



FCC 47 CFR PART 15 SUBPART C TEST REPORT

For

802.11b/g /n USB Adapter

Trade Name / Model:

**LanReady / WUB1900RM,
LanReady / AWM1910PM,
LanReady / AWS1902FM,
LanReady / AWS1905FM,
LanReady / AWS1908FM,
LanReady / AWS1910FM,
AirLink101 / AWLL5077,
AirLink101 / AWLL5055,
AirLink101 / AWLL5058,
Cerio / UW-200N-Mini,
Cerio / UW-210N-P,
Cerio / UW-202N-O,
Wavecore / WV-100N,
Wavecore / WV-1210NP,
Wavecore / WV-1002NF,
Ambeon / WL150A-USB,
BLUESTORK / BS-WN-USB/NANO,
Popcorn Hour / WN-150,
Pheenet / WLU-805N,
Pheenet / WLU-803N**

Issued to

**LanReady Technologies Inc.
3F, No.116, Sinhu 2nd Rd., Neihu District,
Taipei City 114, Taiwan (R.O.C.)**

Issued by

**Compliance Certification Services Inc.
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1. TEST RESULT CERTIFICATION

Applicant: LanReady Technologies Inc.
3F, No.116, Sinhu 2nd Rd., Neihu District,
Taipei City 114, Taiwan (R.O.C.)

Equipment Under Test: 802.11b/g/n USB Adapter

Trade Name / Model: LanReady / WUB1900RM,
LanReady / AWM1910PM,
LanReady / AWS1902FM,
LanReady / AWS1905FM,
LanReady / AWS1908FM,
LanReady / AWS1910FM,
AirLink101 / AWLL5077,
AirLink101 / AWLL5055,
AirLink101 / AWLL5058,
Cerio / UW-200N-Mini,
Cerio / UW-210N-P,
Cerio / UW-202N-O,
Wavecore / WV-100N,
Wavecore / WV-1210NP,
Wavecore / WV-1002NF,
Ambeon / WL150A-USB,
BLUESTORK / BS-WN-USB/NANO,
Popcorn Hour / WN-150,
Pheenet / WLU-805N,
Pheenet / WLU-803N

Date of Test: September 26 ~ November 30, 2009

| 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: 2003 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:

Rex Lai
Section Manager
Compliance Certification Services Inc.

Gina Lo
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

| Product | 802.11b/g /n USB Adapter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|--|--------------------------|--|------------|--------------|------------|----------|-----------|--------------------------|----------|-----------|--------------------------|----------|-----------|-------------------------|----------|-----------|-----------------------|----------|-----------|-----------------------|----------|-----------|------------------------|------------|----------|--------------------------|------------|----------|--------------------------|------------|----------|-------------------------|-------|--------------|--------------------------|-------|-----------|--------------------------|-------|-----------|-------------------------|----------|---------|--------------------------|----------|-----------|--------------------------|----------|-----------|-------------------------|--------|------------|--------------------------|-----------|----------------|--------------------------|--------------|--------|--------------------------|---------|----------|--------------------------|---------|----------|-------------------------|
| Trade Name / Model | LanReady / WUB1900RM, LanReady / AWM1910PM, LanReady / AWS1902FM, LanReady / AWS1905FM, LanReady / AWS1908FM, LanReady / AWS1910FM, AirLink101 / AWLL5077, AirLink101 / AWLL5055, AirLink101 / AWLL5058, Cerio / UW-200N-Mini, Cerio / UW-210N-P, Cerio / UW-202N-O, Wavecore / WV-100N, Wavecore / WV-1210NP, Wavecore / WV-1002NF, Ambeon / WL150A-USB, BLUESTORK / BS-WN-USB/NANO, Popcorn Hour / WN-150, Pheenet / WLU-805N, Pheenet / WLU-803N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Model Discrepancy | <table border="1"> <thead> <tr> <th>Trade Name</th> <th>Model Number</th> <th>Difference</th> </tr> </thead> <tbody> <tr> <td>LanReady</td> <td>WUB1900RM</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>LanReady</td> <td>AWM1910PM</td> <td>PCBA+Patch / Patch 10dBi</td> </tr> <tr> <td>LanReady</td> <td>AWS1902FM</td> <td>PCBA+Omni / Omni 1.6dBi</td> </tr> <tr> <td>LanReady</td> <td>AWS1905FM</td> <td>PCBA+Omni / Omni 5dBi</td> </tr> <tr> <td>LanReady</td> <td>AWS1908FM</td> <td>PCBA+Omni / Omni 8dBi</td> </tr> <tr> <td>LanReady</td> <td>AWS1910FM</td> <td>PCBA+Omni / Omni 10dBi</td> </tr> <tr> <td>AirLink101</td> <td>AWLL5077</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>AirLink101</td> <td>AWLL5055</td> <td>PCBA+Patch / Patch 10dBi</td> </tr> <tr> <td>AirLink101</td> <td>AWLL5058</td> <td>PCBA+Omni / Omni 1.6dBi</td> </tr> <tr> <td>Cerio</td> <td>UW-200N-Mini</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>Cerio</td> <td>UW-210N-P</td> <td>PCBA+Patch / Patch 10dBi</td> </tr> <tr> <td>Cerio</td> <td>UW-202N-O</td> <td>PCBA+Omni / Omni 1.6dBi</td> </tr> <tr> <td>Wavecore</td> <td>WV-100N</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>Wavecore</td> <td>WV-1210NP</td> <td>PCBA+Patch / Patch 10dBi</td> </tr> <tr> <td>Wavecore</td> <td>WV-1002NF</td> <td>PCBA+Omni / Omni 1.6dBi</td> </tr> <tr> <td>Ambeon</td> <td>WL150A-USB</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>BLUESTORK</td> <td>BS-WN-USB/NANO</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>Popcorn Hour</td> <td>WN-150</td> <td>USB Dongle / Chip 0.5dBi</td> </tr> <tr> <td>Pheenet</td> <td>WLU-805N</td> <td>PCBA+Patch / Patch 10dBi</td> </tr> <tr> <td>Pheenet</td> <td>WLU-803N</td> <td>PCBA+Omni / Omni 1.6dBi</td> </tr> </tbody> </table> | | | Trade Name | Model Number | Difference | LanReady | WUB1900RM | USB Dongle / Chip 0.5dBi | LanReady | AWM1910PM | PCBA+Patch / Patch 10dBi | LanReady | AWS1902FM | PCBA+Omni / Omni 1.6dBi | LanReady | AWS1905FM | PCBA+Omni / Omni 5dBi | LanReady | AWS1908FM | PCBA+Omni / Omni 8dBi | LanReady | AWS1910FM | PCBA+Omni / Omni 10dBi | AirLink101 | AWLL5077 | USB Dongle / Chip 0.5dBi | AirLink101 | AWLL5055 | PCBA+Patch / Patch 10dBi | AirLink101 | AWLL5058 | PCBA+Omni / Omni 1.6dBi | Cerio | UW-200N-Mini | USB Dongle / Chip 0.5dBi | Cerio | UW-210N-P | PCBA+Patch / Patch 10dBi | Cerio | UW-202N-O | PCBA+Omni / Omni 1.6dBi | Wavecore | WV-100N | USB Dongle / Chip 0.5dBi | Wavecore | WV-1210NP | PCBA+Patch / Patch 10dBi | Wavecore | WV-1002NF | PCBA+Omni / Omni 1.6dBi | Ambeon | WL150A-USB | USB Dongle / Chip 0.5dBi | BLUESTORK | BS-WN-USB/NANO | USB Dongle / Chip 0.5dBi | Popcorn Hour | WN-150 | USB Dongle / Chip 0.5dBi | Pheenet | WLU-805N | PCBA+Patch / Patch 10dBi | Pheenet | WLU-803N | PCBA+Omni / Omni 1.6dBi |
| Trade Name | Model Number | Difference | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanReady | WUB1900RM | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanReady | AWM1910PM | PCBA+Patch / Patch 10dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanReady | AWS1902FM | PCBA+Omni / Omni 1.6dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanReady | AWS1905FM | PCBA+Omni / Omni 5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanReady | AWS1908FM | PCBA+Omni / Omni 8dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LanReady | AWS1910FM | PCBA+Omni / Omni 10dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AirLink101 | AWLL5077 | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AirLink101 | AWLL5055 | PCBA+Patch / Patch 10dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AirLink101 | AWLL5058 | PCBA+Omni / Omni 1.6dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cerio | UW-200N-Mini | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cerio | UW-210N-P | PCBA+Patch / Patch 10dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cerio | UW-202N-O | PCBA+Omni / Omni 1.6dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wavecore | WV-100N | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wavecore | WV-1210NP | PCBA+Patch / Patch 10dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wavecore | WV-1002NF | PCBA+Omni / Omni 1.6dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambeon | WL150A-USB | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLUESTORK | BS-WN-USB/NANO | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Popcorn Hour | WN-150 | USB Dongle / Chip 0.5dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pheenet | WLU-805N | PCBA+Patch / Patch 10dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pheenet | WLU-803N | PCBA+Omni / Omni 1.6dBi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power Supply | Powered from host device. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency Range | 2412 ~ 2462 MHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| | |
|------------------------------|---|
| Transmit Power | <p>For Omni Antenna / Gain: 10 dBi IEEE 802.11b mode: 13.57 dBm IEEE 802.11g mode: 18.36 dBm draft 802.11n Standard-20 MHz Channel mode: 17.55 dBm draft 802.11n Wide-40 MHz Channel mode: 16.41 dBm</p> <p>For Patch Antenna / Gain: 10 dBi IEEE 802.11b mode: 14.26 dBm IEEE 802.11g mode: 19.39 dBm draft 802.11n Standard-20 MHz Channel mode: 18.81 dBm draft 802.11n Wide-40 MHz Channel mode: 17.76 dBm</p> <p>For Chip Antenna / Gain: 0.5 dBi IEEE 802.11b mode: 14.75 dBm IEEE 802.11g mode: 18.36 dBm draft 802.11n Standard-20 MHz Channel mode: 17.39 dBm draft 802.11n Wide-40 MHz Channel mode: 16.70 dBm</p> |
| Modulation Technique | <p>IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) draft 802.11n Wide-40 MHz Channel mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)</p> |
| Number of Channels | <p>IEEE 802.11b/g mode: 11 Channels draft 802.11n Standard-20 MHz Channel mode: 11 Channels draft 802.11n Wide-40 MHz Channel mode: 7 Channels</p> |
| Antenna Specification | <p>1. Omni Antenna / Gain: 1.6dBi 2. Omni Antenna / Gain: 5dBi 3. Omni Antenna / Gain: 8dBi 4. Omni Antenna / Gain: 10dBi 5. Patch Antenna / Gain: 10dBi 6. Chip Antenna / Gain: 0.5dBi</p> |

Remark:

1. The sample selected for test was production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: **SCD030014** 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 |
| ¹ 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 | (²) |
| 13.36 - 13.41 | 322 - 335.4 | | |

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² 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: WUB1900RM) 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 and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

IEEE 802.11b mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate and cyclic delay diversity were chosen for full testing.

IEEE 802.11g mode:

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

draft 802.11n Standard-20 MHz Channel mode:

Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

draft 802.11n Wide-40 MHz Channel mode:

Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full testing.



4. INSTRUMENT CALIBRATION

4.1 MEASURING 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.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

| Conducted Emissions Test Site | | | | |
|-------------------------------|--------------|--------|---------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| Spectrum Analyzer | Agilent | E4446A | MY43360131 | 02/23/2010 |

| 3M Semi Anechoic Chamber | | | | |
|--------------------------|-----------------|-------------------|-------------------------------------|--------------------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| Spectrum Analyzer | Agilent | E4446A | US42510252 | 09/09/2010 |
| Test Receiver | Rohde&Schwarz | ESCI | 100064 | 11/29/2010 |
| Switch Controller | TRC | Switch Controller | SC94050010 | 05/02/2010 |
| 4 Port Switch | TRC | 4 Port Switch | SC94050020 | 05/02/2010 |
| Loop Antenna | EMCO | 6502 | 8905/2356 | 05/29/2010 |
| Horn-Antenna | TRC | HA-0502 | 06 | 06/03/2010 |
| Horn-Antenna | TRC | HA-0801 | 04 | 06/17/2010 |
| Horn-Antenna | TRC | HA-1201A | 01 | 08/09/2010 |
| Horn-Antenna | TRC | HA-1301A | 01 | 08/10/2010 |
| Bilog- Antenna | Sunol Sciences | JB3 | A030205 | 03/28/2010 |
| Turn Table | Max-Full | MFT-120S | T120S940302 | N.C.R. |
| Antenna Tower | Max-Full | MFA-430 | A440940302 | N.C.R. |
| Controller | Max-Full | MF-CM886 | CC-C-1F-13 | N.C.R. |
| Site NSA | CCS | N/A | FCC MRA: TW1039 IC: 2324G-1 / -2 | 10/17/2010 11/04/2010 |
| Test S/W | LABVIEW (V 6.1) | | | |

| Powerline Conducted Emissions Test Site | | | | |
|---|--------------------|--------|---------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| EMI TEST RECEIVER 9kHz-30MHz | ROHDE & SCHWARZ | ESHS30 | 828144/003 | 11/18/2010 |
| TWO-LINE V-NETWORK 9kHz-30MHz | SCHAFFNER | NNB41 | 03/10013 | 06/10/2010 |
| LISN 10kHz-100MHz | EMCO | 3825/2 | 9106-1809 | 04/08/2010 |
| Test S/W | LABVIEW (V 6.1) | | | |



4.3 MEASUREMENT UNCERTAINTY

| PARAMETER | UNCERTAINTY |
|---|-------------|
| Powerline Conducted Emission | +/- 2.81 |
| 3M Semi Anechoic Chamber / 30MHz ~ 1GHz | +/-3.7046 |
| 3M Semi Anechoic Chamber / Above 1GHz | +/-3.0958 |

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



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

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 TABLE OF ACCREDITATIONS AND LISTINGS

| Country | Agency | Scope of Accreditation | Logo |
|---------|-----------------|--|---|
| USA | FCC | 3M Semi Anechoic Chamber (FCC MRA: TW1309) to perform FCC Part 15/18 measurements |  FCC MRA: TW1309 |
| Taiwan | TAF | LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11 |  |
| Canada | Industry Canada | 3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform |  IC 2324G-1 IC 2324G-2 |

* No part of this report may be used to claim or imply product endorsement by A2LA 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 II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

| No | Equipment | Brand | Model | Series No. | FCC ID | Data Cable | Power Cord |
|----|--------------------------------|---------|---------------|------------------|-------------------|---|---|
| 1. | LCD Monitor | Samsung | 710V | GS17H9NXA05864E | FCC DoC | VGA Cable: Shielded, 1.8m with two cores | AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core |
| 2. | Notebook PC | DELL | PP19L | GK102 A00 | QDS-BRCM1021 | N/A | AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core |
| 3. | Notebook PC | IBM | 1951-I3V(T60) | L3B2188 | FCC DoC | LAN Cable: Unshielded, 10m Line Cable: Unshielded, 10m | AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core |
| 4. | USB Mouse | DELL | MO56UO | 408031121 | FCC DoC | Shielded, 1.8m | N/A |
| 5. | USB 2.0 External HDD | TeraSyS | F12-U | A0100214-43b0012 | FCC DoC | Shielded, 1.8m | N/A |
| 6. | Wireless Pre-N Router (Remote) | BELKIN | F5D8230-4 | N/A | SA3-AGNO901APO100 | N/A | Unshielded, 1.8m |

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.

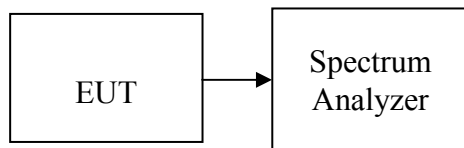
7. FCC PART 15.247 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

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 = 100 kHz, VBW = RBW, Span = 50 MHz, 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

For Omni Antenna

Test mode: IEEE 802.11b mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 10.08 | >500 | PASS |
| Mid | 2437 | 9.08 | | PASS |
| High | 2462 | 9.75 | | PASS |

Test mode: IEEE 802.11g mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 16.50 | >500 | PASS |
| Mid | 2437 | 16.50 | | PASS |
| High | 2462 | 16.50 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 17.83 | >500 | PASS |
| Mid | 2437 | 17.83 | | PASS |
| High | 2462 | 17.83 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2422 | 36.50 | >500 | PASS |
| Mid | 2437 | 36.50 | | PASS |
| High | 2452 | 36.50 | | PASS |

**For Patch Antenna****Test mode: IEEE 802.11b mode**

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 9.58 | >500 | PASS |
| Mid | 2437 | 9.83 | | PASS |
| High | 2462 | 10.08 | | PASS |

Test mode: IEEE 802.11g mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 16.50 | >500 | PASS |
| Mid | 2437 | 16.50 | | PASS |
| High | 2462 | 16.50 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 17.83 | >500 | PASS |
| Mid | 2437 | 17.67 | | PASS |
| High | 2462 | 17.83 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2422 | 36.40 | >500 | PASS |
| Mid | 2437 | 36.52 | | PASS |
| High | 2452 | 36.63 | | PASS |

**For Chip Antenna****Test mode: IEEE 802.11b mode**

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 10.08 | >500 | PASS |
| Mid | 2437 | 10.08 | | PASS |
| High | 2462 | 9.67 | | PASS |

Test mode: IEEE 802.11g mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 16.58 | >500 | PASS |
| Mid | 2437 | 16.58 | | PASS |
| High | 2462 | 16.58 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2412 | 17.83 | >500 | PASS |
| Mid | 2437 | 17.75 | | PASS |
| High | 2462 | 17.75 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------|-------------|--------|
| Low | 2422 | 36.33 | >500 | PASS |
| Mid | 2437 | 36.33 | | PASS |
| High | 2452 | 36.42 | | PASS |



Test Plot

For Omni Antenna

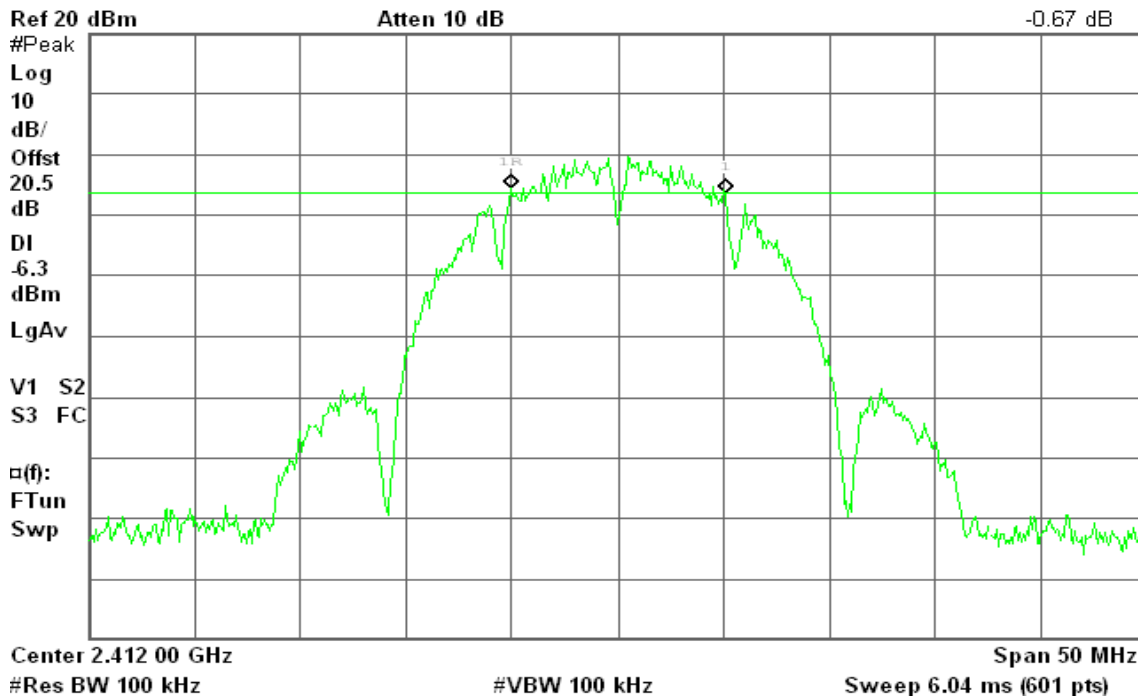
IEEE 802.11b mode

6dB Bandwidth (CH Low)

Agilent 19:33:06 Nov 19, 2009

R T

Δ Mkr1 10.08 MHz
-0.67 dB

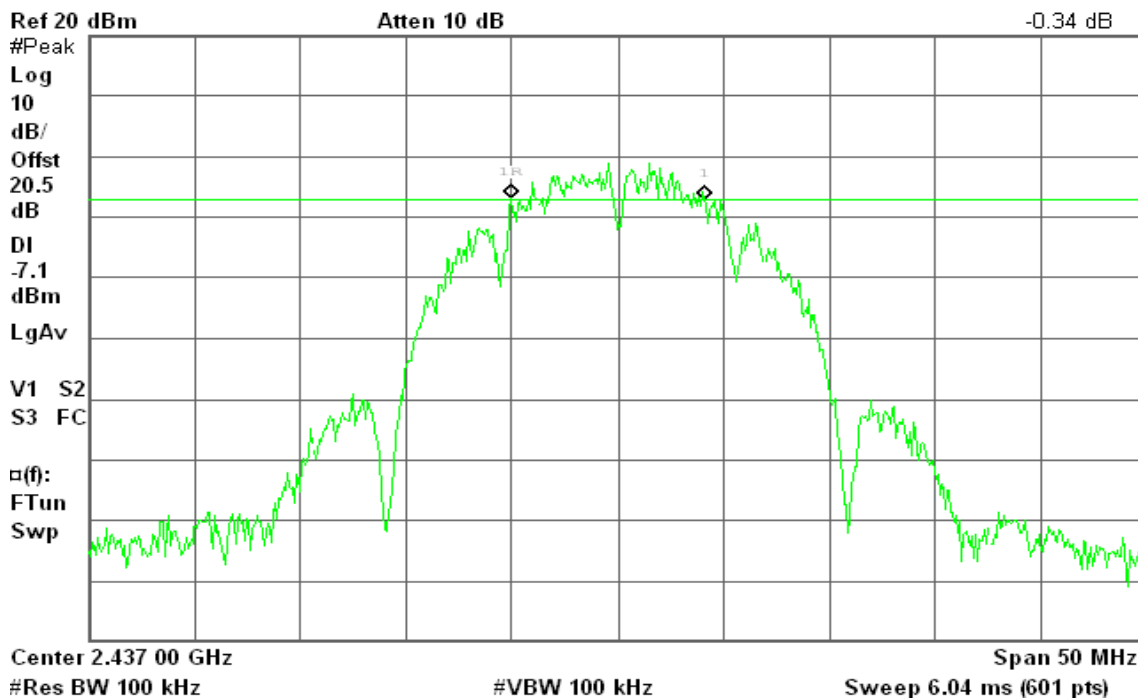


6dB Bandwidth (CH Mid)

Agilent 18:53:31 Nov 19, 2009

R T

Δ Mkr1 9.08 MHz
-0.34 dB



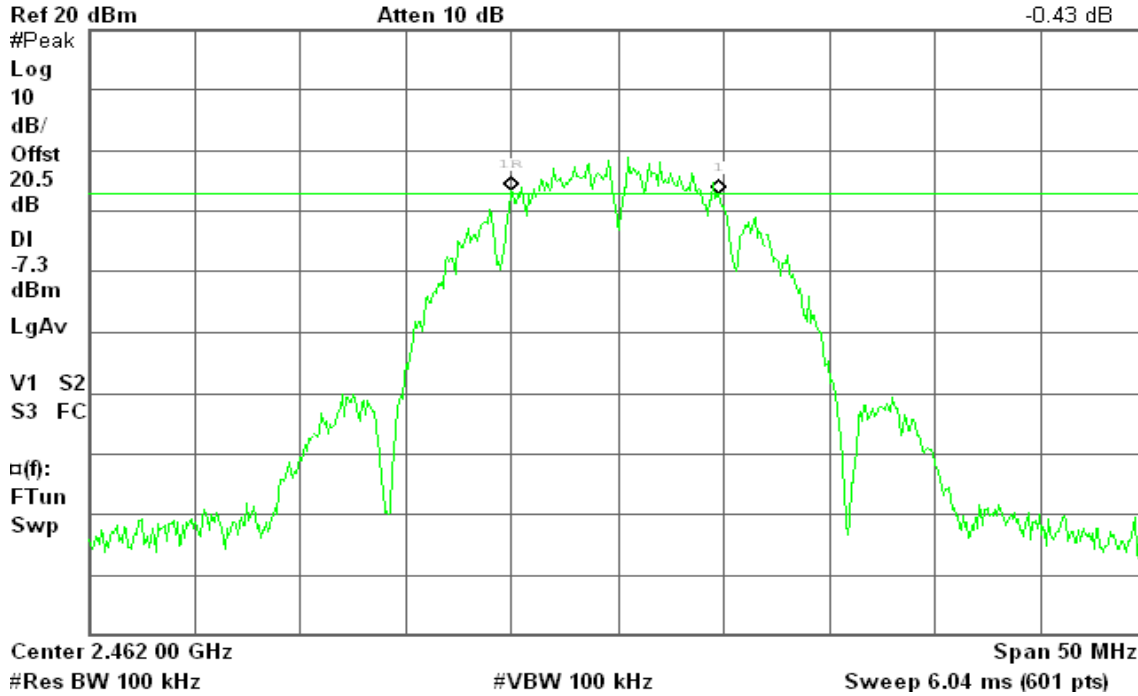


6dB Bandwidth (CH High)

Agilent 19:26:02 Nov 19, 2009

R T

Δ Mkr1 9.75 MHz
-0.43 dB



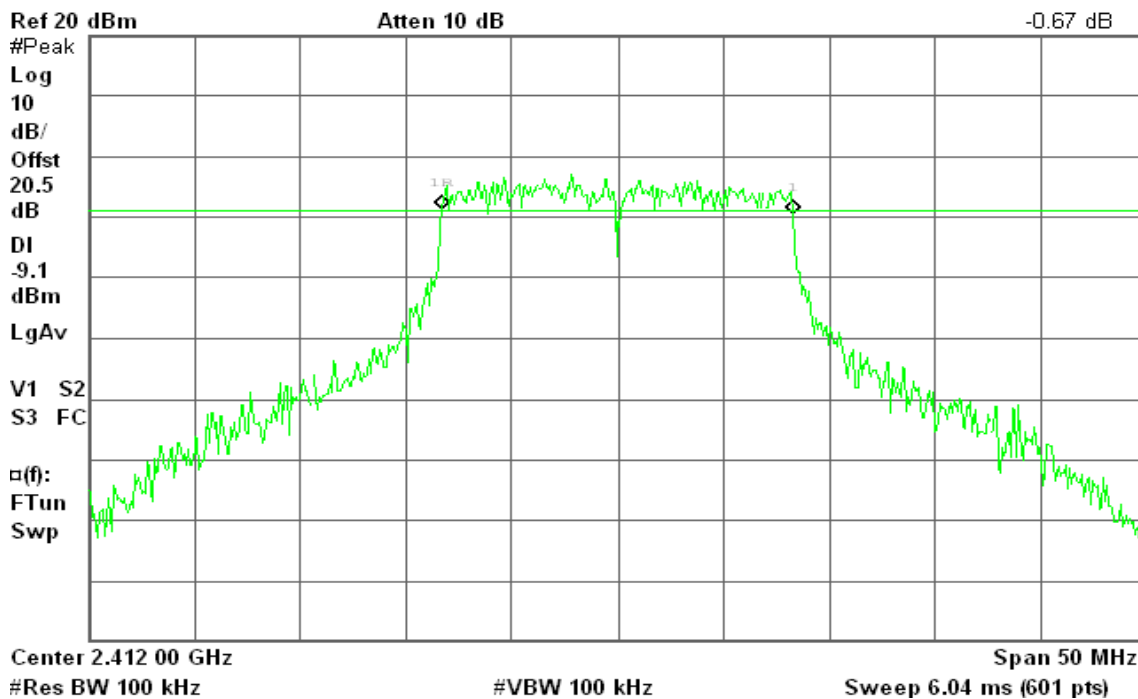
IEEE 802.11g mode

6dB Bandwidth (CH Low)

Agilent 20:06:14 Nov 19, 2009

R T

Δ Mkr1 16.50 MHz
-0.67 dB



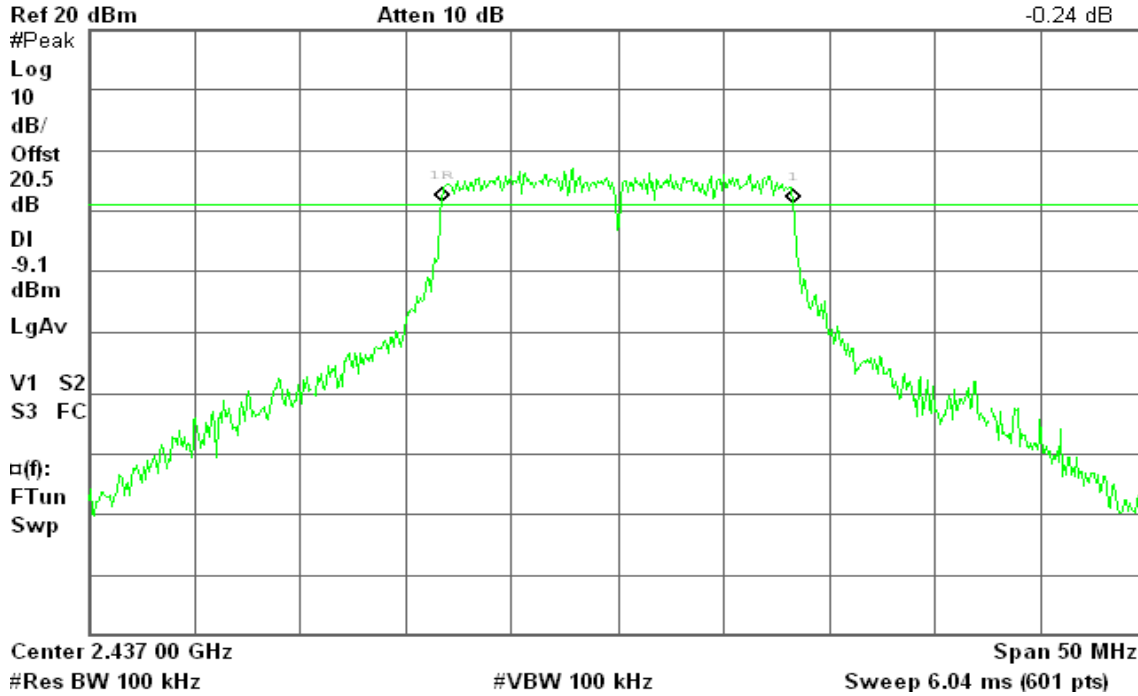


6dB Bandwidth (CH Mid)

Agilent 20:15:04 Nov 19, 2009

R T

Δ Mkr1 16.50 MHz
-0.24 dB

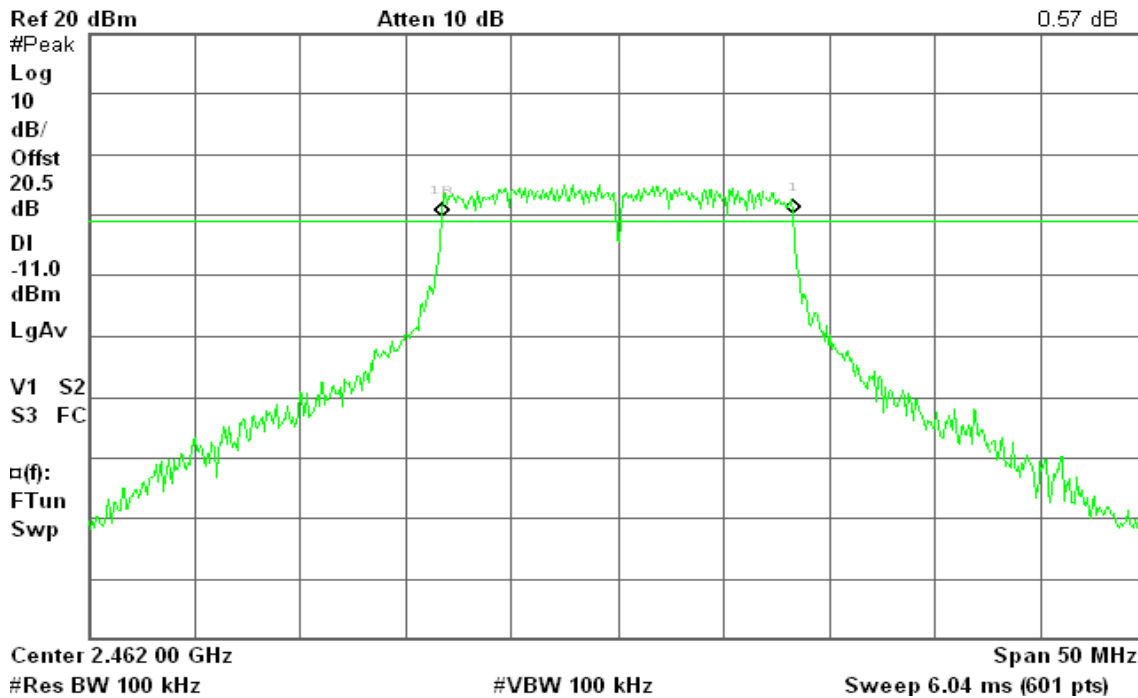


6dB Bandwidth (CH High)

Agilent 20:30:54 Nov 19, 2009

R T

Δ Mkr1 16.50 MHz
0.57 dB





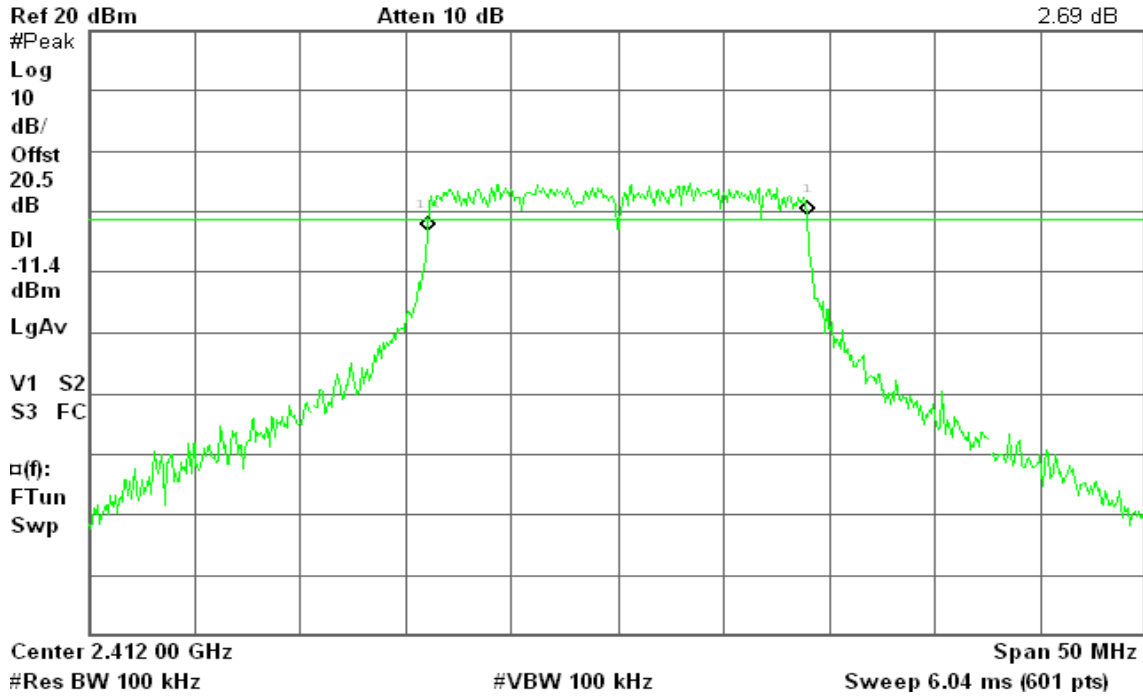
draft 802.11n Standard-20 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent 20:32:23 Nov 19, 2009

R T

Δ Mkr1 17.83 MHz
2.69 dB

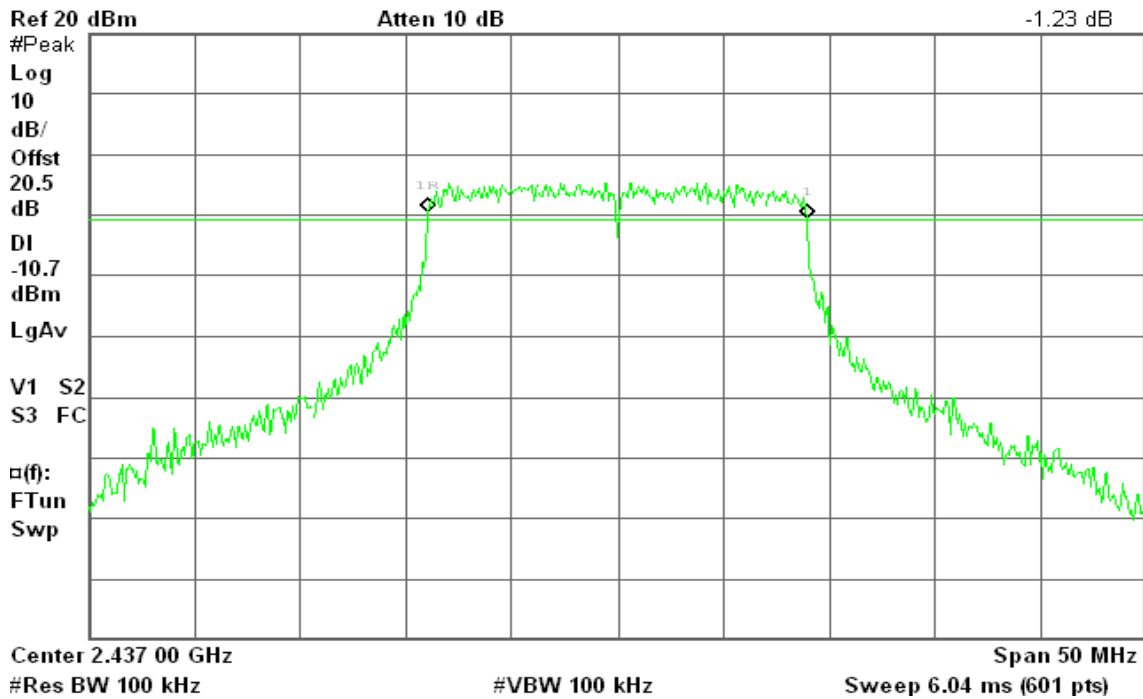


6dB Bandwidth (CH Mid)

Agilent 20:38:26 Nov 19, 2009

R T

Δ Mkr1 17.83 MHz
-1.23 dB



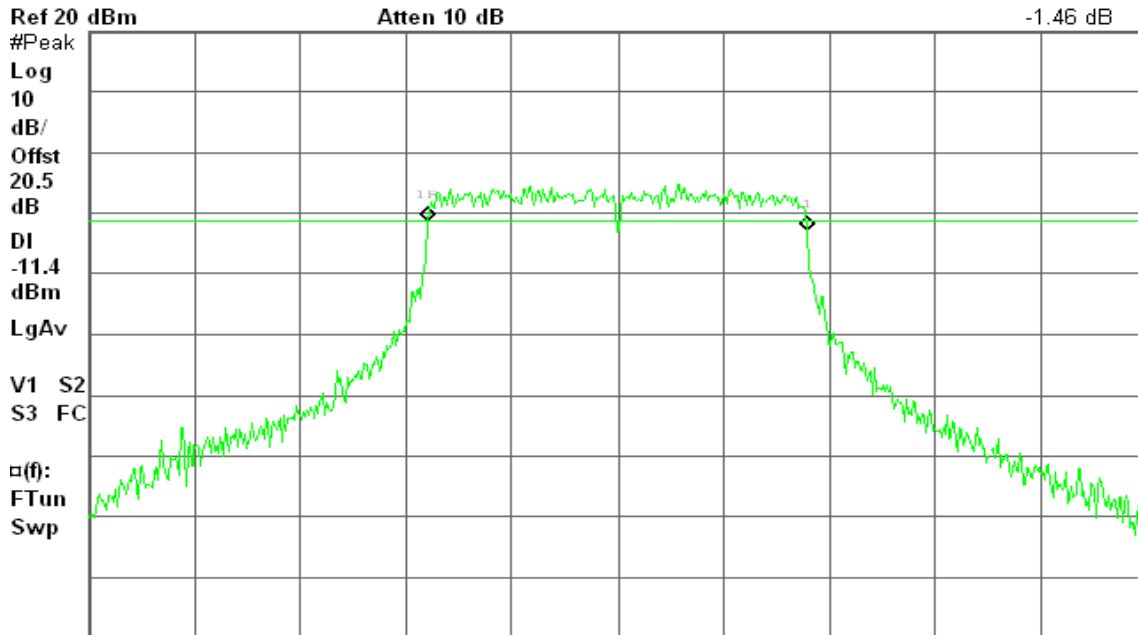


6dB Bandwidth (CH High)

Agilent 20:43:50 Nov 19, 2009

R T

Δ Mkr1 17.83 MHz
-1.46 dB



Center 2.462 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 6.04 ms (601 pts)

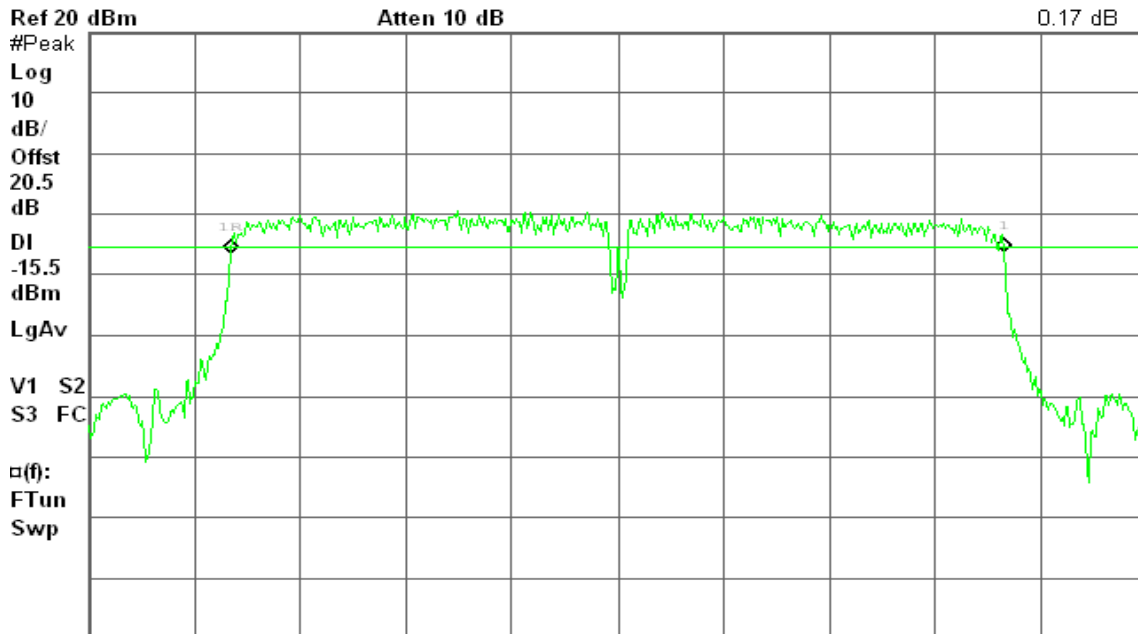
draft 802.11n Wide-40 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent 21:03:05 Nov 19, 2009

R T

Δ Mkr1 36.50 MHz
0.17 dB



Center 2.422 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 6.04 ms (601 pts)

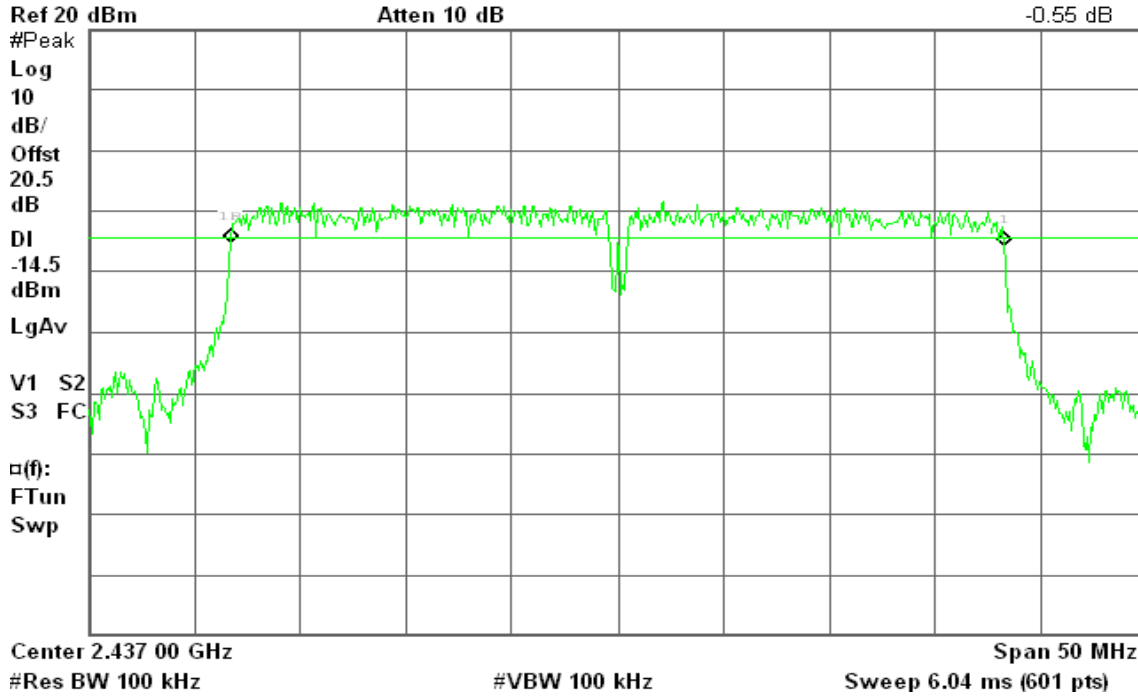


6dB Bandwidth (CH Mid)

Agilent 21:03:47 Nov 19, 2009

R T

Δ Mkr1 36.50 MHz
-0.55 dB

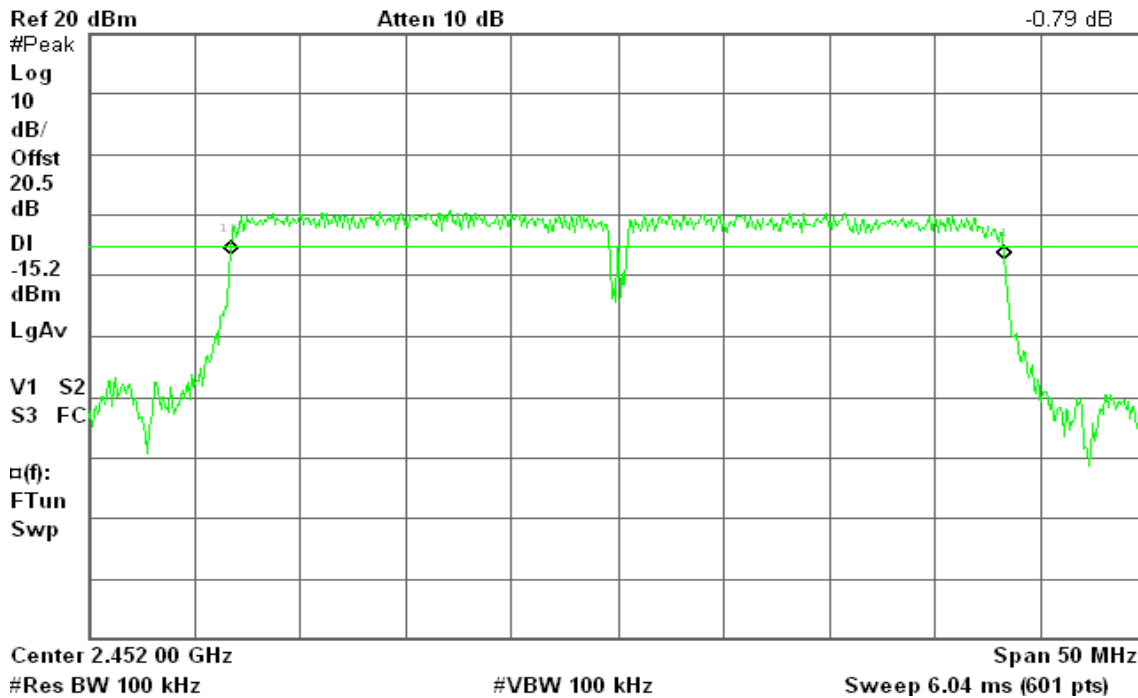


6dB Bandwidth (CH High)

Agilent 21:09:41 Nov 19, 2009

R T

Δ Mkr1 36.50 MHz
-0.79 dB





For Patch Antenna

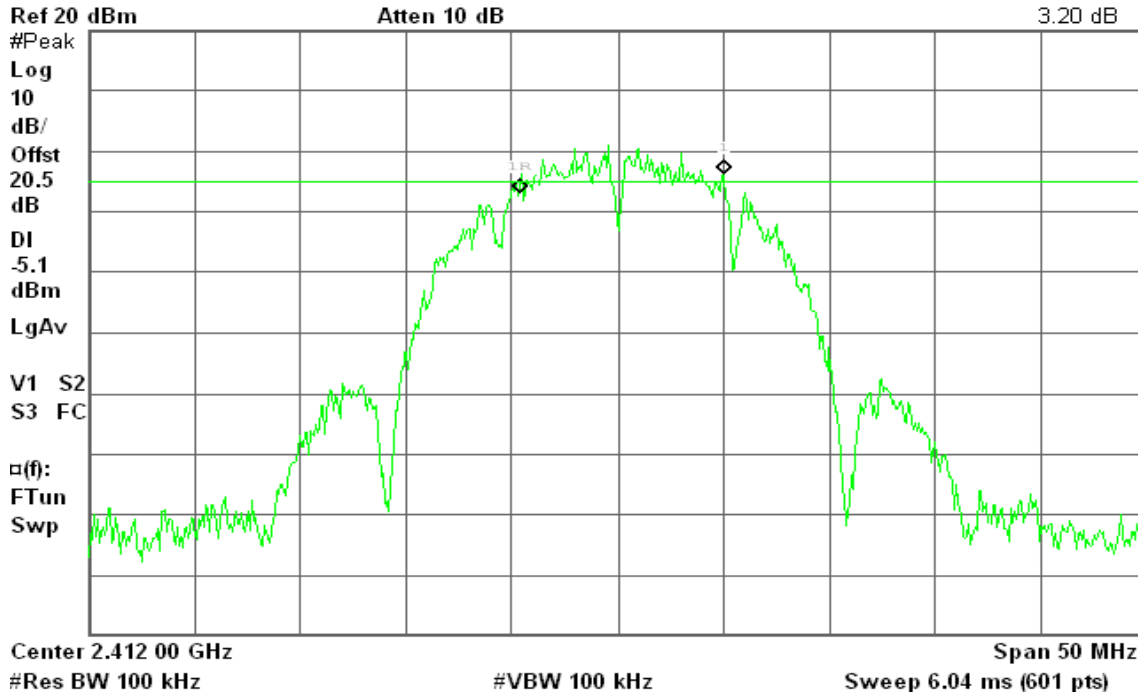
IEEE 802.11b mode

6dB Bandwidth (CH Low)

Agilent 14:42:07 Nov 30, 2009

R T

Δ Mkr1 9.58 MHz
3.20 dB

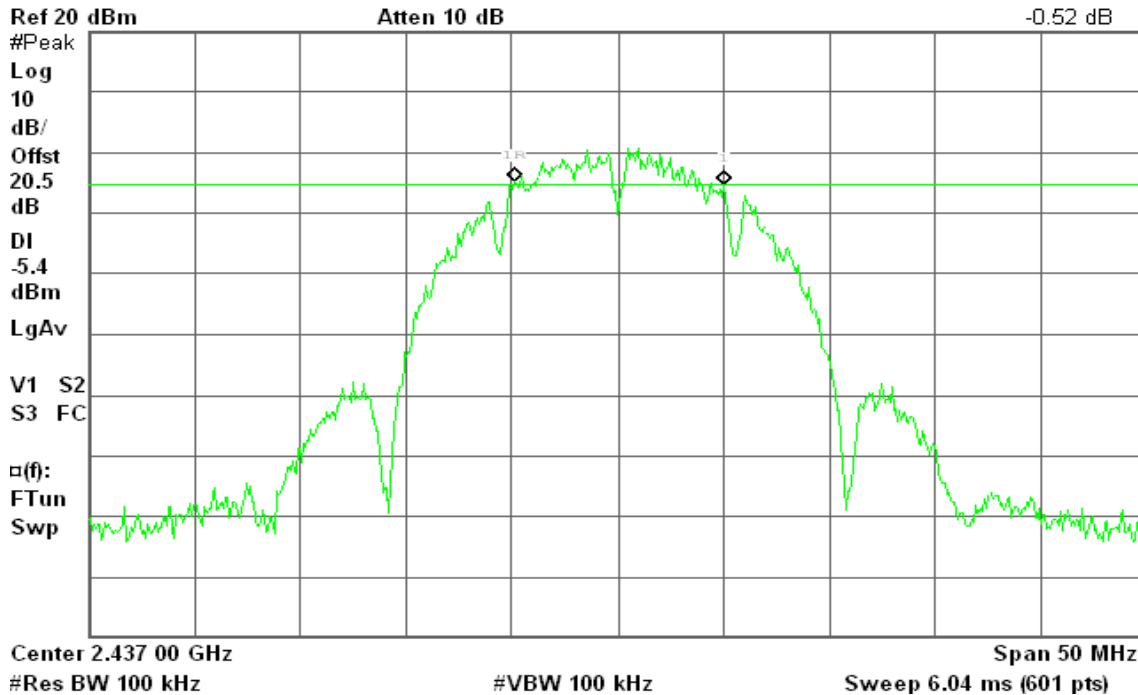


6dB Bandwidth (CH Mid)

Agilent 14:48:05 Nov 30, 2009

R T

Δ Mkr1 9.83 MHz
-0.52 dB



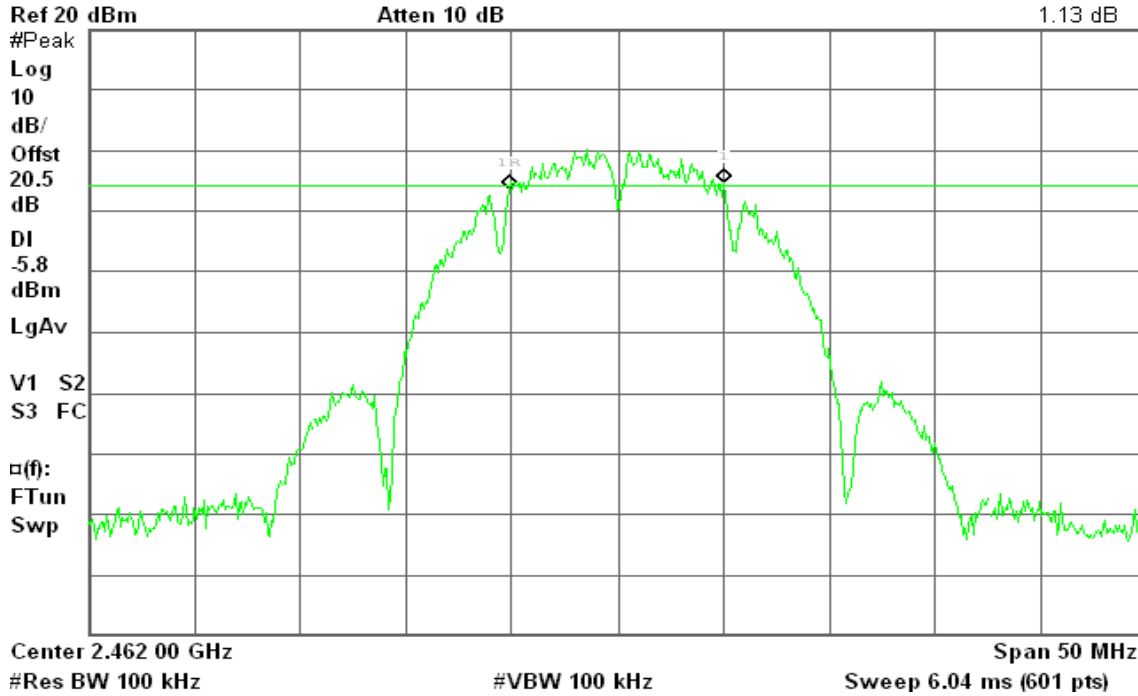


6dB Bandwidth (CH High)

Agilent 14:57:29 Nov 30, 2009

R T

Δ Mkr1 10.08 MHz
1.13 dB



IEEE 802.11g mode

6dB Bandwidth (CH Low)

Agilent 15:03:46 Nov 30, 2009

R T

Δ Mkr1 16.50 MHz
1.00 dB



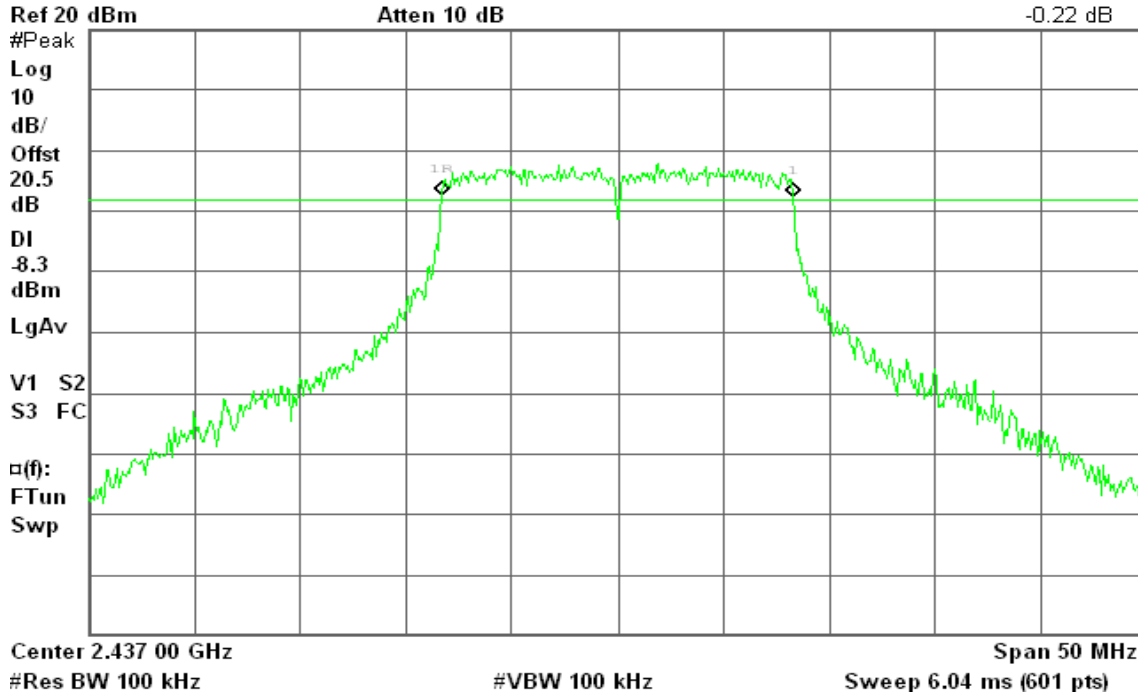


6dB Bandwidth (CH Mid)

Agilent 15:10:42 Nov 30, 2009

R T

Δ Mkr1 16.50 MHz
-0.22 dB

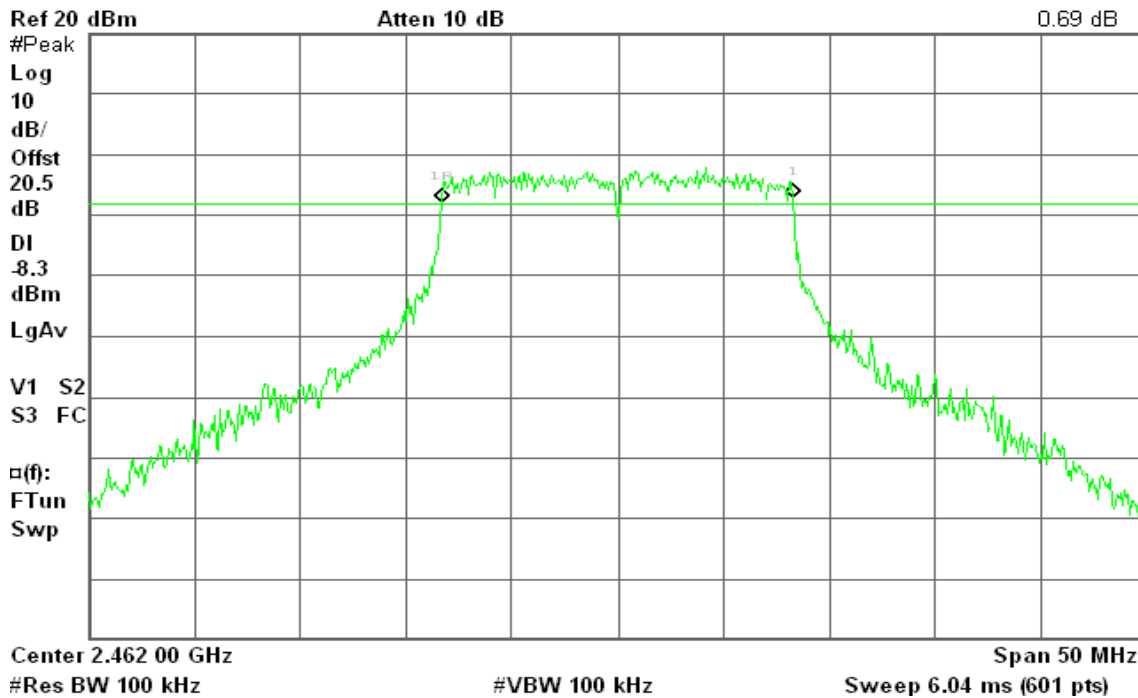


6dB Bandwidth (CH High)

Agilent 15:15:28 Nov 30, 2009

R T

Δ Mkr1 16.50 MHz
0.69 dB





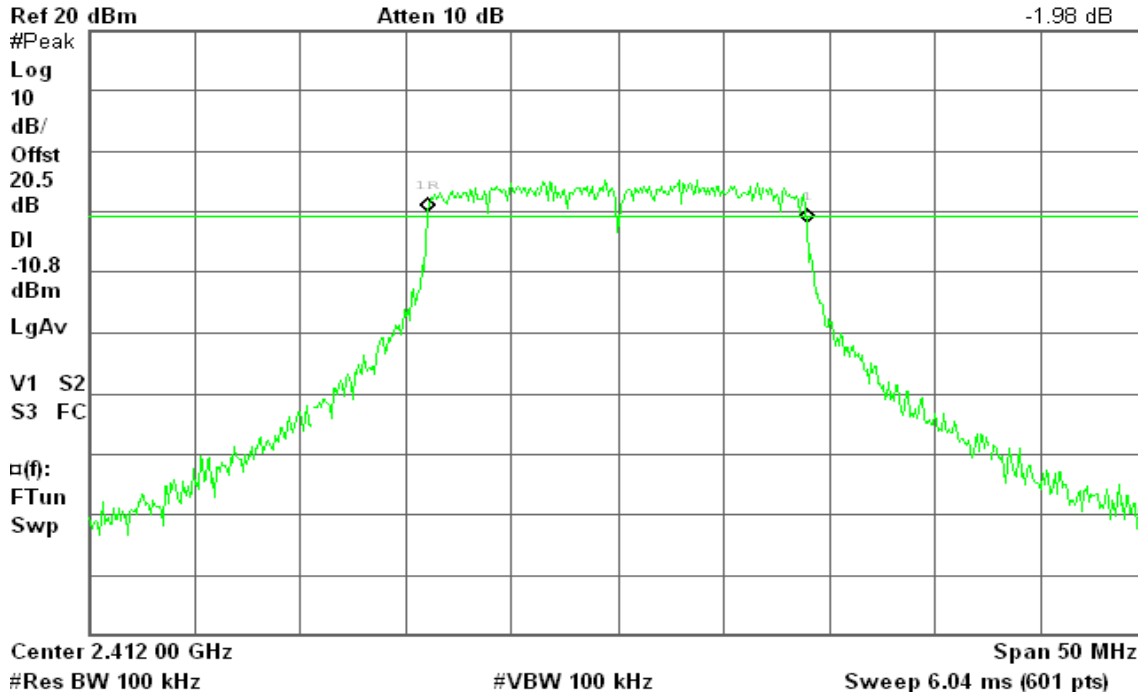
draft 802.11n Standard-20 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent 15:24:58 Nov 30, 2009

R T

Δ Mkr1 17.83 MHz
-1.98 dB

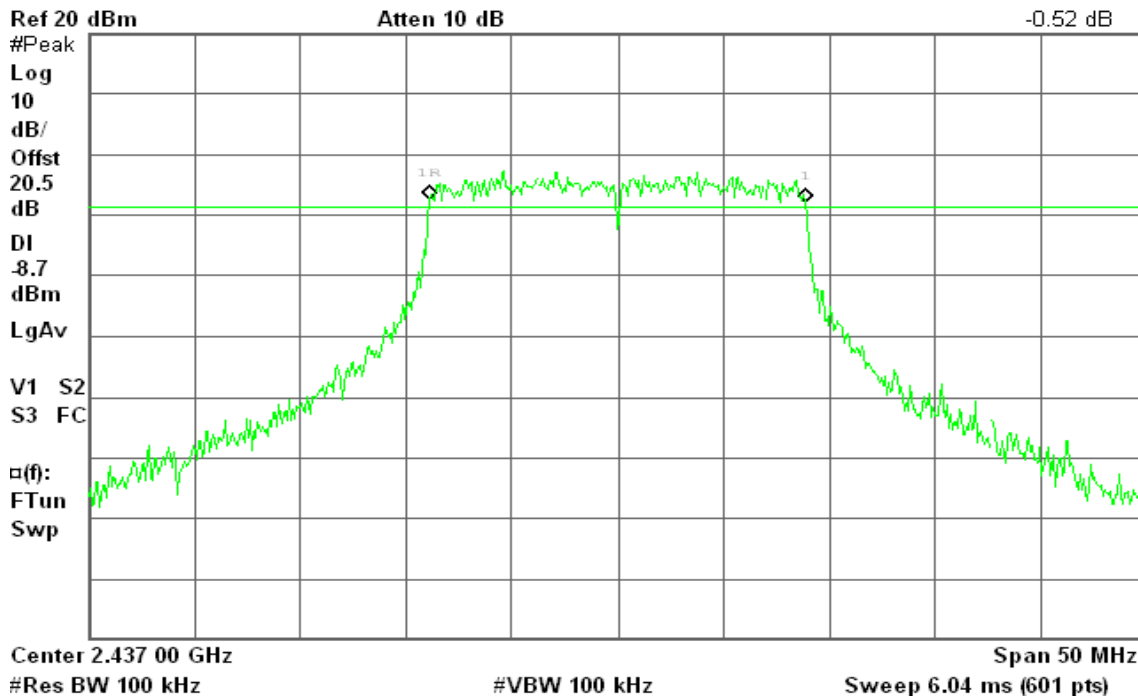


6dB Bandwidth (CH Mid)

Agilent 15:29:56 Nov 30, 2009

R T

Δ Mkr1 17.67 MHz
-0.52 dB



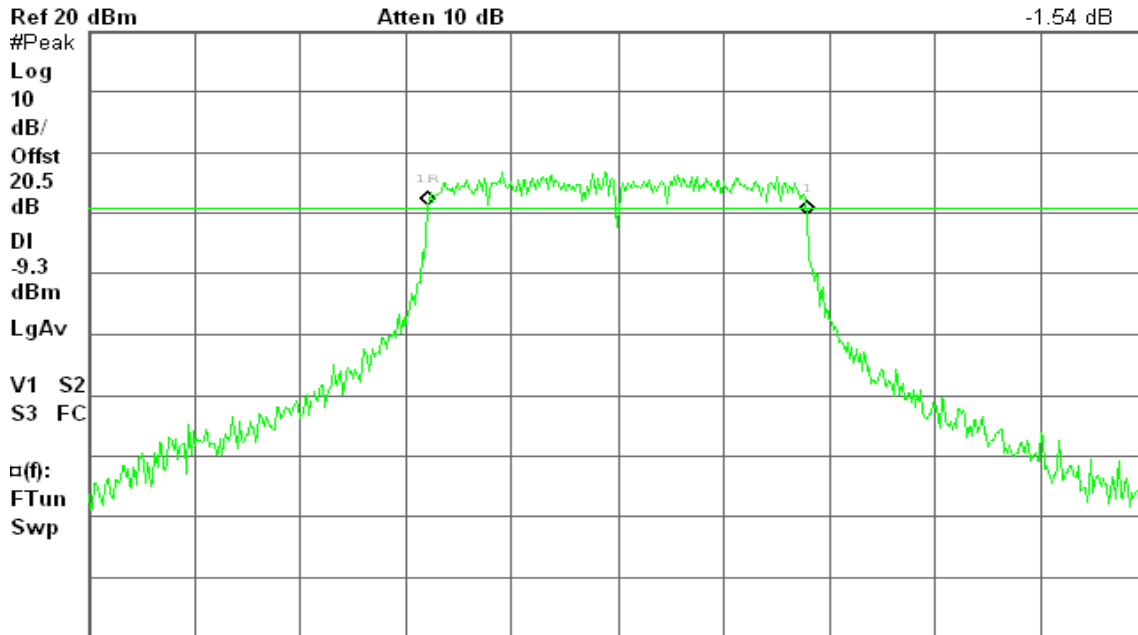


6dB Bandwidth (CH High)

