Lab Code: 200167-0

FCC PART 15 SUBPART 247

MEASUREMENT AND TEST REPORT

For

Buffalo Inc.

4-15, Shibata Hondori, Minsmi-ku,
Nagoya 457-8520, Japan

FCC ID: FDI-09101479-0

Model: WZR-AG300NH-US

This Report Concerns:	**Product type:**
☒ Original Report	Wireless Router , 802.11a/b/g/n(draft)

Test Engineer:	Dan Coronia 
Report No.:	R0610231-247
Report Date:	2006-11-28
Reviewed By:	Test Engineer: Daniel Deng 
Prepared By: (12)	**Bay Area Compliance Laboratories Corp. (BACL)** 1274 Anvilwood Ave. Sunnyvale, CA 94089 Tel: (408) 732-9162 Fax: (408) 732 9164

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

This measurement and test report has been prepared on behalf of *Buffalo Inc.* and their product, *FCC ID: FDI-09101479-0, model: WZR-AG300NH-US.*. The **WZR-AG300NH-US** or the EUT as referred to in the rest of this report is a wireless router marketed as *"Air Station Draft-N Nfinit Access Point"* which supports 802.11 a/b/g/n(draft) wireless data protocols. The EUT is designed for home or office and or commercial uses and is compatible with all client cards that employ 802.11 a, b, g or draft n connectivity.

EUT Photo

Additional EUT photos in Exhibit C

Mechanical Description

This Air Station Draft-N Nfiniti Wireless Router & AP supports 802.11a, 802.11b, 802.11g and 802.11n Draft Specification 1.0 wireless networks, allowing a notebook computer to wirelessly access the Internet, e-mail, transfer files and more. The dimensions of the EUT are approximately 176 mmL x 215 mmH x 80 mmW.

** The test data gathered are from production sample, with the radio's serial number: 0016016F0105, provided by the manufacturer.*

Objective

This type approval report is prepared on behalf of *Buffalo Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for Output Power, Antenna Requirements, 6 dB Bandwidth, and power spectral density, 100 kHz Bandwidth of Band Edges Measurement, Spurious Emissions, Conducted and Radiated Spurious Emissions.

Related Submittal(s)/Grant(s)

BACL Buffalo, Inc. test report R0610231-407.

Test Methodology

All measurements contained in this report were conducted in accordance 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.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the values range from ±2.0 for Conducted Emissions tests and ±4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL.

Detailed instrumentation measurement uncertainties can be found in BACL report QAP-018.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at it's facility in Sunnyvale, California, USA.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI 3.4-2003.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and is listed under FCC registration number: 90464 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to ANSI C63.4-2003.

The EUT was tested in the testing mode to represent *worst*-case results during the final qualification test.

The worst-case data rates are determined to be as follows for each mode based upon investigation by measuring the average power, peak power and PPSD across all data rates bandwidths, and modulations.

EUT Exercise Software

The EUT is programmed with the following data rate settings that were used during testing:

For 20MHz rate/channel:

	2412MHz	2437MHz	2462MHz
802.11b Data rate	11Mbps	11Mbps	11Mbps
802.11g Data rate	54Mbps	54Mbps	54Mbps
802.11n Data rate	MCS11	MCS11	MCS11

For 40MHz rate/channel:

	2412MHz	2437MHz	2462MHz
802.11b Data rate	11Mbps	11Mbps	11Mbps
	2422MHz	2437MHz	2452MHz
802.11g Data rate	54Mbps	54Mbps	54Mbps
802.11n Data rate	MCS15	MCS15	MCS15

Special Accessories

There were no special accessories were required, included, or intended for use with EUT during these tests.

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	Laptop	T42	23736UU

SUMMARY OF TEST RESULTS

Results reported relate only to the product tested.

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247(e)(i) §2.1091	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§ 15.207 (a)	Conducted Emissions	Compliant
§2.1051 & §15.247(d)	Spurious Emissions at Antenna Port	Compliant
§15.205	Restricted Band	Compliant
§15.109, 15.209 (a) & §15.247(c)	Radiated Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Bandwidth	Compliant
§15.247 (b)(3)	Maximum Peak Output Power	Compliant
§ 15.247 (c)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247 (d)	Power Spectral Density	Compliant

§ 15.247 (e) (i) and § 2.1091 - RF EXPOSURE

According to §15.247(e)(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

MPE Prediction

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

802.11b mode:

Maximum peak output power at antenna input terminal: 22.72 (dBm)
Maximum peak output power at antenna input terminal: 187.07 (mW)
Prediction distance: 20 (cm)
Predication frequency: 2437(MHz)
Antenna Gain (typical): 1.58 (dBi)
antenna gain: 1.44 (numeric)
Power density at predication frequency at 20 cm: 0.054(mW/cm^2)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm^2)

802.11g mode:

Maximum peak output power at antenna input terminal:	22.14 (dBm)
Maximum peak output power at antenna input terminal:	163.68 (mW)
Prediction distance:	20 (cm)
Predication frequency:	2437(MHz)
Antenna Gain (typical):	1.58 (dBi)
antenna gain:	1.44 (numeric)
Power density at predication frequency at 20 cm:	0.047(mW/cm^2)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm^2)

802.11n mode:

Maximum peak output power at antenna input terminal:	22.56 (dBm)
Maximum peak output power at antenna input terminal:	180.30 (mW)
Prediction distance:	20 (cm)
Predication frequency:	2437(MHz)
Antenna Gain (typical):	1.58 (dBi)
antenna gain:	1.44 (numeric)
Power density at predication frequency at 20 cm:	0.052(mW/cm^2)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm^2

Test Result

The Power Density Level at 20 cm for b/g/n mode is:

802.11b mode = 0.054 mW/cm^2

802.11g mode = 0.047 mW/cm^2

802.11n mode = 0.052 mW/cm^2

which is below the uncontrolled exposure limit of 1.0mW/cm² at 2437 MHz.

§15.203 - ANTENNA REQUIREMENT

Applicable Standard

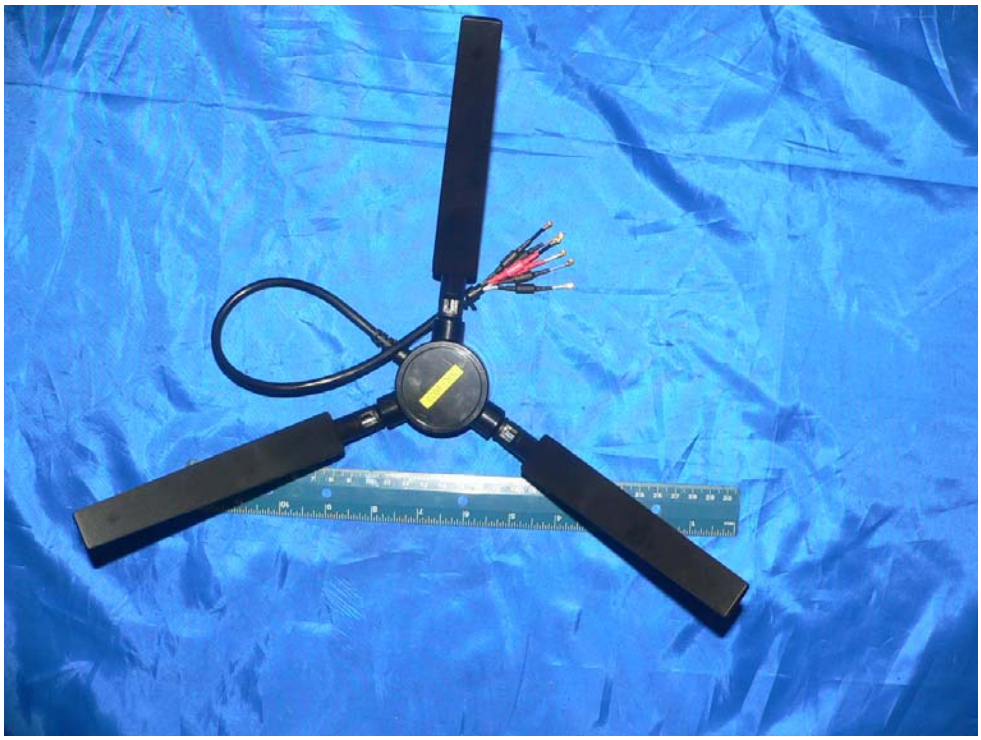
According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

And according to § 15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Result: The antennae for this device are three identical, dual band integral antennae with the gain of:

2.4GHz band
Antenna A: **1.58** dBi (Vertical), 1.52 dBi (Horizontal)

5.2GHz band
Antenna B: **2.38** dBi (Vertical), 2.33 dBi (Horizontal)



§15.207 - CONDUCTED EMISSIONS

Section 15.207 Conducted limits:

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 * 56 60	56 to 46 * 46 50

**** Decreases with the logarithm of the frequency.***

Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4 – 2003 measurement procedure. The specification used was FCC Class B limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The EUT was connected with LISN-1.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Rohde & Schwarz	Artificial-Mains Network	ESH2-Z5	871884/039	2005-11-14
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2006-03-13

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

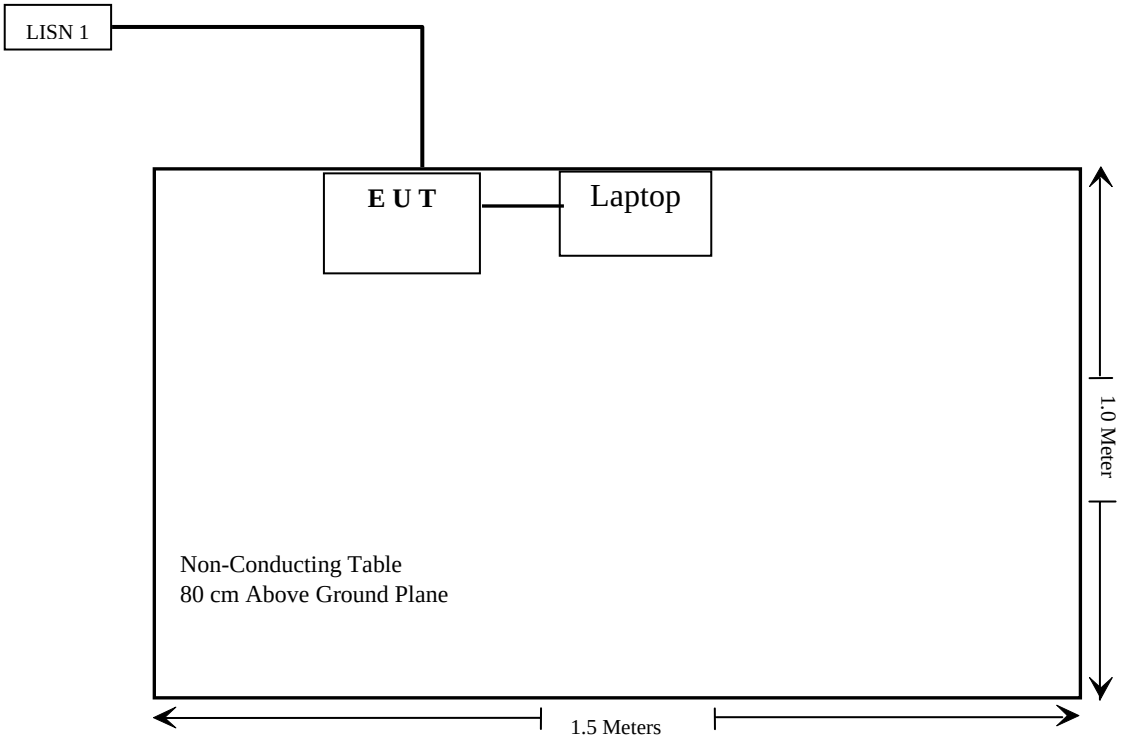
During the conducted emissions test, the power cord of the EUT was connected to the mains outlet of the LISN-1.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a "QP". Average readings are distinguished with an "Ave".

Test Setup Diagram

Conducted Emissions



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

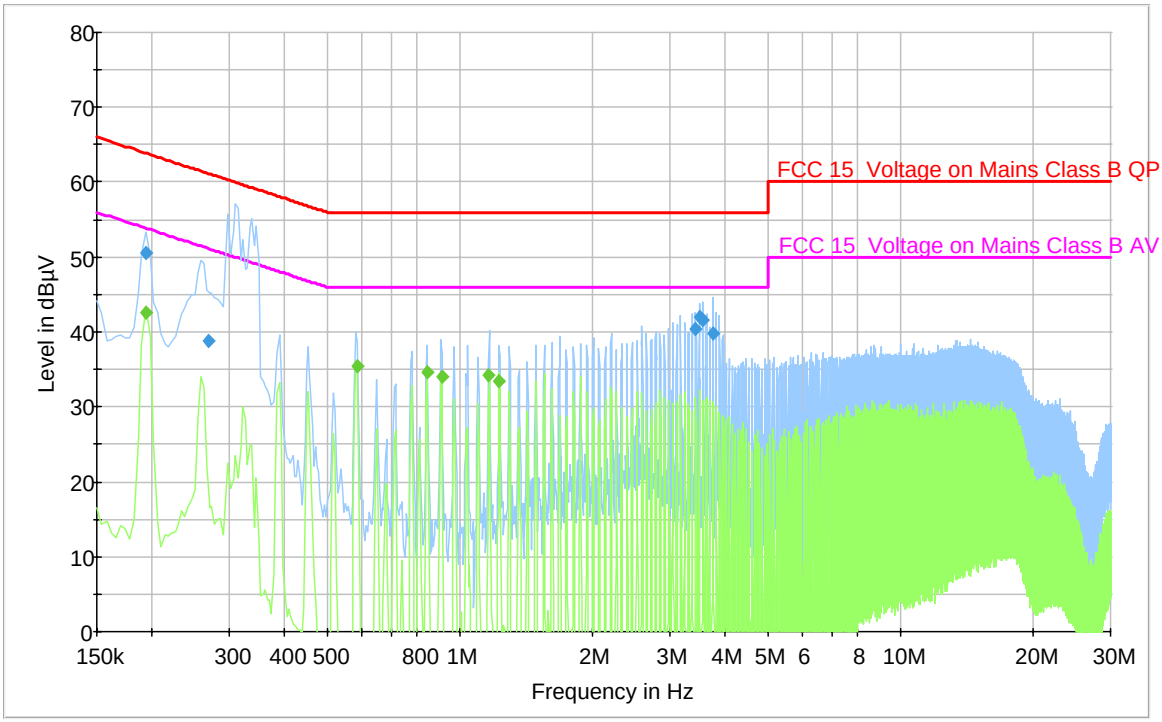
**The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC standard's conducted emissions limits for Class B devices, with the *worst* margin reading of:

-8.9 dB at **0.1940 MHz Neutral** conductor mode

120V/60 Hz Line:



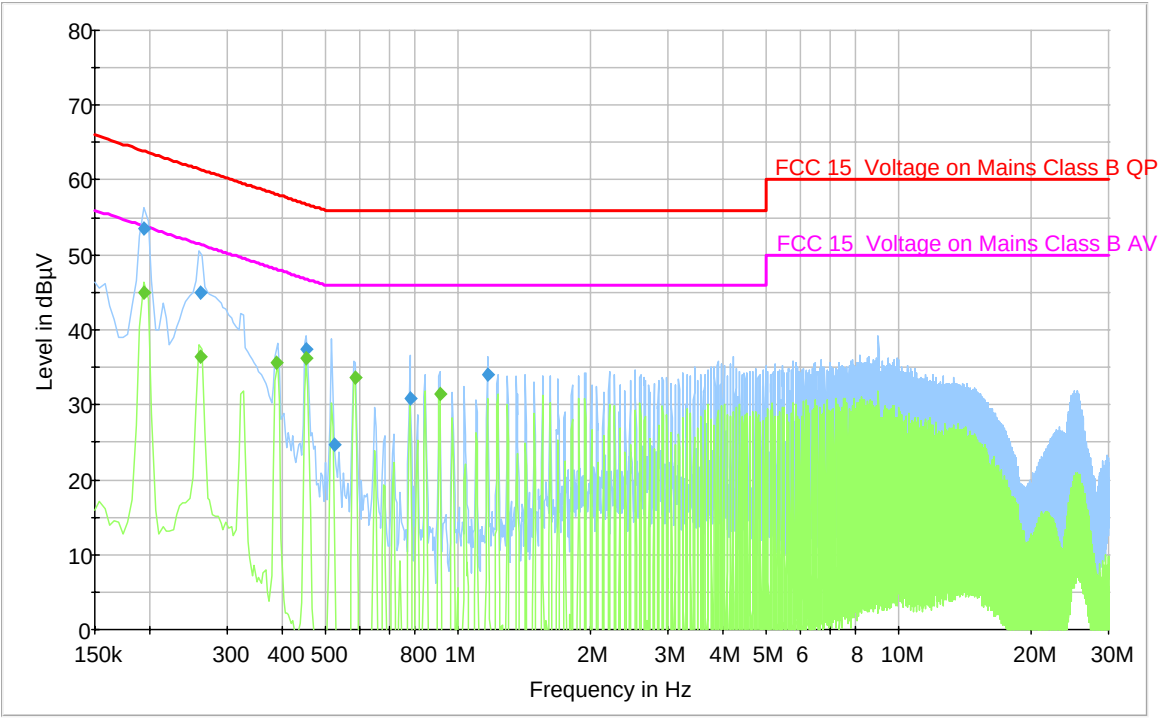
Final Measurement Quasi-Peak Detector

Frequency (MHz)	Quasi Peak (dBµV)	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.194000	50.5	L	0.2	63.9	-13.4
3.497000	42.0	L	0.3	56.0	-14.0
3.565000	41.5	L	0.3	56.0	-14.5
3.433000	40.4	L	0.3	56.0	-15.6
3.757000	39.8	L	0.3	56.0	-16.2
0.269000	38.8	L	0.2	61.1	-22.3

Final Measurement Average Detector

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.585000	35.5	L	0.3	46.0	-10.5
0.194000	42.6	L	0.2	53.9	-11.3
0.841000	34.7	L	0.3	46.0	-11.4
1.165000	34.2	L	0.3	46.0	-11.8
0.909000	34.1	L	0.3	46.0	-11.9
1.229000	33.5	L	0.3	46.0	-12.5

120V/60 Hz Neutral:



Final Measurement Quasi-Peak Detector

Frequency (MHz)	Quasi Peak (dBµV)	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.194000	53.6	N	0.2	63.9	-10.3
0.261000	44.9	N	0.2	61.4	-16.5
0.453000	37.4	N	0.3	56.8	-19.4
1.169000	34.1	N	0.3	56.0	-21.9
0.781000	30.9	N	0.3	56.0	-25.2
0.525000	24.7	N	0.3	56.0	-31.3

Final Measurement Average Detector

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Limit (dBµV)	Margin (dB)
0.194000	45.0	N	0.2	53.9	-8.9
0.453000	36.1	N	0.3	46.8	-10.7
0.585000	33.7	N	0.3	46.0	-12.3
0.389000	35.6	N	0.4	48.1	-12.5
0.909000	31.4	N	0.3	46.0	-14.6
0.261000	36.4	N	0.2	51.4	-15.0

§2.1051 & §15.247(d) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

For §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.

Requirements: CFR 47, §2.1051.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in §2.1057.

Measurement Procedure

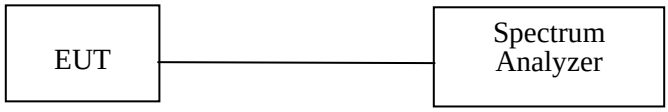
The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10^{th} harmonic.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

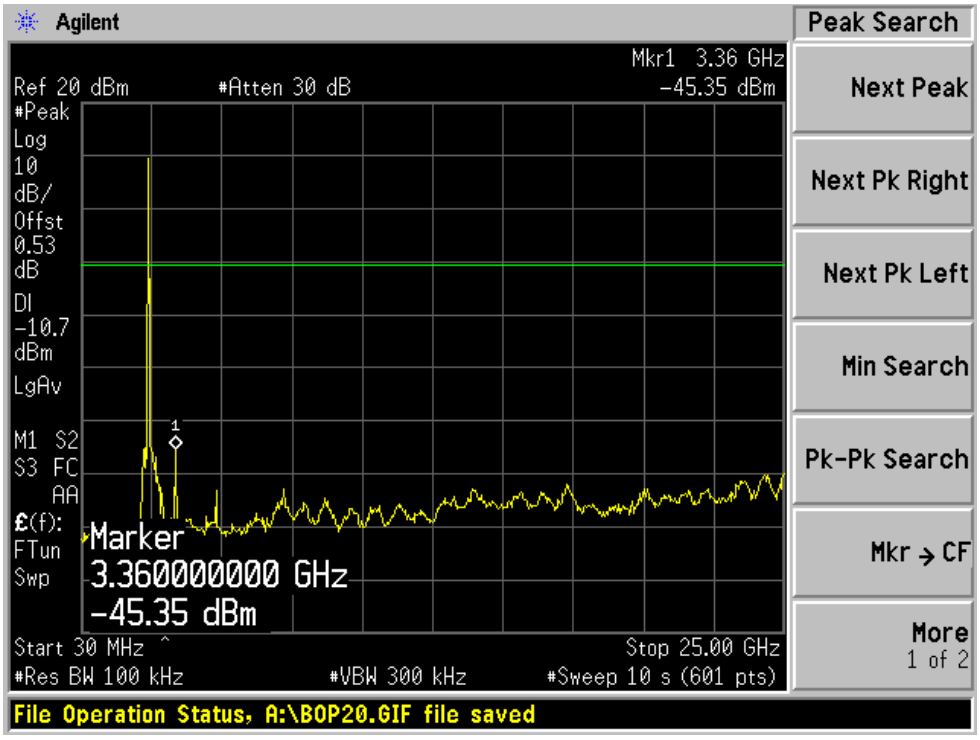
** The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

Measurement Result:

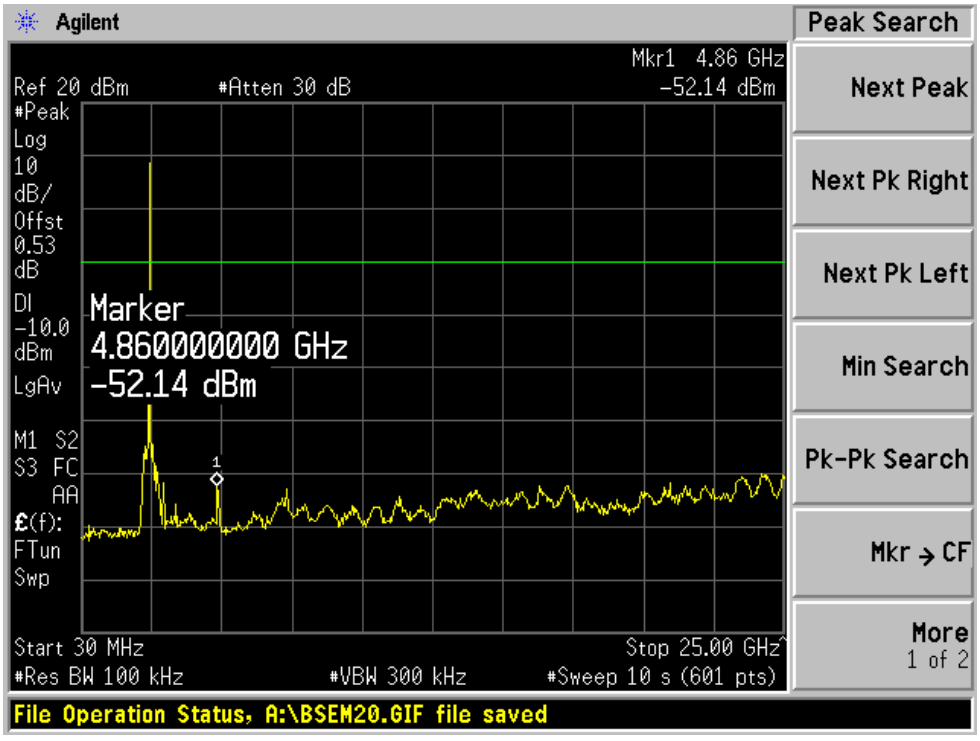
Please refer to following pages for plots of spurious emissions.

