



**FCC 47 CFR PART 15 SUBPART C**

**TEST REPORT**

**For**

**IEEE802.11 b/g USB System**

**Model: WUB1700S/SL, AWS1705FOL, AWS1708P,  
AWS1708FO, AWS1705FO, AWS1702FO**

**Trade Name: LanReady**

*Issued to*

**LanReady Technologies Inc.  
4F, No. 337, Sinhu 2nd Rd., Neihu District,  
Taipei City 114, Taiwan (R.O.C.)**

*Issued by*

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## 1. TEST RESULT CERTIFICATION

**Applicant:** LanReady Technologies Inc.  
4F, No. 337, Sinhu 2nd Rd., Neihu District,  
Taipei City 114, Taiwan (R.O.C.)

**Equipment Under Test:** IEEE802.11 b/g USB System

**Trade Name:** LanReady

**Model:** WUB1700S/SL, AWS1705FOL, AWS1708P,  
AWS1708FO, AWS1705FO, AWS1702FO

**Date of Test:** March 08 ~ May 18, 2005

| APPLICABLE STANDARDS         |                         |
|------------------------------|-------------------------|
| STANDARD                     | TEST RESULT             |
| FCC 47 CFR Part 15 Subpart C | No non-compliance noted |

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

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

*Approved by:*

*Reviewed by:*

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Harris W. Lai  
Executive Vice President  
Compliance Certification Services Inc.

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Gavin Lim  
Section Manager  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

|                              |                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product</b>               | IEEE802.11 b/g USB System                                                                                                                                                                                                                                                                                        |
| <b>Trade Name</b>            | LanReady                                                                                                                                                                                                                                                                                                         |
| <b>Model Number</b>          | WUB1700S/SL, AWS1705FOL, AWS1708P,<br>AWS1708FO, AWS1705FO, AWS1702FO                                                                                                                                                                                                                                            |
| <b>Model Discrepancy</b>     | The EUT comes with four types of design.<br>WUB1700S/SL is for dongle design,<br>AWS1705FOL is for lamppost design,<br>AWS1708P is for patch antenna design,<br>AWS1708FO, AWS1705FO, AWS1702FO are for dipole antenna design.<br>For detail specification, please refer to EUT photo and antenna specification. |
| <b>Power Supply</b>          | Powered from host device                                                                                                                                                                                                                                                                                         |
| <b>Frequency Range</b>       | 2412 ~ 2462 MHz                                                                                                                                                                                                                                                                                                  |
| <b>Transmit Power</b>        | Mode: WUB1700S/SL<br>IEEE 802.11b: 17.69 dBm<br>IEEE 802.11g: 16.70 dBm<br><br>Mode: AWS1705FOL<br>IEEE 802.11b: 16.63 dBm<br>IEEE 802.11g: 17.02 dBm<br><br>Mode: AWS1708P<br>IEEE 802.11b: 13.39 dBm<br>IEEE 802.11g: 14.00 dBm<br><br>Mode: AWS1708FO<br>IEEE 802.11b: 13.39 dBm<br>IEEE 802.11g: 14.00 dBm   |
| <b>Modulation Technique</b>  | IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK)<br>IEEE 802.11g: OFDM (QPSK, BPSK, 16-QAM, 64-QAM)                                                                                                                                                                                                                        |
| <b>Transmit Data Rate</b>    | IEEE 802.11b: 11, 5.5, 2, 1 Mbps<br>IEEE 802.11g: 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps                                                                                                                                                                                                               |
| <b>Number of Channels</b>    | 11 Channels                                                                                                                                                                                                                                                                                                      |
| <b>Antenna Specification</b> | Chip Antenna for WUB1700S/SL / gain: 2.0 dBi<br>Dipole Antenna for AWS1705FOL / gain: 5.0 dBi<br>Patch Antenna for AWS1708P / gain: 8.0 dBi<br>Dipole Antenna for AWS1708FO / gain: 8.0 dBi<br>Dipole Antenna for AWS1705FO / gain: 5.0 dBi<br>Dipole Antenna for AWS1702FO / gain: 2.0 dBi                      |

**Remark:**

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **SCD0013** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



### **3. TEST METHODOLOGY**

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

#### **3.1 EUT CONFIGURATION**

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

#### **3.2 EUT EXERCISE**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

### 3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                        | MHz                 | MHz             | GHz              |
|----------------------------|---------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423      | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475 | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67        | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25        | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6           | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2         | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94        | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138           | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05      | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 -         | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.52525           | 2655 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 156.7 - 156.9       | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 162.0125 - 167.17   | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 167.72 - 173.2      | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 240 - 285           | 3600 - 4400     | ( <sup>2</sup> ) |
| 13.36 - 13.41              | 322 - 335.4         |                 |                  |

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 3.5 DESCRIPTION OF TEST MODES

The EUT (model: WUB1700S/SL, AWS1705FOL, AWS1708P, AWS1708FO) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

IEEE802.11b: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 11Mbps data rate were chosen for full testing.

IEEE802.11g:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.



#### **4. INSTRUMENT CALIBRATION**

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.



## **5. FACILITIES AND ACCREDITATIONS**

### **5.1 FACILITIES**

All measurement facilities used to collect the measurement data are located at

☒ No. 81-1, Lane 210, Bade Rd. 2, Luchu Hsiang, Taoyuan Hsien, Taiwan, R.O.C.

☐ No. 199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

### **5.2 EQUIPMENT**

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

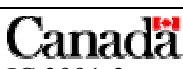
Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### **5.3 LABORATORY ACCREDITATIONS AND LISTING**

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200600-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (Registration no: 93105 and 90471).

## 5.4 TABLE OF ACCREDITATIONS AND LISTINGS

| Country | Agency          | Scope of Accreditation                                                                                                                                                                                                                                                                                                              | Logo                                                                                                                                                                                        |
|---------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| USA     | NVLAP*          | EN 55011, EN 55014-1, AS/NZS 1044, CNS 13783-1, EN 55022, CNS 13438, EN 61000-3-2, EN 61000-3-3, ANSI C63.4, FCC OST/MP-5, AS/NZS CISPR 22, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11                                                                                | <br>200600-0                                                                                             |
| USA     | FCC             | 3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements                                                                                                                                                                                                                                                              | <br>93105, 90471                                                                                         |
| Japan   | VCCI            | 4 3/10 meter Open Area Test Sites to perform conducted/radiated measurements                                                                                                                                                                                                                                                        | <b>VCCI</b><br>R-393/1066/725/879<br>C-402/747/912                                                                                                                                          |
| Norway  | NEMKO           | EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328-2, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2       | <br>ELA 124a<br>ELA 124b<br>ELA 124c                                                                    |
| Taiwan  | CNLA            | EN 300 328-1/2, EN 300 220-1/2/3, EN 300 440-1/2, EN 61000-3-2, EN 61000-3-3, 47 CFR FCC Part 15 Subpart C/D/E, EN 55013, CNS 13439, EN 55014-1, CNS 13783-1, EN 55022, CNS 13438, CISPR 22, AS/NZS 3548, EN 61000-4-2/3/4/5/6/8/11, ENV 50204, IEEE Std 1528, FCC OET Bulletin, 65+Supplement C, EN50360, EN50361, EN50371, RSS102 | <br><b>0 3 6 3</b><br>ILAC MRA                                                                         |
| Taiwan  | BSMI            | CNS 13438, CNS 13783-1, CNS 13439, CNS 14115                                                                                                                                                                                                                                                                                        | <br>SL2-IS-E-0014<br>SL2-IN-E-0014<br>SL2-A1-E-0014<br>SL2-R1-E-0014<br>SL2-R2-E-0014<br>SL2-L1-E-0014 |
| Canada  | Industry Canada | RSS212, Issue 1                                                                                                                                                                                                                                                                                                                     | <br>IC 3991-3<br>IC 3991-4                                                                             |

\* No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.



## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

| No. | Device Type | Brand | Model     | Series No. | FCC ID  | Data Cable | Power Cord                                                          |
|-----|-------------|-------|-----------|------------|---------|------------|---------------------------------------------------------------------|
| 1.  | Notebook PC | IBM   | 2672(X31) | 99PBTKB    | FCC DoC | N/A        | AC I/P: Unshielded, 1.8m<br>DC O/P: Unshielded, 1.8m<br>with a core |

**Remark:**

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*



## 7. FCC PART 15.247 REQUIREMENTS

### 7.1 6dB BANDWIDTH

#### LIMIT

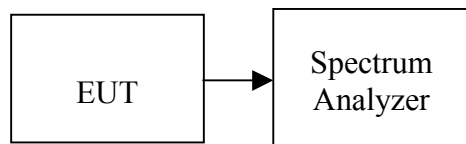
For the direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

#### MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model  | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent      | E4446A | MY43360131    | 01/10/2006      |

*Remark: Each piece of equipment is scheduled for calibration once a year.*

#### Test Configuration



#### TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = RBW, Span = 30MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

**TEST RESULTS***No non-compliance noted***Test Data****Mode: WUB1700S/SL**

|              | Channel | Frequency (MHz) | Bandwidth (kHz) | Limit (kHz) | Margin (kHz) |
|--------------|---------|-----------------|-----------------|-------------|--------------|
| IEEE 802.11b | Low     | 2412            | 9550            | >500        | PASS         |
|              | Mid     | 2437            | 9550            |             | PASS         |
|              | High    | 2462            | 9250            |             | PASS         |
| IEEE 802.11g | Low     | 2412            | 16550           | >500        | PASS         |
|              | Mid     | 2437            | 16450           |             | PASS         |
|              | High    | 2462            | 16450           |             | PASS         |

**Mode: AWS1705FOL**

|              | Channel | Frequency (MHz) | Bandwidth (kHz) | Limit (kHz) | Margin (kHz) |
|--------------|---------|-----------------|-----------------|-------------|--------------|
| IEEE 802.11b | Low     | 2412            | 9300            | >500        | PASS         |
|              | Mid     | 2437            | 9000            |             | PASS         |
|              | High    | 2462            | 9250            |             | PASS         |
| IEEE 802.11g | Low     | 2412            | 16500           | >500        | PASS         |
|              | Mid     | 2437            | 16450           |             | PASS         |
|              | High    | 2462            | 16500           |             | PASS         |

**Mode: AWS1708P**

|              | Channel | Frequency (MHz) | Bandwidth (kHz) | Limit (kHz) | Margin (kHz) |
|--------------|---------|-----------------|-----------------|-------------|--------------|
| IEEE 802.11b | Low     | 2412            | 8800            | >500        | PASS         |
|              | Mid     | 2437            | 8450            |             | PASS         |
|              | High    | 2462            | 8850            |             | PASS         |
| IEEE 802.11g | Low     | 2412            | 16450           | >500        | PASS         |
|              | Mid     | 2437            | 16500           |             | PASS         |
|              | High    | 2462            | 16450           |             | PASS         |

**Mode: AWS1708FO**

|              | Channel | Frequency (MHz) | Bandwidth (kHz) | Limit (kHz) | Margin (kHz) |
|--------------|---------|-----------------|-----------------|-------------|--------------|
| IEEE 802.11b | Low     | 2412            | 8800            | >500        | PASS         |
|              | Mid     | 2437            | 8450            |             | PASS         |
|              | High    | 2462            | 8850            |             | PASS         |
| IEEE 802.11g | Low     | 2412            | 16450           | >500        | PASS         |
|              | Mid     | 2437            | 16500           |             | PASS         |
|              | High    | 2462            | 16450           |             | PASS         |

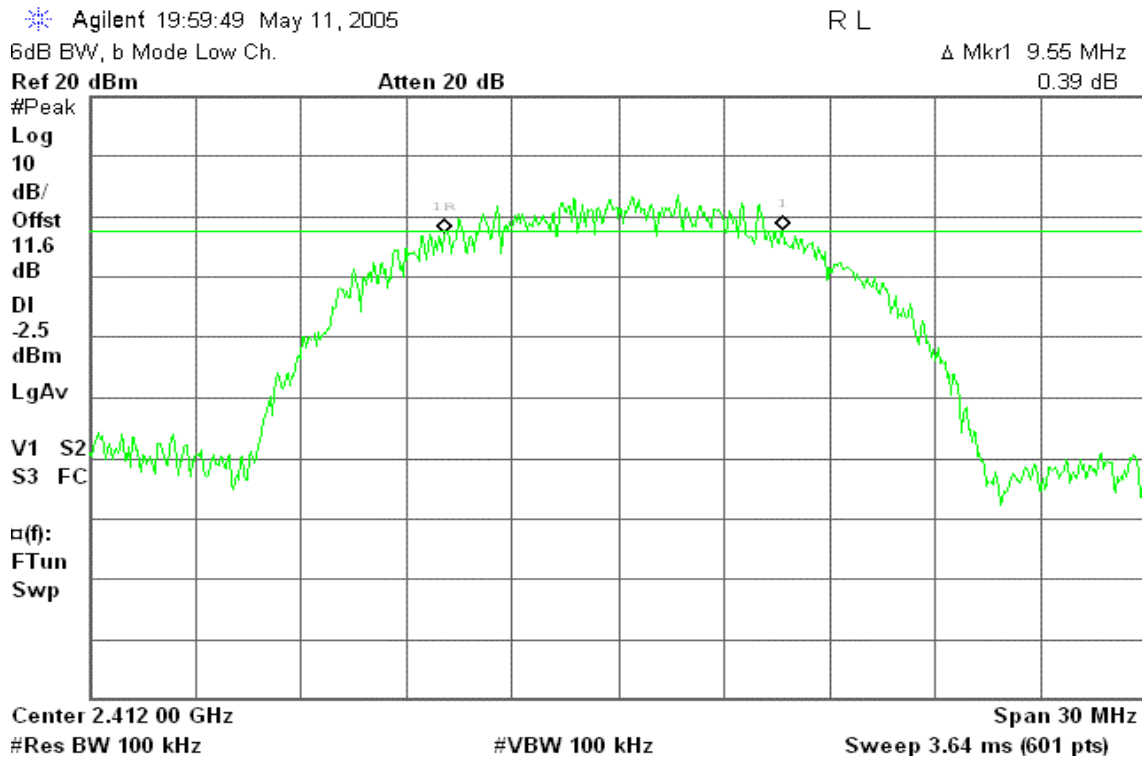


## Test Plot

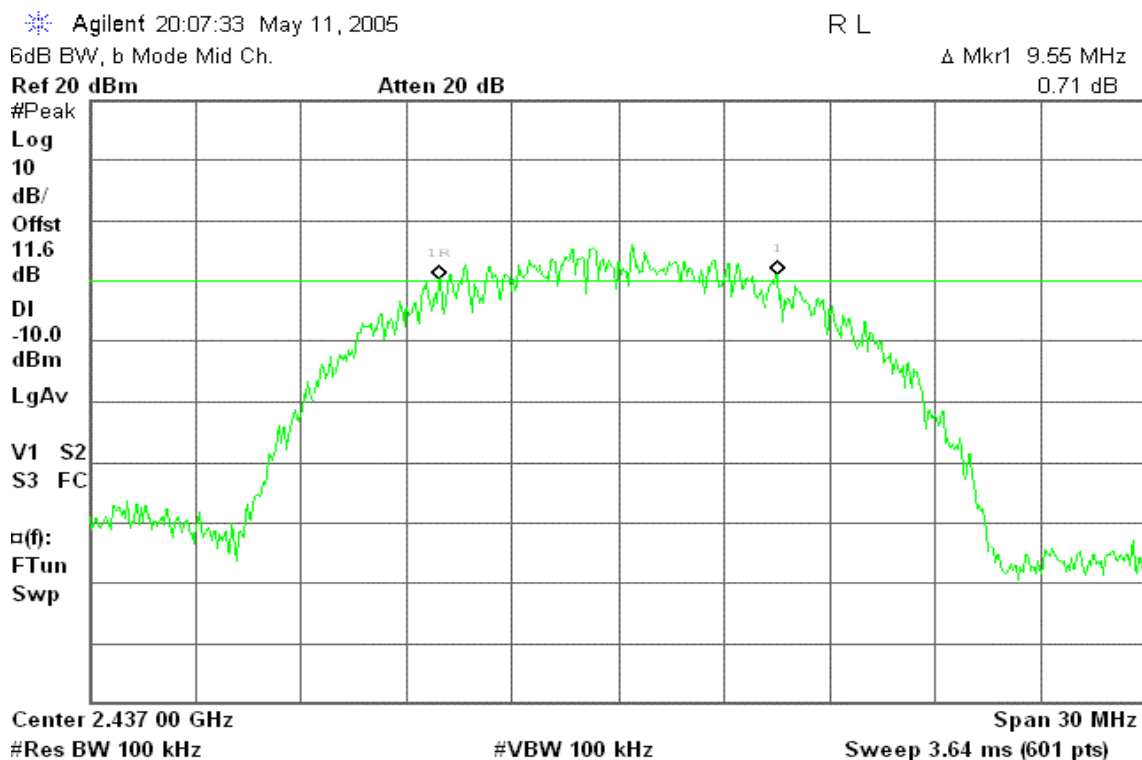
Mode: WUB1700S/SL

IEEE 802.11b

6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)



**6dB Bandwidth (CH High)**

\* Agilent 21:27:20 May 11, 2005

R L

6dB BW, b Mode High Ch.

 $\Delta$  Mkr1 9.25 MHz

Ref 20 dBm

Atten 20 dB

0.45 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-4.8

dBm

LgAv

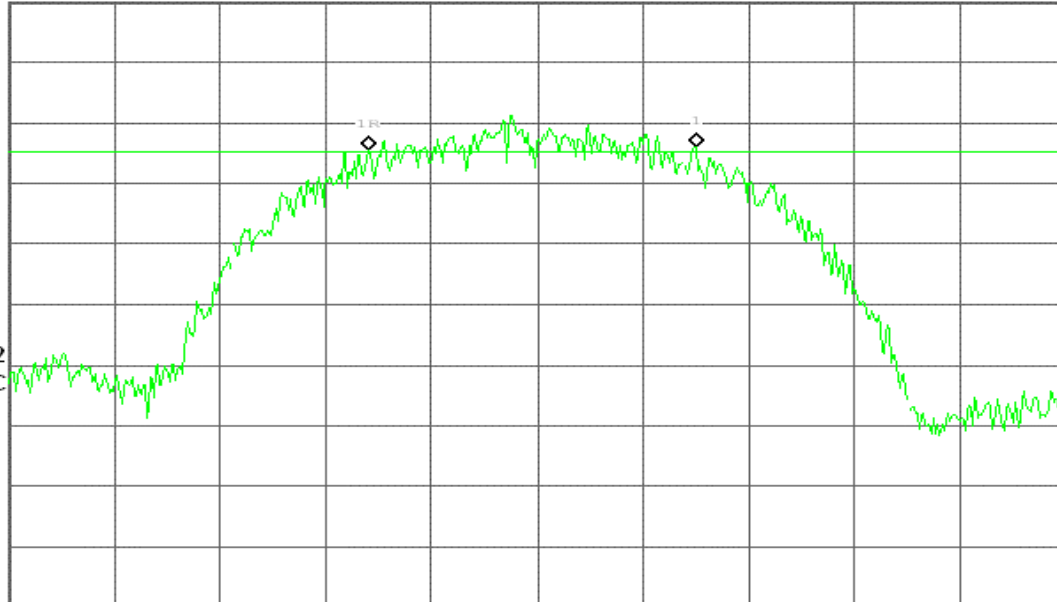
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

**IEEE 802.11g****6dB Bandwidth (CH Low)**

\* Agilent 20:31:36 May 11, 2005

R L

6dB BW, g Mode Low Ch.

 $\Delta$  Mkr1 16.55 MHz

Ref 20 dBm

Atten 20 dB

-0.49 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-8.3

dBm

LgAv

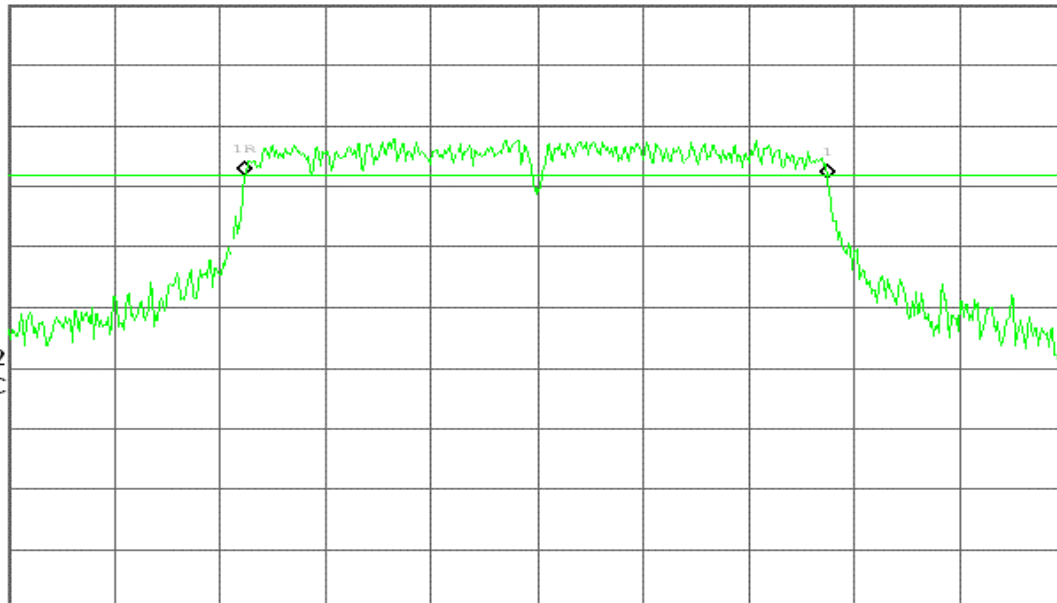
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.412 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)



## 6dB Bandwidth (CH Mid)

Agilent 20:36:30 May 11, 2005

R L

6dB BW, g Mode Mid Ch.

$\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

0.05 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-8.1

dBm

LgAv

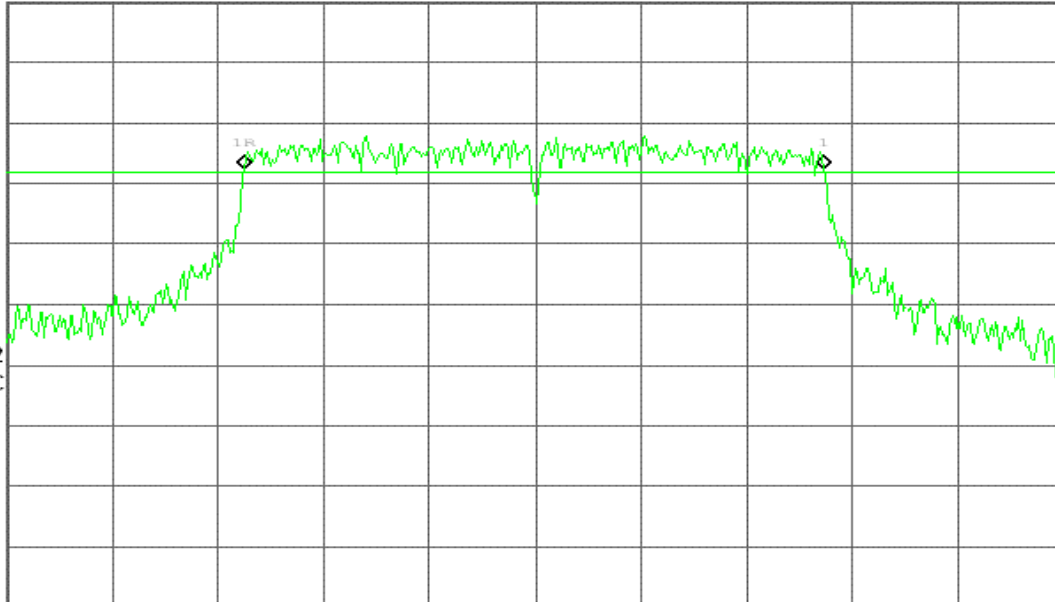
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.437 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

## 6dB Bandwidth (CH High)

Agilent 20:41:44 May 11, 2005

R L

6dB BW, g Mode High Ch.

$\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

-0.35 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-7.1

dBm

LgAv

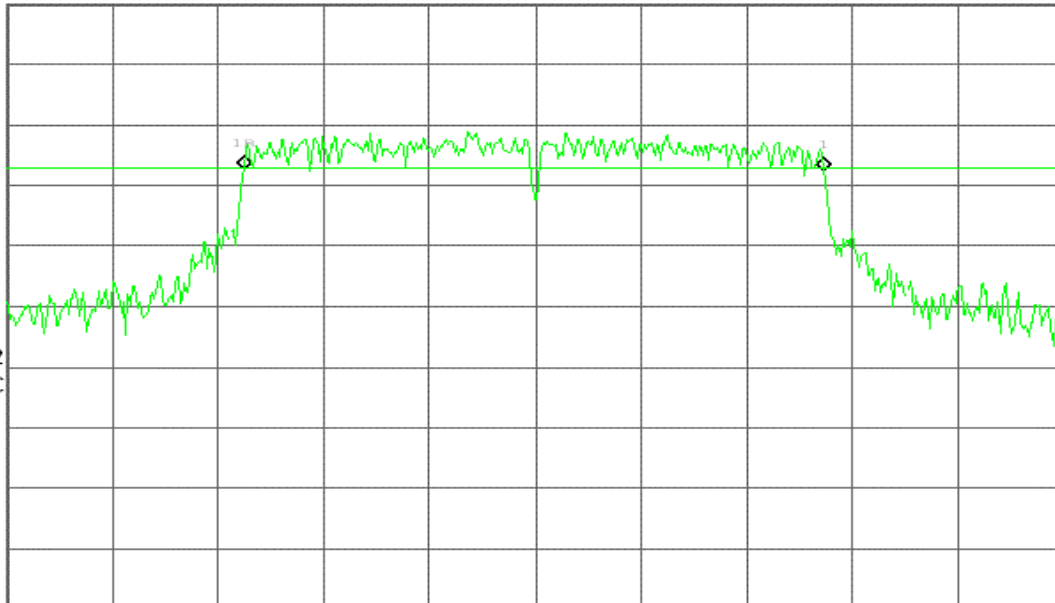
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

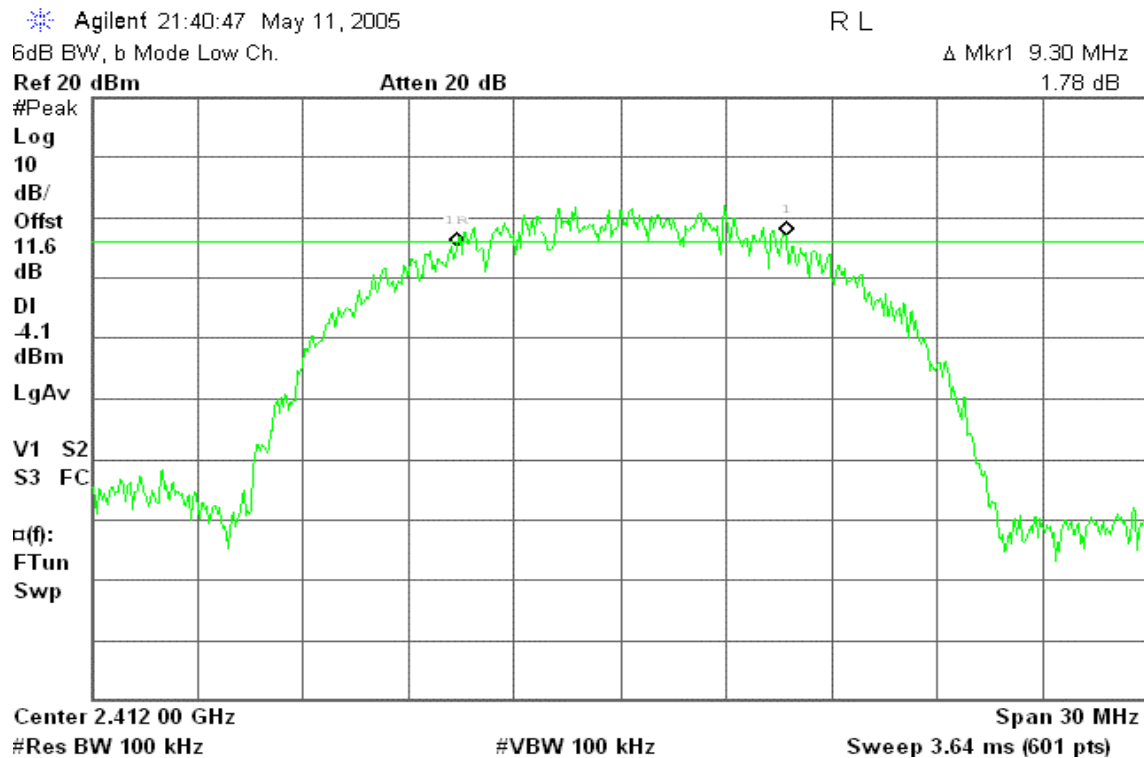
Sweep 3.64 ms (601 pts)



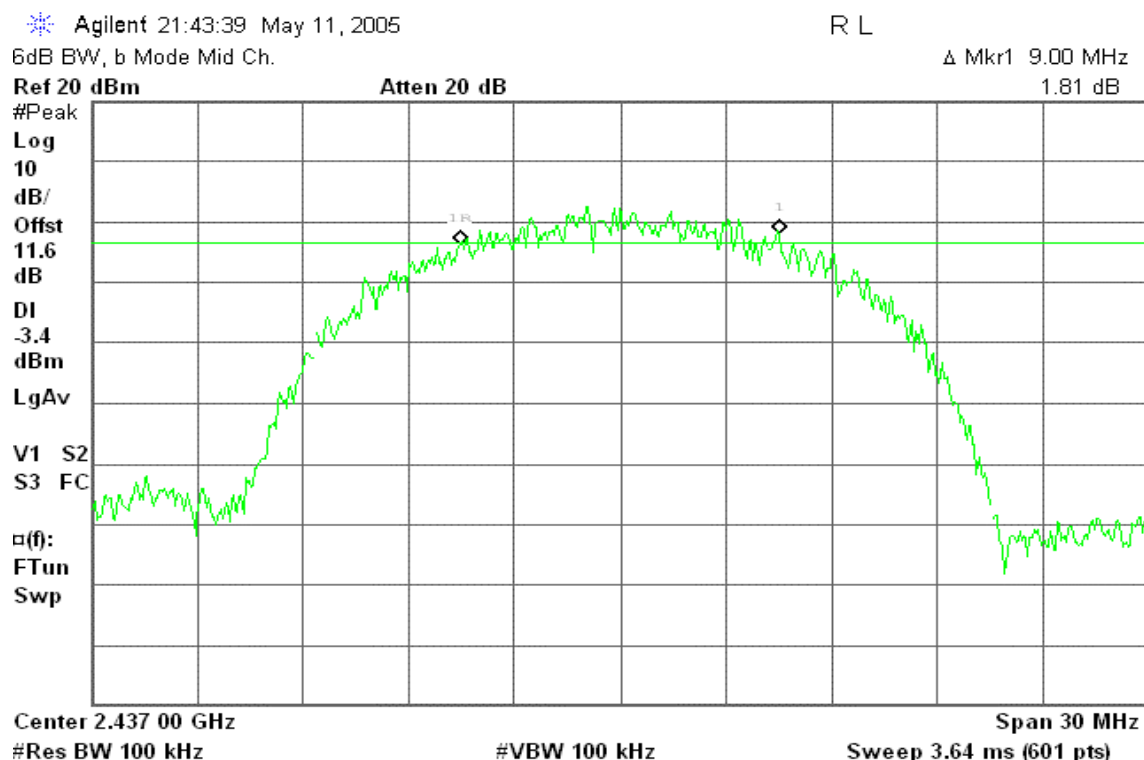
Mode: AWS1705FOL

IEEE 802.11b

6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)





## 6dB Bandwidth (CH High)

Agilent 21:50:35 May 11, 2005

R L

6dB BW, b Mode High Ch.

$\Delta$  Mkr1 9.25 MHz

Ref 20 dBm

Atten 20 dB

0.52 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-3.0

dBm

LgAv

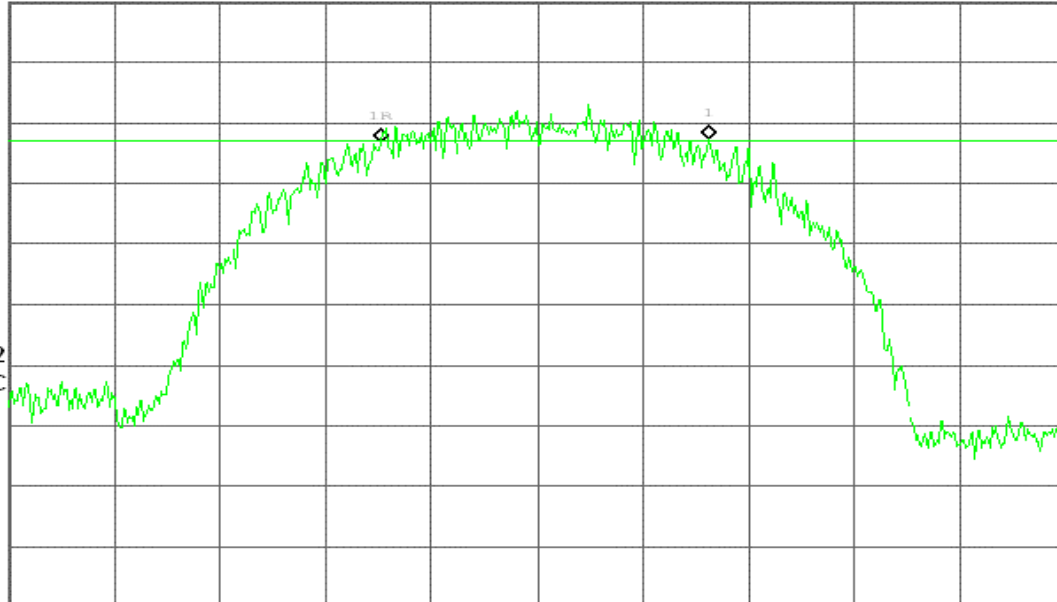
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

## IEEE 802.11g

### 6dB Bandwidth (CH Low)

Agilent 21:58:13 May 11, 2005

R L

6dB BW, g Mode Low Ch.

$\Delta$  Mkr1 16.50 MHz

Ref 20 dBm

Atten 20 dB

-1.33 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-7.2

dBm

LgAv

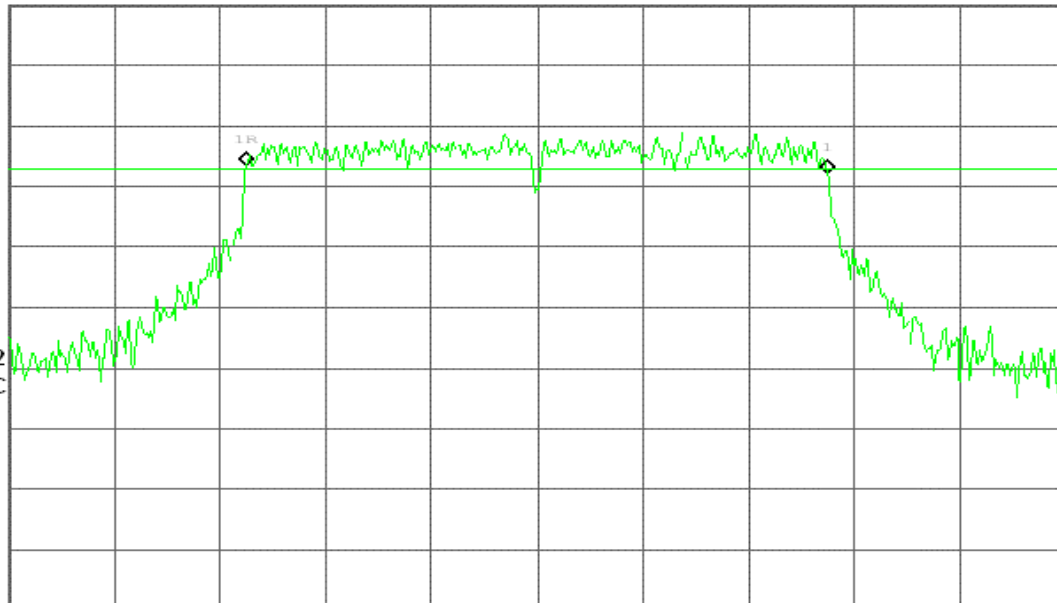
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.412 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)



## 6dB Bandwidth (CH Mid)

Agilent 22:03:51 May 11, 2005

R L

6dB BW, g Mode Mid Ch.

 $\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

-3.11 dB

#Peak

Log

10

dB/

Offset

11.6

dB

DI

-7.8

dBm

LgAv

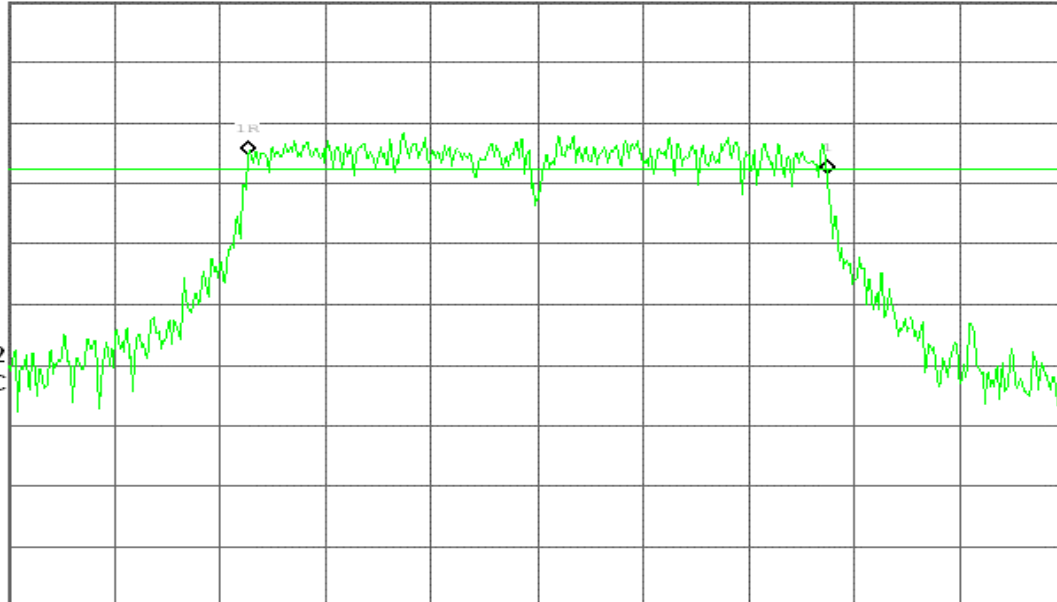
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.437 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

## 6dB Bandwidth (CH High)

Agilent 22:09:47 May 11, 2005

R L

6dB BW, g Mode High Ch.

 $\Delta$  Mkr1 16.50 MHz

Ref 20 dBm

Atten 20 dB

0.69 dB

#Peak

Log

10

dB/

Offset

11.6

dB

DI

-7.2

dBm

LgAv

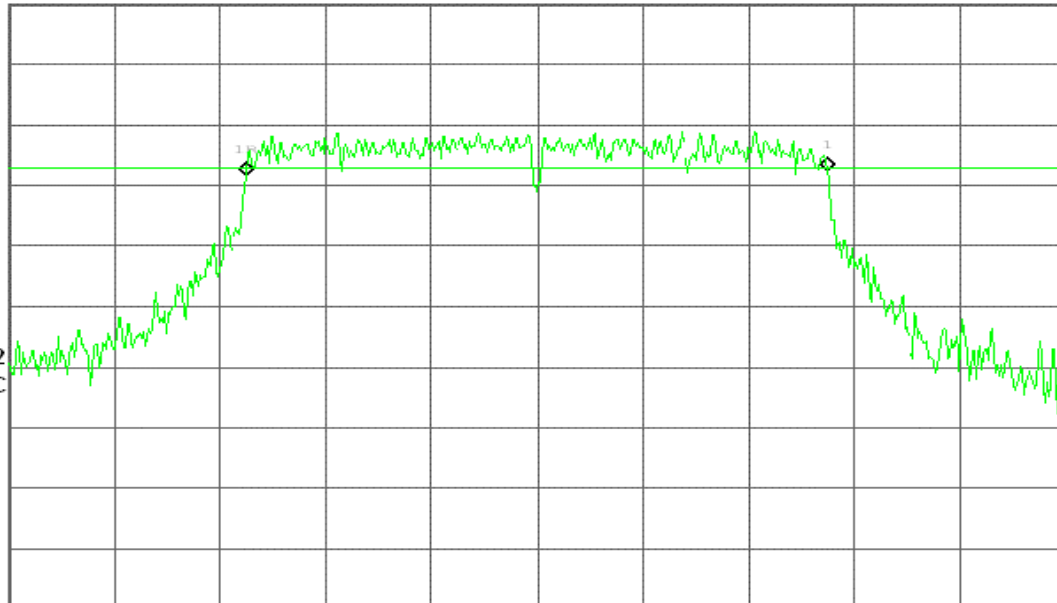
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



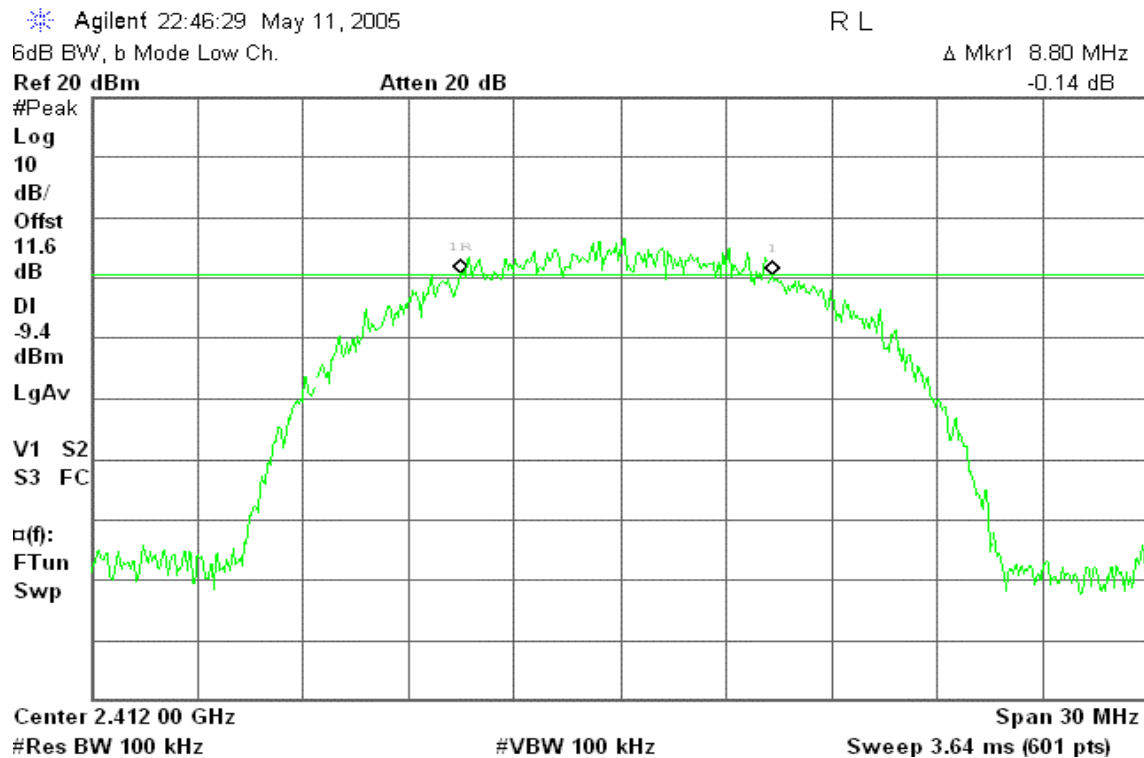
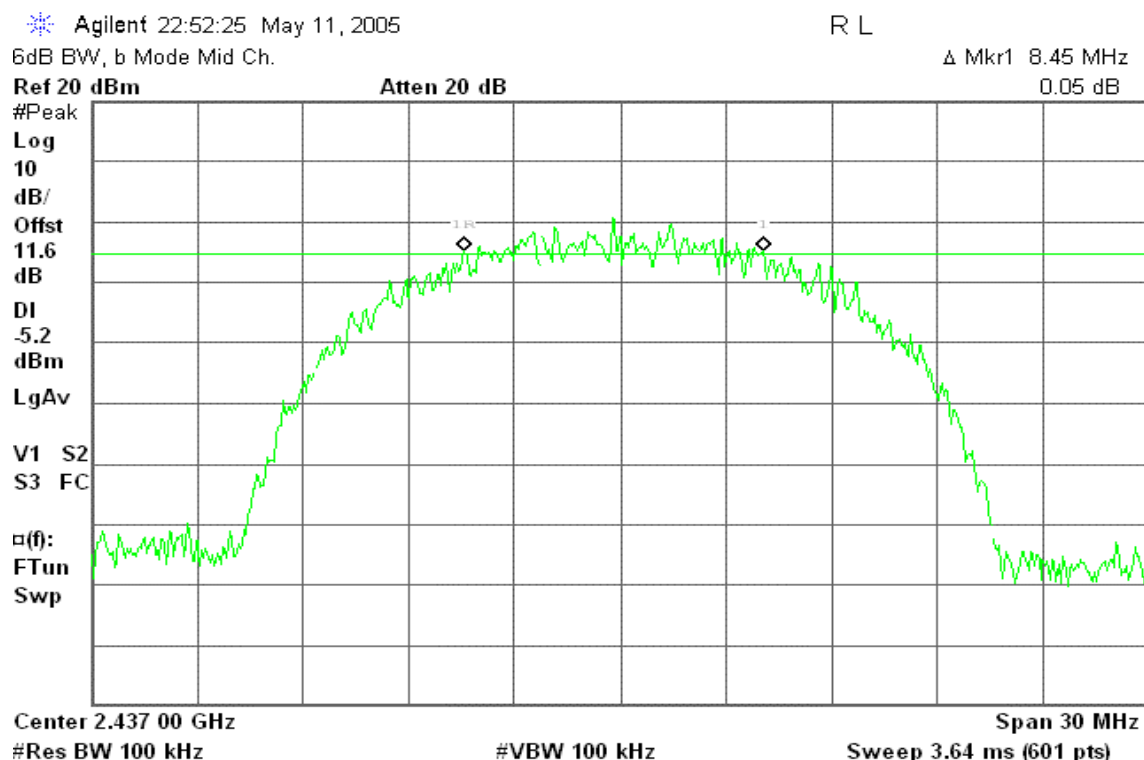
Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

**Mode: AWS1708P****IEEE 802.11b****6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**



## 6dB Bandwidth (CH High)

Agilent 22:58:23 May 11, 2005

R L

6dB BW, b Mode High Ch.

$\Delta$  Mkr1 8.85 MHz

Ref 20 dBm

Atten 20 dB

-1.09 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-6.0

dBm

LgAv

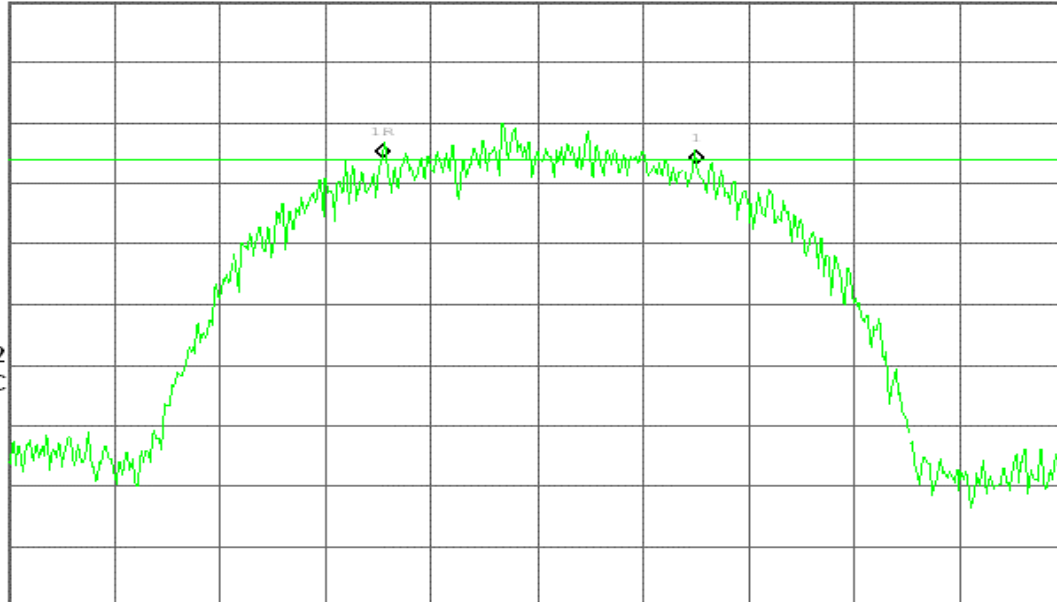
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

## IEEE 802.11g

### 6dB Bandwidth (CH Low)

Agilent 23:05:21 May 11, 2005

R L

6dB BW, g Mode Low Ch.

