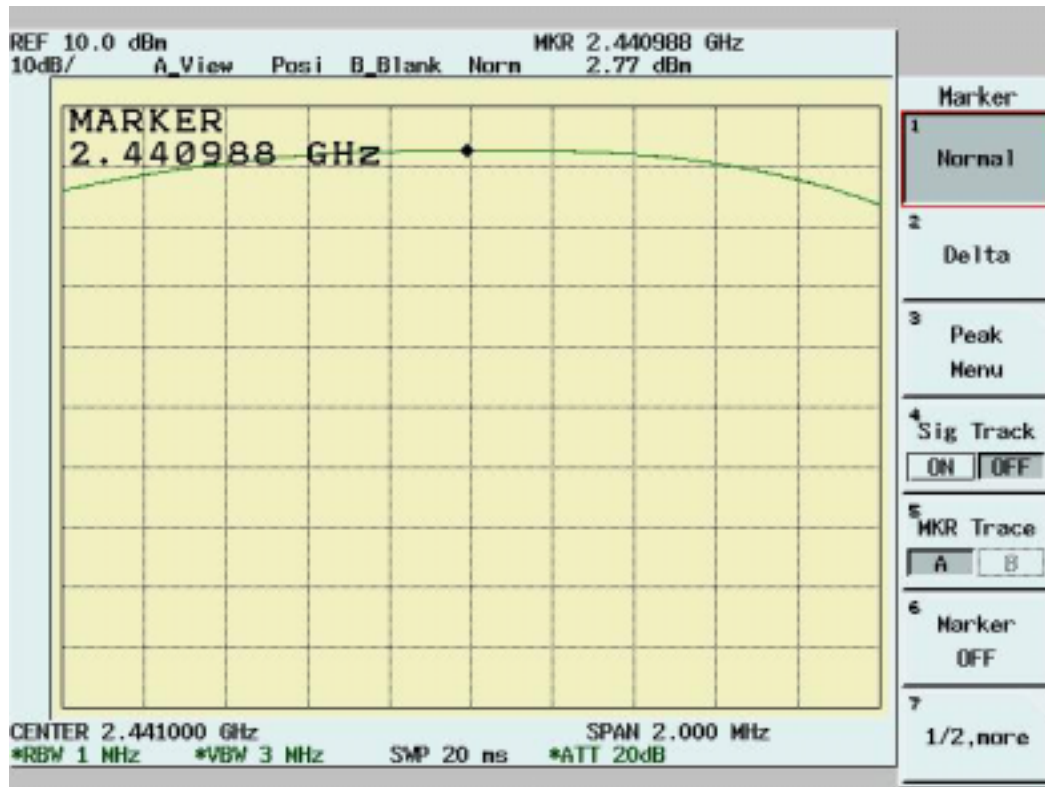
Temperature ( ):25

Test Engineer:Jerry Chiou

Humidity (%):55

| Channel | Frequency<br>(Mhz) | Analyzer<br>Reading<br>(dBm) | Cable Loss<br>(dB) | Peak Power<br>Output<br>(mW) | Peak Power<br>Output<br>(dBm) | Limit<br>(dBm) | Pass/Fail |
|---------|--------------------|------------------------------|--------------------|------------------------------|-------------------------------|----------------|-----------|
| 00      | 2412               | 3.30                         | 1.10               | 2.75                         | 4.40                          | 30             | Pass      |
| 39      | 2437               | 2.77                         | 1.10               | 2.44                         | 3.87                          | 30             | Pass      |
| 78      | 2462               | 2.50                         | 1.10               | 2.29                         | 3.60                          | 30             | Pass      |





## 5.2 Radiated Emission Measurement

### 5.2.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

### 5.2.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

For the test of 2<sup>nd</sup> to 10<sup>th</sup> harmonics frequencies, the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