802.11b: 20MHz rate/channel, Chain A

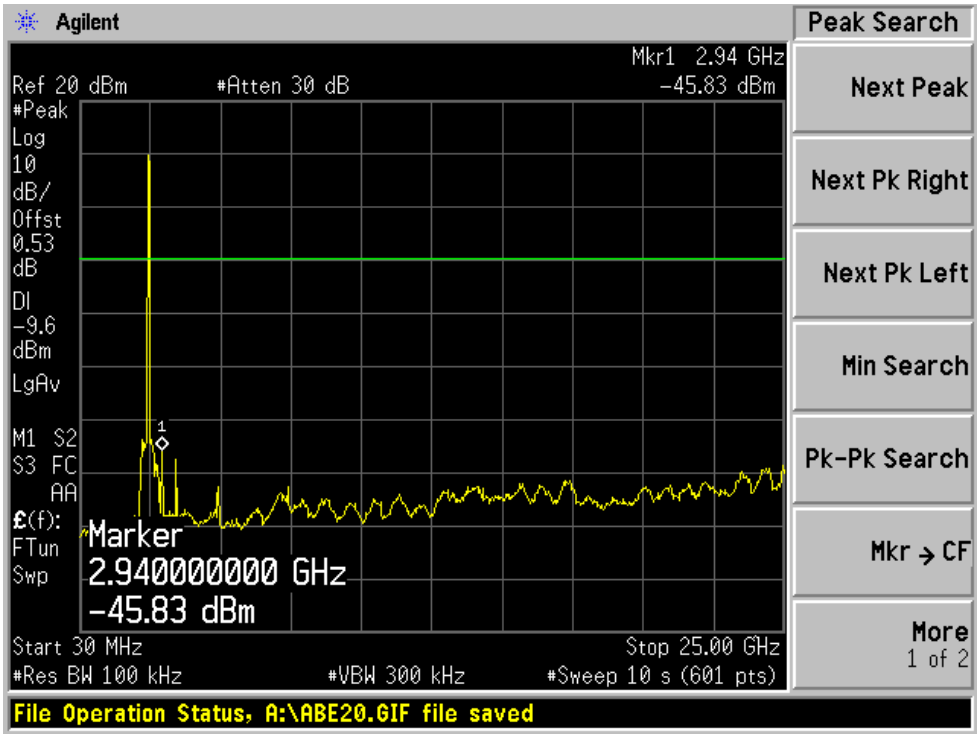
Low Channel



Middle Channel

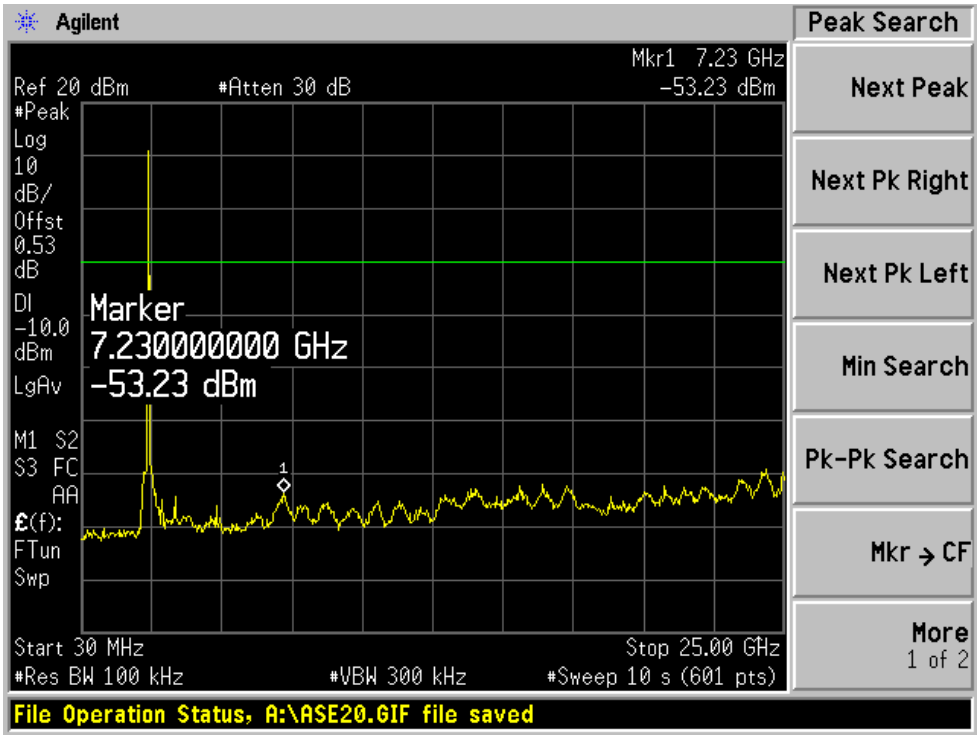


High Channel

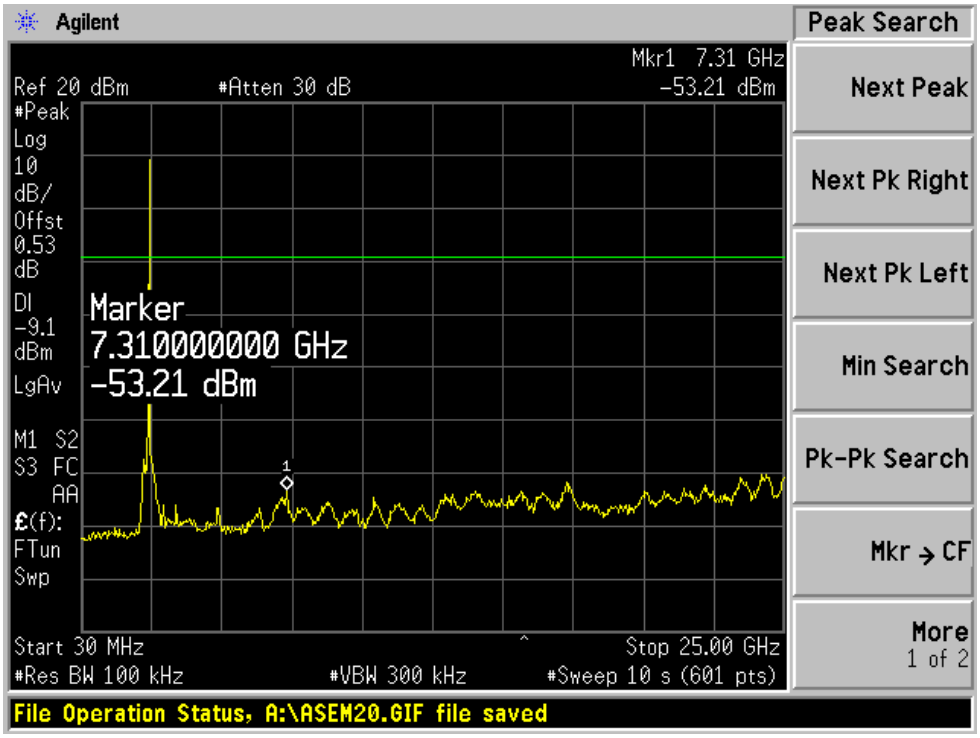


802.11b: 20MHz rate/channel, Chain B

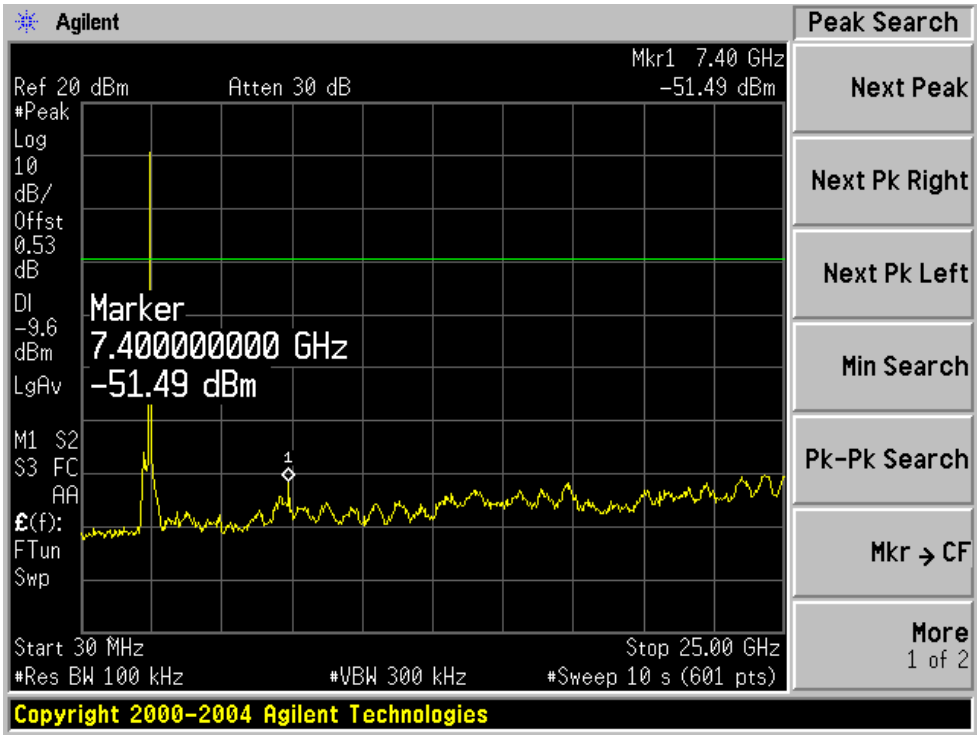
Low Channel



Middle Channel

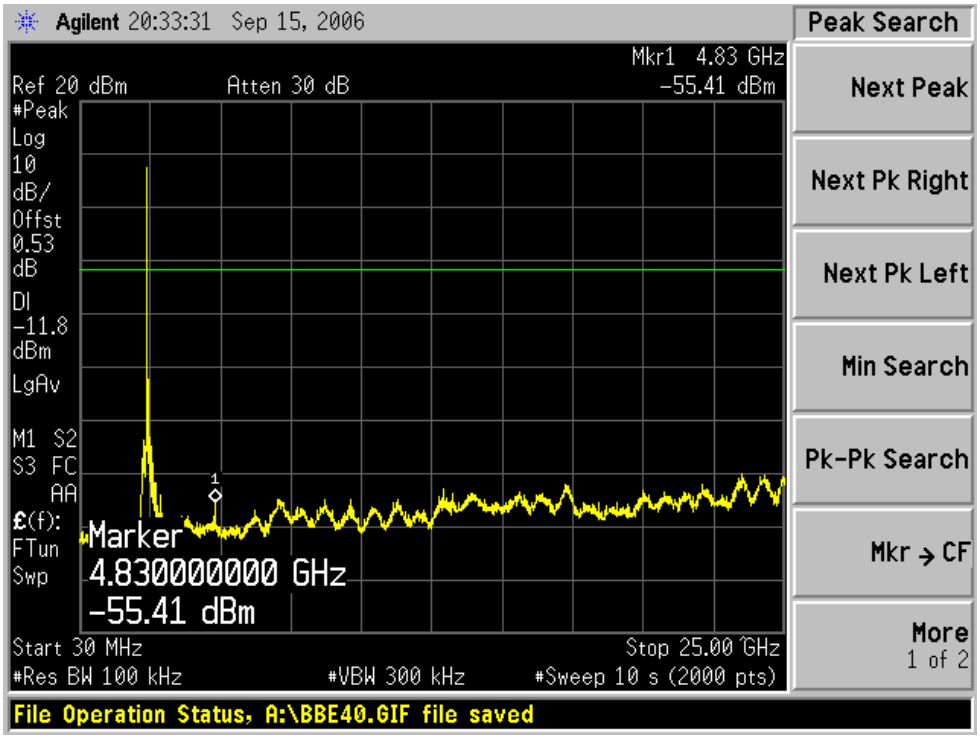


High Channel

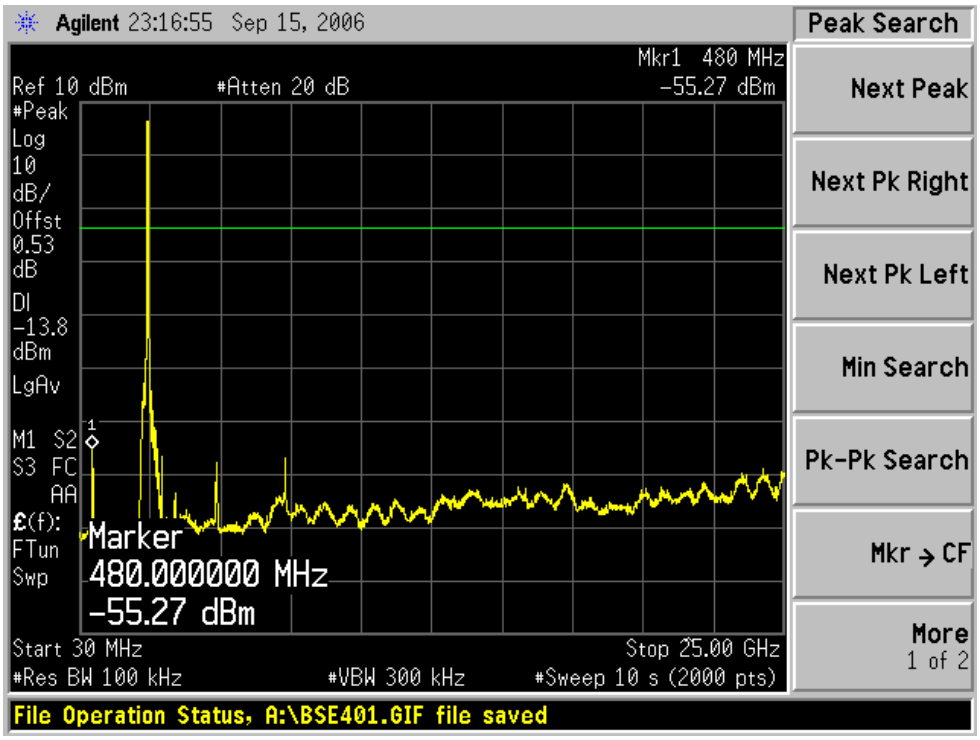


802.11b: 40MHz rate/channel, Chain A

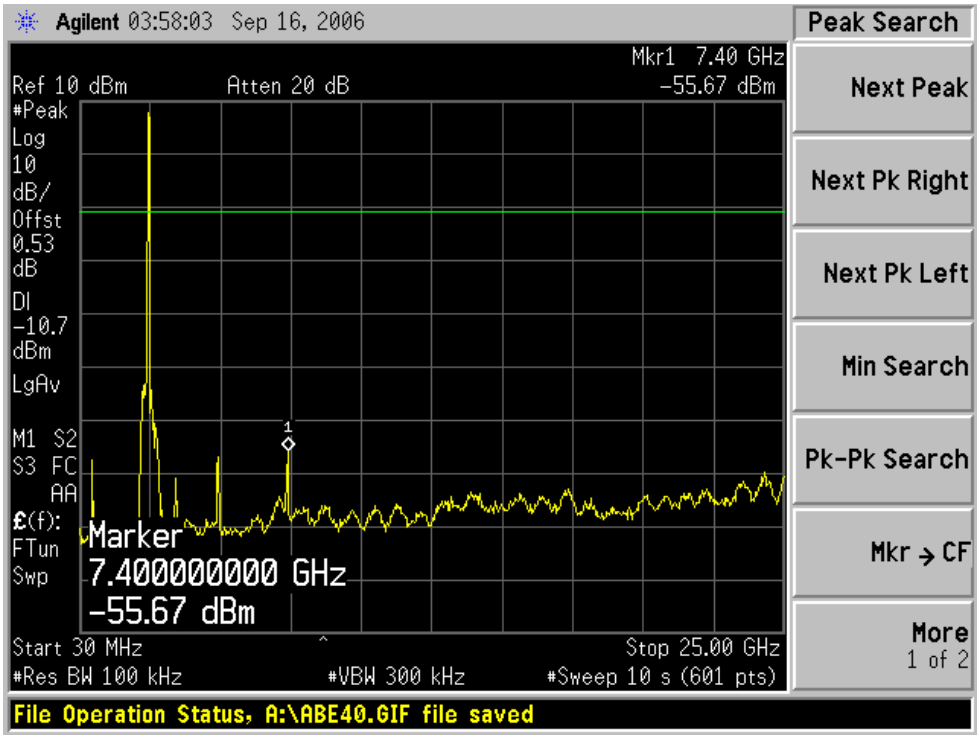
Low Channel



Middle Channel

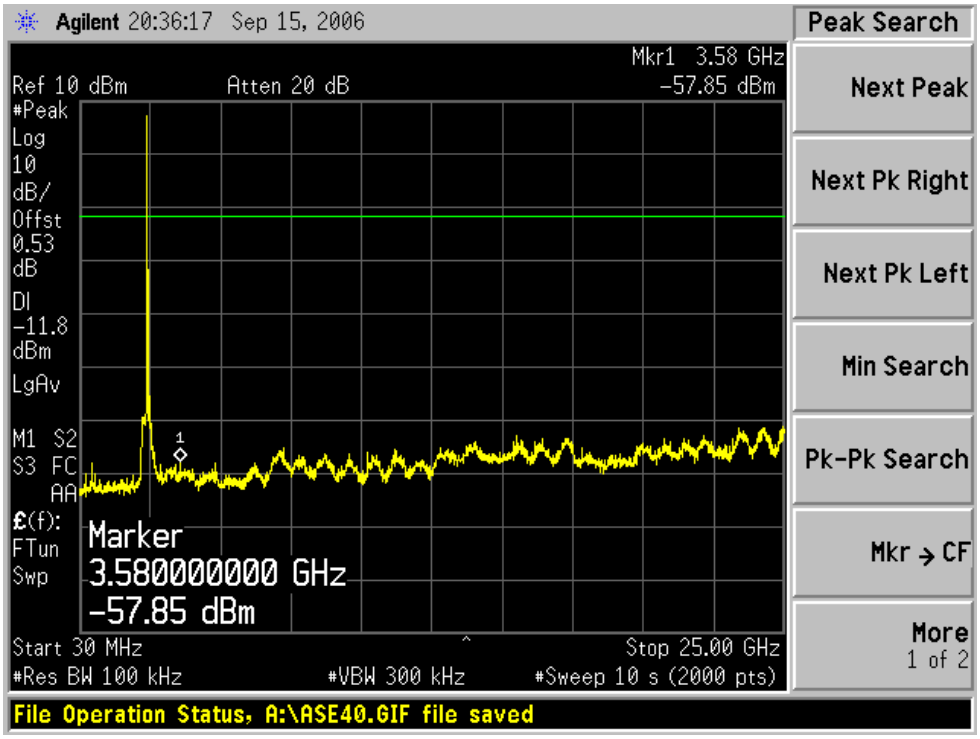


High Channel

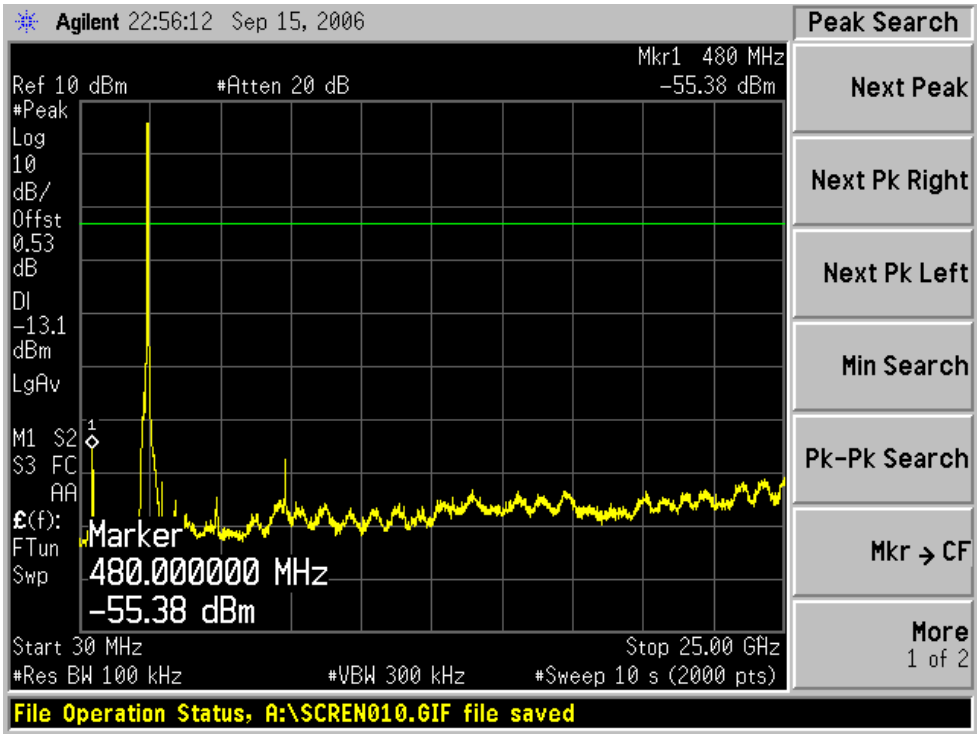


802.11b: 40MHz rate/channel, Chain B

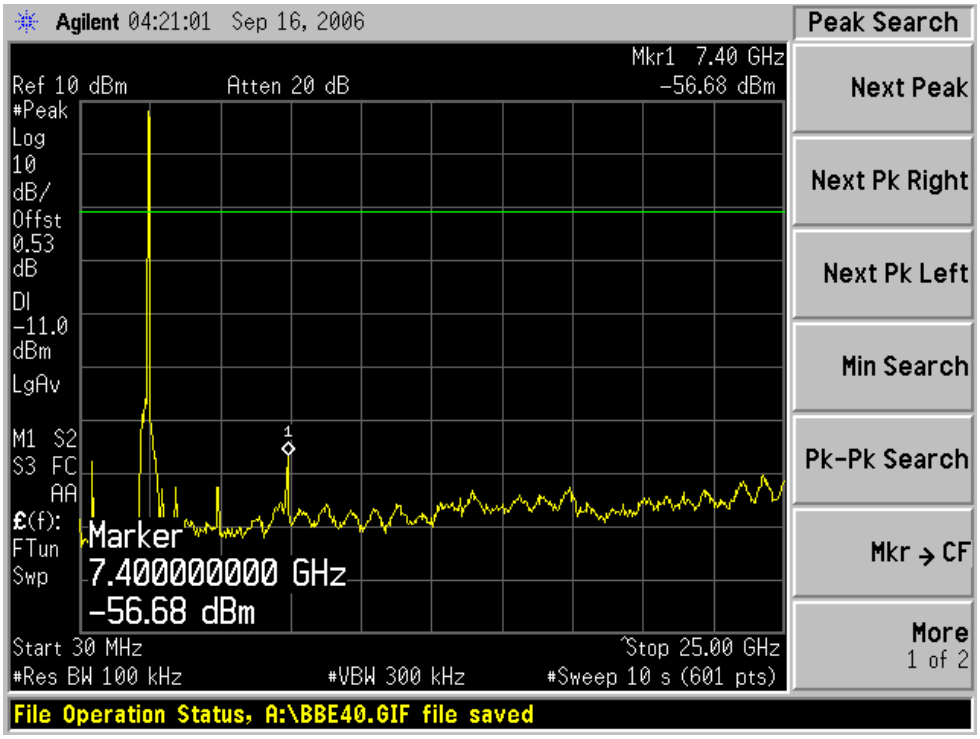
Low Channel



Middle Channel

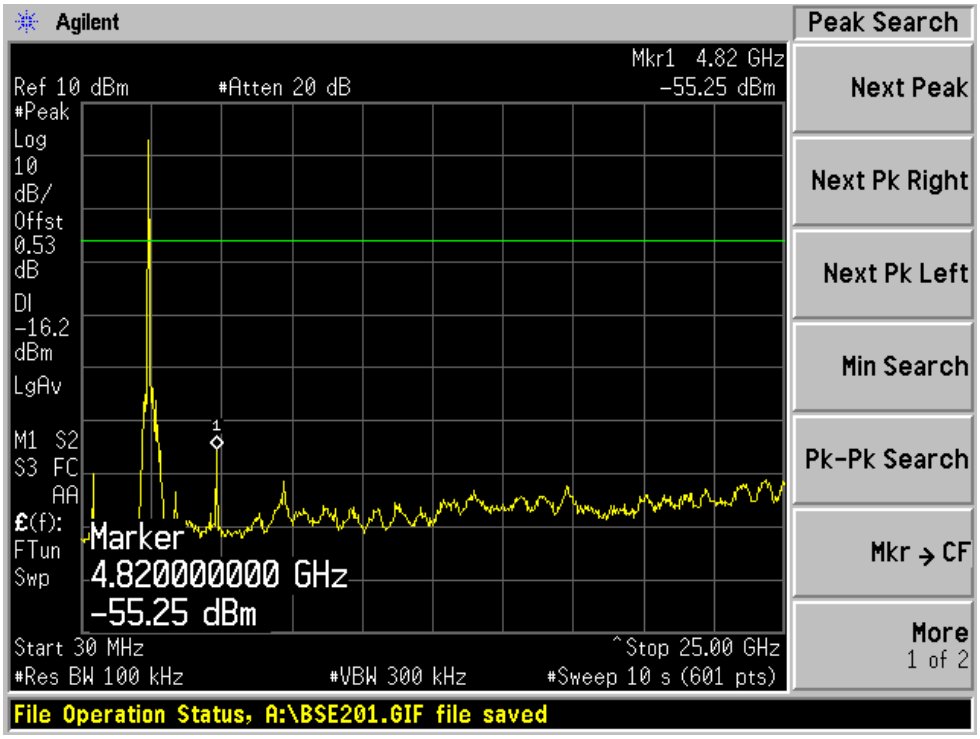


High Channel

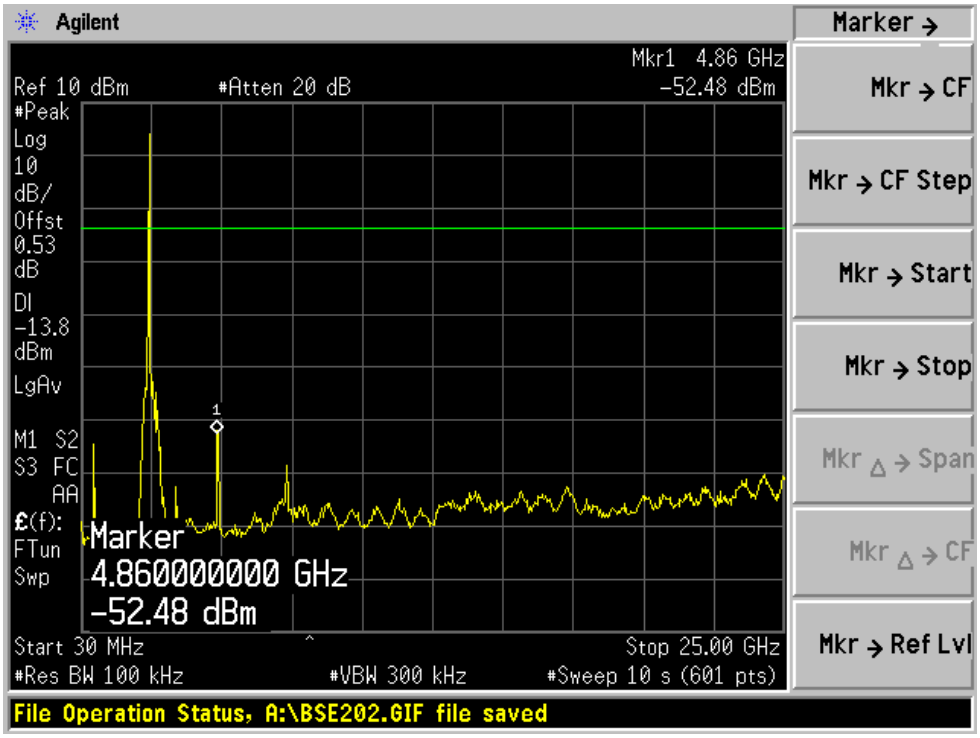


802.11g: 20MHz rate/channel, Chain A

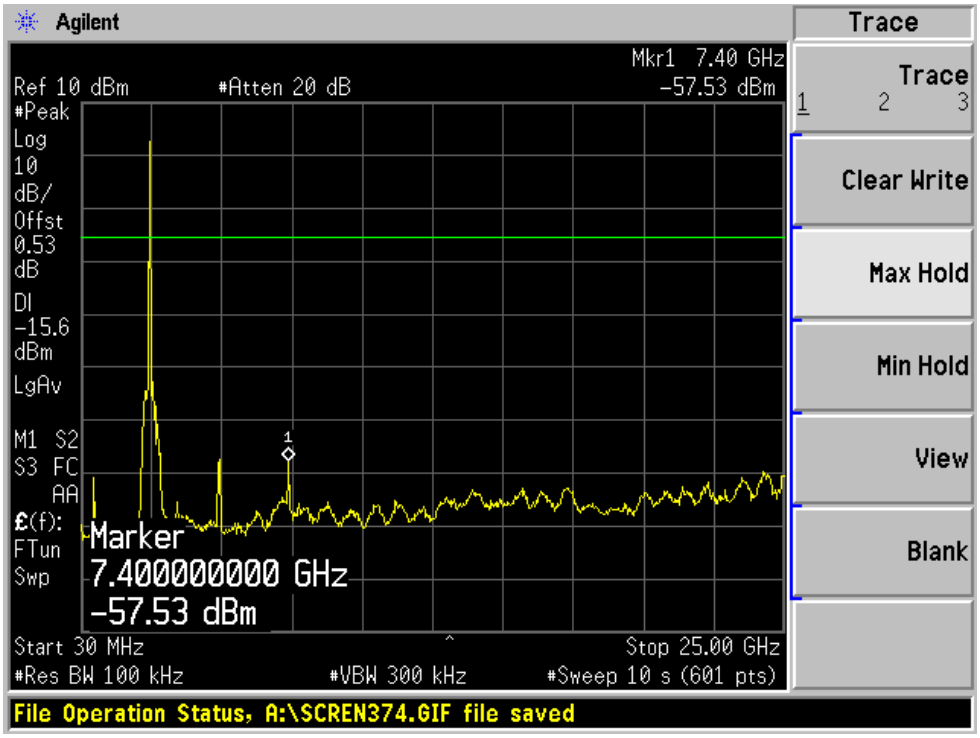
Low Channel



Middle Channel

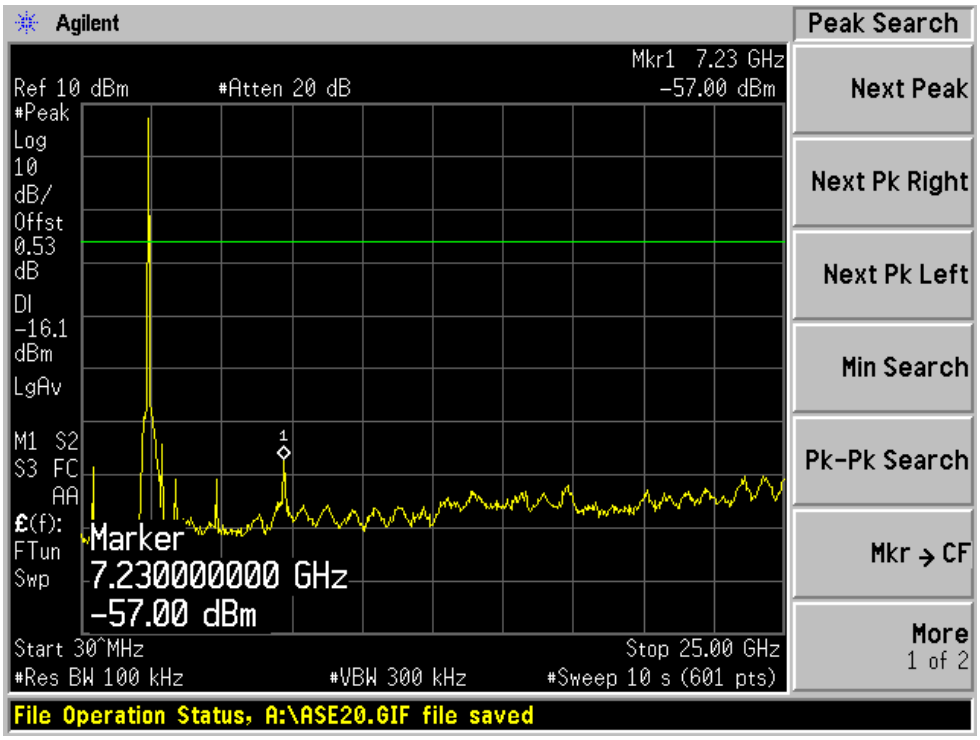


High Channel

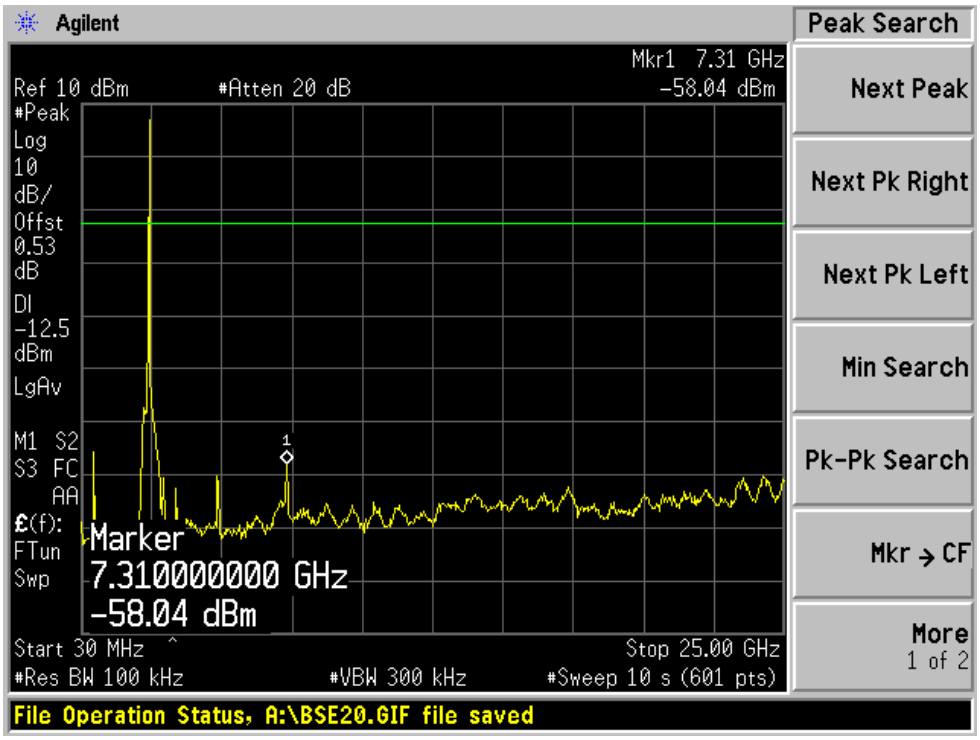


802.11g: 20MHz rate/channel, Chain B

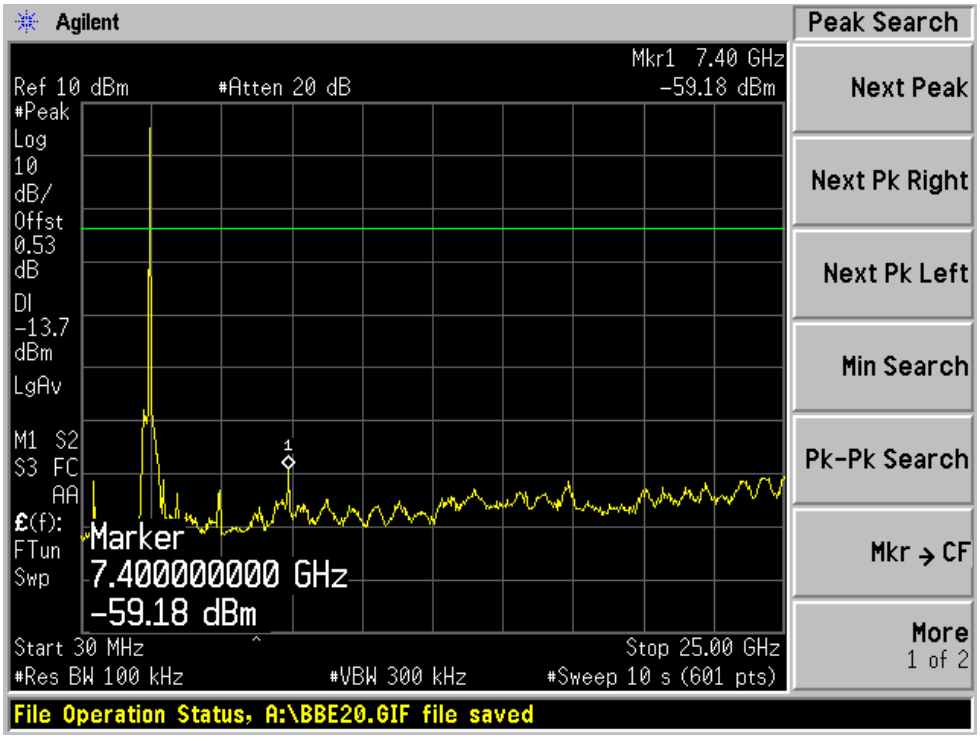
Low Channel



Middle Channel

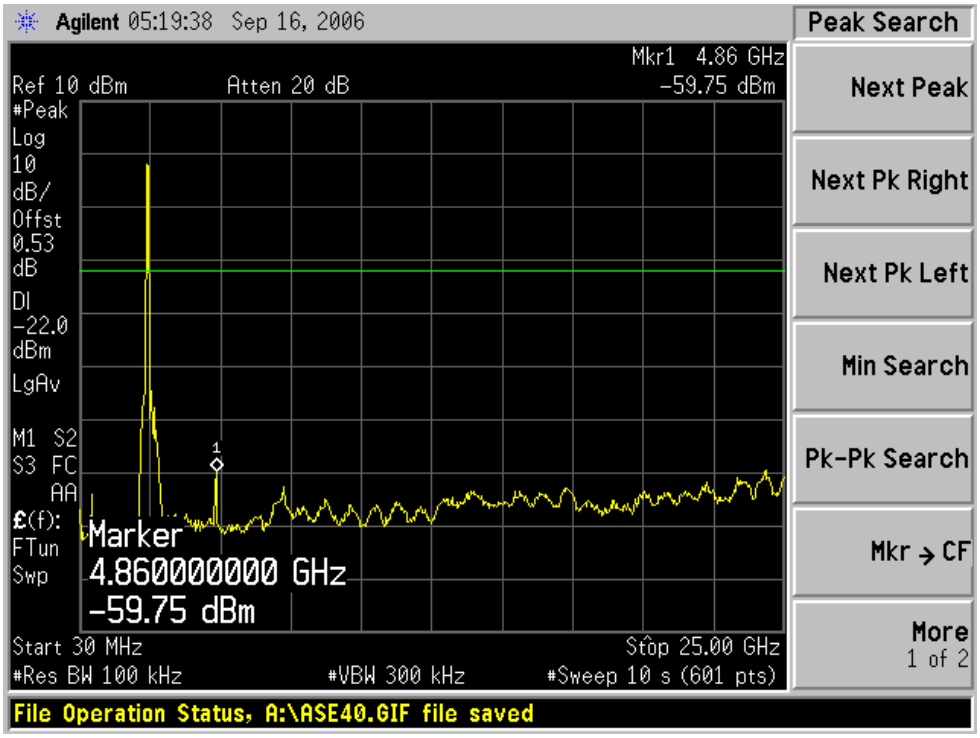


High Channel

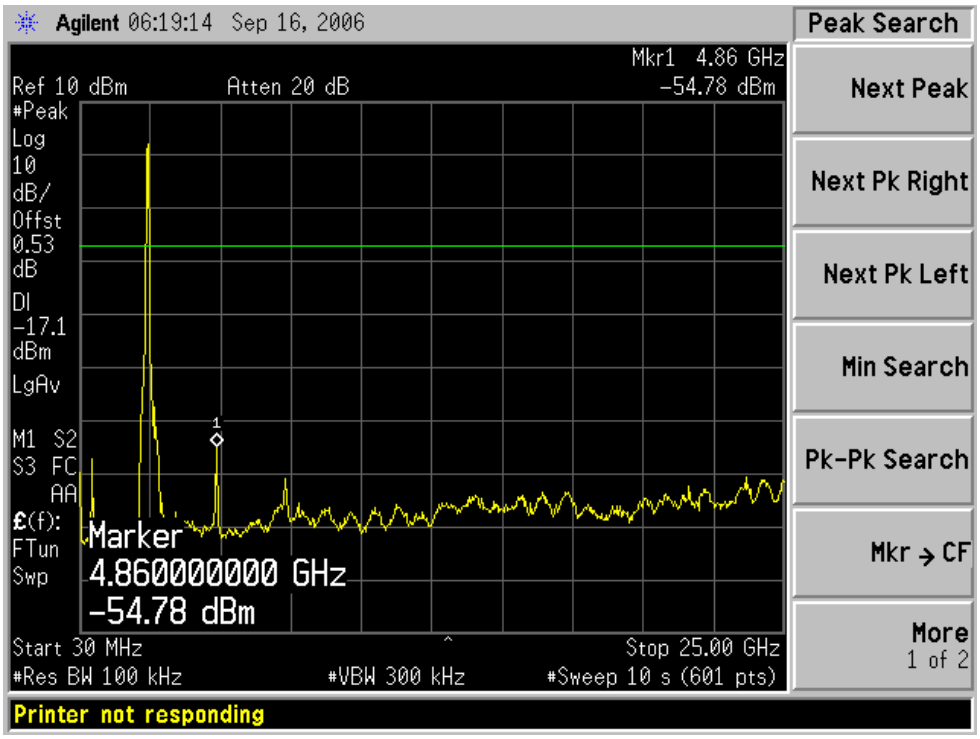


802.11g: 40MHz rate/channel, Chain A

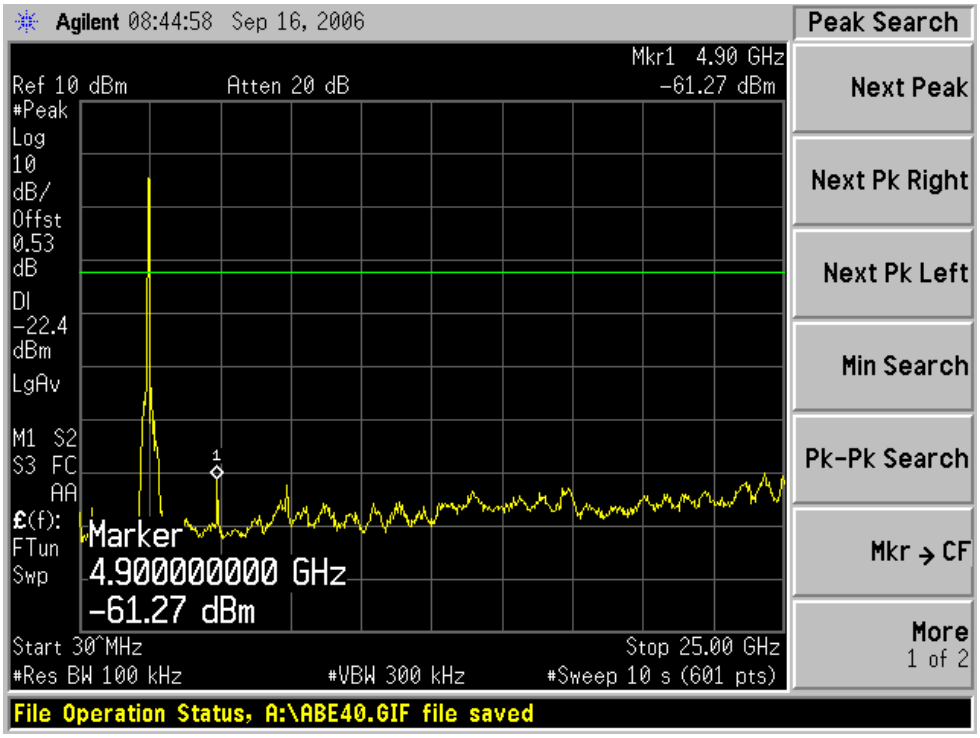
Low Channel



Middle Channel

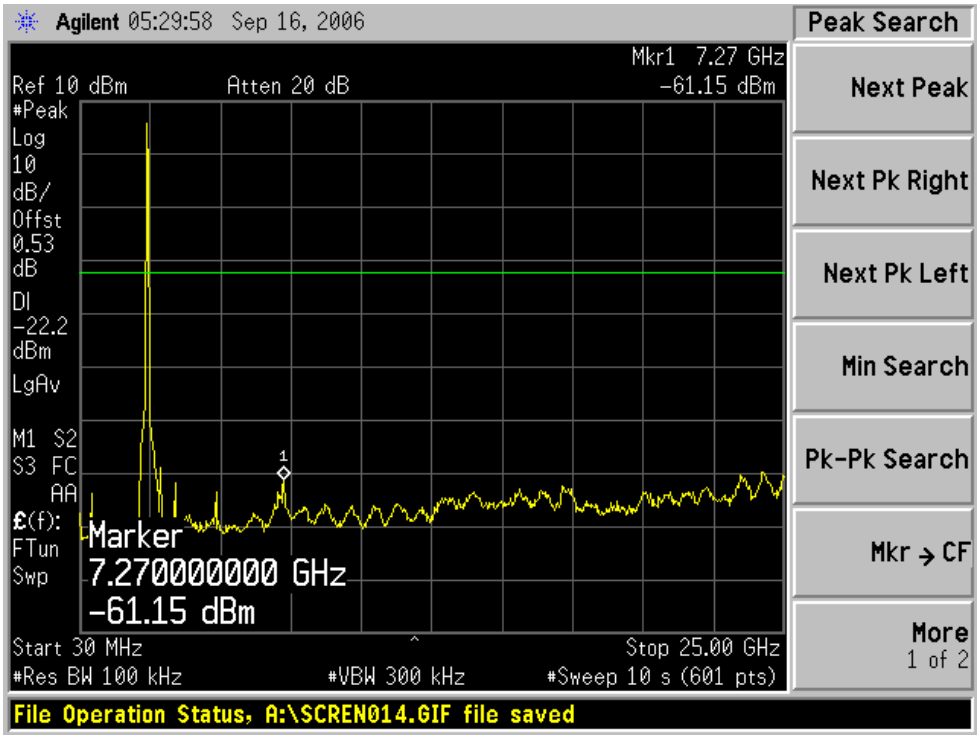


High Channel

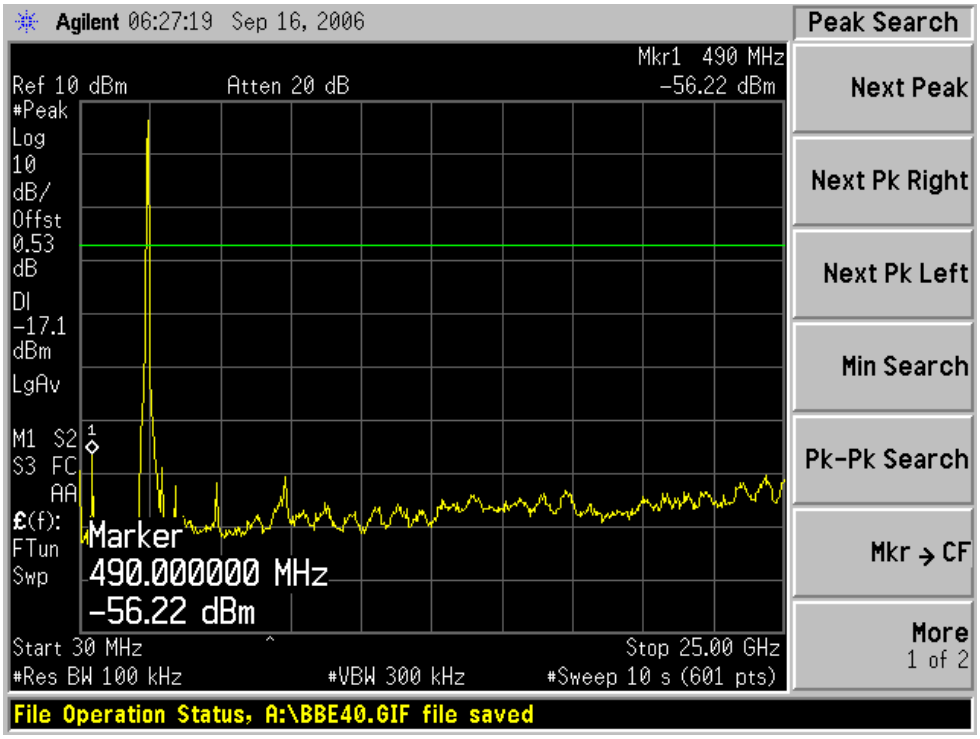


802.11g: 40MHz rate/channel, Chain B

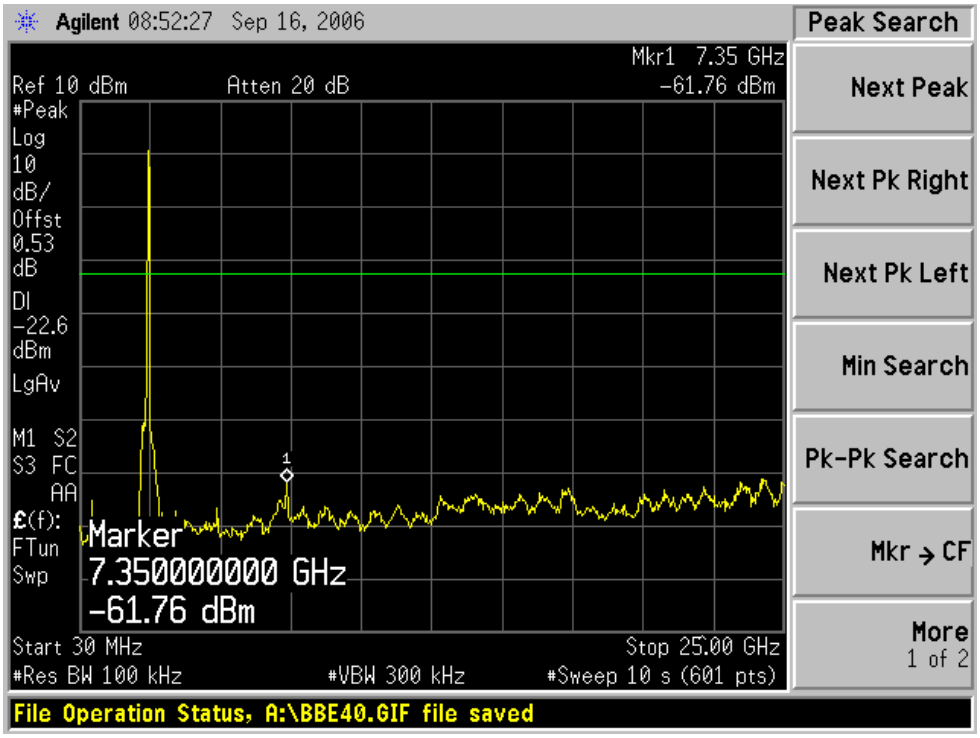
Low Channel



Middle Channel

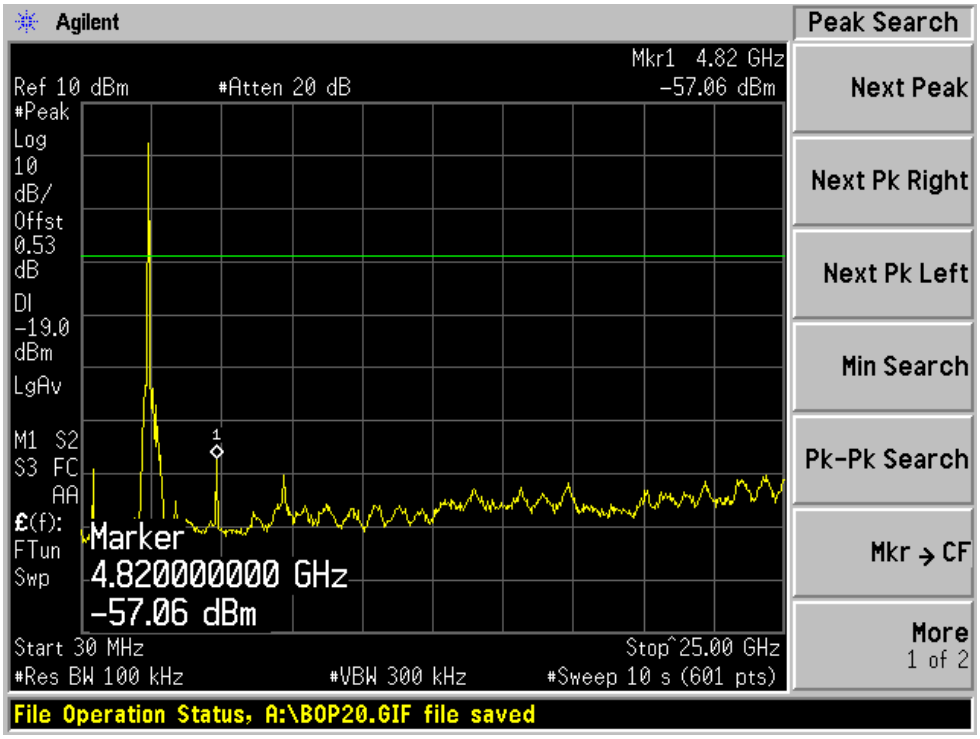


High Channel

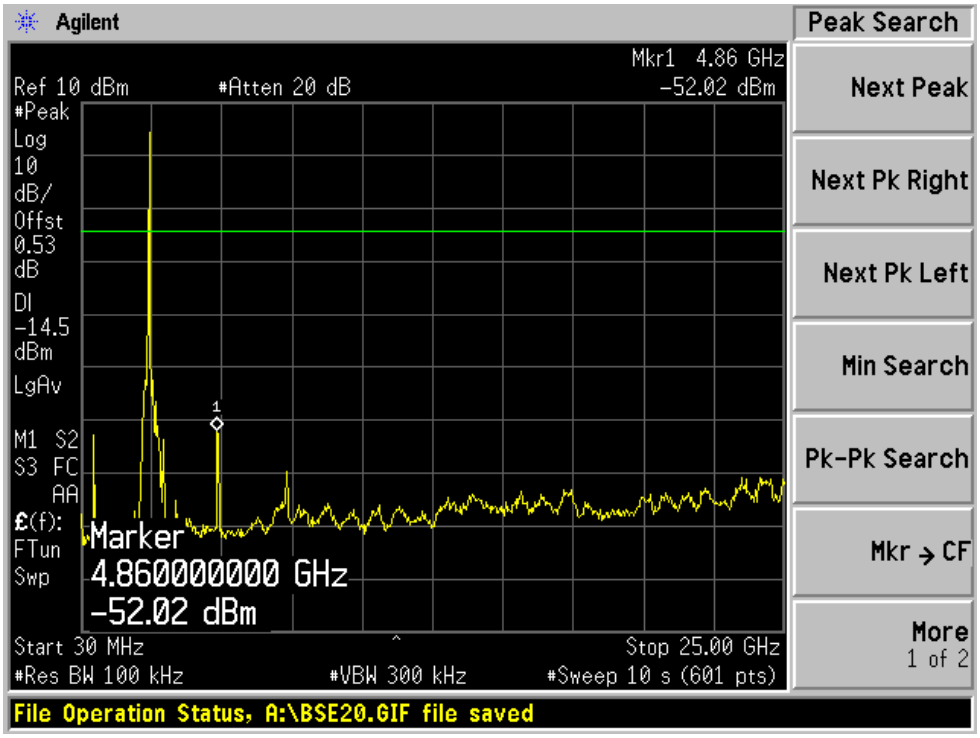


802.11n: 20MHz rate/channel, Chain A

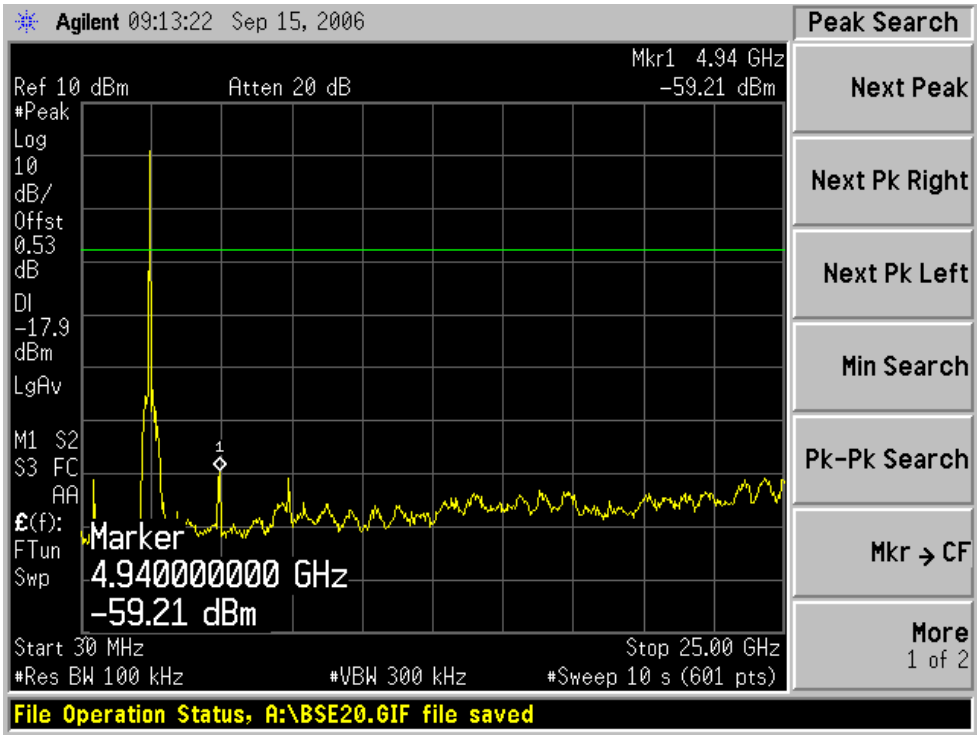
Low Channel



Middle Channel

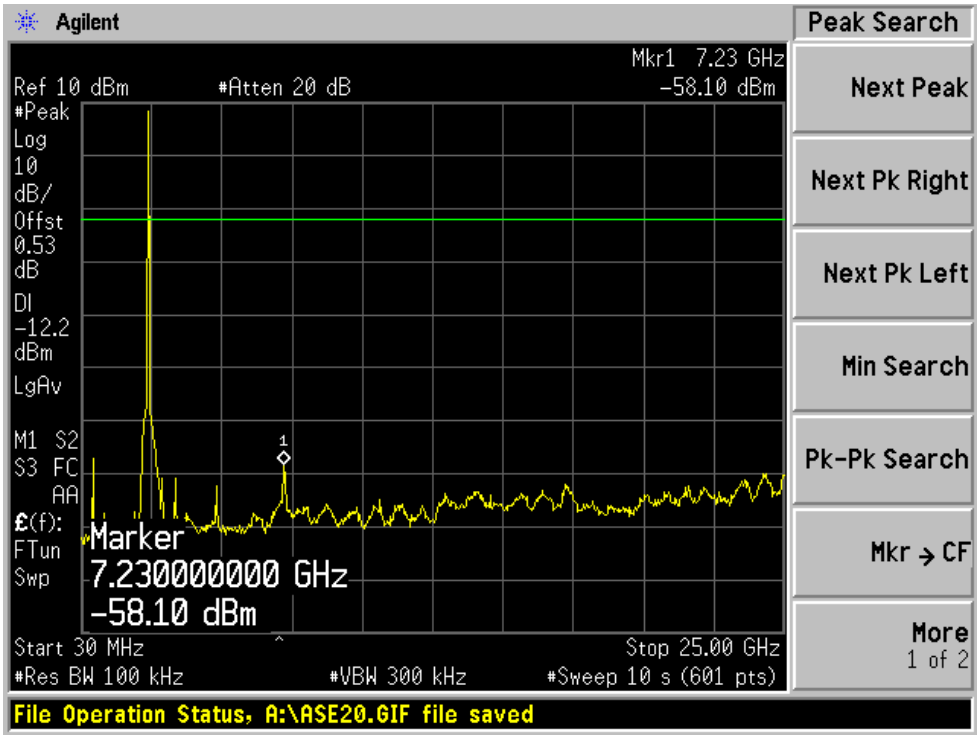


High Channel

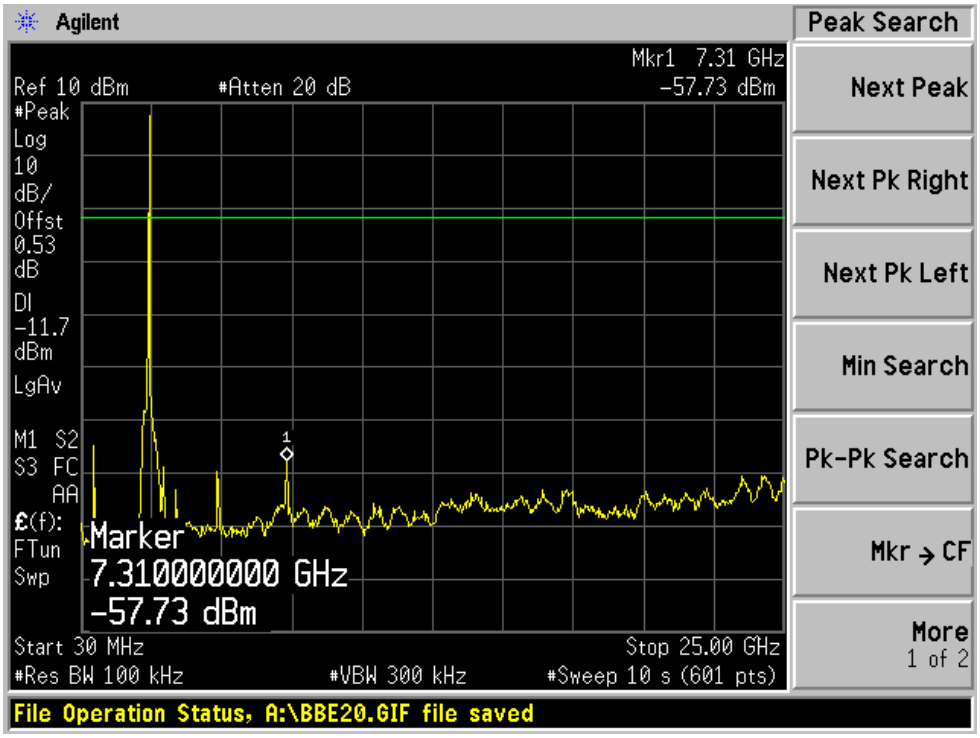


802.11n: 20MHz rate/channel, Chain B

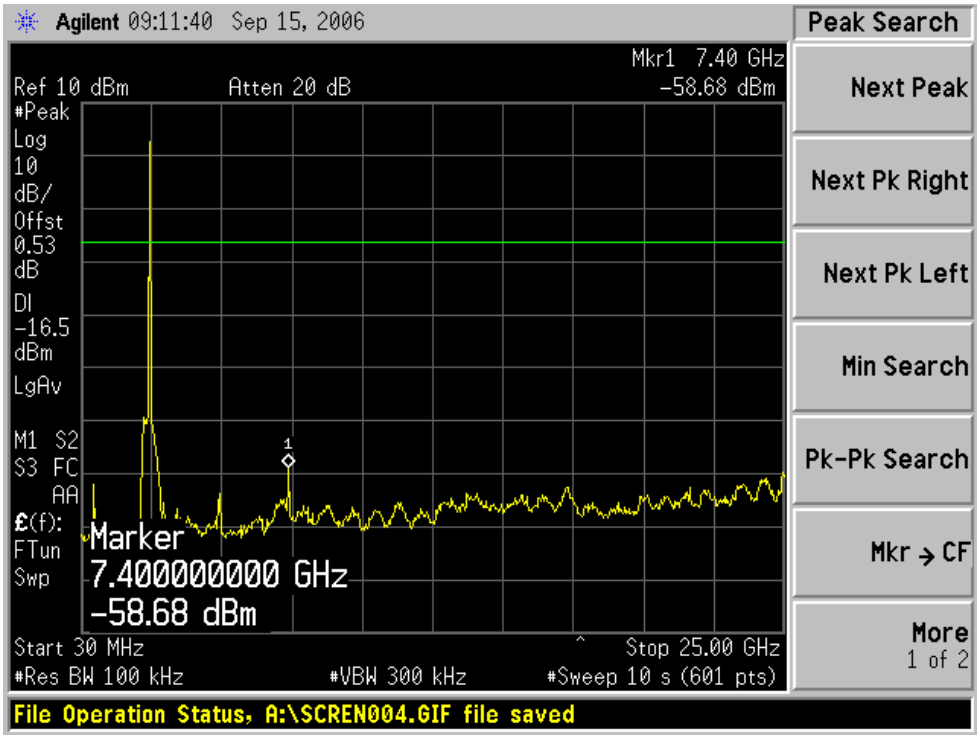
Low Channel



Middle Channel

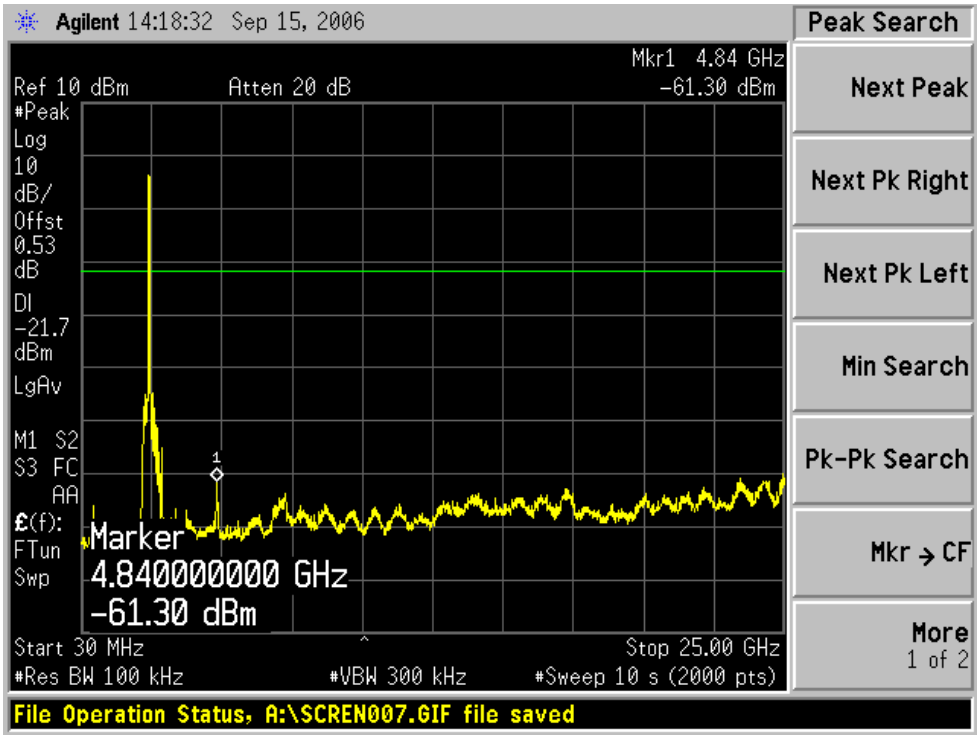


High Channel

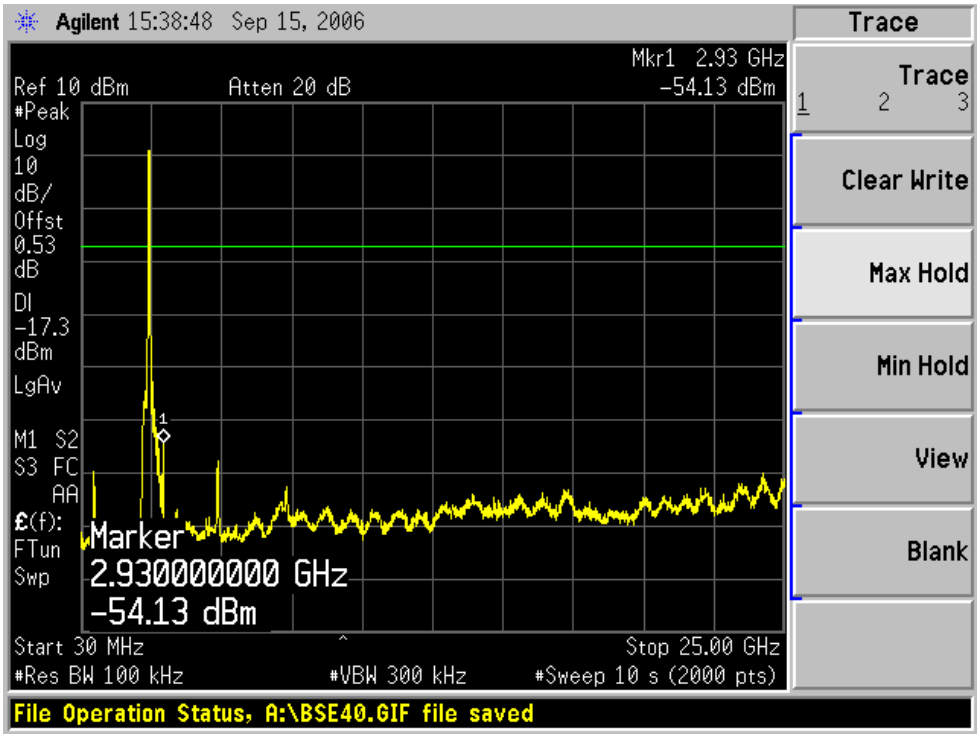


802.11n: 40MHz rate/channel, Chain A

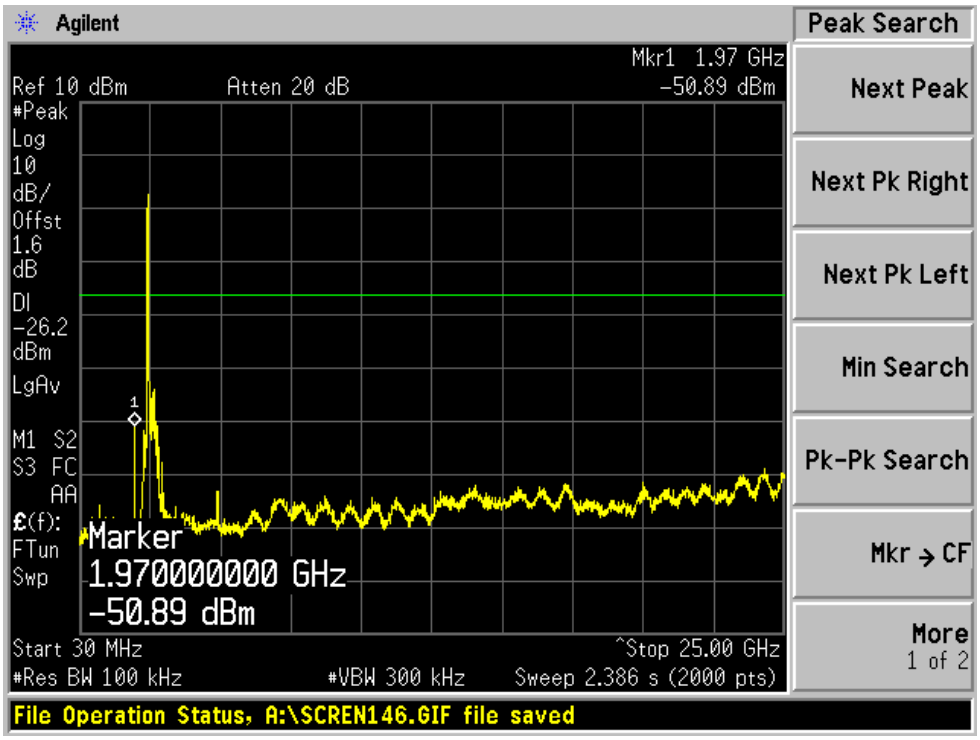
Low Channel