Agilent 15:36:17 Nov 30, 2009

R T

Δ Mkr1 17.83 MHz
-1.54 dB



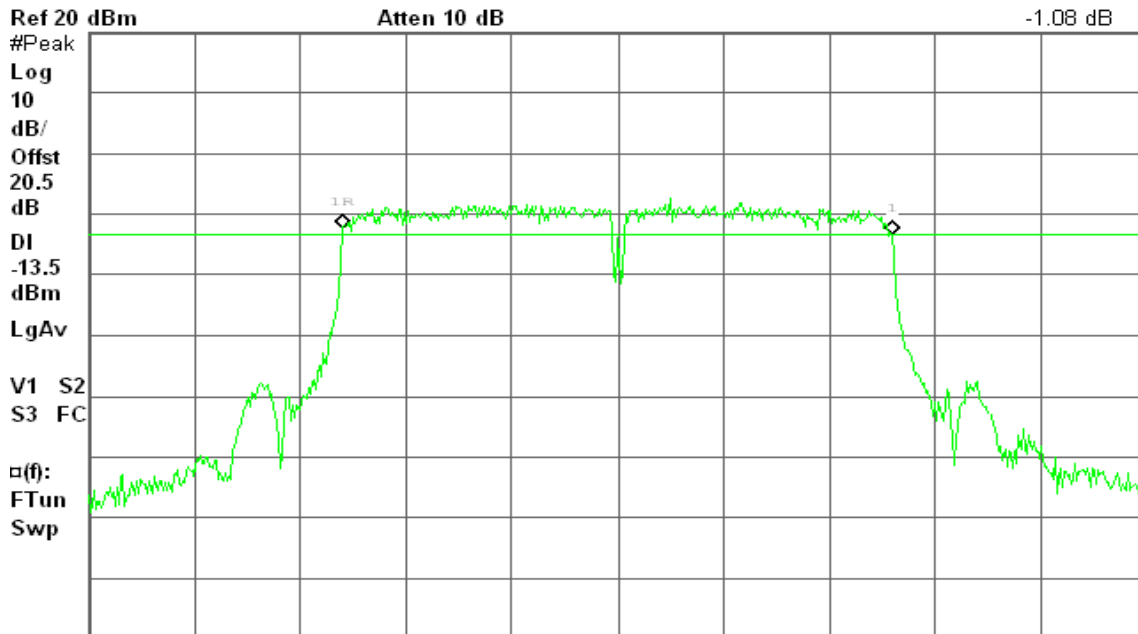
draft 802.11n Wide-40 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent 15:48:34 Nov 30, 2009

R T

Δ Mkr1 36.40 MHz
-1.08 dB



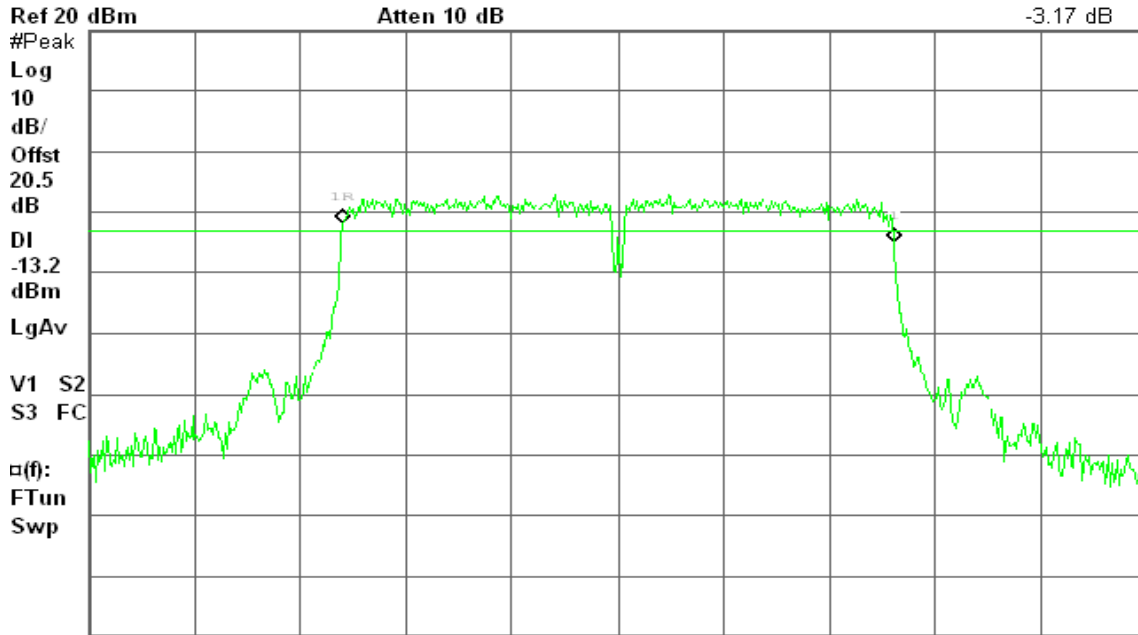


6dB Bandwidth (CH Mid)

Agilent 15:54:22 Nov 30, 2009

R T

Δ Mkr1 36.52 MHz
-3.17 dB



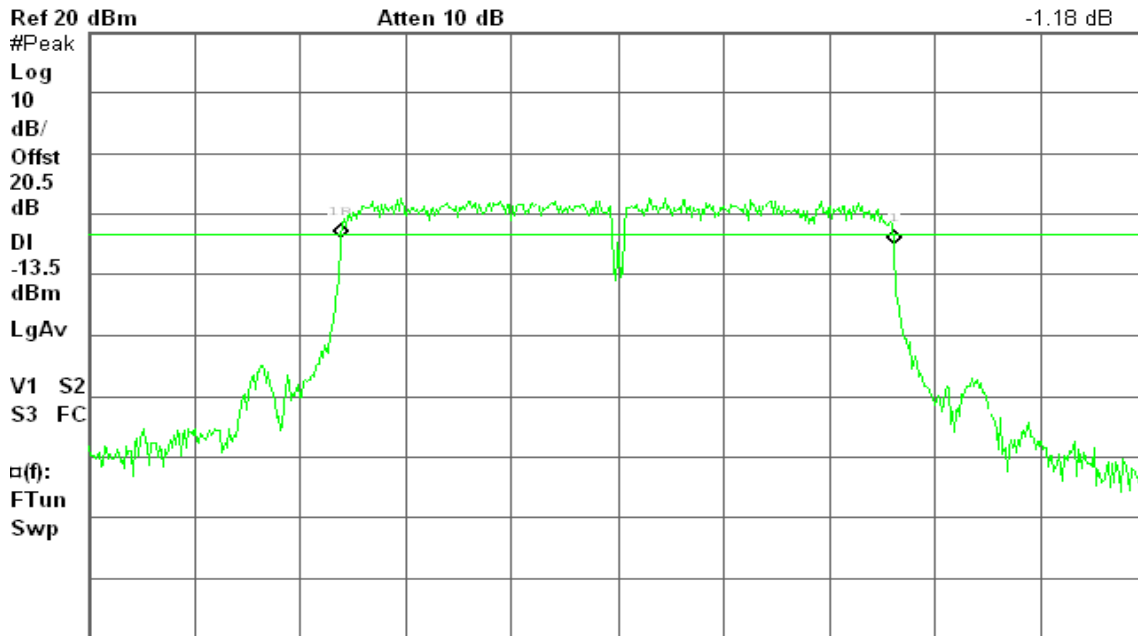
Center 2.437 00 GHz Span 70 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 8.44 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 16:07:06 Nov 30, 2009

R T

Δ Mkr1 36.63 MHz
-1.18 dB



Center 2.452 00 GHz Span 70 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 8.44 ms (601 pts)



For Chip Antenna

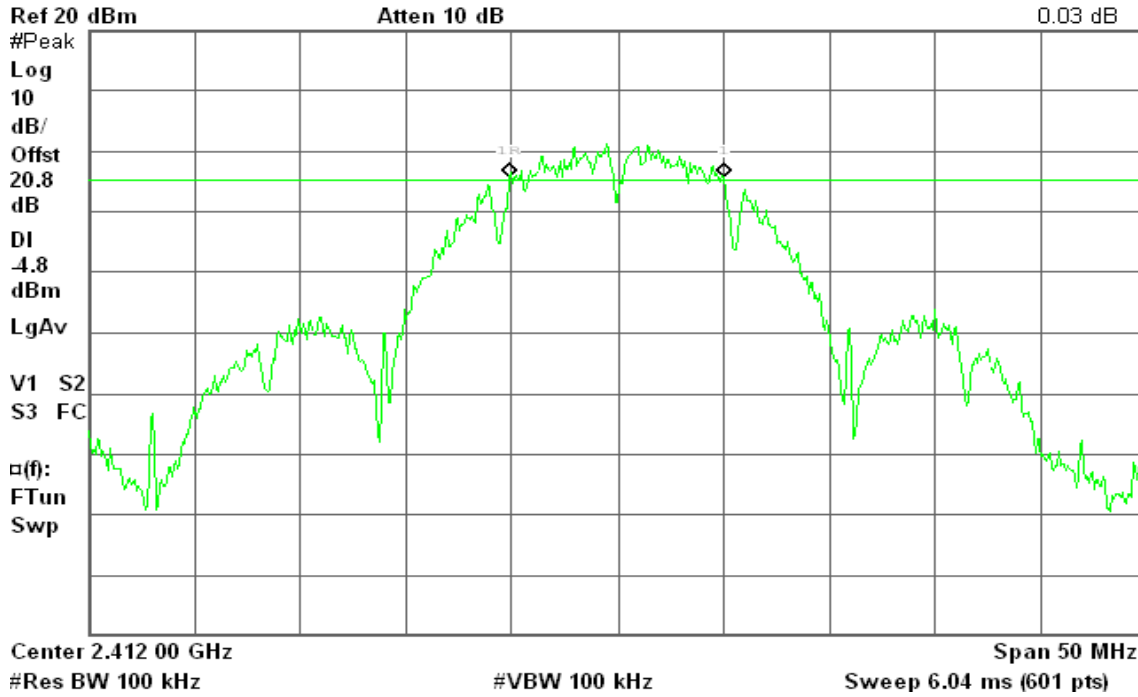
IEEE 802.11b mode

6dB Bandwidth (CH Low)

Agilent 20:45:01 Nov 20, 2009

R T

Δ Mkr1 10.08 MHz
0.03 dB

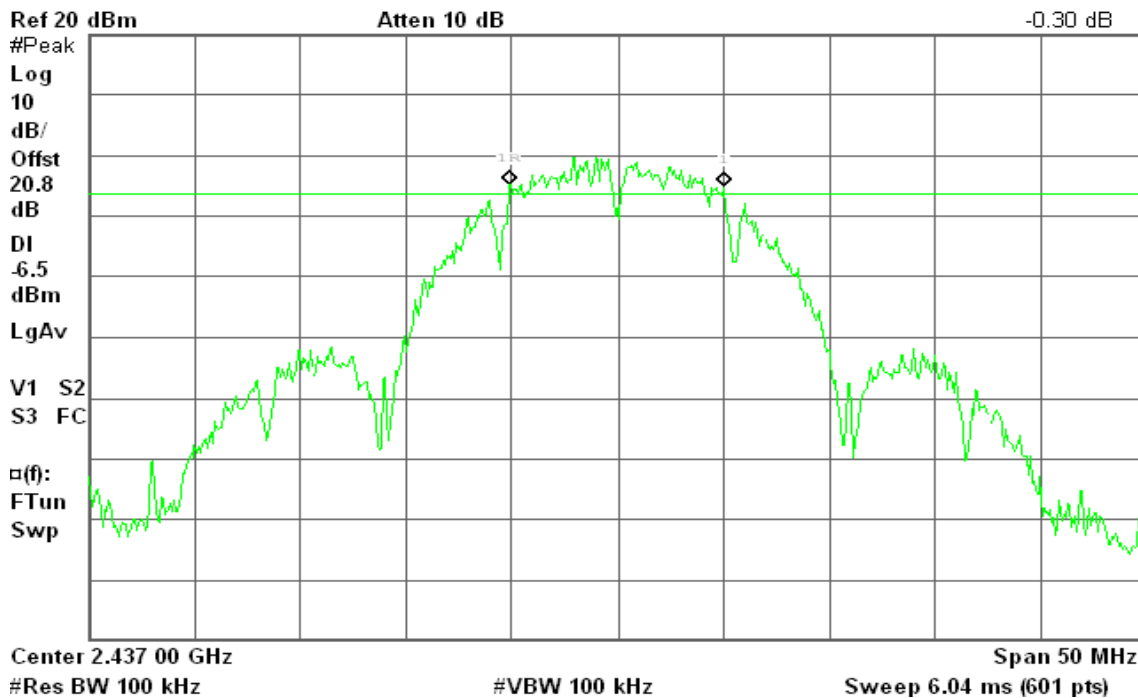


6dB Bandwidth (CH Mid)

Agilent 20:50:59 Nov 20, 2009

R L

Δ Mkr1 10.08 MHz
-0.30 dB



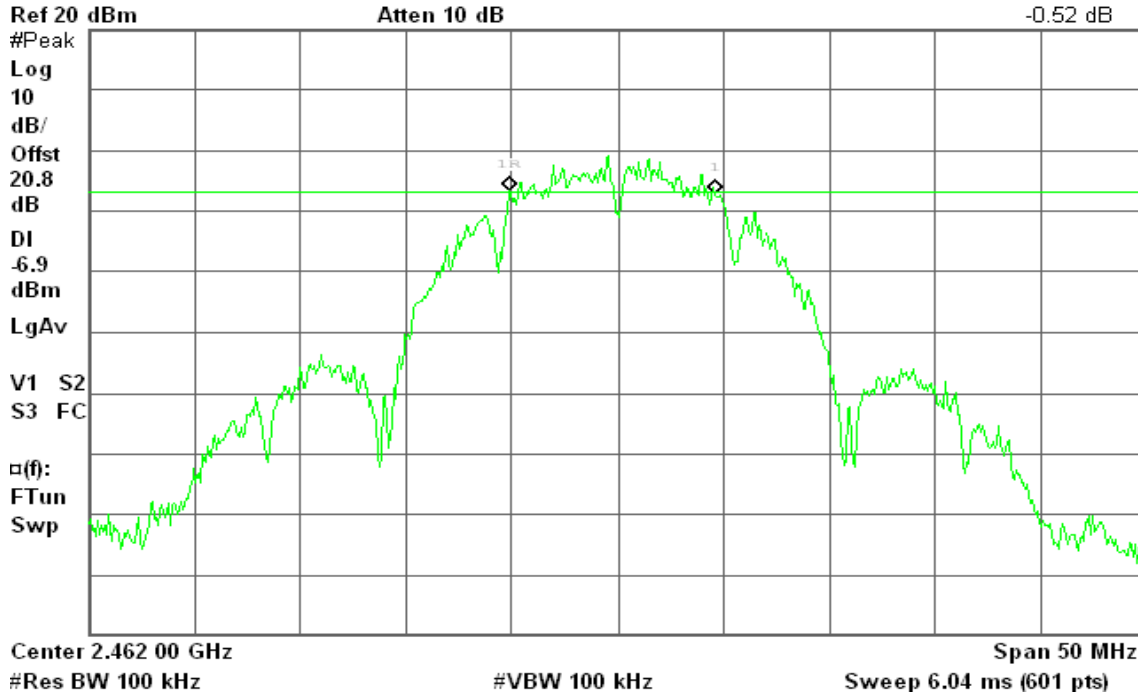


6dB Bandwidth (CH High)

Agilent 21:07:19 Nov 20, 2009

R T

Δ Mkr1 9.67 MHz
-0.52 dB



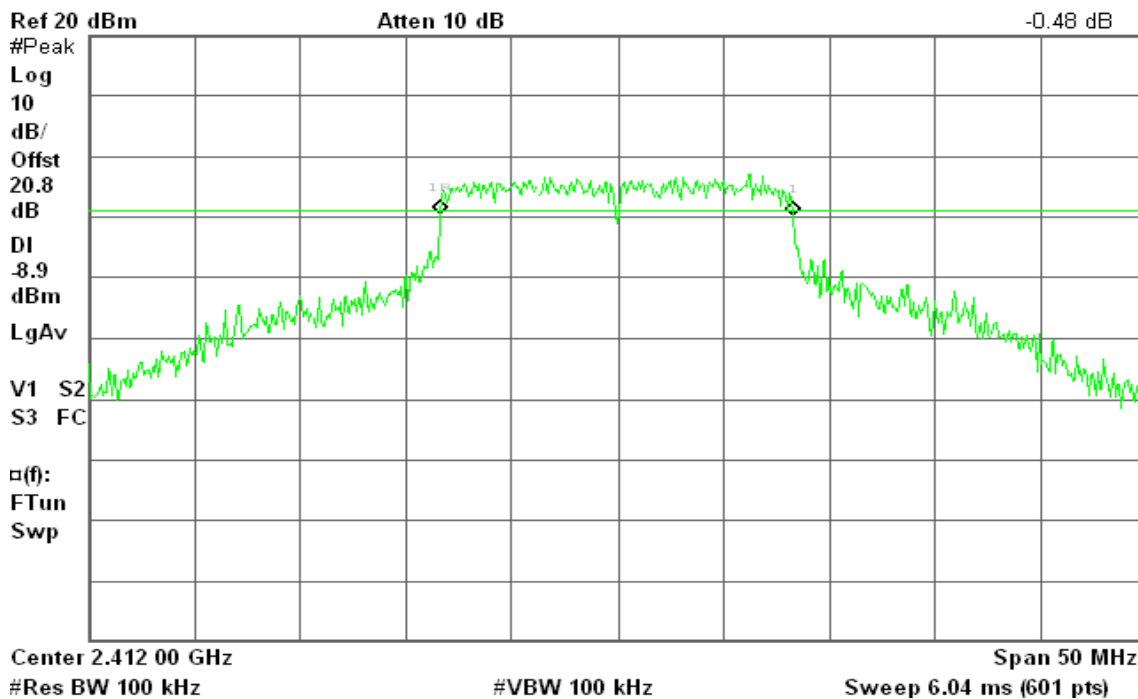
IEEE 802.11g mode

6dB Bandwidth (CH Low)

Agilent 21:42:34 Nov 20, 2009

R T

Δ Mkr1 16.58 MHz
-0.48 dB



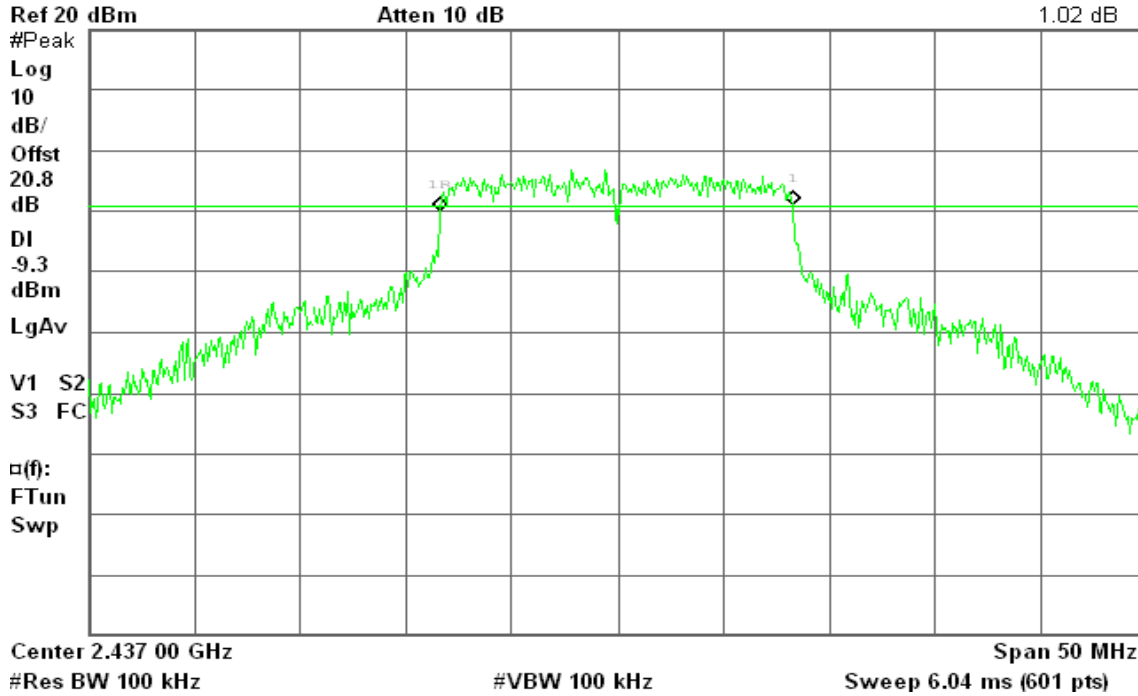


6dB Bandwidth (CH Mid)

Agilent 21:35:51 Nov 20, 2009

R T

Δ Mkr1 16.58 MHz
1.02 dB

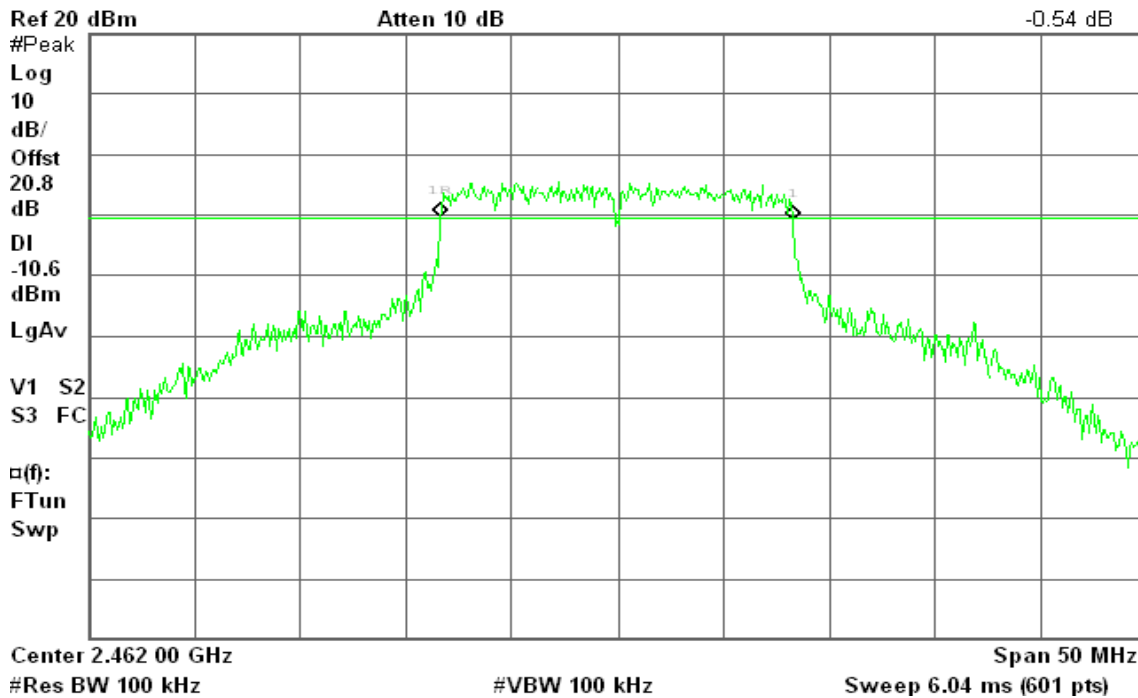


6dB Bandwidth (CH High)

Agilent 21:29:24 Nov 20, 2009

R T

Δ Mkr1 16.58 MHz
-0.54 dB





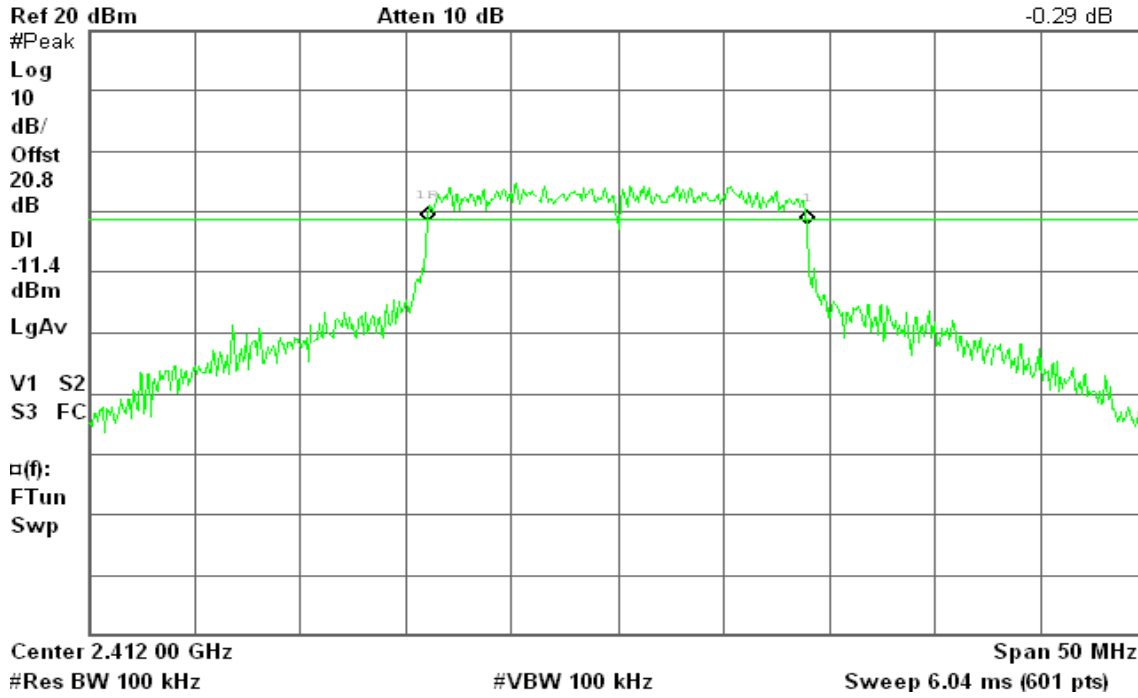
draft 802.11n Standard-20 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent 21:48:59 Nov 20, 2009

R T

Δ Mkr1 17.83 MHz
-0.29 dB

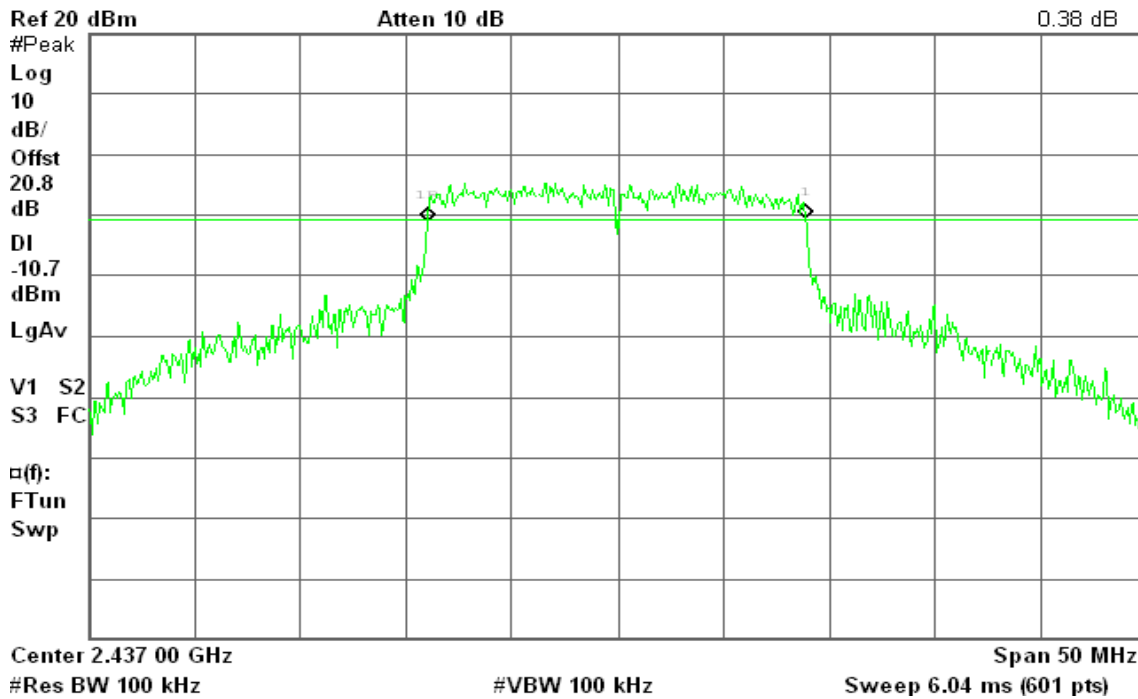


6dB Bandwidth (CH Mid)

Agilent 21:56:35 Nov 20, 2009

R T

Δ Mkr1 17.75 MHz
0.38 dB



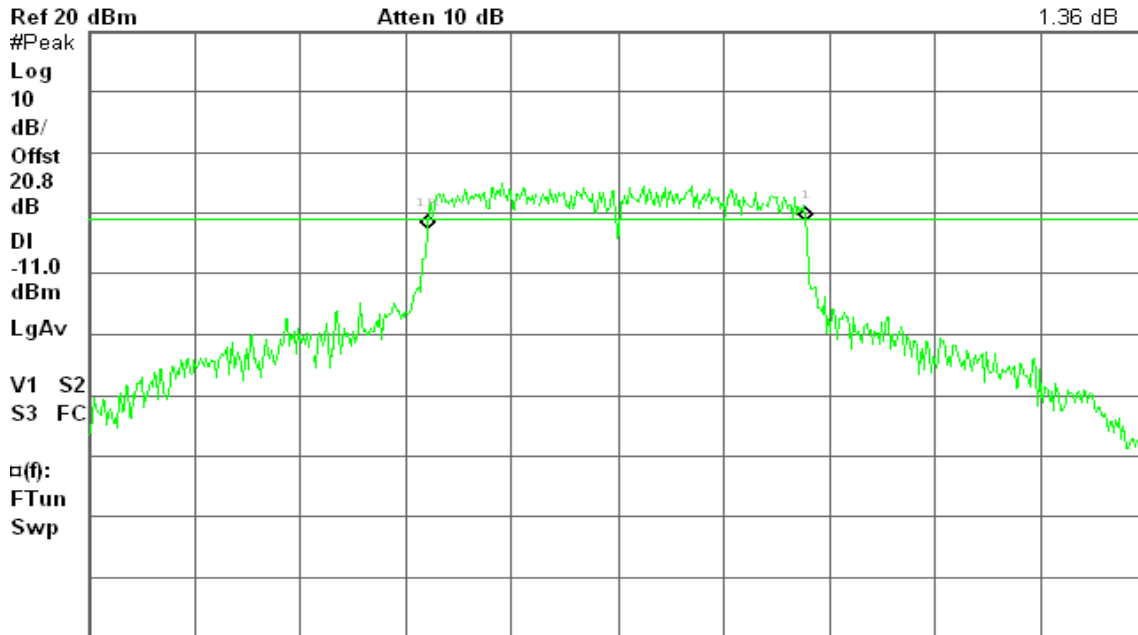


6dB Bandwidth (CH High)

Agilent 22:02:05 Nov 20, 2009

R T

Δ Mkr1 17.75 MHz
1.36 dB



Center 2.462 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 6.04 ms (601 pts)

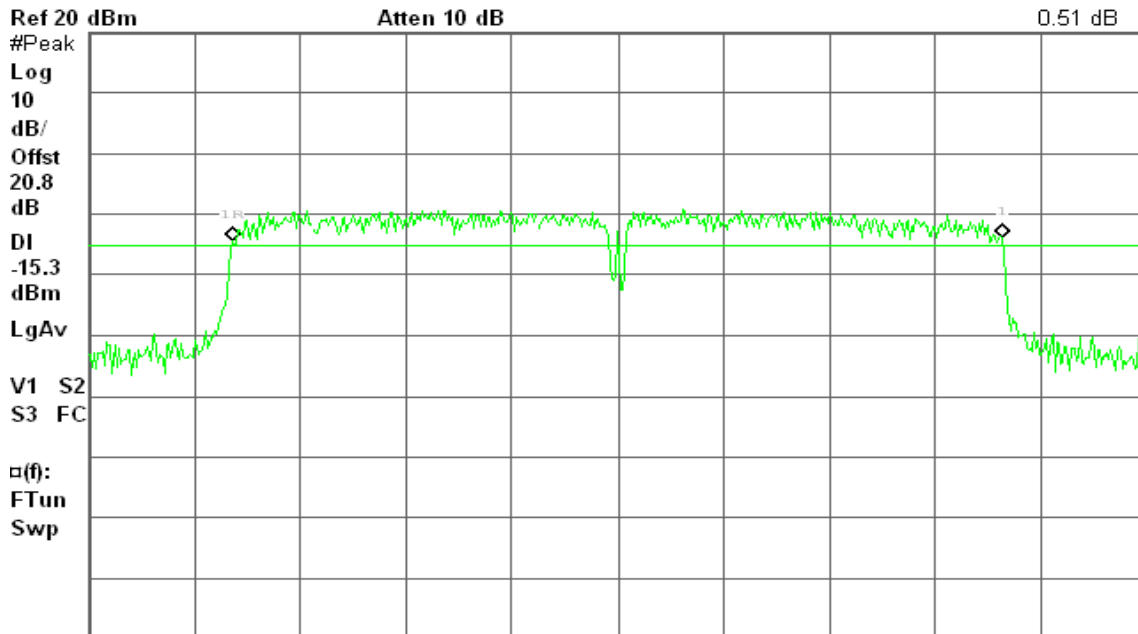
draft 802.11n Wide-40 MHz Channel mode

6dB Bandwidth (CH Low)

Agilent 22:21:39 Nov 20, 2009

R T

Δ Mkr1 36.33 MHz
0.51 dB



Center 2.422 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 6.04 ms (601 pts)

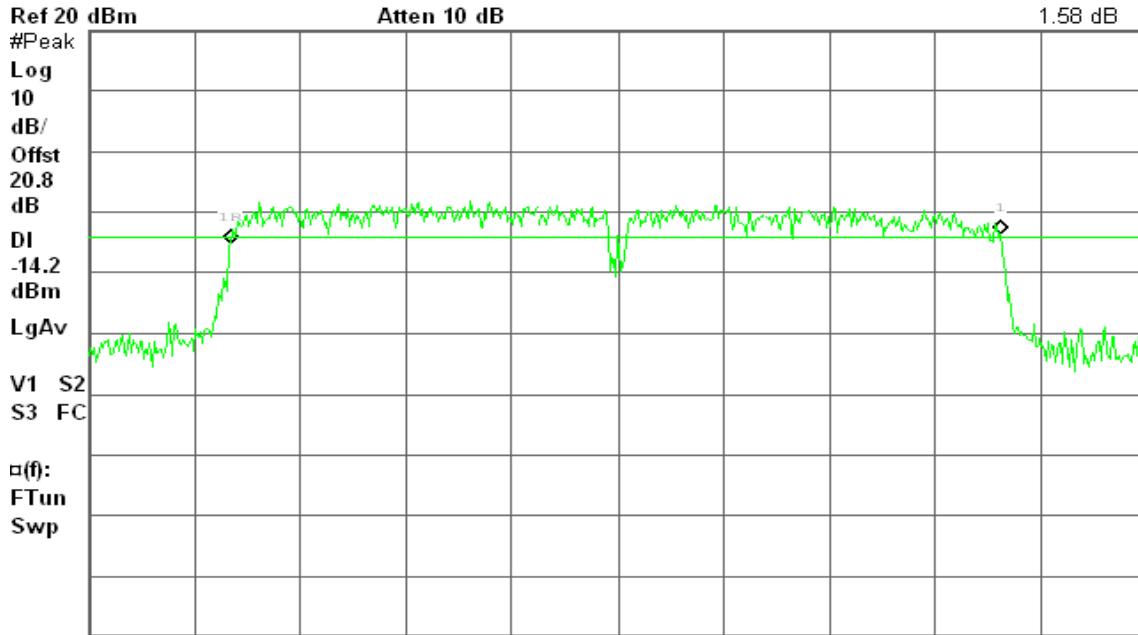


6dB Bandwidth (CH Mid)

Agilent 22:15:14 Nov 20, 2009

R T

Δ Mkr1 36.33 MHz
1.58 dB



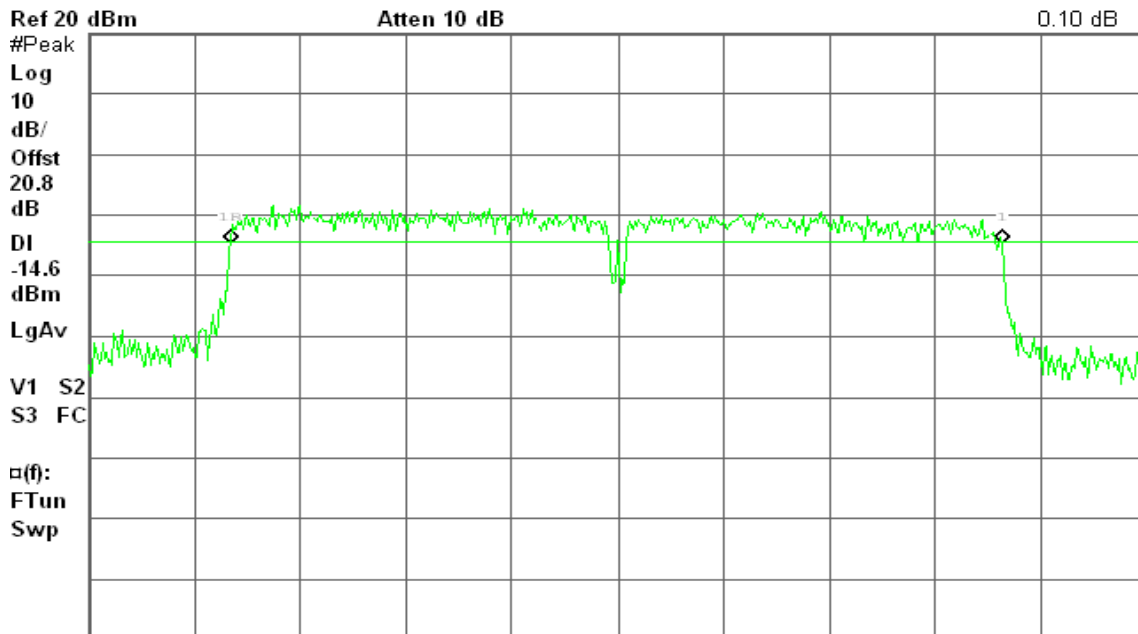
Center 2.437 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 6.04 ms (601 pts)

6dB Bandwidth (CH High)

Agilent 22:08:12 Nov 20, 2009

R T

Δ Mkr1 36.42 MHz
0.10 dB



Center 2.452 00 GHz Span 50 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 6.04 ms (601 pts)

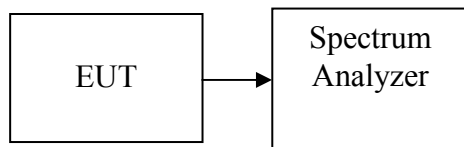
7.2 PEAK POWER

LIMIT

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

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Configuration



TEST PROCEDURE

1. Peak power is measured using the spectrum analyzer's internal channel power integration function.
2. Power is integrated over a bandwidth greater than or equal to the 99% bandwidth.

TEST RESULTS

No non-compliance noted

**Test Data****For Omni Antenna****Test mode: IEEE 802.11b**

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 13.57 | 0.02275 | 0.398 | PASS |
| Mid | 2437 | 12.93 | 0.01963 | | PASS |
| High | 2462 | 12.19 | 0.01656 | | PASS |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 18.36 | 0.06855 | 0.398 | PASS |
| Mid | 2437 | 18.16 | 0.06546 | | PASS |
| High | 2462 | 17.43 | 0.05534 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 17.20 | 0.05248 | 0.398 | PASS |
| Mid | 2437 | 17.55 | 0.05689 | | PASS |
| High | 2462 | 17.14 | 0.05176 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2422 | 15.74 | 0.03750 | 0.398 | PASS |
| Mid | 2437 | 16.41 | 0.04375 | | PASS |
| High | 2452 | 15.99 | 0.03972 | | PASS |

Remark: The maximum antenna gain is 10dBi; therefore the reduction due to antenna gain is 4dB, so the limit is 26dBm

**For Patch Antenna****Test mode: IEEE 802.11b**

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 14.15 | 0.0260 | 0.398 | PASS |
| Mid | 2437 | 14.26 | 0.0267 | | PASS |
| High | 2462 | 13.57 | 0.0228 | | PASS |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 19.30 | 0.0851 | 0.398 | PASS |
| Mid | 2437 | 19.39 | 0.0869 | | PASS |
| High | 2462 | 19.14 | 0.0820 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 17.30 | 0.0537 | 0.398 | PASS |
| Mid | 2437 | 18.81 | 0.0760 | | PASS |
| High | 2462 | 18.31 | 0.0678 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2422 | 16.41 | 0.0438 | 0.398 | PASS |
| Mid | 2437 | 17.76 | 0.0597 | | PASS |
| High | 2452 | 17.63 | 0.0579 | | PASS |

Remark: The maximum antenna gain is 10dBi; therefore the reduction due to antenna gain is 4dB, so the limit is 26dBm

**For Chip Antenna****Test mode: IEEE 802.11b**

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 14.75 | 0.02985 | 1.00 | PASS |
| Mid | 2437 | 14.04 | 0.02535 | | PASS |
| High | 2462 | 12.83 | 0.01919 | | PASS |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 18.36 | 0.06855 | 1.00 | PASS |
| Mid | 2437 | 18.08 | 0.06427 | | PASS |
| High | 2462 | 17.08 | 0.05105 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2412 | 16.73 | 0.04710 | 1.00 | PASS |
| Mid | 2437 | 17.39 | 0.05483 | | PASS |
| High | 2462 | 16.53 | 0.04498 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|--------------------|------------------|-----------|--------|
| Low | 2422 | 15.96 | 0.03945 | 1.00 | PASS |
| Mid | 2437 | 16.70 | 0.04677 | | PASS |
| High | 2452 | 16.05 | 0.04027 | | PASS |



Test Plot

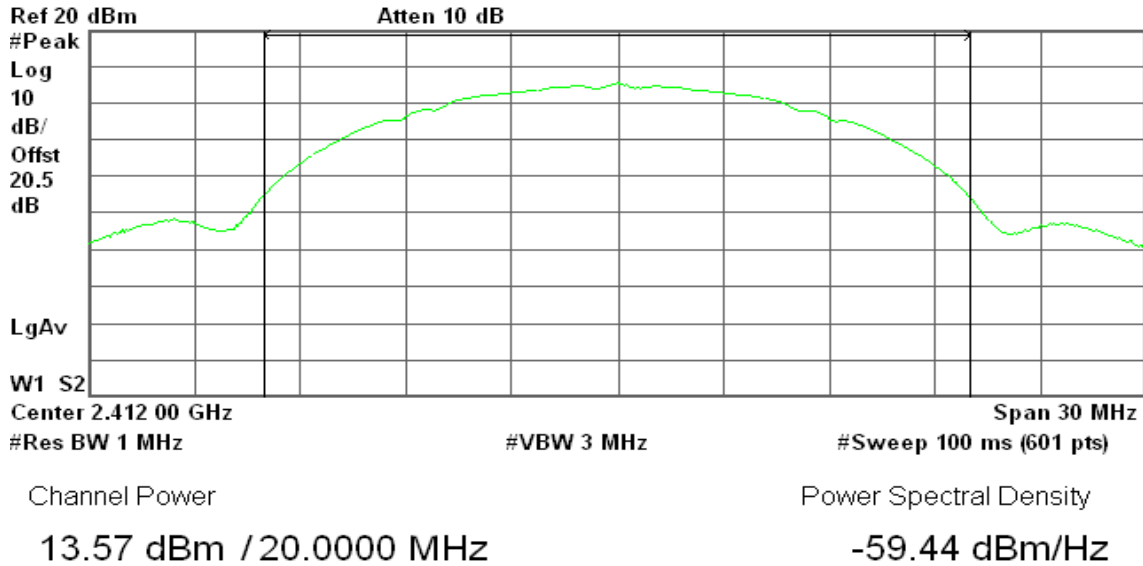
For Omni Antenna

IEEE 802.11b mode

Peak Power (CH Low)

Agilent 19:46:36 Nov 19, 2009

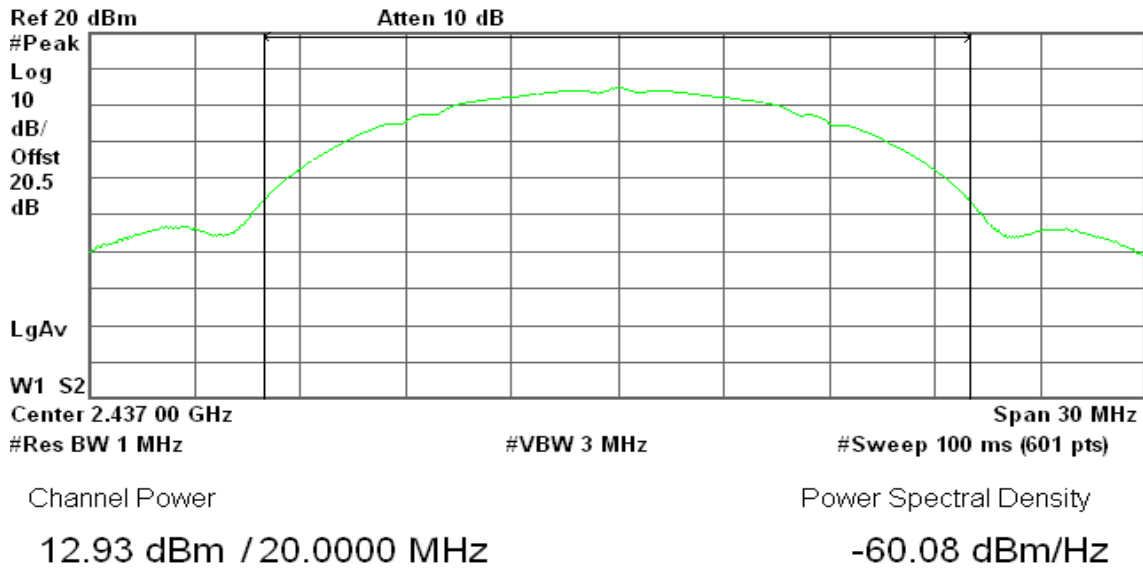
R T



Peak Power (CH Mid)

Agilent 19:23:11 Nov 19, 2009

R T

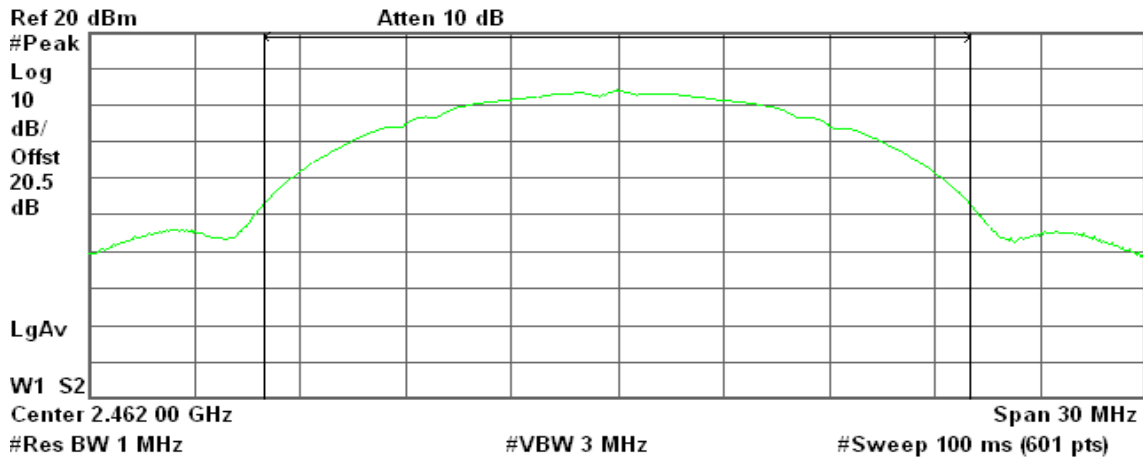




Peak Power (CH High)

Agilent 19:27:37 Nov 19, 2009

R T



Channel Power

12.19 dBm / 20.0000 MHz

Power Spectral Density

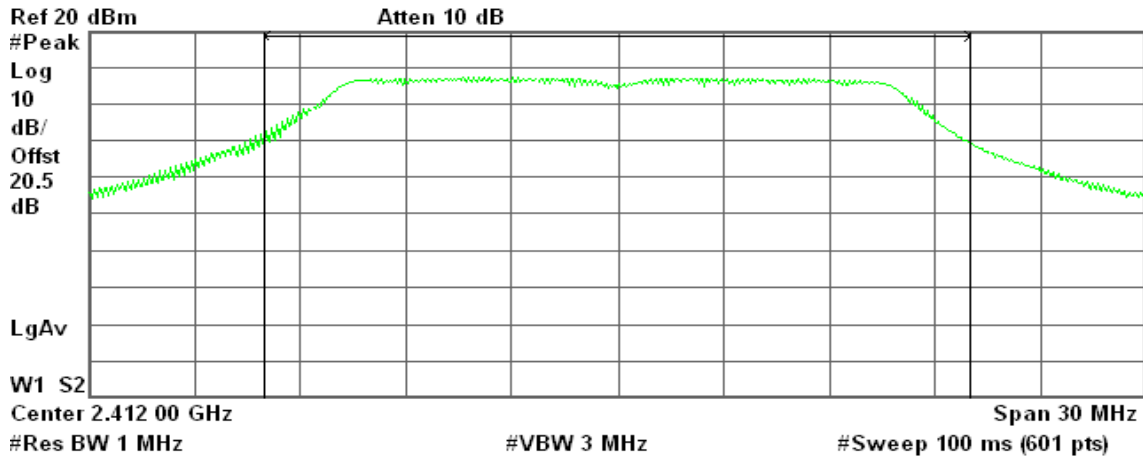
-60.82 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)

Agilent 20:13:53 Nov 19, 2009

R T



Channel Power

18.36 dBm / 20.0000 MHz

Power Spectral Density

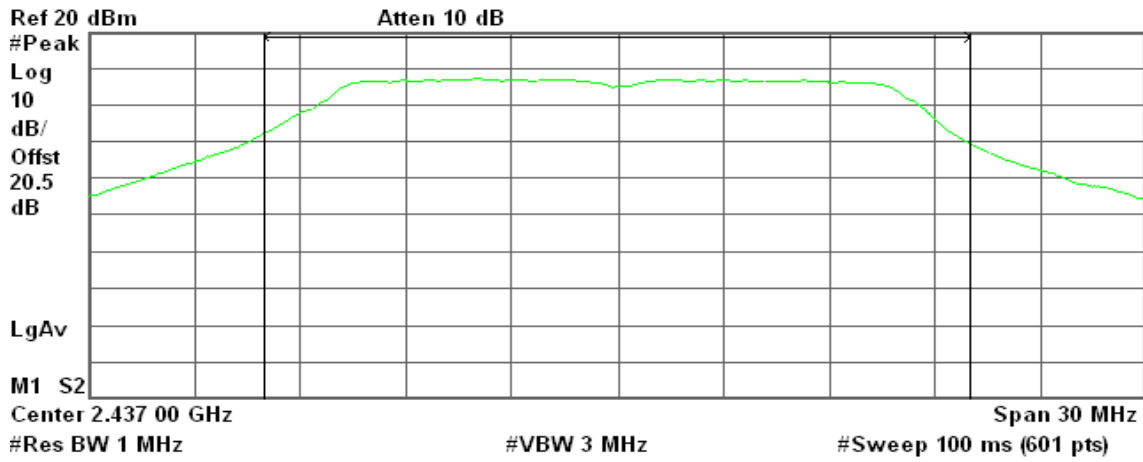
-54.65 dBm/Hz



Peak Power (CH Mid)

Agilent 20:23:16 Nov 19, 2009

R T



Channel Power

18.16 dBm / 20.0000 MHz

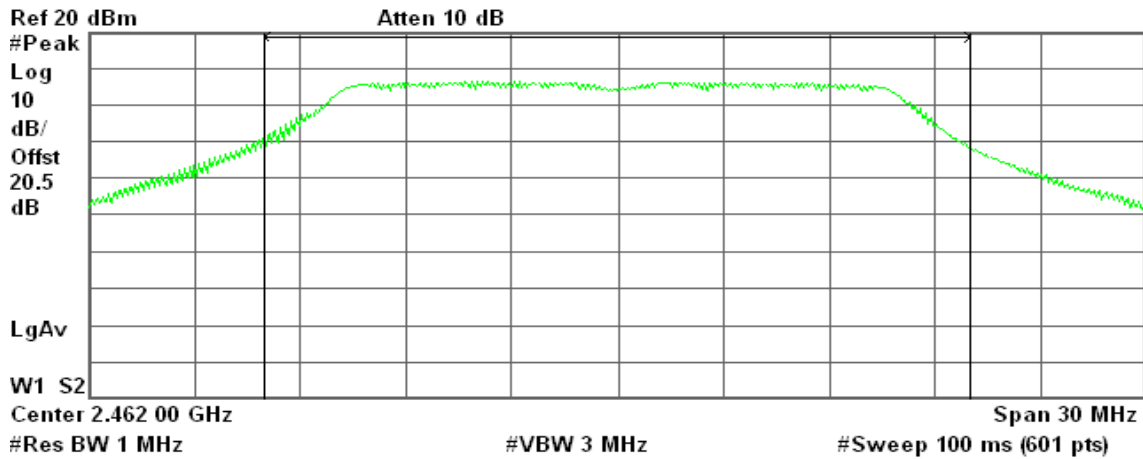
Power Spectral Density

-54.85 dBm/Hz

Peak Power (CH High)

Agilent 20:25:38 Nov 19, 2009

R T



Channel Power

17.43 dBm / 20.0000 MHz

Power Spectral Density

-55.58 dBm/Hz

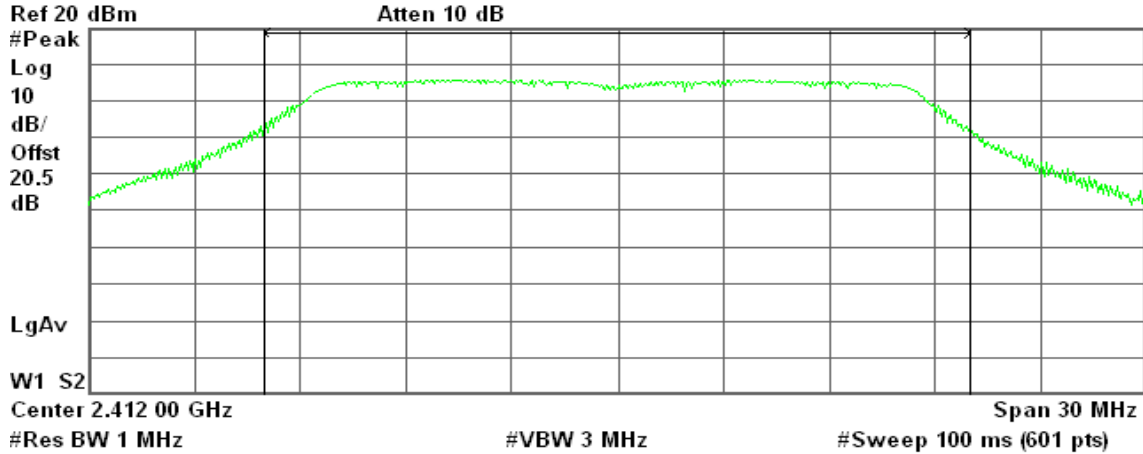


draft 802.11n Standard-20 MHz Channel mode

Peak Power (CH Low)

Agilent 20:33:40 Nov 19, 2009

R T



Channel Power

17.20 dBm / 20.0000 MHz

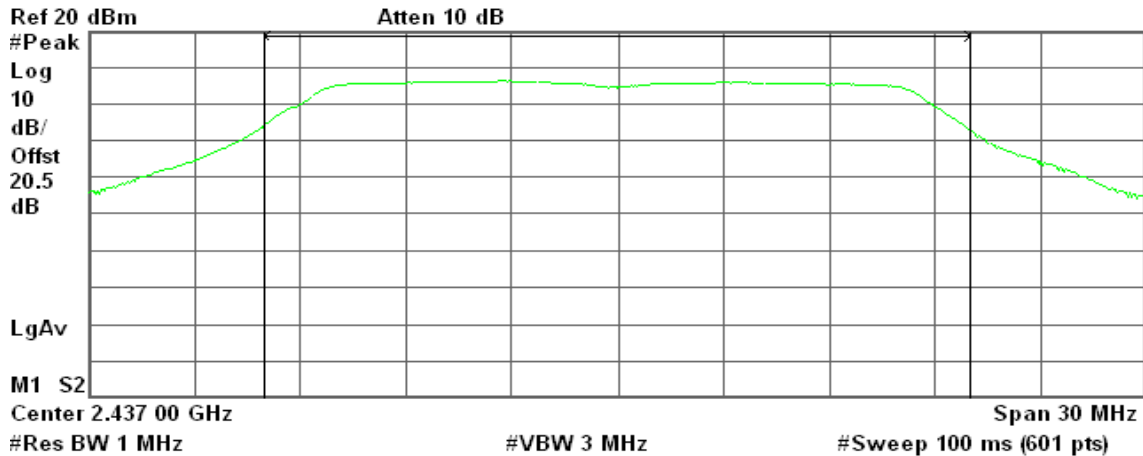
Power Spectral Density

-55.81 dBm/Hz

Peak Power (CH Mid)

Agilent 20:51:55 Nov 19, 2009

R T



Channel Power

17.55 dBm / 20.0000 MHz

Power Spectral Density

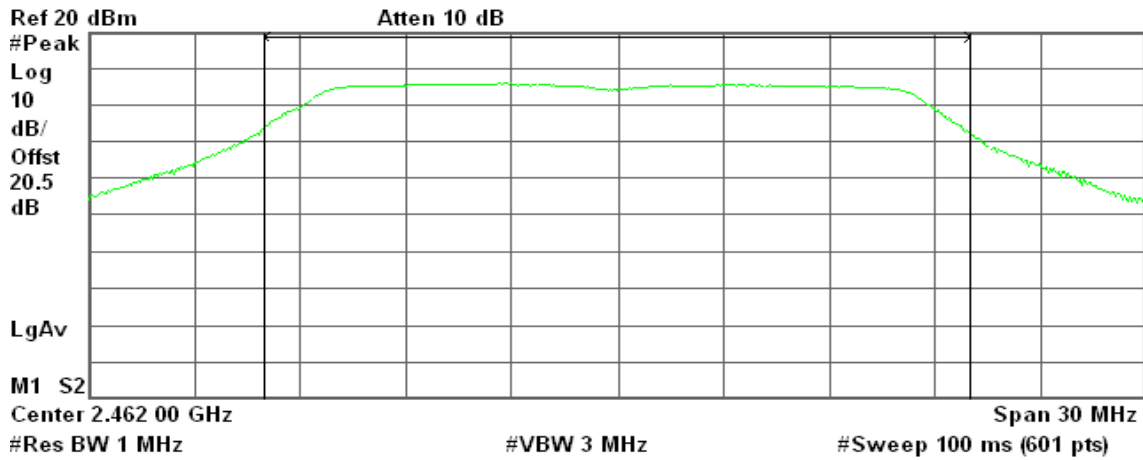
-55.46 dBm/Hz



Peak Power (CH High)

Agilent 20:52:22 Nov 19, 2009

R T



Channel Power

17.14 dBm / 20.0000 MHz

Power Spectral Density

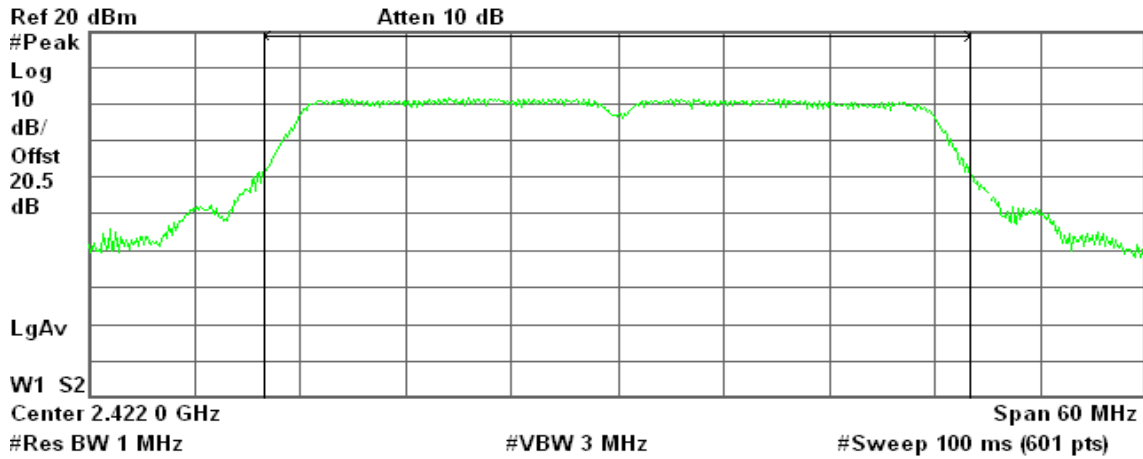
-55.87 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode

Peak Power (CH Low)

Agilent 20:57:35 Nov 19, 2009

R T



Channel Power

15.74 dBm / 40.0000 MHz

Power Spectral Density

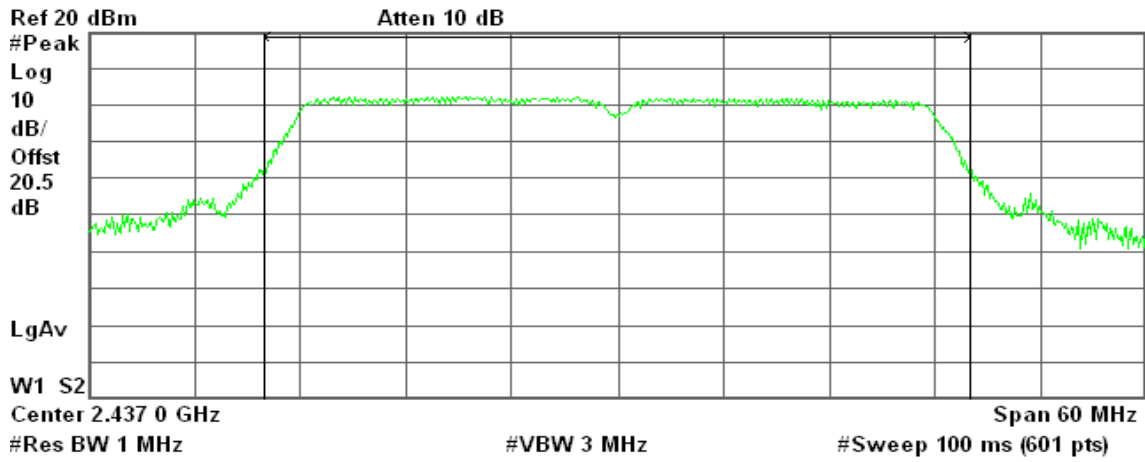
-60.28 dBm/Hz



Peak Power (CH Mid)

Agilent 21:05:10 Nov 19, 2009

R T



Channel Power

16.41 dBm / 40.0000 MHz

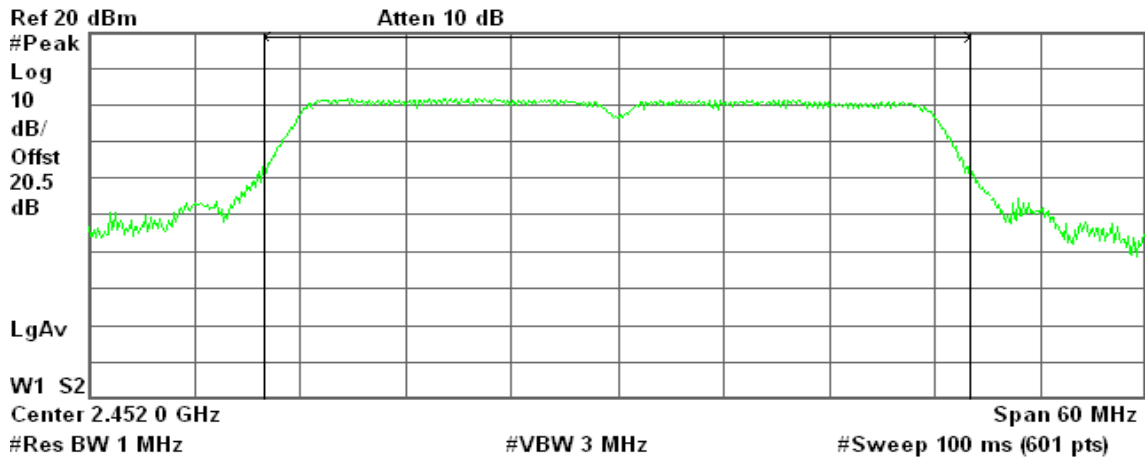
Power Spectral Density

-59.61 dBm/Hz

Peak Power (CH High)

Agilent 21:10:48 Nov 19, 2009

R T



Channel Power

15.99 dBm / 40.0000 MHz

Power Spectral Density

-60.03 dBm/Hz



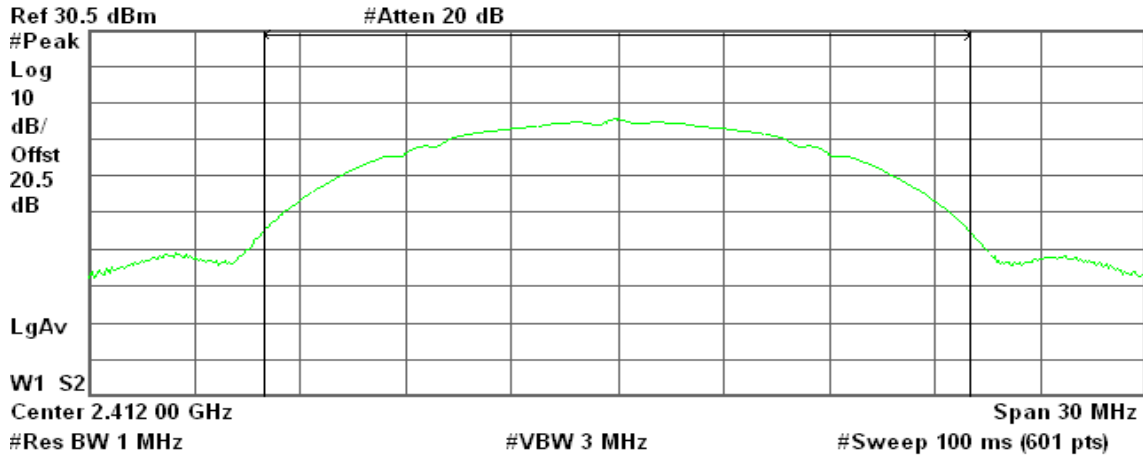
For Patch Antenna

IEEE 802.11b mode

Peak Power (CH Low)

Agilent 14:02:34 Nov 30, 2009

R T



Channel Power

14.15 dBm / 20.0000 MHz

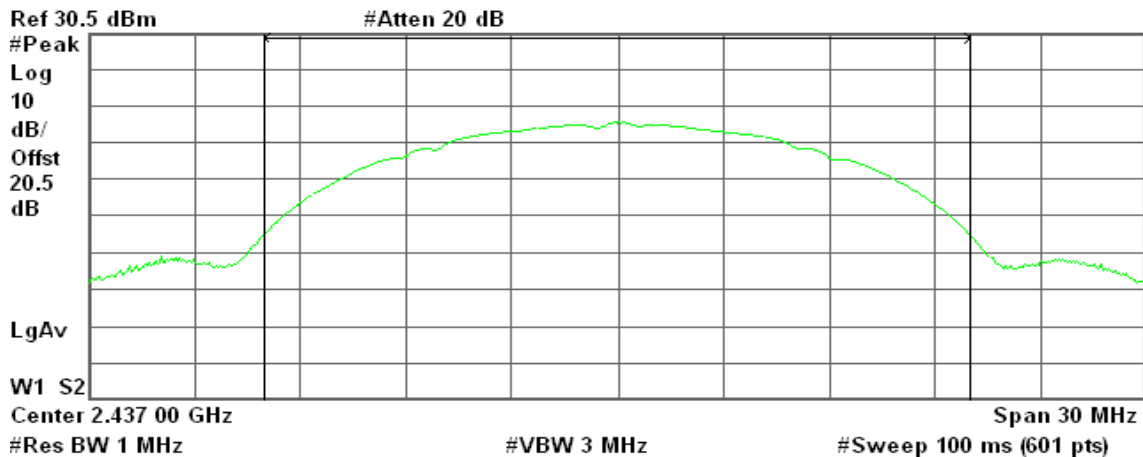
Power Spectral Density

-58.86 dBm/Hz

Peak Power (CH Mid)

Agilent 14:06:05 Nov 30, 2009

R T



Channel Power

14.26 dBm / 20.0000 MHz

Power Spectral Density

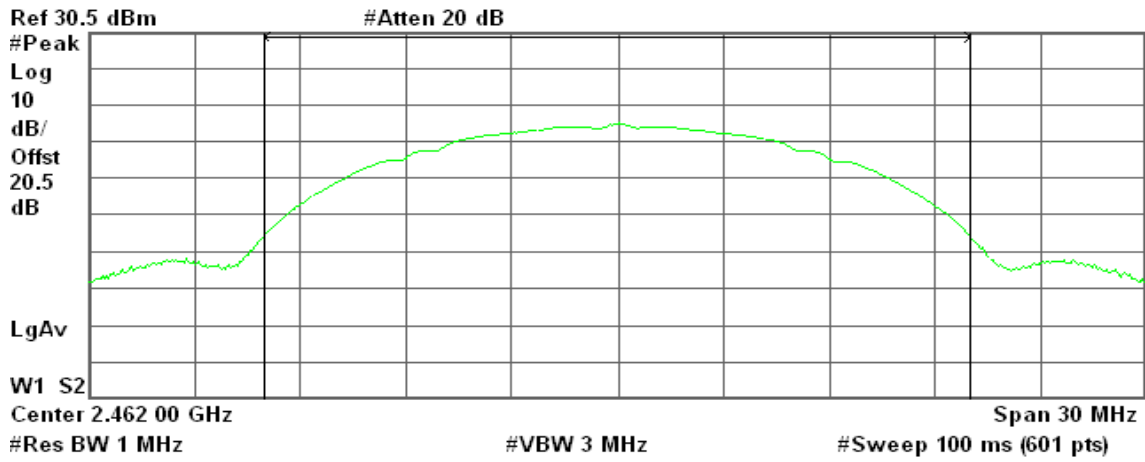
-58.75 dBm/Hz



Peak Power (CH High)

