

# FCC TEST REPORT

**REPORT NO.:** RF991203E02I

**MODEL NO.:** AR5B125

**FCC ID:** PPD-AR5B125

**IC:** 4104A-AR5B125

**RECEIVED:** Jan. 17, 2012

**TESTED:** Jan. 20 to 31, 2012

**ISSUED:** Feb. 07, 2012

**APPLICANT:** Qualcomm Atheros, Inc.

**ADDRESS:** 1700 Technology Drive, San Jose, CA  
95110

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

**LAB ADDRESS:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

**TEST LOCATION (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,  
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**TEST LOCATION (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen,  
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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## RELEASE CONTROL RECORD

| ISSUE NO.    | REASON FOR CHANGE | DATE ISSUED   |
|--------------|-------------------|---------------|
| RF991203E02I | Original release  | Feb. 07, 2012 |



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## 1. CERTIFICATION

**PRODUCT:** 1X1 802.11b/g/n PCIe Module  
**BRAND NAME:** Atheros  
**MODEL NO.:** AR5B125  
**TEST SAMPLE:** R&D SAMPLE  
**APPLICANT:** Qualcomm Atheros, Inc.  
**TESTED:** Jan. 20 to 31, 2012  
**STANDARDS:** FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10-2009  
Canada RSS-210 Issue 8 (2010-12)  
Canada RSS-Gen Issue 3 (2010-12)

The above equipment (Model: AR5B125) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :** Midoli Peng, **DATE:** Feb. 07, 2012  
( Midoli Peng, Specialist )

**APPROVED BY :** May Chen, **DATE:** Feb. 07, 2012  
( May Chen, Deputy Manager )

## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 15, Subpart C ; RSS-210; RSS-Gen |         |             |                                                                                        |        |                                                                                              |
|-------------------------------------------------------------|---------|-------------|----------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------|
| Standard Section                                            |         |             | Test Type and Limit                                                                    | Result | REMARK                                                                                       |
| RSS-210                                                     | RSS-Gen | FCC Part 15 |                                                                                        |        |                                                                                              |
| A8.4(4)                                                     | 4.8     | 15.247(b)   | Conducted power                                                                        | PASS   | Meet the requirement of limit                                                                |
| A8.5                                                        | 4.9     | 15.247(d)   | Transmitter Radiated Emissions<br>FCC Limit: Table 15.209<br>RSS-Gen Limit: Table 5, 6 | PASS   | Meet the requirement of limit<br>Minimum passing margin is -0.6dB at 2390.00MHz & 2483.50MHz |
| -                                                           | 6.1     | -           | Receiver Radiated Emissions<br>RSS-Gen Limit: Table 2                                  | PASS   | Meet the requirement of limit<br>Minimum passing margin is -1.1dB at 166.49MHz               |

**NOTE:** This report is prepared for FCC class II change and IC reassessment change. Only radiated emission and conducted power were presented in this test report.

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Measurement                       | Value   |
|-----------------------------------|---------|
| Radiated emissions (30MHz-1GHz)   | 3.89 dB |
| Radiated emissions (1GHz -18GHz)  | 2.19 dB |
| Radiated emissions (18GHz -40GHz) | 2.56 dB |

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                              |                                                                                                                                                                                                                                 |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT</b>               | 1X1 802.11b/g/n PCIe Module                                                                                                                                                                                                     |
| <b>MODEL NO.</b>             | AR5B125                                                                                                                                                                                                                         |
| <b>FCC ID</b>                | PPD-AR5B125                                                                                                                                                                                                                     |
| <b>IC</b>                    | 4104A-AR5B125                                                                                                                                                                                                                   |
| <b>POWER SUPPLY</b>          | DC 3.3V from host equipment                                                                                                                                                                                                     |
| <b>MODULATION TYPE</b>       | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM                                                                                                                                                                 |
| <b>MODULATION TECHNOLOGY</b> | DSSS, OFDM                                                                                                                                                                                                                      |
| <b>TRANSFER RATE</b>         | 802.11b: up to 11Mbps<br>802.11g: up to 54Mbps<br>802.11n (20MHz, 800ns GI): up to 65 Mbps<br>802.11n (40MHz, 800ns GI): up to 135Mbps<br>802.11n (20MHz, 400ns GI): up to 72.2Mbps<br>802.11n (40MHz, 400ns GI): up to 150Mbps |
| <b>OPERATING FREQUENCY</b>   | 2.412 ~ 2.462GHz                                                                                                                                                                                                                |
| <b>NUMBER OF CHANNEL</b>     | 11 for 802.11b, 802.11g, 802.11n (20MHz)<br>7 for 802.11n (40MHz)                                                                                                                                                               |
| <b>MAXIMUM OUTPUT POWER</b>  | 802.11b: 75.9mW<br>802.11g: 245.5mW<br>802.11n (20MHz): 158.5mW<br>802.11n (40MHz): 138.0mW                                                                                                                                     |
| <b>ANTENNA TYPE</b>          | See item 3.2                                                                                                                                                                                                                    |
| <b>ANTENNA CONNECTOR</b>     | See item 3.2                                                                                                                                                                                                                    |
| <b>DATA CABLE</b>            | NA                                                                                                                                                                                                                              |
| <b>I/O PORTS</b>             | NA                                                                                                                                                                                                                              |
| <b>ASSOCIATED DEVICES</b>    | NA                                                                                                                                                                                                                              |

## NOTE:

1. This report is prepared for FCC class II permissive change and IC reassessment change. The difference compared with the Report No.: RF991203E02D design is as the following information:
  - u Shielding change
2. The test mode was reference to the worst case in the original test report. Therefore only the test data of the mode was recorded in this report individually
3. The EUT is 1 \* 1 spatial SISO without beam forming function.
4. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.
5. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

## 3.2 DESCRIPTION OF ANTENNA

The antennas provided to the EUT, please refer to the following table:

| No. | Brand | Model        | Gain(dBi)<br>(included cable loss) | Antenna<br>Type | Connector | Cable<br>Loss(dB) | Cable<br>Length(mm) |
|-----|-------|--------------|------------------------------------|-----------------|-----------|-------------------|---------------------|
| 1   | WNC   | 81-EBJ15.005 | 3.62                               | PIFA            | IPEX      | 1.15              | 300                 |

### 3.3 DESCRIPTION OF TEST MODES

#### Operated in 2400 ~ 2483.5MHz band:

Eleven channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

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

Seven channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 3       | 2422MHz   | 7       | 2442MHz   |
| 4       | 2427MHz   | 8       | 2447MHz   |
| 5       | 2432MHz   | 9       | 2452MHz   |
| 6       | 2437MHz   |         |           |



### 3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

| EUT<br>CONFIGURE<br>MODE | APPLICABLE TO |         |      | DESCRIPTION |
|--------------------------|---------------|---------|------|-------------|
|                          | RE < 1G       | RE ≥ 1G | APCM |             |
| -                        | √             | √       | √    | -           |

Where **RE < 1G**: Radiated Emission below 1GHz **RE ≥ 1G**: Radiated Emission above 1GHz

**APCM**: Antenna Port Conducted Measurement

#### RADIATED EMISSION TEST (BELOW 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ The receiving mode had show equal or better than Tx mode during the pre-scan and hence the Tx mode data is re-used for Receiving-mode worst-case data.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE    | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11g | 1 to 11           | 6              | OFDM                  | BPSK            | 6                |

#### RADIATED EMISSION TEST (ABOVE 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE            | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|-----------------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b         | 1 to 11           | 1, 6, 11       | DSSS                  | DBPSK           | 1                |
| 802.11g         | 1 to 11           | 1, 6, 11       | OFDM                  | BPSK            | 6                |
| 802.11n (20MHz) | 1 to 11           | 1, 6, 11       | OFDM                  | BPSK            | 6.5              |
| 802.11n (40MHz) | 3 to 9            | 3, 6, 9        | OFDM                  | BPSK            | 13.5             |
| Receiver        | 1 to 11           | 1, 6, 11       | -                     | -               | -                |

### ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE            | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|-----------------|-------------------|----------------|-----------------------|-----------------|------------------|
| 802.11b         | 1 to 11           | 1, 6, 11       | DSSS                  | DBPSK           | 1                |
| 802.11g         | 1 to 11           | 1, 6, 11       | OFDM                  | BPSK            | 6                |
| 802.11n (20MHz) | 1 to 11           | 1, 6, 11       | OFDM                  | BPSK            | 6.5              |
| 802.11n (40MHz) | 3 to 9            | 3, 6, 9        | OFDM                  | BPSK            | 13.5             |

### TEST CONDITION:

| APPLICABLE TO      | ENVIRONMENTAL CONDITIONS | INPUT POWER (SYSTEM) | TESTED BY   |
|--------------------|--------------------------|----------------------|-------------|
| RE<1G              | 16deg. C, 67%RH          | 120Vac, 60Hz         | Nick Chang  |
| RE <sup>3</sup> 1G | 24deg. C, 69%RH          | 120Vac, 60Hz         | Nick Chang  |
| APCM               | 25deg. C, 60%RH          | 120Vac, 60Hz         | Nelson Teng |

### **3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C (Section 15.247)**

**ANSI C63.10-2009**

**Canada RSS-210 Issue 8 (2010-12)**

**Canada RSS-Gen Issue 3 (2010-12)**

All test items have been performed and recorded as per the above standards.

### 3.5 DESCRIPTION OF SUPPORT UNITS

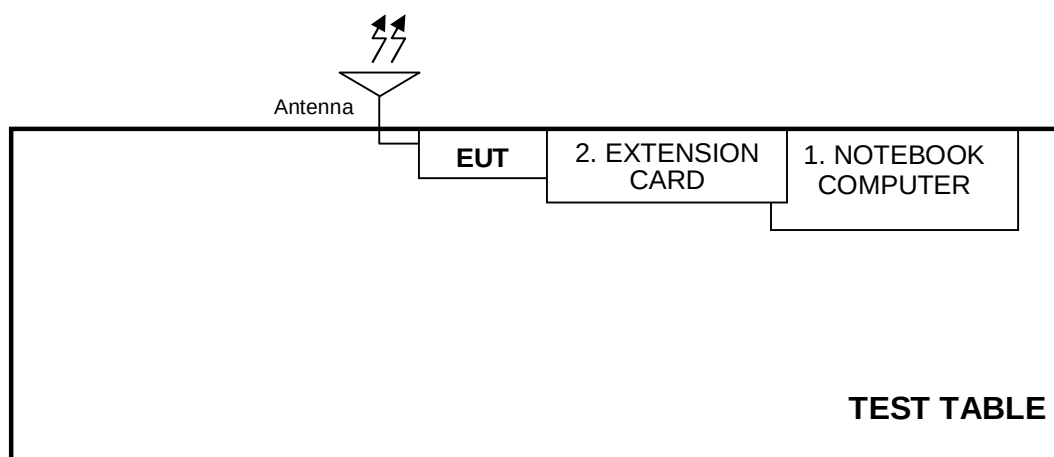
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | PRODUCT           | BRAND   | MODEL NO. | SERIAL NO.     | FCC ID  |
|-----|-------------------|---------|-----------|----------------|---------|
| 1   | NOTEBOOK COMPUTER | Lenovo  | 0769      | L3-BE248 08/01 | FCC DoC |
| 2   | PCIe CARD         | Atheros | NA        | NA             | NA      |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|-----------------------------------------------------|
| 1   | NA                                                  |
| 2   | NA                                                  |

**NOTE:** All power cords of the above support units are non shielded (1.8m).

### 3.6 CONFIGURATION OF SYSTEM UNDER TEST



## 4. TEST TYPES AND RESULTS

### 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

**For transmitter part:**

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) <RSS-Gen table 3>, must also comply with the radiated emission limits specified in Section 15.209(a) <RSS-Gen table 5, 6>. Other emissions shall be at least 20dB below the highest level of the desired power:

| Frequencies (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009-0.490       | 2400/F(kHz)                       | 300                           |
| 0.490-1.705       | 24000/F(kHz)                      | 30                            |
| 1.705-30.0        | 30                                | 30                            |
| 30-88             | 100                               | 3                             |
| 88-216            | 150                               | 3                             |
| 216-960           | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB.
4. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.

**For receiver part:**

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in RSS-Gen table 2 as following:

| Frequencies (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 30-88             | 100                               | 3                             |
| 88-216            | 150                               | 3                             |
| 216-960           | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB.

#### 4.1.2 TEST INSTRUMENTS

Below 1GHz<Test date: Jan. 20, 2012>

| DESCRIPTION & MANUFACTURER           | MODEL NO.            | SERIAL NO.                          | CALIBRATED DATE | CALIBRATED UNTIL |
|--------------------------------------|----------------------|-------------------------------------|-----------------|------------------|
| Agilent Spectrum Analyzer            | E4446A               | MY48250254                          | July 12, 2011   | July 11, 2012    |
| Agilent Pre-Selector                 | N9039A               | MY46520311                          | July 12, 2011   | July 11, 2012    |
| Agilent Signal Generator             | N5181A               | MY49060517                          | July 12, 2011   | July 11, 2012    |
| Mini-Circuits Pre-Amplifier          | ZFL-1000VH2B         | AMP-ZFL-03                          | Nov. 15, 2011   | Nov. 14, 2012    |
| Agilent Pre-Amplifier                | 8449B                | 3008A02578                          | July 04, 2011   | July 03, 2012    |
| SPACEK LABS                          | SLKKa-48-6           | 9K16                                | Nov. 15, 2011   | Nov. 14, 2012    |
| SCHWARZBECK Trilog Broadband Antenna | VULB 9168            | 9168-360                            | Apr. 14, 2011   | Apr. 13, 2012    |
| AISI Horn_Antenna                    | AIH.8018             | 0000320091110                       | Nov. 14, 2011   | Nov. 13, 2012    |
| SCHWARZBECK Horn_Antenna             | BBHA 9170            | 9170-424                            | Oct. 07, 2011   | Oct. 06, 2012    |
| RF CABLE                             | NA                   | RF104-201<br>RF104-203<br>RF104-204 | Dec. 26, 2011   | Dec. 25, 2012    |
| RF Cable                             | NA                   | CHGCAB_001                          | Oct. 07, 2011   | Oct. 06, 2012    |
| Software                             | ADT_Radiated_V8.7.05 | NA                                  | NA              | NA               |
| CT Antenna Tower & Turn Table        | NA                   | NA                                  | NA              | NA               |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in 966 Chamber No. G.

4. The FCC Site Registration No. is 966073.

5. The VCCI Site Registration No. is G-137.

6. The CANADA Site Registration No. is IC 7450H-2.



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**Above1GHz<Test date: Jan. 30, 2012>**

| DESCRIPTION & MANUFACTURER           | MODEL NO.            | SERIAL NO.                          | CALIBRATED DATE | CALIBRATED UNTIL |
|--------------------------------------|----------------------|-------------------------------------|-----------------|------------------|
| Agilent Spectrum Analyzer            | E4446A               | MY48250253                          | Aug. 29, 2011   | Aug. 28, 2012    |
| Agilent Pre-Selector                 | N9039A               | MY46520310                          | Aug. 29, 2011   | Aug. 28, 2012    |
| Agilent Signal Generator             | N5181A               | MY49060347                          | July 25, 2011   | July 24, 2012    |
| Mini-Circuits Pre-Amplifier          | ZFL-1000VH2B         | AMP-ZFL-04                          | Nov. 15, 2011   | Nov. 14, 2012    |
| Agilent Pre-Amplifier                | 8449B                | 3008A02465                          | Feb. 28, 2011   | Feb. 27, 2012    |
| SPACEK LABS                          | SLKKa-48-6           | 9K16                                | Nov. 15, 2011   | Nov. 14, 2012    |
| SCHWARZBECK Trilog Broadband Antenna | VULB 9168            | 9168-361                            | Apr. 14, 2011   | Apr. 13, 2012    |
| AISI Horn_Antenna                    | AIH.8018             | 0000220091110                       | Nov. 23, 2011   | Nov. 22, 2012    |
| SCHWARZBECK Horn_Antenna             | BBHA 9170            | 9170-424                            | Oct. 07, 2011   | Oct. 06, 2012    |
| RF CABLE                             | NA                   | RF104-205<br>RF104-207<br>RF104-202 | Dec. 27, 2011   | Dec. 26, 2012    |
| RF Cable                             | NA                   | CHHCAB_001                          | Oct. 08, 2011   | Oct. 07, 2012    |
| Software                             | ADT_Radiated_V8.7.05 | NA                                  | NA              | NA               |
| CT Antenna Tower & Turn Table        | NA                   | NA                                  | NA              | NA               |

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
3. The test was performed in 966 Chamber No. H.  
4. The FCC Site Registration No. is 797305.  
5. The CANADA Site Registration No. is IC 7450H-3.



