

# FCC Part 15C Measurement and Test Report

For

**Shanghai DareGlobal Technologies Co., Ltd.**

**22F, Info Tech Building, No.1555, Kongjiang Road, Shanghai**

**FCC ID: RS3A4001N**

|                                      |                                  |
|--------------------------------------|----------------------------------|
| <b>FCC Rules:</b>                    | <u>FCC Part 15C</u>              |
| <b>Product Description:</b>          | <u>ADSL2+Router WiFi 11n 2x2</u> |
| <b>Tested Model:</b>                 | <u>P.DG A4001N A-000-1A1-AE</u>  |
| <b>Report No.:</b>                   | <u>STR13048035I</u>              |
| <b>Tested Date:</b>                  | <u>2013-04-09 to 2013-04-28</u>  |
| <b>Issued Date:</b>                  | <u>2013-05-15</u>                |
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd

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## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: Shanghai DareGlobal Technologies Co., Ltd.  
Address of applicant: 22F, Info Tech Building, No.1555, Kongjiang Road,  
Shanghai  
Manufacturer: ADB Broadband S.p.A.  
Address of manufacturer: Viale Sarca 222, 20126 Milano (MI) - Italy

| General Description of EUT                                                                                                                                                                                                                                                                                   |                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Product Name:                                                                                                                                                                                                                                                                                                | ADSL2+Router WiFi 11n 2x2                                         |
| Trade Name:                                                                                                                                                                                                                                                                                                  | /                                                                 |
| Model No.:                                                                                                                                                                                                                                                                                                   | P.DG A4001N A-000-1A1-AE                                          |
| Adding Model(s):                                                                                                                                                                                                                                                                                             | P.DG A4000N A-000-1A1-AE                                          |
| Rated Voltage:                                                                                                                                                                                                                                                                                               | DC 12V                                                            |
| Power Adapter Model:                                                                                                                                                                                                                                                                                         | MSP-C1000IC12.0-12W-US<br>(Input: AC 100-240V, Output: DC 12V/1A) |
| <i>Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model P.DG A4001N A-000-1A1-AE, but the circuit and the electronic construction do not change, declared by the manufacturer.</i> |                                                                   |

| Technical Characteristics of EUT  |                                   |
|-----------------------------------|-----------------------------------|
| Support Standards:                | 802.11b/g/n                       |
| Frequency Range:                  | 2412-2462MHz, 2422-2452MHz        |
| RF Output Power:                  | 19.28 dBm (Conducted)             |
| Data Rate:                        | 1-11Mbps, 6-54Mbps, up to 150Mbps |
| Modulation:                       | CCK, BPSK, QPSK, 16QAM, 64QAM     |
| Quantity of Channels:             | 11/7                              |
| Channel Separation:               | 5MHz                              |
| Antenna Type:                     | Integral Antenna                  |
| Antenna Gain:                     | 2 dBi                             |
| Lowest Internal Frequency of EUT: | 20MHz                             |
| Device Category:                  | Mobile Device                     |

## 1.2 Test Standards

The following report is prepared on behalf of the Shanghai DareGlobal Technologies Co., Ltd. in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. The public notice KDB 558074 for digital transmission systems shall be performed also.

## 1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

## 1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

| Test Mode List |              |                           |
|----------------|--------------|---------------------------|
| Test Mode      | Description  | Remark                    |
| TM1            | 802.11b      | 2412MHz, 2437MHz, 2462MHz |
| TM2            | 802.11g      | 2412MHz, 2437MHz, 2462MHz |
| TM3            | 802.11n-HT20 | 2412MHz, 2437MHz, 2462MHz |
| TM4            | 802.11n-HT40 | 2422MHz, 2437MHz, 2452MHz |

| Special Cable List and Details |            |                     |                        |
|--------------------------------|------------|---------------------|------------------------|
| Cable Description              | Length (m) | Shielded/Unshielded | With / Without Ferrite |
| Power Cable                    | 1.5        | Unshielded          | Without Ferrite        |

| Auxiliary Equipment List and Details |              |       |               |
|--------------------------------------|--------------|-------|---------------|
| Description                          | Manufacturer | Model | Serial Number |
| Notebook                             | SAMSUNG      | R20   | /             |

## 2. SUMMARY OF TEST RESULTS

| FCC Rules                   | Description of Test Item          | Result    |
|-----------------------------|-----------------------------------|-----------|
| § 15.203; § 15.247(b)(4)(i) | Antenna Requirement               | Compliant |
| § 15.207(a)                 | Conducted Emission                | Compliant |
| § 15.247(e)                 | Power Spectral Density            | Compliant |
| § 15.247(a)(2)              | 6 dB Bandwidth                    | Compliant |
| § 15.247(b)(3)              | RF Output Power                   | Compliant |
| § 15.209(a)(d)              | Radiated Emission                 | Compliant |
| § 15.247(d)                 | Band Edge (Out of Band Emissions) | Compliant |

N/A: not applicable

### **3. Antenna Requirement**

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#### **3.1 Standard Applicable**

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

#### **3.2 Evaluation Information**

This product has a integral antenna, fulfill the requirement of this section.

## 4. Power Spectral Density

### 4.1 Standard Applicable

According to 15.247(a)(1)(iii), 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.

### 4.2 Test Equipment List and Details

| Description       | Manufacturer | Model       | Serial Number | Cal. Date  | Due. Date  |
|-------------------|--------------|-------------|---------------|------------|------------|
| Spectrum Analyzer | Agilent      | E4402B      | US41192821    | 2013-03-28 | 2014-03-27 |
| Attenuator        | ATTEN        | ATS100-4-20 | /             | 2013-03-28 | 2014-03-27 |

**Statement of Traceability:** All calibrations have been performed per the NVLAP requirements traceable to the NIST.

### 4.3 Test Procedure

According to the KDB 558074, the test method of power spectral density as below:

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set analyzer center frequency to DTS channel center frequency.
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW  $\geq 3$  kHz.
5. Set the VBW  $\geq 3 \times$  RBW.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 4.4 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 20° C     |
| Relative Humidity: | 54%       |
| ATM Pressure:      | 1011 mbar |

#### 4.5 Summary of Test Results/Plots

| Test Mode | Test Channel MHz | Chain 0 PSD dBm/3kHz | Chain 1 PSD dBm/3kHz | Chain 0 + Chain 1 dBm/3kHz | Limit dBm/3kHz |
|-----------|------------------|----------------------|----------------------|----------------------------|----------------|
| 802.11b   | 2412             | -6.265               | /                    | /                          | 8              |
|           | 2437             | -6.195               | /                    | /                          | 8              |
|           | 2462             | -5.857               | /                    | /                          | 8              |
| 802.11g   | 2412             | -6.633               | -5.966               | /                          | 8              |
|           | 2437             | -5.391               | -6.514               | /                          | 8              |
|           | 2462             | -5.326               | -6.648               | /                          | 8              |

| Test Mode         | Test Channel MHz | Chain 0 PSD dBm/3kHz | Chain 1 PSD dBm/3kHz | Chain 0 + Chain 1 dBm/3kHz | Limit dBm/3kHz |
|-------------------|------------------|----------------------|----------------------|----------------------------|----------------|
| 802.11n HT20 MCS0 | 2412             | -8.279               | -8.374               | /                          | 8              |
|                   | 2437             | -7.068               | -7.361               | /                          | 8              |
|                   | 2462             | -7.819               | -7.983               | /                          | 8              |
| 802.11n HT40 MCS0 | 2422             | -10.890              | -11.780              | /                          | 8              |
|                   | 2437             | -8.394               | -10.090              | /                          | 8              |
|                   | 2452             | -11.060              | -11.320              | /                          | 8              |

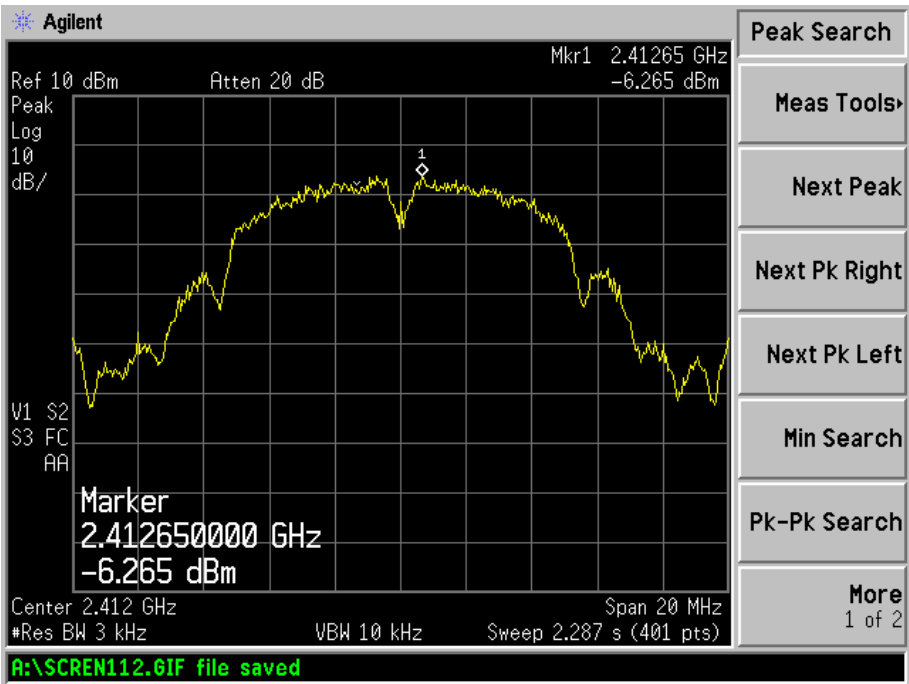
| Test Mode          | Test Channel MHz | Chain 0 PSD dBm/3kHz | Chain 1 PSD dBm/3kHz | Chain 0 + Chain 1 dBm/3kHz | Limit dBm/3kHz |
|--------------------|------------------|----------------------|----------------------|----------------------------|----------------|
| 802.11n HT20 MCS15 | 2412             | -9.020               | -10.010              | -6.477                     | 8              |
|                    | 2437             | -7.299               | -8.105               | -4.673                     | 8              |
|                    | 2462             | -7.820               | -9.025               | -5.371                     | 8              |
| 802.11n HT40 MCS15 | 2422             | -11.160              | -12.760              | -8.876                     | 8              |
|                    | 2437             | -10.100              | -11.960              | -7.921                     | 8              |
|                    | 2452             | -11.990              | -12.460              | -9.208                     | 8              |

*Note: The EUT shall be simultaneous transmission at the chain 0 and chain 1 for the MCS15 mode of 802.11n HT20 or HT40, only transmission at chain 0 for 802.11b; all other mode shall be transmission only single chain (chain 0 or chain 1).*

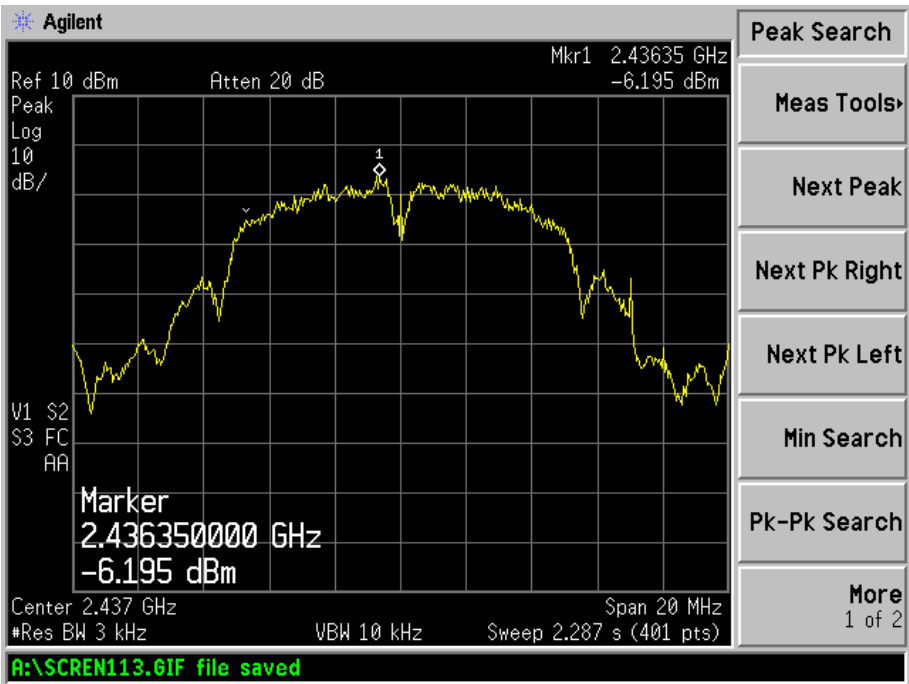
Please refer to the following test plots:

For chain 0

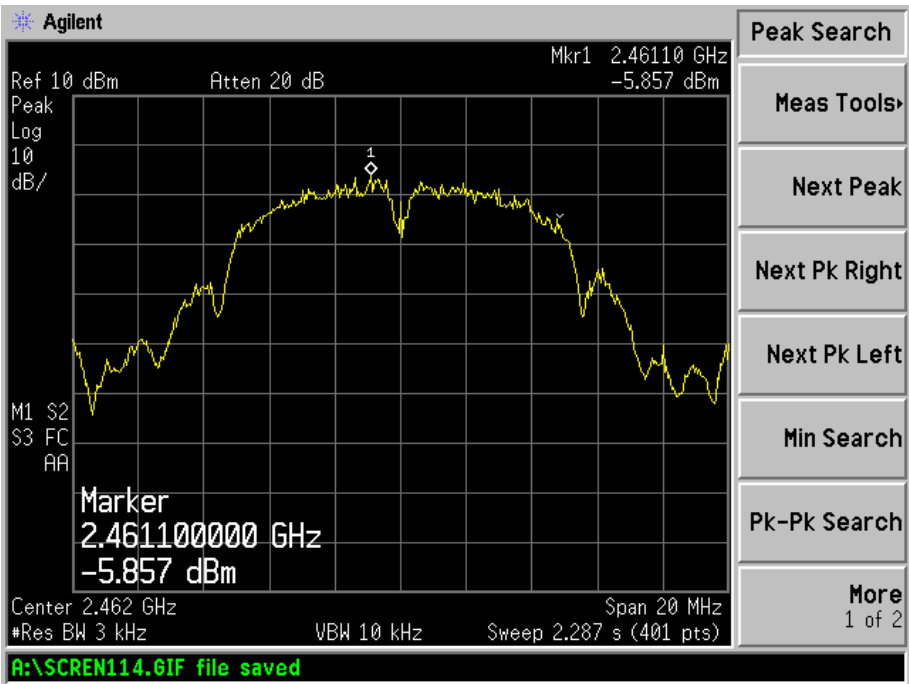
802.11b-Low Channel



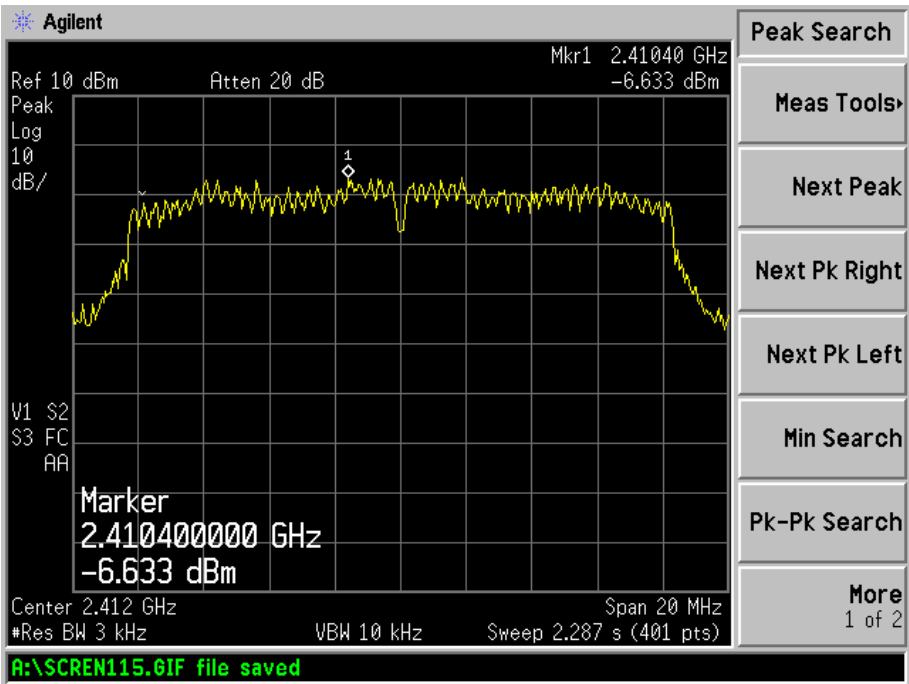
802.11b-Middle Channel



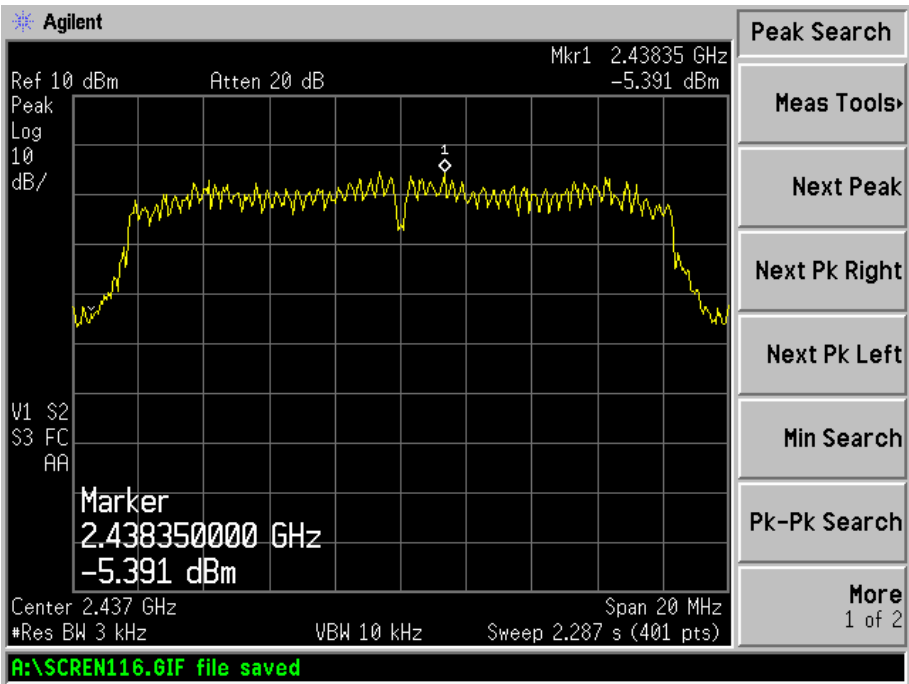
802.11b-High Channel



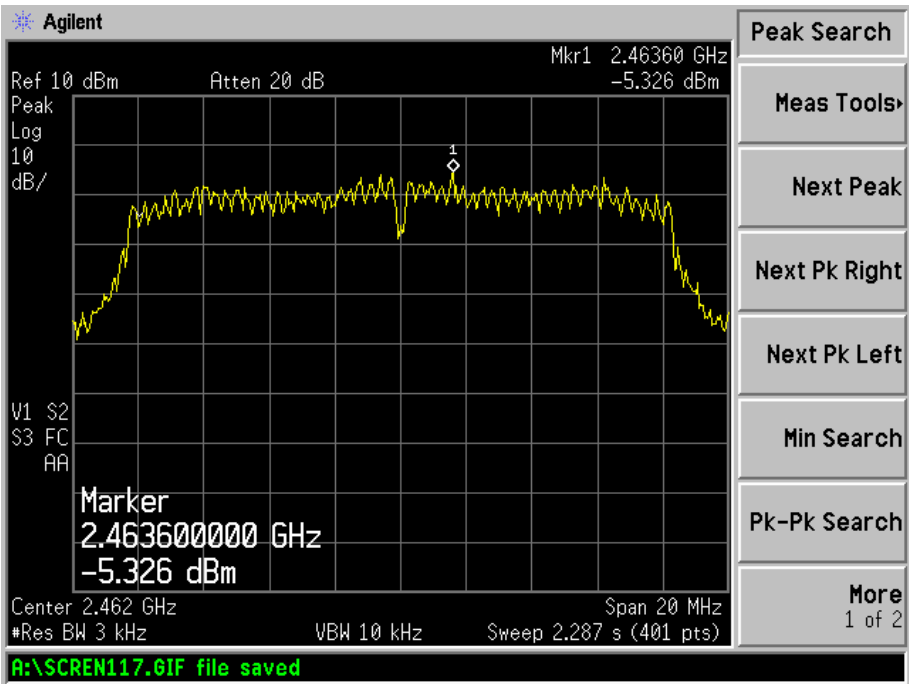
802.11g-Low Channel



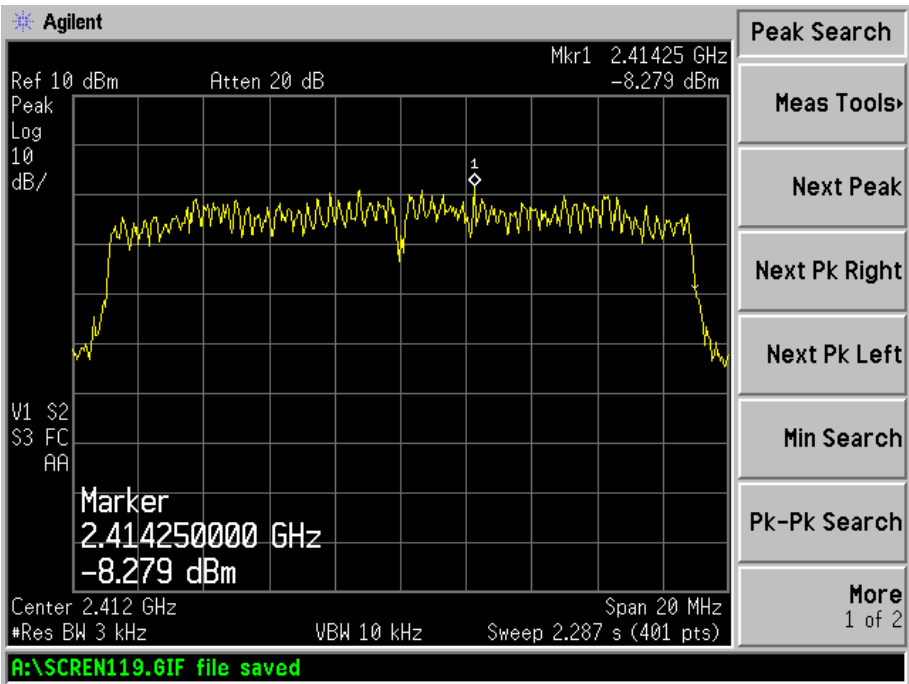
802.11g-Middle Channel



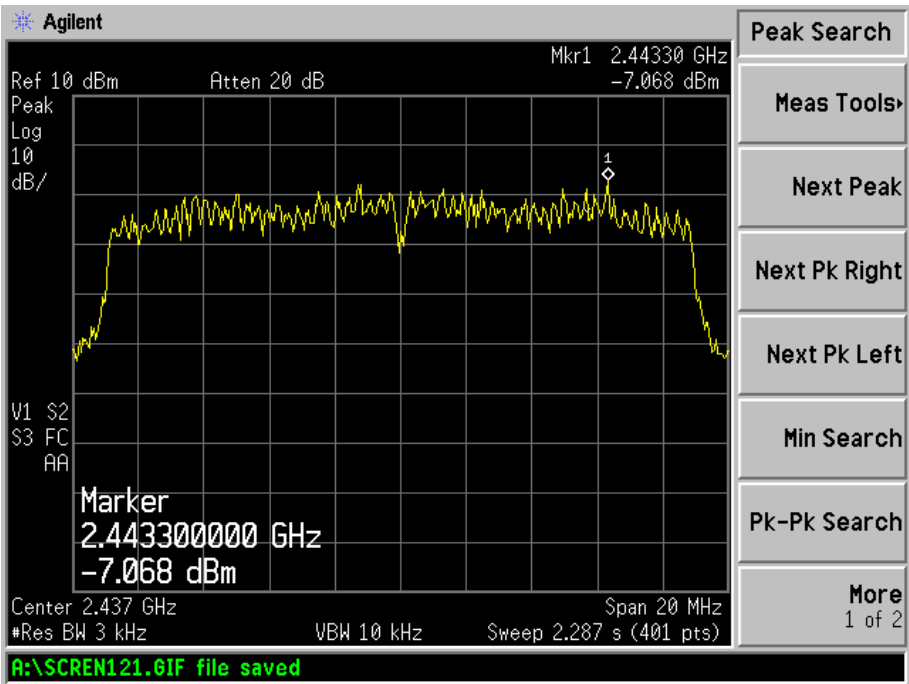
802.11g-High Channel



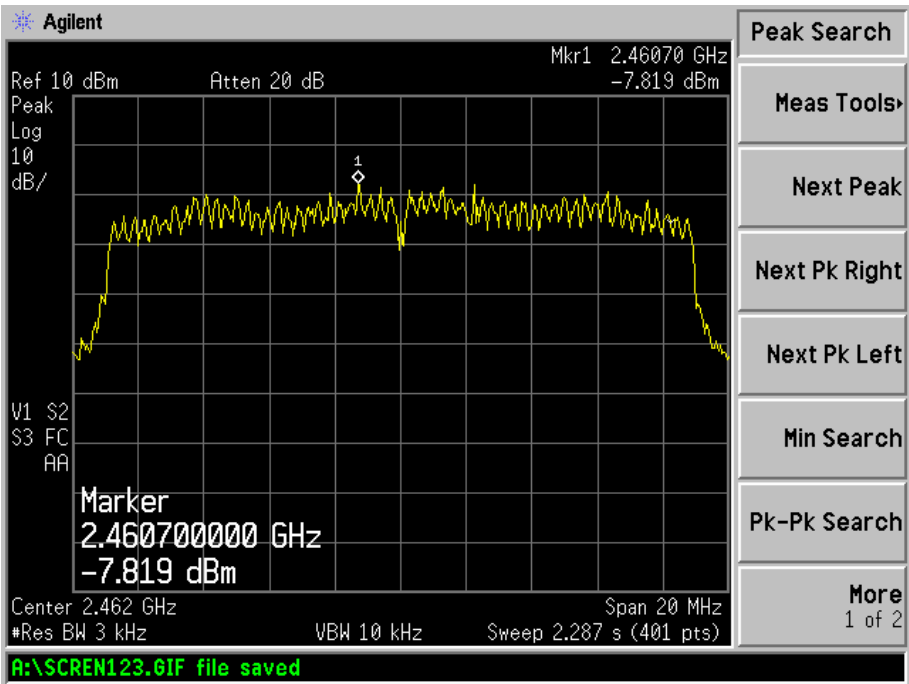
802.11n-HT20-MCS0-Low Channel



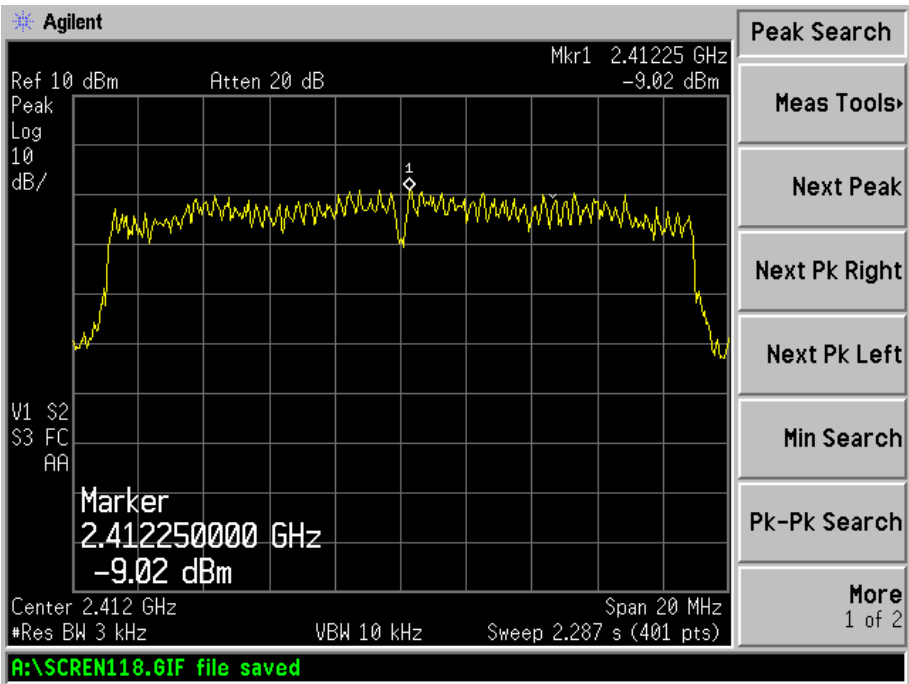
802.11n-HT20-MCS0-Middle Channel



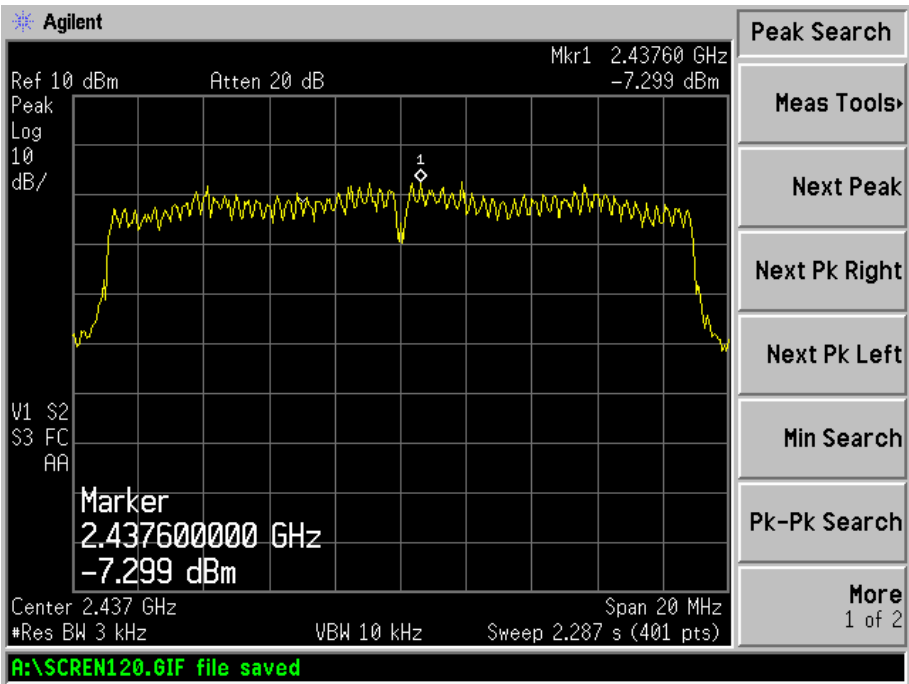
802.11n-HT20-MCS0-High Channel



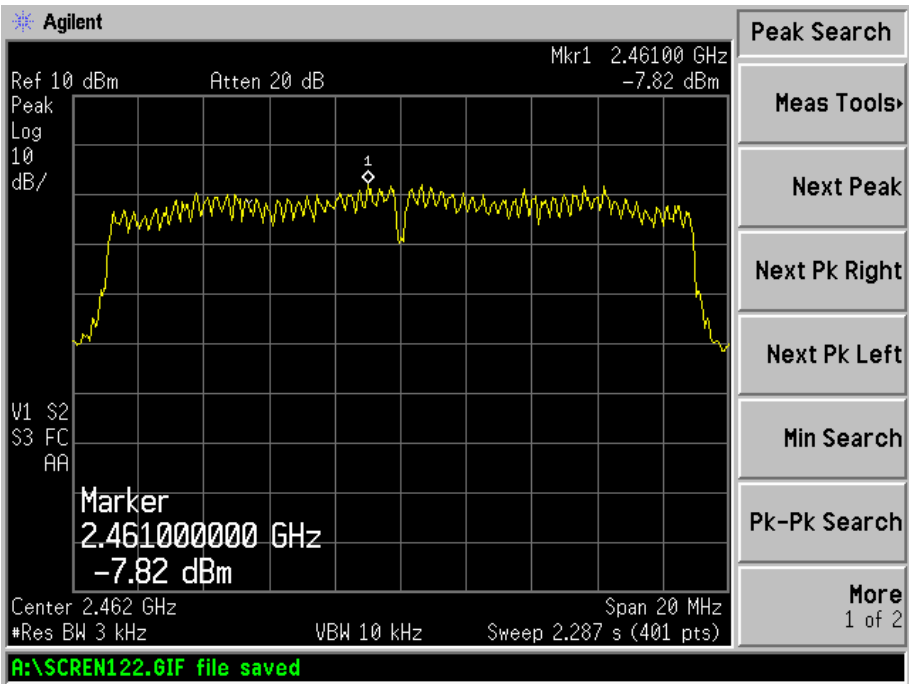
802.11n-HT20-MCS15-Low Channel



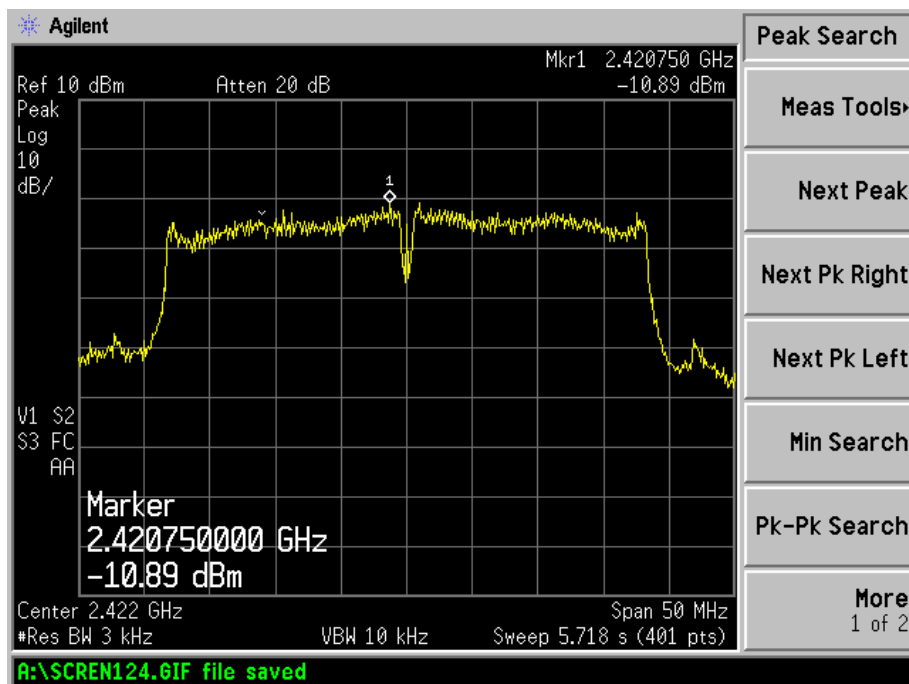
802.11n-HT20-MCS15-Middle Channel



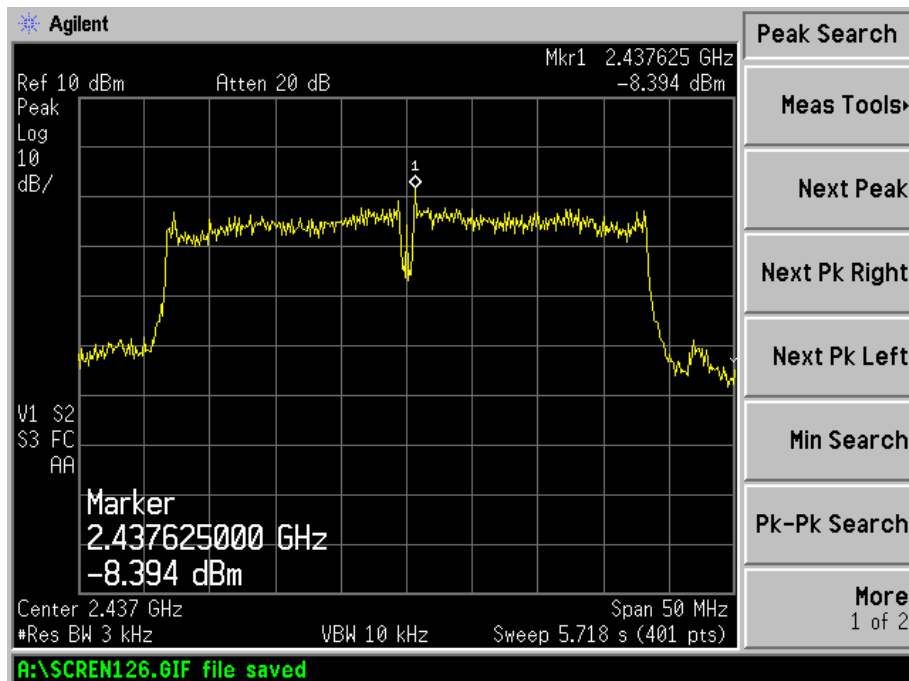
802.11n-HT20-MCS15-High Channel



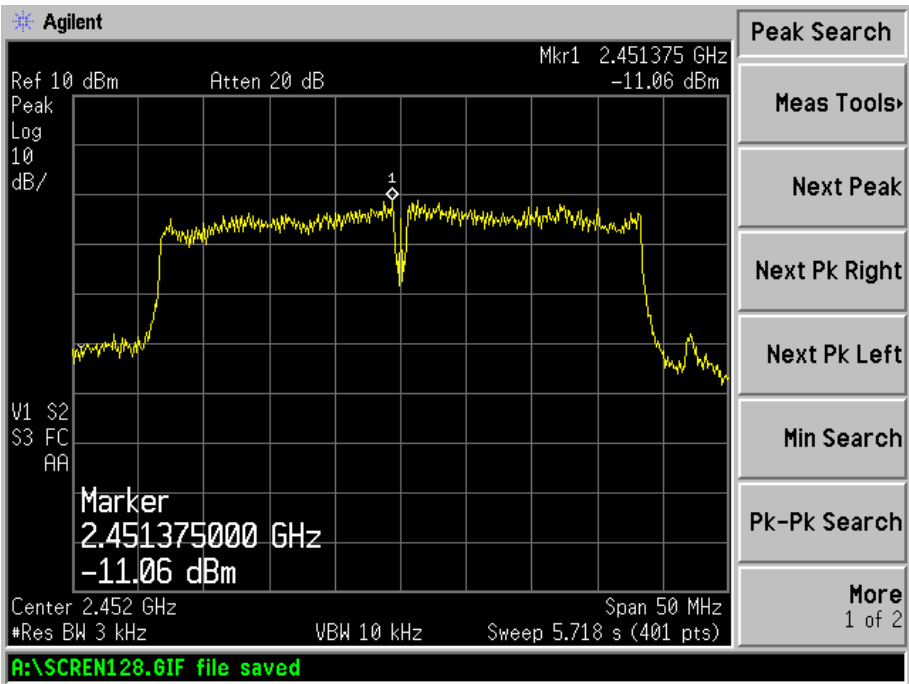
## 802.11n-HT40-MCS0-Low Channel



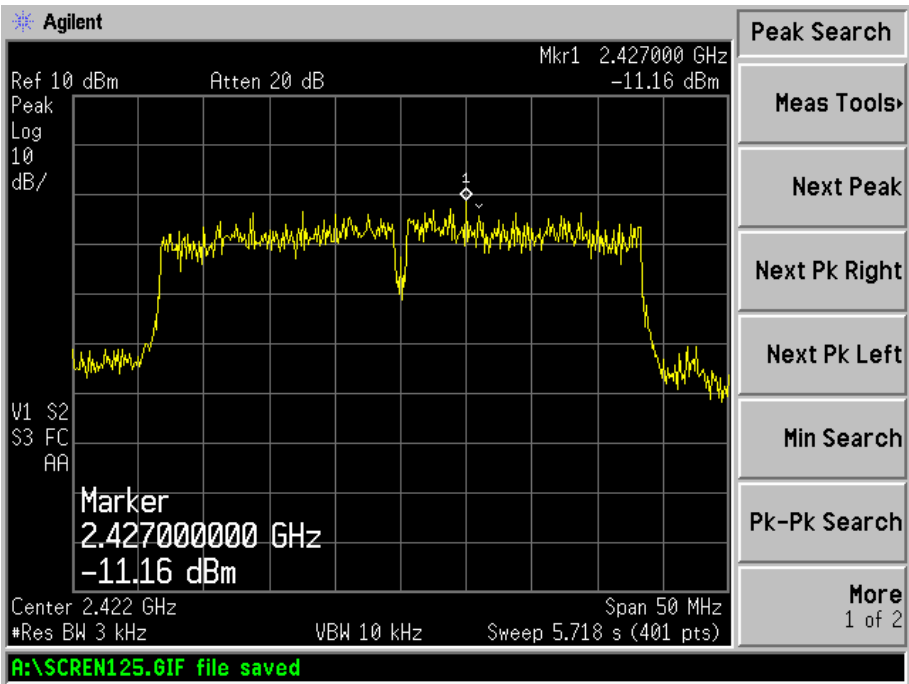
## 802.11n-HT40-MCS0-Middle Channel



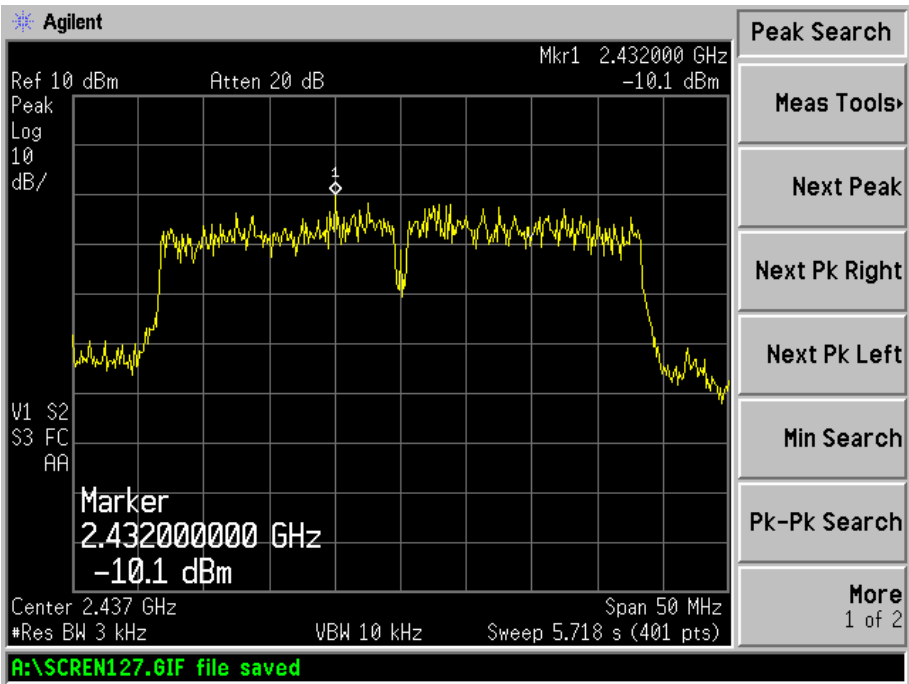
802.11n-HT40-MCS0-High Channel



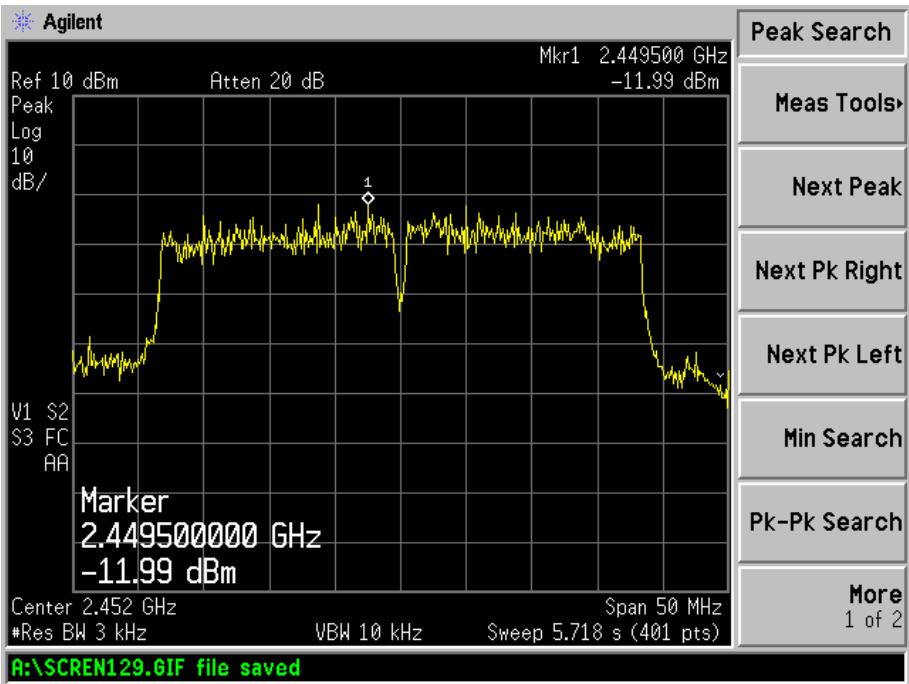
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel

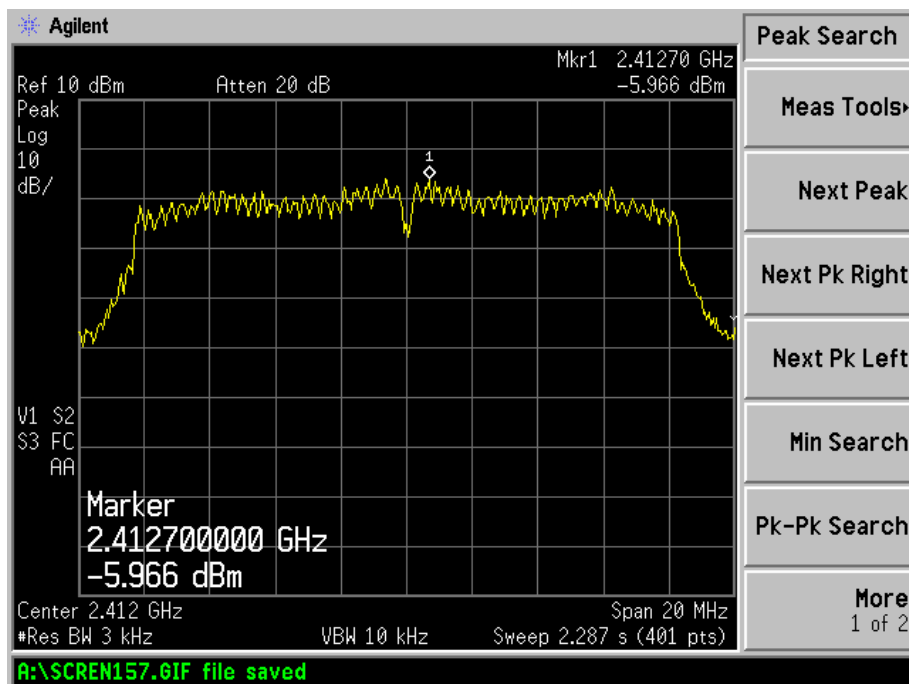


802.11n-HT40-MCS15-High Channel

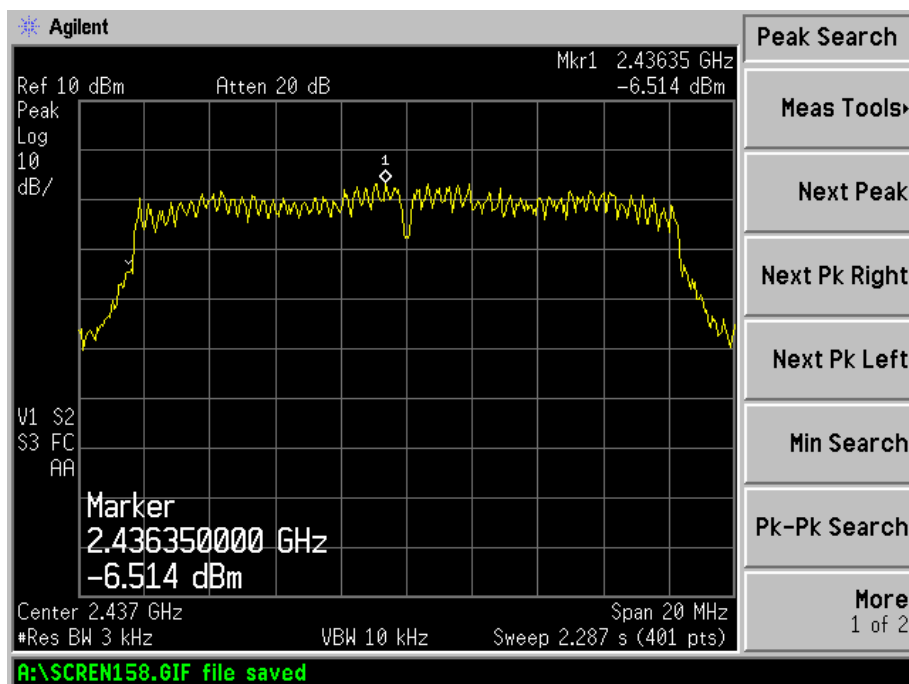


**For chain 1**

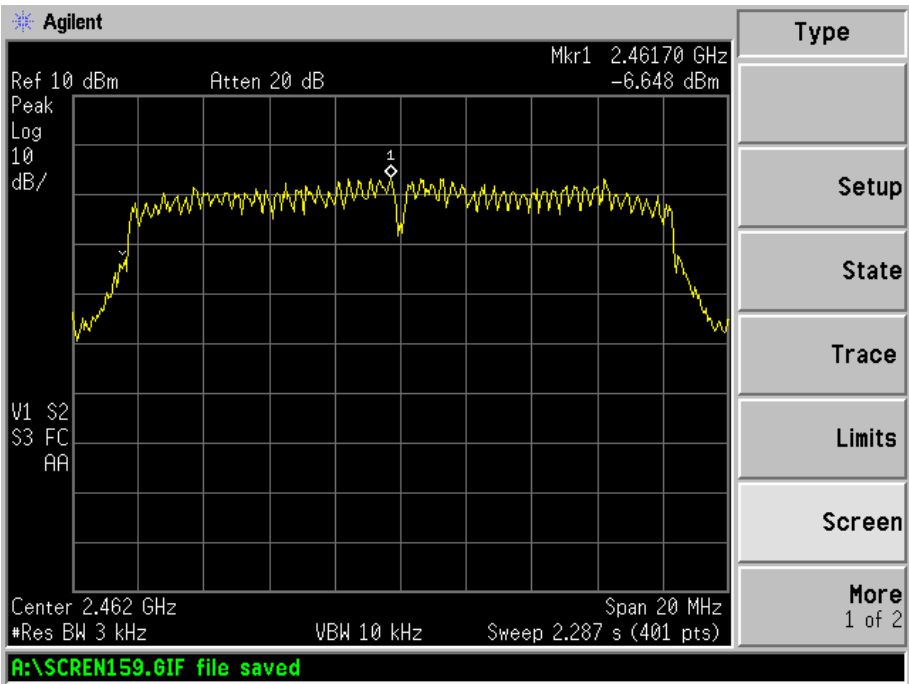
## 802.11g-Low Channel



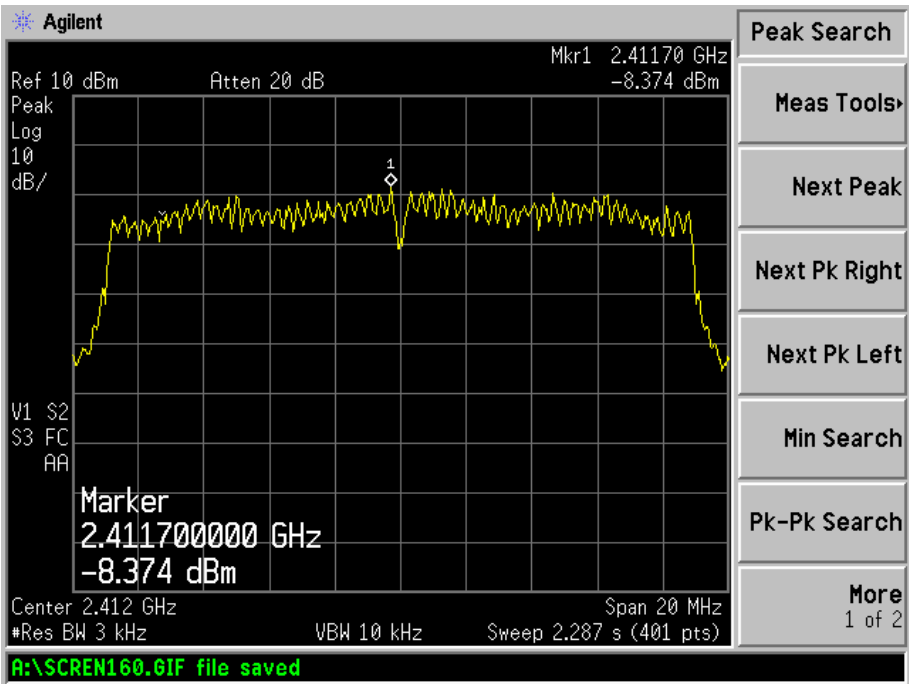
## 802.11g-Middle Channel



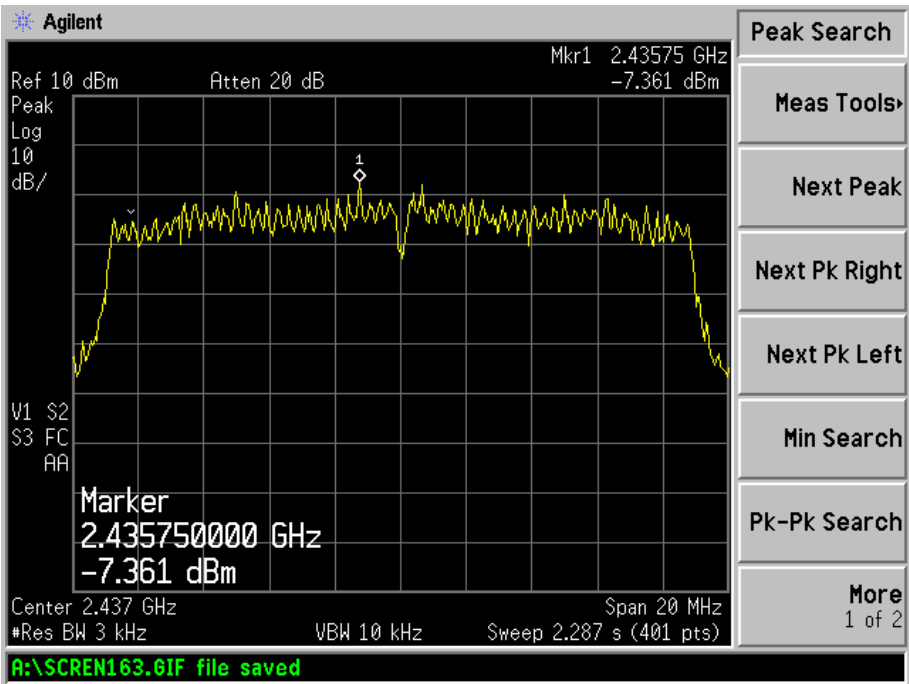
802.11g-High Channel



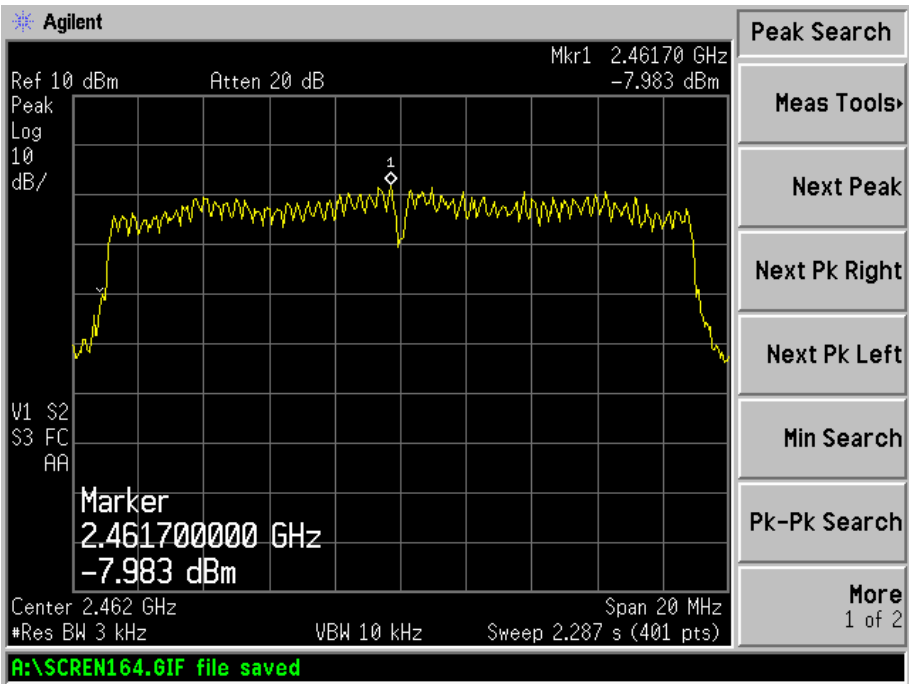
802.11n-HT20-MCS0-Low Channel



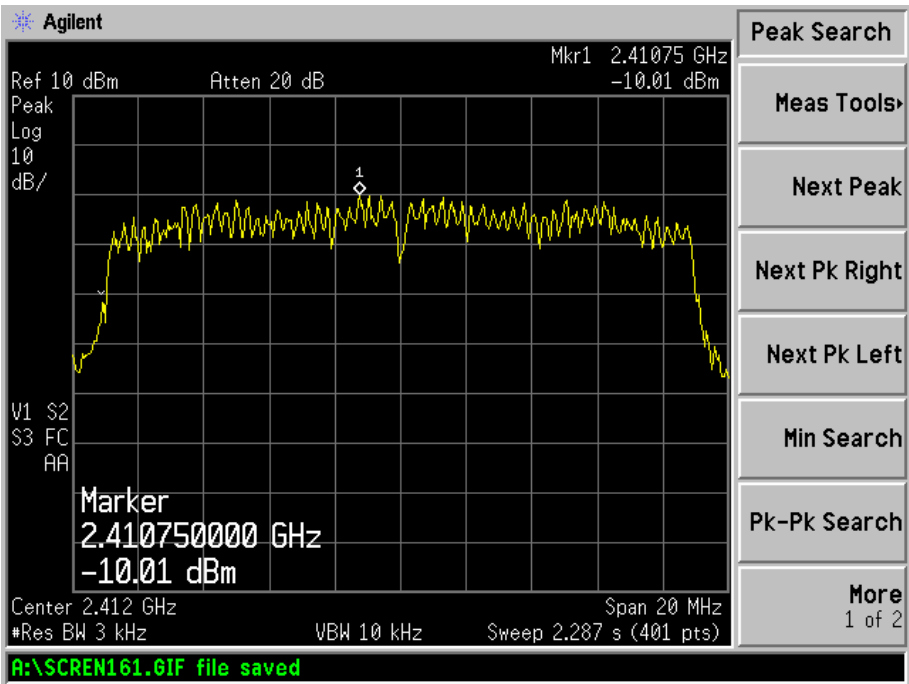
802.11n-HT20-MCS0-Middle Channel



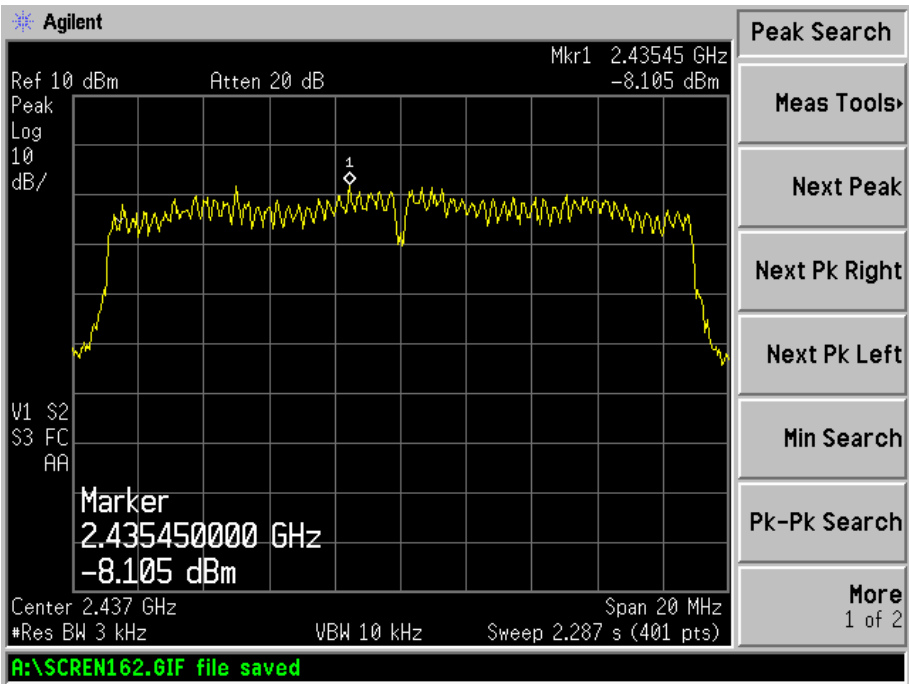
802.11n-HT20-MCS0-High Channel



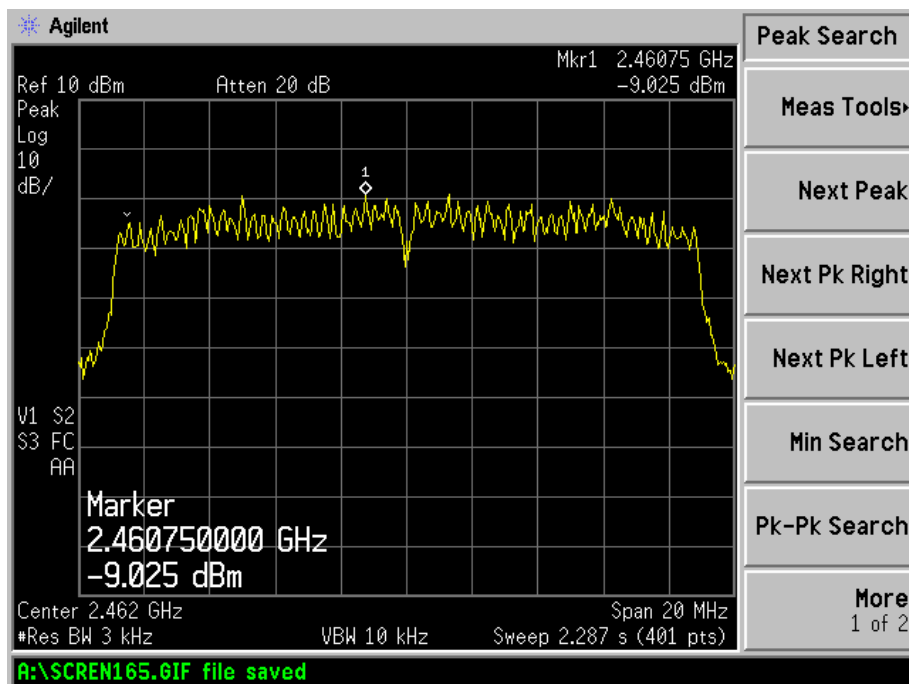
802.11n-HT20-MCS15-Low Channel



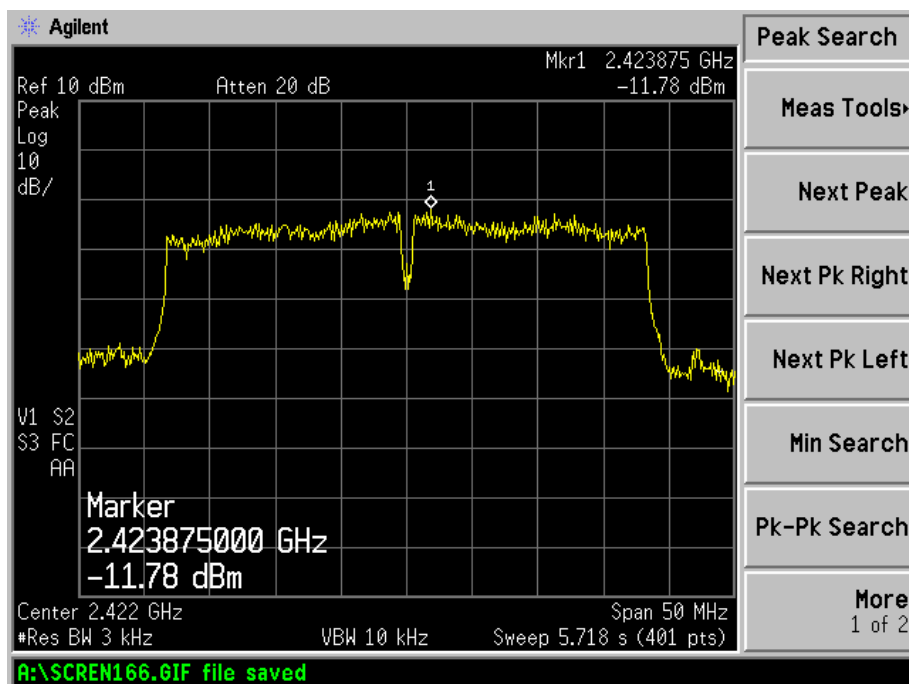
802.11n-HT20-MCS15-Middle Channel



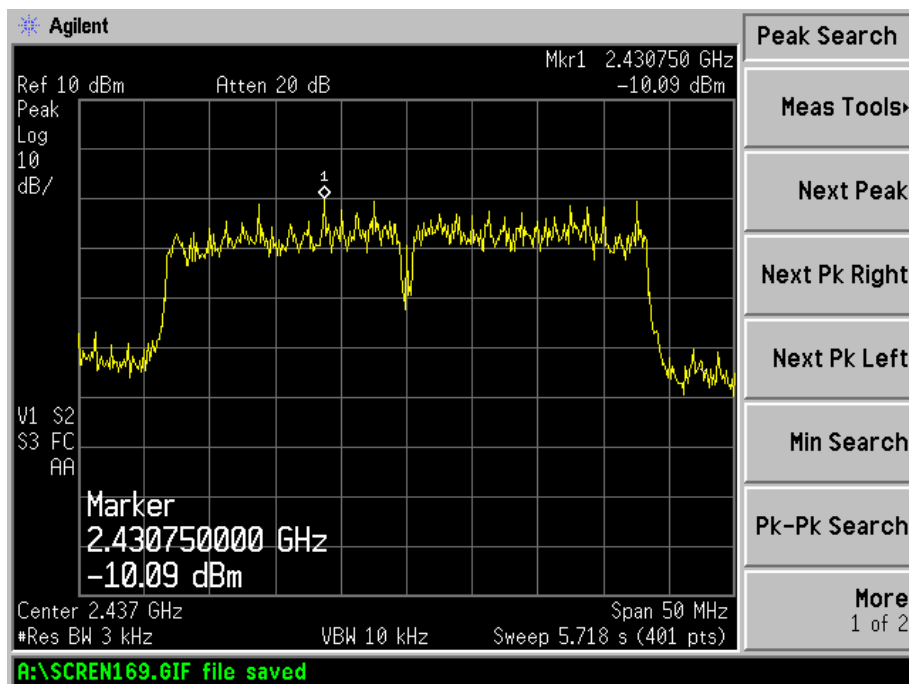
## 802.11n-HT20-MCS15-High Channel



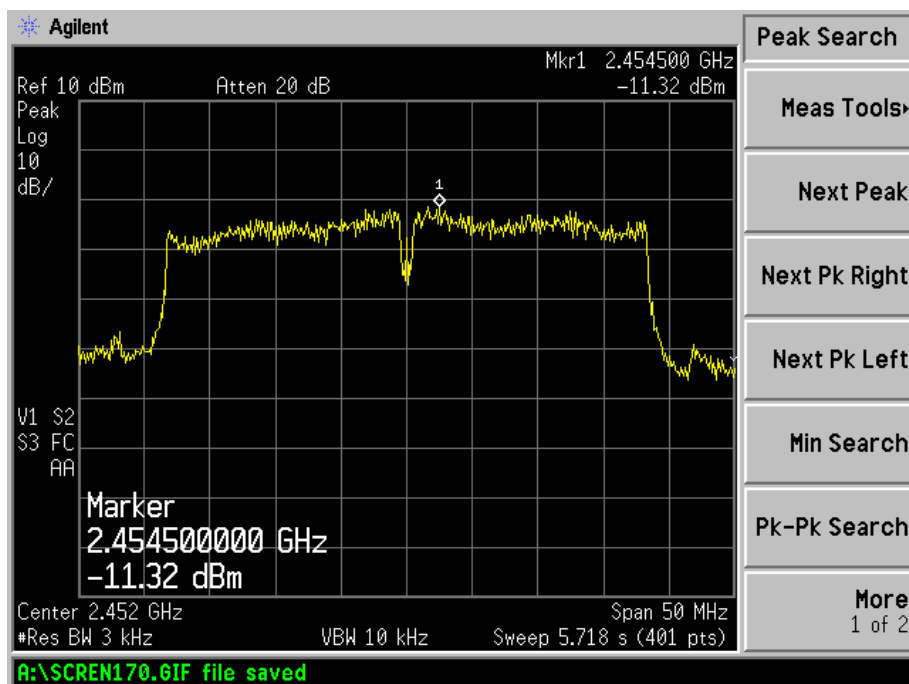
## 802.11n-HT40-MCS0-Low Channel



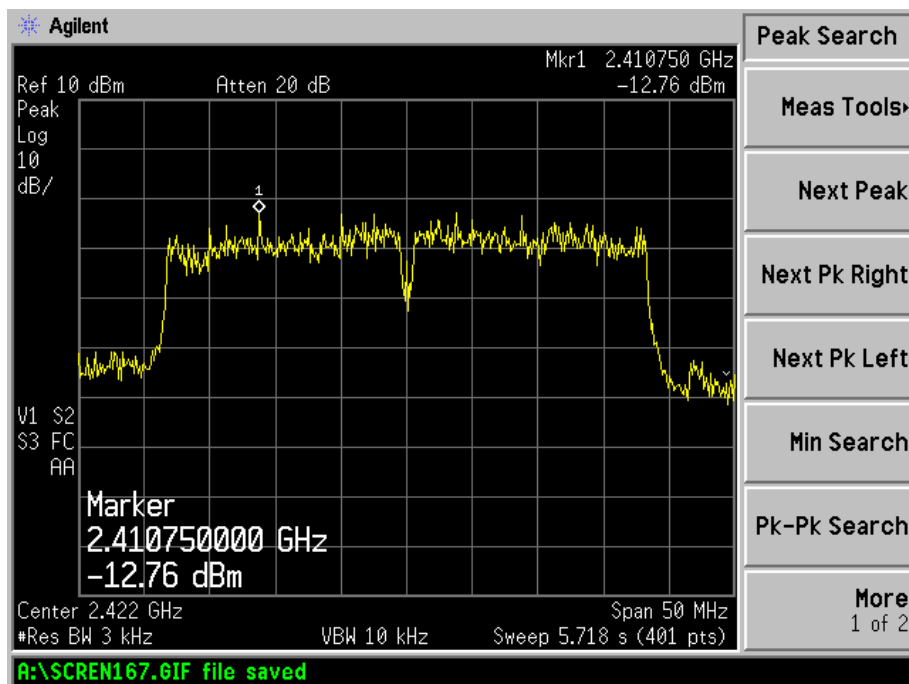
## 802.11n-HT40-MCS0-Middle Channel



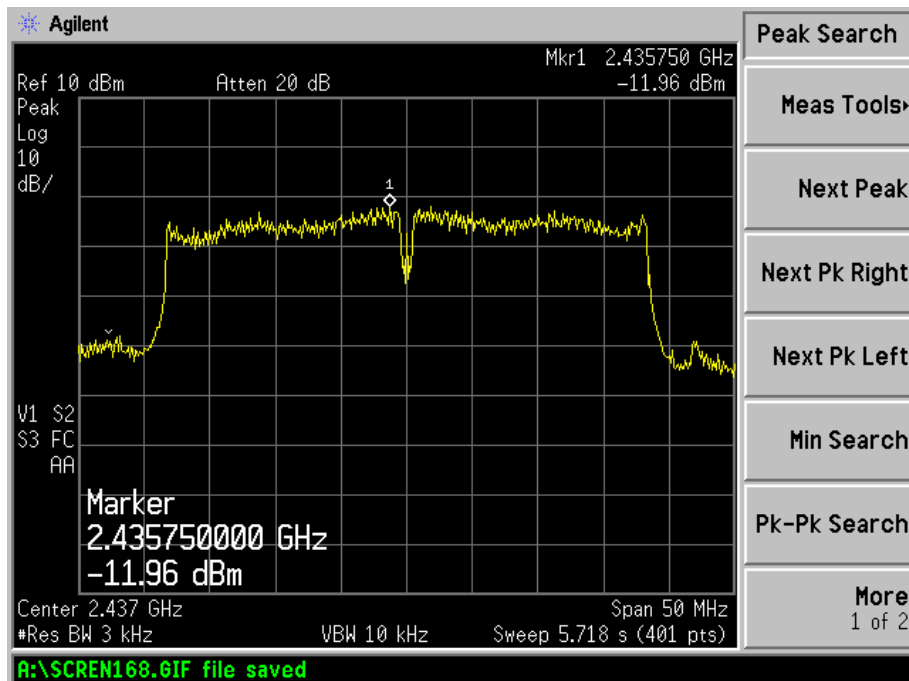
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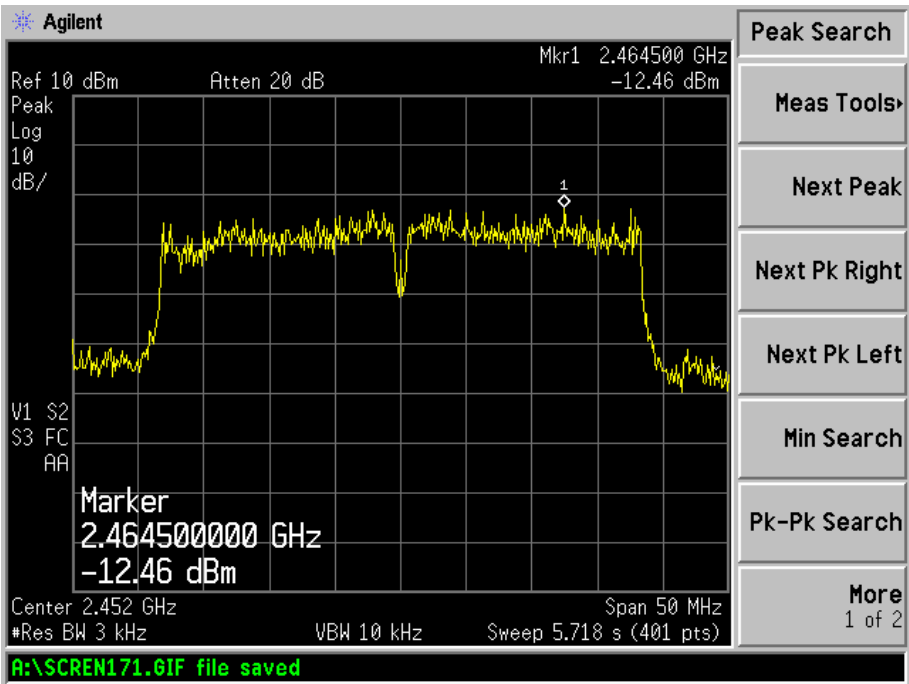
## 802.11n-HT40-MCS15-Low Channel



## 802.11n-HT40-MCS15-Middle Channel



802.11n-HT40-MCS15-High Channel



## 5. 6dB Bandwidth

### 5.1 Standard Applicable

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 6 dB bandwidth shall be at least 500 kHz.

### 5.2 Test Equipment List and Details

| Description       | Manufacturer | Model       | Serial Number | Cal. Date  | Due. Date  |
|-------------------|--------------|-------------|---------------|------------|------------|
| Spectrum Analyzer | Agilent      | E4402B      | US41192821    | 2013-03-28 | 2014-03-27 |
| Attenuator        | ATTEN        | ATS100-4-20 | /             | 2013-03-28 | 2014-03-27 |

**Statement of Traceability:** All calibrations have been performed per the NVLAP requirements traceable to the NIST.

### 5.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
3. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission..

### 5.4 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24° C     |
| Relative Humidity: | 53%       |
| ATM Pressure:      | 1018 mbar |

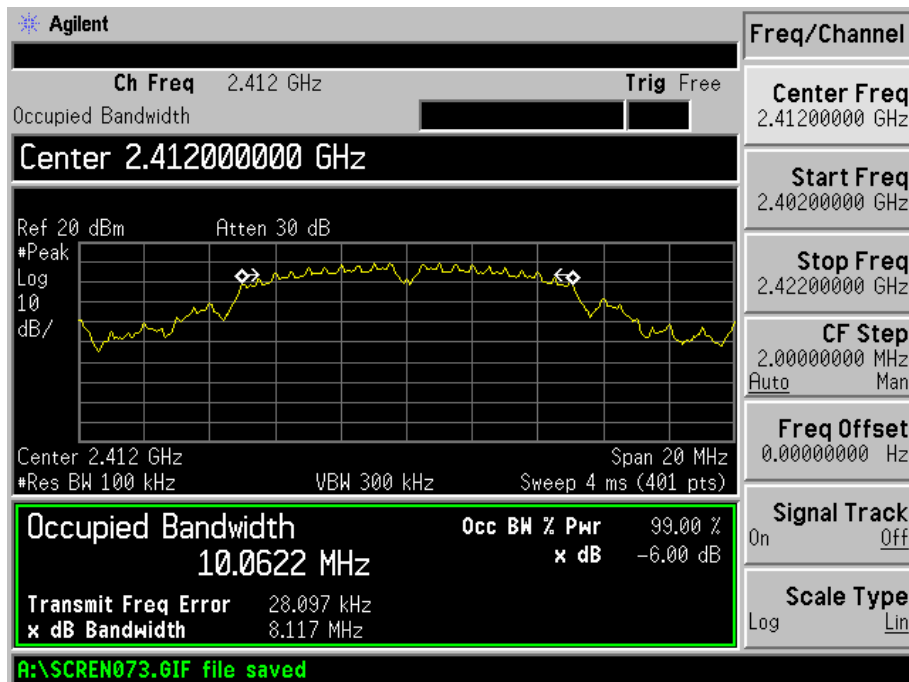
### 5.5 Summary of Test Results/Plots

| Test Mode    | Test Channel<br>MHz | 6 dB Bandwidth<br>Chain 0 (kHz) | 6 dB Bandwidth<br>Chain 1(kHz) | Limit<br>kHz |
|--------------|---------------------|---------------------------------|--------------------------------|--------------|
| 802.11b      | 2412                | 8117                            | /                              | 500          |
|              | 2437                | 7173                            | /                              | 500          |
|              | 2462                | 7161                            | /                              | 500          |
| 802.11g      | 2412                | 14702                           | 15085                          | 500          |
|              | 2437                | 14430                           | 15168                          | 500          |
|              | 2462                | 15315                           | 14502                          | 500          |
| 802.11n-HT20 | 2412                | 16078                           | 17605                          | 500          |
|              | 2437                | 15151                           | 16973                          | 500          |
|              | 2462                | 16378                           | 16660                          | 500          |
| 802.11n-HT40 | 2422                | 36168                           | 35738                          | 500          |
|              | 2437                | 35520                           | 35729                          | 500          |
|              | 2452                | 35585                           | 35678                          | 500          |

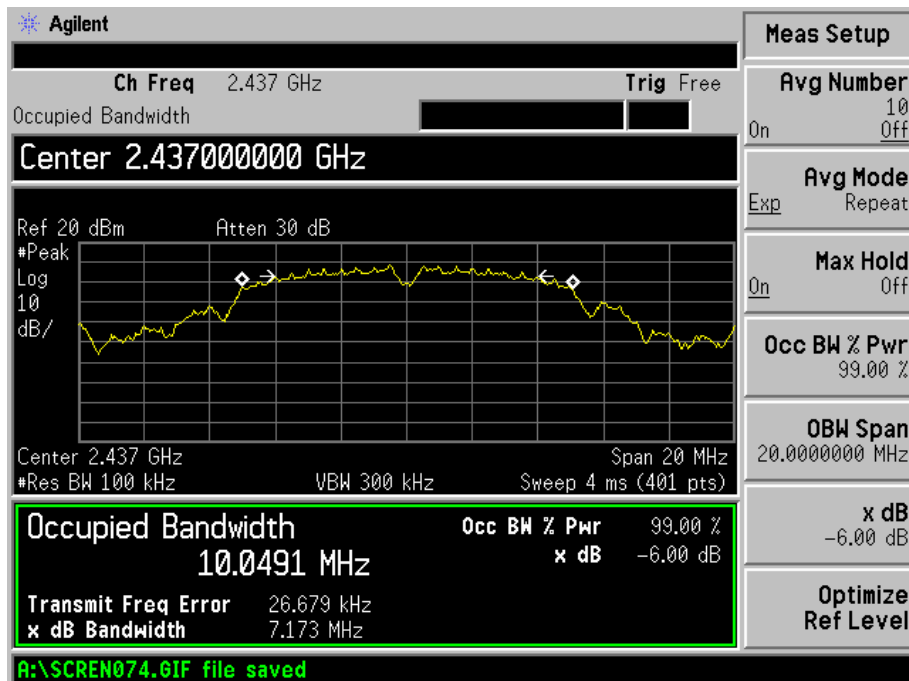
Please refer to the following test plots:

**For chain 0**

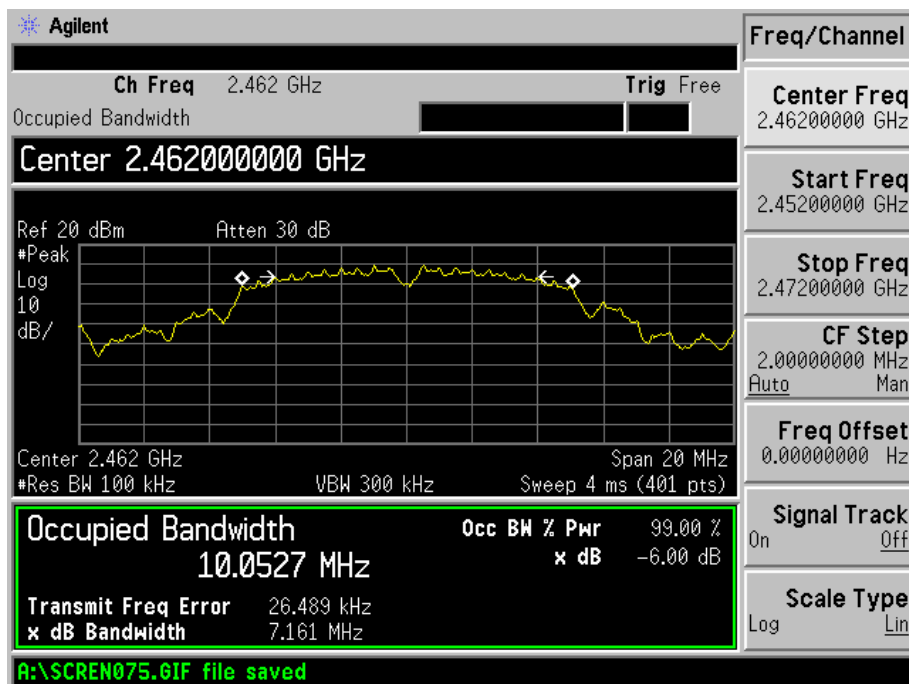
## 802.11b-Low Channel



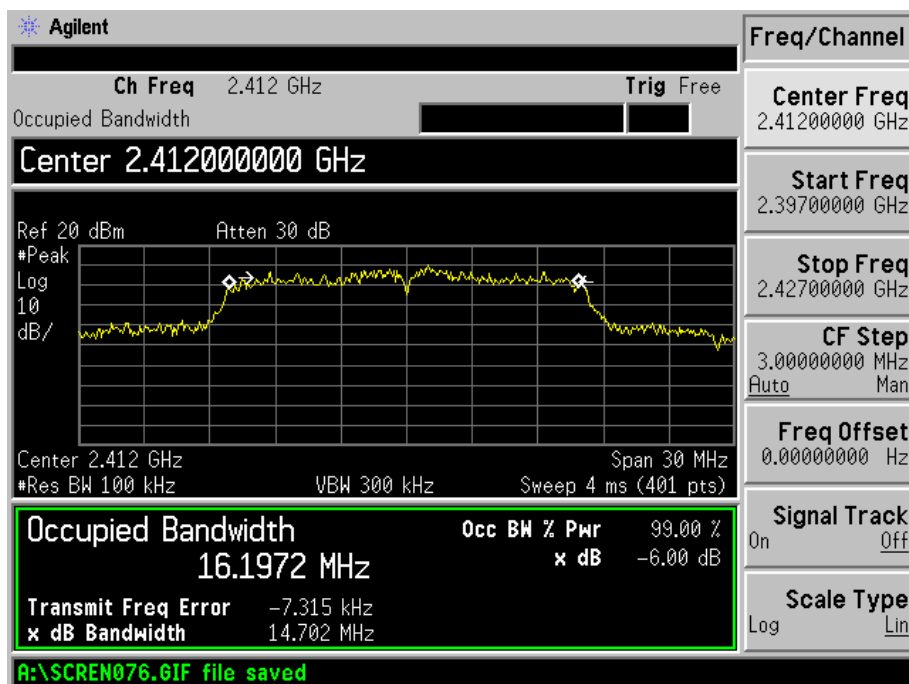
## 802.11b-Middle Channel



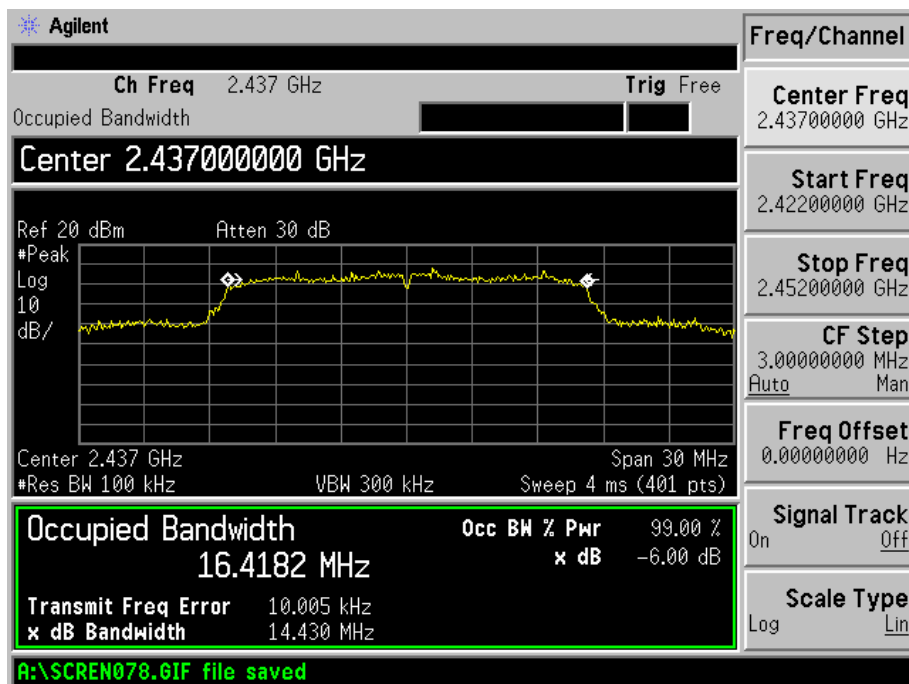
## 802.11b-High Channel



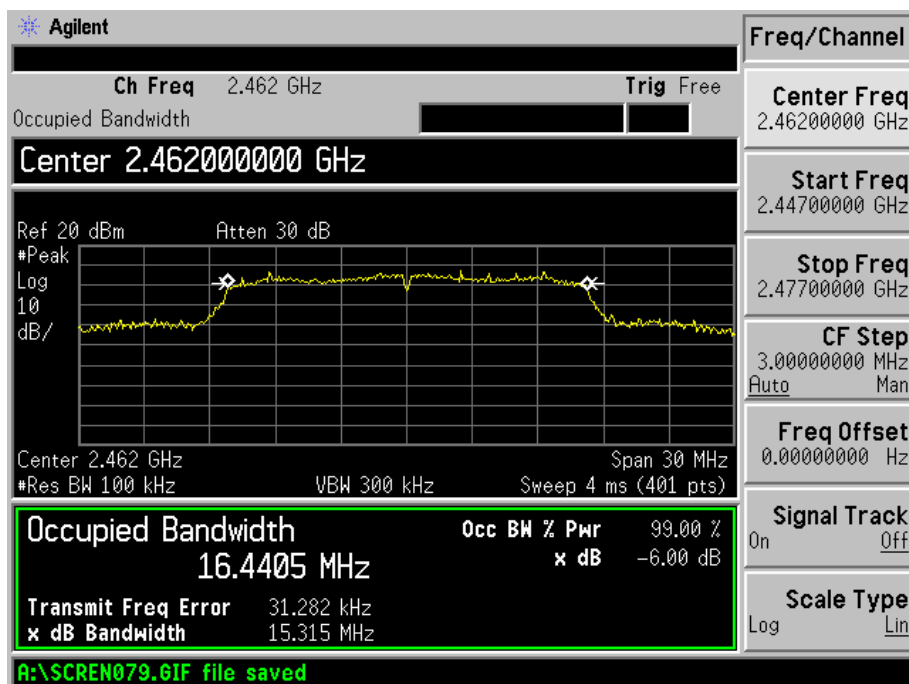
## 802.11g-Low Channel



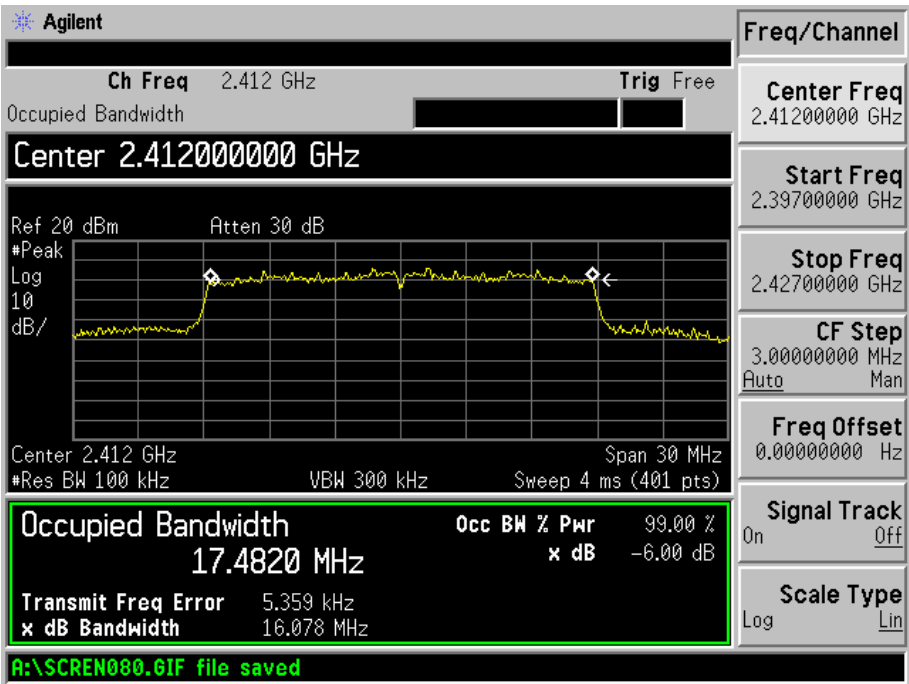
## 802.11g-Middle Channel



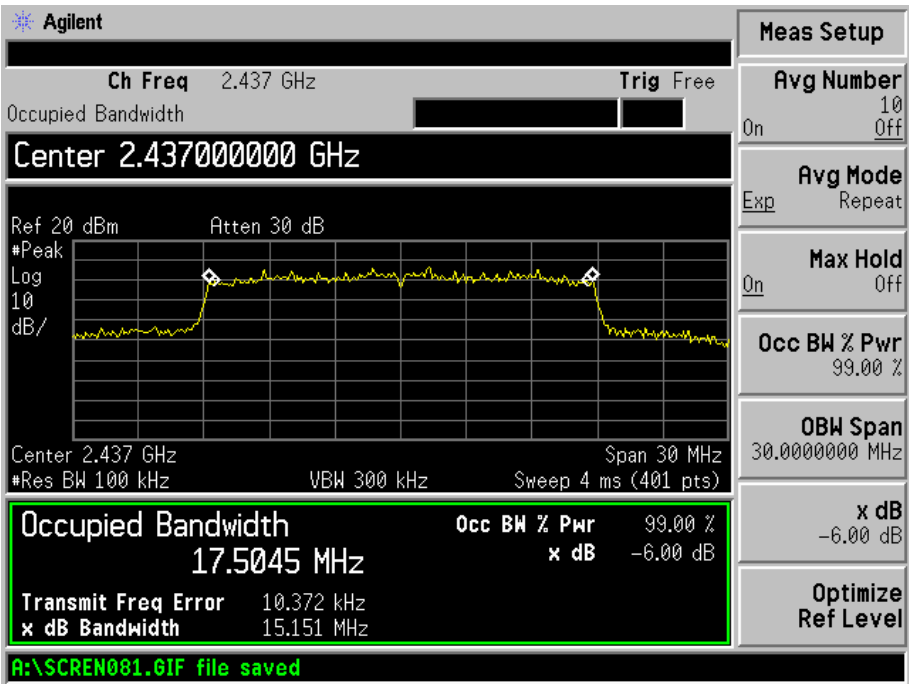
## 802.11g-High Channel



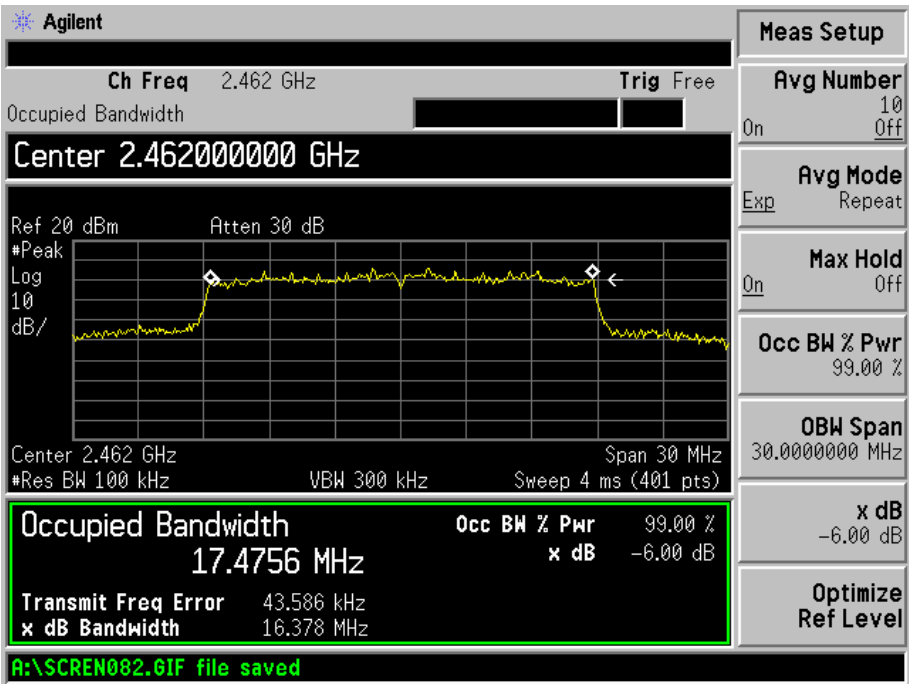
802.11n-HT20-Low Channel



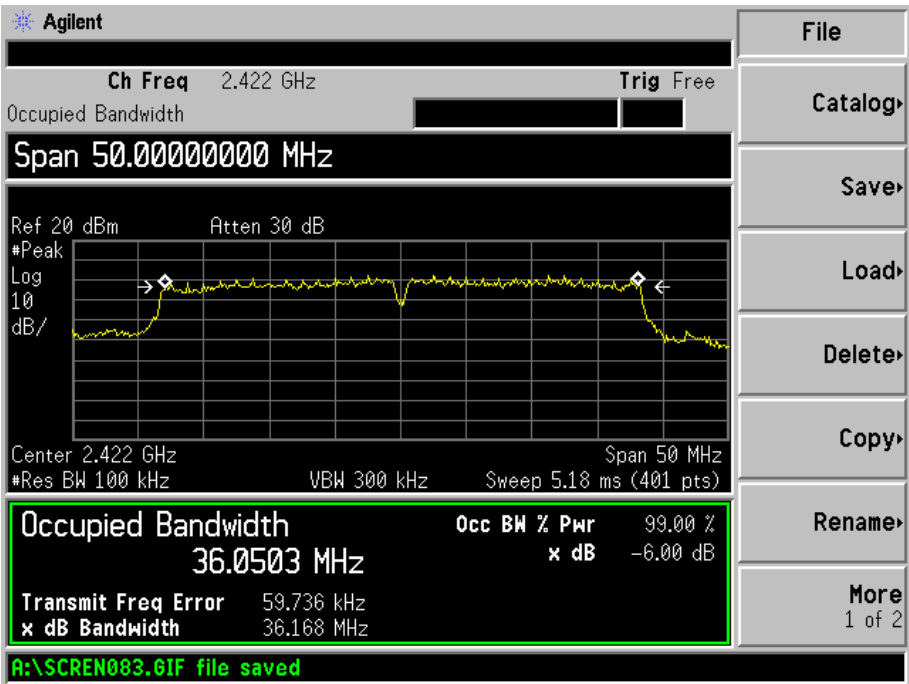
802.11n-HT20-Middle Channel



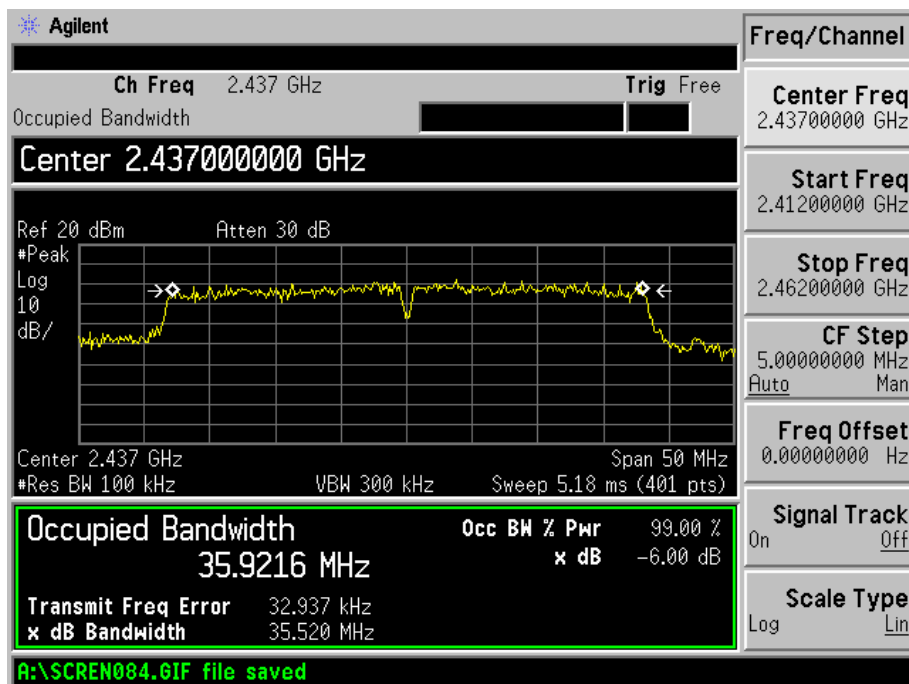
802.11n-HT20-High Channel



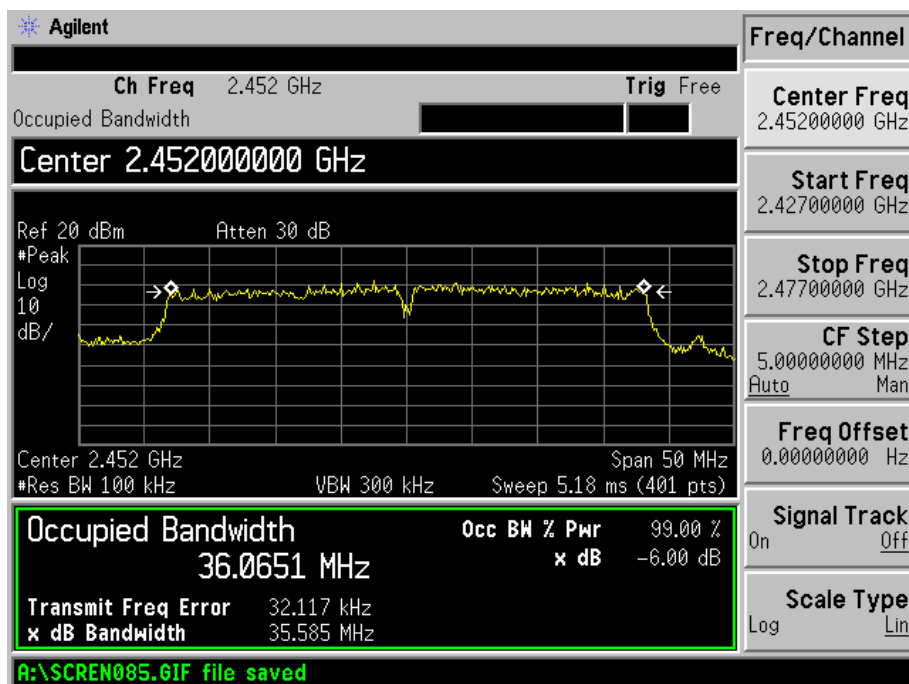
802.11n-HT40-Low Channel



## 802.11n-HT40-Middle Channel

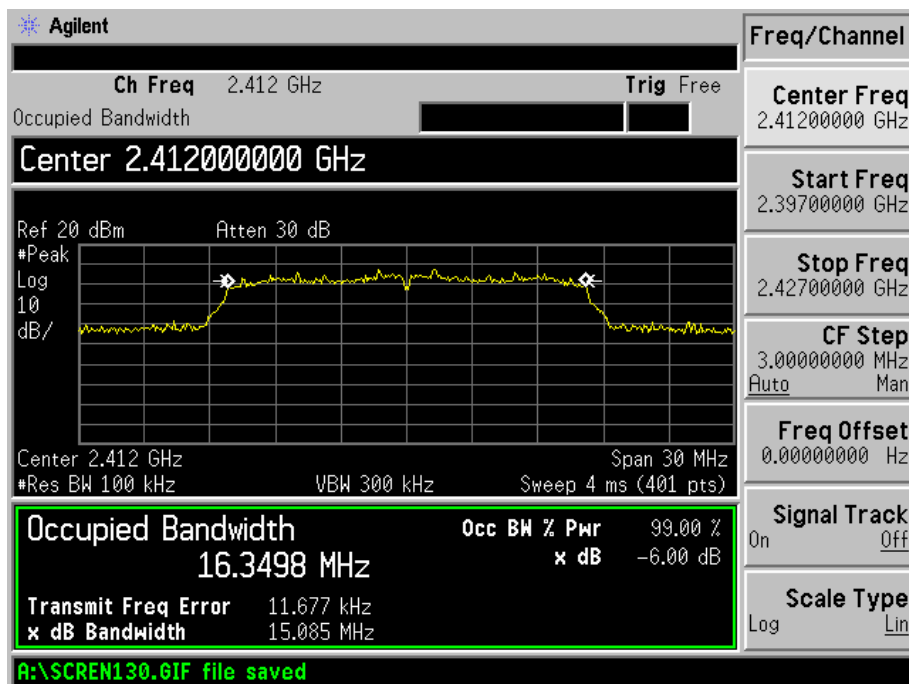


## 802.11n-HT40-High Channel

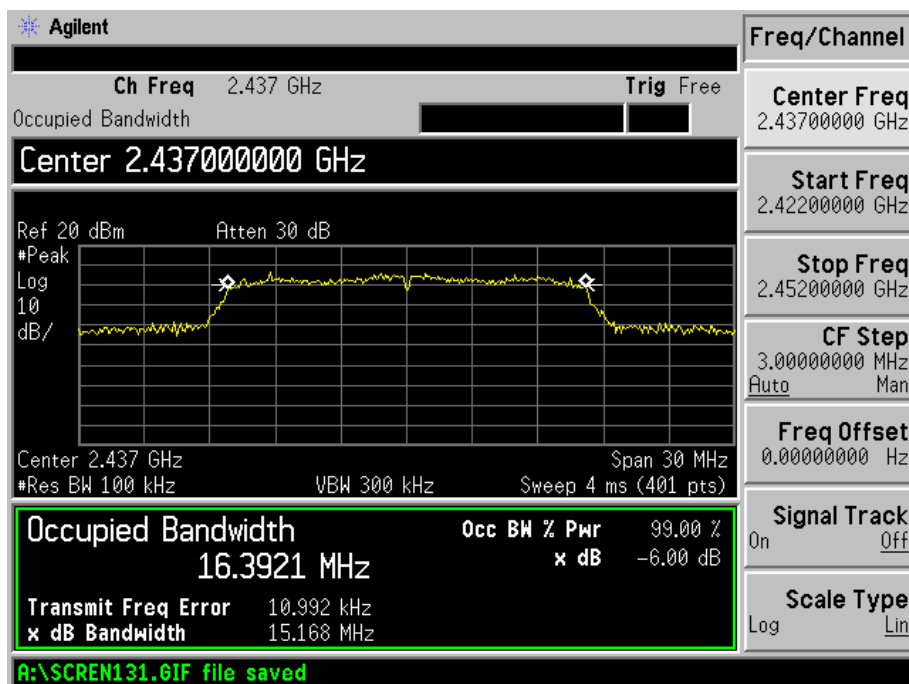


**For chain 1**

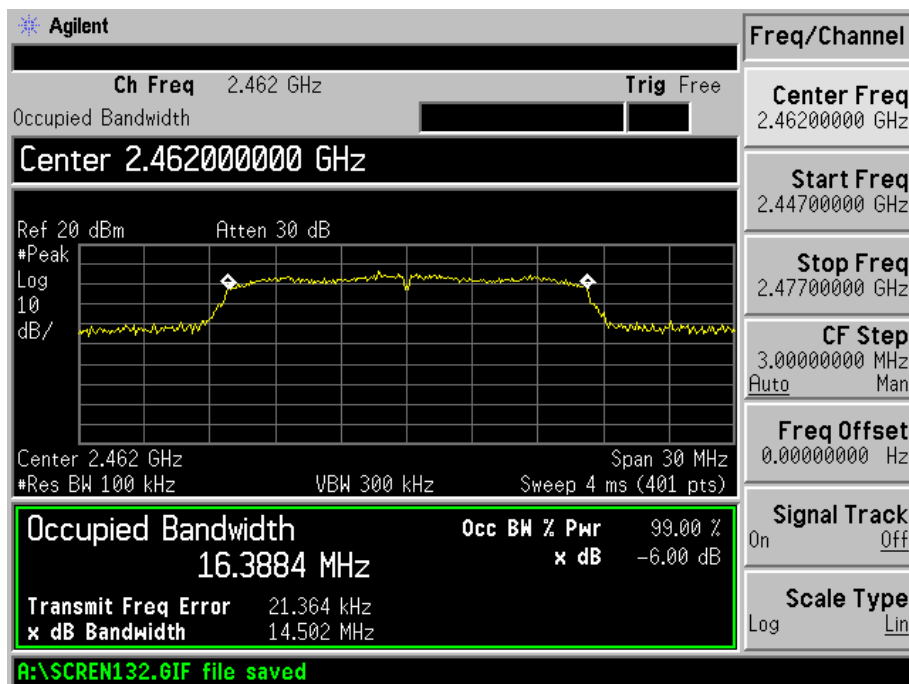
## 802.11g-Low Channel



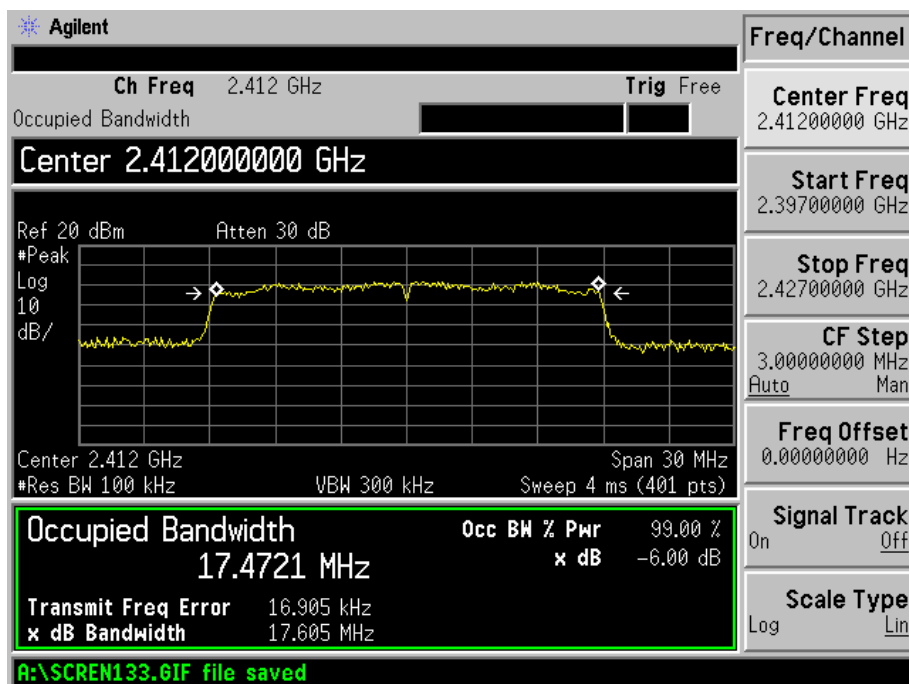
## 802.11g-Middle Channel



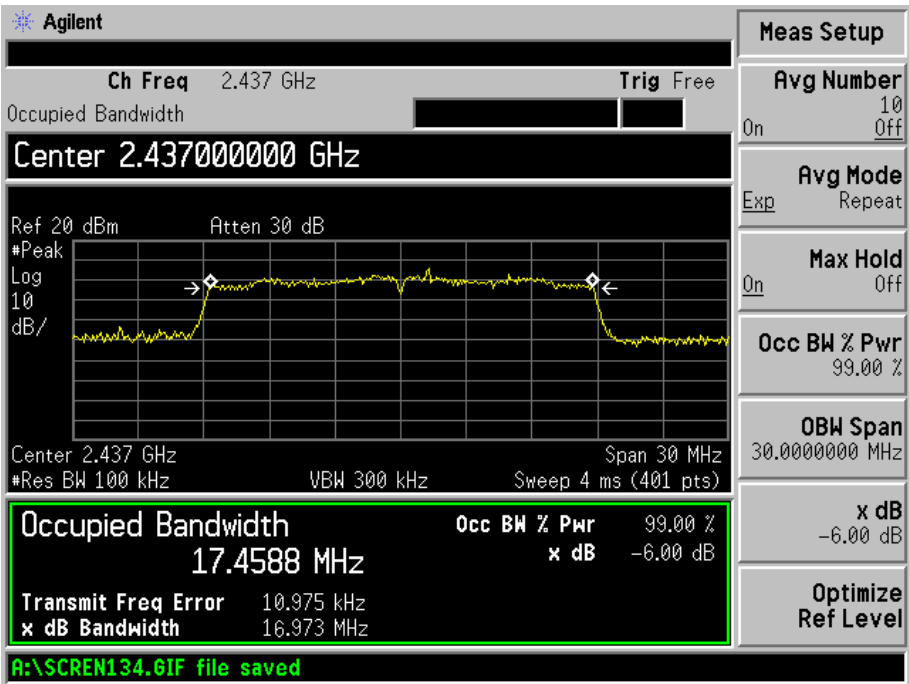
## 802.11g-High Channel



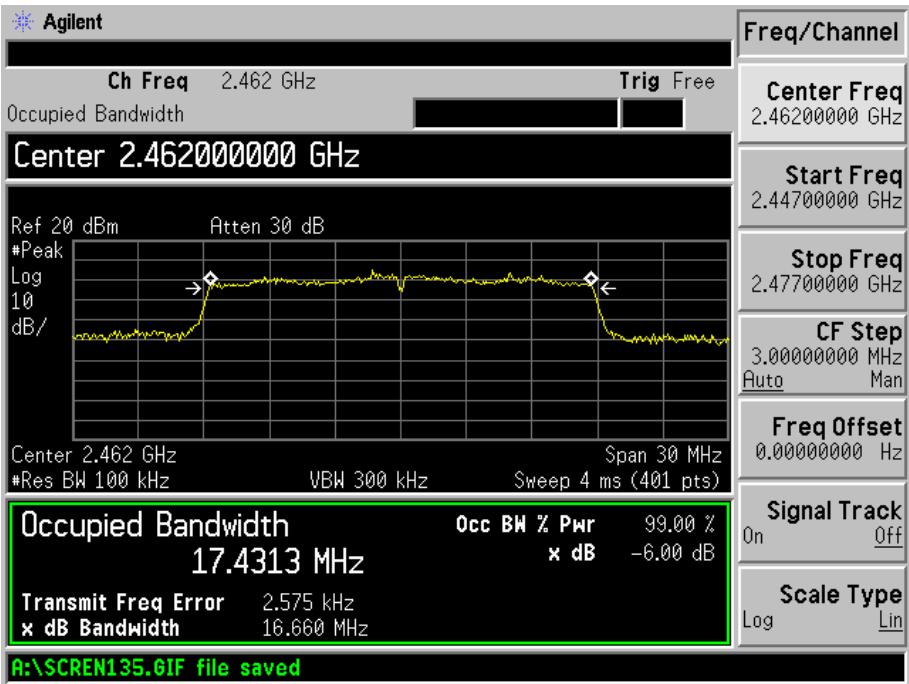
## 802.11n-HT20-Low Channel



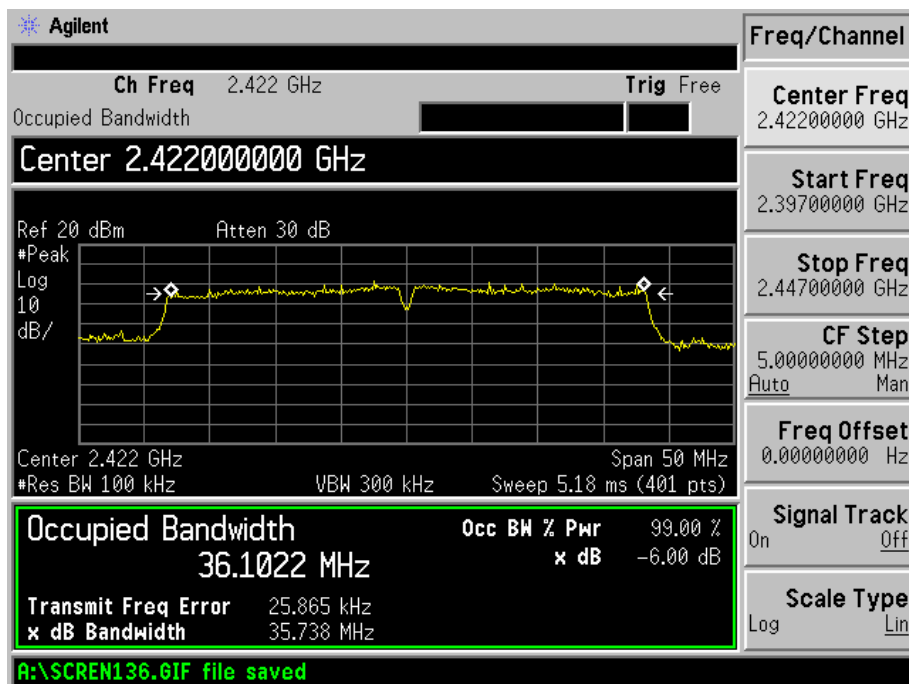
802.11n-HT20-Middle Channel



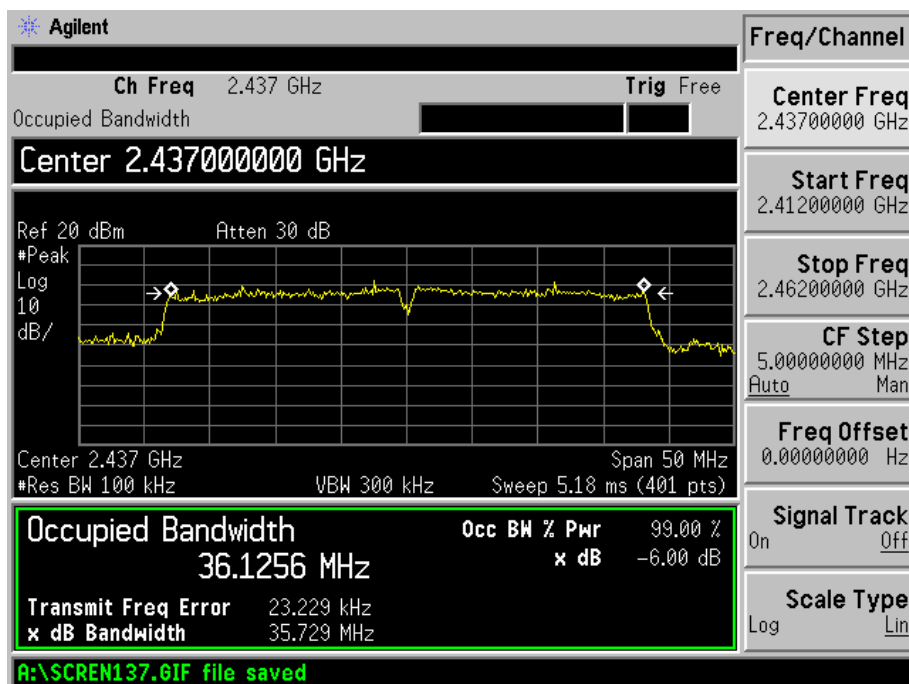
802.11n-HT20-High Channel



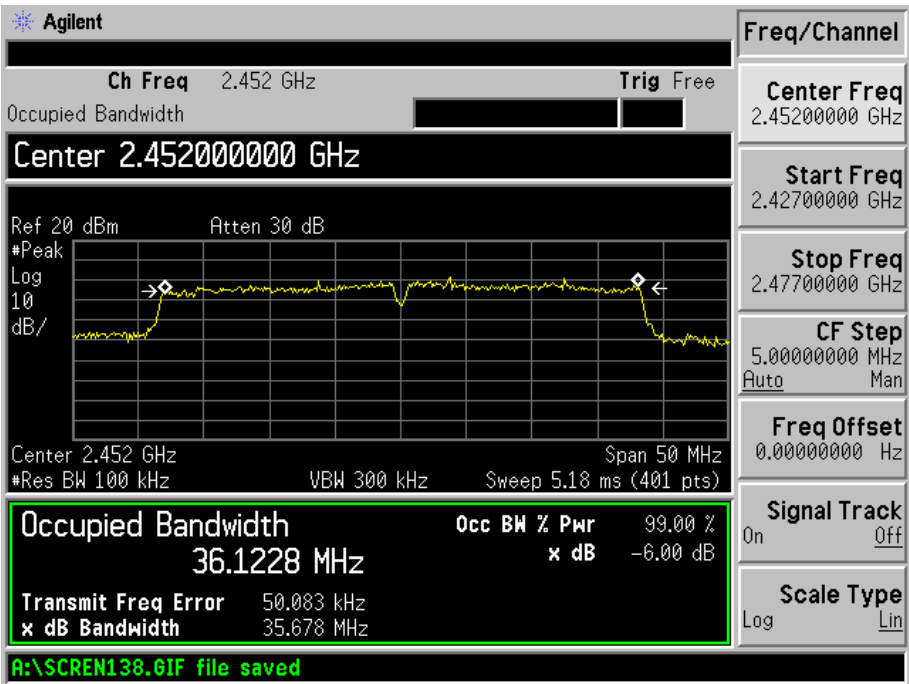
## 802.11n-HT40-Low Channel



## 802.11n-HT40-Middle Channel



802.11n-HT40-High Channel



## 6. RF Output Power

### 6.1 Standard Applicable

According to 15.247(b)(3). For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

### 6.2 Test Equipment List and Details

| Description       | Manufacturer | Model       | Serial Number | Cal. Date  | Due. Date  |
|-------------------|--------------|-------------|---------------|------------|------------|
| Spectrum Analyzer | Agilent      | E4402B      | US41192821    | 2013-03-28 | 2014-03-27 |
| Attenuator        | ATTEN        | ATS100-4-20 | /             | 2013-03-28 | 2014-03-27 |

**Statement of Traceability:** All calibrations have been performed per the NVLAP requirements traceable to the NIST.

### 6.3 Test Procedure

According to section 15.247(b)-power output of the KDB-558074 (2012),

1. This procedure provides an integrated measurement alternative when the maximum available RBW < EBW.
2. Set the RBW = 1 MHz.
3. Set the VBW = 3 MHz.
4. Set the span to a value that is 5-30 % greater than the EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges (for some analyzers, this may require a manual override to ensure use of peak detector). If the spectrum analyzer does not have a band power function, sum the spectrum levels (in linear power units) at 1 MHz intervals extending across the EBW of the spectrum.

### 6.4 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 21° C     |
| Relative Humidity: | 55%       |
| ATM Pressure:      | 1011 mbar |

## 6.5 Summary of Test Results/Plots

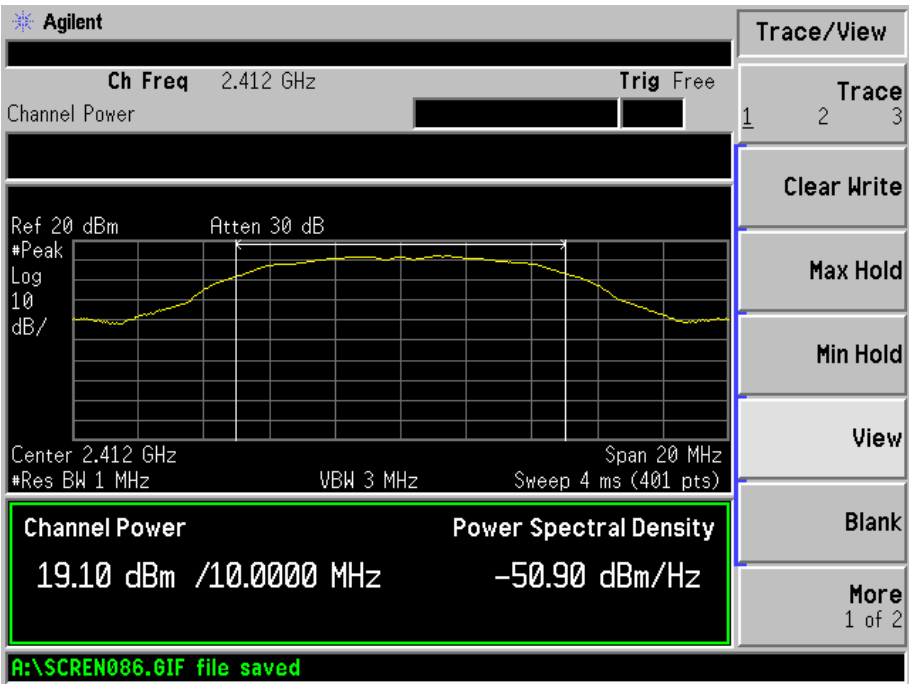
| Test Mode                | Frequency MHz | Reading Chain 0 dBm | Reading Chain 1 dBm | Output Power Chain 0 (mW) | Output Power Chain 1 (mW) | Total Power mW | Limit mW |
|--------------------------|---------------|---------------------|---------------------|---------------------------|---------------------------|----------------|----------|
| 802.11b<br>1Mbps         | 2412          | 19.10               | /                   | 81.2831                   | /                         | /              | 1000     |
|                          | 2437          | 19.24               | /                   | 83.9460                   | /                         | /              | 1000     |
|                          | 2462          | 19.15               | /                   | 82.2243                   | /                         | /              | 1000     |
| 802.11b<br>11Mbps        | 2412          | 18.86               | /                   | 76.9130                   | /                         | /              | 1000     |
|                          | 2437          | 19.13               | /                   | 81.8465                   | /                         | /              | 1000     |
|                          | 2462          | 19.03               | /                   | 79.9834                   | /                         | /              | 1000     |
| 802.11g<br>6Mbps         | 2412          | 18.20               | 18.72               | 66.0693                   | 74.4732                   | /              | 1000     |
|                          | 2437          | 18.68               | 18.90               | 73.7904                   | 77.6247                   | /              | 1000     |
|                          | 2462          | 18.50               | 19.12               | 70.7946                   | 81.6582                   | /              | 1000     |
| 802.11g<br>54Mbps        | 2412          | 18.01               | 18.58               | 63.2412                   | 72.1107                   | /              | 1000     |
|                          | 2437          | 18.33               | 18.60               | 68.0769                   | 72.4436                   | /              | 1000     |
|                          | 2462          | 18.32               | 18.85               | 67.9204                   | 76.7361                   | /              | 1000     |
| 802.11n<br>HT20<br>MCS0  | 2412          | 17.10               | 17.72               | 51.2861                   | 59.1562                   | /              | 1000     |
|                          | 2437          | 17.30               | 17.84               | 53.7032                   | 60.8135                   | /              | 1000     |
|                          | 2462          | 17.24               | 17.72               | 52.9663                   | 59.1562                   | /              | 1000     |
| 802.11n<br>HT20<br>MCS15 | 2412          | 15.55               | 16.14               | 35.8922                   | 41.1150                   | 77.0072        | 1000     |
|                          | 2437          | 15.18               | 16.40               | 32.9610                   | 43.6516                   | 76.6126        | 1000     |
|                          | 2462          | 16.08               | 16.45               | 40.5509                   | 44.1570                   | 84.7079        | 1000     |
| 802.11n<br>HT40<br>MCS0  | 2422          | 17.29               | 17.40               | 53.5797                   | 54.9541                   | /              | 1000     |
|                          | 2437          | 17.62               | 18.01               | 57.8096                   | 63.2412                   | /              | 1000     |
|                          | 2452          | 17.51               | 17.93               | 56.3638                   | 62.0869                   | /              | 1000     |
| 802.11n<br>HT40<br>MCS15 | 2422          | 14.09               | 14.26               | 25.6448                   | 26.6686                   | 52.3134        | 1000     |
|                          | 2437          | 14.79               | 14.96               | 30.1301                   | 31.3329                   | 61.4629        | 1000     |
|                          | 2452          | 14.19               | 14.64               | 26.2422                   | 29.1072                   | 55.3494        | 1000     |

*Note: The EUT shall be simultaneous transmission at the chain 0 and chain 1 for the MCS15 mode of 802.11n HT20 or HT40, only transmission at chain 0 for 802.11b; all other mode shall be transmission only single chain (chain 0 or chain 1).*

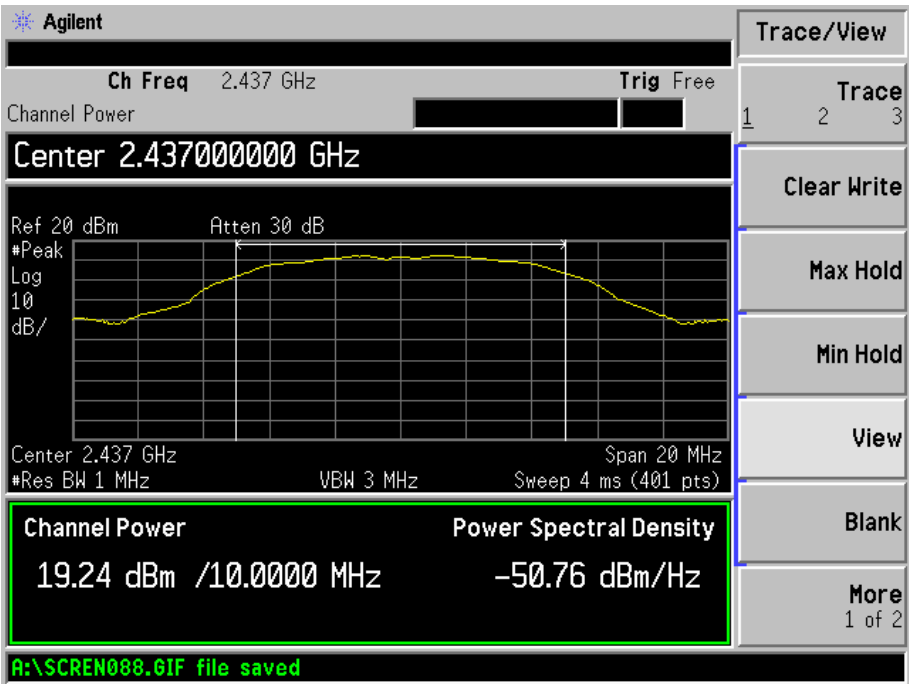
Please refer to the following test plots:

For chain 0

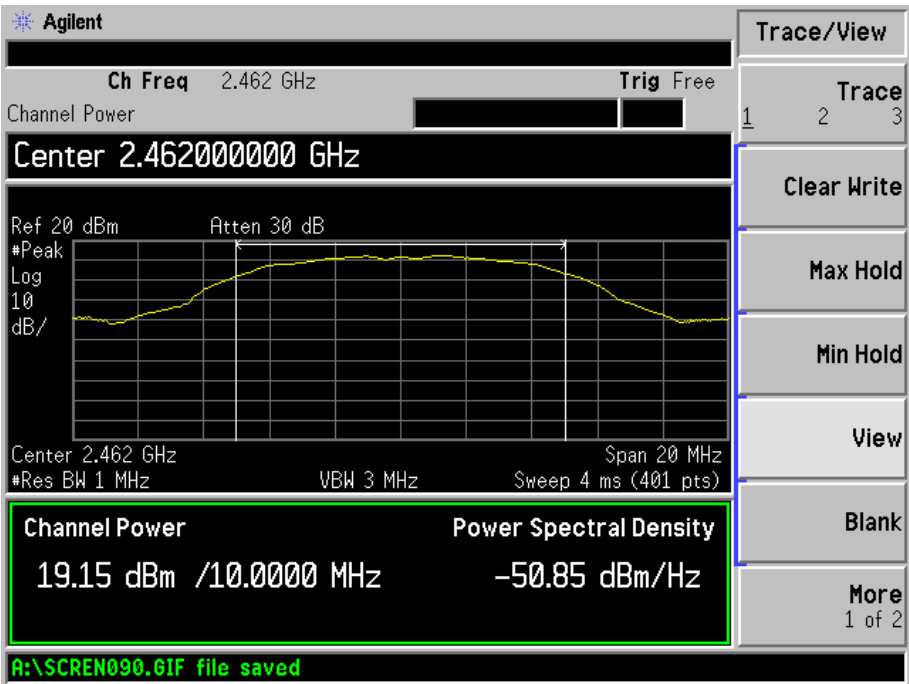
802.11b-1Mbps-Low Channel



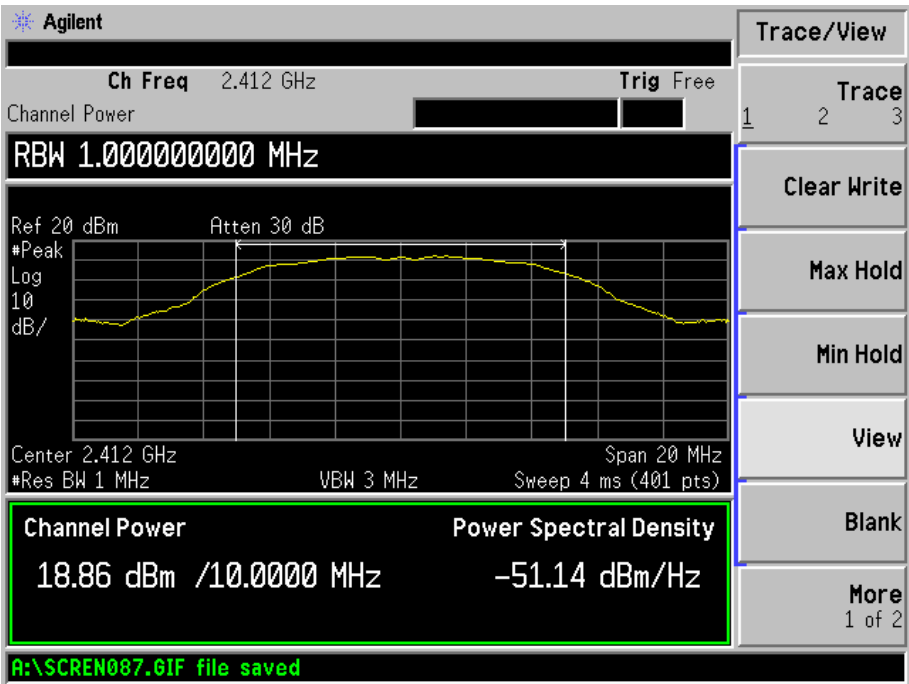
802.11b-1Mbps-Middle Channel



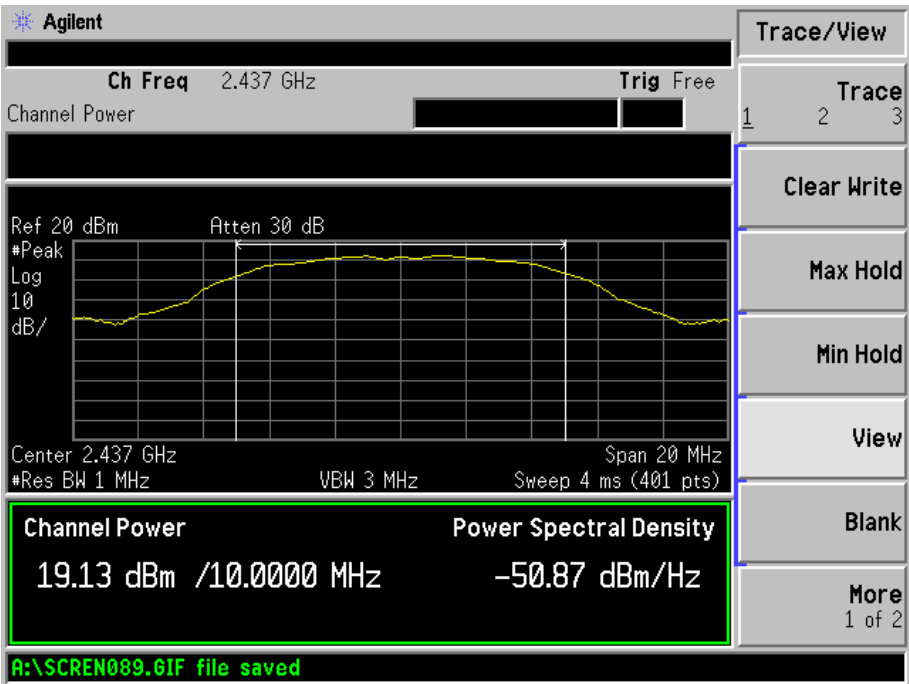
802.11b-1Mbps-High Channel



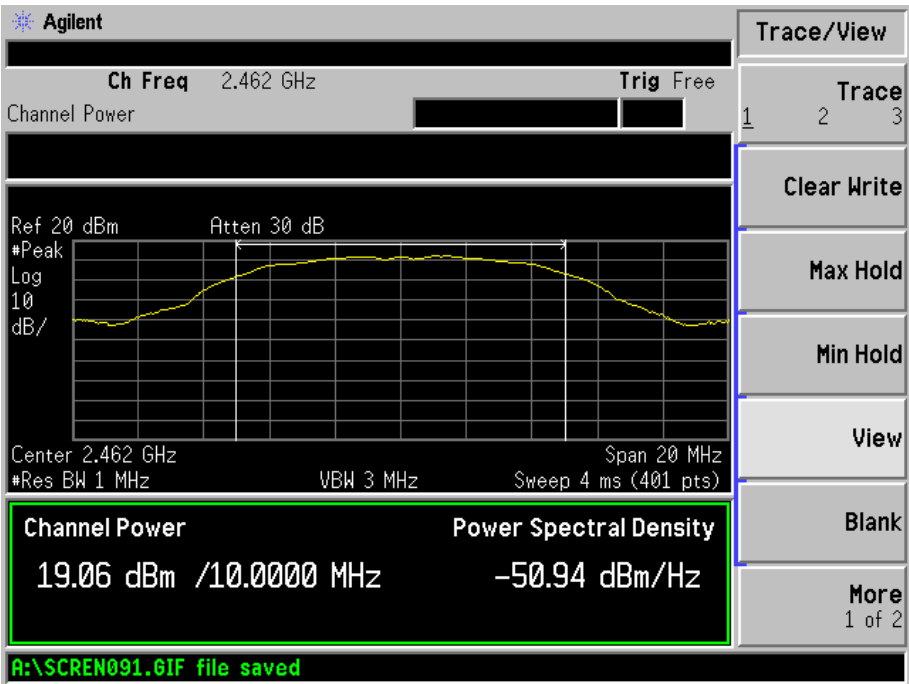
802.11b-11Mbps-Low Channel



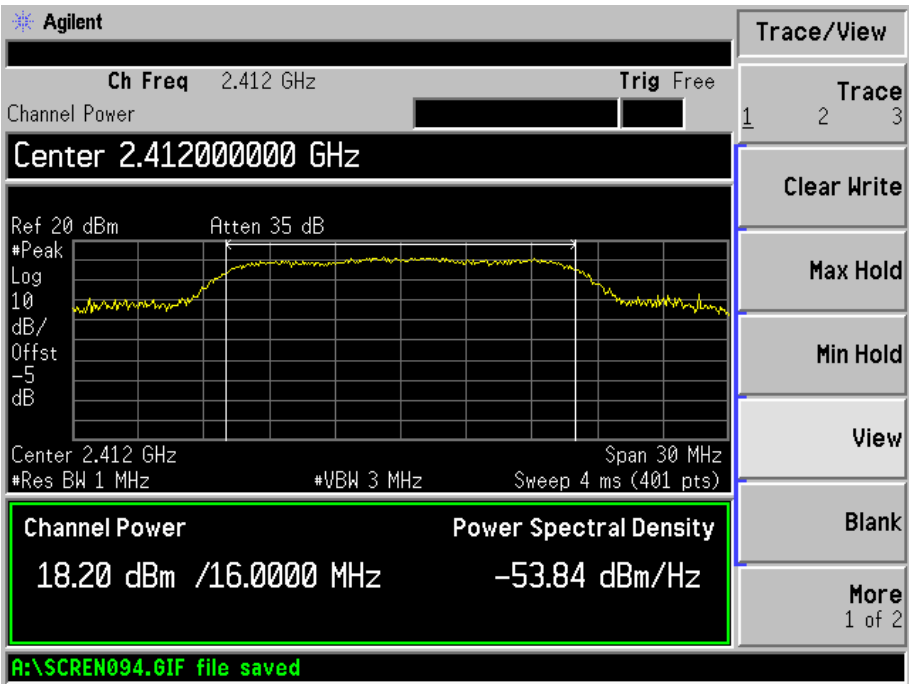
802.11b-11Mbps-Middle Channel



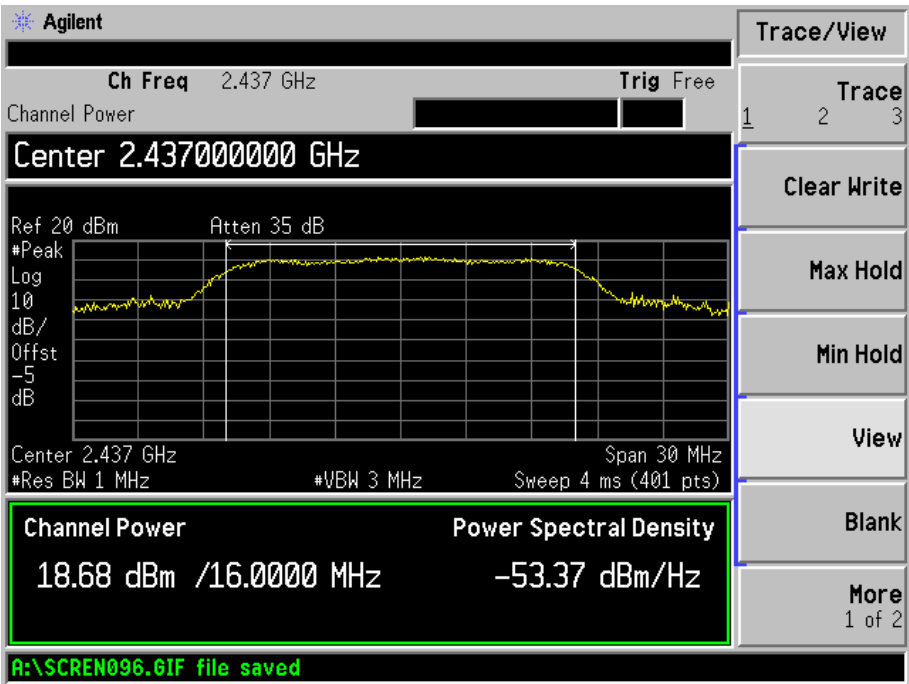
802.11b-11Mbps-High Channel



802.11g-6Mbps-Low Channel



802.11g-6Mbps-Middle Channel



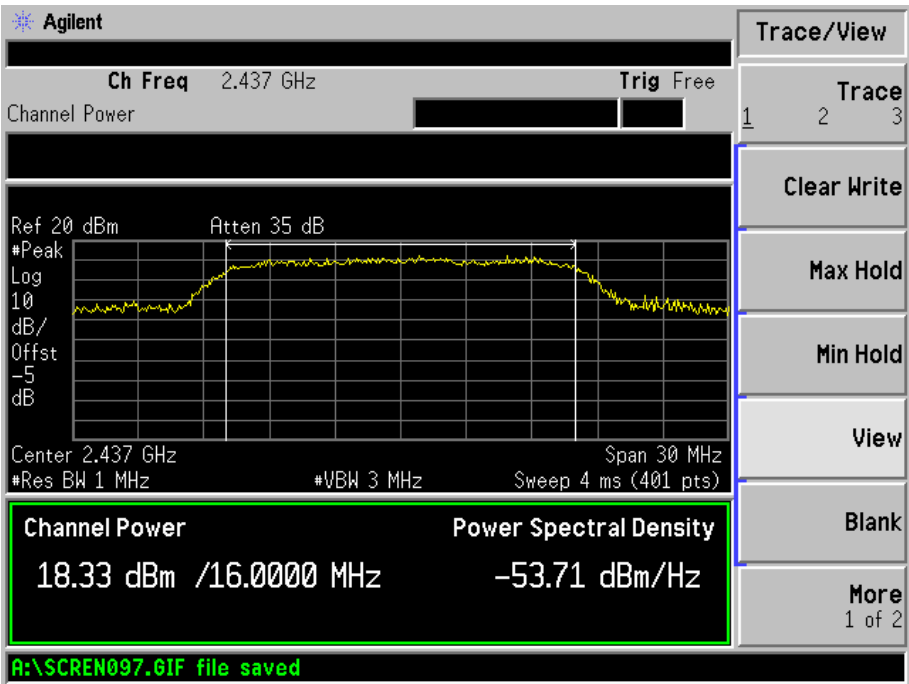
802.11g-6Mbps-High Channel



802.11g-54Mbps-Low Channel



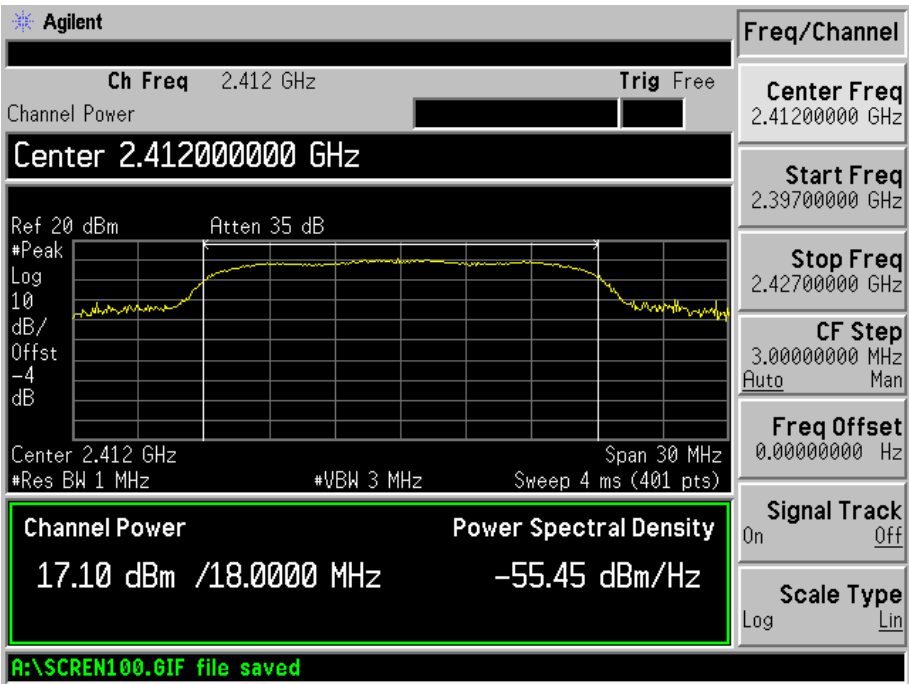
802.11g-54Mbps-Middle Channel



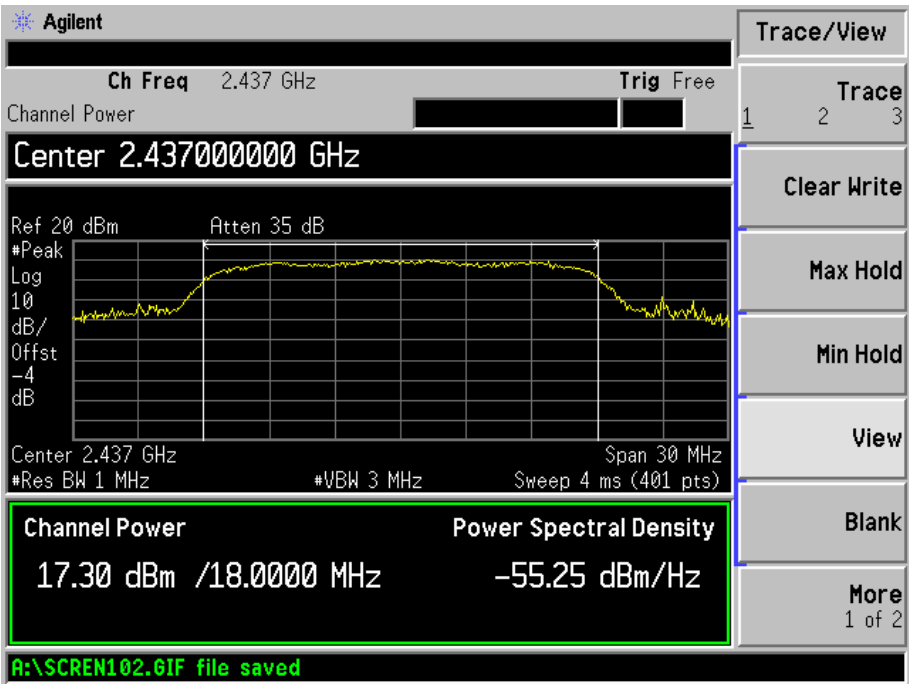
802.11g-54Mbps-High Channel



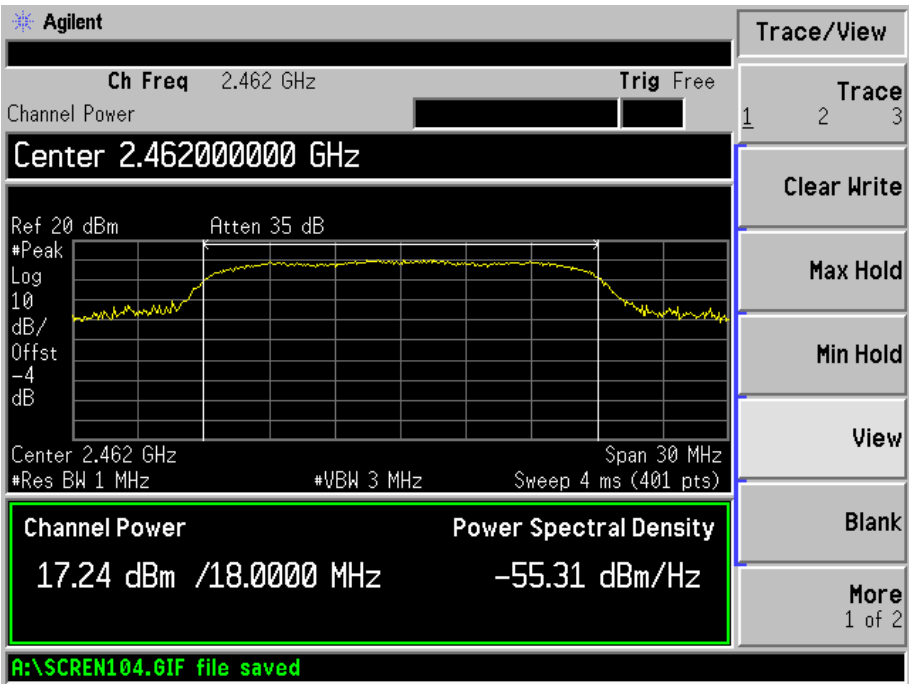
802.11n-HT20-MCS0-Low Channel



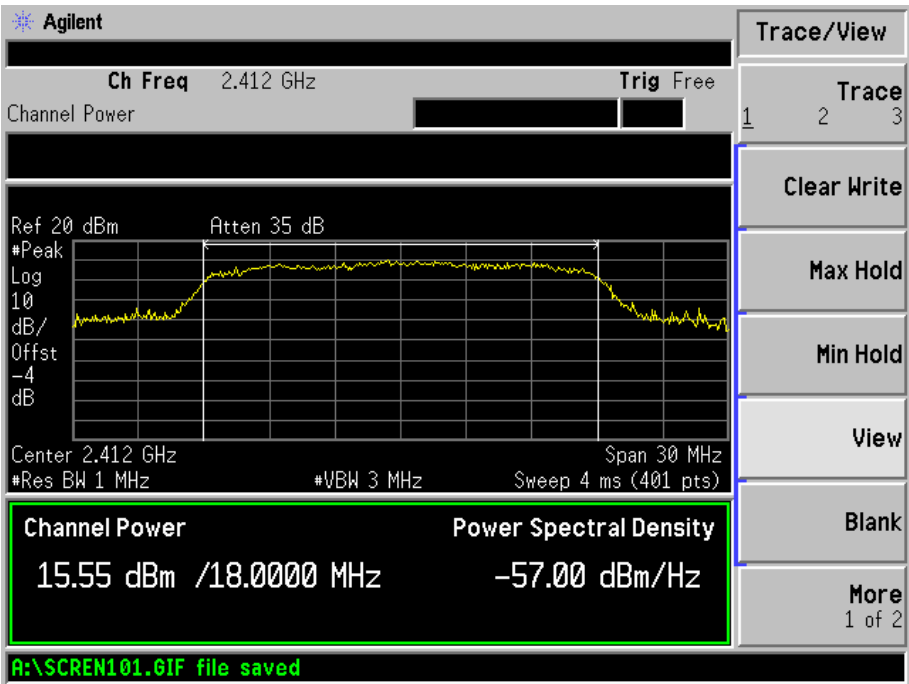
802.11n-HT20-MCS0-Middle Channel



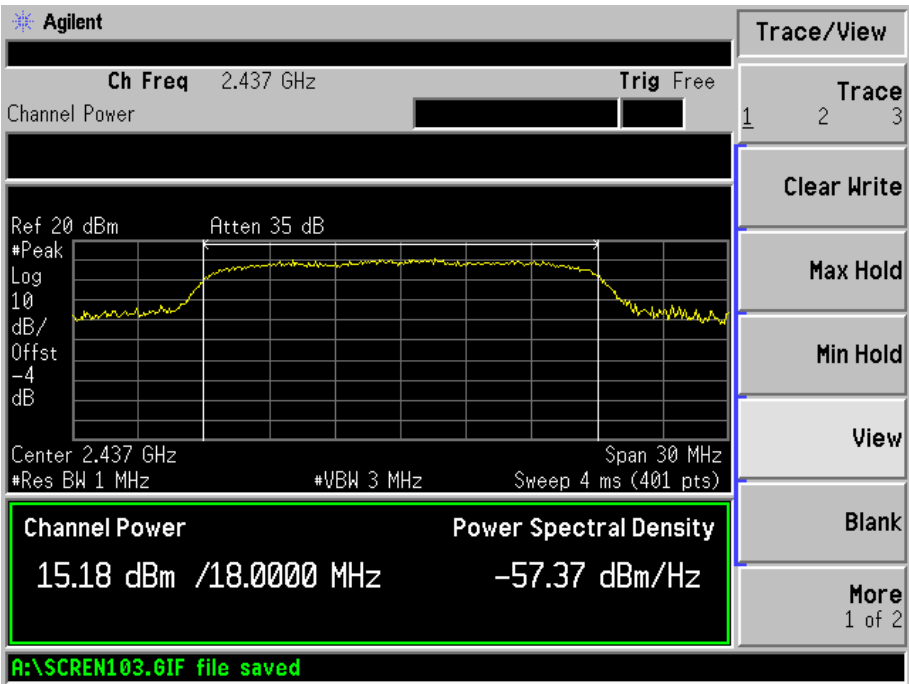
802.11n-HT20-MCS0-High Channel



802.11n-HT20-MCS15-Low Channel



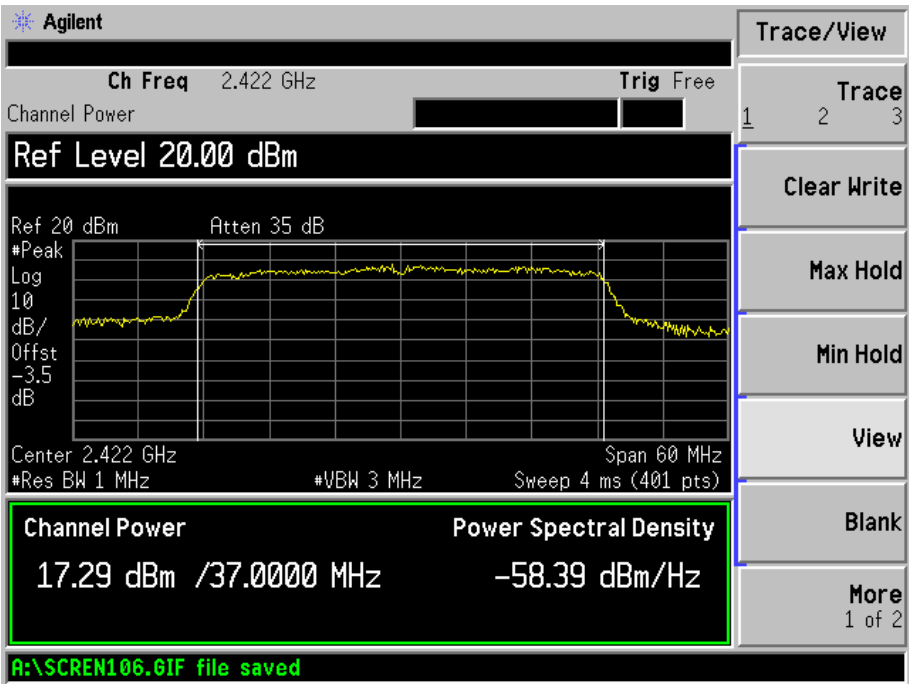
802.11n-HT20-MCS15-Middle Channel



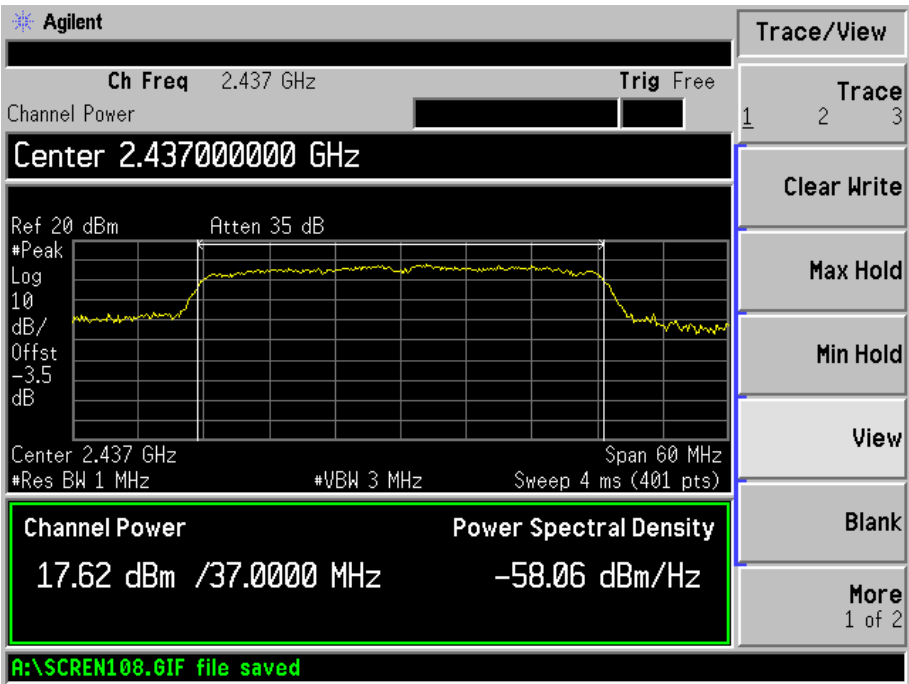
802.11n-HT20-MCS15-High Channel



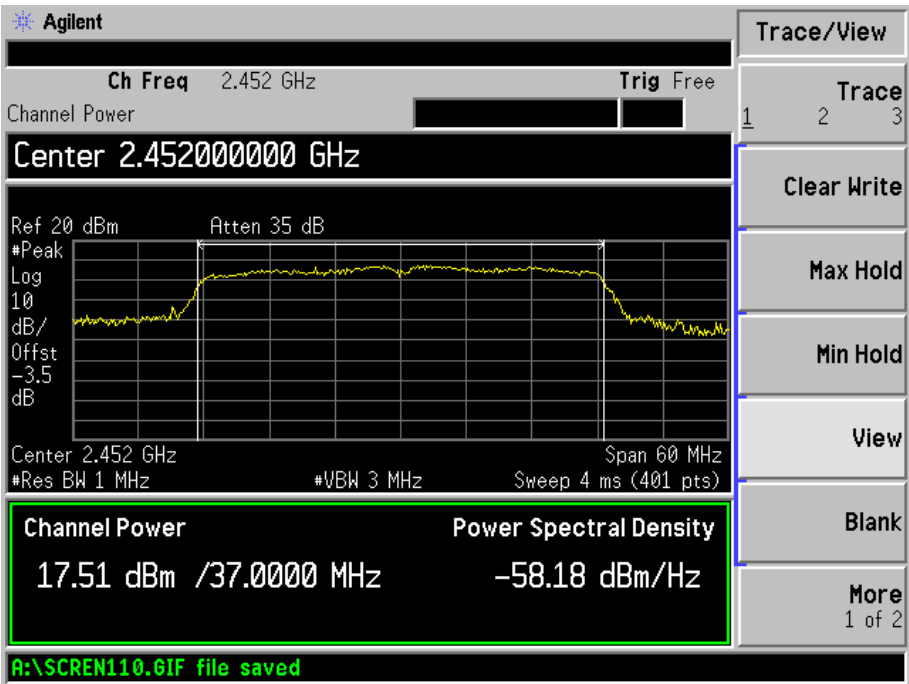
802.11n-HT40-MCS0-Low Channel



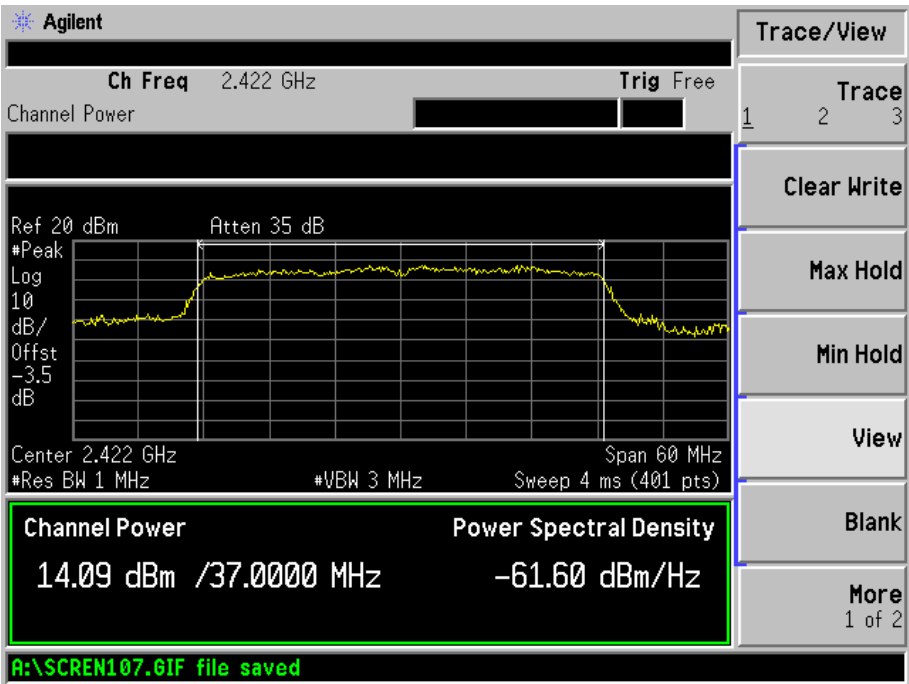
802.11n-HT40-MCS0-Middle Channel



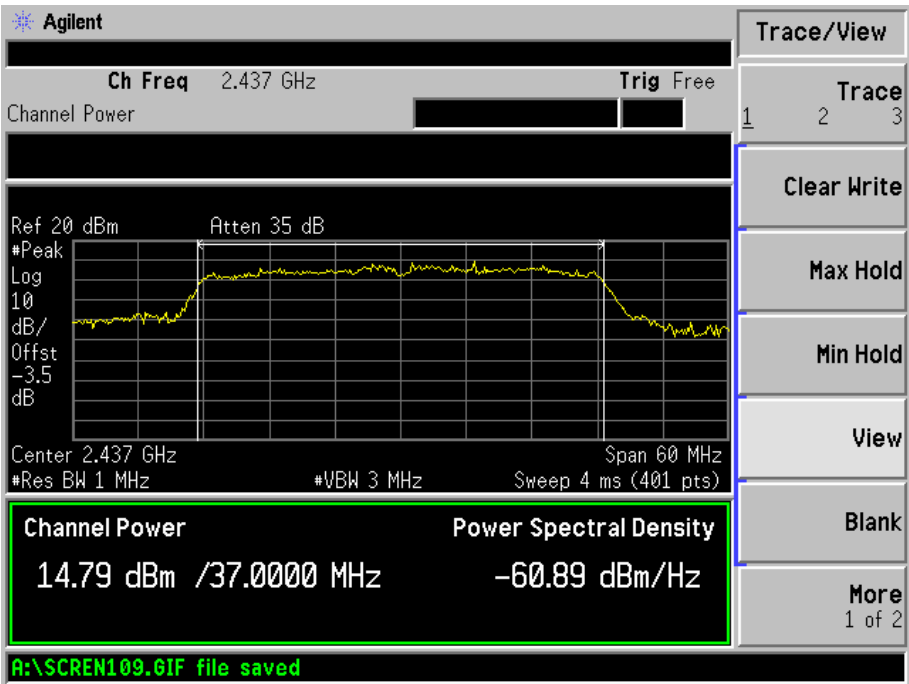
802.11n-HT40-MCS0-High Channel



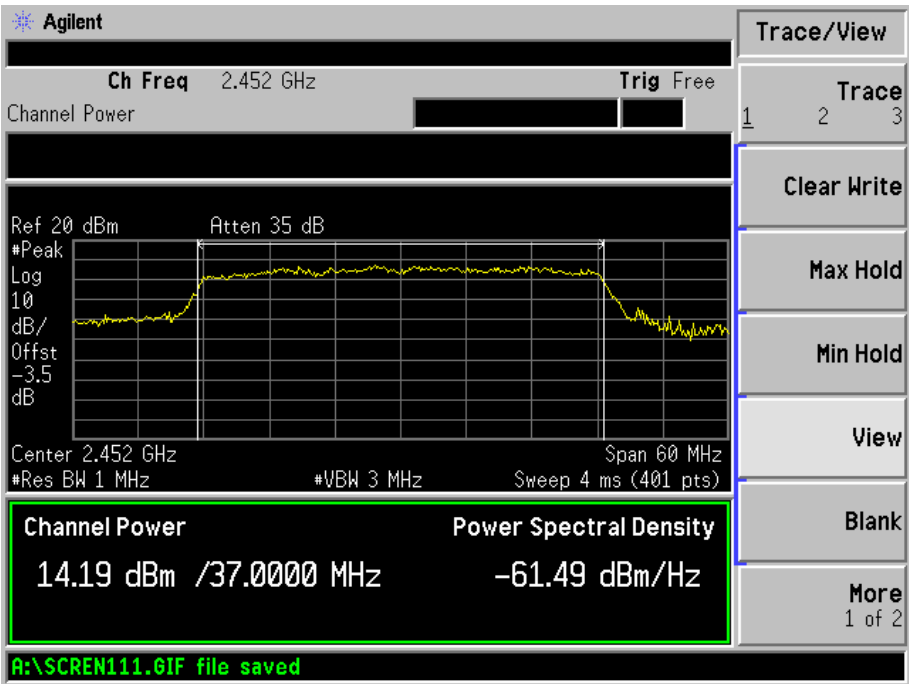
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel

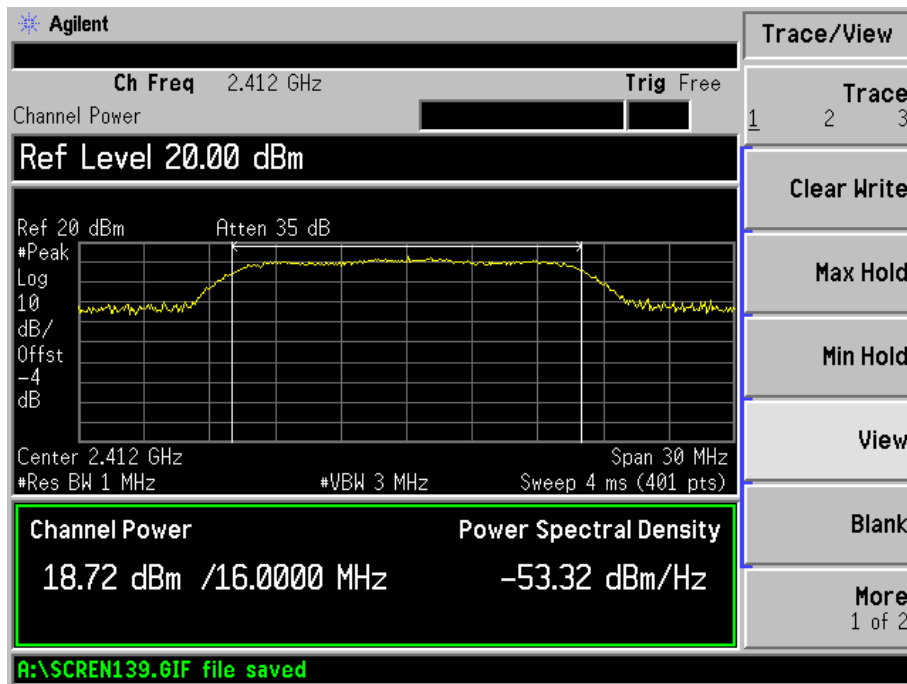


802.11n-HT40-MCS15-High Channel

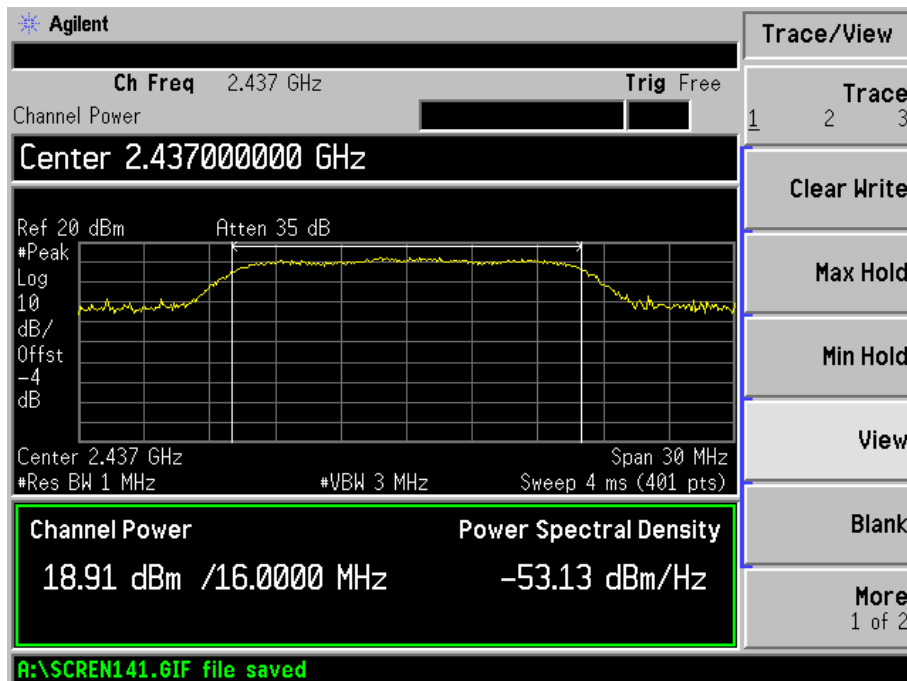


**For chain 1**

## 802.11g-6Mbps-Low Channel



## 802.11g-6Mbps-Middle Channel



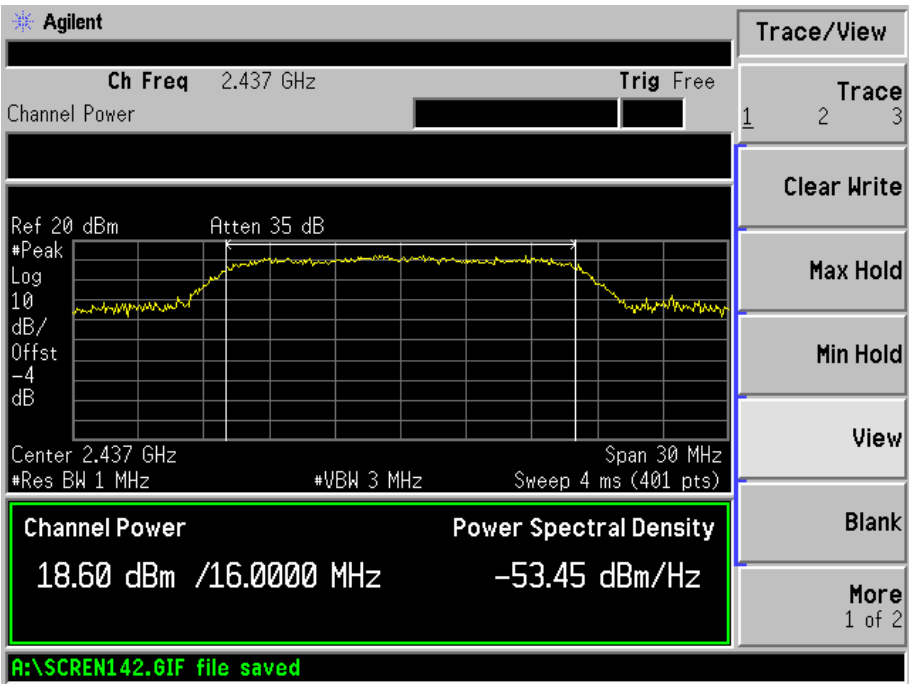
802.11g-6Mbps-High Channel



802.11g-54Mbps-Low Channel



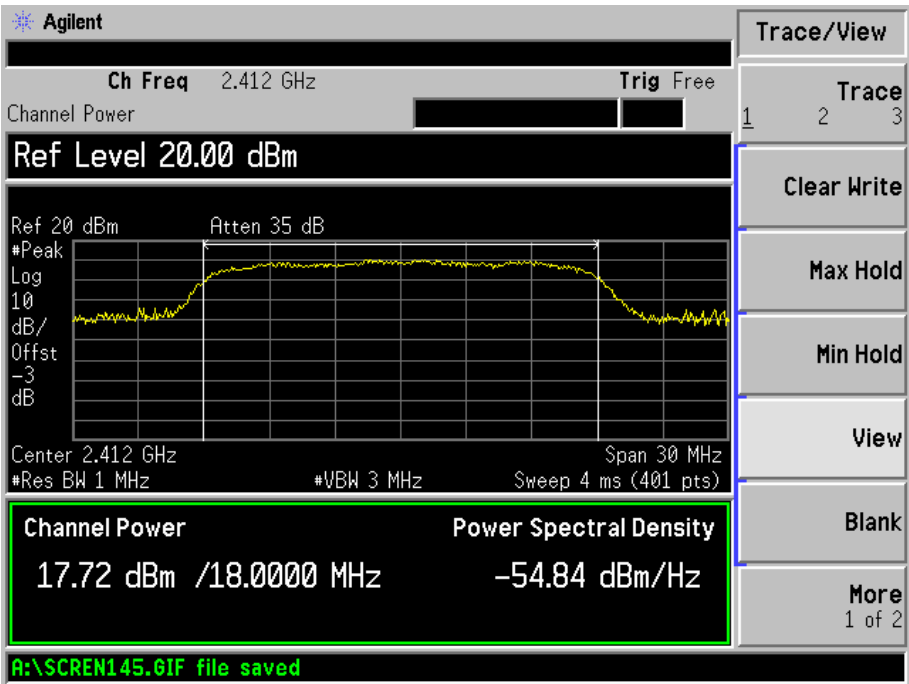
802.11g-54Mbps-Middle Channel



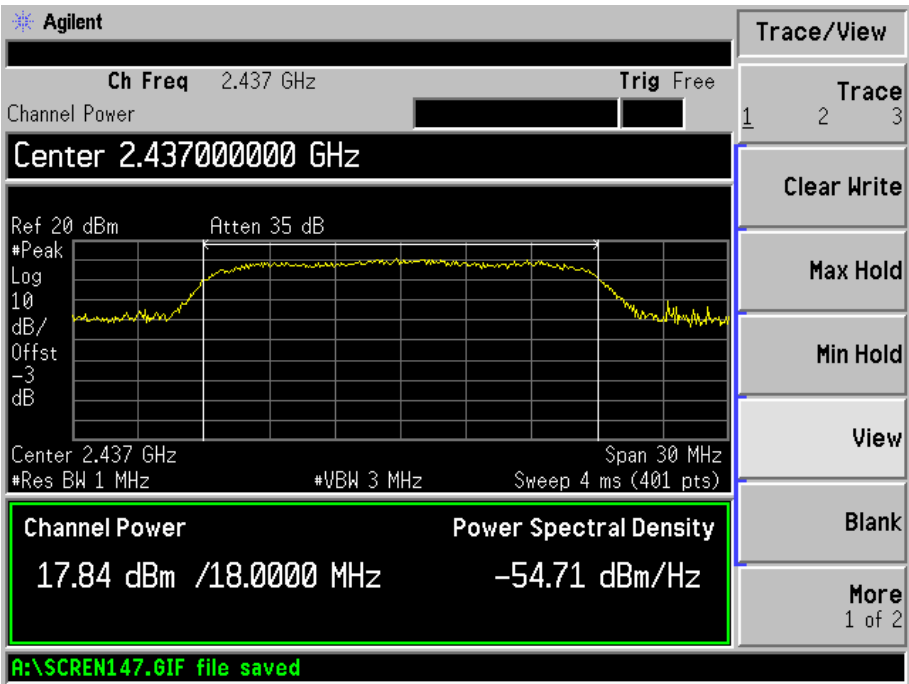
802.11g-54Mbps-High Channel



802.11n-HT20-MCS0-Low Channel



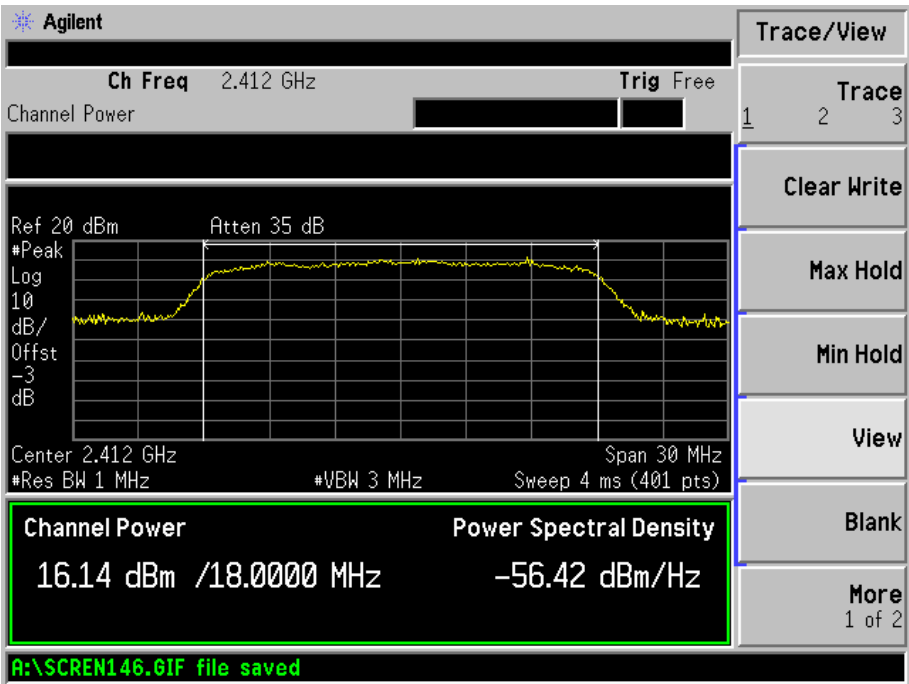
802.11n-HT20-MCS0-Middle Channel



802.11n-HT20-MCS0-High Channel



802.11n-HT20-MCS15-Low Channel



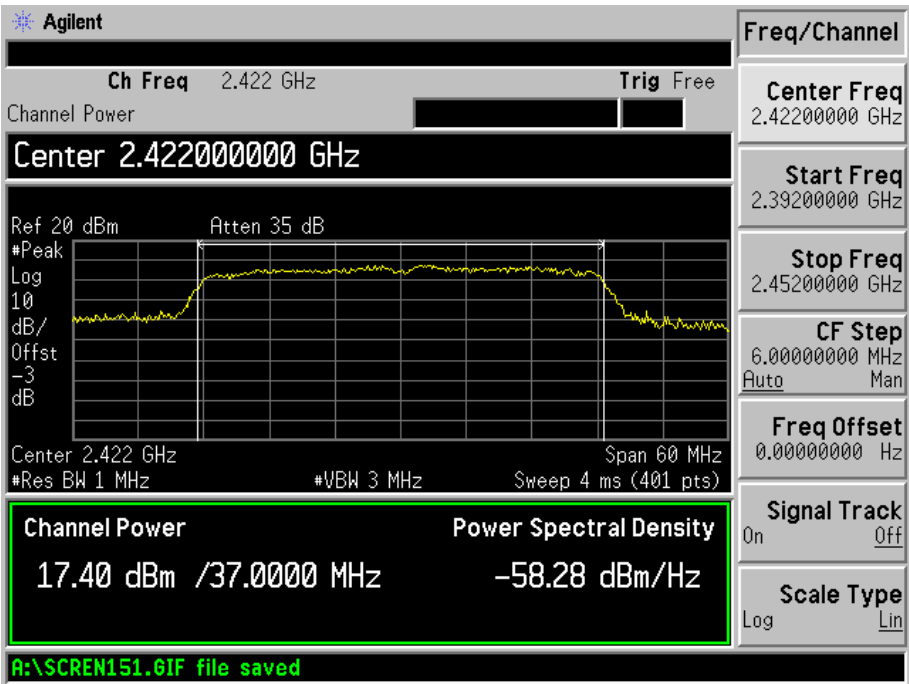
802.11n-HT20-MCS15-Middle Channel



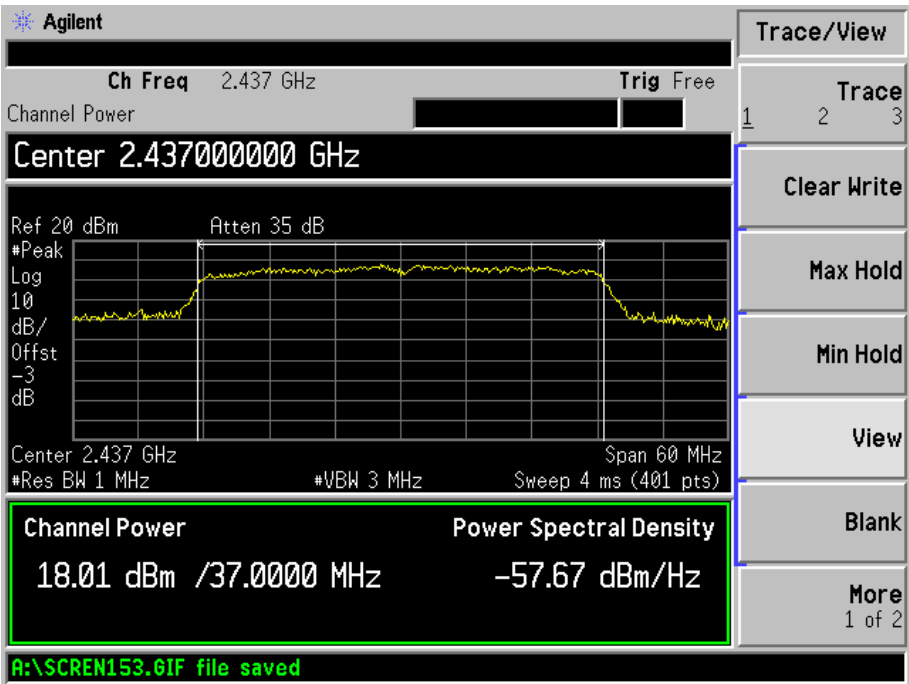
802.11n-HT20-MCS15-High Channel



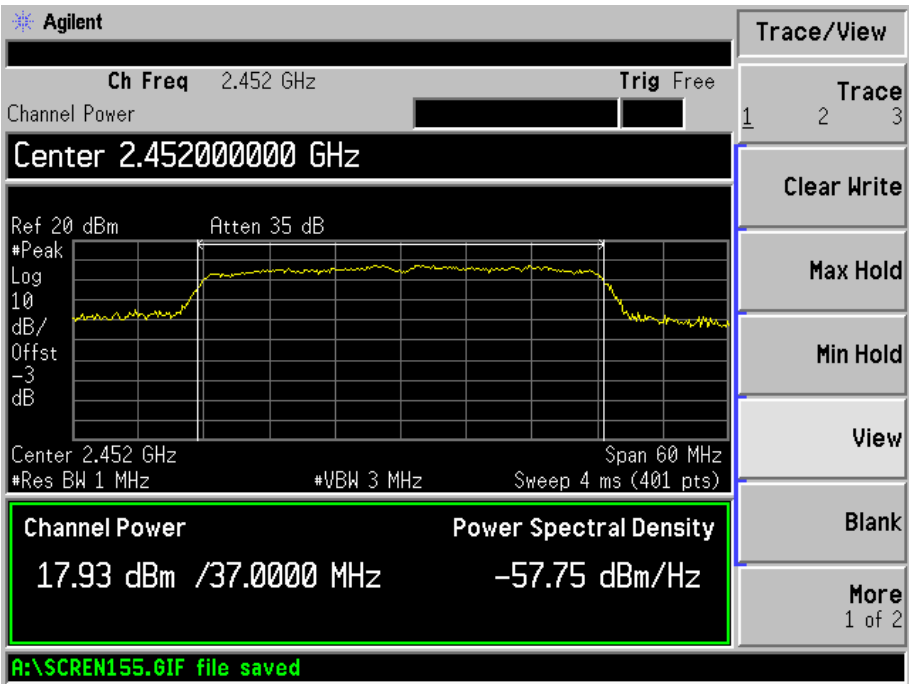
802.11n-HT40-MCS0-Low Channel



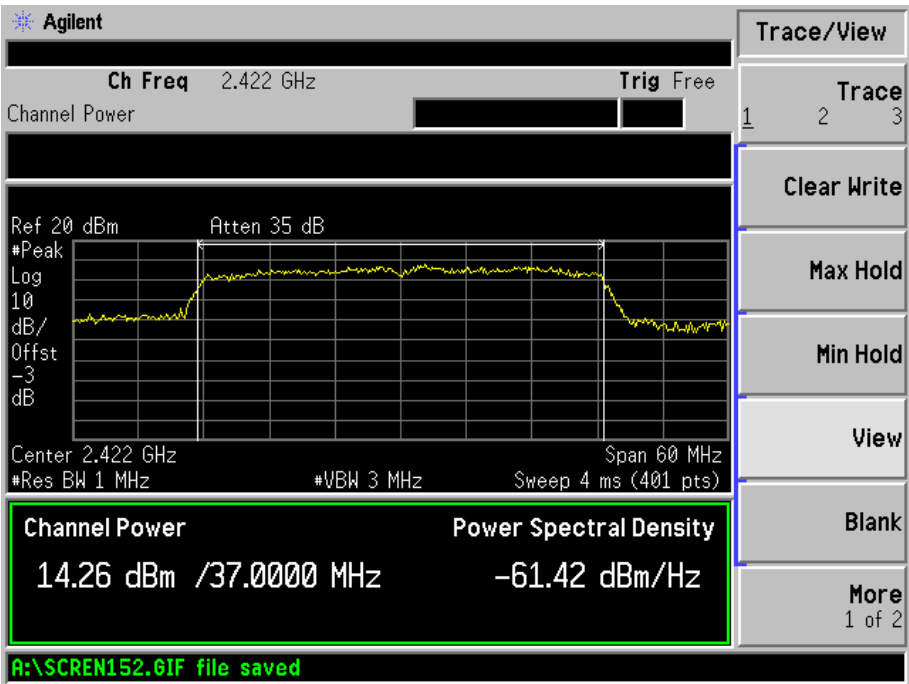
802.11n-HT40-MCS0-Middle Channel



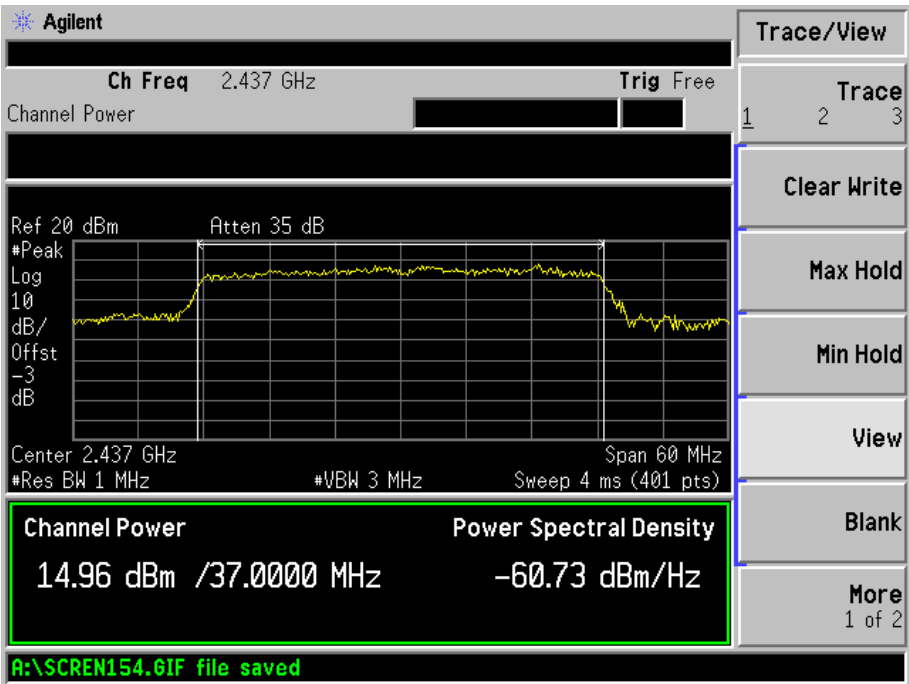
802.11n-HT40-MCS0-High Channel



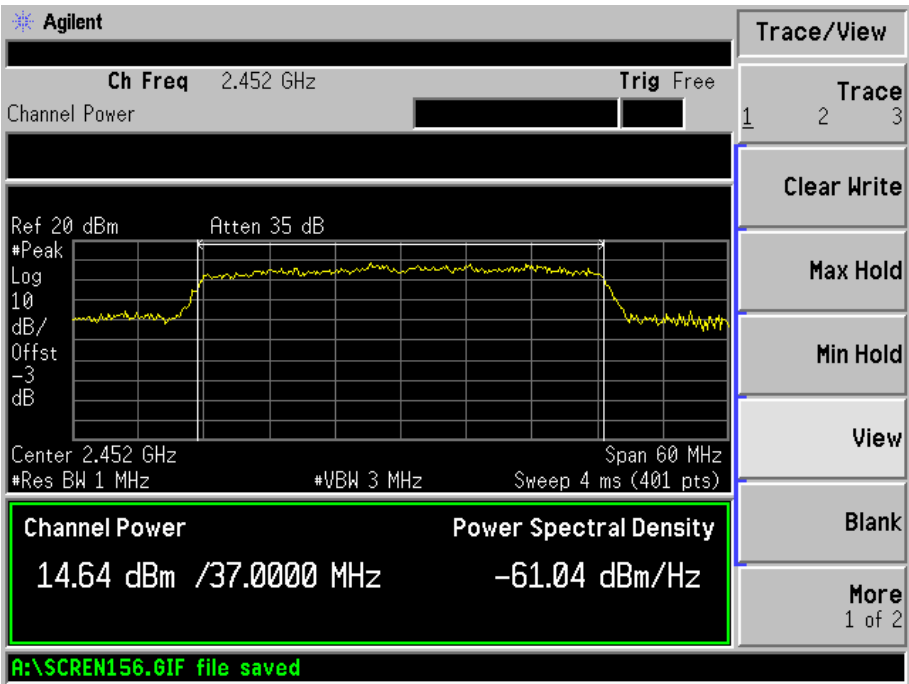
802.11n-HT40-MCS15-Low Channel



802.11n-HT40-MCS15-Middle Channel



802.11n-HT40-MCS15-High Channel



## 7. Field Strength of Spurious Emissions

### 7.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is  $\pm 5.10$  dB.

### 7.2 Standard Applicable

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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).

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

### 7.3 Test Equipment List and Details

| Description              | Manufacturer         | Model     | Serial Number | Cal. Date  | Due. Date  |
|--------------------------|----------------------|-----------|---------------|------------|------------|
| Spectrum Analyzer        | R&S                  | FSP       | 836079/035    | 2013-03-28 | 2014-03-27 |
| EMI Test Receiver        | R&S                  | ESVB      | 825471/005    | 2013-03-28 | 2014-03-27 |
| Pre-amplifier            | Agilent              | 8447F     | 3113A06717    | 2013-03-28 | 2014-03-27 |
| Pre-amplifier            | Compliance Direction | PAP-0118  | 24002         | 2013-03-28 | 2014-03-27 |
| Trilog Broadband Antenna | SCHWARZBECK          | VULB9163  | 9163-333      | 2013-02-25 | 2014-02-24 |
| Horn Antenna             | ETS                  | 3117      | 00086197      | 2013-02-25 | 2014-02-24 |
| Horn Antenna             | ETS                  | 3116B     | 00088203      | 2013-02-25 | 2014-02-24 |
| Loop Antenna             | SCHWARZECK           | HFRA 5165 | 9365          | 2013-02-25 | 2014-02-24 |

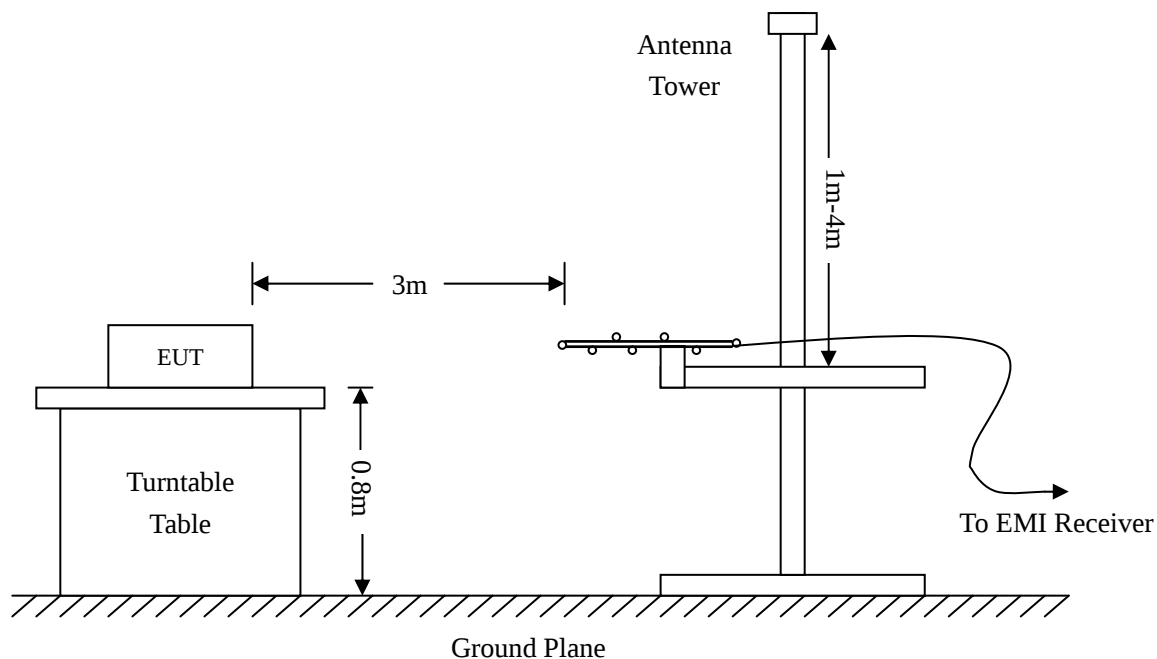
**Statement of Traceability:** All calibrations have been performed per the NVLAP requirements traceable to the NIST.

## 7.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



## 7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

## 7.6 Environmental Conditions

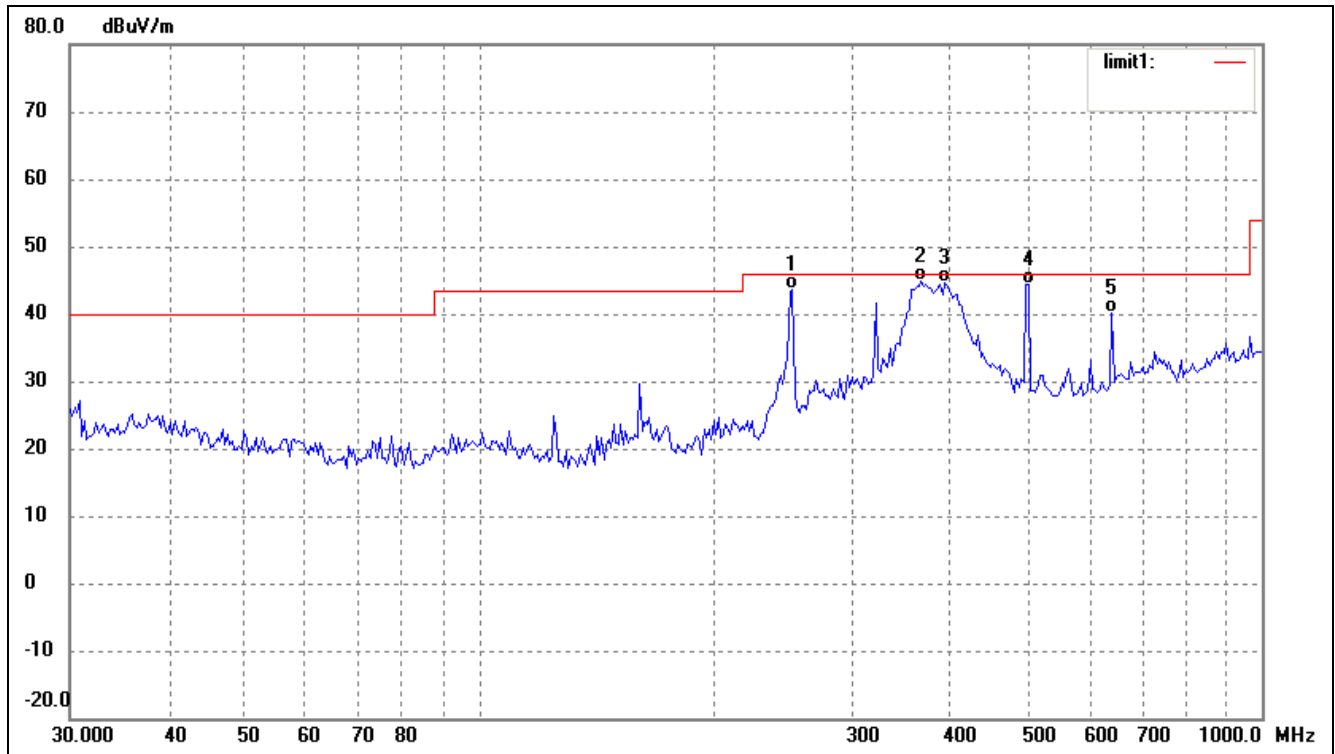
|                    |           |
|--------------------|-----------|
| Temperature:       | 25 °C     |
| Relative Humidity: | 52%       |
| ATM Pressure:      | 1012 mbar |

## 7.7 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst margin of:

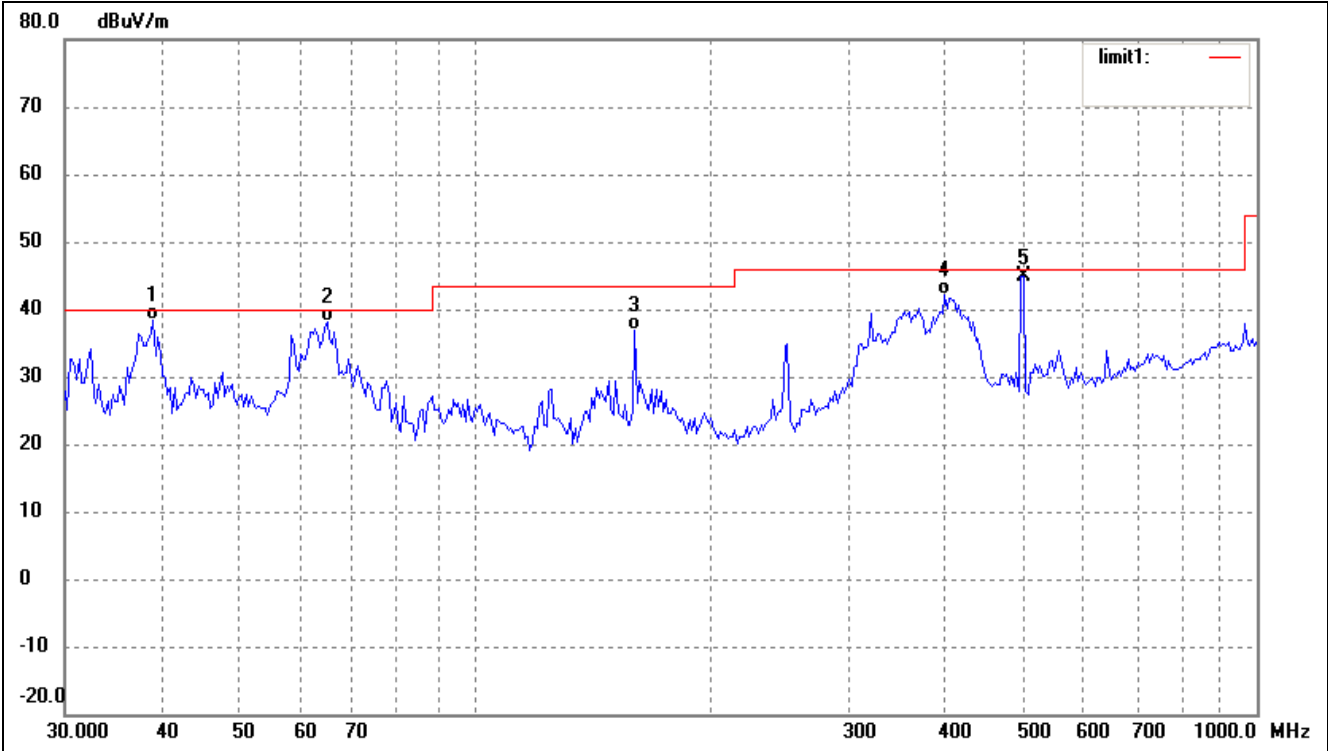
**-0.69 dB at 364.2595 MHz in the Horizontal polarization for 802.11b-Middle Channel, 9kHz to 25 GHz, 3 Meters**

*Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

**Plot of Radiated Emissions Test Data (30MHz to 1GHz)***EUT:* ADSL2+Router WiFi 11n 2x2*Tested Model:* P.DG A4001N A-000-1A1-AE*Operating Condition:* 802.11b Transmitting Low Channel-2412MHz*Comment:* AC 120V/60Hz; adapter DC 12V*Test Specification:* Horizontal

| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 251.1804  | 36.21    | 7.34       | 43.55    | 46.00    | -2.45  | 215    | 100    | QP     |
| 2   | 366.8231  | 34.15    | 10.67      | 44.82    | 46.00    | -1.18  | 360    | 100    | QP     |
| 3   | 393.4723  | 33.40    | 11.24      | 44.64    | 46.00    | -1.36  | 2      | 100    | QP     |
| 4   | 502.9395  | 32.07    | 12.30      | 44.37    | 46.00    | -1.63  | 15     | 100    | QP     |
| 5   | 642.8613  | 25.03    | 15.14      | 40.17    | 46.00    | -5.83  | 65     | 100    | QP     |

Test Specification: Vertical

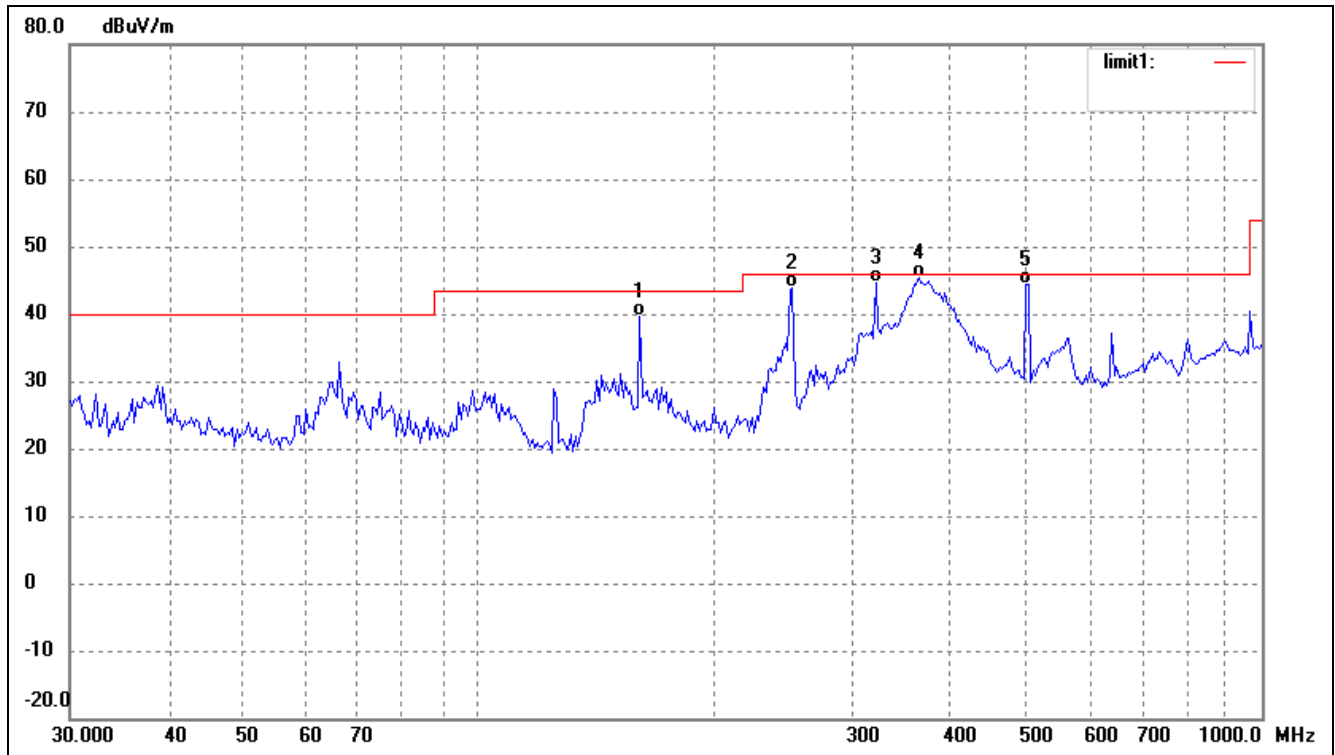


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 28.86    | 9.50       | 38.36    | 40.00    | -1.64  | 360    | 100    | QP     |
| 2   | 64.8865   | 34.09    | 4.15       | 38.24    | 40.00    | -1.76  | 24     | 100    | QP     |
| 3   | 160.3457  | 33.15    | 3.65       | 36.80    | 43.50    | -6.70  | 64     | 100    | QP     |
| 4   | 399.0302  | 30.59    | 11.50      | 42.09    | 46.00    | -3.91  | 35     | 100    | QP     |
| 5   | 502.9395  | 32.53    | 12.30      | 44.83    | 46.00    | -1.17  | 214    | 100    | peak   |

Operating Condition: 802.11b Transmitting Middle Channel-2437MHz

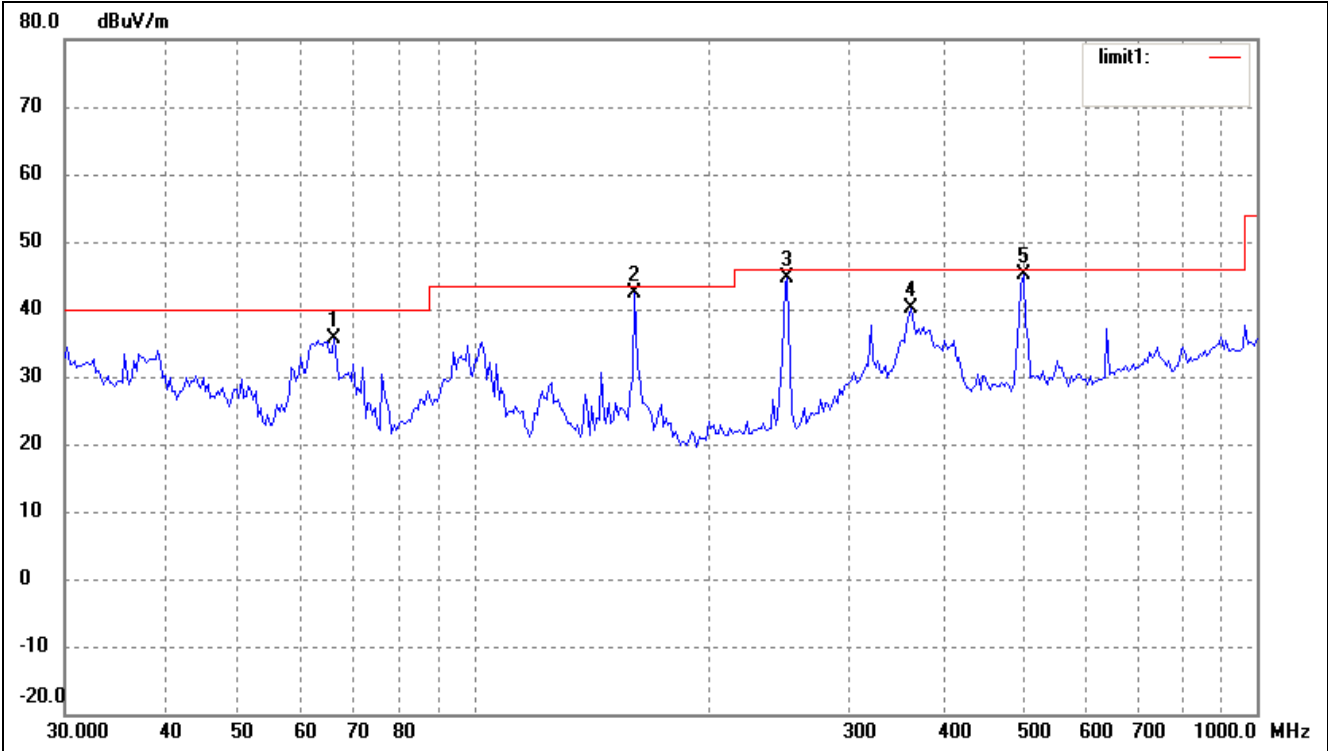
Comment: AC 120V/60Hz, adapter DC 12V

Test Specification: Horizontal



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 160.3457  | 35.91    | 3.65       | 39.56    | 43.50    | -3.94  | 266    | 100    | QP     |
| 2   | 251.1804  | 36.64    | 7.34       | 43.98    | 46.00    | -2.02  | 31     | 100    | QP     |
| 3   | 321.0608  | 34.14    | 10.46      | 44.60    | 46.00    | -1.40  | 45     | 100    | QP     |
| 4   | 364.2595  | 34.63    | 10.68      | 45.31    | 46.00    | -0.69  | 360    | 100    | QP     |
| 5   | 499.4247  | 32.29    | 12.18      | 44.47    | 46.00    | -1.53  | 45     | 100    | QP     |