Agilent 13:59:26 Nov 30, 2009

R T



Channel Power

13.57 dBm / 20.0000 MHz

Power Spectral Density

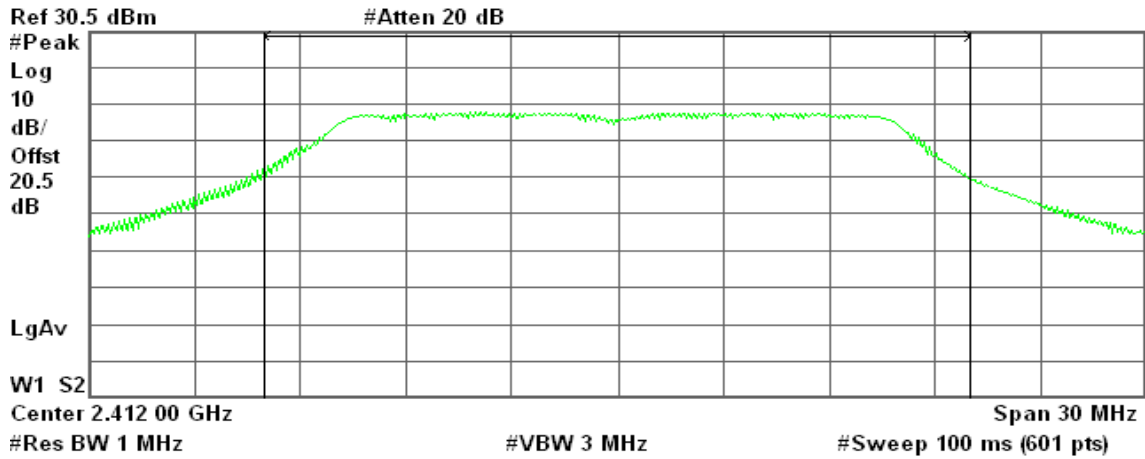
-59.44 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)

Agilent 14:10:53 Nov 30, 2009

R T



Channel Power

19.30 dBm / 20.0000 MHz

Power Spectral Density

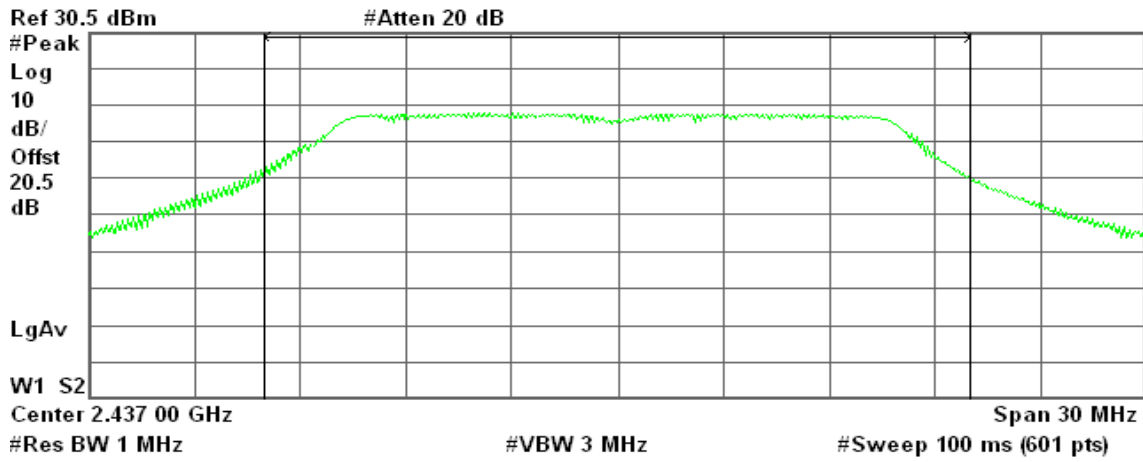
-53.71 dBm/Hz



Peak Power (CH Mid)

Agilent 14:14:35 Nov 30, 2009

R T



Channel Power

19.39 dBm / 20.0000 MHz

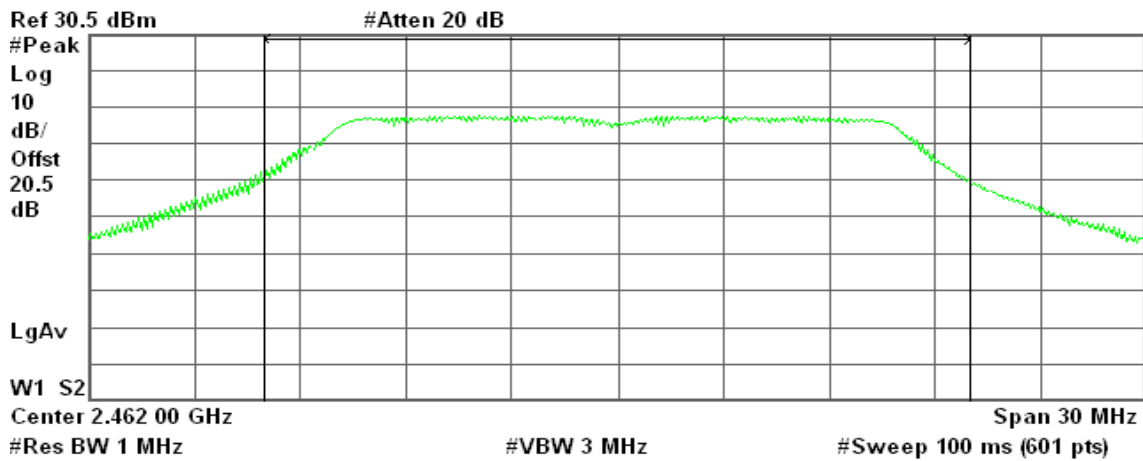
Power Spectral Density

-53.62 dBm/Hz

Peak Power (CH High)

Agilent 14:16:05 Nov 30, 2009

R T



Channel Power

19.14 dBm / 20.0000 MHz

Power Spectral Density

-53.87 dBm/Hz

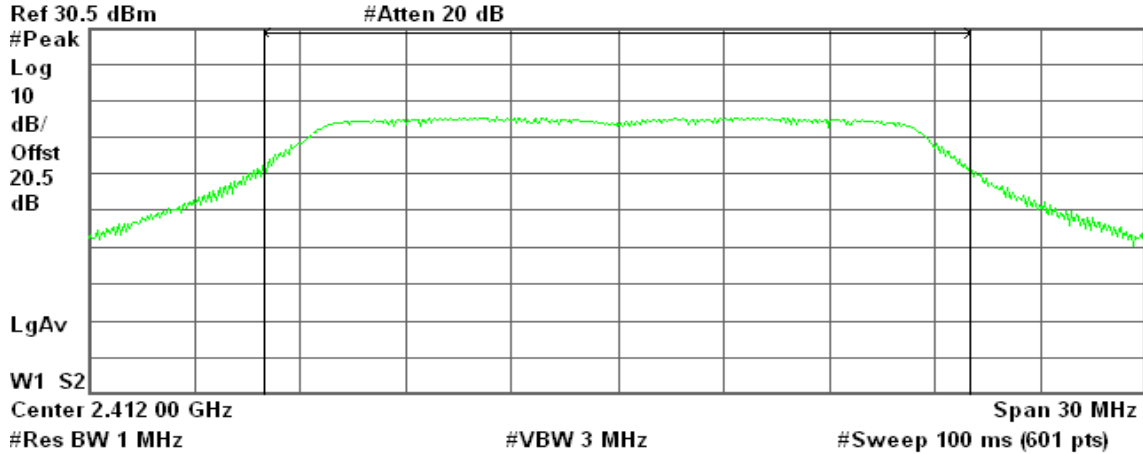


draft 802.11n Standard-20 MHz Channel mode

Peak Power (CH Low)

Agilent 14:27:47 Nov 30, 2009

R T



Channel Power

17.30 dBm / 20.0000 MHz

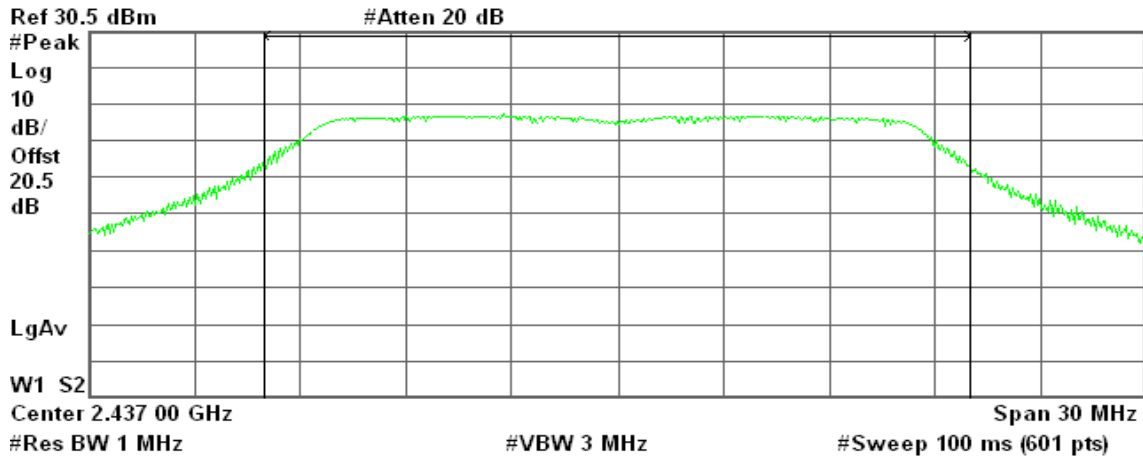
Power Spectral Density

-55.71 dBm/Hz

Peak Power (CH Mid)

Agilent 14:24:55 Nov 30, 2009

R T



Channel Power

18.81 dBm / 20.0000 MHz

Power Spectral Density

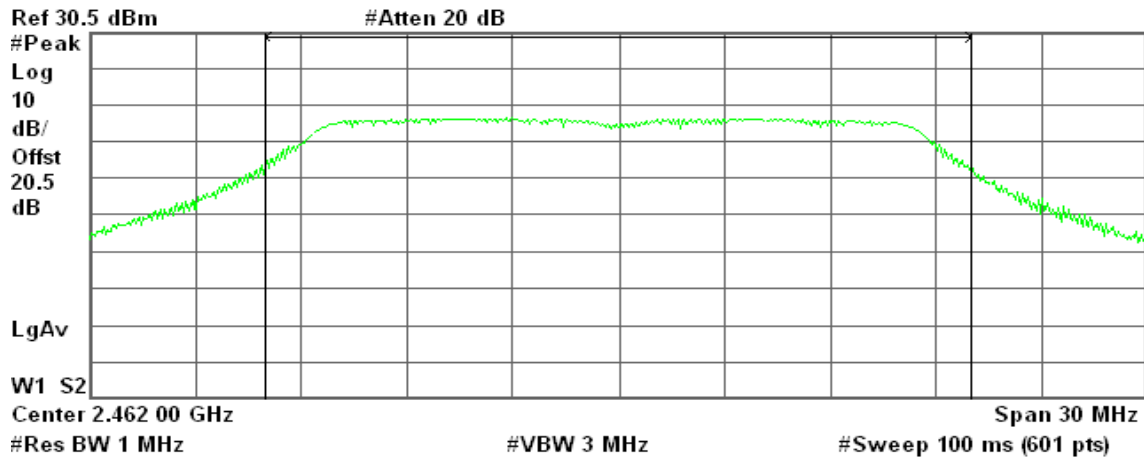
-54.20 dBm/Hz



Peak Power (CH High)

Agilent 14:20:19 Nov 30, 2009

R T



Channel Power

18.31 dBm / 20.0000 MHz

Power Spectral Density

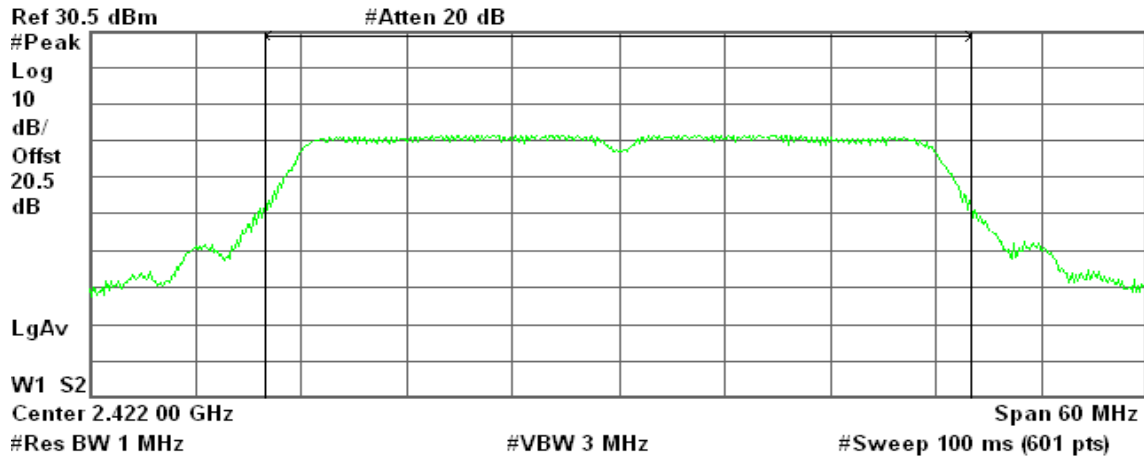
-54.70 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode

Peak Power (CH Low)

Agilent 14:33:24 Nov 30, 2009

R T



Channel Power

16.41 dBm / 40.0000 MHz

Power Spectral Density

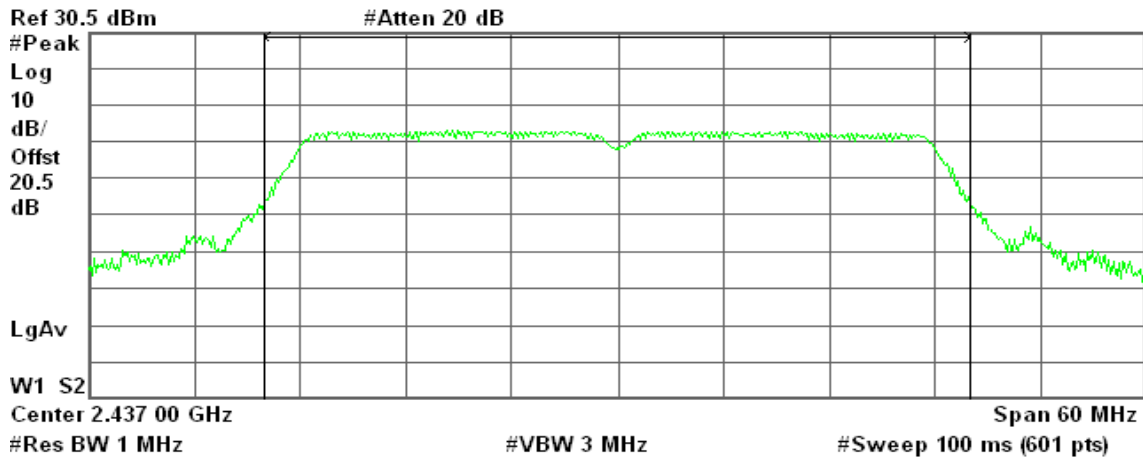
-59.61 dBm/Hz



Peak Power (CH Mid)

Agilent 14:36:27 Nov 30, 2009

R T



Channel Power

17.76 dBm / 40.0000 MHz

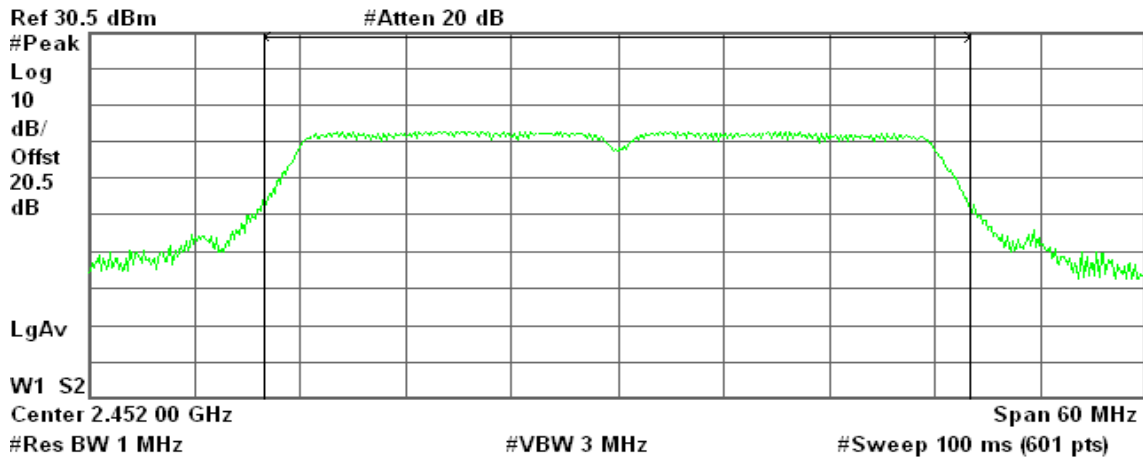
Power Spectral Density

-58.26 dBm/Hz

Peak Power (CH High)

Agilent 14:37:47 Nov 30, 2009

R T



Channel Power

17.63 dBm / 40.0000 MHz

Power Spectral Density

-58.40 dBm/Hz



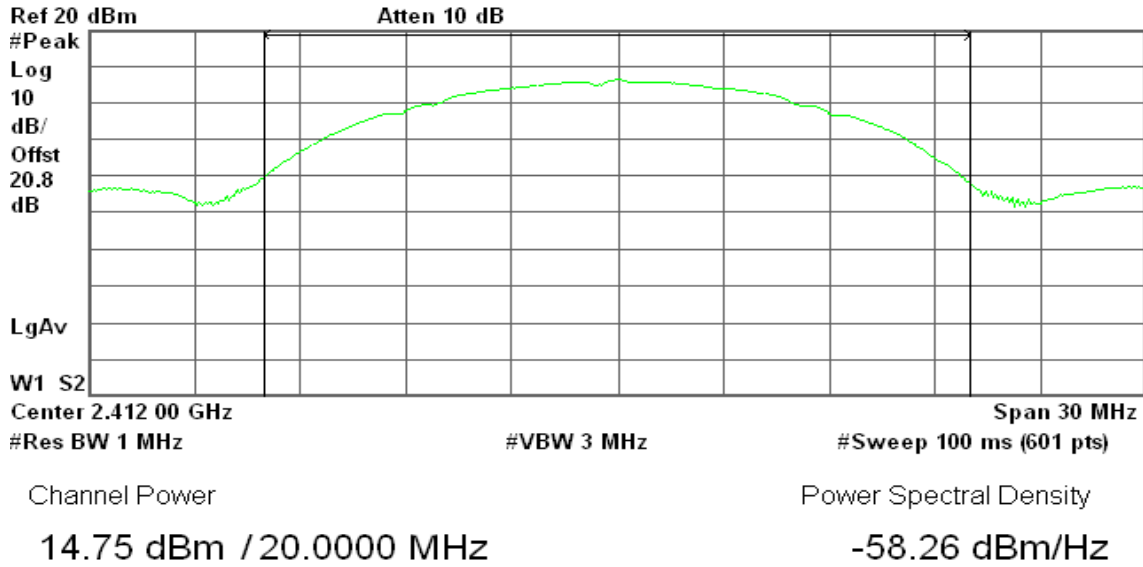
For Chip Antenna

IEEE 802.11b mode

Peak Power (CH Low)

Agilent 20:46:23 Nov 20, 2009

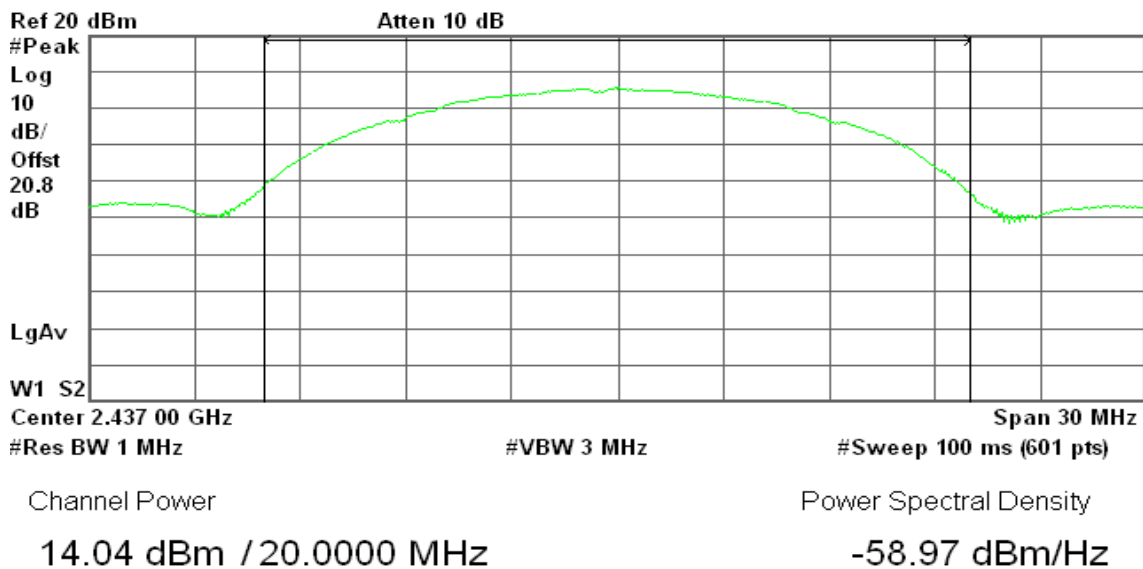
R T



Peak Power (CH Mid)

Agilent 20:52:06 Nov 20, 2009

R T

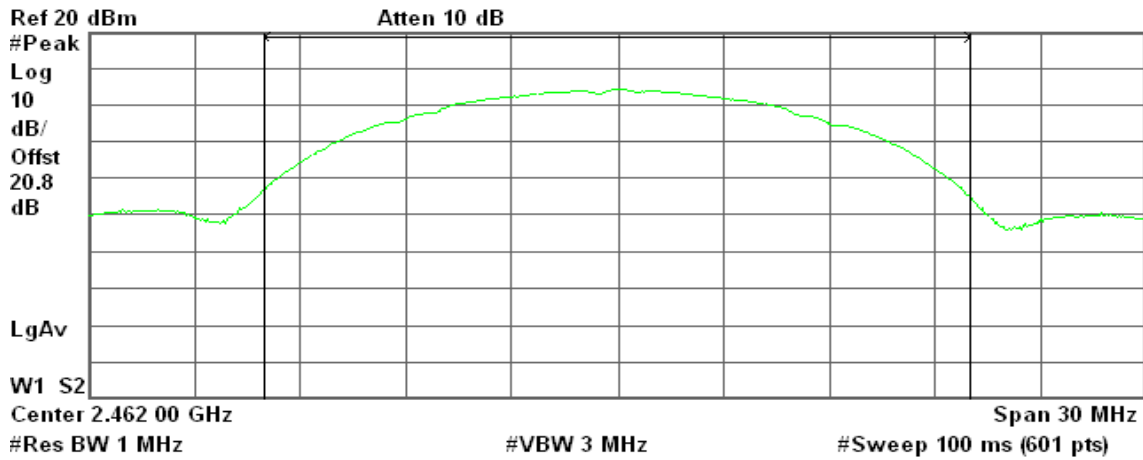




Peak Power (CH High)

Agilent 21:08:24 Nov 20, 2009

R T



Channel Power

12.83 dBm / 20.0000 MHz

Power Spectral Density

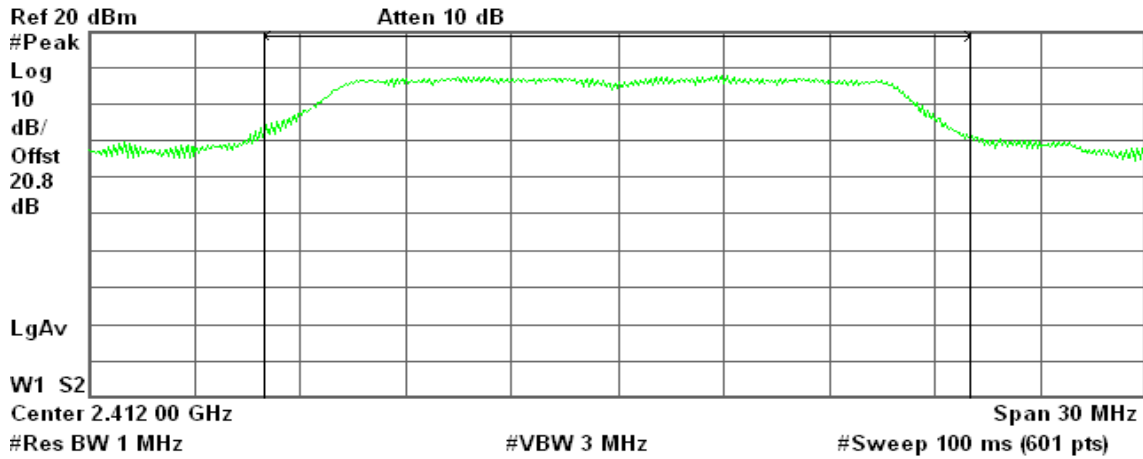
-60.18 dBm/Hz

IEEE 802.11g mode

Peak Power (CH Low)

Agilent 21:43:30 Nov 20, 2009

R T



Channel Power

18.36 dBm / 20.0000 MHz

Power Spectral Density

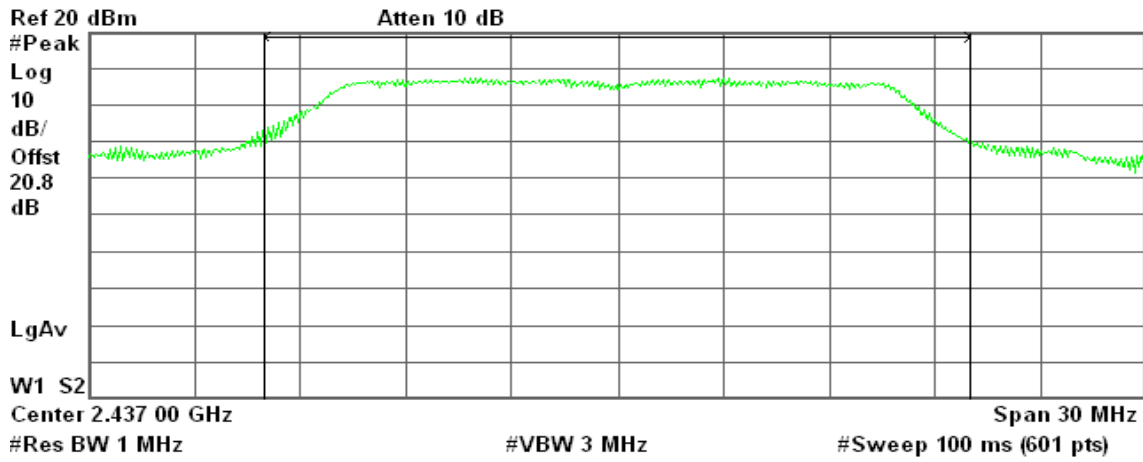
-54.65 dBm/Hz



Peak Power (CH Mid)

Agilent 21:37:00 Nov 20, 2009

R T



Channel Power

18.08 dBm / 20.0000 MHz

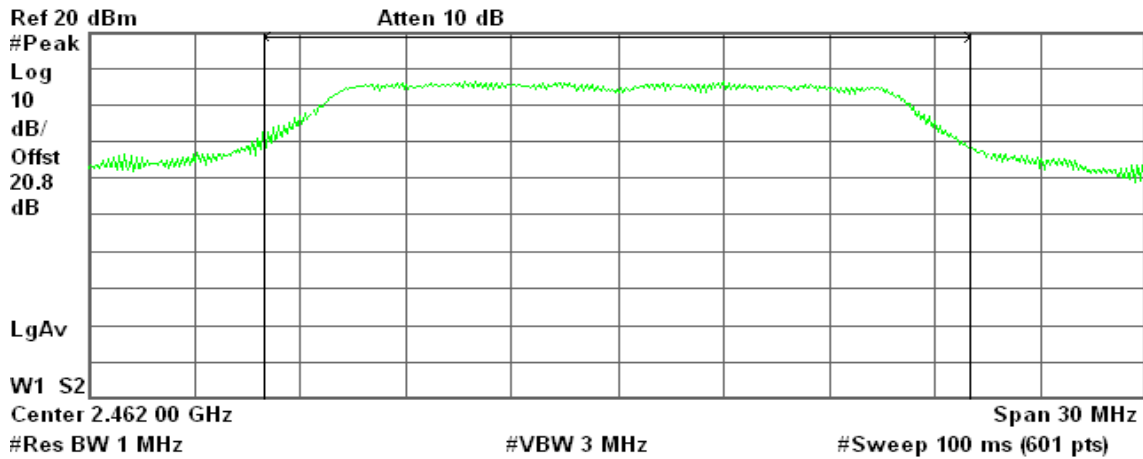
Power Spectral Density

-54.93 dBm/Hz

Peak Power (CH High)

Agilent 21:30:33 Nov 20, 2009

R T



Channel Power

17.08 dBm / 20.0000 MHz

Power Spectral Density

-55.93 dBm/Hz

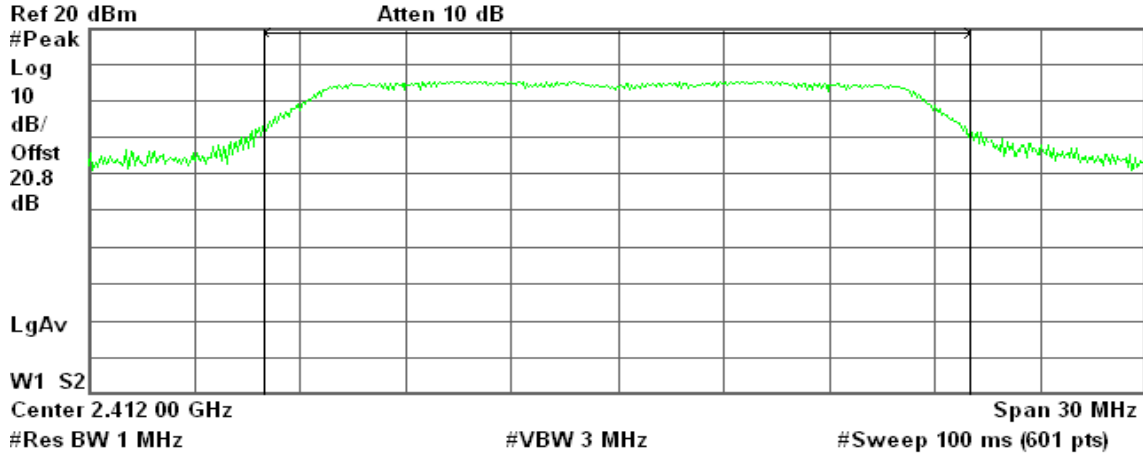


draft 802.11n Standard-20 MHz Channel mode

Peak Power (CH Low)

Agilent 21:50:12 Nov 20, 2009

R T



Channel Power

16.73 dBm / 20.0000 MHz

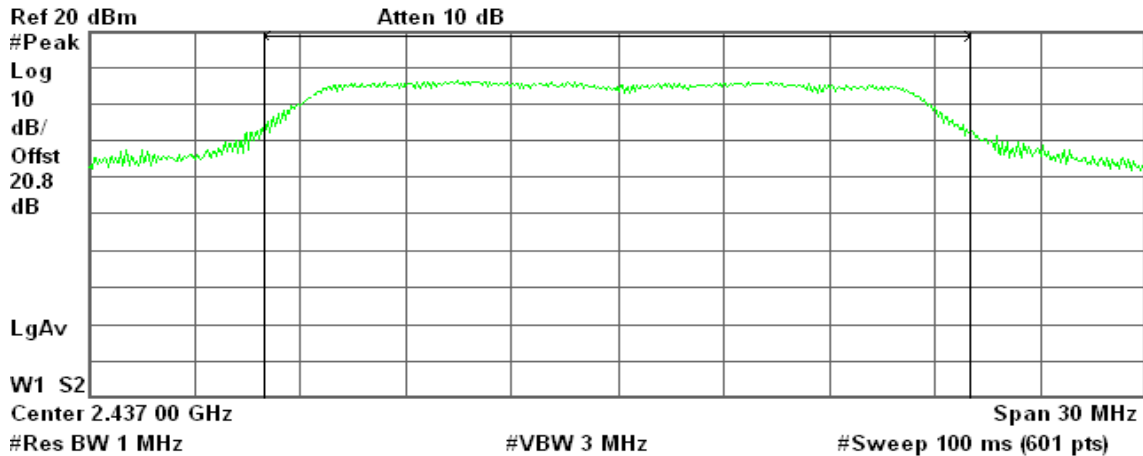
Power Spectral Density

-56.29 dBm/Hz

Peak Power (CH Mid)

Agilent 21:57:35 Nov 20, 2009

R T



Channel Power

17.39 dBm / 20.0000 MHz

Power Spectral Density

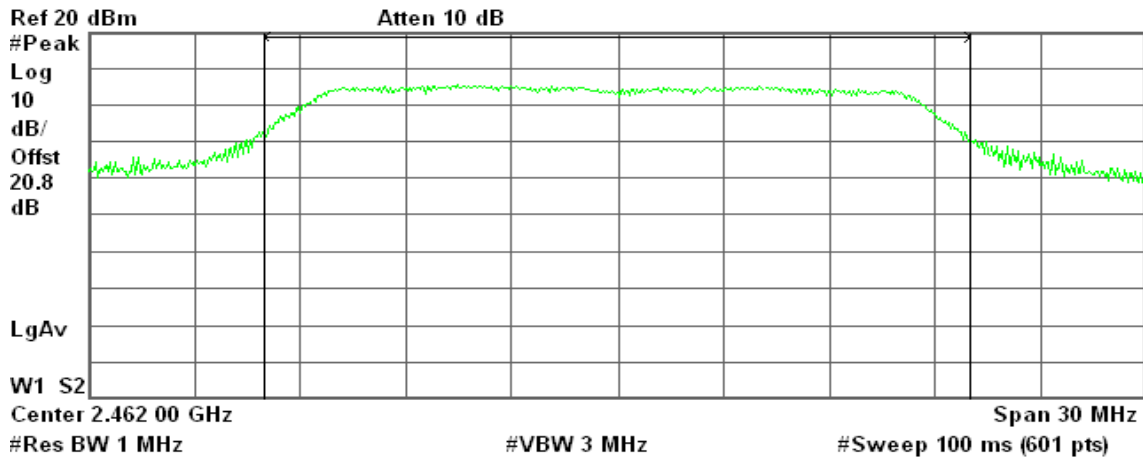
-55.62 dBm/Hz



Peak Power (CH High)

Agilent 22:03:06 Nov 20, 2009

R T



Channel Power

16.53 dBm / 20.0000 MHz

Power Spectral Density

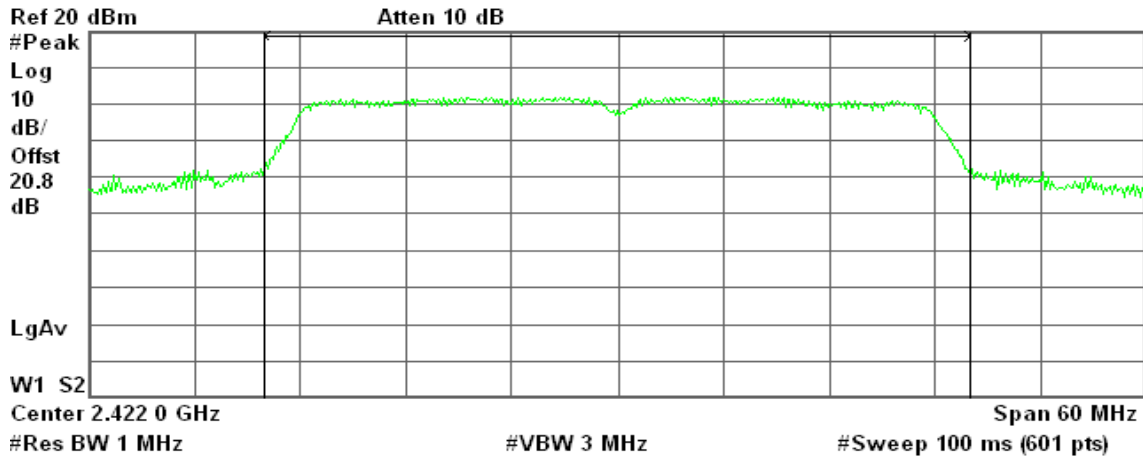
-56.48 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode

Peak Power (CH Low)

Agilent 22:22:37 Nov 20, 2009

R T



Channel Power

15.96 dBm / 40.0000 MHz

Power Spectral Density

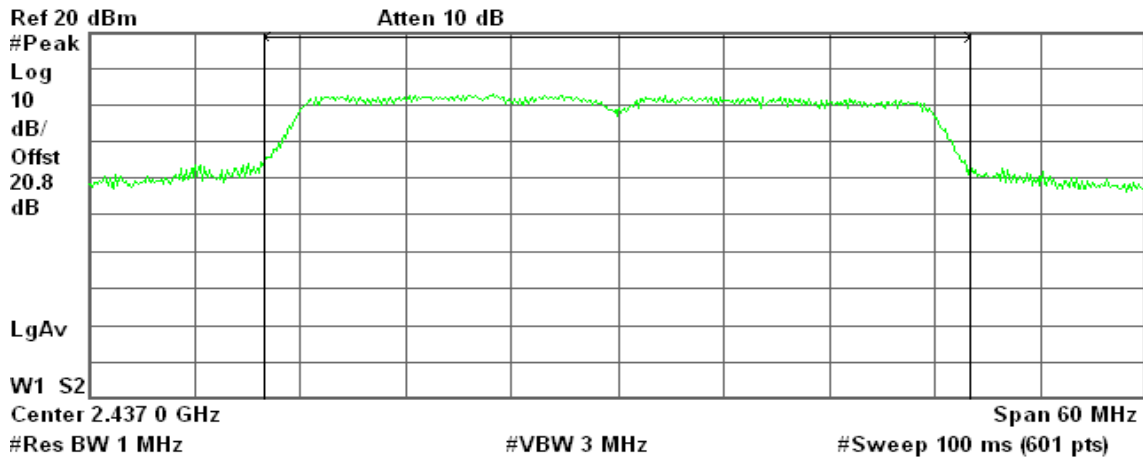
-60.06 dBm/Hz



Peak Power (CH Mid)

Agilent 22:16:15 Nov 20, 2009

R T



Channel Power

16.70 dBm / 40.0000 MHz

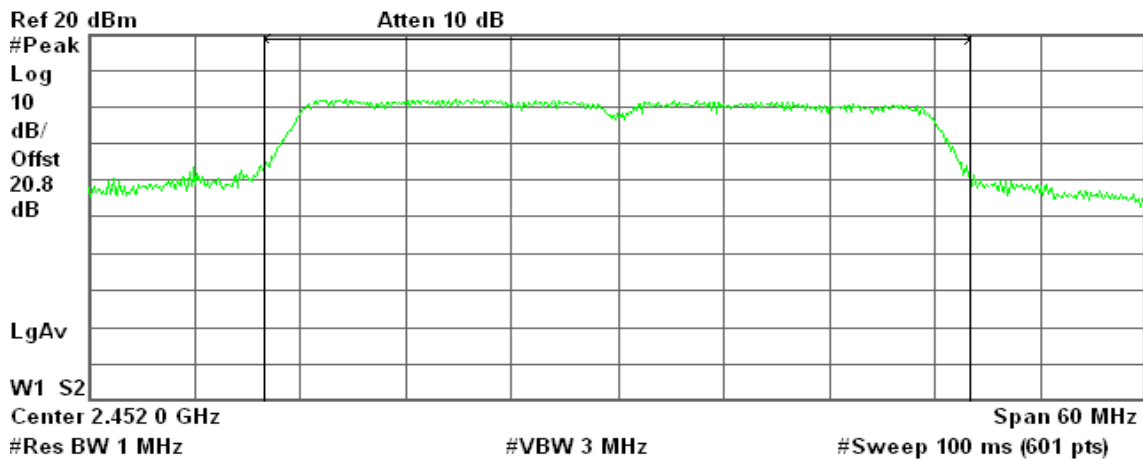
Power Spectral Density

-59.32 dBm/Hz

Peak Power (CH High)

Agilent 22:10:54 Nov 20, 2009

R T



Channel Power

16.05 dBm / 40.0000 MHz

Power Spectral Density

-59.97 dBm/Hz

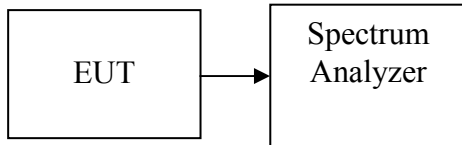


7.3 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted



Test Data

For Omni Antenna

Test mode: IEEE 802.11b

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 10.24 |
| Mid | 2437 | 9.82 |
| High | 2462 | 9.03 |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 11.21 |
| Mid | 2437 | 11.09 |
| High | 2462 | 9.67 |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 9.80 |
| Mid | 2437 | 10.98 |
| High | 2462 | 9.12 |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2422 | 8.67 |
| Mid | 2437 | 9.25 |
| High | 2452 | 8.67 |



For Patch Antenna

Test mode: IEEE 802.11b

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 11.02 |
| Mid | 2437 | 11.33 |
| High | 2462 | 10.41 |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 12.10 |
| Mid | 2437 | 12.34 |
| High | 2462 | 11.73 |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 9.86 |
| Mid | 2437 | 11.58 |
| High | 2462 | 10.84 |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2422 | 8.99 |
| Mid | 2437 | 10.99 |
| High | 2452 | 10.38 |



For Chip Antenna

Test mode: IEEE 802.11b

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 11.41 |
| Mid | 2437 | 10.74 |
| High | 2462 | 9.45 |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 11.25 |
| Mid | 2437 | 10.64 |
| High | 2462 | 10.05 |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2412 | 9.56 |
| Mid | 2437 | 10.16 |
| High | 2462 | 9.42 |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low | 2422 | 8.66 |
| Mid | 2437 | 9.81 |
| High | 2452 | 8.84 |



Test Plot

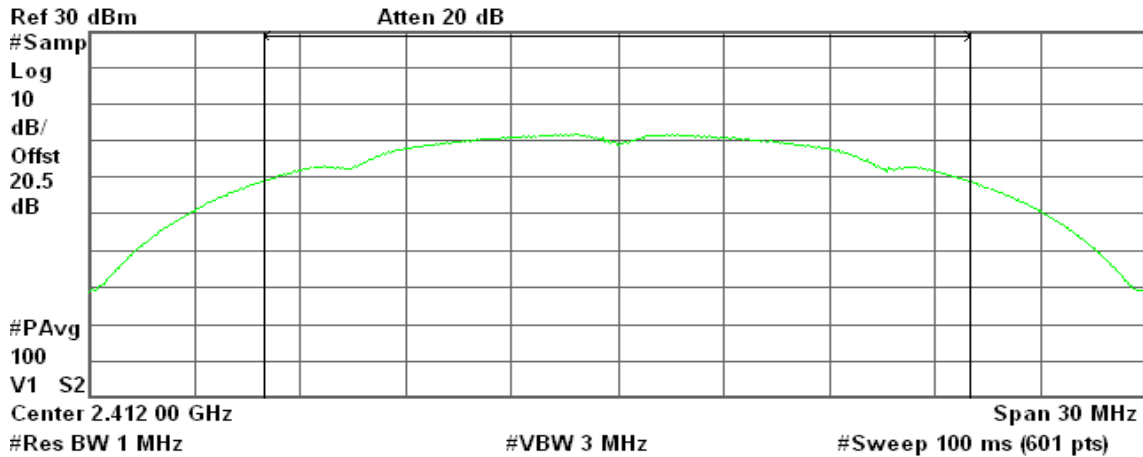
For Omni Antenna

IEEE 802.11b mode

Average Power (CH Low)

Agilent 19:35:49 Nov 19, 2009

R T



Channel Power

10.24 dBm / 20.0000 MHz

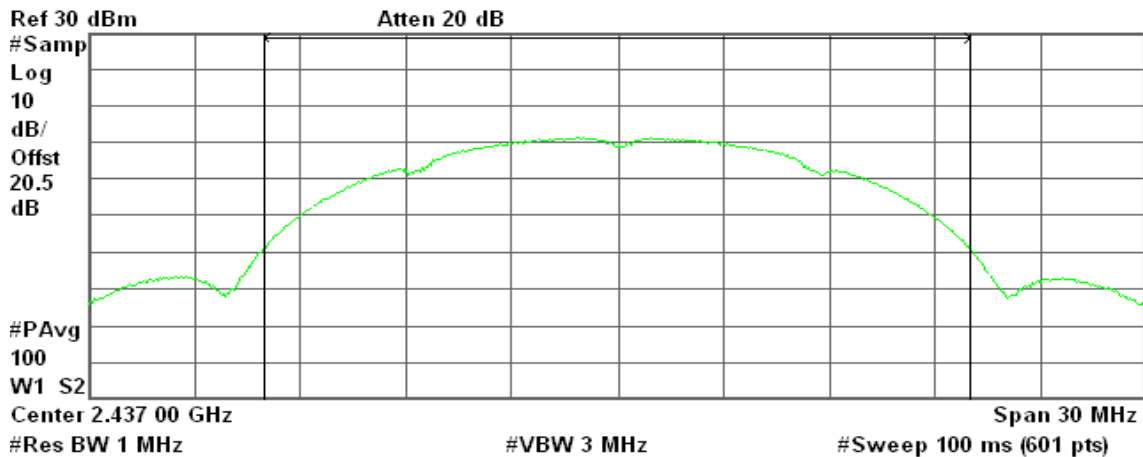
Power Spectral Density

-62.77 dBm/Hz

Average Power (CH Mid)

Agilent 19:24:50 Nov 19, 2009

R T



Channel Power

9.82 dBm / 20.0000 MHz

Power Spectral Density

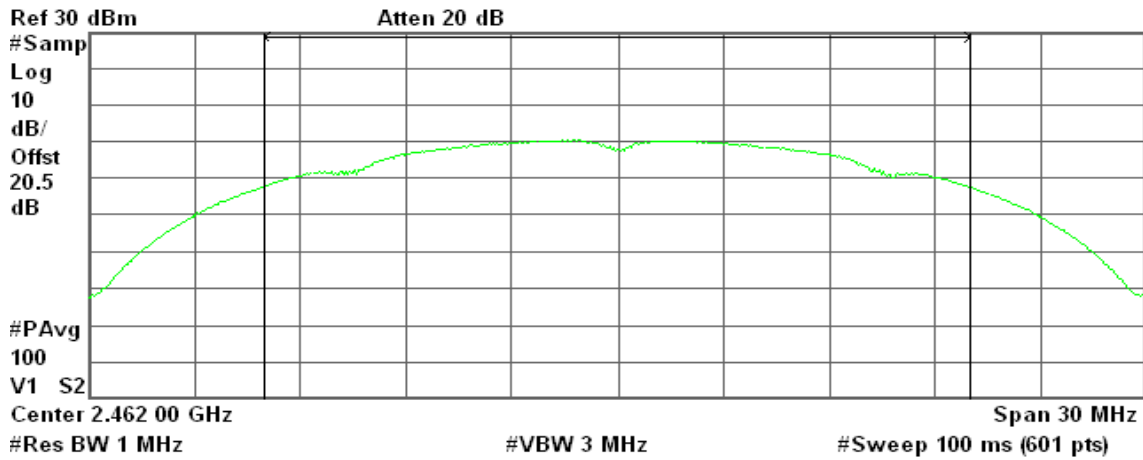
-63.19 dBm/Hz



Average Power (CH High)

Agilent 19:28:46 Nov 19, 2009

R T



Channel Power

9.03 dBm / 20.0000 MHz

Power Spectral Density

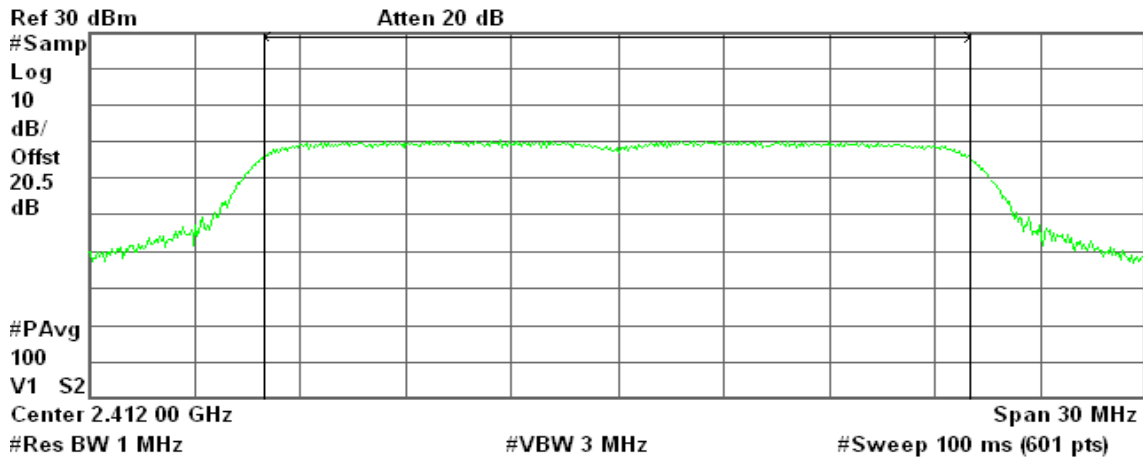
-63.98 dBm/Hz

IEEE 802.11g mode

Average Power (CH Low)

Agilent 20:08:34 Nov 19, 2009

R T



Channel Power

11.21 dBm / 20.0000 MHz

Power Spectral Density

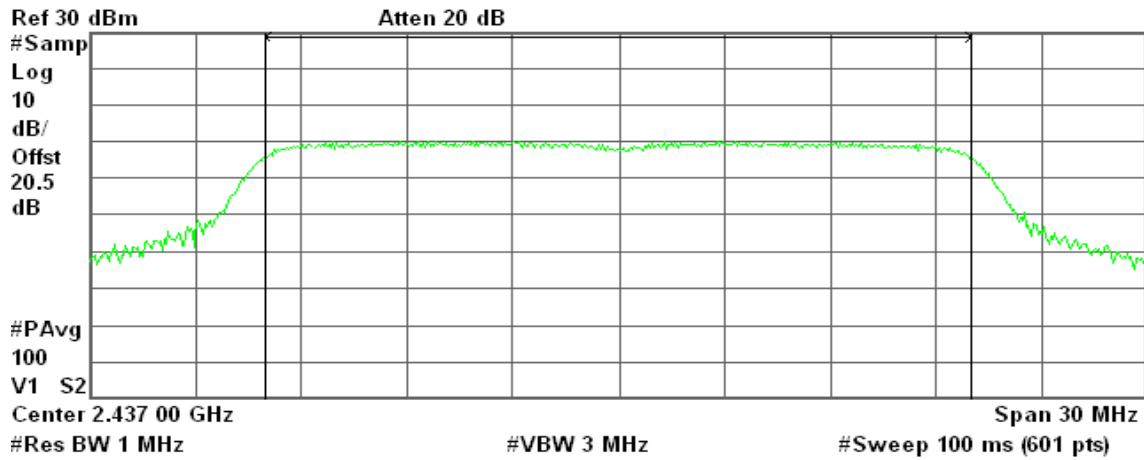
-61.80 dBm/Hz



Average Power (CH Mid)

Agilent 20:17:21 Nov 19, 2009

R T



Channel Power

11.09 dBm / 20.0000 MHz

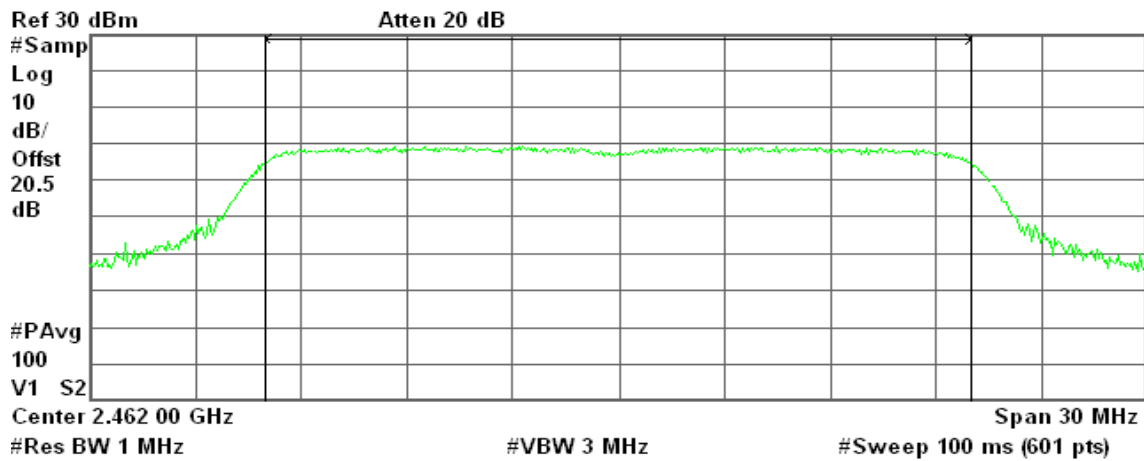
Power Spectral Density

-61.92 dBm/Hz

Average Power (CH High)

Agilent 20:26:50 Nov 19, 2009

R T



Channel Power

9.67 dBm / 20.0000 MHz

Power Spectral Density

-63.34 dBm/Hz

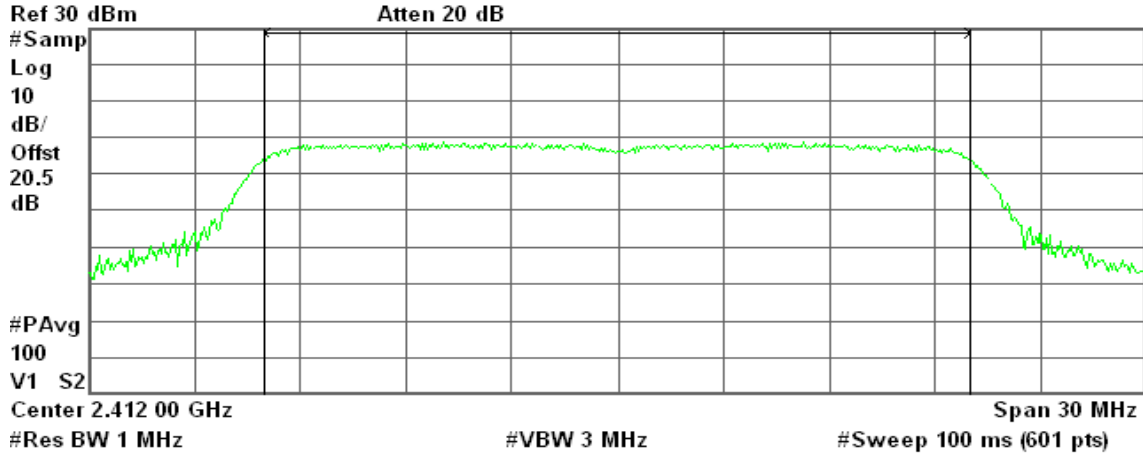


draft 802.11n Standard-20 MHz Channel mode

Average Power (CH Low)

Agilent 20:34:41 Nov 19, 2009

R T



Channel Power

9.80 dBm / 20.0000 MHz

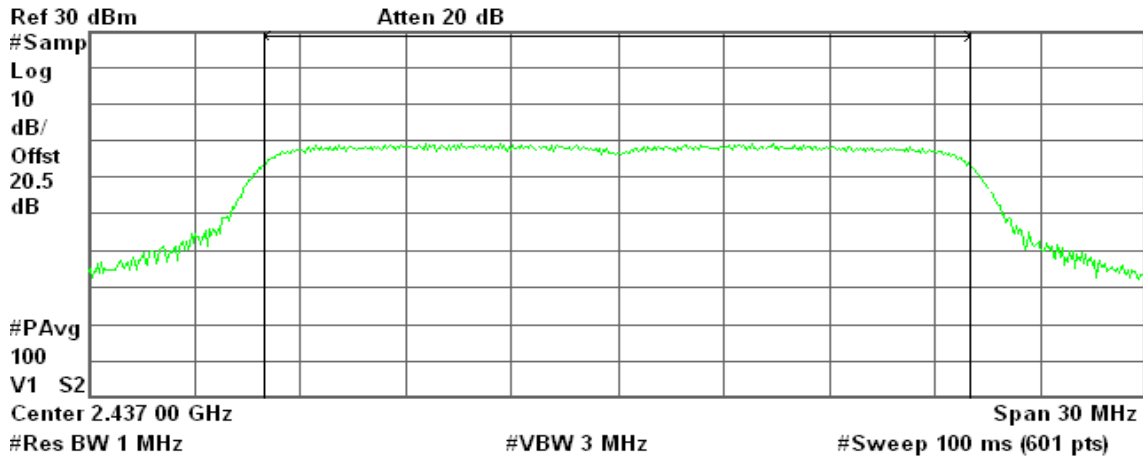
Power Spectral Density

-63.21 dBm/Hz

Average Power (CH Mid)

Agilent 20:40:13 Nov 19, 2009

R T



Channel Power

10.98 dBm / 20.0000 MHz

Power Spectral Density

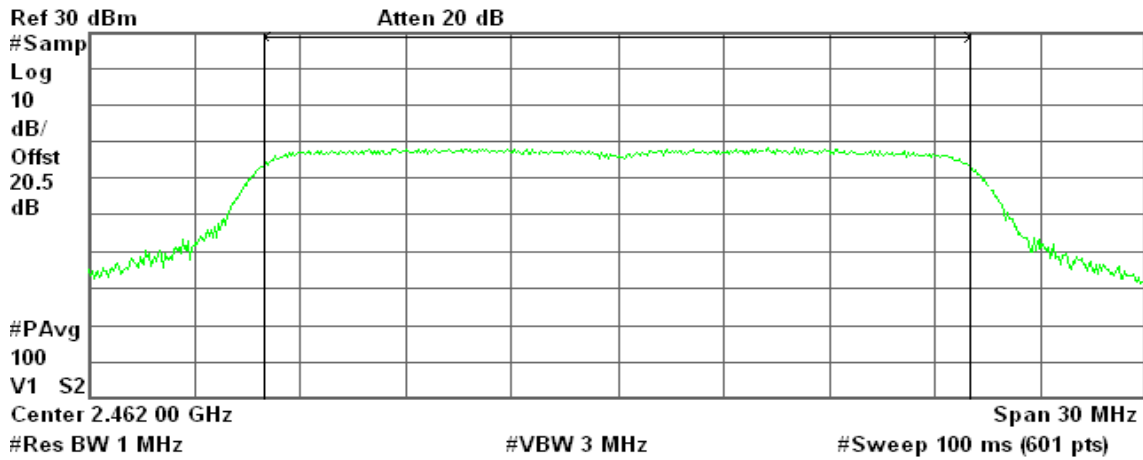
-62.03 dBm/Hz



Average Power (CH High)

Agilent 20:45:34 Nov 19, 2009

R T



Channel Power

9.12 dBm / 20.0000 MHz

Power Spectral Density

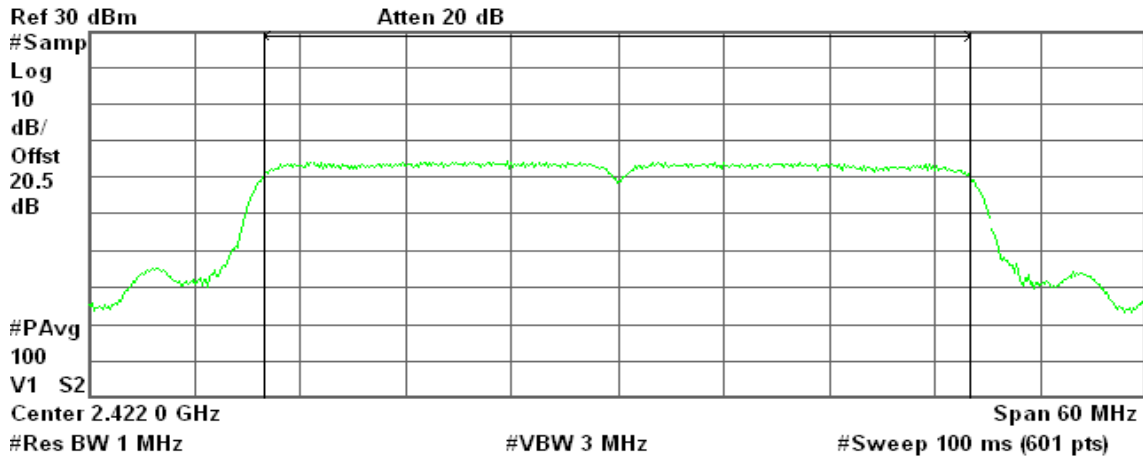
-63.89 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode

Average Power (CH Low)

Agilent 20:58:40 Nov 19, 2009

R T



Channel Power

8.67 dBm / 40.0000 MHz

Power Spectral Density

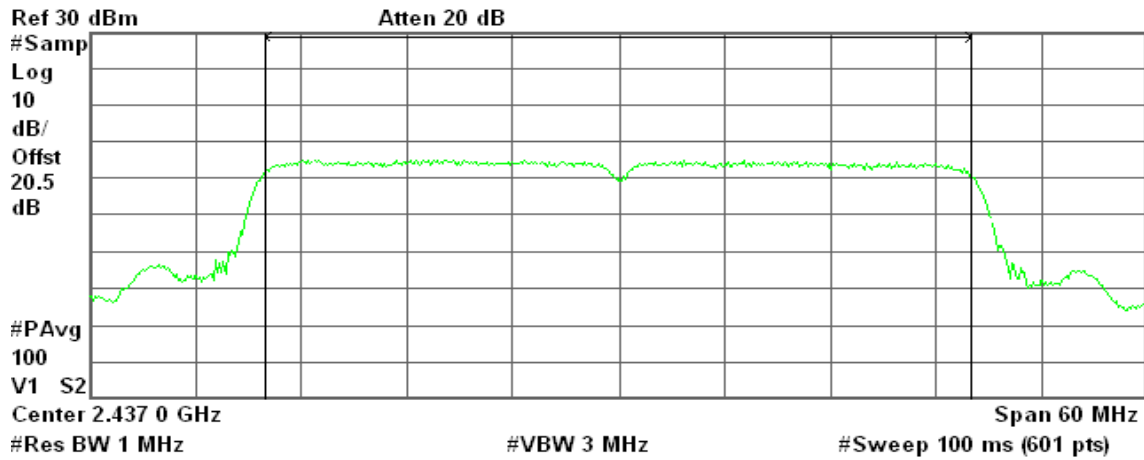
-67.35 dBm/Hz



Average Power (CH Mid)

Agilent 21:06:10 Nov 19, 2009

R T



Channel Power

9.25 dBm / 40.0000 MHz

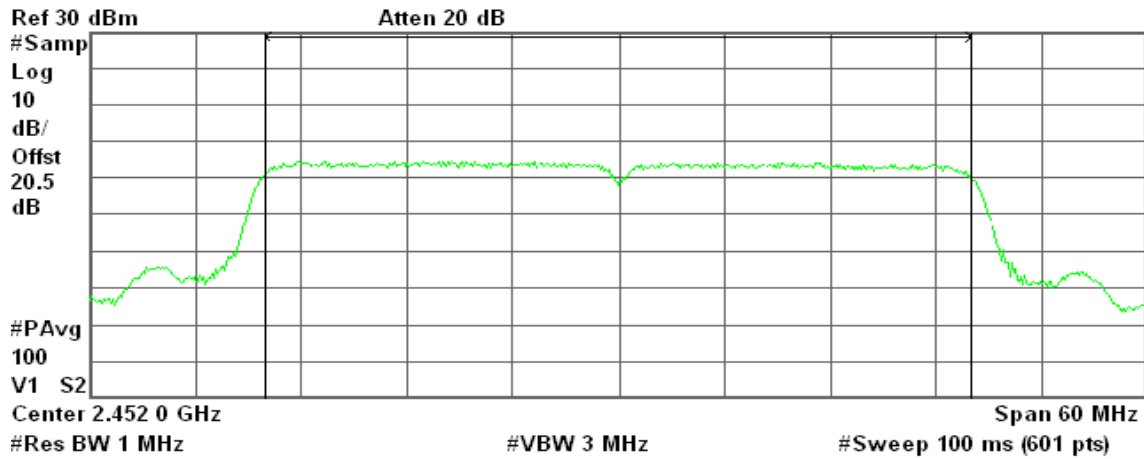
Power Spectral Density

-66.77 dBm/Hz

Average Power (CH High)

Agilent 21:11:42 Nov 19, 2009

R T



Channel Power

8.67 dBm / 40.0000 MHz

Power Spectral Density

-67.35 dBm/Hz



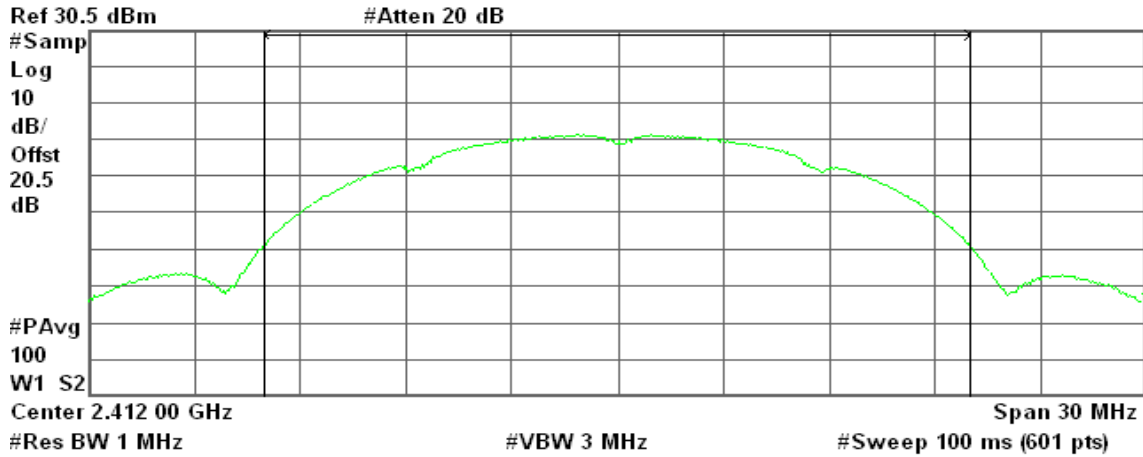
For Patch Antenna

IEEE 802.11b mode

Average Power (CH Low)

Agilent 14:03:13 Nov 30, 2009

R T



Channel Power

11.02 dBm / 20.0000 MHz

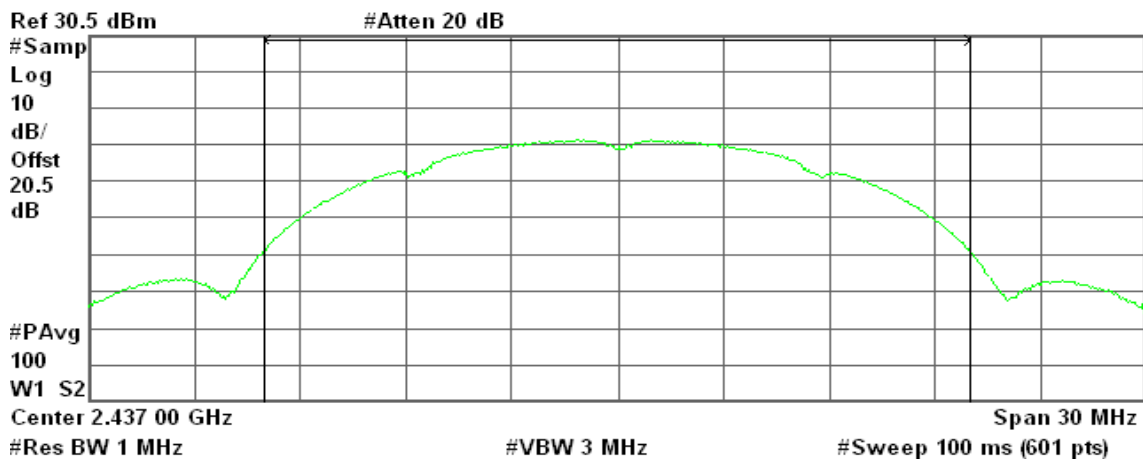
Power Spectral Density

-61.99 dBm/Hz

Average Power (CH Mid)

Agilent 14:05:28 Nov 30, 2009

R T



Channel Power

11.33 dBm / 20.0000 MHz

Power Spectral Density

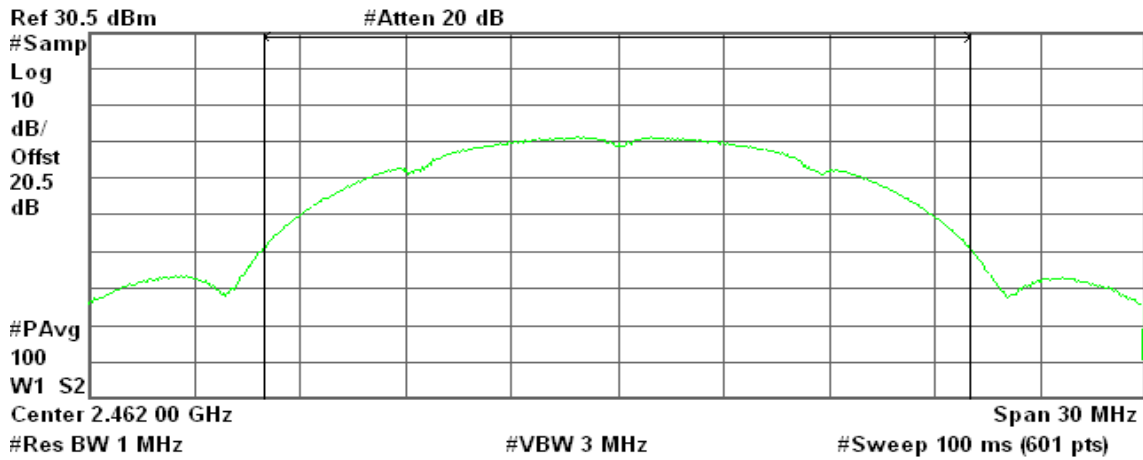
-61.68 dBm/Hz



Average Power (CH High)