#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

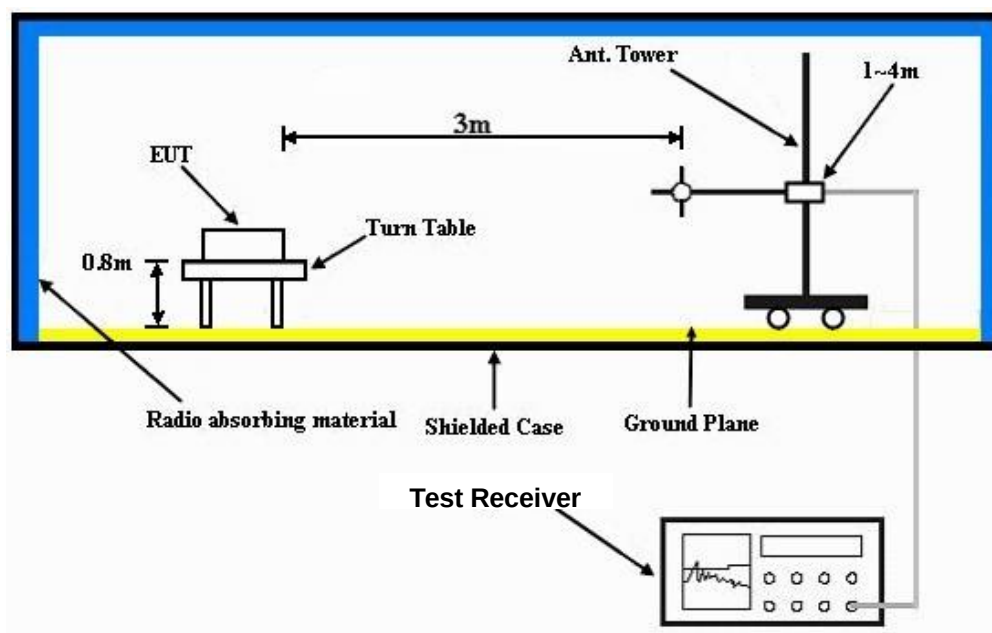
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection(PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.1.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The support unit 1 (Notebook Computer) run test program “Art2\_ver\_2\_56” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

#### 4.1.7 TEST RESULTS (FOR TRANSMITTER PART)

##### BELOW 1GHz WORST-CASE DATA : 802.11g OFDM MODULATION

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |               |
|--------------------------|-----------------|--------------------|---------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 67%RH | TESTED BY          | Nick Chang    |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 143.92      | 42.3 QP                 | 43.5           | -1.2        | 1.00 H             | 195                  | 27.87            | 14.42                    |
| 2                                                   | 166.49      | 42.4 QP                 | 43.5           | -1.1        | 1.68 H             | 196                  | 28.18            | 14.18                    |
| 3                                                   | 199.82      | 38.2 QP                 | 43.5           | -5.3        | 1.50 H             | 0                    | 26.77            | 11.41                    |
| 4                                                   | 298.70      | 42.6 QP                 | 46.0           | -3.4        | 1.00 H             | 336                  | 27.35            | 15.27                    |
| 5                                                   | 599.61      | 44.5 QP                 | 46.0           | -1.5        | 1.50 H             | 238                  | 21.94            | 22.57                    |
| 6                                                   | 796.55      | 43.4 QP                 | 46.0           | -2.6        | 1.00 H             | 360                  | 17.65            | 25.77                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 166.54      | 37.6 QP                 | 43.5           | -5.9        | 2.00 V             | 258                  | 23.41            | 14.18                    |
| 2                                                   | 299.77      | 40.8 QP                 | 46.0           | -5.2        | 1.50 V             | 307                  | 25.53            | 15.31                    |
| 3                                                   | 399.60      | 43.2 QP                 | 46.0           | -2.8        | 1.50 V             | 110                  | 25.29            | 17.92                    |
| 4                                                   | 597.48      | 40.7 QP                 | 46.0           | -5.3        | 1.00 V             | 295                  | 18.22            | 22.52                    |
| 5                                                   | 799.39      | 37.3 QP                 | 46.0           | -8.7        | 2.00 V             | 278                  | 11.46            | 25.85                    |
| 6                                                   | 899.34      | 43.0 QP                 | 46.0           | -3.0        | 1.50 V             | 292                  | 15.61            | 27.35                    |

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.

## ABOVE 1GHz WORST-CASE DATA

### 802.11b DSSS MODULATION

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 1       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 56.3 PK                 | 74.0           | -17.7       | 1.33 H             | 113                  | 24.42            | 31.88                    |
| 2                                                   | 2390.00     | 44.7 AV                 | 54.0           | -9.3        | 1.33 H             | 113                  | 12.82            | 31.88                    |
| 3                                                   | *2412.00    | 102.4 PK                |                |             | 1.33 H             | 113                  | 70.45            | 31.95                    |
| 4                                                   | *2412.00    | 100.0 AV                |                |             | 1.33 H             | 113                  | 68.05            | 31.95                    |
| 5                                                   | 4824.00     | 56.4 PK                 | 74.0           | -17.6       | 1.05 H             | 80                   | 15.18            | 41.22                    |
| 6                                                   | 4824.00     | 52.9 AV                 | 54.0           | -1.1        | 1.05 H             | 80                   | 11.68            | 41.22                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 56.5 PK                 | 74.0           | -17.5       | 1.00 V             | 207                  | 24.62            | 31.88                    |
| 2                                                   | 2390.00     | 44.3 AV                 | 54.0           | -9.7        | 1.00 V             | 207                  | 12.42            | 31.88                    |
| 3                                                   | *2412.00    | 100.3 PK                |                |             | 1.00 V             | 207                  | 68.35            | 31.95                    |
| 4                                                   | *2412.00    | 98.1 AV                 |                |             | 1.00 V             | 207                  | 66.15            | 31.95                    |
| 5                                                   | 4824.00     | 56.3 PK                 | 74.0           | -17.7       | 1.07 V             | 244                  | 15.08            | 41.22                    |
| 6                                                   | 4824.00     | 53.3 AV                 | 54.0           | -0.7        | 1.07 V             | 244                  | 12.08            | 41.22                    |

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* ”: Fundamental frequency.



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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2437.00    | 102.6 PK                |                |             | 1.04 H             | 139                  | 70.56            | 32.04                    |
| 2                                                   | *2437.00    | 100.6 AV                |                |             | 1.04 H             | 139                  | 68.56            | 32.04                    |
| 3                                                   | 4874.00     | 55.9 PK                 | 74.0           | -18.1       | 1.05 H             | 81                   | 14.54            | 41.36                    |
| 4                                                   | 4874.00     | 52.2 AV                 | 54.0           | -1.8        | 1.05 H             | 81                   | 10.84            | 41.36                    |
| 5                                                   | 7311.00     | 52.3 PK                 | 74.0           | -21.7       | 1.33 H             | 251                  | 6.63             | 45.67                    |
| 6                                                   | 7311.00     | 41.3 AV                 | 54.0           | -12.7       | 1.33 H             | 251                  | -4.37            | 45.67                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2437.00    | 102.1 PK                |                |             | 1.00 V             | 208                  | 70.06            | 32.04                    |
| 2                                                   | *2437.00    | 99.9 AV                 |                |             | 1.00 V             | 208                  | 67.86            | 32.04                    |
| 3                                                   | 4874.00     | 57.2 PK                 | 74.0           | -16.8       | 1.10 V             | 242                  | 15.84            | 41.36                    |
| 4                                                   | 4874.00     | 53.2 AV                 | 54.0           | -0.8        | 1.10 V             | 242                  | 11.84            | 41.36                    |
| 5                                                   | 7311.00     | 53.4 PK                 | 74.0           | -20.6       | 1.61 V             | 245                  | 7.73             | 45.67                    |
| 6                                                   | 7311.00     | 42.0 AV                 | 54.0           | -12.0       | 1.61 V             | 245                  | -3.67            | 45.67                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* “: Fundamental frequency.



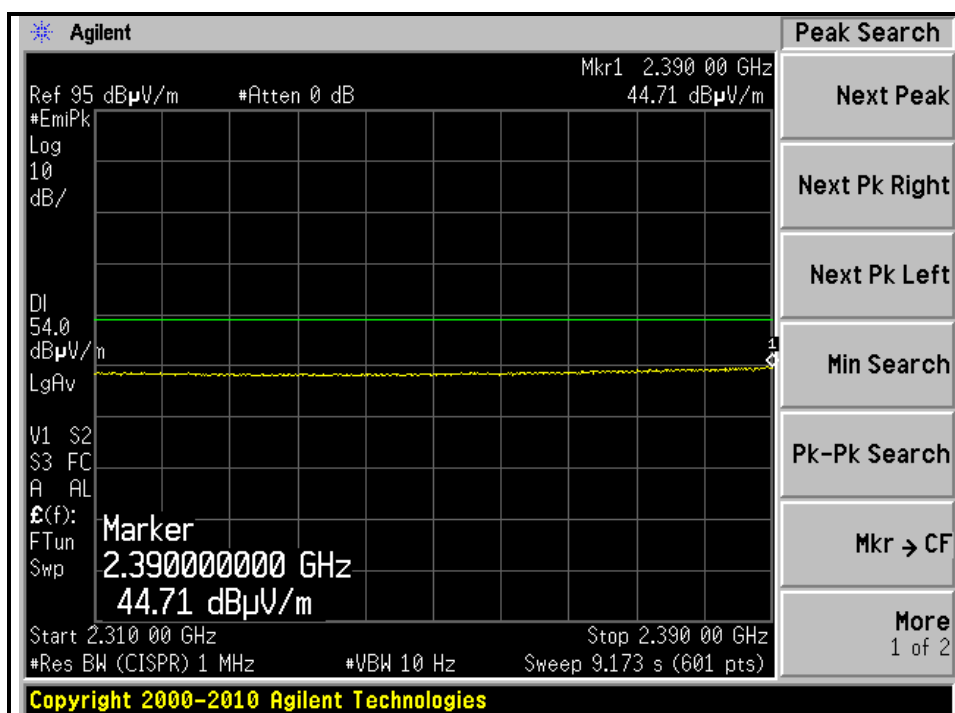
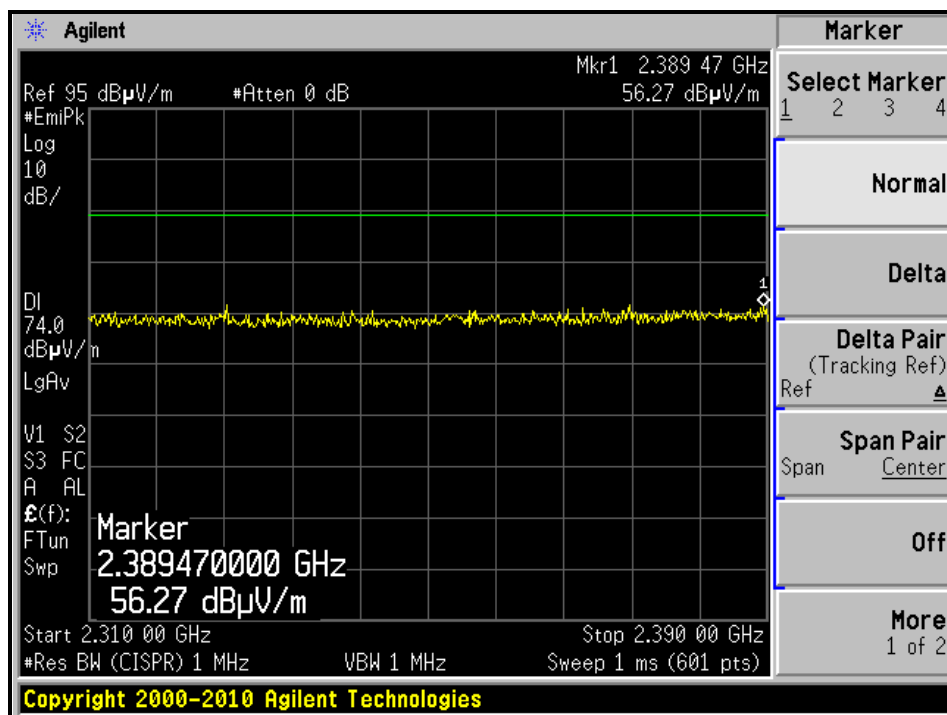
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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 11      | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

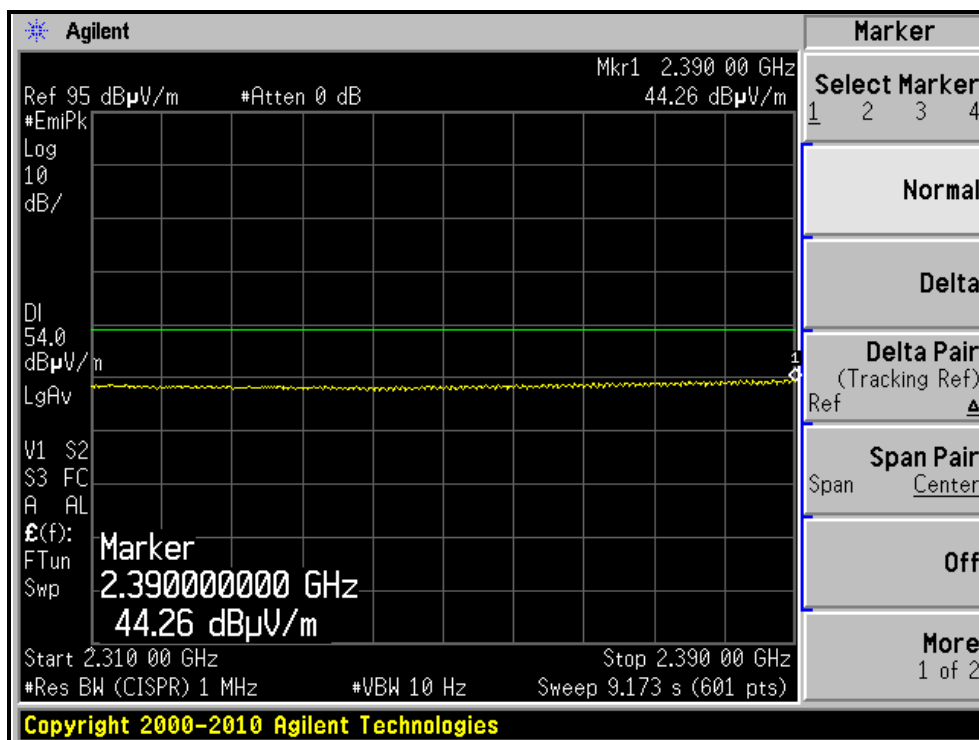
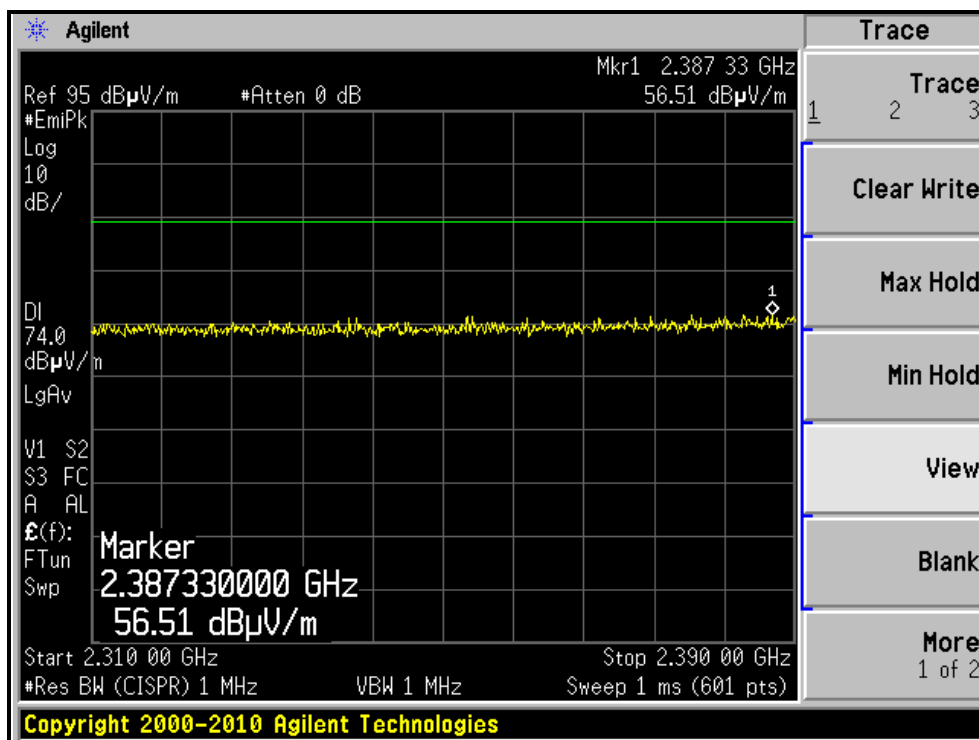
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2462.00    | 102.4 PK                |                |             | 1.05 H             | 138                  | 70.28            | 32.12                    |
| 2                                                   | *2462.00    | 100.5 AV                |                |             | 1.05 H             | 138                  | 68.38            | 32.12                    |
| 3                                                   | 2483.50     | 55.4 PK                 | 74.0           | -18.6       | 1.05 H             | 135                  | 23.21            | 32.19                    |
| 4                                                   | 2483.50     | 44.2 AV                 | 54.0           | -9.8        | 1.05 H             | 135                  | 12.01            | 32.19                    |
| 5                                                   | 4924.00     | 56.5 PK                 | 74.0           | -17.5       | 1.00 H             | 80                   | 15.02            | 41.48                    |
| 6                                                   | 4924.00     | 52.4 AV                 | 54.0           | -1.6        | 1.00 H             | 80                   | 10.92            | 41.48                    |
| 7                                                   | 7386.00     | 52.0 PK                 | 74.0           | -22.0       | 1.22 H             | 236                  | 6.09             | 45.91                    |
| 8                                                   | 7386.00     | 41.1 AV                 | 54.0           | -12.9       | 1.22 H             | 236                  | -4.81            | 45.91                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2462.00    | 101.0 PK                |                |             | 1.18 V             | 203                  | 68.88            | 32.12                    |
| 2                                                   | *2462.00    | 98.9 AV                 |                |             | 1.18 V             | 203                  | 66.78            | 32.12                    |
| 3                                                   | 2483.50     | 55.7 PK                 | 74.0           | -18.3       | 1.18 V             | 203                  | 23.51            | 32.19                    |
| 4                                                   | 2483.50     | 43.9 AV                 | 54.0           | -10.1       | 1.18 V             | 203                  | 11.71            | 32.19                    |
| 5                                                   | 4924.00     | 56.2 PK                 | 74.0           | -17.8       | 1.06 V             | 243                  | 14.72            | 41.48                    |
| 6                                                   | 4924.00     | 52.7 AV                 | 54.0           | -1.3        | 1.06 V             | 243                  | 11.22            | 41.48                    |
| 7                                                   | 7386.00     | 52.5 PK                 | 74.0           | -21.5       | 1.62 V             | 258                  | 6.59             | 45.91                    |
| 8                                                   | 7386.00     | 41.2 AV                 | 54.0           | -12.8       | 1.62 V             | 258                  | -4.71            | 45.91                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* “: Fundamental frequency.

# RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL )

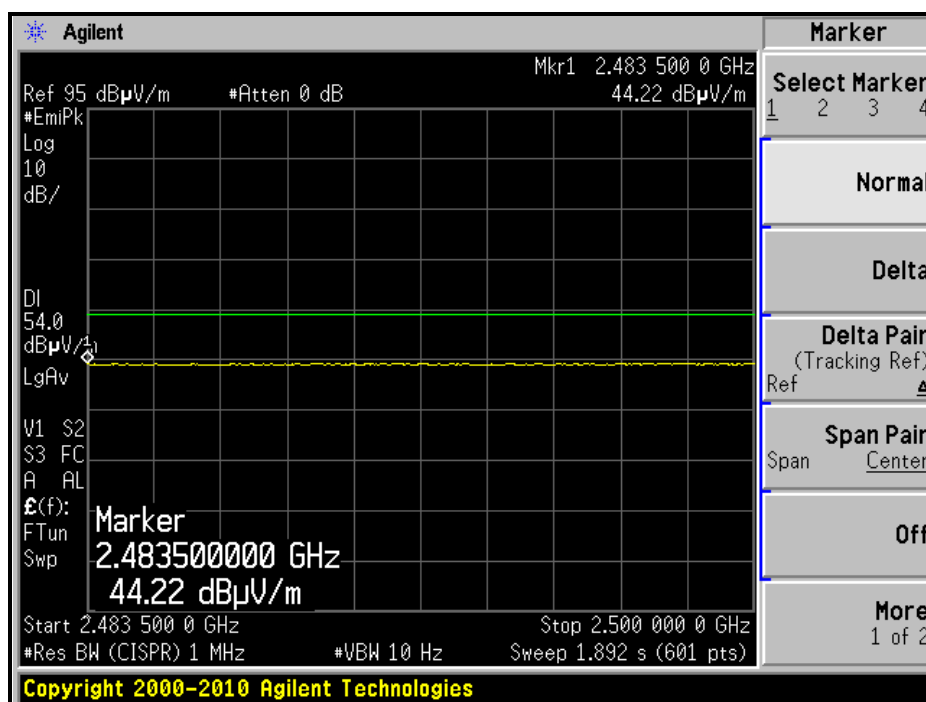
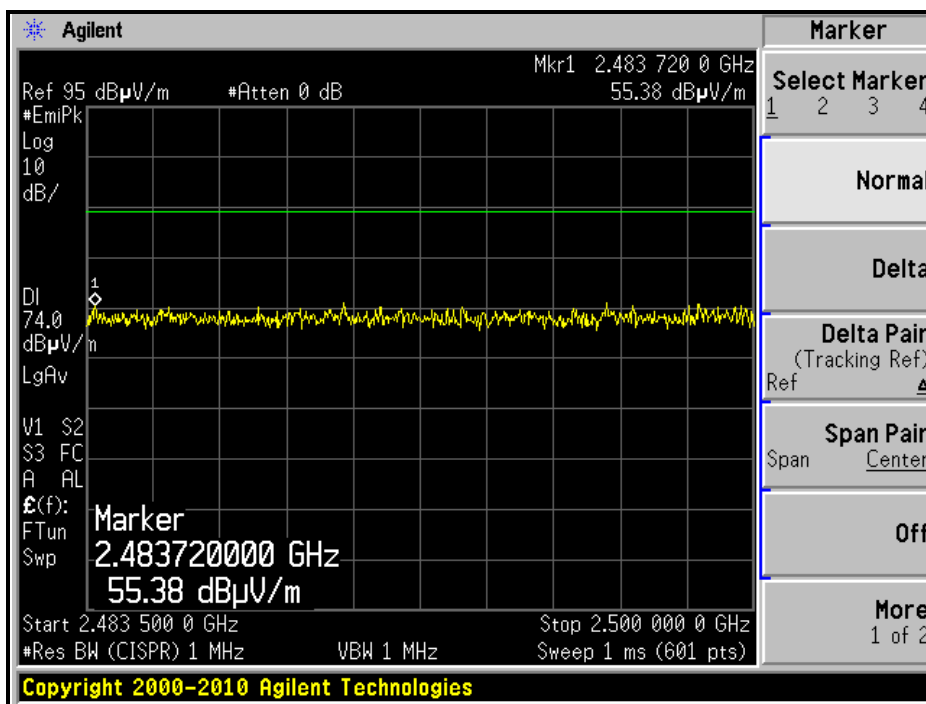


# RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL )

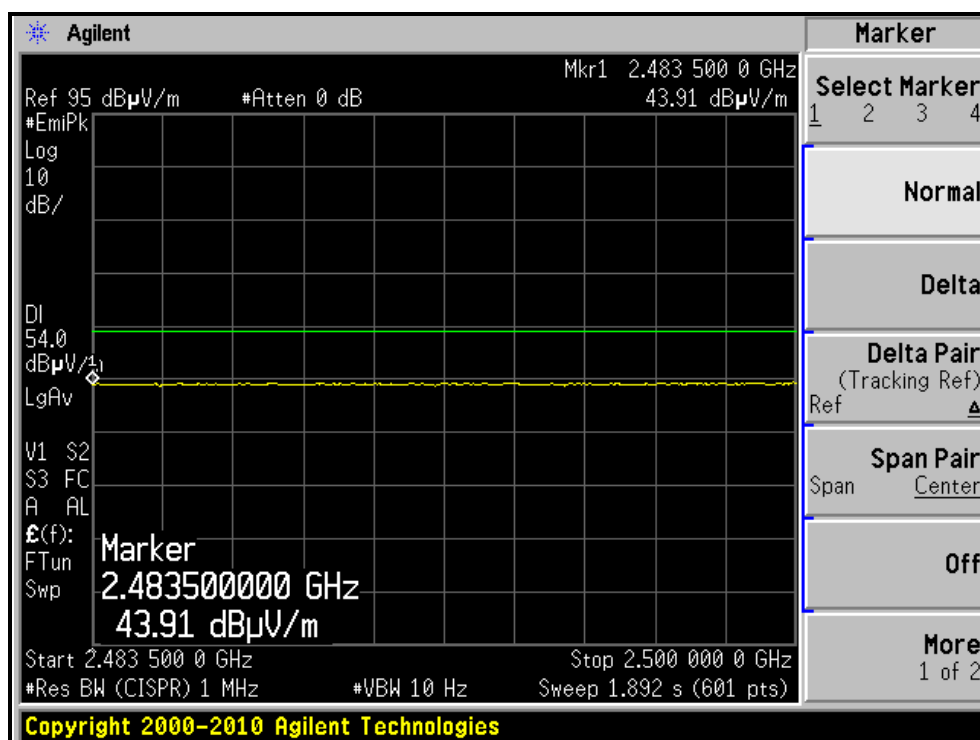
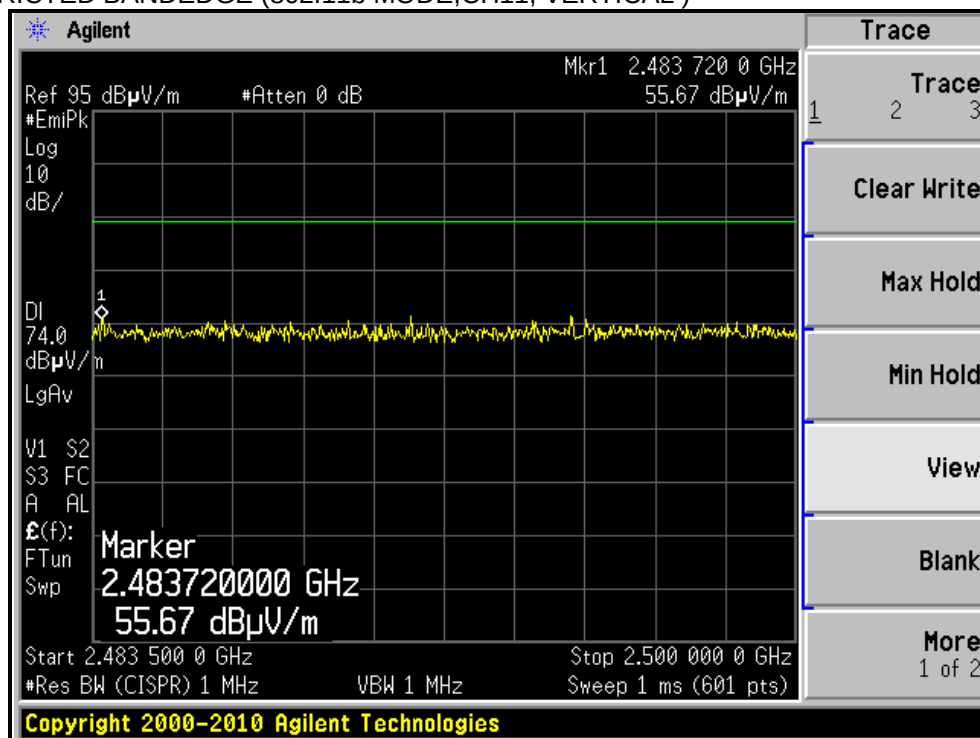




# RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL )



# RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL )



## 802.11g OFDM MODULATION

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 1       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 72.2 PK                 | 74.0           | -1.8        | 1.33 H             | 105                  | 40.32            | 31.88                    |
| 2                                                   | 2390.00     | 52.8 AV                 | 54.0           | -1.2        | 1.33 H             | 105                  | 20.92            | 31.88                    |
| 3                                                   | *2412.00    | 105.5 PK                |                |             | 1.35 H             | 107                  | 73.55            | 31.95                    |
| 4                                                   | *2412.00    | 94.0 AV                 |                |             | 1.35 H             | 107                  | 62.05            | 31.95                    |
| 5                                                   | 4824.00     | 52.7 PK                 | 74.0           | -21.3       | 1.16 H             | 87                   | 11.48            | 41.22                    |
| 6                                                   | 4824.00     | 40.6 AV                 | 54.0           | -13.4       | 1.16 H             | 87                   | -0.62            | 41.22                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 65.5 PK                 | 74.0           | -8.5        | 1.00 V             | 206                  | 33.62            | 31.88                    |
| 2                                                   | 2390.00     | 49.5 AV                 | 54.0           | -4.5        | 1.00 V             | 206                  | 17.62            | 31.88                    |
| 3                                                   | *2412.00    | 104.0 PK                |                |             | 1.00 V             | 207                  | 72.05            | 31.95                    |
| 4                                                   | *2412.00    | 92.4 AV                 |                |             | 1.00 V             | 207                  | 60.45            | 31.95                    |
| 5                                                   | 4824.00     | 52.9 PK                 | 74.0           | -21.1       | 1.11 V             | 221                  | 11.68            | 41.22                    |
| 6                                                   | 4824.00     | 40.4 AV                 | 54.0           | -13.6       | 1.11 V             | 221                  | -0.82            | 41.22                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* ”: Fundamental frequency.



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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2387.52     | 57.8 PK                 | 74.0           | -16.2       | 1.35 H             | 107                  | 25.92            | 31.88                    |
| 2                                                   | 2387.52     | 46.1 AV                 | 54.0           | -7.9        | 1.35 H             | 107                  | 14.22            | 31.88                    |
| 3                                                   | *2437.00    | 110.4 PK                |                |             | 1.35 H             | 107                  | 78.36            | 32.04                    |
| 4                                                   | *2437.00    | 98.7 AV                 |                |             | 1.35 H             | 107                  | 66.66            | 32.04                    |
| 5                                                   | 2485.61     | 56.5 PK                 | 74.0           | -17.5       | 1.28 H             | 119                  | 24.30            | 32.20                    |
| 6                                                   | 2485.61     | 45.5 AV                 | 54.0           | -8.5        | 1.28 H             | 119                  | 13.30            | 32.20                    |
| 7                                                   | 4874.00     | 64.1 PK                 | 74.0           | -9.9        | 1.05 H             | 81                   | 22.74            | 41.36                    |
| 8                                                   | 4874.00     | 50.0 AV                 | 54.0           | -4.0        | 1.05 H             | 81                   | 8.64             | 41.36                    |
| 9                                                   | 7311.00     | 54.2 PK                 | 74.0           | -19.8       | 1.17 H             | 243                  | 8.53             | 45.67                    |
| 10                                                  | 7311.00     | 43.8 AV                 | 54.0           | -10.2       | 1.17 H             | 243                  | -1.87            | 45.67                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 56.7 PK                 | 74.0           | -17.3       | 1.00 V             | 204                  | 24.82            | 31.88                    |
| 2                                                   | 2390.00     | 45.1 AV                 | 54.0           | -8.9        | 1.00 V             | 204                  | 13.22            | 31.88                    |
| 3                                                   | *2437.00    | 107.3 PK                |                |             | 1.00 V             | 204                  | 75.26            | 32.04                    |
| 4                                                   | *2437.00    | 96.1 AV                 |                |             | 1.00 V             | 204                  | 64.06            | 32.04                    |
| 5                                                   | 2487.35     | 57.0 PK                 | 74.0           | -17.0       | 1.18 V             | 206                  | 24.79            | 32.21                    |
| 6                                                   | 2487.35     | 43.9 AV                 | 54.0           | -10.1       | 1.18 V             | 206                  | 11.69            | 32.21                    |
| 7                                                   | 4874.00     | 64.1 PK                 | 74.0           | -9.9        | 1.09 V             | 240                  | 22.74            | 41.36                    |
| 8                                                   | 4874.00     | 50.1 AV                 | 54.0           | -3.9        | 1.09 V             | 240                  | 8.74             | 41.36                    |
| 9                                                   | 7311.00     | 56.9 PK                 | 74.0           | -17.1       | 1.37 V             | 246                  | 11.23            | 45.67                    |
| 10                                                  | 7311.00     | 45.4 AV                 | 54.0           | -8.6        | 1.37 V             | 246                  | -0.27            | 45.67                    |

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.