### 5.2.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

|                             |                 |
|-----------------------------|-----------------|
| Frequency Range Tested:     | 30MHz~1000MHz   |
| Detector Function:          | Quasi-Peak Mode |
| Resolution Bandwidth (RBW): | 120KHz          |
| Video Bandwidth (VBW)       | 1MHz            |

|                             |               |
|-----------------------------|---------------|
| Frequency Range Tested:     | 1GHz – 25 GHz |
| Detector Function:          | Peak Mode     |
| Resolution Bandwidth (RBW): | 1MHz          |
| Video Bandwidth (VBW)       | 3MHz          |

|                             |               |
|-----------------------------|---------------|
| Frequency Range Tested:     | 1GHz – 25 GHz |
| Detector Function:          | Average Mode  |
| Resolution Bandwidth (RBW): | 1MHz          |
| Video Bandwidth (VBW)       | 10 Hz         |

**5.2.4 Test Data (30MHz – 1GHz):****30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 00, 39, 78**

Operator: Jerry Chiou

Temperature (C): 23

06:53:39 PM, Friday, August 12, 2005

Humidity (%): 54

| Frequency | Rx Amp. | Ant Fact | CableLoss | PreAmpGain | Corrct. Emi. | Limit    | Margin | Ant. Pos. | Table Pos. |
|-----------|---------|----------|-----------|------------|--------------|----------|--------|-----------|------------|
| MHz       | (dBuV)  | (dB/m)   | (dB)      | (dB)       | (dBuV/m)     | (dBuV/m) | (dB)   | (cm)      | (deg)      |
| 70.74     | 20.66   | 5.49     | 1.49      | 0.00       | 27.65        | 40.00    | -12.35 | 196.00    | 334.00     |
| 96.93     | 18.51   | 9.69     | 1.90      | 0.00       | 30.10        | 43.50    | -13.40 | 196.00    | 7.00       |
| 107.6     | 18.60   | 11.21    | 2.01      | 0.00       | 31.82        | 43.50    | -11.68 | 196.00    | 285.00     |
| 355.92    | 11.98   | 16.16    | 4.15      | 0.00       | 32.29        | 46.00    | -13.71 | 196.00    | 219.00     |
| 479.11    | 10.45   | 16.90    | 5.06      | 0.00       | 32.41        | 46.00    | -13.59 | 102.00    | 26.00      |
| 499.48    | 10.20   | 17.39    | 5.28      | 0.00       | 32.87        | 46.00    | -13.13 | 102.00    | 157.00     |
| 666.32    | 17.04   | 19.00    | 6.41      | 0.00       | 42.45        | 46.00    | -3.55  | 196.00    | 203.00     |
| 733.25    | 12.80   | 19.80    | 6.89      | 0.00       | 39.49        | 46.00    | -6.51  | 196.00    | 23.00      |
| 866.14    | 2.87    | 20.60    | 7.97      | 0.00       | 31.44        | 46.00    | -14.56 | 102.00    | 271.00     |

**30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 00, 39, 78**

Operator: Jerry Chiou

Temperature (C): 23

06:53:39 PM, Friday, August 12, 2005

Humidity (%): 54

| Frequency | Rx Amp. | Ant Fact | CableLoss | PreAmpGain | Corrct. Emi. | Limit    | Margin | Ant. Pos. | Table Pos. |
|-----------|---------|----------|-----------|------------|--------------|----------|--------|-----------|------------|
| MHz       | (dBuV)  | (dB/m)   | (dB)      | (dB)       | (dBuV/m)     | (dBuV/m) | (dB)   | (cm)      | (deg)      |
| 40.67     | 16.95   | 11.86    | 1.13      | 0.00       | 29.94        | 40.00    | -10.06 | 196.00    | 318.00     |
| 53.28     | 26.93   | 6.81     | 1.26      | 0.00       | 35.00        | 40.00    | -5.00  | 102.00    | 173.00     |
| 71.71     | 24.56   | 5.61     | 1.52      | 0.00       | 31.69        | 40.00    | -8.31  | 196.00    | 334.00     |
| 357.86    | 14.54   | 16.15    | 4.16      | 0.00       | 34.85        | 46.00    | -11.15 | 196.00    | 203.00     |
| 366.59    | 13.21   | 16.10    | 4.22      | 0.00       | 33.53        | 46.00    | -12.47 | 102.00    | 320.00     |
| 428.67    | 12.46   | 16.07    | 4.65      | 0.00       | 33.18        | 46.00    | -12.82 | 102.00    | 189.00     |
| 666.32    | 17.26   | 19.00    | 6.41      | 0.00       | 42.67        | 46.00    | -3.33  | 196.00    | 203.00     |
| 733.25    | 11.09   | 19.80    | 6.89      | 0.00       | 37.78        | 46.00    | -8.22  | 196.00    | 23.00      |
| 833.16    | 5.27    | 20.43    | 7.71      | 0.00       | 33.41        | 46.00    | -12.59 | 196.00    | 252.00     |