Test Specification: Vertical

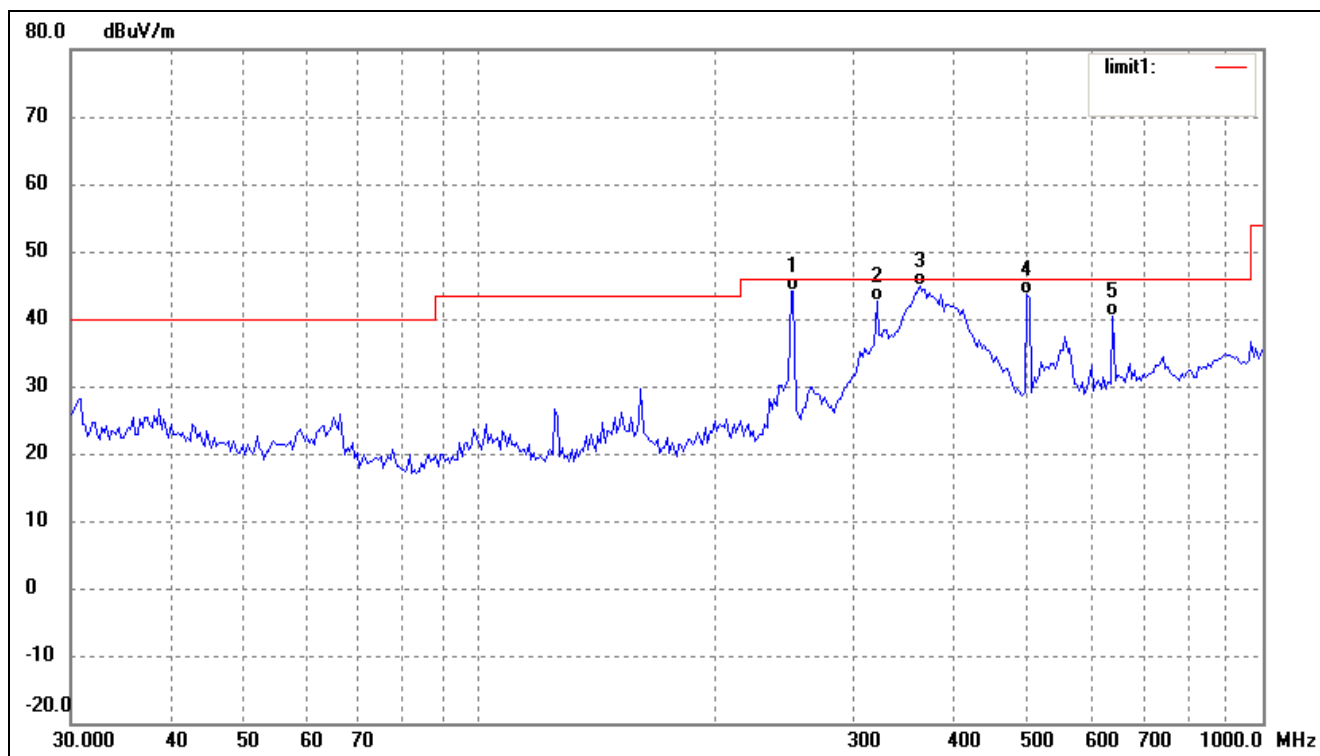


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 66.2662   | 31.97    | 3.71       | 35.68    | 40.00    | -4.32  | 36     | 100    | peak   |
| 2   | 160.3457  | 38.75    | 3.65       | 42.40    | 43.50    | -1.10  | 24     | 100    | peak   |
| 3   | 251.1804  | 37.24    | 7.34       | 44.58    | 46.00    | -1.42  | 322    | 100    | peak   |
| 4   | 361.7139  | 29.35    | 10.69      | 40.04    | 46.00    | -5.96  | 25     | 100    | peak   |
| 5   | 502.9395  | 32.88    | 12.30      | 45.18    | 46.00    | -0.82  | 162    | 100    | peak   |

Operating Condition: 802.11b Transmitting Highest Channel-2462MHz

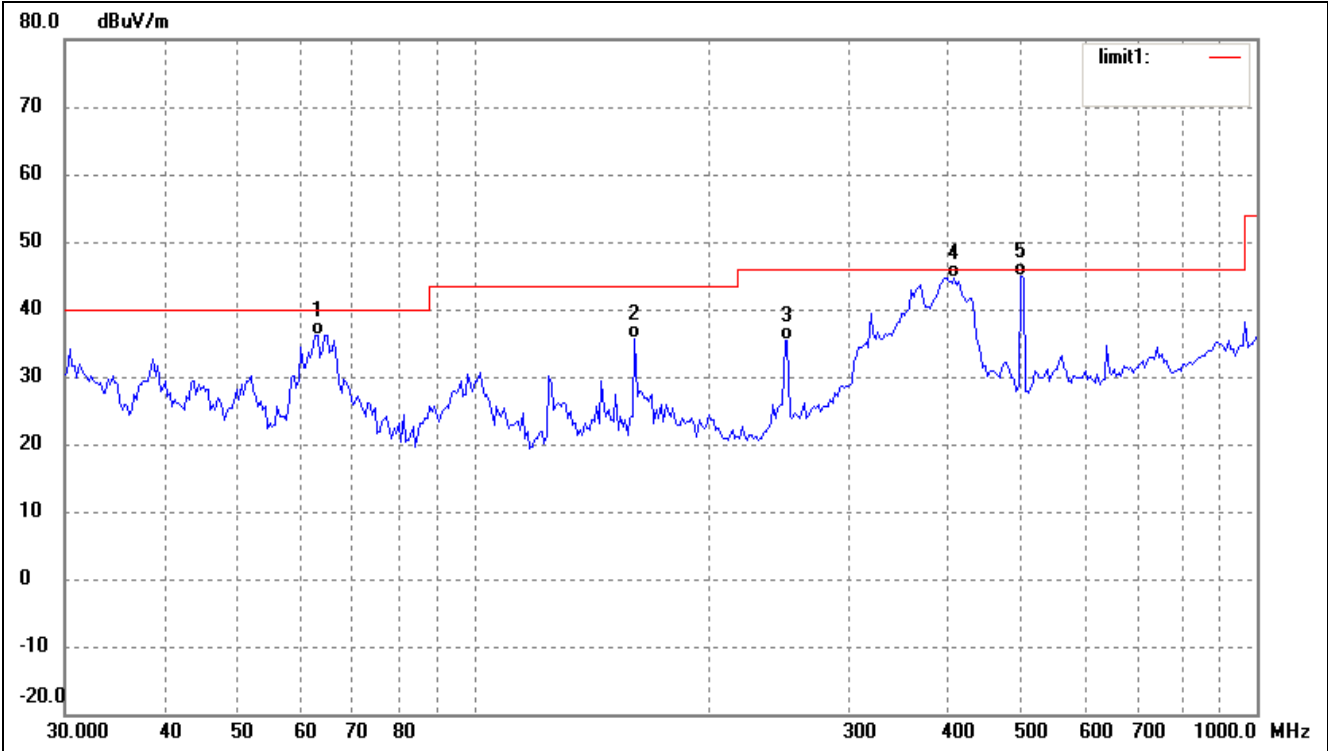
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 251.1804           | 36.75               | 7.34                  | 44.09              | 46.00             | -1.91          | 360             | 100            | QP     |
| 2   | 321.0608           | 32.06               | 10.46                 | 42.52              | 46.00             | -3.48          | 255             | 100            | QP     |
| 3   | 364.2595           | 34.13               | 10.68                 | 44.81              | 46.00             | -1.19          | 64              | 100            | QP     |
| 4   | 499.4247           | 31.57               | 12.18                 | 43.75              | 46.00             | -2.25          | 125             | 100            | QP     |
| 5   | 642.8613           | 25.35               | 15.14                 | 40.49              | 46.00             | -5.51          | 22              | 100            | QP     |

Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 63.0916   | 31.54    | 4.71       | 36.25    | 40.00    | -3.75  | 215    | 100    | QP     |
| 2   | 160.3457  | 32.00    | 3.65       | 35.65    | 43.50    | -7.85  | 270    | 100    | QP     |
| 3   | 251.1804  | 28.13    | 7.34       | 35.47    | 46.00    | -10.53 | 3      | 100    | QP     |
| 4   | 410.3825  | 33.63    | 11.11      | 44.74    | 46.00    | -1.26  | 91     | 100    | QP     |
| 5   | 499.4247  | 32.80    | 12.18      | 44.98    | 46.00    | -1.02  | 24     | 100    | QP     |

**Plot of Radiated Emissions Test Data (30MHz to 1GHz)**

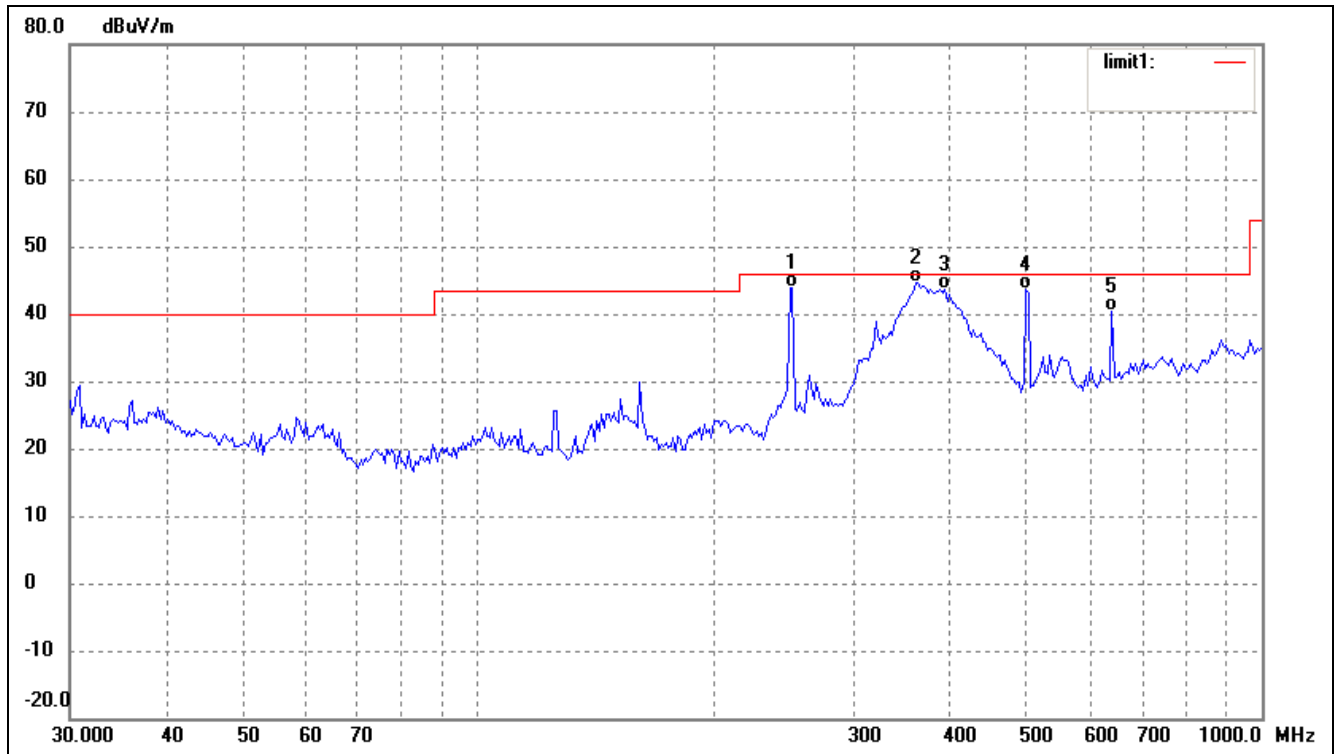
EUT: ADSL2+Router WiFi 11n 2x2

Tested Model: P.DG A4001N A-000-1A1-AE

Operating Condition: 802.11g Transmitting Low Channel-2412MHz

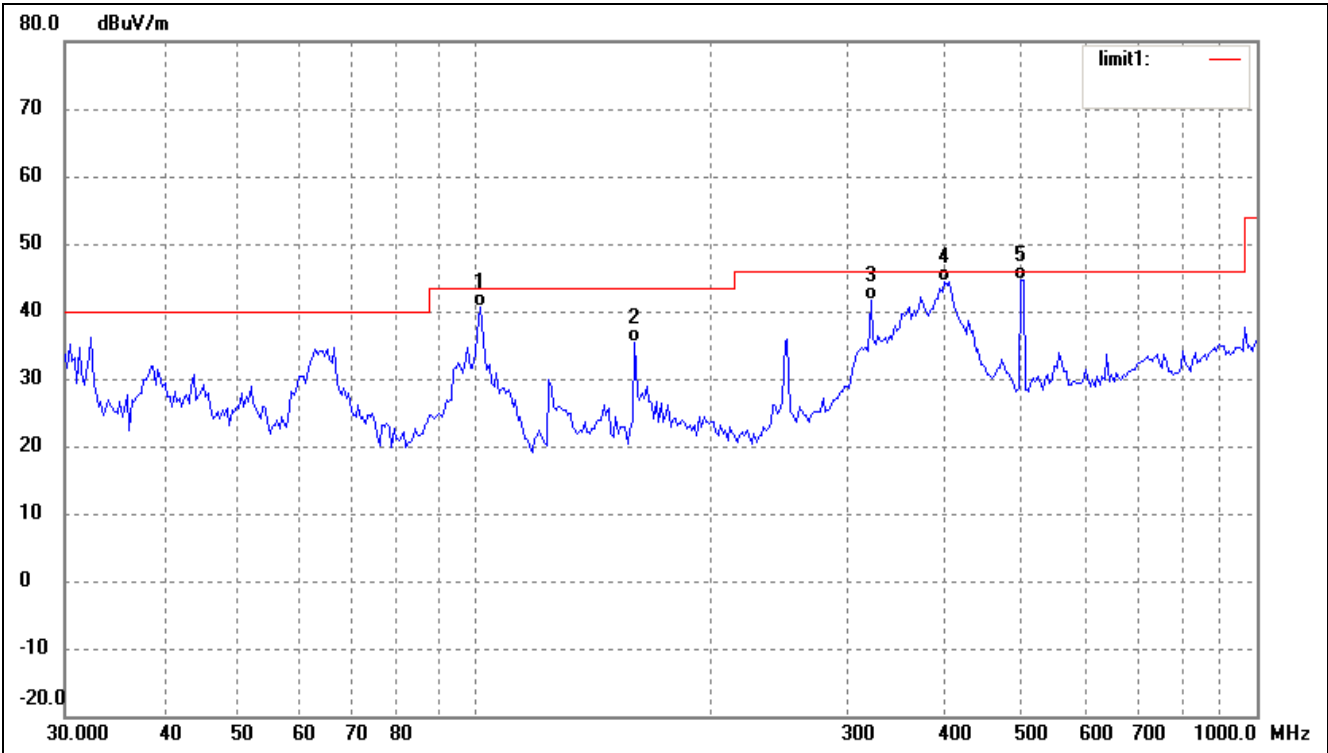
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 251.1804  | 36.65    | 7.34       | 43.99    | 46.00    | -2.01  | 256    | 100    | QP     |
| 2   | 361.7139  | 33.89    | 10.69      | 44.58    | 46.00    | -1.42  | 305    | 100    | QP     |
| 3   | 393.4724  | 32.44    | 11.24      | 43.68    | 46.00    | -2.32  | 14     | 100    | QP     |
| 4   | 499.4247  | 31.50    | 12.18      | 43.68    | 46.00    | -2.32  | 25     | 100    | QP     |
| 5   | 642.8613  | 25.17    | 15.14      | 40.31    | 46.00    | -5.69  | 312    | 100    | QP     |

Test Specification: Vertical

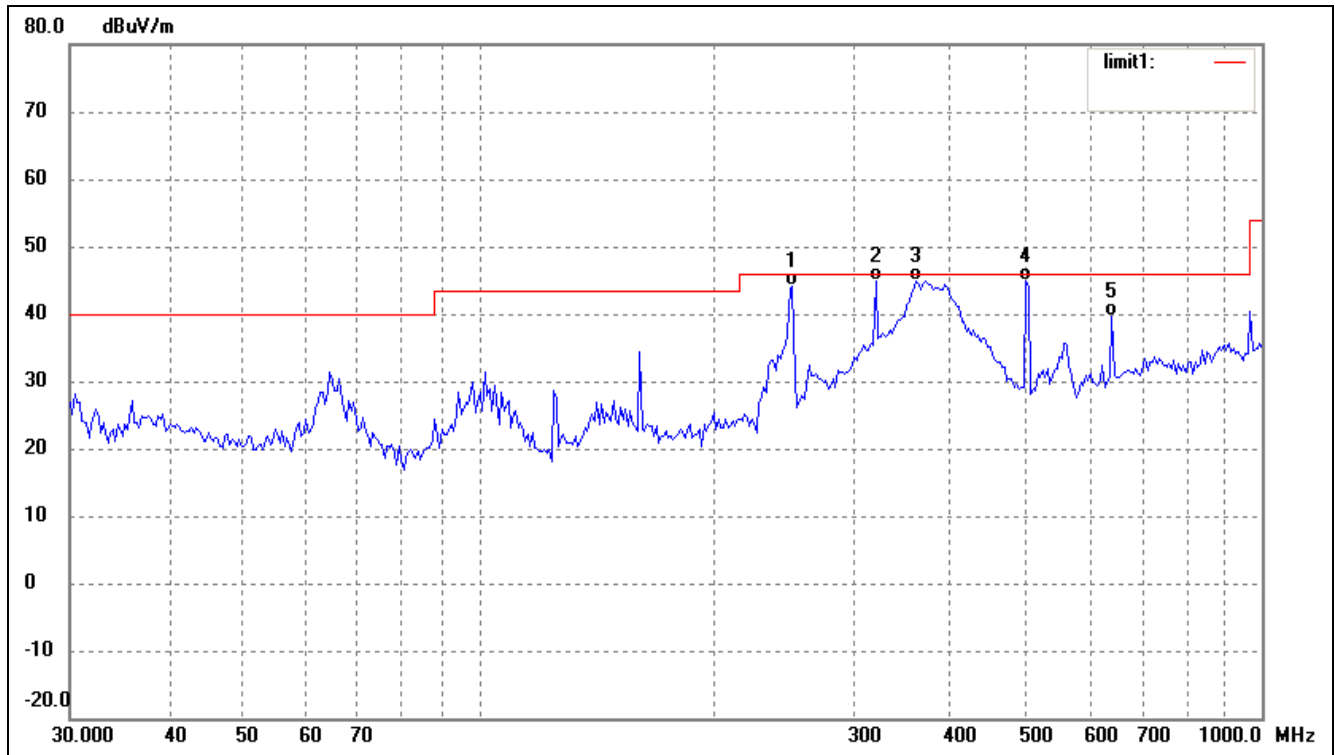


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 101.6443  | 33.97    | 6.67       | 40.64    | 43.50    | -2.86  | 253    | 100    | QP     |
| 2   | 160.3457  | 31.84    | 3.65       | 35.49    | 43.50    | -8.01  | 36     | 100    | QP     |
| 3   | 321.0608  | 31.16    | 10.46      | 41.62    | 46.00    | -4.38  | 44     | 100    | QP     |
| 4   | 399.0302  | 32.97    | 11.50      | 44.47    | 46.00    | -1.53  | 51     | 100    | QP     |
| 5   | 499.4247  | 32.42    | 12.18      | 44.60    | 46.00    | -1.40  | 355    | 100    | QP     |

Operating Condition: 802.11g Transmitting Middle Channel-2437MHz

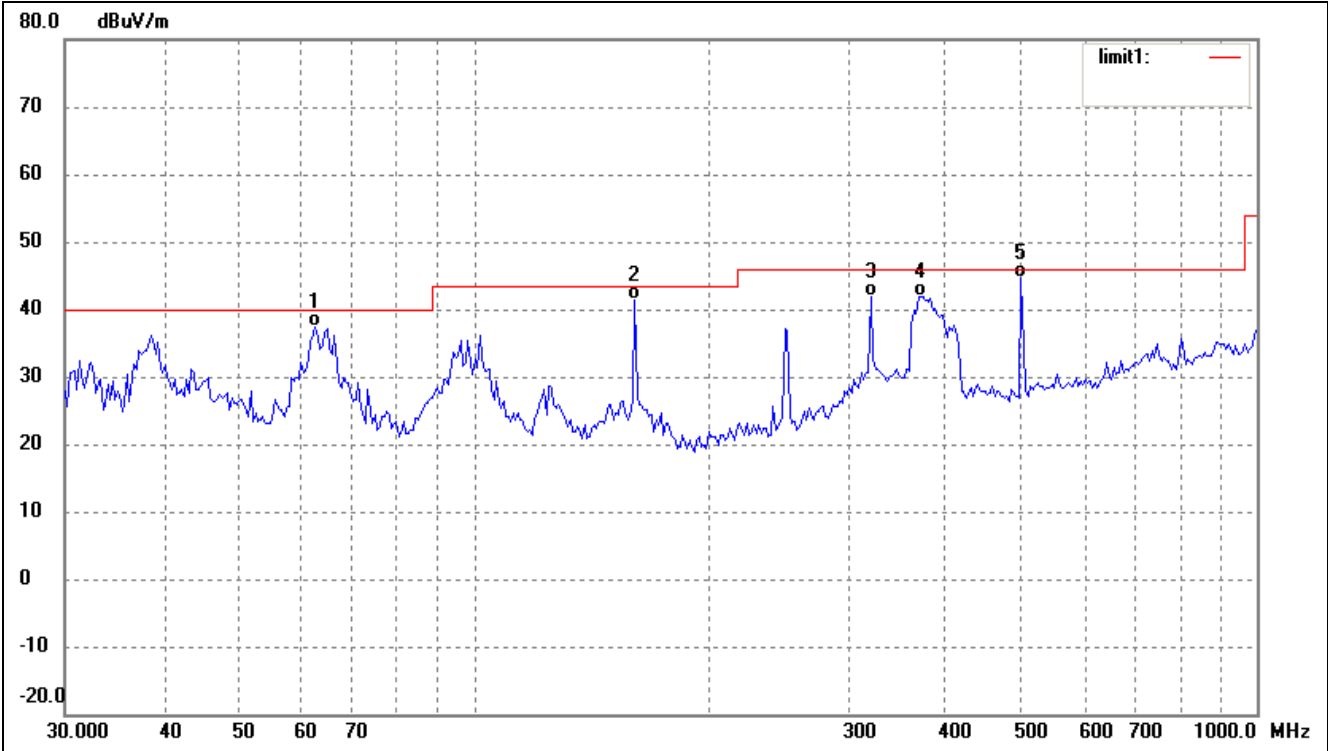
Comment: AC 120V/60Hz, adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 251.1804           | 36.88               | 7.34                  | 44.22              | 46.00             | -1.78          | 253             | 100            | QP     |
| 2   | 321.0608           | 34.30               | 10.46                 | 44.76              | 46.00             | -1.24          | 48              | 100            | QP     |
| 3   | 361.7139           | 34.29               | 10.69                 | 44.98              | 46.00             | -1.02          | 51              | 100            | QP     |
| 4   | 499.4247           | 32.61               | 12.18                 | 44.79              | 46.00             | -1.21          | 262             | 100            | QP     |
| 5   | 642.8613           | 24.49               | 15.14                 | 39.63              | 46.00             | -6.37          | 122             | 100            | QP     |

Test Specification: Vertical

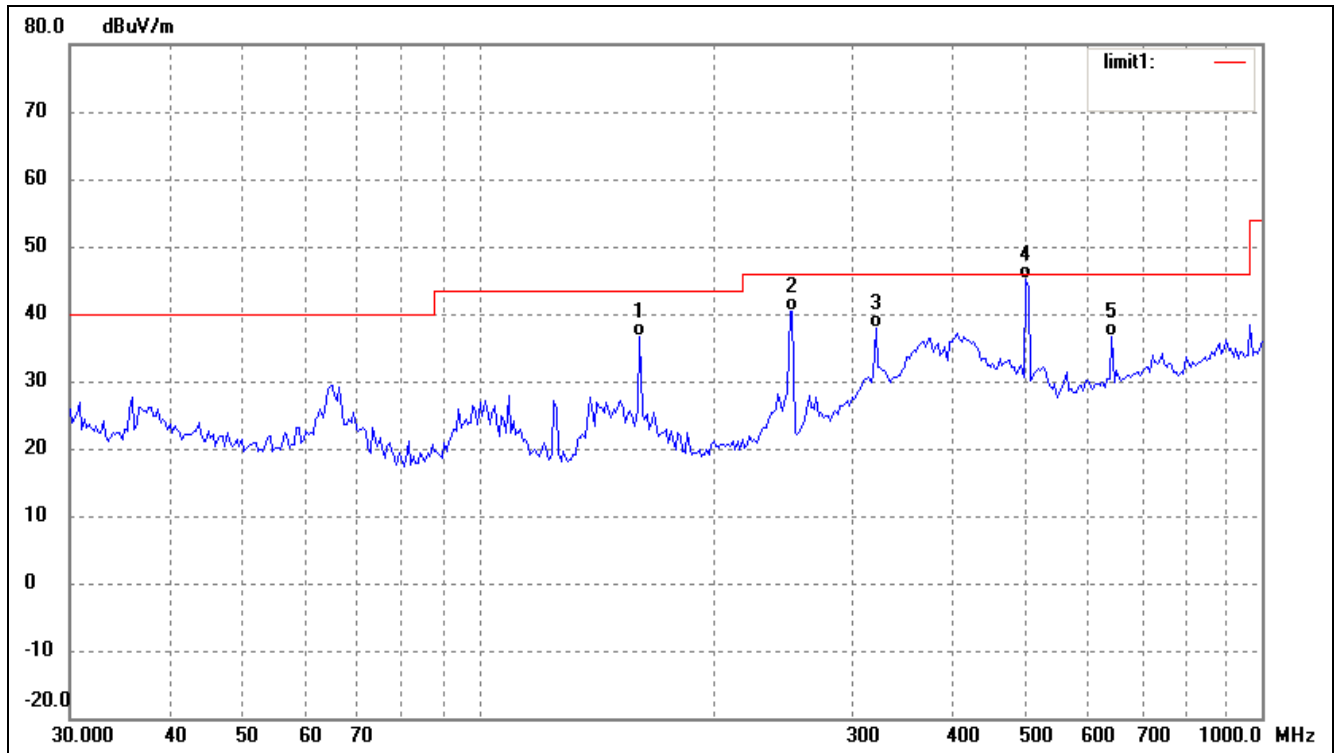


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 62.6507   | 32.59    | 4.85       | 37.44    | 40.00    | -2.56  | 360    | 100    | QP     |
| 2   | 160.3457  | 37.63    | 3.65       | 41.28    | 43.50    | -2.22  | 25     | 100    | QP     |
| 3   | 321.0608  | 31.31    | 10.46      | 41.77    | 46.00    | -4.23  | 360    | 100    | QP     |
| 4   | 372.0045  | 31.31    | 10.65      | 41.96    | 46.00    | -4.04  | 360    | 100    | QP     |
| 5   | 499.4247  | 32.34    | 12.18      | 44.52    | 46.00    | -1.48  | 360    | 100    | QP     |

Operating Condition: 802.11g Transmitting Highest Channel-2462MHz

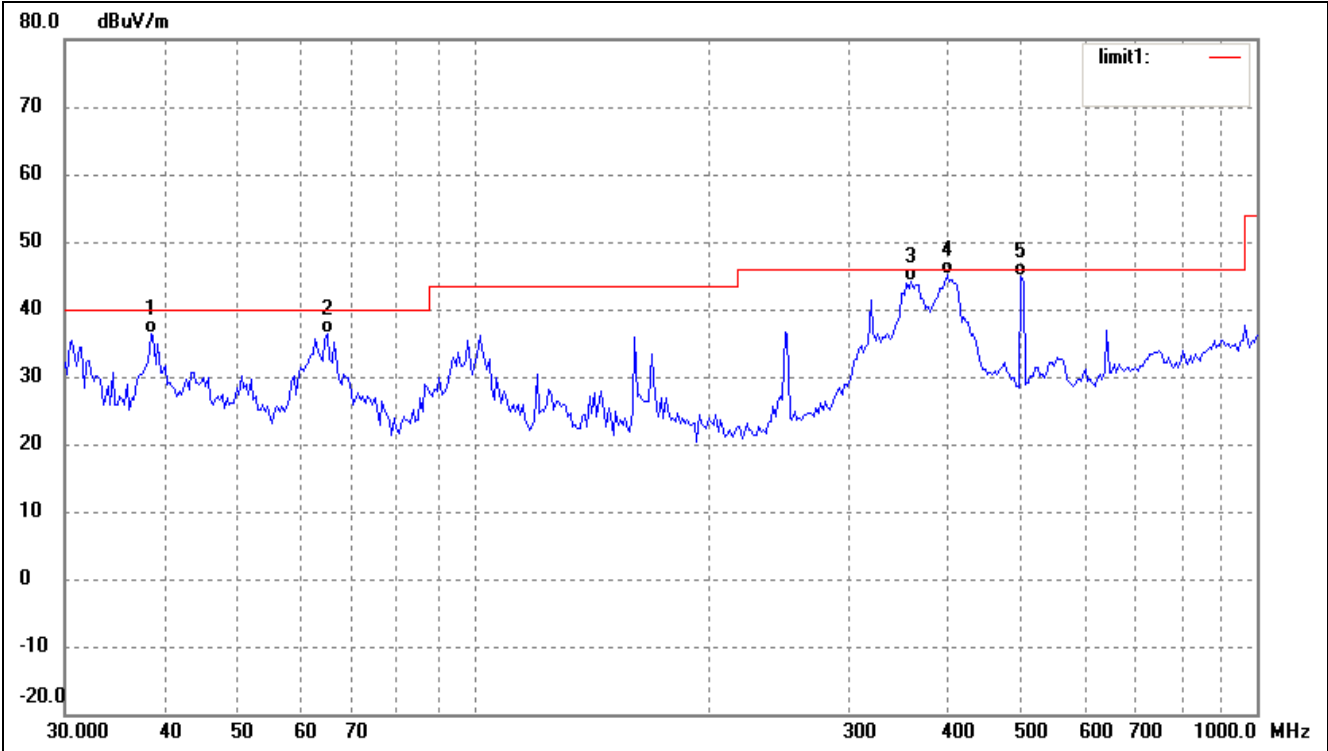
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3457           | 32.93               | 3.65                  | 36.58              | 43.50             | -6.92          | 36              | 100            | QP     |
| 2   | 251.1804           | 33.08               | 7.34                  | 40.42              | 46.00             | -5.58          | 25              | 100            | QP     |
| 3   | 321.0608           | 27.36               | 10.46                 | 37.82              | 46.00             | -8.18          | 136             | 100            | QP     |
| 4   | 499.4247           | 32.91               | 12.18                 | 45.09              | 46.00             | -0.91          | 52              | 100            | QP     |
| 5   | 642.8613           | 21.50               | 15.14                 | 36.64              | 46.00             | -9.36          | 155             | 100            | QP     |

Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.6161   | 26.90    | 9.46       | 36.36    | 40.00    | -3.64  | 214    | 100    | QP     |
| 2   | 64.8865   | 32.18    | 4.15       | 36.33    | 40.00    | -3.67  | 23     | 100    | QP     |
| 3   | 361.7139  | 33.44    | 10.69      | 44.13    | 46.00    | -1.87  | 54     | 100    | QP     |
| 4   | 401.8385  | 33.58    | 11.47      | 45.05    | 46.00    | -0.95  | 15     | 100    | QP     |
| 5   | 499.4247  | 32.81    | 12.18      | 44.99    | 46.00    | -1.01  | 259    | 100    | QP     |

**Plot of Radiated Emissions Test Data (30MHz to 1GHz)**

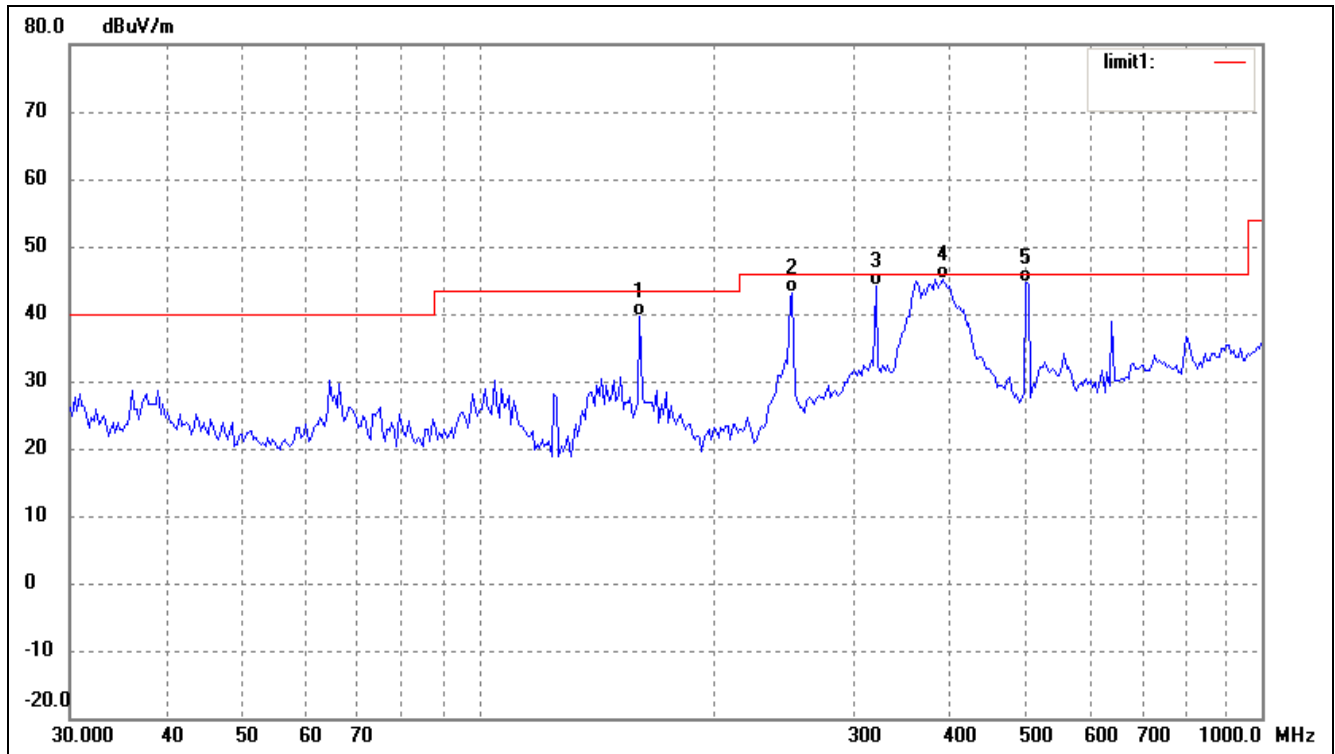
EUT: ADSL2+Router WiFi 11n 2x2

Tested Model: P.DG A4001N A-000-1A1-AE

Operating Condition: 802.11n/HT20 Transmitting Low Channel-2412MHz

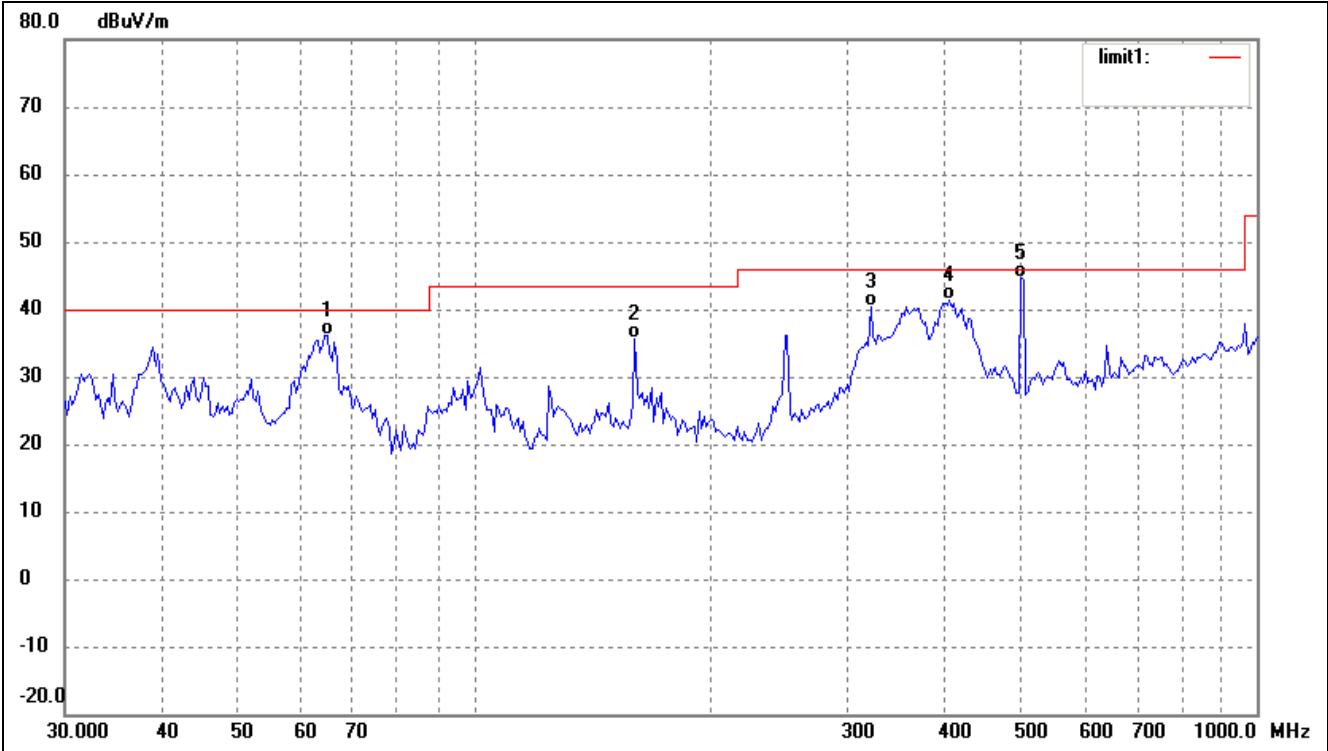
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 160.3457  | 35.90    | 3.65       | 39.55    | 43.50    | -3.95  | 145    | 100    | QP     |
| 2   | 251.1804  | 35.71    | 7.34       | 43.05    | 46.00    | -2.95  | 23     | 100    | QP     |
| 3   | 321.0608  | 33.66    | 10.46      | 44.12    | 46.00    | -1.88  | 265    | 100    | QP     |
| 4   | 390.7226  | 34.08    | 11.12      | 45.20    | 46.00    | -0.80  | 41     | 100    | QP     |
| 5   | 499.4247  | 32.50    | 12.18      | 44.68    | 46.00    | -1.32  | 52     | 100    | QP     |

Test Specification: Vertical

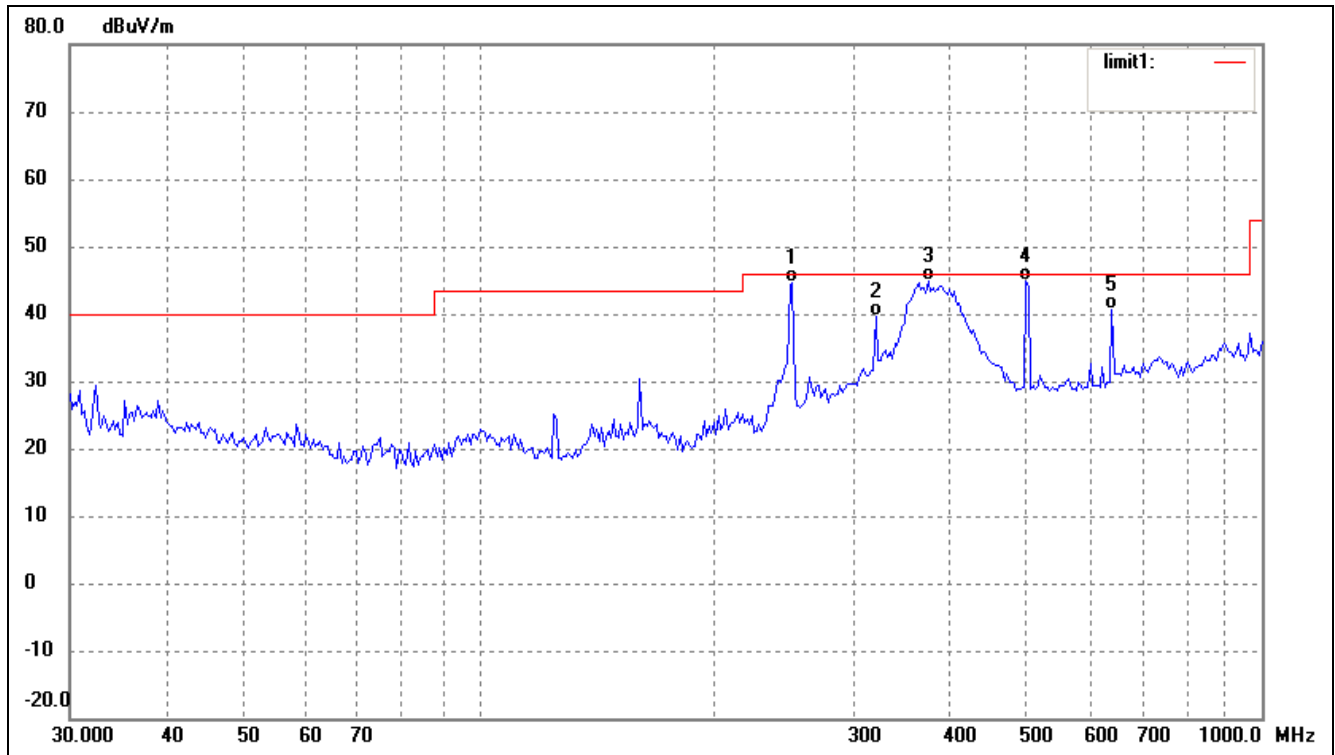


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 64.8865   | 31.90    | 4.15       | 36.05    | 40.00    | -3.95  | 214    | 100    | QP     |
| 2   | 160.3457  | 31.93    | 3.65       | 35.58    | 43.50    | -7.92  | 52     | 100    | QP     |
| 3   | 321.0608  | 29.97    | 10.46      | 40.43    | 46.00    | -5.57  | 36     | 100    | QP     |
| 4   | 404.6665  | 29.93    | 11.35      | 41.28    | 46.00    | -4.72  | 246    | 100    | QP     |
| 5   | 499.4247  | 32.35    | 12.18      | 44.53    | 46.00    | -1.47  | 25     | 100    | QP     |

Operating Condition: 802.11n/HT20 Transmitting Middle Channel-2437MHz

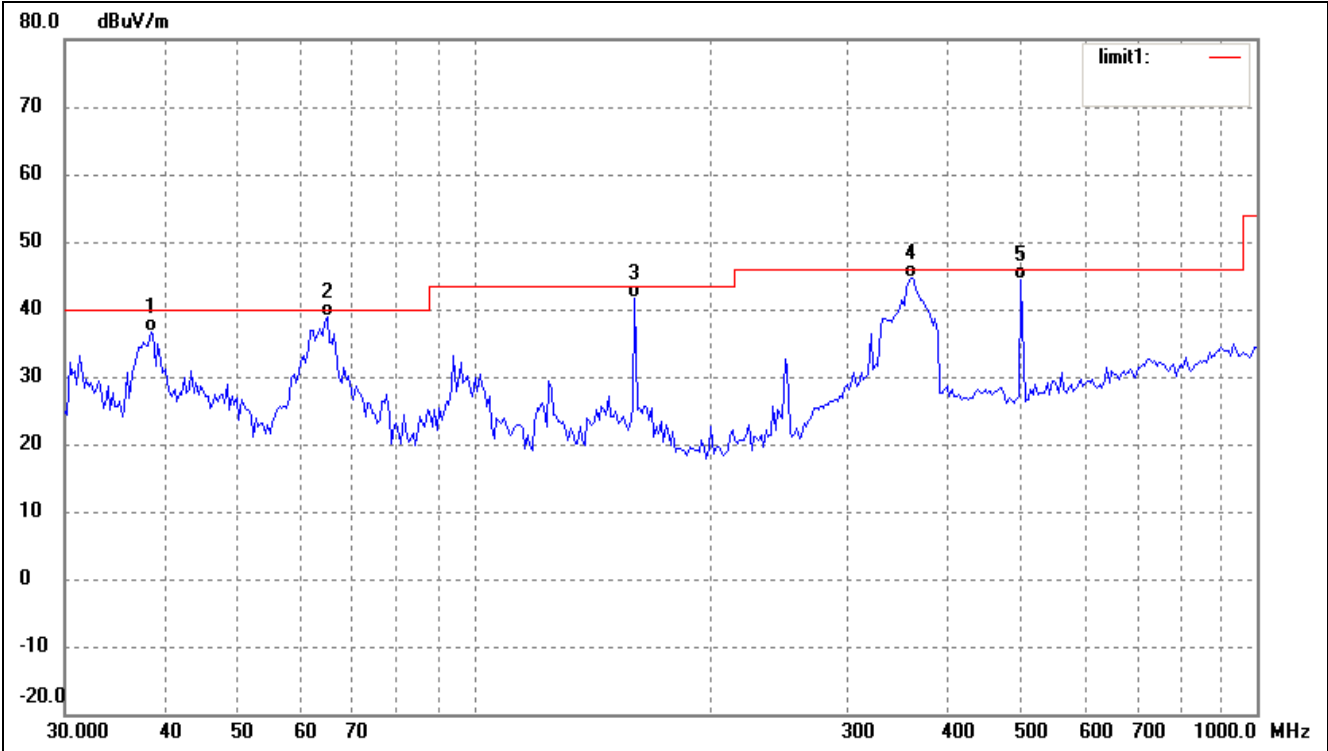
Comment: AC 120V/60Hz, adapter DC 12V

Test Specification: Horizontal



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 251.1804  | 37.27    | 7.34       | 44.61    | 46.00    | -1.39  | 360    | 100    | QP     |
| 2   | 321.0608  | 29.20    | 10.46      | 39.66    | 46.00    | -6.34  | 25     | 100    | QP     |
| 3   | 374.6226  | 34.27    | 10.63      | 44.90    | 46.00    | -1.10  | 14     | 100    | QP     |
| 4   | 499.4247  | 32.70    | 12.18      | 44.88    | 46.00    | -1.12  | 256    | 100    | QP     |
| 5   | 642.8613  | 25.37    | 15.14      | 40.51    | 46.00    | -5.49  | 33     | 100    | QP     |

Test Specification: Vertical

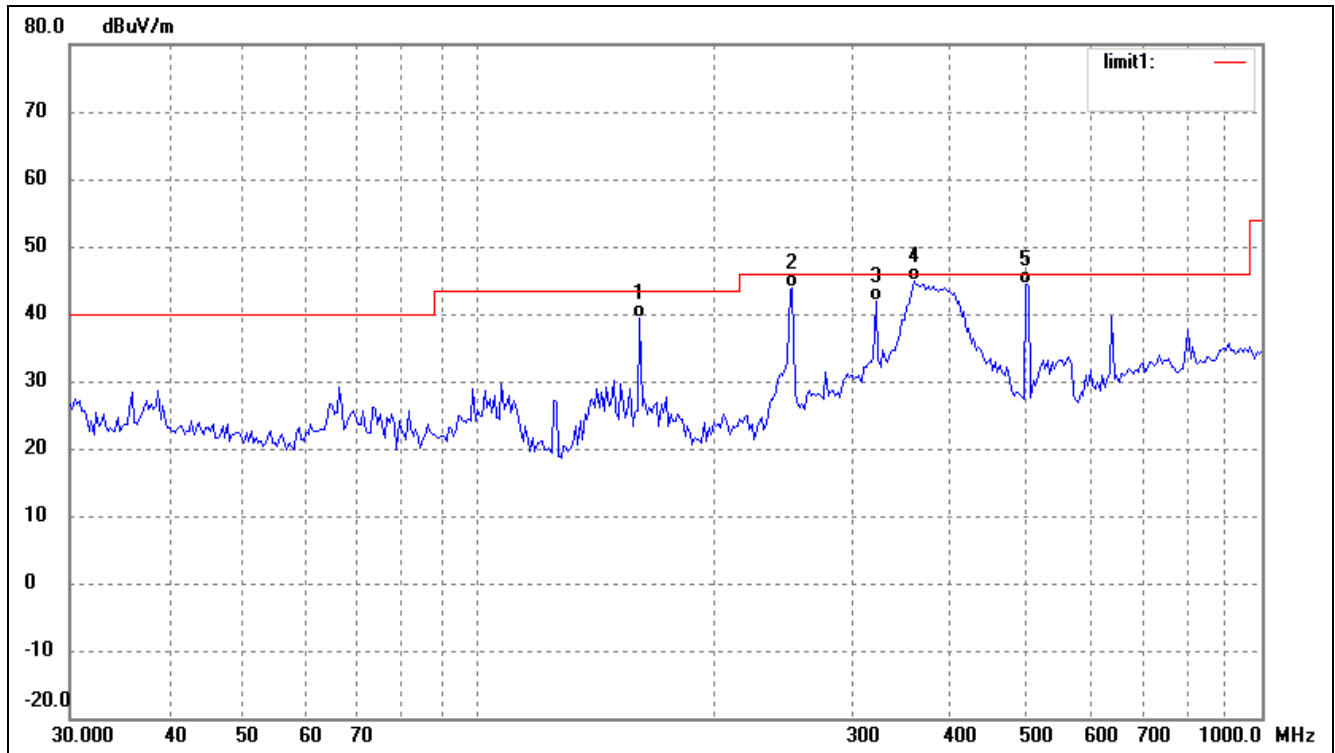


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.6161   | 27.28    | 9.46       | 36.74    | 40.00    | -3.26  | 245    | 100    | QP     |
| 2   | 64.8865   | 34.62    | 4.15       | 38.77    | 40.00    | -1.23  | 36     | 100    | QP     |
| 3   | 160.3457  | 38.08    | 3.65       | 41.73    | 43.50    | -1.77  | 155    | 100    | QP     |
| 4   | 361.7139  | 34.04    | 10.69      | 44.73    | 46.00    | -1.27  | 24     | 100    | QP     |
| 5   | 499.4247  | 32.25    | 12.18      | 44.43    | 46.00    | -1.57  | 23     | 100    | QP     |

Operating Condition: 802.11n/HT20 Transmitting Highest Channel-2462MHz

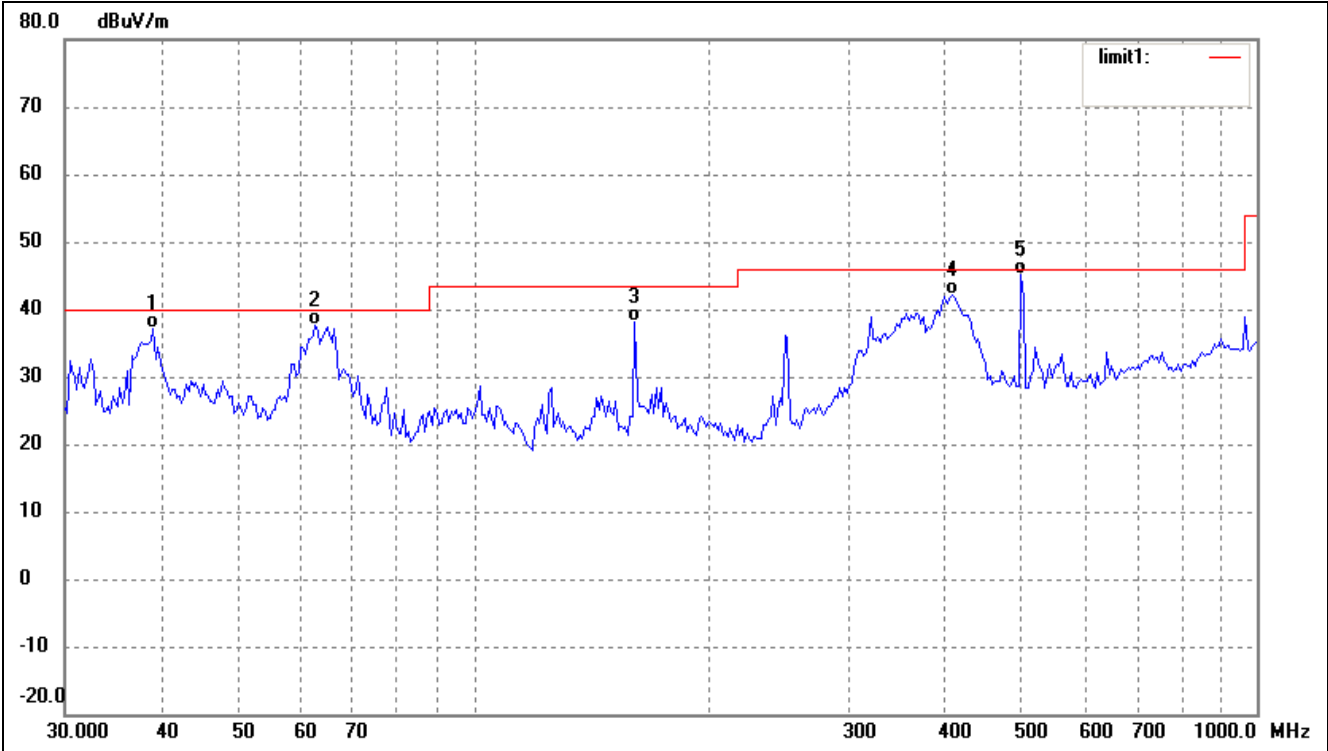
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3457           | 35.73               | 3.65                  | 39.38              | 43.50             | -4.12          | 253             | 100            | QP     |
| 2   | 251.1804           | 36.42               | 7.34                  | 43.76              | 46.00             | -2.24          | 15              | 100            | QP     |
| 3   | 321.0608           | 31.32               | 10.46                 | 41.78              | 46.00             | -4.22          | 48              | 100            | QP     |
| 4   | 359.1860           | 34.10               | 10.68                 | 44.78              | 46.00             | -1.22          | 34              | 100            | QP     |
| 5   | 499.4247           | 32.28               | 12.18                 | 44.46              | 46.00             | -1.54          | 125             | 100            | QP     |

Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 27.53    | 9.50       | 37.03    | 40.00    | -2.97  | 255    | 100    | QP     |
| 2   | 62.6507   | 32.77    | 4.85       | 37.62    | 40.00    | -2.38  | 360    | 100    | QP     |
| 3   | 160.3457  | 34.51    | 3.65       | 38.16    | 43.50    | -5.34  | 277    | 100    | QP     |
| 4   | 407.5145  | 30.81    | 11.22      | 42.03    | 46.00    | -3.97  | 45     | 100    | QP     |
| 5   | 499.4247  | 32.90    | 12.18      | 45.08    | 46.00    | -0.92  | 23     | 100    | QP     |

**Plot of Radiated Emissions Test Data (30MHz to 1GHz)**

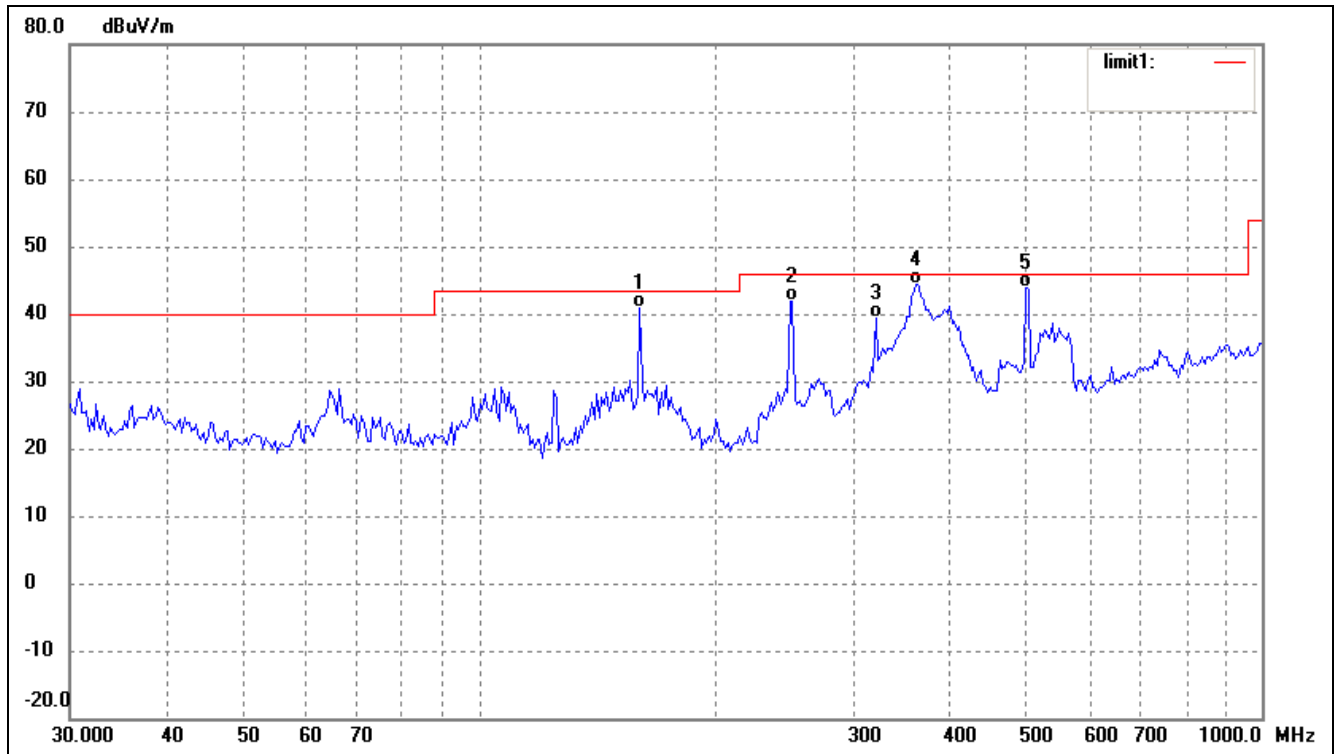
EUT: ADSL2+Router WiFi 11n 2x2

Tested Model: P.DG A4001N A-000-1A1-AE

Operating Condition: 802.11n/HT40 Transmitting Low Channel-2422MHz

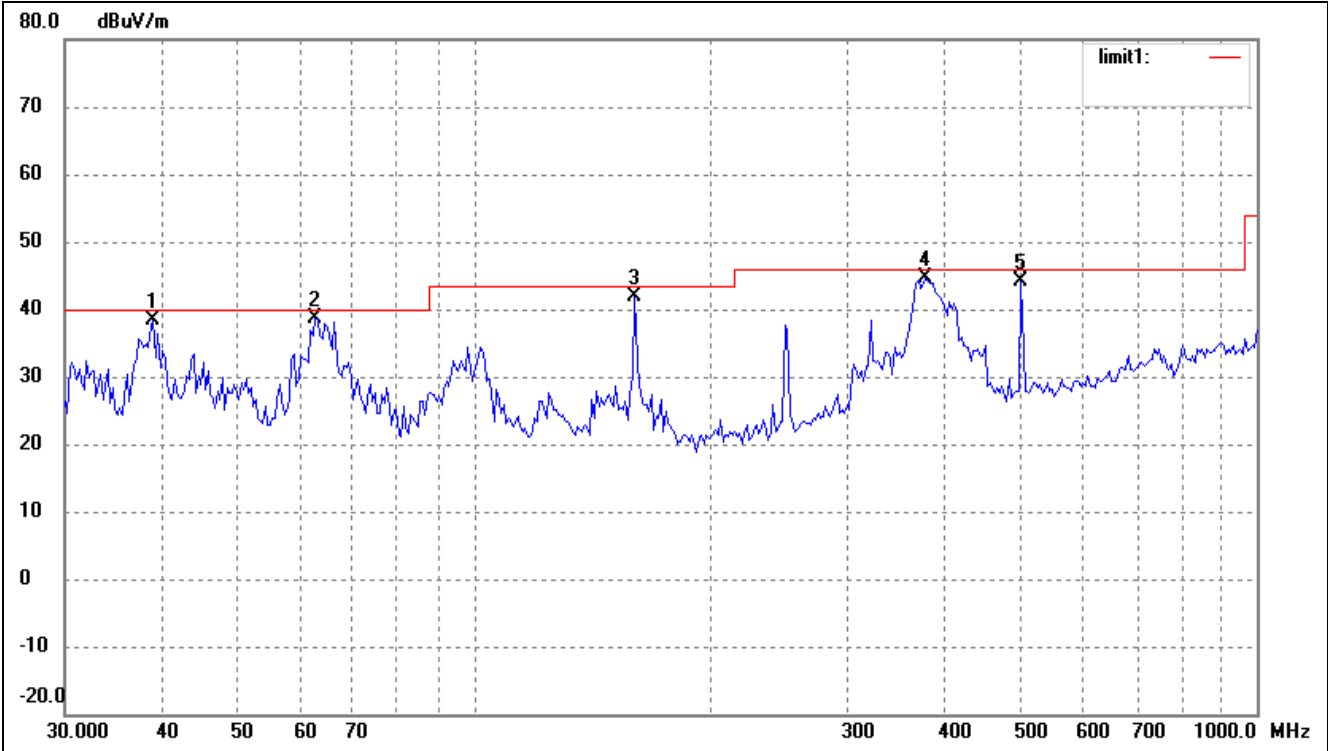
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 160.3457  | 37.25    | 3.65       | 40.90    | 43.50    | -2.60  | 360    | 100    | QP     |
| 2   | 251.1804  | 34.58    | 7.34       | 41.92    | 46.00    | -4.08  | 214    | 100    | QP     |
| 3   | 321.0608  | 28.87    | 10.46      | 39.33    | 46.00    | -6.67  | 28     | 100    | QP     |
| 4   | 361.7139  | 33.58    | 10.69      | 44.27    | 46.00    | -1.73  | 99     | 100    | QP     |
| 5   | 499.4247  | 31.70    | 12.18      | 43.88    | 46.00    | -2.12  | 12     | 100    | QP     |

Test Specification: Vertical

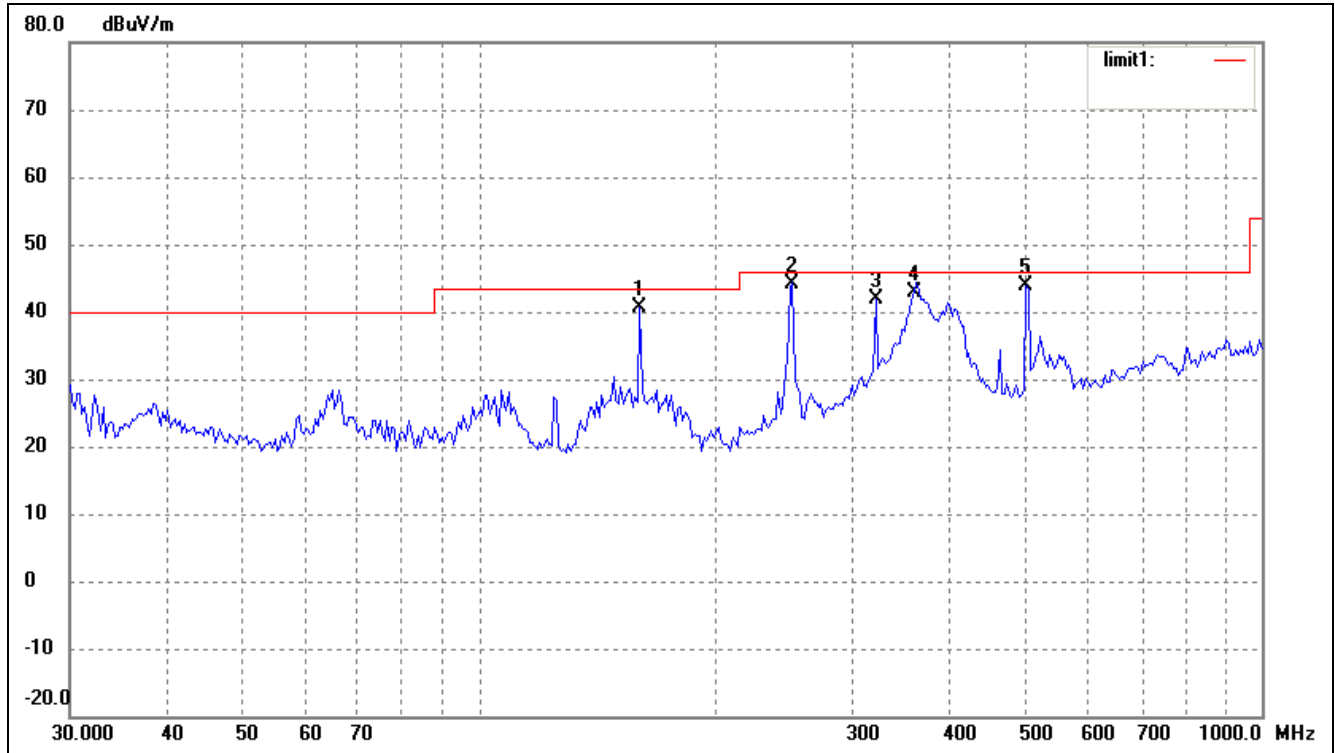


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 28.87    | 9.50       | 38.37    | 40.00    | -1.63  | 360    | 100    | peak   |
| 2   | 62.6507   | 33.69    | 4.85       | 38.54    | 40.00    | -1.46  | 25     | 100    | peak   |
| 3   | 160.3457  | 38.17    | 3.65       | 41.82    | 43.50    | -1.68  | 98     | 100    | peak   |
| 4   | 377.2591  | 34.05    | 10.64      | 44.69    | 46.00    | -1.31  | 48     | 100    | peak   |
| 5   | 499.4247  | 32.03    | 12.18      | 44.21    | 46.00    | -1.79  | 256    | 100    | peak   |

Operating Condition: 802.11n/HT40 Transmitting Middle Channel-2437MHz

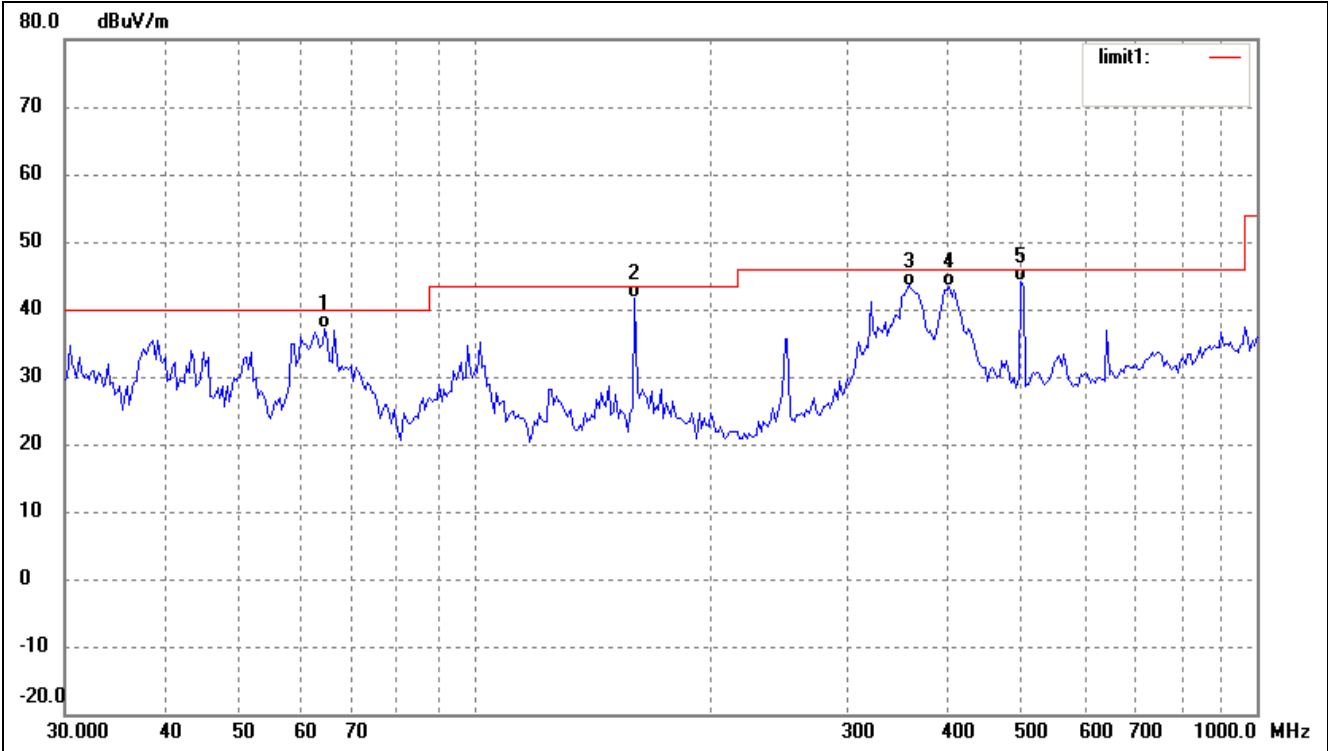
Comment: AC 120V/60Hz, adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3457           | 36.89               | 3.65                  | 40.54              | 43.50             | -2.96          | 360             | 100            | peak   |
| 2   | 251.1804           | 36.91               | 7.34                  | 44.25              | 46.00             | -1.75          | 25              | 100            | peak   |
| 3   | 321.0608           | 31.43               | 10.46                 | 41.89              | 46.00             | -4.11          | 48              | 100            | peak   |
| 4   | 359.1860           | 32.32               | 10.68                 | 43.00              | 46.00             | -3.00          | 55              | 100            | peak   |
| 5   | 499.4247           | 31.58               | 12.18                 | 43.76              | 46.00             | -2.24          | 24              | 100            | peak   |

Test Specification: Vertical

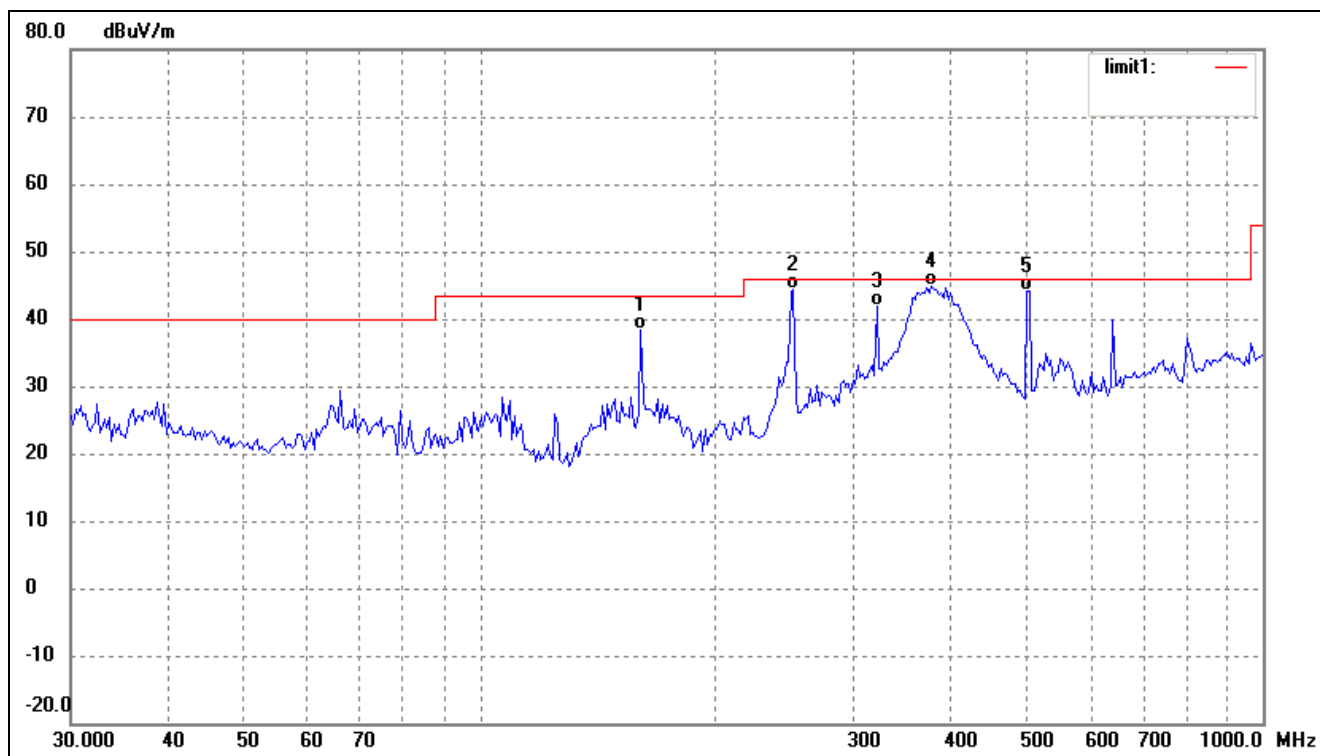


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 64.4331   | 32.88    | 4.29       | 37.17    | 40.00    | -2.83  | 148    | 100    | QP     |
| 2   | 160.3457  | 37.94    | 3.65       | 41.59    | 43.50    | -1.91  | 24     | 100    | QP     |
| 3   | 359.1860  | 32.82    | 10.68      | 43.50    | 46.00    | -2.50  | 79     | 100    | QP     |
| 4   | 404.6665  | 31.91    | 11.35      | 43.26    | 46.00    | -2.74  | 248    | 100    | QP     |
| 5   | 499.4247  | 32.03    | 12.18      | 44.21    | 46.00    | -1.79  | 54     | 100    | QP     |

Operating Condition: 802.11n/HT40 Transmitting Highest Channel-2452MHz

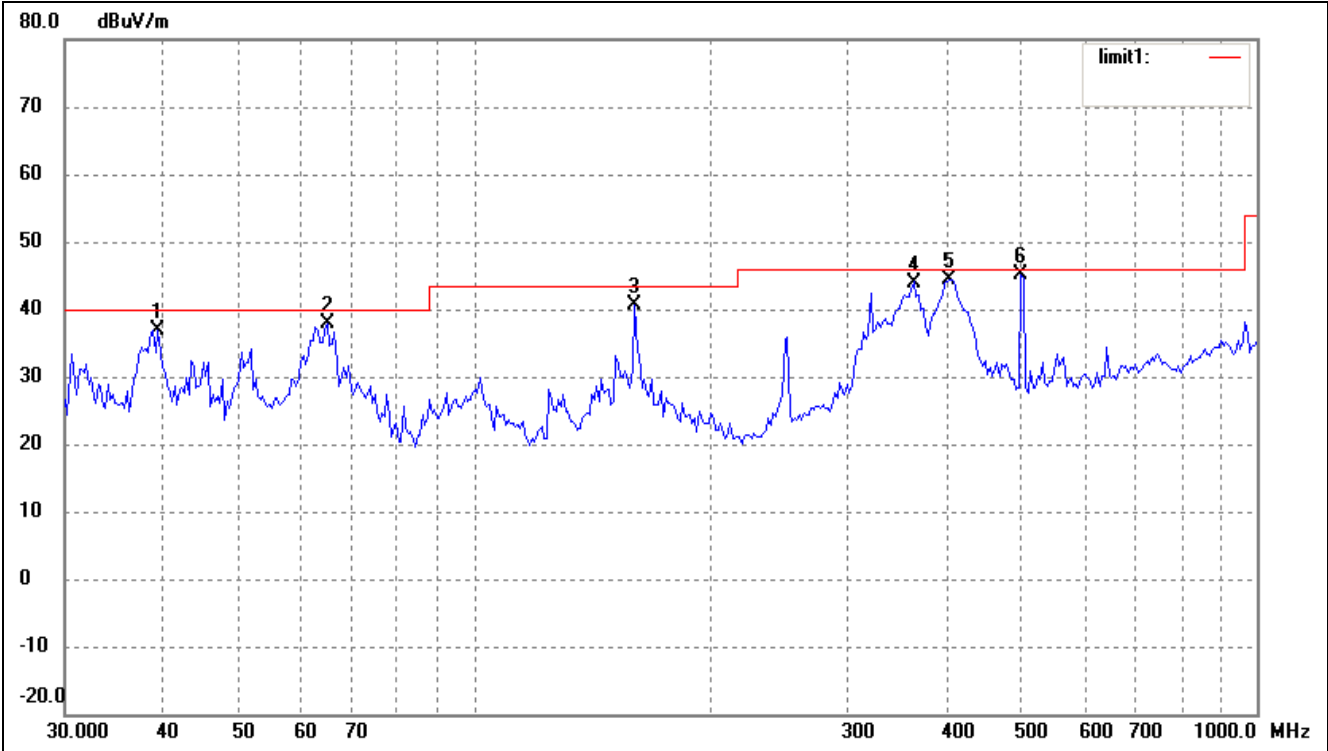
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 160.3457  | 34.72    | 3.65       | 38.37    | 43.50    | -5.13  | 360    | 100    | QP     |
| 2   | 251.1804  | 37.04    | 7.34       | 44.38    | 46.00    | -1.62  | 25     | 100    | QP     |
| 3   | 321.0608  | 31.42    | 10.46      | 41.88    | 46.00    | -4.12  | 360    | 100    | QP     |
| 4   | 377.2591  | 34.24    | 10.64      | 44.88    | 46.00    | -1.12  | 24     | 100    | QP     |
| 5   | 499.4247  | 32.04    | 12.18      | 44.22    | 46.00    | -1.78  | 360    | 100    | QP     |

Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 39.4372   | 27.37    | 9.60       | 36.97    | 40.00    | -3.03  | 360    | 100    | peak   |
| 2   | 64.8865   | 33.71    | 4.15       | 37.86    | 40.00    | -2.14  | 89     | 100    | peak   |
| 3   | 160.3457  | 37.01    | 3.65       | 40.66    | 43.50    | -2.84  | 24     | 100    | peak   |
| 4   | 364.2595  | 33.32    | 10.68      | 44.00    | 46.00    | -2.00  | 278    | 100    | peak   |
| 5   | 404.6665  | 33.02    | 11.35      | 44.37    | 46.00    | -1.63  | 25     | 100    | peak   |
| 6   | 499.4247  | 32.92    | 12.18      | 45.10    | 46.00    | -0.90  | 26     | 100    | peak   |

**Plot of Radiated Emissions Test Data (30MHz to 1GHz)**

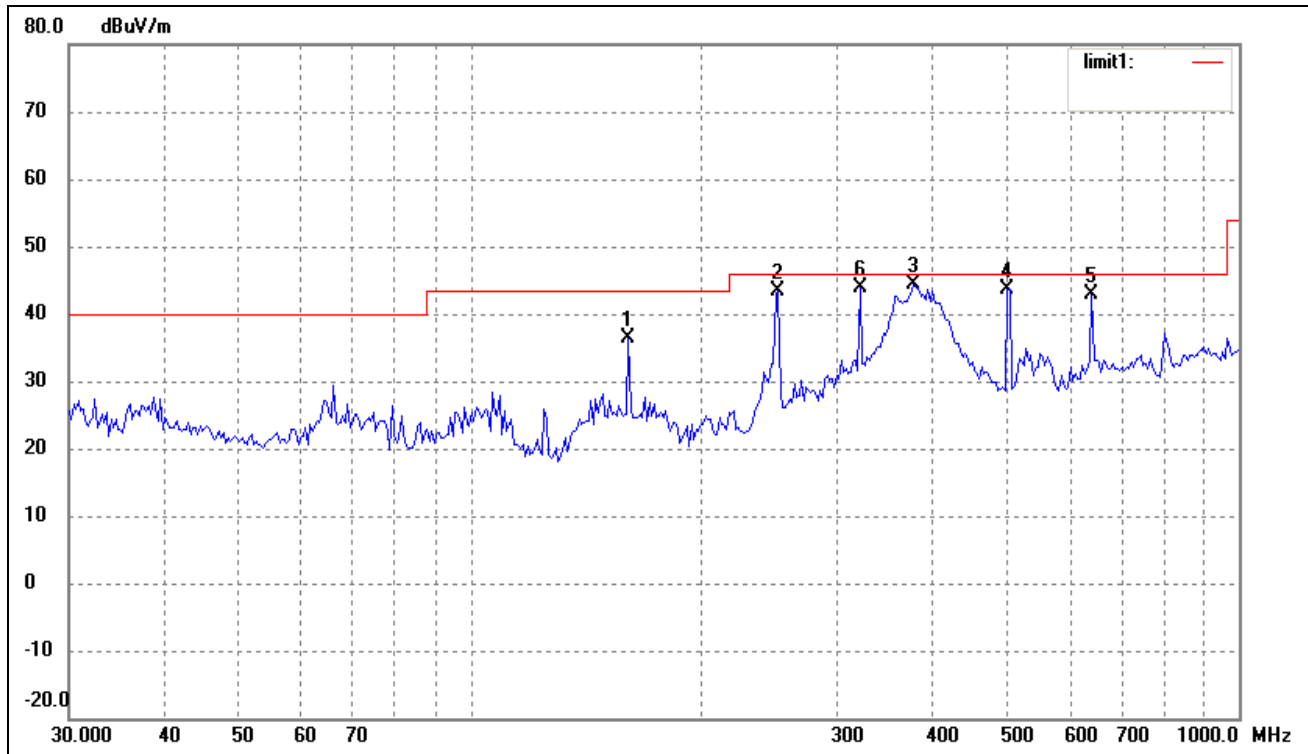
EUT: ADSL2+Router WiFi 11n 2x2

Tested Model: P.DG A4001N A-000-1A1-AE

Operating Condition: 802.11n/HT20 Transmitting Low Channel-2412MHz with two transmit chain

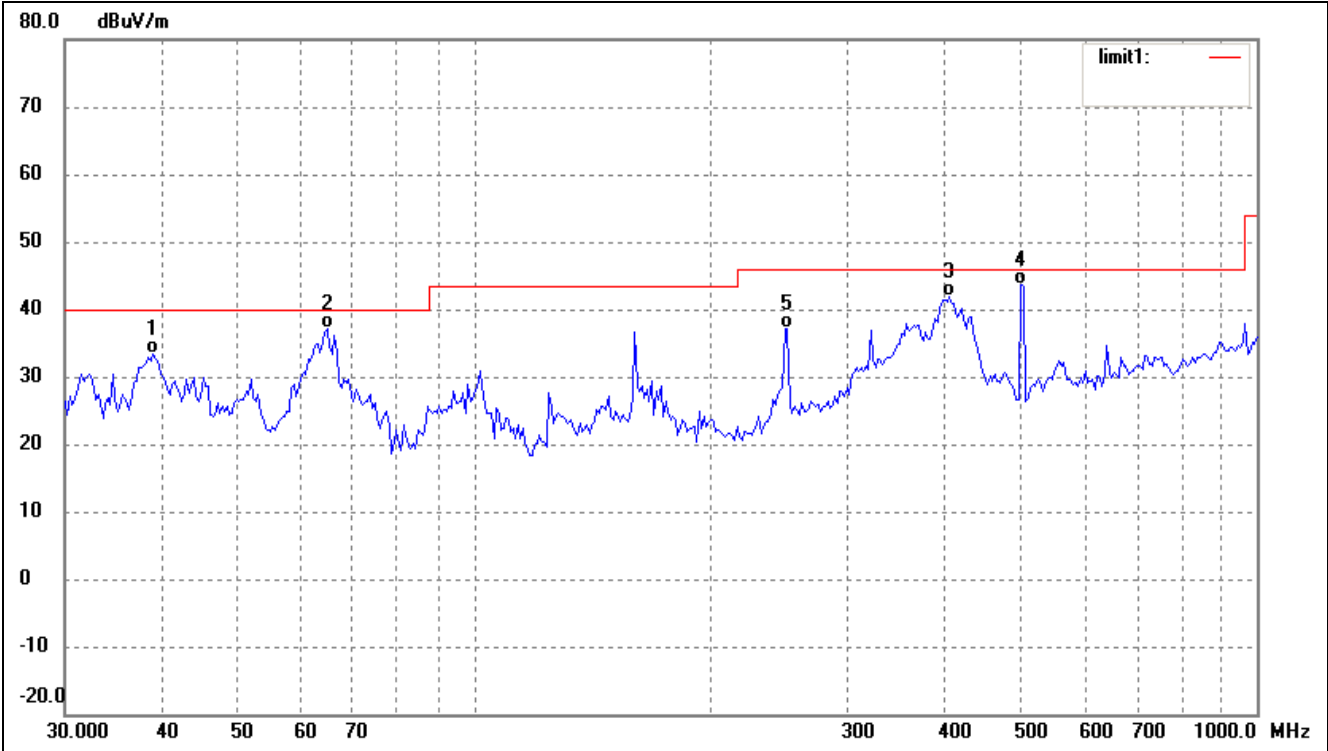
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3456           | 32.72               | 3.65                  | 36.37              | 43.50             | -7.13          | 360             | 100            | QP     |
| 2   | 251.1803           | 36.04               | 7.34                  | 43.38              | 46.00             | -2.62          | 360             | 100            | QP     |
| 3   | 377.2590           | 33.74               | 10.64                 | 44.38              | 46.00             | -1.62          | 360             | 100            | QP     |
| 4   | 499.4246           | 31.54               | 12.18                 | 43.72              | 46.00             | -2.28          | 360             | 100            | QP     |
| 5   | 642.8613           | 27.64               | 15.14                 | 42.78              | 46.00             | -3.22          | 360             | 100            | QP     |
| 6   | 321.0607           | 33.42               | 10.46                 | 43.88              | 46.00             | -2.12          | 360             | 100            | QP     |

Test Specification: Vertical

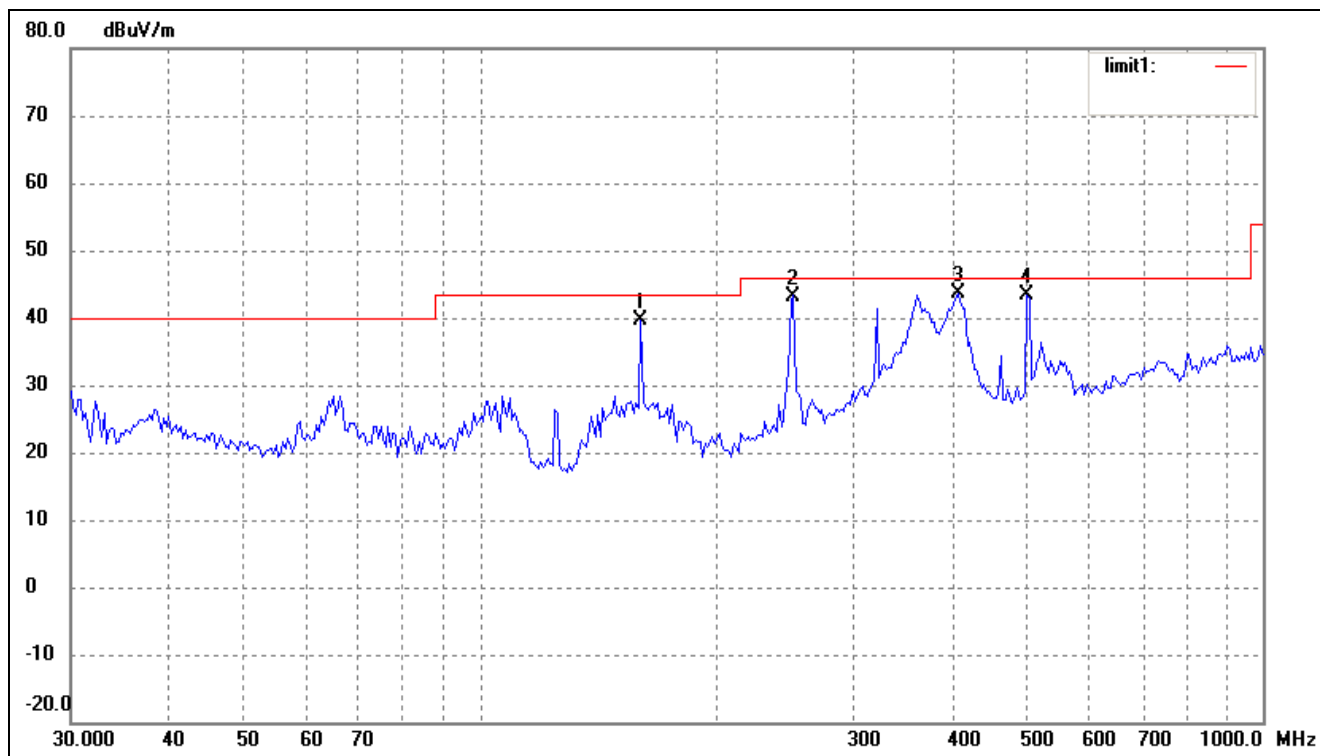


| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 23.76    | 9.50       | 33.26    | 40.00    | -6.74  | 360    | 100    | QP     |
| 2   | 64.8864   | 32.90    | 4.15       | 37.05    | 40.00    | -2.95  | 360    | 100    | QP     |
| 3   | 404.6664  | 30.43    | 11.35      | 41.78    | 46.00    | -4.22  | 360    | 100    | QP     |
| 4   | 499.4246  | 31.35    | 12.18      | 43.53    | 46.00    | -2.47  | 360    | 100    | QP     |
| 5   | 251.1803  | 29.71    | 7.34       | 37.05    | 46.00    | -8.95  | 360    | 100    | QP     |

Operating Condition: 802.11n/HT20 Transmitting Middle Channel-2437MHz with two transmit chain

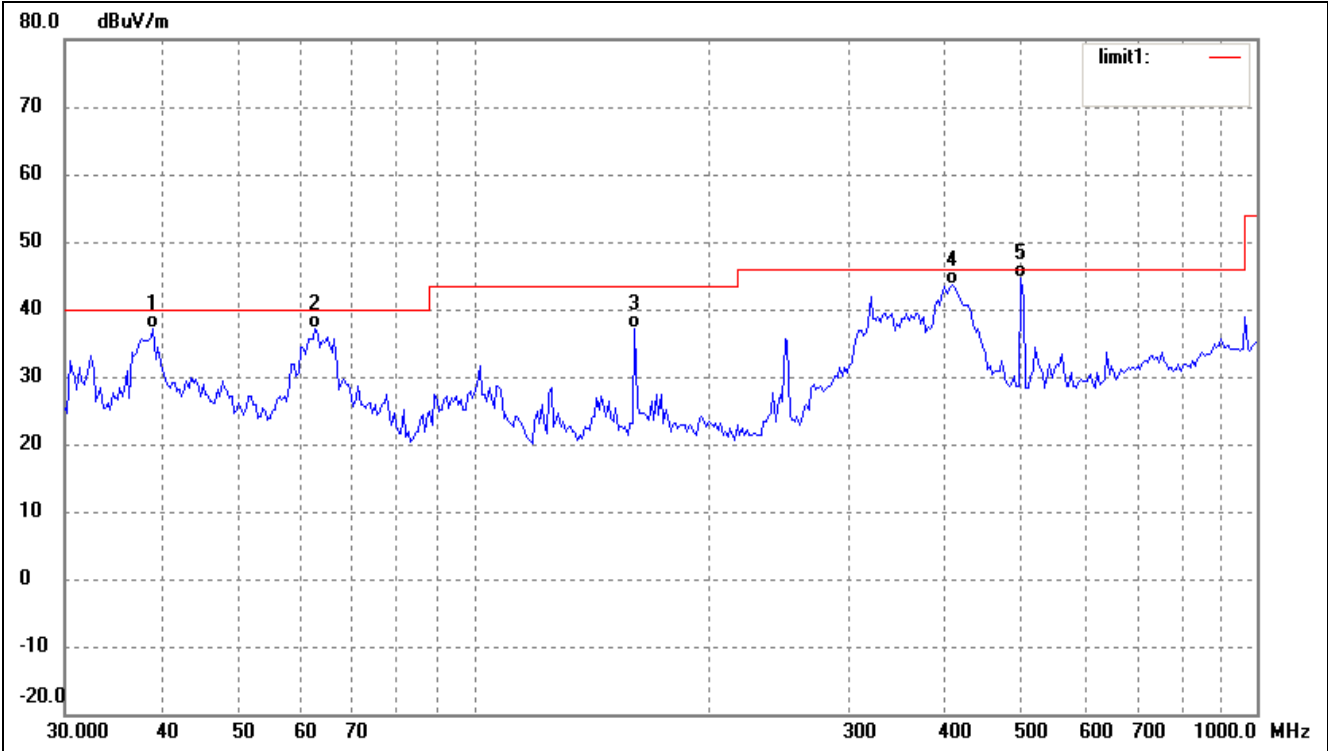
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3456           | 35.89               | 3.65                  | 39.54              | 43.50             | -3.96          | 360             | 100            | QP     |
| 2   | 251.1803           | 35.91               | 7.34                  | 43.25              | 46.00             | -2.75          | 360             | 100            | QP     |
| 3   | 407.5144           | 32.35               | 11.22                 | 43.57              | 46.00             | -2.43          | 360             | 100            | QP     |
| 4   | 499.4246           | 31.08               | 12.18                 | 43.26              | 46.00             | -2.74          | 360             | 100            | QP     |

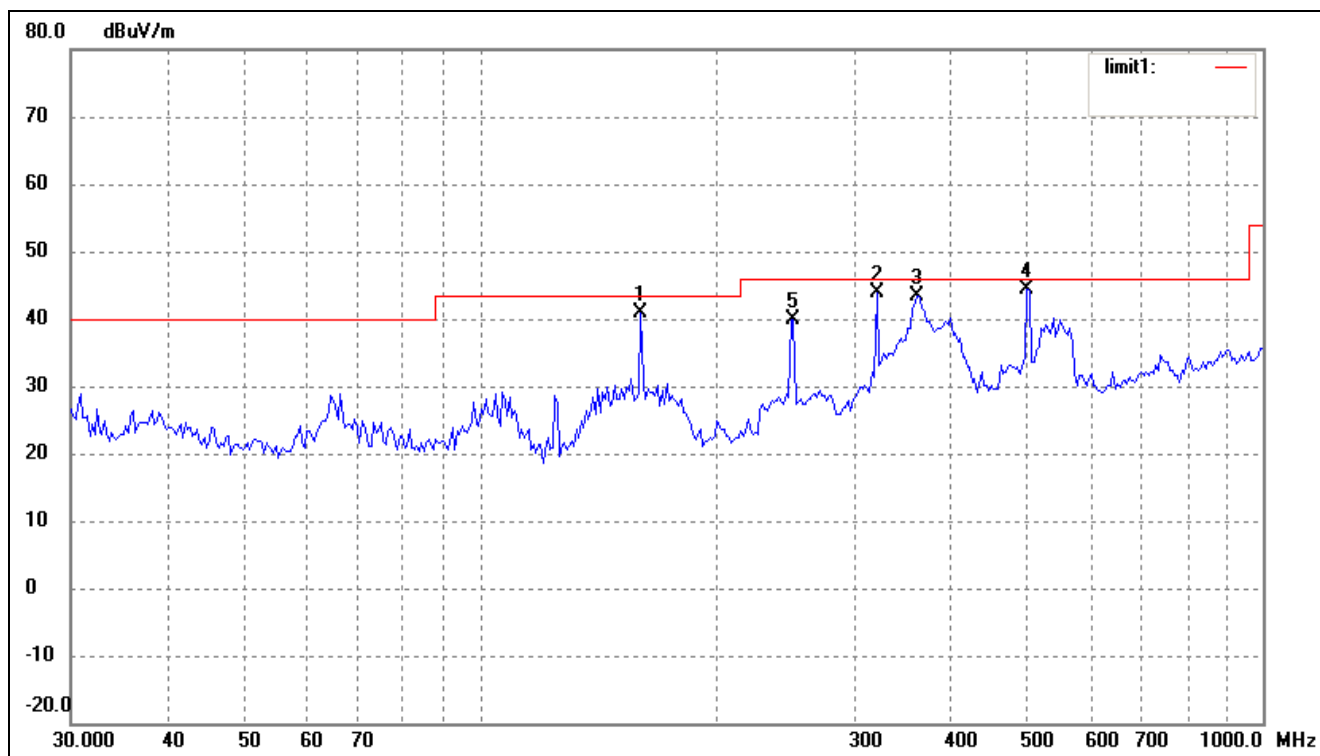
Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 27.53    | 9.50       | 37.03    | 40.00    | -2.97  | 360    | 100    | QP     |
| 2   | 62.6507   | 32.27    | 4.85       | 37.12    | 40.00    | -2.88  | 360    | 100    | QP     |
| 3   | 160.3456  | 33.51    | 3.65       | 37.16    | 43.50    | -6.34  | 360    | 100    | QP     |
| 4   | 407.5144  | 32.31    | 11.22      | 43.53    | 46.00    | -2.47  | 360    | 100    | QP     |
| 5   | 499.4246  | 32.40    | 12.18      | 44.58    | 46.00    | -1.42  | 360    | 100    | QP     |

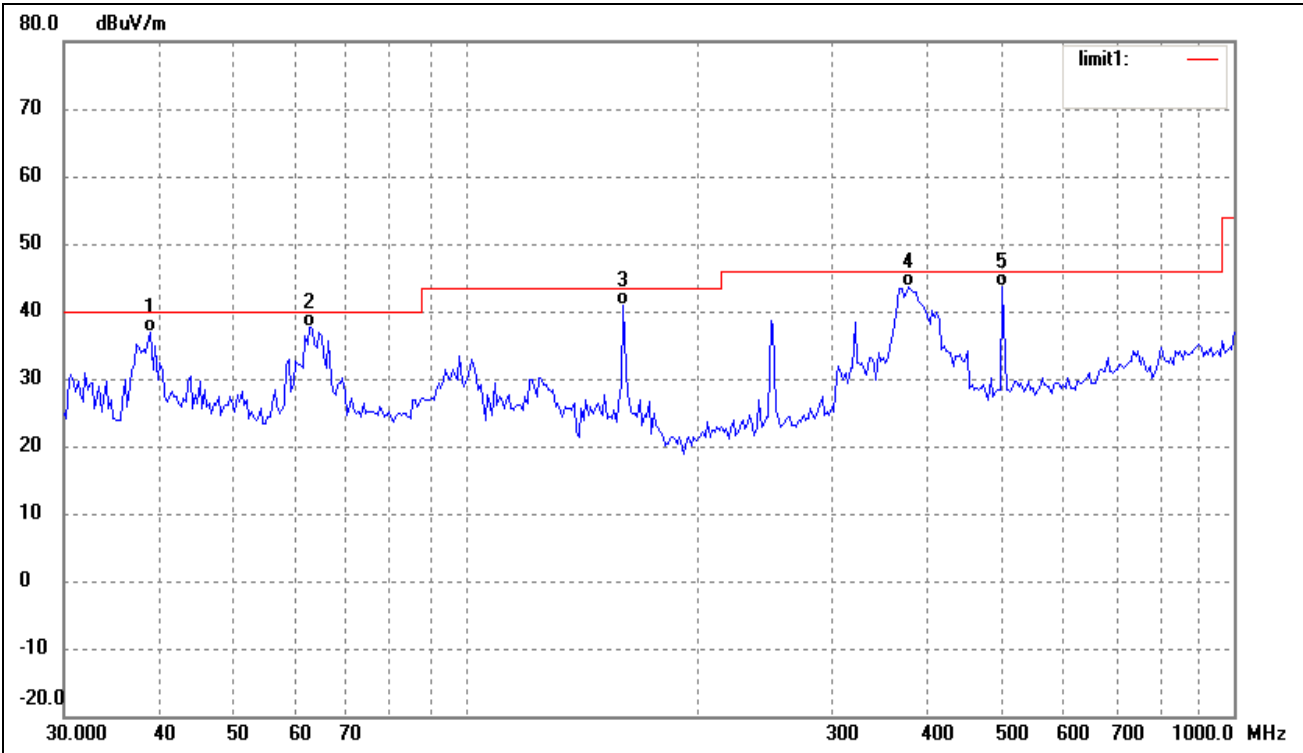
Operating Condition: 802.11n/HT20 Transmitting Highest Channel-2462MHz with two transmit chain  
 Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3456           | 37.25               | 3.65                  | 40.90              | 43.50             | -2.60          | 360             | 100            | QP     |
| 2   | 321.0607           | 33.37               | 10.46                 | 43.83              | 46.00             | -2.17          | 360             | 100            | QP     |
| 3   | 361.7139           | 32.58               | 10.69                 | 43.27              | 46.00             | -2.73          | 360             | 100            | QP     |
| 4   | 499.4246           | 32.20               | 12.18                 | 44.38              | 46.00             | -1.62          | 360             | 100            | QP     |
| 5   | 251.1803           | 32.58               | 7.34                  | 39.92              | 46.00             | -6.08          | 360             | 100            | QP     |

Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 27.37    | 9.50       | 36.87    | 40.00    | -3.13  | 360    | 100    | QP     |
| 2   | 62.6507   | 32.69    | 4.85       | 37.54    | 40.00    | -2.46  | 360    | 100    | QP     |
| 3   | 160.3456  | 37.17    | 3.65       | 40.82    | 43.50    | -2.68  | 360    | 100    | QP     |
| 4   | 377.2590  | 33.05    | 10.64      | 43.69    | 46.00    | -2.31  | 360    | 100    | QP     |
| 5   | 499.4246  | 31.53    | 12.18      | 43.71    | 46.00    | -2.29  | 360    | 100    | QP     |

**Plot of Radiated Emissions Test Data (30MHz to 1GHz)**

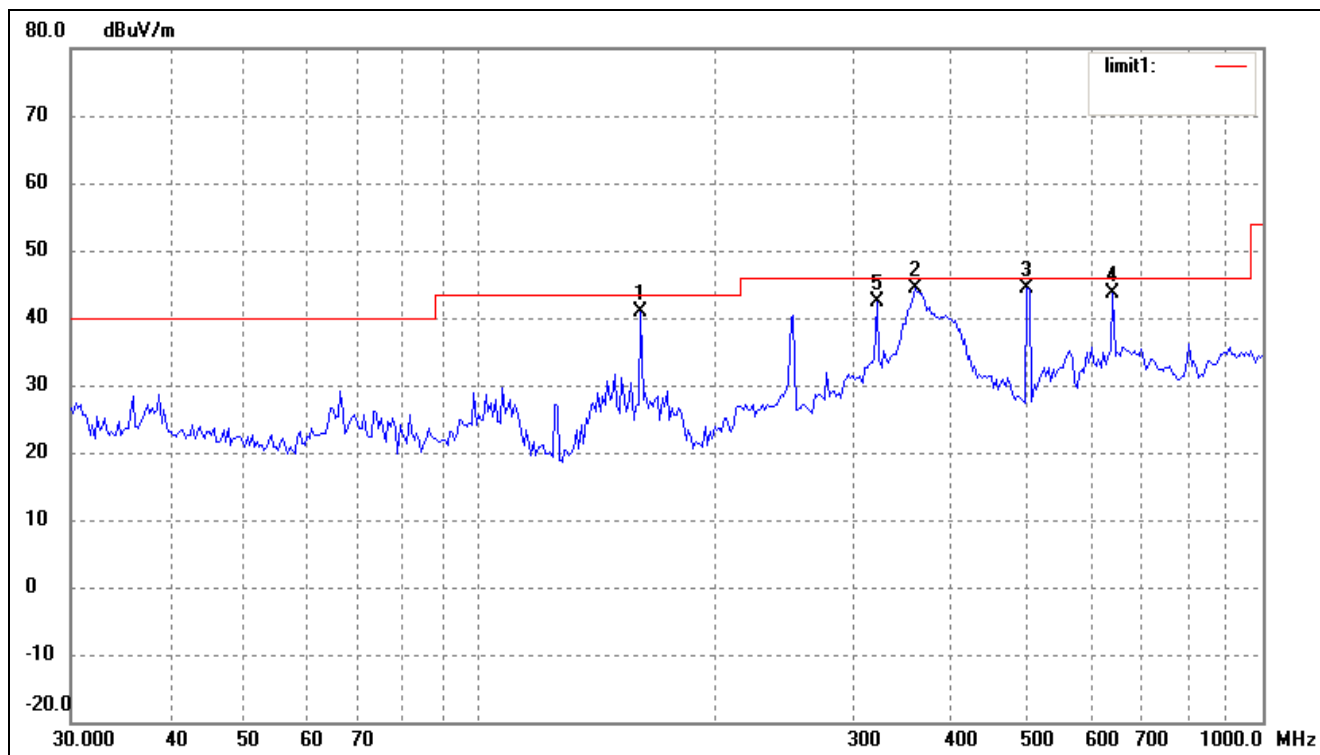
EUT: ADSL2+Router WiFi 11n 2x2

Tested Model: P.DG A4001N A-000-1A1-AE

Operating Condition: 802.11n/HT40 Transmitting Low Channel-2422MHz with two transmit chain