Middle Channel

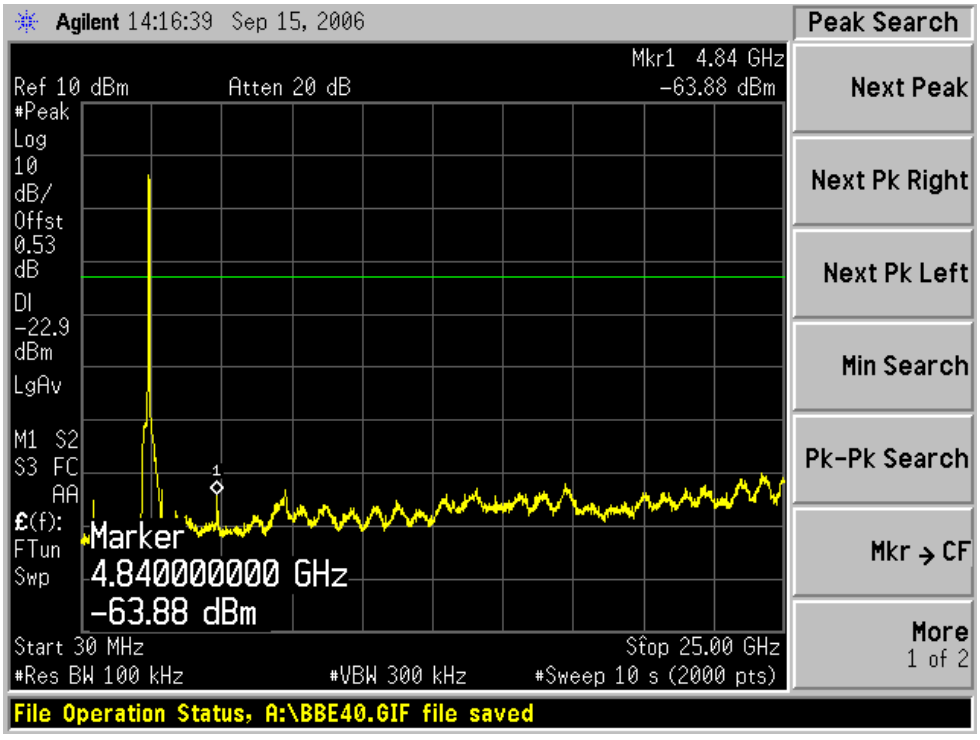


High Channel

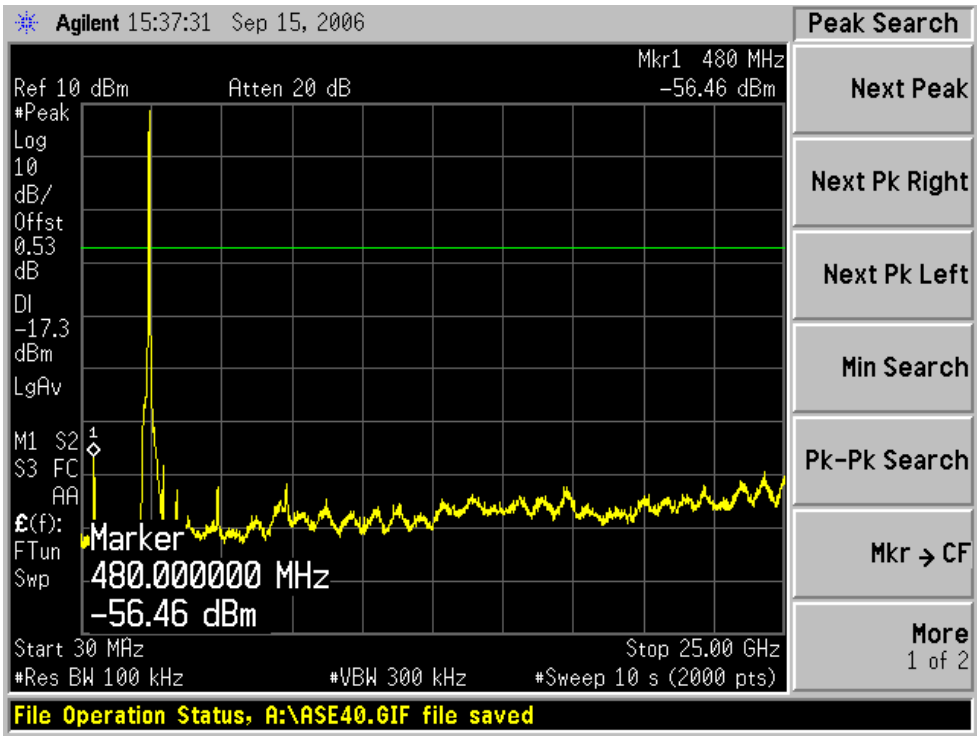


802.11n: 40MHz rate/channel, Chain B

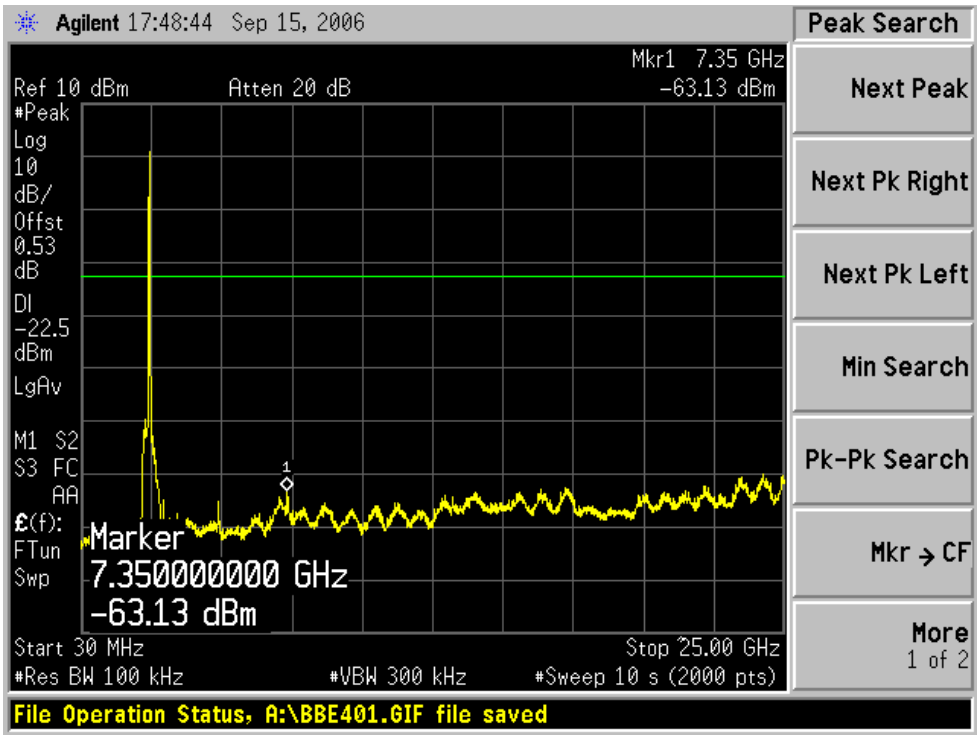
Low Channel



Middle Channel



High Channel



§15.109, §15.205, §15.209 & §15.247(c) - SPURIOUS RADIATED EMISSIONS

Applicable Standard

As per 15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

As per 15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

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

As per 15.247(c)(1)(i): Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

As Per 15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5. 35 – 5. 46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 –167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3 3458 – 3 358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

Test Setup

The radiated emissions tests were performed in the 3-meter open area test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart C limits.

EUT Setup

The radiated emissions tests were performed using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Sonoma Instruments	Pre amplifier	317	260408	2006-03-02
Agilent	Pre amplifier	8449B	3008A01978	2006-08-10
Sunol Science Corp	Combination Antenna	JB3 Antenna	A020106-3	2006-02-14
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.595 0K03	20-174821	2006-02-24
Sunol Science Corp	System Controller	S9V	113005-1	N/R
Agilent	Spectrum Analyzer	E4446A	US44300386	2006-03-06
A.R.A	Antenna Horn	DRG-118/A	1132	2006-08-17
Agilent	Spectrum Analyzer	8565EC	3946A00131	2006-01-11

* **Statement of Traceability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For the radiated emissions test, the EUT, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000MHz:

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

Above 1000MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

Corrected Amplitude & Margin Calculation

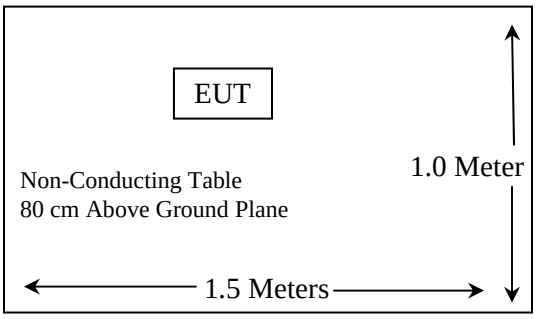
The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit.
The equation for margin calculation is as follows:

Margin = Corrected Amplitude - FCC Limit

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