$\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

0.69 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-10.9

dBm

LgAv

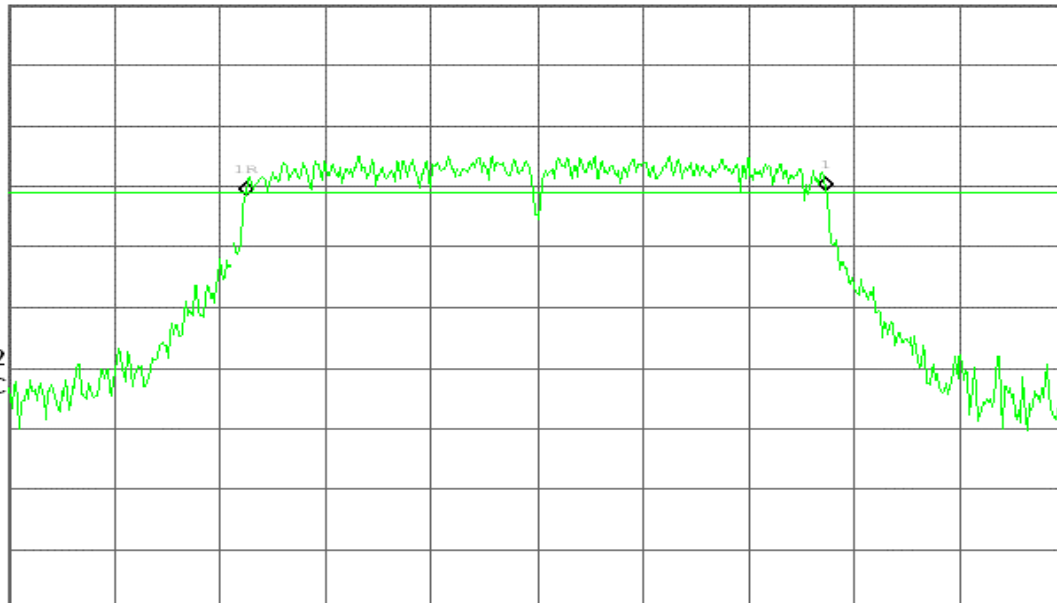
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.412 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

**6dB Bandwidth (CH Mid)**

\* Agilent 23:10:32 May 11, 2005

R L

6dB BW, g Mode Mid Ch.

 $\Delta$  Mkr1 16.50 MHz

Ref 20 dBm

Atten 20 dB

-0.07 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-11.0

dBm

LgAv

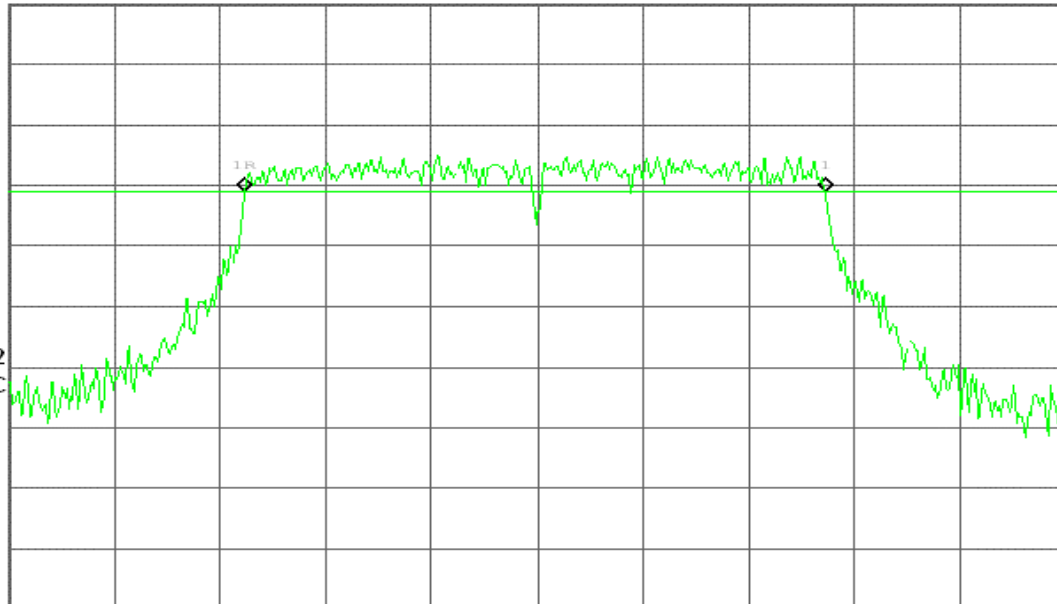
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.437 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

**6dB Bandwidth (CH High)**

\* Agilent 23:19:08 May 11, 2005

R L

6dB BW, g Mode High Ch.

 $\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

1.29 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-10.3

dBm

LgAv

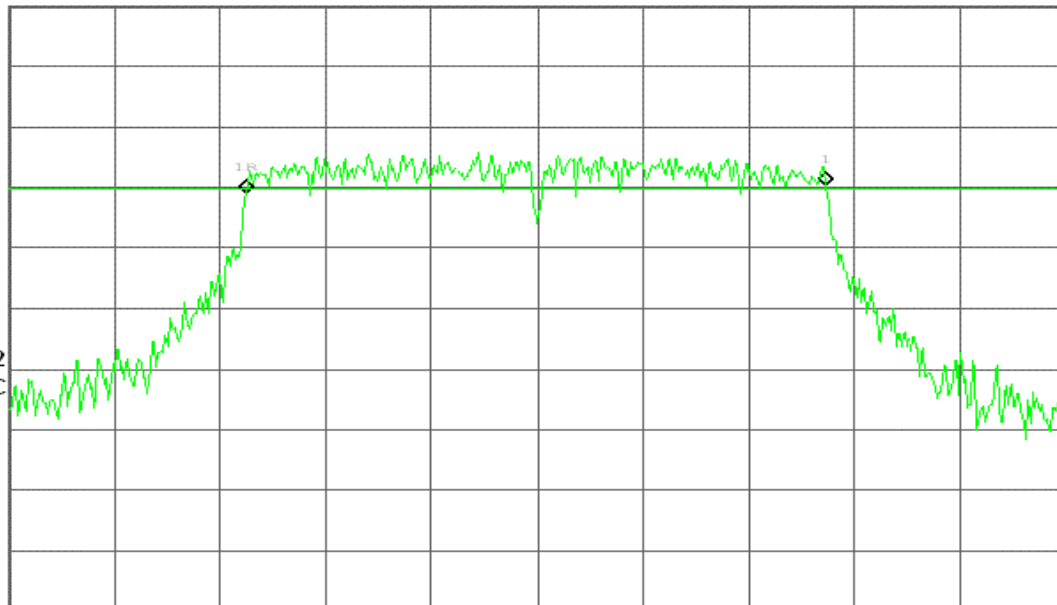
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

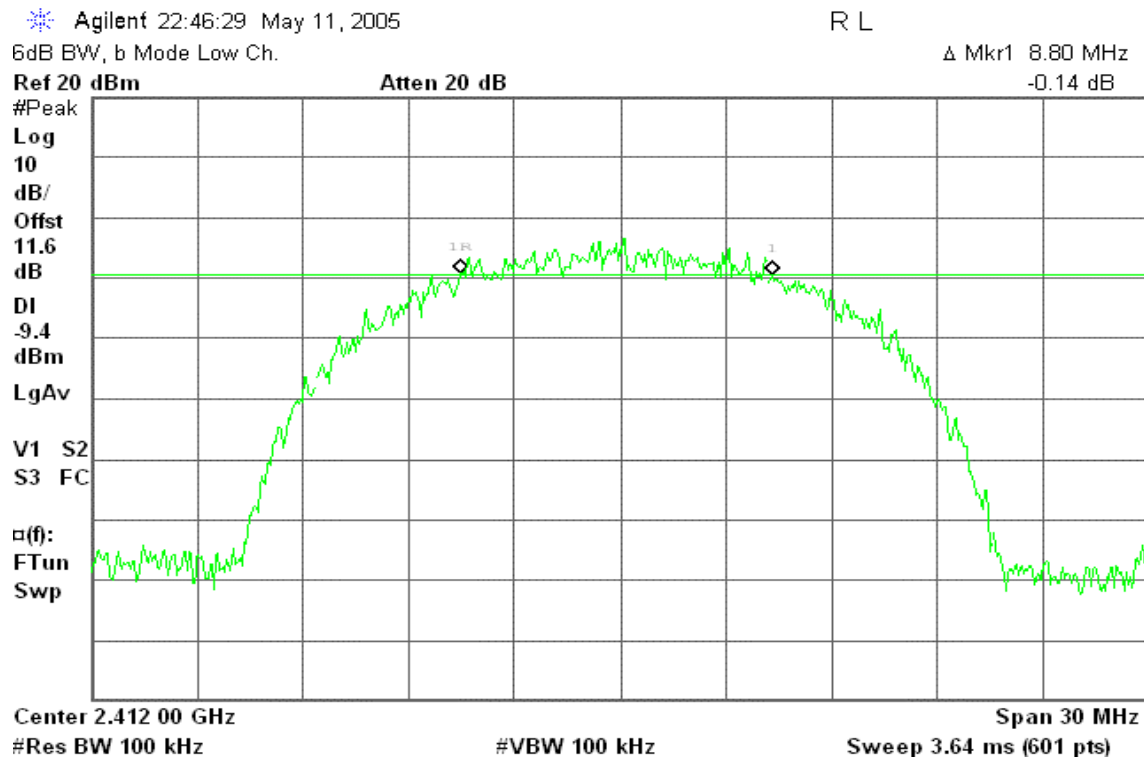
Sweep 3.64 ms (601 pts)



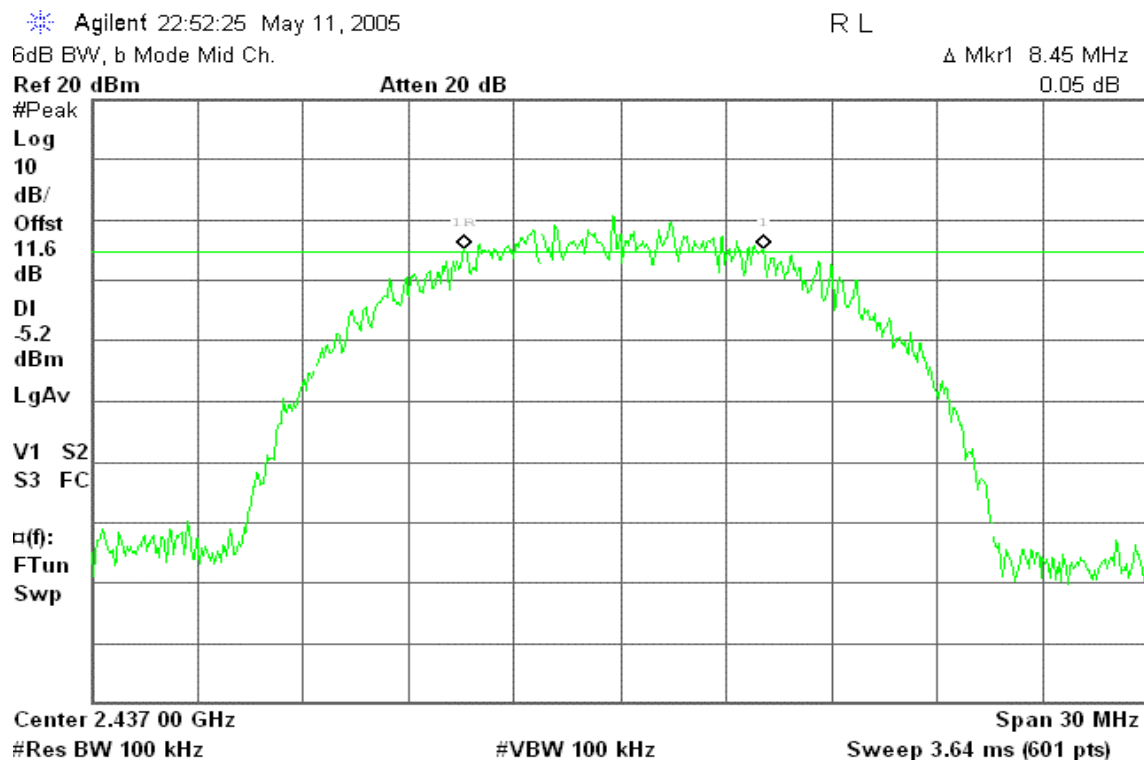
## Mode: AWS1708FO

### IEEE 802.11b

#### 6dB Bandwidth (CH Low)



#### 6dB Bandwidth (CH Mid)



**6dB Bandwidth (CH High)**

Agilent 22:58:23 May 11, 2005

R L

6dB BW, b Mode High Ch.

 $\Delta$  Mkr1 8.85 MHz

Ref 20 dBm

Atten 20 dB

-1.09 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-6.0

dBm

LgAv

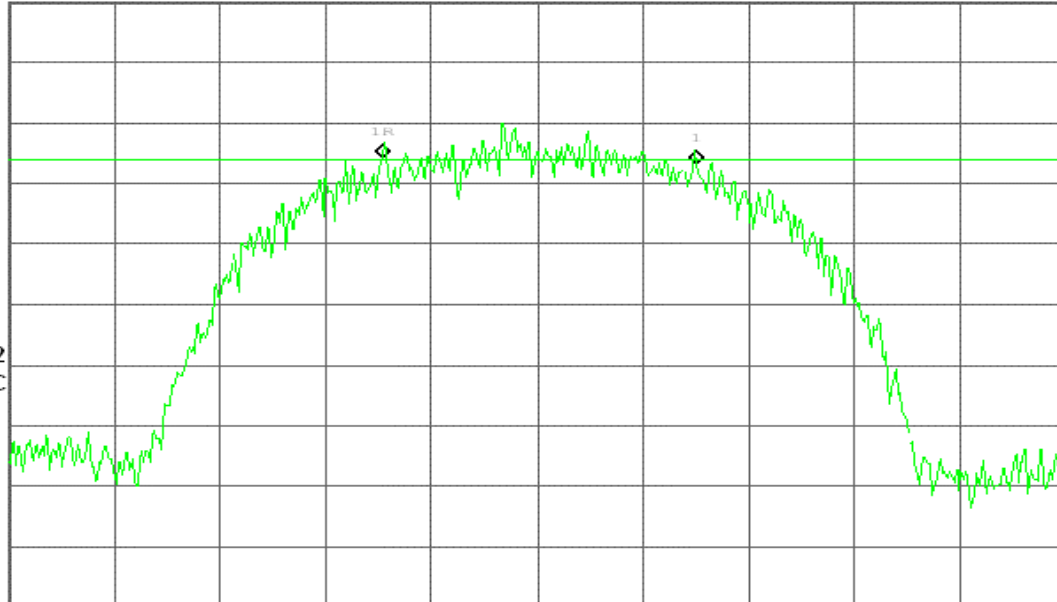
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

**IEEE 802.11g****6dB Bandwidth (CH Low)**

Agilent 23:05:21 May 11, 2005

R L

6dB BW, g Mode Low Ch.

 $\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

0.69 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-10.9

dBm

LgAv

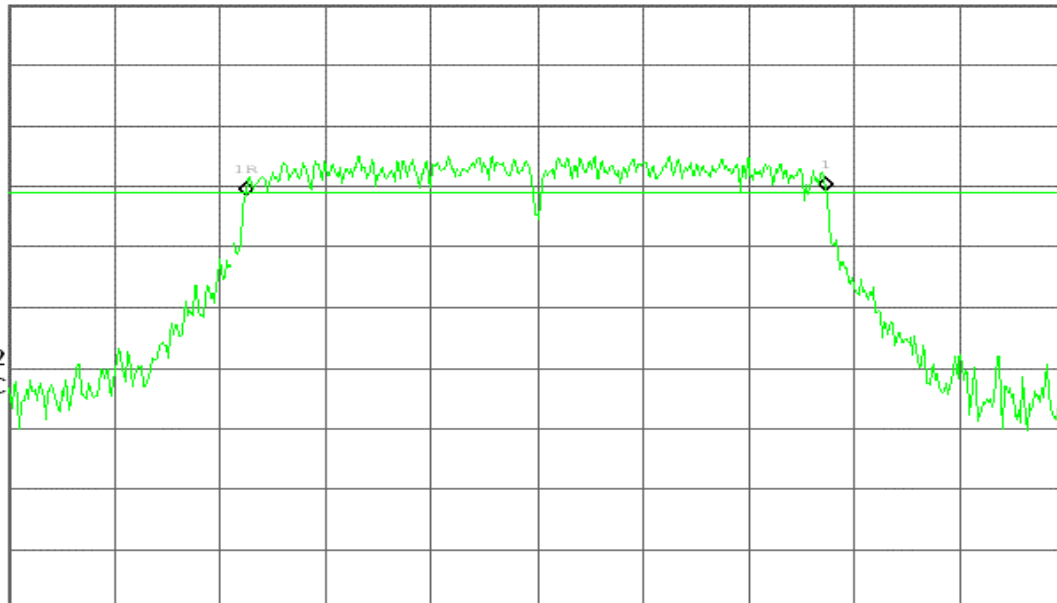
V1 S2

S3 FC

 $\alpha(f)$ :

FTun

Swp



Center 2.412 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)



## 6dB Bandwidth (CH Mid)

Agilent 23:10:32 May 11, 2005

R L

6dB BW, g Mode Mid Ch.

$\Delta$  Mkr1 16.50 MHz

Ref 20 dBm

Atten 20 dB

-0.07 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-11.0

dBm

LgAv

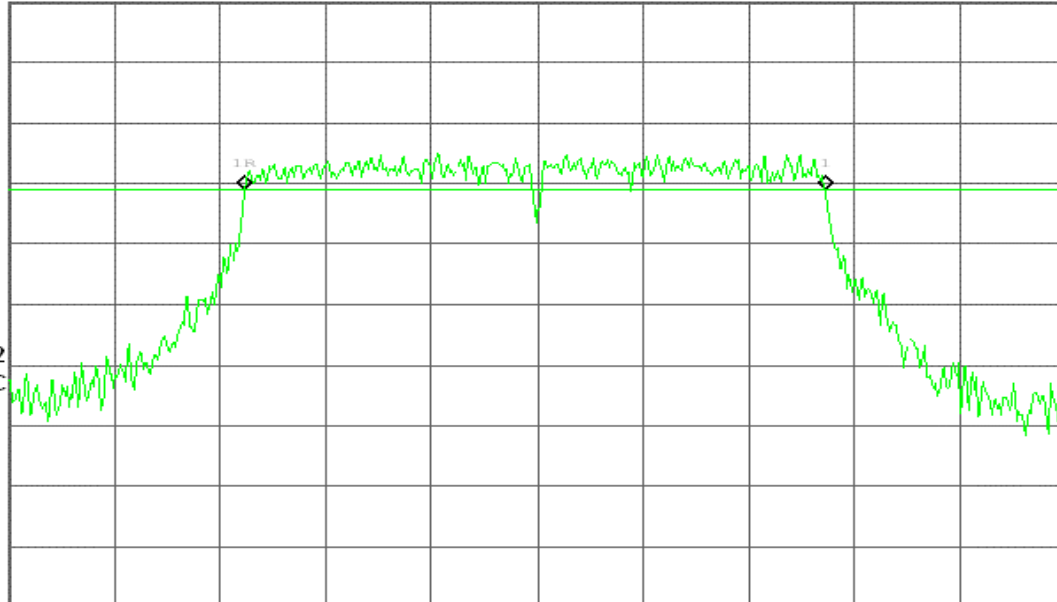
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.437 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)

## 6dB Bandwidth (CH High)

Agilent 23:19:08 May 11, 2005

R L

6dB BW, g Mode High Ch.

$\Delta$  Mkr1 16.45 MHz

Ref 20 dBm

Atten 20 dB

1.29 dB

#Peak

Log

10

dB/

Offst

11.6

dB

DI

-10.3

dBm

LgAv

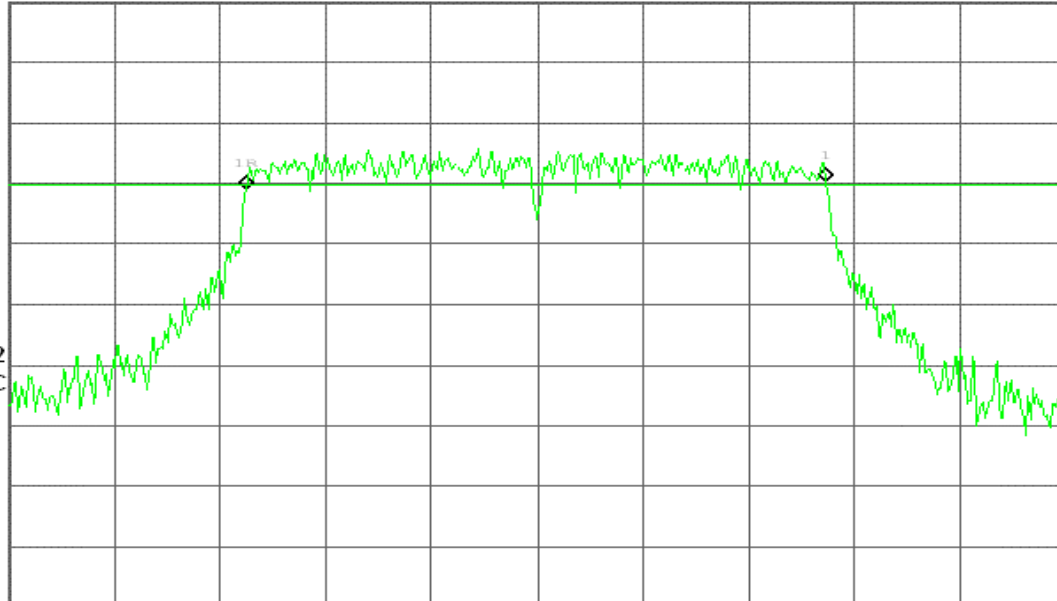
V1 S2

S3 FC

$\alpha(f)$ :

FTun

Swp



Center 2.462 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 100 kHz

Sweep 3.64 ms (601 pts)



## 7.2 PEAK POWER

### **LIMIT**

The maximum peak output power of the intentional radiator shall not exceed the following:

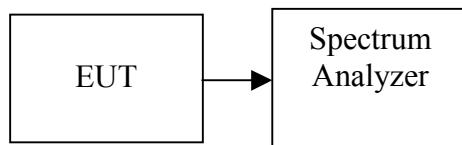
1. For systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 watt.
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **MEASUREMENT EQUIPMENT USED**

| Name of Equipment | Manufacturer | Model  | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent      | E4446A | MY43360131    | 01/10/2006      |

**Remark:** Each piece of equipment is scheduled for calibration once a year.

### **Test Configuration**



### **TEST PROCEDURE**

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

**TEST RESULTS***No non-compliance noted***Test Data****Mode: WUB1700S/SL**

|              | Channel | Frequency (MHz) | Reading Power (dBm) | Factor (dB) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|--------------|---------|-----------------|---------------------|-------------|--------------------|------------------|-----------|--------|
| IEEE 802.11b | Low     | 2412            | 6.09                | 11.60       | 17.69              | 0.0587           | 1         | PASS   |
|              | Mid     | 2437            | 5.85                | 11.60       | 17.45              | 0.0556           |           | PASS   |
|              | High    | 2462            | 2.51                | 11.60       | 14.11              | 0.0258           |           | PASS   |
| IEEE 802.11g | Low     | 2412            | 4.75                | 11.60       | 16.35              | 0.0432           | 1         | PASS   |
|              | Mid     | 2437            | 4.32                | 11.60       | 15.92              | 0.0391           |           | PASS   |
|              | High    | 2462            | 5.10                | 11.60       | 16.70              | 0.0468           |           | PASS   |

**Mode: AWS1705FOL**

|              | Channel | Frequency (MHz) | Reading Power (dBm) | Factor (dB) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|--------------|---------|-----------------|---------------------|-------------|--------------------|------------------|-----------|--------|
| IEEE 802.11b | Low     | 2412            | 4.73                | 11.60       | 16.33              | 0.0430           | 1         | PASS   |
|              | Mid     | 2437            | 5.03                | 11.60       | 16.63              | 0.0460           |           | PASS   |
|              | High    | 2462            | 4.94                | 11.60       | 16.54              | 0.0451           |           | PASS   |
| IEEE 802.11g | Low     | 2412            | 5.17                | 11.60       | 16.77              | 0.0475           | 1         | PASS   |
|              | Mid     | 2437            | 5.14                | 11.60       | 16.74              | 0.0472           |           | PASS   |
|              | High    | 2462            | 5.42                | 11.60       | 17.02              | 0.0504           |           | PASS   |

**Mode: AWS1708P**

|              | Channel | Frequency (MHz) | Reading Power (dBm) | Factor (dB) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|--------------|---------|-----------------|---------------------|-------------|--------------------|------------------|-----------|--------|
| IEEE 802.11b | Low     | 2412            | 1.79                | 11.60       | 13.39              | 0.0218           | 1         | PASS   |
|              | Mid     | 2437            | 1.74                | 11.60       | 13.34              | 0.0216           |           | PASS   |
|              | High    | 2462            | 1.60                | 11.60       | 13.20              | 0.0209           |           | PASS   |
| IEEE 802.11g | Low     | 2412            | 1.95                | 11.60       | 13.55              | 0.0226           | 1         | PASS   |
|              | Mid     | 2437            | 1.85                | 11.60       | 13.45              | 0.0221           |           | PASS   |
|              | High    | 2462            | 2.40                | 11.60       | 14.00              | 0.0251           |           | PASS   |

**Mode: AWS1708FO**

|              | Channel | Frequency (MHz) | Reading Power (dBm) | Factor (dB) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|--------------|---------|-----------------|---------------------|-------------|--------------------|------------------|-----------|--------|
| IEEE 802.11b | Low     | 2412            | 1.79                | 11.60       | 13.39              | 0.0218           | 1         | PASS   |
|              | Mid     | 2437            | 1.74                | 11.60       | 13.34              | 0.0216           |           | PASS   |
|              | High    | 2462            | 1.60                | 11.60       | 13.20              | 0.0209           |           | PASS   |
| IEEE 802.11g | Low     | 2412            | 1.95                | 11.60       | 13.55              | 0.0226           | 1         | PASS   |
|              | Mid     | 2437            | 1.85                | 11.60       | 13.45              | 0.0221           |           | PASS   |
|              | High    | 2462            | 2.40                | 11.60       | 14.00              | 0.0251           |           | PASS   |

**Test Plot****Mode: WUB1700S/SL****IEEE 802.11b****Peak power (CH Low)**

\* Agilent 20:00:34 May 11, 2005

R L

Peak Output Power, b Mode Low Ch.

Ref 20 dBm

Atten 20 dB

#Peak

Log

10

dB/

Offst

11.6

dB

LgAv

W1 S2

Center 2.412 00 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 22 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.69 dBm / 14.6680 MHz

-53.98 dBm/Hz

**Peak power (CH Mid)**

\* Agilent 20:08:40 May 11, 2005

R L

Peak Output Power, b Mode Mid Ch.

Ref 20 dBm

Atten 20 dB

#Peak

Log

10

dB/

Offst

11.6

dB

LgAv

W1 S2

Center 2.437 00 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 21.8 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.45 dBm / 14.5350 MHz

-54.18 dBm/Hz



## Peak power (CH High)

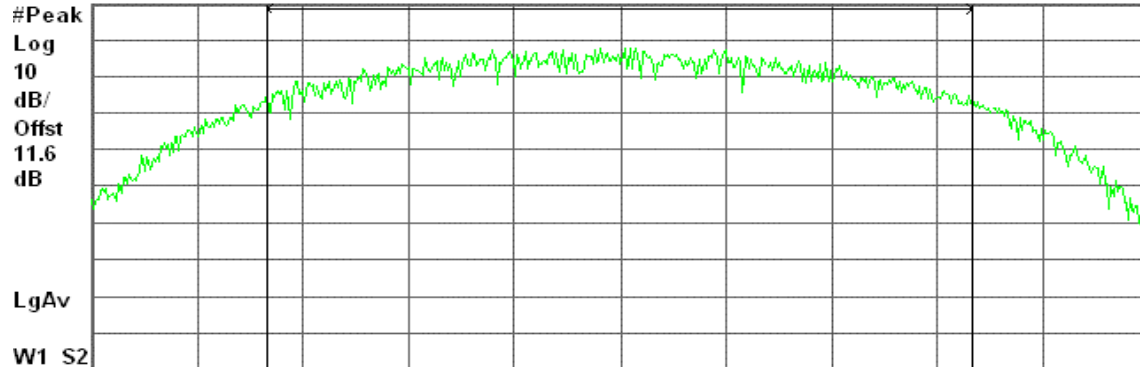
Agilent 21:28:20 May 11, 2005

R L

Peak Output Power, b Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 21.81 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.11 dBm / 14.5400 MHz

-57.52 dBm/Hz

## IEEE 802.11g

### Peak power (CH Low)

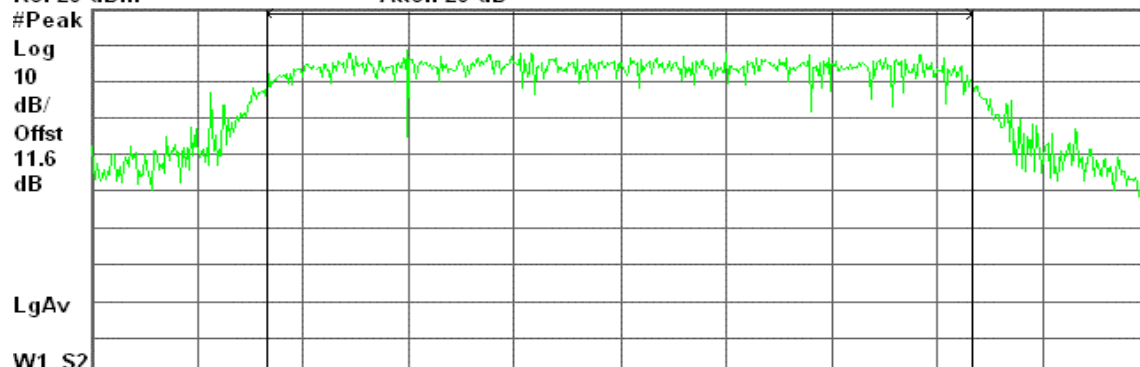
Agilent 20:32:09 May 11, 2005

R L

Peak Output Power, g Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 25.05 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.35 dBm / 16.7030 MHz

-55.88 dBm/Hz



### Peak power (CH Mid)

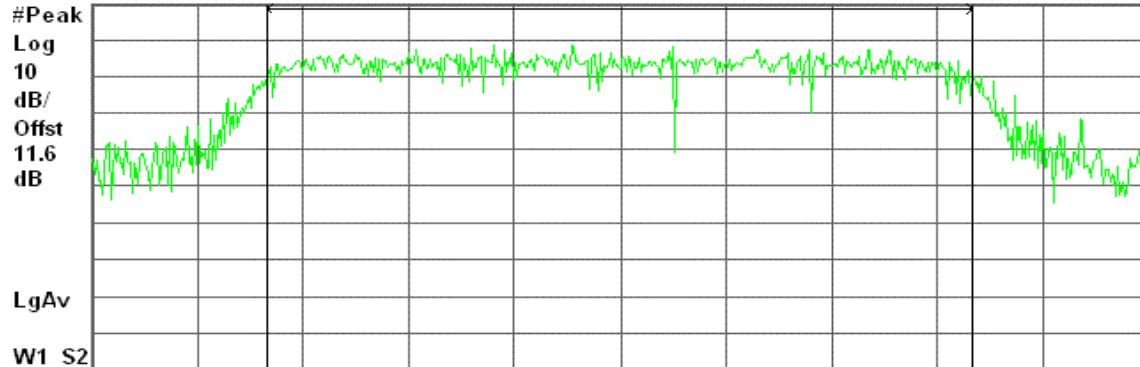
Agilent 20:37:05 May 11, 2005

R L

Peak Output Power, g Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 25.03 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

15.92 dBm / 16.6850 MHz

-56.31 dBm/Hz

### Peak power (CH High)

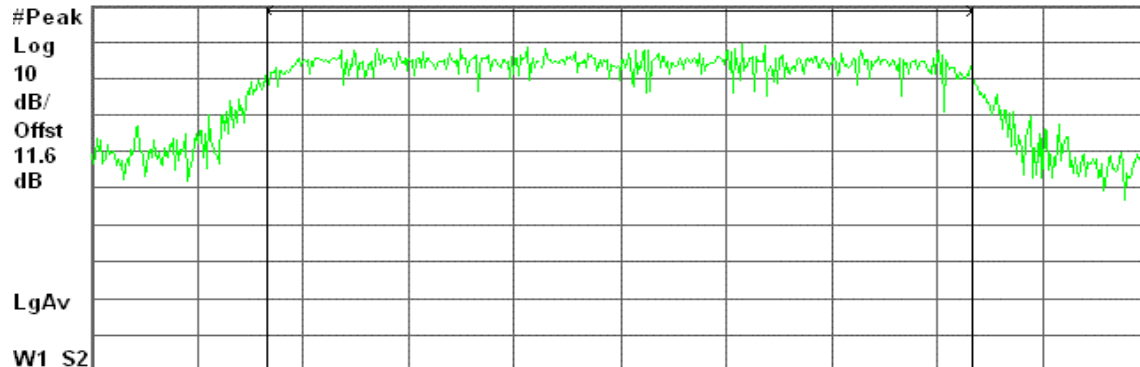
Agilent 20:43:10 May 11, 2005

R L

Peak Output Power, g Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 25.07 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.70 dBm / 16.7120 MHz

-55.53 dBm/Hz

**Mode: AWS1705FOL****IEEE 802.11b****Peak power (CH Low)**

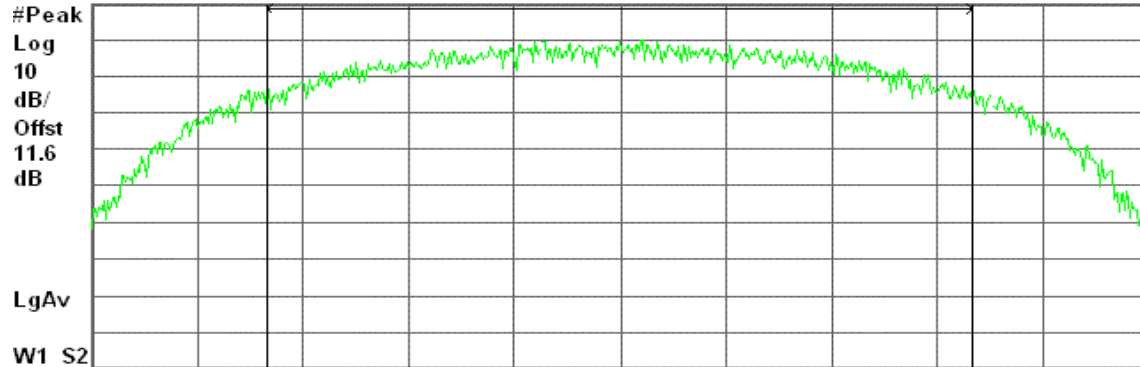
\* Agilent 21:41:49 May 11, 2005

R L

Peak Output Power, b Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 22.03 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.33 dBm / 14.6860 MHz

-55.34 dBm/Hz

**Peak power (CH Mid)**

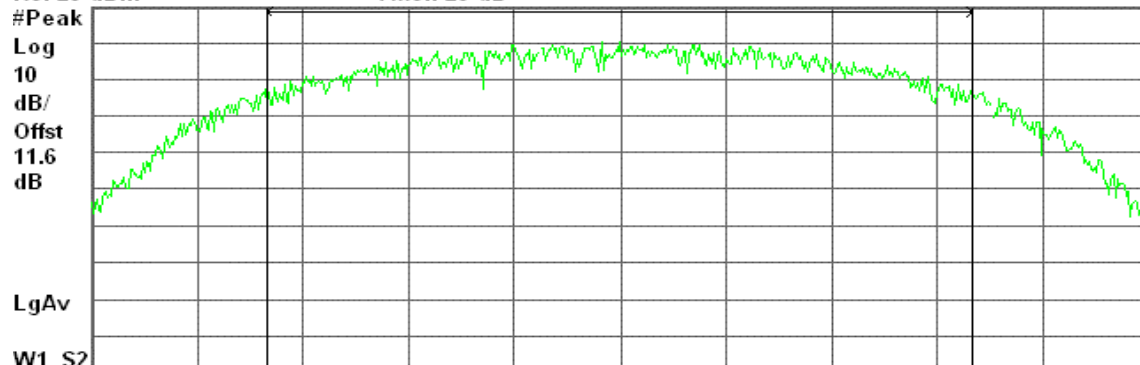
\* Agilent 21:45:57 May 11, 2005

R L

Peak Output Power, b Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 21.77 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.63 dBm / 14.5110 MHz

-54.99 dBm/Hz



### Peak power (CH High)

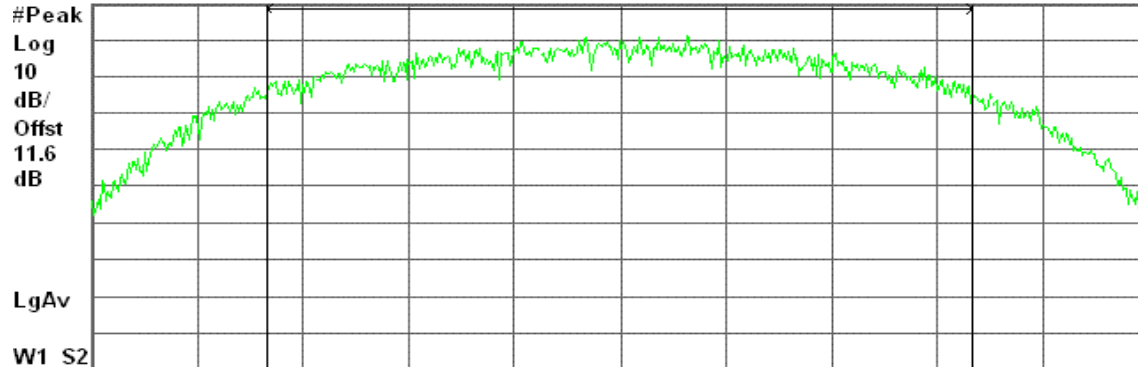
Agilent 21:51:09 May 11, 2005

R L

Peak Output Power, b Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 21.73 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.54 dBm / 14.4890 MHz

-55.08 dBm/Hz

### IEEE 802.11g

#### Peak power (CH Low)

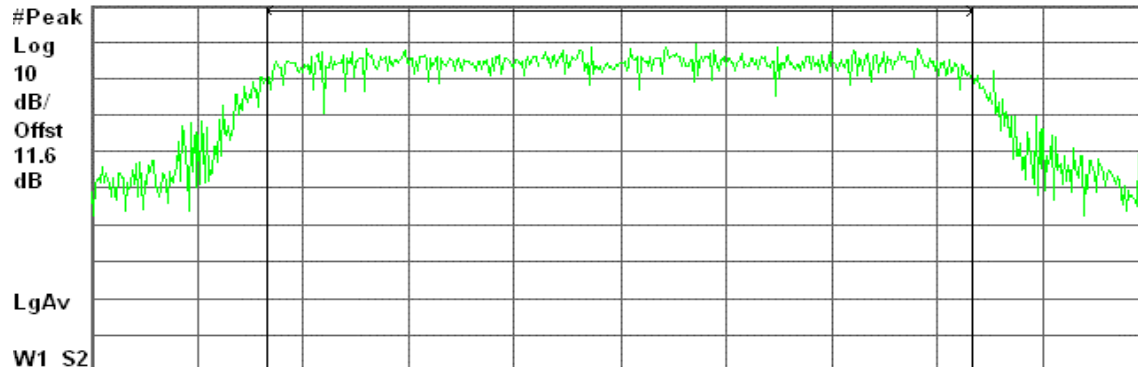
Agilent 22:19:32 May 11, 2005

R L

Peak Output Power, g Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 24.93 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.77 dBm / 16.6230 MHz

-55.43 dBm/Hz



### Peak power (CH Mid)

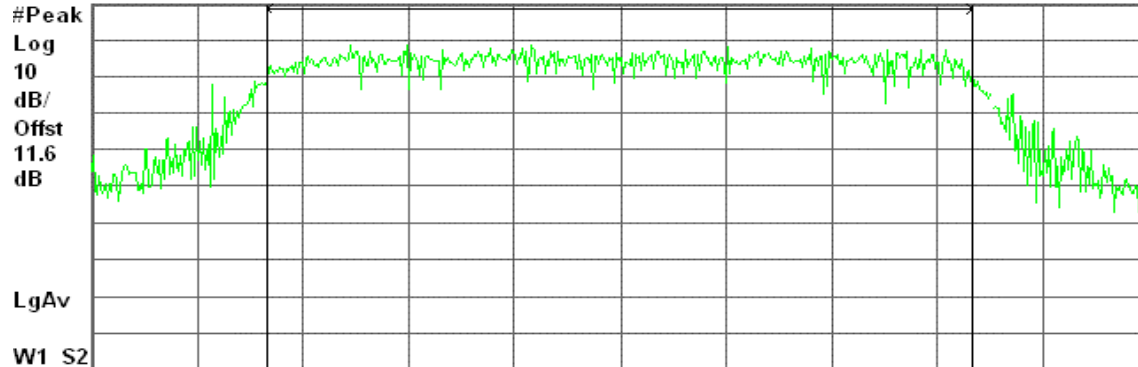
Agilent 22:04:28 May 11, 2005

R L

Peak Output Power, g Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 24.97 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

16.74 dBm / 16.6440 MHz

-55.48 dBm/Hz

### Peak power (CH High)

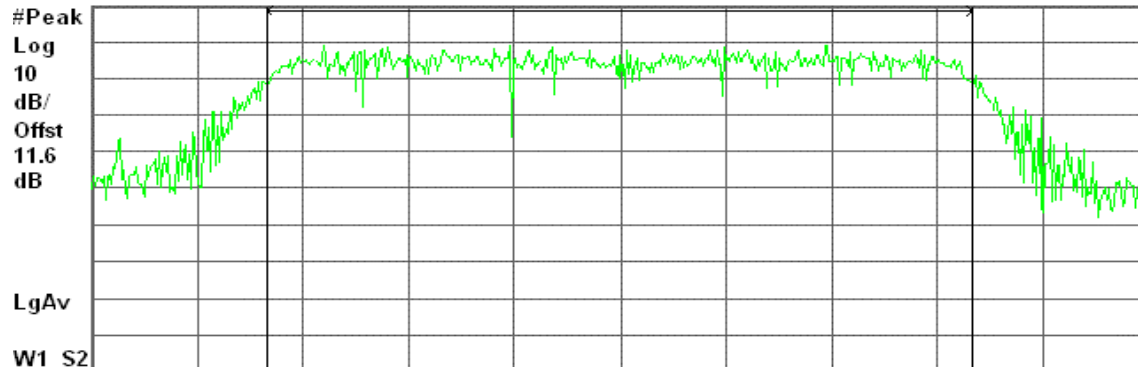
Agilent 22:10:33 May 11, 2005

R L

Peak Output Power, g Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 24.99 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

17.02 dBm / 16.6570 MHz

-55.19 dBm/Hz

**Mode: AWS1708P****IEEE 802.11b****Peak power (CH Low)**

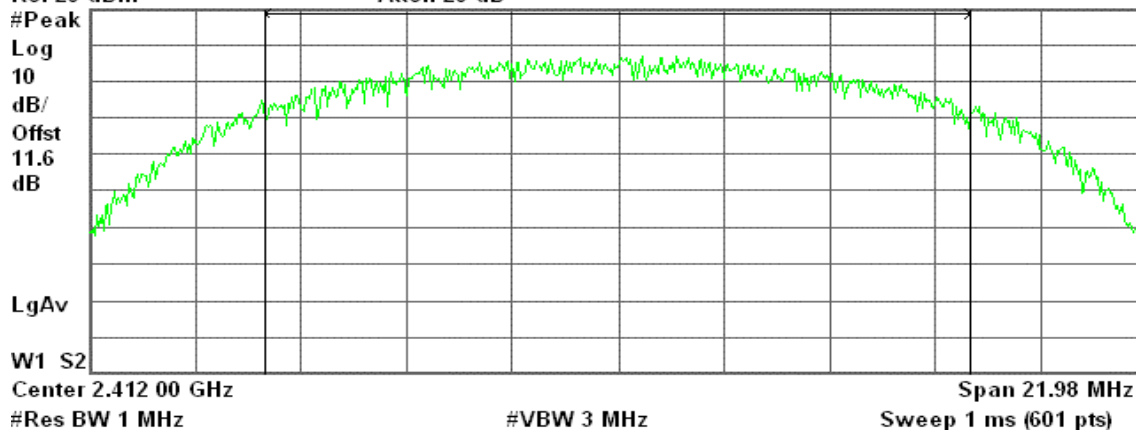
\* Agilent 22:47:42 May 11, 2005

R L

Peak Output Power, b Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Channel Power

Power Spectral Density

13.39 dBm / 14.6500 MHz

-58.27 dBm/Hz

**Peak power (CH Mid)**

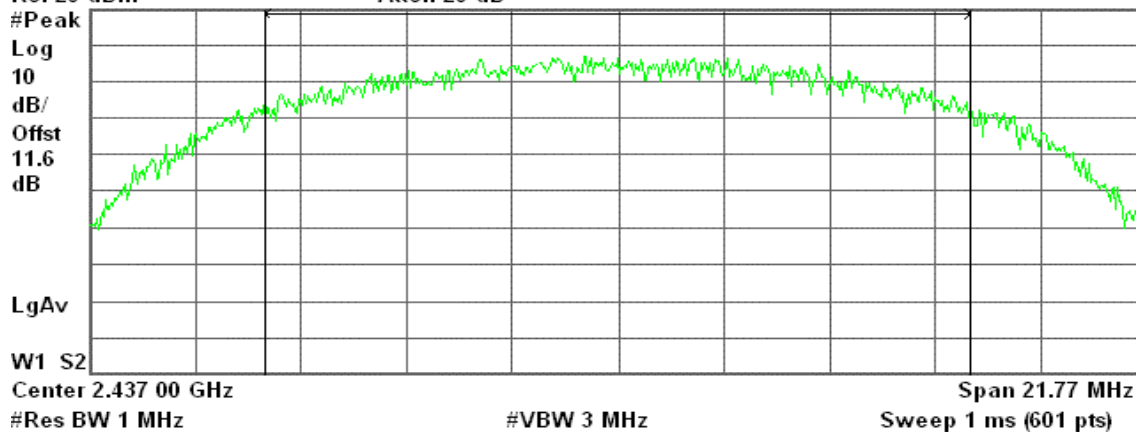
\* Agilent 22:52:59 May 11, 2005

R L

Peak Output Power, b Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Channel Power

Power Spectral Density

13.34 dBm / 14.5150 MHz

-58.28 dBm/Hz



## Peak power (CH High)

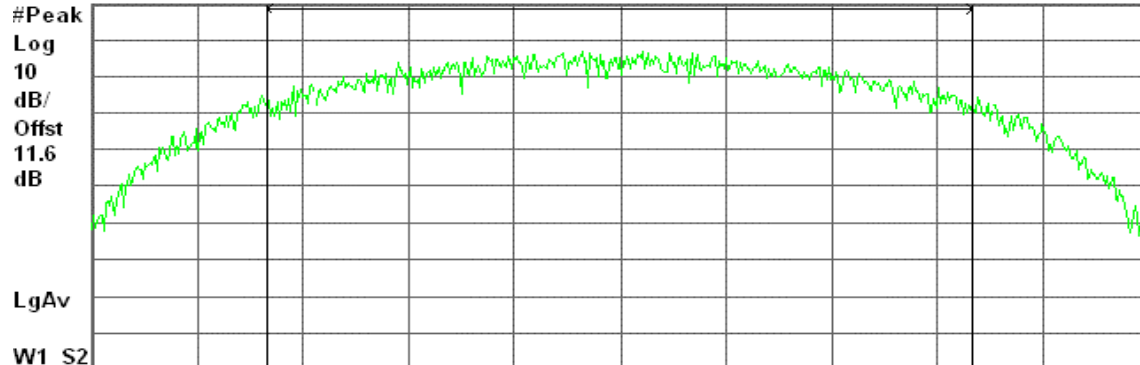
Agilent 22:58:59 May 11, 2005

R L

Peak Output Power, b Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 21.76 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.20 dBm / 14.5040 MHz

-58.42 dBm/Hz

## IEEE 802.11g

### Peak power (CH Low)

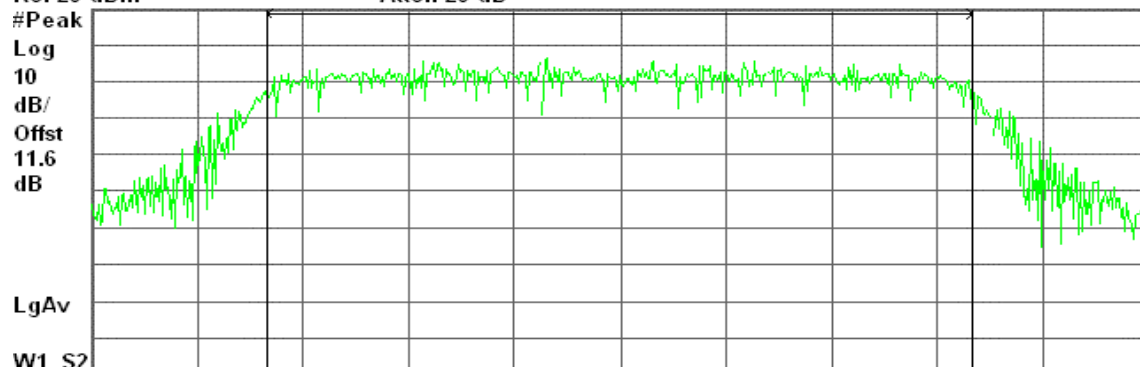
Agilent 23:05:58 May 11, 2005

R L

Peak Output Power, g Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 24.91 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.55 dBm / 16.6050 MHz