**NOTE:**

- During the Pre-test, the EUT has been tested for Channel 00, 39, 78 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.
- Margin = Corrected Amplitude – Limit  
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain  
A margin of -8dB means that the emission is 8dB below the limit

**All frequencies from 30MHz to 1GHz have been tested**

### 5.2.5 Test Data ( 1GHz – 25 GHz ) .

#### 1GHz~ 25 GHz (Horizontal), Channel 00: 2402 MHz

Operator: Jerry Chiou

RBW: 1MHz

Humidity (%): 41

Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 47.55 pk | 25.11  | 2.19   | 34.00   | 40.85 pk | 54.00 av | -13.15 | 102     | 103     |
| 1167.33   | 46.78 pk | 25.27  | 2.19   | 34.02   | 40.22 pk | 54.00 av | -13.78 | 102     | 100     |
| 1332.17   | 47.80 pk | 26.03  | 2.21   | 34.11   | 41.93 pk | 54.00 av | -12.07 | 101     | 89      |
| 1806.69   | 42.43 pk | 29.38  | 2.46   | 34.80   | 39.46 pk | 54.00 av | -14.54 | 100     | 56      |
| 1831.67   | 42.42 pk | 29.59  | 2.48   | 34.85   | 39.63 pk | 54.00 av | -14.37 | 100     | 55      |
| 1841.66   | 44.98 pk | 29.67  | 2.48   | 34.87   | 42.27 pk | 54.00 av | -11.73 | 100     | 54      |
| 1999      | 41.74 pk | 30.99  | 2.60   | 35.18   | 40.16 pk | 54.00 av | -13.84 | 100     | 43      |
| 2148.85   | 41.68 pk | 30.97  | 2.15   | 35.19   | 39.61 pk | 54.00 av | -14.39 | 100     | 90      |
| 4804.21   | 49.06 pk | 34.86  | 2.12   | 37.69   | 48.34 pk | 54.00 av | -5.66  | 1400.00 | 242.00  |
| 9607.67   | 43.27 pk | 40.66  | 3.23   | 34.32   | 52.84 pk | 54.00 av | -1.16  | 100.00  | 185.00  |

#### 1GHz~ 25 GHz (Vertical), Channel 00: 2402 MHz

Operator: Jerry Chiou

RBW: 1MHz

Humidity (%): 41

Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1064.94   | 49.05 pk | 24.80  | 2.18   | 33.97   | 42.06 pk | 54.00 av | -11.94 | 102     | 108     |
| 1099.9    | 47.05 pk | 24.96  | 2.18   | 33.98   | 40.21 pk | 54.00 av | -13.79 | 102     | 105     |
| 1132.37   | 46.46 pk | 25.11  | 2.19   | 34.00   | 39.75 pk | 54.00 av | -14.25 | 102     | 103     |
| 1199.8    | 46.58 pk | 25.42  | 2.19   | 34.04   | 40.15 pk | 54.00 av | -13.85 | 102     | 98      |
| 1264.74   | 47.43 pk | 25.72  | 2.20   | 34.07   | 41.28 pk | 54.00 av | -12.72 | 101     | 94      |
| 1299.7    | 45.86 pk | 25.88  | 2.21   | 34.09   | 39.85 pk | 54.00 av | -14.15 | 101     | 91      |
| 1332.17   | 48.05 pk | 26.03  | 2.21   | 34.11   | 42.18 pk | 54.00 av | -11.82 | 101     | 89      |
| 2798.2    | 43.98 pk | 31.02  | 1.41   | 34.93   | 41.48 pk | 54.00 av | -12.52 | 102     | 294     |
| 4803.68   | 49.48 pk | 34.85  | 2.12   | 37.69   | 48.76 pk | 54.00 av | -5.24  | 100.00  | 202.00  |
| 9608.05   | 43.47 pk | 40.66  | 3.23   | 34.32   | 53.04 pk | 54.00 av | -0.96  | 100.00  | 143.00  |