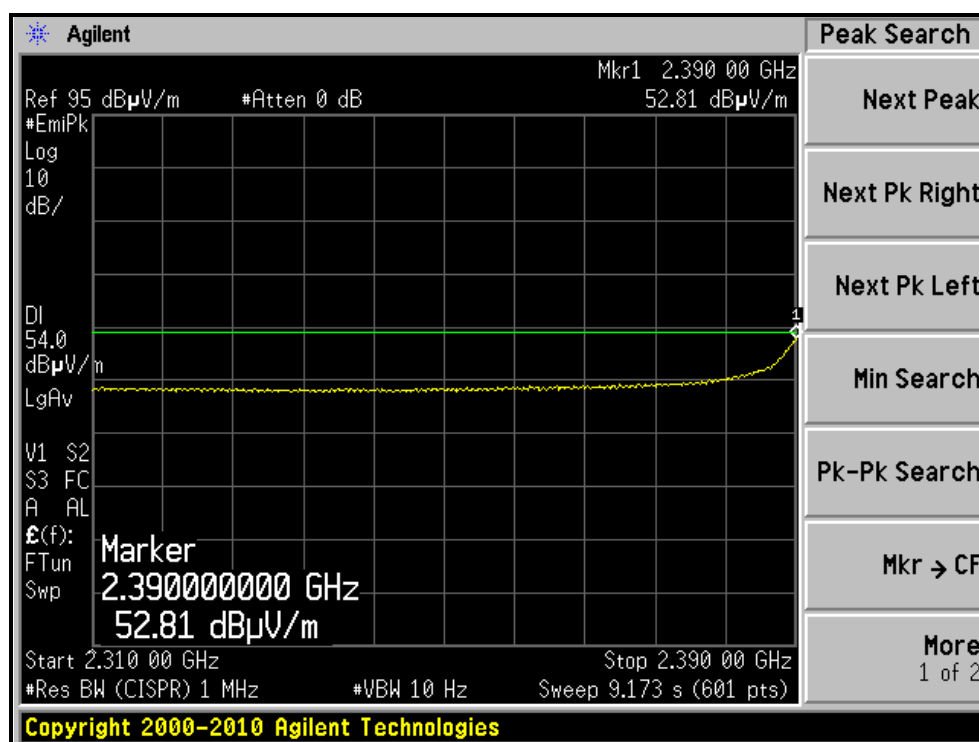
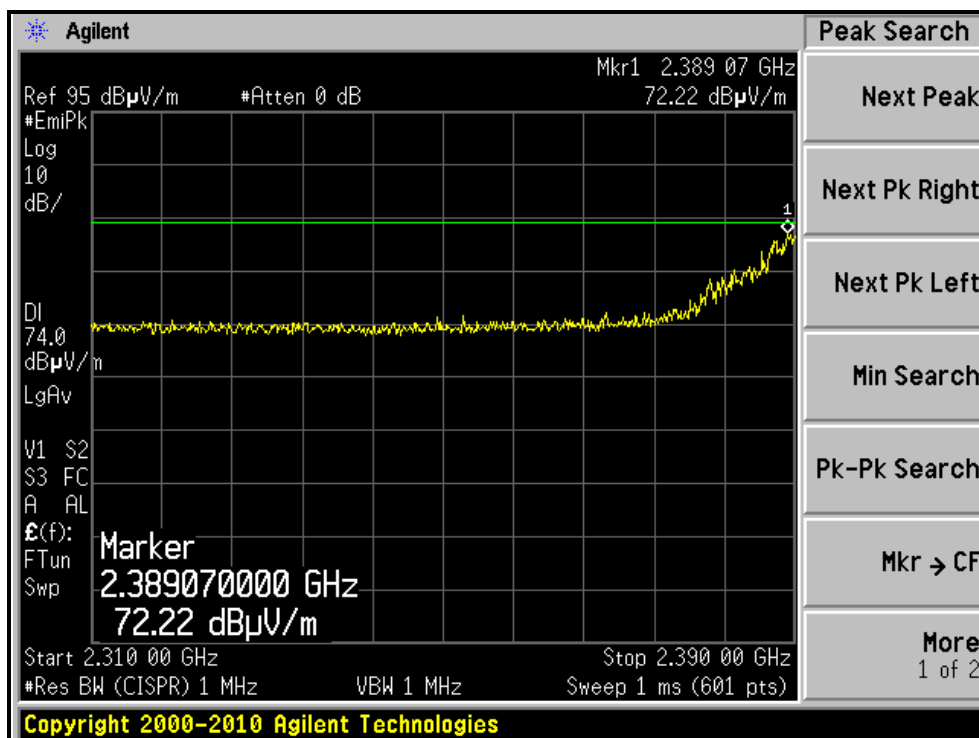
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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 11      | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

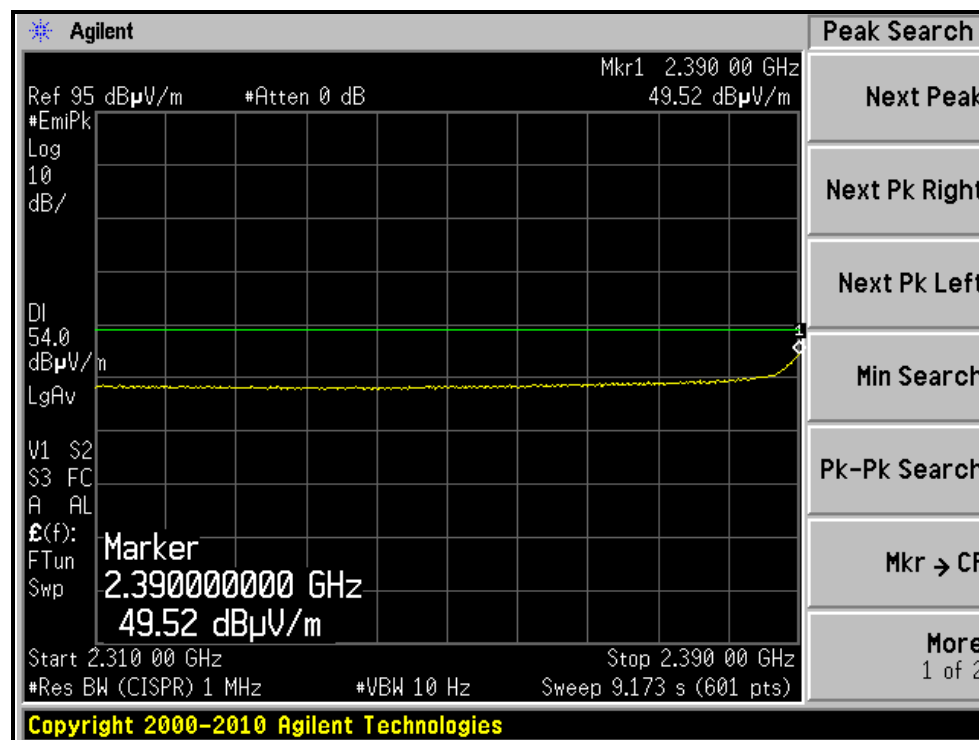
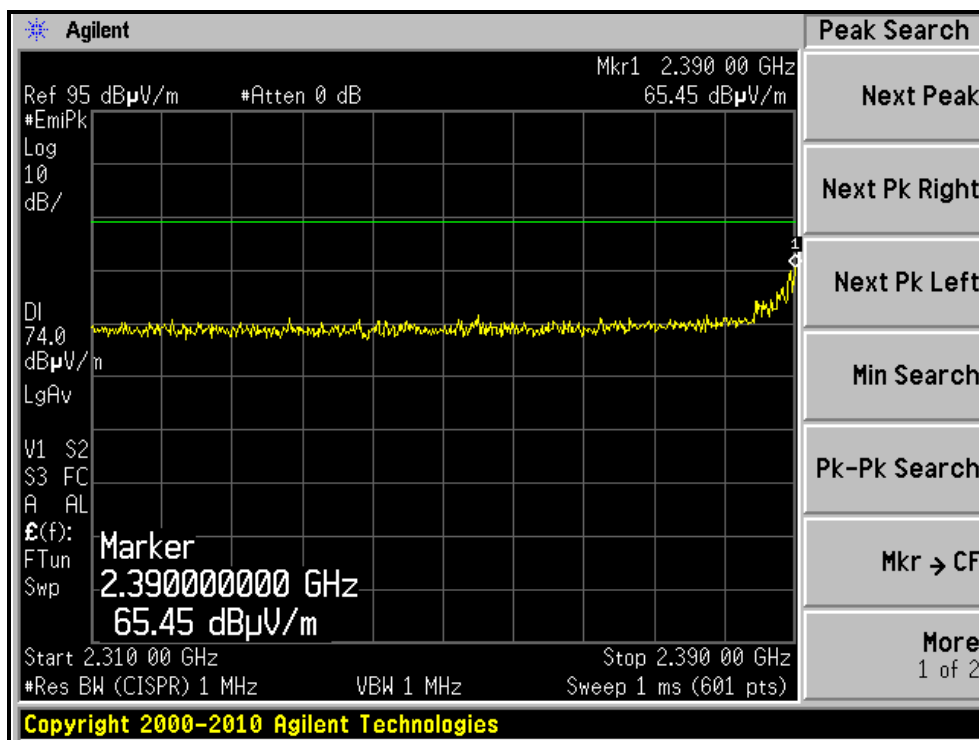
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2462.00    | 106.1 PK                |                |             | 1.27 H             | 106                  | 73.98            | 32.12                    |
| 2                                                   | *2462.00    | 94.1 AV                 |                |             | 1.27 H             | 106                  | 61.98            | 32.12                    |
| 3                                                   | 2483.50     | 73.3 PK                 | 74.0           | -0.7        | 1.27 H             | 107                  | 41.11            | 32.19                    |
| 4                                                   | 2483.50     | 51.4 AV                 | 54.0           | -2.6        | 1.27 H             | 107                  | 19.21            | 32.19                    |
| 5                                                   | 4924.00     | 53.3 PK                 | 74.0           | -20.7       | 1.10 H             | 92                   | 11.82            | 41.48                    |
| 6                                                   | 4924.00     | 41.0 AV                 | 54.0           | -13.0       | 1.10 H             | 92                   | -0.48            | 41.48                    |
| 7                                                   | 7386.00     | 53.9 PK                 | 74.0           | -20.1       | 1.13 H             | 227                  | 7.99             | 45.91                    |
| 8                                                   | 7386.00     | 43.4 AV                 | 54.0           | -10.6       | 1.13 H             | 227                  | -2.51            | 45.91                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2462.00    | 102.7 PK                |                |             | 1.17 V             | 203                  | 70.58            | 32.12                    |
| 2                                                   | *2462.00    | 91.9 AV                 |                |             | 1.17 V             | 203                  | 59.78            | 32.12                    |
| 3                                                   | 2483.50     | 67.9 PK                 | 74.0           | -6.1        | 1.17 V             | 203                  | 35.71            | 32.19                    |
| 4                                                   | 2483.50     | 49.4 AV                 | 54.0           | -4.6        | 1.17 V             | 203                  | 17.21            | 32.19                    |
| 5                                                   | 4924.00     | 53.0 PK                 | 74.0           | -21.0       | 1.07 V             | 208                  | 11.52            | 41.48                    |
| 6                                                   | 4924.00     | 40.6 AV                 | 54.0           | -13.4       | 1.07 V             | 208                  | -0.88            | 41.48                    |
| 7                                                   | 7386.00     | 57.1 PK                 | 74.0           | -16.9       | 1.34 V             | 234                  | 11.19            | 45.91                    |
| 8                                                   | 7386.00     | 45.4 AV                 | 54.0           | -8.6        | 1.34 V             | 234                  | -0.51            | 45.91                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
 3. The other emission levels were very low against the limit.  
 4. Margin value = Emission level – Limit value.  
 5. “ \* “: Fundamental frequency.

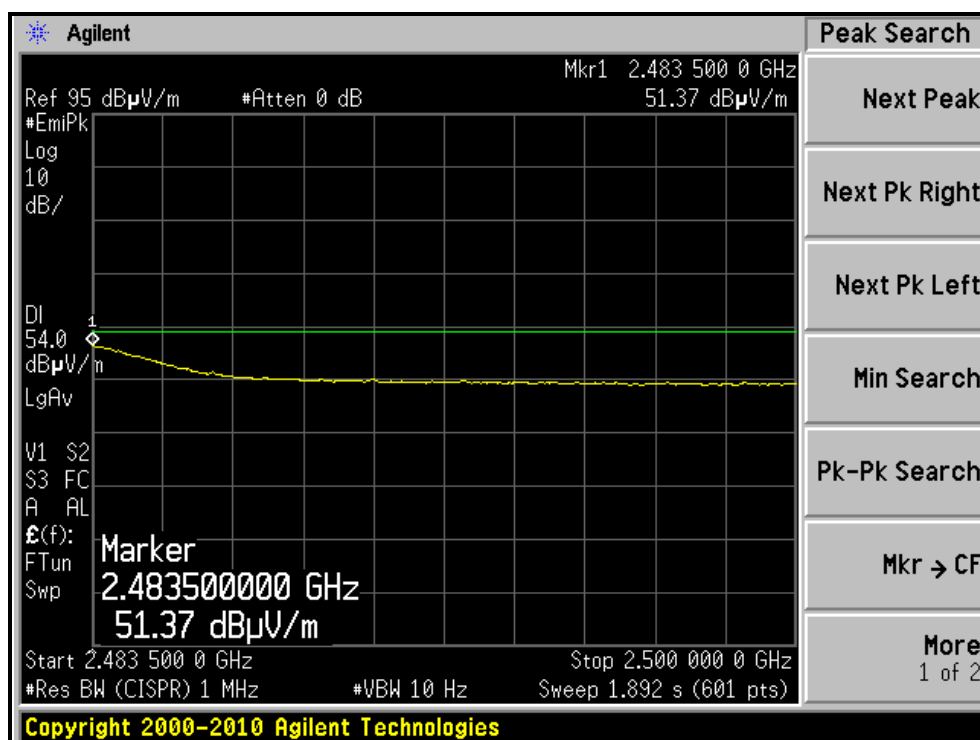
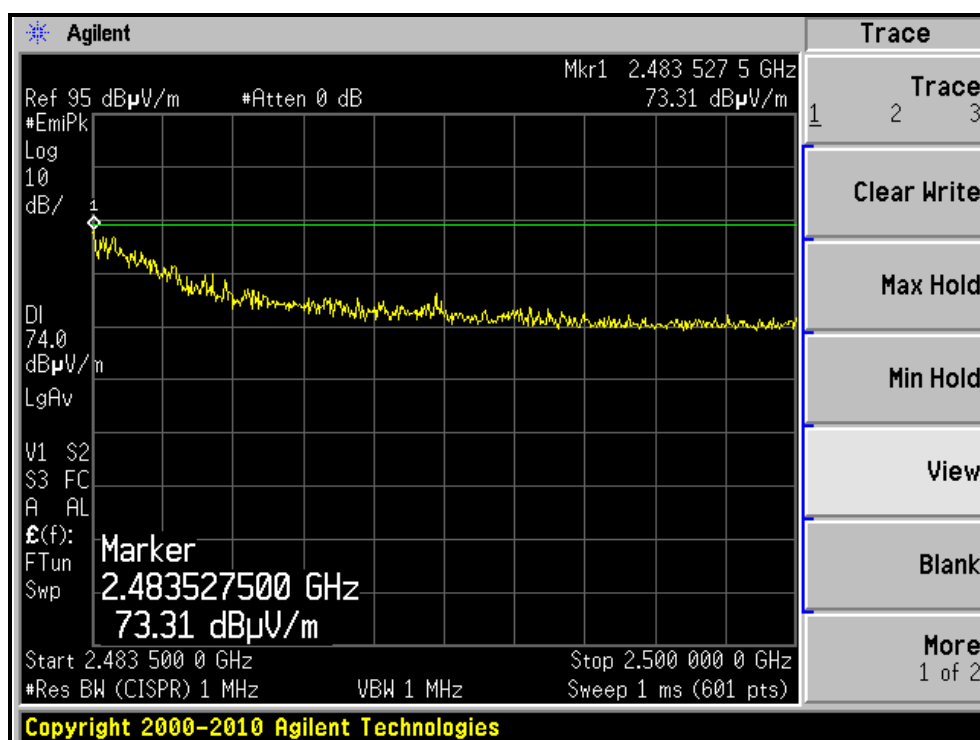
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL )



# RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL )

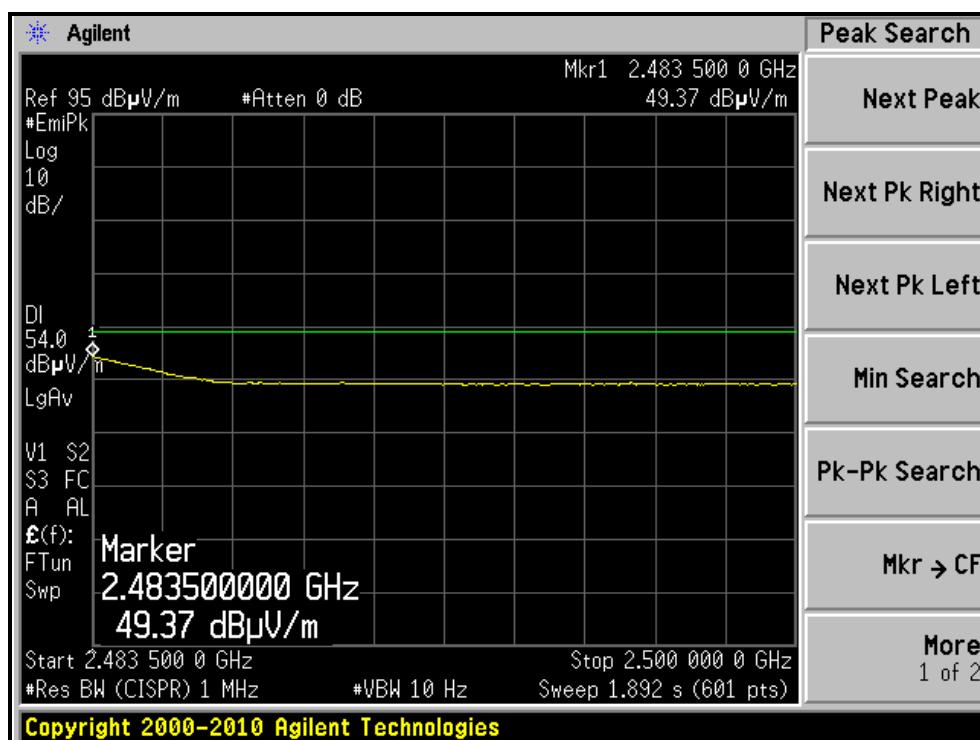
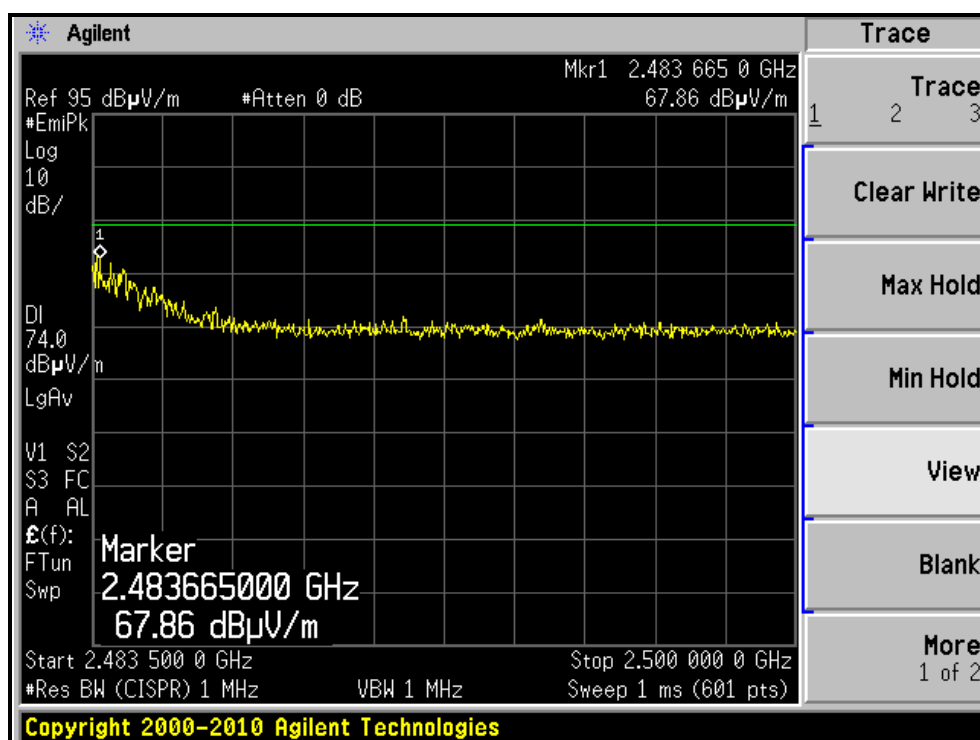


# RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL )





# RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL )



### 802.11n (20MHz) OFDM MODULATION

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 1       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 71.3 PK                 | 74.0           | -2.7        | 1.34 H             | 106                  | 39.42            | 31.88                    |
| 2                                                   | 2390.00     | 53.4 AV                 | 54.0           | -0.6        | 1.34 H             | 106                  | 21.52            | 31.88                    |
| 3                                                   | *2412.00    | 104.8 PK                |                |             | 1.34 H             | 106                  | 72.85            | 31.95                    |
| 4                                                   | *2412.00    | 93.5 AV                 |                |             | 1.34 H             | 106                  | 61.55            | 31.95                    |
| 5                                                   | 4824.00     | 52.8 PK                 | 74.0           | -21.2       | 1.04 H             | 72                   | 11.58            | 41.22                    |
| 6                                                   | 4824.00     | 40.2 AV                 | 54.0           | -13.8       | 1.04 H             | 72                   | -1.02            | 41.22                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 68.1 PK                 | 74.0           | -5.9        | 1.00 V             | 196                  | 36.22            | 31.88                    |
| 2                                                   | 2390.00     | 52.1 AV                 | 54.0           | -1.9        | 1.00 V             | 196                  | 20.22            | 31.88                    |
| 3                                                   | *2412.00    | 103.7 PK                |                |             | 1.00 V             | 208                  | 71.75            | 31.95                    |
| 4                                                   | *2412.00    | 92.1 AV                 |                |             | 1.00 V             | 208                  | 60.15            | 31.95                    |
| 5                                                   | 4824.00     | 52.7 PK                 | 74.0           | -21.3       | 1.10 V             | 232                  | 11.48            | 41.22                    |
| 6                                                   | 4824.00     | 40.2 AV                 | 54.0           | -13.8       | 1.10 V             | 232                  | -1.02            | 41.22                    |

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.
  5. “ \* “: Fundamental frequency.



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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 72.1 PK                 | 74.0           | -1.9        | 1.33 H             | 108                  | 40.22            | 31.88                    |
| 2                                                   | 2390.00     | 51.7 AV                 | 54.0           | -2.3        | 1.33 H             | 108                  | 19.82            | 31.88                    |
| 3                                                   | *2437.00    | 109.6 PK                |                |             | 1.31 H             | 110                  | 77.56            | 32.04                    |
| 4                                                   | *2437.00    | 98.3 AV                 |                |             | 1.31 H             | 110                  | 66.26            | 32.04                    |
| 5                                                   | 2483.50     | 67.8 PK                 | 74.0           | -6.2        | 1.25 H             | 110                  | 35.61            | 32.19                    |
| 6                                                   | 2483.50     | 48.3 AV                 | 54.0           | -5.7        | 1.25 H             | 110                  | 16.11            | 32.19                    |
| 7                                                   | 4874.00     | 64.2 PK                 | 74.0           | -9.8        | 1.06 H             | 74                   | 22.84            | 41.36                    |
| 8                                                   | 4874.00     | 50.1 AV                 | 54.0           | -3.9        | 1.06 H             | 74                   | 8.74             | 41.36                    |
| 9                                                   | 7311.00     | 53.4 PK                 | 74.0           | -20.6       | 1.15 H             | 230                  | 7.73             | 45.67                    |
| 10                                                  | 7311.00     | 43.3 AV                 | 54.0           | -10.7       | 1.15 H             | 230                  | -2.37            | 45.67                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 73.1 PK                 | 74.0           | -0.9        | 1.00 V             | 205                  | 41.22            | 31.88                    |
| 2                                                   | 2390.00     | 50.8 AV                 | 54.0           | -3.2        | 1.00 V             | 205                  | 18.92            | 31.88                    |
| 3                                                   | *2437.00    | 107.6 PK                |                |             | 1.00 V             | 205                  | 75.56            | 32.04                    |
| 4                                                   | *2437.00    | 95.9 AV                 |                |             | 1.00 V             | 205                  | 63.86            | 32.04                    |
| 5                                                   | 4874.00     | 63.2 PK                 | 74.0           | -10.8       | 1.08 V             | 243                  | 21.84            | 41.36                    |
| 6                                                   | 4874.00     | 49.4 AV                 | 54.0           | -4.6        | 1.08 V             | 243                  | 8.04             | 41.36                    |
| 7                                                   | 7311.00     | 57.1 PK                 | 74.0           | -16.9       | 1.28 V             | 239                  | 11.43            | 45.67                    |
| 8                                                   | 7311.00     | 45.3 AV                 | 54.0           | -8.7        | 1.28 V             | 239                  | -0.37            | 45.67                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* ”: Fundamental frequency.



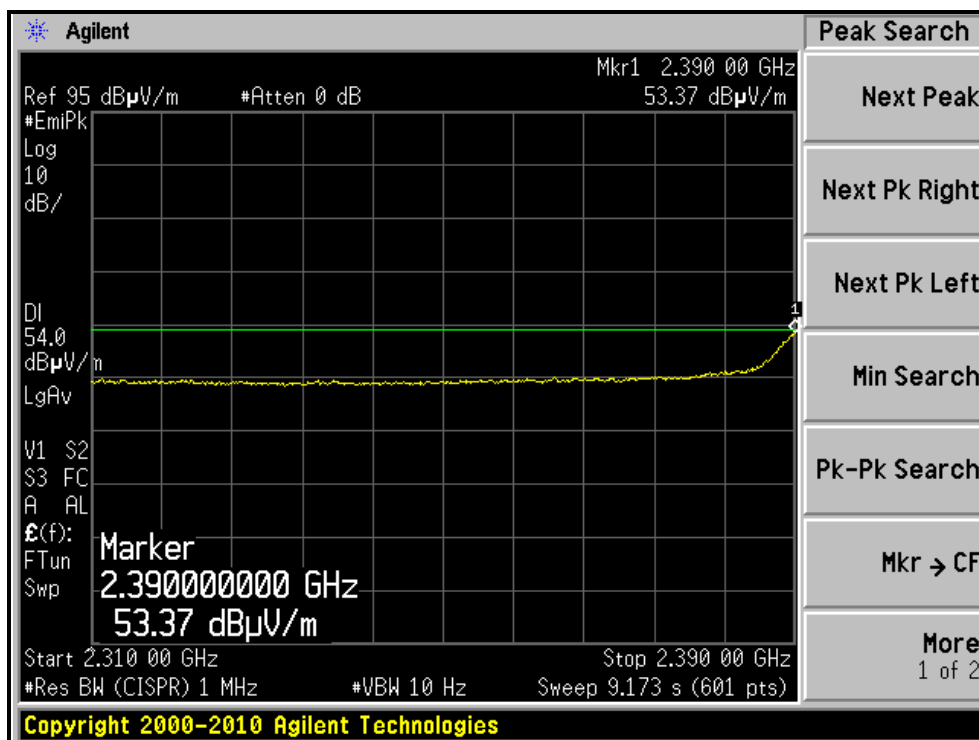
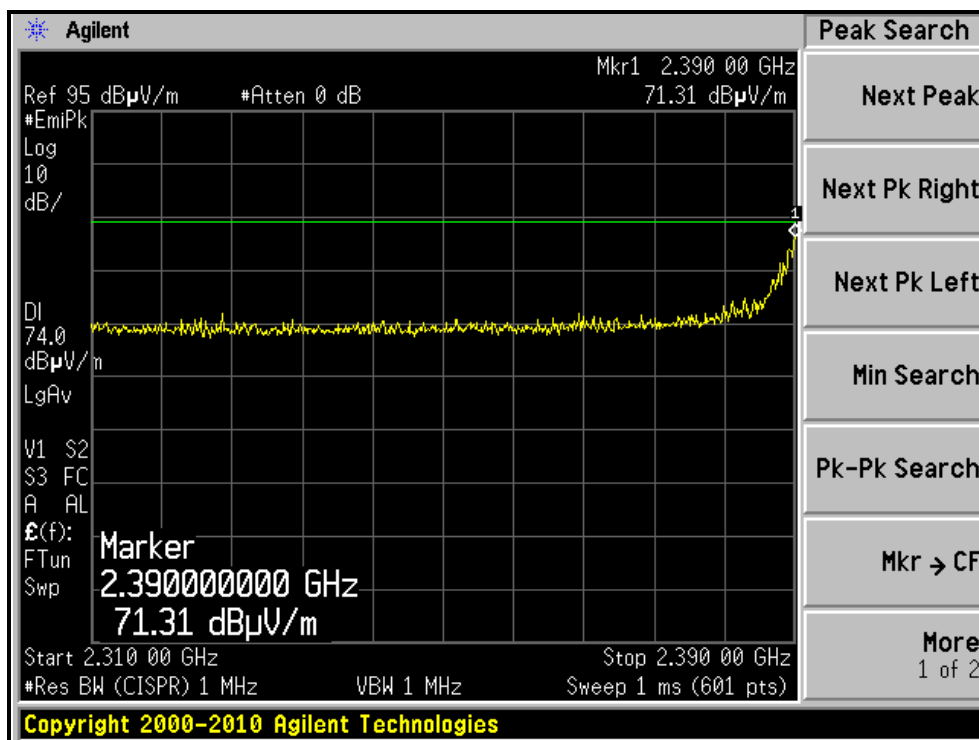
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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 11      | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