-58.66 dBm/Hz



### Peak power (CH Mid)

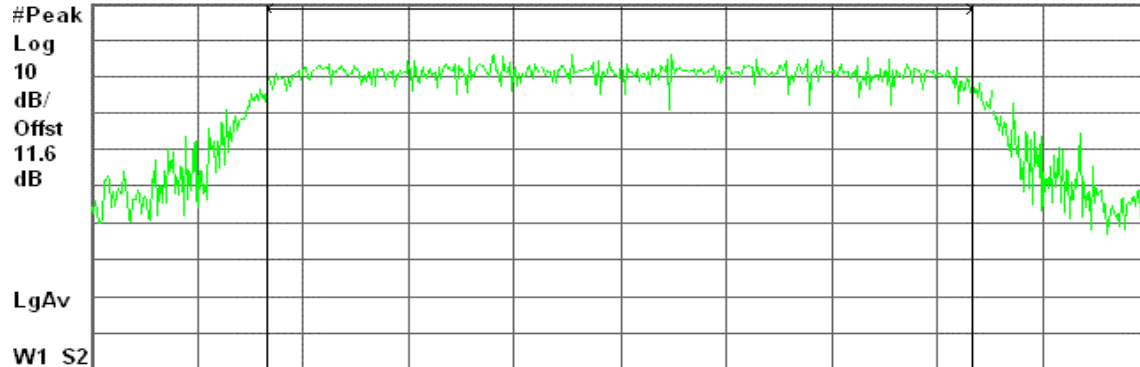
Agilent 23:11:08 May 11, 2005

R L

Peak Output Power, g Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 24.92 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.45 dBm / 16.6160 MHz

-58.75 dBm/Hz

### Peak power (CH High)

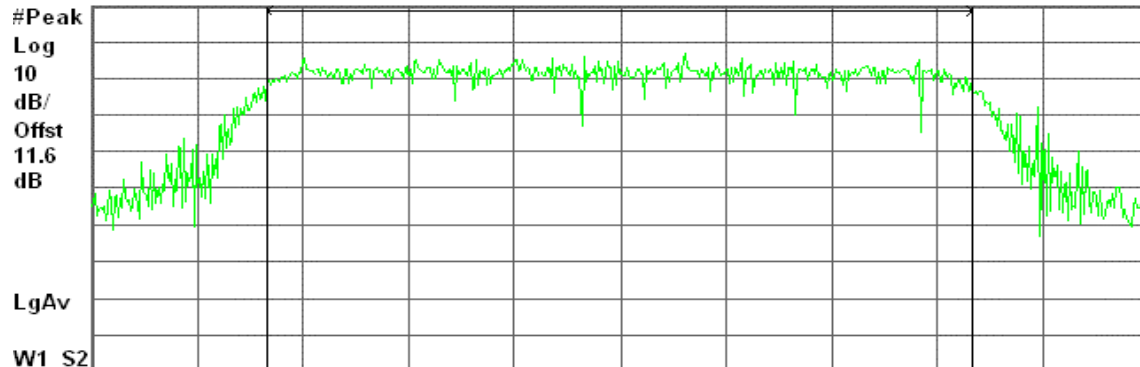
Agilent 23:19:51 May 11, 2005

R L

Peak Output Power, g Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 24.87 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.00 dBm / 16.5790 MHz

-58.19 dBm/Hz

**Mode: AWS1708FO****IEEE 802.11b****Peak power (CH Low)**

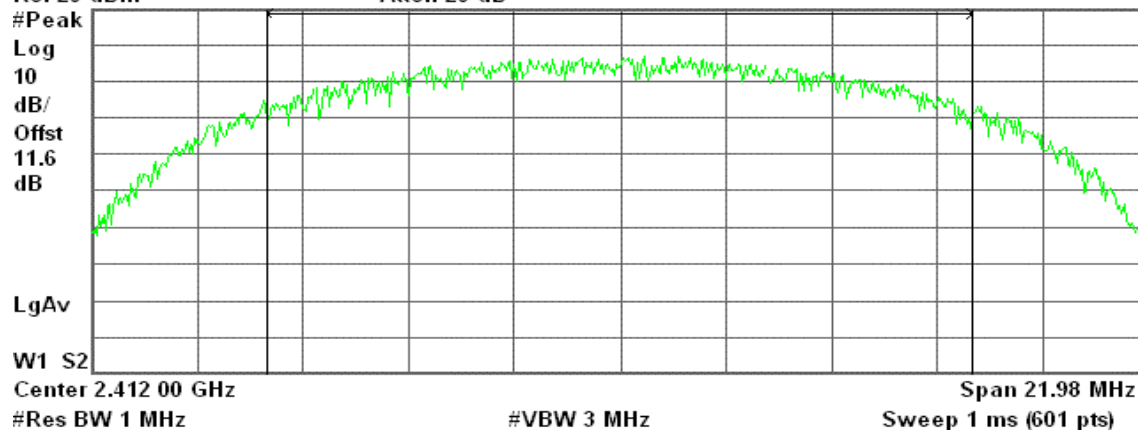
\* Agilent 22:47:42 May 11, 2005

R L

Peak Output Power, b Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Channel Power

Power Spectral Density

13.39 dBm / 14.6500 MHz

-58.27 dBm/Hz

**Peak power (CH Mid)**

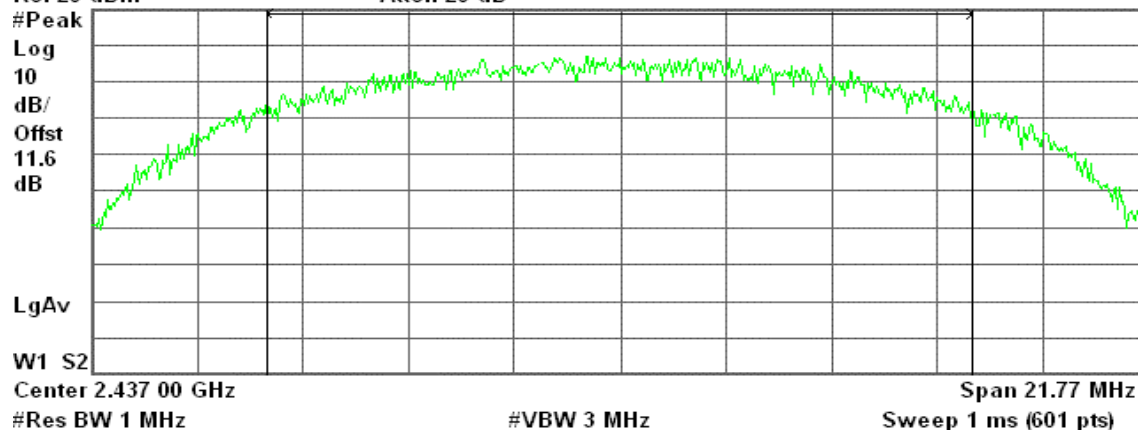
\* Agilent 22:52:59 May 11, 2005

R L

Peak Output Power, b Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Channel Power

Power Spectral Density

13.34 dBm / 14.5150 MHz

-58.28 dBm/Hz



### Peak power (CH High)

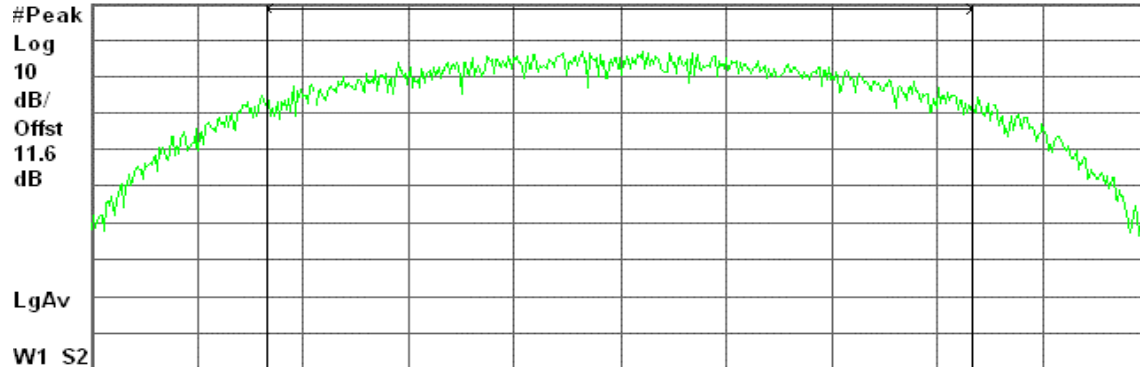
Agilent 22:58:59 May 11, 2005

R L

Peak Output Power, b Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 21.76 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.20 dBm / 14.5040 MHz

-58.42 dBm/Hz

### IEEE 802.11g

#### Peak power (CH Low)

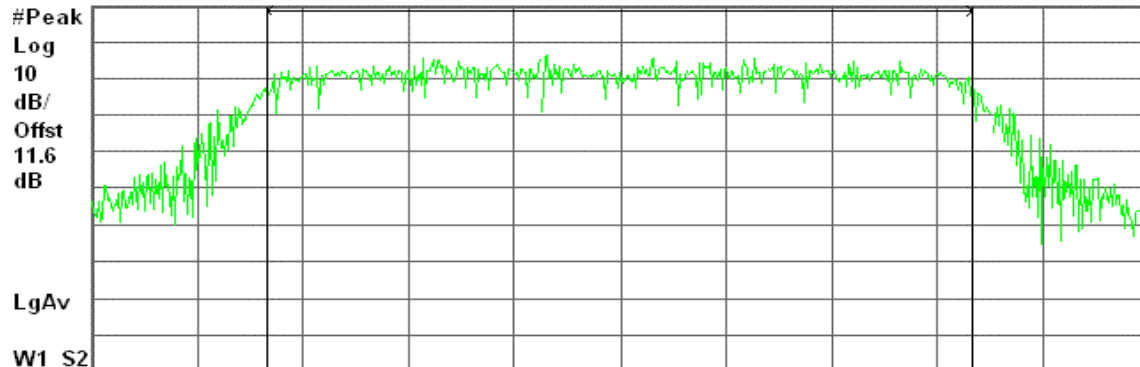
Agilent 23:05:58 May 11, 2005

R L

Peak Output Power, g Mode Low Ch.

Ref 20 dBm

Atten 20 dB



Center 2.412 00 GHz

Span 24.91 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.55 dBm / 16.6050 MHz

-58.66 dBm/Hz



### Peak power (CH Mid)

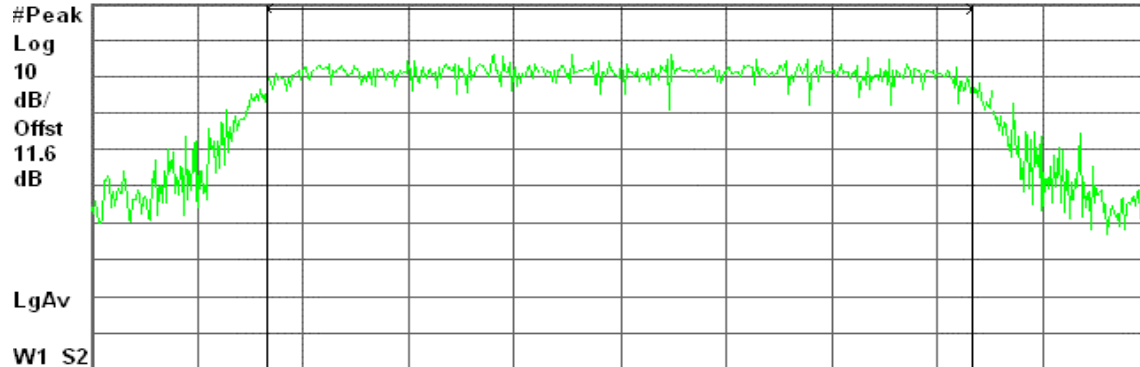
Agilent 23:11:08 May 11, 2005

R L

Peak Output Power, g Mode Mid Ch.

Ref 20 dBm

Atten 20 dB



Center 2.437 00 GHz

Span 24.92 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

13.45 dBm / 16.6160 MHz

-58.75 dBm/Hz

### Peak power (CH High)

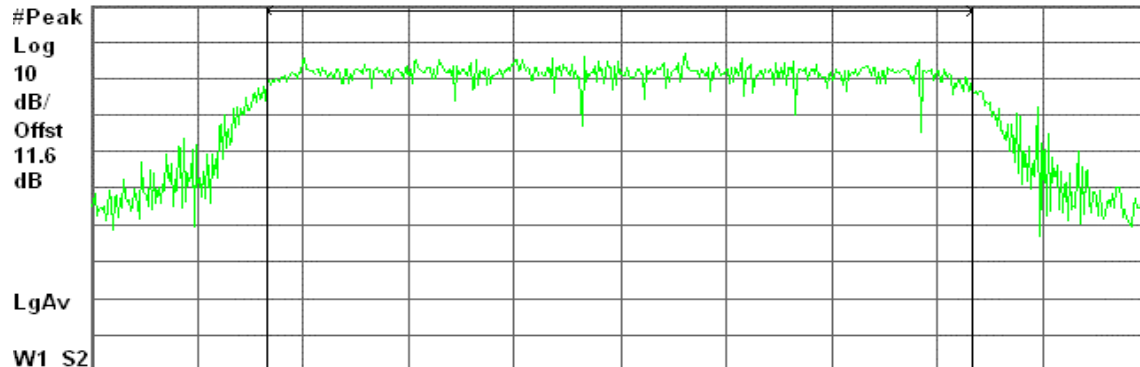
Agilent 23:19:51 May 11, 2005

R L

Peak Output Power, g Mode High Ch.

Ref 20 dBm

Atten 20 dB



Center 2.462 00 GHz

Span 24.87 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Channel Power

Power Spectral Density

14.00 dBm / 16.5790 MHz

-58.19 dBm/Hz

## 7.3 BAND EDGES MEASUREMENT

### LIMIT

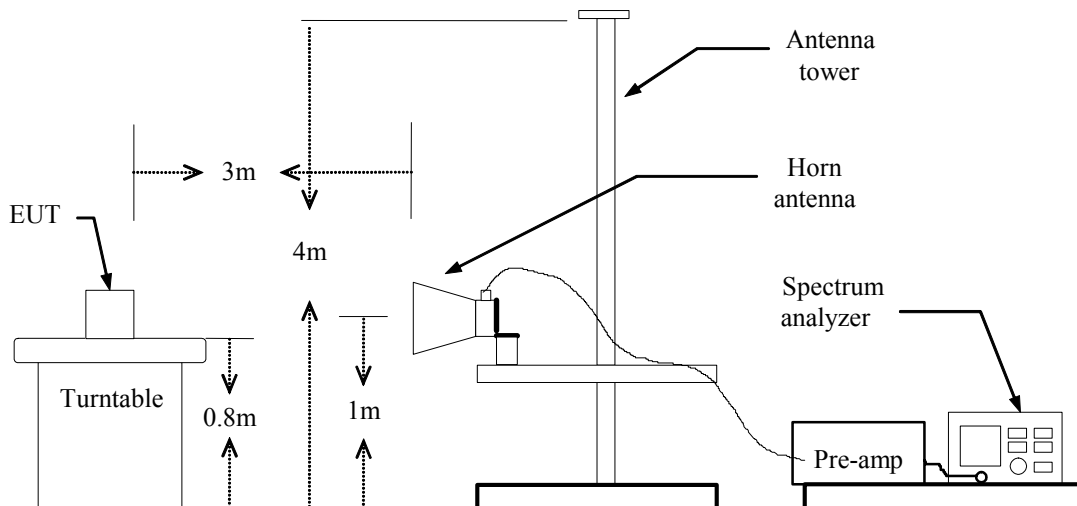
According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model  | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent      | E4446A | MY43360131    | 01/10/2006      |

**Remark:** Each piece of equipment is scheduled for calibration once a year.

### Test Configuration



### TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

### TEST RESULTS

Refer to attach spectrum analyzer data chart.



Mode: WUB1700S/SL

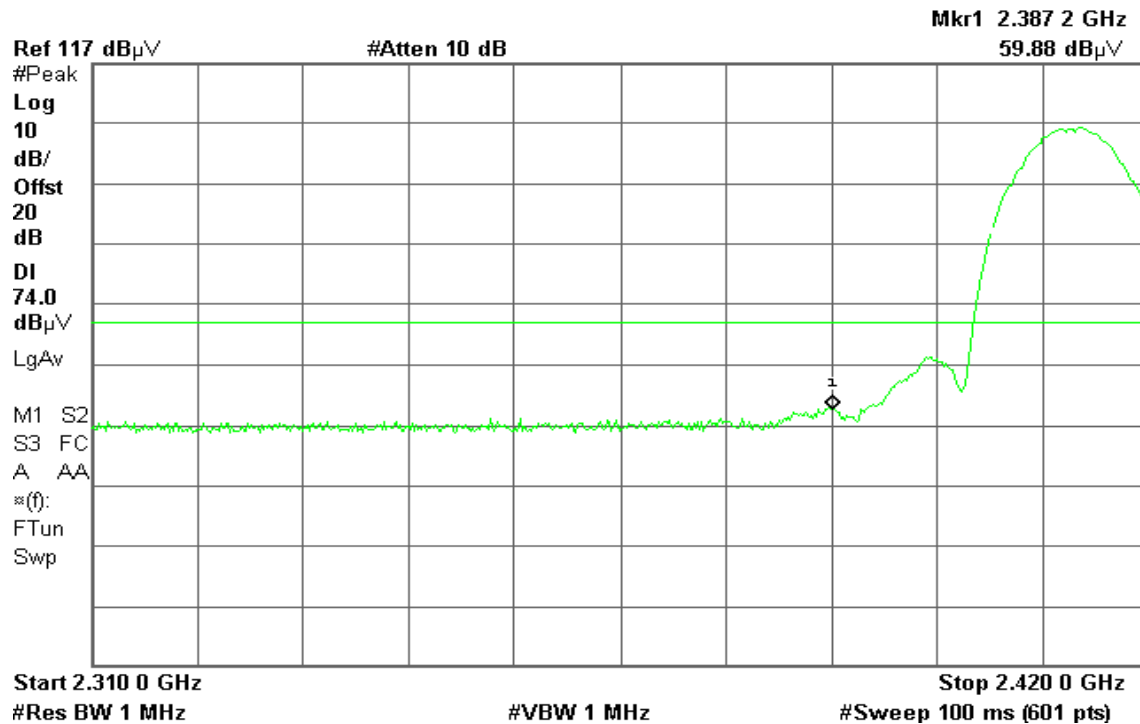
Band Edges (IEEE 802.11b / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent 08:56:12 Mar 8, 2005

R T

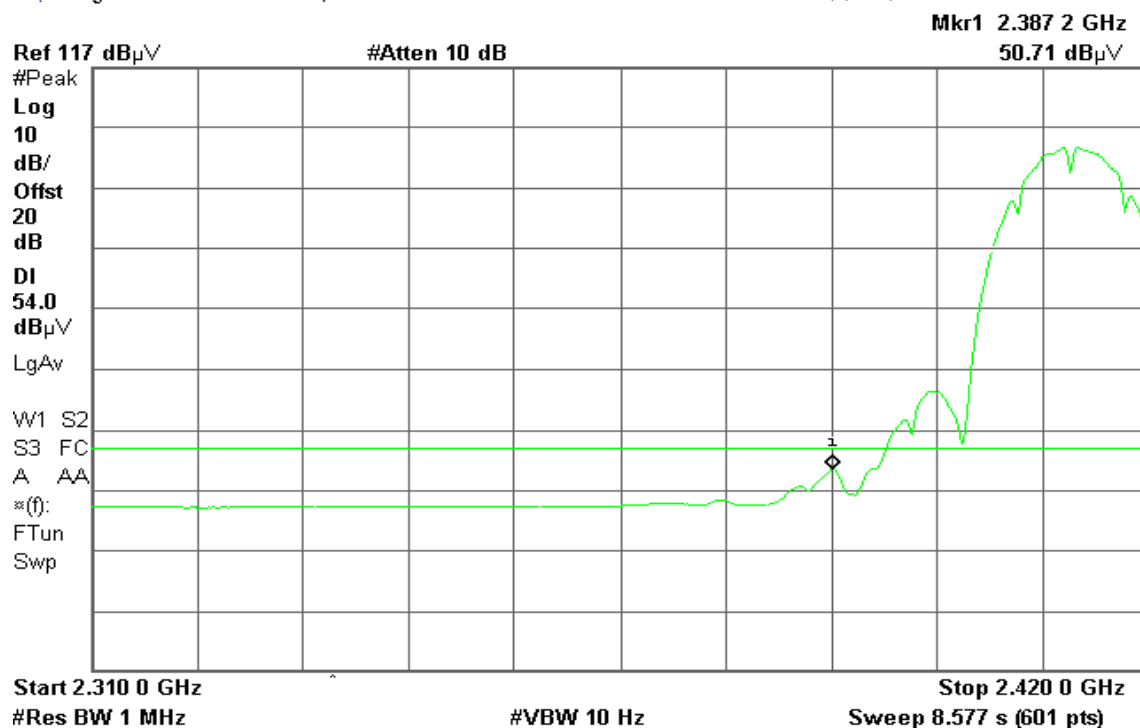


Detector mode: Average

Polarity: Vertical

Agilent 08:55:13 Mar 8, 2005

R T



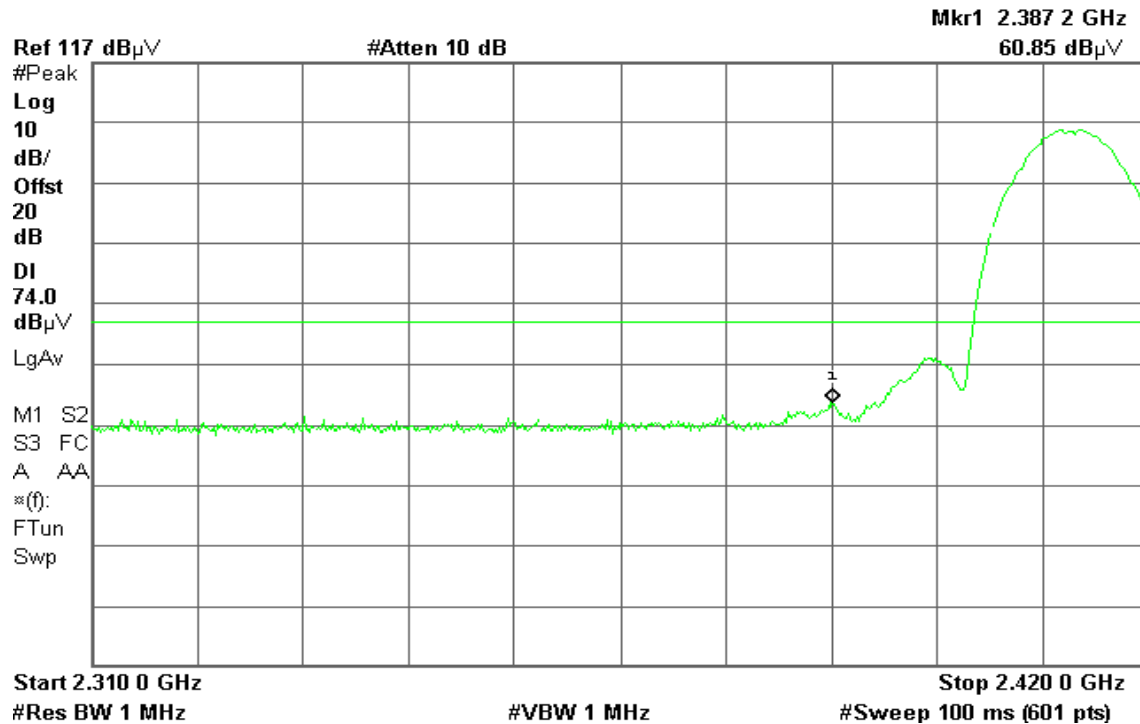


Detector mode: Peak

Polarity: Horizontal

Agilent 08:51:02 Mar 8, 2005

R T

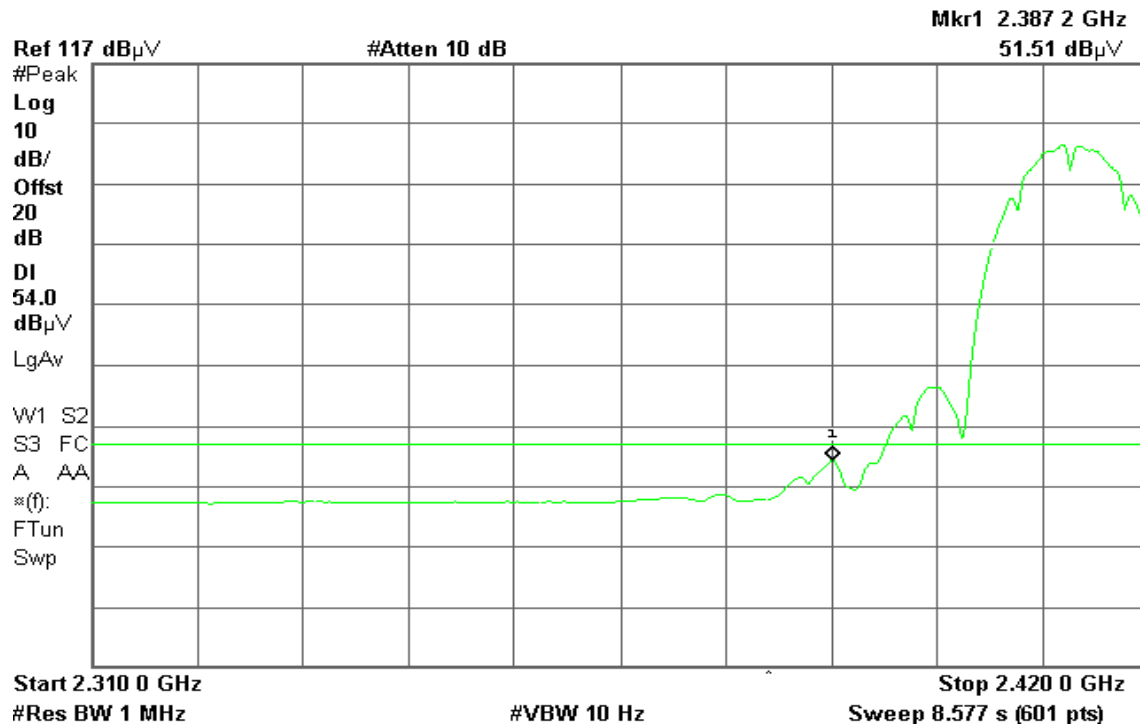


Detector mode: Average

Polarity: Horizontal

Agilent 08:49:45 Mar 8, 2005

R T





## Band Edges (IEEE 802.11b / CH High)

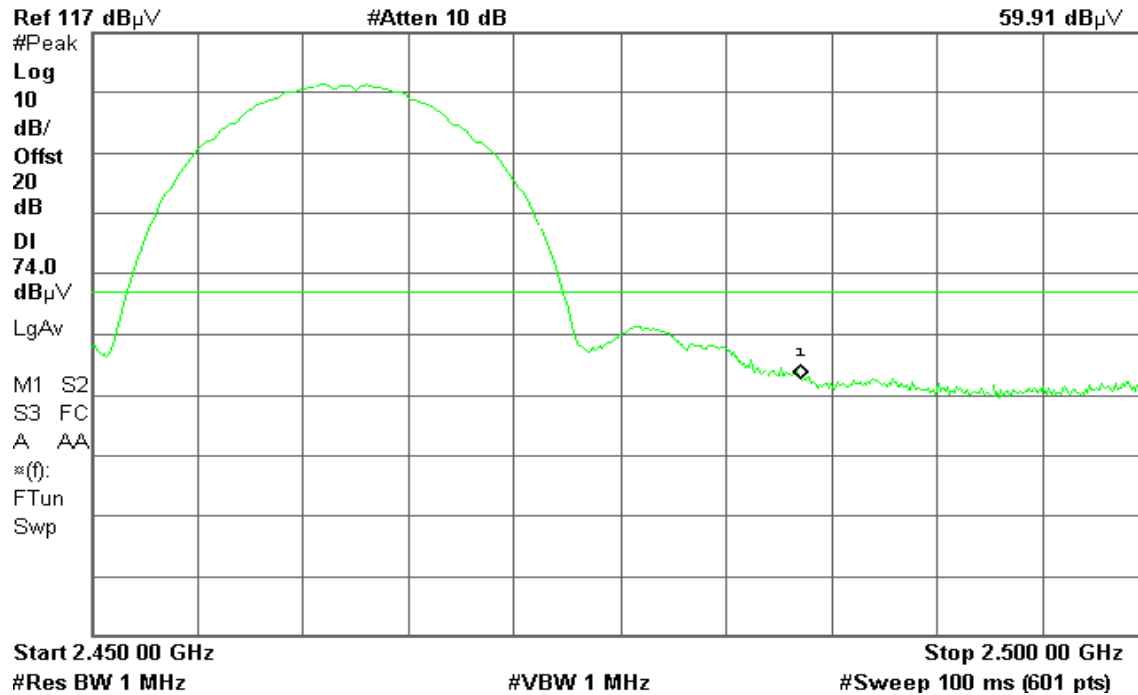
Detector mode: Peak

Polarity: Vertical

Agilent 09:01:41 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
59.91 dB $\mu$ V



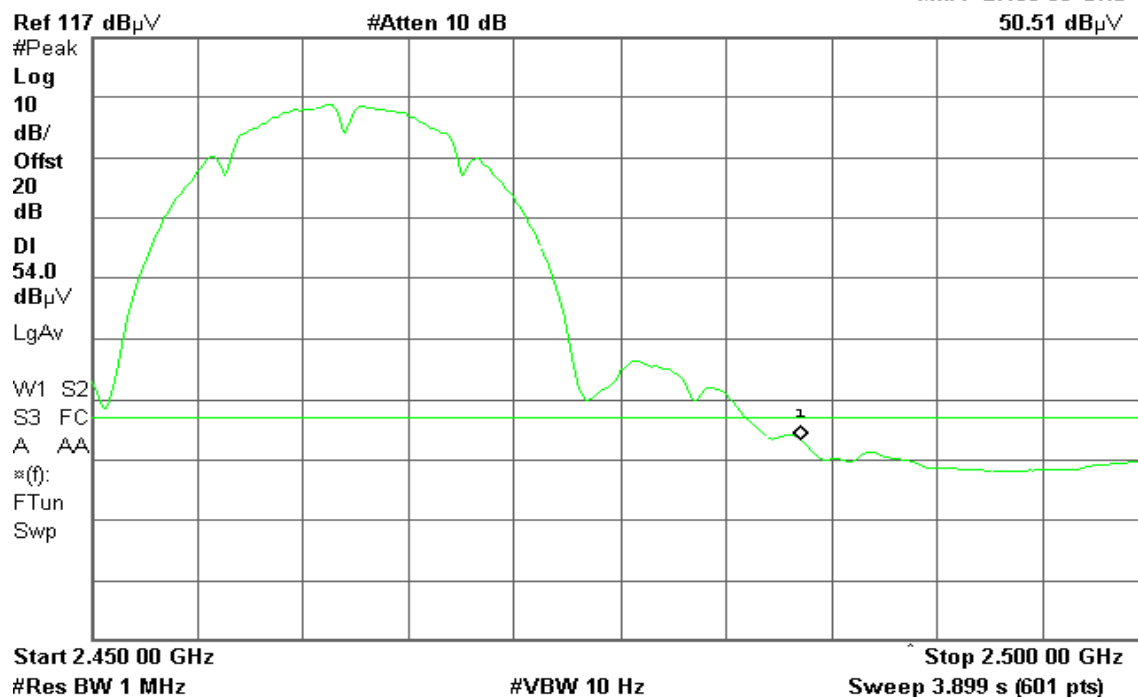
Detector mode: Average

Polarity: Vertical

Agilent 09:00:21 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
50.51 dB $\mu$ V



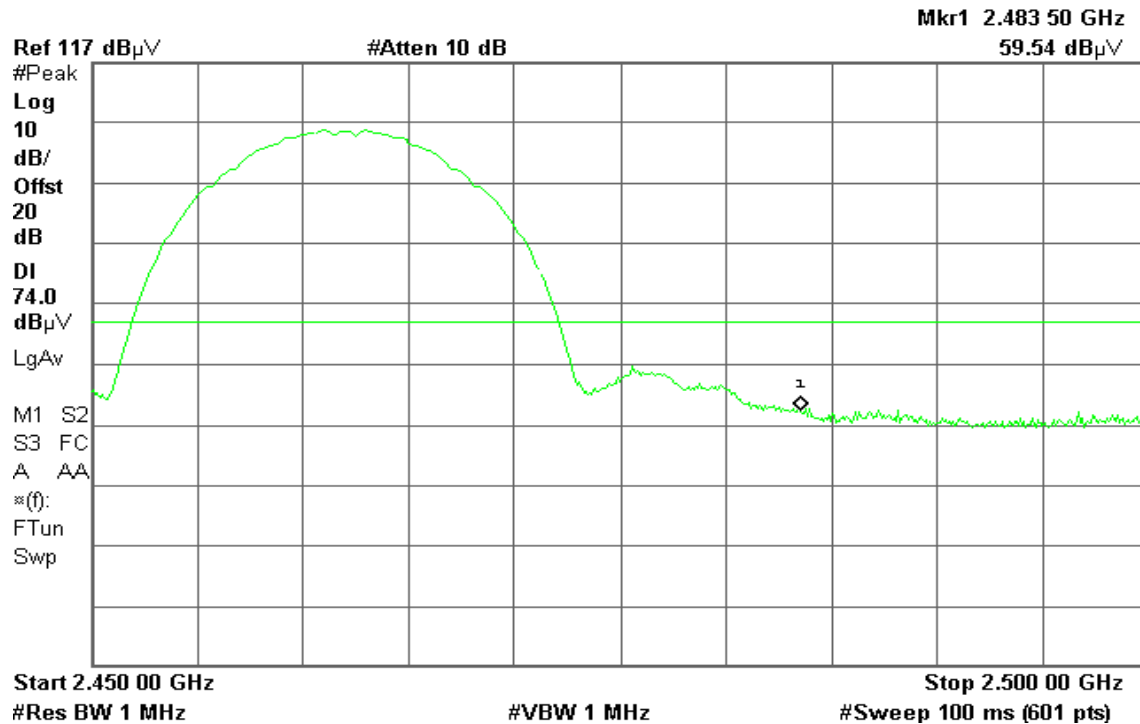


Detector mode: Peak

Polarity: Horizontal

Agilent 09:05:50 Mar 8, 2005

R T

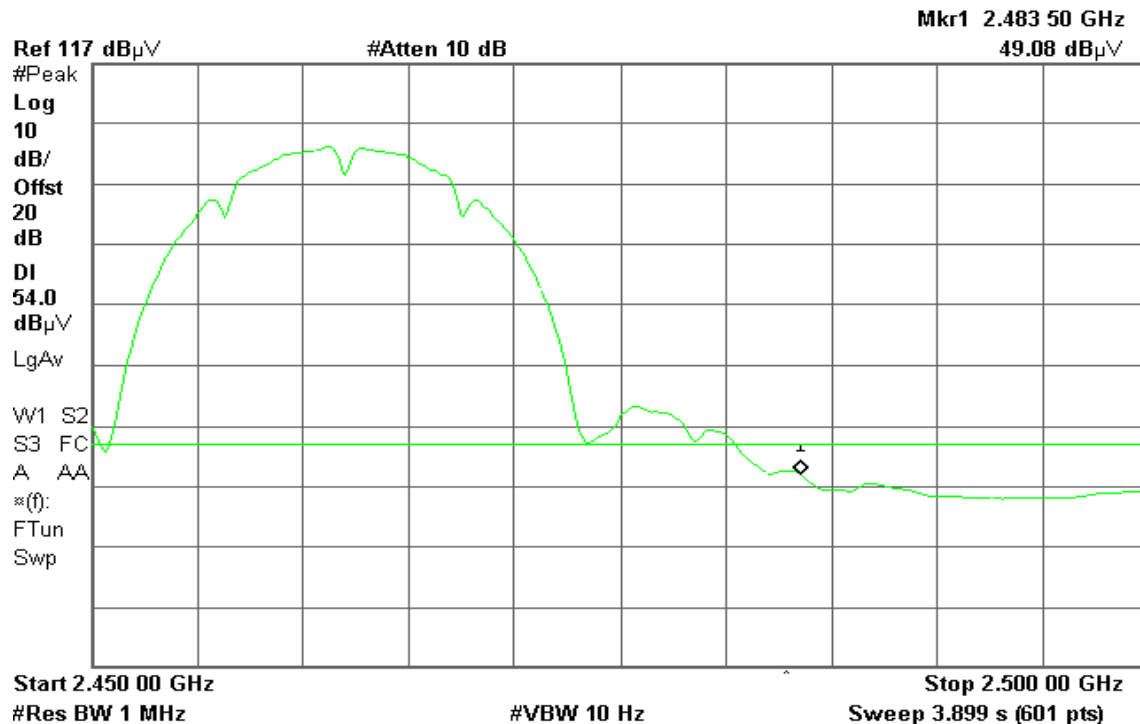


Detector mode: Average

Polarity: Horizontal

Agilent 09:05:16 Mar 8, 2005

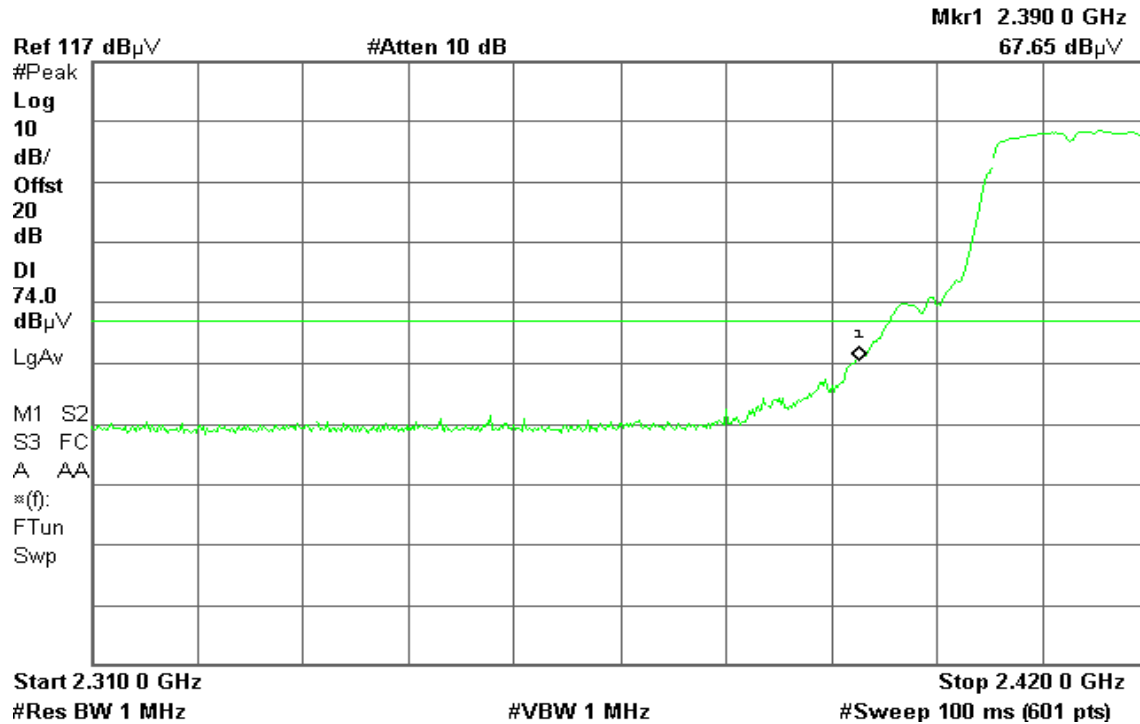
R T



**Band Edges (IEEE 802.11g / CH Low)****Detector mode: Peak****Polarity: Vertical**

\* Agilent 09:19:26 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 09:18:47 Mar 8, 2005

R T



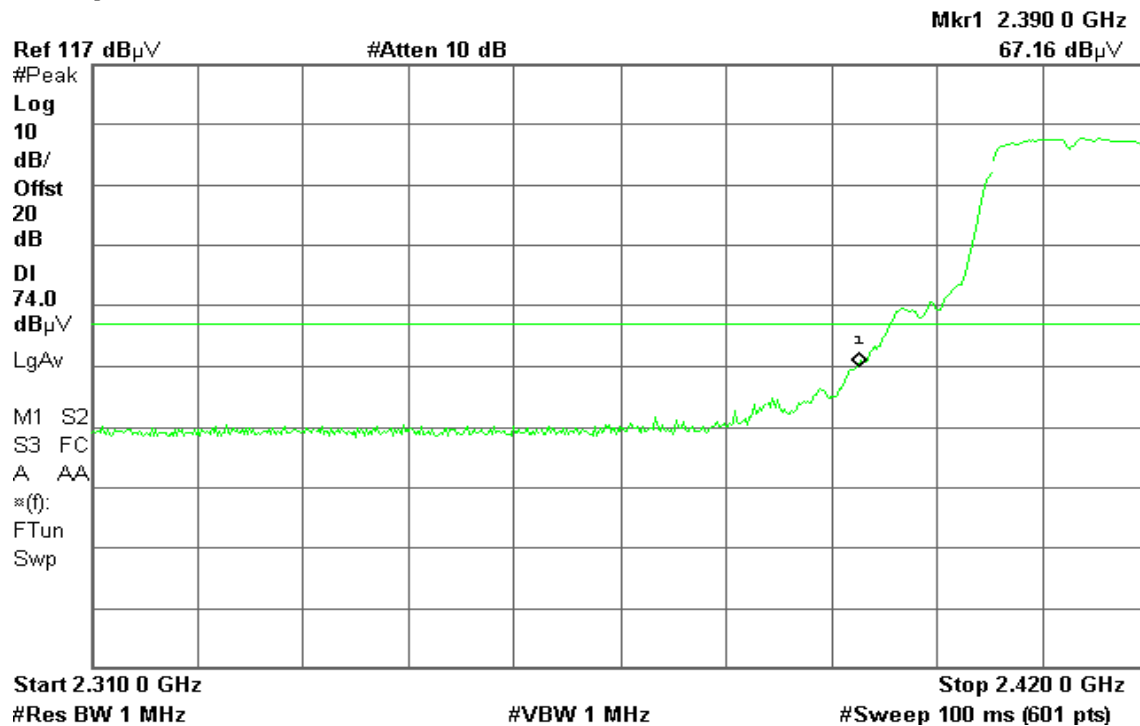


Detector mode: Peak

Polarity: Horizontal

Agilent 09:14:36 Mar 8, 2005

R T



Detector mode: Average

Polarity: Horizontal

Agilent 09:14:03 Mar 8, 2005

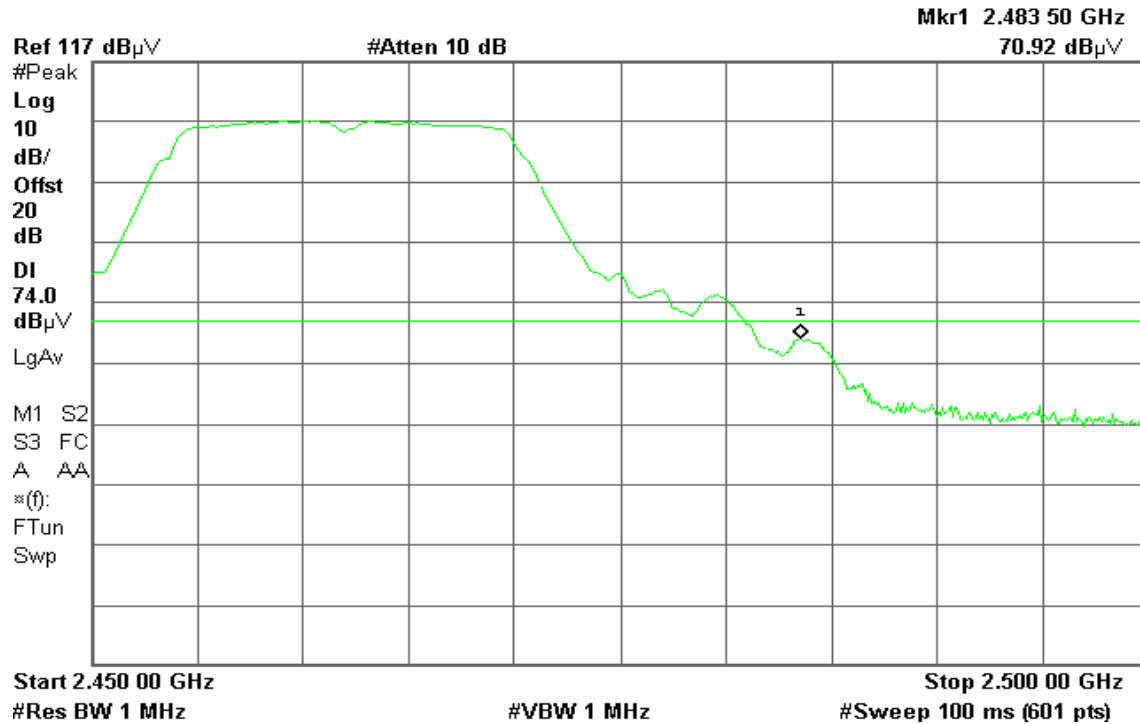
R T



**Band Edges (IEEE 802.11g / CH High)****Detector mode: Peak****Polarity: Vertical**

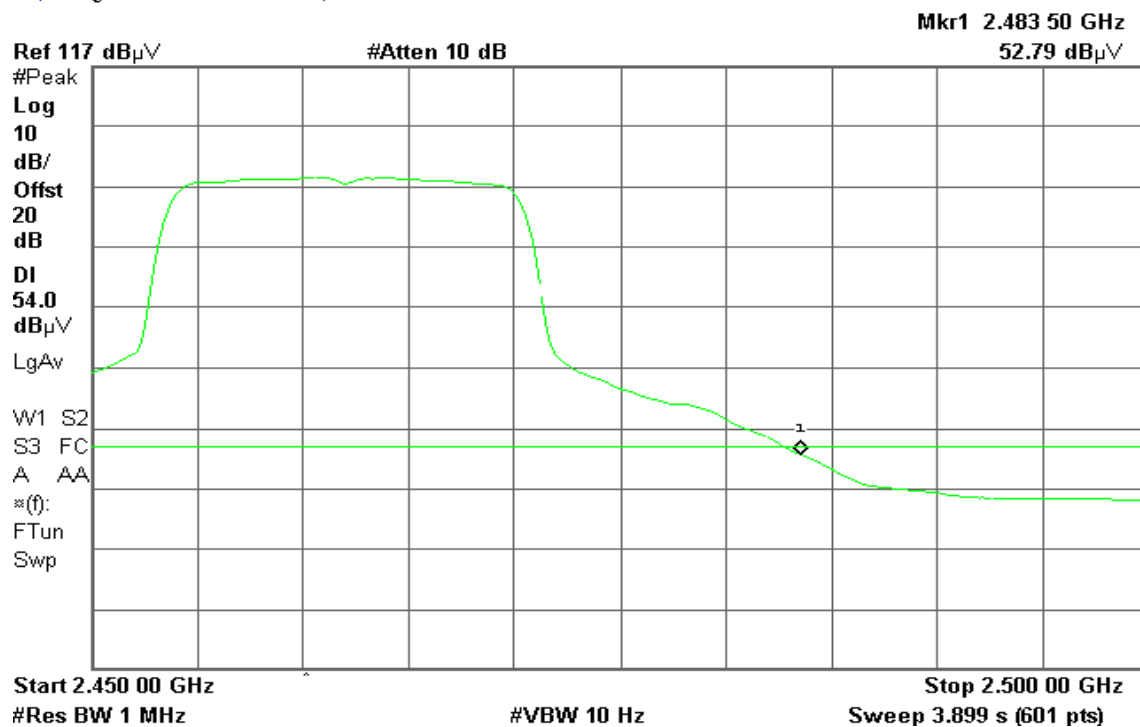
\* Agilent 09:25:12 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 09:24:29 Mar 8, 2005

R T





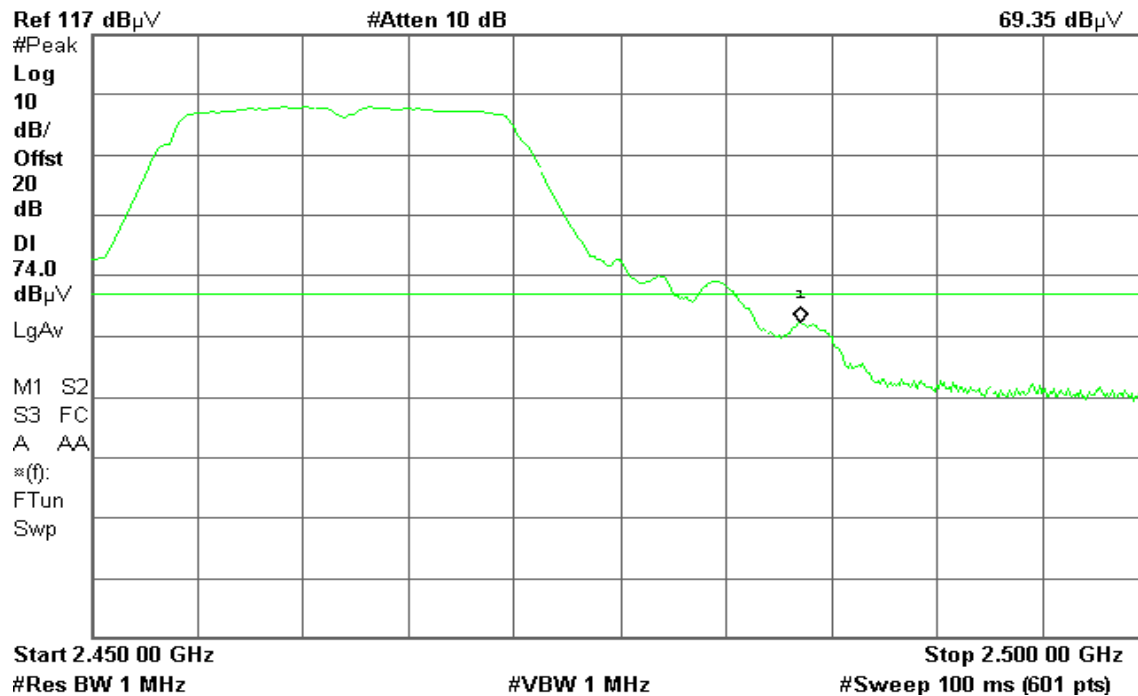
Detector mode: Peak

Polarity: Horizontal

Agilent 09:28:29 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
69.35 dB $\mu$ V