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

**International Standards Laboratory**

**Report Number: 05LR022FC**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

**1GHz~ 25 GHz (Horizontal) , Channel 39 : 2441 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1132.37   | 46.32 pk | 25.11  | 2.19   | 34.00   | 39.61 pk | 54.00 av | -14.39 | 102     | 103     |
| 1332.17   | 47.83 pk | 26.03  | 2.21   | 34.11   | 41.96 pk | 54.00 av | -12.04 | 101     | 89      |
| 1399.6    | 45.14 pk | 26.34  | 2.22   | 34.15   | 39.55 pk | 54.00 av | -14.45 | 101     | 84      |
| 1806.69   | 42.51 pk | 29.38  | 2.46   | 34.80   | 39.54 pk | 54.00 av | -14.46 | 100     | 56      |
| 1841.66   | 45.05 pk | 29.67  | 2.48   | 34.87   | 42.33 pk | 54.00 av | -11.67 | 100     | 54      |
| 1999      | 41.02 pk | 30.99  | 2.60   | 35.18   | 39.44 pk | 54.00 av | -14.56 | 100     | 43      |
| 2151.35   | 42.17 pk | 30.97  | 2.14   | 35.19   | 40.09 pk | 54.00 av | -13.91 | 100     | 91      |
| 4882.14   | 49.40 pk | 35.15  | 2.14   | 37.78   | 48.91 pk | 54.00 av | -5.09  | 100.00  | 232.00  |
| 9763.92   | 43.30 pk | 40.32  | 3.31   | 34.38   | 52.55 pk | 54.00 av | -1.45  | 100.00  | 24.00   |

**1GHz~ 25 GHz (Vertical), Channel 39 : 2441 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1064.94   | 49.43 pk | 24.80  | 2.18   | 33.97   | 42.44 pk | 54.00 av | -11.56 | 102     | 108     |
| 1099.9    | 46.91 pk | 24.96  | 2.18   | 33.98   | 40.06 pk | 54.00 av | -13.94 | 102     | 105     |
| 1132.37   | 46.36 pk | 25.11  | 2.19   | 34.00   | 39.65 pk | 54.00 av | -14.35 | 102     | 103     |
| 1264.74   | 46.77 pk | 25.72  | 2.20   | 34.07   | 40.62 pk | 54.00 av | -13.38 | 101     | 94      |
| 1299.7    | 45.63 pk | 25.88  | 2.21   | 34.09   | 39.62 pk | 54.00 av | -14.38 | 101     | 91      |
| 1332.17   | 47.99 pk | 26.03  | 2.21   | 34.11   | 42.12 pk | 54.00 av | -11.88 | 101     | 89      |
| 2798.2    | 43.78 pk | 31.02  | 1.41   | 34.93   | 41.28 pk | 54.00 av | -12.72 | 102     | 294     |
| 4882.27   | 52.83 pk | 35.15  | 2.14   | 37.78   | 52.34 pk | 54.00 av | -1.66  | 100.00  | 226.00  |
| 9764.2    | 44.06 pk | 40.32  | 3.31   | 34.38   | 53.31 pk | 54.00 av | -0.69  | 100.00  | 360.00  |

Note:

- According to the standards used:Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.**