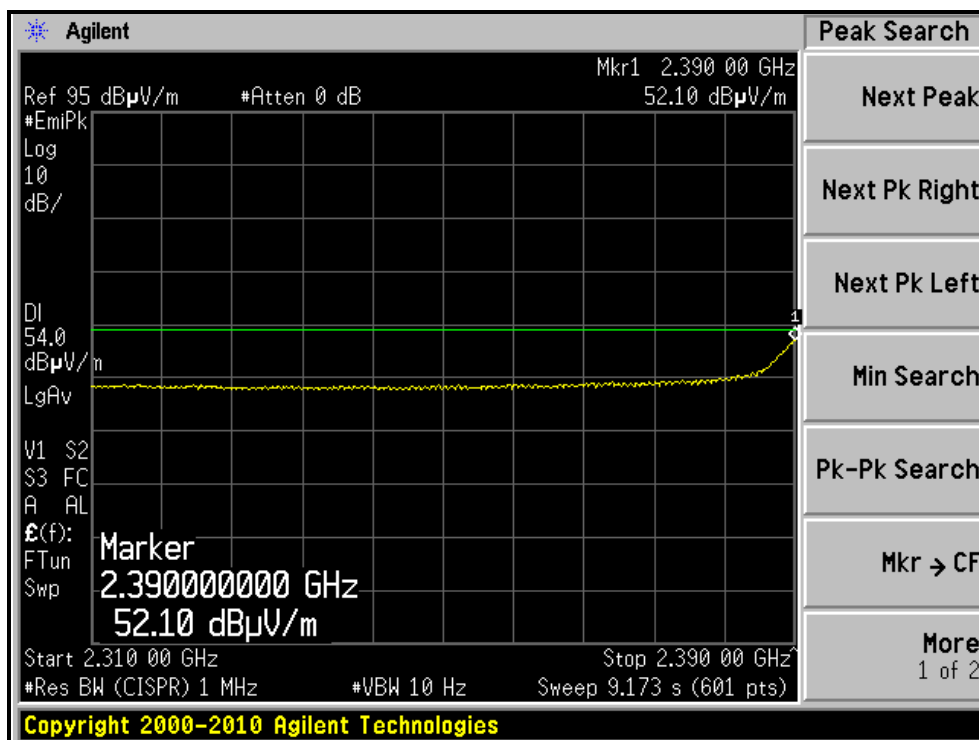
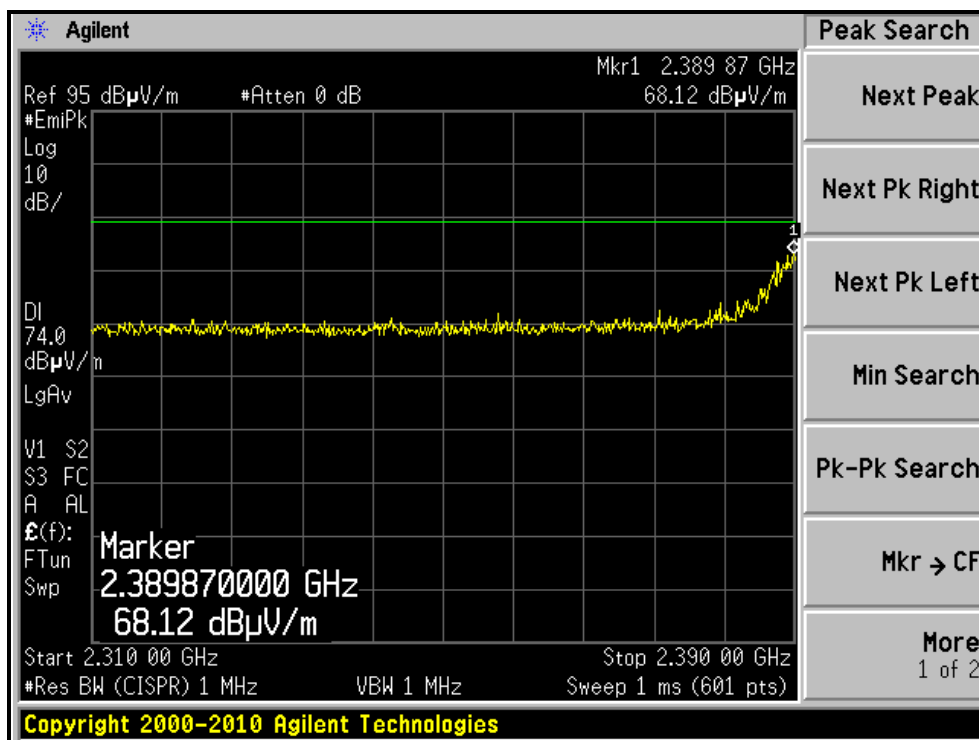
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2462.00    | 105.4 PK                |                |             | 1.27 H             | 110                  | 73.28            | 32.12                    |
| 2                                                   | *2462.00    | 93.8 AV                 |                |             | 1.27 H             | 110                  | 61.68            | 32.12                    |
| 3                                                   | 2483.50     | 71.2 PK                 | 74.0           | -2.8        | 1.27 H             | 110                  | 39.01            | 32.19                    |
| 4                                                   | 2483.50     | 53.4 AV                 | 54.0           | -0.6        | 1.27 H             | 110                  | 21.21            | 32.19                    |
| 5                                                   | 4924.00     | 53.1 PK                 | 74.0           | -20.9       | 1.04 H             | 59                   | 11.62            | 41.48                    |
| 6                                                   | 4924.00     | 40.5 AV                 | 54.0           | -13.5       | 1.04 H             | 59                   | -0.98            | 41.48                    |
| 7                                                   | 7386.00     | 53.4 PK                 | 74.0           | -20.6       | 1.07 H             | 224                  | 7.49             | 45.91                    |
| 8                                                   | 7386.00     | 43.4 AV                 | 54.0           | -10.6       | 1.07 H             | 224                  | -2.51            | 45.91                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2462.00    | 103.2 PK                |                |             | 1.18 V             | 204                  | 71.08            | 32.12                    |
| 2                                                   | *2462.00    | 91.1 AV                 |                |             | 1.18 V             | 204                  | 58.98            | 32.12                    |
| 3                                                   | 2483.50     | 68.1 PK                 | 74.0           | -5.9        | 1.18 V             | 204                  | 35.91            | 32.19                    |
| 4                                                   | 2483.50     | 50.5 AV                 | 54.0           | -3.5        | 1.18 V             | 204                  | 18.31            | 32.19                    |
| 5                                                   | 4924.00     | 52.7 PK                 | 74.0           | -21.3       | 1.06 V             | 244                  | 11.22            | 41.48                    |
| 6                                                   | 4924.00     | 40.3 AV                 | 54.0           | -13.7       | 1.06 V             | 244                  | -1.18            | 41.48                    |
| 7                                                   | 7386.00     | 56.7 PK                 | 74.0           | -17.3       | 1.24 V             | 226                  | 10.79            | 45.91                    |
| 8                                                   | 7386.00     | 44.8 AV                 | 54.0           | -9.2        | 1.24 V             | 226                  | -1.11            | 45.91                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
 3. The other emission levels were very low against the limit.  
 4. Margin value = Emission level – Limit value.  
 5. “ \* “: Fundamental frequency.

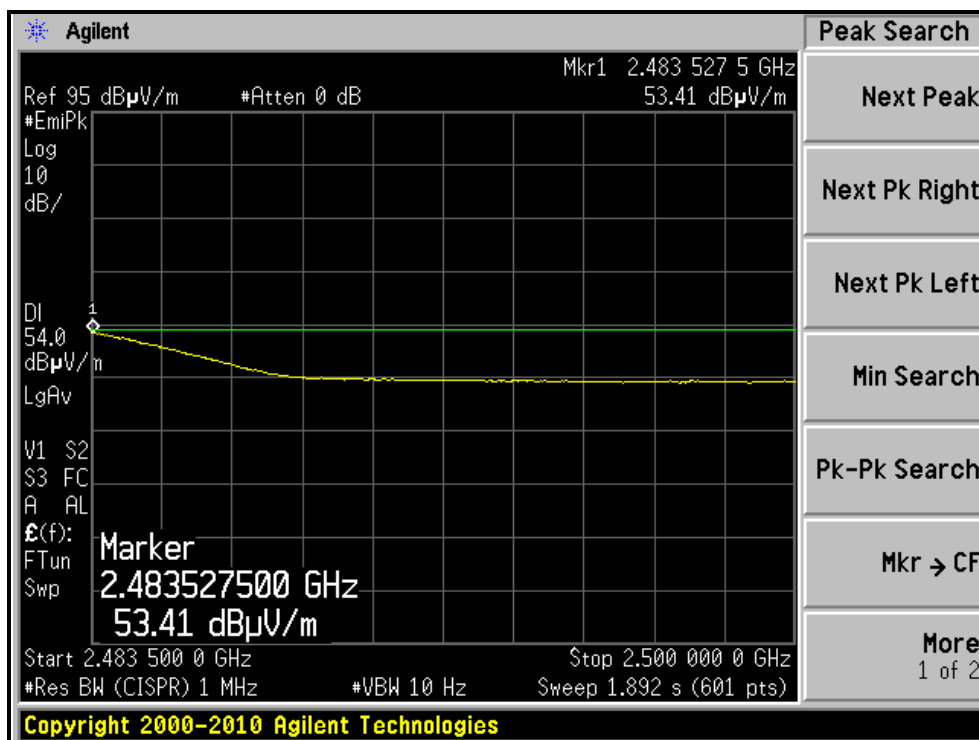
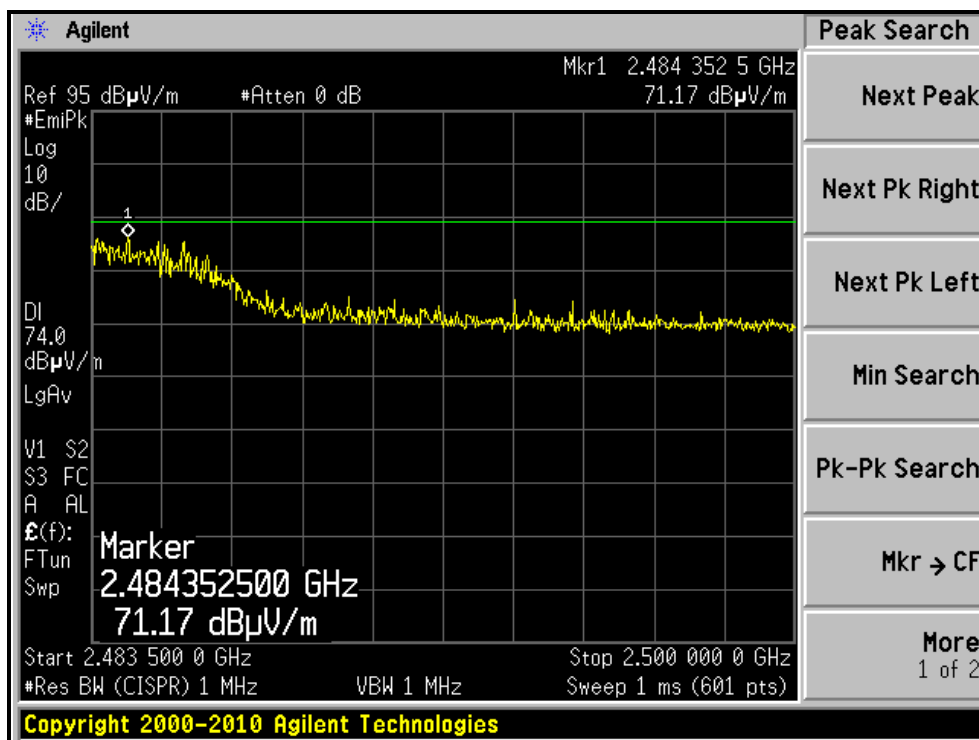
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL )



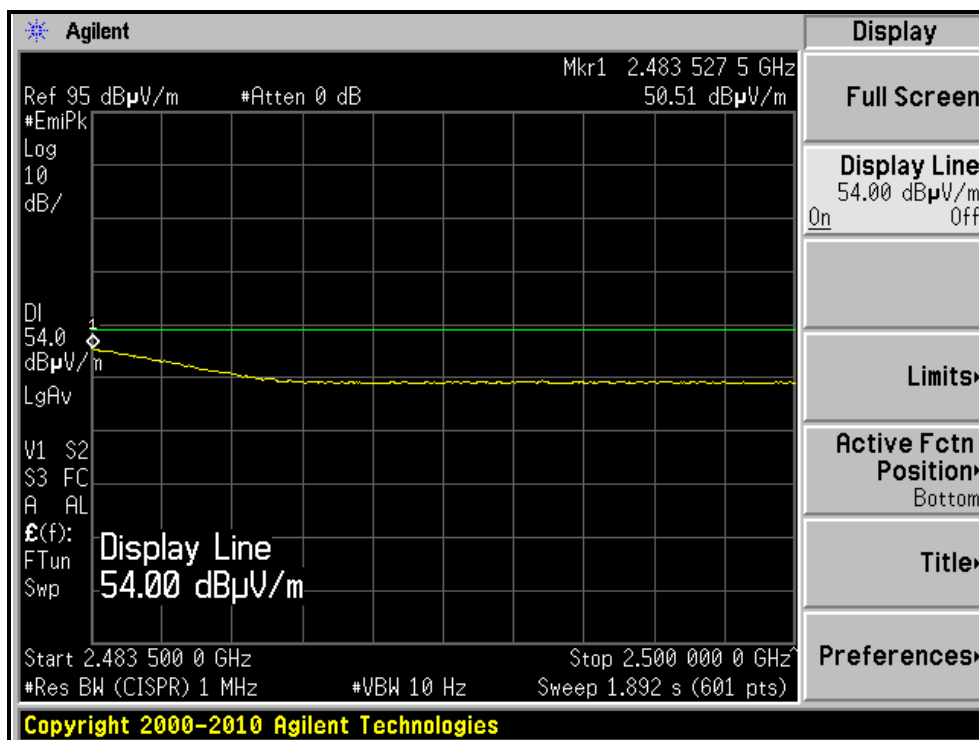
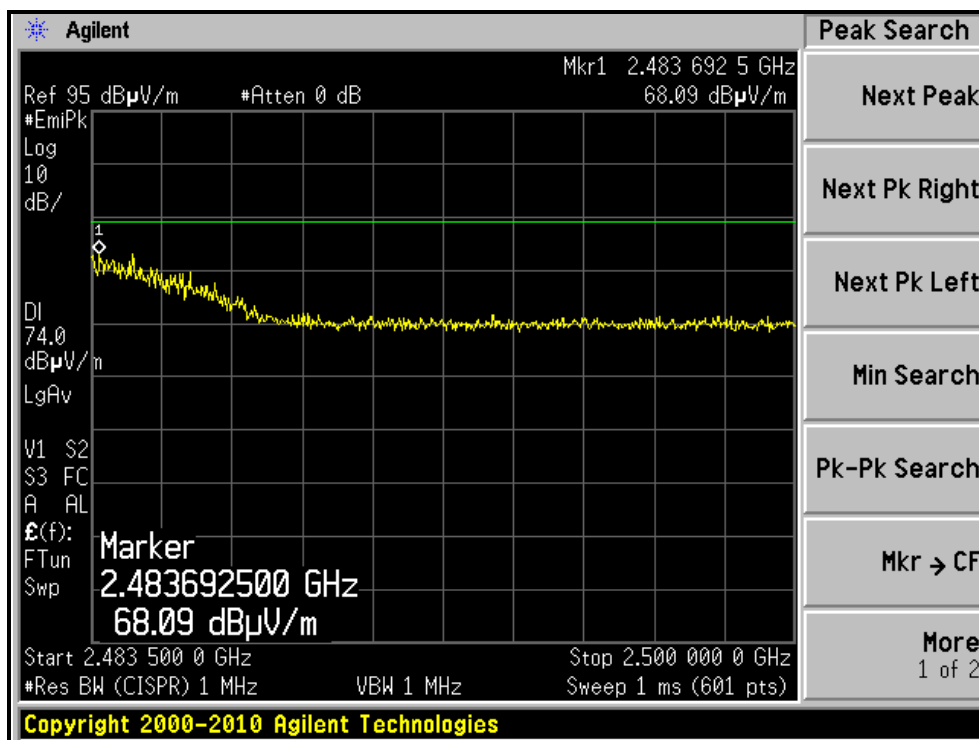
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL )



RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL )



RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, VERTICAL )





## 802.11n (40MHz) OFDM MODULATION

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 3       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 72.4 PK                 | 74.0           | -1.6        | 1.33 H             | 108                  | 40.52            | 31.88                    |
| 2                                                   | 2390.00     | 53.4 AV                 | 54.0           | -0.6        | 1.33 H             | 108                  | 21.52            | 31.88                    |
| 3                                                   | *2422.00    | 102.1 PK                |                |             | 1.33 H             | 108                  | 70.12            | 31.98                    |
| 4                                                   | *2422.00    | 89.5 AV                 |                |             | 1.33 H             | 108                  | 57.52            | 31.98                    |
| 5                                                   | 4844.00     | 53.1 PK                 | 74.0           | -20.9       | 1.05 H             | 54                   | 11.82            | 41.28                    |
| 6                                                   | 4844.00     | 40.5 AV                 | 54.0           | -13.5       | 1.05 H             | 54                   | -0.78            | 41.28                    |
| 7                                                   | 7266.00     | 53.4 PK                 | 74.0           | -20.6       | 1.07 H             | 216                  | 7.85             | 45.55                    |
| 8                                                   | 7266.00     | 43.1 AV                 | 54.0           | -10.9       | 1.07 H             | 216                  | -2.45            | 45.55                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 67.3 PK                 | 74.0           | -6.7        | 1.00 V             | 203                  | 35.42            | 31.88                    |
| 2                                                   | 2390.00     | 52.7 AV                 | 54.0           | -1.3        | 1.00 V             | 203                  | 20.82            | 31.88                    |
| 3                                                   | *2422.00    | 100.1 PK                |                |             | 1.00 V             | 203                  | 68.12            | 31.98                    |
| 4                                                   | *2422.00    | 87.3 AV                 |                |             | 1.00 V             | 203                  | 55.32            | 31.98                    |
| 5                                                   | 4844.00     | 53.0 PK                 | 74.0           | -21.0       | 1.06 V             | 235                  | 11.72            | 41.28                    |
| 6                                                   | 4844.00     | 40.4 AV                 | 54.0           | -13.6       | 1.06 V             | 235                  | -0.88            | 41.28                    |
| 7                                                   | 7266.00     | 56.9 PK                 | 74.0           | -17.1       | 1.22 V             | 233                  | 11.35            | 45.55                    |
| 8                                                   | 7266.00     | 45.0 AV                 | 54.0           | -9.0        | 1.22 V             | 233                  | -0.55            | 45.55                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* ”: Fundamental frequency.