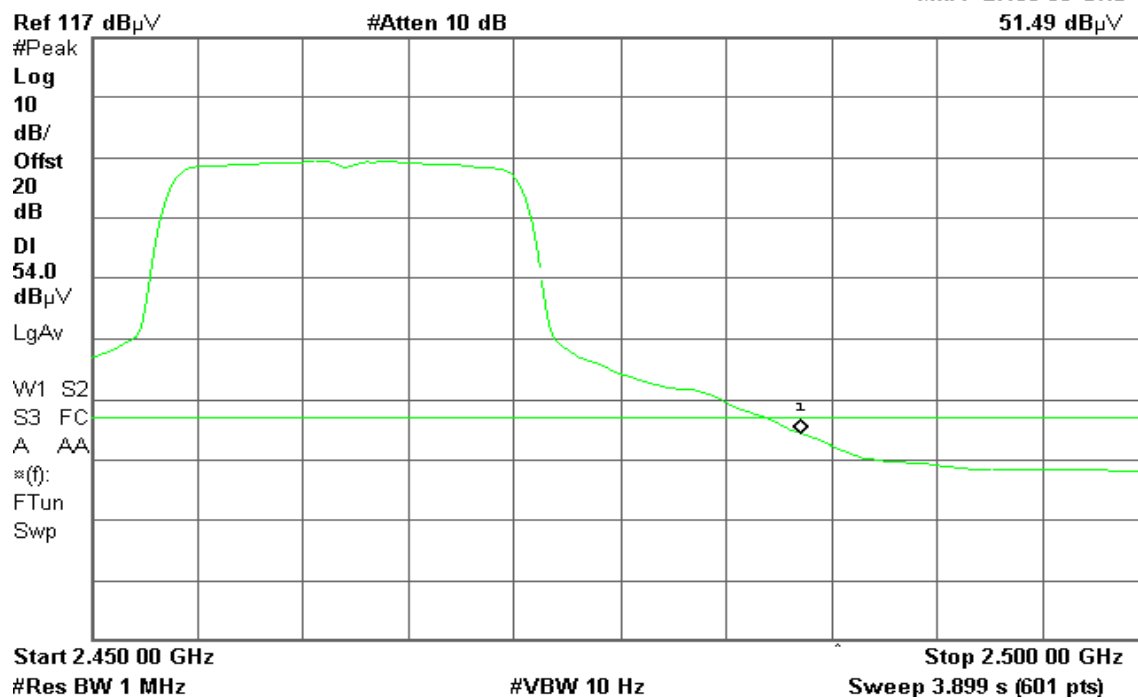
Detector mode: Average

Polarity: Horizontal

Agilent 09:28:01 Mar 8, 2005

R T

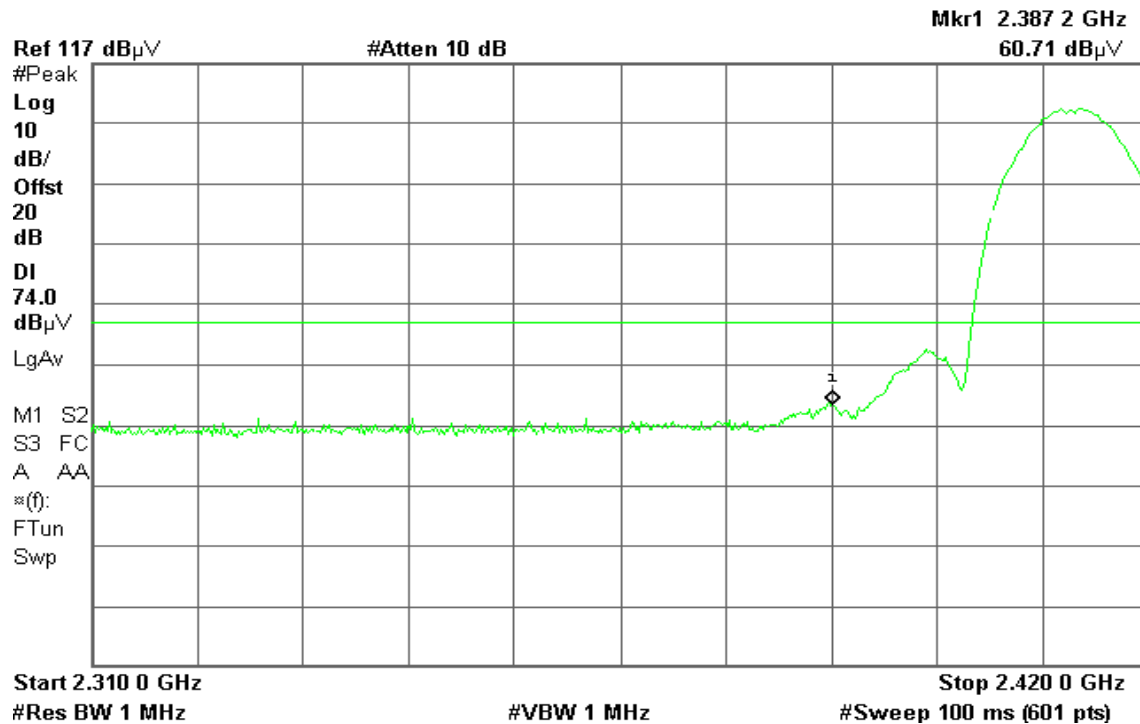
Mkr1 2.483 50 GHz  
51.49 dB $\mu$ V



**Mode: AWS1705FOL****Band Edges (IEEE 802.11b / CH Low)****Detector mode: Peak****Polarity: Vertical**

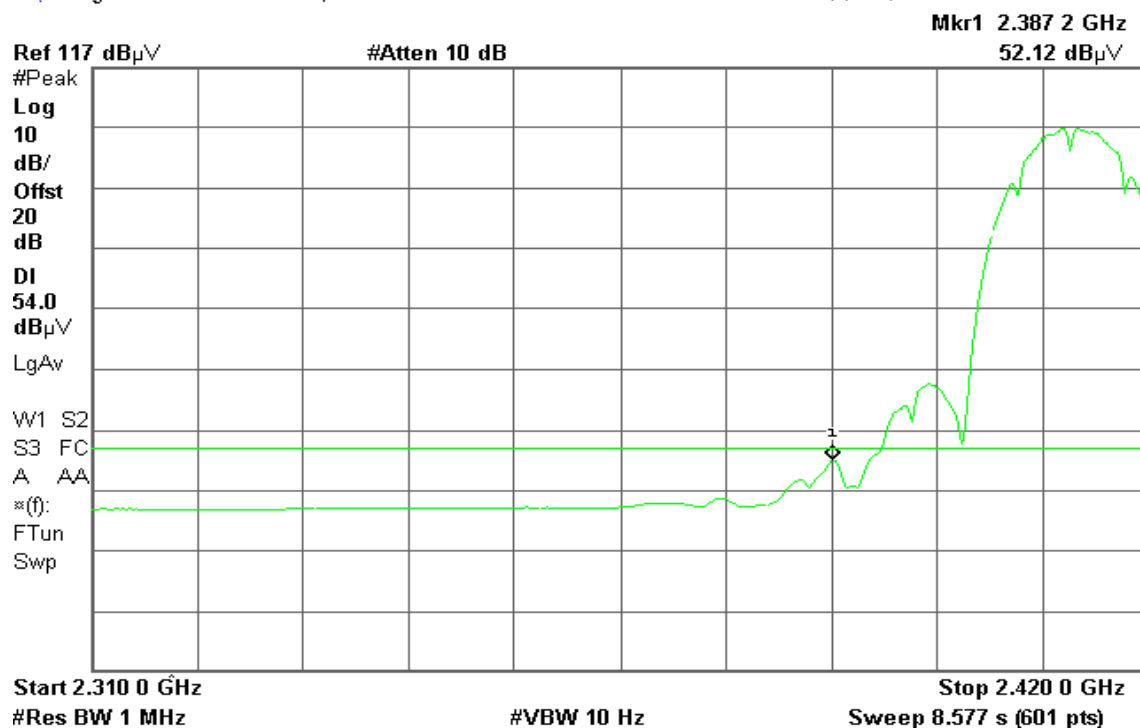
\* Agilent 10:32:03 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 10:31:26 Mar 8, 2005

R T



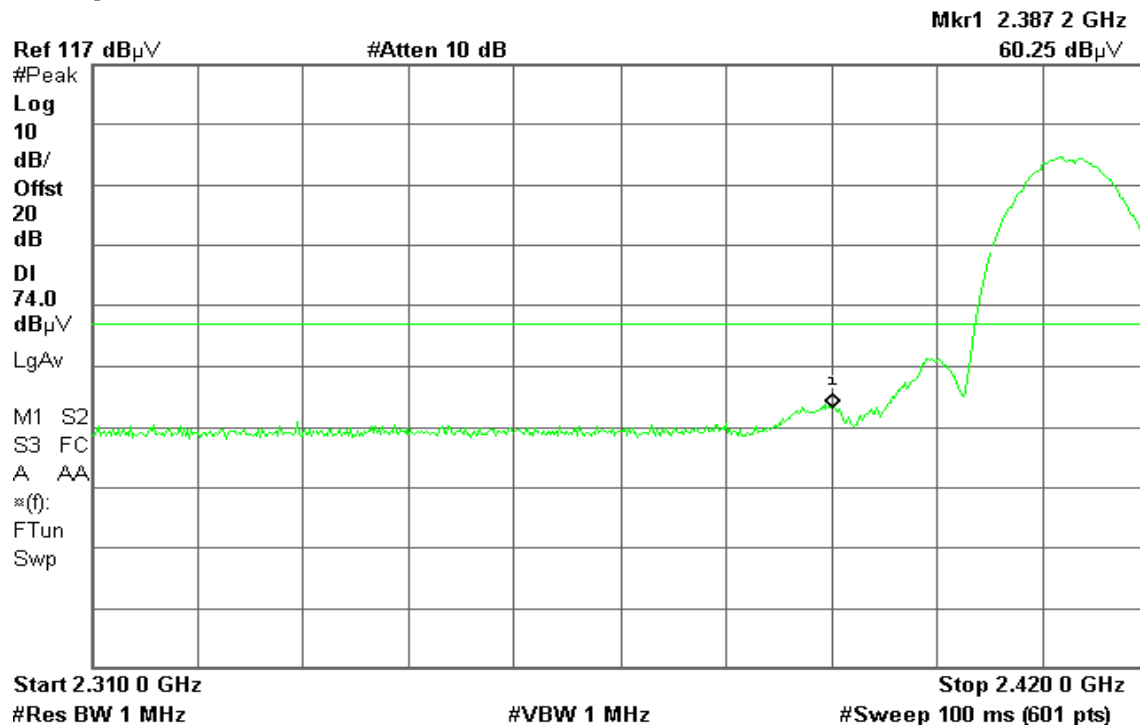


Detector mode: Peak

Polarity: Horizontal

Agilent 10:26:38 Mar 8, 2005

R T



Detector mode: Average

Polarity: Horizontal

Agilent 10:26:03 Mar 8, 2005

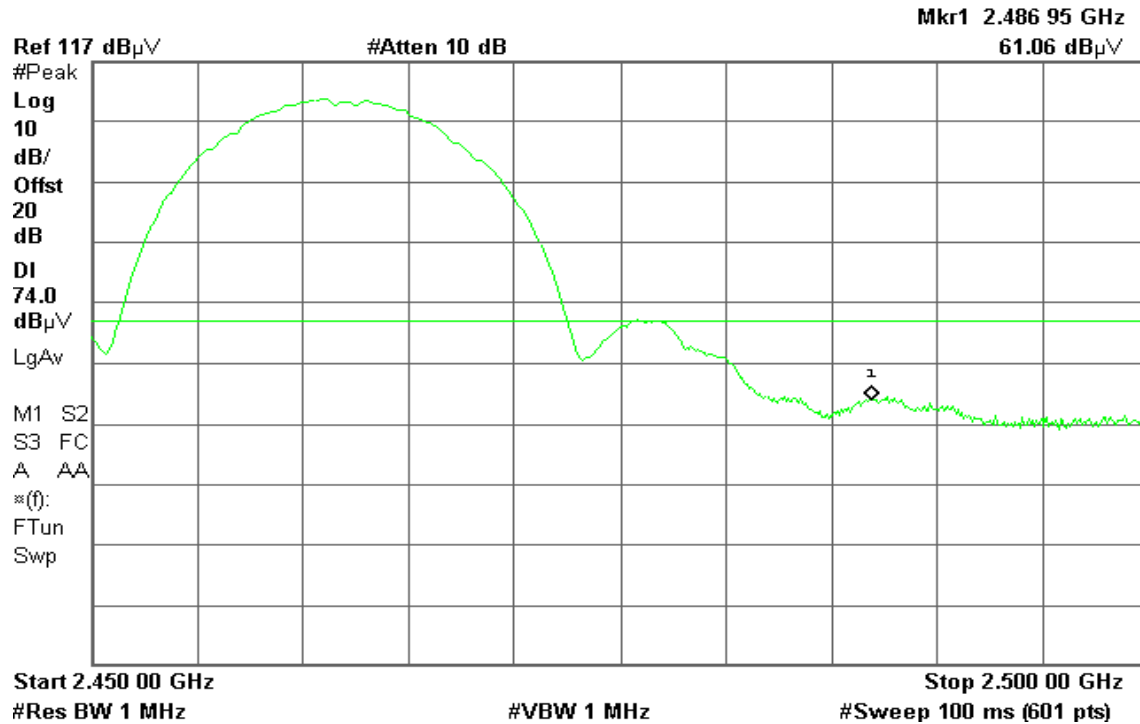
R T



**Band Edges (IEEE 802.11b / CH High)****Detector mode: Peak****Polarity: Vertical**

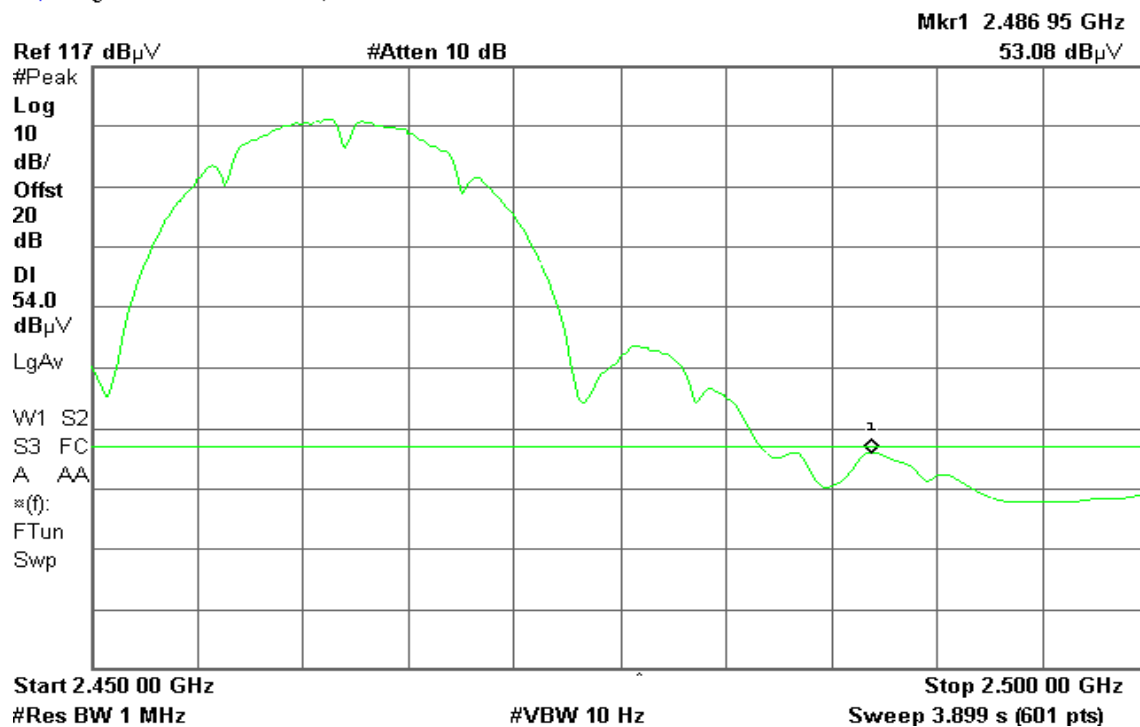
\* Agilent 10:39:06 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 10:38:19 Mar 8, 2005

R T



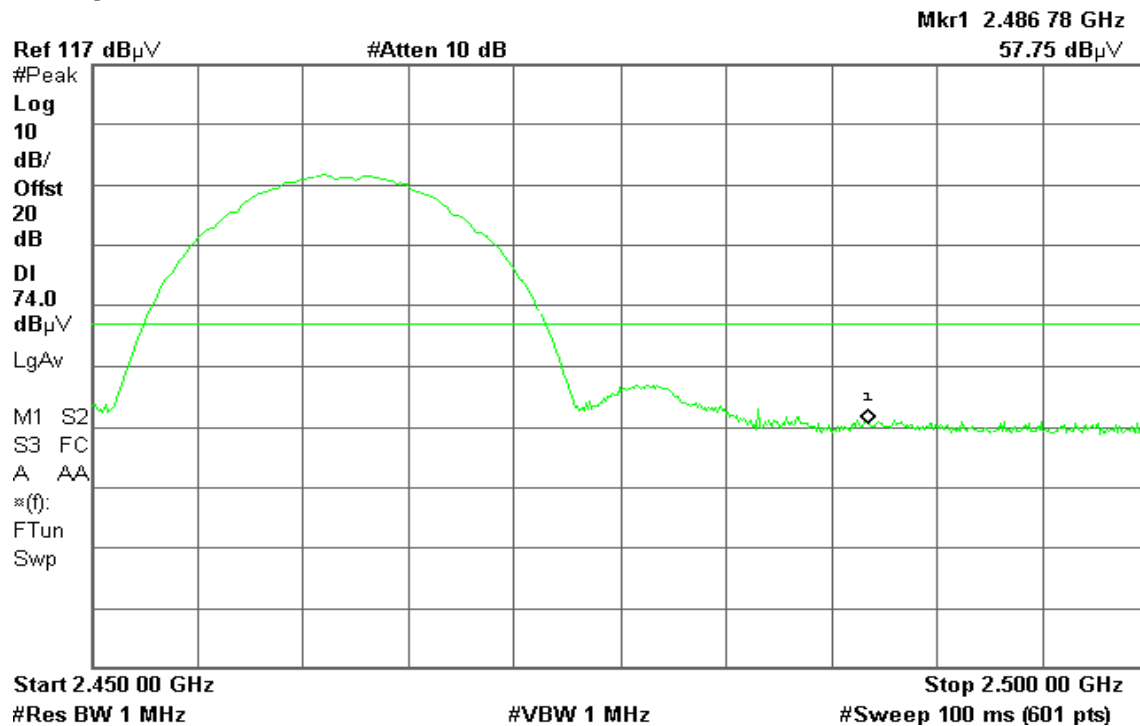


Detector mode: Peak

Polarity: Horizontal

\* Agilent 10:44:24 Mar 8, 2005

R T

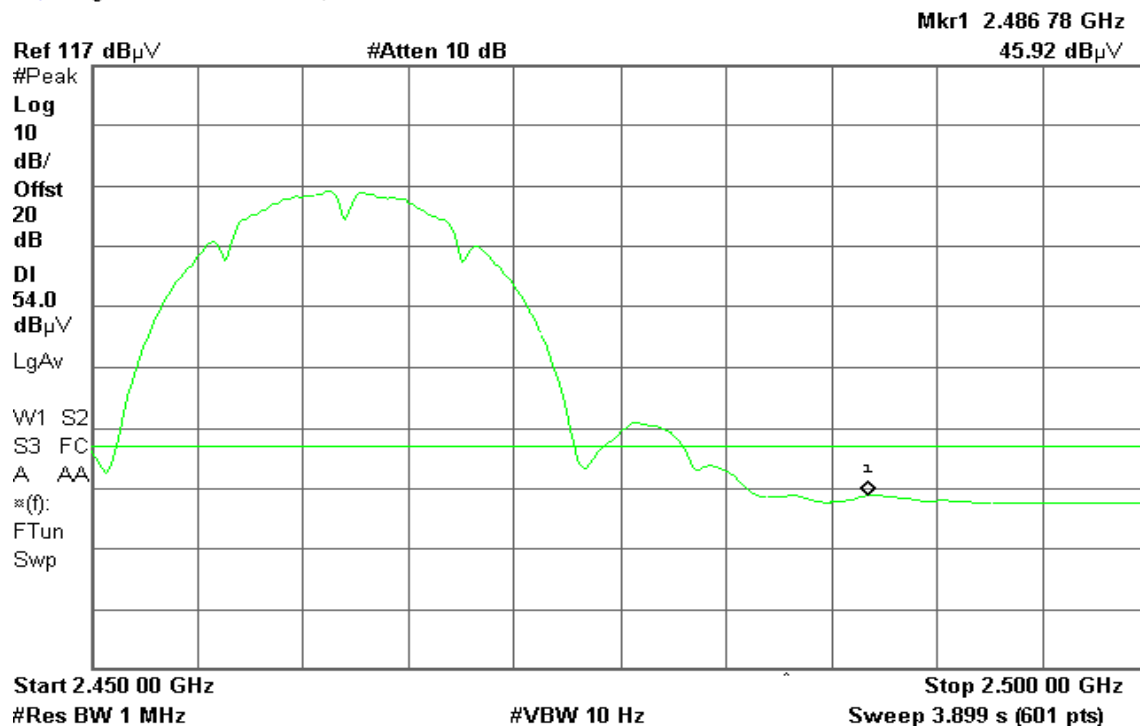


Detector mode: Average

Polarity: Horizontal

\* Agilent 10:43:54 Mar 8, 2005

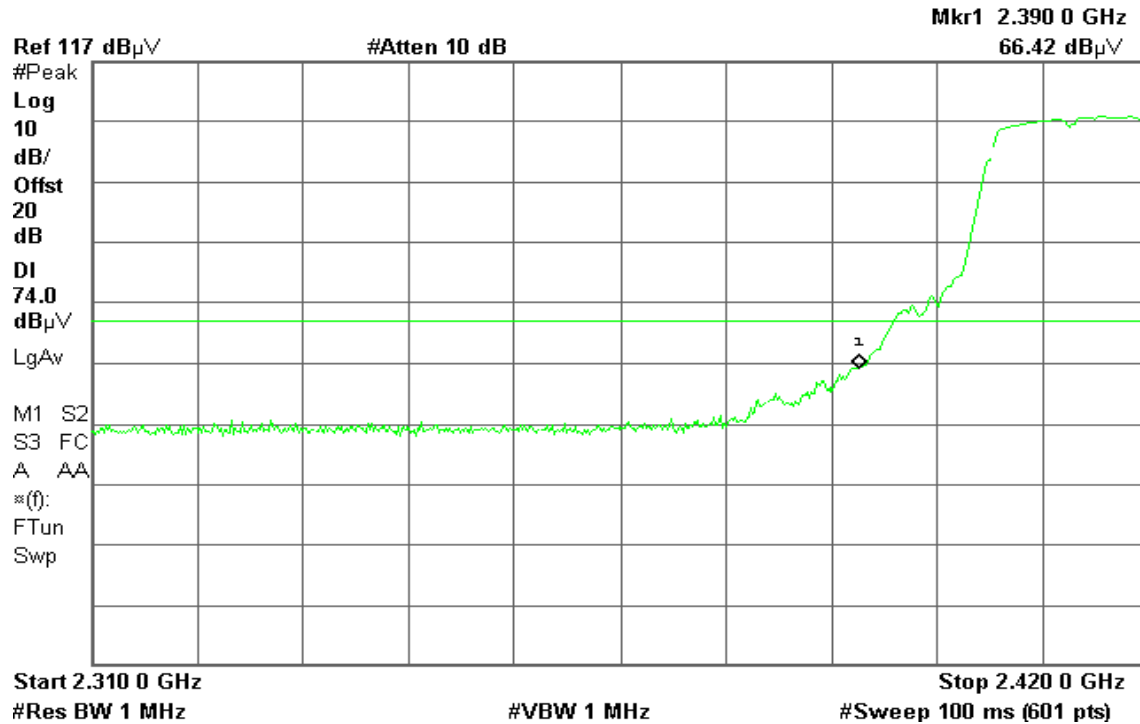
R T



**Band Edges (IEEE 802.11g / CH Low)****Detector mode: Peak****Polarity: Vertical**

\* Agilent 12:37:12 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 12:36:23 Mar 8, 2005

R T



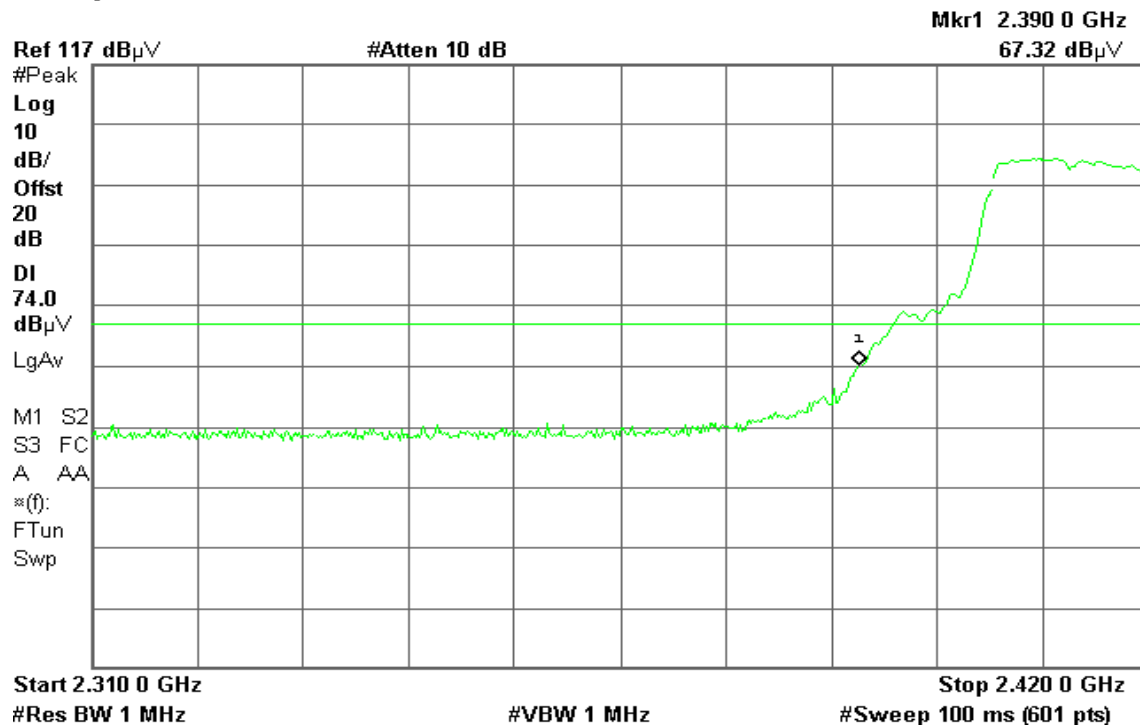


Detector mode: Peak

Polarity: Horizontal

Agilent 12:31:50 Mar 8, 2005

R T



Detector mode: Average

Polarity: Horizontal

Agilent 12:31:13 Mar 8, 2005

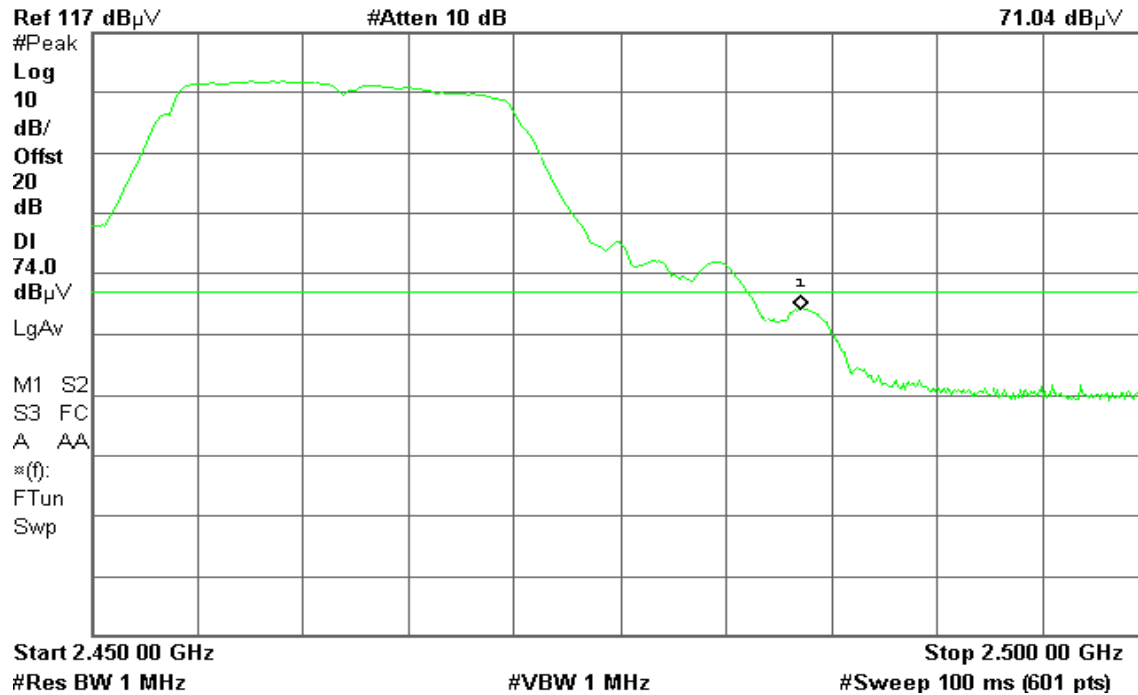
R T



**Band Edges (IEEE 802.11g / CH High)****Detector mode: Peak****Polarity: Vertical**

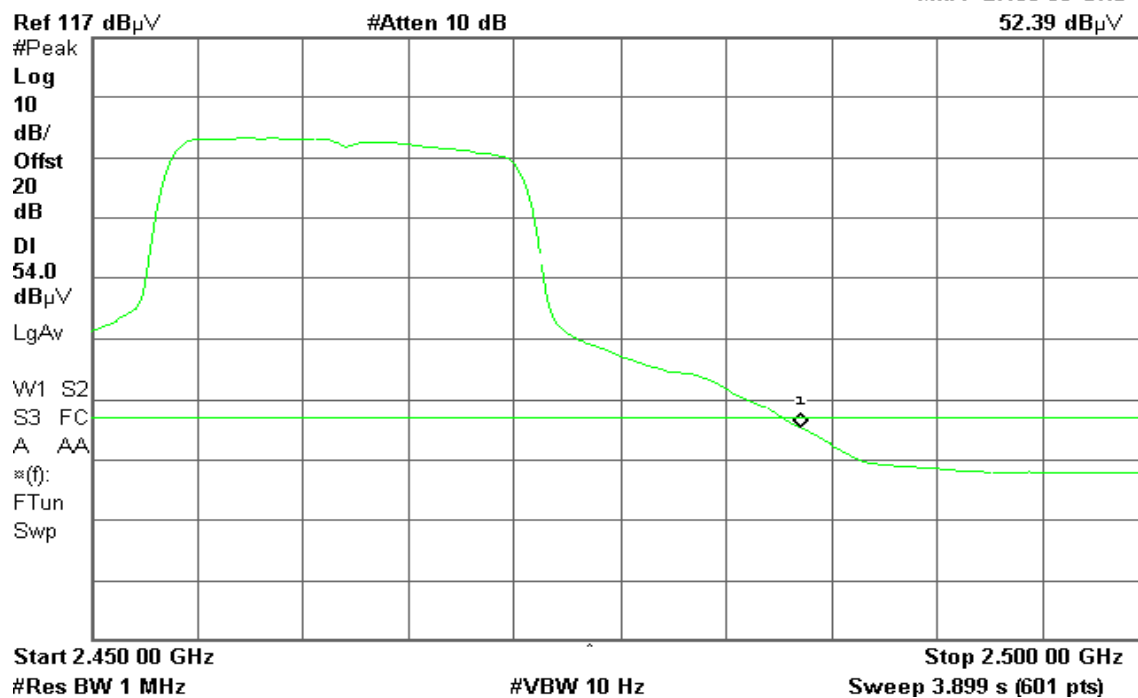
\* Agilent 12:55:27 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
71.04 dB $\mu$ V**Detector mode: Average****Polarity: Vertical**

\* Agilent 12:54:56 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
52.39 dB $\mu$ V



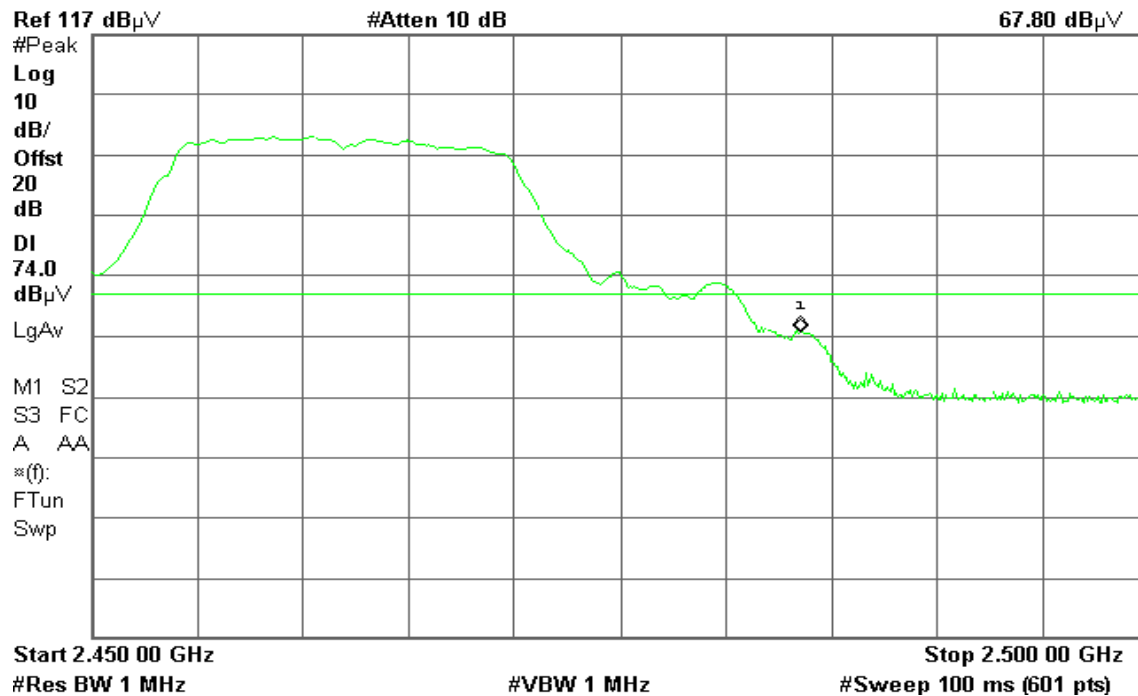
Detector mode: Peak

Polarity: Horizontal

Agilent 12:49:34 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
67.80 dB $\mu$ V



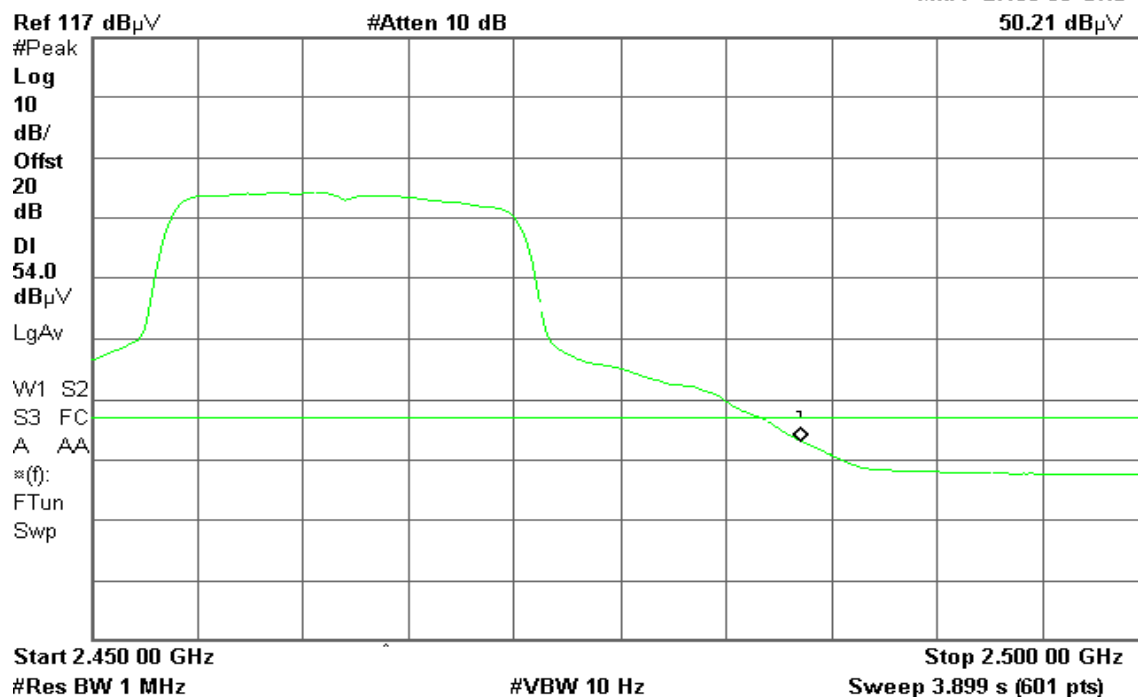
Detector mode: Average

Polarity: Horizontal

Agilent 12:49:02 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
50.21 dB $\mu$ V





**Mode: AWS1708P**

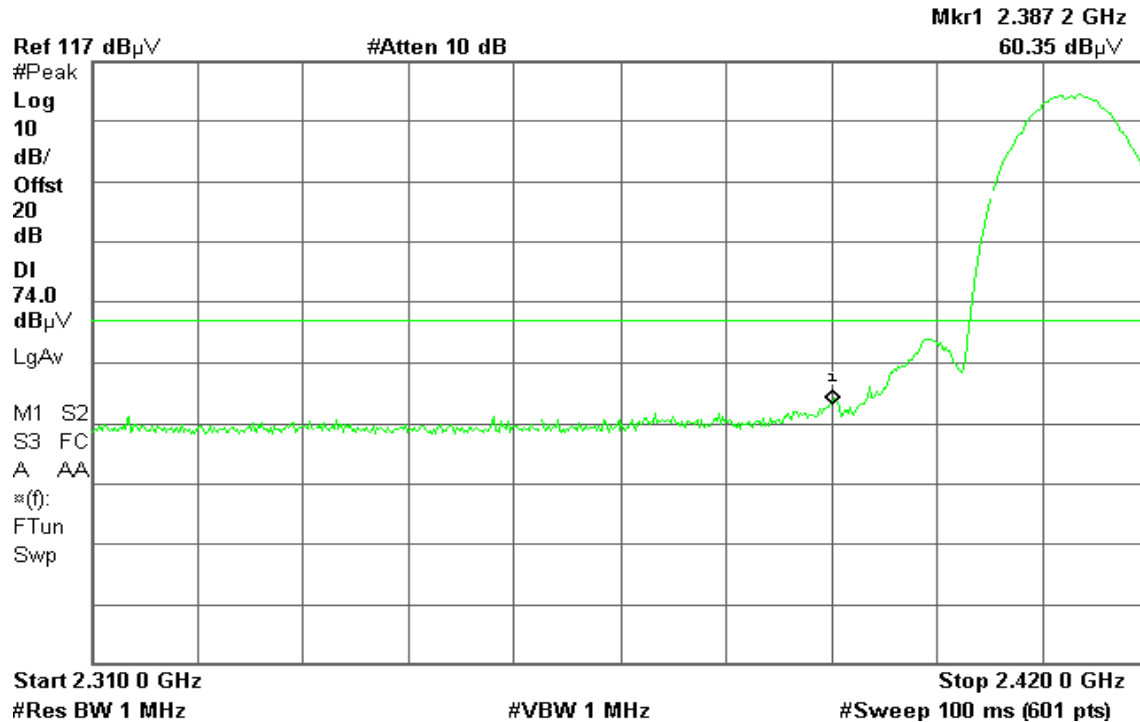
**Band Edges (IEEE 802.11b / CH Low)**

**Detector mode: Peak**

**Polarity: Vertical**

Agilent 13:16:48 Mar 8, 2005

R T



**Detector mode: Average**

**Polarity: Vertical**

Agilent 13:15:57 Mar 8, 2005

R T



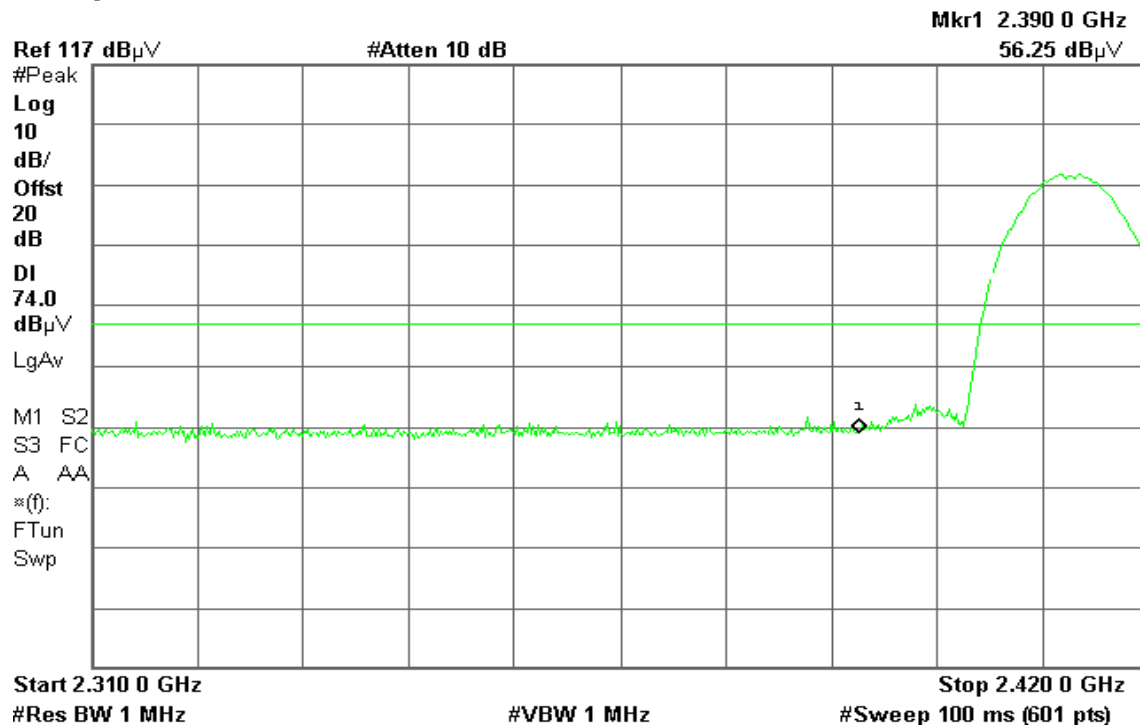


Detector mode: Peak

Polarity: Horizontal

\* Agilent 13:38:52 Mar 8, 2005

R T



Detector mode: Average

Polarity: Horizontal

\* Agilent 13:38:19 Mar 8, 2005

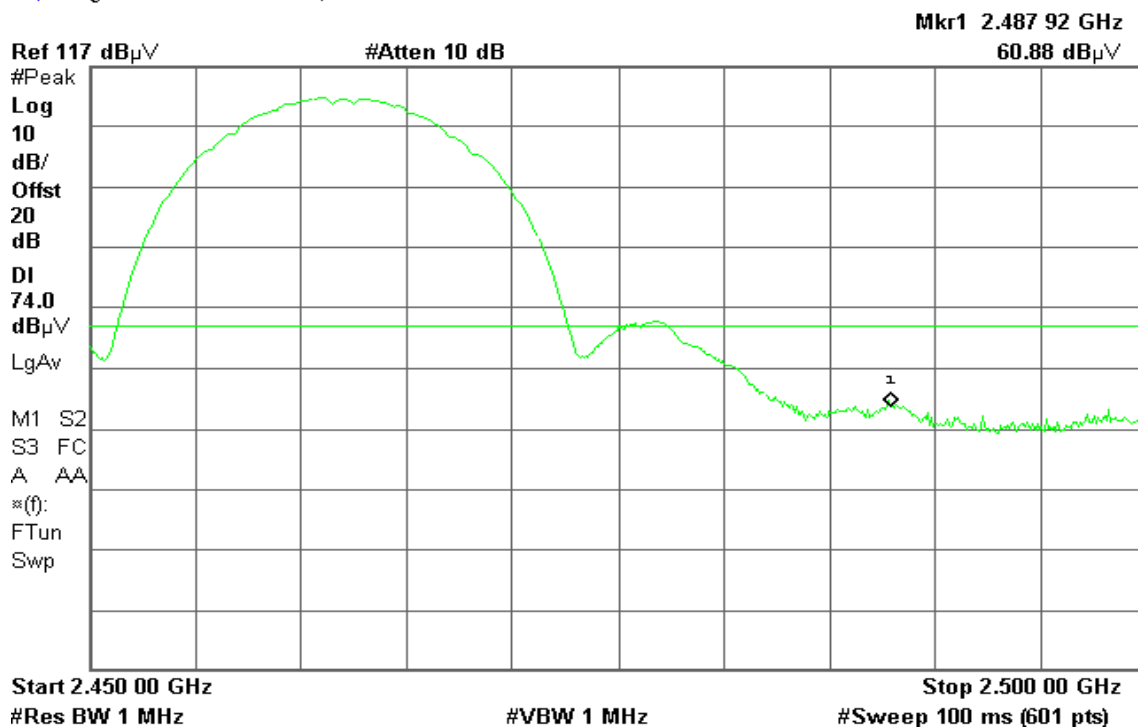
R T



**Band Edges (IEEE 802.11b / CH High)****Detector mode: Peak****Polarity: Vertical**

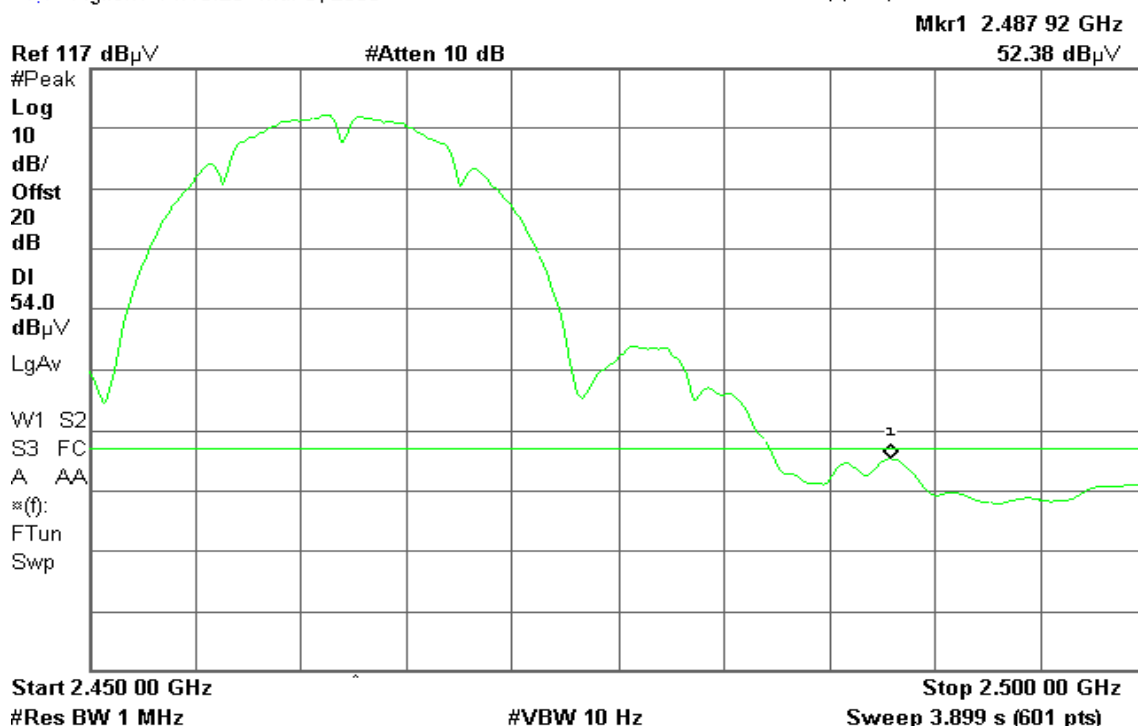
\* Agilent 14:10:54 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 14:10:28 Mar 8, 2005