** The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247, and had the worst margin of:

802.11b: 20MHz rate/channel

-11.1 dB at **9648.0000 MHz** in the **Vertical** polarization for Low Channel, 1GHz – 25GHz
-9.0 dB at **7311.0000 MHz** in the **Horizontal** polarization for Middle Channel, 1GHz – 25GHz
-8.7 dB at **7386.0000 MHz** in the **Vertical** polarization for High Channel, 1GHz – 25GHz

802.11b: 40MHz rate/channel

-12.6 dB at **7236.0000 MHz** in the **Vertical** polarization for Low Channel, 1GHz – 25GHz
-9.7 dB at **7331.0000 MHz** in the **Horizontal** polarization for Middle Channel, 1GHz – 25GHz
-8.7 dB at **7386.0000 MHz** in the **Vertical** polarization for High Channel, 1GHz – 25GHz

802.11g: 20MHz rate/channel

-13.2 dB at **7236.0000 MHz** in the **Vertical** polarization for Low Channel, 1GHz – 25GHz
-7.8 dB at **7311.0000 MHz** in the **Horizontal** polarization for Middle Channel, 1GHz – 25GHz
-9.8 dB at **7386.0000 MHz** in the **Vertical** polarization for High Channel, 1GHz – 25GHz

802.11g: 40MHz rate/channel

-13.2 dB at **7266.0000 MHz** in the **Vertical l** polarization for Low Channel, 1GHz – 25GHz
-2.2 dB at **7311.0000 MHz** in the **Vertical** polarization for Middle Channel, 1GHz – 25GHz
-9.8 dB at **7356.0000 MHz** in the **Vertical** polarization for High Channel, 1GHz – 25GHz

802.11n: 20MHz rate/channel

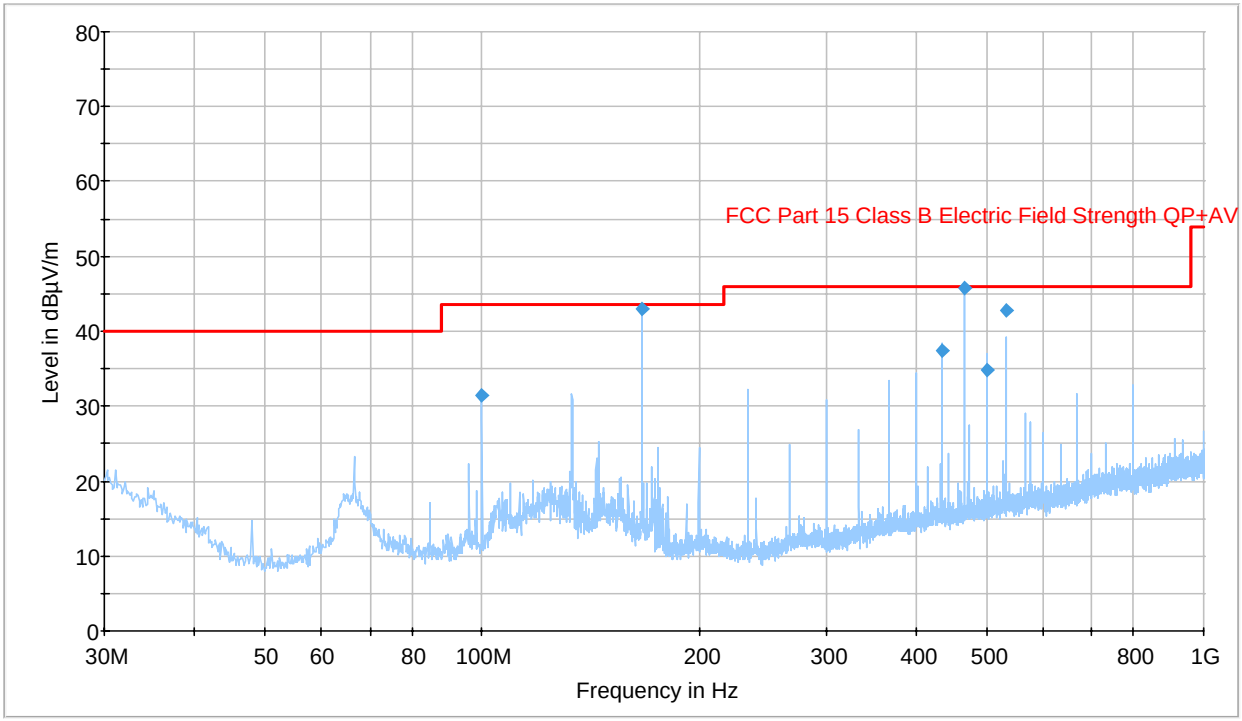
-10.1 dB at **7236.0000 MHz** in the **Vertical** polarization for Low Channel, 1GHz – 25GHz
-2.4 dB at **7311.0000 MHz** in the **Vertical** polarization for Middle Channel, 1GHz – 25GHz
-12.4 dB at **7386.0000 MHz** in the **Vertical** polarization for High Channel, 1GHz – 25GHz

802.11n: 40MHz rate/channel

-25.4 dB at **4844.0000 MHz** in the **Vertical** polarization for Low Channel, 1GHz – 25GHz
-1.3 dB at **4874.0000 MHz** in the **Horizontal** polarization for Middle Channel, 1GHz – 25GHz
-21.4 dB at **4904.0000 MHz** in the **Horizontal** polarization for High Channel, 1GHz – 25GHz

Radiated Emissions Test plot & data:

Primary scan 30MHz -1GHz



Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
466.662500	45.8	102.0	V	243.0	-18.5	46.0	-0.2