Agilent 14:01:17 Nov 30, 2009

R T



Channel Power

10.41 dBm / 20.0000 MHz

Power Spectral Density

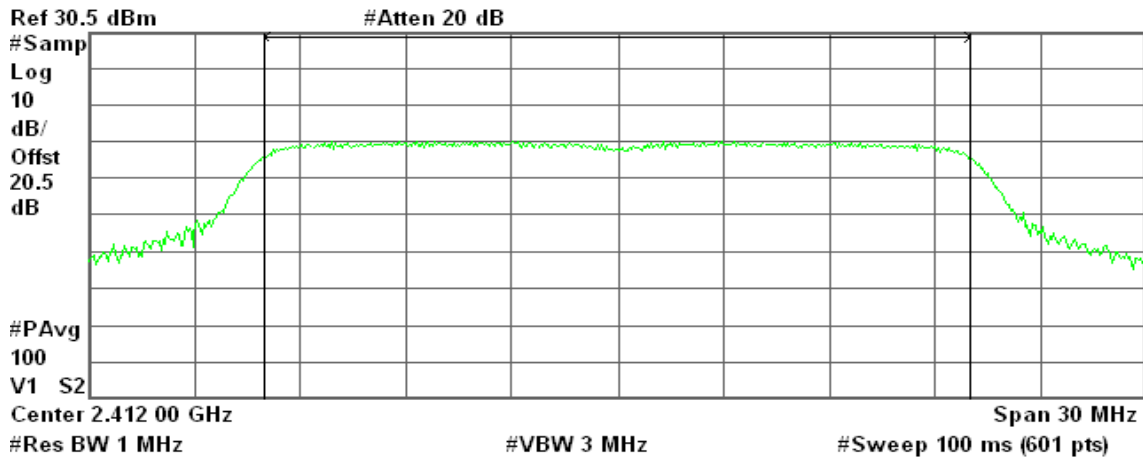
-62.60 dBm/Hz

IEEE 802.11g mode

Average Power (CH Low)

Agilent 14:11:39 Nov 30, 2009

R T



Channel Power

12.10 dBm / 20.0000 MHz

Power Spectral Density

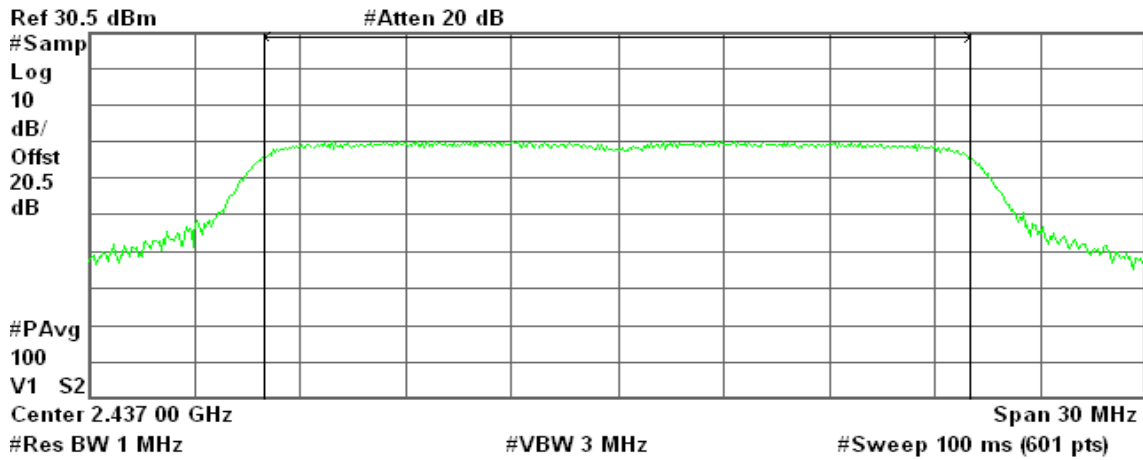
-60.91 dBm/Hz



Average Power (CH Mid)

Agilent 14:13:54 Nov 30, 2009

R T



Channel Power

12.34 dBm / 20.0000 MHz

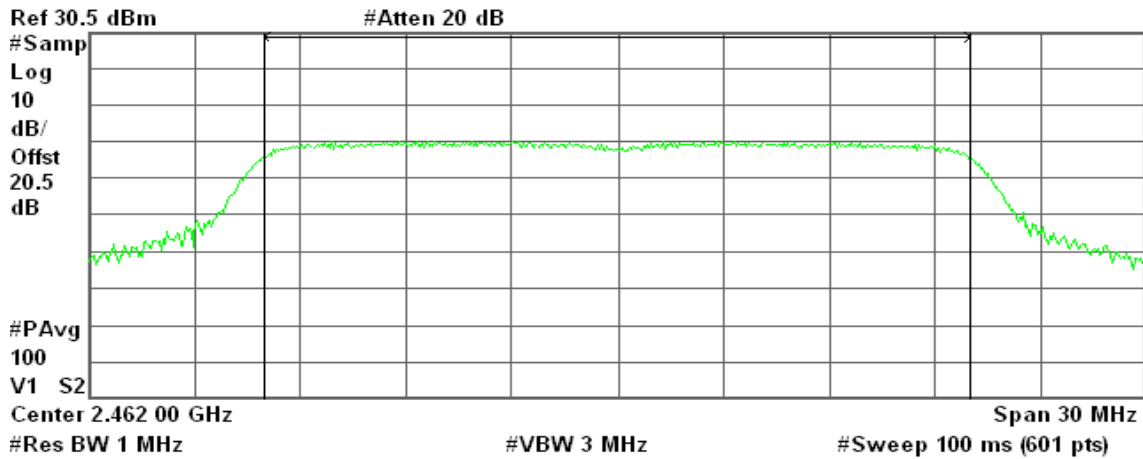
Power Spectral Density

-60.67 dBm/Hz

Average Power (CH High)

Agilent 14:17:07 Nov 30, 2009

R T



Channel Power

11.73 dBm / 20.0000 MHz

Power Spectral Density

-61.28 dBm/Hz

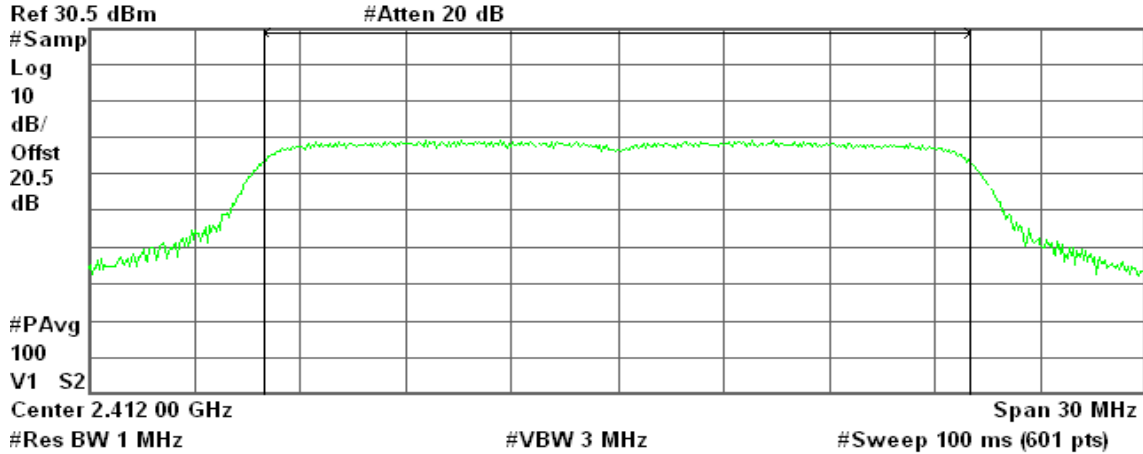


draft 802.11n Standard-20 MHz Channel mode

Average Power (CH Low)

Agilent 14:29:25 Nov 30, 2009

R T



Channel Power

9.86 dBm / 20.0000 MHz

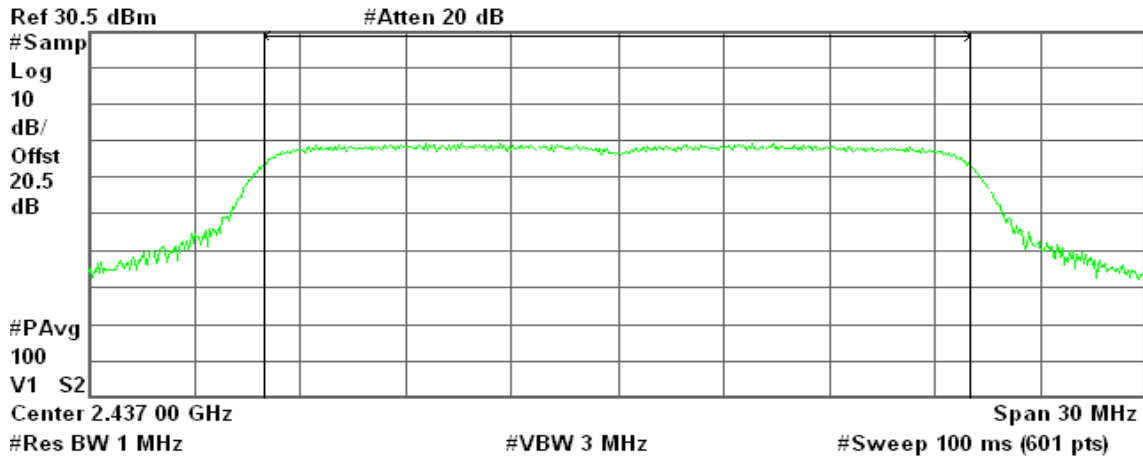
Power Spectral Density

-63.15 dBm/Hz

Average Power (CH Mid)

Agilent 14:22:36 Nov 30, 2009

R T



Channel Power

11.58 dBm / 20.0000 MHz

Power Spectral Density

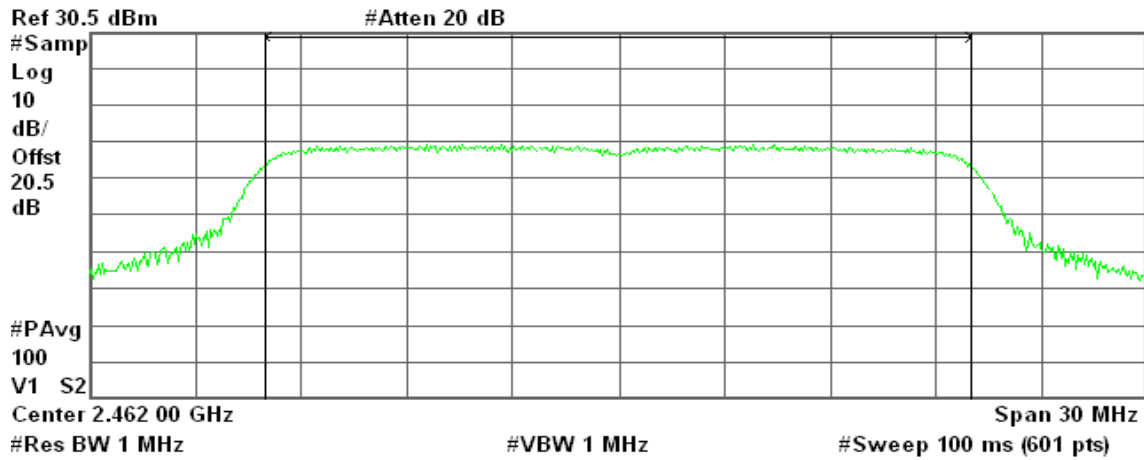
-61.43 dBm/Hz



Average Power (CH High)

Agilent 14:21:04 Nov 30, 2009

R T



Channel Power

10.84 dBm / 20.0000 MHz

Power Spectral Density

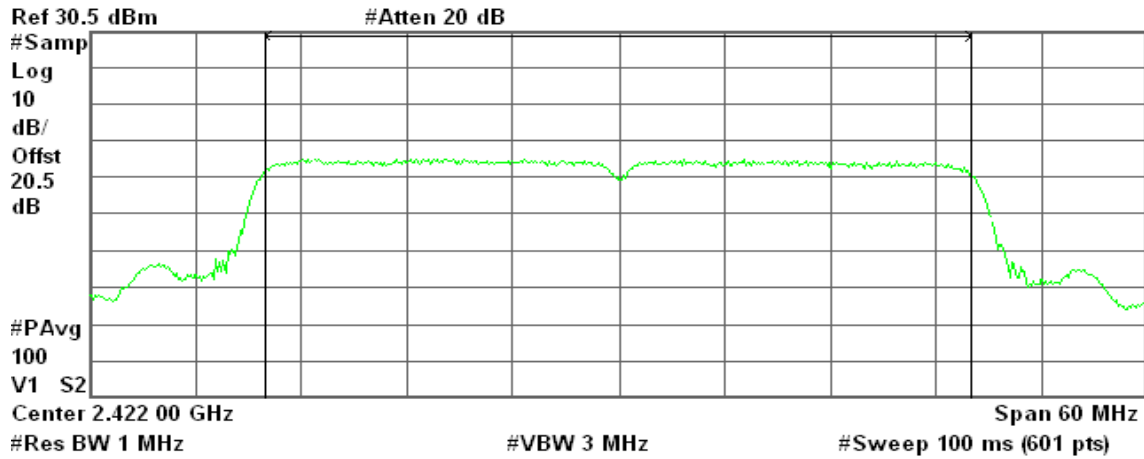
-62.17 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode

Average Power (CH Low)

Agilent 14:34:36 Nov 30, 2009

R T



Channel Power

8.99 dBm / 40.0000 MHz

Power Spectral Density

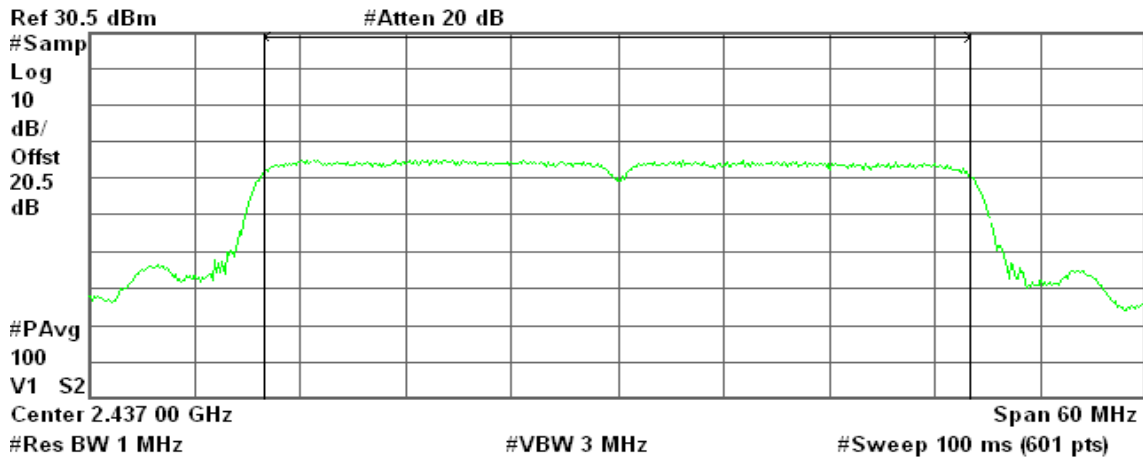
-67.03 dBm/Hz



Average Power (CH Mid)

Agilent 14:35:51 Nov 30, 2009

R T



Channel Power

10.99 dBm / 40.0000 MHz

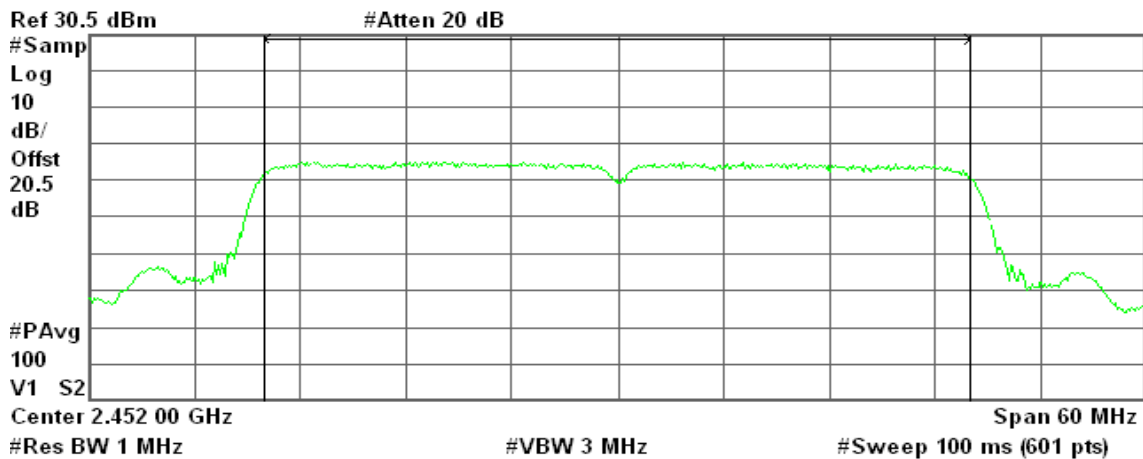
Power Spectral Density

-65.03 dBm/Hz

Average Power (CH High)

Agilent 14:38:43 Nov 30, 2009

R T



Channel Power

10.38 dBm / 40.0000 MHz

Power Spectral Density

-65.64 dBm/Hz



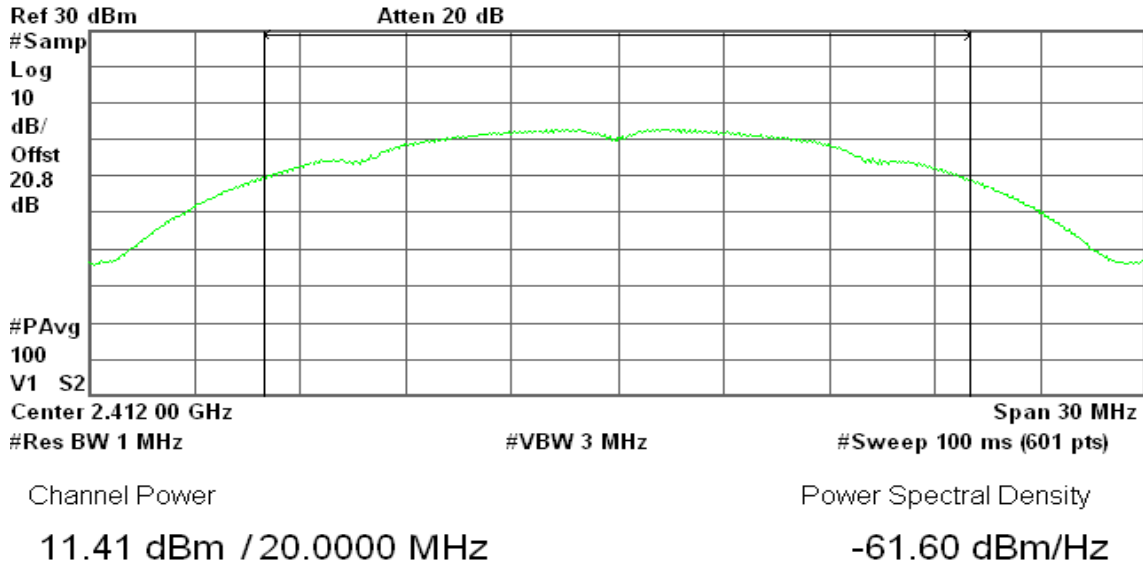
For Chip Antenna

IEEE 802.11b mode

Average Power (CH Low)

Agilent 20:47:17 Nov 20, 2009

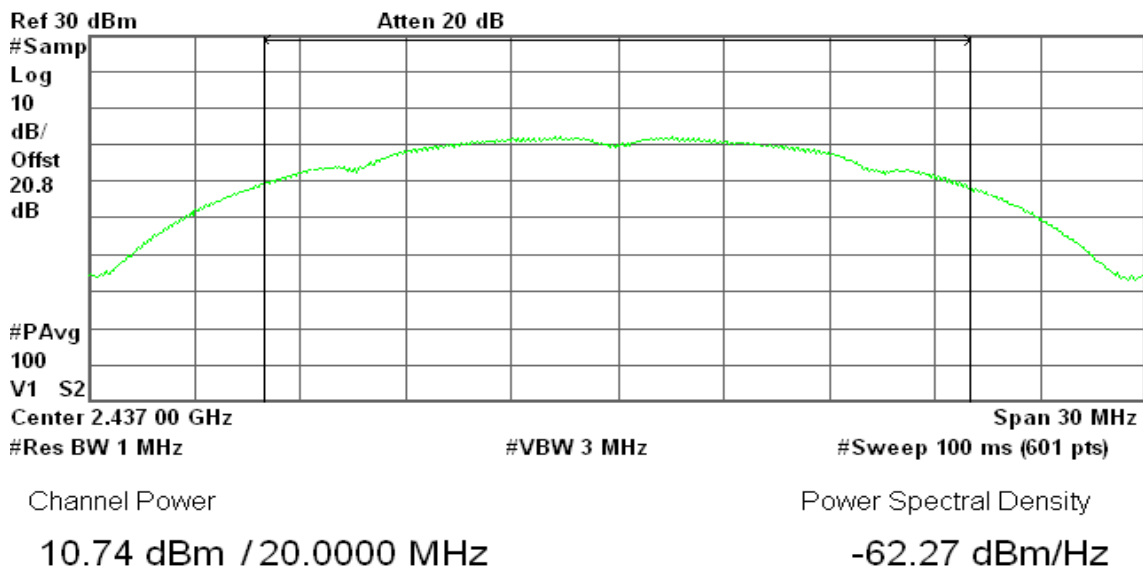
R T



Average Power (CH Mid)

Agilent 20:53:16 Nov 20, 2009

R T

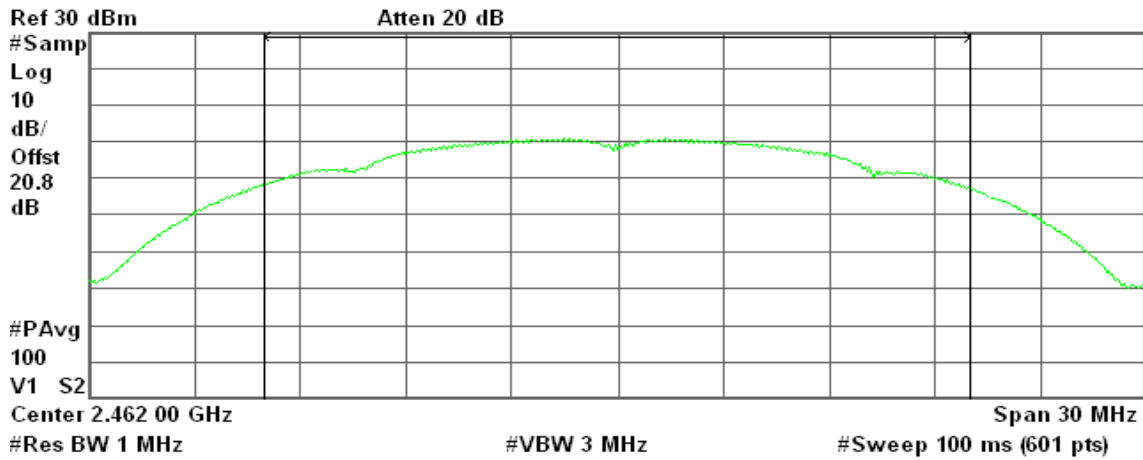




Average Power (CH High)

Agilent 21:09:46 Nov 20, 2009

R T



Channel Power

9.45 dBm / 20.0000 MHz

Power Spectral Density

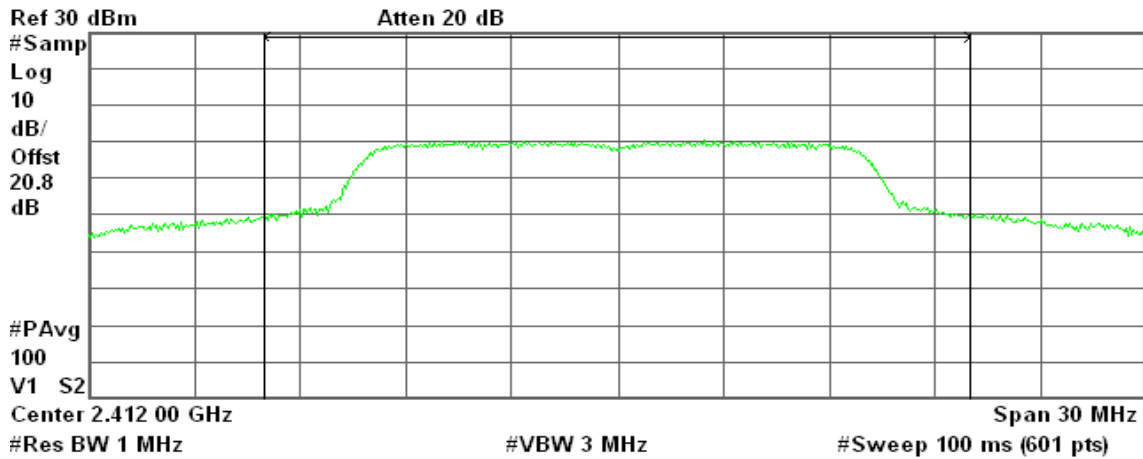
-63.56 dBm/Hz

IEEE 802.11g mode

Average Power (CH Low)

Agilent 21:44:50 Nov 20, 2009

R T



Channel Power

11.25 dBm / 20.0000 MHz

Power Spectral Density

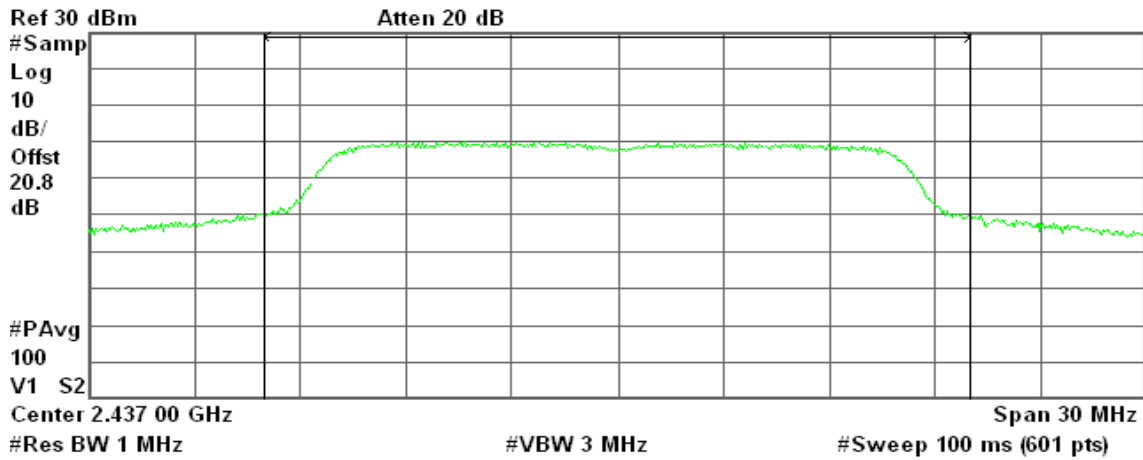
-61.76 dBm/Hz



Average Power (CH Mid)

Agilent 21:38:02 Nov 20, 2009

R T



Channel Power

10.64 dBm / 20.0000 MHz

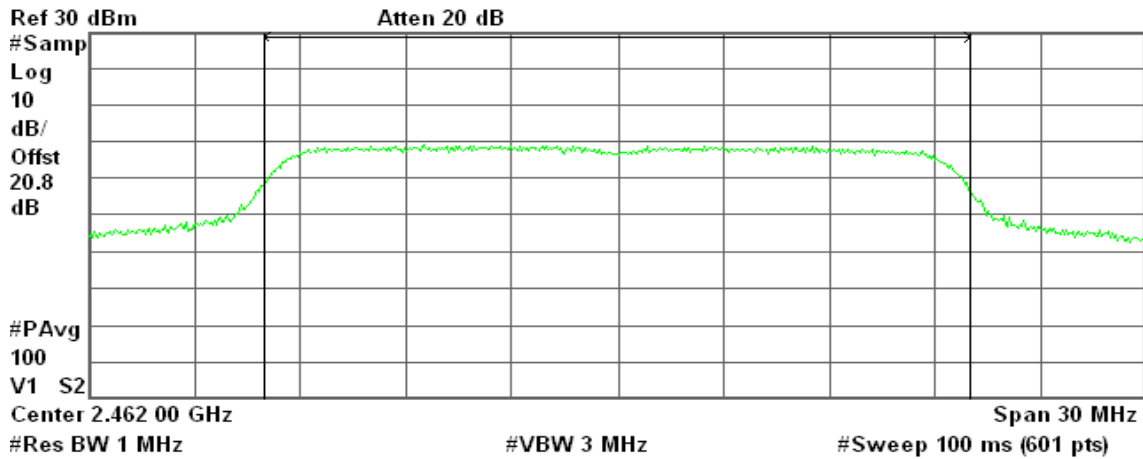
Power Spectral Density

-62.37 dBm/Hz

Average Power (CH High)

Agilent 21:31:25 Nov 20, 2009

R T



Channel Power

10.05 dBm / 20.0000 MHz

Power Spectral Density

-62.96 dBm/Hz

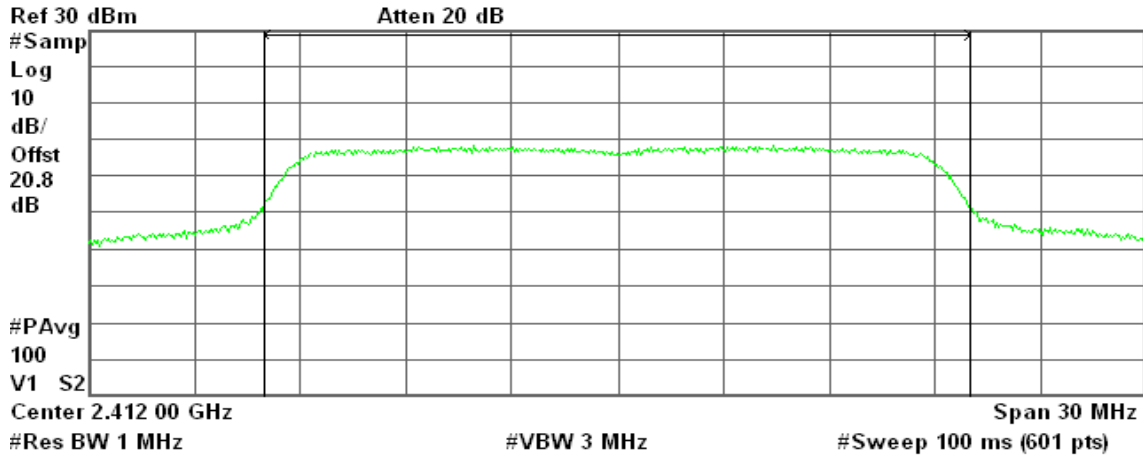


draft 802.11n Standard-20 MHz Channel mode

Average Power (CH Low)

Agilent 21:50:50 Nov 20, 2009

R T



Channel Power

9.56 dBm / 20.0000 MHz

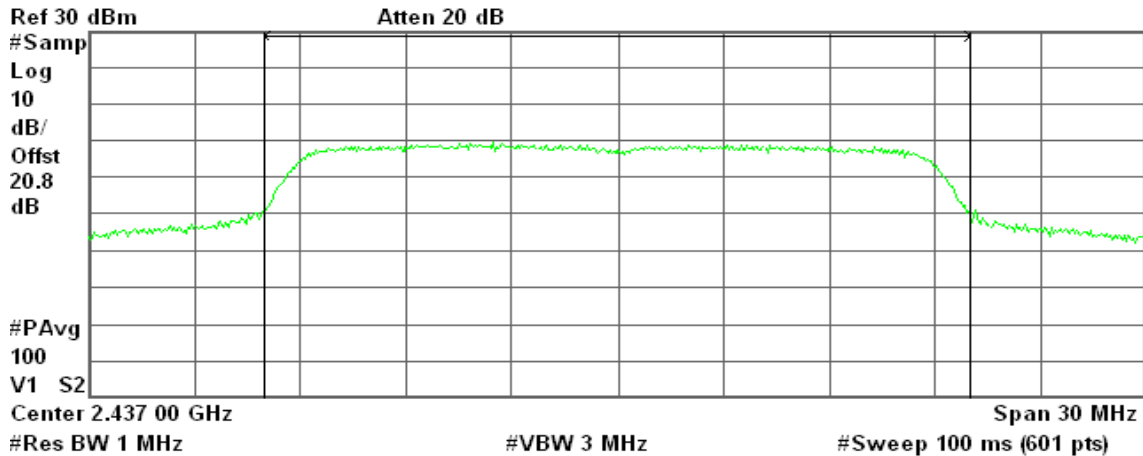
Power Spectral Density

-63.45 dBm/Hz

Average Power (CH Mid)

Agilent 21:58:15 Nov 20, 2009

R T



Channel Power

10.16 dBm / 20.0000 MHz

Power Spectral Density

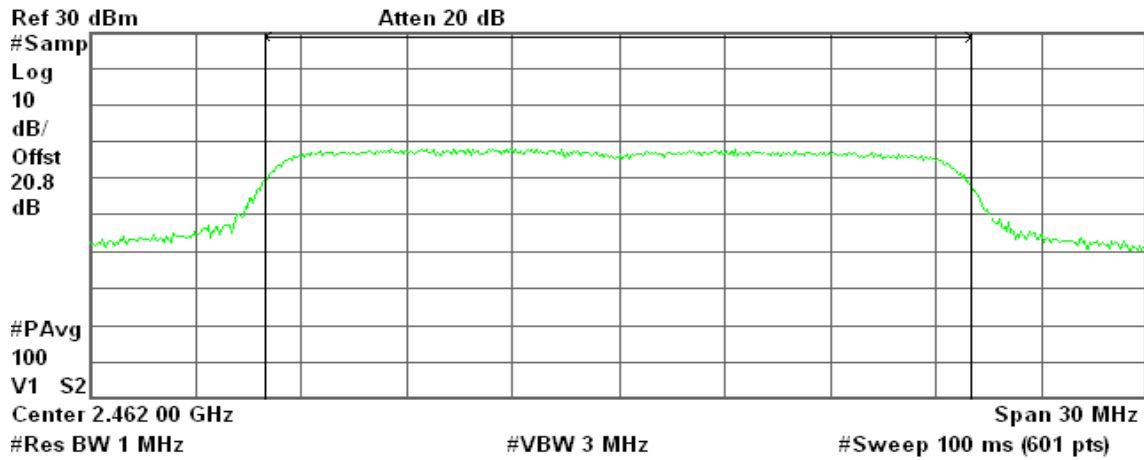
-62.86 dBm/Hz



Average Power (CH High)

Agilent 22:04:06 Nov 20, 2009

R T



Channel Power

9.42 dBm / 20.0000 MHz

Power Spectral Density

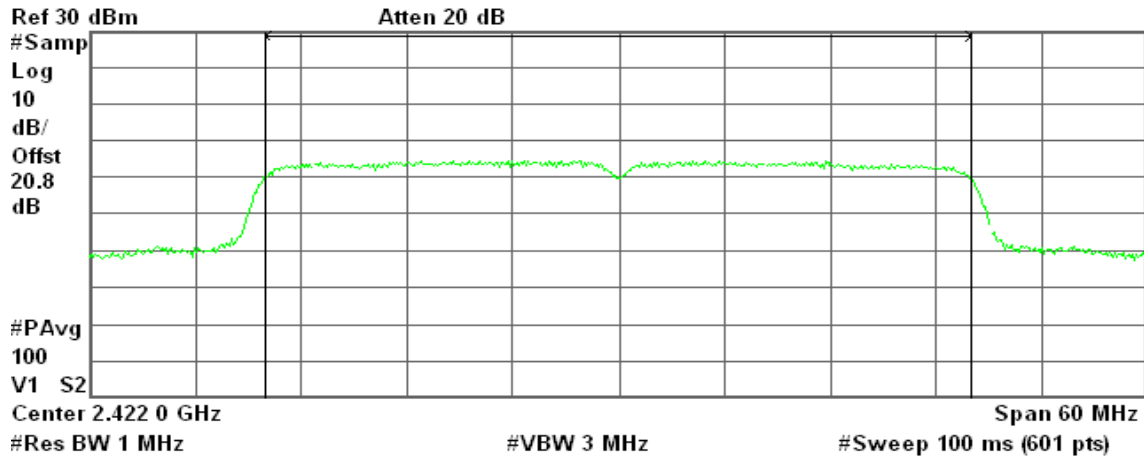
-63.59 dBm/Hz

draft 802.11n Wide-40 MHz Channel mode

Average Power (CH Low)

Agilent 22:23:17 Nov 20, 2009

R T



Channel Power

8.66 dBm / 40.0000 MHz

Power Spectral Density

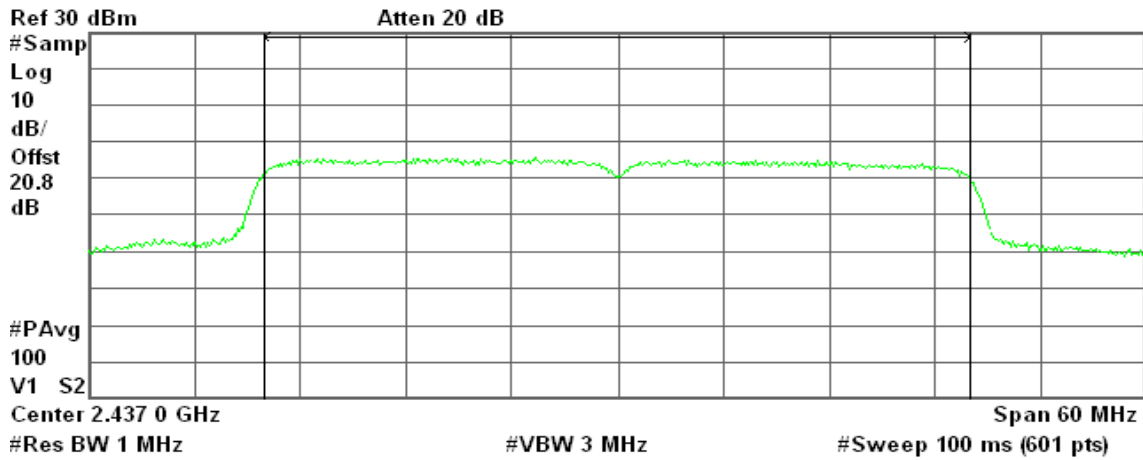
-67.36 dBm/Hz



Average Power (CH Mid)

Agilent 22:17:13 Nov 20, 2009

R T



Channel Power

9.81 dBm / 40.0000 MHz

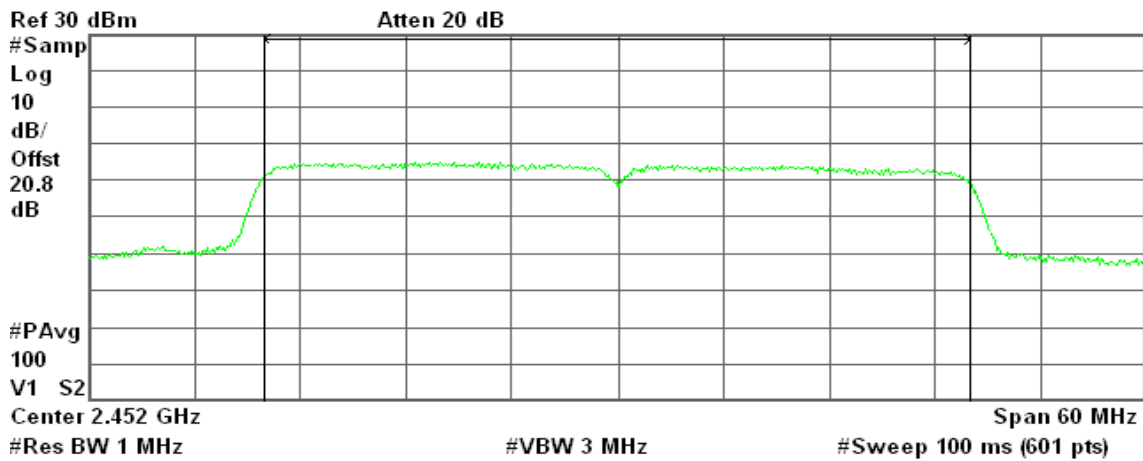
Power Spectral Density

-66.22 dBm/Hz

Average Power (CH High)

Agilent 22:11:45 Nov 20, 2009

R T



Channel Power

8.84 dBm / 40.0000 MHz

Power Spectral Density

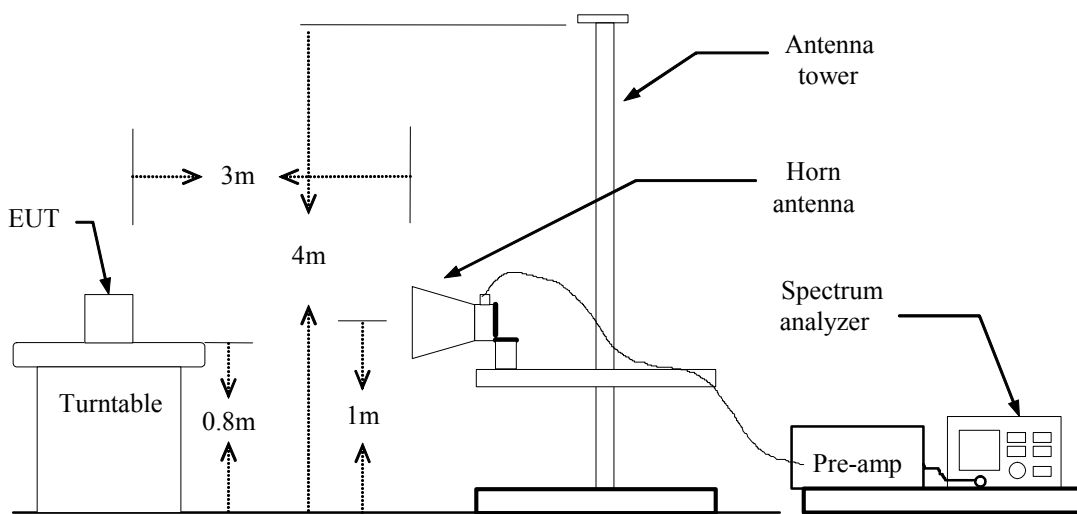
-77.18 dBm/Hz

7.4 BAND EDGES MEASUREMENT

LIMIT

According to §15.247(d), 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 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, provided the transmitter demonstrates compliance with the peak conducted power limits. 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) (see Section 15.205(c)).

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.



For Omni Antenna

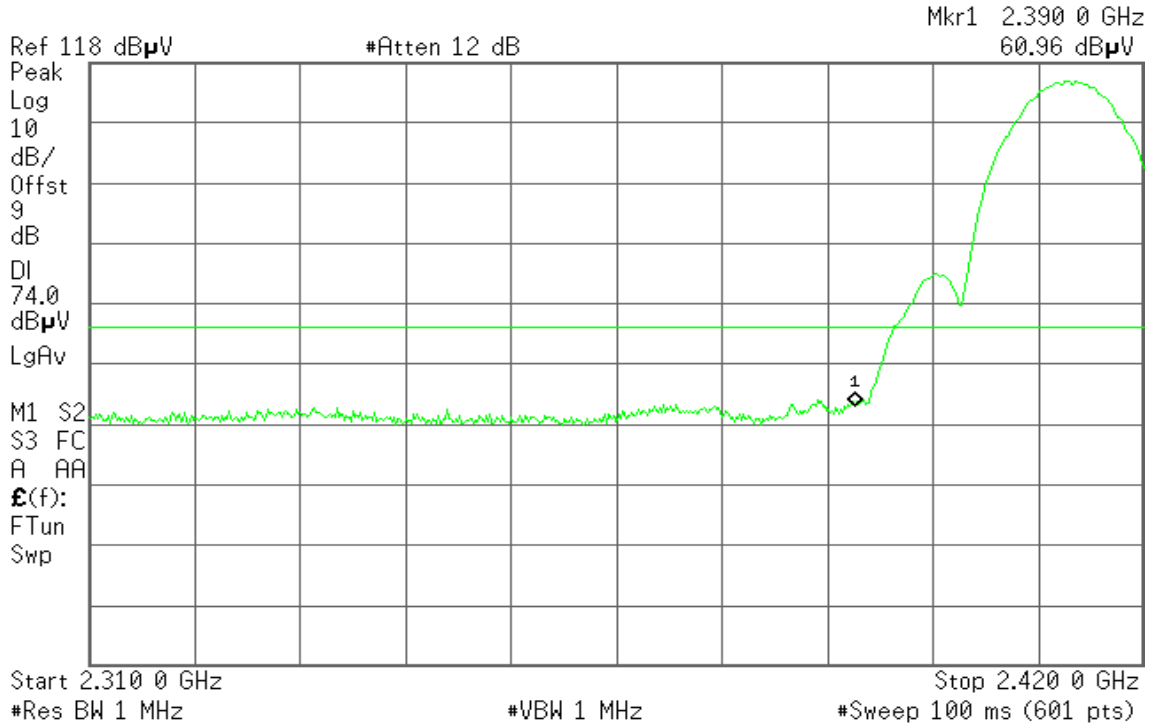
Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

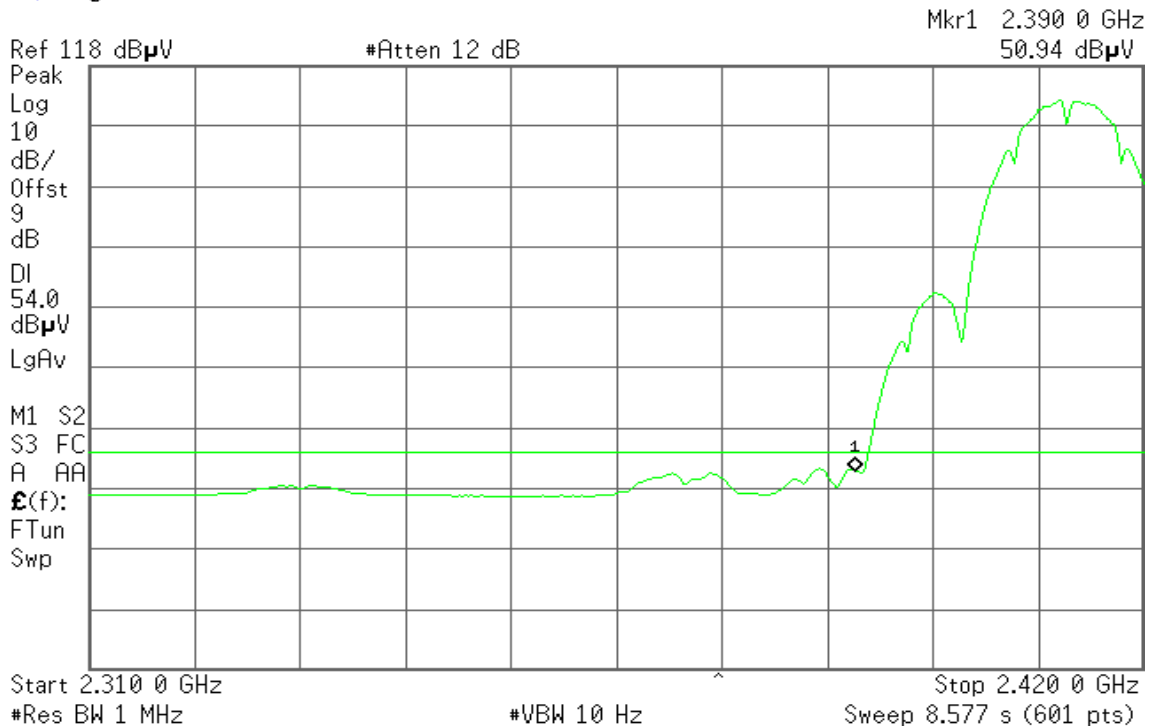


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

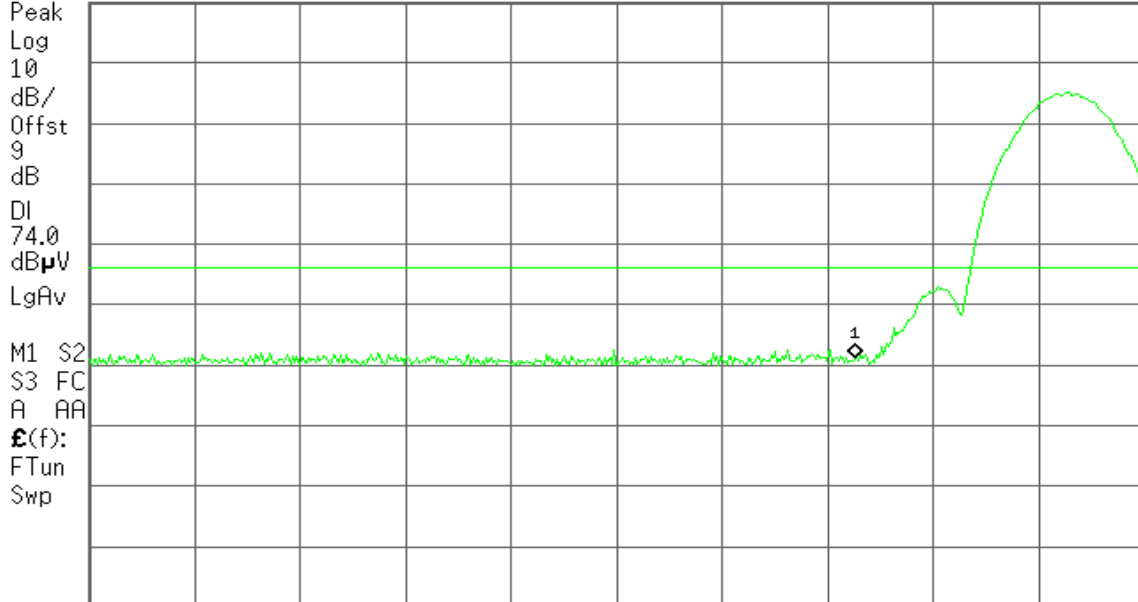
Agilent

R T

Mkr1 2.390 0 GHz
59.24 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
47.13 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (IEEE 802.11b mode / CH High)

Detector mode: Peak

Polarity: Vertical

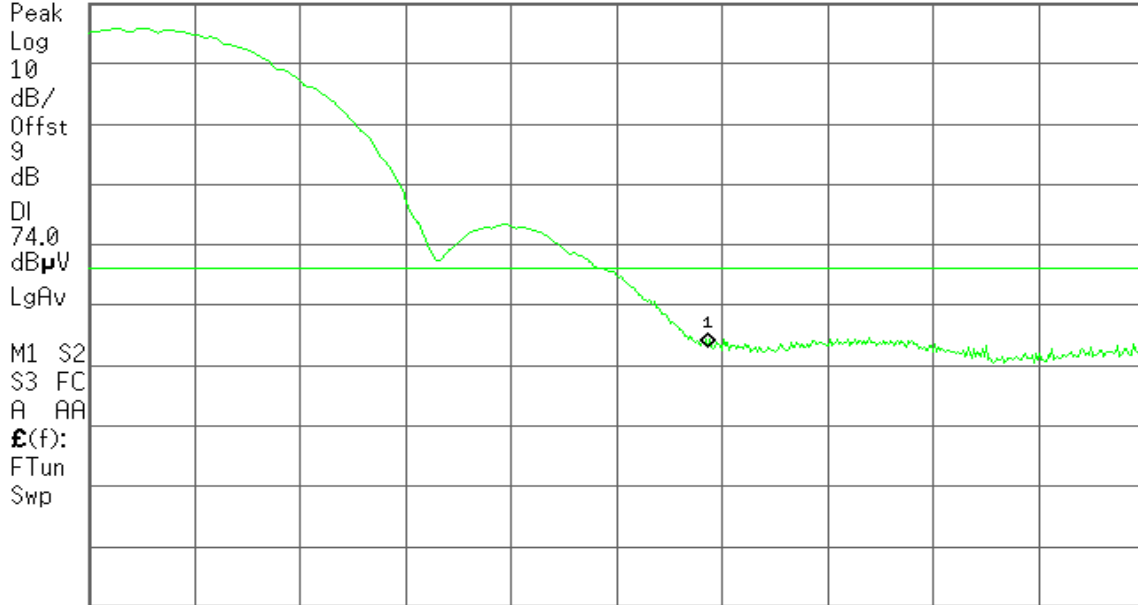
Agilent

R T

Mkr1 2.483 50 GHz
61.04 dB μ V

Ref 118 dB μ V

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

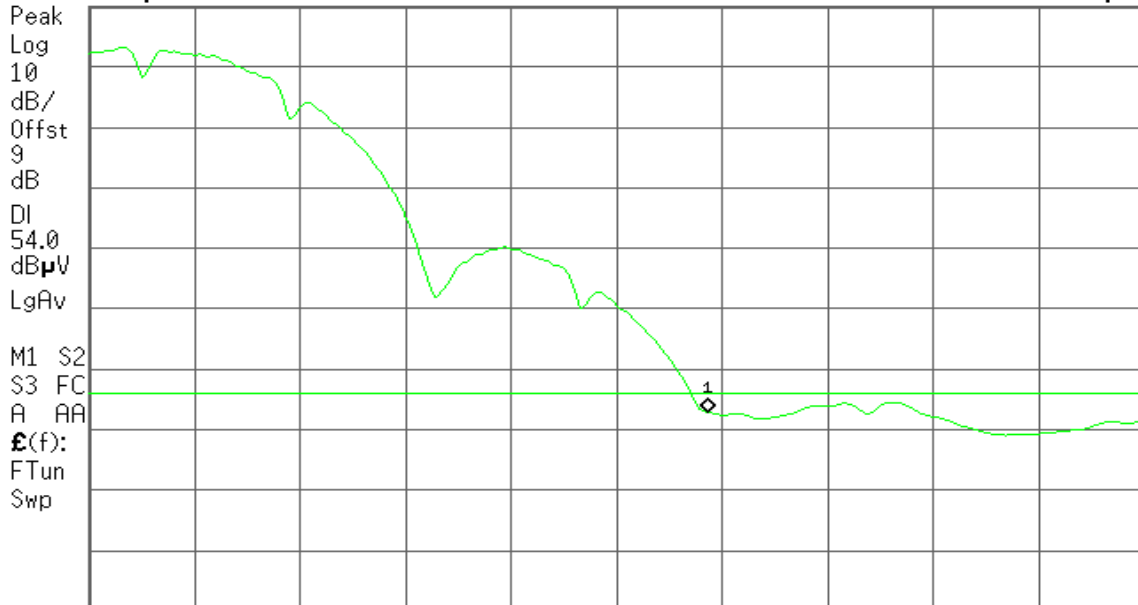
Agilent

R T

Mkr1 2.483 50 GHz
50.95 dB μ V

Ref 118 dB μ V

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

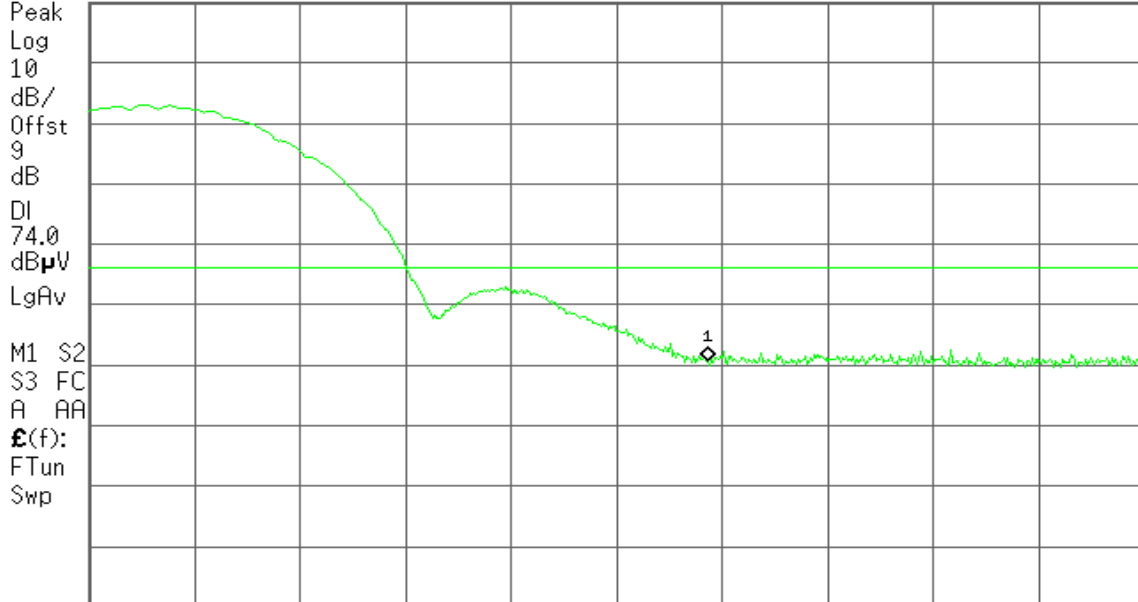
Agilent

R T

Mkr1 2.483 50 GHz
58.73 dBμV

Ref 118 dBμV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

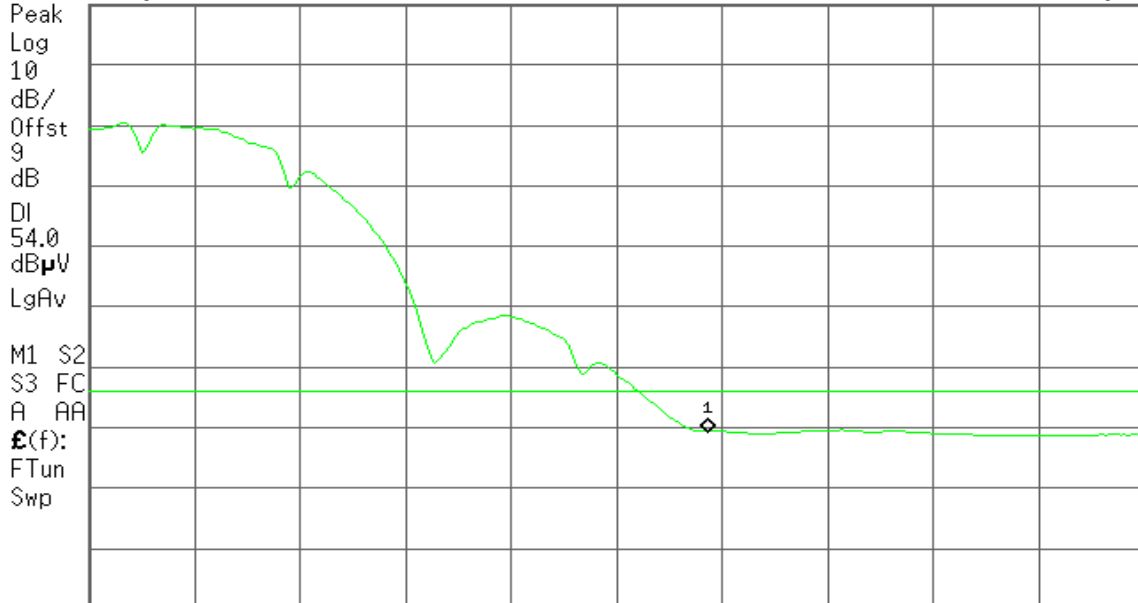
Agilent

R T

Mkr1 2.483 50 GHz
47.36 dBμV

Ref 118 dBμV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



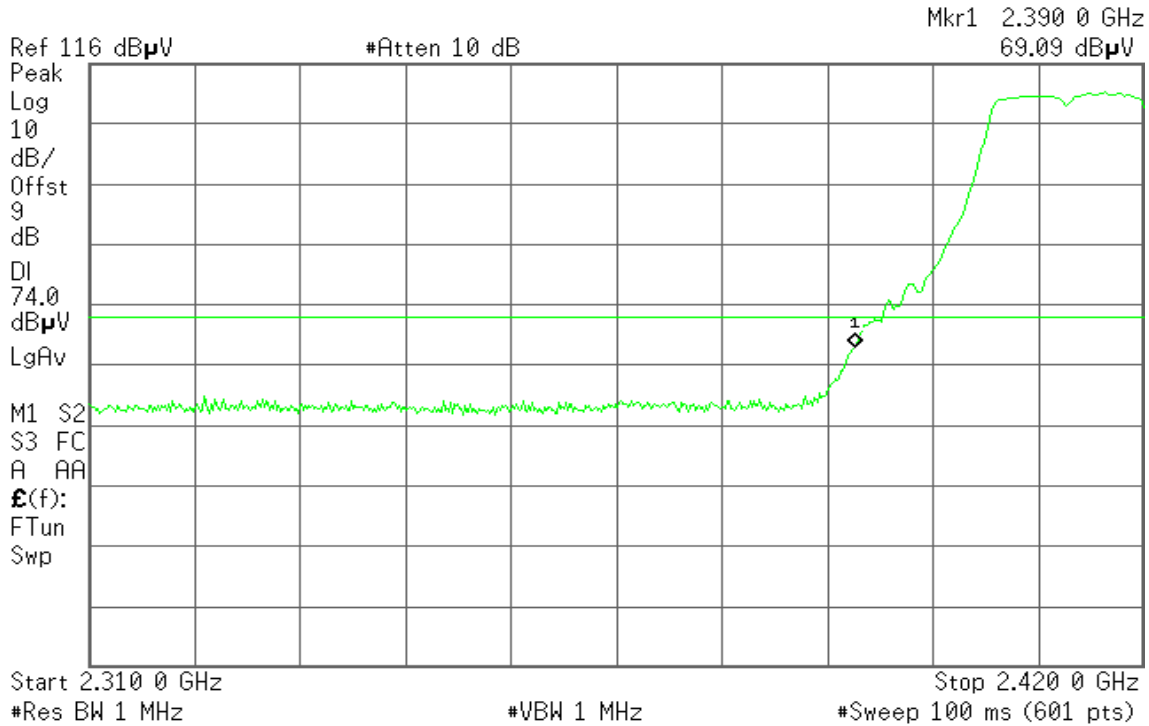
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

T

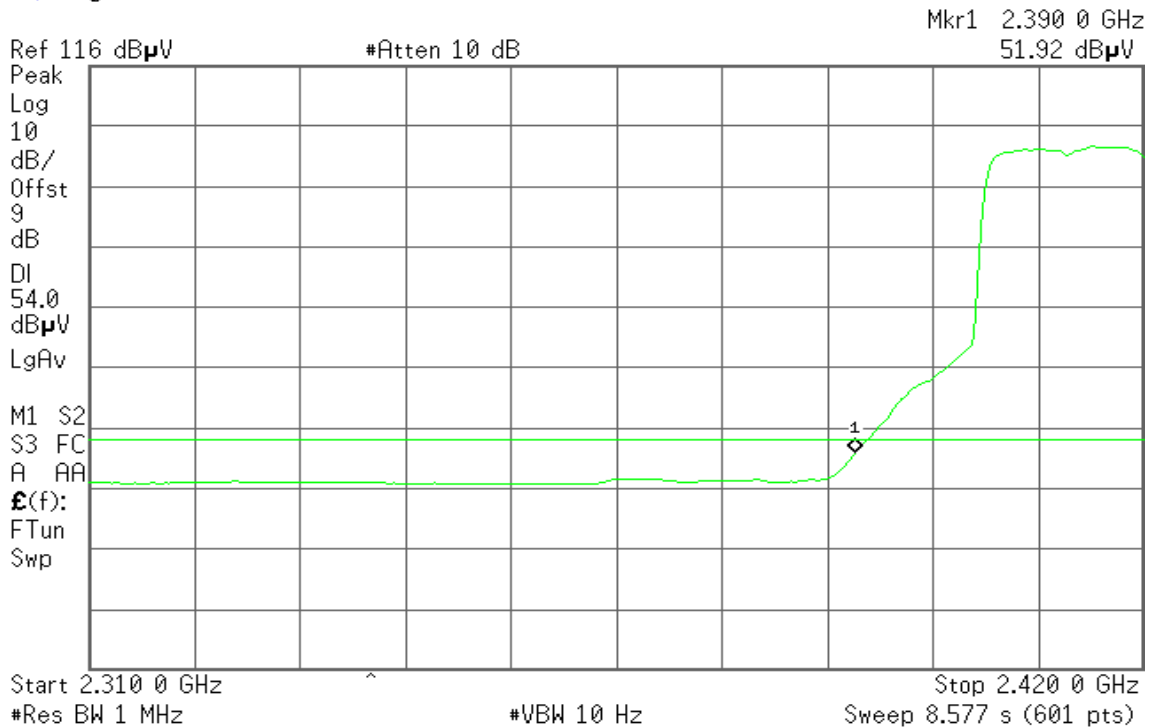


Detector mode: Average

Polarity: Vertical

Agilent

T



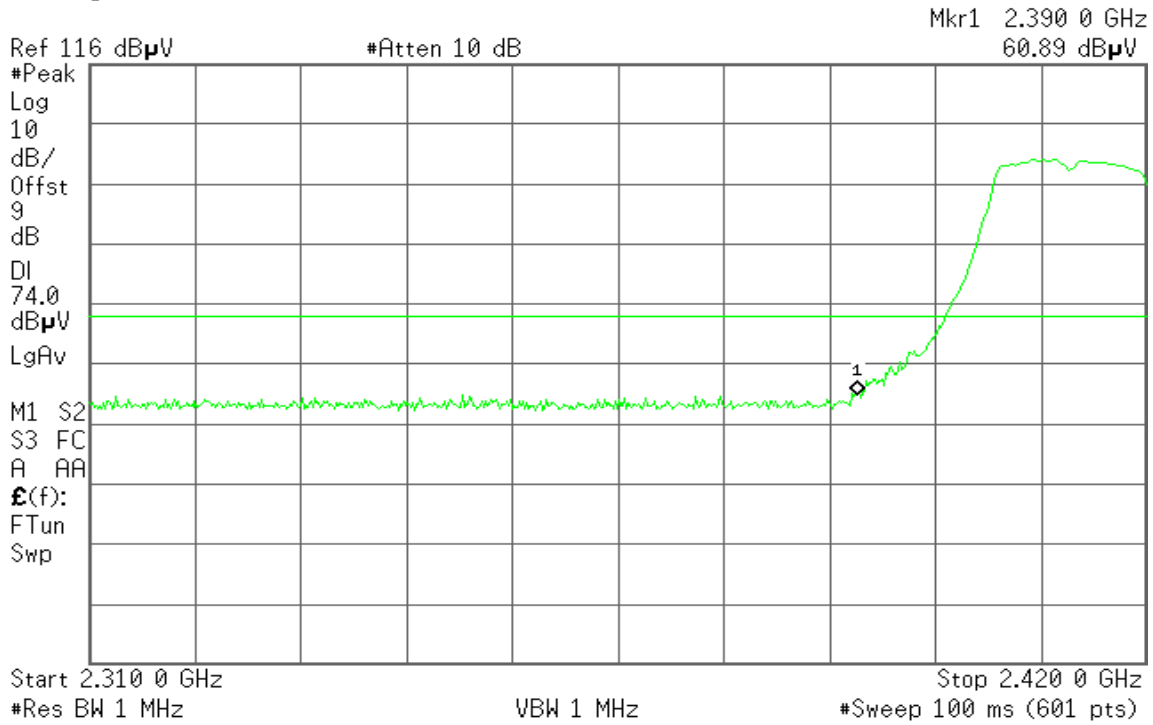


Detector mode: Peak

Polarity: Horizontal

Agilent

T

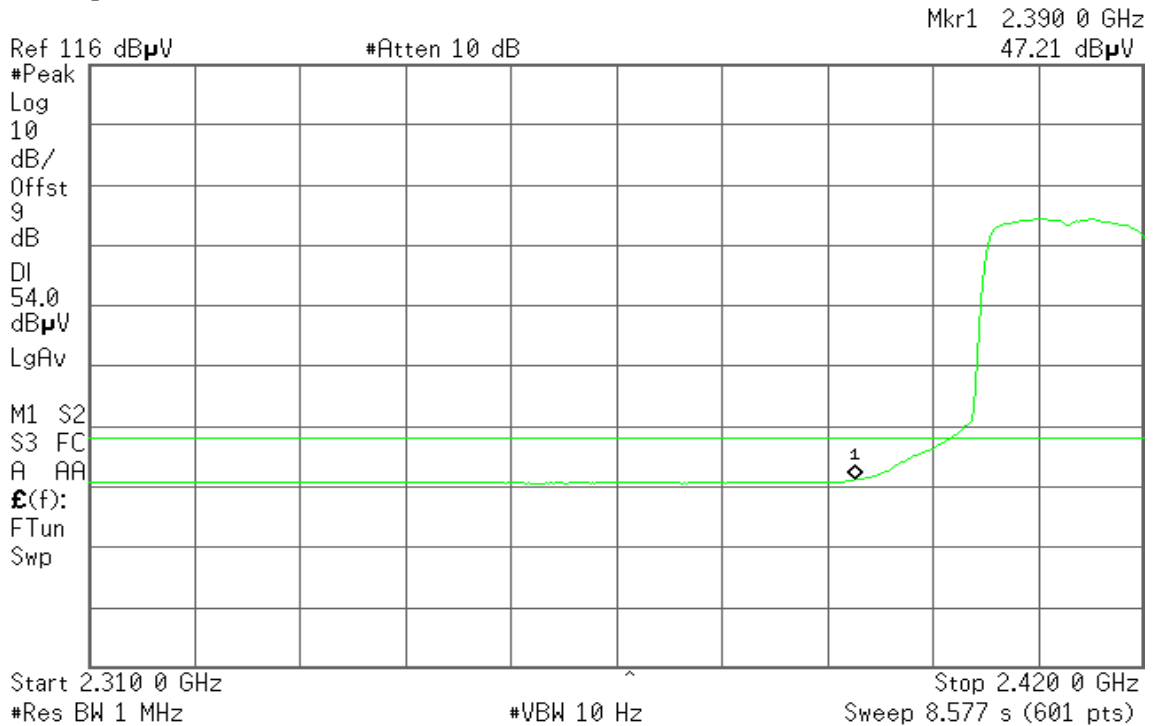


Detector mode: Average

Polarity: Horizontal

Agilent

T





Band Edges (IEEE 802.11g mode / CH High)