R T



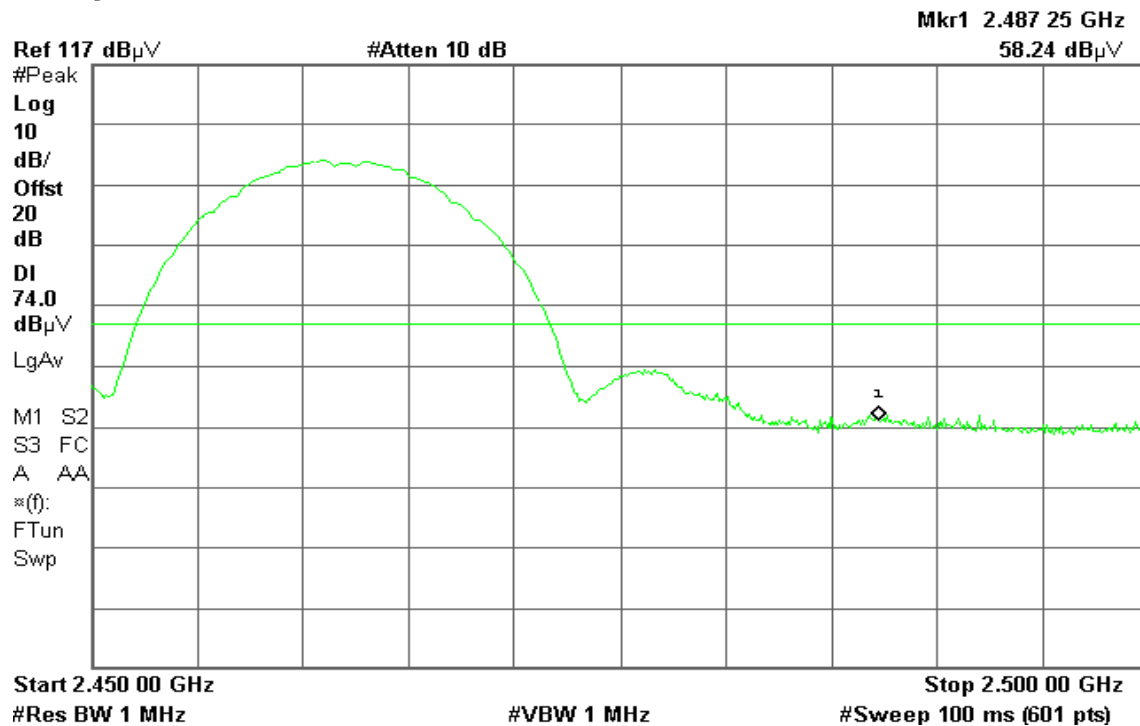


Detector mode: Peak

Polarity: Horizontal

Agilent 13:48:40 Mar 8, 2005

R T

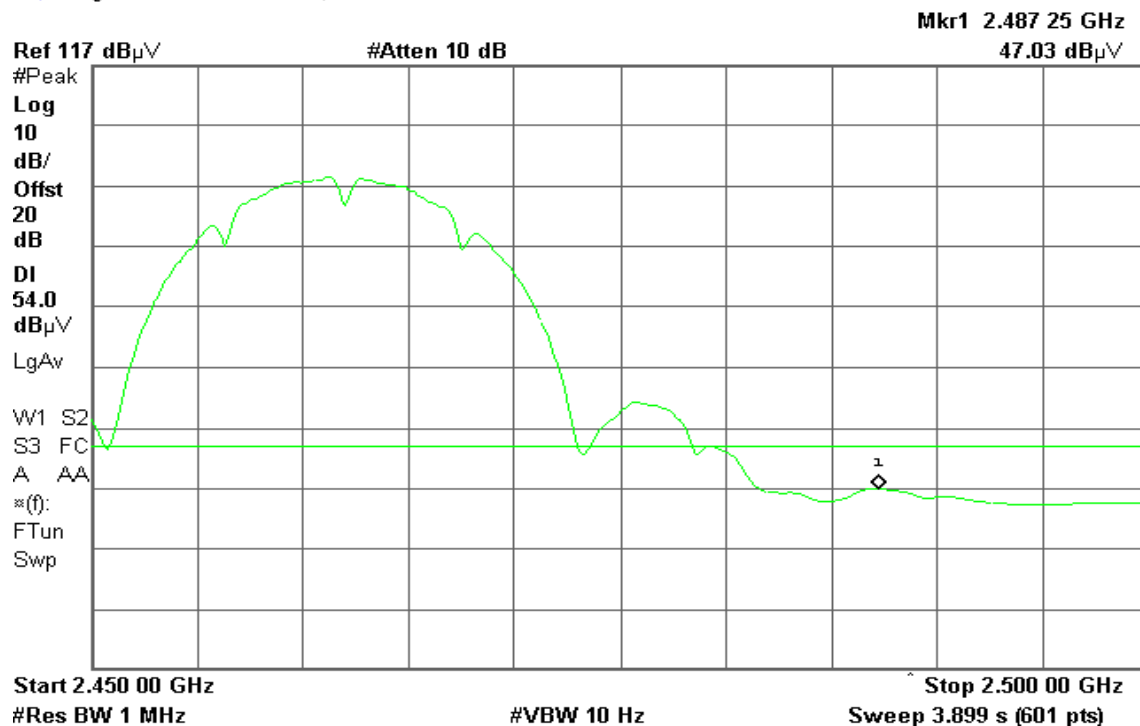


Detector mode: Average

Polarity: Horizontal

Agilent 13:48:03 Mar 8, 2005

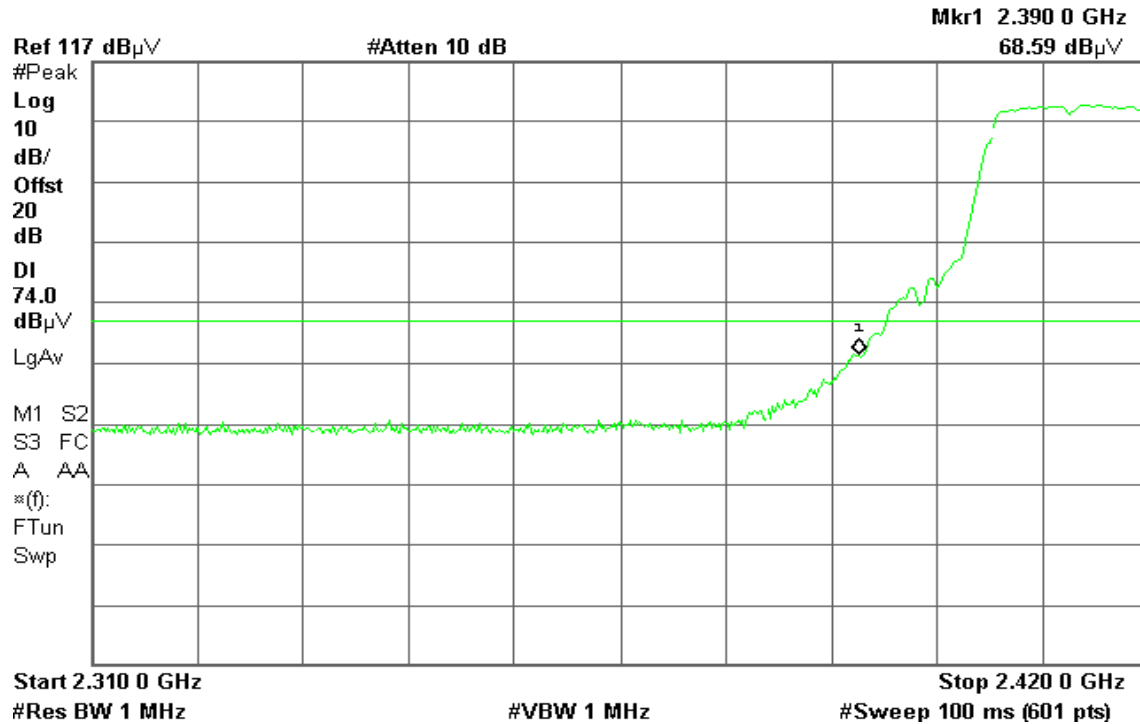
R T



**Band Edges (IEEE 802.11g / CH Low)****Detector mode: Peak****Polarity: Vertical**

\* Agilent 13:21:37 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 13:20:49 Mar 8, 2005

R T



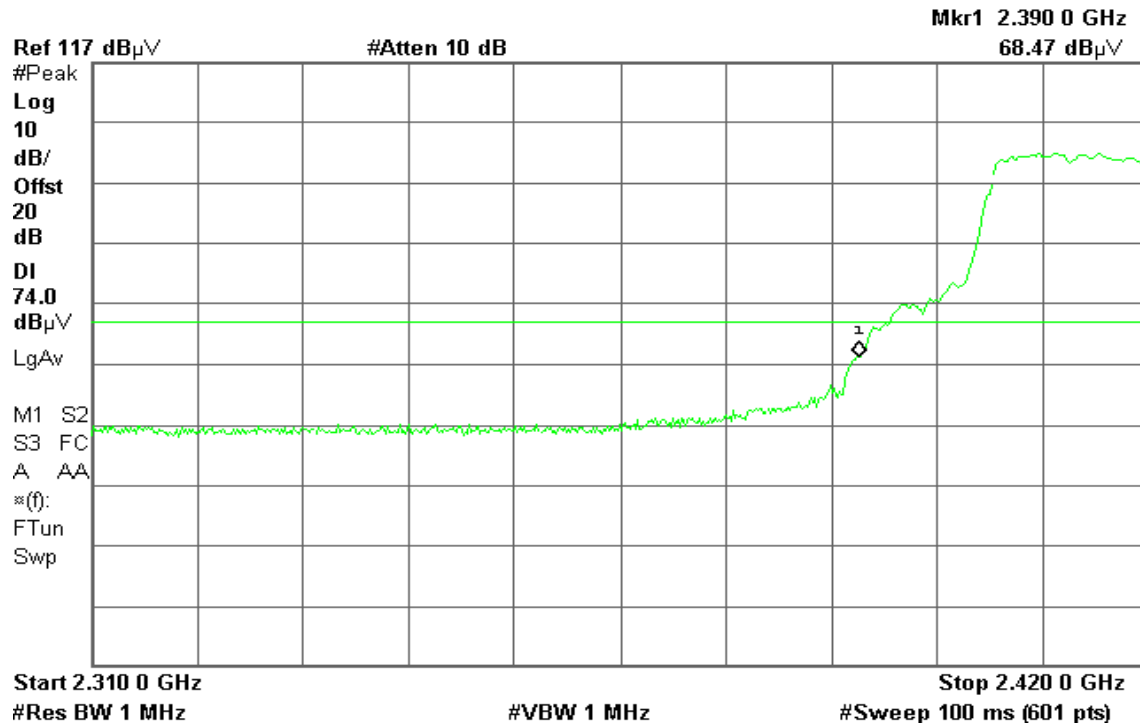


Detector mode: Peak

Polarity: Horizontal

Agilent 13:27:44 Mar 8, 2005

R T



Detector mode: Average

Polarity: Horizontal

Agilent 13:26:49 Mar 8, 2005

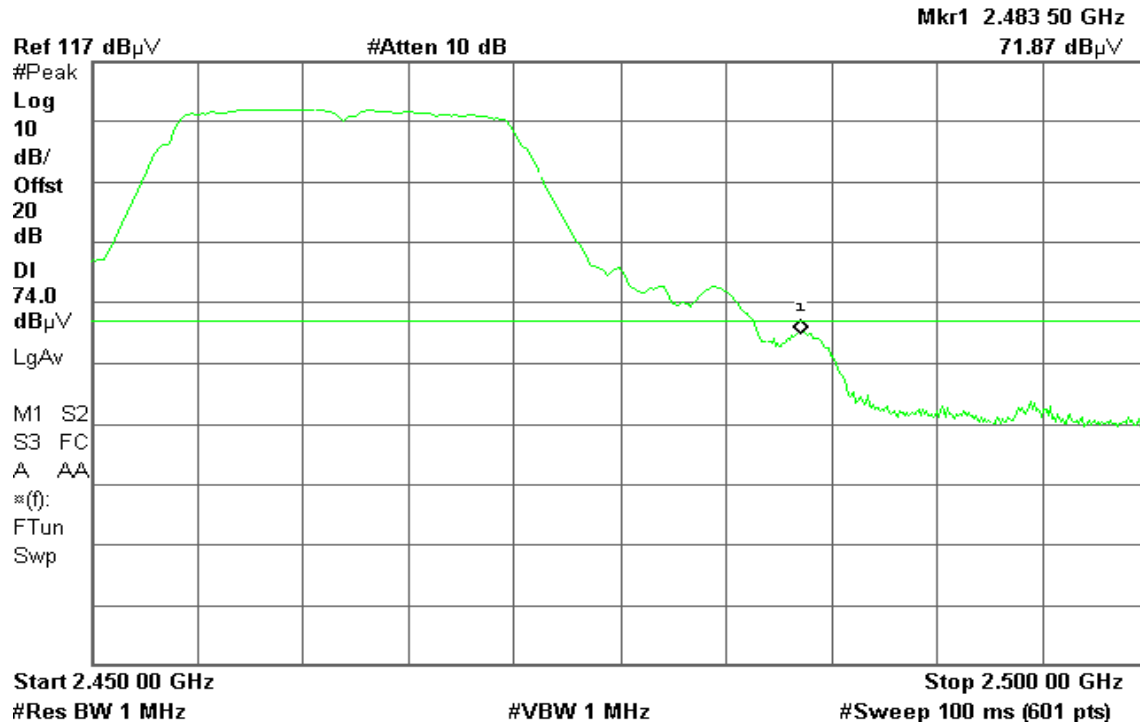
R T



**Band Edges (IEEE 802.11g / CH High)****Detector mode: Peak****Polarity: Vertical**

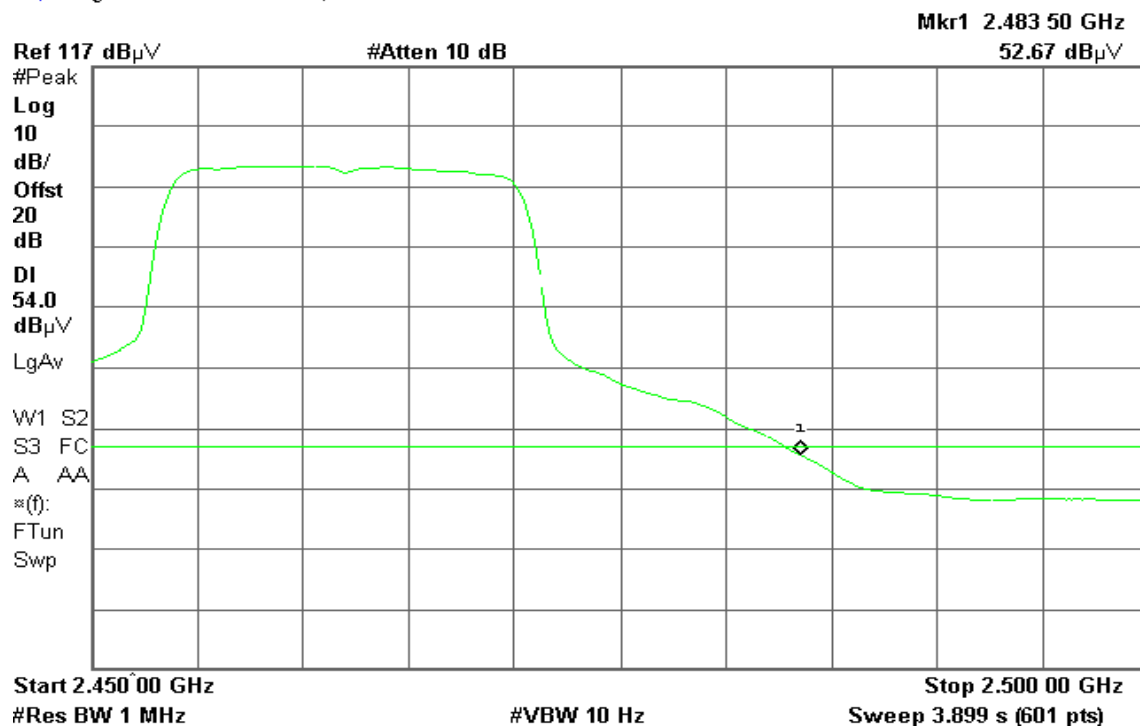
\* Agilent 14:06:00 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 14:00:54 Mar 8, 2005

R T





Detector mode: Peak

Polarity: Horizontal

Agilent 13:53:35 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
71.13 dB $\mu$ VRef 117 dB $\mu$ V

#Atten 10 dB

#Peak

Log

10

dB/

Offst

20

dB

DI

74.0

dB $\mu$ V

LgAv

M1 S2

S3 FC

A AA

\*(f):

FTun

Swp

Start 2.450 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

Stop 2.500 00 GHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent 13:52:55 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
53.00 dB $\mu$ VRef 117 dB $\mu$ V

#Atten 10 dB

#Peak

Log

10

dB/

Offst

20

dB

DI

54.0

dB $\mu$ V

LgAv

W1 S2

S3 FC

A AA

\*(f):

FTun

Swp

Start 2.450 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

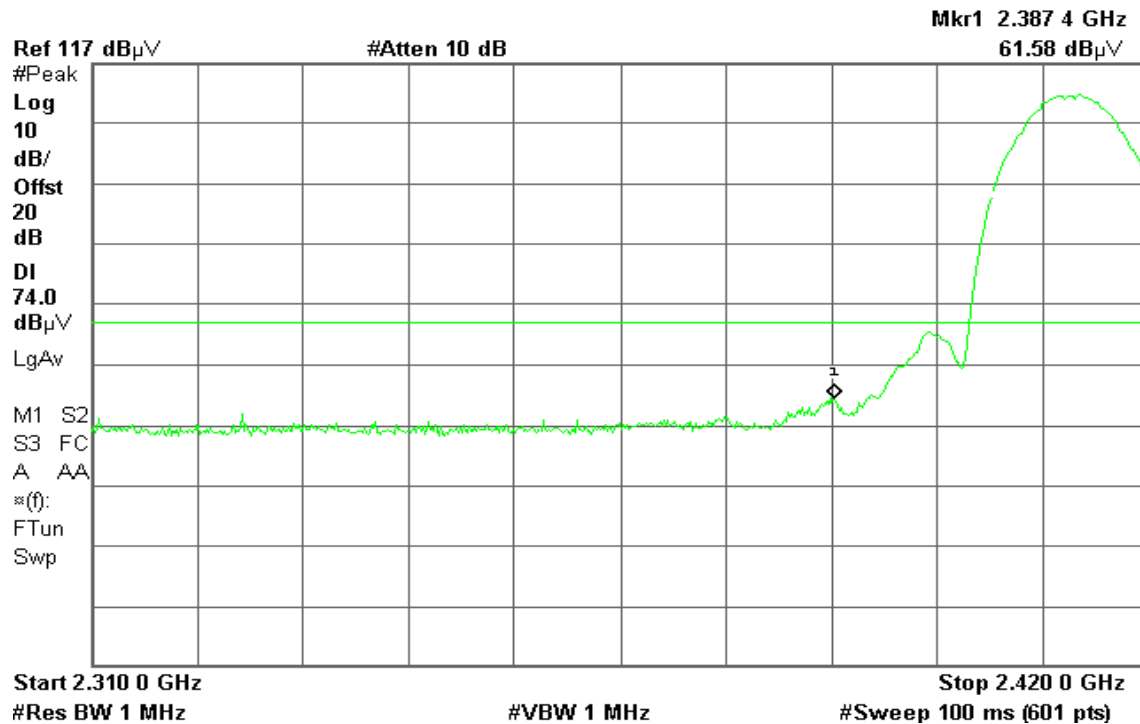
Stop 2.500 00 GHz

Sweep 3.899 s (601 pts)

**Mode: AWS1708FO****Band Edges (IEEE 802.11b / CH Low)****Detector mode: Peak****Polarity: Vertical**

\* Agilent 15:04:20 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 15:03:06 Mar 8, 2005

R T



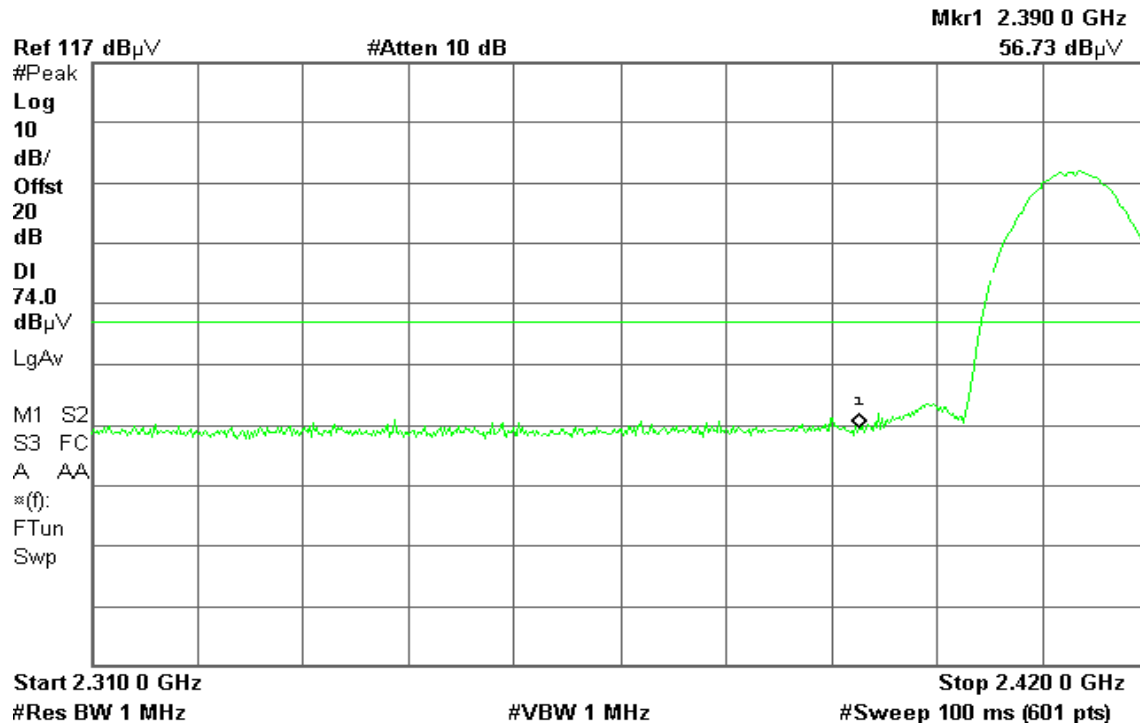


Detector mode: Peak

Polarity: Horizontal

Agilent 15:26:49 Mar 8, 2005

R T



Detector mode: Average

Polarity: Horizontal

Agilent 15:26:11 Mar 8, 2005

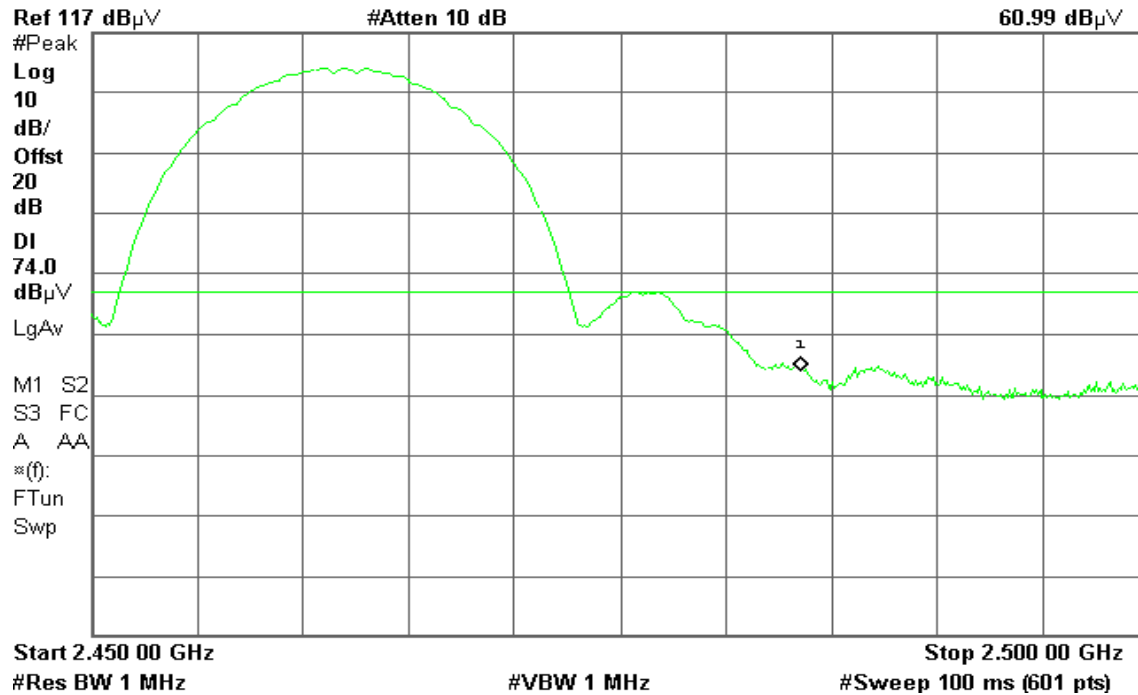
R T



**Band Edges (IEEE 802.11b / CH High)****Detector mode: Peak****Polarity: Vertical**

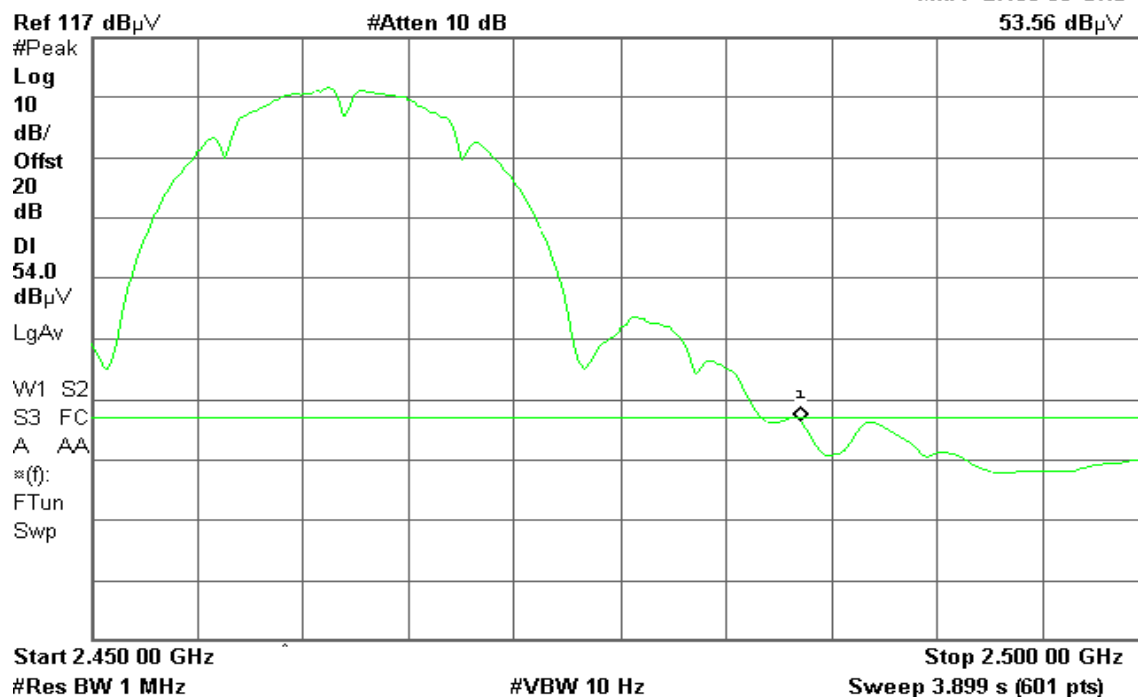
\* Agilent 15:49:31 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
60.99 dB $\mu$ V**Detector mode: Average****Polarity: Vertical**

\* Agilent 15:49:01 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
53.56 dB $\mu$ V

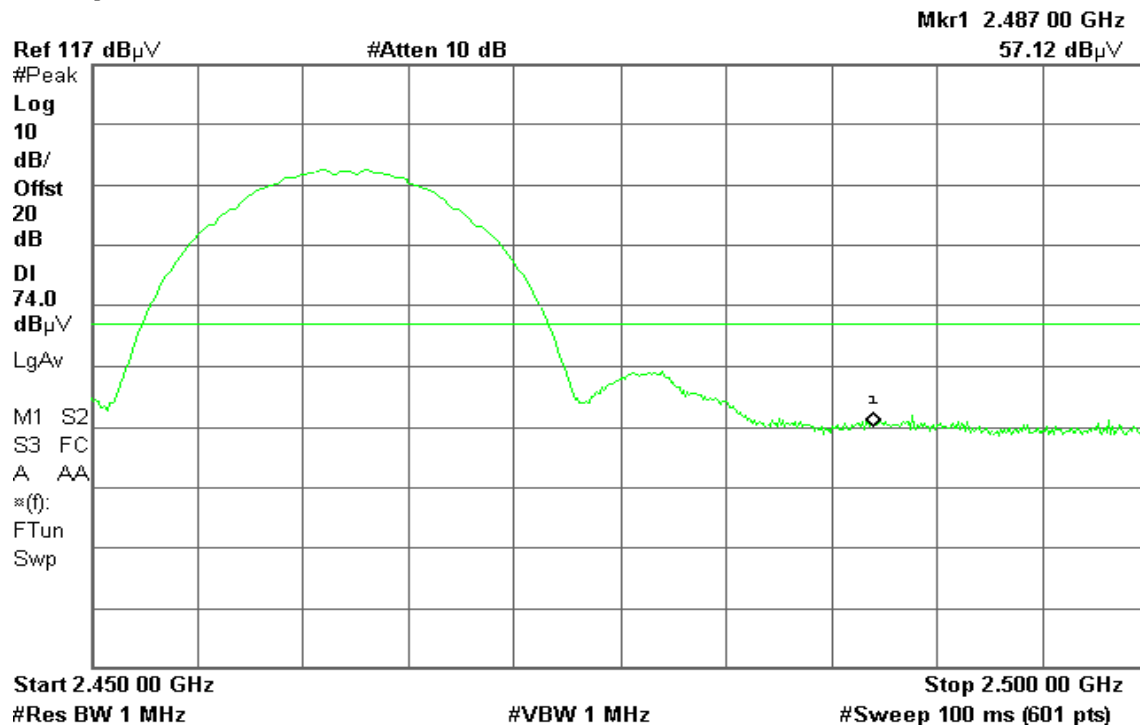


Detector mode: Peak

Polarity: Horizontal

Agilent 15:34:56 Mar 8, 2005

R T

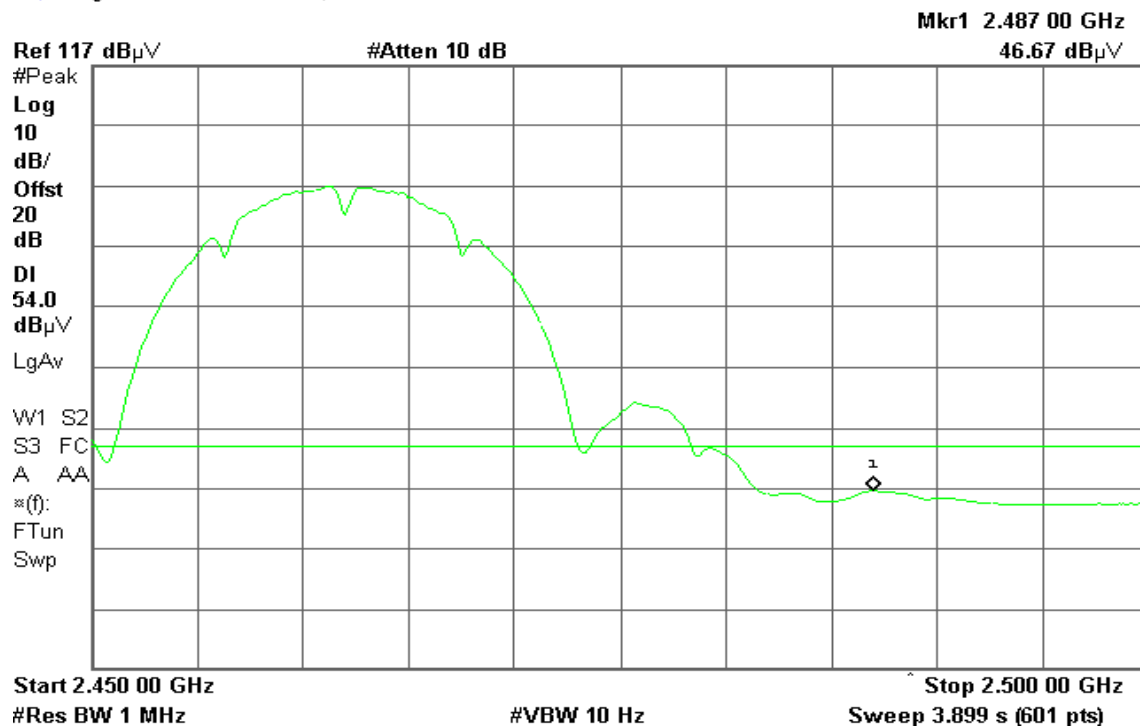


Detector mode: Average

Polarity: Horizontal

Agilent 15:33:07 Mar 8, 2005

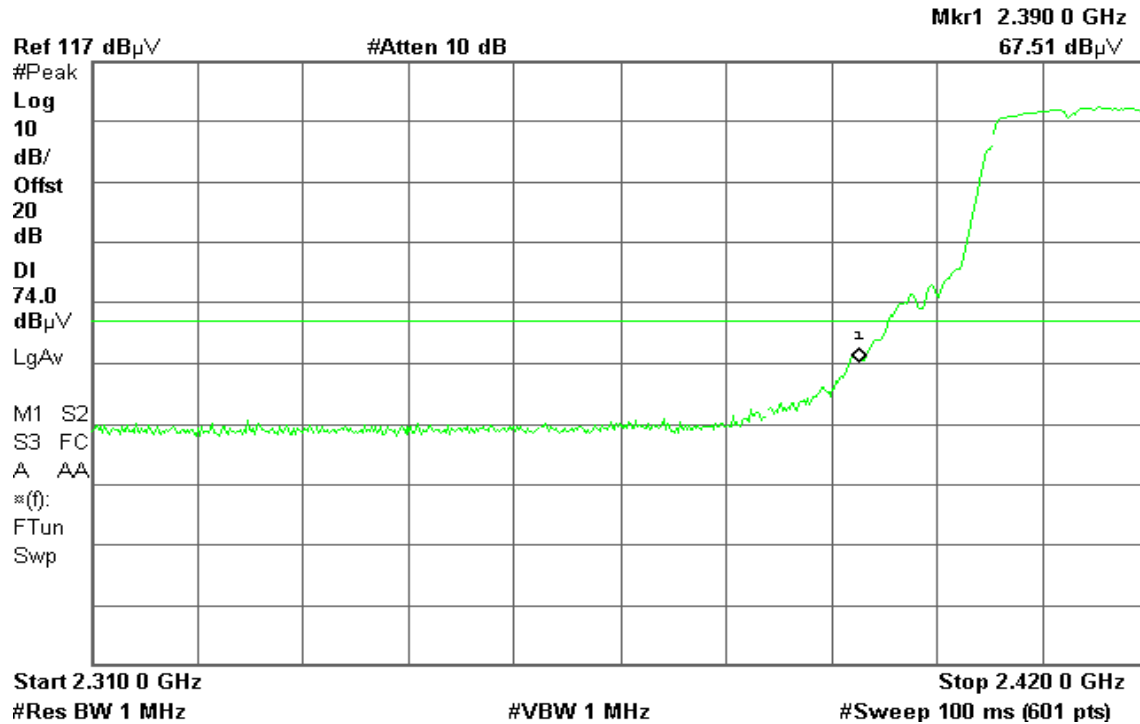
R T



**Band Edges (IEEE 802.11g / CH Low)****Detector mode: Peak****Polarity: Vertical**

\* Agilent 15:09:14 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 15:08:35 Mar 8, 2005

R T





Detector mode: Peak

Polarity: Horizontal

Agilent 15:13:17 Mar 8, 2005

R T

Mkr1 2.390 0 GHz  
57.34 dB $\mu$ VRef 117 dB $\mu$ V

#Atten 10 dB

#Peak

Log

10

dB/

Offst

20

dB

DI

74.0

dB $\mu$ V

LgAv

M1 S2

S3 FC

A AA

\*(f):

FTun

Swp

Start 2.310 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

Stop 2.420 0 GHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent 15:12:49 Mar 8, 2005

R T

Mkr1 2.390 0 GHz  
44.87 dB $\mu$ VRef 117 dB $\mu$ V

#Atten 10 dB

#Peak

Log

10

dB/

Offst

20

dB

DI

54.0

dB $\mu$ V

LgAv

W1 S2

S3 FC

A AA

\*(f):

FTun

Swp

Start 2.310 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

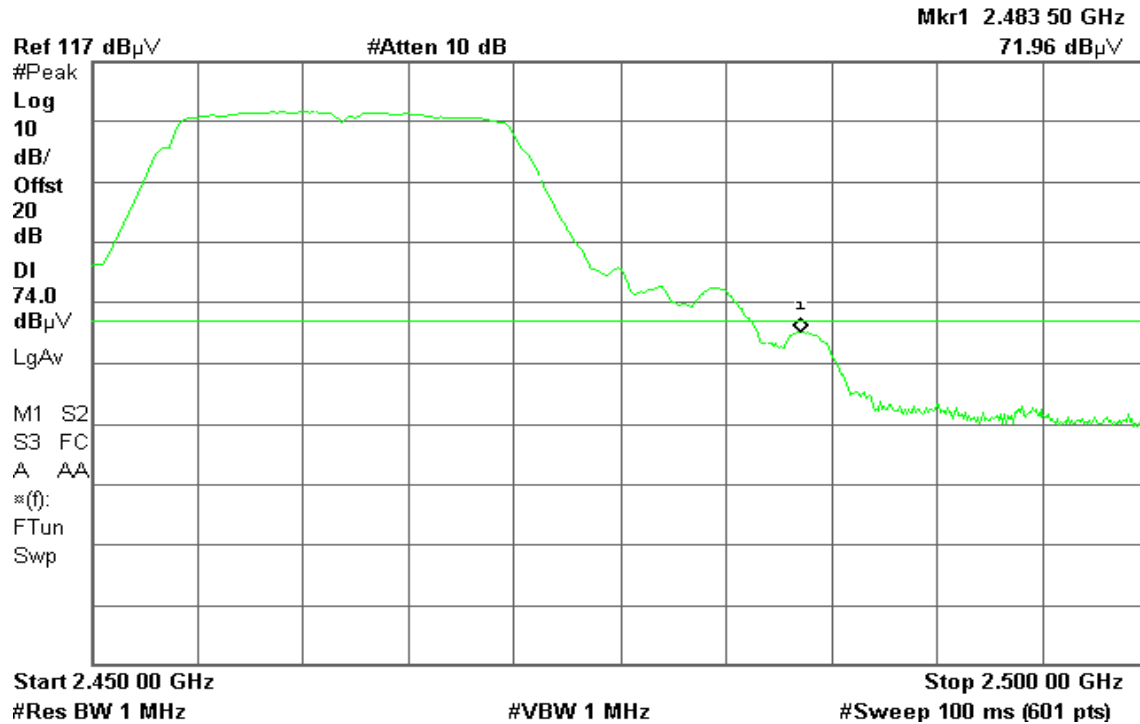
Stop 2.420 0 GHz

Sweep 8.577 s (601 pts)

**Band Edges (IEEE 802.11g / CH High)****Detector mode: Peak****Polarity: Vertical**

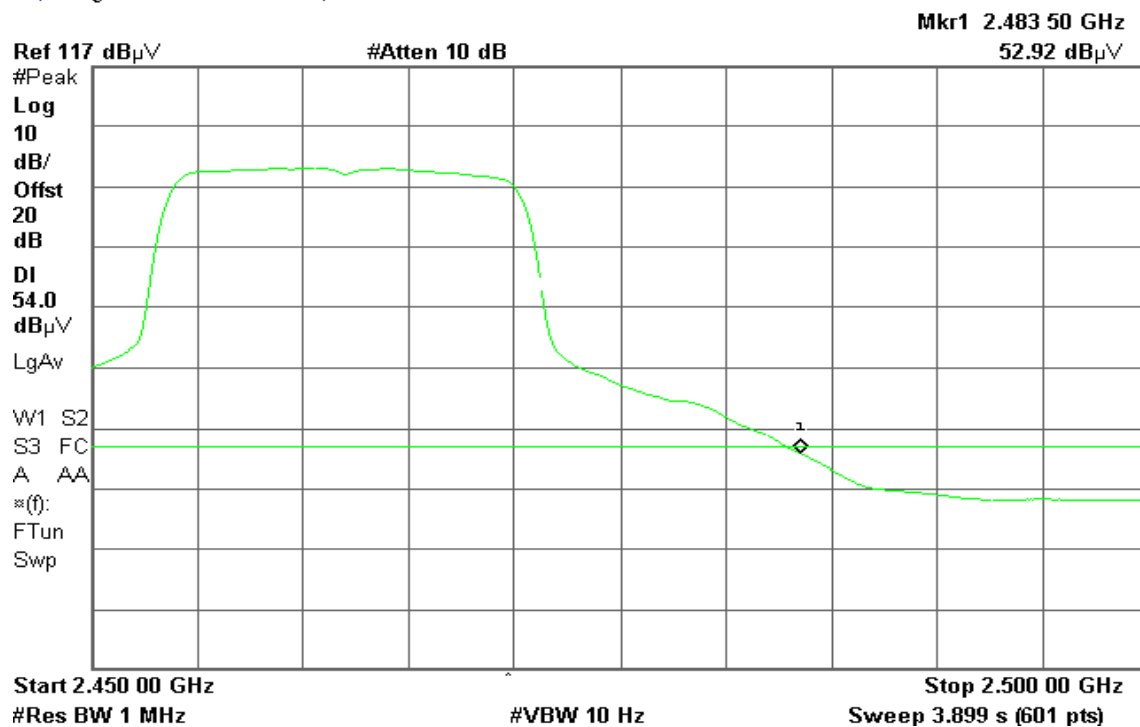
\* Agilent 15:52:27 Mar 8, 2005

R T

**Detector mode: Average****Polarity: Vertical**

\* Agilent 15:52:01 Mar 8, 2005

R T





Detector mode: Peak

Polarity: Horizontal

\* Agilent 15:37:51 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
70.83 dB $\mu$ VRef 117 dB $\mu$ V

#Atten 10 dB

#Peak

Log

10

dB/

Offst

20

dB

DI

74.0

dB $\mu$ V

LgAv

M1 S2

S3 FC

A AA

\*(f):

FTun

Swp

Start 2.450 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

Stop 2.500 00 GHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

\* Agilent 15:37:18 Mar 8, 2005

R T

Mkr1 2.483 50 GHz  
53.17 dB $\mu$ VRef 117 dB $\mu$ V

#Atten 10 dB

#Peak

Log

10

dB/

Offst

20

dB

DI

54.0

dB $\mu$ V

LgAv

W1 S2

S3 FC

A AA

\*(f):

FTun

Swp

Start 2.450 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Stop 2.500 00 GHz

Sweep 3.899 s (601 pts)



## 7.4 PEAK POWER SPECTRAL DENSITY

### LIMIT

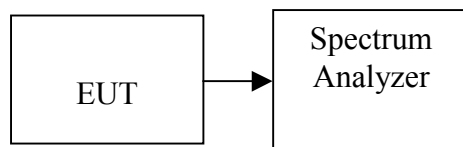
1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

### MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model  | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent      | E4446A | MY43360131    | 01/10/2006      |

*Remark: Each piece of equipment is scheduled for calibration once a year.*

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.  
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

**TEST RESULTS***No non-compliance noted***Test Data****Mode: WUB1700S/SL**

|              | Channel | Frequency | Reading (dBm) | Factor (dB) | PPSD (dBm) | Limit (dBm) | Result |
|--------------|---------|-----------|---------------|-------------|------------|-------------|--------|
| IEEE 802.11b | Low     | 2412      | -21.16        | 11.60       | -9.56      | 8.00        | PASS   |
|              | Mid     | 2437      | -20.02        | 11.60       | -8.42      |             | PASS   |
|              | High    | 2462      | -23.43        | 11.60       | -11.83     |             | PASS   |
| IEEE 802.11g | Low     | 2412      | -26.89        | 11.60       | -15.29     |             | PASS   |
|              | Mid     | 2437      | -27.16        | 11.60       | -15.56     |             | PASS   |
|              | High    | 2462      | -26.42        | 11.60       | -14.82     |             | PASS   |

**Mode: AWS1705FOL**

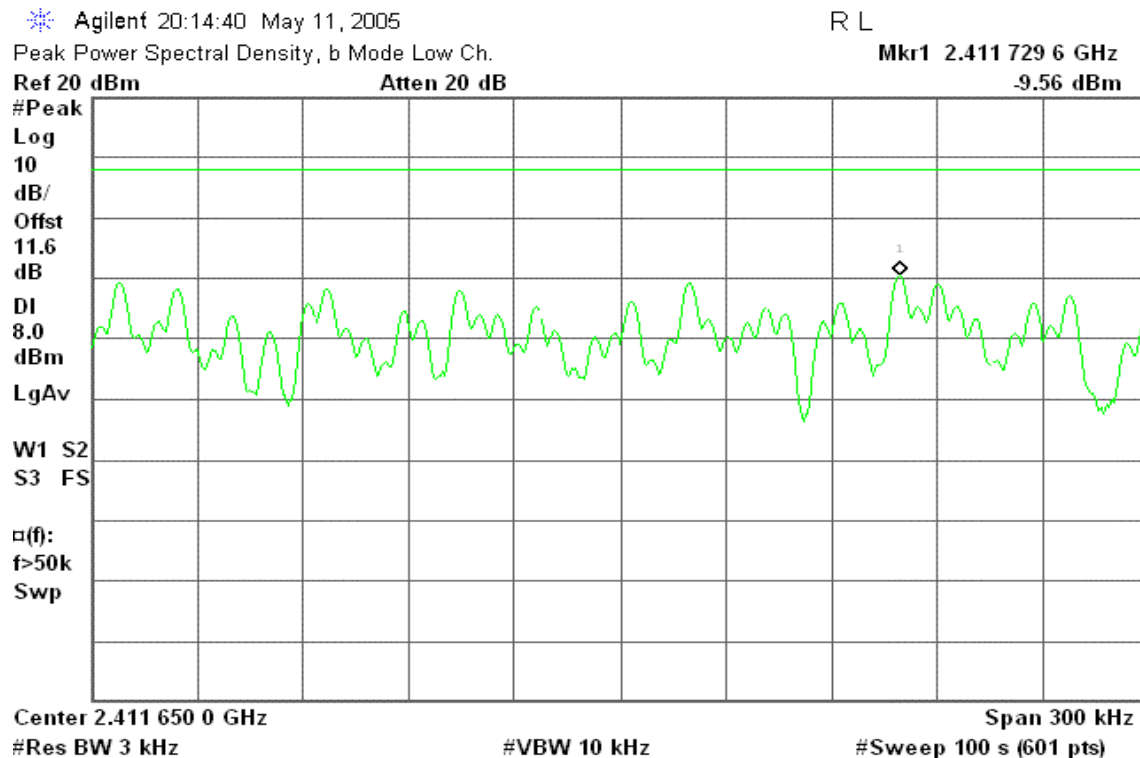
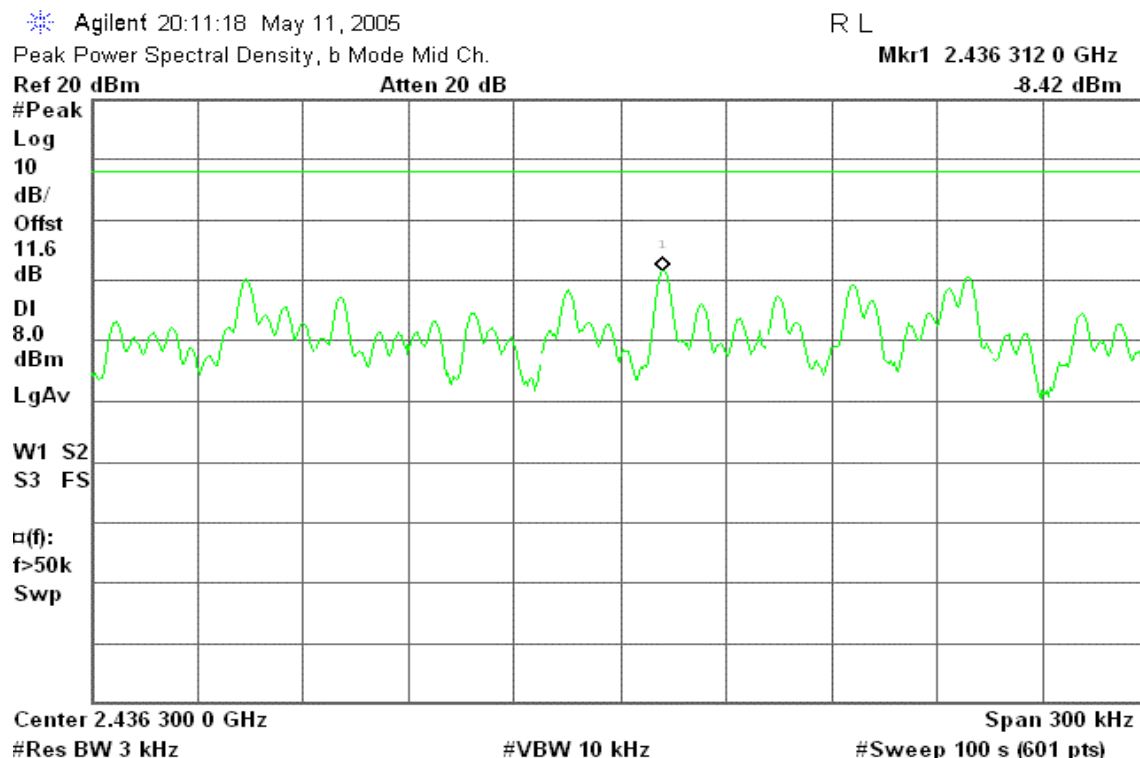
|              | Channel | Frequency | Reading (dBm) | Factor (dB) | PPSD (dBm) | Limit (dBm) | Result |
|--------------|---------|-----------|---------------|-------------|------------|-------------|--------|
| IEEE 802.11b | Low     | 2412      | -20.66        | 11.60       | -9.06      | 8.00        | PASS   |
|              | Mid     | 2437      | -20.67        | 11.60       | -9.07      |             | PASS   |
|              | High    | 2462      | -21.00        | 11.60       | -9.40      |             | PASS   |
| IEEE 802.11g | Low     | 2412      | -26.32        | 11.60       | -14.72     |             | PASS   |
|              | Mid     | 2437      | -26.28        | 11.60       | -14.68     |             | PASS   |
|              | High    | 2462      | -26.02        | 11.60       | -14.42     |             | PASS   |

**Mode: AWS1708P**

|              | Channel | Frequency | Reading (dBm) | Factor (dB) | PPSD (dBm) | Limit (dBm) | Result |
|--------------|---------|-----------|---------------|-------------|------------|-------------|--------|
| IEEE 802.11b | Low     | 2412      | -18.35        | 11.60       | -6.75      | 8.00        | PASS   |
|              | Mid     | 2437      | -24.25        | 11.60       | -12.65     |             | PASS   |
|              | High    | 2462      | -24.41        | 11.60       | -12.81     |             | PASS   |
| IEEE 802.11g | Low     | 2412      | -29.42        | 11.60       | -17.82     |             | PASS   |
|              | Mid     | 2437      | -30.38        | 11.60       | -18.78     |             | PASS   |
|              | High    | 2462      | -29.19        | 11.60       | -17.59     |             | PASS   |

**Mode: AWS1708FO**

|              | Channel | Frequency | Reading (dBm) | Factor (dB) | PPSD (dBm) | Limit (dBm) | Result |
|--------------|---------|-----------|---------------|-------------|------------|-------------|--------|
| IEEE 802.11b | Low     | 2412      | -18.35        | 11.60       | -6.75      | 8.00        | PASS   |
|              | Mid     | 2437      | -24.25        | 11.60       | -12.65     |             | PASS   |
|              | High    | 2462      | -24.41        | 11.60       | -12.81     |             | PASS   |
| IEEE 802.11g | Low     | 2412      | -29.42        | 11.60       | -17.82     |             | PASS   |
|              | Mid     | 2437      | -30.38        | 11.60       | -18.78     |             | PASS   |
|              | High    | 2462      | -29.19        | 11.60       | -17.59     |             | PASS   |

**Test Plot****Mode: WUB1700S/SL****IEEE 802.11b****PPSD (CH Low)****PPSD (CH Mid)**

**PPSD (CH High)**

\* Agilent 21:31:20 May 11, 2005

R L

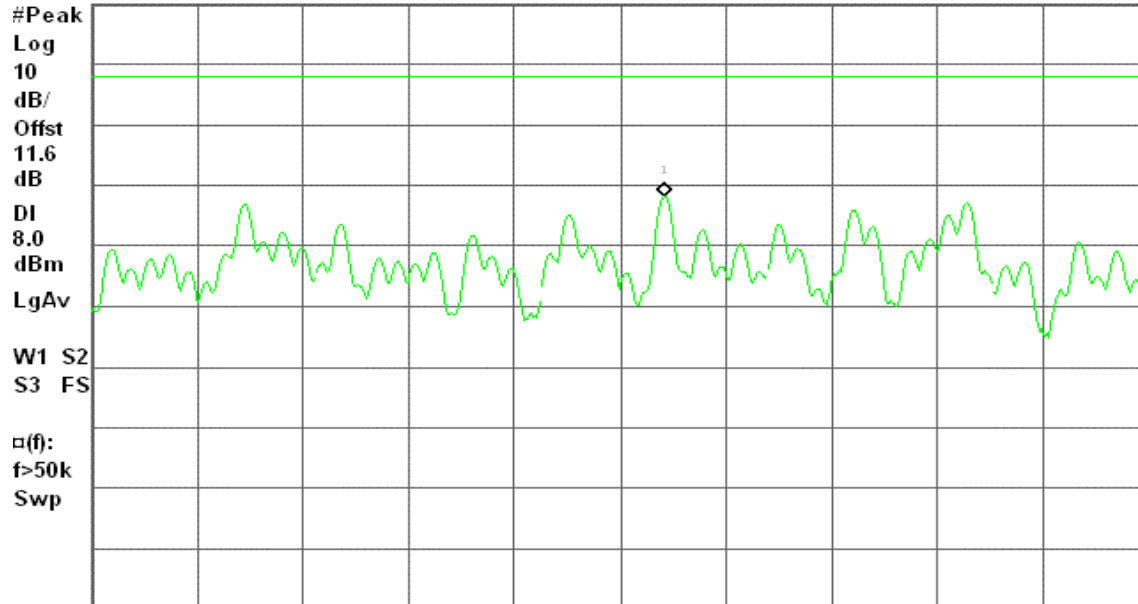
Peak Power Spectral Density, b Mode High Ch.