166.648750	43.0	248.0	H	69.0	-24.1	43.5	-0.5
533.310000	42.8	102.0	H	296.0	-17.8	46.0	-3.2
433.318750	37.5	122.0	V	242.0	-19.1	46.0	-8.5
499.966250	34.8	282.0	H	267.0	-17.9	46.0	-11.2
100.001250	31.5	102.0	V	337.0	-25.5	43.5	-12.0

802.11b: 20MHz rate/channel

Low channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2412.0000	118.5	45	1.1	V	28.7	2.7	35.8	114.0	-	-	Fund/Peak
2412.0000	117.6	64	1.0	H	28.7	2.7	35.8	113.1	-	-	Fund/Peak
2412.0000	110.4	45	1.1	V	28.7	2.7	35.8	105.9	-	-	Ave
2412.0000	109.3	64	1.0	H	28.7	2.7	35.8	104.9	-	-	Ave
9648.0000	36.4	77	1.2	V	36.7	4.8	34.9	42.9	54	-11.1	Ave
9648.0000	35.4	70	1.3	V	38.1	5.5	36.9	42.1	54	-11.9	Ave
4824.0000	34.9	70	1.2	H	36.7	4.8	34.9	41.4	54	-12.6	Ave
4824.0000	37.9	101	1.2	V	32.5	3.8	34.8	39.4	54	-14.6	Ave
7236.0000	37.7	180	1.2	H	32.5	3.8	34.8	39.2	54	-14.8	Ave
9648.0000	30.0	74	1.6	H	38.1	5.5	36.9	36.7	54	-17.3	Ave
9648.0000	48.5	77	1.2	V	36.7	4.8	34.9	55.0	74	-19.0	Peak
7236.0000	52.4	101	1.2	V	32.5	3.8	34.8	53.9	74	-20.1	Peak
7236.0000	46.6	70	1.2	H	36.7	4.8	34.9	53.1	74	-20.9	Peak
7236.0000	42.2	74	1.6	H	38.1	5.5	36.9	49.0	74	-25.0	Peak
4824.0000	44.7	70	1.3	V	38.1	5.5	36.9	51.4	74	-22.6	Peak
4824.0000	49.6	180	1.2	H	32.5	3.8	34.8	51.1	74	-22.9	Peak

Mid channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2437.0000	121.5	66	1.1	V	28.7	2.7	35.8	117.0	-	-	Fund/Peak
2437.0000	116.9	224	1.2	H	28.7	2.7	35.8	112.4	-	-	Fund/Peak
2437.0000	113.4	66	1.1	V	28.7	2.7	35.8	108.9	-	-	Ave
2437.0000	109.0	224	1.2	H	28.7	2.7	35.8	104.5	-	-	Ave
7311.0000	38.6	143	1.1	H	36.7	4.8	35.1	45.0	54	-9.0	Ave
7311.0000	38.2	24	1.2	V	36.7	4.8	35.1	44.5	54	-9.5	Ave
9748.0000	35.3	82	1.1	V	38.1	5.6	36.7	42.4	54	-11.6	Ave
4874.0000	40.2	155	1.2	H	32.5	3.8	34.8	41.7	54	-12.3	Ave
4874.0000	38.1	108	1.2	V	32.5	3.8	34.8	39.7	54	-14.3	Ave
9748.0000	31.2	100	1.2	H	38.1	5.6	36.7	38.3	54	-15.7	Ave
7311.0000	49.6	24	1.2	V	36.7	4.8	35.1	55.9	74	-18.1	Peak
7311.0000	49.1	143	1.1	H	36.7	4.8	35.1	55.4	74	-18.6	Peak
4874.0000	52.1	155	1.2	H	32.5	3.8	34.8	53.6	74	-20.4	Peak
4874.0000	51.1	108	1.2	V	32.5	3.8	34.8	52.6	74	-21.4	Peak
9748.0000	42.6	82	1.1	V	38.1	5.6	36.7	49.7	74	-24.3	Peak
9748.0000	41.3	100	1.2	H	38.1	5.6	36.7	48.4	74	-25.6	Peak