**1GHz~ 25 GHz (Horizontal), Channel 78: 2480 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1064.94   | 46.34 pk | 24.80  | 2.18   | 33.97   | 39.36 pk | 54.00 av | -14.64 | 102     | 108     |
| 1132.37   | 45.71 pk | 25.11  | 2.19   | 34.00   | 39.00 pk | 54.00 av | -15.00 | 102     | 103     |
| 1164.84   | 45.80 pk | 25.26  | 2.19   | 34.02   | 39.23 pk | 54.00 av | -14.77 | 102     | 101     |
| 1332.17   | 48.44 pk | 26.03  | 2.21   | 34.11   | 42.57 pk | 54.00 av | -11.43 | 101     | 89      |
| 1826.67   | 41.90 pk | 29.54  | 2.47   | 34.84   | 39.07 pk | 54.00 av | -14.93 | 100     | 55      |
| 1841.66   | 45.20 pk | 29.67  | 2.48   | 34.87   | 42.49 pk | 54.00 av | -11.51 | 100     | 54      |
| 1999      | 41.17 pk | 30.99  | 2.60   | 35.18   | 39.58 pk | 54.00 av | -14.42 | 100     | 43      |
| 2151.35   | 41.67 pk | 30.97  | 2.14   | 35.19   | 39.59 pk | 54.00 av | -14.41 | 100     | 91      |
| 2510.99   | 44.62 pk | 30.90  | 1.36   | 35.19   | 41.69 pk | 54.00 av | -12.31 | 102     | 203     |
| 4959.67   | 50.90 pk | 35.45  | 2.16   | 37.87   | 50.64 pk | 54.00 av | -3.36  | 100.00  | 239.00  |
| 9919.25   | 42.59 pk | 39.98  | 3.39   | 34.43   | 51.52 pk | 54.00 av | -2.48  | 100.00  | 144.00  |

**1GHz~ 25 GHz (Vertical), Channel 78 : 2480 MHz**

Operator: Jerry Chiou

 RBW: 1MHz  
 Humidity (%): 41  
 Temperature (C): 27

| Frequency | Rx_R.    | Ant_F. | Cab_L. | PreAmpl | Emission | Limit    | Margin | A.Tower | T.Table |
|-----------|----------|--------|--------|---------|----------|----------|--------|---------|---------|
| MHz       | dBuV     | dB/m   | dB     | dB      | dBuV/m   | dBuV/m   | dB     | cm      | deg     |
| 1064.94   | 48.77 pk | 24.80  | 2.18   | 33.97   | 41.78 pk | 54.00 av | -12.22 | 102     | 108     |
| 1099.9    | 47.03 pk | 24.96  | 2.18   | 33.98   | 40.19 pk | 54.00 av | -13.81 | 102     | 105     |
| 1132.37   | 46.44 pk | 25.11  | 2.19   | 34.00   | 39.73 pk | 54.00 av | -14.27 | 102     | 103     |
| 1264.74   | 46.71 pk | 25.72  | 2.20   | 34.07   | 40.56 pk | 54.00 av | -13.44 | 101     | 94      |
| 1332.17   | 47.81 pk | 26.03  | 2.21   | 34.11   | 41.94 pk | 54.00 av | -12.06 | 101     | 89      |
| 1699.3    | 43.53 pk | 28.47  | 2.38   | 34.59   | 39.79 pk | 54.00 av | -14.21 | 101     | 6       |
| 2510.99   | 42.27 pk | 30.90  | 1.36   | 35.19   | 39.35 pk | 54.00 av | -14.65 | 102     | 203     |
| 2798.2    | 43.64 pk | 31.02  | 1.41   | 34.93   | 41.14 pk | 54.00 av | -12.86 | 102     | 294     |
| 4959.67   | 51.09 pk | 35.45  | 2.16   | 37.87   | 50.83 pk | 54.00 av | -3.17  | 100.00  | 217.00  |
| 9918.52   | 42.74 pk | 39.98  | 3.39   | 34.43   | 51.68 pk | 54.00 av | -2.32  | 100.00  | 275.00  |

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ \* ”: Fundamental Frequency
- “\*\*”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

**All frequencies from 1GHz to 25 GHz have been tested.****International Standards Laboratory****Report Number: 05LR022FC**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

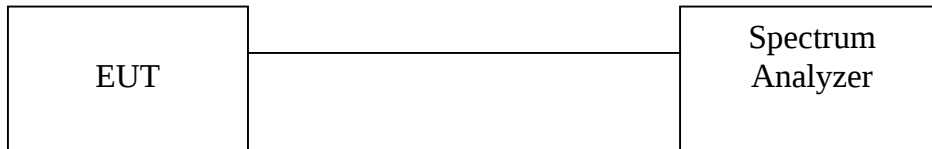
LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