Mkr1 2.461 312 6 GHz

Ref 20 dBm

Atten 20 dB

-11.83 dBm



Center 2.461 300 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**IEEE 802.11g****PPSD (CH Low)**

\* Agilent 20:34:56 May 11, 2005

R L

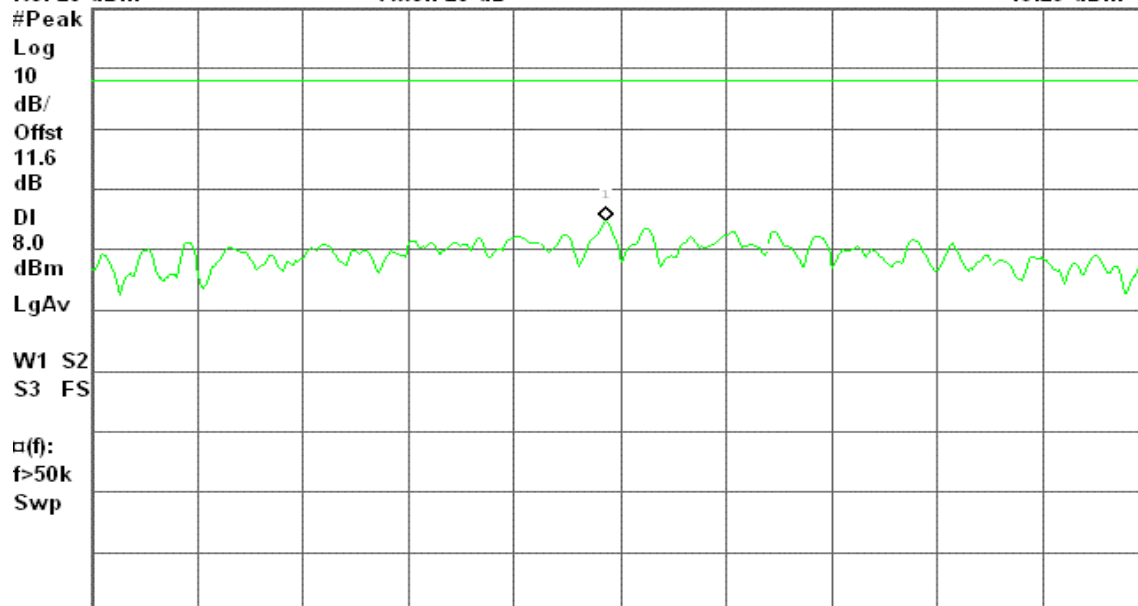
Peak Power Spectral Density, g Mode Low Ch.

Mkr1 2.404 795 5 GHz

Ref 20 dBm

Atten 20 dB

-15.29 dBm



Center 2.404 800 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



## PPSD (CH Mid)

Agilent 20:40:33 May 11, 2005

R L

Peak Power Spectral Density, g Mode Mid Ch.

Mkr1 2.429 795 0 GHz

Ref 20 dBm

Atten 20 dB

-15.56 dBm

#Peak

Log

10

dB/

Offst

11.6

dB

DI

8.0

dBm

LgAv

W1 S2

S3 FS

$\alpha(f)$ :

f>50k

Swp

Center 2.429 800 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

## PPSD (CH High)

Agilent 20:45:54 May 11, 2005

R L

Peak Power Spectral Density, g Mode High Ch.

Mkr1 2.454 796 5 GHz

Ref 20 dBm

Atten 20 dB

-14.82 dBm

#Peak

Log

10

dB/

Offst

11.6

dB

DI

8.0

dBm

LgAv

W1 S2

S3 FS

$\alpha(f)$ :

f>50k

Swp

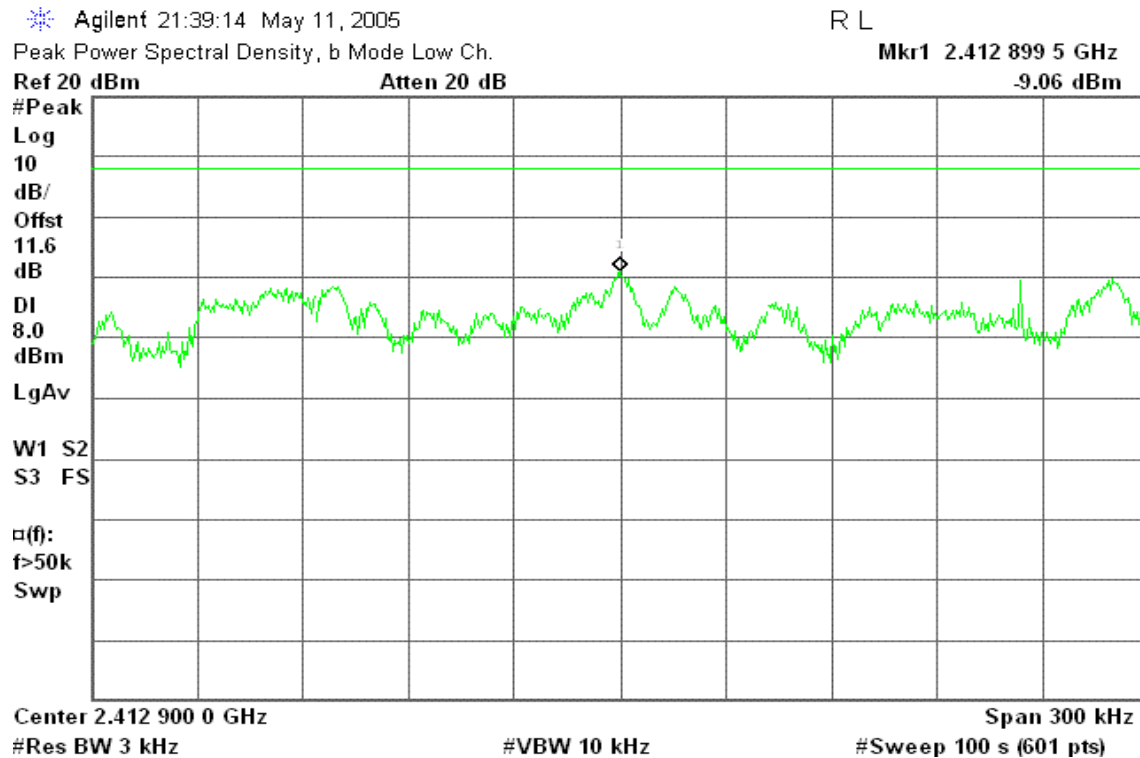
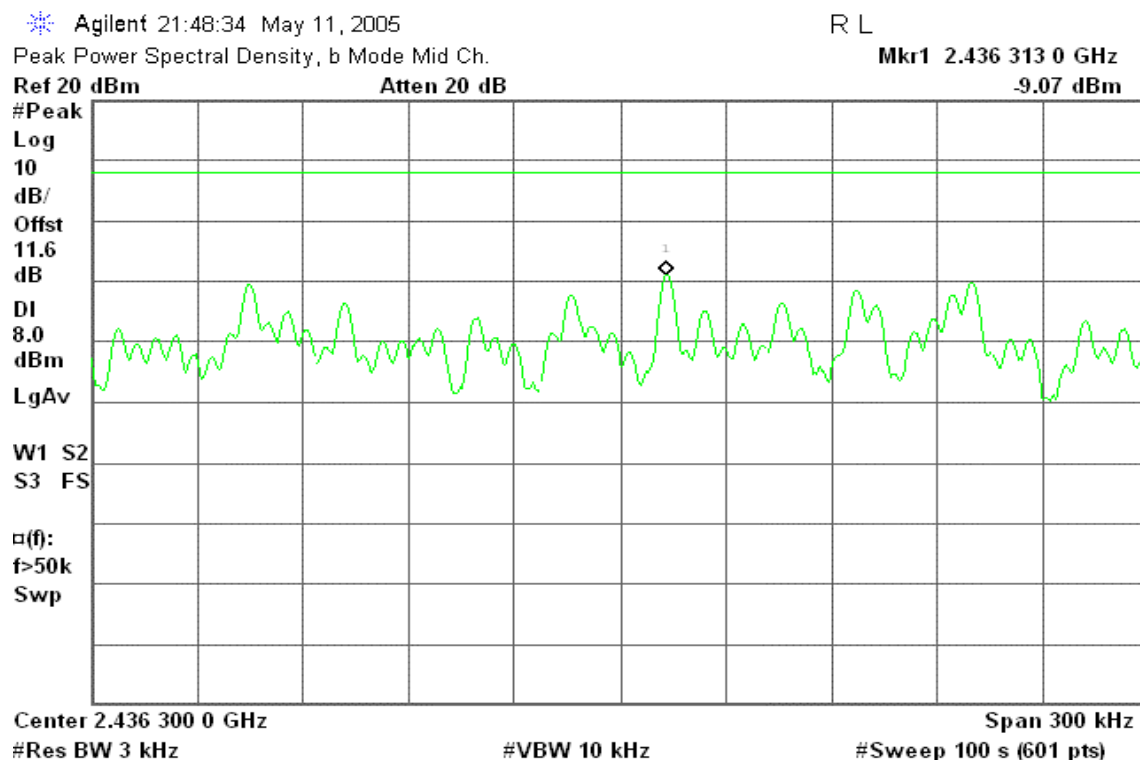
Center 2.454 800 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**Mode: AWS1705FOL****IEEE 802.11b****PPSD (CH Low)****PPSD (CH Mid)**

**PPSD (CH High)**

\* Agilent 21:54:12 May 11, 2005

R L

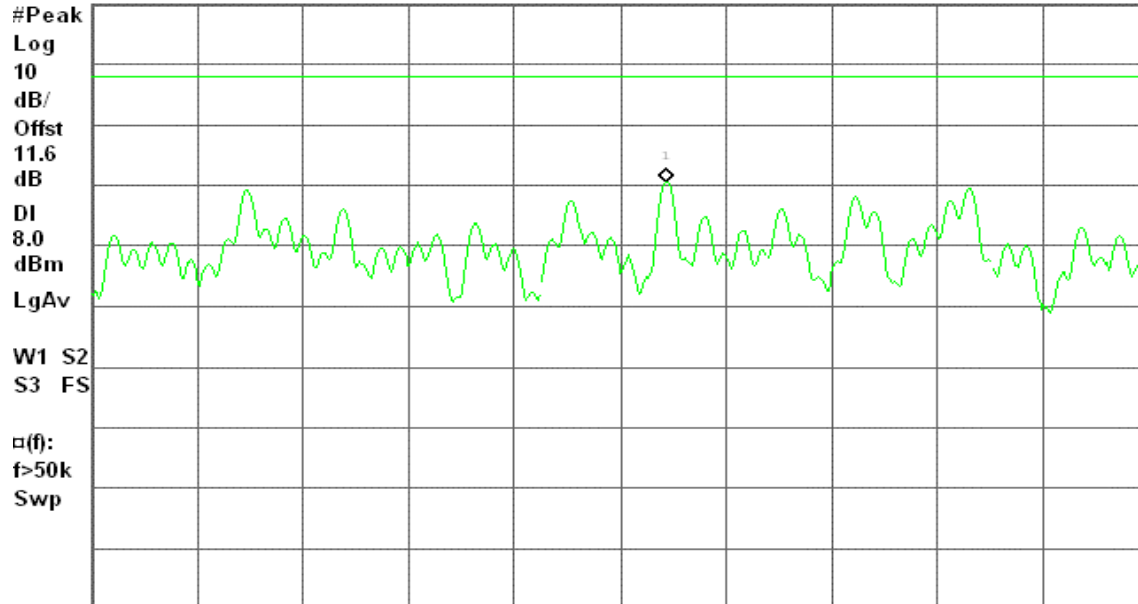
Peak Power Spectral Density, b Mode High Ch.

Mkr1 2.461 313 1 GHz

Ref 20 dBm

Atten 20 dB

-9.40 dBm



Center 2.461 300 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**IEEE 802.11g****PPSD (CH Low)**

\* Agilent 22:01:40 May 11, 2005

R L

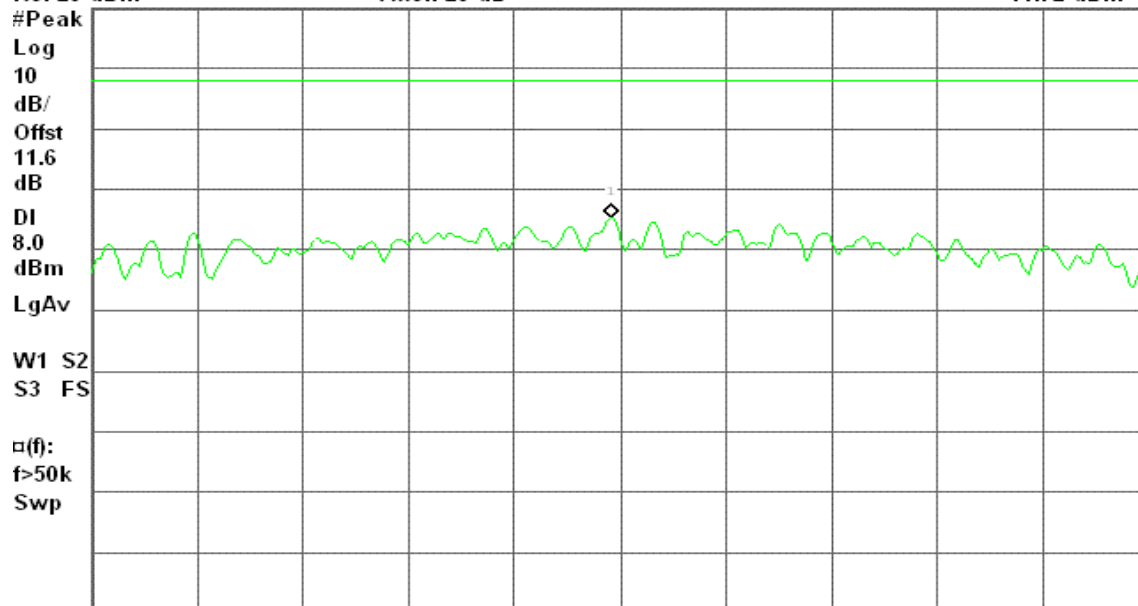
Peak Power Spectral Density, g Mode Low Ch.

Mkr1 2.411 047 0 GHz

Ref 20 dBm

Atten 20 dB

-14.72 dBm



Center 2.411 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



## PPSD (CH Mid)

\* Agilent 22:07:21 May 11, 2005

R L

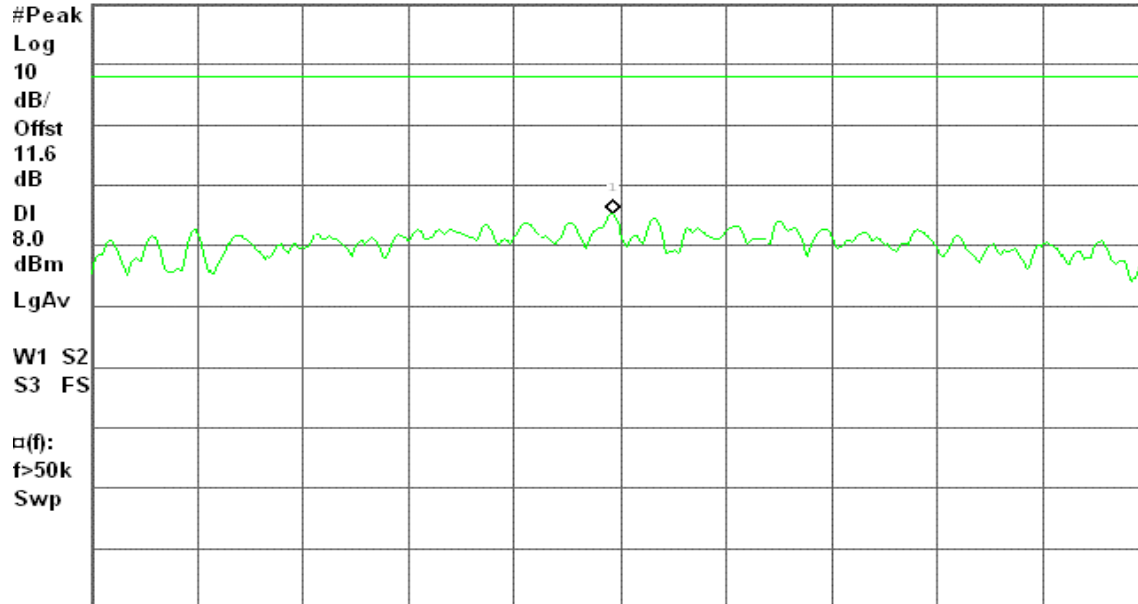
Peak Power Spectral Density, g Mode Mid Ch.

Mkr1 2.436 047 5 GHz

Ref 20 dBm

Atten 20 dB

-14.68 dBm



Center 2.436 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

## PPSD (CH High)

\* Agilent 22:13:20 May 11, 2005

R L

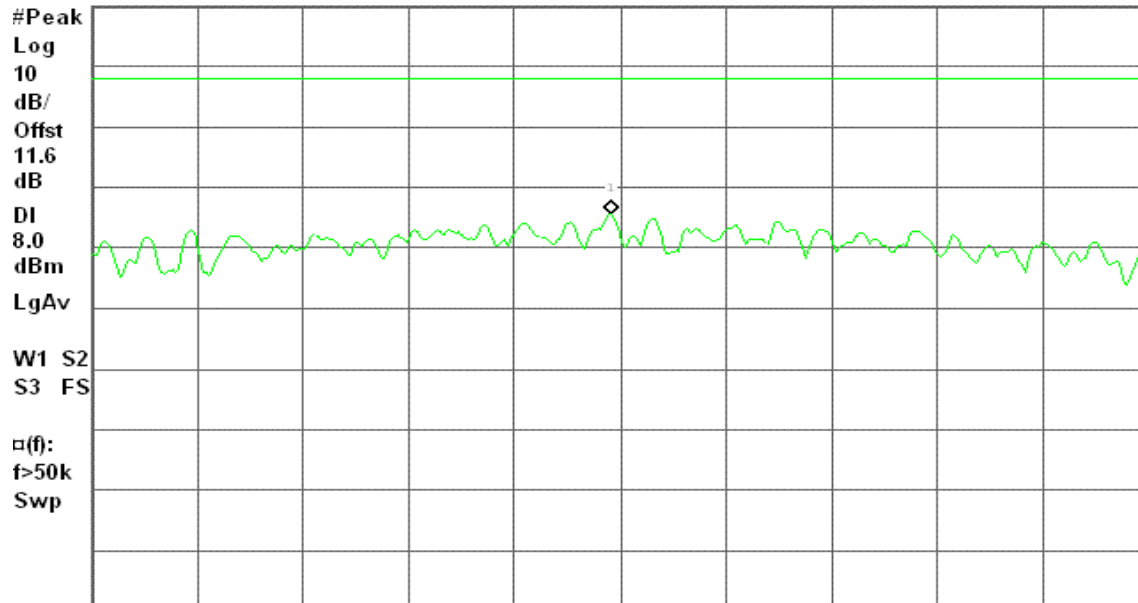
Peak Power Spectral Density, g Mode High Ch.

Mkr1 2.461 047 0 GHz

Ref 20 dBm

Atten 20 dB

-14.42 dBm



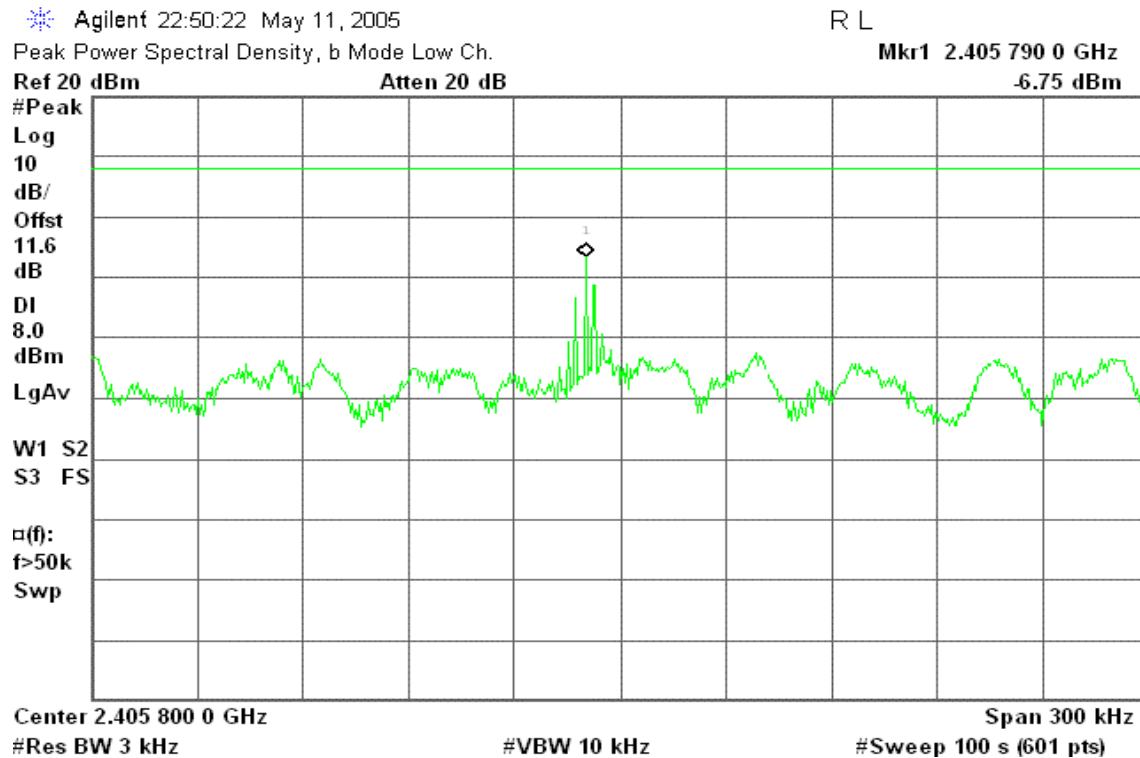
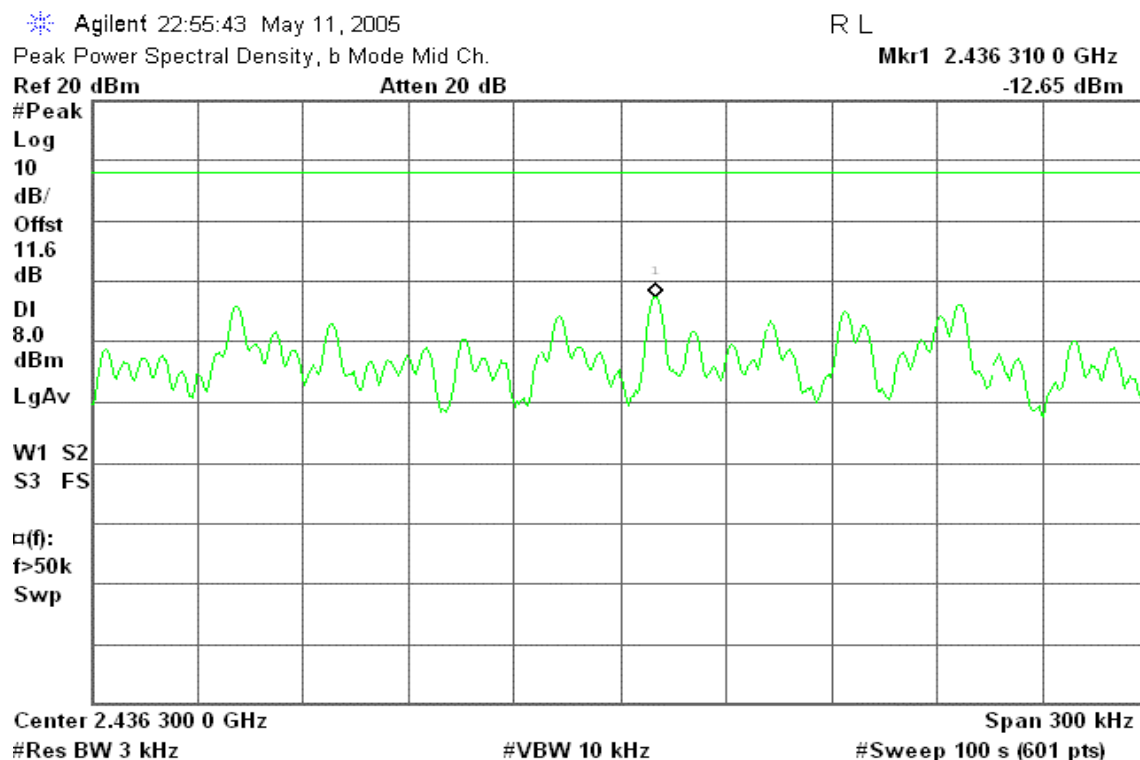
Center 2.461 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**Mode: AWS1708P****IEEE 802.11b****PPSD (CH Low)****PPSD (CH Mid)**

**PPSD (CH High)**

\* Agilent 23:01:38 May 11, 2005

R L

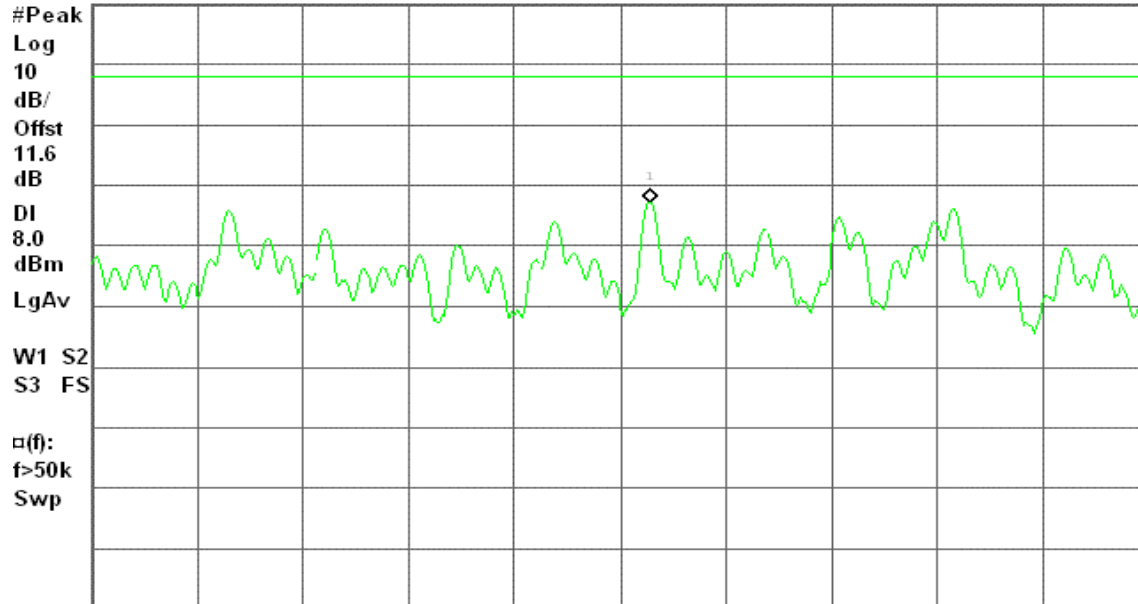
Peak Power Spectral Density, b Mode High Ch.

Mkr1 2.461 308 5 GHz

Ref 20 dBm

Atten 20 dB

-12.81 dBm



Center 2.461 300 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**IEEE 802.11g****PPSD (CH Low)**

\* Agilent 23:08:40 May 11, 2005

R L

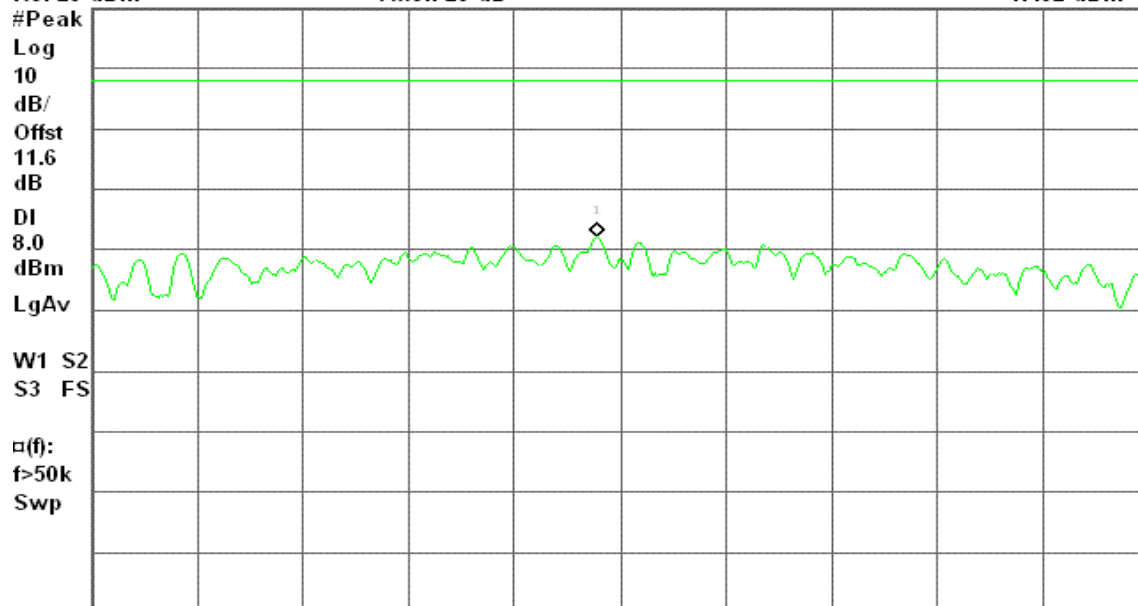
Peak Power Spectral Density, g Mode Low Ch.

Mkr1 2.411 043 0 GHz

Ref 20 dBm

Atten 20 dB

-17.82 dBm



Center 2.411 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



## PPSD (CH Mid)

\* Agilent 23:14:06 May 11, 2005

R L

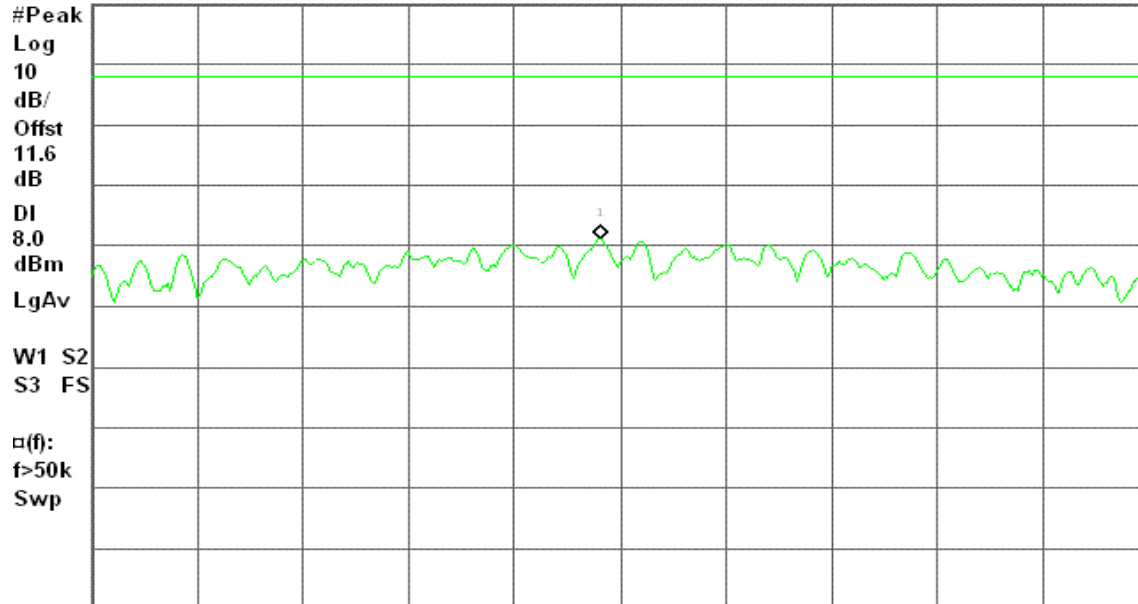
Peak Power Spectral Density, g Mode Mid Ch.

Mkr1 2.429 794 0 GHz

Ref 20 dBm

Atten 20 dB

-18.78 dBm



Center 2.429 800 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

## PPSD (CH High)

\* Agilent 23:22:37 May 11, 2005

R L

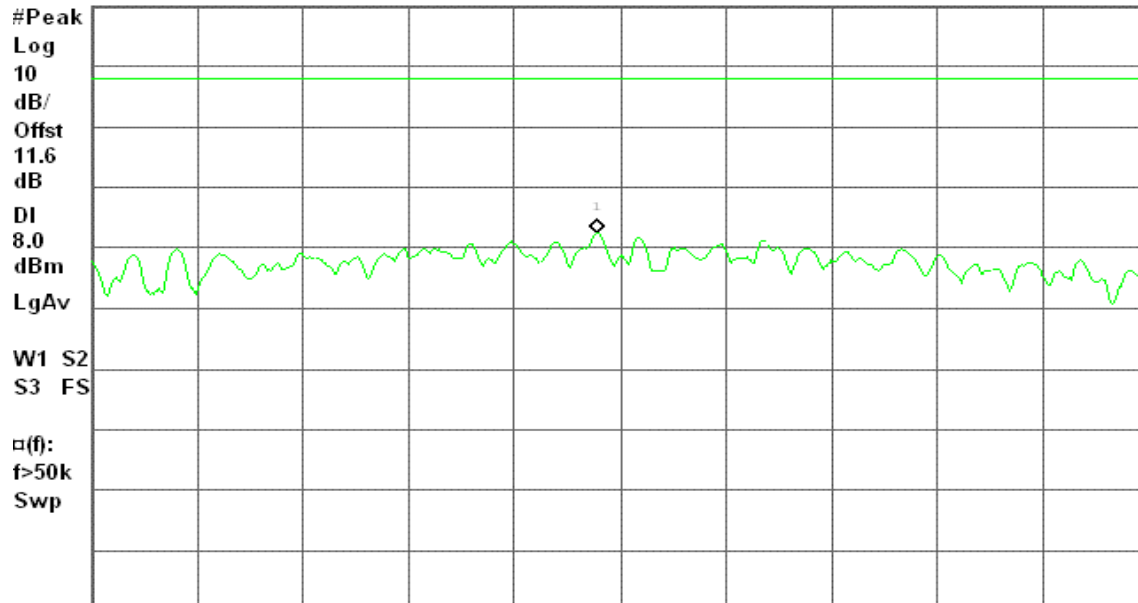
Peak Power Spectral Density, g Mode High Ch.

Mkr1 2.461 043 0 GHz

Ref 20 dBm

Atten 20 dB

-17.59 dBm



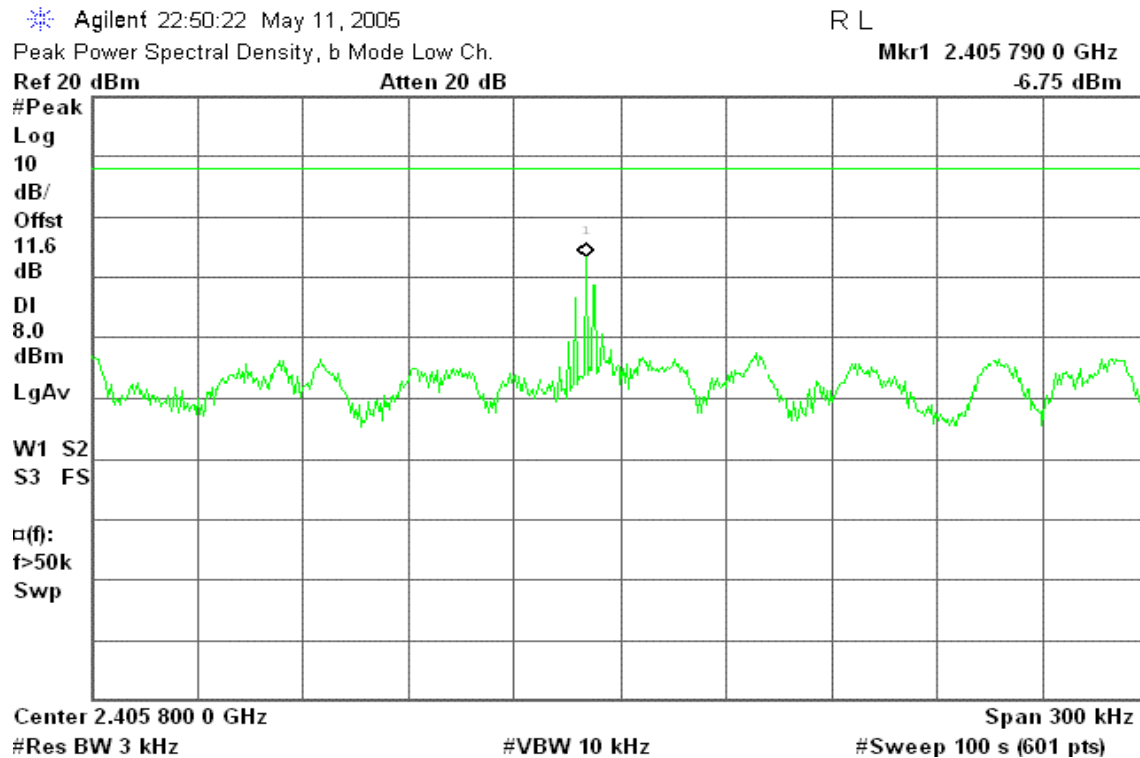
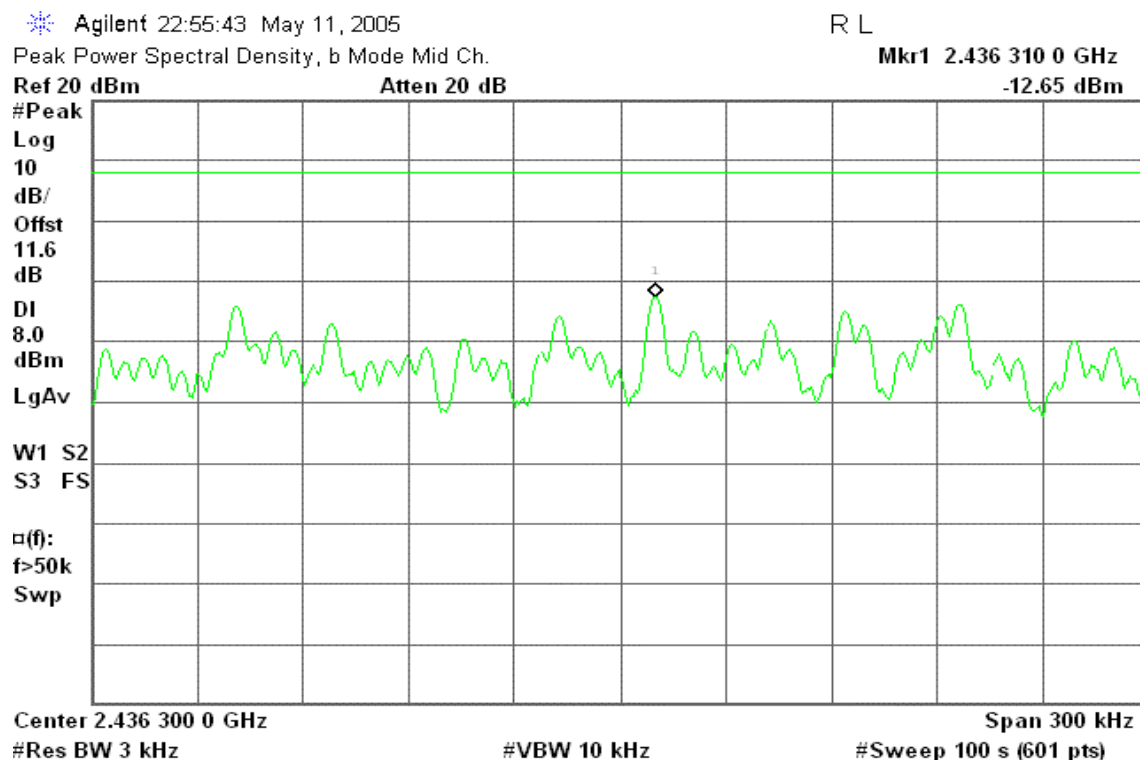
Center 2.461 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**Mode: AWS1708FO****IEEE 802.11b****PPSD (CH Low)****PPSD (CH Mid)**

**PPSD (CH High)**

\* Agilent 23:01:38 May 11, 2005

R L

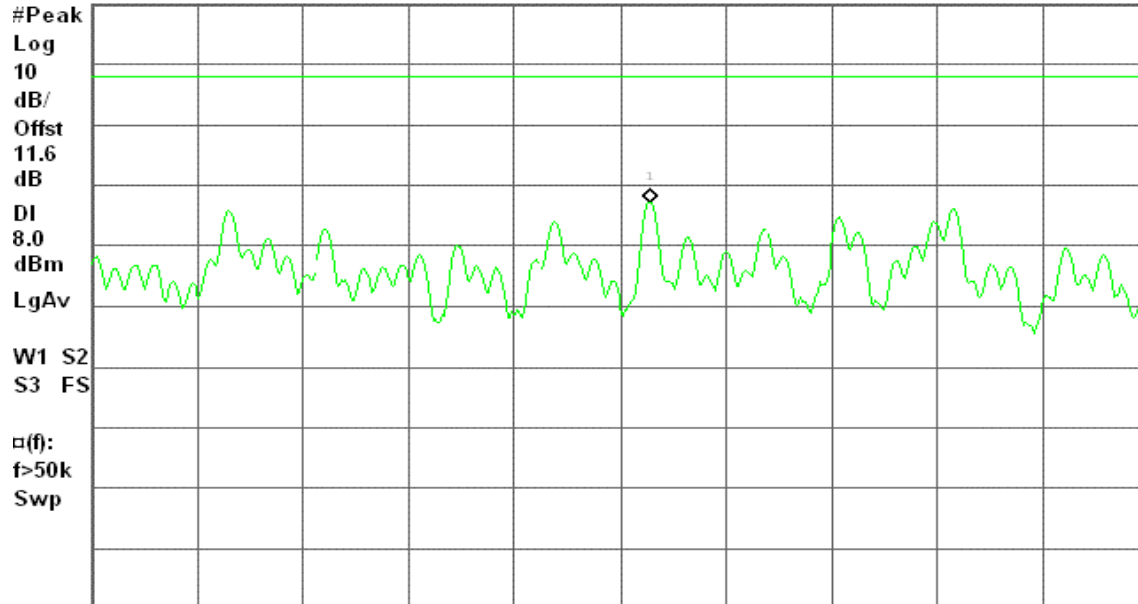
Peak Power Spectral Density, b Mode High Ch.

Mkr1 2.461 308 5 GHz

Ref 20 dBm

Atten 20 dB

-12.81 dBm



Center 2.461 300 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

**IEEE 802.11g****PPSD (CH Low)**

\* Agilent 23:08:40 May 11, 2005

R L

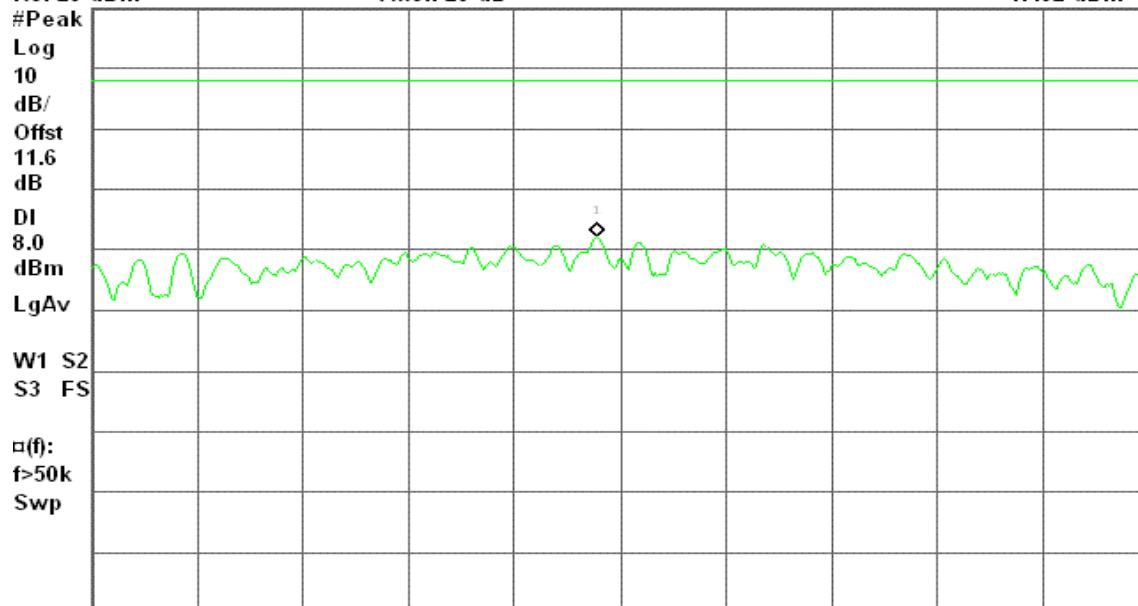
Peak Power Spectral Density, g Mode Low Ch.