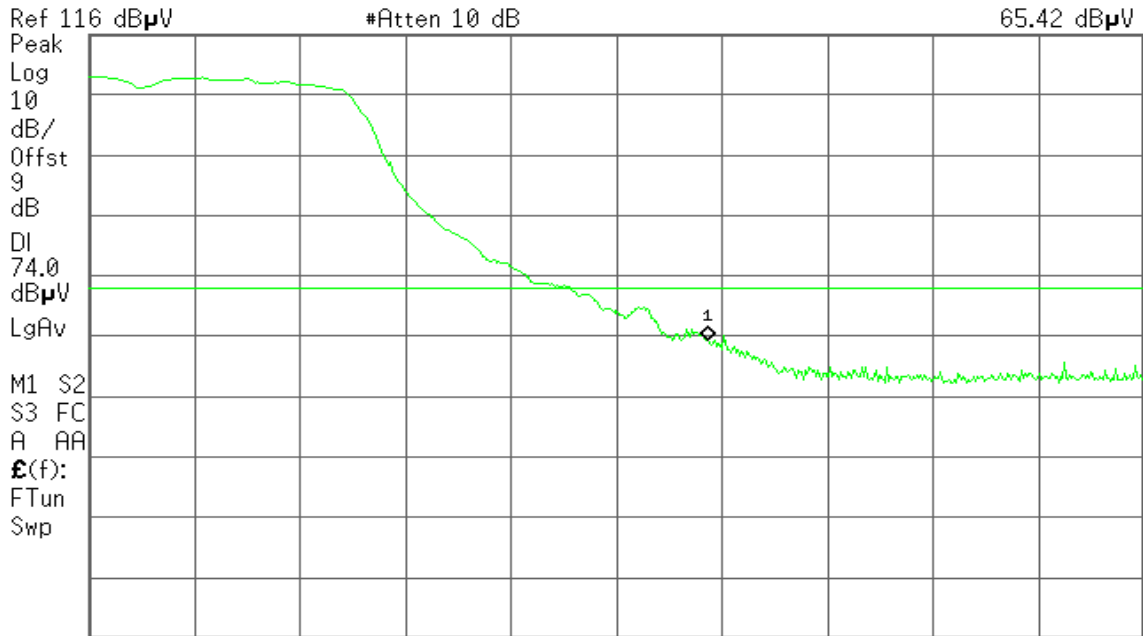
Detector mode: Peak

Polarity: Vertical

Agilent

T

Mkr1 2.483 50 GHz
65.42 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

Agilent

T

Mkr1 2.483 50 GHz
49.86 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

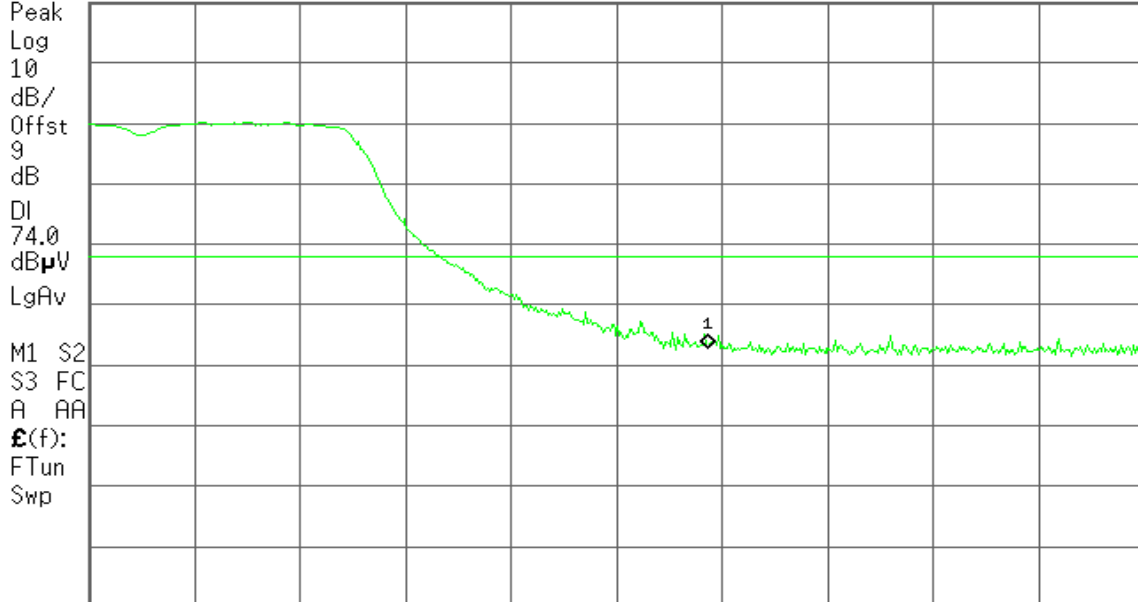
Agilent

T

Mkr1 2.483 50 GHz
58.75 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

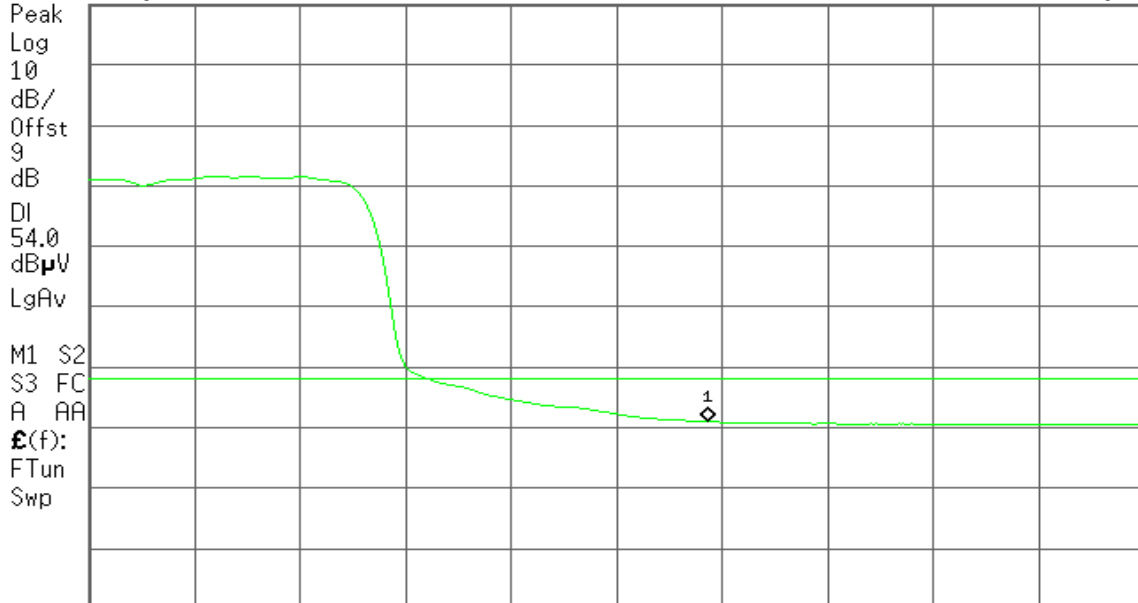
Agilent

T

Mkr1 2.483 50 GHz
46.98 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



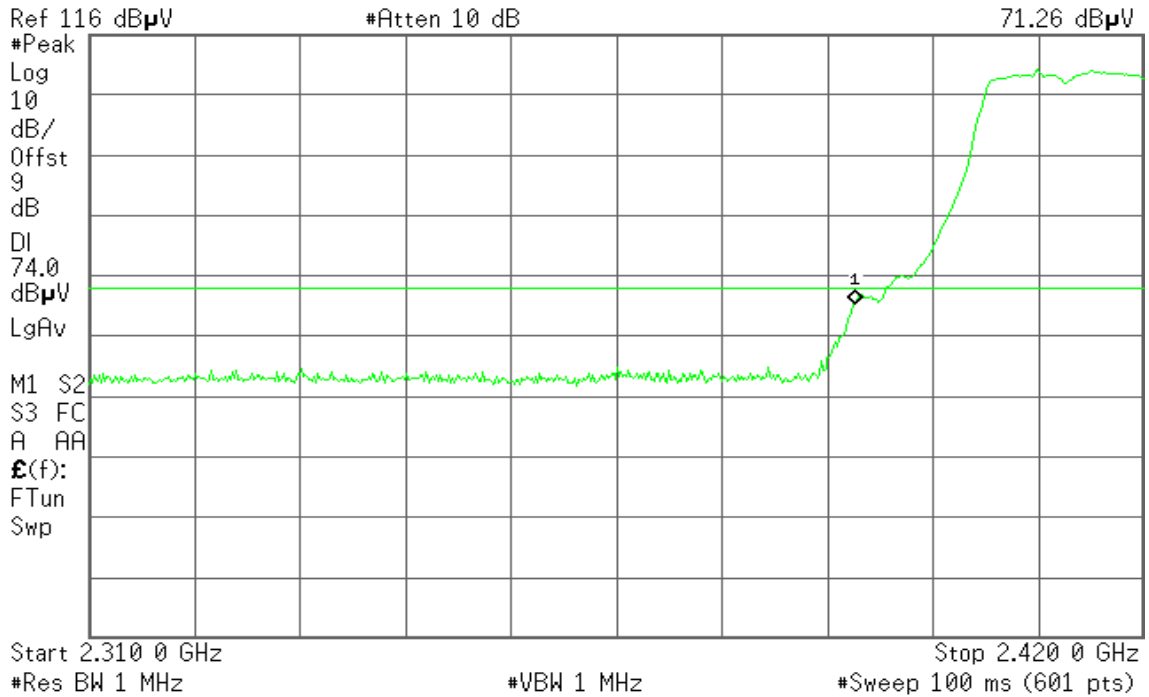
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

T

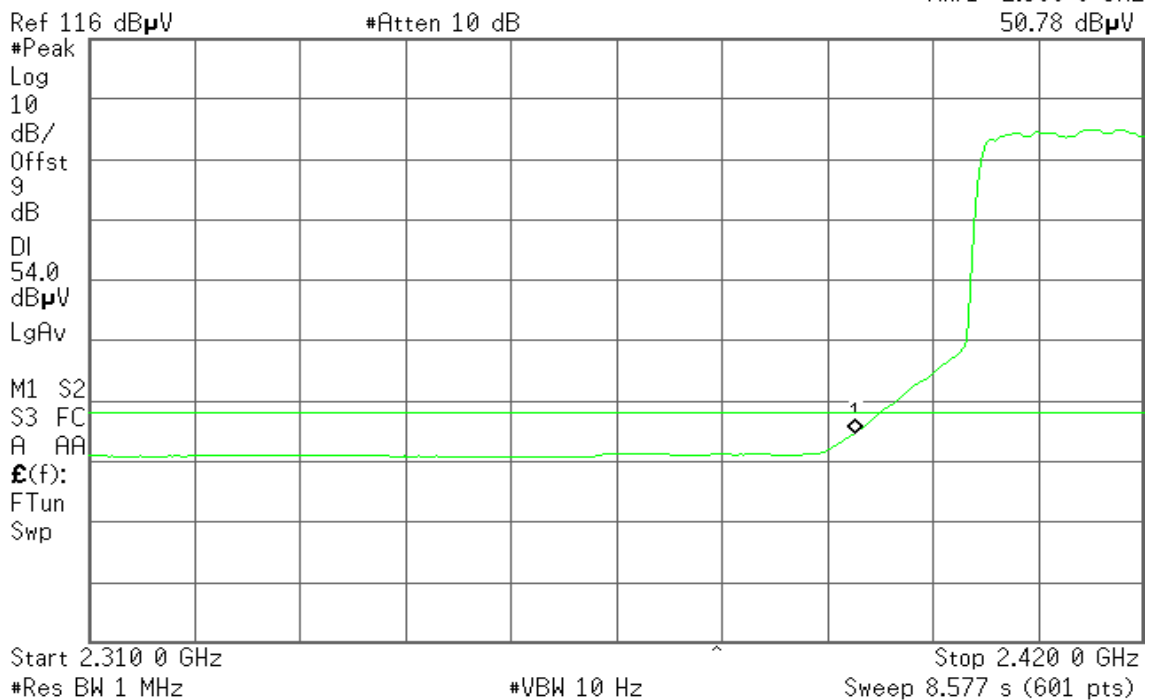


Detector mode: Average

Polarity: Vertical

Agilent

T





Detector mode: Peak

Polarity: Horizontal

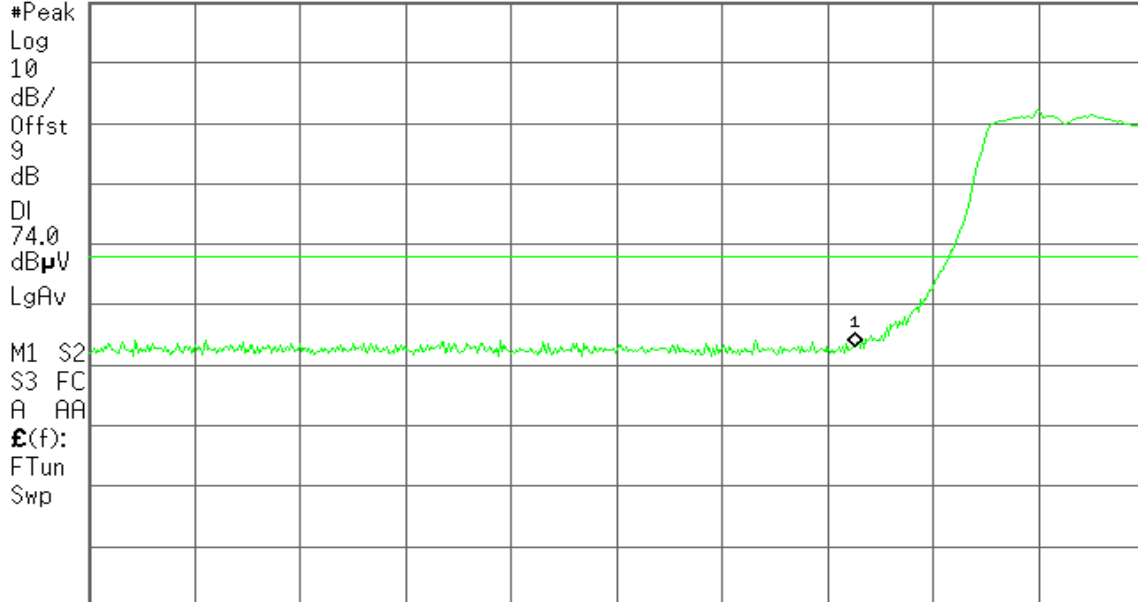
Agilent

T

Mkr1 2.390 0 GHz
59.17 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

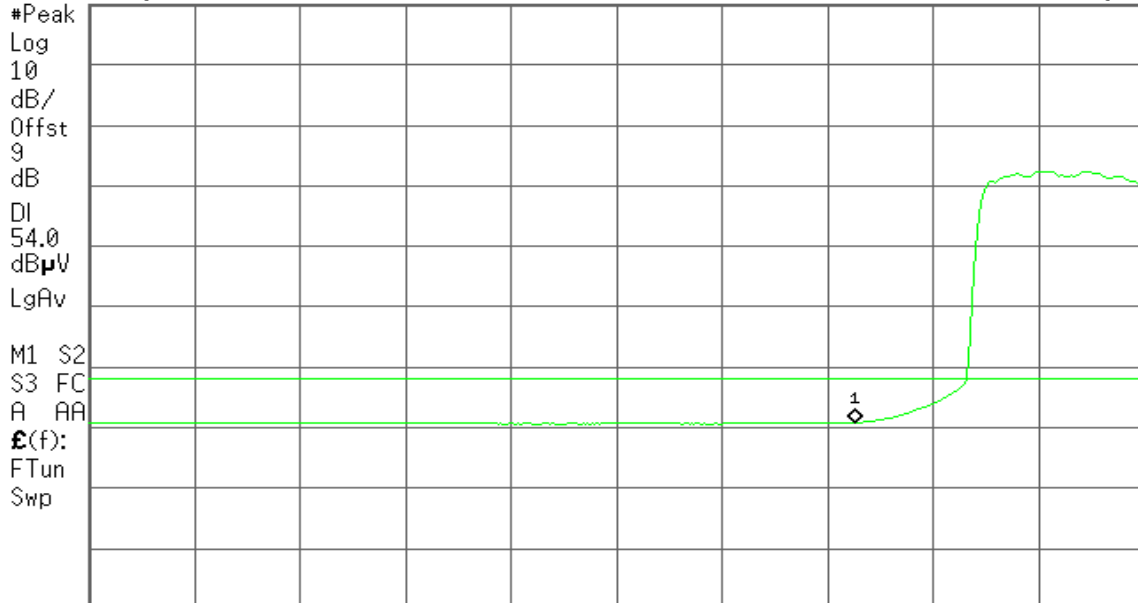
Agilent

T

Mkr1 2.390 0 GHz
46.81 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)

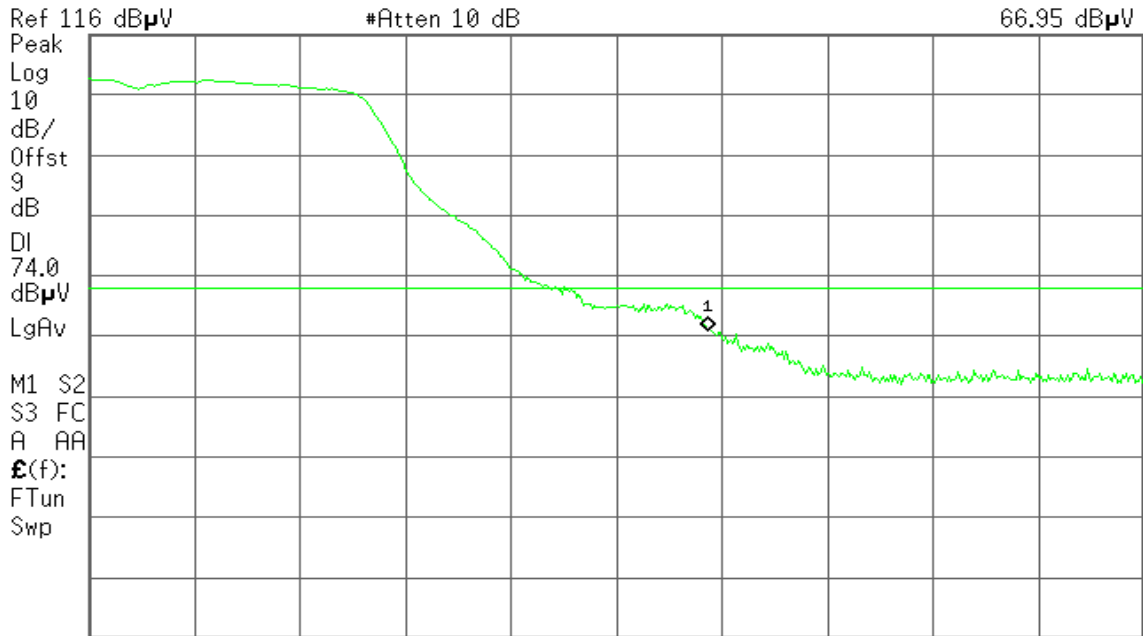
Detector mode: Peak

Polarity: Vertical

Agilent

T

Mkr1 2.483 50 GHz
66.95 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

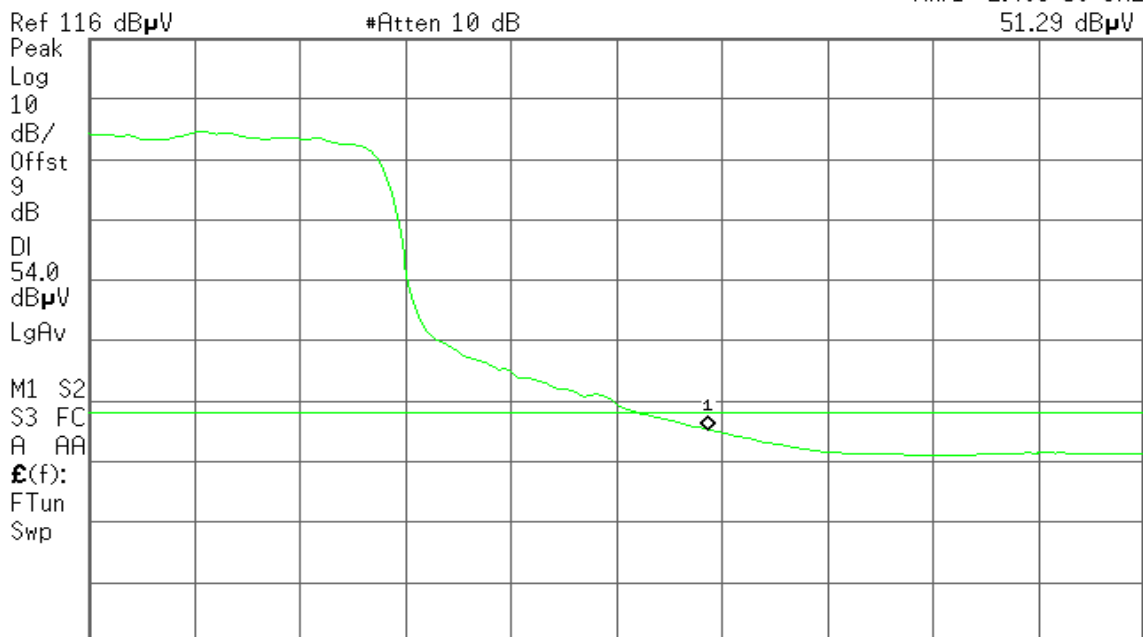
Detector mode: Average

Polarity: Vertical

Agilent

T

Mkr1 2.483 50 GHz
51.29 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

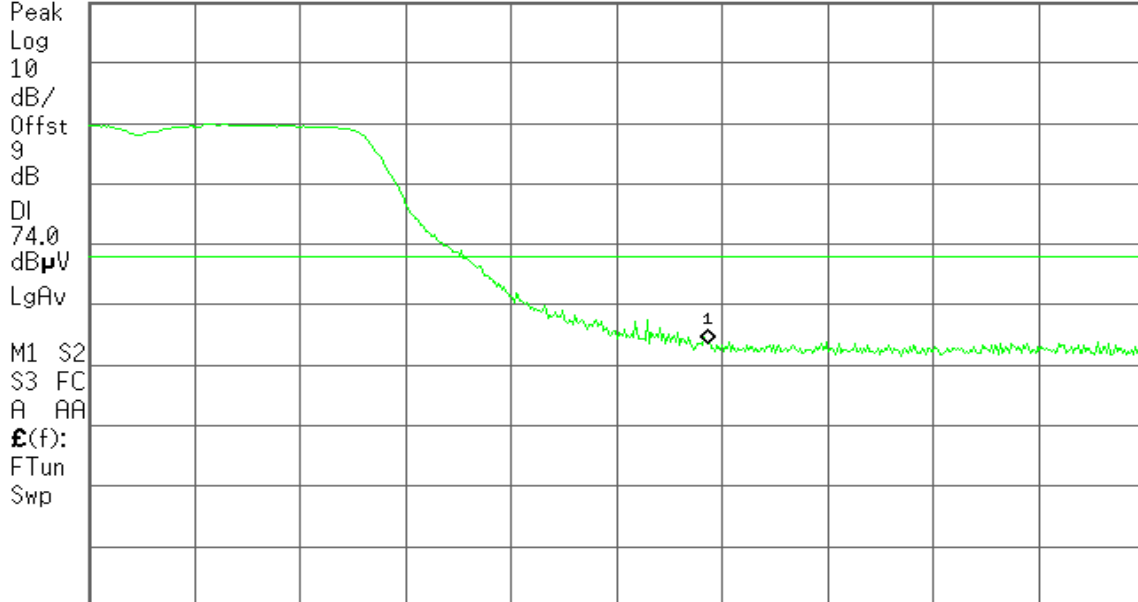
Agilent

T

Mkr1 2.483 50 GHz
59.71 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

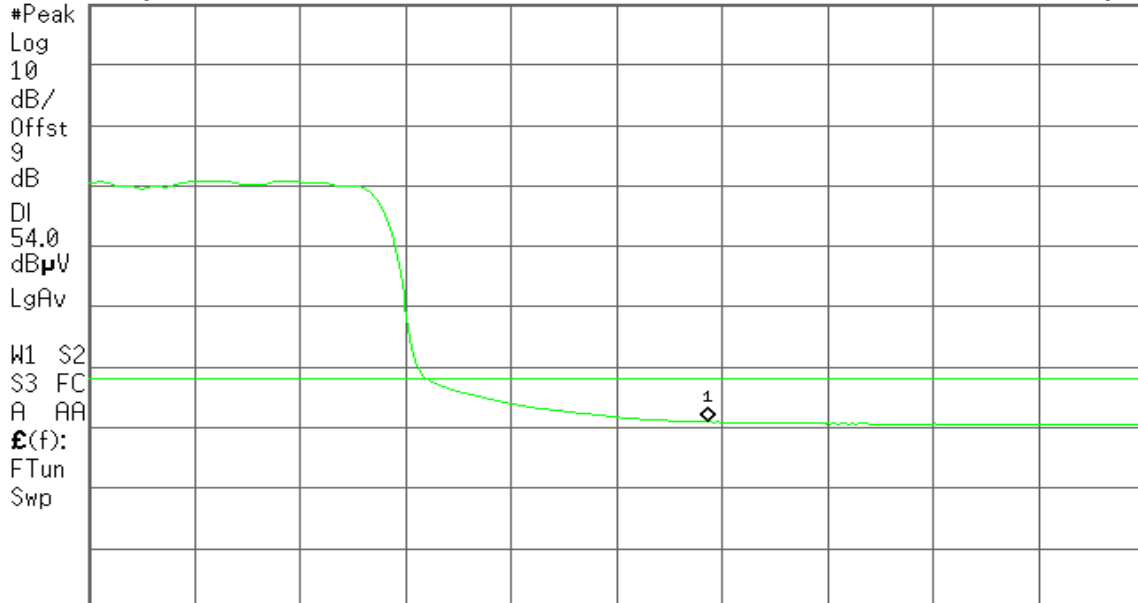
Agilent

T

Mkr1 2.483 50 GHz
46.97 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



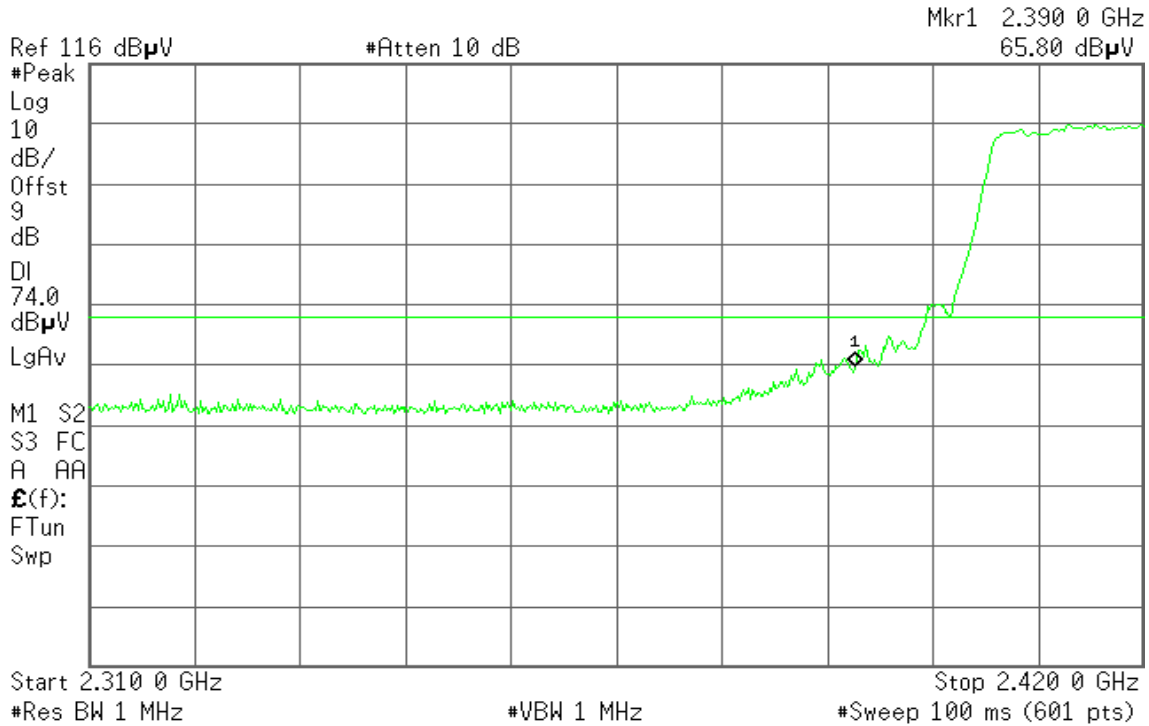
Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

T

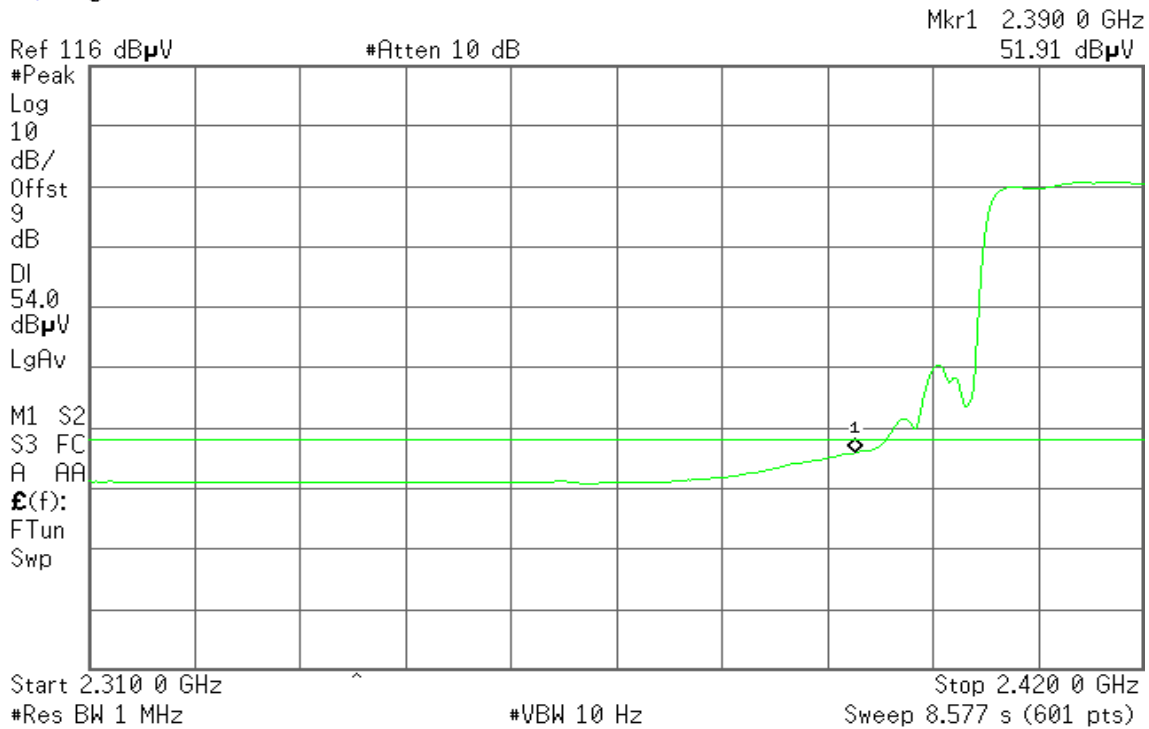


Detector mode: Average

Polarity: Vertical

Agilent

T





Detector mode: Peak

Polarity: Horizontal

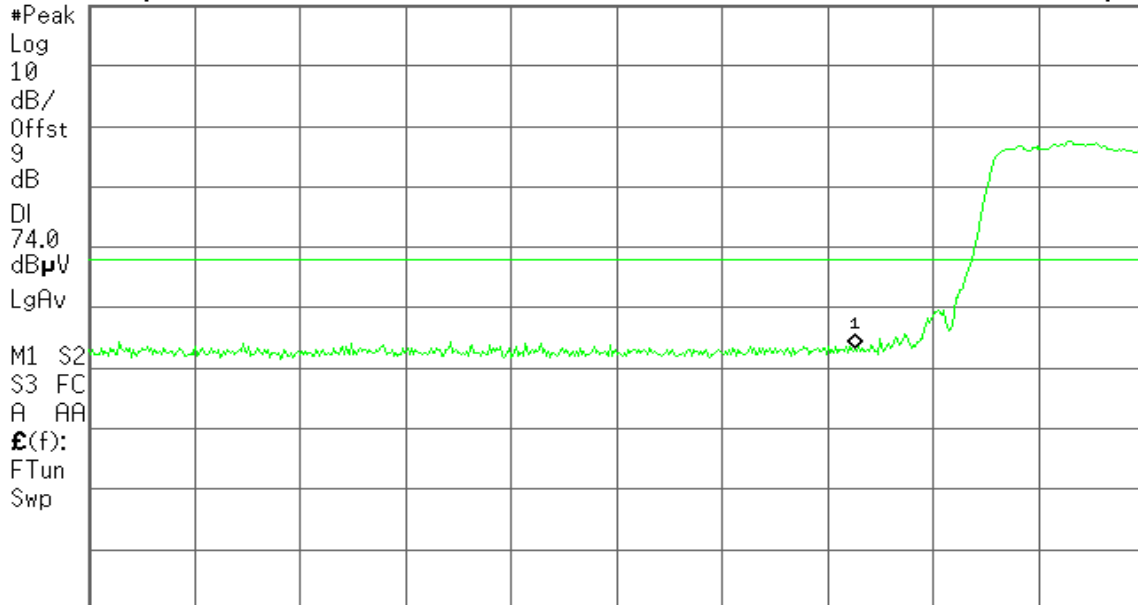
Agilent

T

Mkr1 2.390 0 GHz
59.45 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

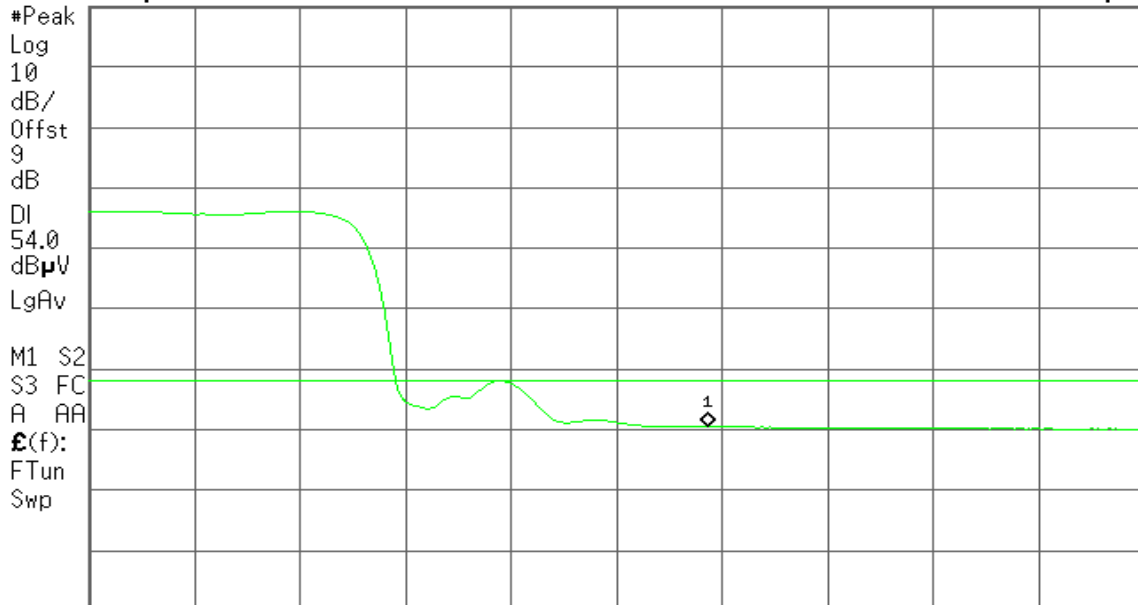
Agilent

T

Mkr1 2.483 50 GHz
46.51 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH High)

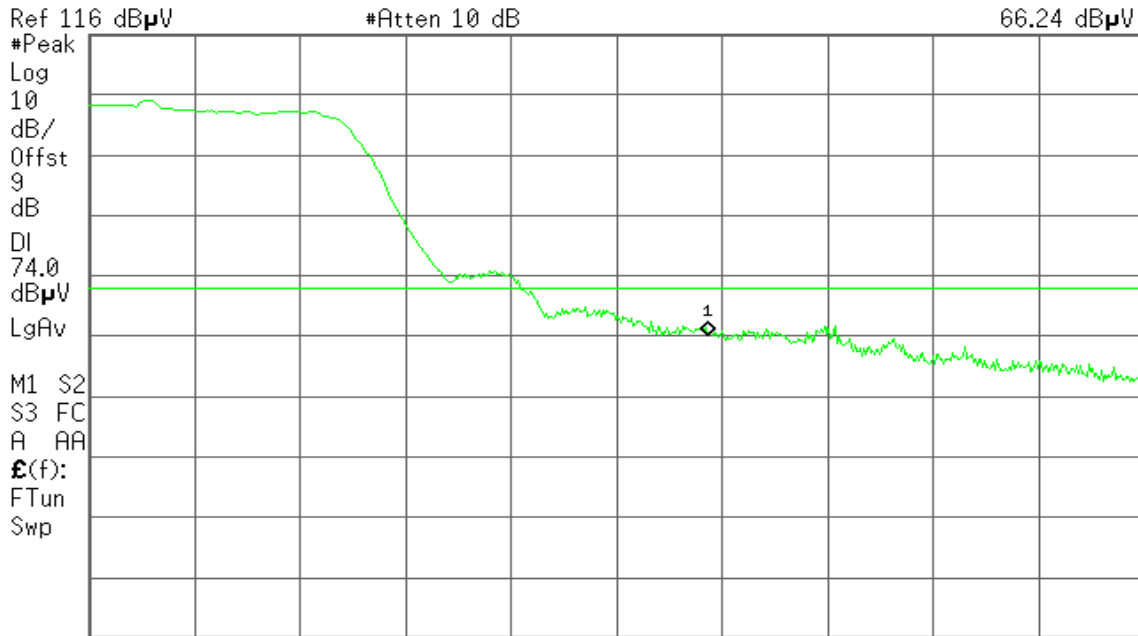
Detector mode: Peak

Polarity: Vertical

Agilent

T

Mkr1 2.483 50 GHz
66.24 dB μ V



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

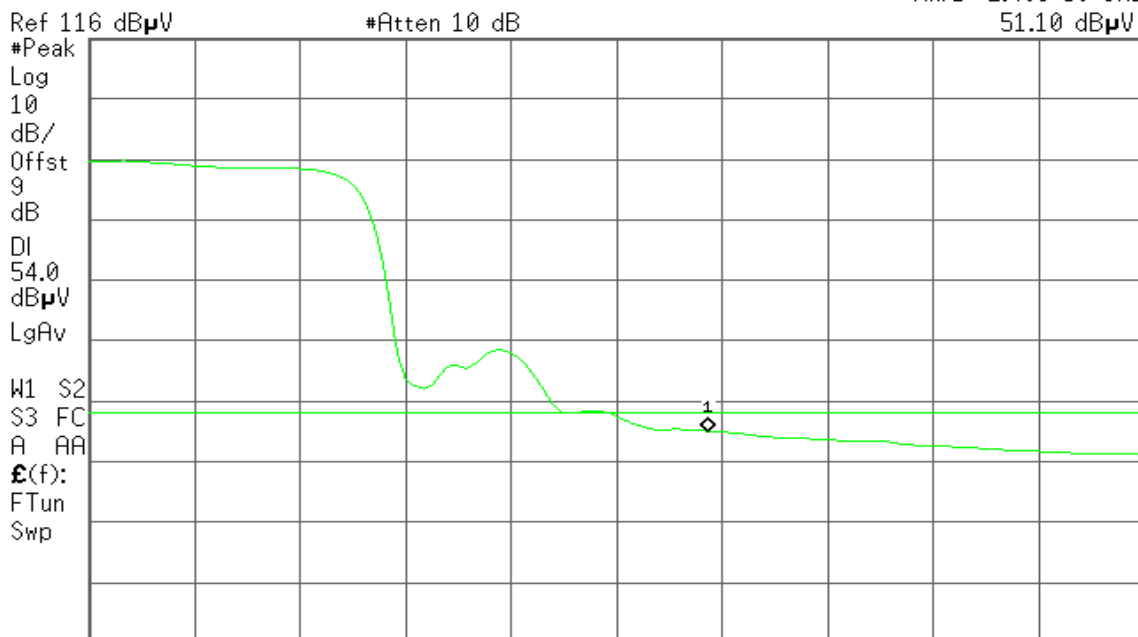
Detector mode: Average

Polarity: Vertical

Agilent

T

Mkr1 2.483 50 GHz
51.10 dB μ V



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

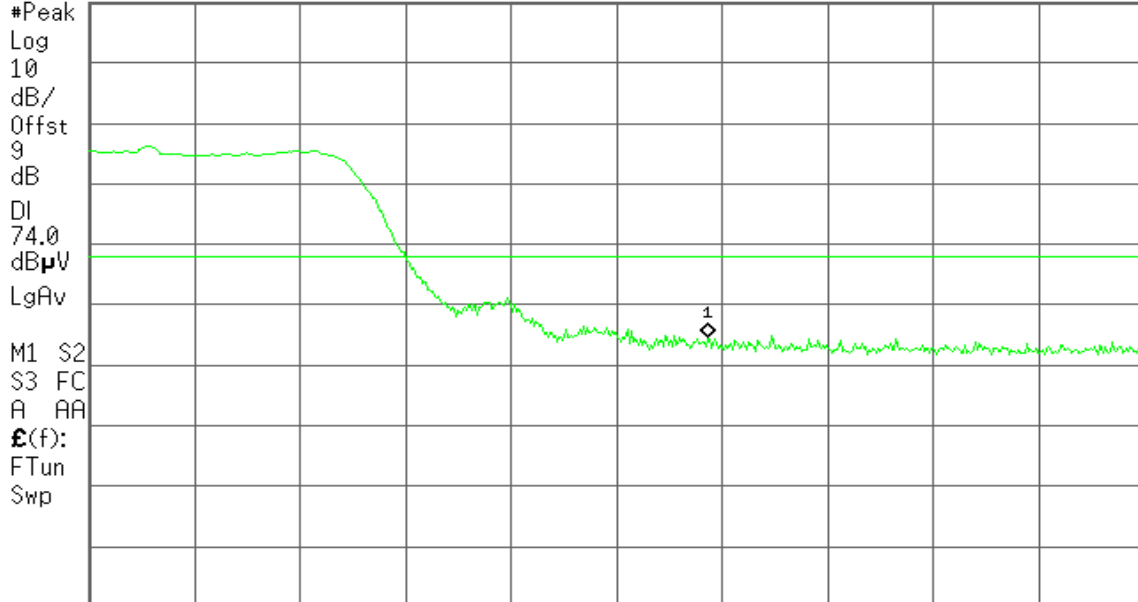
Agilent

T

Mkr1 2.483 50 GHz
60.73 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

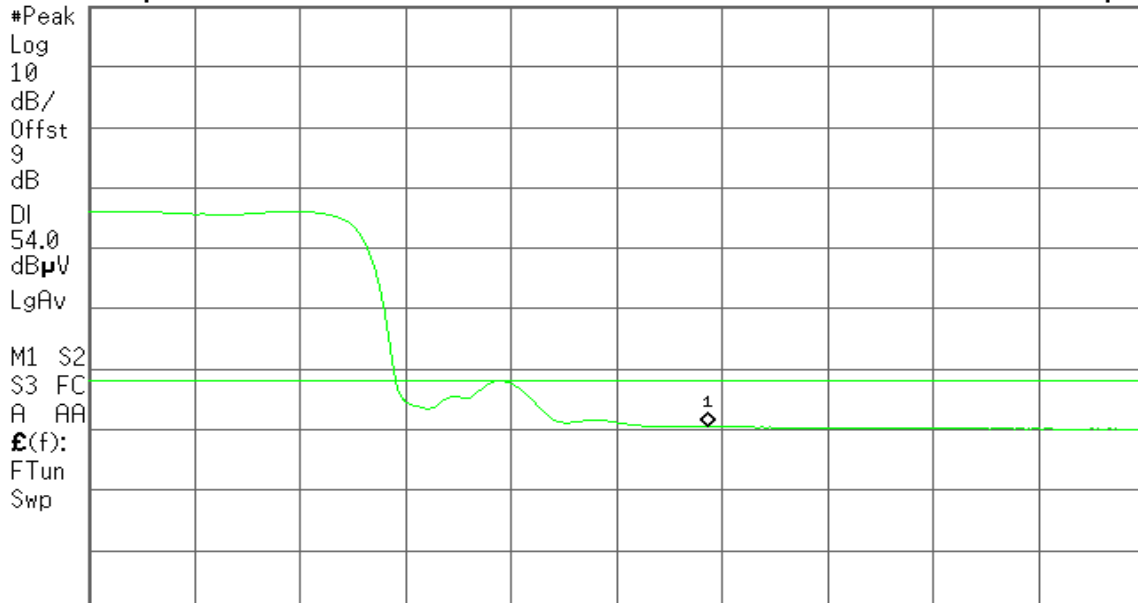
Agilent

T

Mkr1 2.483 50 GHz
46.51 dBμV

Ref 116 dBμV

#Atten 10 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



For Patch Antenna

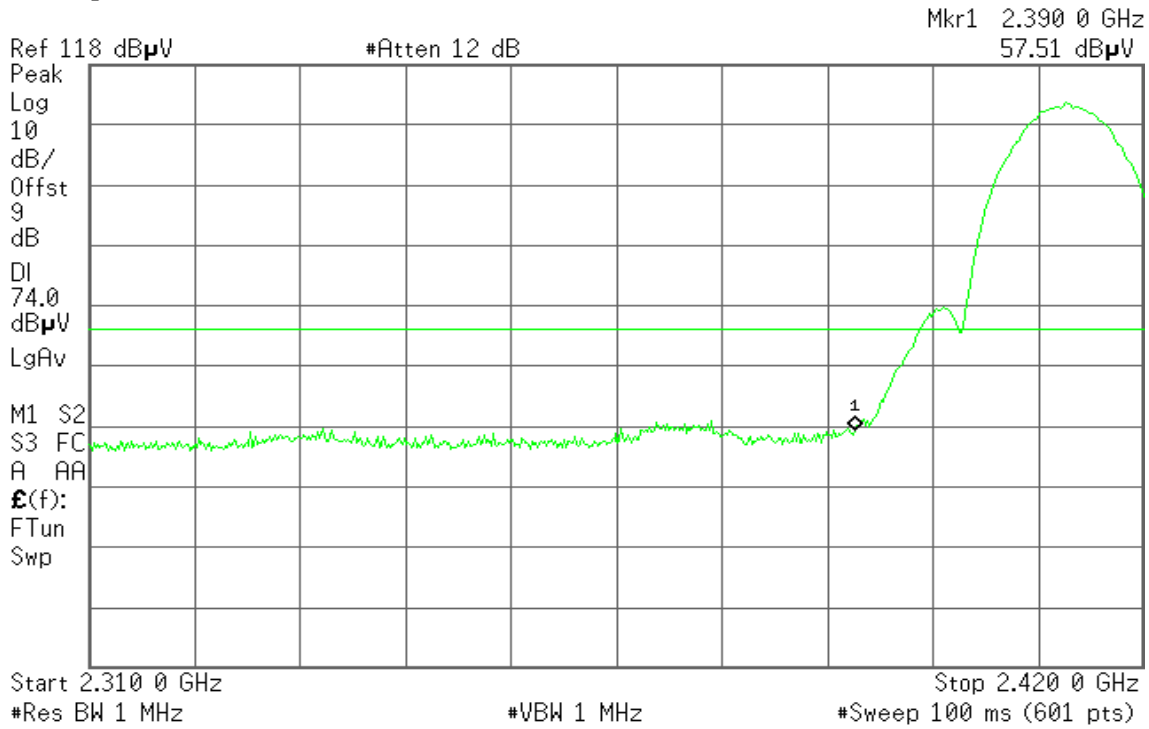
Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

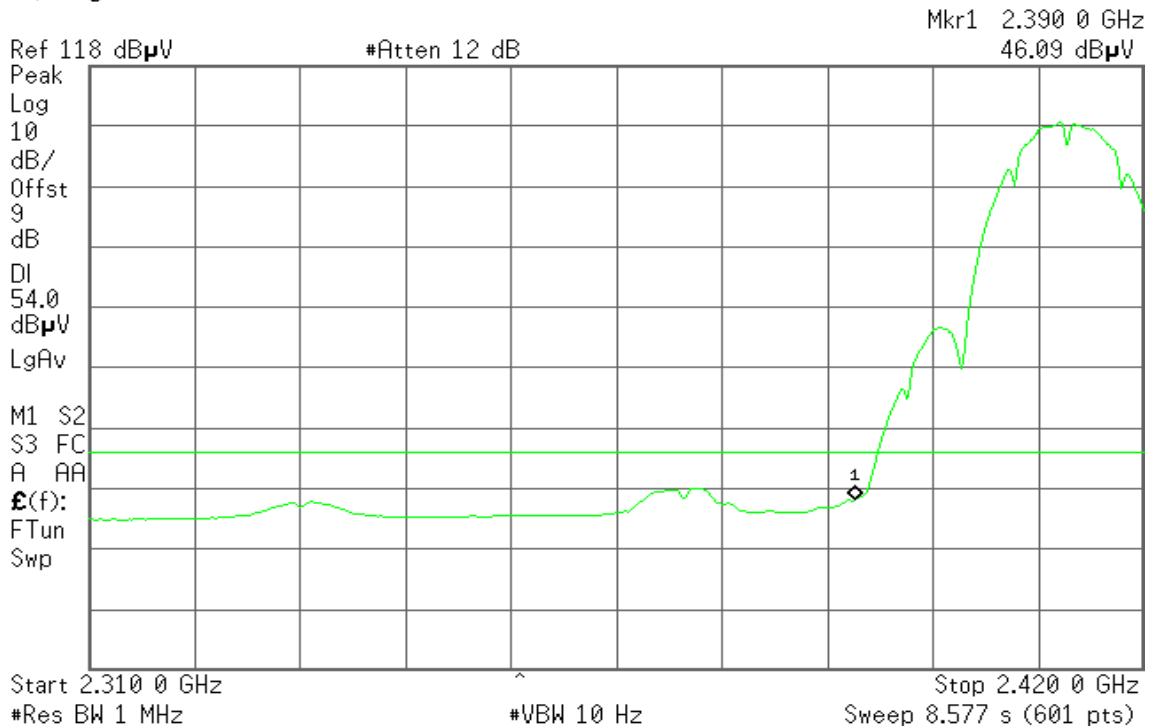


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

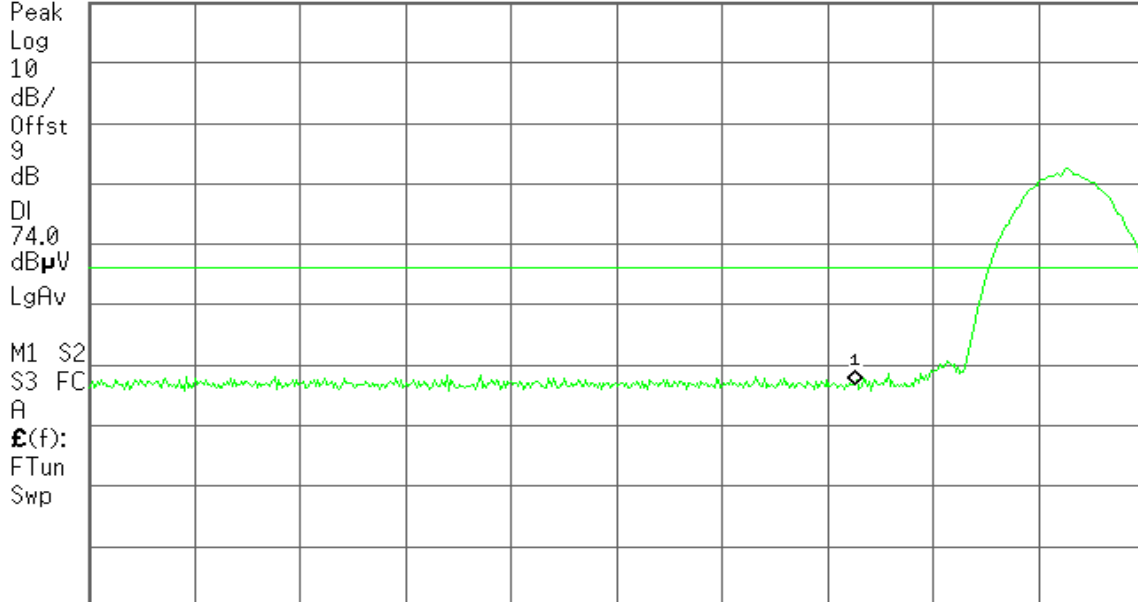
Agilent

R T

Mkr1 2.390 0 GHz
54.86 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
43.01 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (IEEE 802.11b mode / CH High)

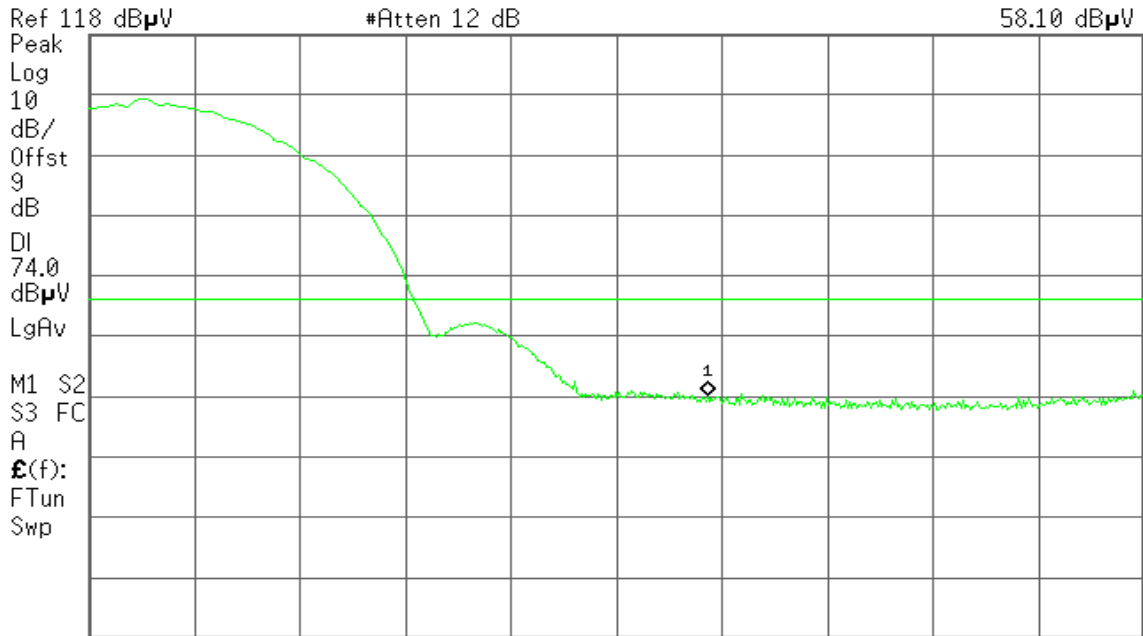
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
58.10 dBμV



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

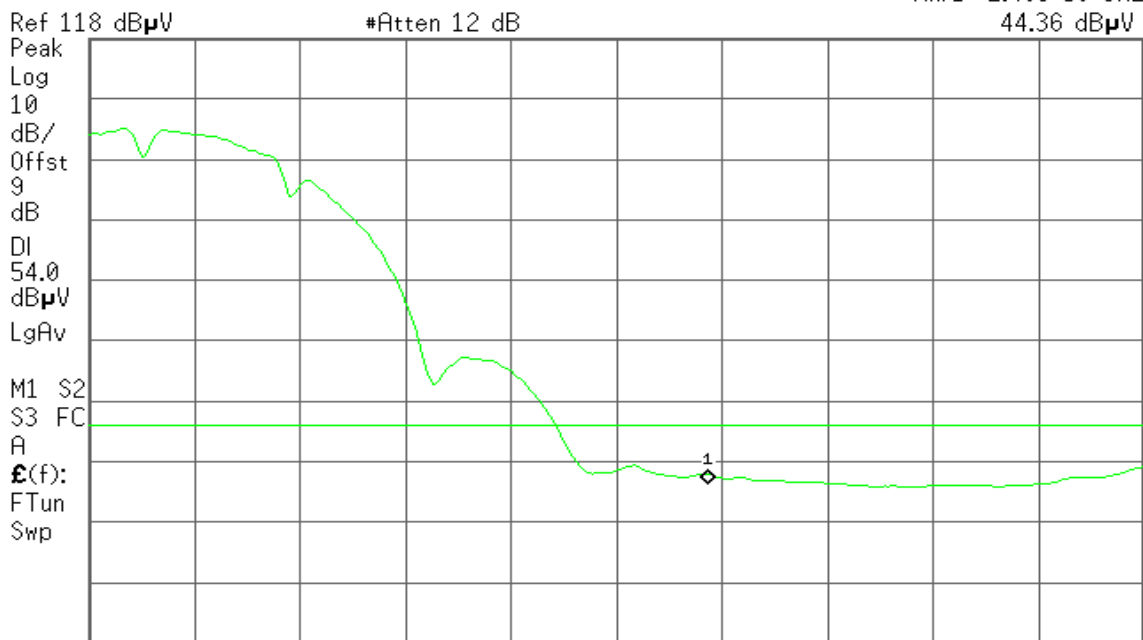
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
44.36 dBμV



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

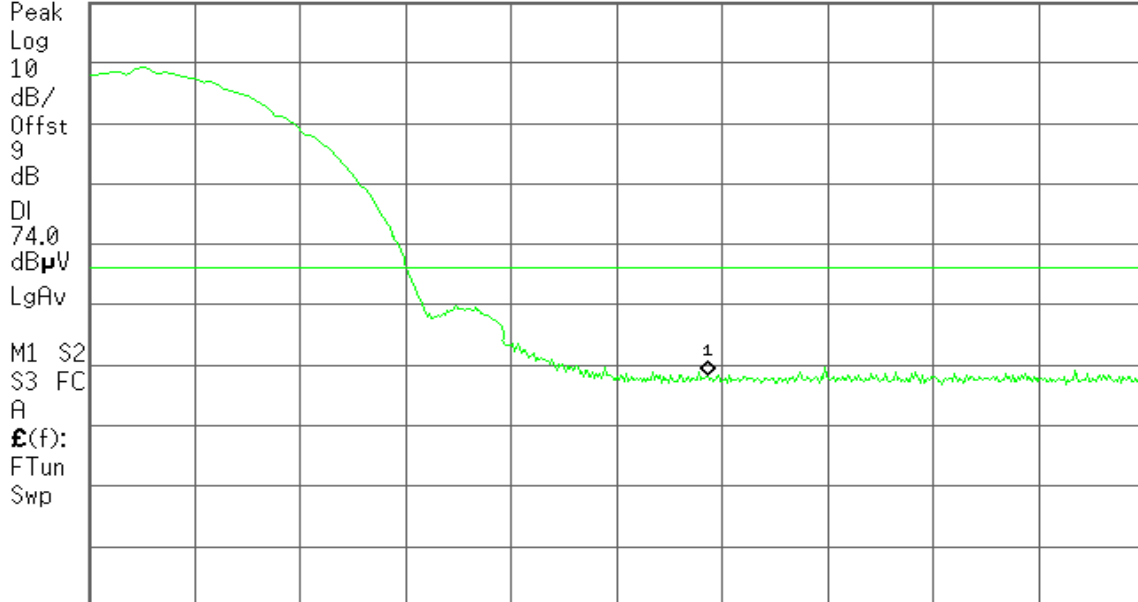
Agilent

R T

Mkr1 2.483 50 GHz
56.31 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

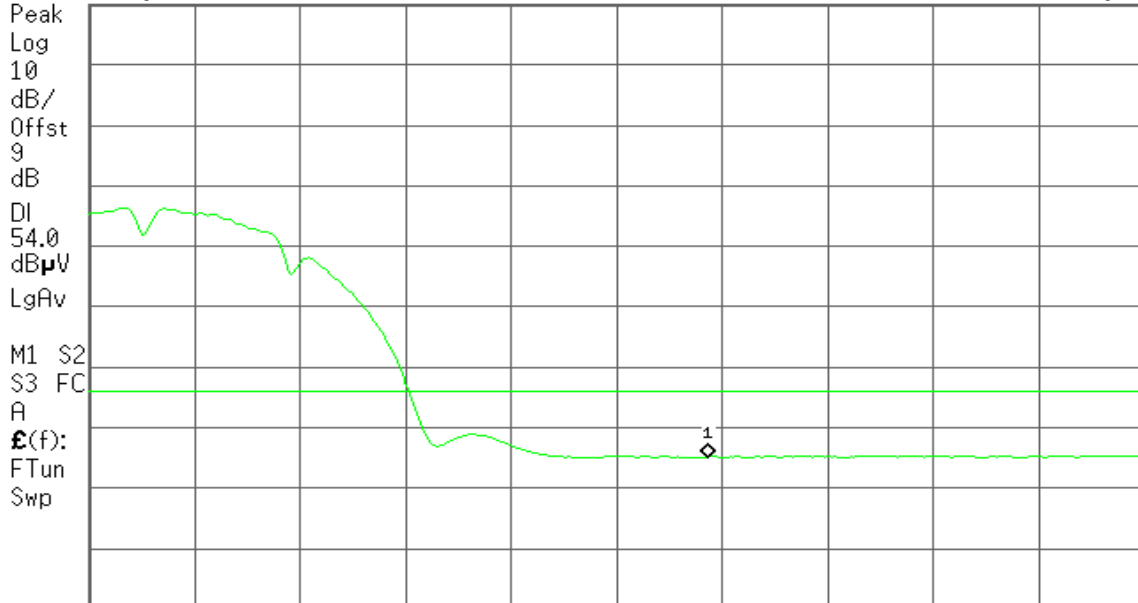
Agilent

R T

Mkr1 2.483 50 GHz
43.17 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



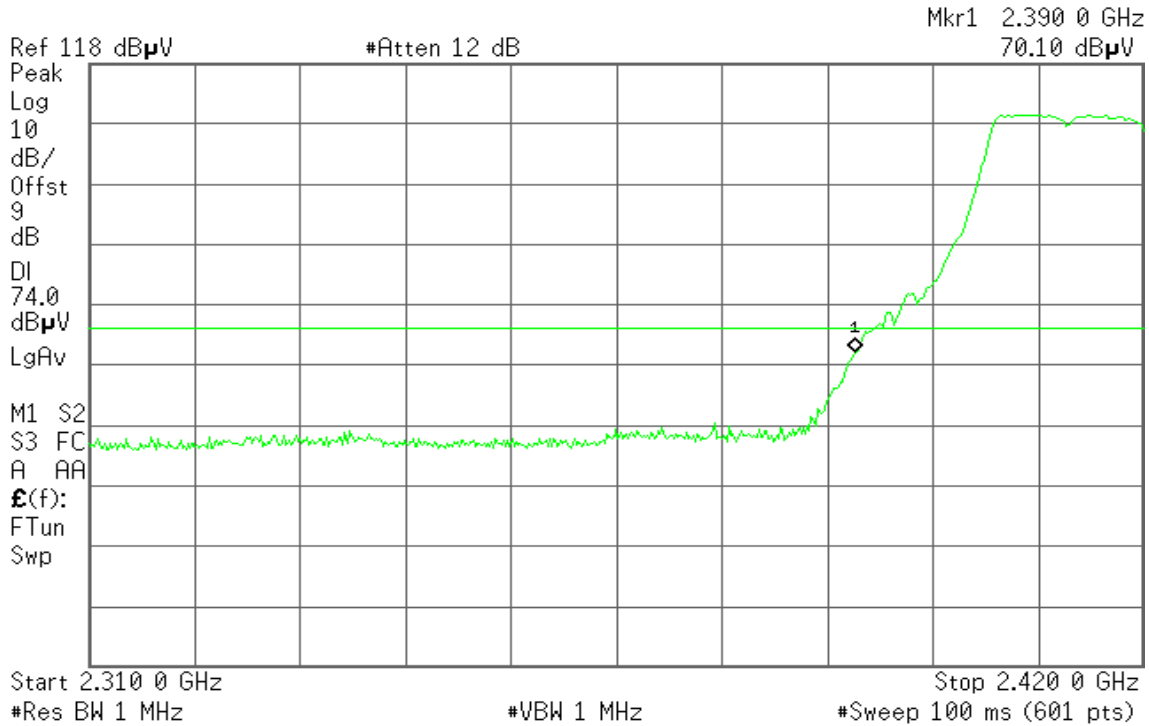
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

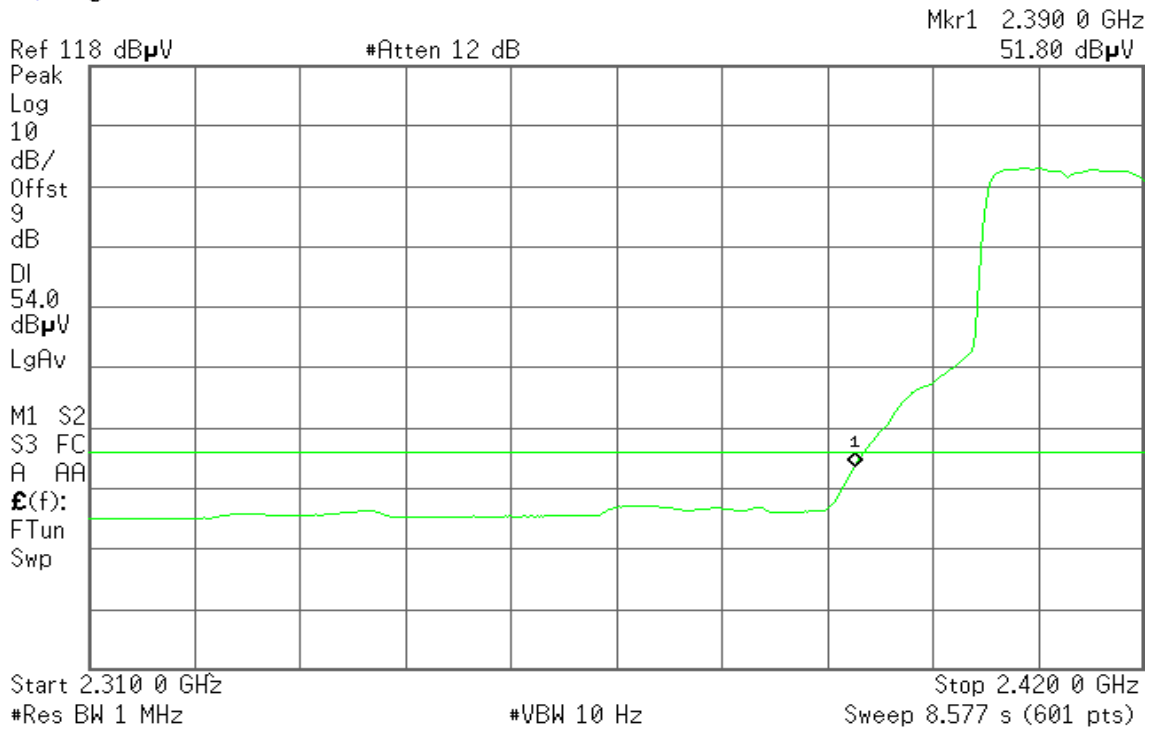


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

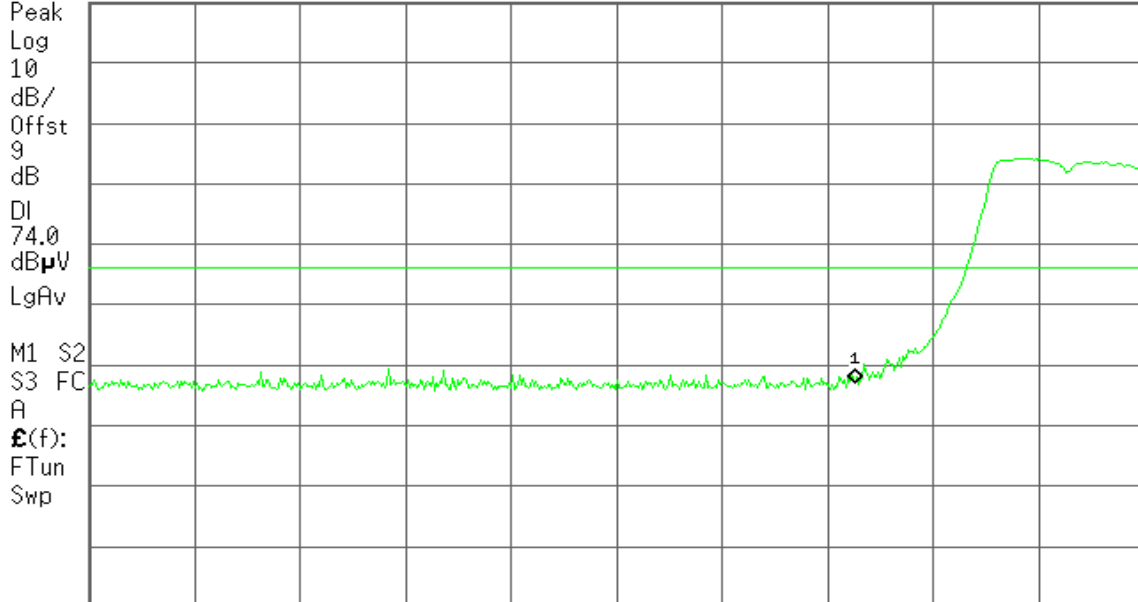
Agilent

R T

Mkr1 2.390 0 GHz
55.04 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
43.27 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (IEEE 802.11g mode / CH High)