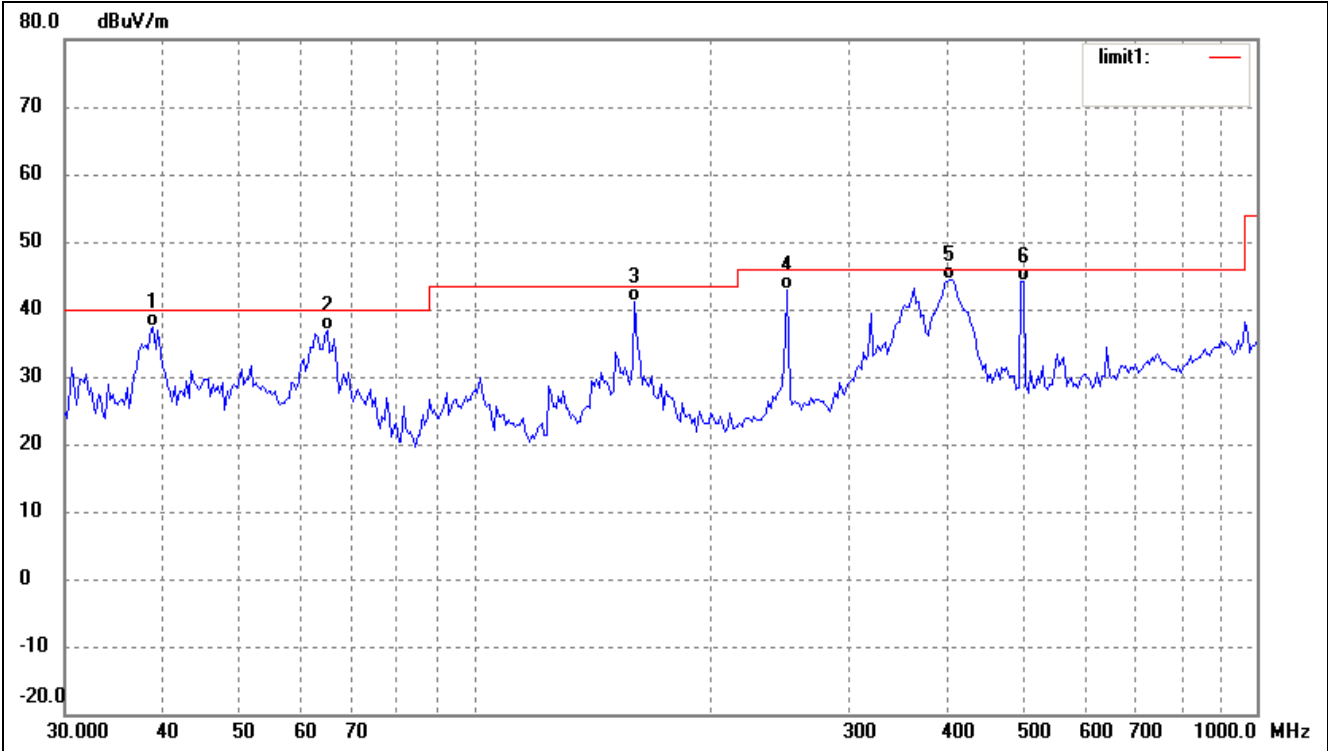
Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3456           | 37.23               | 3.65                  | 40.88              | 43.50             | -2.62          | 360             | 100            | QP     |
| 2   | 359.1859           | 33.60               | 10.68                 | 44.28              | 46.00             | -1.72          | 360             | 100            | QP     |
| 3   | 499.4246           | 32.28               | 12.18                 | 44.46              | 46.00             | -1.54          | 360             | 100            | QP     |
| 4   | 642.8613           | 28.57               | 15.14                 | 43.71              | 46.00             | -2.29          | 360             | 100            | QP     |
| 5   | 321.0607           | 31.82               | 10.46                 | 42.28              | 46.00             | -3.72          | 360             | 100            | QP     |

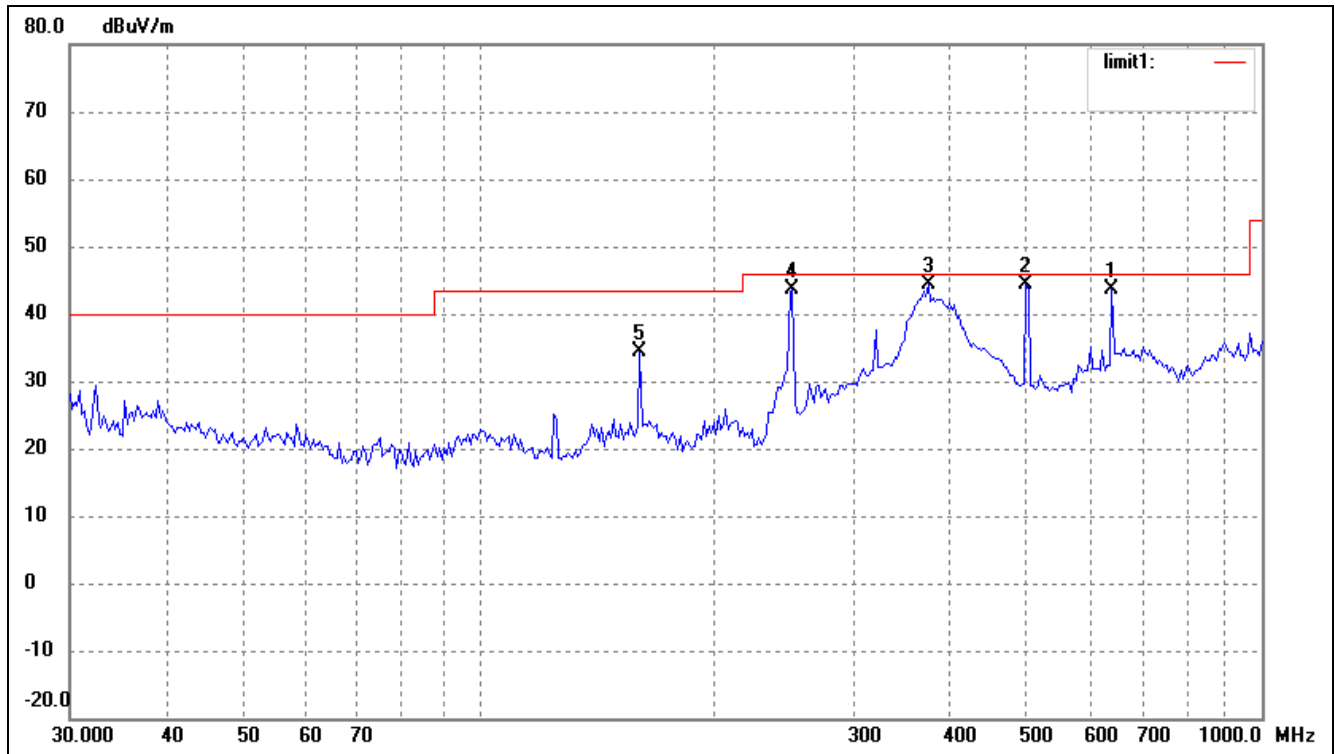
Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 38.8879   | 27.81    | 9.50       | 37.31    | 40.00    | -2.69  | 360    | 100    | QP     |
| 2   | 64.8864   | 32.71    | 4.15       | 36.86    | 40.00    | -3.14  | 360    | 100    | QP     |
| 3   | 160.3456  | 37.51    | 3.65       | 41.16    | 43.50    | -2.34  | 360    | 100    | QP     |
| 4   | 251.1803  | 35.66    | 7.34       | 43.00    | 46.00    | -3.00  | 360    | 100    | QP     |
| 5   | 404.6664  | 33.02    | 11.35      | 44.37    | 46.00    | -1.63  | 360    | 100    | QP     |
| 6   | 502.9395  | 31.81    | 12.30      | 44.11    | 46.00    | -1.89  | 360    | 100    | QP     |

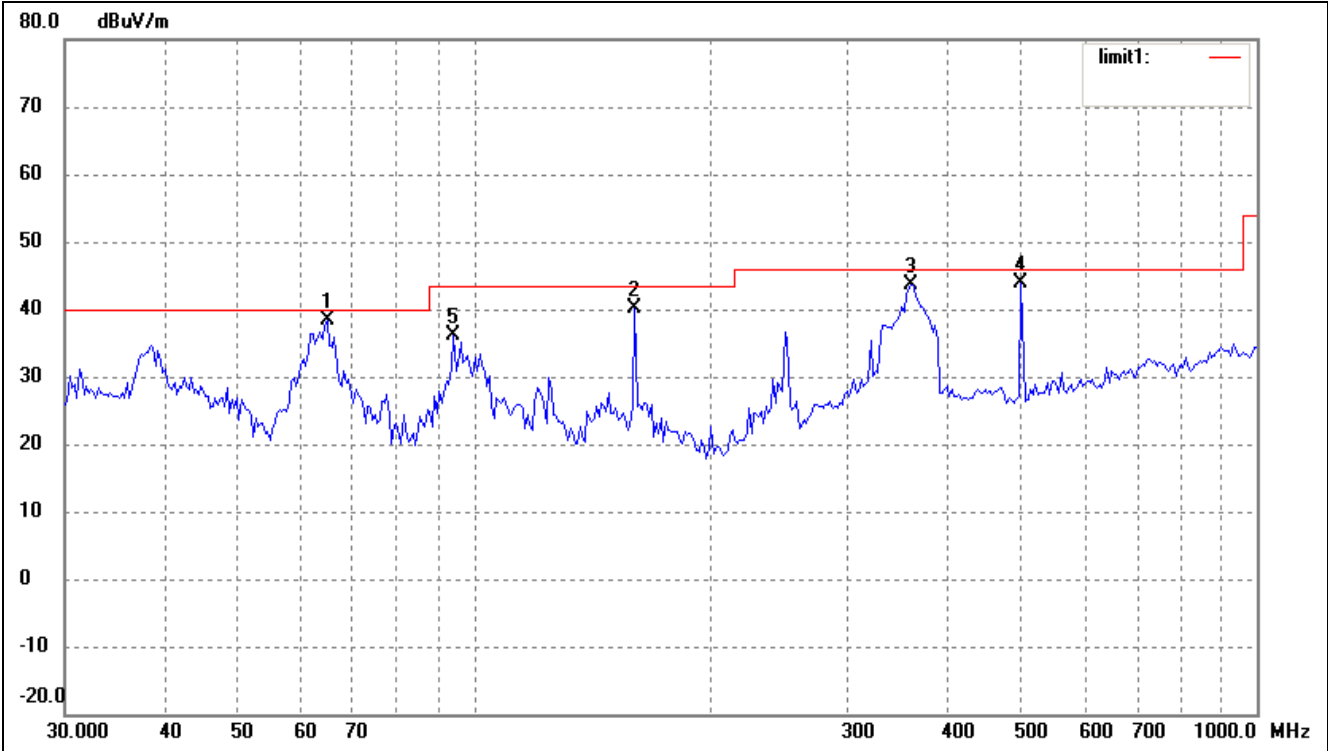
Operating Condition: 802.11n/HT40 Transmitting Middle Channel-2437MHz with two transmit chain  
 Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>(°) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 642.8613           | 28.37               | 15.14                 | 43.51              | 46.00             | -2.49          | 360           | 100            | QP     |
| 2   | 499.4246           | 32.20               | 12.18                 | 44.38              | 46.00             | -1.62          | 360           | 100            | QP     |
| 3   | 374.6225           | 33.76               | 10.64                 | 44.40              | 46.00             | -1.60          | 360           | 100            | QP     |
| 4   | 251.1803           | 36.27               | 7.34                  | 43.61              | 46.00             | -2.39          | 360           | 100            | QP     |
| 5   | 160.3456           | 30.81               | 3.65                  | 34.46              | 43.50             | -9.04          | 360           | 100            | QP     |

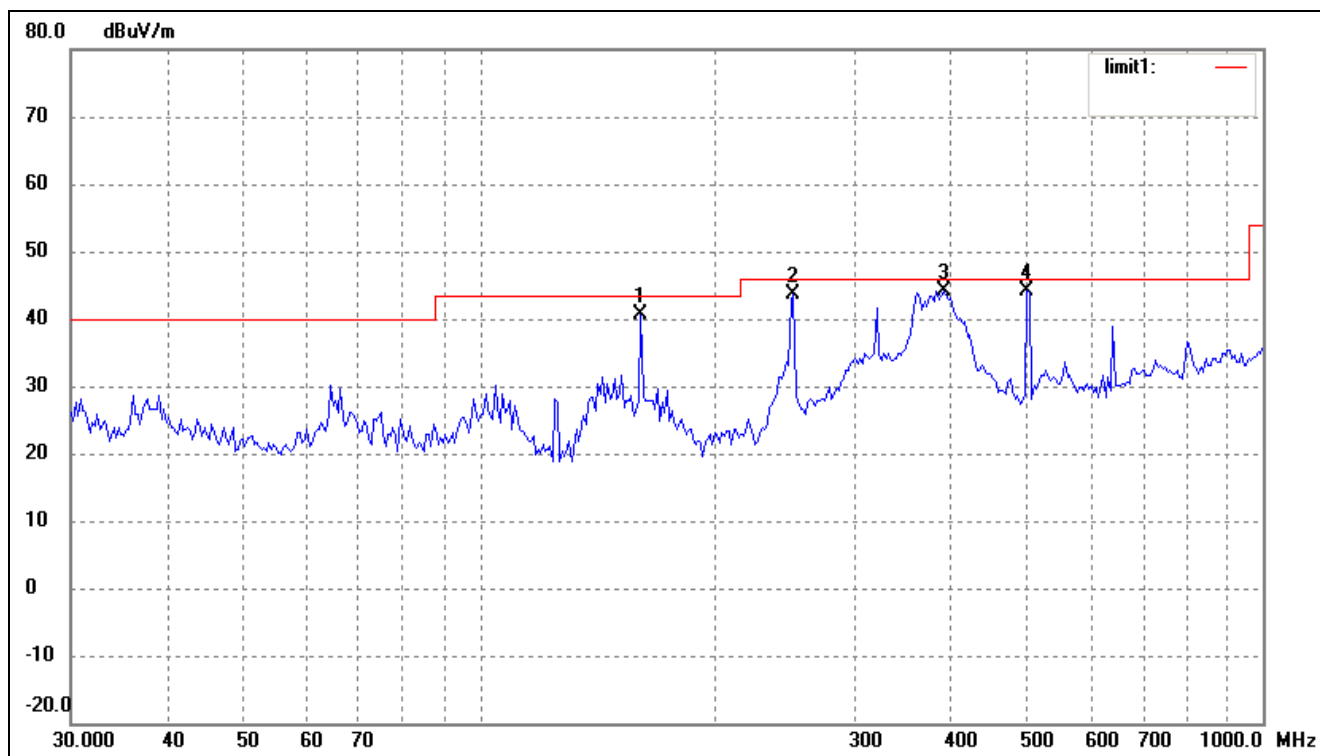
Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 64.8864   | 34.12    | 4.15       | 38.27    | 40.00    | -1.73  | 360    | 100    | peak   |
| 2   | 160.3456  | 36.58    | 3.65       | 40.23    | 43.50    | -3.27  | 360    | 100    | peak   |
| 3   | 361.7139  | 33.04    | 10.69      | 43.73    | 46.00    | -2.27  | 360    | 100    | peak   |
| 4   | 499.4246  | 31.75    | 12.18      | 43.93    | 46.00    | -2.07  | 360    | 100    | peak   |
| 5   | 94.0978   | 30.66    | 5.37       | 36.03    | 43.50    | -7.47  | 360    | 100    | peak   |

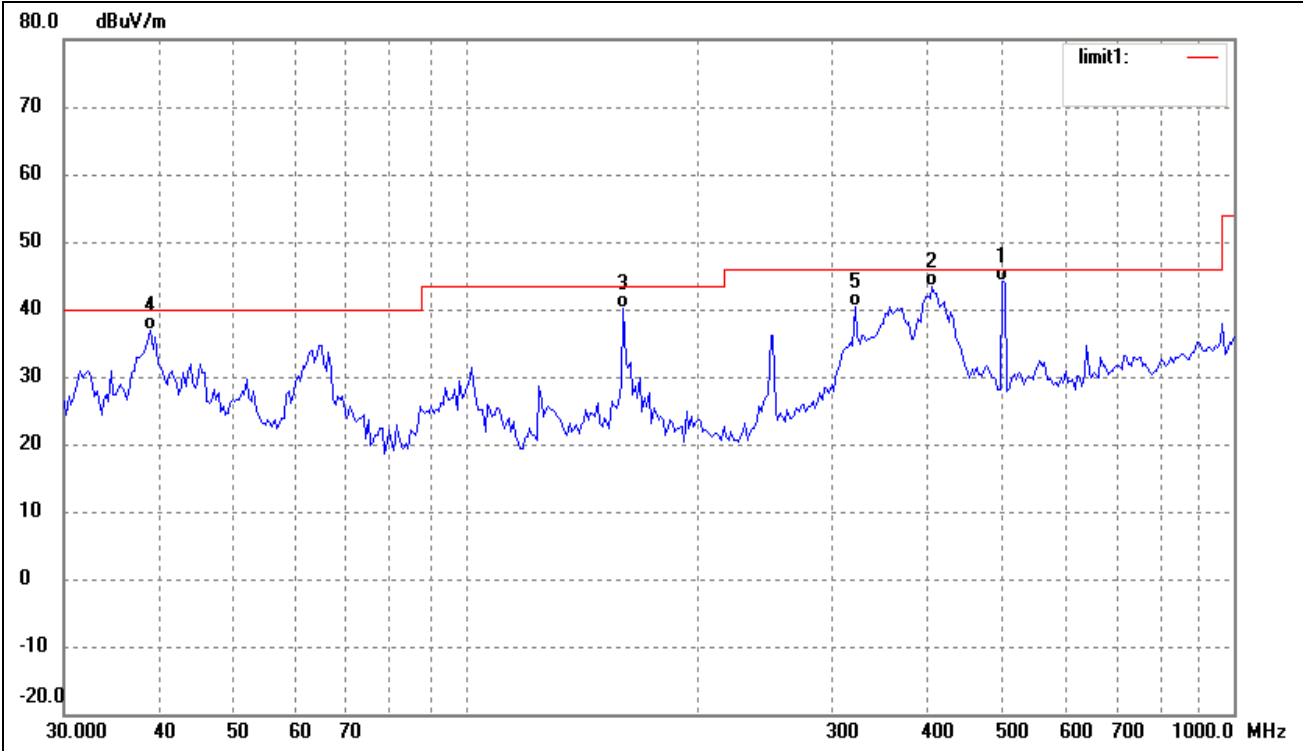
Operating Condition: 802.11n/HT40 Transmitting Highest Channel-2452MHz with two transmit chain  
 Comment: AC 120V/60Hz; adapter DC 12V

Test Specification: Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ° ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|-----------------|----------------|--------|
| 1   | 160.3456           | 36.90               | 3.65                  | 40.55              | 43.50             | -2.95          | 360             | 100            | QP     |
| 2   | 251.1803           | 36.21               | 7.34                  | 43.55              | 46.00             | -2.45          | 360             | 100            | QP     |
| 3   | 390.7225           | 33.08               | 11.12                 | 44.20              | 46.00             | -1.80          | 360             | 100            | QP     |
| 4   | 499.4246           | 32.00               | 12.18                 | 44.18              | 46.00             | -1.82          | 360             | 100            | QP     |

Test Specification: Vertical



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|------------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   | ( ° )  | (cm)   |        |
| 1   | 499.4246  | 31.85    | 12.18      | 44.03    | 46.00    | -1.97  | 360    | 100    | QP     |
| 2   | 404.6664  | 31.93    | 11.35      | 43.28    | 46.00    | -2.72  | 360    | 100    | QP     |
| 3   | 160.3456  | 36.43    | 3.65       | 40.08    | 43.50    | -3.42  | 360    | 100    | QP     |
| 4   | 38.8879   | 27.26    | 9.50       | 36.76    | 40.00    | -3.24  | 360    | 100    | QP     |
| 5   | 321.0607  | 29.97    | 10.46      | 40.43    | 46.00    | -5.57  | 360    | 100    | QP     |

*Spurious Emissions Above 1GHz**Test Mode: 802.11b*

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2412MHz    |          |         |          |          |        |       |          |
| 4824                   | 64.06    | 0.57    | 64.63    | 74.00    | -9.37  | H     | PK       |
| 4824                   | 48.95    | 0.57    | 49.52    | 54.00    | -4.48  | H     | AV       |
| 7236                   | 42.11    | 3.69    | 45.80    | 74.00    | -28.10 | H     | PK       |
| 7236                   | 31.92    | 3.69    | 35.61    | 54.00    | -18.39 | H     | AV       |
| 4824                   | 58.73    | 0.57    | 59.30    | 74.00    | -14.70 | V     | PK       |
| 4824                   | 42.03    | 0.57    | 42.60    | 54.00    | -11.40 | V     | AV       |
| 7236                   | 42.42    | 3.69    | 46.11    | 74.00    | -27.89 | V     | PK       |
| 7236                   | 31.76    | 3.69    | 35.45    | 54.00    | -18.55 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874                   | 62.41    | 0.64    | 63.05    | 74.00    | -10.95 | H     | PK       |
| 4874                   | 47.57    | 0.64    | 48.21    | 54.00    | -5.79  | H     | AV       |
| 7311                   | 45.73    | 3.75    | 49.48    | 74.00    | -24.52 | H     | PK       |
| 7311                   | 33.63    | 3.75    | 37.38    | 54.00    | -16.62 | H     | AV       |
| 4874                   | 55.72    | 0.64    | 56.36    | 74.00    | -17.64 | V     | PK       |
| 4874                   | 41.31    | 0.64    | 41.95    | 54.00    | -12.05 | V     | AV       |
| 7311                   | 43.57    | 3.75    | 47.32    | 74.00    | -26.68 | V     | PK       |
| 7311                   | 31.45    | 3.75    | 35.20    | 54.00    | -18.80 | V     | AV       |
| High Channel-2462MHz   |          |         |          |          |        |       |          |
| 4924                   | 60.13    | 0.72    | 60.85    | 74.00    | -13.15 | H     | PK       |
| 4924                   | 46.42    | 0.72    | 47.14    | 54.00    | -6.86  | H     | AV       |
| 7386                   | 44.74    | 3.81    | 48.55    | 74.00    | -25.45 | H     | PK       |
| 7386                   | 31.33    | 3.81    | 35.14    | 54.00    | -18.86 | H     | AV       |
| 4924                   | 55.29    | 0.72    | 56.01    | 74.00    | -17.99 | V     | PK       |
| 4924                   | 41.58    | 0.72    | 42.30    | 54.00    | -11.70 | V     | AV       |
| 7386                   | 42.36    | 3.81    | 46.17    | 74.00    | -27.83 | V     | PK       |
| 7386                   | 31.31    | 3.81    | 35.12    | 54.00    | -18.88 | V     | AV       |

*Test Mode: 802.11g*

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2412MHz    |          |         |          |          |        |       |          |
| 4824                   | 52.99    | 0.57    | 53.56    | 74.00    | -20.44 | H     | PK       |
| 4824                   | 36.31    | 0.57    | 36.88    | 54.00    | -17.12 | H     | AV       |
| 7236                   | 42.62    | 3.69    | 46.31    | 74.00    | -27.69 | H     | PK       |
| 7236                   | 31.73    | 3.69    | 35.42    | 54.00    | -18.58 | H     | AV       |
| 4824                   | 52.16    | 0.57    | 52.73    | 74.00    | -21.27 | V     | PK       |
| 4824                   | 37.44    | 0.57    | 38.01    | 54.00    | -15.99 | V     | AV       |
| 7236                   | 42.61    | 3.69    | 46.30    | 74.00    | -27.70 | V     | PK       |
| 7236                   | 30.71    | 3.69    | 34.40    | 54.00    | -19.60 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874                   | 56.16    | 0.64    | 56.80    | 74.00    | -17.20 | H     | PK       |
| 4874                   | 43.67    | 0.64    | 44.31    | 54.00    | -9.69  | H     | AV       |
| 7311                   | 43.62    | 3.75    | 47.37    | 74.00    | -26.63 | H     | PK       |
| 7311                   | 32.05    | 3.75    | 35.80    | 54.00    | -18.20 | H     | AV       |
| 4874                   | 50.88    | 0.64    | 51.52    | 74.00    | -22.48 | V     | PK       |
| 4874                   | 39.19    | 0.64    | 39.83    | 54.00    | -14.17 | V     | AV       |
| 7311                   | 42.61    | 3.75    | 46.36    | 74.00    | -27.64 | V     | PK       |
| 7311                   | 31.39    | 3.75    | 35.14    | 54.00    | -18.86 | V     | AV       |
| High Channel-2462MHz   |          |         |          |          |        |       |          |
| 4924                   | 54.68    | 0.72    | 55.50    | 74.00    | -18.50 | H     | PK       |
| 4924                   | 41.03    | 0.72    | 41.75    | 54.00    | -12.25 | H     | AV       |
| 7386                   | 44.54    | 3.81    | 48.35    | 74.00    | -25.65 | H     | PK       |
| 7386                   | 31.40    | 3.81    | 35.21    | 54.00    | -18.79 | H     | AV       |
| 4924                   | 48.67    | 0.72    | 49.39    | 74.00    | -24.61 | V     | PK       |
| 4924                   | 36.27    | 0.72    | 36.99    | 54.00    | -17.01 | V     | AV       |
| 7386                   | 43.42    | 3.81    | 47.23    | 74.00    | -26.77 | V     | PK       |
| 7386                   | 31.37    | 3.81    | 35.18    | 54.00    | -18.82 | V     | AV       |

Test Mode: 802.11n-HT20

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2412MHz    |          |         |          |          |        |       |          |
| 4824                   | 50.63    | 0.57    | 51.20    | 74.00    | -21.80 | H     | PK       |
| 4824                   | 35.80    | 0.57    | 36.37    | 54.00    | -17.63 | H     | AV       |
| 7236                   | 41.69    | 3.69    | 45.38    | 74.00    | -28.62 | H     | PK       |
| 7236                   | 30.76    | 3.69    | 34.45    | 54.00    | -19.55 | H     | AV       |
| 4824                   | 52.45    | 0.57    | 53.02    | 74.00    | -20.98 | V     | PK       |
| 4824                   | 37.30    | 0.57    | 37.87    | 54.00    | -16.13 | V     | AV       |
| 7236                   | 41.86    | 3.69    | 45.55    | 74.00    | -28.45 | V     | PK       |
| 7236                   | 30.75    | 3.69    | 34.44    | 54.00    | -19.56 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874                   | 55.44    | 0.64    | 56.08    | 74.00    | -17.92 | H     | PK       |
| 4874                   | 43.71    | 0.64    | 44.35    | 54.00    | -9.65  | H     | AV       |
| 7311                   | 43.38    | 3.75    | 47.13    | 74.00    | -26.87 | H     | PK       |
| 7311                   | 31.88    | 3.75    | 35.63    | 54.00    | -18.37 | H     | AV       |
| 4874                   | 50.87    | 0.64    | 51.51    | 74.00    | -22.49 | V     | PK       |
| 4874                   | 38.98    | 0.64    | 39.62    | 54.00    | -14.38 | V     | AV       |
| 7311                   | 43.40    | 3.75    | 47.15    | 74.00    | -26.85 | V     | PK       |
| 7311                   | 31.39    | 3.75    | 35.20    | 54.00    | -18.80 | V     | AV       |
| High Channel-2462MHz   |          |         |          |          |        |       |          |
| 4924                   | 52.19    | 0.72    | 52.91    | 74.00    | -21.09 | H     | PK       |
| 4924                   | 38.64    | 0.72    | 39.36    | 54.00    | -14.64 | H     | AV       |
| 7386                   | 44.28    | 3.81    | 48.09    | 74.00    | -25.91 | H     | PK       |
| 7386                   | 31.50    | 3.81    | 35.31    | 54.00    | -18.69 | H     | AV       |
| 4924                   | 48.76    | 0.72    | 49.48    | 74.00    | -24.52 | V     | PK       |
| 4924                   | 36.13    | 0.72    | 36.85    | 54.00    | -17.15 | V     | AV       |
| 7386                   | 43.13    | 3.81    | 46.94    | 74.00    | -27.06 | V     | PK       |
| 7386                   | 31.33    | 3.81    | 35.14    | 54.00    | -18.86 | V     | AV       |

Test Mode: 802.11n-HT40

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2422MHz    |          |         |          |          |        |       |          |
| 4844                   | 48.91    | 0.60    | 49.51    | 74.00    | -24.49 | H     | PK       |
| 4844                   | 37.30    | 0.60    | 37.90    | 54.00    | -16.10 | H     | AV       |
| 7266                   | 41.70    | 3.72    | 45.42    | 74.00    | -28.58 | H     | PK       |
| 7266                   | 30.78    | 3.72    | 34.50    | 54.00    | -19.50 | H     | AV       |
| 4844                   | 48.66    | 0.60    | 49.26    | 74.00    | -24.74 | V     | PK       |
| 4844                   | 37.54    | 0.60    | 38.14    | 54.00    | -15.86 | V     | AV       |
| 7266                   | 42.62    | 3.72    | 46.34    | 74.00    | -27.66 | V     | PK       |
| 7266                   | 30.93    | 3.72    | 34.65    | 54.00    | -19.35 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874                   | 52.18    | 0.64    | 52.82    | 74.00    | -21.18 | H     | PK       |
| 4874                   | 41.02    | 0.64    | 41.66    | 54.00    | -12.34 | H     | AV       |
| 7311                   | 42.88    | 3.75    | 46.63    | 74.00    | -27.37 | H     | PK       |
| 7311                   | 31.48    | 3.75    | 35.23    | 54.00    | -18.77 | H     | AV       |
| 4874                   | 48.16    | 0.64    | 48.80    | 74.00    | -25.20 | V     | PK       |
| 4874                   | 36.70    | 0.64    | 37.34    | 54.00    | -16.66 | V     | AV       |
| 7311                   | 42.50    | 3.75    | 46.25    | 74.00    | -27.75 | V     | PK       |
| 7311                   | 33.37    | 3.75    | 37.12    | 54.00    | -16.88 | V     | AV       |
| High Channel-2452MHz   |          |         |          |          |        |       |          |
| 4904                   | 55.77    | 0.68    | 56.45    | 74.00    | -17.55 | H     | PK       |
| 4904                   | 45.77    | 0.68    | 46.45    | 54.00    | -7.55  | H     | AV       |
| 7356                   | 45.15    | 3.79    | 48.94    | 74.00    | -25.06 | H     | PK       |
| 7356                   | 33.13    | 3.79    | 36.92    | 54.00    | -17.08 | H     | AV       |
| 4904                   | 51.44    | 0.68    | 52.12    | 74.00    | -21.88 | V     | PK       |
| 4904                   | 41.09    | 0.68    | 41.77    | 54.00    | -12.23 | V     | AV       |
| 7356                   | 43.03    | 3.79    | 46.82    | 74.00    | -27.18 | V     | PK       |
| 7356                   | 31.45    | 3.79    | 35.24    | 54.00    | -18.76 | V     | AV       |

Test Mode: 802.11n-HT20 with two transmit chain

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2412MHz    |          |         |          |          |        |       |          |
| 4824                   | 52.88    | 0.57    | 53.45    | 74.00    | -20.55 | H     | PK       |
| 4824                   | 37.87    | 0.57    | 38.44    | 54.00    | -15.56 | H     | AV       |
| 7236                   | 42.64    | 3.69    | 46.33    | 74.00    | -27.67 | H     | PK       |
| 7236                   | 31.56    | 3.69    | 35.25    | 54.00    | -18.75 | H     | AV       |
| 4824                   | 54.30    | 0.57    | 54.87    | 74.00    | -19.13 | V     | PK       |
| 4824                   | 38.25    | 0.57    | 38.82    | 54.00    | -15.18 | V     | AV       |
| 7236                   | 42.83    | 3.69    | 46.52    | 74.00    | -27.48 | V     | PK       |
| 7236                   | 31.72    | 3.69    | 35.41    | 54.00    | -18.59 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874                   | 56.69    | 0.64    | 57.33    | 74.00    | -16.67 | H     | PK       |
| 4874                   | 43.57    | 0.64    | 44.21    | 54.00    | -9.79  | H     | AV       |
| 7311                   | 44.14    | 3.75    | 47.89    | 74.00    | -26.11 | H     | PK       |
| 7311                   | 32.89    | 3.75    | 36.64    | 54.00    | -17.36 | H     | AV       |
| 4874                   | 51.81    | 0.64    | 52.45    | 74.00    | -21.55 | V     | PK       |
| 4874                   | 39.93    | 0.64    | 40.57    | 54.00    | -13.43 | V     | AV       |
| 7311                   | 44.47    | 3.75    | 48.22    | 74.00    | -25.78 | V     | PK       |
| 7311                   | 32.53    | 3.75    | 36.28    | 54.00    | -17.72 | V     | AV       |
| High Channel-2462MHz   |          |         |          |          |        |       |          |
| 4924                   | 52.96    | 0.72    | 53.68    | 74.00    | -20.32 | H     | PK       |
| 4924                   | 40.04    | 0.72    | 40.76    | 54.00    | -13.24 | H     | AV       |
| 7386                   | 44.83    | 3.81    | 48.64    | 74.00    | -25.36 | H     | PK       |
| 7386                   | 32.53    | 3.81    | 36.34    | 54.00    | -17.66 | H     | AV       |
| 4924                   | 46.72    | 0.72    | 47.44    | 74.00    | -26.56 | V     | PK       |
| 4924                   | 35.10    | 0.72    | 35.82    | 54.00    | -18.18 | V     | AV       |
| 7386                   | 42.75    | 3.81    | 46.56    | 74.00    | -27.44 | V     | PK       |
| 7386                   | 31.92    | 3.81    | 35.73    | 54.00    | -18.27 | V     | AV       |

Test Mode: 802.11n-HT40 with two transmit chain

| Frequency              | Reading  | Correct | Result   | Limit    | Margin | Polar | Detector |
|------------------------|----------|---------|----------|----------|--------|-------|----------|
| (MHz)                  | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | H/V   |          |
| Low Channel-2422MHz    |          |         |          |          |        |       |          |
| 4844                   | 49.96    | 0.60    | 50.56    | 74.00    | -23.44 | H     | PK       |
| 4844                   | 38.33    | 0.60    | 38.93    | 54.00    | -15.07 | H     | AV       |
| 7266                   | 42.17    | 3.72    | 45.89    | 74.00    | -28.11 | H     | PK       |
| 7266                   | 30.81    | 3.72    | 34.53    | 54.00    | -19.47 | H     | AV       |
| 4844                   | 48.62    | 0.60    | 49.22    | 74.00    | -24.78 | V     | PK       |
| 4844                   | 38.64    | 0.60    | 39.24    | 54.00    | -14.76 | V     | AV       |
| 7266                   | 41.34    | 3.72    | 45.06    | 74.00    | -28.94 | V     | PK       |
| 7266                   | 30.88    | 3.72    | 34.60    | 54.00    | -19.40 | V     | AV       |
| Middle Channel-2437MHz |          |         |          |          |        |       |          |
| 4874                   | 53.69    | 0.64    | 54.33    | 74.00    | -19.67 | H     | PK       |
| 4874                   | 43.46    | 0.64    | 44.10    | 54.00    | -9.90  | H     | AV       |
| 7311                   | 43.86    | 3.75    | 47.61    | 74.00    | -26.39 | H     | PK       |
| 7311                   | 32.65    | 3.75    | 36.40    | 54.00    | -17.60 | H     | AV       |
| 4874                   | 47.89    | 0.64    | 48.53    | 74.00    | -25.47 | V     | PK       |
| 4874                   | 36.45    | 0.64    | 37.09    | 54.00    | -16.91 | V     | AV       |
| 7311                   | 42.36    | 3.75    | 46.11    | 74.00    | -27.89 | V     | PK       |
| 7311                   | 33.95    | 3.75    | 37.70    | 54.00    | -16.30 | V     | AV       |
| High Channel-2452MHz   |          |         |          |          |        |       |          |
| 4904                   | 54.72    | 0.68    | 55.40    | 74.00    | -18.60 | H     | PK       |
| 4904                   | 45.65    | 0.68    | 46.33    | 54.00    | -7.67  | H     | AV       |
| 7356                   | 45.75    | 3.79    | 49.54    | 74.00    | -24.46 | H     | PK       |
| 7356                   | 33.32    | 3.79    | 37.11    | 54.00    | -16.89 | H     | AV       |
| 4904                   | 52.82    | 0.68    | 53.50    | 74.00    | -20.50 | V     | PK       |
| 4904                   | 42.76    | 0.68    | 43.44    | 54.00    | -10.56 | V     | AV       |
| 7356                   | 44.01    | 3.79    | 47.80    | 74.00    | -26.20 | V     | PK       |
| 7356                   | 32.52    | 3.79    | 36.31    | 54.00    | -17.69 | V     | AV       |

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 5<sup>th</sup> Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

The measurements greater than 20dB below the limit from 9kHz to 30MHz..

## 8. Out of Band Emissions

### 8.1 Standard Applicable

According to §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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).

### 8.2 Test Equipment List and Details

| Description              | Manufacturer         | Model    | Serial Number | Cal. Date  | Due. Date  |
|--------------------------|----------------------|----------|---------------|------------|------------|
| Spectrum Analyzer        | R&S                  | FSP      | 836079/035    | 2013-03-28 | 2014-03-27 |
| EMI Test Receiver        | R&S                  | ESVB     | 825471/005    | 2013-03-28 | 2014-03-27 |
| Pre-amplifier            | Agilent              | 8447F    | 3113A06717    | 2013-03-28 | 2014-03-27 |
| Pre-amplifier            | Compliance Direction | PAP-0118 | 24002         | 2013-03-28 | 2014-03-27 |
| Trilog Broadband Antenna | SCHWARZBECK          | VULB9163 | 9163-333      | 2013-02-25 | 2014-02-24 |
| Horn Antenna             | ETS                  | 3117     | 00086197      | 2013-02-25 | 2014-02-24 |

### 8.3 Test Procedure

According to the KDB 558074, the band-edge radiated test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)

RBW = 1MHz, VBW = 1MHz for peak value measured

RBW = 1MHz, VBW = 10Hz for average value measured

Sweep = auto; Detector function = peak/average; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement KDB publication number: 913591 may be used for the radiated bandedge measurements.

According to the DA 00-705, the band-edge conducted test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2380MHz to 2410MHz for low bandedge, 2470MHz to 2500MHz for the high bandedge)

RBW = 100kHz, VBW = 300kHz

Sweep = auto; Detector function = peak; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the limit specified in this section (at least 20dB attenuation).

## 8.4 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23°C      |
| Relative Humidity: | 54%       |
| ATM Pressure:      | 1011 mbar |

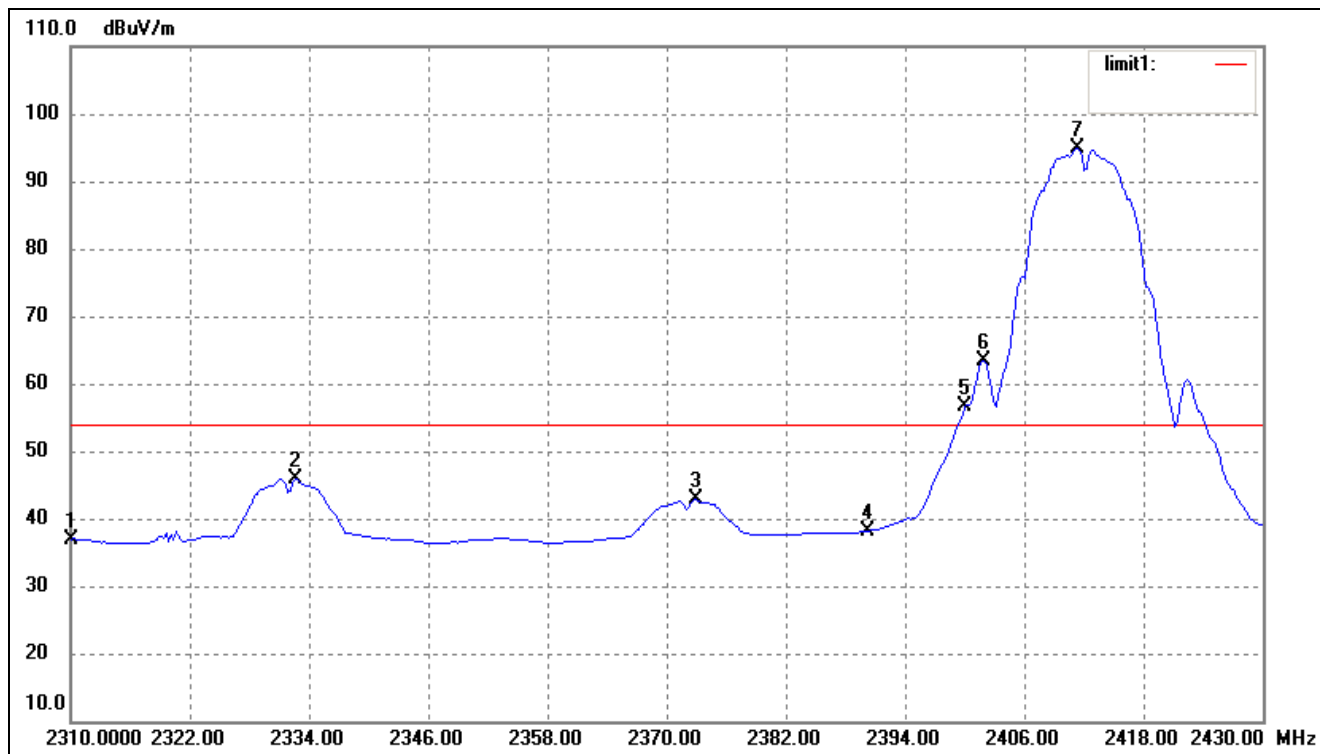
## 8.5 Summary of Test Results/Plots

| Test Mode    | Test Frequency MHz | Limit dBuV / dBc | Result |
|--------------|--------------------|------------------|--------|
| 802.11b      | 2390.00            | <54 dBuV         | Pass   |
|              | 2400.00            | >20 dBc          | Pass   |
|              | 2483.50            | <54 dBuV         | Pass   |
| 802.11g      | 2390.00            | <54 dBuV         | Pass   |
|              | 2400.00            | >20 dBc          | Pass   |
|              | 2483.50            | <54 dBuV         | Pass   |
| 802.11n-HT20 | 2390.00            | <54 dBuV         | Pass   |
|              | 2400.00            | >20 dBc          | Pass   |
|              | 2483.50            | <54 dBuV         | Pass   |
| 802.11n-HT40 | 2390.00            | <54 dBuV         | Pass   |
|              | 2400.00            | >20 dBc          | Pass   |
|              | 2483.50            | <54 dBuV         | Pass   |

The edge emissions are below the FCC 15.209 Limits or complies with the 15.247(d) requirements.

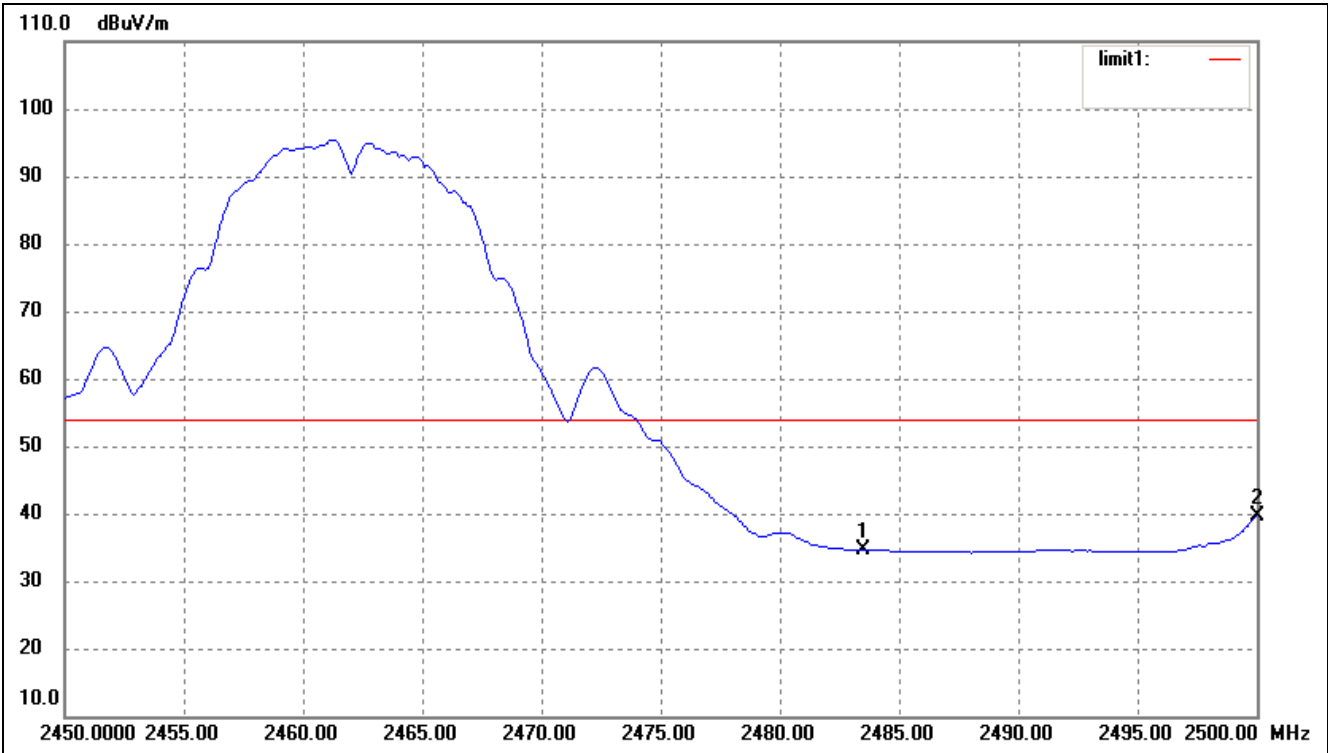
Please refer to the test plots as below.