Mkr1 2.411 043 0 GHz

Ref 20 dBm

Atten 20 dB

-17.82 dBm



Center 2.411 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



## PPSD (CH Mid)

\* Agilent 23:14:06 May 11, 2005

R L

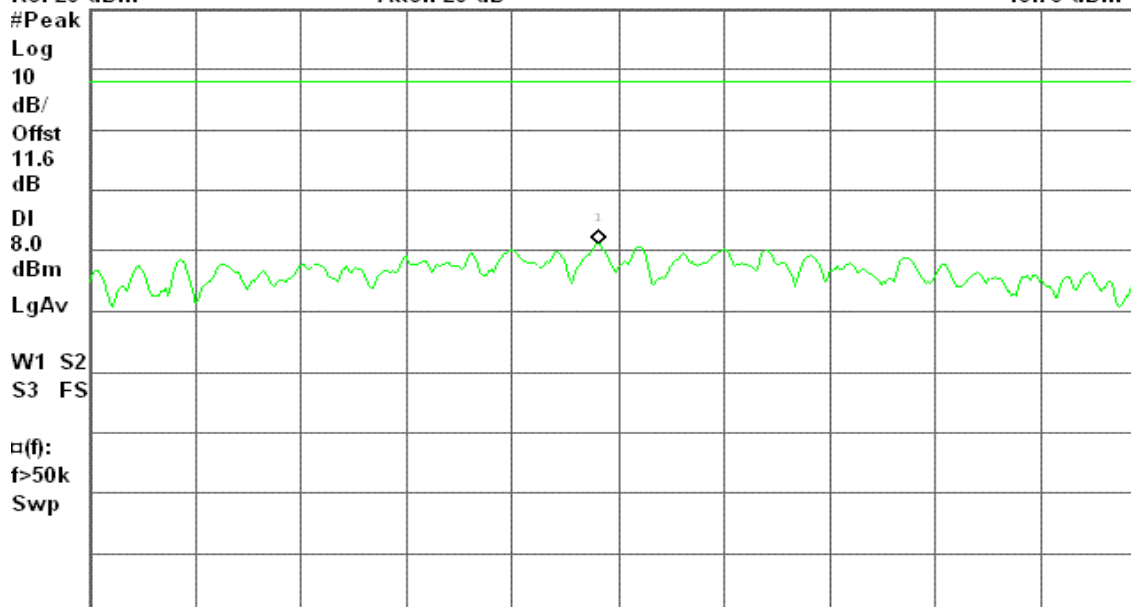
Peak Power Spectral Density, g Mode Mid Ch.

Mkr1 2.429 794 0 GHz

Ref 20 dBm

Atten 20 dB

-18.78 dBm



Center 2.429 800 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)

## PPSD (CH High)

\* Agilent 23:22:37 May 11, 2005

R L

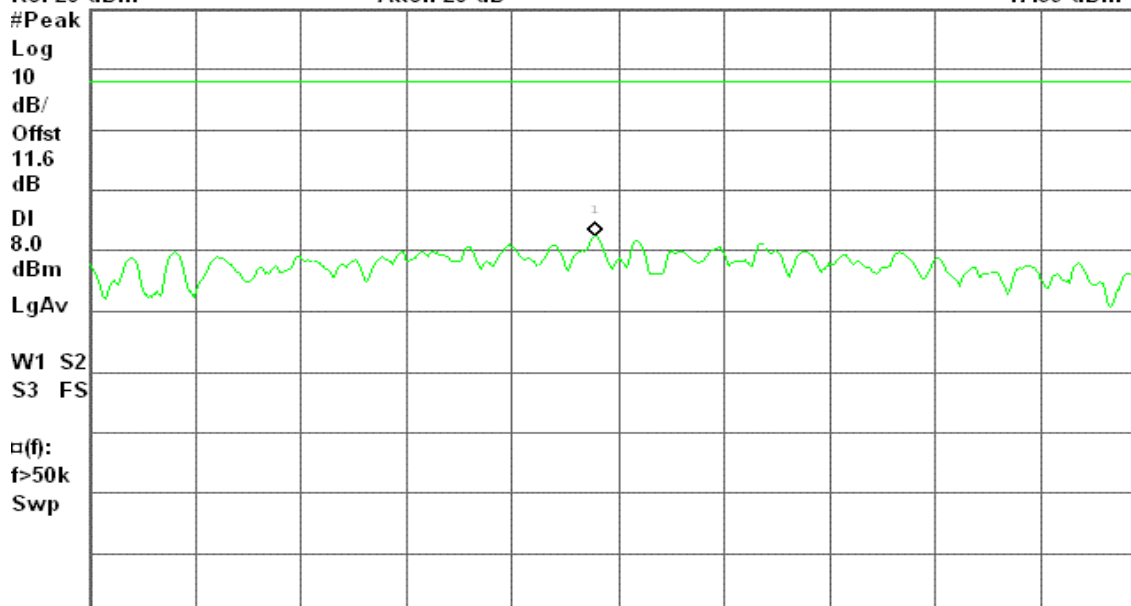
Peak Power Spectral Density, g Mode High Ch.

Mkr1 2.461 043 0 GHz

Ref 20 dBm

Atten 20 dB

-17.59 dBm



Center 2.461 050 0 GHz

Span 300 kHz

#Res BW 3 kHz

#VBW 10 kHz

#Sweep 100 s (601 pts)



## 7.5 RADIO FREQUENCY EXPOSURE

### LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See §15.247(b)(5) and §1.1307(b)(1) of this chapter.

### EUT Specification

|                                   |                                                                                                                                                                                                                                |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | IEEE802.11 b/g USB System                                                                                                                                                                                                      |
| <b>Model</b>                      | WUB1700S/SL                                                                                                                                                                                                                    |
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz<br><input type="checkbox"/> Others |
| <b>Device category</b>            | <input checked="" type="checkbox"/> Portable (<20cm separation)<br><input type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others                                                                       |
| <b>Exposure classification</b>    | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )                                  |
| <b>Antenna diversity</b>          | <input checked="" type="checkbox"/> Single antenna<br><input type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity |
| <b>Max. output power</b>          | IEEE 802.11b: 17.69 dBm (58.75mW)<br>IEEE 802.11g: 16.70 dBm (46.77mW)                                                                                                                                                         |
| <b>Antenna gain (Max)</b>         | Chip Antenna for WUB1700S/SL / 2.0 dBi (Numeric gain: 1.58)                                                                                                                                                                    |
| <b>Evaluation applied</b>         | <input type="checkbox"/> MPE Evaluation<br><input checked="" type="checkbox"/> SAR Evaluation                                                                                                                                  |

#### **Remark:**

1. The maximum output power is 17.69dBm (58.75mW) at 2412MHz (with 1.58 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.

### TEST RESULTS

No non-compliance noted.

(SAR evaluation is not required for the PORTABLE device while its maximum output power is lower than the general population low threshold:  $60/f_{\text{(GHz)}}=60/2.441=24.58\text{mW}$ )

### MPE evaluation

Not applicable.

**EUT Specification**

|                                   |                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | IEEE802.11 b/g USB System                                                                                                                                                                                                                                                                                                    |
| <b>Model</b>                      | AWS1705FOL / AWS1708P / AWS1708FO / AWS1705FO / AWS1702FO                                                                                                                                                                                                                                                                    |
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz<br><input type="checkbox"/> Others                                                                                               |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others                                                                                                                                                                     |
| <b>Exposure classification</b>    | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )                                                                                                                                |
| <b>Antenna diversity</b>          | <input checked="" type="checkbox"/> Single antenna<br><input type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity                                                                                               |
| <b>Max. output power</b>          | Mode: AWS1705FOL<br>IEEE 802.11b: 16.63 dBm (46.03mW)<br>IEEE 802.11g: 17.02 dBm (50.35mW)<br>Mode: AWS1708P<br>IEEE 802.11b: 13.39 dBm (21.83mW)<br>IEEE 802.11g: 14.00 dBm (25.12mW)<br>Mode: AWS1708FO<br>IEEE 802.11b: 13.39 dBm (21.83mW)<br>IEEE 802.11g: 14.00 dBm (25.12mW)                                          |
| <b>Antenna gain (Max)</b>         | Dipole Antenna for AWS1705FOL / 5.0 dBi (Numeric gain: 3.16)<br>Patch Antenna for AWS1708P / 8.0 dBi (Numeric gain: 6.31)<br>Dipole Antenna for AWS1708FO / 8.0 dBi (Numeric gain: 6.31)<br>Dipole Antenna for AWS1705FO / gain: 5.0 dBi (Numeric gain: 3.16)<br>Dipole Antenna for AWS1702FO / 2.0 dBi (Numeric gain: 1.58) |
| <b>Evaluation applied</b>         | <input checked="" type="checkbox"/> MPE Evaluation<br><input type="checkbox"/> SAR Evaluation                                                                                                                                                                                                                                |

**Remark:**

1. The maximum output power is 17.02dBm (50.35mW) at 2462MHz (with 3.16 numeric antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.

**TEST RESULTS**

No non-compliance noted.

**Calculation**

Given  $E = \sqrt{\frac{30 \times P \times G}{d}}$  &  $S = \frac{E^2}{3770}$

Where  $E$  = Field Strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power Density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$d = \sqrt{\frac{30 \times P \times G}{3770 \times S}}$$

Changing to units of mW and cm, using:

$P (mW) = P (W) / 1000$  and

$d (cm) = 100 * d (m)$

Yields

$$d = 100 \times \sqrt{\frac{30 \times (P / 1000) \times G}{3770 \times S}} = 0.282 \times \sqrt{\frac{P \times G}{S}}$$

Where  $d$  = distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power Density in mW / cm<sup>2</sup>

Substituting the logarithmic form of power and gain using:

$P (mW) = 10^{(P (dBm) / 10)}$  and

$G (numeric) = 10^{(G (dBi) / 10)}$

Yields

$$d = 0.282 \times \frac{10^{(P+G)/20}}{\sqrt{S}}$$

**Equation 1**

Where  $d$  = MPE safe distance in cm

$P$  = Power in dBm

$G$  = Antenna Gain in dBi

$S$  = Power Density Limit in mW / cm<sup>2</sup>

**Maximum Permissible Exposure**

EUT output power = 50.35mW

Antenna Gain = 3.16 (Numeric gain)

$S = 1.0 \text{ mW / cm}^2$  from 1.1310 Table 1

Substituting these parameters into the above Equation 1:

→ MPE Safe Distance = 3.56 cm

(For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.)



## 7.6 SPURIOUS EMISSIONS

### 7.6.1 Conducted Measurement

#### LIMIT

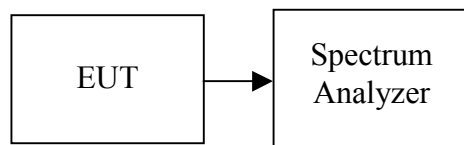
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model  | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent      | E4446A | MY43360131    | 01/10/2006      |

*Remark: Each piece of equipment is scheduled for calibration once a year.*

#### Test Configuration



#### TEST PROCEDURE

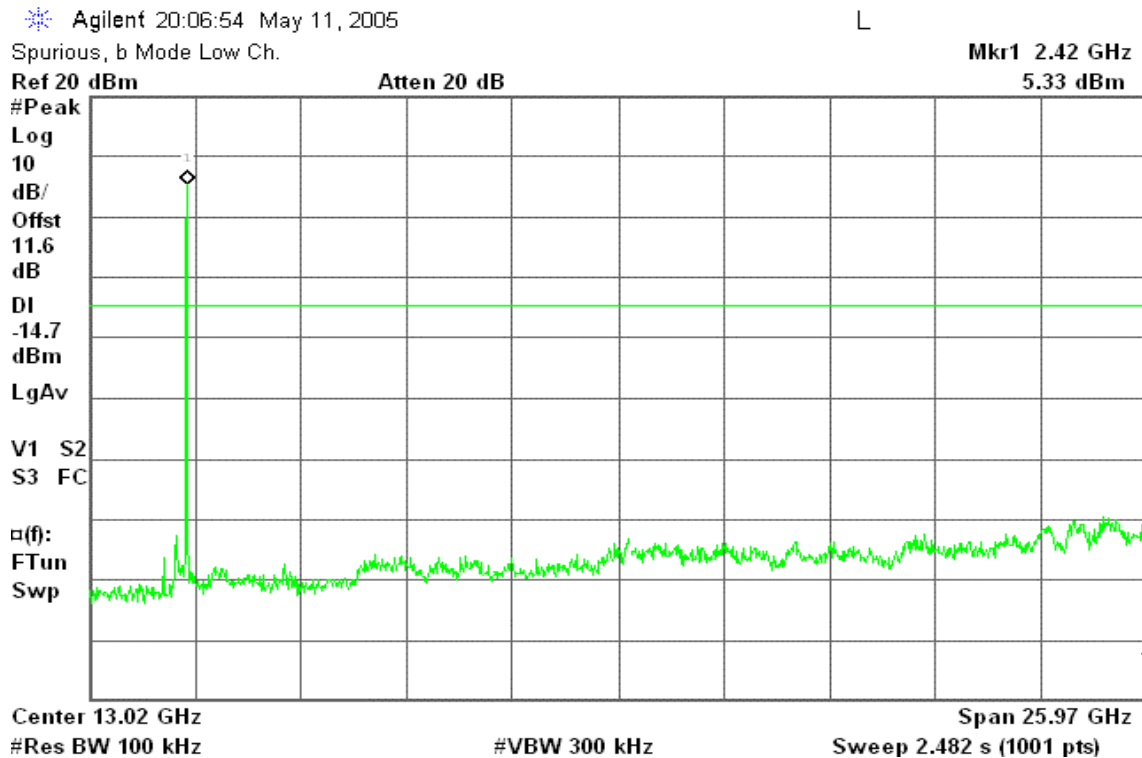
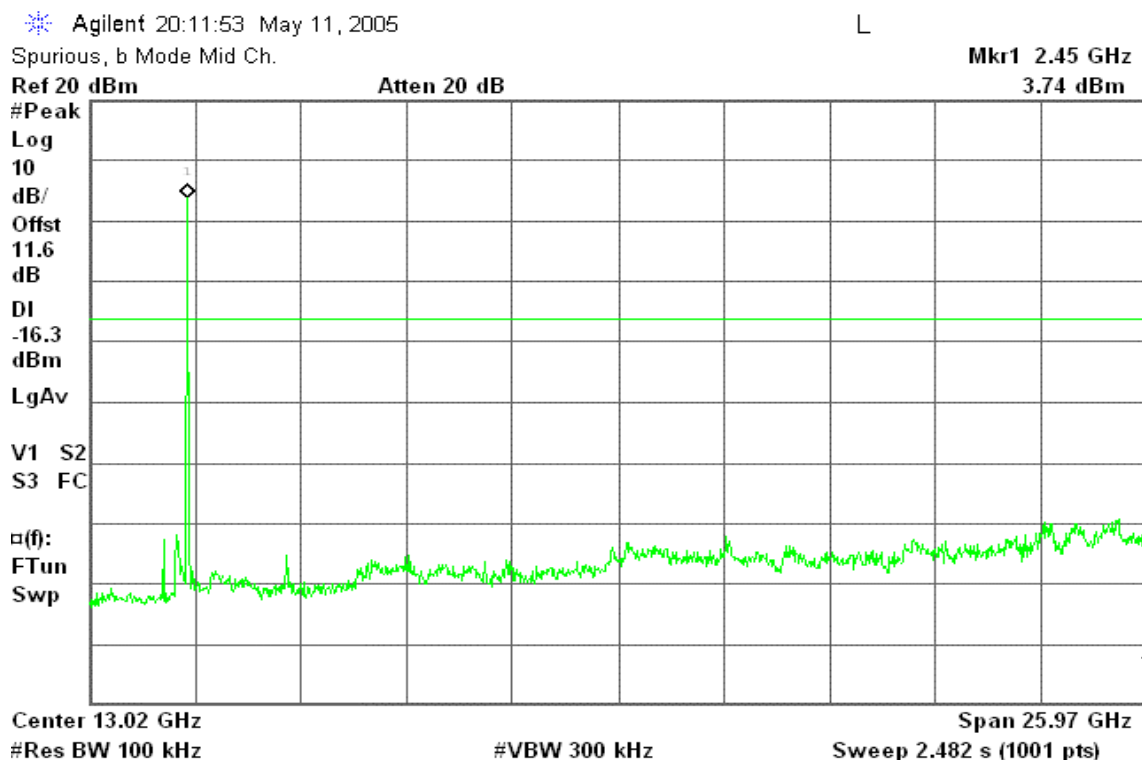
Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

#### TEST RESULTS

*No non-compliance noted*

**Test Plot****Mode: WUB1700S/SL****IEEE 802.11b****CH Low****CH Mid**



## CH High

Agilent 21:32:05 May 11, 2005

L

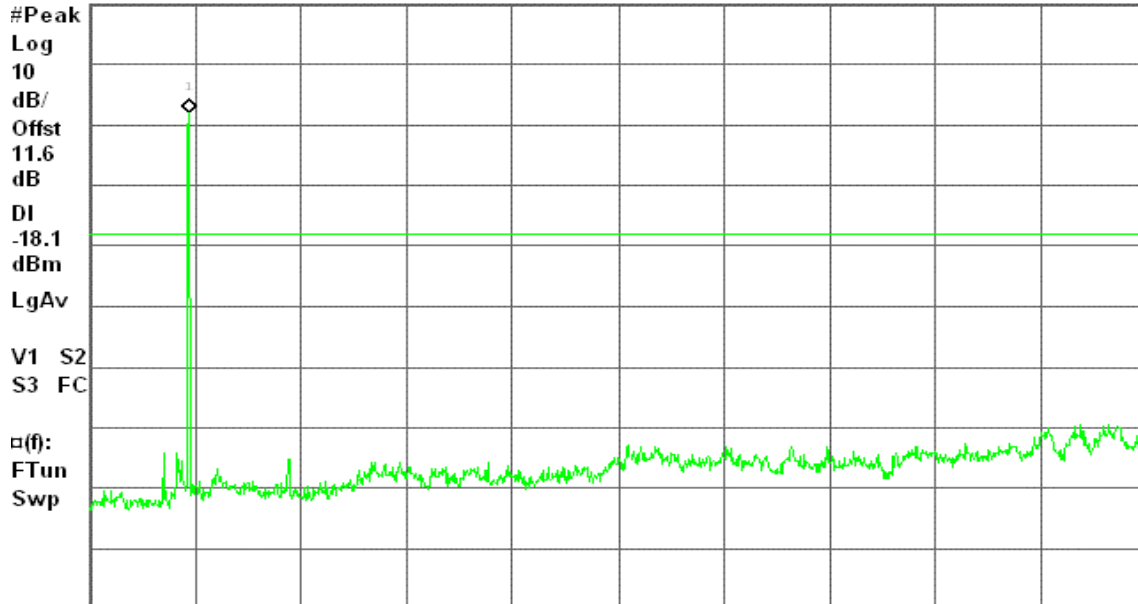
Spurious, b Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

1.94 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## IEEE 802.11g

### CH Low

Agilent 20:35:38 May 11, 2005

L

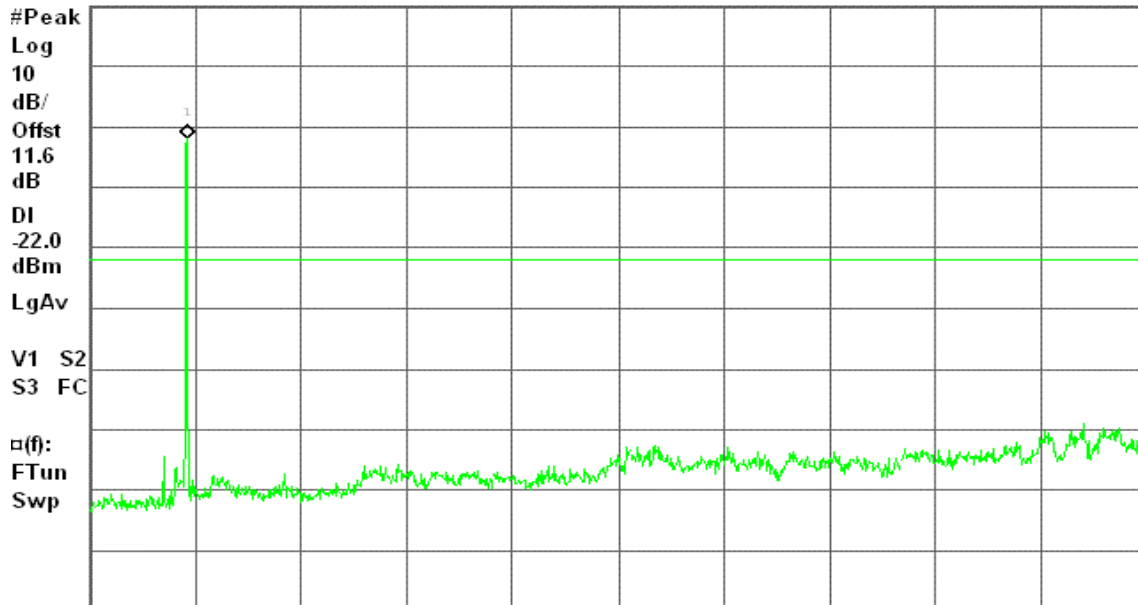
Spurious, g Mode Low Ch.

Mkr1 2.42 GHz

Ref 20 dBm

Atten 20 dB

-2.03 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)



## CH Mid

Agilent 20:41:06 May 11, 2005

L

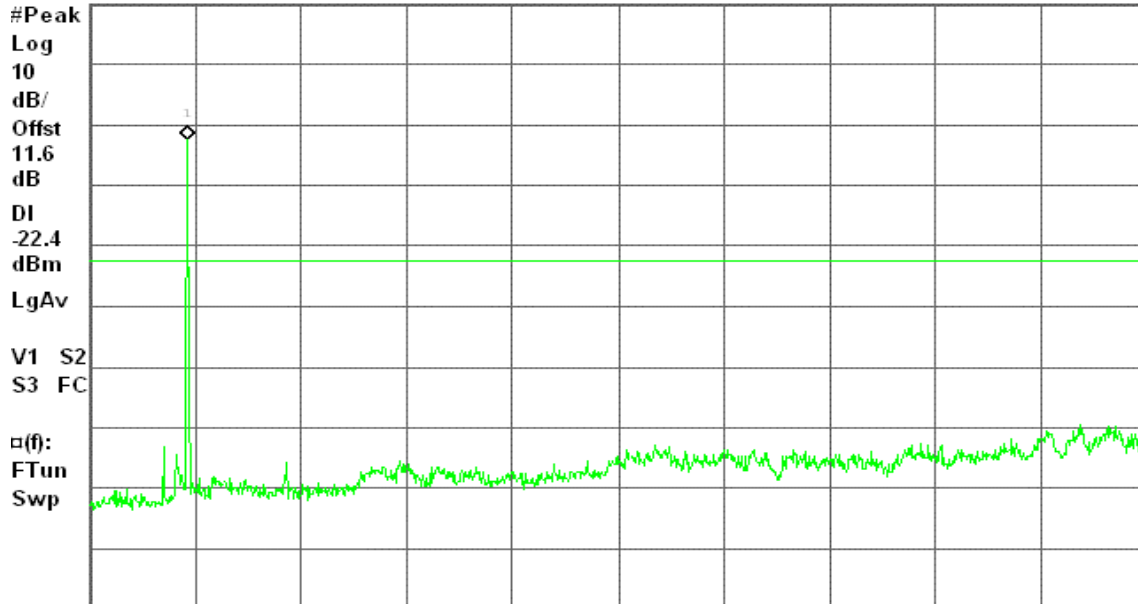
Spurious, g Mode Mid Ch.

Mkr1 2.45 GHz

Ref 20 dBm

Atten 20 dB

-2.43 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## CH High

Agilent 20:46:29 May 11, 2005

L

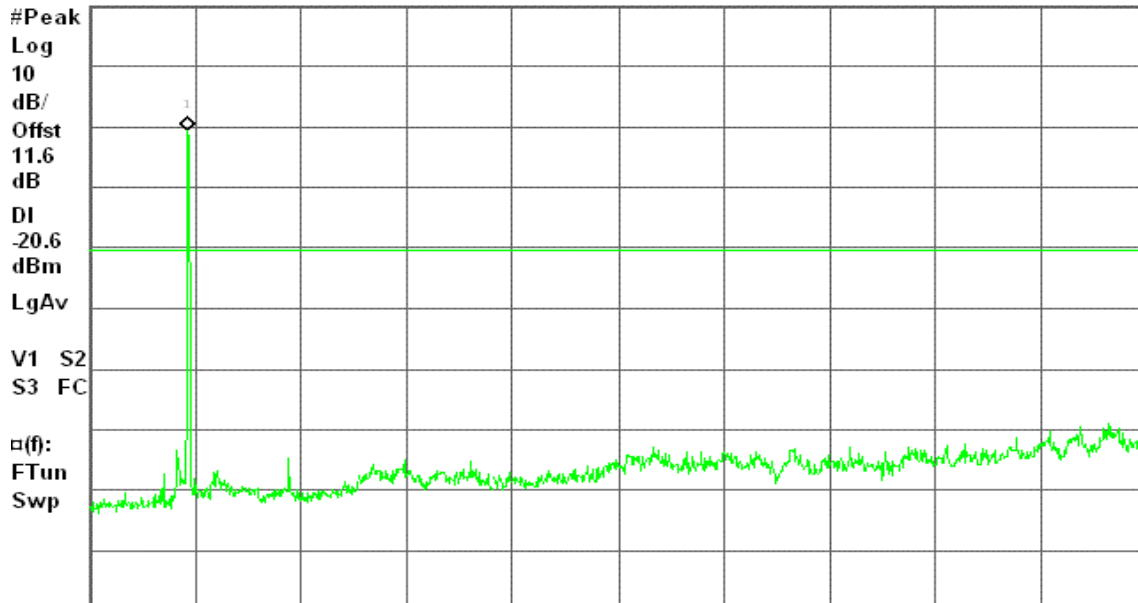
Spurious, g Mode High Ch.

Mkr1 2.45 GHz

Ref 20 dBm

Atten 20 dB

-0.58 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

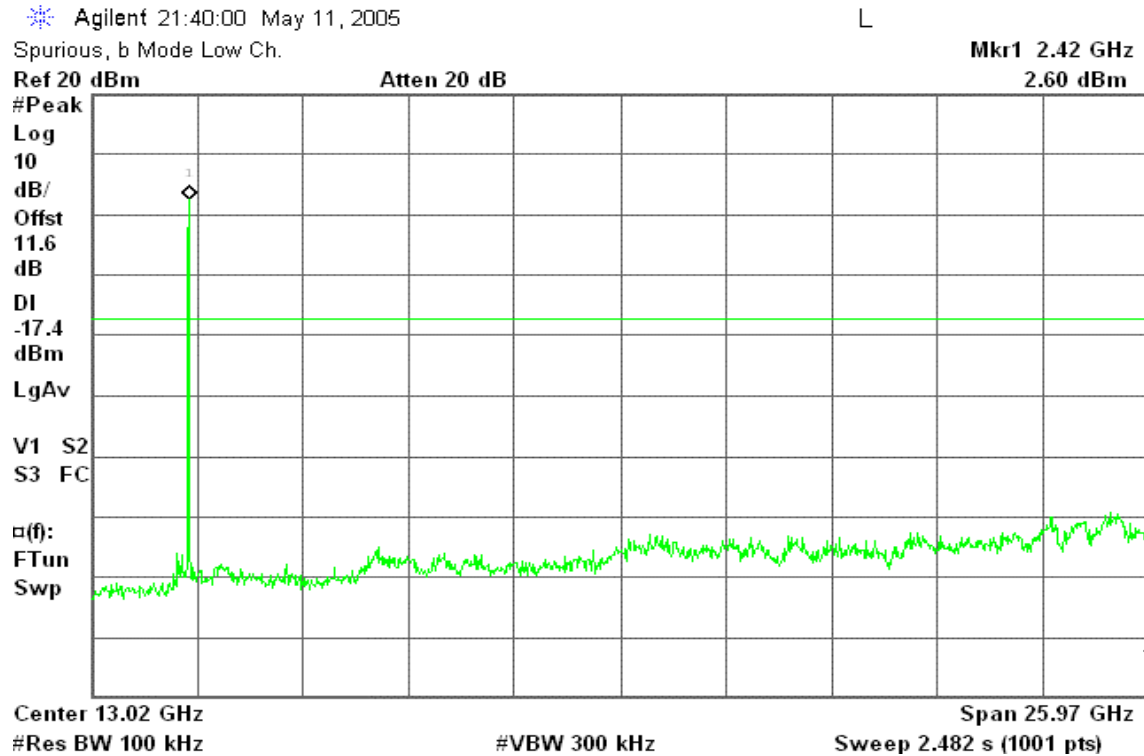
Sweep 2.482 s (1001 pts)



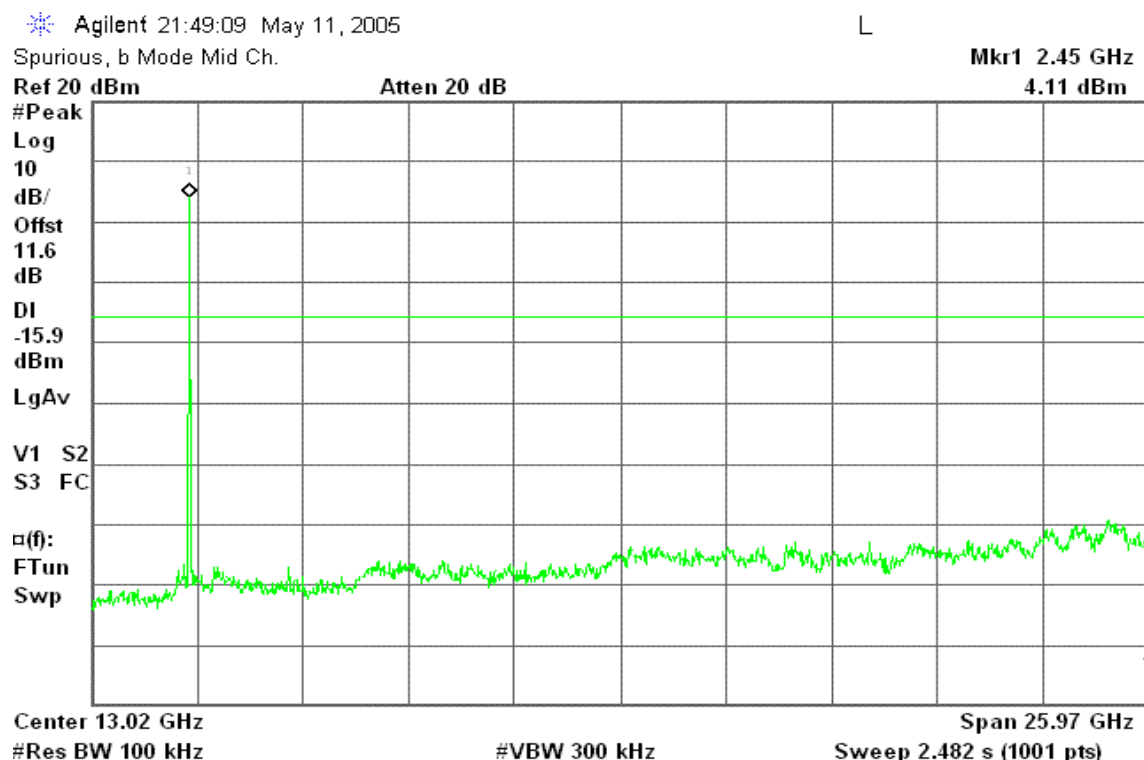
## Mode: AWS1705FOL

### IEEE 802.11b

#### CH Low



#### CH Mid





## CH High

Agilent 21:54:50 May 11, 2005

L

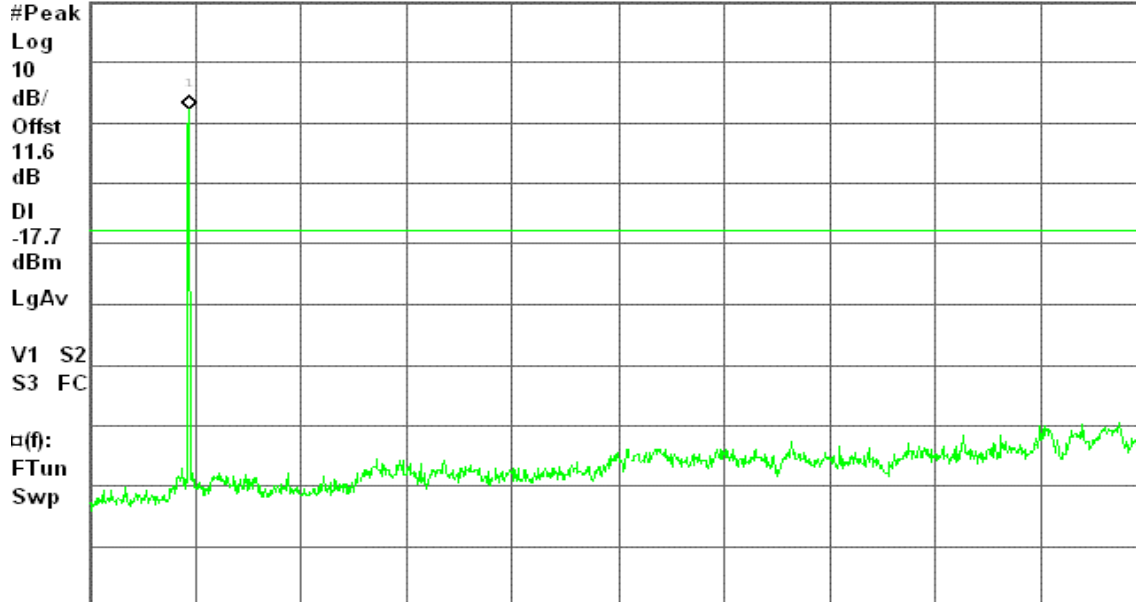
Spurious, b Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

2.27 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## IEEE 802.11g

### CH Low

Agilent 22:02:15 May 11, 2005

L

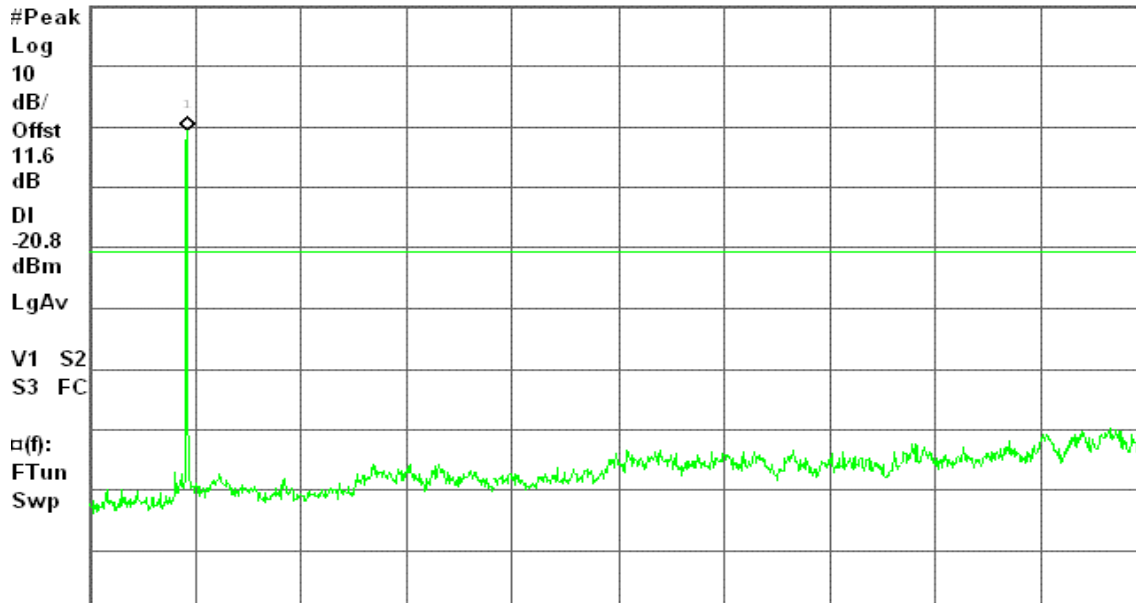
Spurious, g Mode Low Ch.

Mkr1 2.42 GHz

Ref 20 dBm

Atten 20 dB

-0.75 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)



## CH Mid

Agilent 22:08:02 May 11, 2005

L

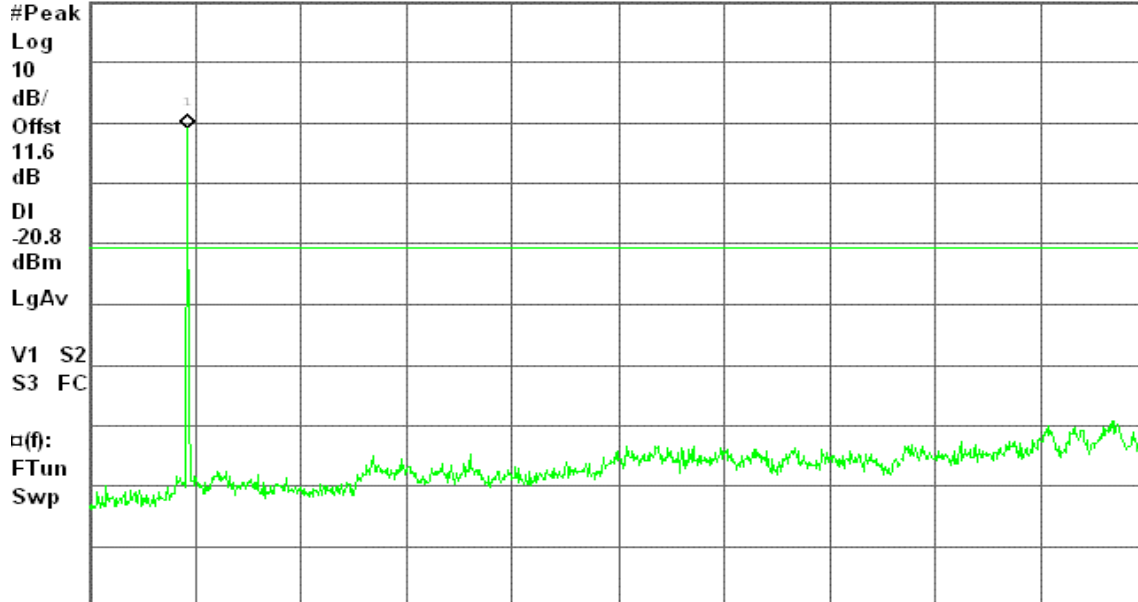
Spurious, g Mode Mid Ch.

Mkr1 2.45 GHz

Ref 20 dBm

Atten 20 dB

-0.77 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## CH High

Agilent 22:13:59 May 11, 2005

L

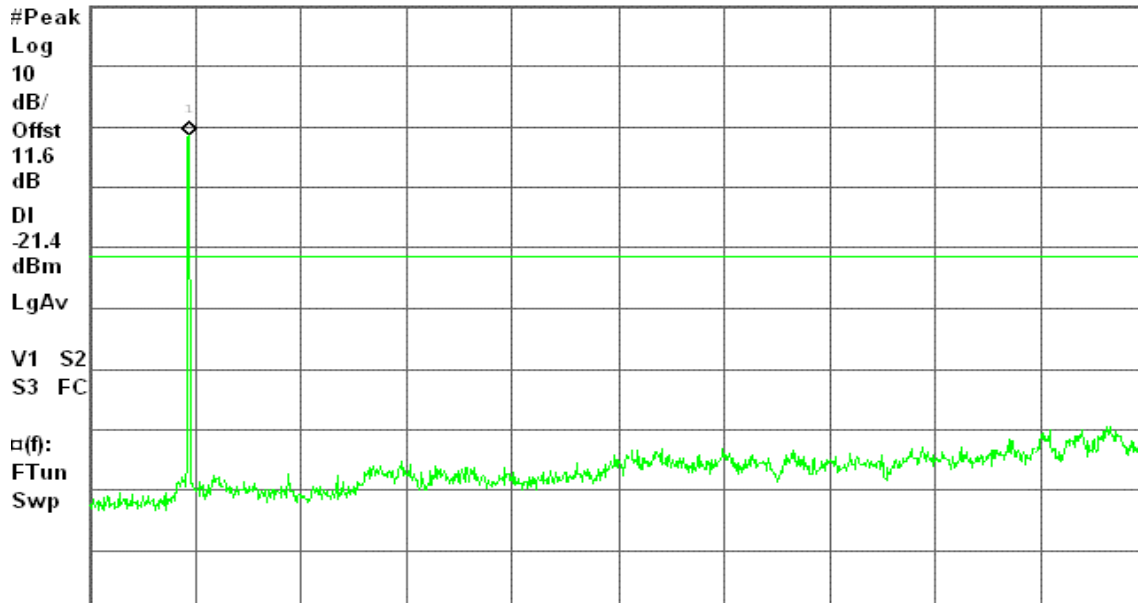
Spurious, g Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

-1.43 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

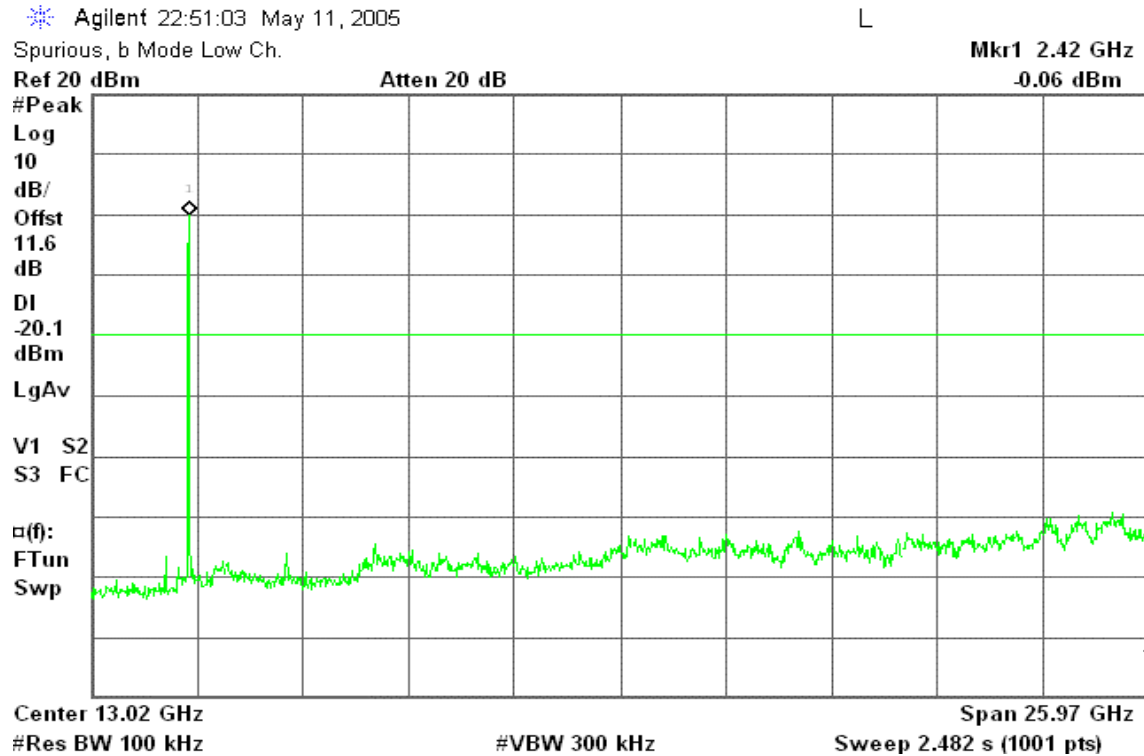
Sweep 2.482 s (1001 pts)



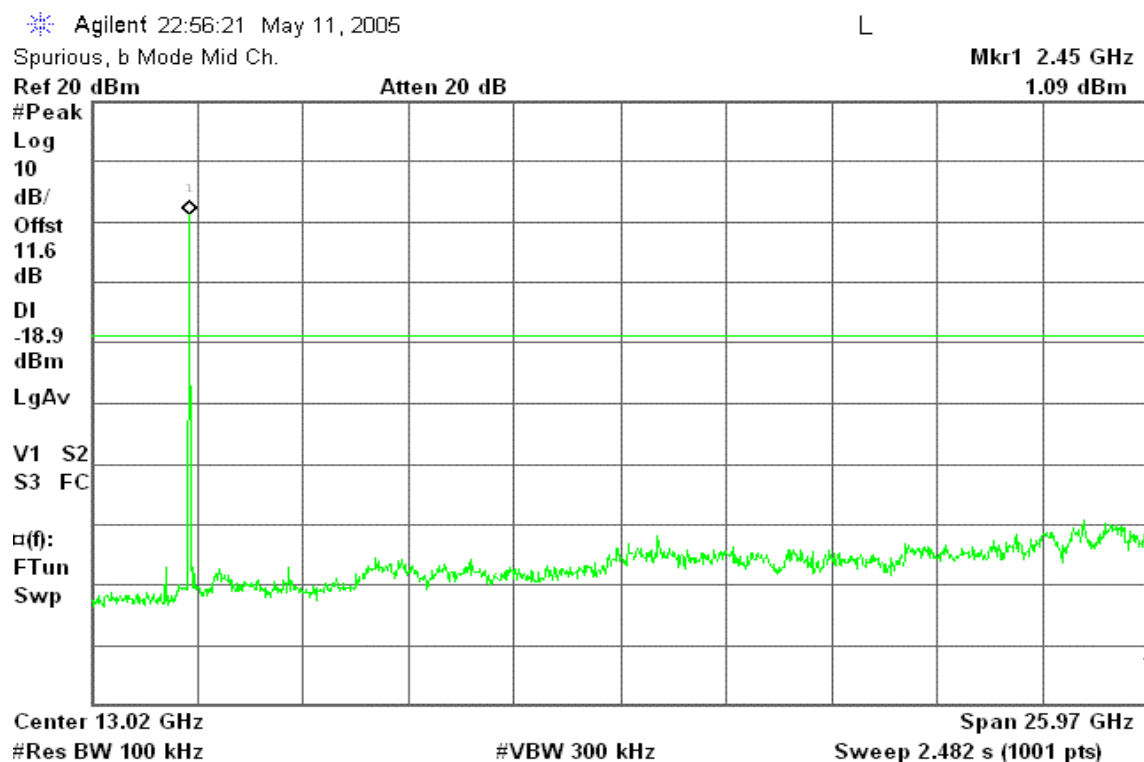
## Mode: AWS1708P

### IEEE 802.11b

#### CH Low



#### CH Mid





## CH High

Agilent 23:25:42 May 11, 2005

L

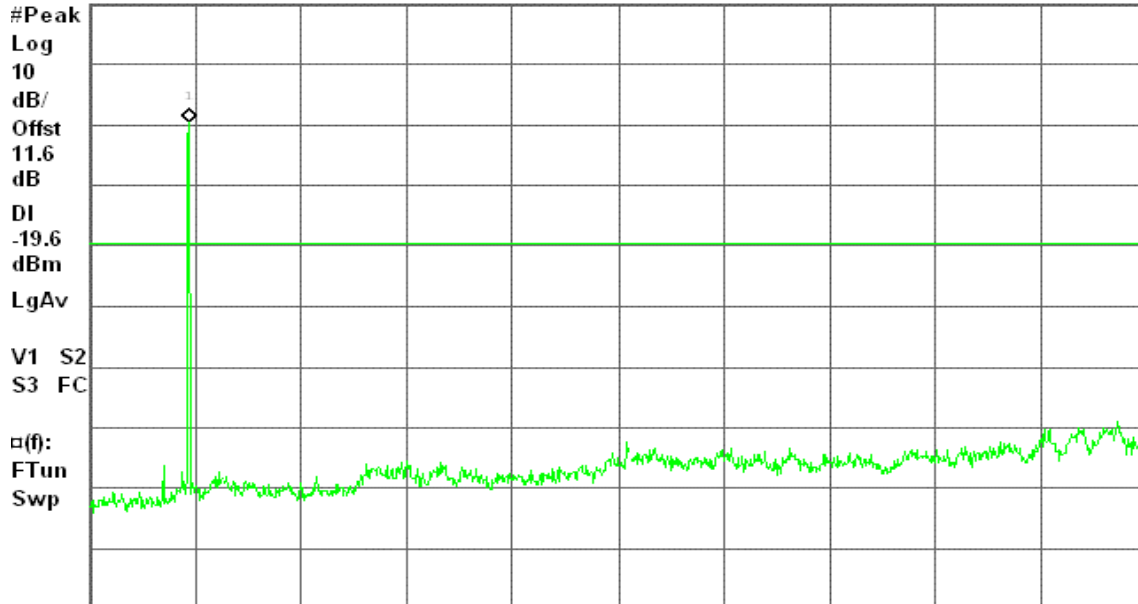
Spurious, b Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

0.35 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## IEEE 802.11g

### CH Low

Agilent 23:09:27 May 11, 2005

L

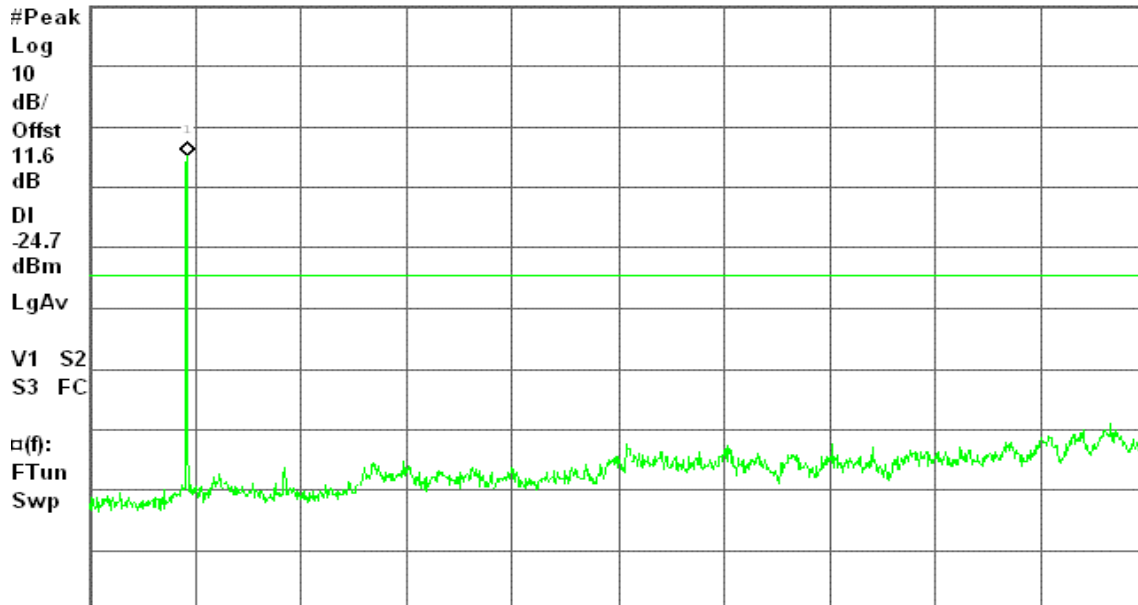
Spurious, g Mode Low Ch.