Detector mode: Peak

Polarity: Vertical

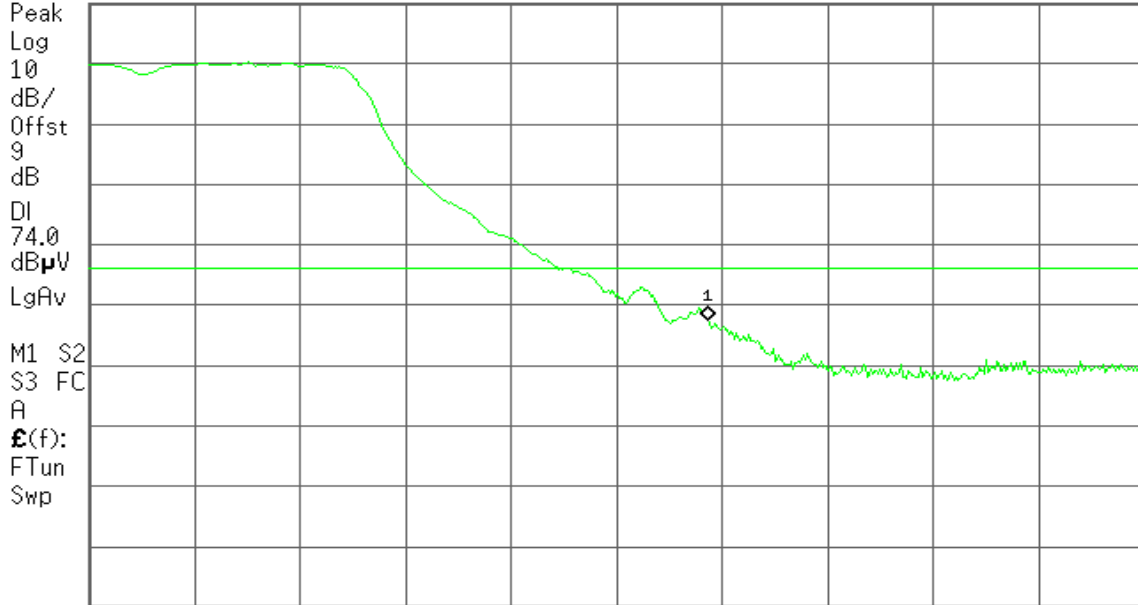
Agilent

R T

Mkr1 2.483 50 GHz
65.59 dBμV

Ref 118 dBμV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

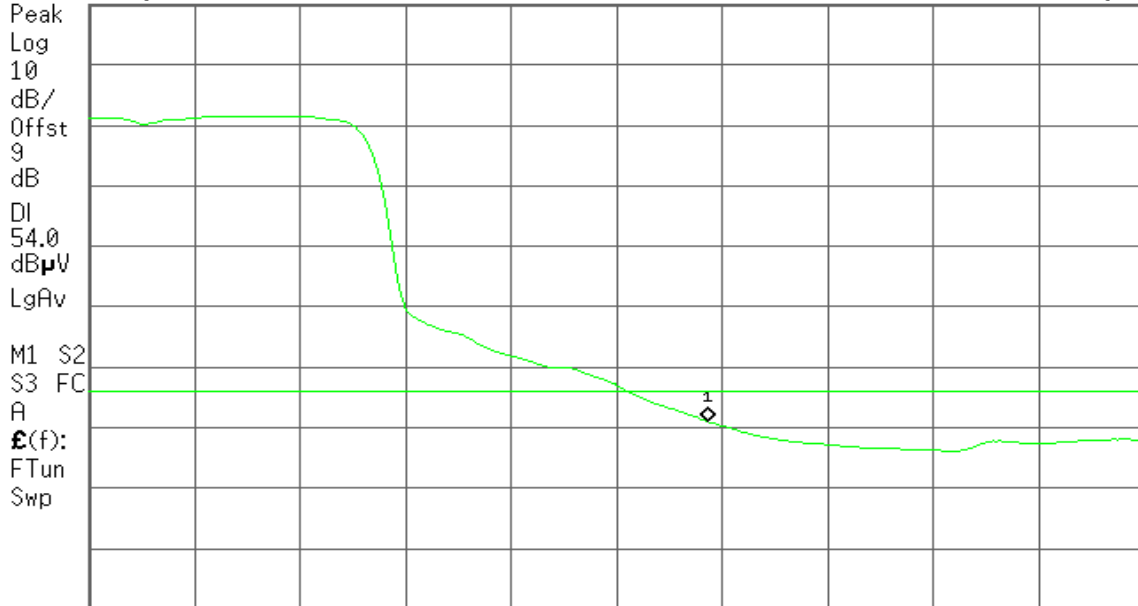
Agilent

R T

Mkr1 2.483 50 GHz
49.01 dBμV

Ref 118 dBμV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

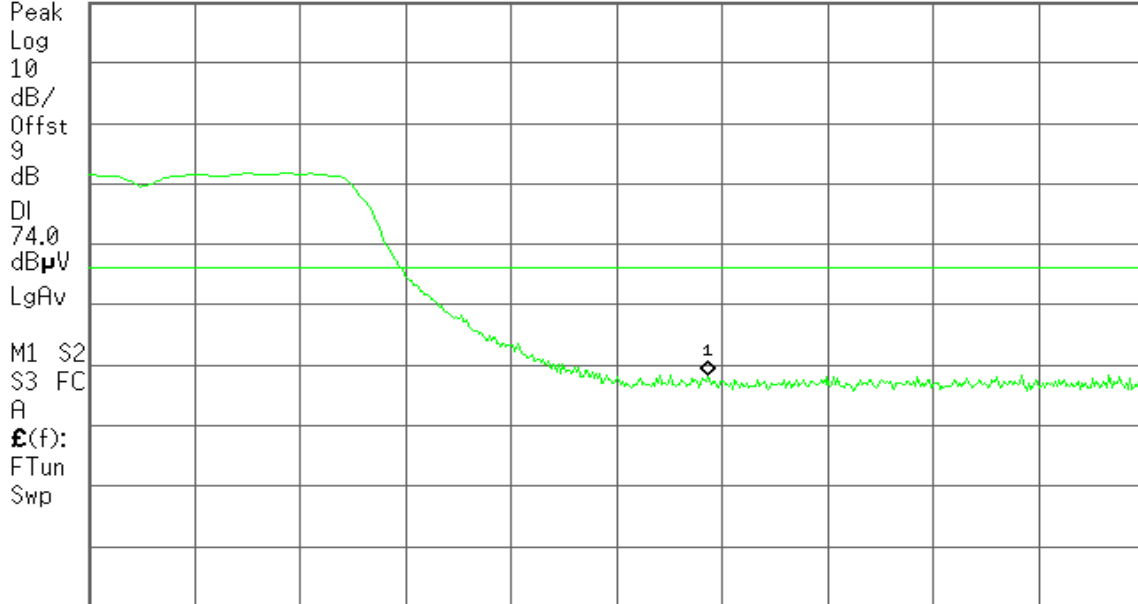
Agilent

R T

Mkr1 2.483 50 GHz
56.31 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

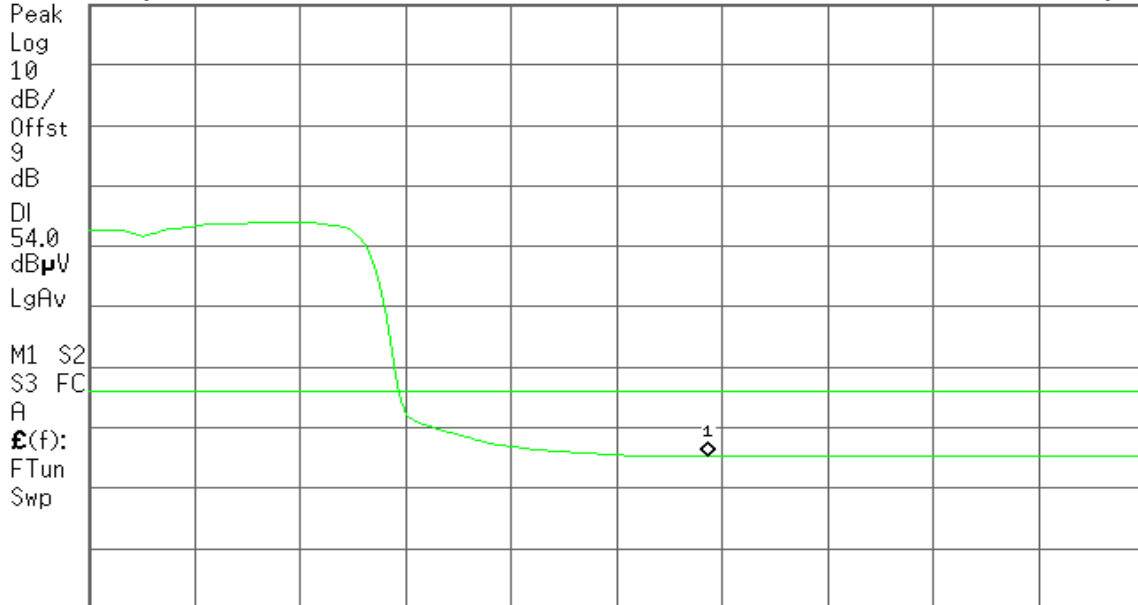
Agilent

R T

Mkr1 2.483 50 GHz
43.28 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



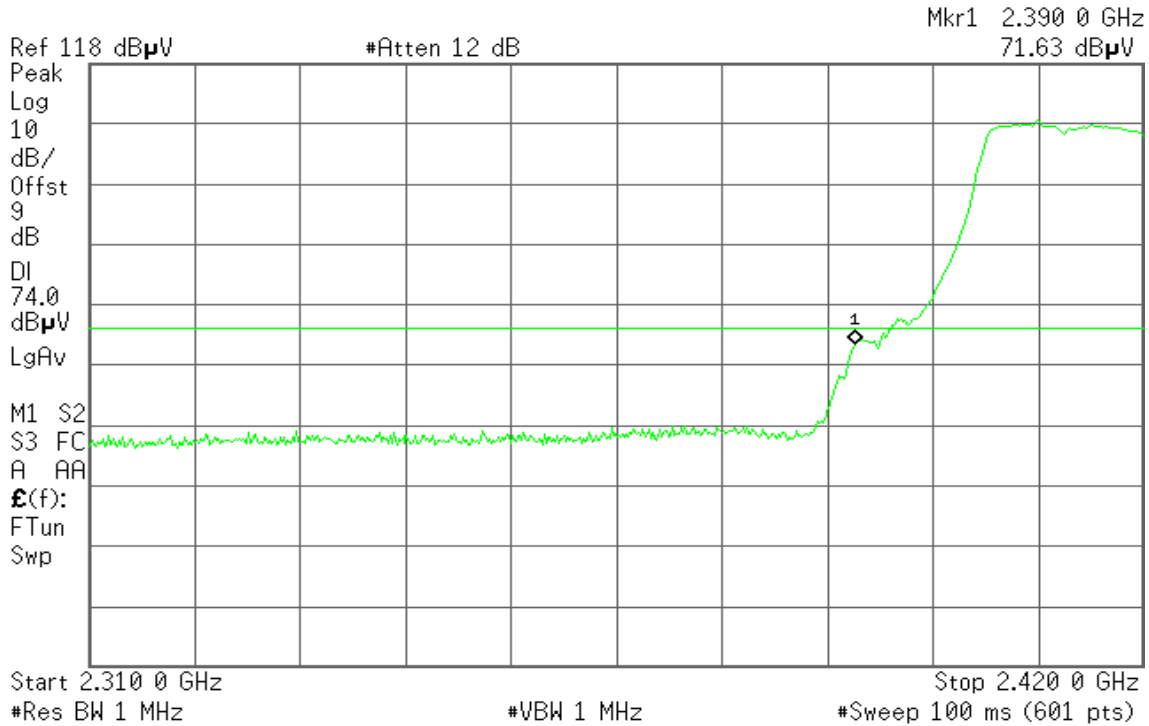
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

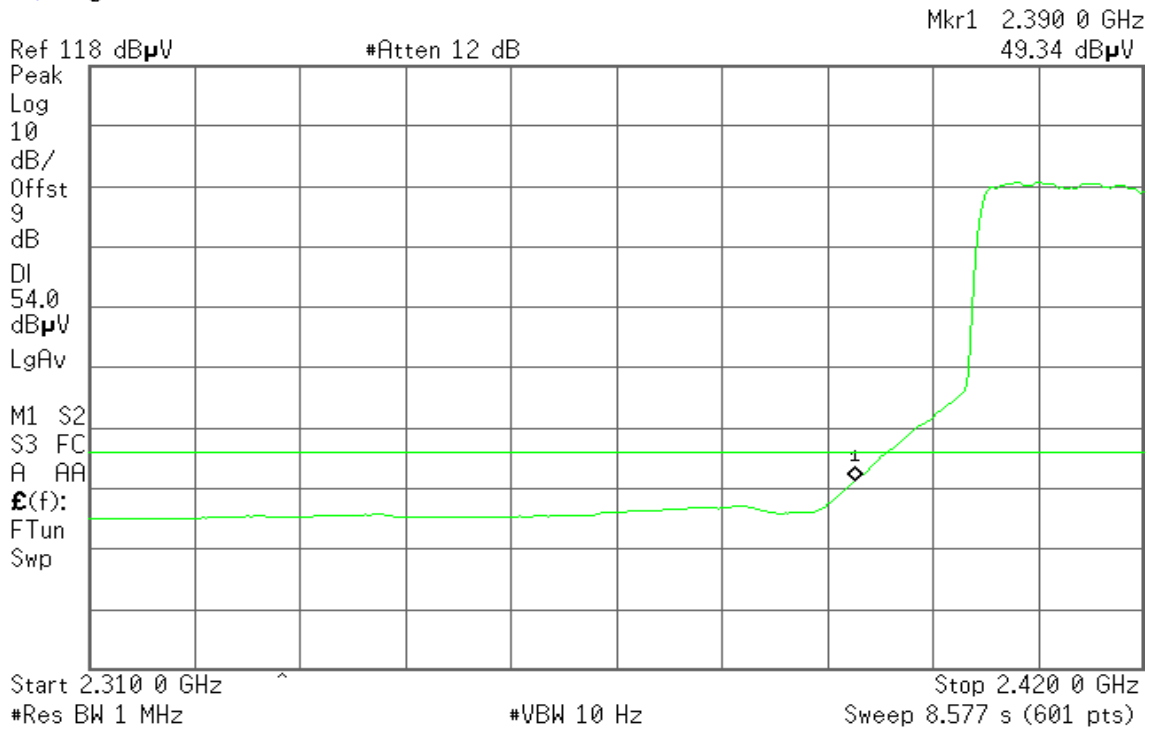


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

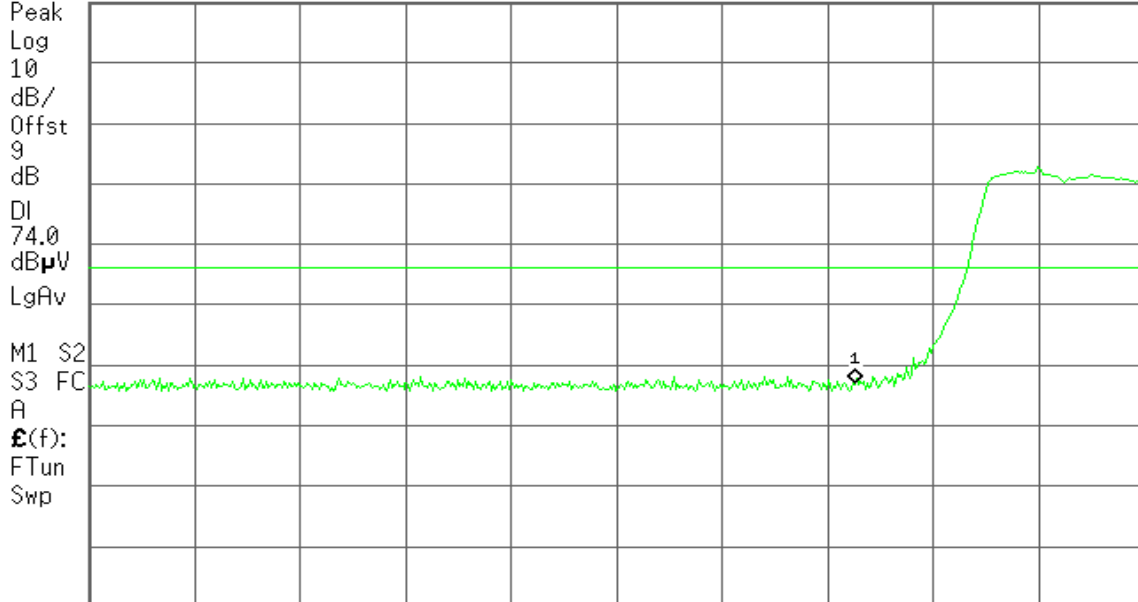
Agilent

R T

Mkr1 2.390 0 GHz
54.94 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
43.10 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)

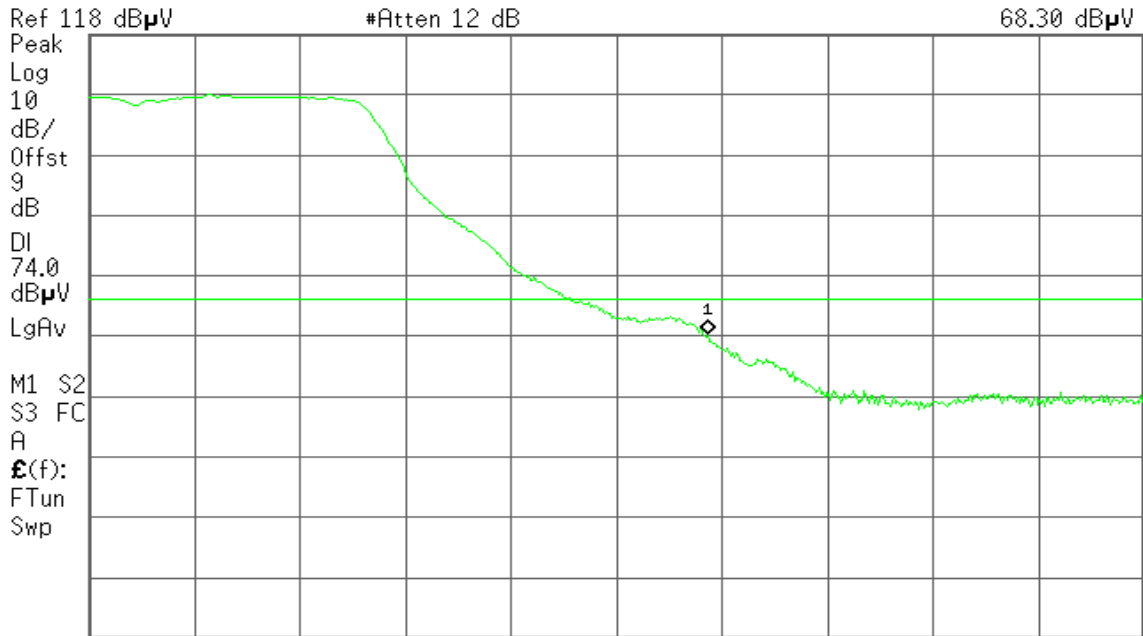
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
68.30 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

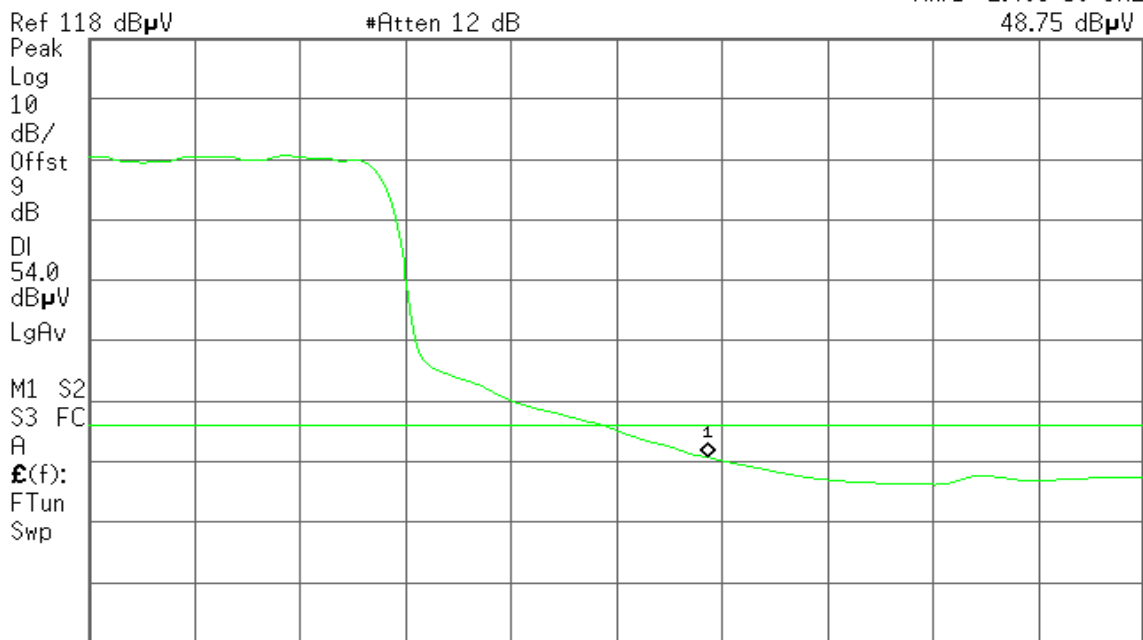
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
48.75 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

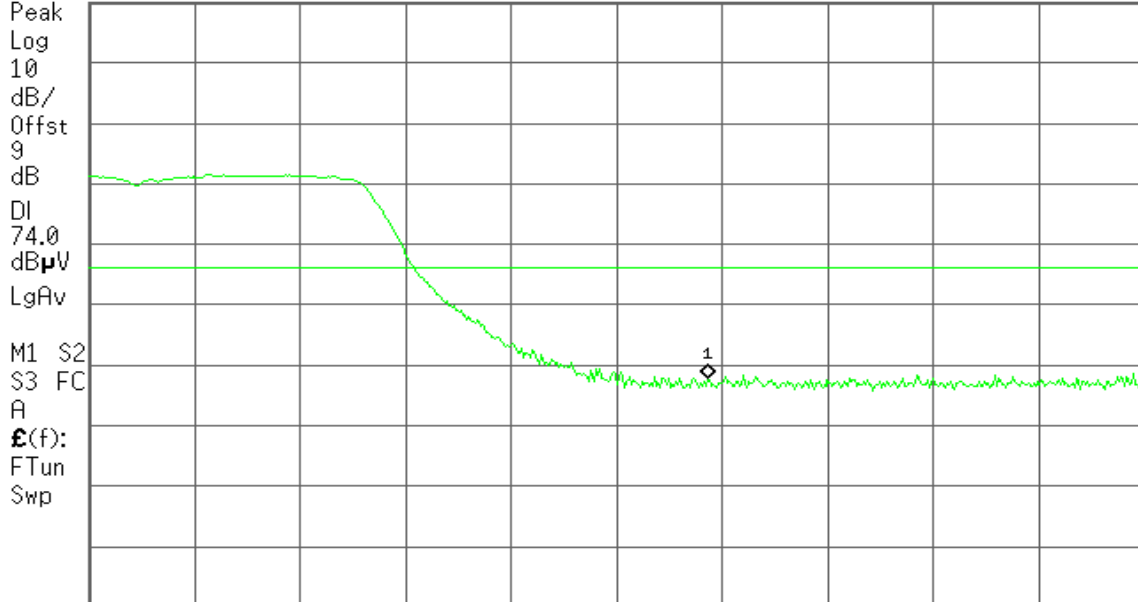
Agilent

R T

Mkr1 2.483 50 GHz
55.86 dBμV

Ref 118 dBμV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

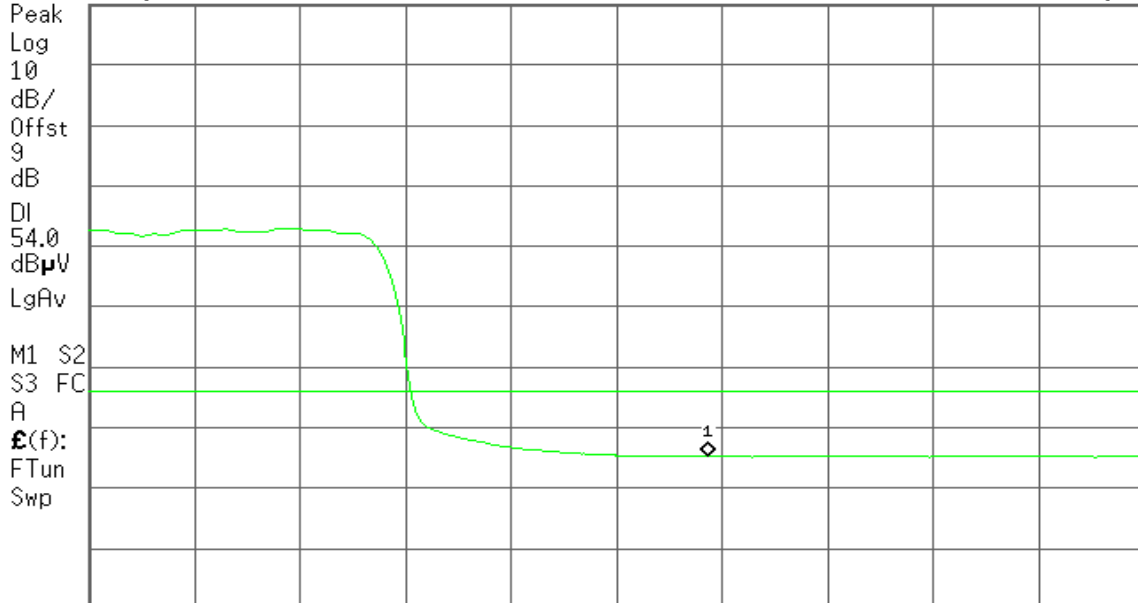
Agilent

R T

Mkr1 2.483 50 GHz
43.22 dBμV

Ref 118 dBμV

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



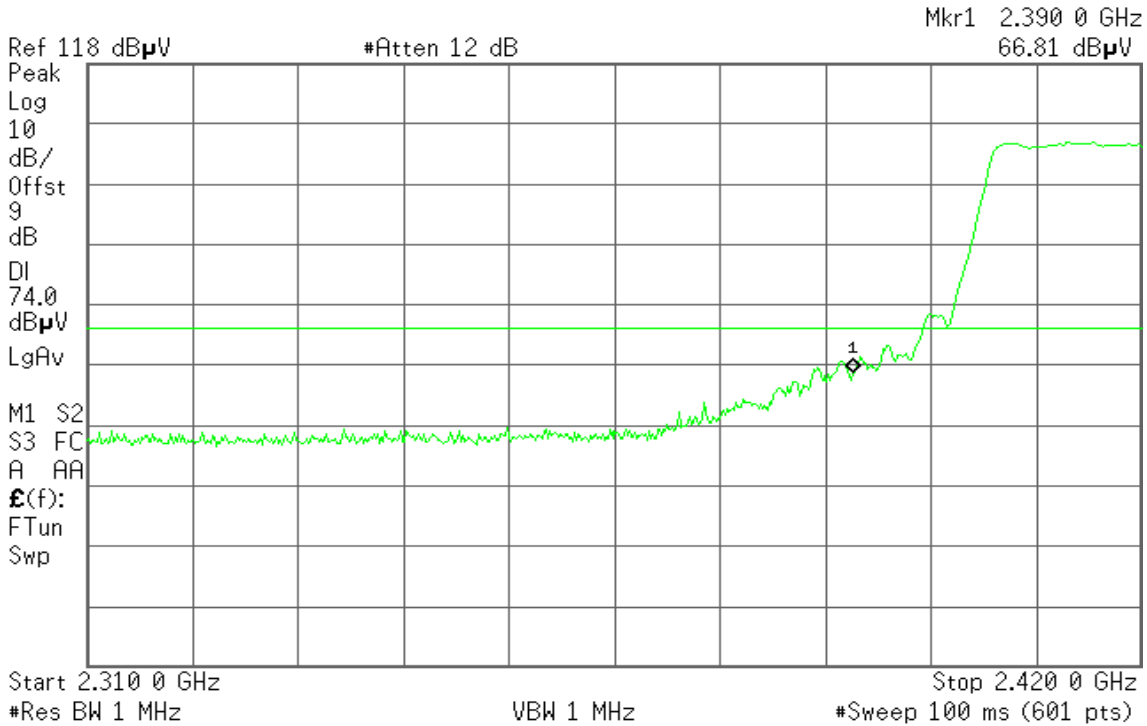
Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

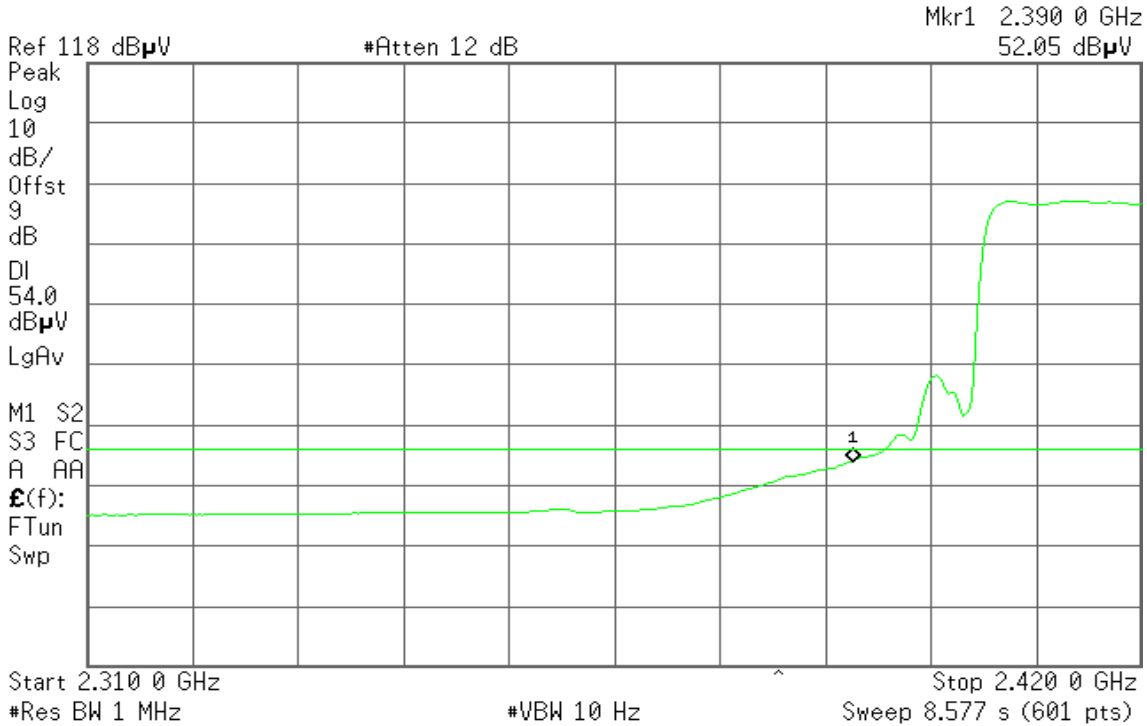


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

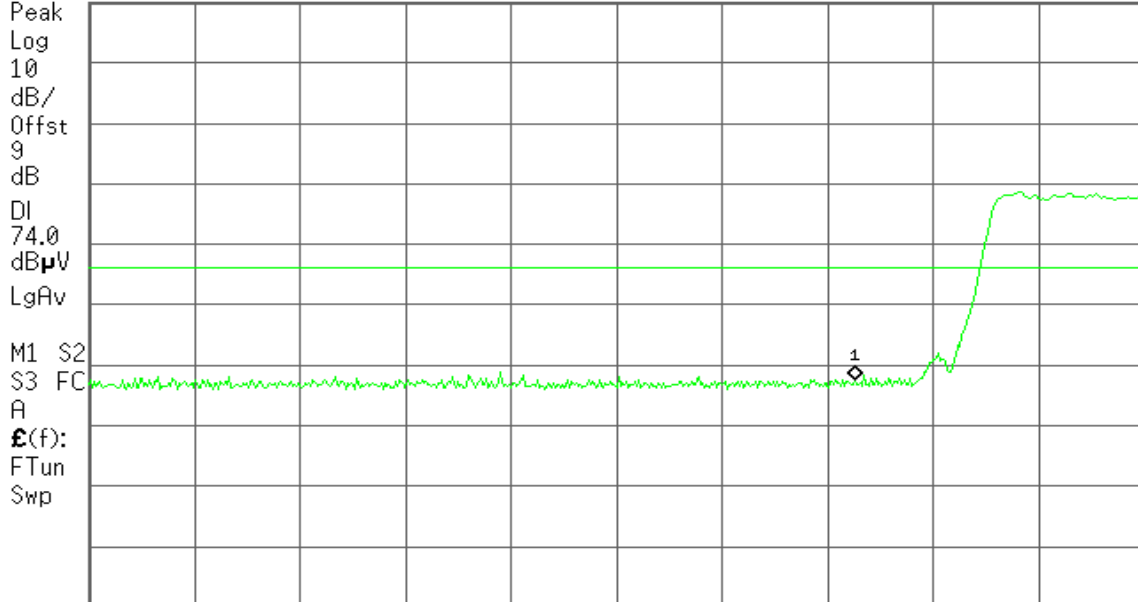
Agilent

R T

Mkr1 2.390 0 GHz
55.54 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
43.10 dBµV

Ref 118 dBµV

#Atten 12 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH High)

Detector mode: Peak

Polarity: Vertical

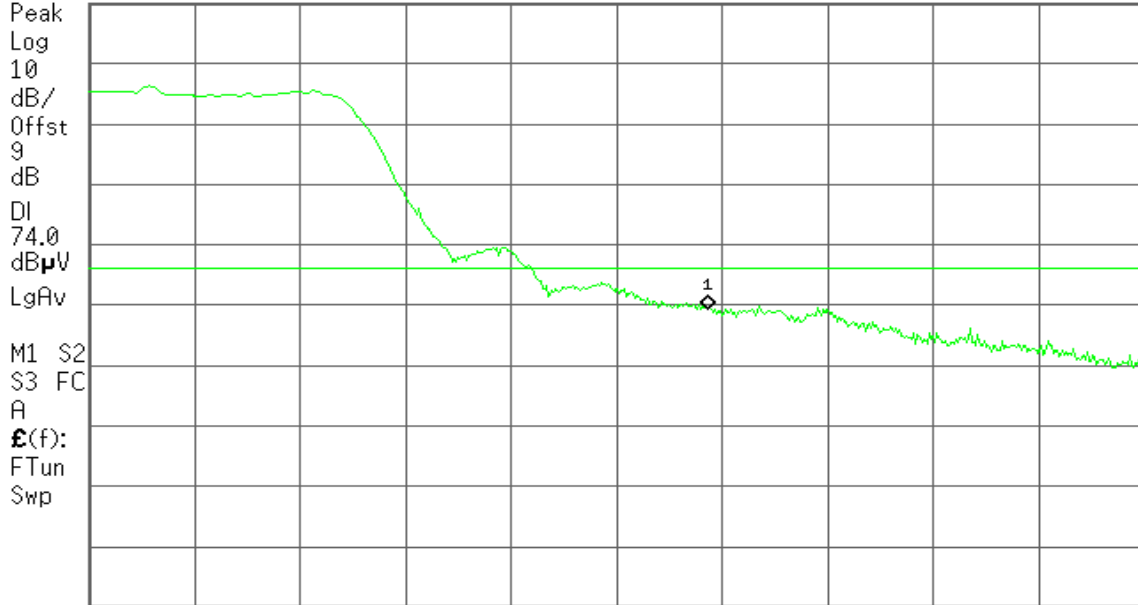
Agilent

R T

Mkr1 2.483 50 GHz
67.29 dB μ V

Ref 118 dB μ V

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

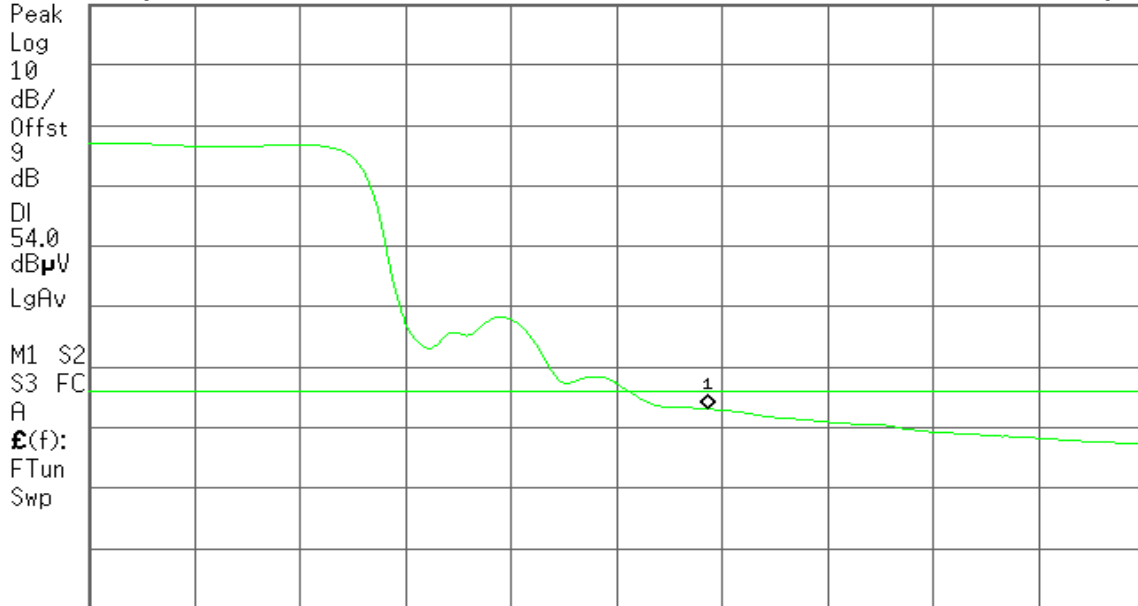
Agilent

R T

Mkr1 2.483 50 GHz
51.10 dB μ V

Ref 118 dB μ V

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

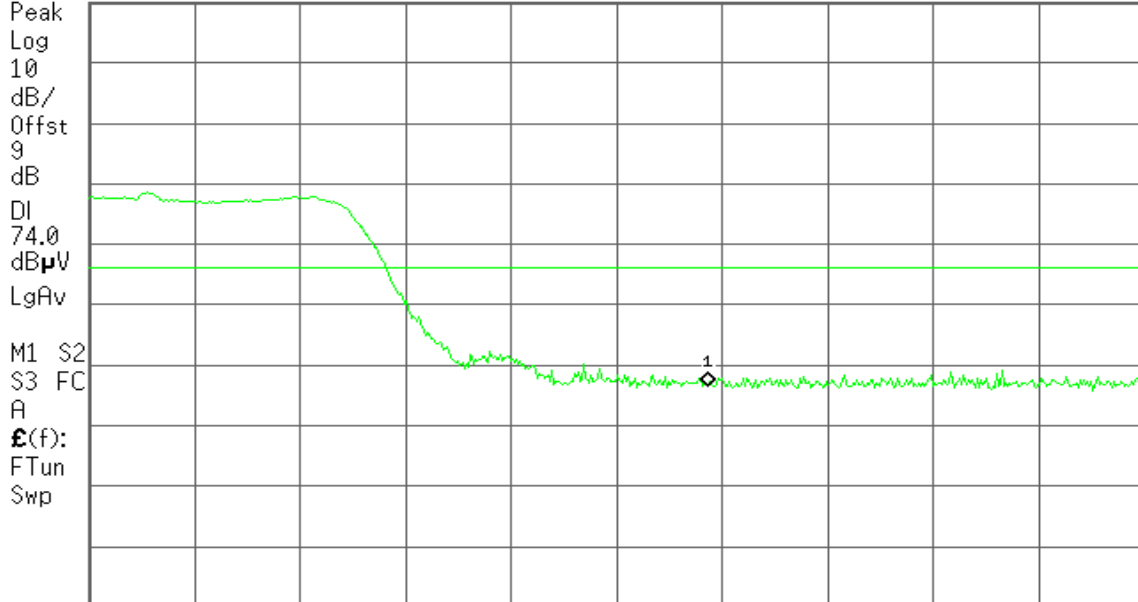
Agilent

R T

Mkr1 2.483 50 GHz
54.48 dB μ V

Ref 118 dB μ V

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

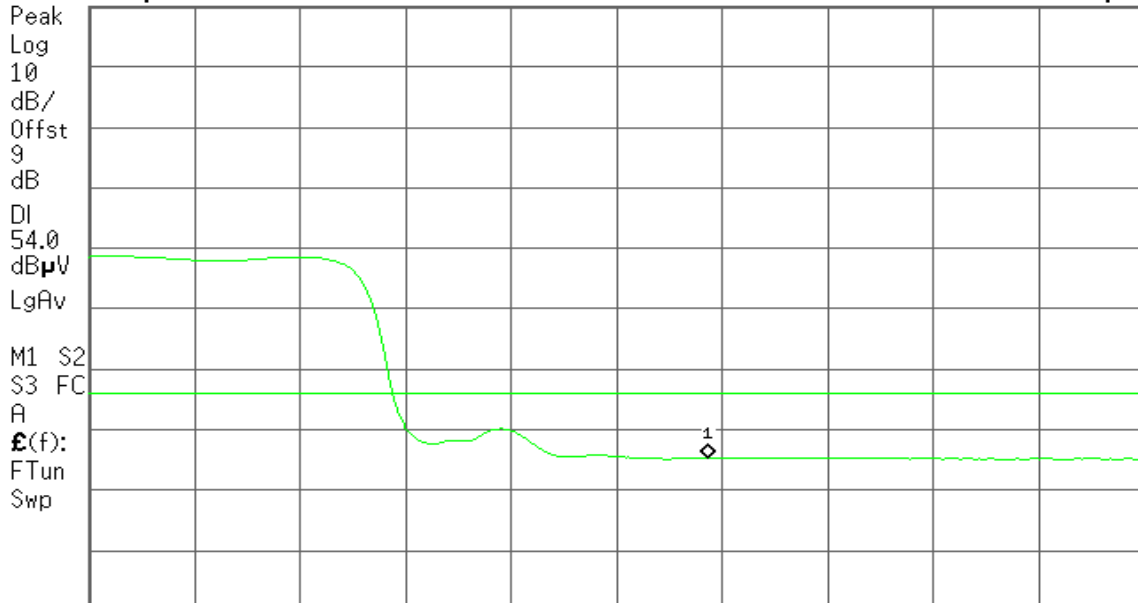
Agilent

R T

Mkr1 2.483 50 GHz
43.23 dB μ V

Ref 118 dB μ V

#Atten 12 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



For Chip Antenna

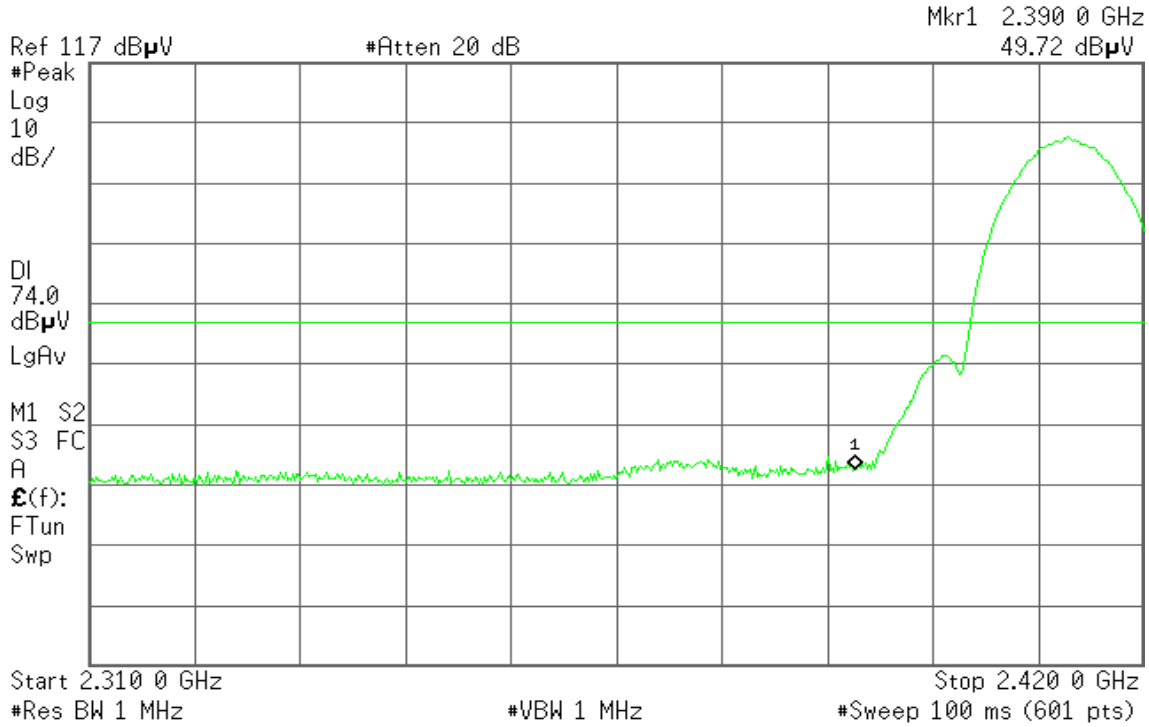
Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

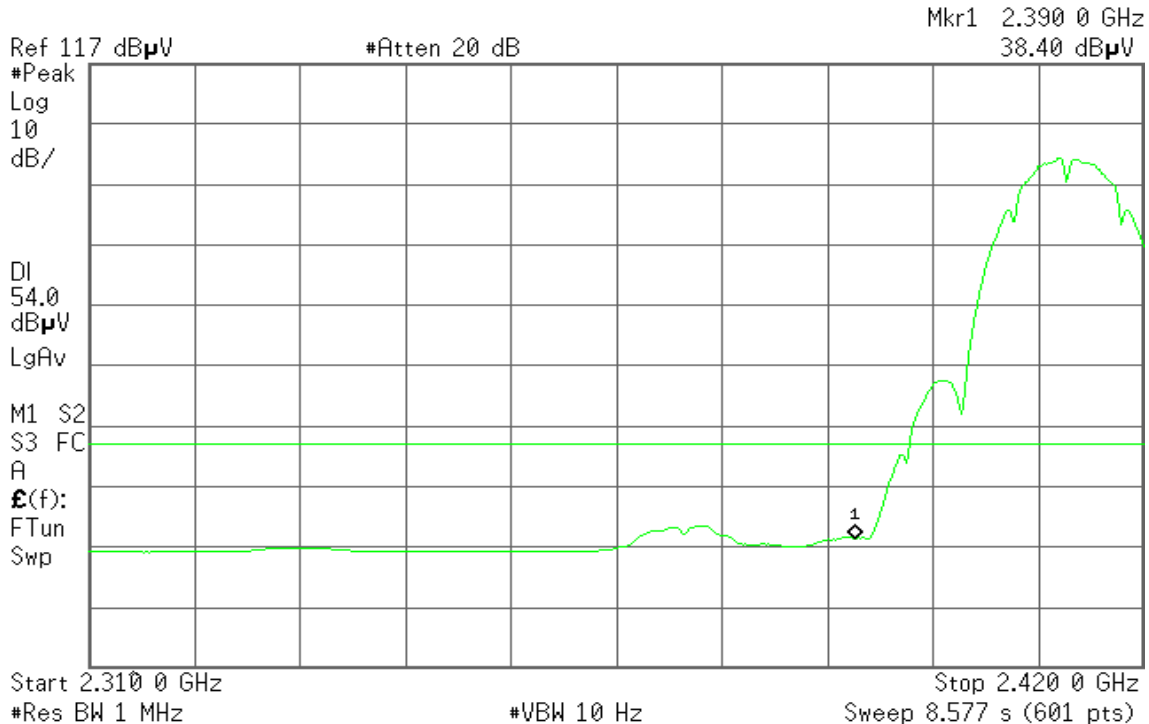


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

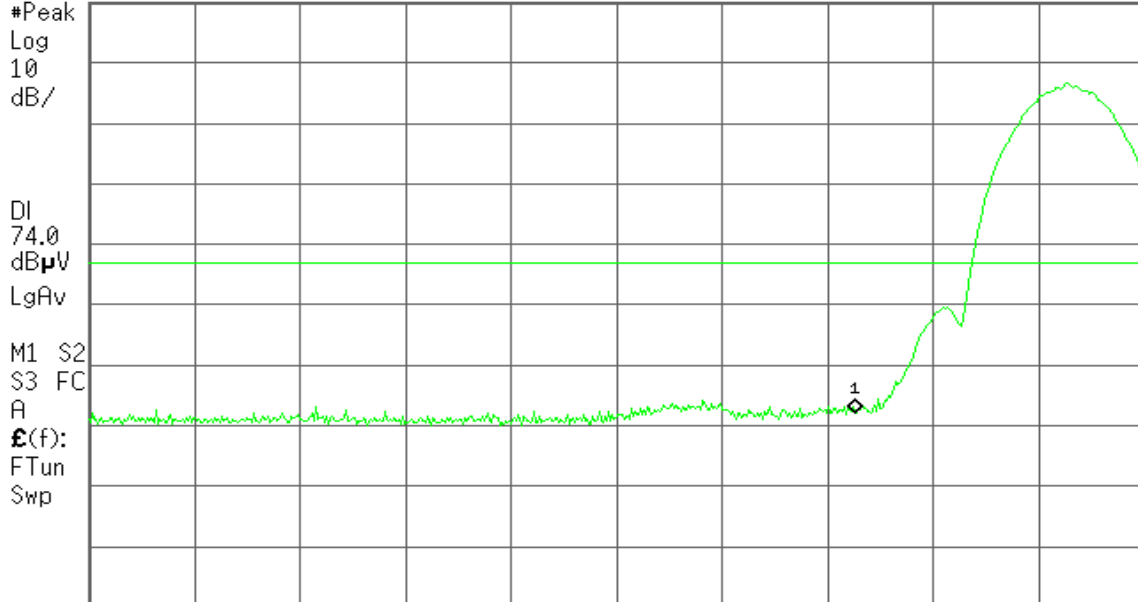
Agilent

R T

Mkr1 2.390 0 GHz
49.16 dBμV

Ref 117 dBμV

#Atten 20 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

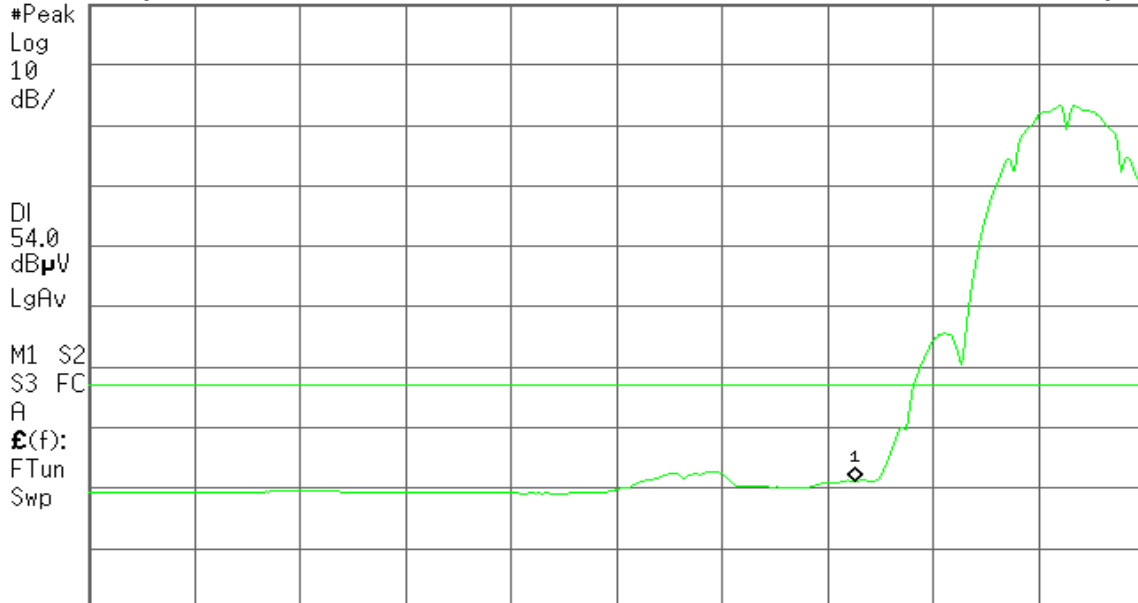
Agilent

R T

Mkr1 2.390 0 GHz
38.02 dBμV

Ref 117 dBμV

#Atten 20 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (IEEE 802.11b mode / CH High)

Detector mode: Peak

Polarity: Vertical

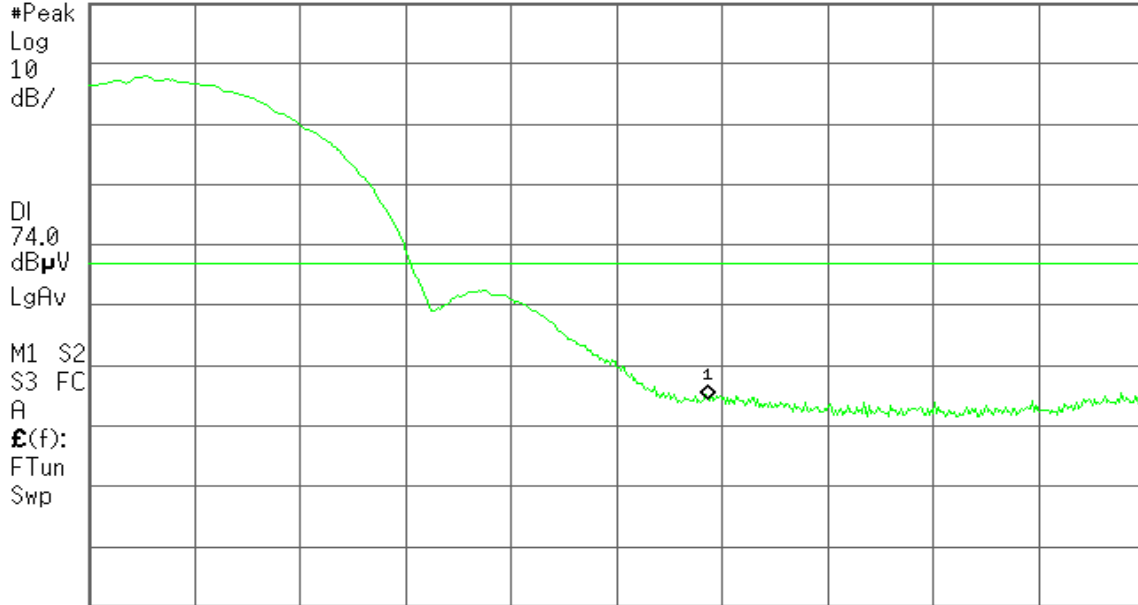
Agilent

R T

Mkr1 2.483 50 GHz
51.42 dBμV

Ref 117 dBμV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Vertical

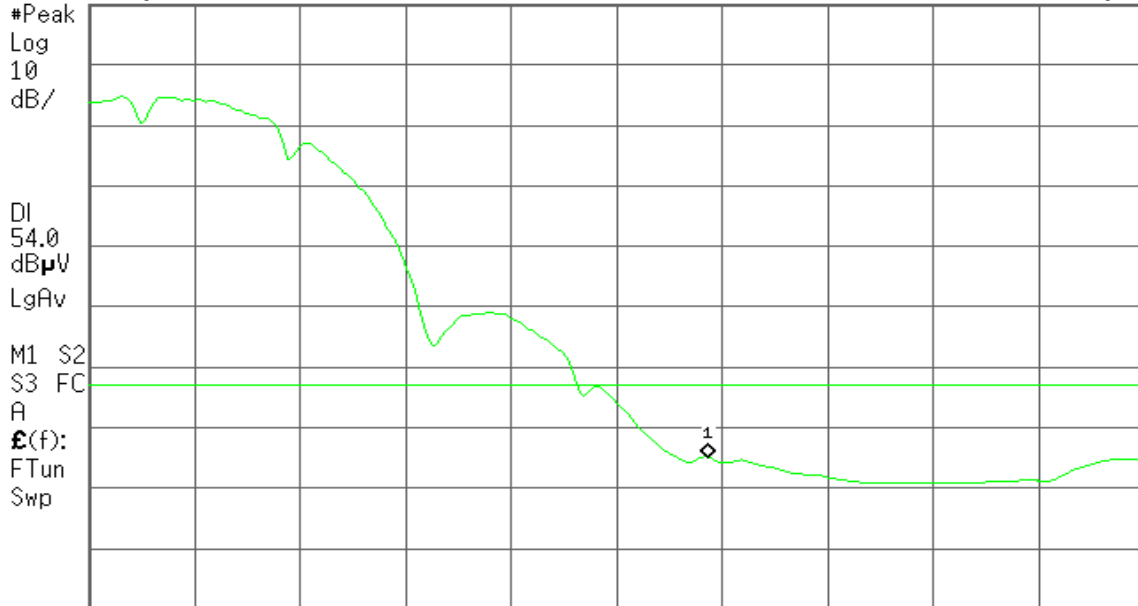
Agilent

R T

Mkr1 2.483 50 GHz
42.17 dBμV

Ref 117 dBμV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

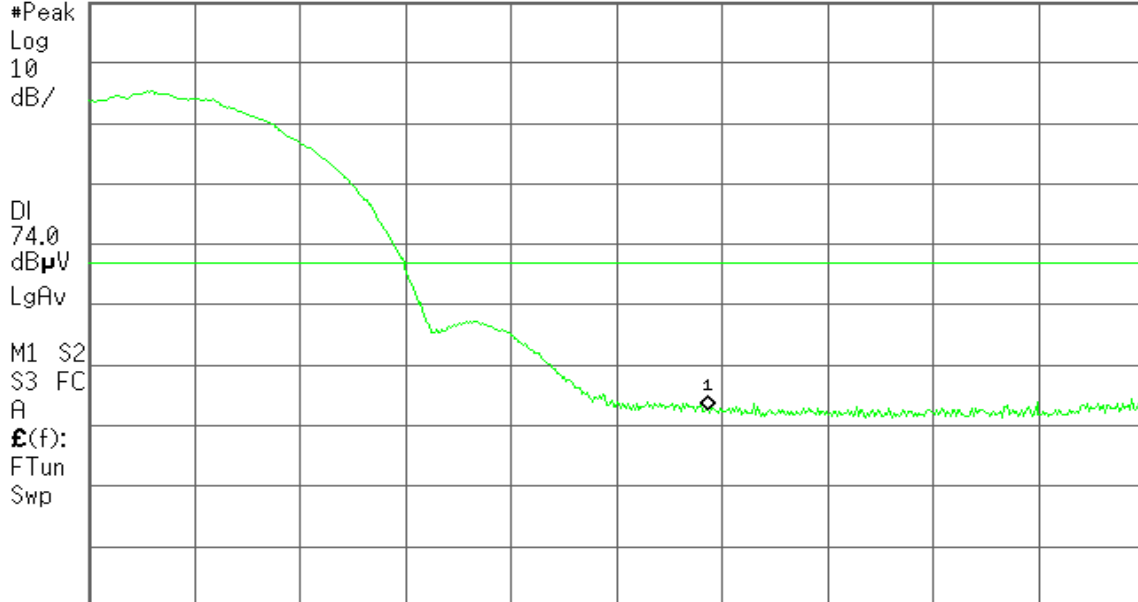
Agilent

R L

Mkr1 2.483 50 GHz
49.72 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

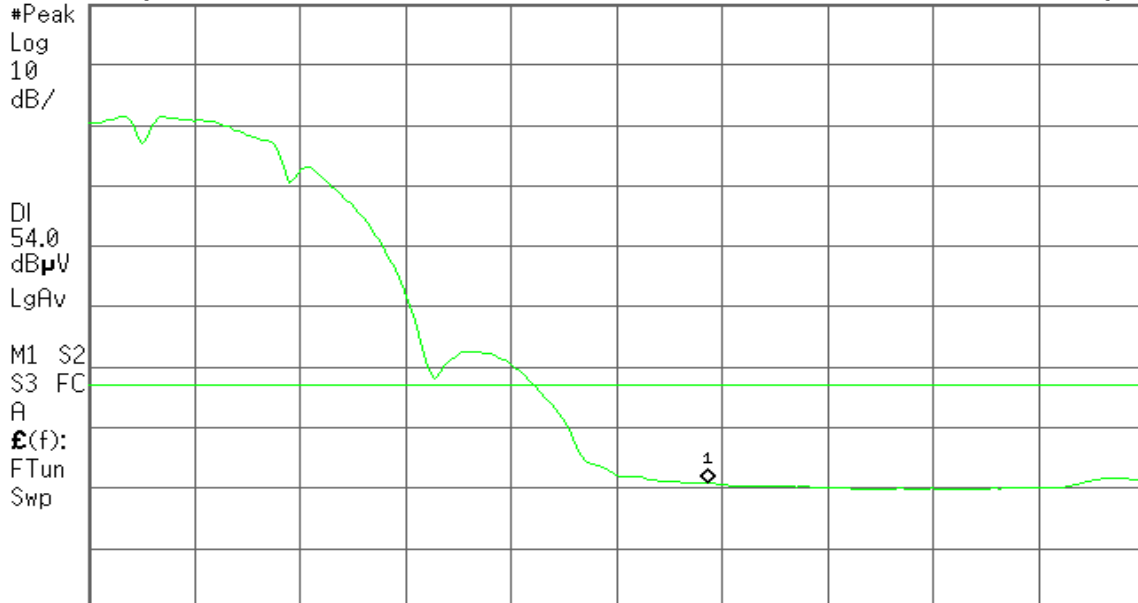
Agilent

R T

Mkr1 2.483 50 GHz
37.90 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



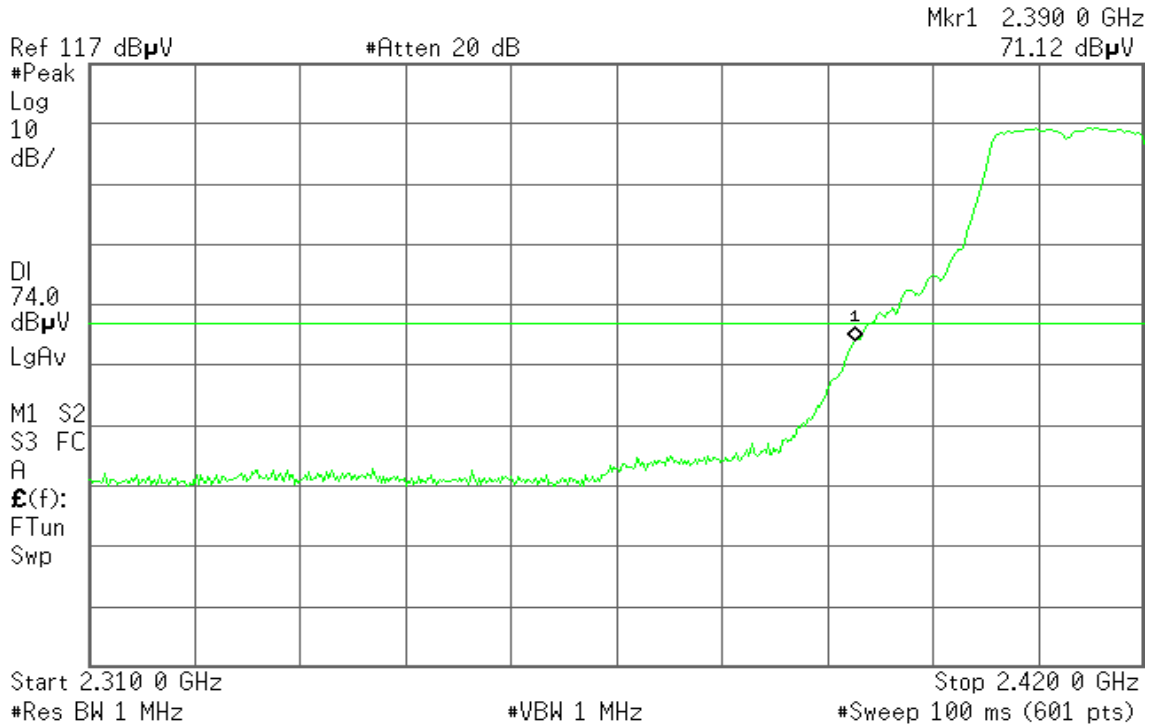
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

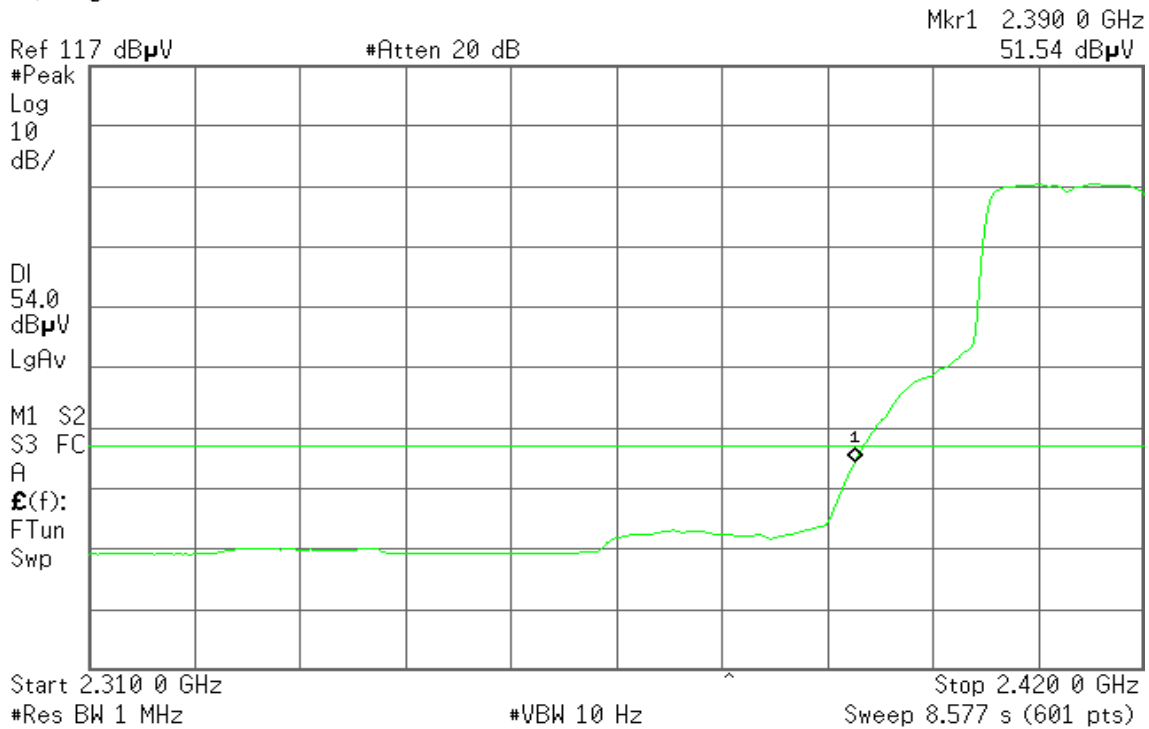


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
68.36 dBμV

Ref 117 dBμV

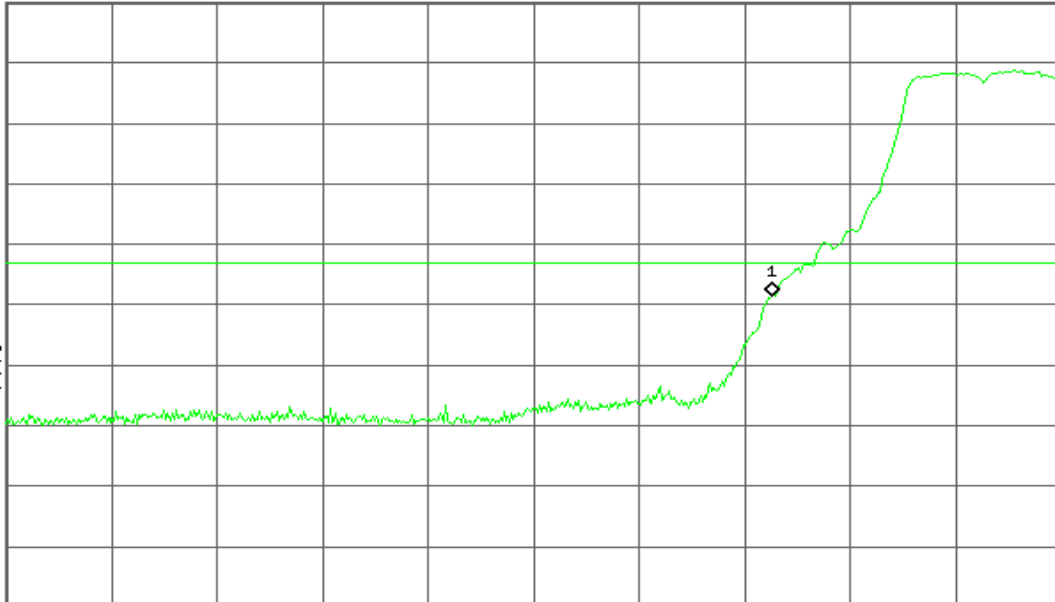
#Atten 20 dB

#Peak
Log
10
dB/

DI
74.0
dBμV
LgAv

M1 S2
S3 FC
A

£(f):
FTun
Swp



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.390 0 GHz
48.66 dBμV

Ref 117 dBμV

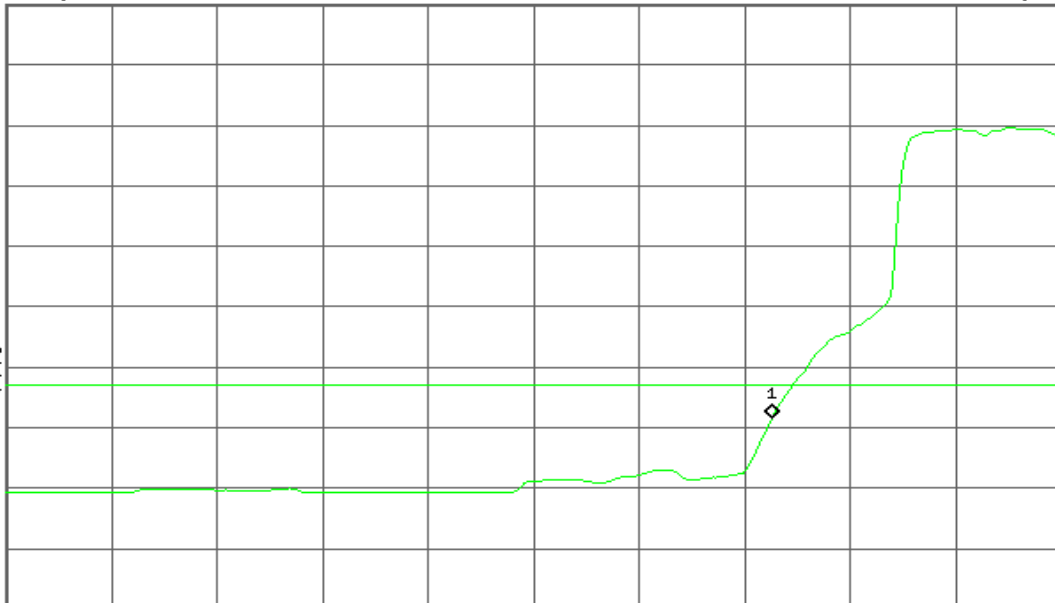
#Atten 20 dB

#Peak
Log
10
dB/

DI
54.0
dBμV
LgAv

M1 S2
S3 FC
A

£(f):
FTun
Swp



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (IEEE 802.11g mode / CH High)