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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 71.9 PK                 | 74.0           | -2.1        | 1.32 H             | 117                  | 40.02            | 31.88                    |
| 2                                                   | 2390.00     | 52.2 AV                 | 54.0           | -1.8        | 1.32 H             | 117                  | 20.32            | 31.88                    |
| 3                                                   | *2437.00    | 103.6 PK                |                |             | 1.32 H             | 117                  | 71.56            | 32.04                    |
| 4                                                   | *2437.00    | 91.3 AV                 |                |             | 1.32 H             | 117                  | 59.26            | 32.04                    |
| 5                                                   | 2483.50     | 69.8 PK                 | 74.0           | -4.2        | 1.27 H             | 107                  | 37.61            | 32.19                    |
| 6                                                   | 2483.50     | 52.3 AV                 | 54.0           | -1.7        | 1.27 H             | 107                  | 20.11            | 32.19                    |
| 7                                                   | 4874.00     | 53.3 PK                 | 74.0           | -20.7       | 1.09 H             | 45                   | 11.94            | 41.36                    |
| 8                                                   | 4874.00     | 41.0 AV                 | 54.0           | -13.0       | 1.09 H             | 45                   | -0.36            | 41.36                    |
| 9                                                   | 7311.00     | 54.0 PK                 | 74.0           | -20.0       | 1.12 H             | 211                  | 8.33             | 45.67                    |
| 10                                                  | 7311.00     | 43.5 AV                 | 54.0           | -10.5       | 1.12 H             | 211                  | -2.17            | 45.67                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 2390.00     | 72.5 PK                 | 74.0           | -1.5        | 1.00 V             | 204                  | 40.62            | 31.88                    |
| 2                                                   | 2390.00     | 53.0 AV                 | 54.0           | -1.0        | 1.00 V             | 204                  | 21.12            | 31.88                    |
| 3                                                   | *2437.00    | 100.7 PK                |                |             | 1.00 V             | 204                  | 68.66            | 32.04                    |
| 4                                                   | *2437.00    | 89.1 AV                 |                |             | 1.00 V             | 204                  | 57.06            | 32.04                    |
| 5                                                   | 4874.00     | 53.6 PK                 | 74.0           | -20.4       | 1.10 V             | 242                  | 12.24            | 41.36                    |
| 6                                                   | 4874.00     | 41.3 AV                 | 54.0           | -12.7       | 1.10 V             | 242                  | -0.06            | 41.36                    |
| 7                                                   | 7311.00     | 55.9 PK                 | 74.0           | -18.1       | 1.10 V             | 216                  | 10.23            | 45.67                    |
| 8                                                   | 7311.00     | 44.0 AV                 | 54.0           | -10.0       | 1.10 V             | 216                  | -1.67            | 45.67                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* ”: Fundamental frequency.



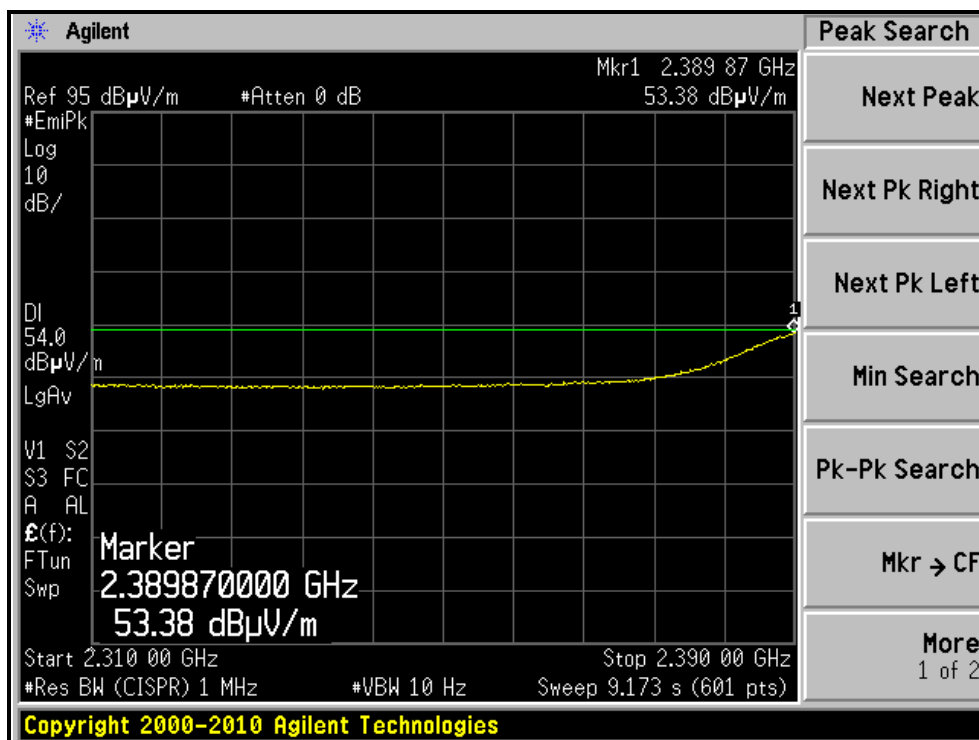
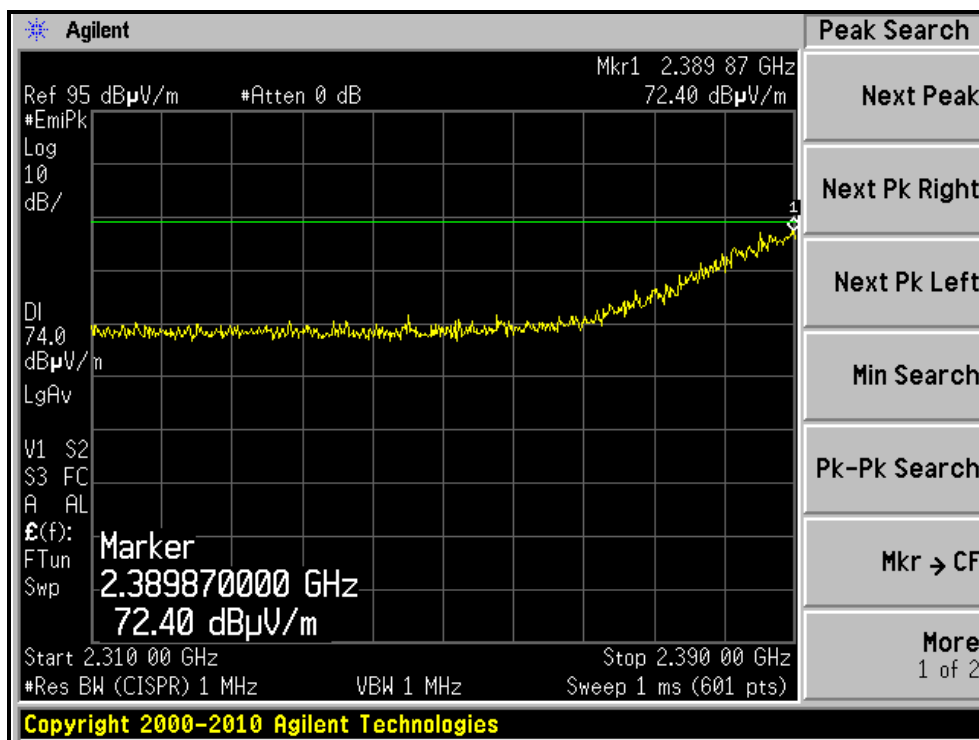
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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 9       | FREQUENCY RANGE    | 1 ~ 25GHz                 |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 24deg. C, 69%RH | TESTED BY          | Nick Chang                |

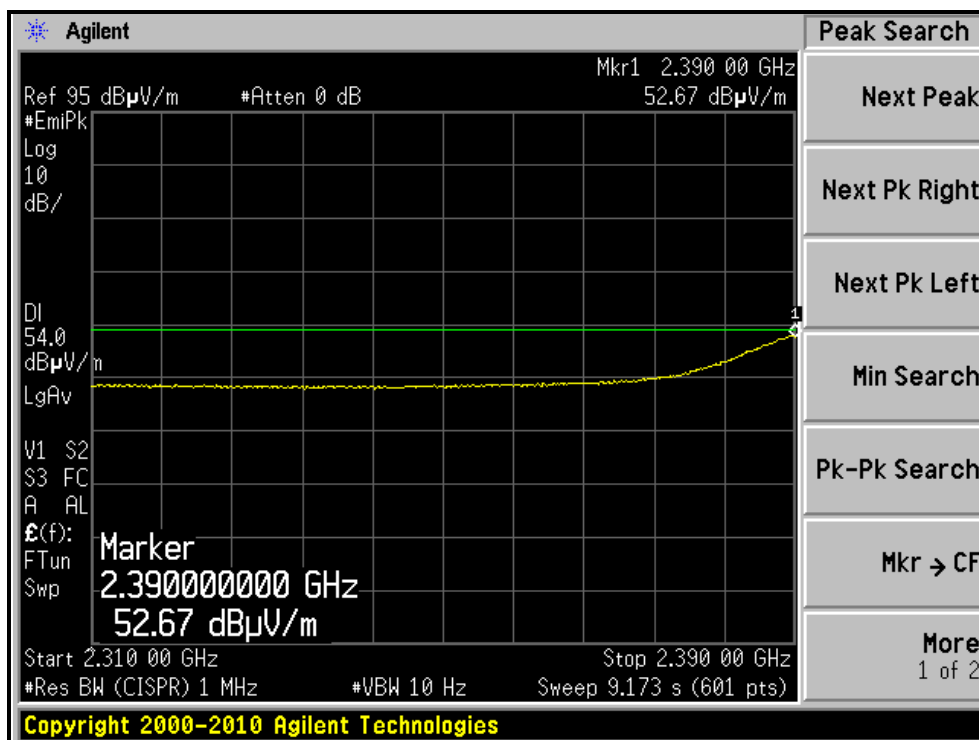
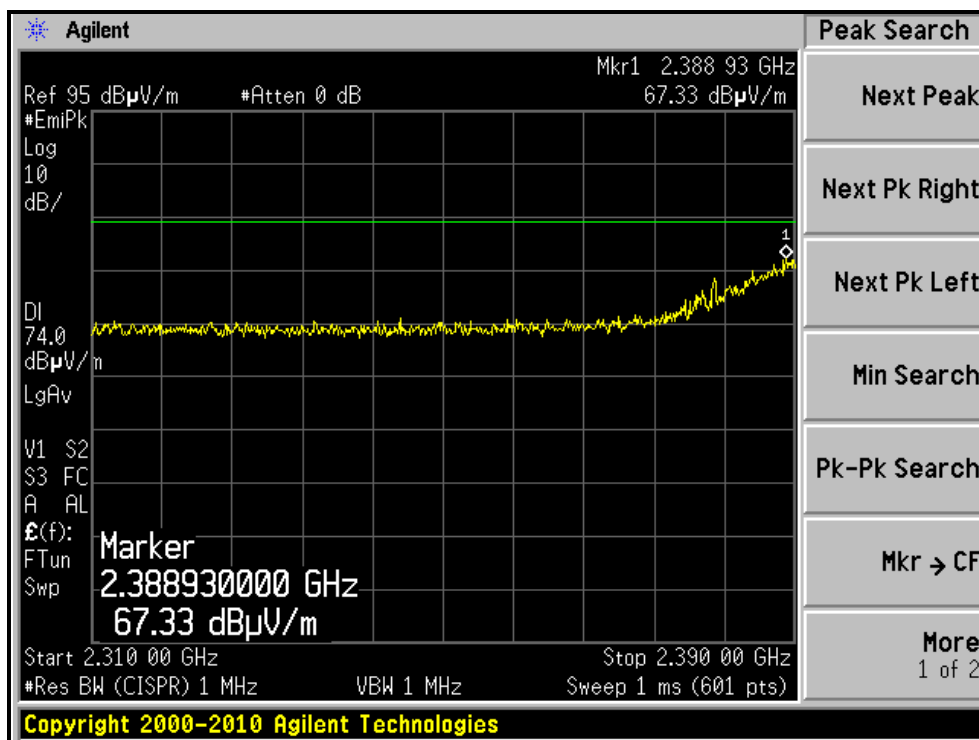
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2452.00    | 101.7 PK                |                |             | 1.27 H             | 112                  | 69.61            | 32.09                    |
| 2                                                   | *2452.00    | 89.9 AV                 |                |             | 1.27 H             | 112                  | 57.81            | 32.09                    |
| 3                                                   | 2483.50     | 68.7 PK                 | 74.0           | -5.3        | 1.27 H             | 112                  | 36.51            | 32.19                    |
| 4                                                   | 2483.50     | 53.3 AV                 | 54.0           | -0.7        | 1.27 H             | 112                  | 21.11            | 32.19                    |
| 5                                                   | 4904.00     | 53.3 PK                 | 74.0           | -20.7       | 1.03 H             | 56                   | 11.86            | 41.44                    |
| 6                                                   | 4904.00     | 40.7 AV                 | 54.0           | -13.3       | 1.03 H             | 56                   | -0.74            | 41.44                    |
| 7                                                   | 7356.00     | 52.9 PK                 | 74.0           | -21.1       | 1.08 H             | 217                  | 7.09             | 45.81                    |
| 8                                                   | 7356.00     | 43.2 AV                 | 54.0           | -10.8       | 1.08 H             | 217                  | -2.61            | 45.81                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *2452.00    | 99.2 PK                 |                |             | 1.17 V             | 204                  | 67.11            | 32.09                    |
| 2                                                   | *2452.00    | 87.3 AV                 |                |             | 1.17 V             | 204                  | 55.21            | 32.09                    |
| 3                                                   | 2483.50     | 66.3 PK                 | 74.0           | -7.7        | 1.17 V             | 204                  | 34.11            | 32.19                    |
| 4                                                   | 2483.50     | 52.0 AV                 | 54.0           | -2.0        | 1.17 V             | 204                  | 19.81            | 32.19                    |
| 5                                                   | 4904.00     | 53.3 PK                 | 74.0           | -20.7       | 1.07 V             | 241                  | 11.86            | 41.44                    |
| 6                                                   | 4904.00     | 40.8 AV                 | 54.0           | -13.2       | 1.07 V             | 241                  | -0.64            | 41.44                    |
| 7                                                   | 7356.00     | 55.7 PK                 | 74.0           | -18.3       | 1.02 V             | 205                  | 9.89             | 45.81                    |
| 8                                                   | 7356.00     | 43.9 AV                 | 54.0           | -10.1       | 1.02 V             | 205                  | -1.91            | 45.81                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
 3. The other emission levels were very low against the limit.  
 4. Margin value = Emission level – Limit value.  
 5. “ \* “: Fundamental frequency.

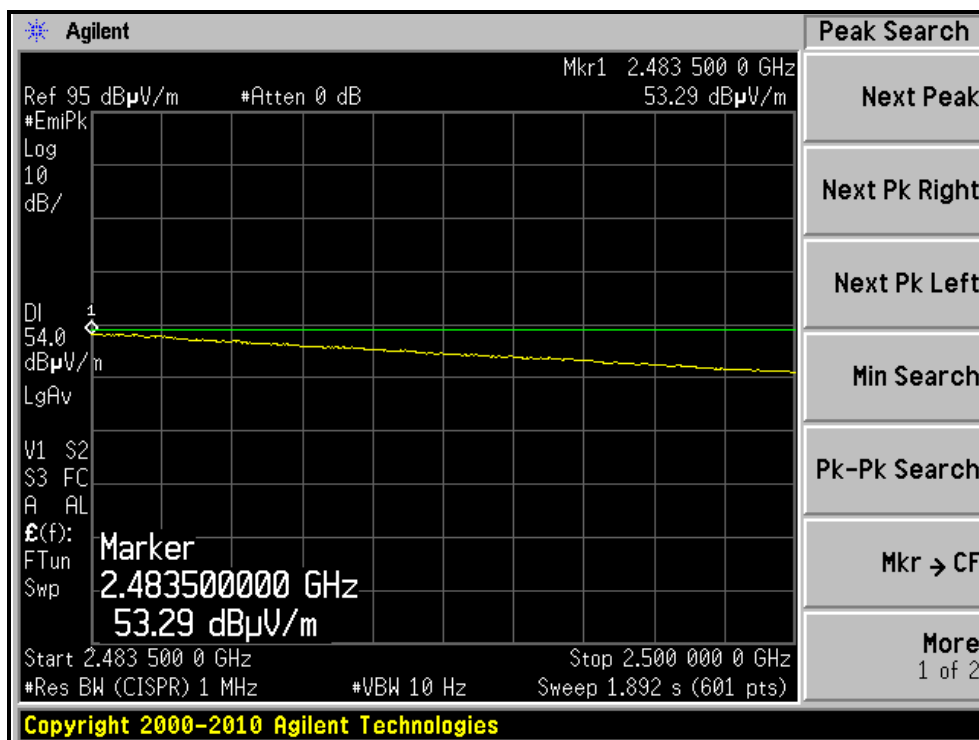
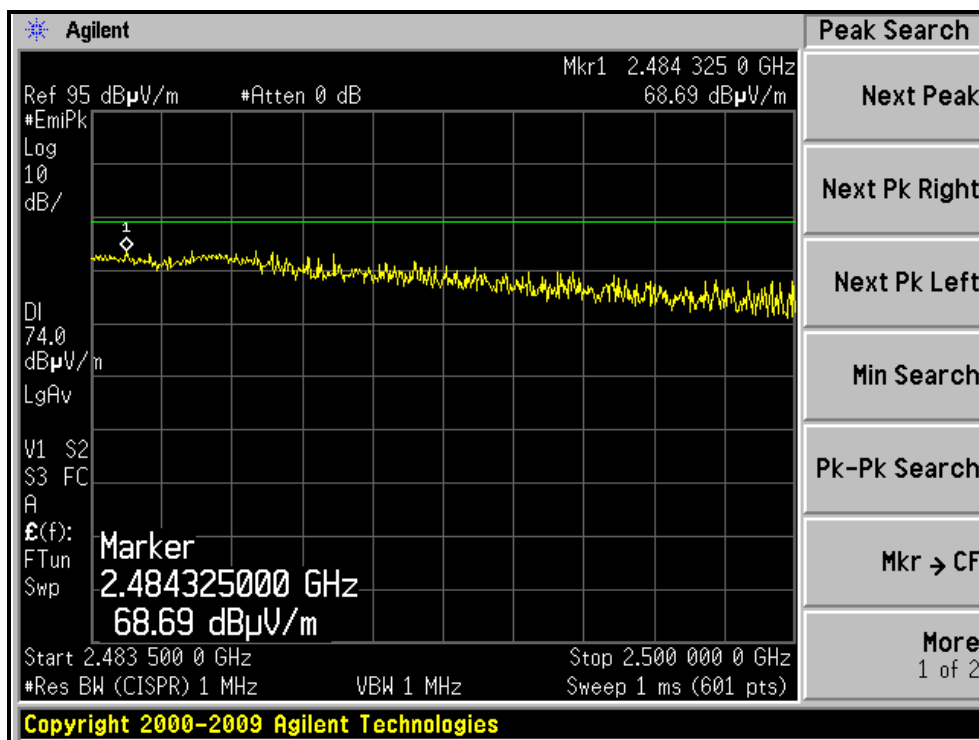
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH3, HORIZONTAL )