### 5.3 Band Edge Measurement

#### 5.3.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.  
Equipment mode: Spectrum analyzer  
Detector function: Peak mode  
SPAN: 100MHz  
RBW: 100KHz  
VBW: 100KHz  
Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

#### 5.3.2 Test Setup (Conducted)



#### 5.3.3 Test Data:

**Table: Band Edge measurement (Conducted)**

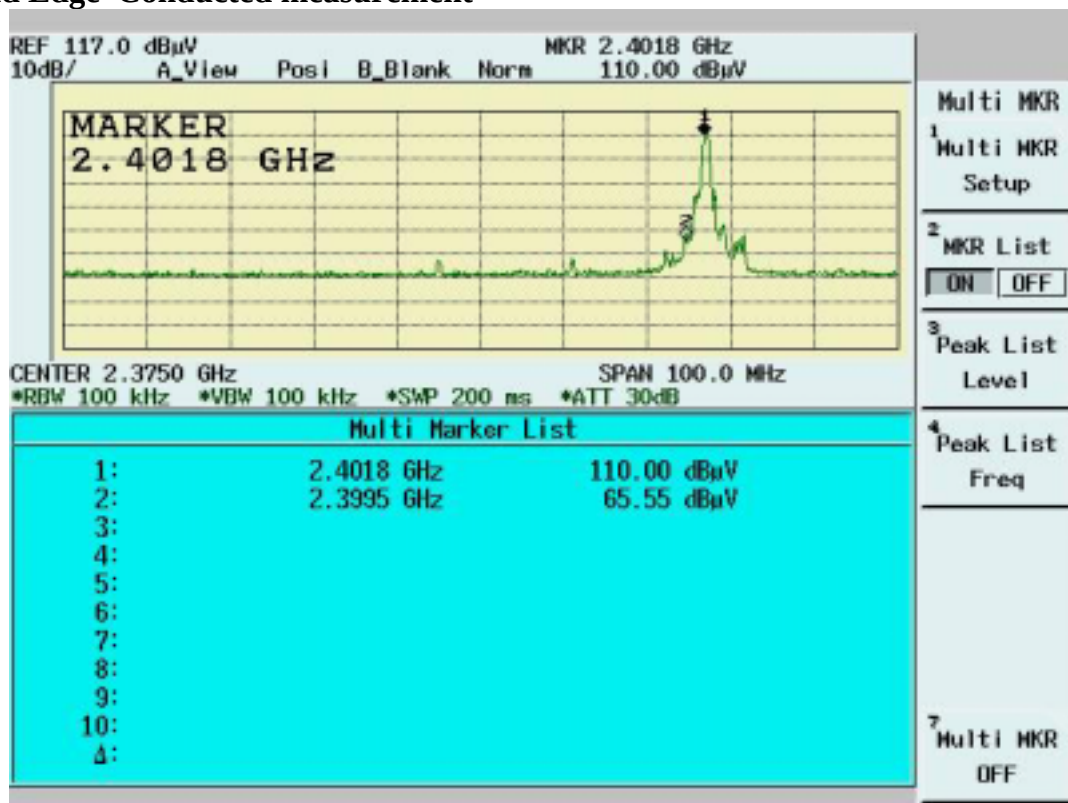
Temperature ( ):25

Test Engineer:Jerry Chiou

Humidity (%):55

| Channel      | Frequency<br>(MHz) | Spectrum<br>Reading<br>(dBuV) | Carrier -<br>Outsideband<br>Limit: >20dB<br>(dB) | Pass/Fail |
|--------------|--------------------|-------------------------------|--------------------------------------------------|-----------|
| 00           | 2401.8             | 110.0                         | ---                                              | ---       |
| Outside band | 2399.5             | 65.6                          | 44.5                                             | Pass      |
| 78           | 2479.8             | 109.2                         | ---                                              | ---       |
| Outside band | 2482.1             | 66.8                          | 42.3                                             | Pass      |

### Band Edge Conducted measurement



### Band Edge Conducted Measurement