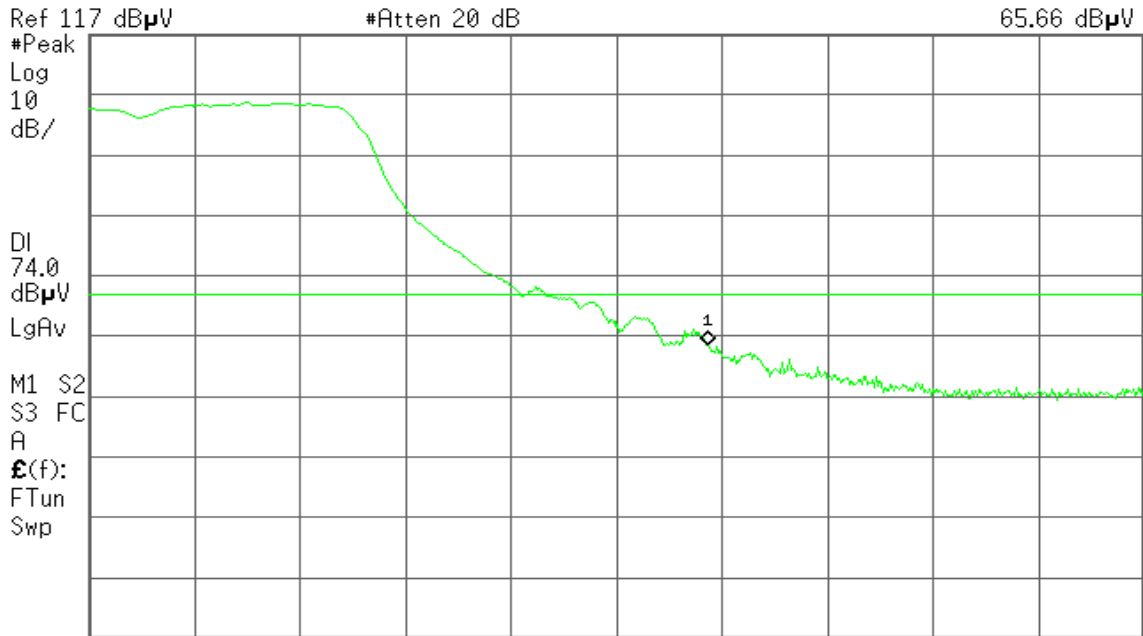
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
65.66 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 1 MHz Stop 2.500 00 GHz #Sweep 100 ms (601 pts)

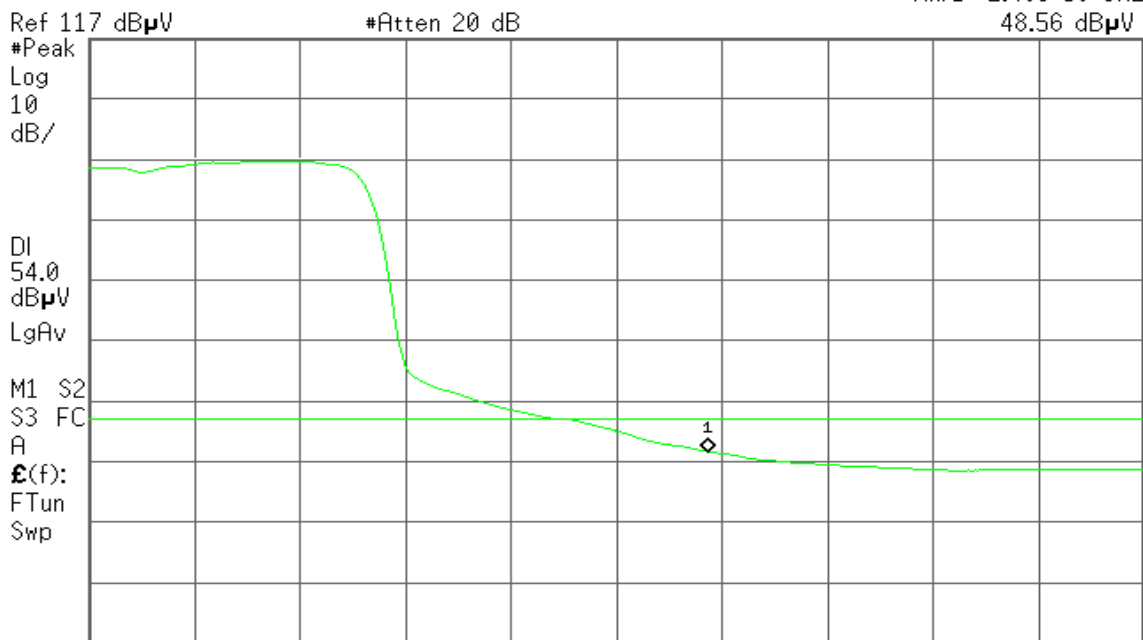
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
48.56 dB μ V



Start 2.460 00 GHz #Res BW 1 MHz #VBW 10 Hz Stop 2.500 00 GHz Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

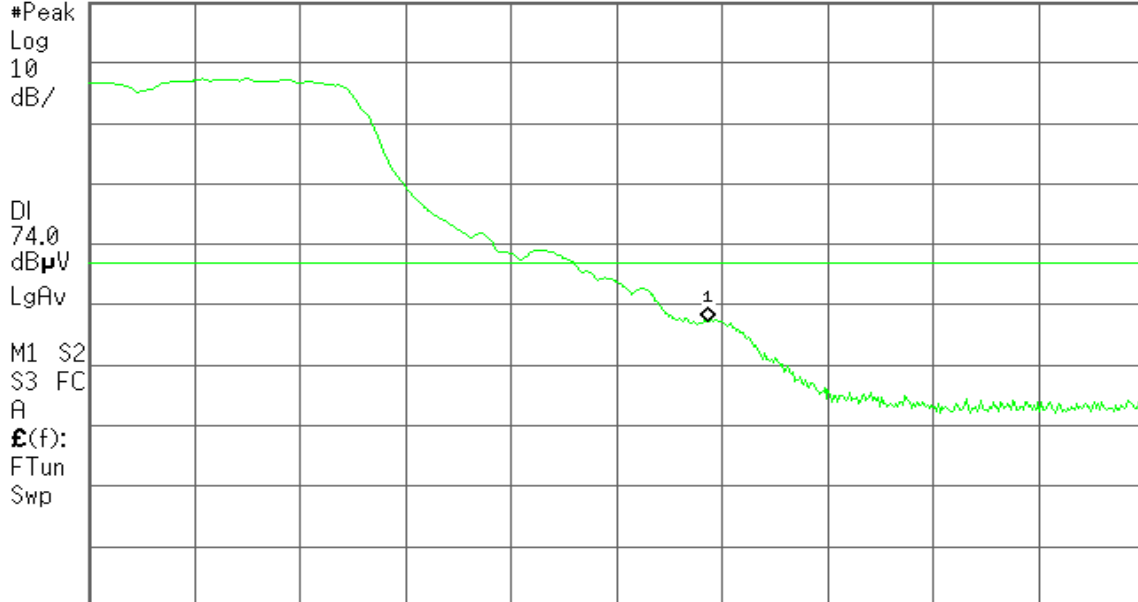
Agilent

R T

Mkr1 2.483 50 GHz
64.29 dBμV

Ref 117 dBμV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

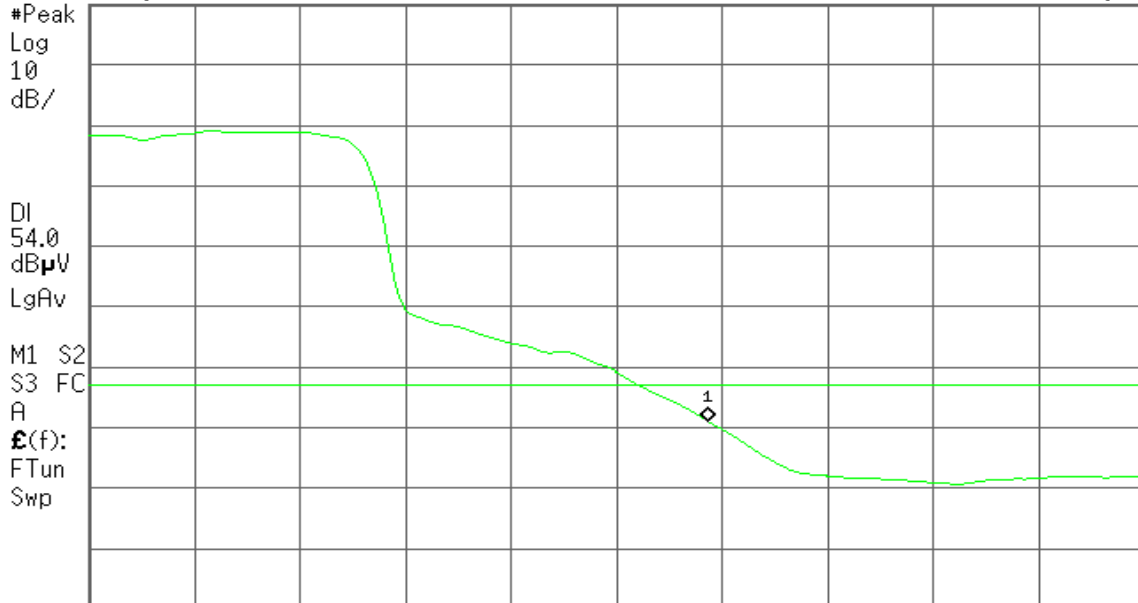
Agilent

R T

Mkr1 2.483 50 GHz
48.10 dBμV

Ref 117 dBμV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



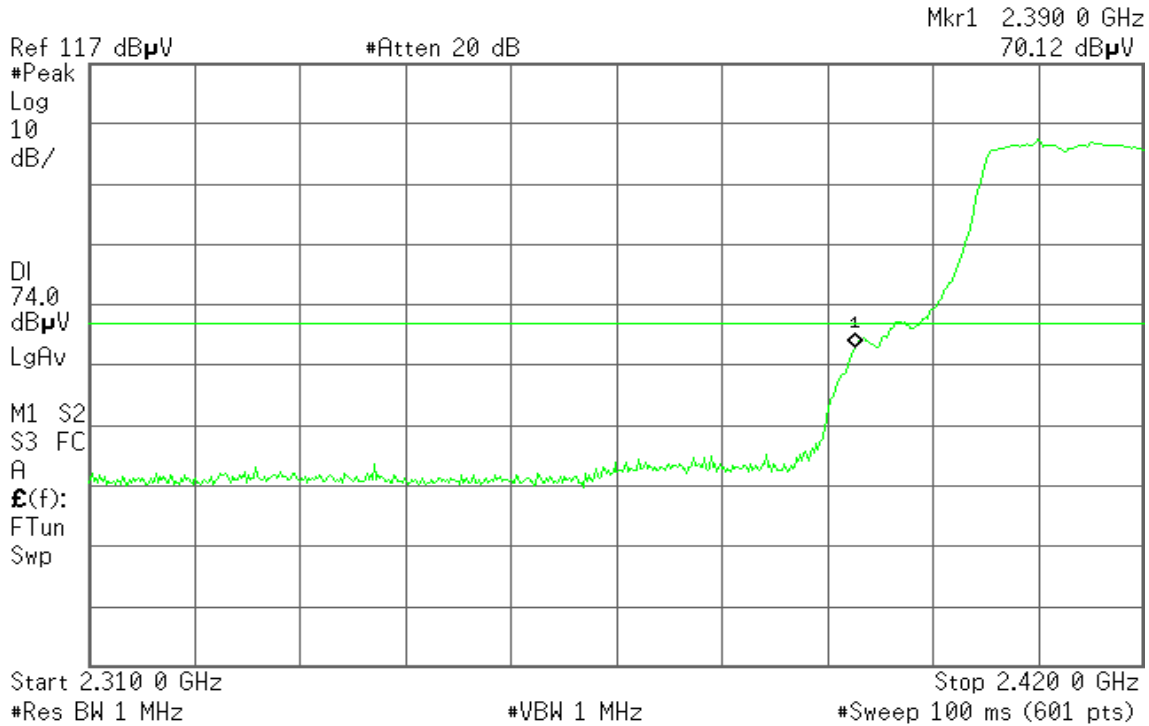
Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

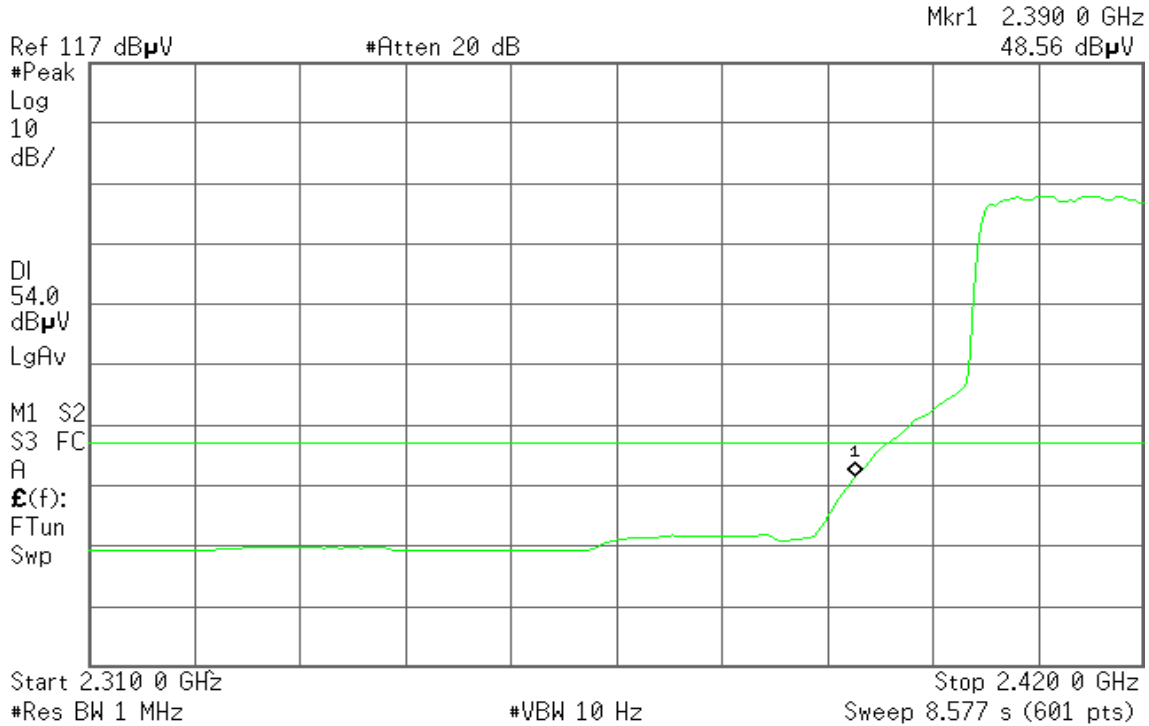


Detector mode: Average

Polarity: Vertical

Agilent

R T





Detector mode: Peak

Polarity: Horizontal

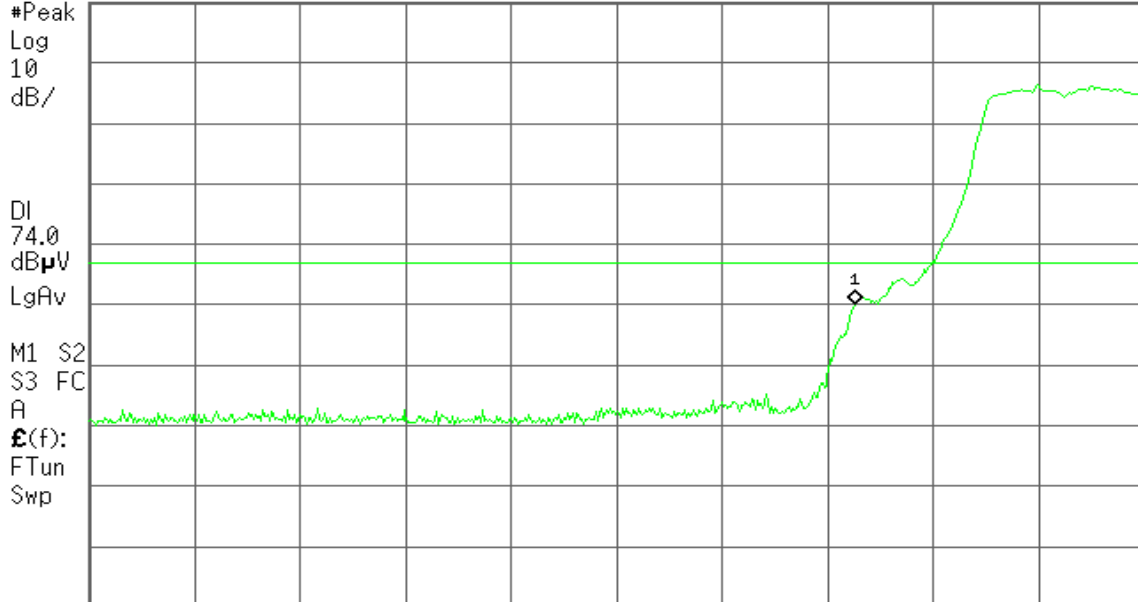
Agilent

R T

Mkr1 2.390 0 GHz
67.00 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

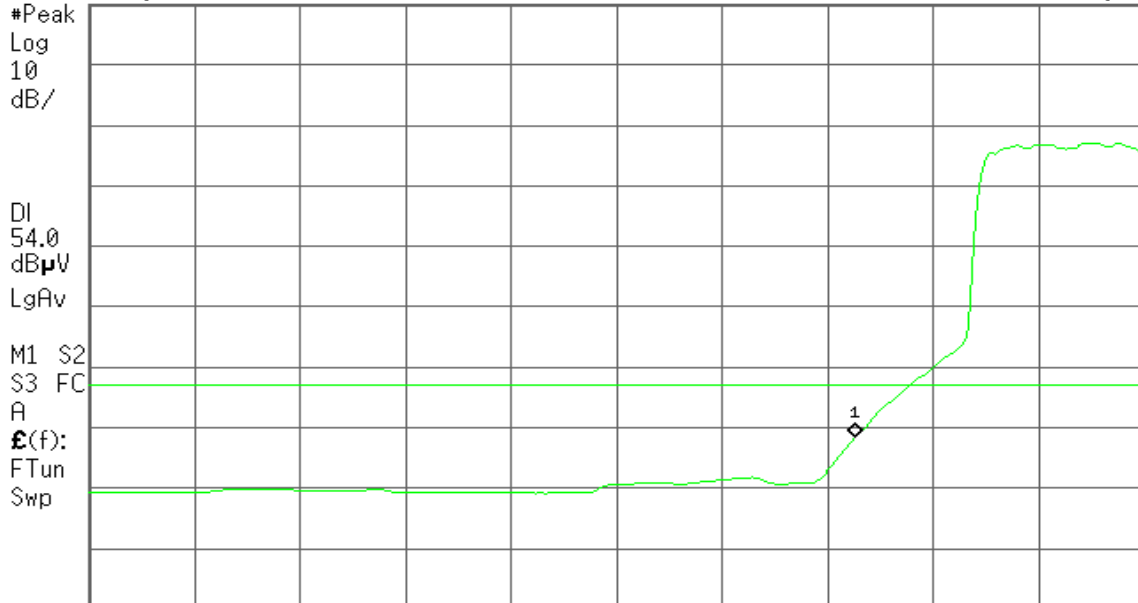
Agilent

R T

Mkr1 2.390 0 GHz
45.48 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (draft 802.11n Standard-20 MHz Channel mode / CH High)

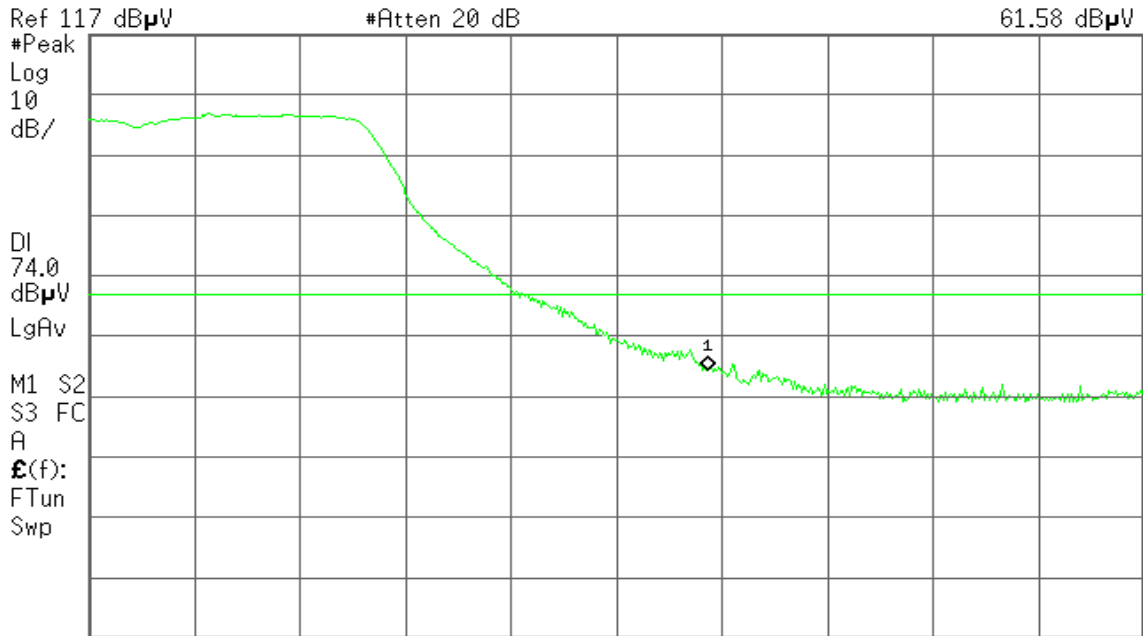
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
61.58 dB μ V



Start 2.460 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 1 MHz #Sweep 100 ms (601 pts)

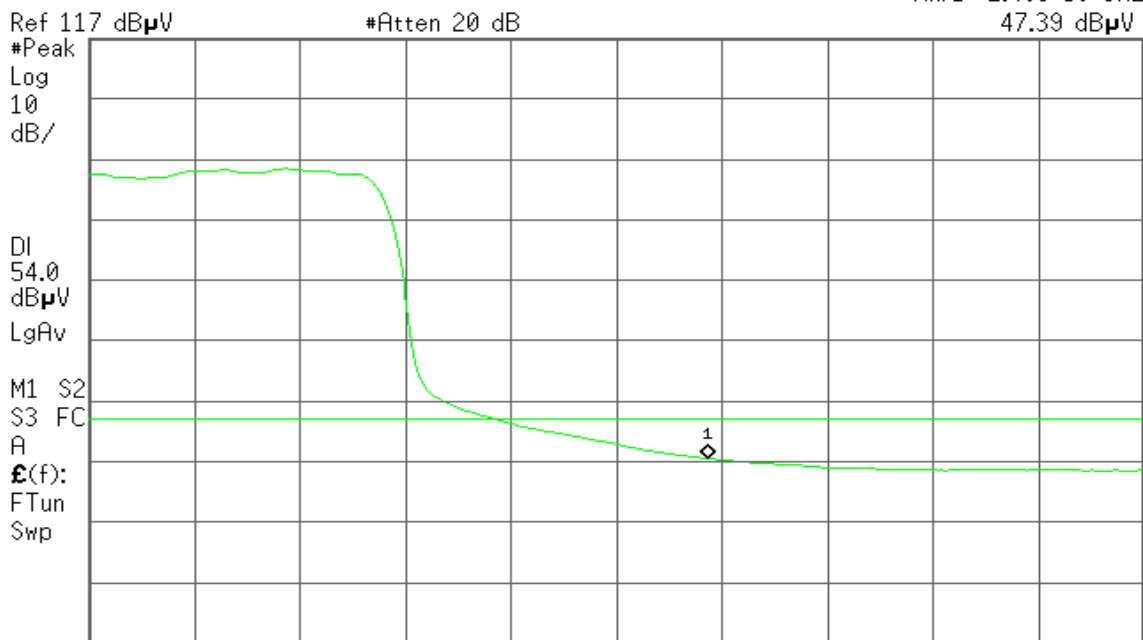
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
47.39 dB μ V



Start 2.460 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 10 Hz Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

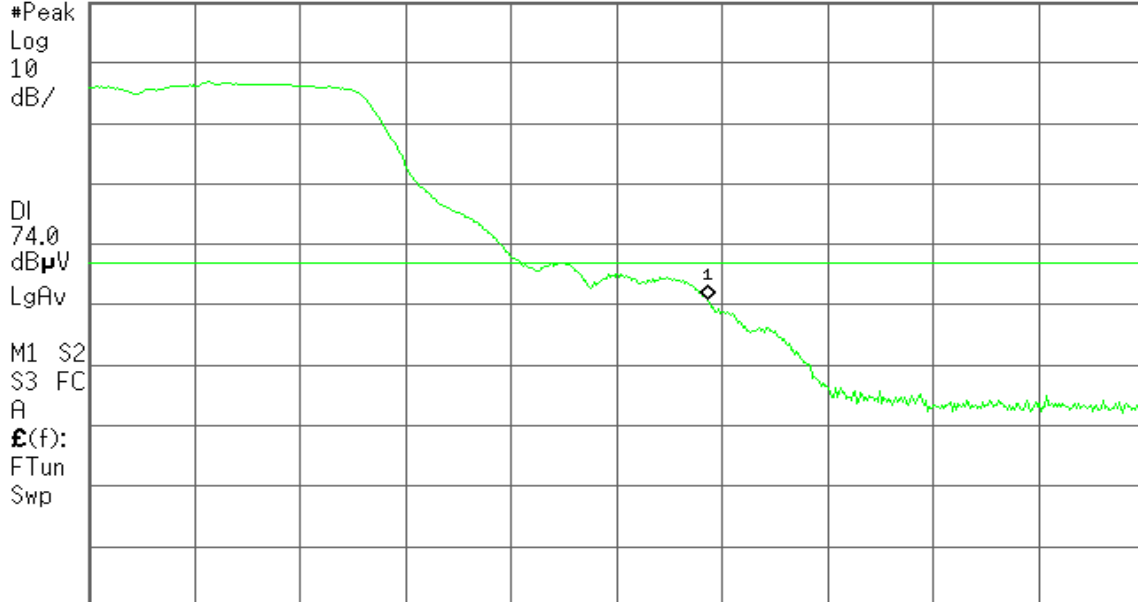
Agilent

R T

Mkr1 2.483 50 GHz
67.92 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

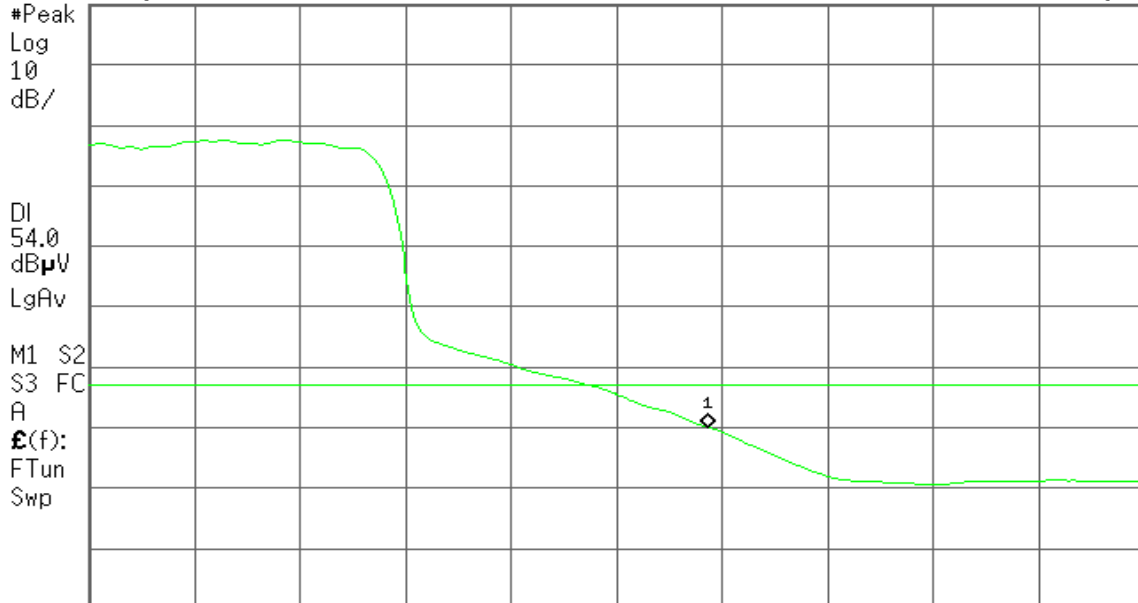
Agilent

R T

Mkr1 2.483 50 GHz
47.10 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 3.119 s (601 pts)



Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH Low)

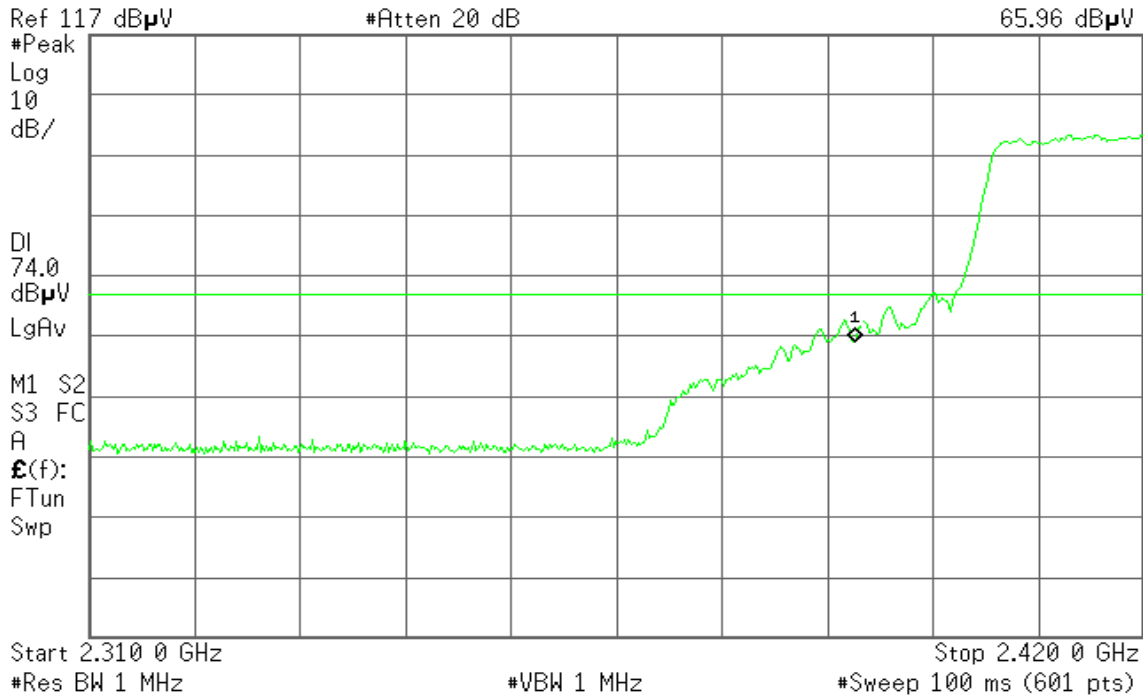
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.390 0 GHz
65.96 dBμV



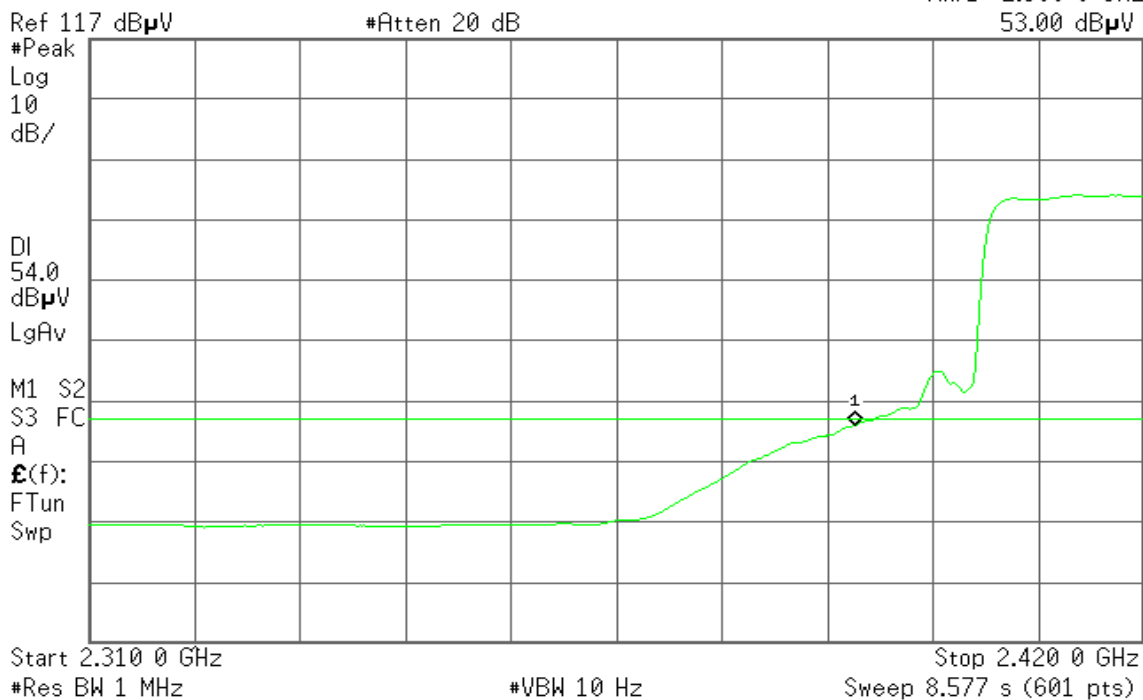
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.390 0 GHz
53.00 dBμV





Detector mode: Peak

Polarity: Horizontal

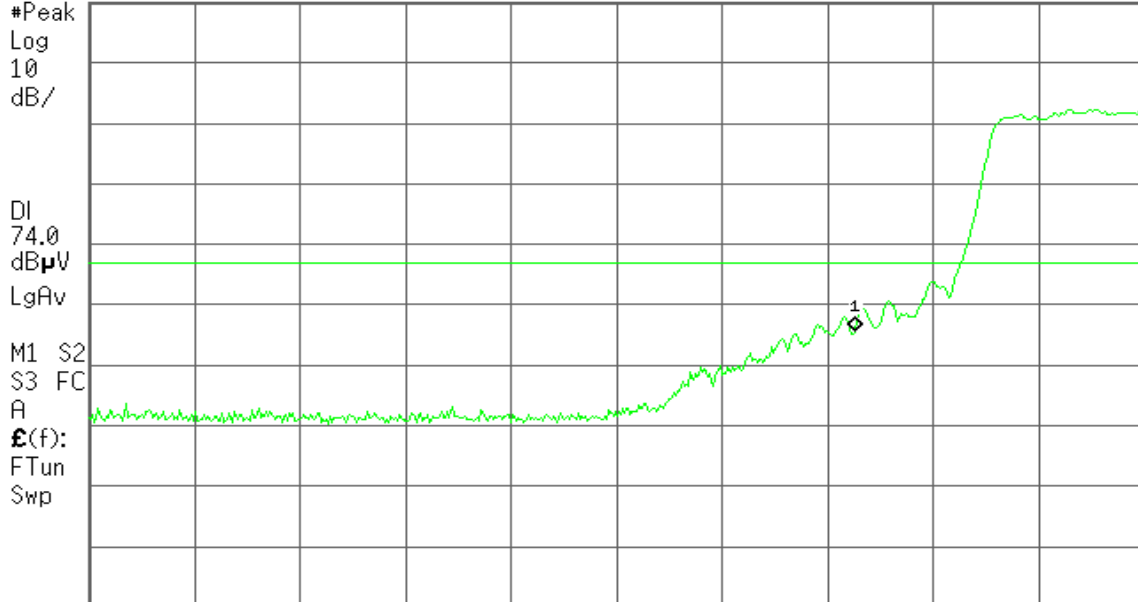
Agilent

R T

Mkr1 2.390 0 GHz
62.60 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

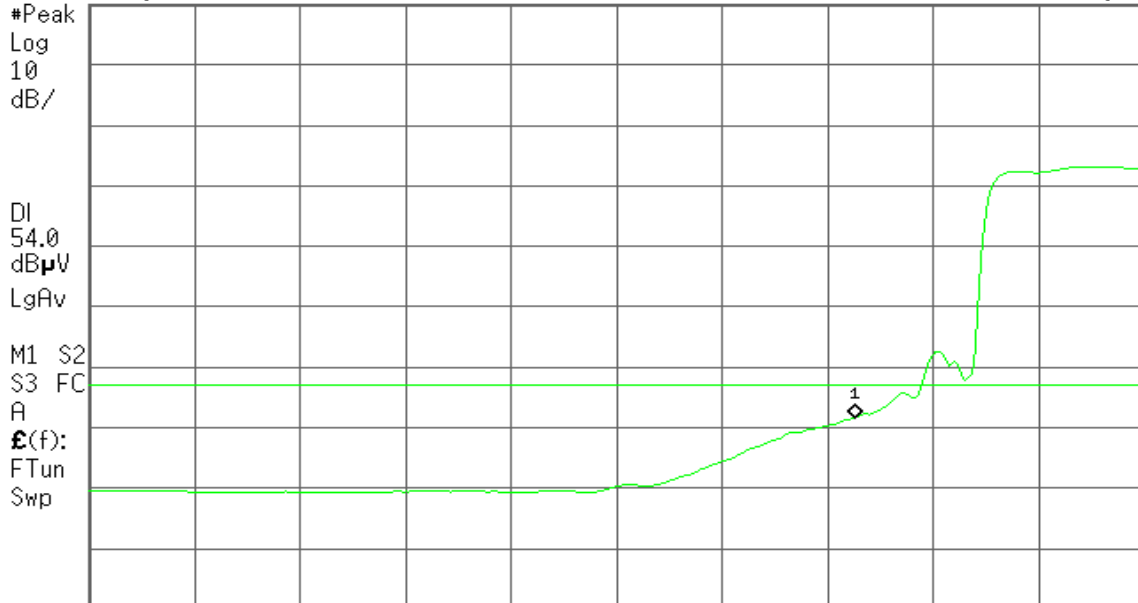
Agilent

R T

Mkr1 2.390 0 GHz
48.65 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 1 MHz

#VBW 10 Hz

Sweep 8.577 s (601 pts)



Band Edges (draft 802.11n Wide-40 MHz Channel mode / CH High)

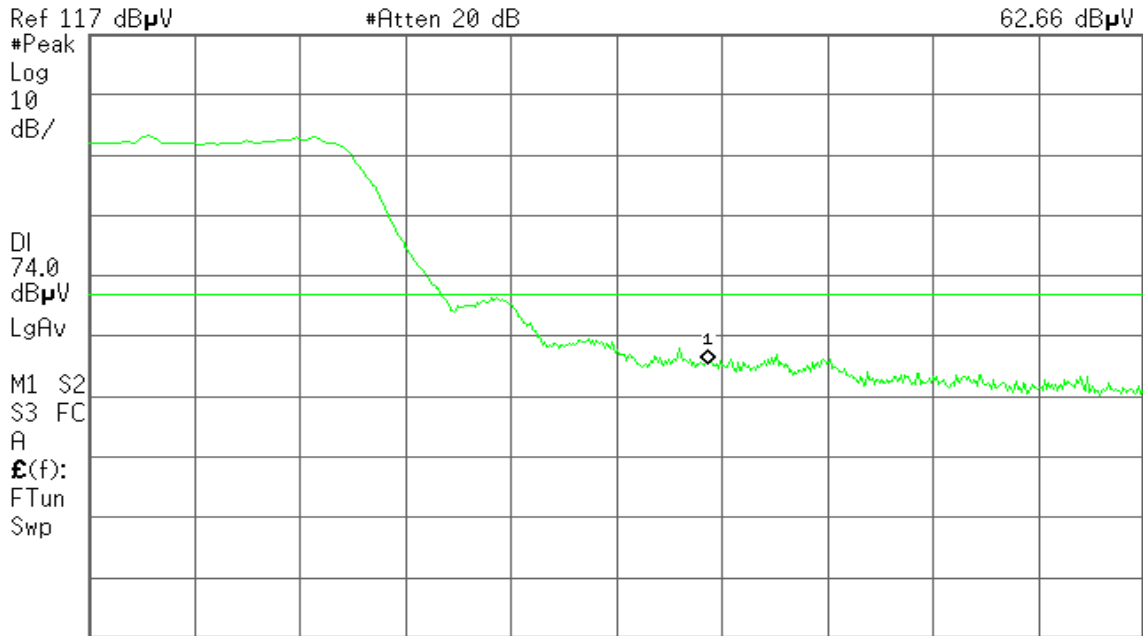
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
62.66 dB μ V



Start 2.460 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 1 MHz #Sweep 100 ms (601 pts)

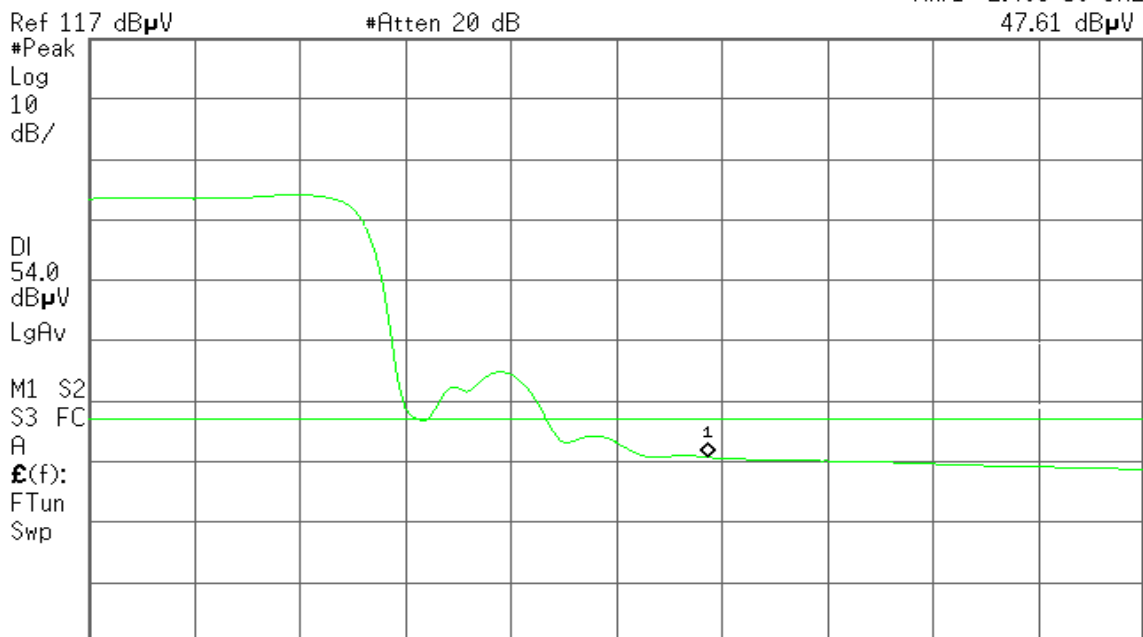
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.483 50 GHz
47.61 dB μ V



Start 2.460 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 10 Hz Sweep 3.119 s (601 pts)



Detector mode: Peak

Polarity: Horizontal

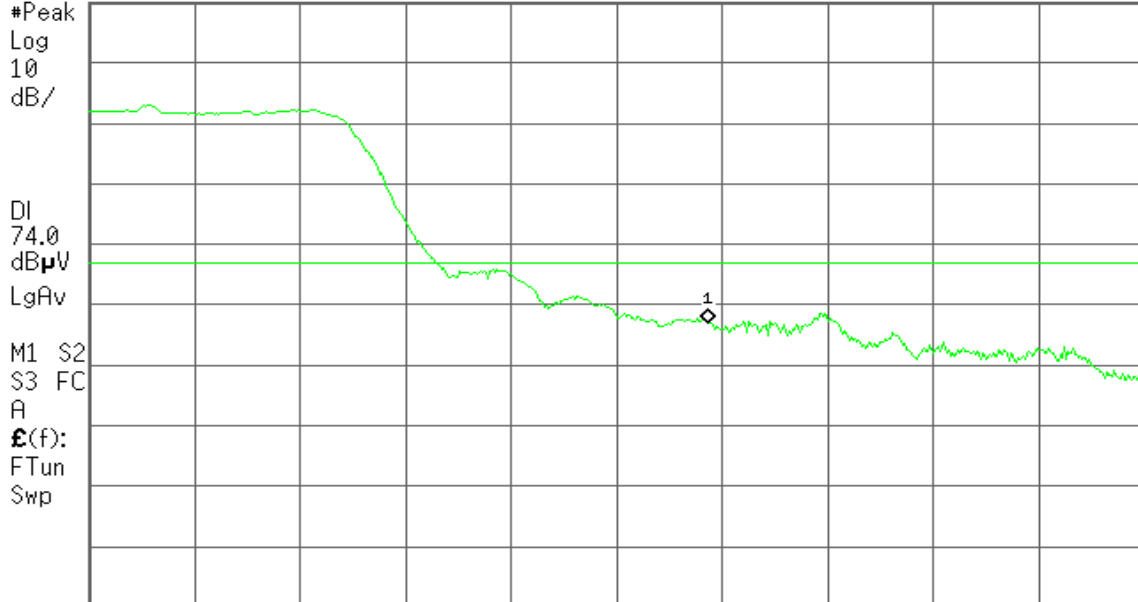
Agilent

R T

Mkr1 2.483 50 GHz
63.99 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 100 ms (601 pts)

Detector mode: Average

Polarity: Horizontal

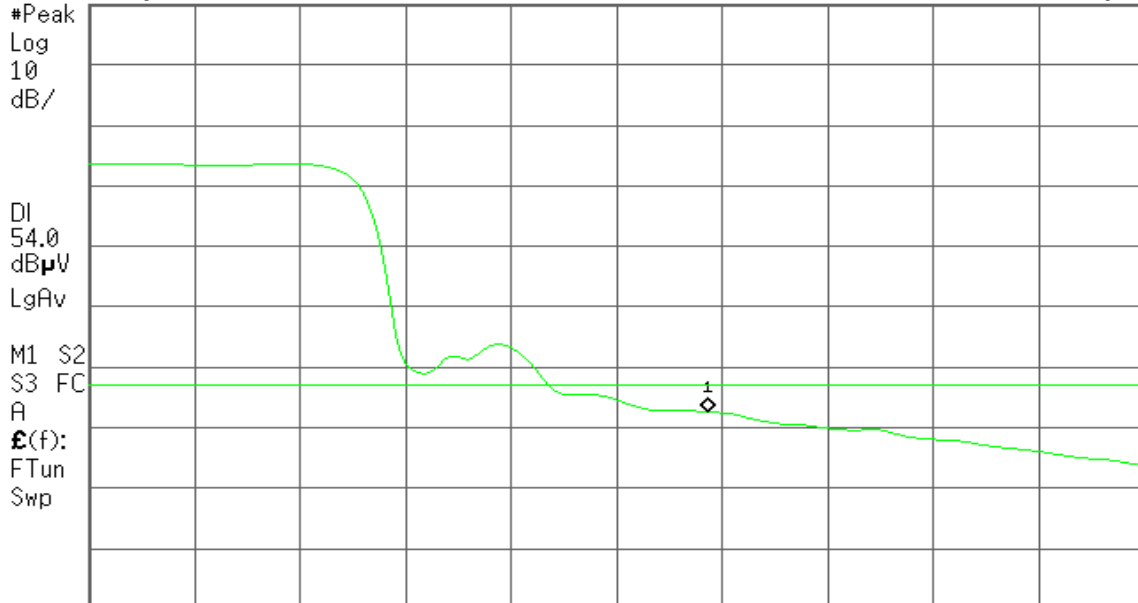
Agilent

R T

Mkr1 2.483 50 GHz
49.56 dBµV

Ref 117 dBµV

#Atten 20 dB



Start 2.460 00 GHz

Stop 2.500 00 GHz

#Res BW 1 MHz

#VBW 10 Hz

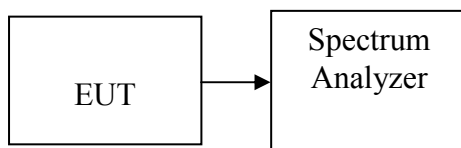
Sweep 3.119 s (601 pts)

7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

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 = 3 kHz, VBW = 10 kHz, Span = 300 kHz, Sweep time = 100 s
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****For Omni Antenna****Test mode: IEEE 802.11b**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -16.99 | 4 | PASS |
| Mid | 2437 | -17.62 | | PASS |
| High | 2462 | -18.13 | | PASS |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -18.12 | 4 | PASS |
| Mid | 2437 | -18.44 | | PASS |
| High | 2462 | -18.61 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -17.23 | 4 | PASS |
| Mid | 2437 | -17.88 | | PASS |
| High | 2462 | -18.38 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2422 | -17.23 | 4 | PASS |
| Mid | 2437 | -17.77 | | PASS |
| High | 2452 | -18.18 | | PASS |

Remark: The maximum antenna gain is 10dBi; therefore the reduction due to antenna gain is 4dB, so the limit is 4dBm

**For Patch Antenna****Test mode: IEEE 802.11b**

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -16.15 | 4 | PASS |
| Mid | 2437 | -16.33 | | PASS |
| High | 2462 | -17.00 | | PASS |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -17.61 | 4 | PASS |
| Mid | 2437 | -16.92 | | PASS |
| High | 2462 | -17.30 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -16.25 | 4 | PASS |
| Mid | 2437 | -16.95 | | PASS |
| High | 2462 | -17.25 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2422 | -16.41 | 4 | PASS |
| Mid | 2437 | -16.68 | | PASS |
| High | 2452 | -16.85 | | PASS |

Remark: The maximum antenna gain is 10dBi; therefore the reduction due to antenna gain is 4dB, so the limit is 4dBm



For Chip Antenna

Test mode: IEEE 802.11b

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -11.30 | 8.00 | PASS |
| Mid | 2437 | -13.14 | | PASS |
| High | 2462 | -15.71 | | PASS |

Test mode: IEEE 802.11g

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -15.34 | 8.00 | PASS |
| Mid | 2437 | -16.20 | | PASS |
| High | 2462 | -16.36 | | PASS |

Test mode: draft 802.11n Standard-20 MHz Channel mode

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2412 | -14.81 | 8.00 | PASS |
| Mid | 2437 | -15.78 | | PASS |
| High | 2462 | -16.48 | | PASS |

Test mode: draft 802.11n Wide-40 MHz Channel mode

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------------|------------|-------------|--------|
| Low | 2422 | -14.68 | 8.00 | PASS |
| Mid | 2437 | -15.59 | | PASS |
| High | 2452 | -16.33 | | PASS |



Test Plot

For Omni Antenna

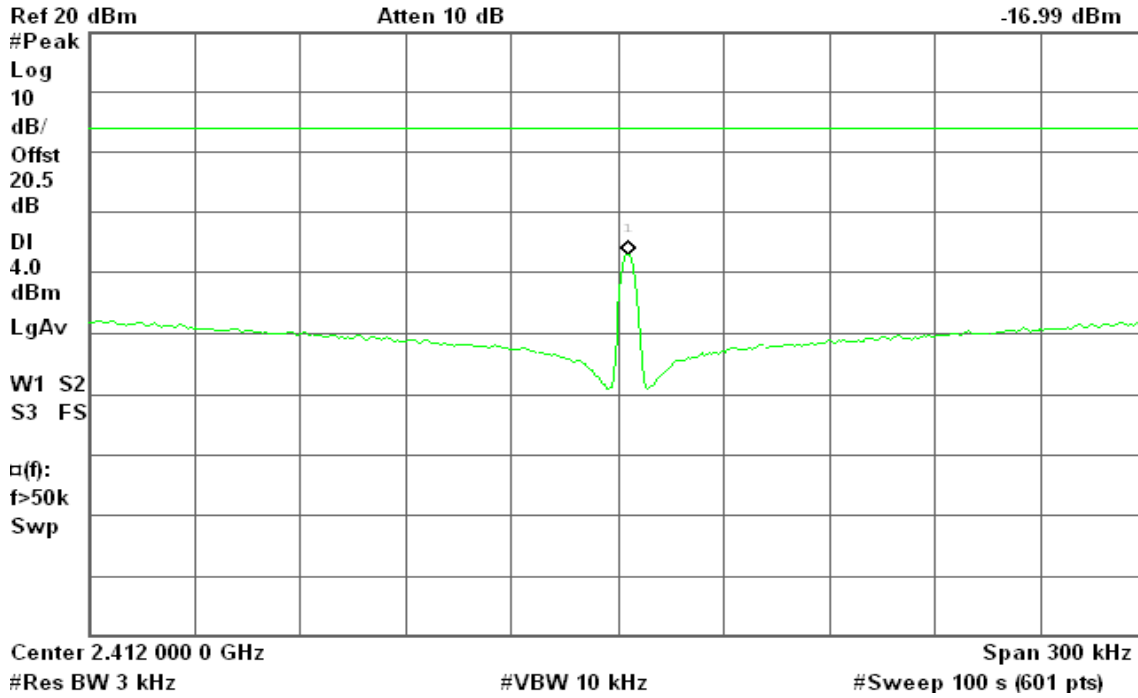
IEEE 802.11b mode

PPSD (CH Low)

Agilent 19:38:50 Nov 19, 2009

R T

Mkr1 2.412 003 0 GHz
-16.99 dBm

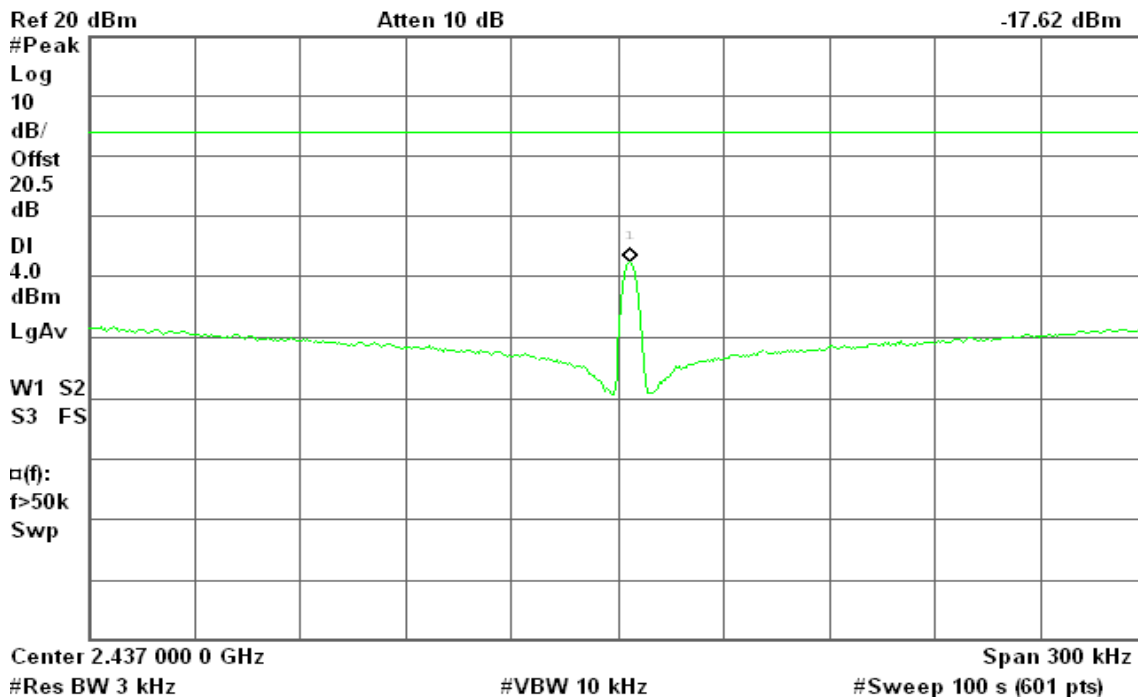


PPSD (CH Mid)

Agilent 19:19:41 Nov 19, 2009

R T

Mkr1 2.437 003 5 GHz
-17.62 dBm



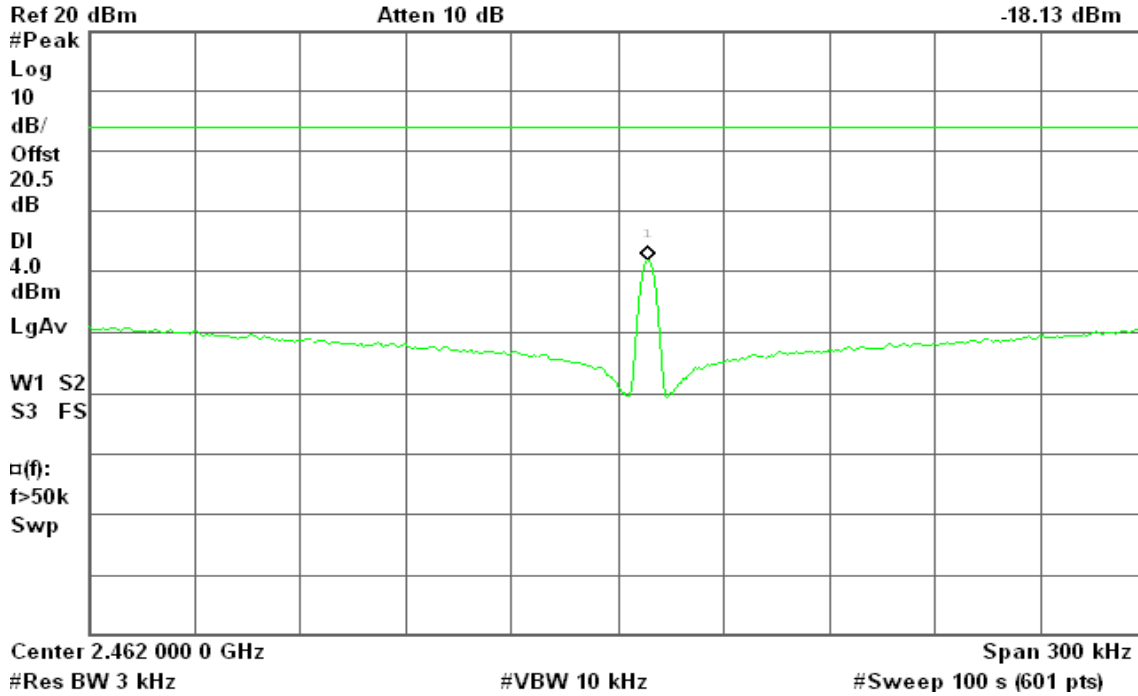


PPSD (CH High)

Agilent 19:31:03 Nov 19, 2009

R T

Mkr1 2.462 008 5 GHz
-18.13 dBm



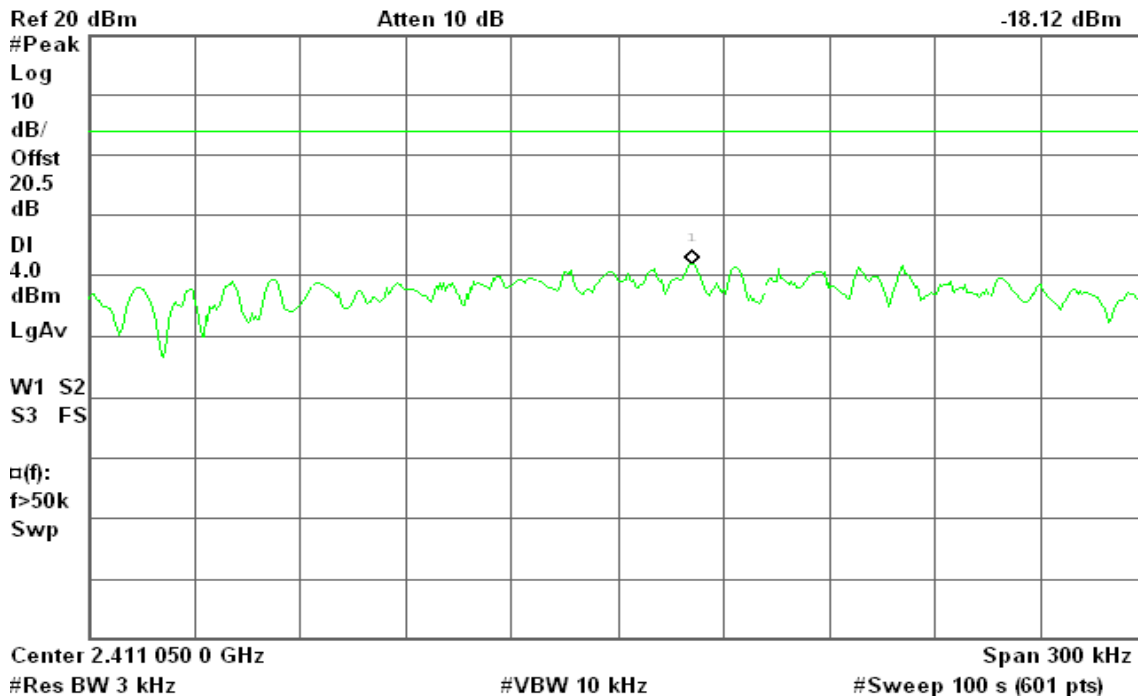
IEEE 802.11g mode

PPSD (CH Low)

Agilent 20:10:47 Nov 19, 2009

R T

Mkr1 2.411 071 1 GHz
-18.12 dBm



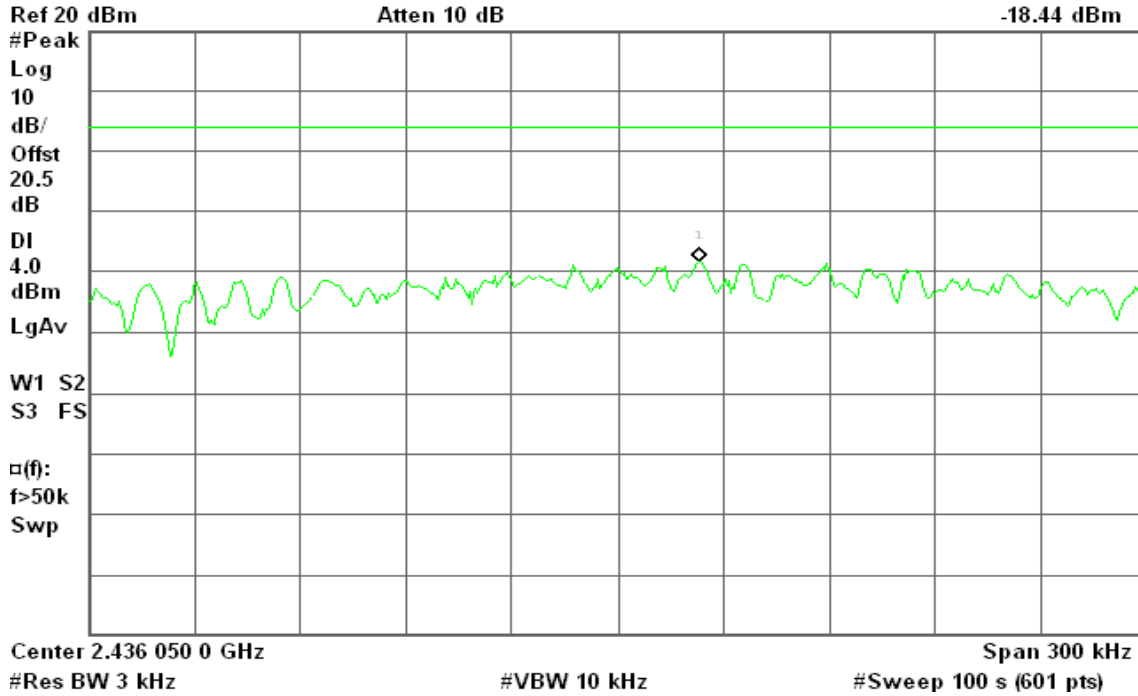


PPSD (CH Mid)

Agilent 20:19:33 Nov 19, 2009

R T

Mkr1 2.436 073 1 GHz
-18.44 dBm

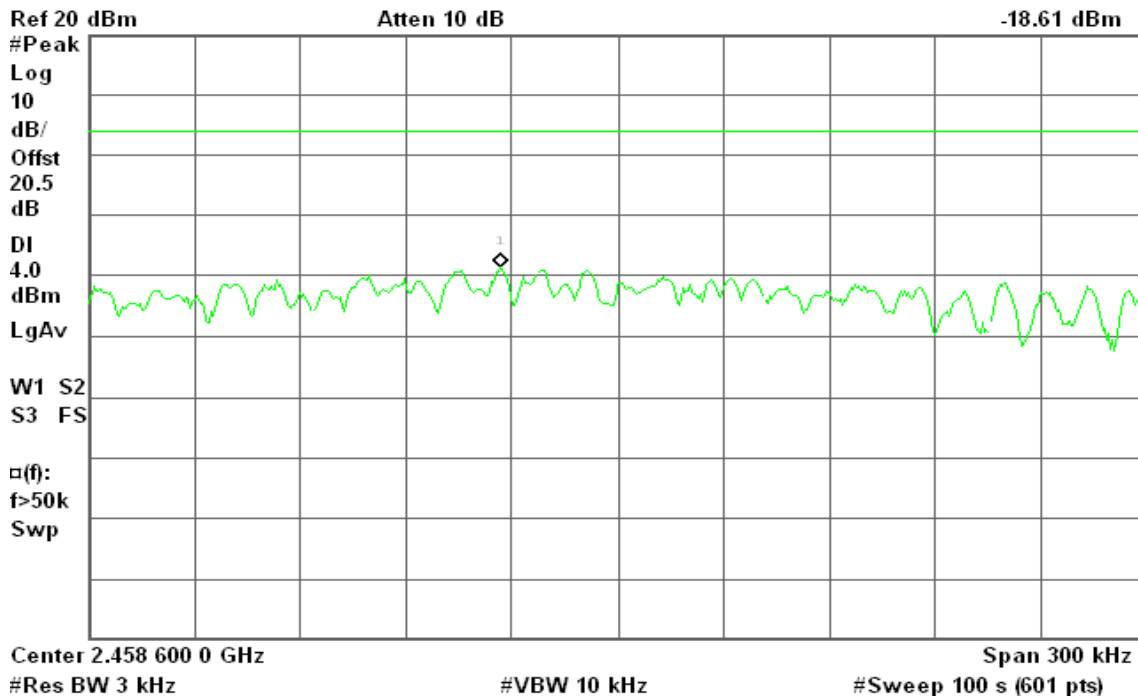


PPSD (CH High)

Agilent 20:29:03 Nov 19, 2009

R T

Mkr1 2.458 566 8 GHz
-18.61 dBm





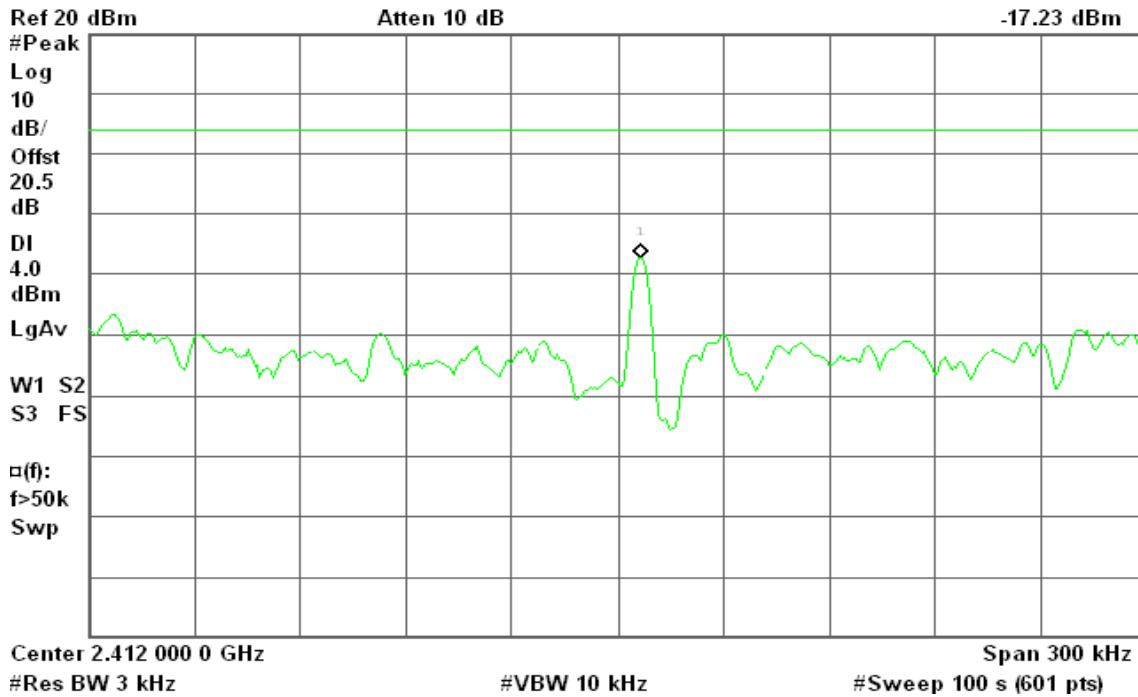
draft 802.11n Standard-20 MHz Channel mode

PPSD (CH Low)

Agilent 20:36:54 Nov 19, 2009

R T

Mkr1 2.412 006 5 GHz
-17.23 dBm

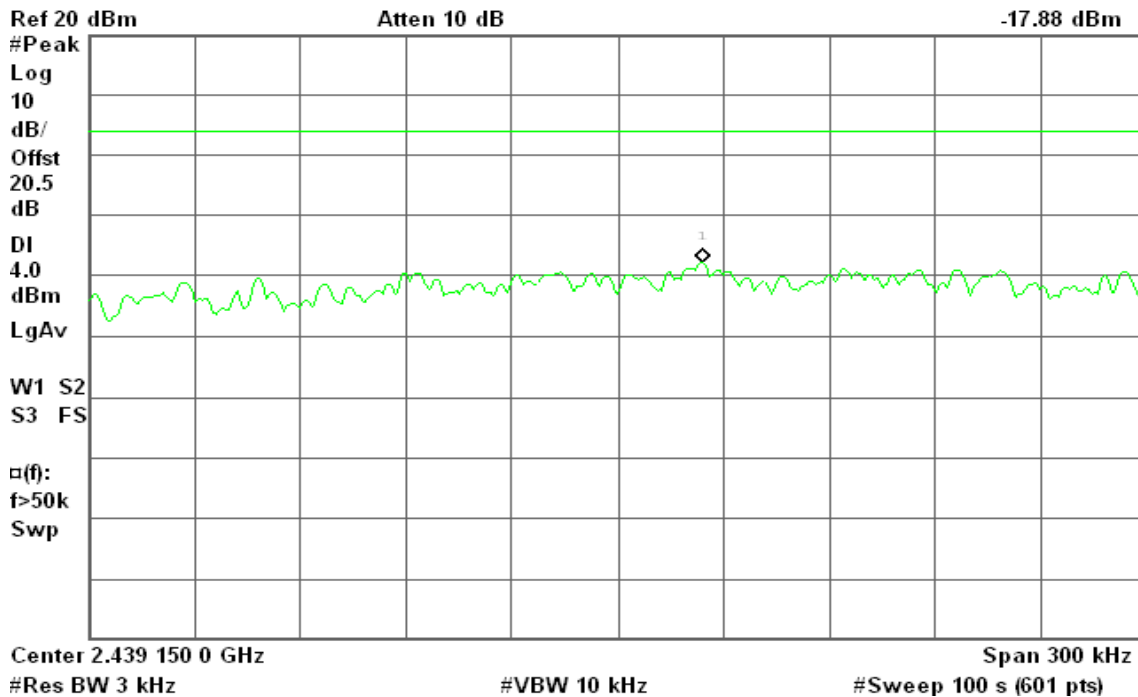


PPSD (CH Mid)