Mkr1 2.42 GHz

Ref 20 dBm

Atten 20 dB

-4.70 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)



## CH Mid

Agilent 23:14:43 May 11, 2005

L

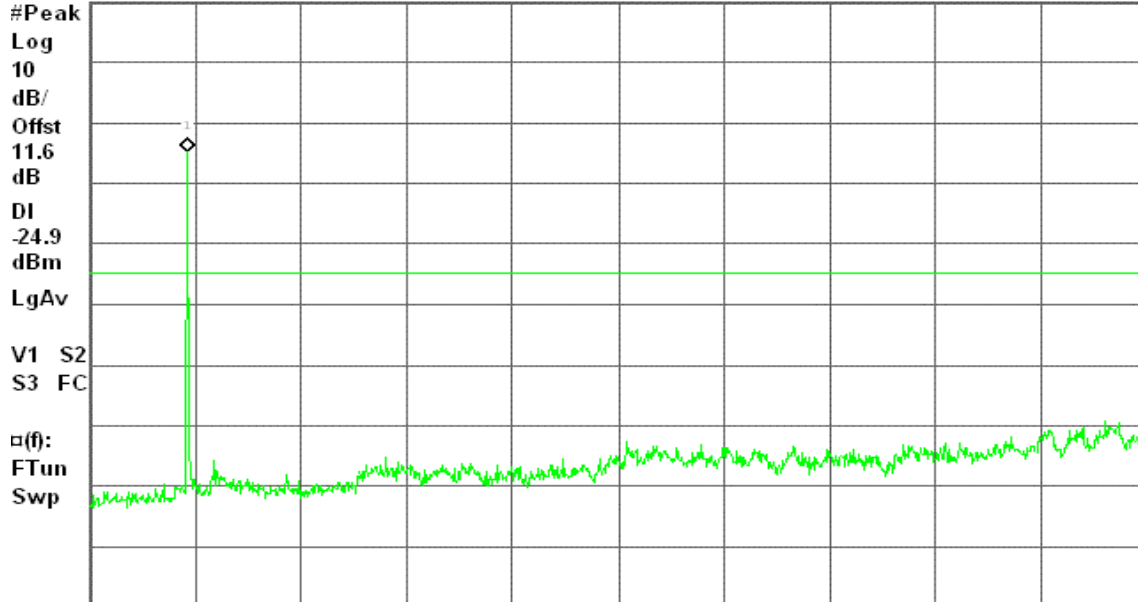
Spurious, g Mode Mid Ch.

Mkr1 2.45 GHz

Ref 20 dBm

Atten 20 dB

-4.93 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## CH High

Agilent 23:23:18 May 11, 2005

L

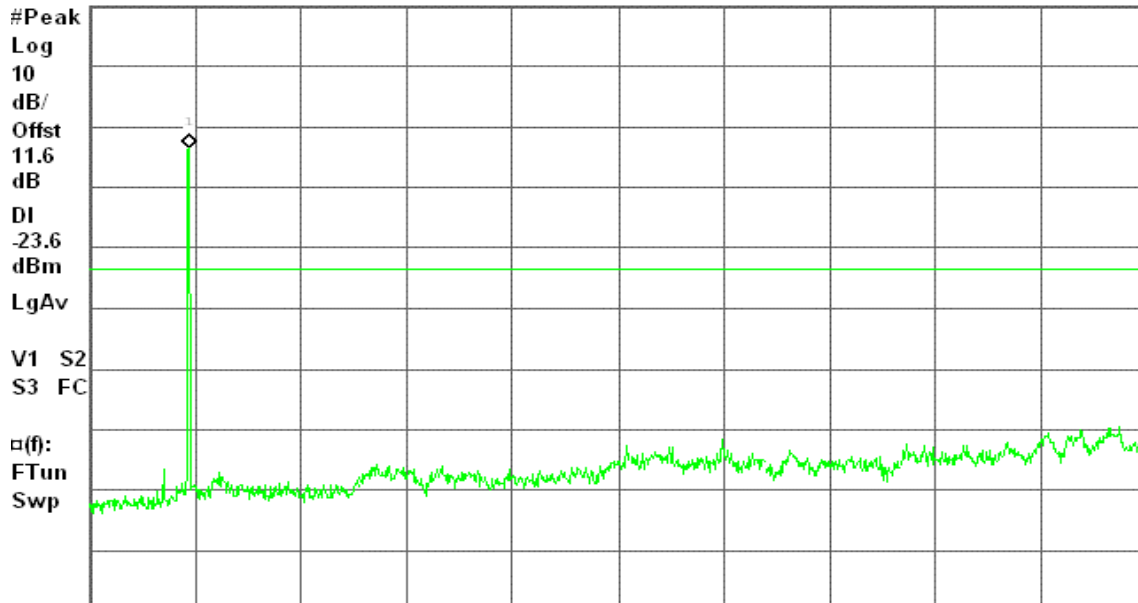
Spurious, g Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

-3.62 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

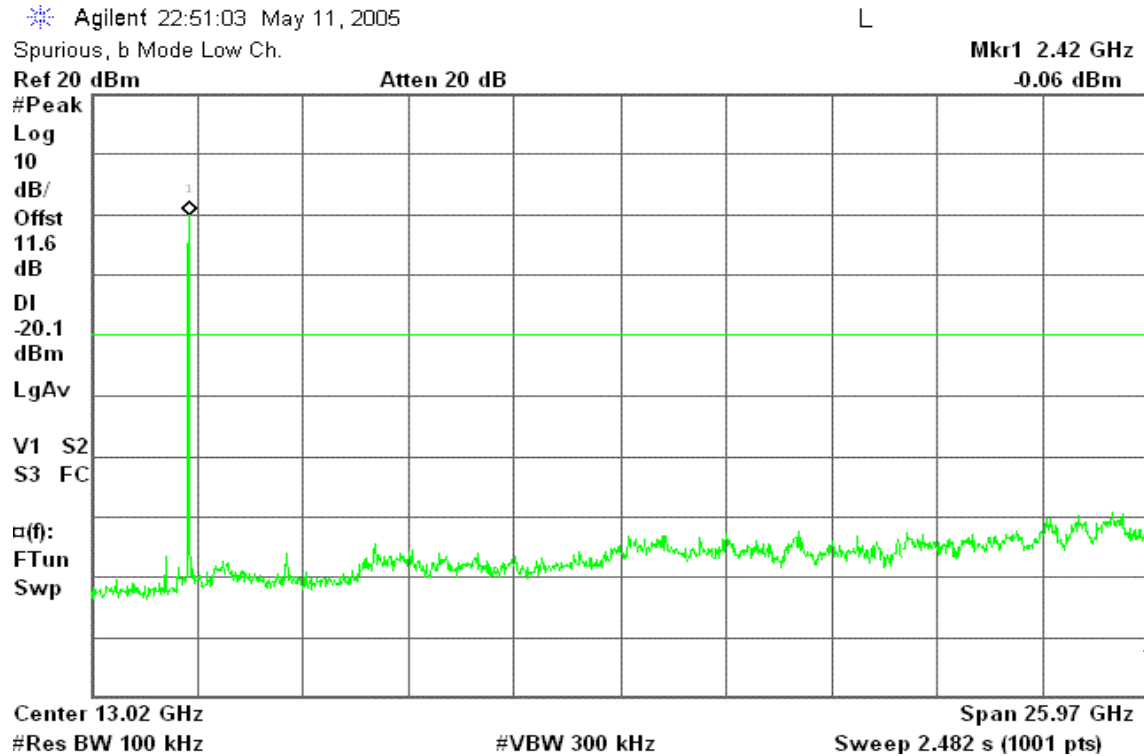
Sweep 2.482 s (1001 pts)



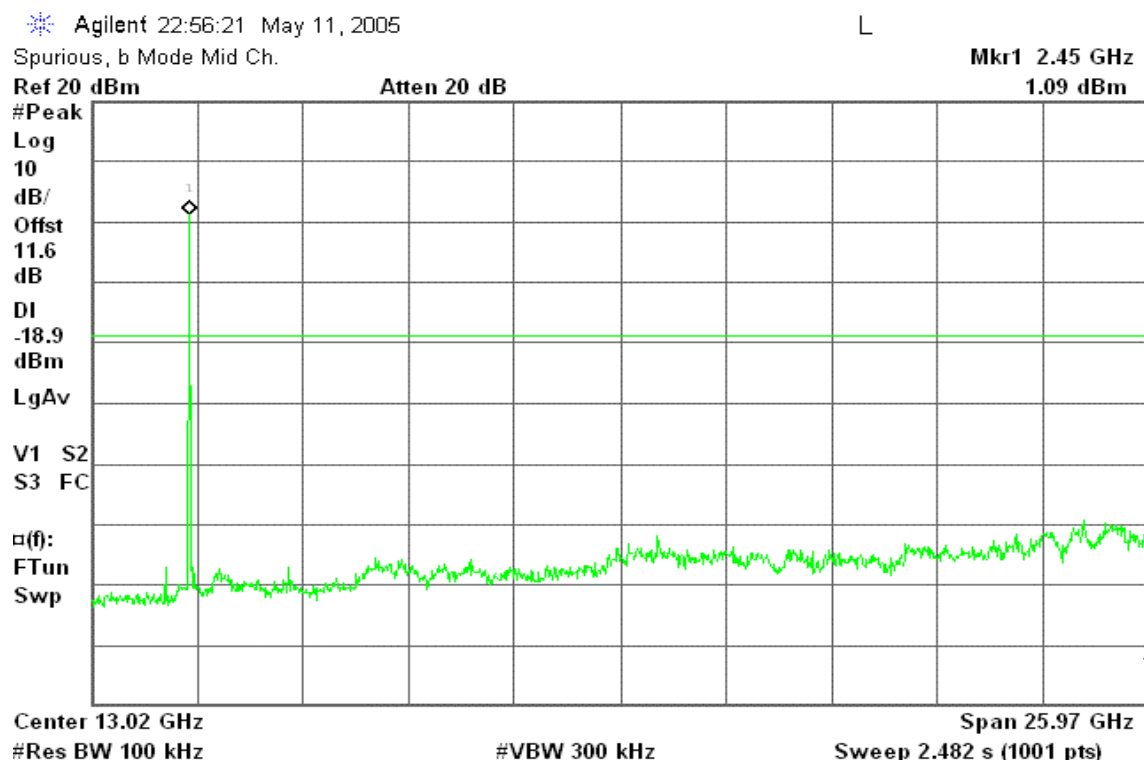
## Mode: AWS1708FO

### IEEE 802.11b

#### CH Low



#### CH Mid





## CH High

Agilent 23:25:42 May 11, 2005

L

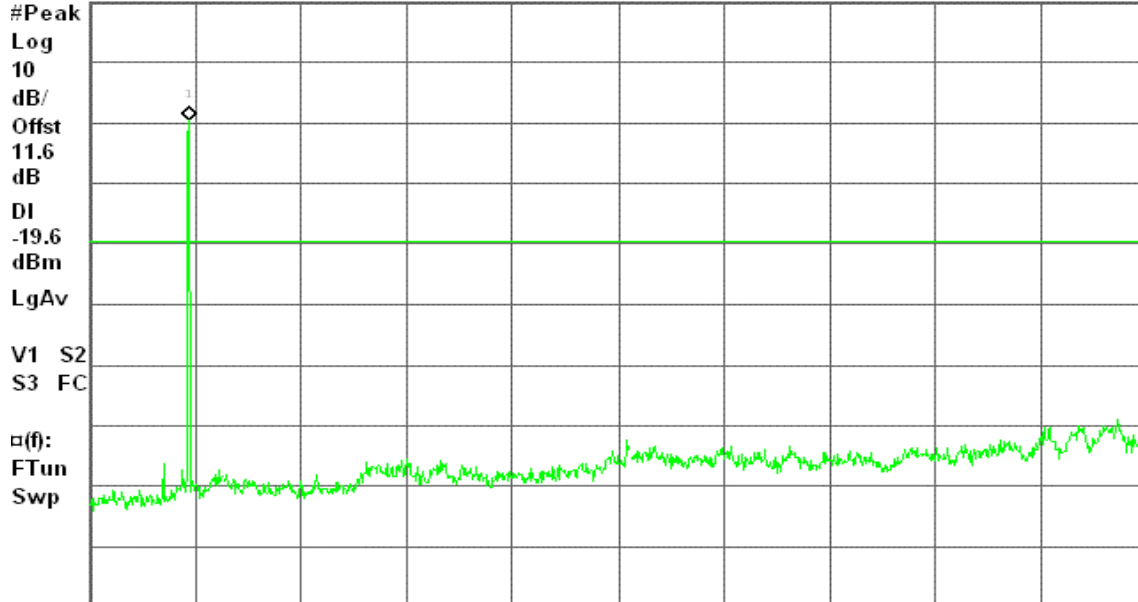
Spurious, b Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

0.35 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## IEEE 802.11g

### CH Low

Agilent 23:09:27 May 11, 2005

L

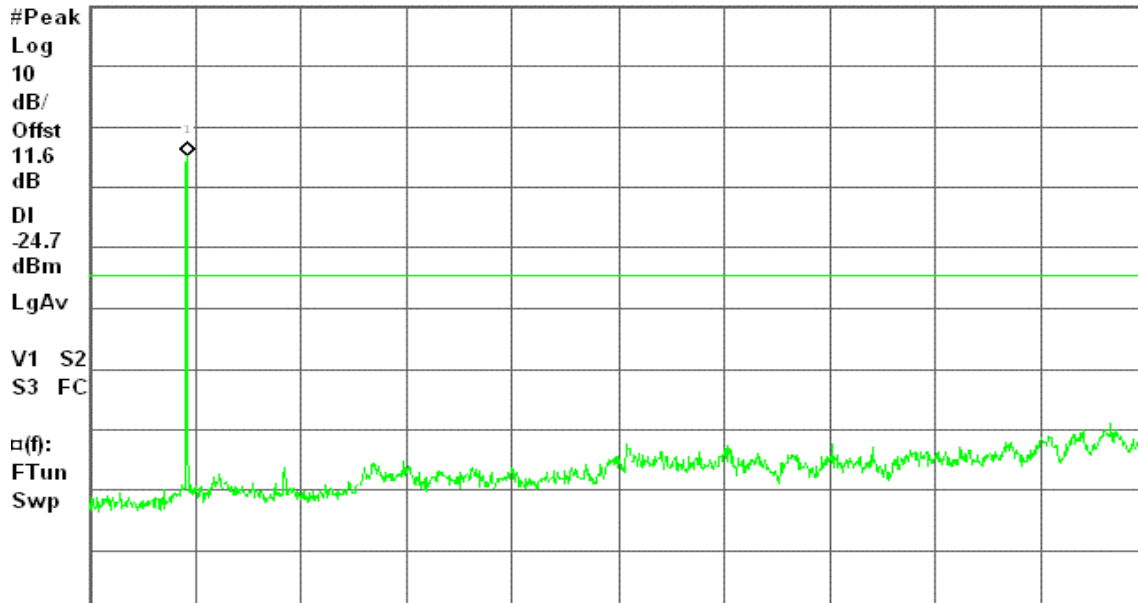
Spurious, g Mode Low Ch.

Mkr1 2.42 GHz

Ref 20 dBm

Atten 20 dB

-4.70 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)



## CH Mid

\* Agilent 23:14:43 May 11, 2005

L

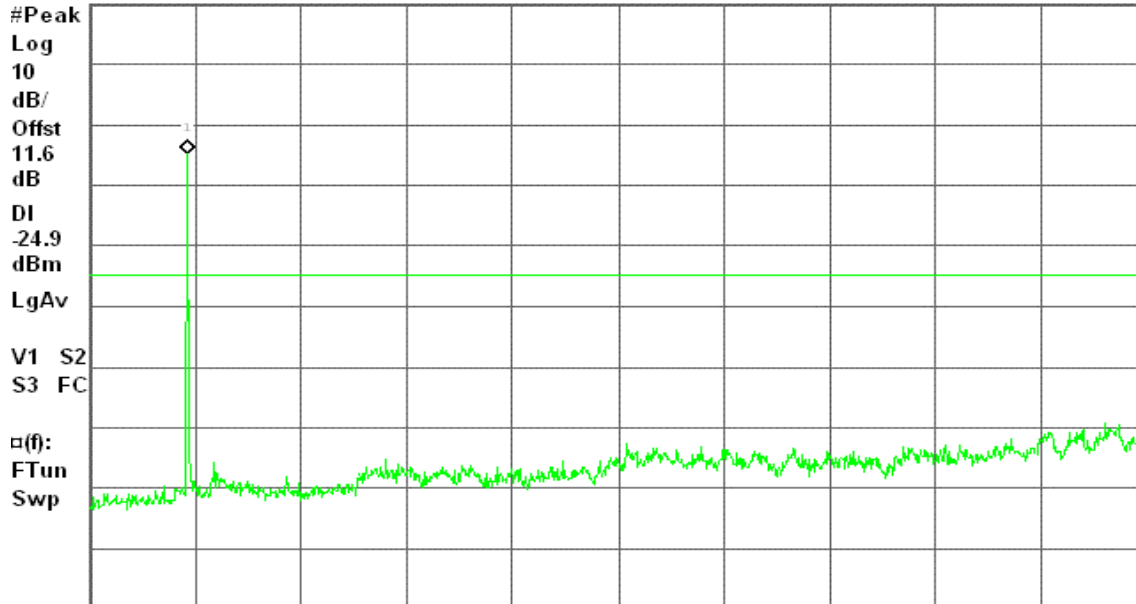
Spurious, g Mode Mid Ch.

Mkr1 2.45 GHz

Ref 20 dBm

Atten 20 dB

-4.93 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)

## CH High

\* Agilent 23:23:18 May 11, 2005

L

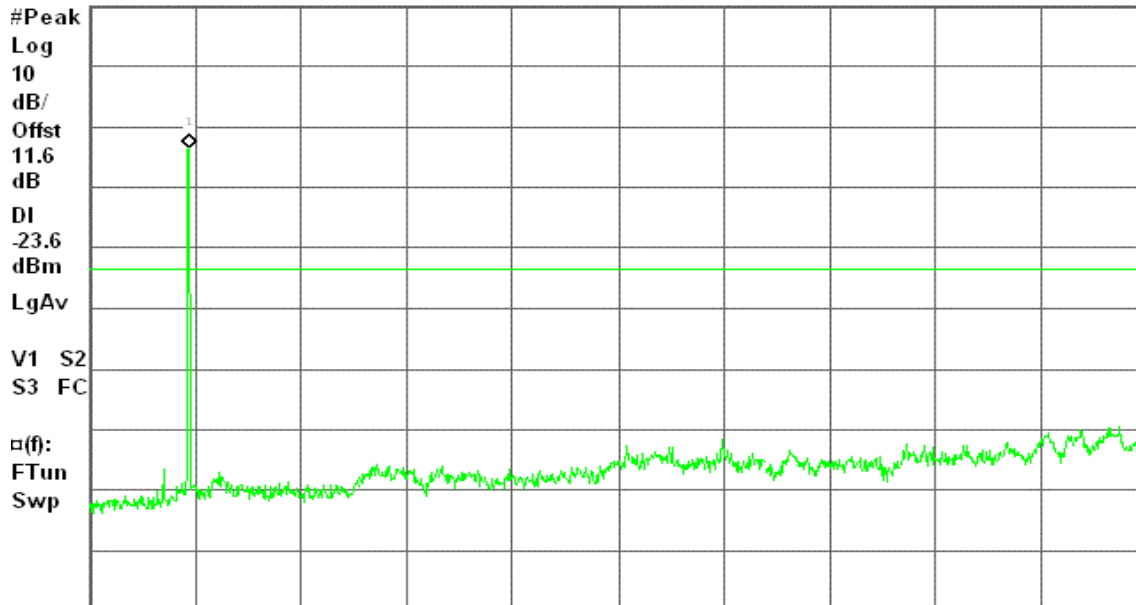
Spurious, g Mode High Ch.

Mkr1 2.47 GHz

Ref 20 dBm

Atten 20 dB

-3.62 dBm



Center 13.02 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (1001 pts)



## 7.6.2 RADIATED EMISSIONS

### LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (mV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 30-88           | 100*                  | 3                        |
| 88-216          | 150*                  | 3                        |
| 216-960         | 200*                  | 3                        |
| Above 960       | 500                   | 3                        |

**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

2. In the above emission table, the tighter limit applies at the band edges.

| Frequency (Hz) | Field Strength<br>( $\mu$ V/m at 3-meter) | Field Strength<br>(dB $\mu$ V/m at 3-meter) |
|----------------|-------------------------------------------|---------------------------------------------|
| 30-88          | 100                                       | 40                                          |
| 88-216         | 150                                       | 43.5                                        |
| 216-960        | 200                                       | 46                                          |
| Above 960      | 500                                       | 54                                          |

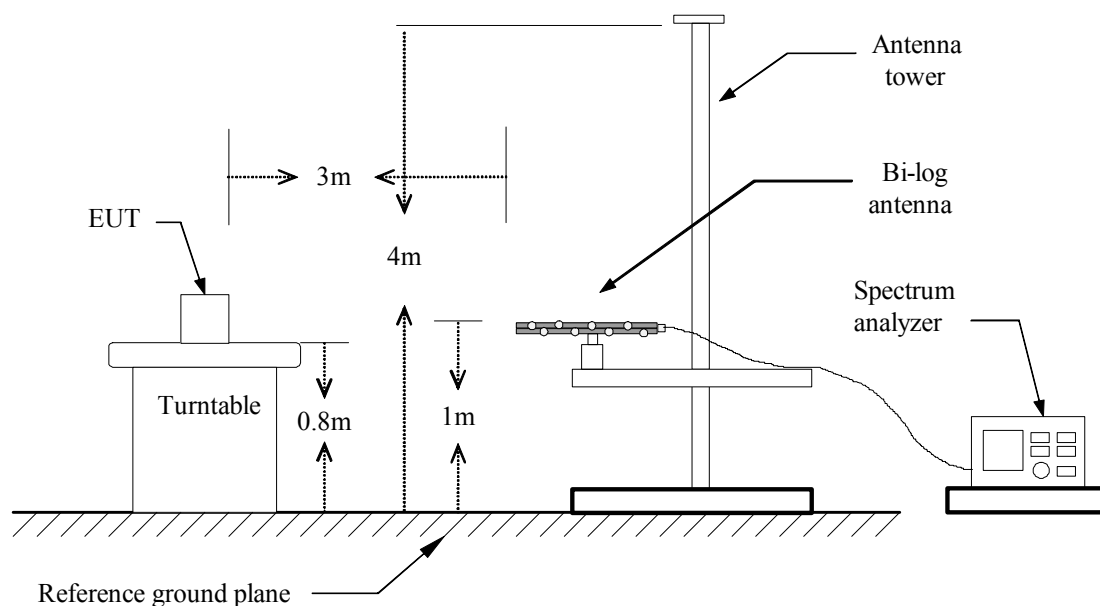
## **MEASUREMENT EQUIPMENT USED**

| Open Area Test Site # 3 |              |                |               |                 |
|-------------------------|--------------|----------------|---------------|-----------------|
| Name of Equipment       | Manufacturer | Model          | Serial Number | Calibration Due |
| EMI Test Receiver       | R&S          | ESVS20         | 838804/004    | 01/08/2006      |
| Spectrum Analyzer       | R&S          | FSP30          | 100112        | 09/23/2005      |
| Spectrum Analyzer       | Agilent      | E4446A         | MY43360131    | 01/10/2006      |
| Pre-Amplifier           | MITEC        | AFS42-00102650 | 924206        | N.C.R.          |
| Pre-Amplifier           | MITEC        | AMF-6F-260400  | 945377        | N.C.R.          |
| Bilog Antenna           | SCHWAZBECK   | VULB9163       | 145           | 07/05/2005      |
| Horn Antenna            | EMCO         | 3115           | 00022250      | 04/18/2006      |
| Horn Antenna            | EMCO         | 3116           | 2487          | 12/08/2005      |
| Turn Table              | EMCO         | 2081-1.21      | 9709-1885     | N.C.R.          |
| Antenna Tower           | EMCO         | 2075-2         | 9707-2060     | N.C.R.          |
| Controller              | EMCO         | 2090           | 9709-1256     | N.C.R.          |
| RF Switch               | ANRITSU      | MP59B          | M53867        | N.C.R.          |
| Site NSA                | C&C          | N/A            | N/A           | 09/06/2005      |

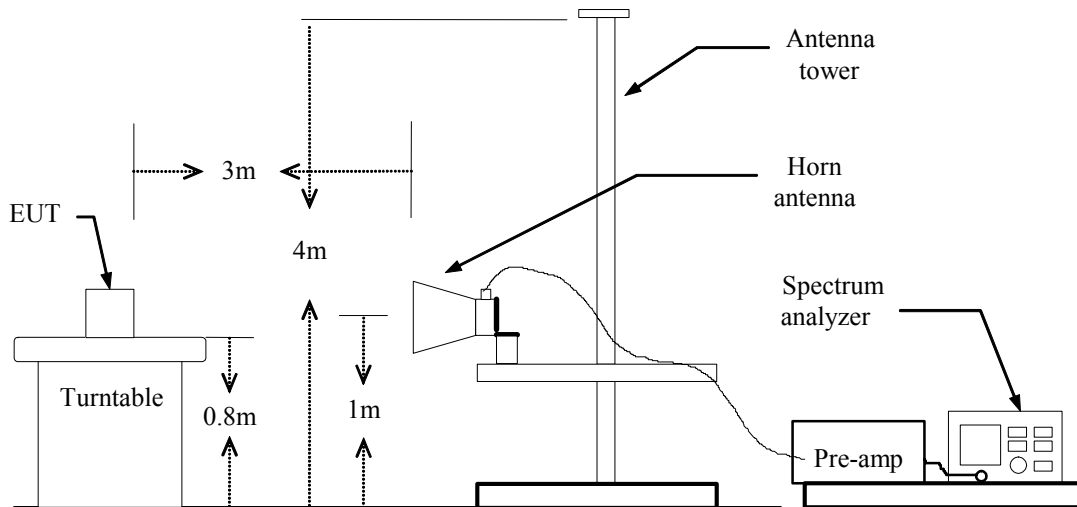
**Remark:** Each piece of equipment is scheduled for calibration once a year.

### **Test Configuration**

**Below 1 GHz**



## Above 1 GHz



## TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

**TEST RESULTS****Below 1 GHz****Operation Mode:** Normal Link**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq. (MHz) | Ant.Pol. H/V | Detector Mode (PK/QP) | Reading (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit 3m (dBuV/m) | Safe Margin (dB) |
|-------------|--------------|-----------------------|----------------|-------------|--------------------|-------------------|------------------|
| 238.49      | V            | Peak                  | 19.10          | 14.40       | 33.50              | 46.00             | -12.50           |
| 359.98      | V            | Peak                  | 15.20          | 16.20       | 31.40              | 46.00             | -14.60           |
| 399.97      | V            | Peak                  | 16.90          | 16.90       | 33.80              | 46.00             | -12.20           |
| 479.99      | V            | Peak                  | 13.90          | 19.60       | 33.50              | 46.00             | -12.50           |
| 599.99      | V            | Peak                  | 9.00           | 22.60       | 31.60              | 46.00             | -14.40           |
| 800.69      | V            | Peak                  | 5.80           | 24.60       | 30.40              | 46.00             | -15.60           |
| 238.30      | H            | Peak                  | 18.80          | 14.40       | 33.20              | 46.00             | -12.80           |
| 320.04      | H            | Peak                  | 9.60           | 16.10       | 25.70              | 46.00             | -20.30           |
| 360.15      | H            | Peak                  | 10.50          | 16.20       | 26.70              | 46.00             | -19.30           |
| 399.99      | H            | Peak                  | 15.00          | 16.90       | 31.90              | 46.00             | -14.10           |
| 480.01      | H            | Peak                  | 9.90           | 19.60       | 29.50              | 46.00             | -16.50           |
| 799.07      | H            | Peak                  | 9.30           | 24.60       | 33.90              | 46.00             | -12.10           |

***Remark:***

- 1. Measuring frequencies from 30 MHz to the 1GHz.*
- 2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.*
- 3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
- 4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

**Above 1 GHz****Mode: WUB1700S/SL****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 70.00                     | 57.19                   | -5.47                   | 64.53            | 51.72          | 74.00                     | 54.00                   | -2.28          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 67.27                     | 57.65                   | -5.47                   | 61.80            | 52.18          | 74.00                     | 54.00                   | -1.82          | AVG    |
| 7236.00        | H               | 59.29                     | 48.03                   | -0.24                   | 59.05            | 47.79          | 74.00                     | 54.00                   | -6.21          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 64.94                     | 55.44                   | -5.41                   | 59.53            | 50.03          | 74.00                     | 54.00                   | -3.97          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4878.00        | H               | 64.19                     | 55.83                   | -5.41                   | 58.78            | 50.42          | 74.00                     | 54.00                   | -3.58          | AVG    |
| 7311.00        | H               | 48.00                     | ---                     | -0.08                   | 47.92            | ---            | 74.00                     | 54.00                   | -6.08          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4923.67        | V               | 66.35                     | 57.74                   | -5.34                   | 61.01            | 52.40          | 74.00                     | 54.00                   | -1.60          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.92        | H               | 60.32                     | 51.40                   | -5.34                   | 54.98            | 46.06          | 74.00                     | 54.00                   | -7.94          | AVG    |
| 7386.00        | H               | 47.63                     | ---                     | 0.06                    | 47.69            | ---            | 74.00                     | 54.00                   | -6.31          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 66.30                     | 55.93                   | -5.47                   | 60.83            | 50.46          | 74.00                     | 54.00                   | -3.54          | AVG    |
| 7236.00        | V               | 51.71                     | ---                     | -0.24                   | 51.47            | ---            | 74.00                     | 54.00                   | -2.53          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 64.07                     | 53.30                   | -5.47                   | 58.60            | 47.83          | 74.00                     | 54.00                   | -6.17          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 62.20                     | 53.34                   | -5.41                   | 56.79            | 47.93          | 74.00                     | 54.00                   | -6.07          | AVG    |
| 7311.00        | V               | 45.98                     | ---                     | -0.08                   | 45.90            | ---            | 74.00                     | 54.00                   | -8.10          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4874.00        | H               | 61.24                     | 53.23                   | -5.41                   | 55.83            | 47.82          | 74.00                     | 54.00                   | -6.18          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4925.00        | V               | 68.42                     | 56.80                   | -5.34                   | 63.08            | 51.46          | 74.00                     | 54.00                   | -2.54          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.00        | H               | 66.43                     | 54.14                   | -5.34                   | 61.09            | 48.80          | 74.00                     | 54.00                   | -5.20          | AVG    |
| 7387.00        | H               | 51.77                     | ---                     | 0.06                    | 51.83            | ---            | 74.00                     | 54.00                   | -2.17          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto

**Mode: AWS1705FOL****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 54.85                     | ---                     | -5.47                   | 49.38            | ---            | 74.00                     | 54.00                   | -4.62          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 49.50                     | ---                     | -5.47                   | 44.03            | ---            | 74.00                     | 54.00                   | -9.97          | Peak   |
| 7236.00        | H               | 48.62                     | ---                     | -0.24                   | 48.38            | ---            | 74.00                     | 54.00                   | -5.62          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 50.49                     | ---                     | -5.41                   | 45.08            | ---            | 74.00                     | 54.00                   | -8.92          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4878.00        | H               | 47.46                     | ---                     | -5.41                   | 42.05            | ---            | 74.00                     | 54.00                   | -11.95         | Peak   |
| 7311.00        | H               | 49.32                     | ---                     | -0.08                   | 49.24            | ---            | 74.00                     | 54.00                   | -4.76          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4923.67        | V               | 56.05                     | ---                     | -5.34                   | 50.71            | ---            | 74.00                     | 54.00                   | -3.29          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.92        | H               | 51.57                     | ---                     | -5.34                   | 46.23            | ---            | 74.00                     | 54.00                   | -7.77          | Peak   |
| 7386.00        | H               | 48.50                     | ---                     | 0.06                    | 48.56            | ---            | 74.00                     | 54.00                   | -5.44          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 52.96                     | ---                     | -5.47                   | 47.49            | ---            | 74.00                     | 54.00                   | -6.51          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 49.88                     | ---                     | -5.47                   | 44.41            | ---            | 74.00                     | 54.00                   | -9.59          | Peak   |
| 7236.00        | H               | 50.15                     | ---                     | -0.24                   | 49.91            | ---            | 74.00                     | 54.00                   | -4.09          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 52.43                     | ---                     | -5.41                   | 47.02            | ---            | 74.00                     | 54.00                   | -6.98          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4874.00        | H               | 47.01                     | ---                     | -5.41                   | 41.60            | ---            | 74.00                     | 54.00                   | -12.40         | Peak   |
| 7311.00        | H               | 48.56                     | ---                     | -0.08                   | 48.48            | ---            | 74.00                     | 54.00                   | -5.52          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4925.00        | V               | 51.38                     | ---                     | -5.34                   | 46.04            | ---            | 74.00                     | 54.00                   | -7.96          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.00        | H               | 48.59                     | ---                     | -5.34                   | 43.25            | ---            | 74.00                     | 54.00                   | -10.75         | Peak   |
| 7387.00        | H               | 47.79                     | ---                     | 0.06                    | 47.85            | ---            | 74.00                     | 54.00                   | -6.15          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto

**Mode: AWS1708P****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 57.29                     | ---                     | -5.47                   | 51.82            | ---            | 74.00                     | 54.00                   | -2.18          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 54.88                     | ---                     | -5.47                   | 49.41            | ---            | 74.00                     | 54.00                   | -4.59          | Peak   |
| 7236.00        | H               | 49.08                     | ---                     | -0.24                   | 48.84            | ---            | 74.00                     | 54.00                   | -5.16          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 57.36                     | ---                     | -5.41                   | 51.95            | ---            | 74.00                     | 54.00                   | -2.05          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4878.00        | H               | 53.08                     | ---                     | -5.41                   | 47.67            | ---            | 74.00                     | 54.00                   | -6.33          | Peak   |
| 7311.00        | H               | 49.72                     | ---                     | -0.08                   | 49.64            | ---            | 74.00                     | 54.00                   | -4.36          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4923.67        | V               | 65.72                     | 52.80                   | -5.34                   | 60.38            | 47.46          | 74.00                     | 54.00                   | -6.54          | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.92        | H               | 61.50                     | 48.30                   | -5.34                   | 56.16            | 42.96          | 74.00                     | 54.00                   | -11.04         | AVG    |
| 7386.00        | H               | 49.97                     | ---                     | 0.06                    | 50.03            | ---            | 74.00                     | 54.00                   | -3.97          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 50.97                     | ---                     | -5.47                   | 45.50            | ---            | 74.00                     | 54.00                   | -8.50          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 49.15                     | ---                     | -5.47                   | 43.68            | ---            | 74.00                     | 54.00                   | -10.32         | Peak   |
| 7236.00        | H               | 48.19                     | ---                     | -0.24                   | 47.95            | ---            | 74.00                     | 54.00                   | -6.05          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 51.72                     | ---                     | -5.41                   | 46.31            | ---            | 74.00                     | 54.00                   | -7.69          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4874.00        | H               | 49.74                     | ---                     | -5.41                   | 44.33            | ---            | 74.00                     | 54.00                   | -9.67          | Peak   |
| 7311.00        | H               | 48.40                     | ---                     | -0.08                   | 48.32            | ---            | 74.00                     | 54.00                   | -5.68          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4925.00        | V               | 60.06                     | 47.84                   | -5.34                   | 54.72            | 42.50          | 74.00                     | 54.00                   | -11.50         | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.00        | H               | 63.13                     | 50.43                   | -5.34                   | 57.79            | 45.09          | 74.00                     | 54.00                   | -8.91          | AVG    |
| 7387.00        | H               | 54.11                     | 41.93                   | 0.06                    | 54.17            | 41.99          | 74.00                     | 54.00                   | -12.01         | AVG    |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto

**Mode: AWS1708FO****Operation Mode:** TX / IEEE 802.11b / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 60.35                     | 50.24                   | -5.47                   | 54.88            | 44.77          | 74.00                     | 54.00                   | -9.23          | AVG    |
| 7236.00        | V               | 50.24                     | ---                     | -0.24                   | 50.00            | ---            | 74.00                     | 54.00                   | -4.00          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 52.50                     | ---                     | -5.47                   | 47.03            | ---            | 74.00                     | 54.00                   | -6.97          | Peak   |
| 7236.00        | H               | 49.65                     | ---                     | -0.24                   | 49.41            | ---            | 74.00                     | 54.00                   | -4.59          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 59.40                     | 46.15                   | -5.41                   | 53.99            | 40.74          | 74.00                     | 54.00                   | -13.26         | AVG    |
| 7311.00        | V               | 48.79                     | ---                     | -0.08                   | 48.71            | ---            | 74.00                     | 54.00                   | -5.29          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4878.00        | H               | 51.50                     | ---                     | -5.41                   | 46.09            | ---            | 74.00                     | 54.00                   | -7.91          | Peak   |
| 7311.00        | H               | 48.60                     | ---                     | -0.08                   | 48.52            | ---            | 74.00                     | 54.00                   | -5.48          | Peak   |
| 9748.00        | H               | 45.01                     | ---                     | 6.71                    | 51.72            | ---            | 74.00                     | 54.00                   | -2.28          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11b / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4925.58        | V               | 61.49                     | 49.93                   | -5.34                   | 56.15            | 44.59          | 74.00                     | 54.00                   | -9.41          | AVG    |
| 7386.00        | V               | 48.51                     | ---                     | 0.06                    | 48.57            | ---            | 74.00                     | 54.00                   | -5.43          | Peak   |
| 9848.00        | V               | 40.00                     | ---                     | 6.85                    | 46.85            | ---            | 74.00                     | 54.00                   | -7.15          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.00        | H               | 51.05                     | ---                     | -5.34                   | 45.71            | ---            | 74.00                     | 54.00                   | -8.29          | Peak   |
| 7386.00        | H               | 47.64                     | ---                     | 0.06                    | 47.70            | ---            | 74.00                     | 54.00                   | -6.30          | Peak   |
| 9848.00        | H               | 44.37                     | ---                     | 6.85                    | 51.22            | ---            | 74.00                     | 54.00                   | -2.78          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Low**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4820.00        | V               | 55.82                     | ---                     | -5.47                   | 50.35            | ---            | 74.00                     | 54.00                   | -3.65          | Peak   |
| 7236.00        | V               | 48.91                     | ---                     | -0.24                   | 48.67            | ---            | 74.00                     | 54.00                   | -5.33          | Peak   |
| 9648.00        | V               | 44.93                     | ---                     | 6.56                    | 51.49            | ---            | 74.00                     | 54.00                   | -2.51          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4820.00        | H               | 50.33                     | ---                     | -5.47                   | 44.85            | ---            | 74.00                     | 54.00                   | -9.15          | Peak   |
| 7236.00        | H               | 48.86                     | ---                     | -0.24                   | 48.62            | ---            | 74.00                     | 54.00                   | -5.38          | Peak   |
| 9648.00        | H               | 45.10                     | ---                     | 6.56                    | 51.66            | ---            | 74.00                     | 54.00                   | -2.34          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH Mid**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4878.00        | V               | 54.61                     | ---                     | -5.41                   | 49.20            | ---            | 74.00                     | 54.00                   | -4.80          | Peak   |
| 7311.00        | V               | 49.32                     | ---                     | -0.08                   | 49.24            | ---            | 74.00                     | 54.00                   | -4.76          | Peak   |
| 9748.00        | V               | 44.79                     | ---                     | 6.71                    | 51.50            | ---            | 74.00                     | 54.00                   | -2.50          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4874.00        | H               | 49.21                     | ---                     | -5.41                   | 43.80            | ---            | 74.00                     | 54.00                   | -10.20         | Peak   |
| 7311.00        | H               | 49.65                     | ---                     | -0.08                   | 49.57            | ---            | 74.00                     | 54.00                   | -4.43          | Peak   |
| 9748.00        | H               | 44.03                     | ---                     | 6.71                    | 50.74            | ---            | 74.00                     | 54.00                   | -3.26          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.

**Operation Mode:** TX / IEEE 802.11g / CH High**Test Date:** May 18, 2005**Temperature:** 23°C**Tested by:** Chris Hsieh**Humidity:** 65 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------|--------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                |        |
| 4925.00        | V               | 54.56                     | ---                     | -5.34                   | 49.22            | ---            | 74.00                     | 54.00                   | -4.78          | Peak   |
| 7386.00        | V               | 49.08                     | ---                     | 0.06                    | 49.14            | ---            | 74.00                     | 54.00                   | -4.86          | Peak   |
| 9848.00        | V               | 45.05                     | ---                     | 6.85                    | 51.90            | ---            | 74.00                     | 54.00                   | -2.10          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
| 4925.00        | H               | 48.66                     | ---                     | -5.34                   | 43.32            | ---            | 74.00                     | 54.00                   | -10.68         | Peak   |
| 7386.00        | H               | 47.54                     | ---                     | 0.06                    | 47.60            | ---            | 74.00                     | 54.00                   | -6.40          | Peak   |
| 9848.00        | H               | 44.09                     | ---                     | 6.85                    | 50.94            | ---            | 74.00                     | 54.00                   | -3.06          | Peak   |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |
|                |                 |                           |                         |                         |                  |                |                           |                         |                |        |

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
  - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



## 7.7 POWERLINE CONDUCTED EMISSIONS

### LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

| Frequency Range (MHz) | Limits (dB $\mu$ V) |          |
|-----------------------|---------------------|----------|
|                       | Quasi-peak          | Average  |
| 0.15 to 0.50          | 66 to 56            | 56 to 46 |
| 0.50 to 5             | 56                  | 46       |
| 5 to 30               | 60                  | 50       |

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### MEASUREMENT EQUIPMENT USED

| Name of Equipment                | Manufacturer       | Model  | Serial Number | Calibration Due |
|----------------------------------|--------------------|--------|---------------|-----------------|
| EMI TEST RECEIVER<br>9kHz-30MHz  | ROHDE &<br>SCHWARZ | ESHS30 | 828144/003    | 09/24/2005      |
| TWO-LINE V-NETWORK<br>9kHz-30MHz | SCHAFFNER          | NNB41  | 03/10013      | 06/11/2005      |
| LISN 10kHz-100MHz                | EMCO               | 3825/2 | 9106-1809     | 02/17/2006      |

**Remark:** Each piece of equipment is scheduled for calibration once a year.

### Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

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



## TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

### Test Data

**Operation Mode:** Normal Link      **Test Date:** March 11, 2005  
**Temperature:** 25°C      **Tested by:** Jason Lin  
**Humidity:** 60% RH

| Freq. (MHz) | QP Reading | AV Reading | Corr. factor | QP Result | AV Result | QP Limit | AV Limit | QP Margin | AV Margin | Note |
|-------------|------------|------------|--------------|-----------|-----------|----------|----------|-----------|-----------|------|
| 0.191       | 37.34      | 32.33      | 10.08        | 47.42     | 42.41     | 63.99    | 53.99    | -16.58    | -11.59    | L1   |
| 0.254       | 27.78      | 24.45      | 10.09        | 37.87     | 34.54     | 61.63    | 51.63    | -23.76    | -17.09    | L1   |
| 0.317       | 22.12      | 19.45      | 10.09        | 32.21     | 29.54     | 59.79    | 49.79    | -27.58    | -20.25    | L1   |
| 0.384       | 19.74      | 17.66      | 10.09        | 29.83     | 27.75     | 58.19    | 48.19    | -28.36    | -20.44    | L1   |
| 0.508       | 18.62      | 17.28      | 10.11        | 28.73     | 27.39     | 56.00    | 46.00    | -27.27    | -18.61    | L1   |
| 12.006      | 20.08      | 18.70      | 10.45        | 30.53     | 29.15     | 60.00    | 50.00    | -29.47    | -20.85    | L1   |
| 0.191       | 36.00      | 31.56      | 10.07        | 46.07     | 41.63     | 63.99    | 53.99    | -17.93    | -12.37    | L2   |
| 0.256       | 25.32      | 21.47      | 10.08        | 35.40     | 31.55     | 61.56    | 51.56    | -26.16    | -20.01    | L2   |
| 0.317       | 21.92      | 18.57      | 10.09        | 32.01     | 28.66     | 59.79    | 49.79    | -27.78    | -21.13    | L2   |
| 0.381       | 16.20      | 14.01      | 10.09        | 26.29     | 24.10     | 58.26    | 48.26    | -31.97    | -24.16    | L2   |
| 0.572       | 16.52      | 16.31      | 10.13        | 26.65     | 26.44     | 56.00    | 46.00    | -29.35    | -19.56    | L2   |
| 10.998      | 22.48      | 20.19      | 10.50        | 32.98     | 30.69     | 60.00    | 50.00    | -27.02    | -19.31    | L2   |

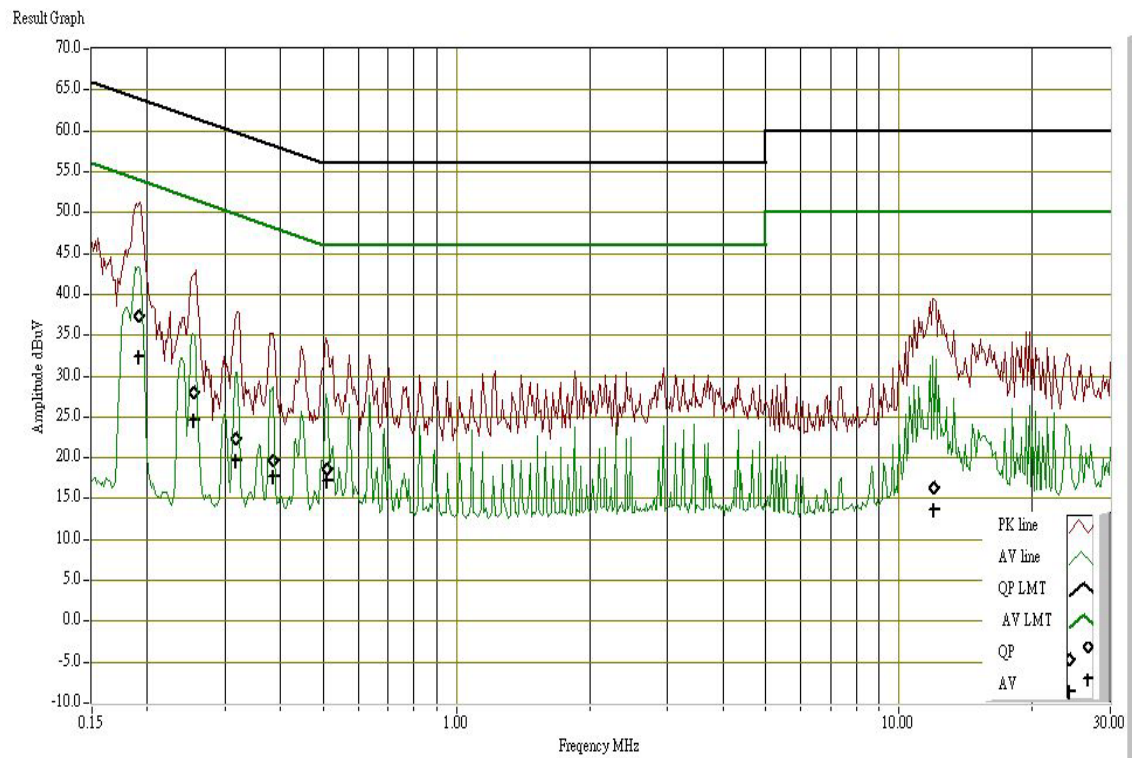
### Remark:

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. "---" denotes the emission level was or more than 2dB below the Average limit
4. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;
5. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)



## Test Plots

### Conducted emissions (Line 1)



### Conducted emissions (Line 2)