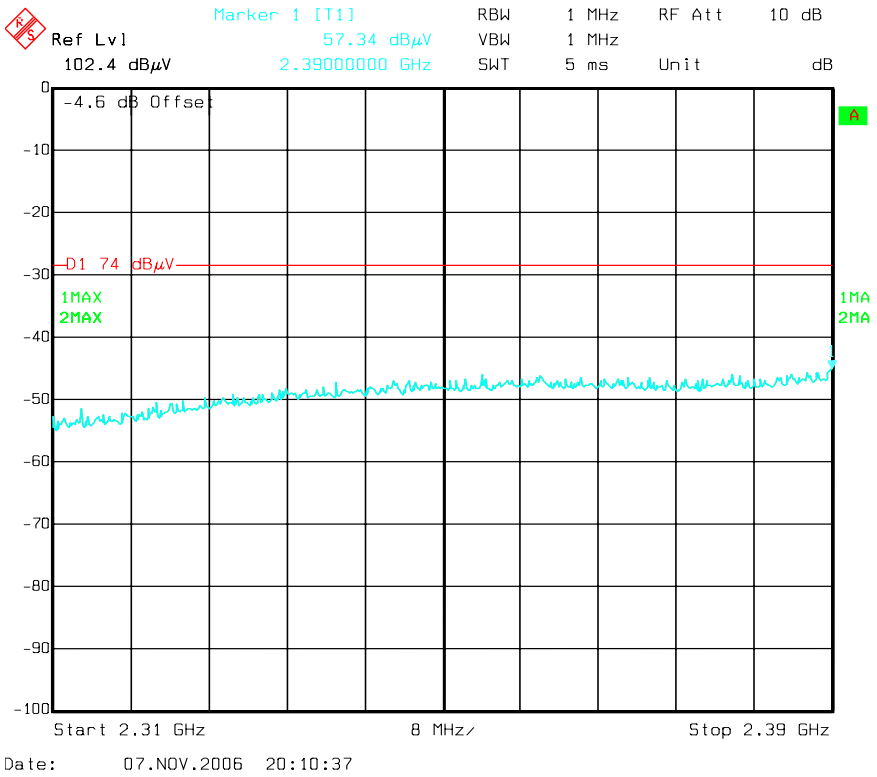
High channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2462.0000	119.8	300	1.1	V	28.7	2.7	35.8	115.3	-	-	Fund/Peak
2462.0000	114.7	256	1.2	H	28.7	2.7	35.8	110.3	-	-	Fund/Peak
2462.0000	111.4	300	1.5	V	28.7	2.7	35.8	107.0	-	-	Ave
2462.0000	106.8	256	1.2	H	28.7	2.7	35.8	102.3	-	-	Ave
7386.0000	38.9	185	1.3	V	36.7	4.8	35.1	45.3	54	-8.7	Ave
7386.0000	38.5	200	1.5	H	36.7	4.8	35.1	44.9	54	-9.1	Ave
9848.0000	36.2	200	1.5	V	38.1	5.6	37.0	42.9	54	-11.1	Ave
4924.0000	41.3	50	1.0	H	32.5	3.9	35.0	42.7	54	-11.3	Ave
4924.0000	39.0	180	1.5	V	32.5	3.9	35.0	40.4	54	-13.6	Ave
9848.0000	32.8	180	1.3	H	38.1	5.6	37.0	39.5	54	-14.5	Ave
7386.0000	50.3	185	1.3	V	36.7	4.8	35.1	56.7	74	-17.3	Peak
7386.0000	49.6	200	1.5	H	36.7	4.8	35.1	56.0	74	-18.0	Peak
4924.0000	52.6	50	1.0	H	32.5	3.9	35.0	54.0	74	-20.0	Peak
4924.0000	51.5	180	1.5	V	32.5	3.9	35.0	52.9	74	-21.1	Peak
9848.0000	43.2	200	1.5	V	38.1	5.6	37.0	49.9	74	-24.1	Peak
9848.0000	42.1	180	1.3	H	38.1	5.6	37.0	48.8	74	-25.2	Peak

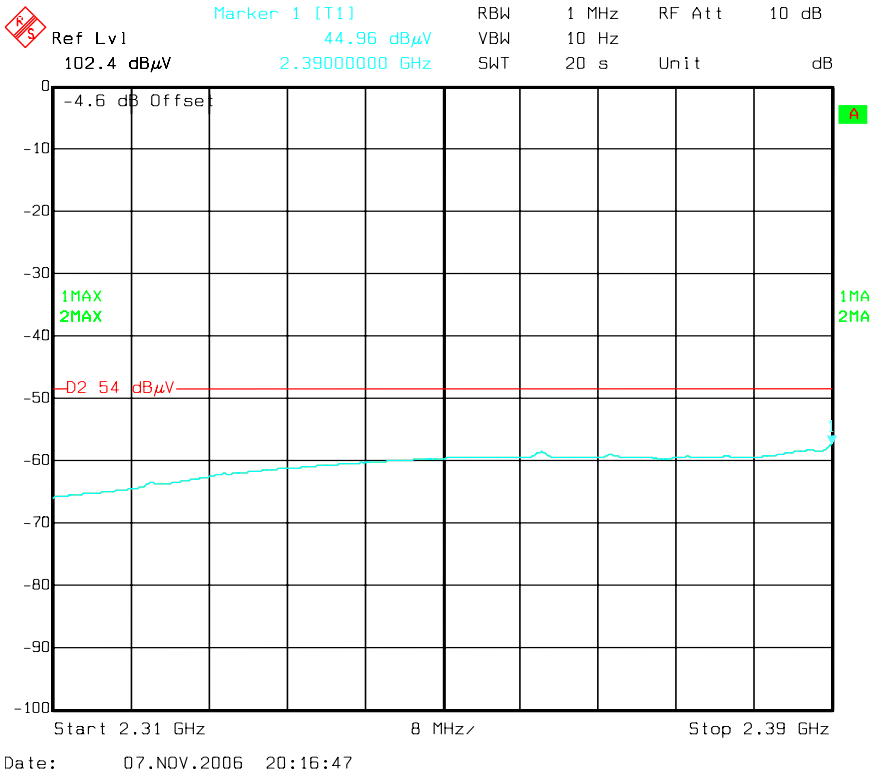
Restricted band edge

Low channel

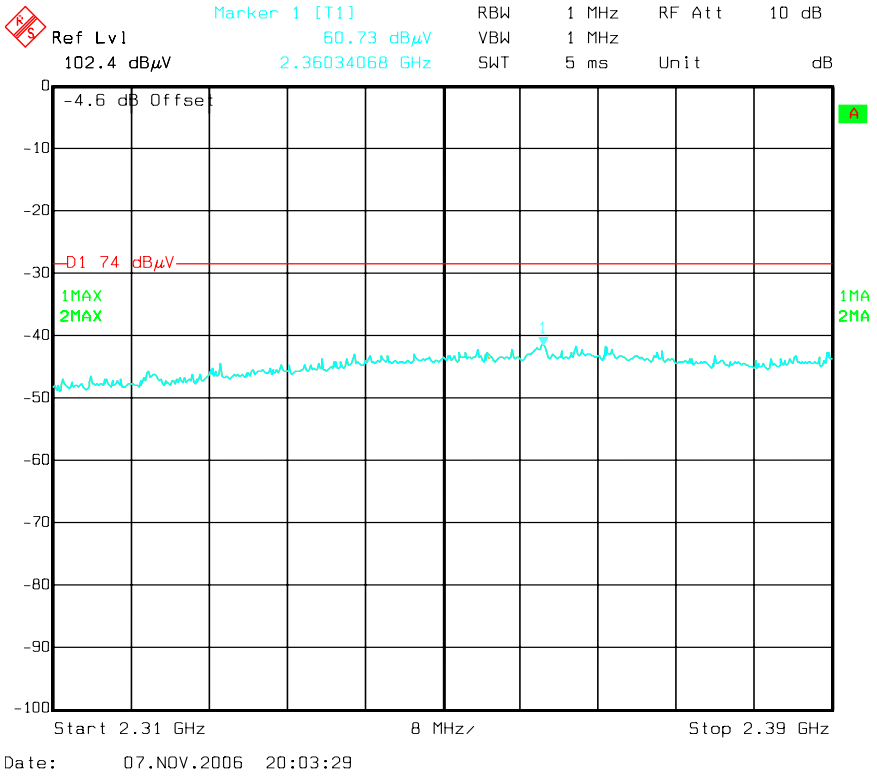
Peak, Horizontal



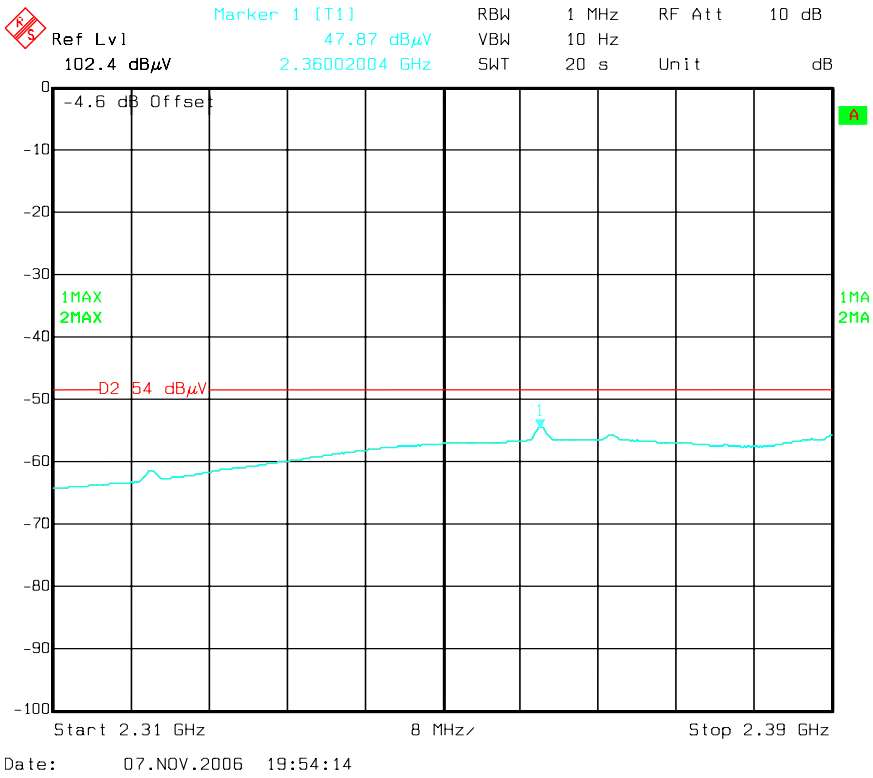
Average, Horizontal



Peak, Vertical

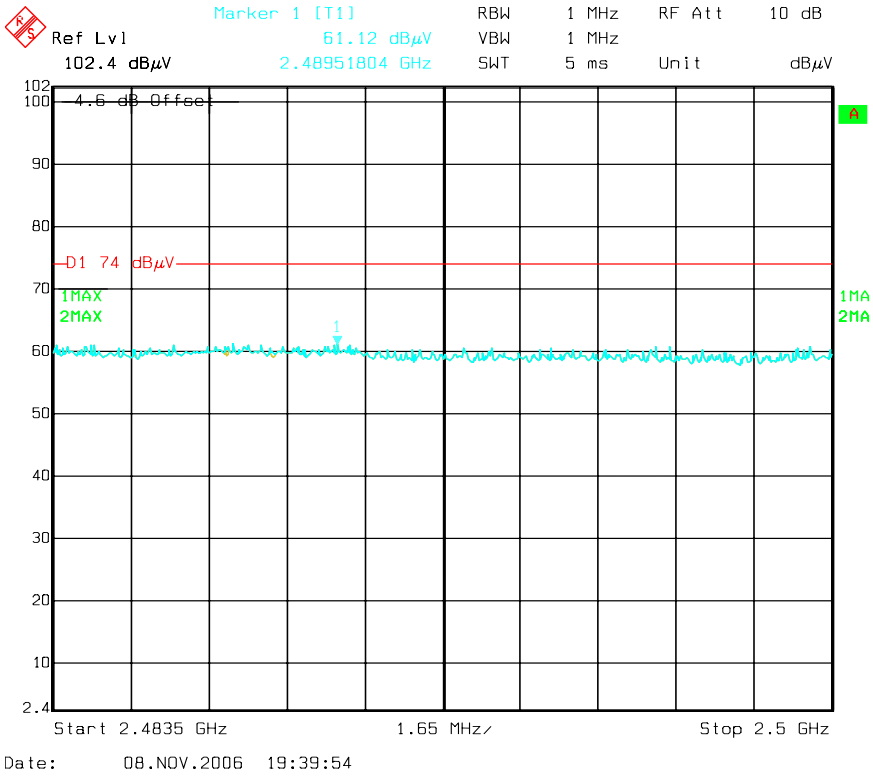


Average, Vertical

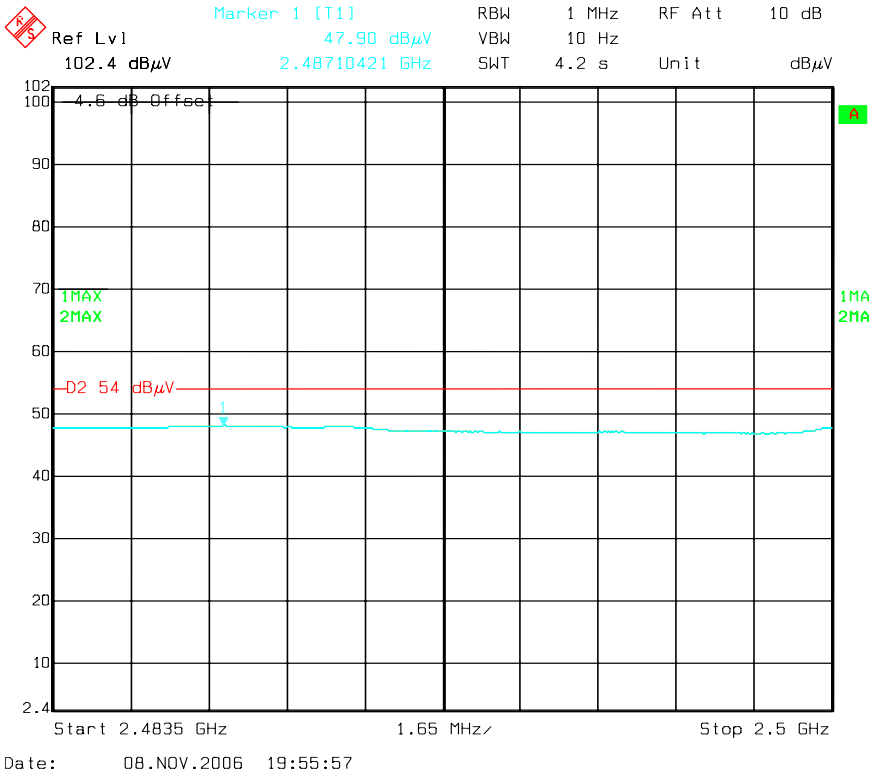


High channel

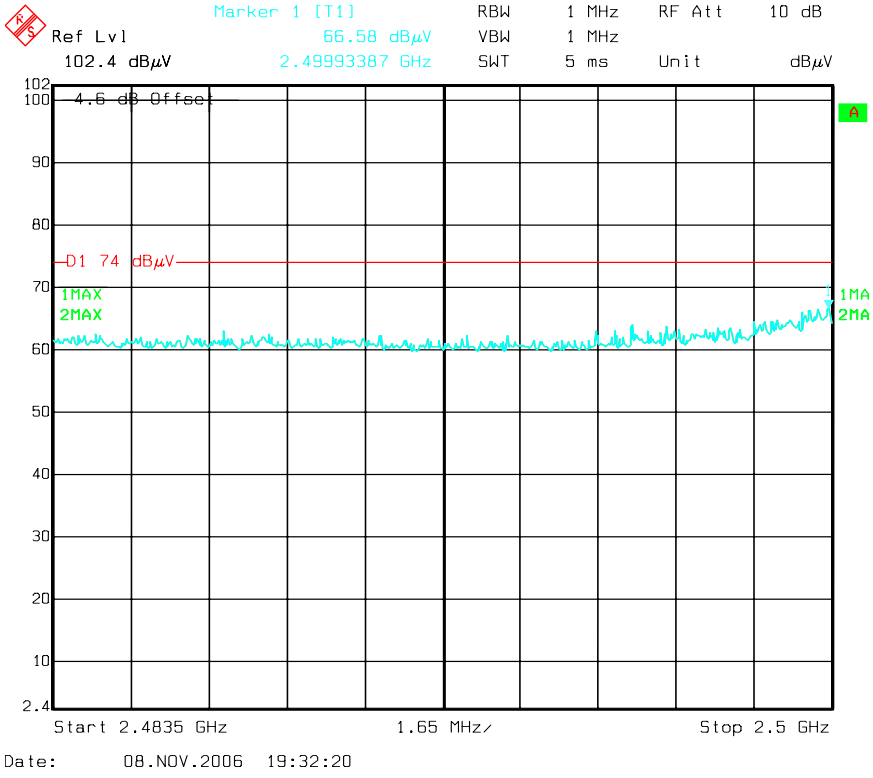
Peak, Horizontal



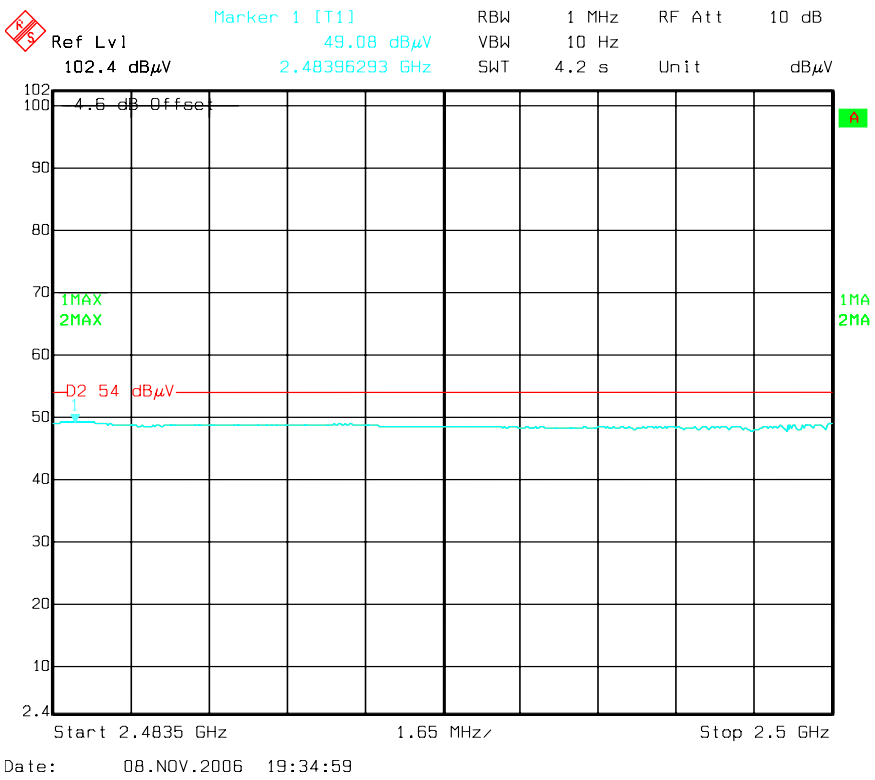
Average, Horizontal



Peak, Vertical



Average, Vertical



802.11b: 40MHz rate/channel

Low channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2412.0000	114.0	210	1.1	V	28.7	2.7	35.8	109.5	-	-	Fund/Peak
2412.0000	111.4	265	1.1	H	28.7	2.7	35.8	106.9	-	-	Fund/Peak
2412.0000	106.7	210	1.1	V	28.7	2.7	35.8	102.2	-	-	Ave
2412.0000	102.6	265	1.1	H	28.7	2.7	35.8	98.1	-	-	Ave
7236.0000	34.8	100	1.1	V	36.7	4.8	34.9	41.4	54	-12.6	Ave
7236.0000	32.7	90	1.2	H	36.7	4.8	34.9	39.3	54	-14.7	Ave
9648.0000	32.5	120	1.2	V	38.1	5.5	36.9	39.2	54	-14.8	Ave
4824.0000	35.8	160	1.2	H	32.5	3.8	34.8	37.3	54	-16.7	Ave
4824.0000	35.6	120	1.3	V	32.5	3.8	34.8	37.1	54	-16.9	Ave
9648.0000	28.9	100	1.4	H	38.1	5.5	36.9	35.6	54	-18.4	Ave
7236.0000	46.4	100	1.1	V	36.7	4.8	34.9	53.0	74	-21.0	Peak
4824.0000	50.3	120	1.3	V	32.5	3.8	34.8	51.8	74	-22.2	Peak
7236.0000	42.8	90	1.2	H	36.7	4.8	34.9	49.4	74	-24.6	Peak
9648.0000	42.6	120	1.2	V	38.1	5.5	36.9	49.3	74	-24.7	Peak
4824.0000	47.6	160	1.2	H	32.5	3.8	34.8	49.1	74	-24.9	Peak
9648.0000	40.3	100	1.4	H	38.1	5.5	36.9	47.0	74	-27.0	Peak

Middle channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2437.0000	115.7	73	1.1	V	28.7	2.7	35.8	111.2	-	-	Fund/Peak
2437.0000	113.0	222	1.2	H	28.7	2.7	35.8	108.6	-	-	Fund/Peak
2437.0000	108.1	73	1.1	V	28.7	2.7	35.8	103.6	-	-	Ave
2437.0000	105.4	222	1.2	H	28.7	2.7	35.8	100.9	-	-	Ave
7311.0000	37.9	150	1.2	H	36.7	4.8	35.1	44.3	54	-9.7	Ave
7311.0000	37.3	100	1.1	V	36.7	4.8	35.1	43.7	54	-10.3	Ave
9748.0000	34.5	95	1.2	V	38.1	5.6	36.7	41.6	54	-12.4	Ave
4874.0000	39.8	160	1.3	H	32.5	3.8	34.8	41.3	54	-12.7	Ave
4874.0000	37.2	120	1.1	V	32.5	3.8	34.8	38.7	54	-15.3	Ave
9748.0000	30.8	100	1.3	H	38.1	5.6	36.7	37.9	54	-16.1	Ave
7311.0000	48.7	150	1.2	H	36.7	4.8	35.1	55.1	74	-18.9	Peak
7311.0000	48.6	100	1.1	V	36.7	4.8	35.1	55.0	74	-19.0	Peak
4874.0000	51.8	160	1.3	H	32.5	3.8	34.8	53.3	74	-20.7	Peak
4874.0000	50.6	120	1.1	V	32.5	3.8	34.8	52.1	74	-21.9	Peak
9748.0000	40.5	100	1.3	H	38.1	5.6	36.7	47.6	74	-26.4	Peak
9748.0000	41.1	95	1.2	V	38.1	4.8	36.7	47.3	74	-26.7	Peak