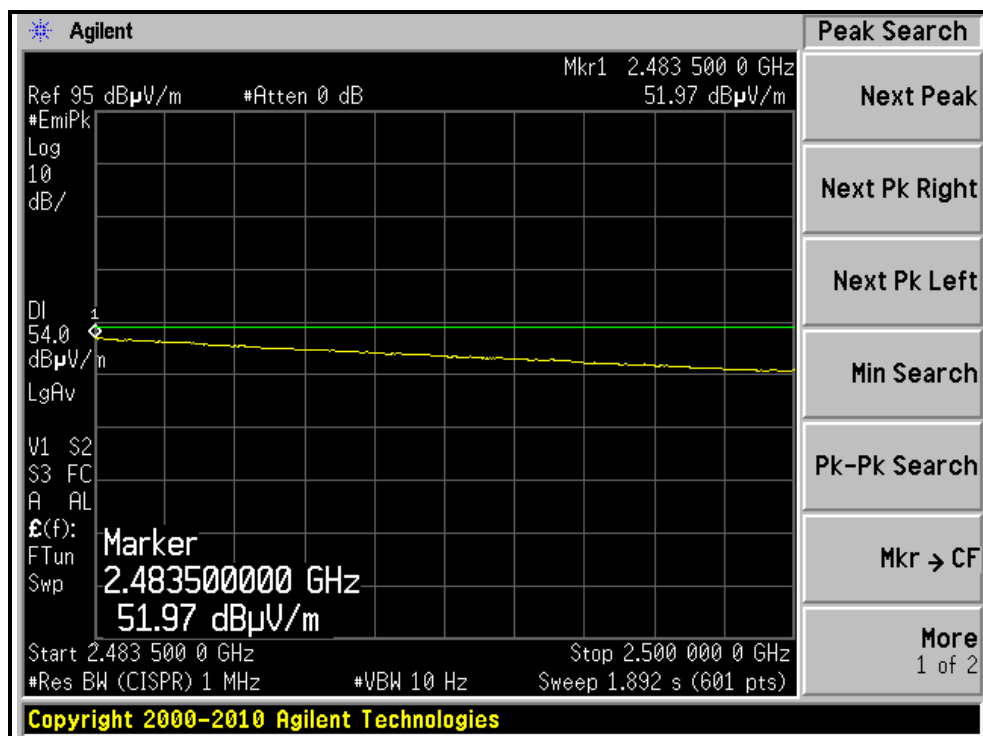
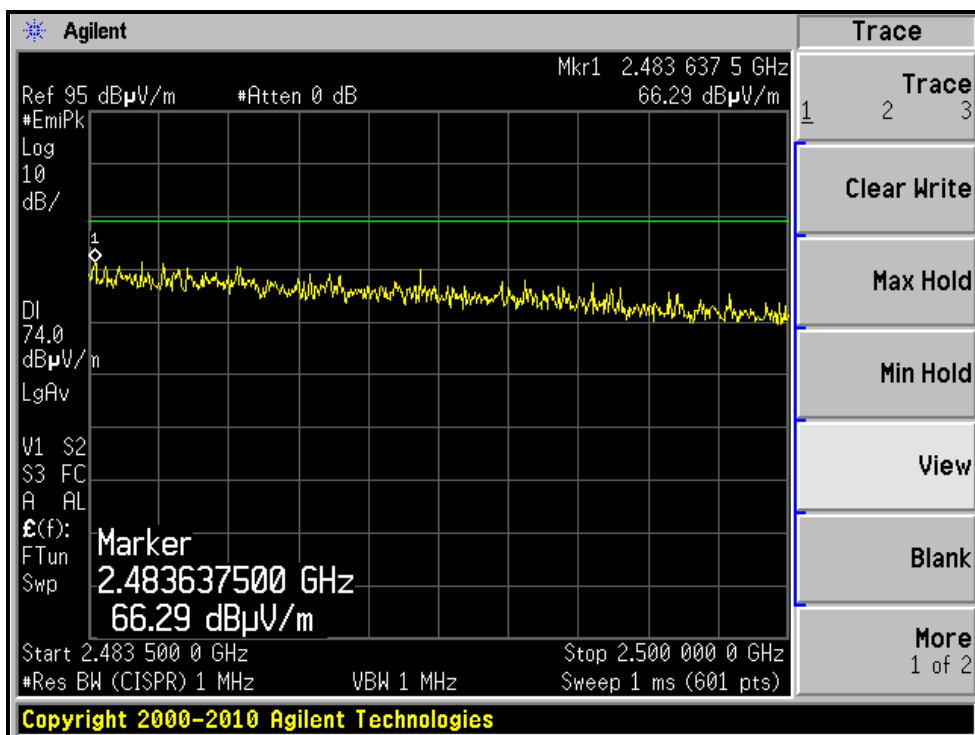
# RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH3, VERTICAL )



RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH9, HORIZONTAL )



RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH9, VERTICAL )



#### 4.1.8 TEST RESULTS (FOR RECEIVER PART)

##### BELOW 1GHz WORST-CASE DATA :

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |               |
|--------------------------|-----------------|--------------------|---------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 67%RH | TESTED BY          | Nick Chang    |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 143.92      | 42.3 QP                 | 43.5           | -1.2        | 1.00 H             | 195                  | 27.87            | 14.42                    |
| 2                                                   | 166.49      | 42.4 QP                 | 43.5           | -1.1        | 1.68 H             | 196                  | 28.18            | 14.18                    |
| 3                                                   | 199.82      | 38.2 QP                 | 43.5           | -5.3        | 1.50 H             | 0                    | 26.77            | 11.41                    |
| 4                                                   | 298.70      | 42.6 QP                 | 46.0           | -3.4        | 1.00 H             | 336                  | 27.35            | 15.27                    |
| 5                                                   | 599.61      | 44.5 QP                 | 46.0           | -1.5        | 1.50 H             | 238                  | 21.94            | 22.57                    |
| 6                                                   | 796.55      | 43.4 QP                 | 46.0           | -2.6        | 1.00 H             | 360                  | 17.65            | 25.77                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 166.54      | 37.6 QP                 | 43.5           | -5.9        | 2.00 V             | 258                  | 23.41            | 14.18                    |
| 2                                                   | 299.77      | 40.8 QP                 | 46.0           | -5.2        | 1.50 V             | 307                  | 25.53            | 15.31                    |
| 3                                                   | 399.60      | 43.2 QP                 | 46.0           | -2.8        | 1.50 V             | 110                  | 25.29            | 17.92                    |
| 4                                                   | 597.48      | 40.7 QP                 | 46.0           | -5.3        | 1.00 V             | 295                  | 18.22            | 22.52                    |
| 5                                                   | 799.39      | 37.3 QP                 | 46.0           | -8.7        | 2.00 V             | 278                  | 11.46            | 25.85                    |
| 6                                                   | 899.34      | 43.0 QP                 | 46.0           | -3.0        | 1.50 V             | 292                  | 15.61            | 27.35                    |

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
  2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.





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## ABOVE 1GHz WORST-CASE DATA

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 1       | FREQUENCY RANGE    | 1 ~ 7.5GHz                |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 3229.30     | 46.7 PK                 | 74.0           | -27.3       | 1.00 H             | 112                  | 13.30            | 33.40                    |
| 2                                                   | 3229.30     | 39.4 AV                 | 54.0           | -14.6       | 1.00 H             | 112                  | 6.00             | 33.40                    |
| 3                                                   | 6458.60     | 53.7 PK                 | 74.0           | -20.3       | 1.00 H             | 193                  | 11.41            | 42.29                    |
| 4                                                   | 6458.60     | 39.9 AV                 | 54.0           | -14.1       | 1.00 H             | 193                  | -2.39            | 42.29                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 3229.30     | 47.9 PK                 | 74.0           | -26.1       | 1.00 V             | 113                  | 14.50            | 33.40                    |
| 2                                                   | 3229.30     | 41.3 AV                 | 54.0           | -12.7       | 1.00 V             | 113                  | 7.90             | 33.40                    |
| 3                                                   | 6458.60     | 52.4 PK                 | 74.0           | -21.6       | 1.00 V             | 211                  | 10.11            | 42.29                    |
| 4                                                   | 6458.60     | 39.1 AV                 | 54.0           | -14.9       | 1.00 V             | 211                  | -3.19            | 42.29                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.



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| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 6       | FREQUENCY RANGE    | 1 ~ 7.5GHz                |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 3262.60     | 45.5 PK                 | 74.0           | -28.5       | 1.00 H             | 123                  | 12.00            | 33.50                    |
| 2                                                   | 3262.60     | 38.7 AV                 | 54.0           | -15.3       | 1.00 H             | 123                  | 5.20             | 33.50                    |
| 3                                                   | 6525.20     | 53.1 PK                 | 74.0           | -20.9       | 1.00 H             | 243                  | 10.68            | 42.42                    |
| 4                                                   | 6525.20     | 39.4 AV                 | 54.0           | -14.6       | 1.00 H             | 243                  | -3.02            | 42.42                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 3262.60     | 47.6 PK                 | 74.0           | -26.4       | 1.00 V             | 253                  | 14.10            | 33.50                    |
| 2                                                   | 3262.60     | 40.7 AV                 | 54.0           | -13.3       | 1.00 V             | 253                  | 7.20             | 33.50                    |
| 3                                                   | 6525.20     | 53.9 PK                 | 74.0           | -20.1       | 1.00 V             | 213                  | 11.48            | 42.42                    |
| 4                                                   | 6525.20     | 39.8 AV                 | 54.0           | -14.2       | 1.00 V             | 213                  | -2.62            | 42.42                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.

| EUT TEST CONDITION       |                 | MEASUREMENT DETAIL |                           |
|--------------------------|-----------------|--------------------|---------------------------|
| CHANNEL                  | Channel 11      | FREQUENCY RANGE    | 1 ~ 7.5GHz                |
| INPUT POWER (SYSTEM)     | 120Vac, 60Hz    | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 69%RH | TESTED BY          | Nick Chang                |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 3295.90     | 45.7 PK                 | 74.0           | -28.3       | 1.00 H             | 126                  | 12.11            | 33.59                    |
| 2                                                   | 3295.90     | 37.4 AV                 | 54.0           | -16.6       | 1.00 H             | 126                  | 3.81             | 33.59                    |
| 3                                                   | 6591.80     | 53.6 PK                 | 74.0           | -20.4       | 1.00 H             | 184                  | 10.98            | 42.62                    |
| 4                                                   | 6591.80     | 39.7 AV                 | 54.0           | -14.3       | 1.00 H             | 184                  | -2.92            | 42.62                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 3295.90     | 47.3 PK                 | 74.0           | -26.7       | 1.00 V             | 188                  | 13.71            | 33.59                    |
| 2                                                   | 3295.90     | 40.4 AV                 | 54.0           | -13.6       | 1.00 V             | 188                  | 6.81             | 33.59                    |
| 3                                                   | 6591.80     | 53.9 PK                 | 74.0           | -20.1       | 1.00 V             | 243                  | 11.28            | 42.62                    |
| 4                                                   | 6591.80     | 39.4 AV                 | 54.0           | -14.6       | 1.00 V             | 243                  | -3.22            | 42.62                    |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.



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## 4.2 CONDUCTED OUTPUT POWER

### 4.2.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 902 –928 MHz, 2400–2483.5 MHz, and 5725 –5850 MHz bands: 1 Watt (30dBm)

### 4.2.2 INSTRUMENTS

Test date: Jan. 31, 2012

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|----------------------------|-----------|------------|-----------------|------------------|
| Peak Power Meter           | ML2495A   | 0824006    | May 04, 2011    | May 03, 2012     |
| Power Sensor               | MA2411B   | 0738172    | May 03, 2011    | May 02, 2012     |

**NOTE:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

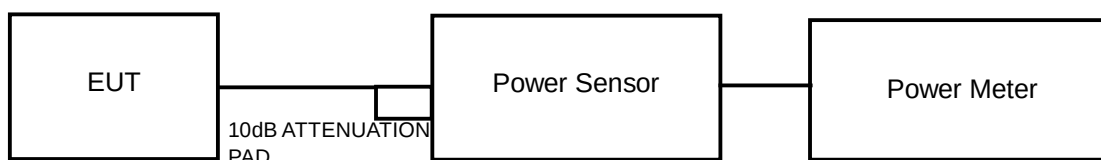
### 4.2.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.2.5 TEST SETUP



### 4.2.6 EUT OPERATING CONDITIONS

Same as Item 4.1.6

## 4.2.7 TEST RESULTS

### 802.11b DSSS MODULATION:

| CHANNEL | FREQUENCY (MHz) | PEAK POWER (mW) | PEAK POWER (dBm) | PEAK POWER LIMIT (dBm) | PASS/FAIL |
|---------|-----------------|-----------------|------------------|------------------------|-----------|
| 1       | 2412            | 75.9            | 18.8             | 30                     | PASS      |
| 6       | 2437            | 69.2            | 18.4             | 30                     | PASS      |
| 11      | 2462            | 75.9            | 18.8             | 30                     | PASS      |

### 802.11g OFDM MODULATION:

| CHANNEL | FREQUENCY (MHz) | PEAK POWER (mW) | PEAK POWER (dBm) | PEAK POWER LIMIT (dBm) | PASS/FAIL |
|---------|-----------------|-----------------|------------------|------------------------|-----------|
| 1       | 2412            | 128.8           | 21.1             | 30                     | PASS      |
| 6       | 2437            | 245.5           | 23.9             | 30                     | PASS      |
| 11      | 2462            | 109.6           | 20.4             | 30                     | PASS      |

### 802.11n (20MHz) OFDM MODULATION:

| CHANNEL | FREQUENCY (MHz) | PEAK POWER (mW) | PEAK POWER (dBm) | PEAK POWER LIMIT (dBm) | PASS/FAIL |
|---------|-----------------|-----------------|------------------|------------------------|-----------|
| 1       | 2412            | 107.2           | 20.3             | 30                     | PASS      |
| 6       | 2437            | 158.5           | 22.0             | 30                     | PASS      |
| 11      | 2462            | 91.2            | 19.6             | 30                     | PASS      |

### 802.11n (40MHz) OFDM MODULATION:

| CHANNEL | FREQUENCY (MHz) | PEAK POWER (mW) | PEAK POWER (dBm) | PEAK POWER LIMIT (dBm) | PASS/FAIL |
|---------|-----------------|-----------------|------------------|------------------------|-----------|
| 3       | 2422            | 95.5            | 19.8             | 30                     | PASS      |
| 6       | 2437            | 138.0           | 21.4             | 30                     | PASS      |
| 9       | 2452            | 97.7            | 19.9             | 30                     | PASS      |

## 5. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5.phtml](http://www.adt.com.tw/index.5.phtml). If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

Fax: 886-2-26052943

**Hsin Chu EMC/RF Lab:**

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**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



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## **6. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No modifications were made to the EUT by the lab during the test.

--- END ---