Agilent 20:42:23 Nov 19, 2009

R T

Mkr1 2.439 174 1 GHz
-17.88 dBm



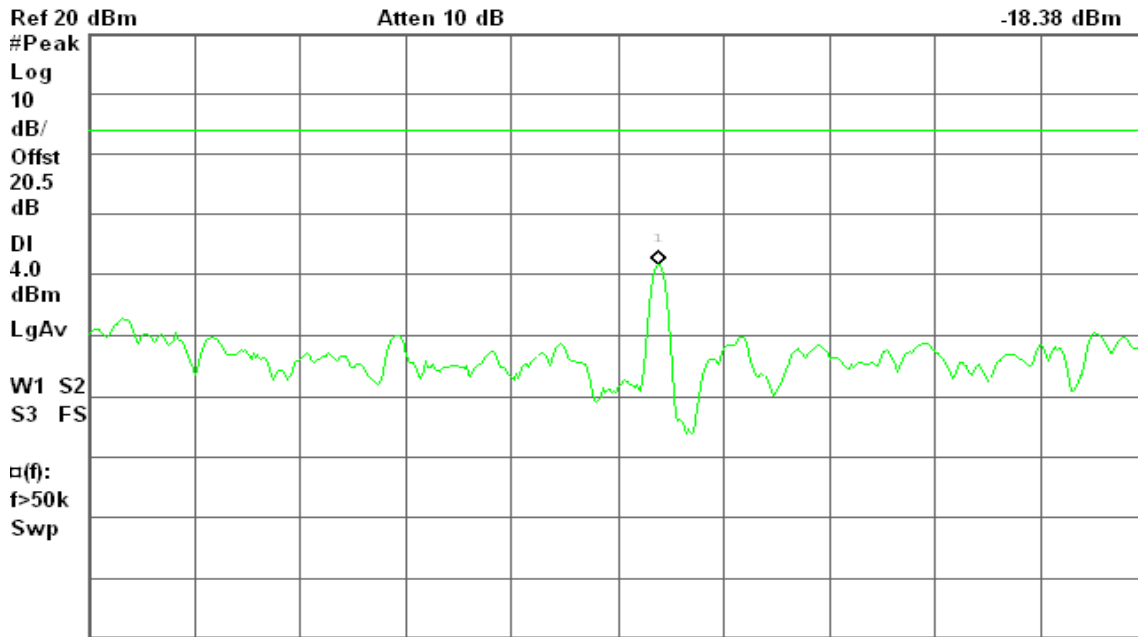


PPSD (CH High)

Agilent 20:47:49 Nov 19, 2009

R L

Mkr1 2.462 011 6 GHz
-18.38 dBm



Center 2.462 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

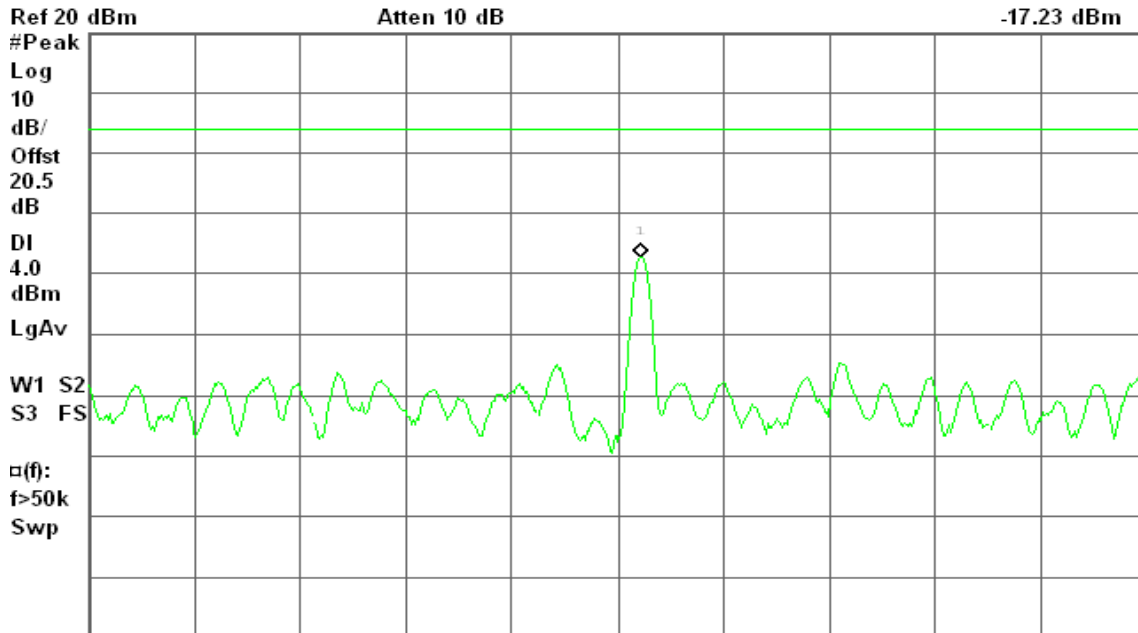
draft 802.11n Wide-40 MHz Channel mode

PPSD (CH Low)

Agilent 21:01:01 Nov 19, 2009

R T

Mkr1 2.422 006 5 GHz
-17.23 dBm



Center 2.422 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

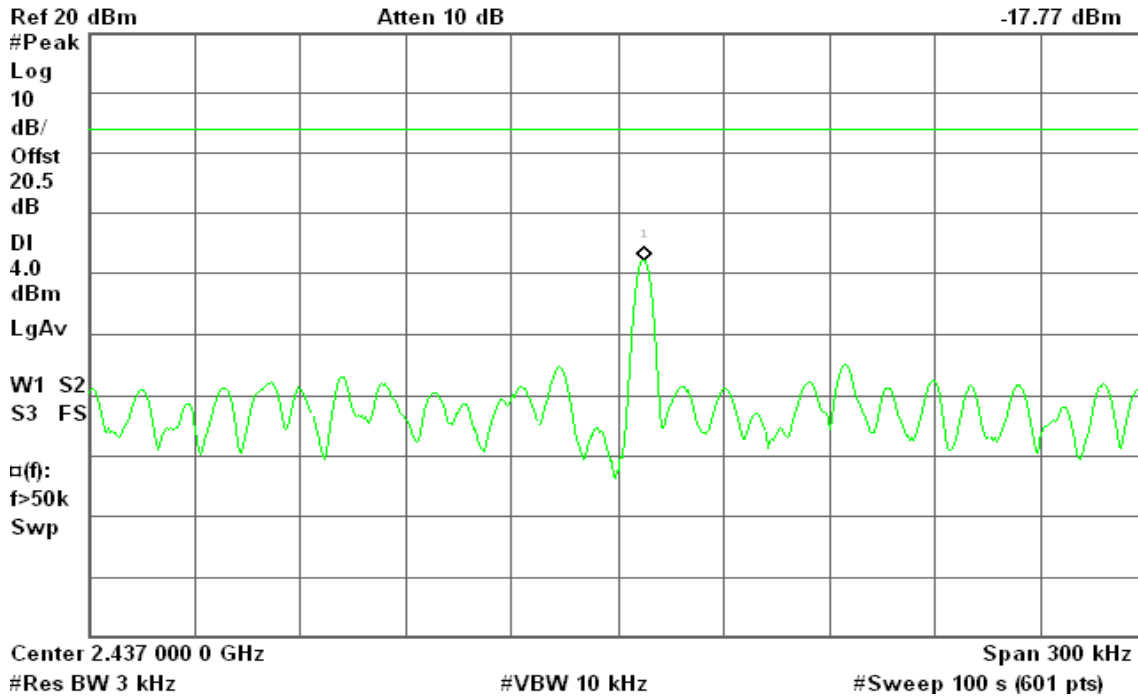


PPSD (CH Mid)

Agilent 21:08:21 Nov 19, 2009

R T

Mkr1 2.437 007 5 GHz
-17.77 dBm

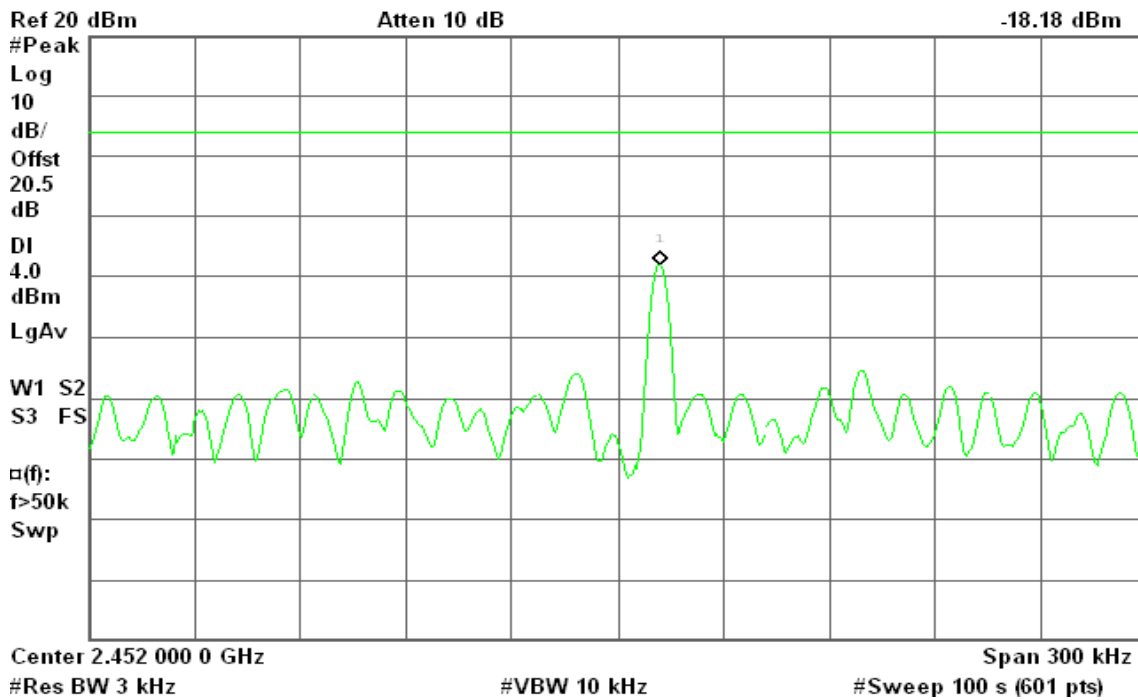


PPSD (CH High)

Agilent 21:13:52 Nov 19, 2009

R T

Mkr1 2.452 012 0 GHz
-18.18 dBm





For Patch Antenna

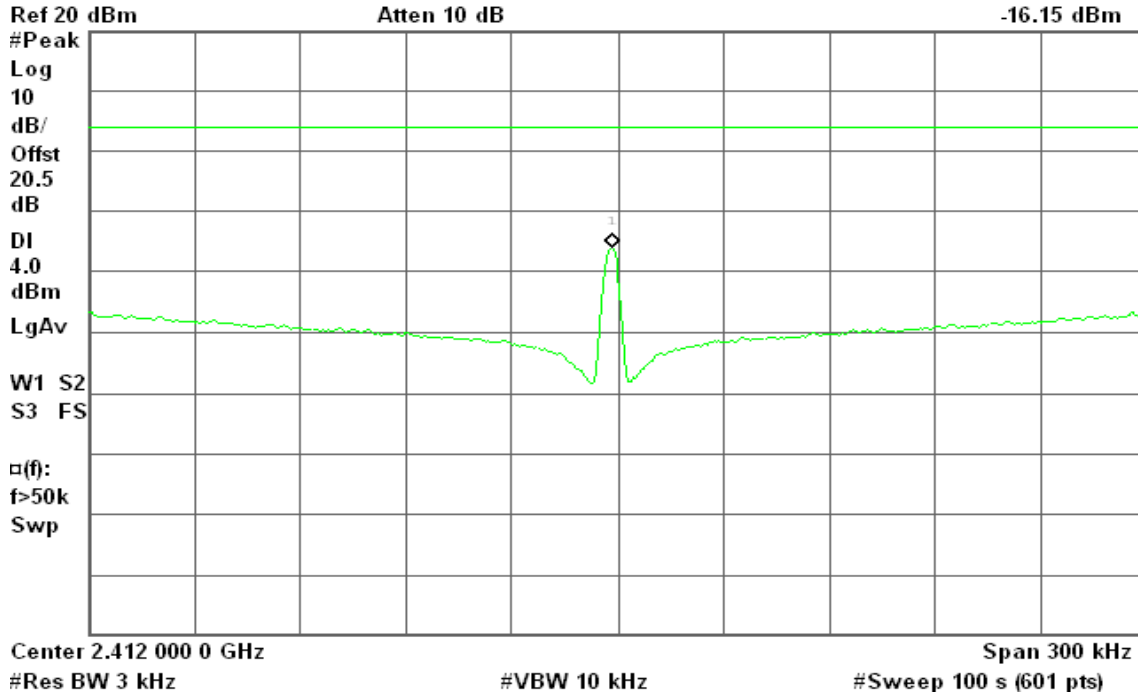
IEEE 802.11b mode

PPSD (CH Low)

Agilent 14:45:30 Nov 30, 2009

R T

Mkr1 2.411 998 0 GHz
-16.15 dBm

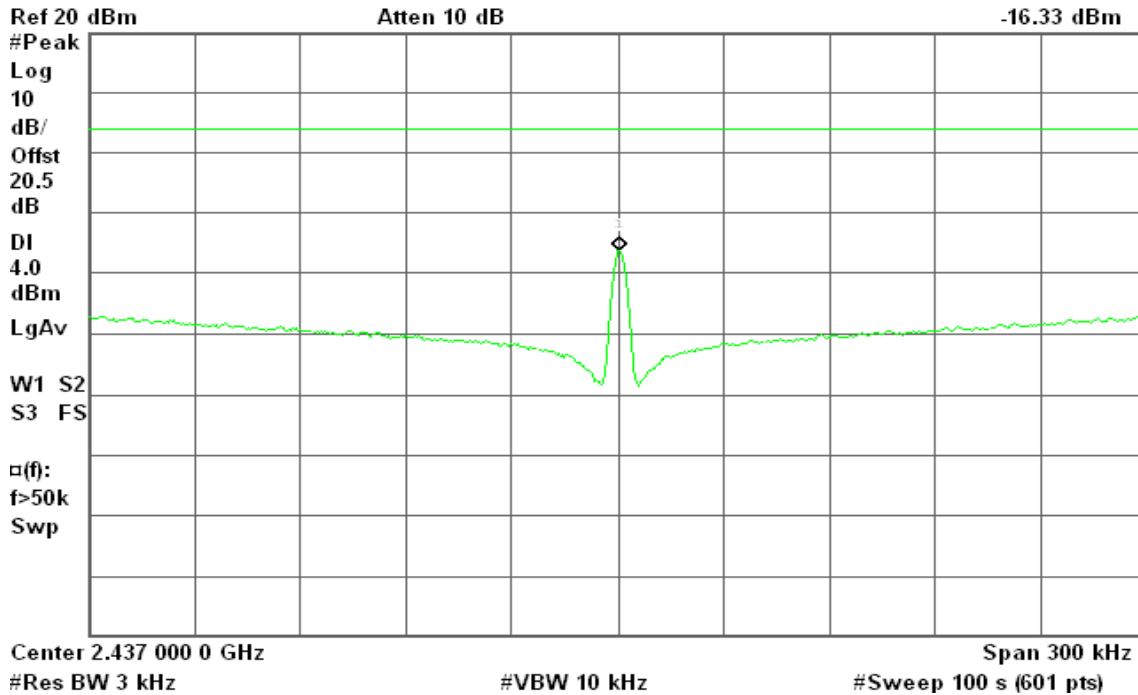


PPSD (CH Mid)

Agilent 14:55:17 Nov 30, 2009

R T

Mkr1 2.437 000 5 GHz
-16.33 dBm



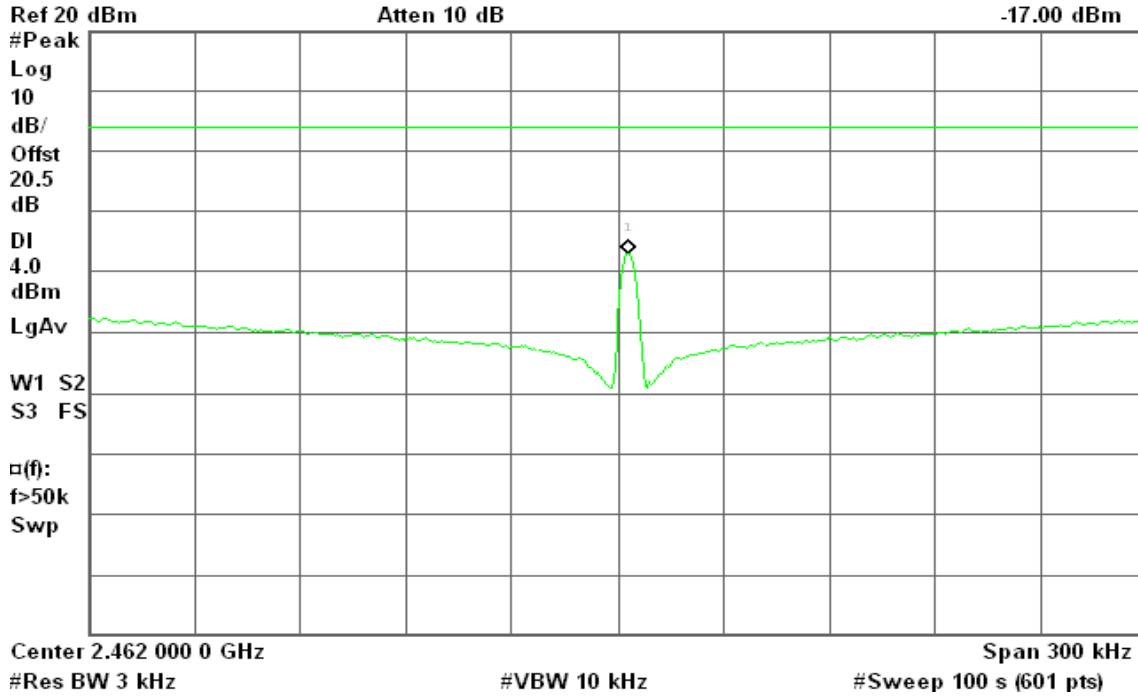


PPSD (CH High)

Agilent 15:00:42 Nov 30, 2009

R T

Mkr1 2.462 003 0 GHz
-17.00 dBm



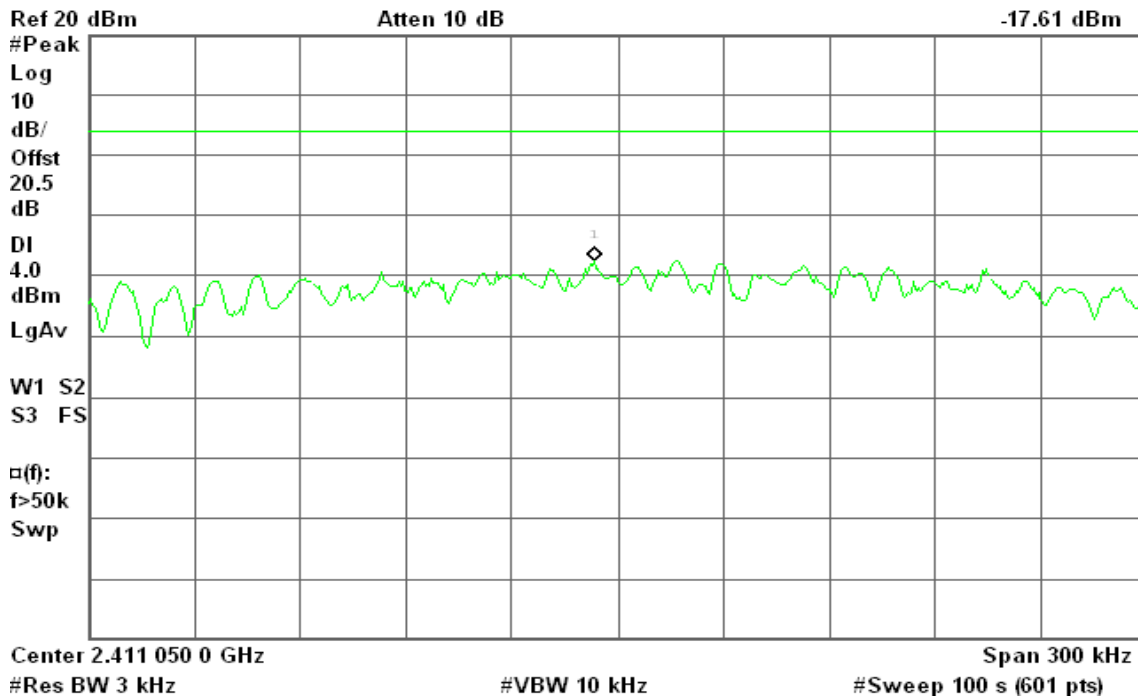
IEEE 802.11g mode

PPSD (CH Low)

Agilent 15:06:46 Nov 30, 2009

R T

Mkr1 2.411 043 0 GHz
-17.61 dBm



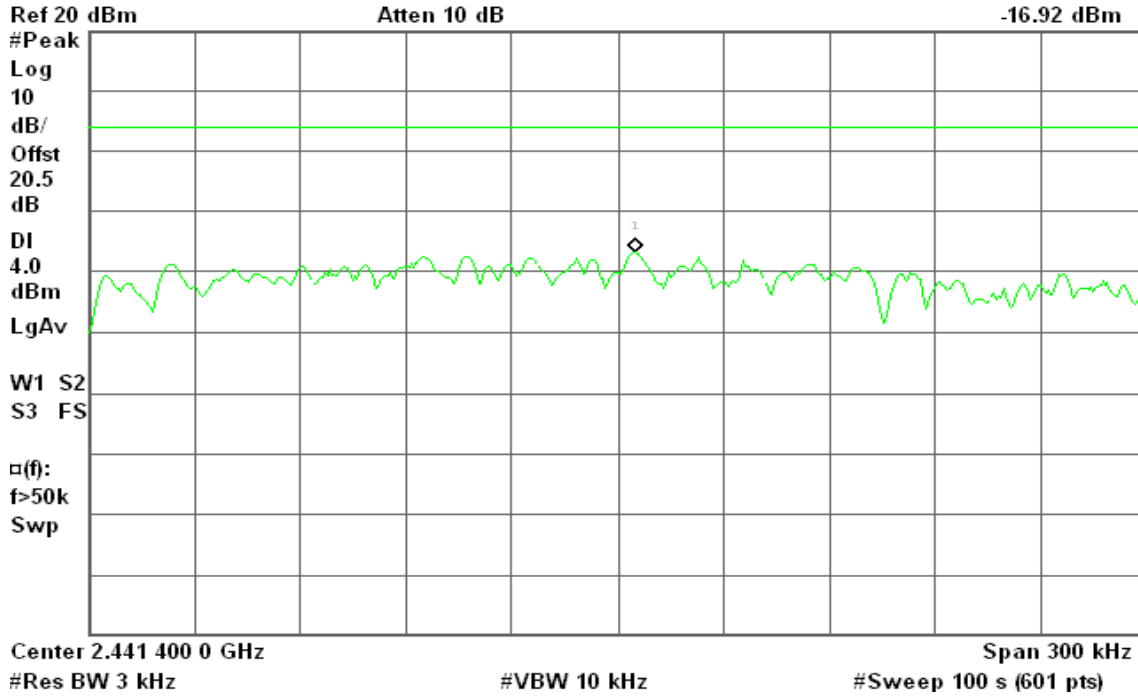


PPSD (CH Mid)

Agilent 15:13:37 Nov 30, 2009

R T

Mkr1 2.441 405 0 GHz
-16.92 dBm

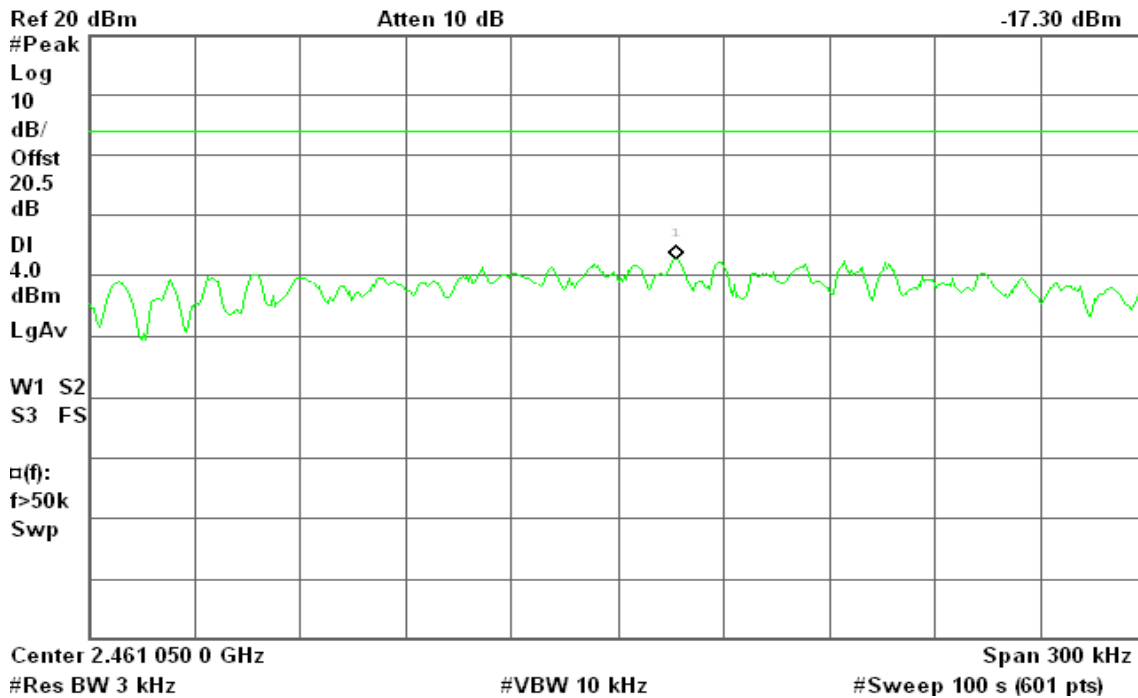


PPSD (CH High)

Agilent 15:21:58 Nov 30, 2009

R T

Mkr1 2.461 066 6 GHz
-17.30 dBm





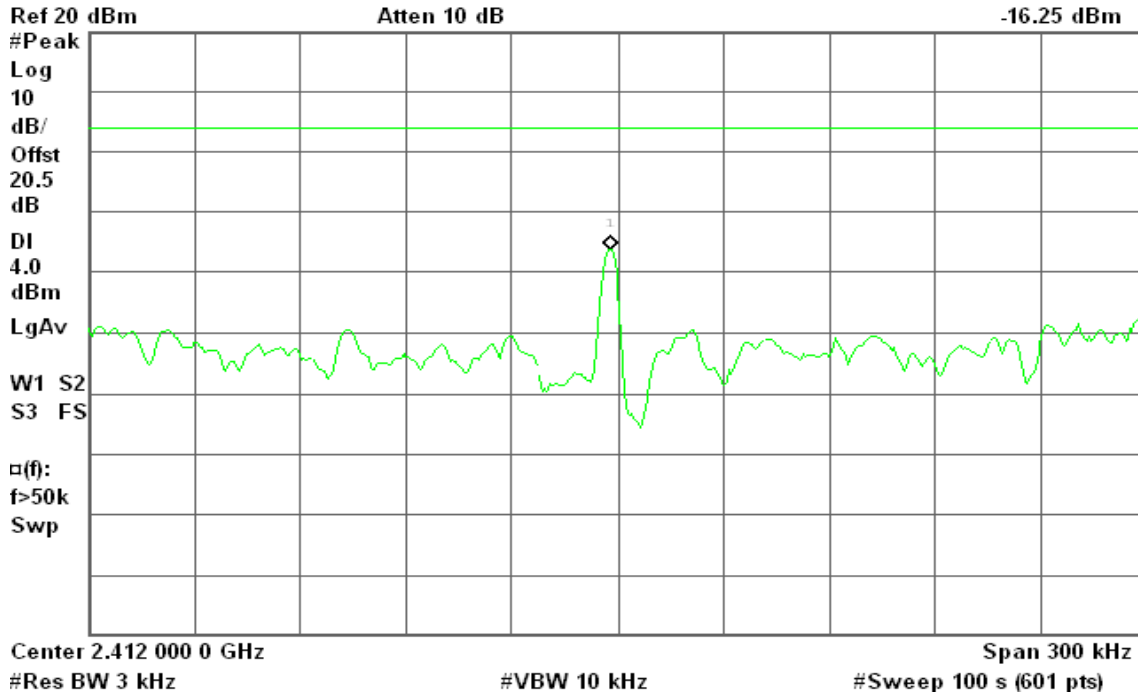
draft 802.11n Standard-20 MHz Channel mode

PPSD (CH Low)

Agilent 15:28:09 Nov 30, 2009

R T

Mkr1 2.411 997 5 GHz
-16.25 dBm

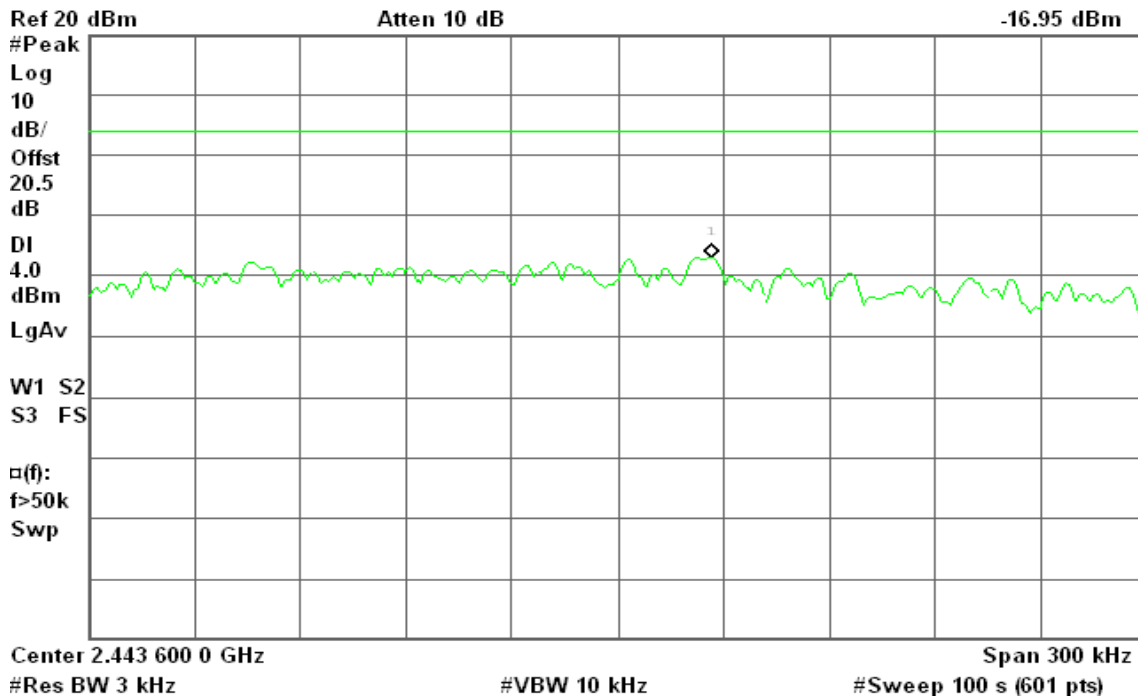


PPSD (CH Mid)

Agilent 15:33:20 Nov 30, 2009

R T

Mkr1 2.443 626 6 GHz
-16.95 dBm



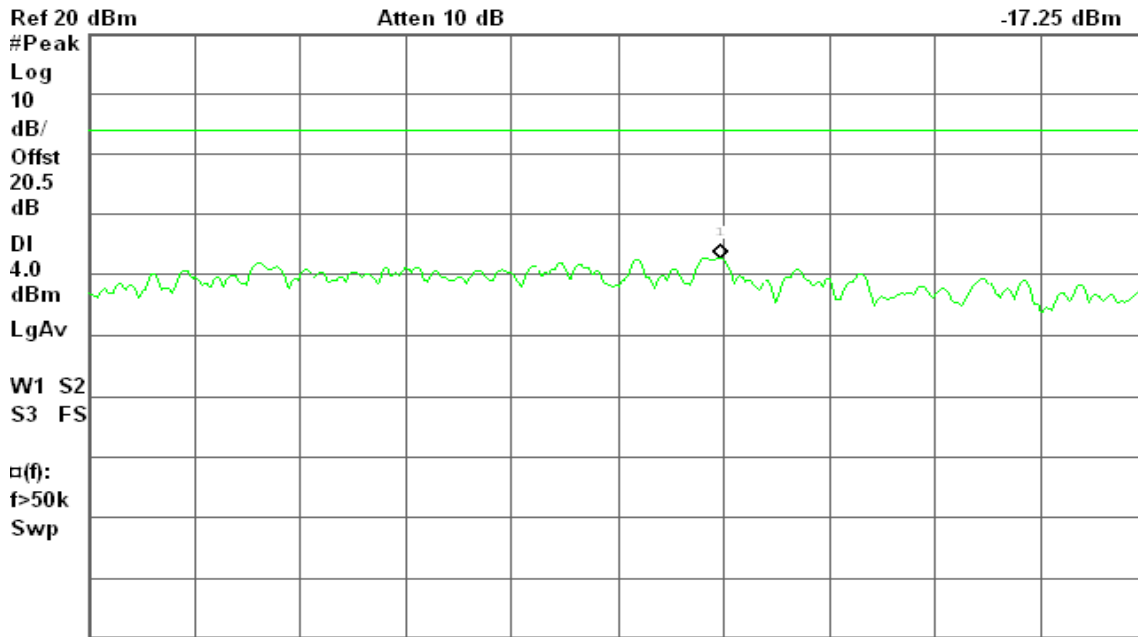


PPSD (CH High)

Agilent 15:39:41 Nov 30, 2009

R T

Mkr1 2.468 629 1 GHz
-17.25 dBm



Center 2.468 600 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

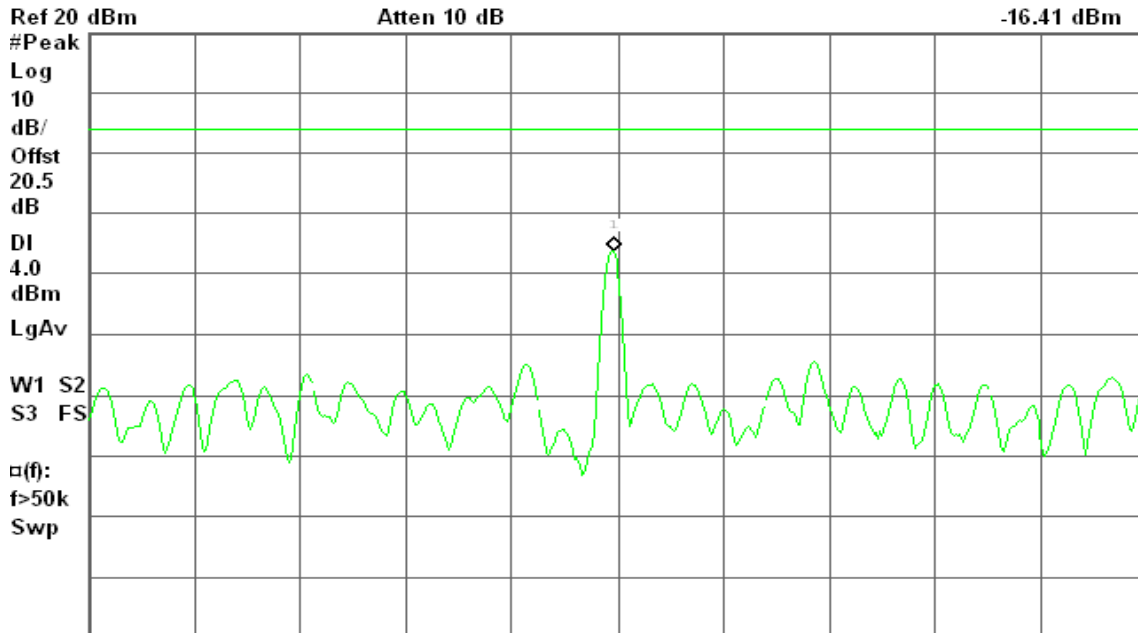
draft 802.11n Wide-40 MHz Channel mode

PPSD (CH Low)

Agilent 15:52:33 Nov 30, 2009

R T

Mkr1 2.421 998 5 GHz
-16.41 dBm



Center 2.422 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

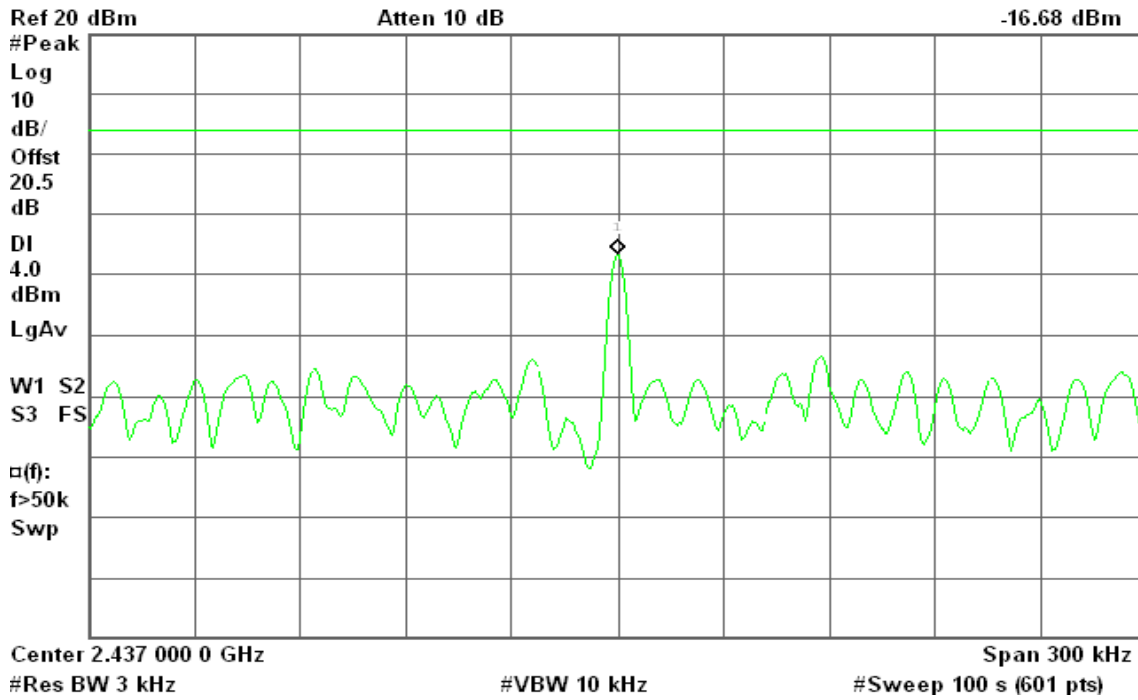


PPSD (CH Mid)

Agilent 15:57:24 Nov 30, 2009

R T

Mkr1 2.437 000 0 GHz
-16.68 dBm

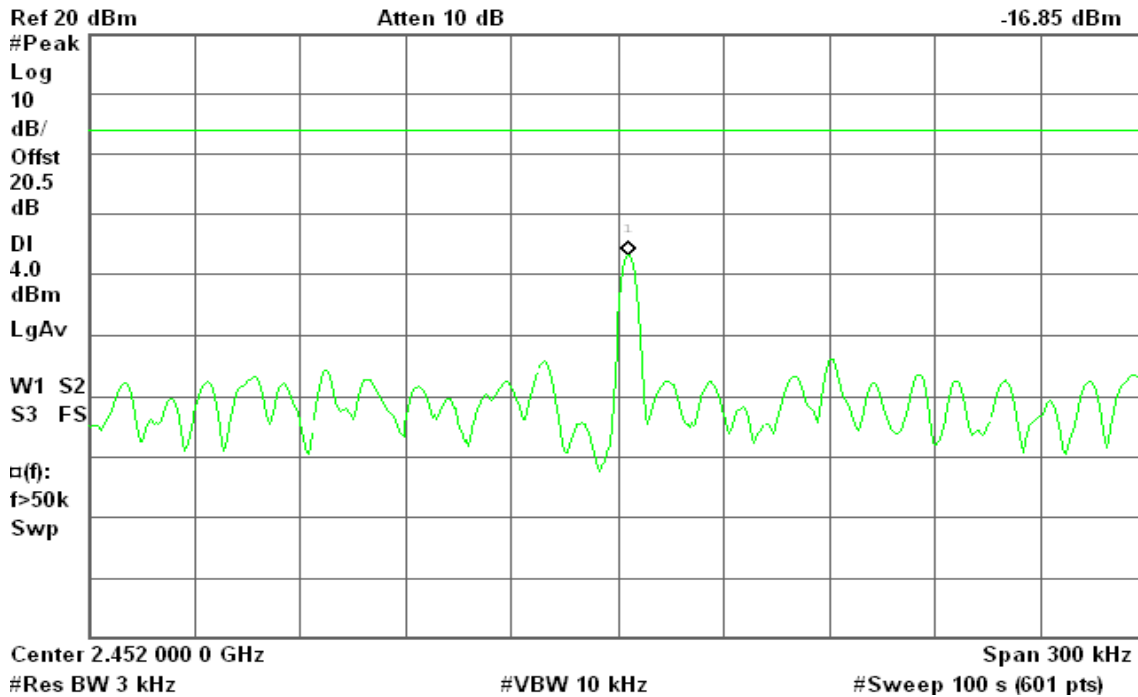


PPSD (CH High)

Agilent 16:12:02 Nov 30, 2009

R T

Mkr1 2.452 003 0 GHz
-16.85 dBm





For Chip Antenna

IEEE 802.11b mode

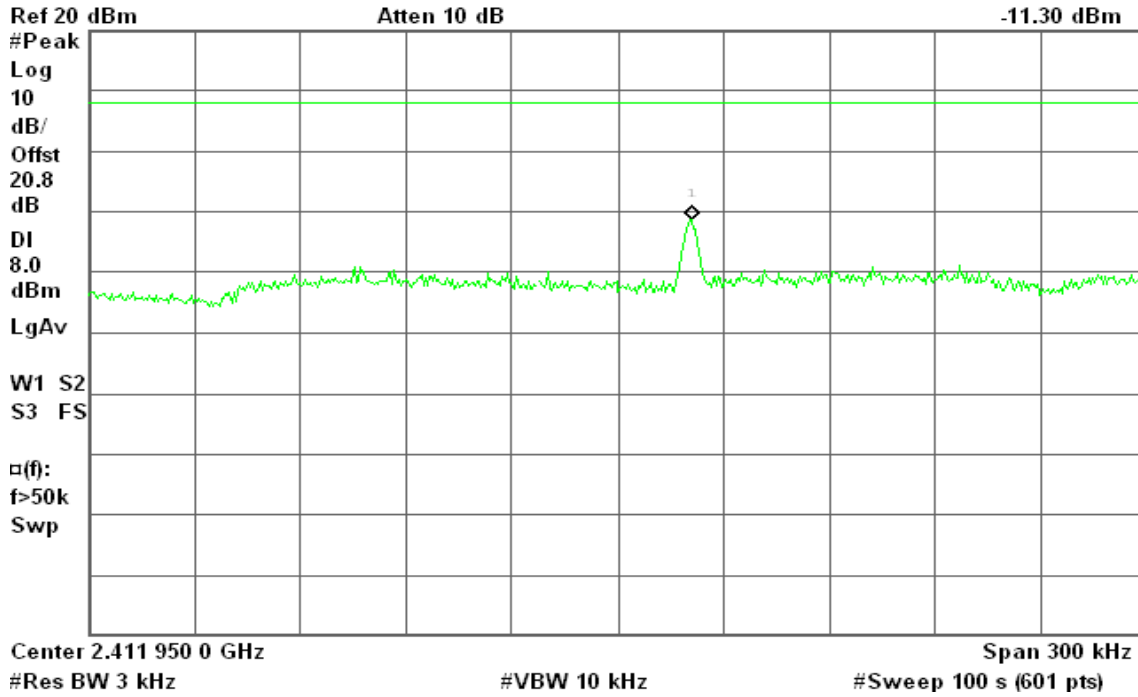
PPSD (CH Low)

Agilent 20:49:28 Nov 20, 2009

R T

Mkr1 2.411 971 1 GHz

-11.30 dBm



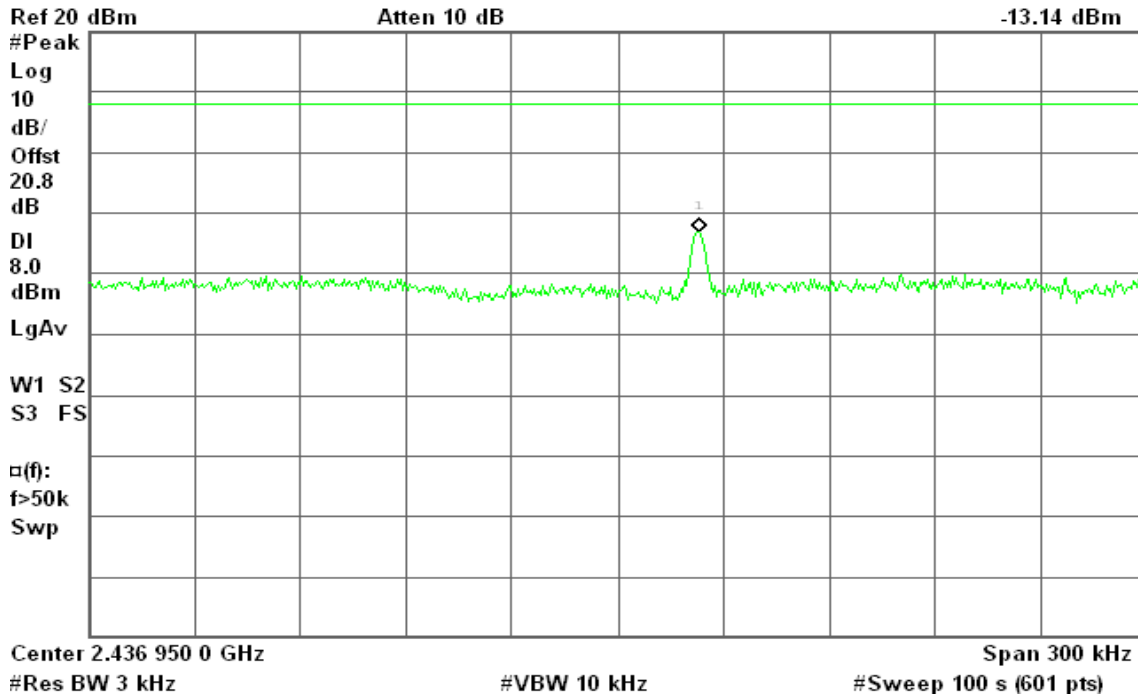
PPSD (CH Mid)

Agilent 21:05:43 Nov 20, 2009

R T

Mkr1 2.436 973 1 GHz

-13.14 dBm



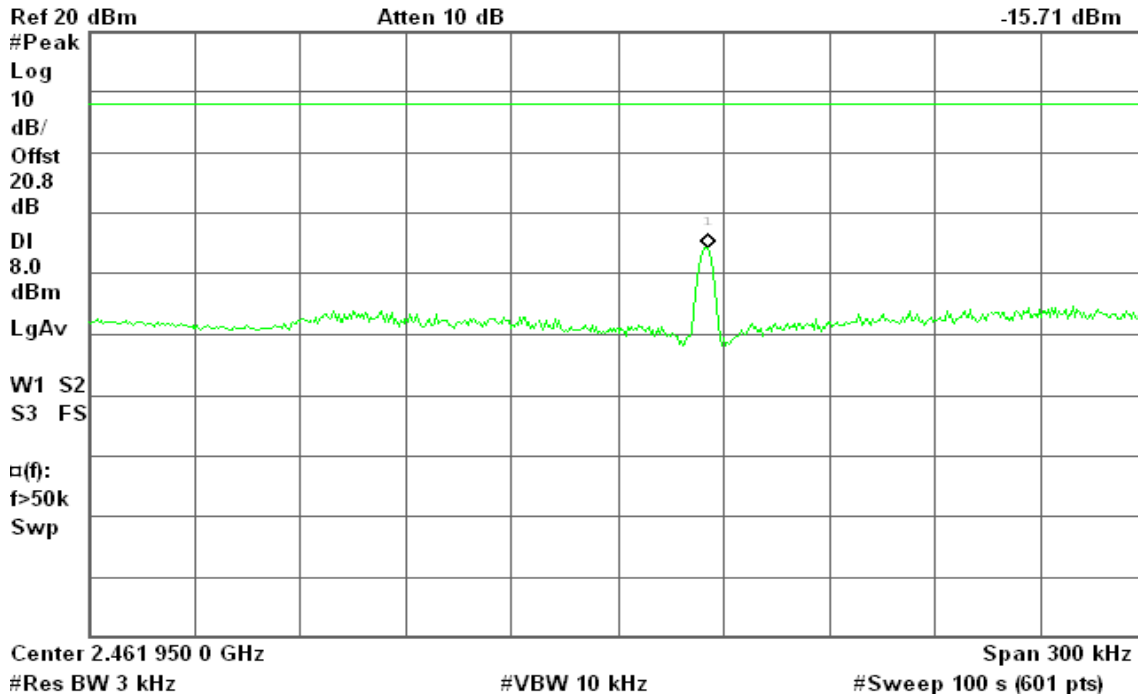


PPSD (CH High)

Agilent 21:12:00 Nov 20, 2009

R T

Mkr1 2.461 975 6 GHz
-15.71 dBm



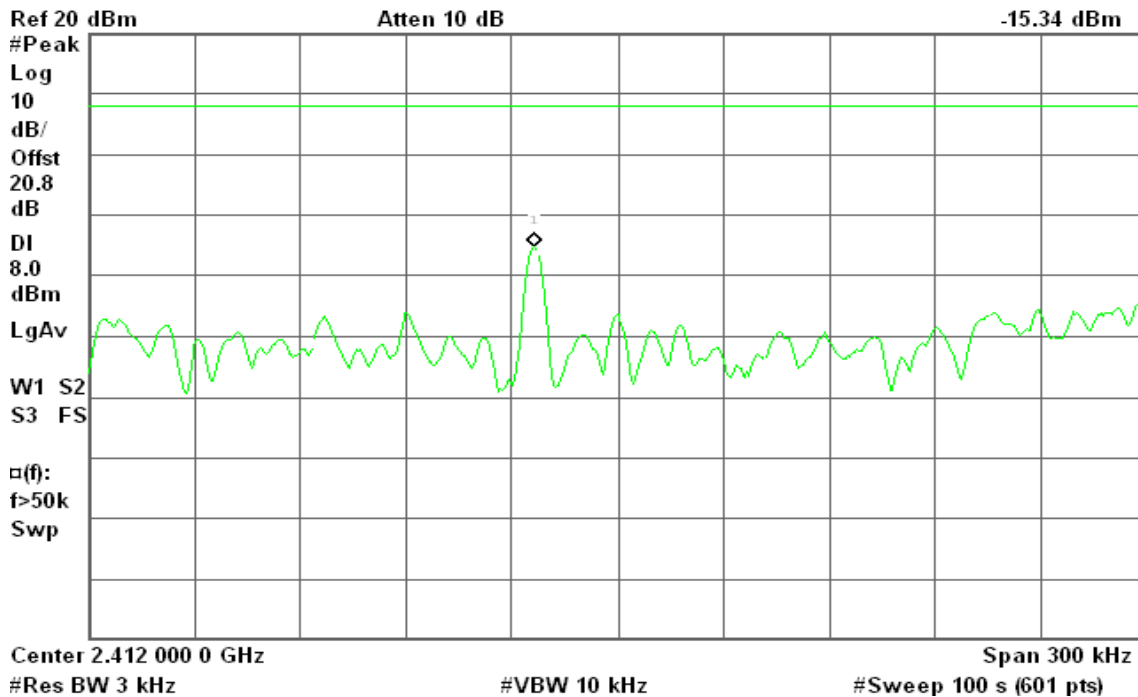
IEEE 802.11g mode

PPSD (CH Low)

Agilent 21:47:00 Nov 20, 2009

R L

Mkr1 2.411 976 4 GHz
-15.34 dBm



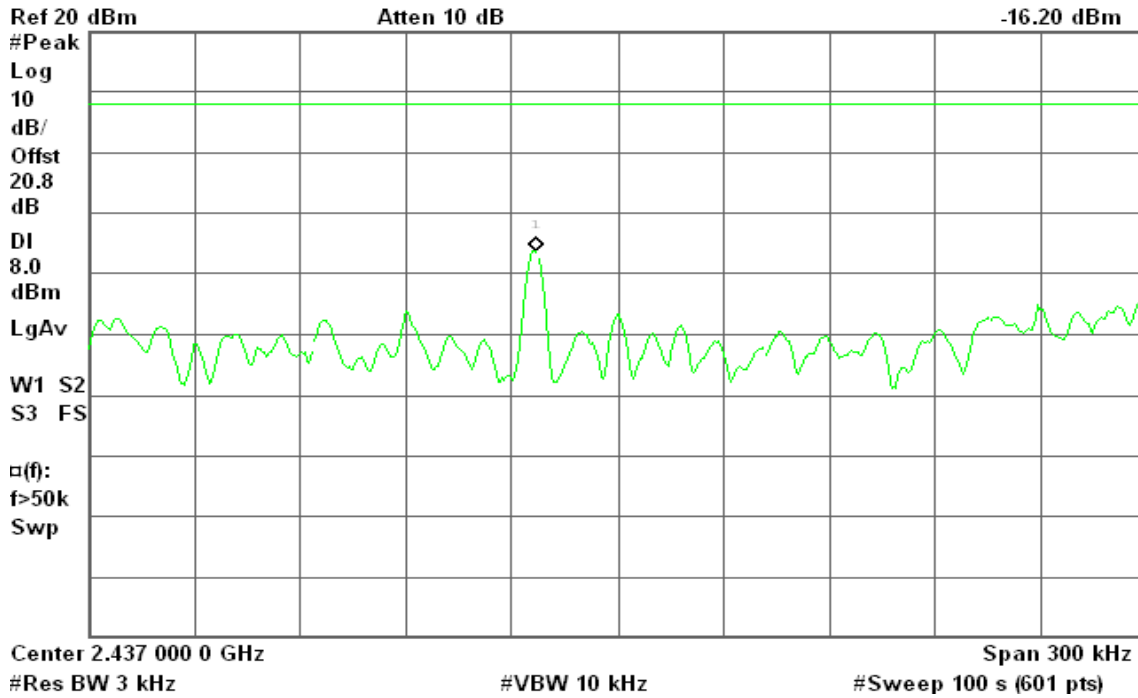


PPSD (CH Mid)

Agilent 21:41:08 Nov 20, 2009

R T

Mkr1 2.436 976 9 GHz
-16.20 dBm

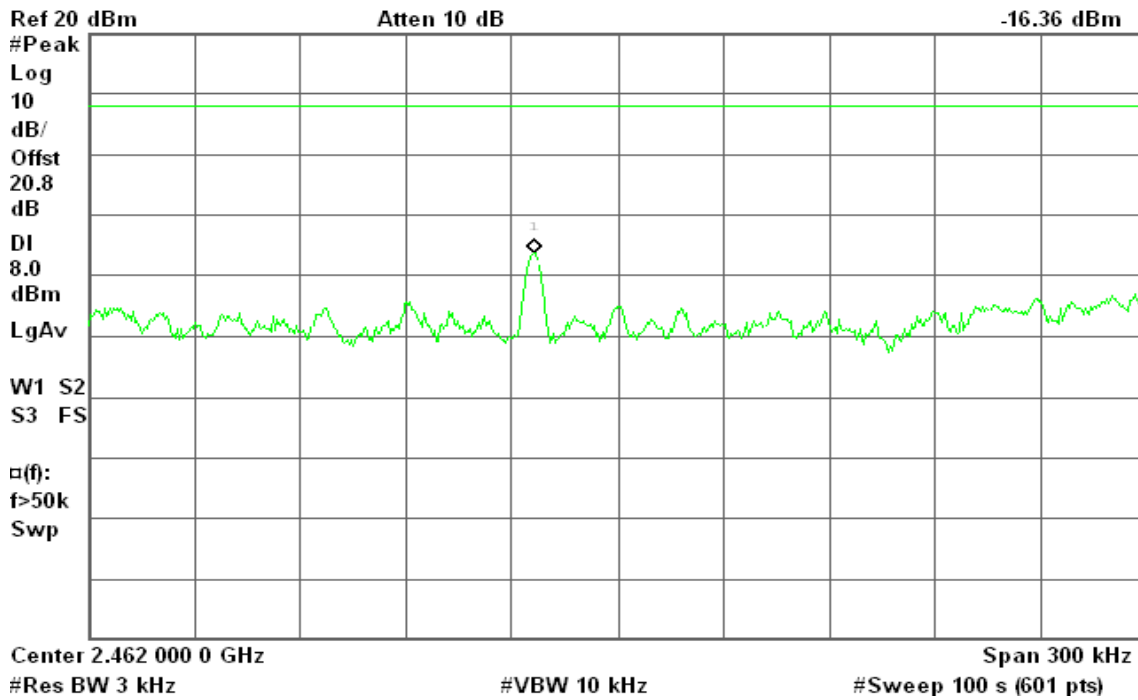


PPSD (CH High)

Agilent 21:34:13 Nov 20, 2009

R T

Mkr1 2.461 976 4 GHz
-16.36 dBm





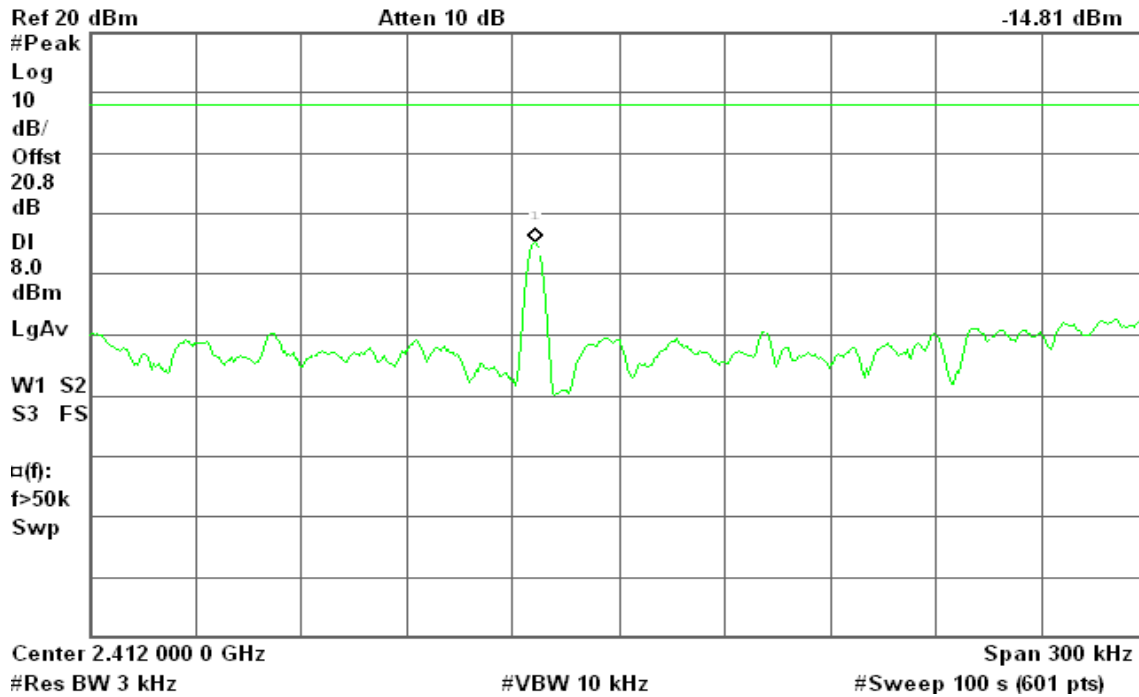
draft 802.11n Standard-20 MHz Channel mode

PPSD (CH Low)

Agilent 21:55:01 Nov 20, 2009

R T

Mkr1 2.411 976 4 GHz
-14.81 dBm

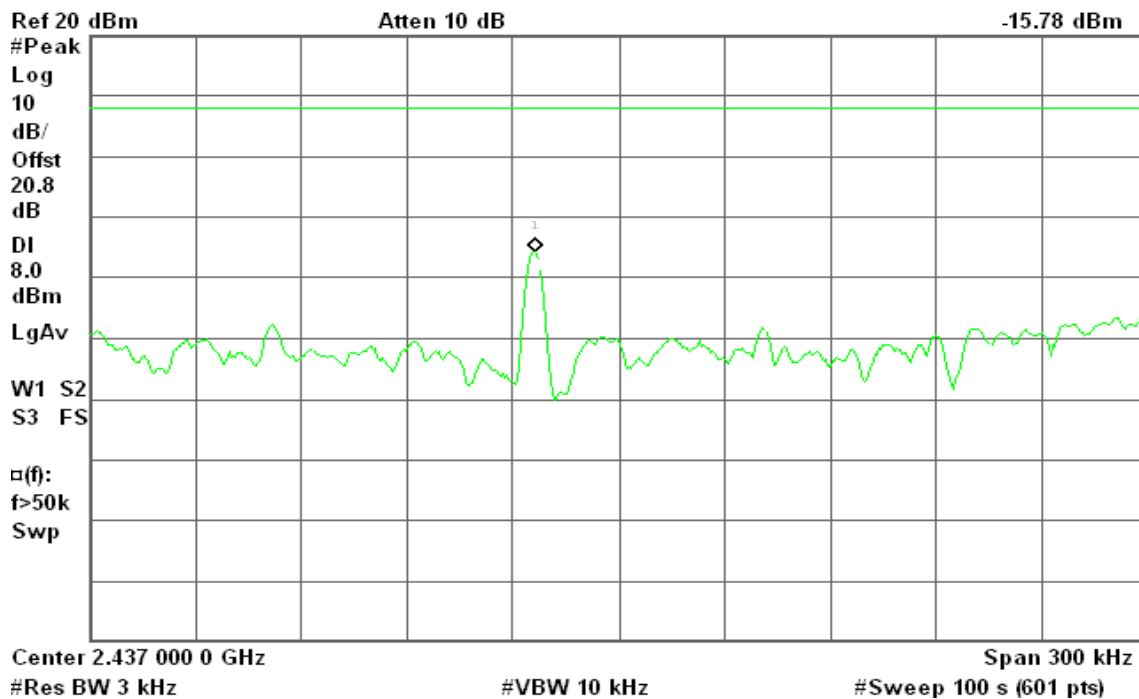


PPSD (CH Mid)

Agilent 22:00:22 Nov 20, 2009

R T

Mkr1 2.436 976 4 GHz
-15.78 dBm



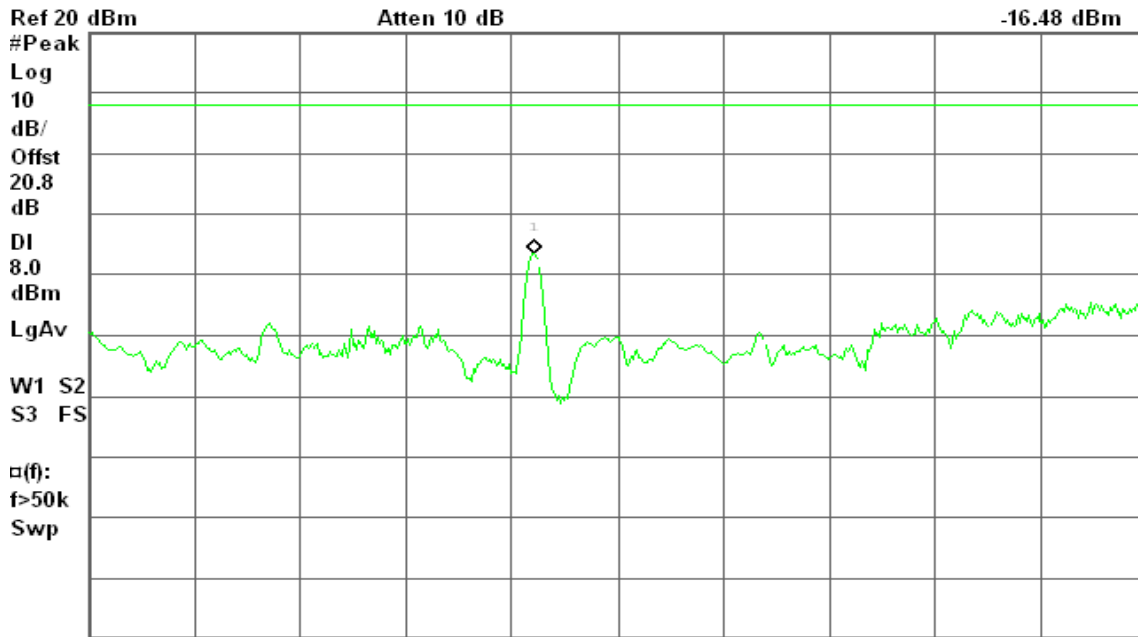


PPSD (CH High)

Agilent 22:06:18 Nov 20, 2009

R T

Mkr1 2.461 976 4 GHz
-16.48 dBm



Center 2.462 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

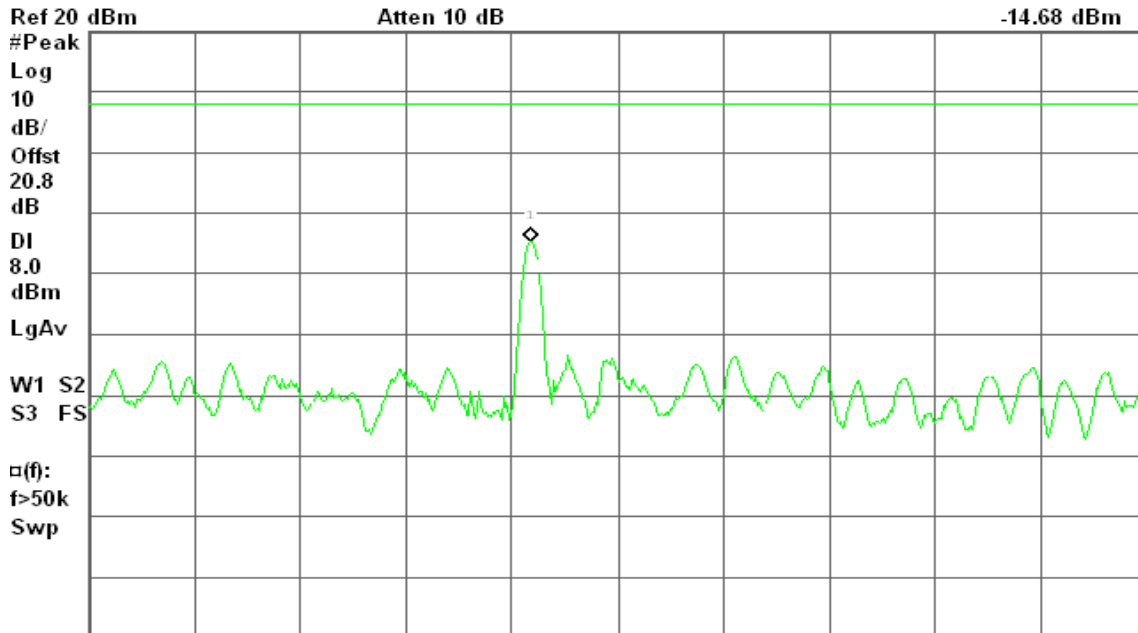
draft 802.11n Wide-40 MHz Channel mode

PPSD (CH Low)

Agilent 22:25:28 Nov 20, 2009

R T

Mkr1 2.421 975 4 GHz
-14.68 dBm



Center 2.422 000 0 GHz Span 300 kHz
#Res BW 3 kHz #VBW 10 kHz #Sweep 100 s (601 pts)

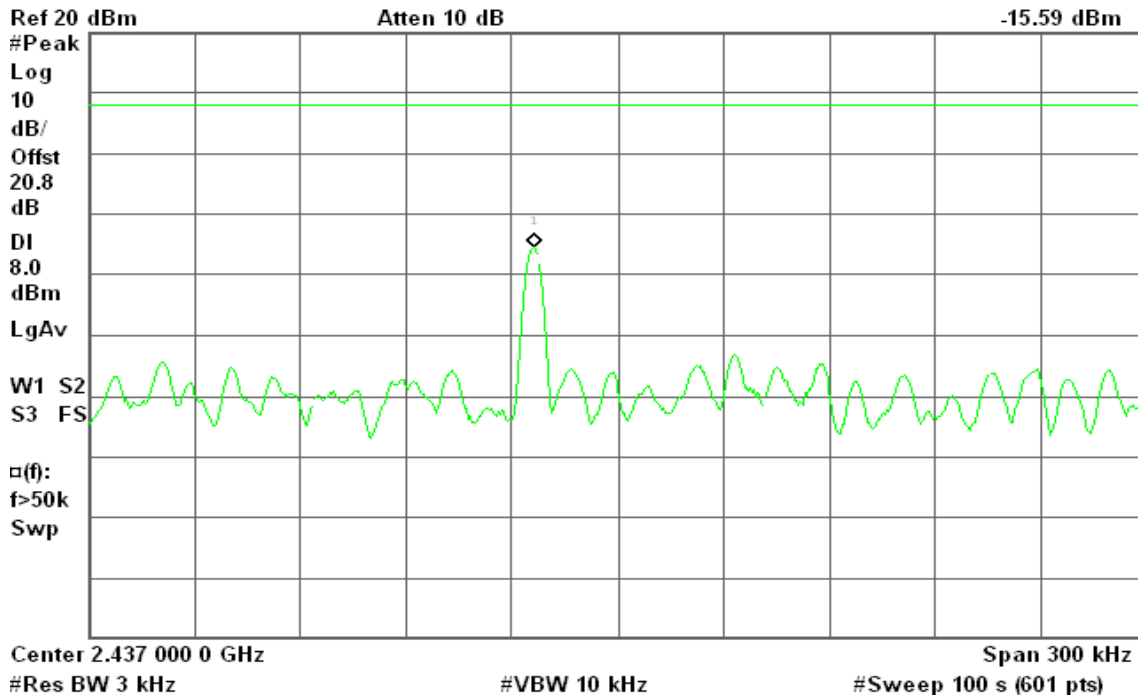


PPSD (CH Mid)

Agilent 22:19:23 Nov 20, 2009

R T

Mkr1 2.436 976 4 GHz
-15.59 dBm



PPSD (CH High)

Agilent 22:13:56 Nov 20, 2009

R T

Mkr1 2.451 977 9 GHz
-16.33 dBm