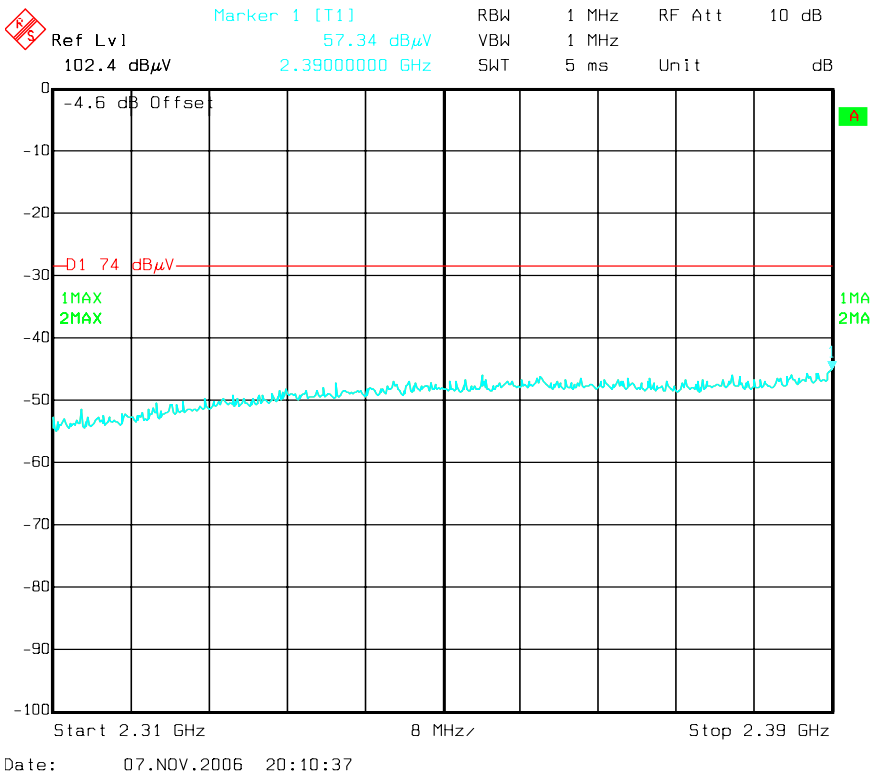
High channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2462.0000	119.8	300	1.1	V	28.7	2.7	35.8	115.3	-	-	Fund/Peak
2462.0000	114.7	256	1.2	H	28.7	2.7	35.8	110.3	-	-	Fund/Peak
2462.0000	111.4	300	1.5	V	28.7	2.7	35.8	107.0	-	-	Ave
2462.0000	106.8	256	1.2	H	28.7	2.7	35.8	102.3	-	-	Ave
7386.0000	38.9	185	1.3	V	36.7	4.8	35.1	45.3	54	-8.7	Ave
7386.0000	38.5	200	1.5	H	36.7	4.8	35.1	44.9	54	-9.1	Ave
9848.0000	36.2	200	1.5	V	38.1	5.6	37.0	42.9	54	-11.1	Ave
4924.0000	41.3	50	1.0	H	32.5	3.9	35.0	42.7	54	-11.3	Ave
4924.0000	39.0	180	1.5	V	32.5	3.9	35.0	40.4	54	-13.6	Ave
9848.0000	32.8	180	1.3	H	38.1	5.6	37.0	39.5	54	-14.5	Ave
7386.0000	50.3	185	1.3	V	36.7	4.8	35.1	56.7	74	-17.3	Peak
7386.0000	49.6	200	1.5	H	36.7	4.8	35.1	56.0	74	-18.0	Peak
4924.0000	51.5	180	1.5	V	32.5	3.9	35.0	52.9	74	-21.1	Peak
4924.0000	52.6	50	1.0	H	32.5	3.9	35.0	54.0	74	-20.0	Peak
9848.0000	43.2	200	1.5	V	38.1	5.6	37.0	49.9	74	-24.1	Peak
9848.0000	42.1	180	1.3	H	38.1	5.6	37.0	48.8	74	-25.2	Peak

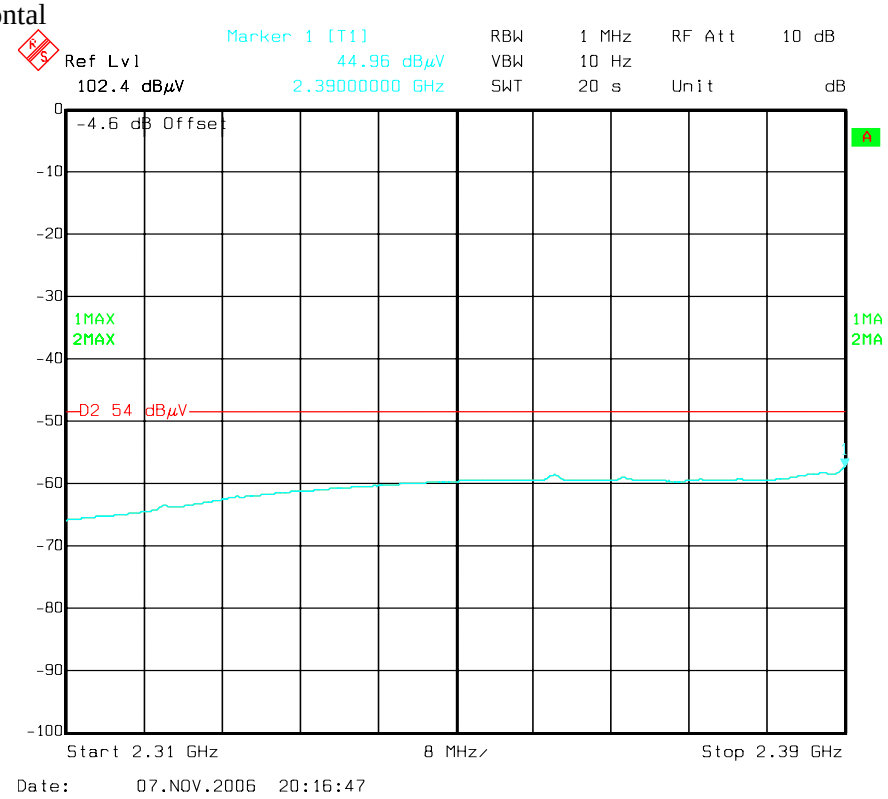
Restricted band edge

Low channel

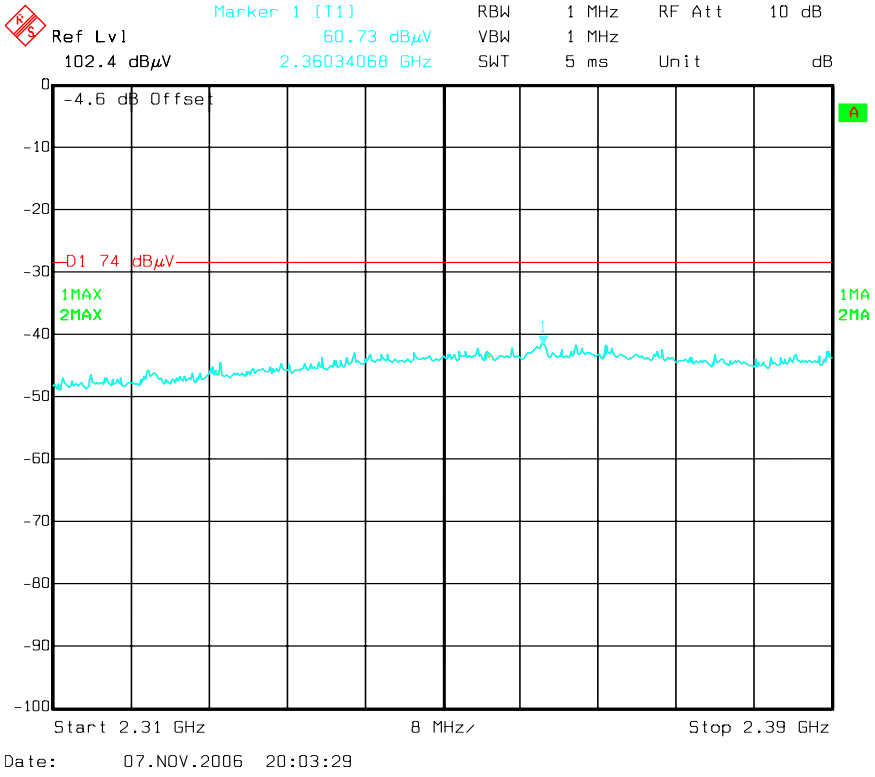
Peak, Horizontal



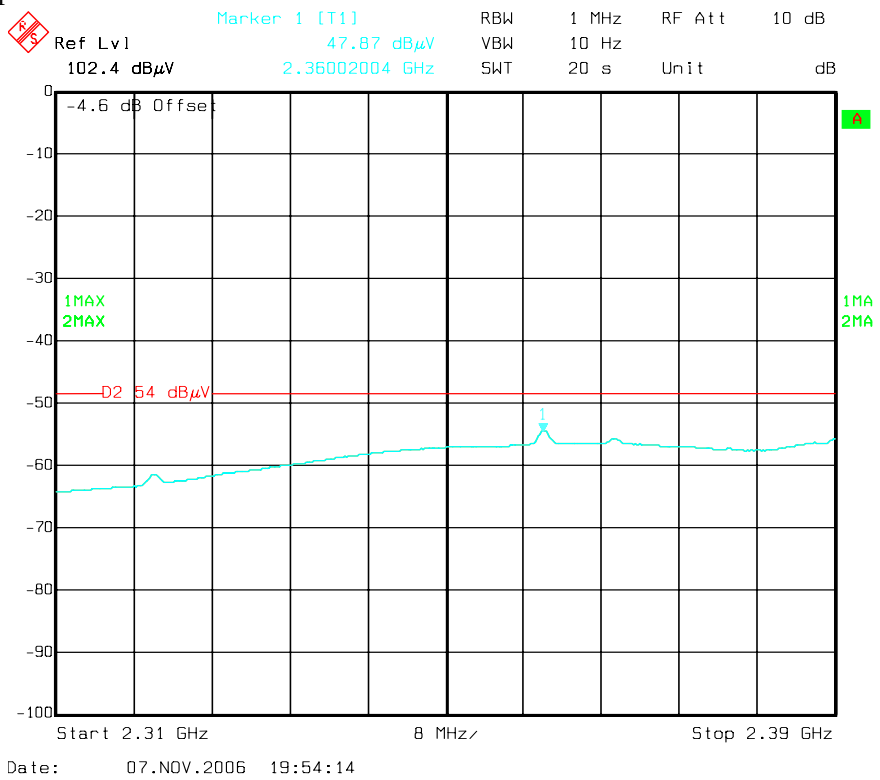
Average, Horizontal



Peak, Vertical

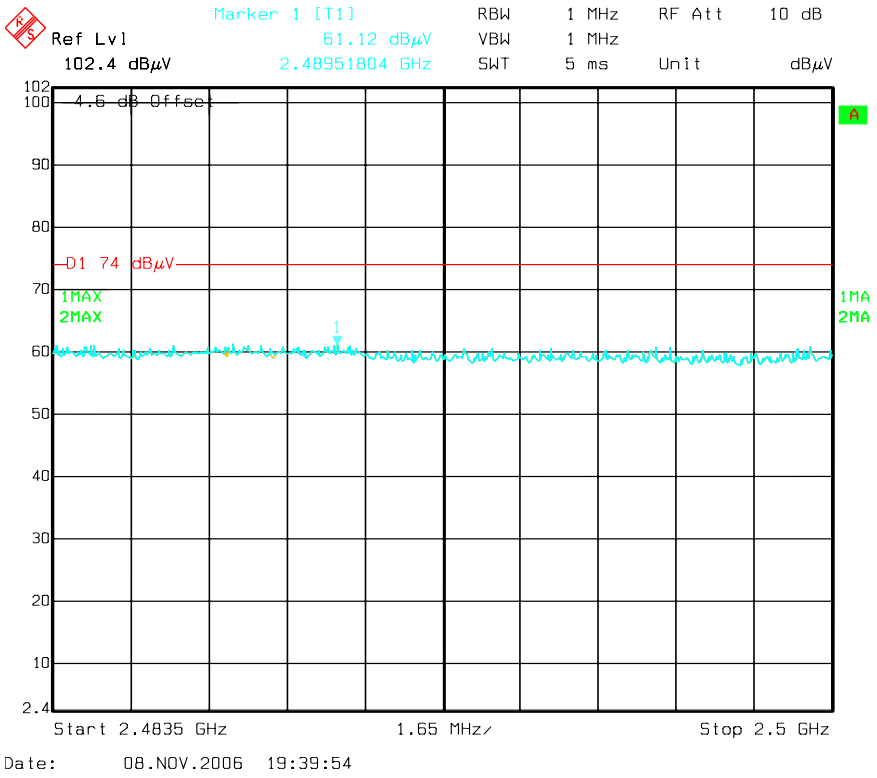


Average, Vertical

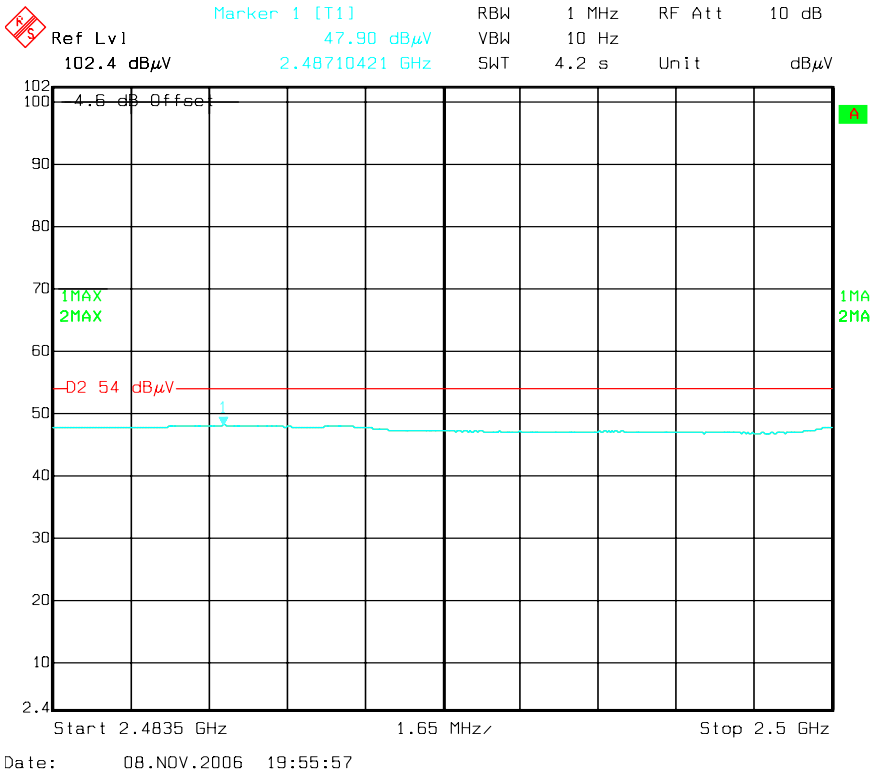


High channel

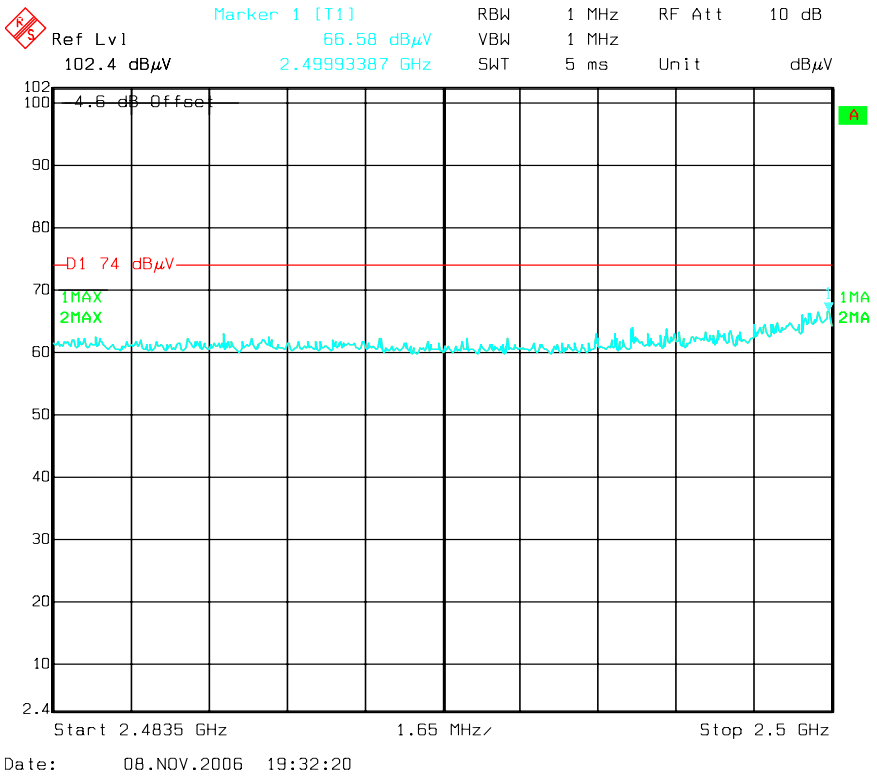
Peak, Horizontal



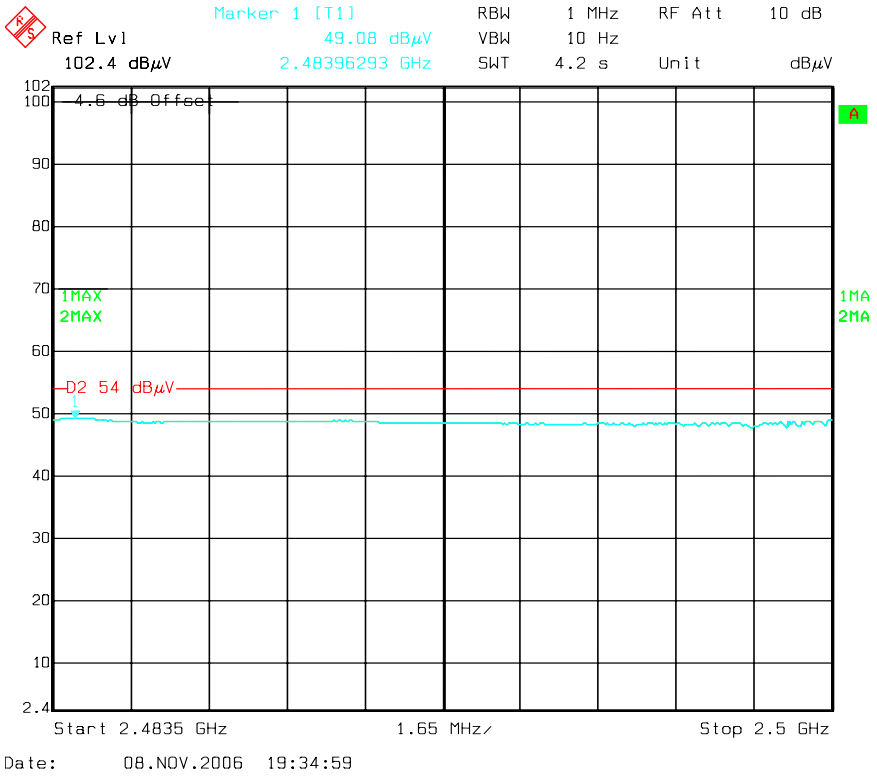
Average, Horizontal



Peak, Vertical



Average, Vertical



802.11g: 20MHz rate/channel

Low channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin	Comments
2412.0000	118.8	72	1.2	V	28.7	2.7	35.8	114.3	-	-	Fund/Peak
2412.0000	114.4	226	1.2	H	28.7	2.7	35.8	109.9	-	-	Fund/Peak
2412.0000	109.7	72	1.2	V	28.7	2.7	35.8	105.2	-	-	Ave
2412.0000	104.6	226	1.2	H	28.7	2.7	35.8	100.1	-	-	Ave
7236.0000	34.3	66	1.1	V	36.7	4.8	34.9	40.8	54	-13.2	Ave
4824.0000	38.4	165	1.1	V	32.5	3.8	34.8	40.0	54	-14.0	Ave
4824.0000	37.2	188	1.1	H	32.5	3.8	34.8	38.7	54	-15.3	Ave
7236.0000	32.0	154	1.0	H	36.7	4.8	34.9	38.6	54	-15.4	Ave
4824.0000	54.6	165	1.1	V	32.5	3.8	34.8	56.1	74	-17.9	Peak
7236.0000	48.4	66	1.1	V	36.7	4.8	34.9	54.9	74	-19.1	Peak
4824.0000	52.7	188	1.1	H	32.5	3.8	34.8	54.3	74	-19.7	Peak
7236.0000	45.3	154	1.0	H	36.7	4.8	34.9	51.9	74	-22.1	Peak

Mid channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2437.0000	117.4	63	1.1	V	28.7	2.7	35.8	112.9	-	-	Fund/Peak
2437.0000	116.1	227	1.2	H	28.7	2.7	35.8	111.6	-	-	Fund/Peak
2437.0000	107.0	63	1.1	V	28.7	2.7	35.8	102.6	-	-	Ave
2437.0000	104.8	227	1.2	H	28.7	2.7	35.8	100.4	-	-	Ave
7311.0000	39.8	40	1.4	H	36.7	4.8	35.1	46.2	54	-7.8	Ave
4874.0000	42.4	150	1.5	V	32.5	3.8	34.8	43.9	54	-10.1	Ave
4874.0000	39.5	167	1.4	H	32.5	3.8	34.8	41.0	54	-13.0	Ave
4874.0000	57.9	150	1.5	V	32.5	3.8	34.8	59.4	74	-14.6	Ave
4874.0000	54.8	167	1.4	H	32.5	3.8	34.8	56.3	74	-17.7	Ave
9748.0000	42.0	147	1.2	V	38.1	5.6	36.7	49.0	74	-25.0	Ave
9748.0000	31.0	174	1.3	H	38.1	5.6	36.7	38.1	54	-15.9	Peak
9748.0000	30.5	147	1.2	V	38.1	5.6	36.7	37.6	54	-16.4	Peak
7311.0000	46.7	137	1.1	V	36.7	4.8	35.1	53.0	74	-21.0	Peak
7311.0000	46.1	40	1.4	H	36.7	4.8	35.1	52.5	74	-21.5	Peak
7311.0000	45.4	137	1.1	V	36.7	4.8	35.1	51.8	54	-2.2	Peak
9748.0000	42.3	174	1.3	H	38.1	5.6	36.7	49.4	74	-24.6	Peak