## 802.11b-china 0-Lowest Bandedge



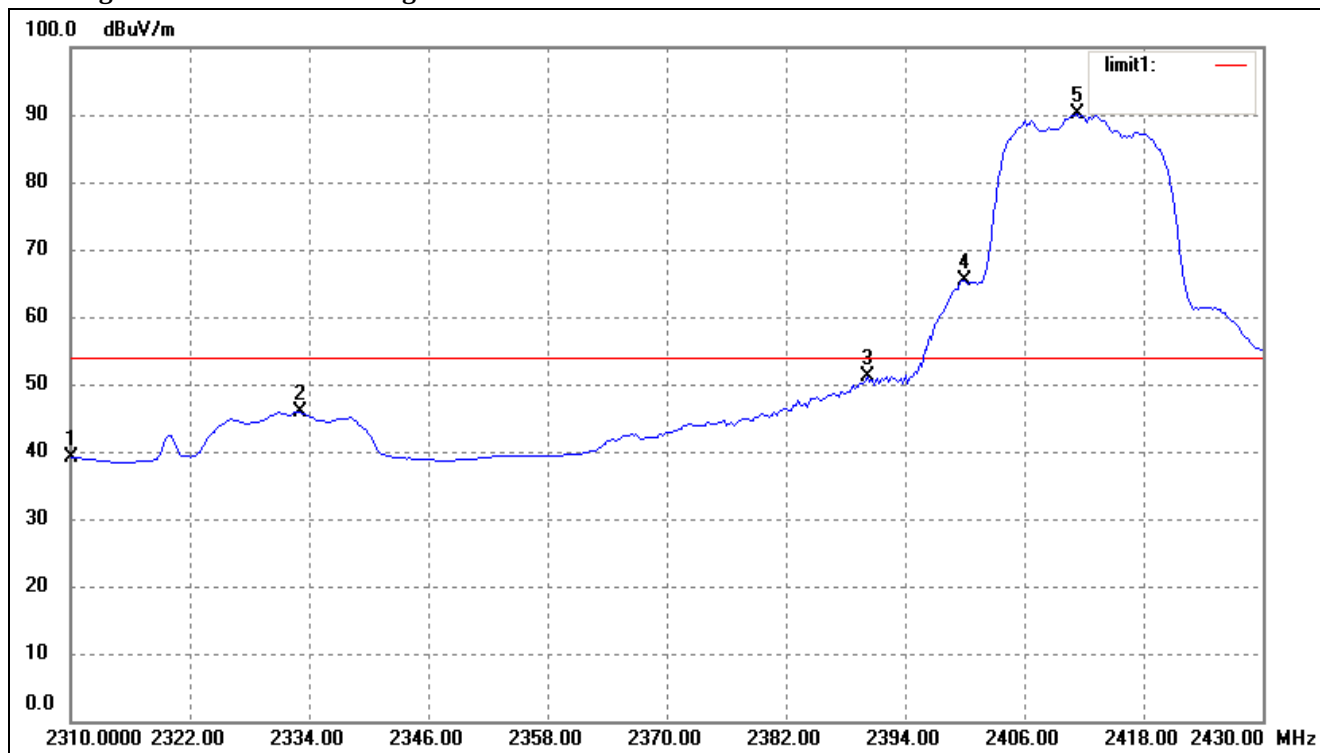
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark        |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|---------------|
| 1   | 2310.000           | 40.71               | -3.71                 | 37.00              | 54.00             | -17.00         | AV Detector   |
|     | 2310.000           | 53.81               | -3.71                 | 50.10              | 74.00             | -23.90         | Peak Detector |
| 2   | 2332.560           | 49.46               | -3.67                 | 45.79              | 54.00             | -8.21          | AV Detector   |
|     | 2332.560           | 59.90               | -3.67                 | 56.23              | 74.00             | -17.77         | Peak Detector |
| 3   | 2372.880           | 46.35               | -3.56                 | 42.79              | 54.00             | -11.21         | AV Detector   |
|     | 2372.880           | 58.02               | -3.56                 | 54.46              | 74.00             | -19.54         | Peak Detector |
| 4   | 2390.000           | 41.70               | -3.54                 | 38.16              | 54.00             | -15.84         | AV Detector   |
|     | 2390.000           | 54.71               | -3.54                 | 51.17              | 74.00             | -22.83         | Peak Detector |
| 5   | 2400.000           | 60.06               | -3.51                 | 56.55              | /                 | /              | AV Detector   |
| 6   | 2401.920           | 66.80               | -3.51                 | 63.29              | /                 | /              | AV Detector   |
| 7   | 2411.280           | 98.35               | -3.48                 | 94.87              | /                 | /              | AV Detector   |

802.11b-chain 0-Highest Bandedge



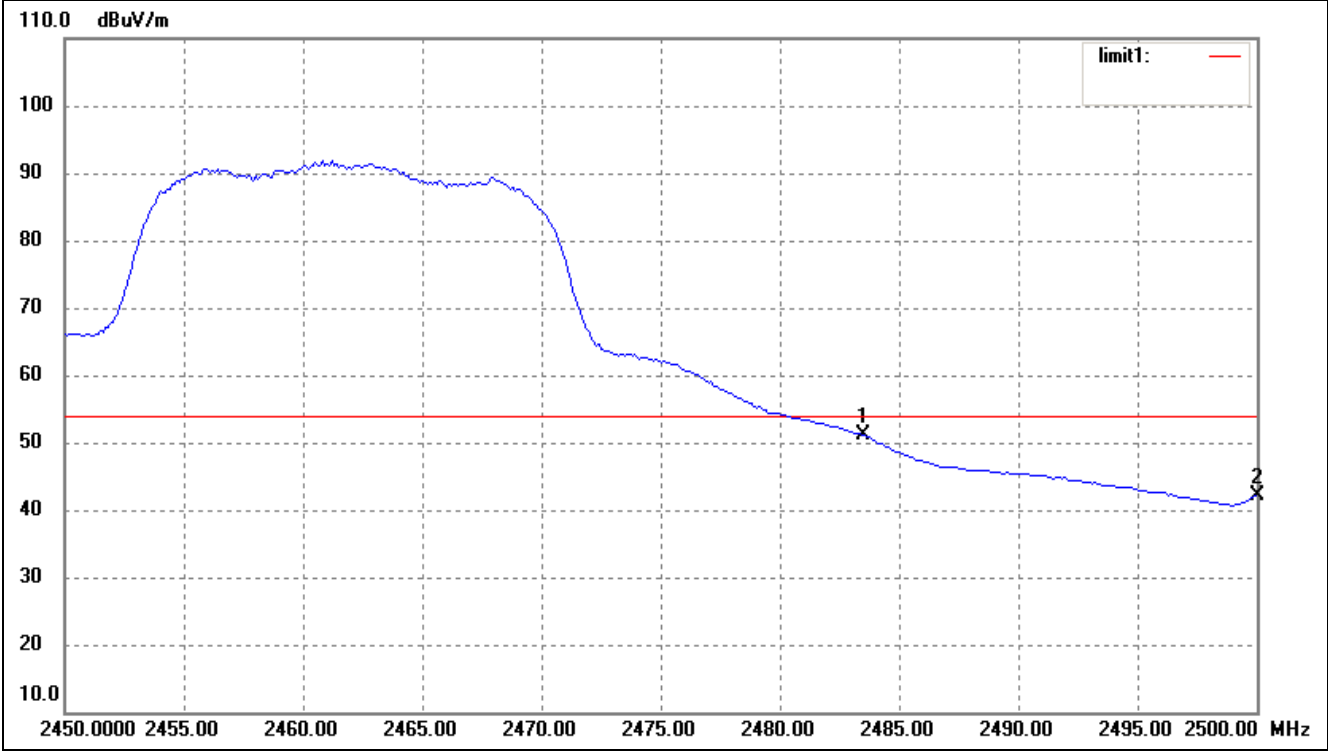
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 37.91    | -3.33      | 34.58    | 54.00    | -19.42 | AV Detector   |
|     | 2483.500  | 50.94    | -3.33      | 47.61    | 74.00    | -26.39 | Peak Detector |
| 2   | 2500.000  | 42.85    | -3.28      | 39.57    | 54.00    | -14.43 | AV Detector   |
|     | 2500.000  | 53.53    | -3.28      | 50.25    | 74.00    | -23.75 | Peak Detector |

## 802.11g-chain 0-Lowest Bandedge



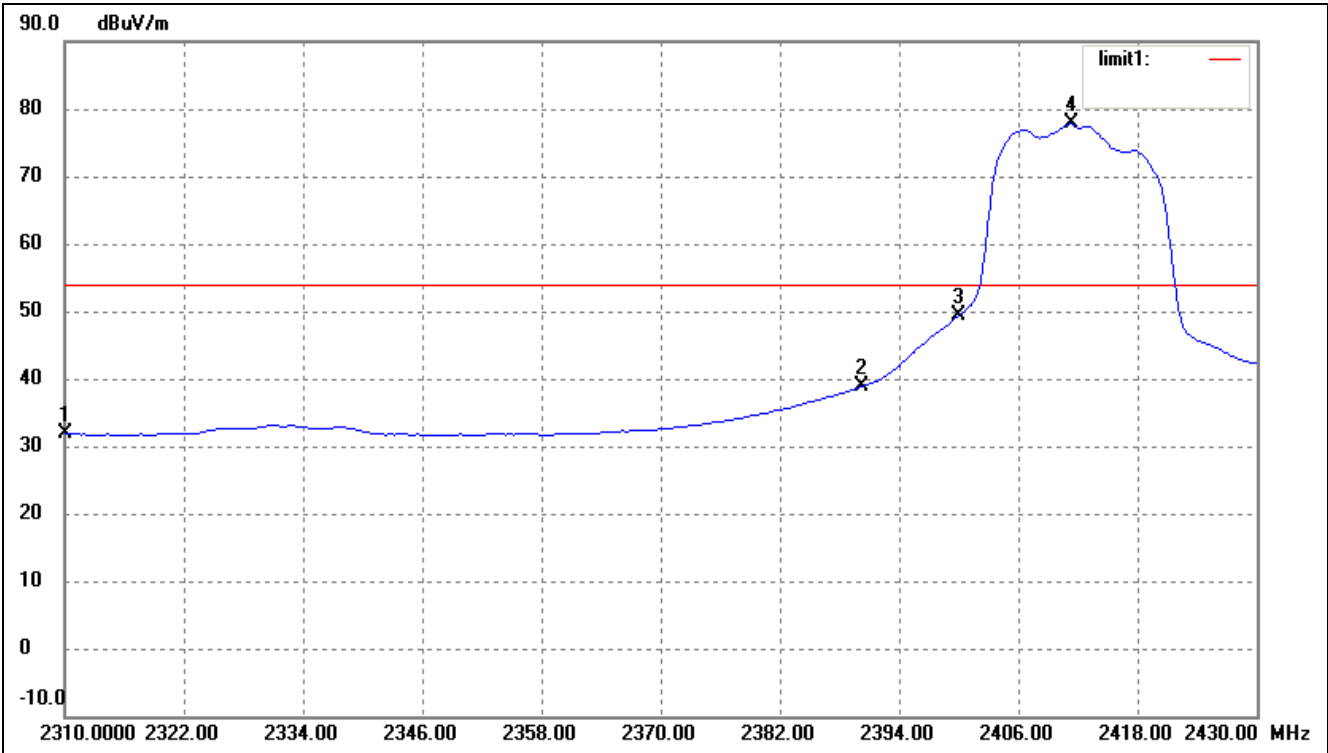
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark        |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|---------------|
| 1   | 2310.000           | 42.81               | -3.71                 | 39.10              | 54.00             | -14.90         | AV Detector   |
|     | 2310.000           | 56.13               | -3.71                 | 52.42              | 74.00             | -21.58         | Peak Detector |
| 2   | 2333.040           | 49.54               | -3.67                 | 45.87              | 54.00             | -8.13          | AV Detector   |
|     | 2333.040           | 63.35               | -3.67                 | 59.68              | 74.00             | -14.32         | Peak Detector |
| 3   | 2390.000           | 54.72               | -3.54                 | 51.18              | 54.00             | -2.82          | AV Detector   |
|     | 2390.000           | 85.42               | -3.54                 | 71.88              | 74.00             | -2.12          | Peak Detector |
| 4   | 2400.000           | 68.77               | -3.51                 | 65.26              | /                 | /              | AV Detector   |
| 5   | 2411.280           | 93.67               | -3.48                 | 90.19              | /                 | /              | AV Detector   |

802.11g-chain 0-Highest Bandedge



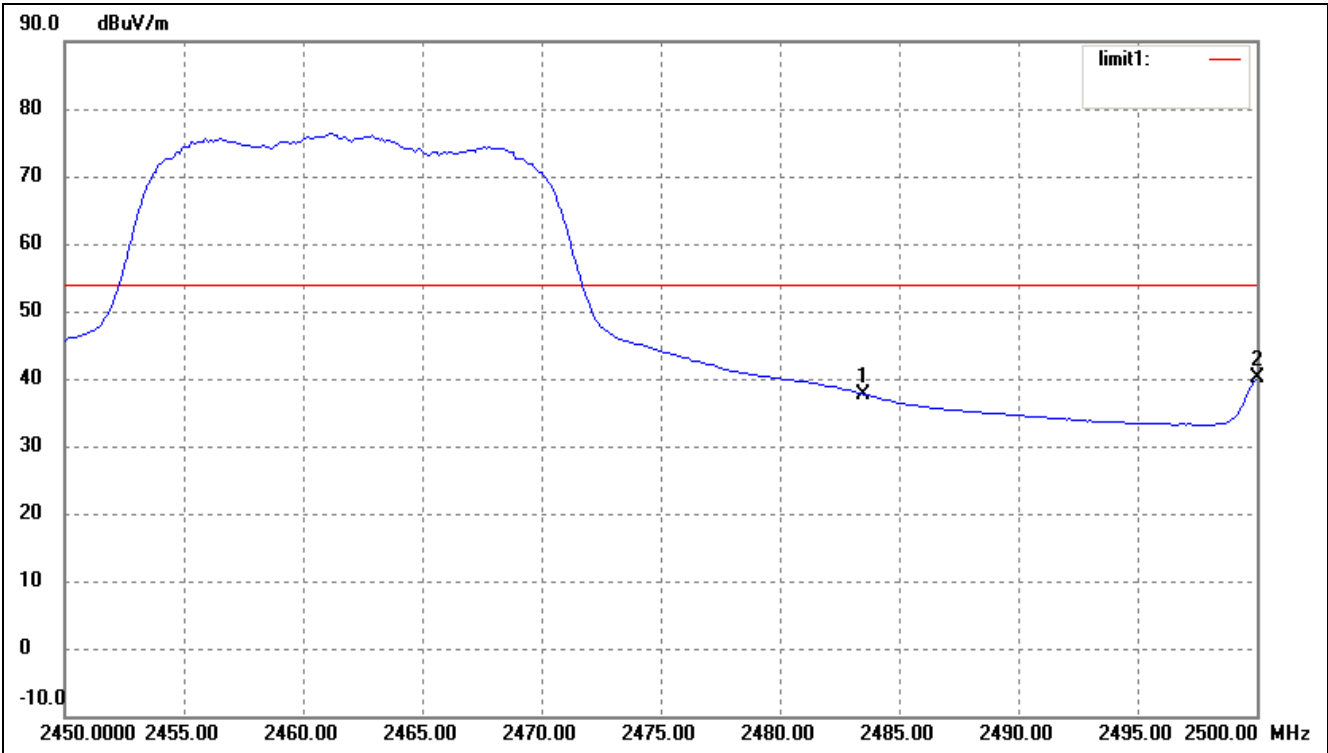
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 54.35    | -3.33      | 51.02    | 54.00    | -2.98  | AV Detector   |
|     | 2483.500  | 87.83    | -3.33      | 72.50    | 74.00    | -1.50  | Peak Detector |
| 2   | 2500.000  | 45.44    | -3.28      | 42.16    | 54.00    | -11.84 | AV Detector   |
|     | 2500.000  | 71.22    | -3.28      | 67.94    | 74.00    | -6.06  | Peak Detector |

802.11g-chain 1-Lowest Bandedge



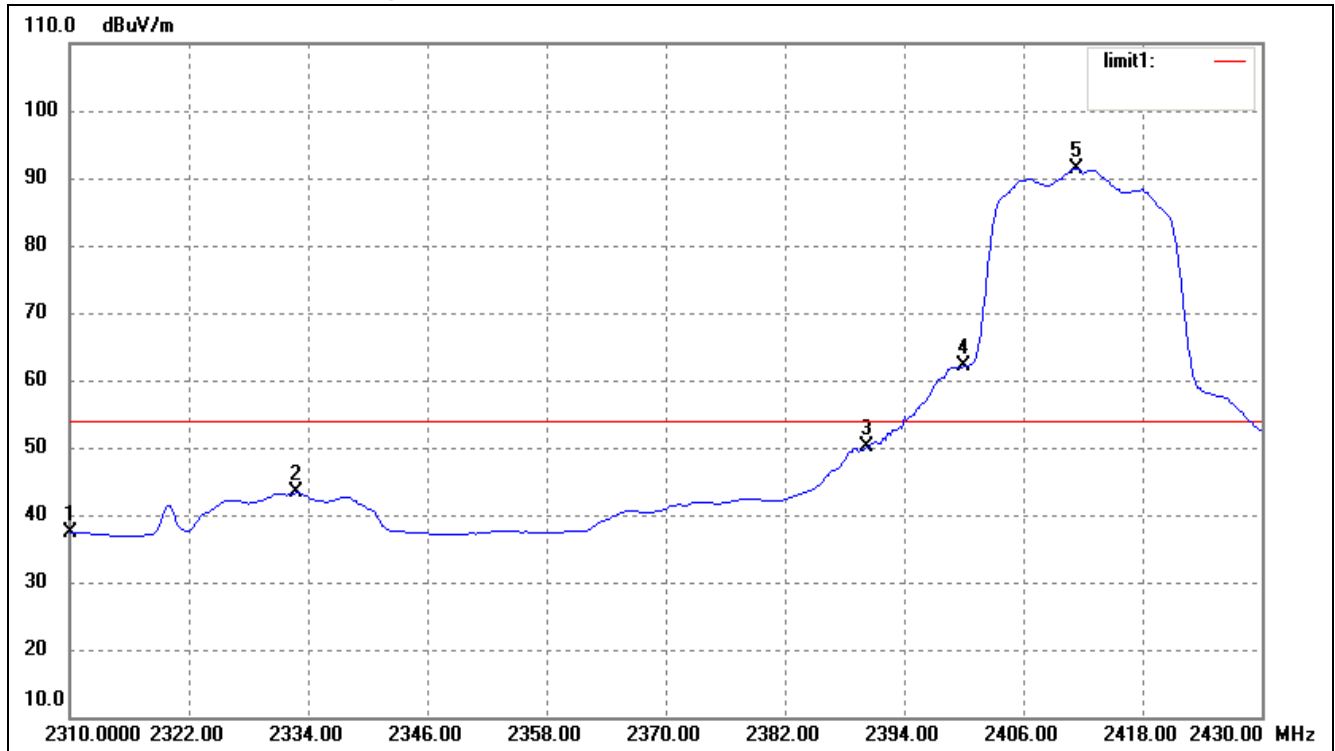
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2310.000  | 35.51    | -3.71      | 31.80    | 54.00    | -22.20 | AV Detector   |
|     | 2310.000  | 48.26    | -3.71      | 44.55    | 74.00    | -29.45 | Peak Detector |
| 2   | 2390.000  | 42.33    | -3.54      | 38.79    | 54.00    | -15.21 | AV Detector   |
|     | 2390.000  | 61.04    | -3.54      | 57.50    | 74.00    | -16.50 | Peak Detector |
| 3   | 2400.000  | 52.93    | -3.51      | 49.42    | /        | /      | AV Detector   |
| 4   | 2411.280  | 81.25    | -3.48      | 77.77    | /        | /      | AV Detector   |

802.11g-chain 1-Highest Bandedge



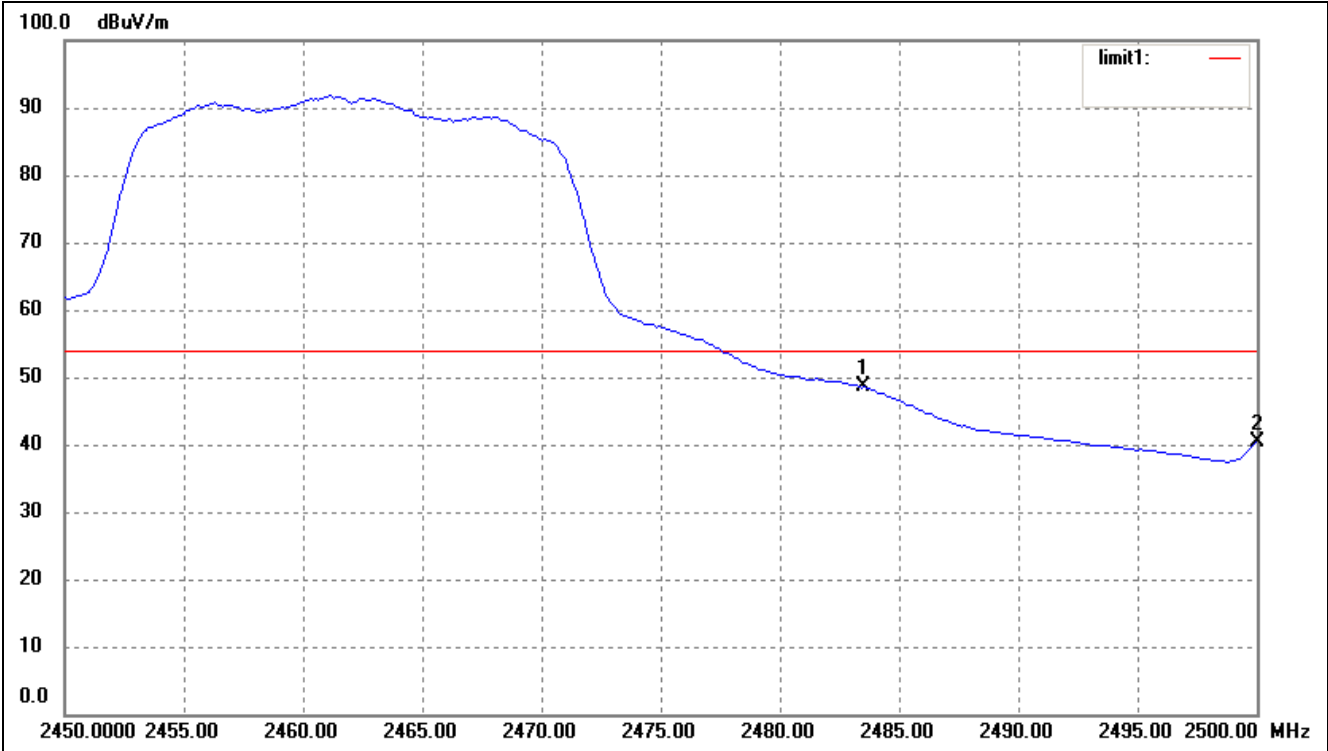
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 41.05    | -3.33      | 37.72    | 54.00    | -16.28 | AV Detector   |
|     | 2483.500  | 60.54    | -3.33      | 57.21    | 74.00    | -16.79 | Peak Detector |
| 2   | 2500.000  | 43.35    | -3.28      | 40.07    | 54.00    | -13.93 | AV Detector   |
|     | 2500.000  | 52.42    | -3.28      | 49.14    | 74.00    | -24.86 | Peak Detector |

## 802.11n-HT20-Lowest Bandedge with Chain 0 (worst case)



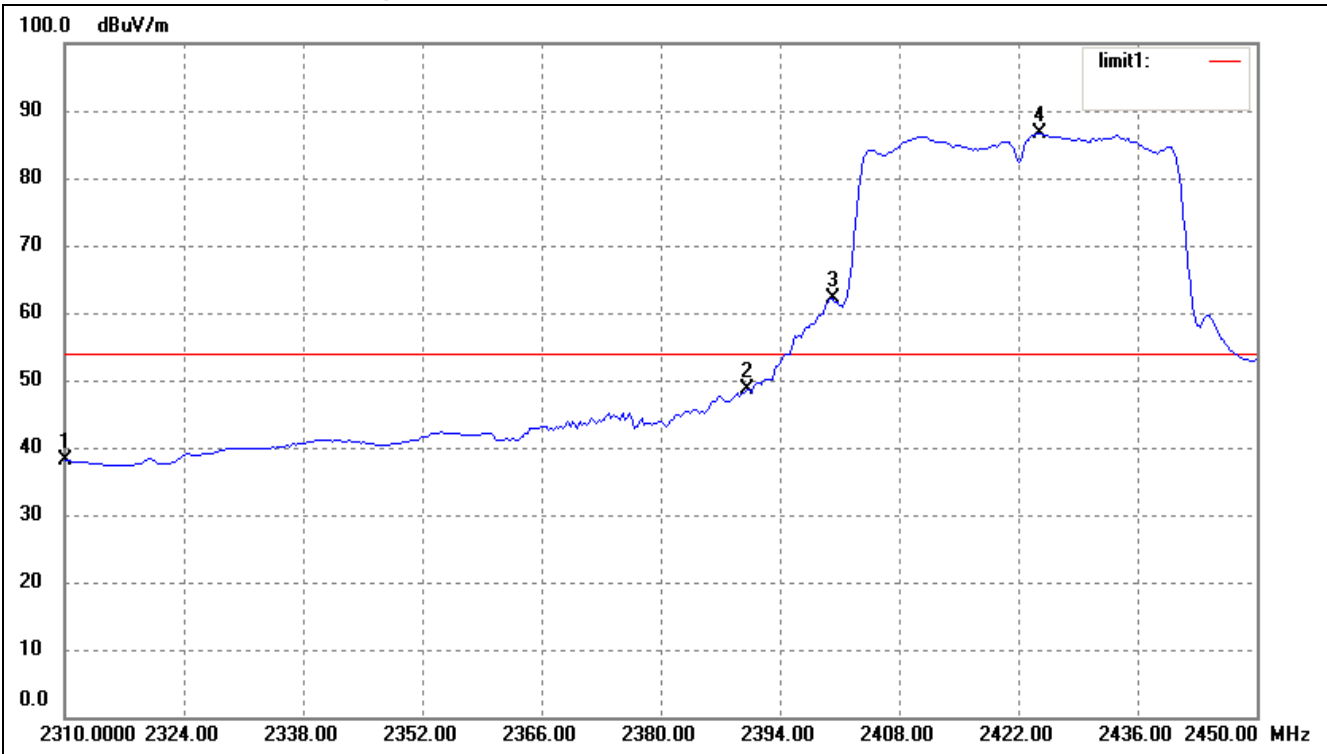
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark        |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|---------------|
| 1   | 2310.000           | 41.18               | -3.71                 | 37.47              | 54.00             | -16.53         | AV Detector   |
|     | 2310.000           | 55.47               | -3.71                 | 51.76              | 74.00             | -22.24         | Peak Detector |
| 2   | 2332.800           | 46.95               | -3.67                 | 43.28              | 54.00             | -10.72         | AV Detector   |
|     | 2332.800           | 46.95               | -3.67                 | 56.73              | 74.00             | -17.27         | Peak Detector |
| 3   | 2390.000           | 60.40               | -3.54                 | 50.05              | 54.00             | -3.95          | AV Detector   |
|     | 2390.000           | 81.06               | -3.54                 | 71.48              | 74.00             | -2.52          | Peak Detector |
| 4   | 2400.000           | 65.53               | -3.51                 | 62.02              | /                 | /              | AV Detector   |
| 5   | 2411.280           | 94.88               | -3.48                 | 91.40              | /                 | /              | AV Detector   |

802.11n-HT20-Highest Bandedge with Chain 0 (worst case)



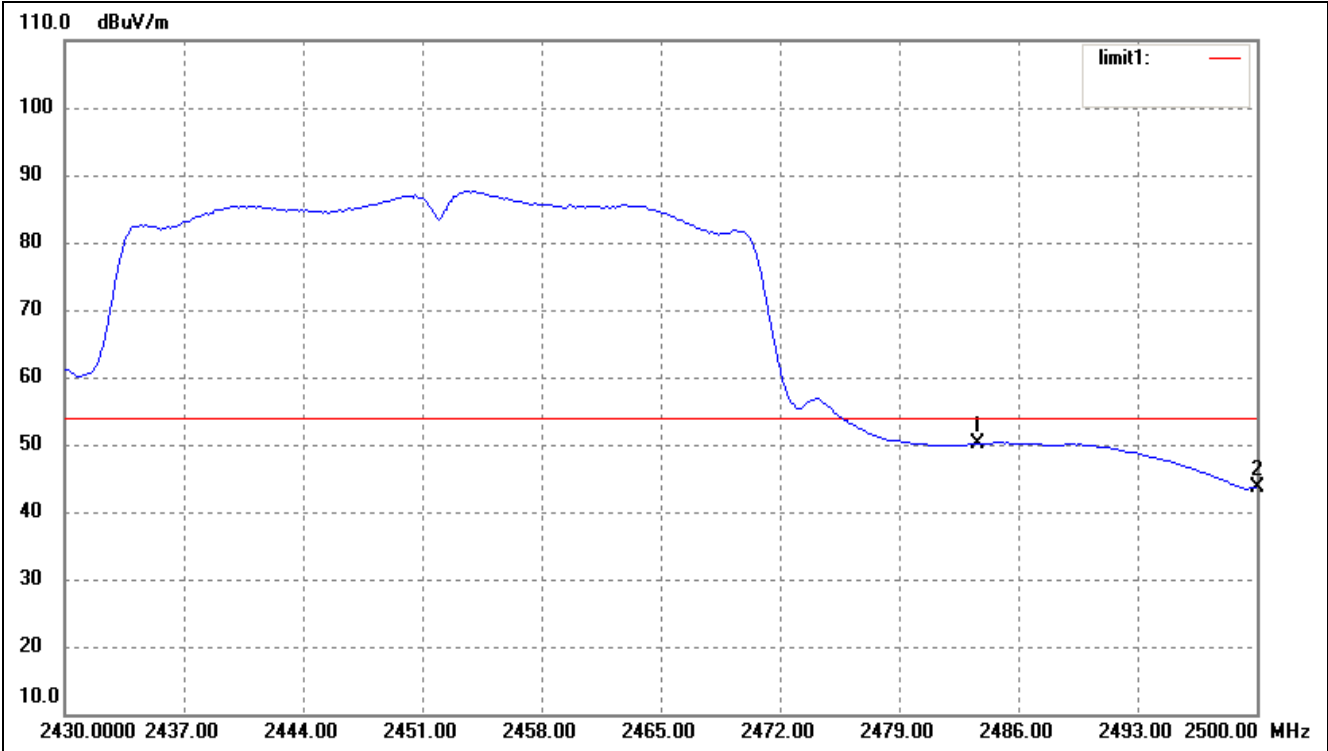
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 51.89    | -3.33      | 48.56    | 54.00    | -5.44  | AV Detector   |
|     | 2483.500  | 74.72    | -3.33      | 71.39    | 74.00    | -2.61  | Peak Detector |
| 2   | 2500.000  | 43.60    | -3.28      | 40.32    | 54.00    | -13.68 | AV Detector   |
|     | 2500.000  | 57.60    | -3.28      | 54.32    | 74.00    | -19.68 | Peak Detector |

802.11n-HT40-Lowest Bandedge with Chain 0 (worst case)



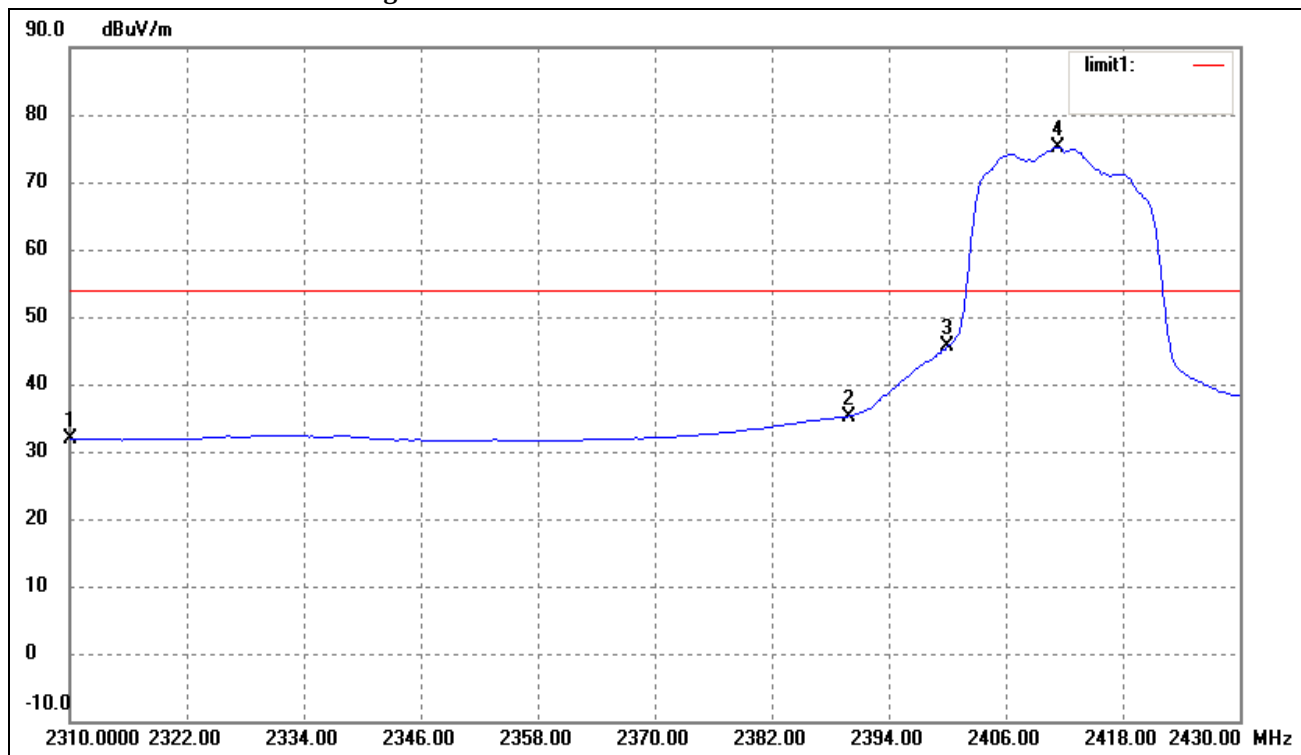
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark        |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|---------------|
| 1   | 2310.000           | 41.76               | -3.71                 | 38.05              | 54.00             | -15.95         | AV Detector   |
|     | 2310.000           | 55.43               | -3.71                 | 51.72              | 74.00             | -22.28         | Peak Detector |
| 2   | 2390.000           | 52.15               | -3.54                 | 48.61              | 54.00             | -5.39          | AV Detector   |
|     | 2390.000           | 82.88               | -3.54                 | 72.66              | 74.00             | -1.34          | Peak Detector |
| 3   | 2400.000           | 65.71               | -3.51                 | 62.20              | /                 | /              | AV Detector   |
| 4   | 2424.520           | 90.04               | -3.45                 | 86.59              | /                 | /              | AV Detector   |

802.11n-HT40-Highest Bandedge with Chain 0 (worst case)



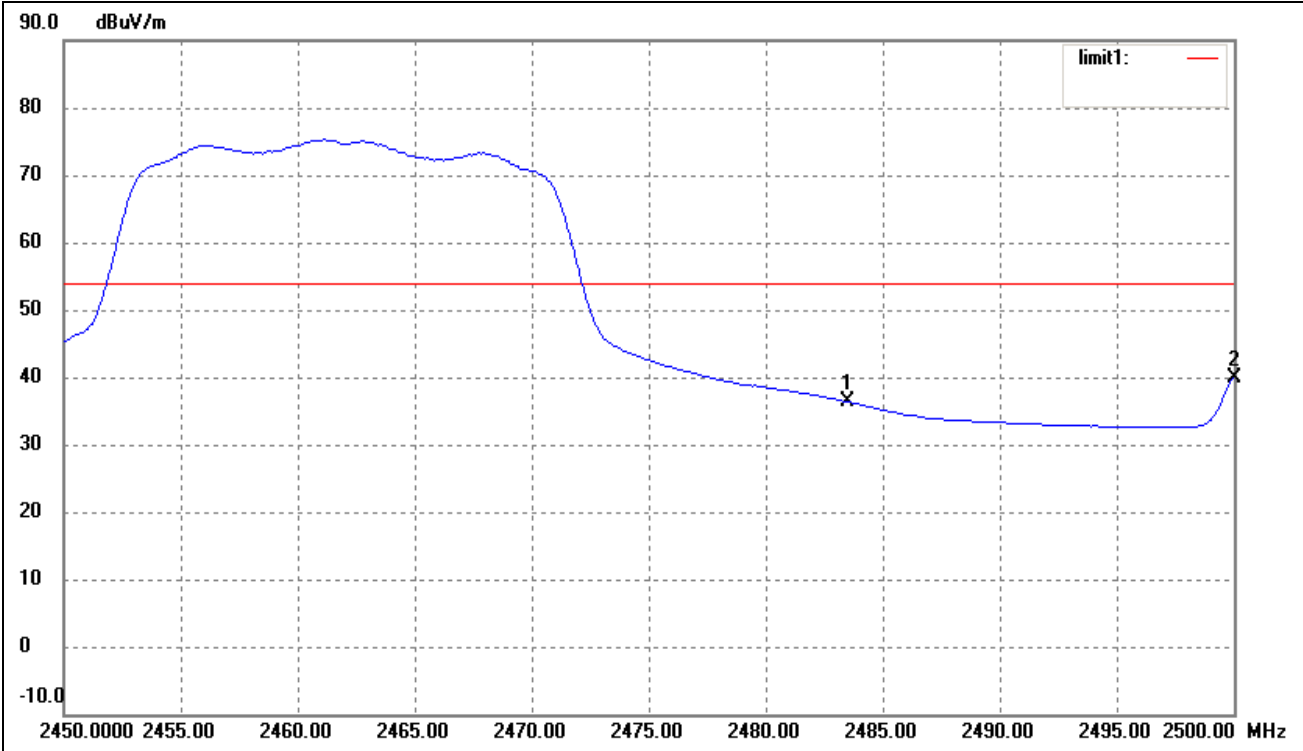
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 53.47    | -3.33      | 50.14    | 54.00    | -3.86  | AV Detector   |
|     | 2483.500  | 76.00    | -3.33      | 72.67    | 74.00    | -1.33  | Peak Detector |
| 2   | 2500.000  | 46.88    | -3.28      | 43.60    | 54.00    | -10.40 | AV Detector   |
|     | 2500.000  | 66.60    | -3.28      | 63.32    | 74.00    | -10.68 | Peak Detector |

## 802.11n-HT20 Lowest Bandedge with Two Transmit Chain



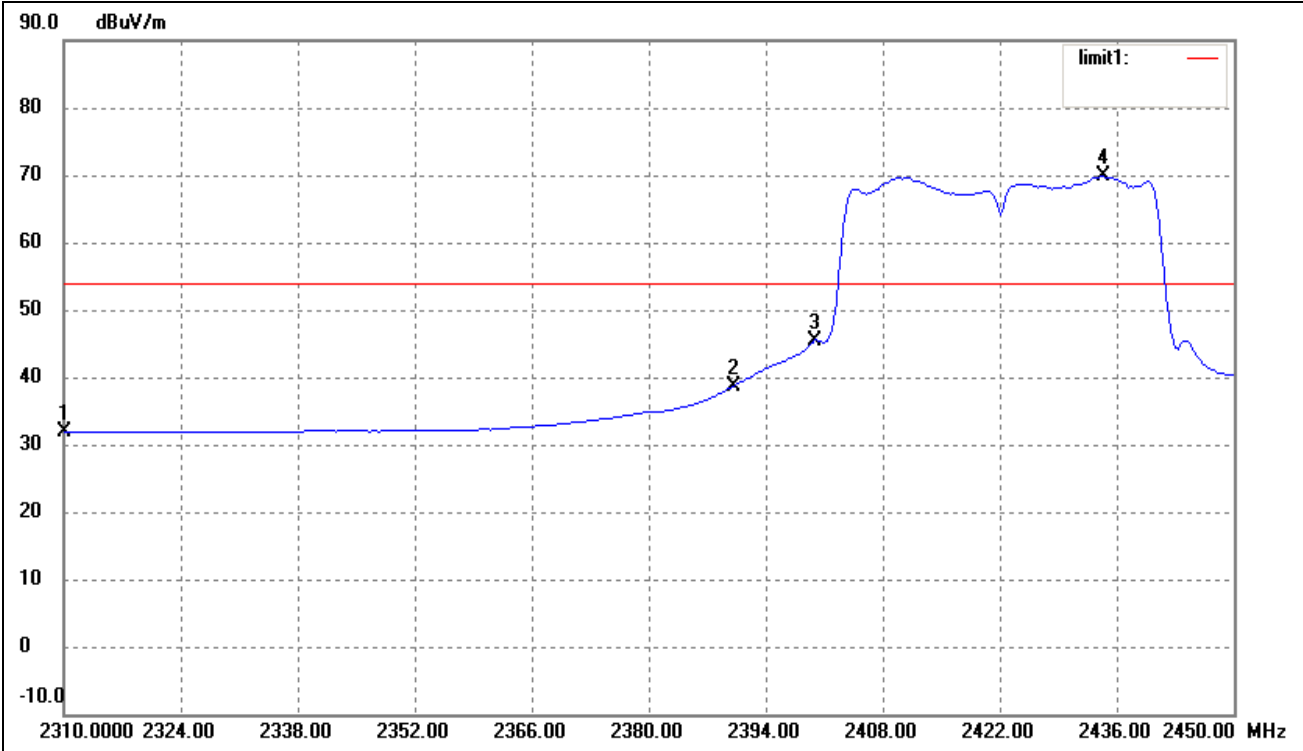
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2310.000  | 35.53    | -3.71      | 31.82    | 54.00    | -22.18 | AV Detector   |
|     | 2310.000  | 55.47    | -3.71      | 51.76    | 74.00    | -22.24 | Peak Detector |
| 2   | 2390.000  | 38.79    | -3.54      | 35.25    | 54.00    | -18.75 | AV Detector   |
|     | 2390.000  | 69.06    | -3.54      | 65.52    | 54.00    | -8.48  | Peak Detector |
| 3   | 2400.000  | 49.07    | -3.51      | 45.56    | /        | /      | AV Detector   |
| 4   | 2411.280  | 78.70    | -3.48      | 75.22    | /        | /      | AV Detector   |

802.11n-HT20 Highest Bandedge with Two Transmit Chain



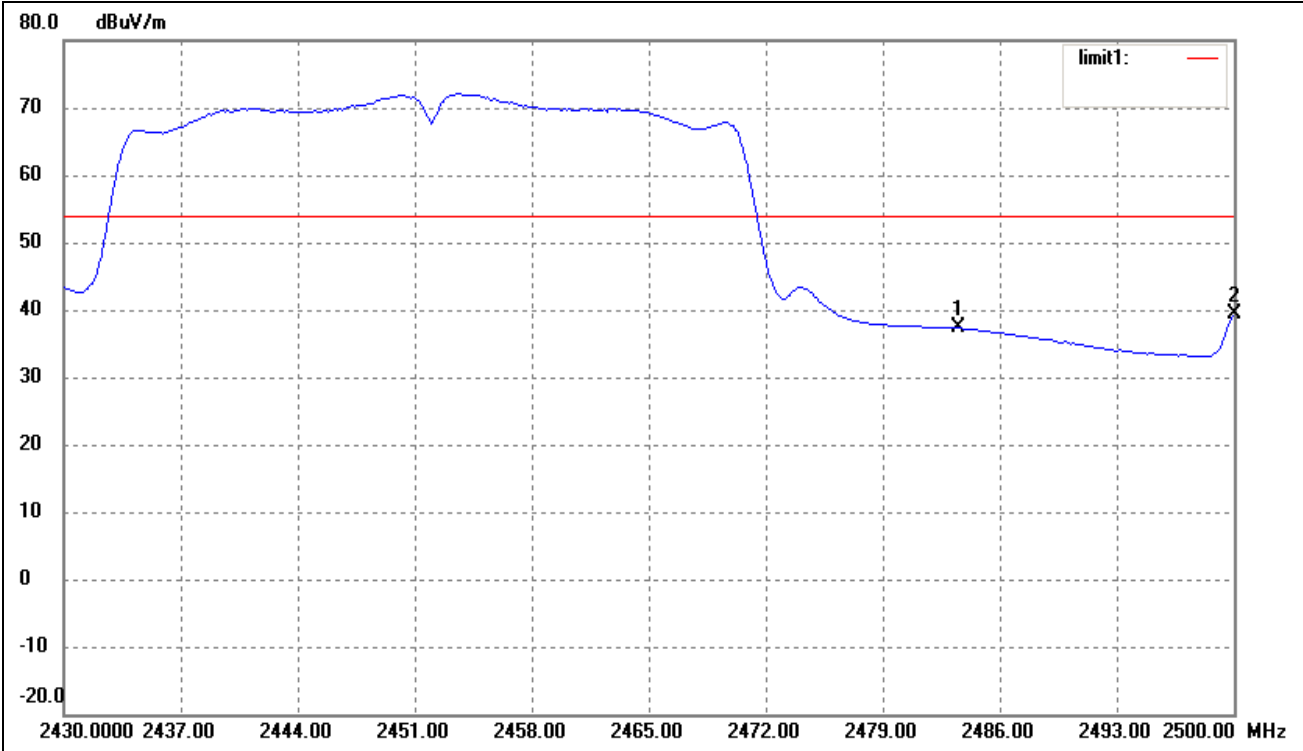
| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 39.72    | -3.33      | 36.39    | 54.00    | -17.61 | AV Detector   |
|     | 2483.500  | 74.72    | -3.33      | 71.39    | 74.00    | -2.61  | Peak Detector |
| 2   | 2500.000  | 43.12    | -3.28      | 39.84    | 54.00    | -14.16 | AV Detector   |
|     | 2500.000  | 57.60    | -3.28      | 54.32    | 74.00    | -19.68 | Peak Detector |

802.11n-HT40 Lowest Bandedge with Two Transmit Chain



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2310.000  | 35.62    | -3.71      | 31.91    | 54.00    | -22.09 | AV Detector   |
|     | 2310.000  | 48.43    | -3.71      | 44.72    | 74.00    | -29.28 | Peak Detector |
| 2   | 2390.000  | 42.20    | -3.54      | 38.66    | 54.00    | -15.34 | AV Detector   |
|     | 2390.000  | 56.18    | -3.54      | 52.64    | 74.00    | -21.36 | Peak Detector |
| 3   | 2400.000  | 49.01    | -3.51      | 45.50    | /        | /      | AV Detector   |
| 4   | 2434.320  | 73.23    | -3.44      | 69.79    | /        | /      | AV Detector   |

802.11n-HT40 Highest Bandedge with Two Transmit Chain



| No. | Frequency | Reading  | Correct    | Result   | Limit    | Margin | Remark        |
|-----|-----------|----------|------------|----------|----------|--------|---------------|
|     | (MHz)     | (dBuV/m) | Factor(dB) | (dBuV/m) | (dBuV/m) | (dB)   |               |
| 1   | 2483.500  | 40.60    | -3.33      | 37.27    | 54.00    | -16.73 | AV Detector   |
|     | 2483.500  | 66.85    | -3.33      | 63.52    | 74.00    | -10.48 | Peak Detector |
| 2   | 2500.000  | 42.76    | -3.28      | 39.48    | 54.00    | -14.52 | AV Detector   |
|     | 2500.000  | 53.21    | -3.28      | 49.93    | 74.00    | -24.07 | Peak Detector |

## 9. Conducted Emissions

### 9.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is  $\pm 2.88$  dB.

### 9.2 Test Equipment List and Details

| Description       | Manufacturer    | Model    | Serial Number | Cal. Date  | Due. Date  |
|-------------------|-----------------|----------|---------------|------------|------------|
| EMI Test Receiver | Rohde & Schwarz | ESPI     | 101611        | 2013-03-28 | 2014-03-27 |
| L.I.S.N           | Schwarz beck    | NSLK8126 | 8126-224      | 2013-03-28 | 2014-03-27 |
| Pulse Limiter     | Rohde & Schwarz | ESH3-Z2  | 100911        | 2013-03-28 | 2014-03-27 |

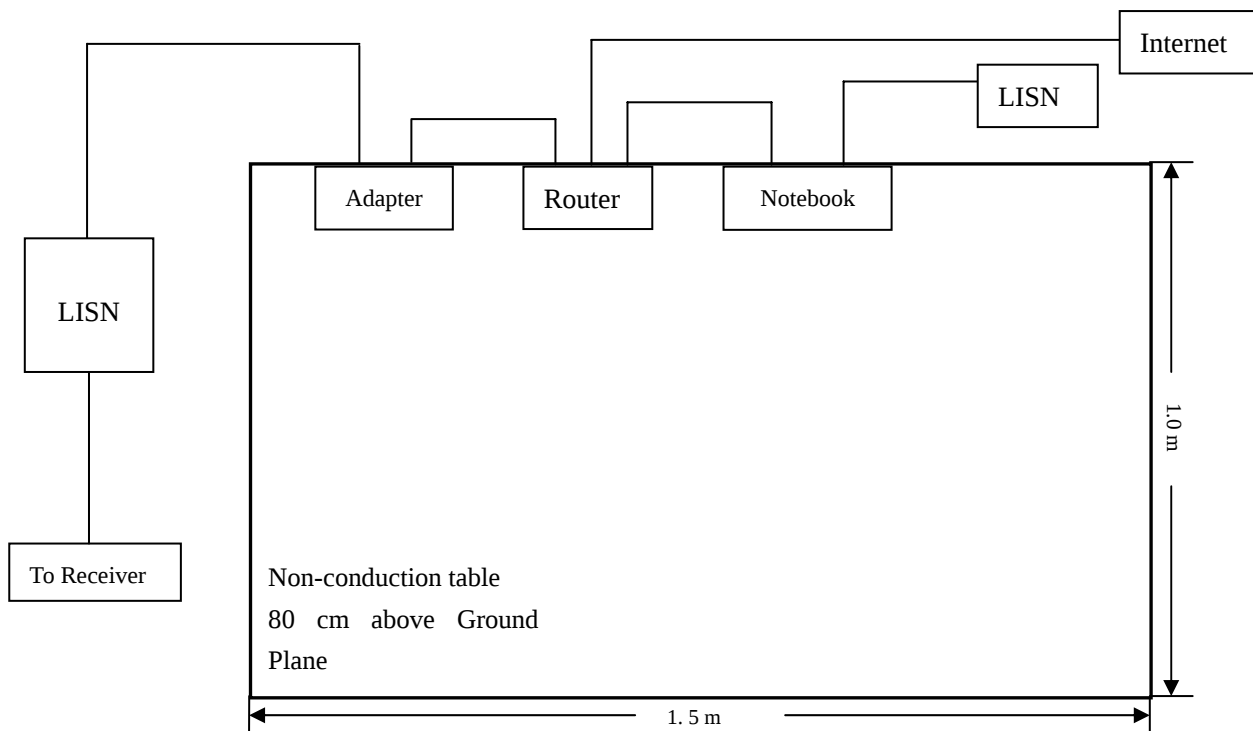
### 9.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

### 9.4 Basic Test Setup Block Diagram



9.5 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 25 °C     |
| Relative Humidity: | 52%       |
| ATM Pressure:      | 1012 mbar |

9.6 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz  
Stop Frequency..... 30 MHz  
Sweep Speed ..... Auto  
IF Bandwidth..... 10 kHz  
Quasi-Peak Adapter Bandwidth ..... 9 kHz  
Quasi-Peak Adapter Mode ..... Normal

9.7 Summary of Test Results/Plots

According to the data in section 9.8, the EUT complied with the FCC Part 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-2.68 dB at 0.154 MHz in the **Neutral** mode, **peak** detector, **0.15-30MHz**

9.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

EUT:

ADSL2+Router WiFi 11n 2x2

Tested Model:

P.DG A4001N A-000-1A1-AE

Operating Condition:

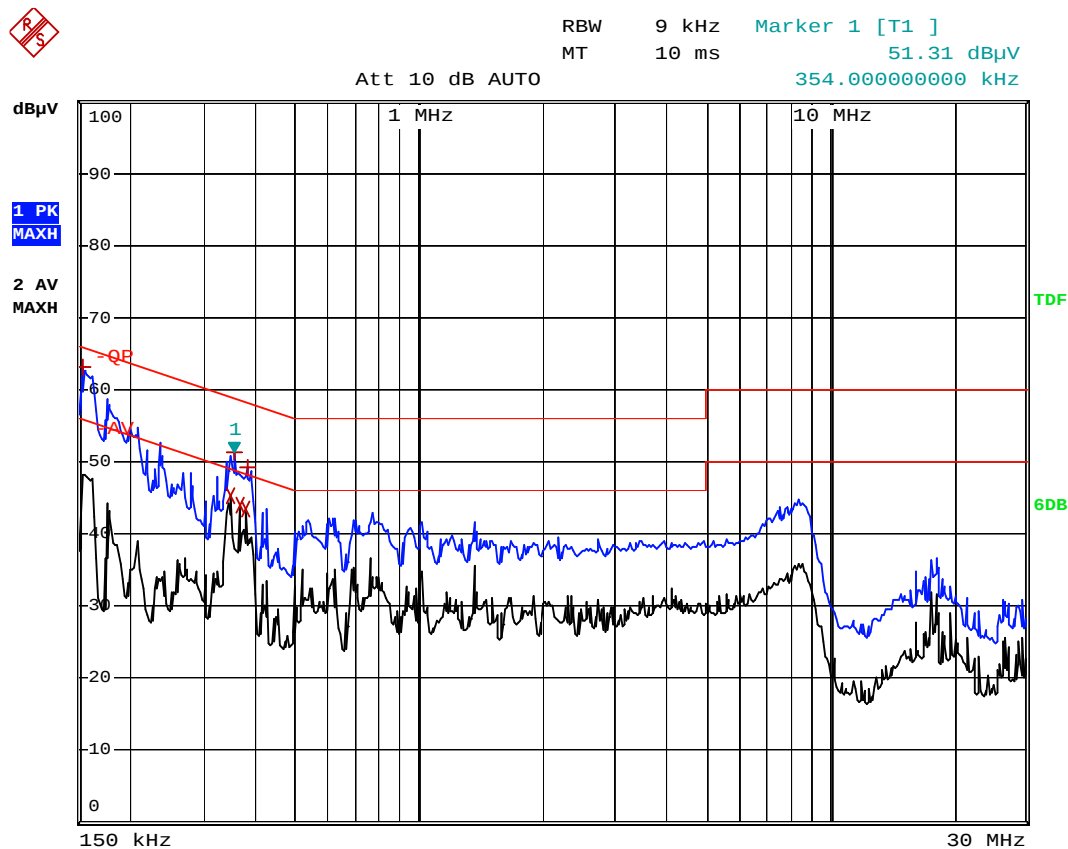
Operating

Comment:

AC 120V/60Hz; adapter DC 12V

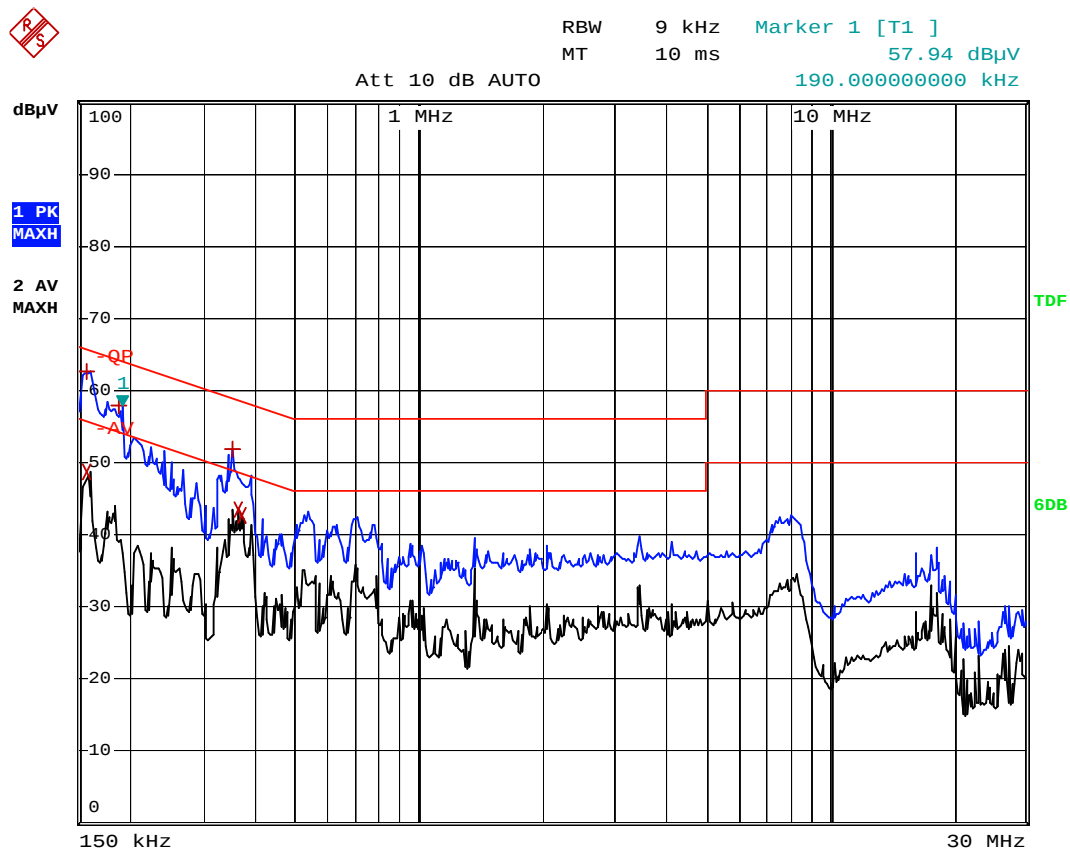
Test Specification:

Neutral



| EDIT PEAK LIST (Prescan Results) |           |            |                |
|----------------------------------|-----------|------------|----------------|
| Trace1:                          | -QP       |            |                |
| Trace2:                          | -AV       |            |                |
| Trace3:                          | ---       |            |                |
| TRACE                            | FREQUENCY | LEVEL dBμV | DELTA LIMIT dB |
| 1 Max Peak                       | 154 kHz   | 63.09      | -2.68          |
| 2 Average                        | 346 kHz   | 45.37      | -3.68          |
| 1 Max Peak                       | 354 kHz   | 51.31      | -7.55          |
| 2 Average                        | 366 kHz   | 44.05      | -4.53          |
| 2 Average                        | 378 kHz   | 43.44      | -4.88          |
| 1 Max Peak                       | 382 kHz   | 49.33      | -8.89          |

Test Specification: Line



| EDIT PEAK LIST (Prescan Results) |           |            |                |  |
|----------------------------------|-----------|------------|----------------|--|
| Trace1:                          | -QP       |            |                |  |
| Trace2:                          | -AV       |            |                |  |
| Trace3:                          | ---       |            |                |  |
| TRACE                            | FREQUENCY | LEVEL dBμV | DELTA LIMIT dB |  |
| 1 Max Peak                       | 158 kHz   | 62.54      | -3.02          |  |
| 2 Average                        | 158 kHz   | 48.59      | -6.97          |  |
| 1 Max Peak                       | 190 kHz   | 57.93      | -6.09          |  |
| 1 Max Peak                       | 350 kHz   | 51.93      | -7.02          |  |
| 2 Average                        | 362 kHz   | 43.43      | -5.25          |  |
| 2 Average                        | 370 kHz   | 42.53      | -5.96          |  |

\*\*\*\*\* END OF REPORT \*\*\*\*\*