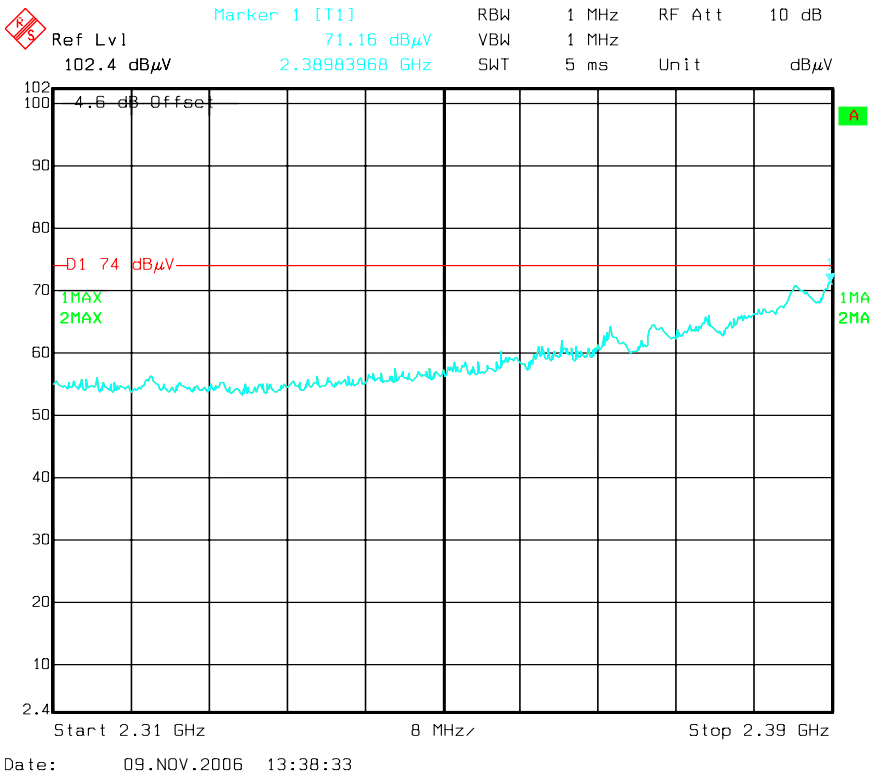
High channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2462.0000	118.3	83	1.2	V	28.7	2.7	35.8	113.8	-	-	Fund/Peak
2462.0000	112.2	227	1.0	H	28.7	2.7	35.8	107.7	-	-	Fund/Peak
2462.0000	109.3	83	1.2	V	28.7	2.7	35.8	104.9	-	-	Ave
2462.0000	102.1	227	1.0	H	28.7	2.7	35.8	97.6	-	-	Ave
7386.0000	37.9	169	1.2	V	36.7	4.8	35.1	44.2	54	-9.8	Ave
7386.0000	37.1	84	1.1	H	36.7	4.8	35.1	43.5	54	-10.5	Ave
4924.0000	39.2	161	1.6	V	32.5	3.9	35.0	40.6	54	-13.4	Ave
4924.0000	39.2	166	1.2	H	32.5	3.9	35.0	40.6	54	-13.4	Ave
7386.0000	49.7	169	1.2	V	36.7	4.8	35.1	56.1	74	-17.9	Peak
7386.0000	48.0	84	1.1	H	36.7	4.8	35.1	54.4	74	-19.6	Peak
4924.0000	52.1	161	1.6	V	32.5	3.9	35.0	53.5	74	-20.5	Peak
4924.0000	51.8	166	1.2	H	32.5	3.9	35.0	53.2	74	-20.8	Peak

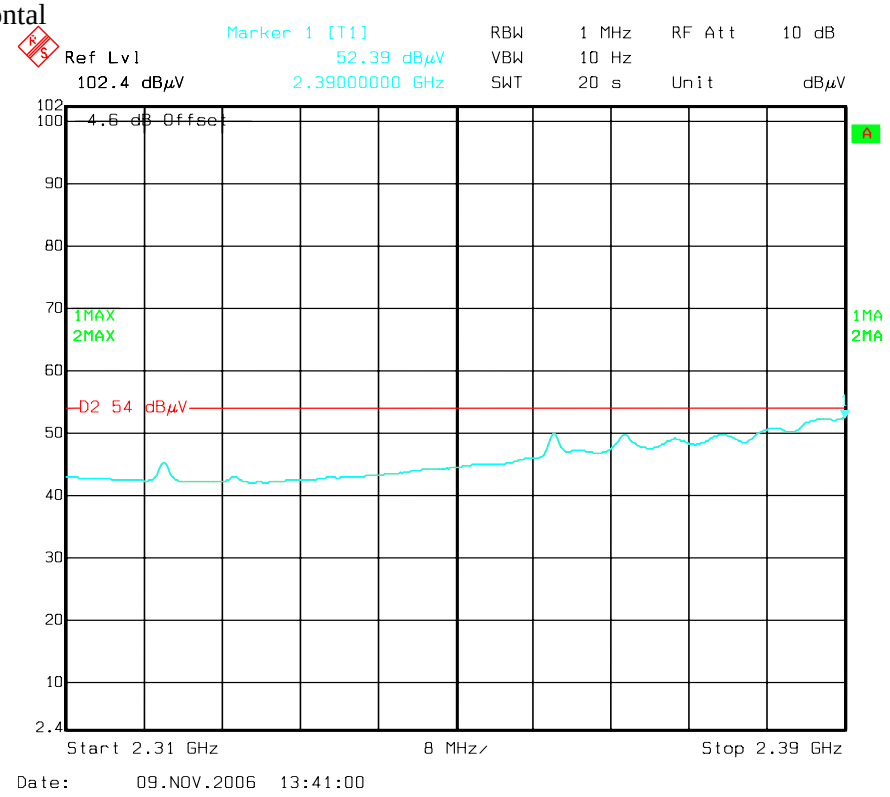
Restricted band edge

Low channel

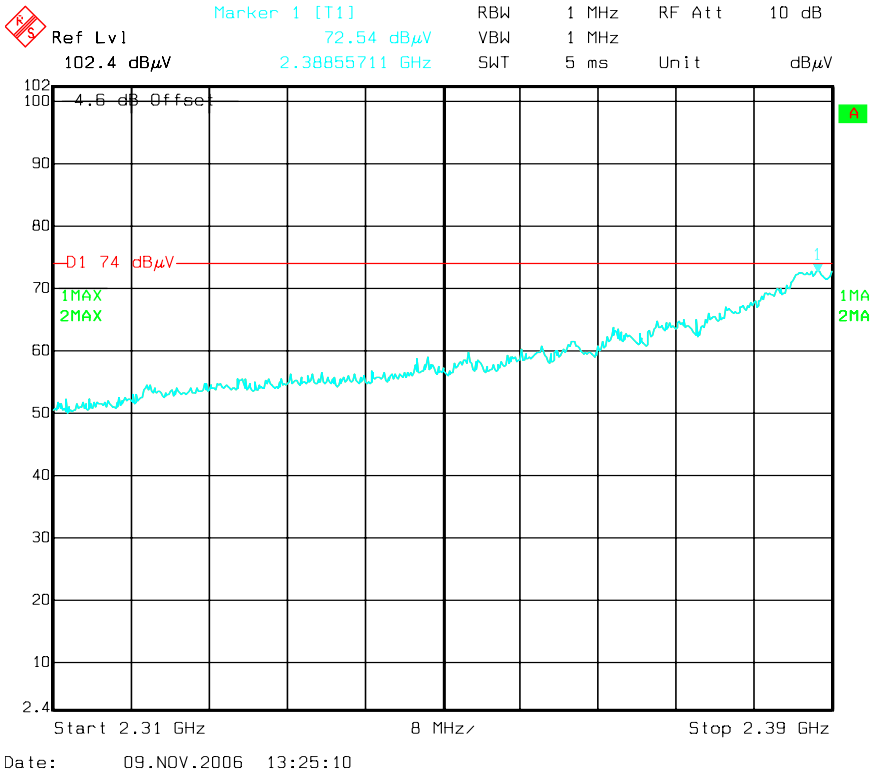
Peak, Horizontal



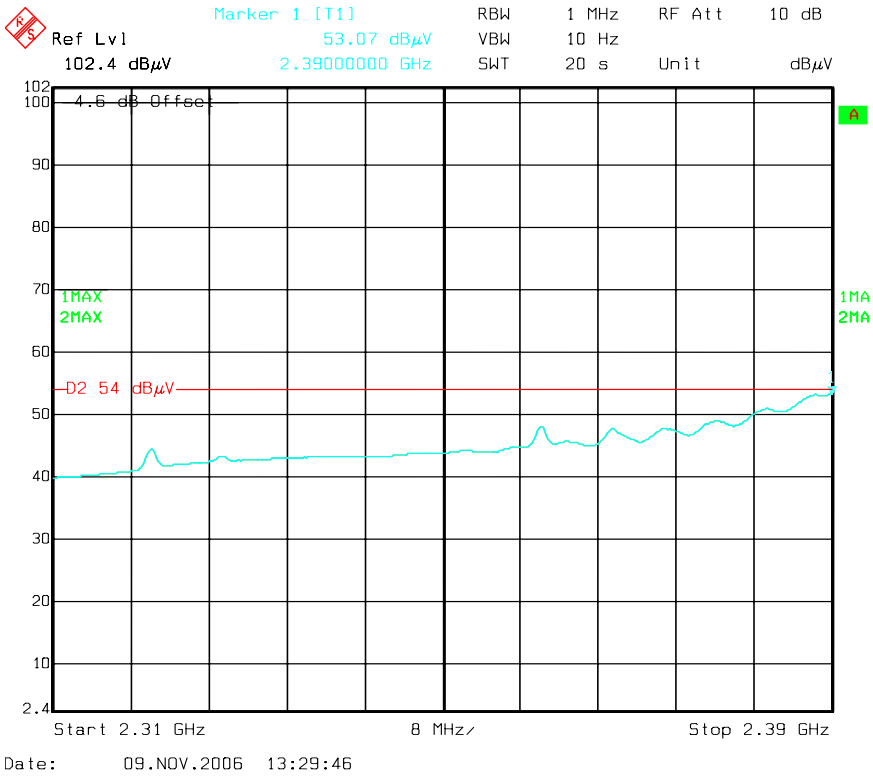
Average, Horizontal



Peak, Vertical

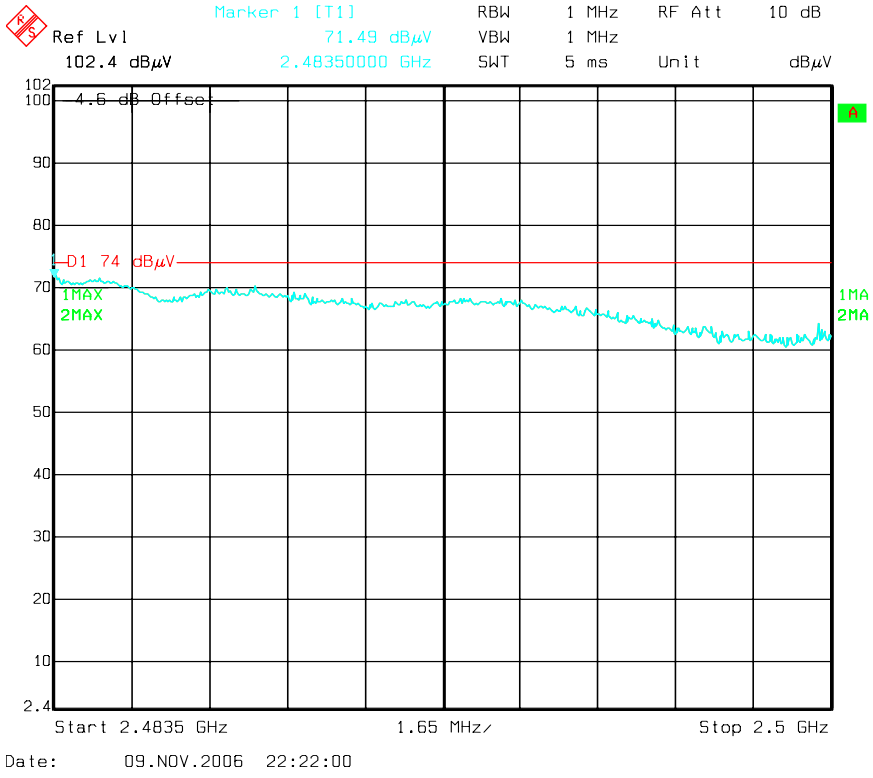


Average, Vertical

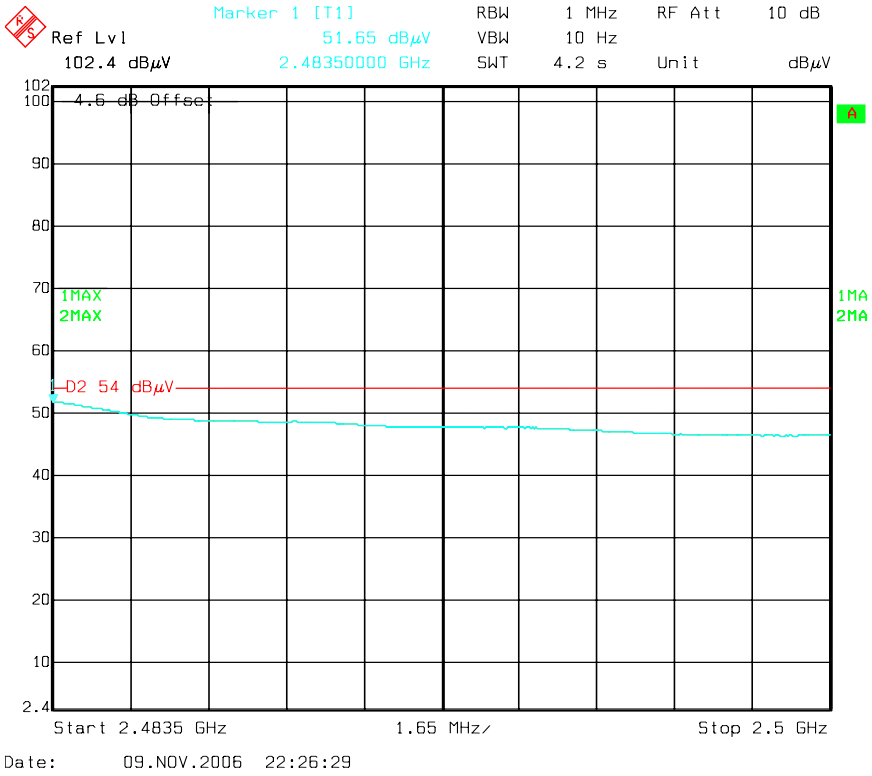


High channel

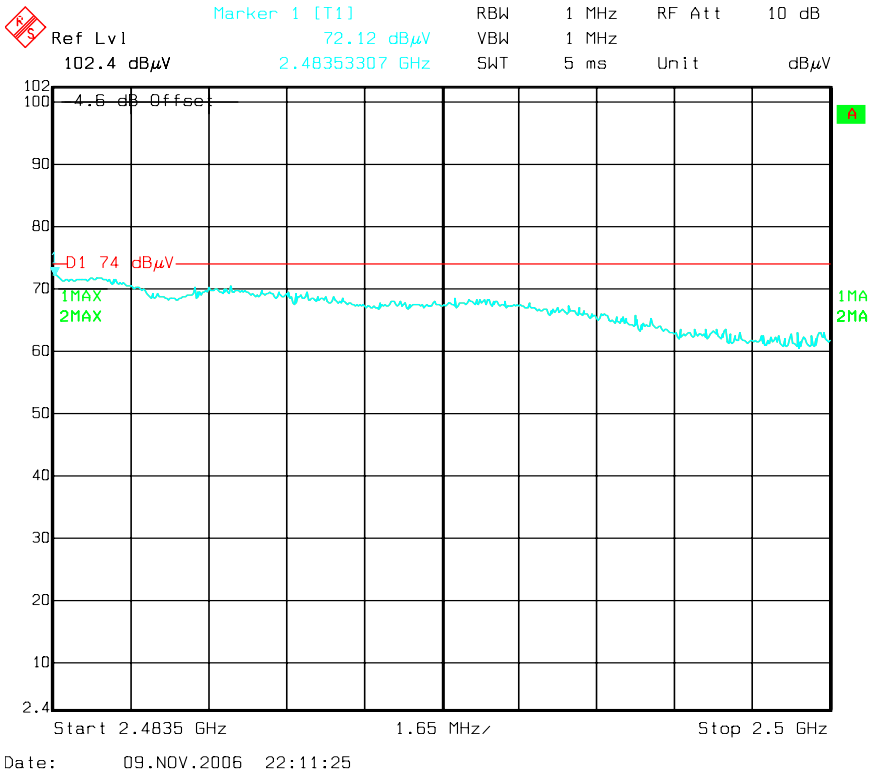
Peak, Horizontal



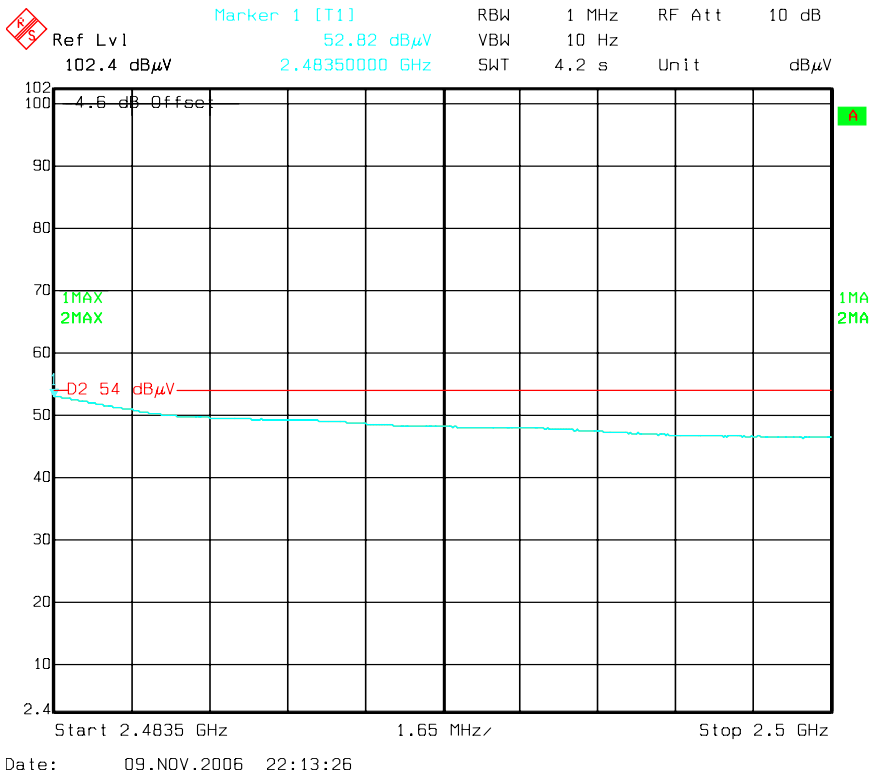
Average, Horizontal



Peak, Vertical



Average, Vertical



802.11g: 40MHz rate/channel

Low channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2422.0000	118.8	72	1.2	V	28.7	2.7	35.8	114.3	-	-	Fund/Peak
2422.0000	114.4	226	1.2	H	28.7	2.7	35.8	109.9	-	-	Fund/Peak
2422.0000	109.7	72	1.2	V	28.7	2.7	35.8	105.2	-	-	Ave
2422.0000	104.6	226	1.2	H	28.7	2.7	35.8	100.1	-	-	Ave
7266.0000	34.3	66	1.1	V	36.7	4.8	34.9	40.8	54	-13.2	Ave
4844.0000	38.4	165	1.1	V	32.5	3.8	34.8	40.0	54	-14.0	Ave
4844.0000	37.2	188	1.1	H	32.5	3.8	34.8	38.7	54	-15.3	Ave
7266.0000	32.0	154	1.0	H	36.7	4.8	34.9	38.6	54	-15.4	Ave
9688.0000	31.8	201	1.1	V	38.1	5.6	36.9	38.6	54	-15.4	Ave
9688.0000	31.3	198	1.1	H	38.1	5.6	36.9	38.1	54	-15.9	Ave
4844.0000	54.6	165	1.1	V	32.5	3.8	34.8	56.1	74	-17.9	Peak
7266.0000	48.4	66	1.1	V	36.7	4.8	34.9	54.9	74	-19.1	Peak
4844.0000	52.7	188	1.1	H	32.5	3.8	34.8	54.3	74	-19.7	Peak
7266.0000	45.3	154	1.0	H	36.7	4.8	34.9	51.9	74	-22.1	Peak
9688.0000	44.3	201	1.1	V	38.1	5.6	36.9	51.1	74	-22.9	Peak
9688.0000	43.4	198	1.1	H	38.1	5.6	36.9	50.2	74	-23.8	Peak

Mid channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2437.0000	117.4	63	1.1	V	28.7	2.7	35.8	112.9	-	-	Fund/Peak
2437.0000	116.1	227	1.2	H	28.7	2.7	35.8	111.6	-	-	Fund/Peak
2437.0000	107.0	63	1.1	V	28.7	2.7	35.8	102.6	-	-	Ave
2437.0000	104.8	227	1.2	H	28.7	2.7	35.8	100.4	-	-	Ave
7311.0000	45.4	137	1.1	V	36.7	4.8	35.1	51.8	54	-2.2	Ave
7311.0000	39.8	40	1.4	H	36.7	4.8	35.1	46.2	54	-7.8	Ave
4874.0000	42.4	150	1.5	V	32.5	3.8	34.8	43.9	54	-10.1	Ave
4874.0000	39.5	167	1.4	H	32.5	3.8	34.8	41.0	54	-13.0	Ave
9748.0000	31.0	174	1.3	H	38.1	5.6	36.7	38.1	54	-15.9	Ave
9748.0000	30.5	147	1.2	V	38.1	5.6	36.7	37.6	54	-16.4	Ave
4874.0000	57.9	150	1.5	V	32.5	3.8	34.8	59.4	74	-14.6	Peak
4874.0000	54.8	167	1.4	H	32.5	3.8	34.8	56.3	74	-17.7	Peak
7311.0000	46.7	137	1.1	V	36.7	4.8	35.1	53.0	74	-21.0	Peak
7311.0000	46.1	40	1.4	H	36.7	4.8	35.1	52.5	74	-21.5	Peak
9748.0000	42.3	174	1.3	H	38.1	5.6	36.7	49.4	74	-24.6	Peak
9748.0000	42.0	147	1.2	V	38.1	5.6	36.7	49.0	74	-25.0	Peak

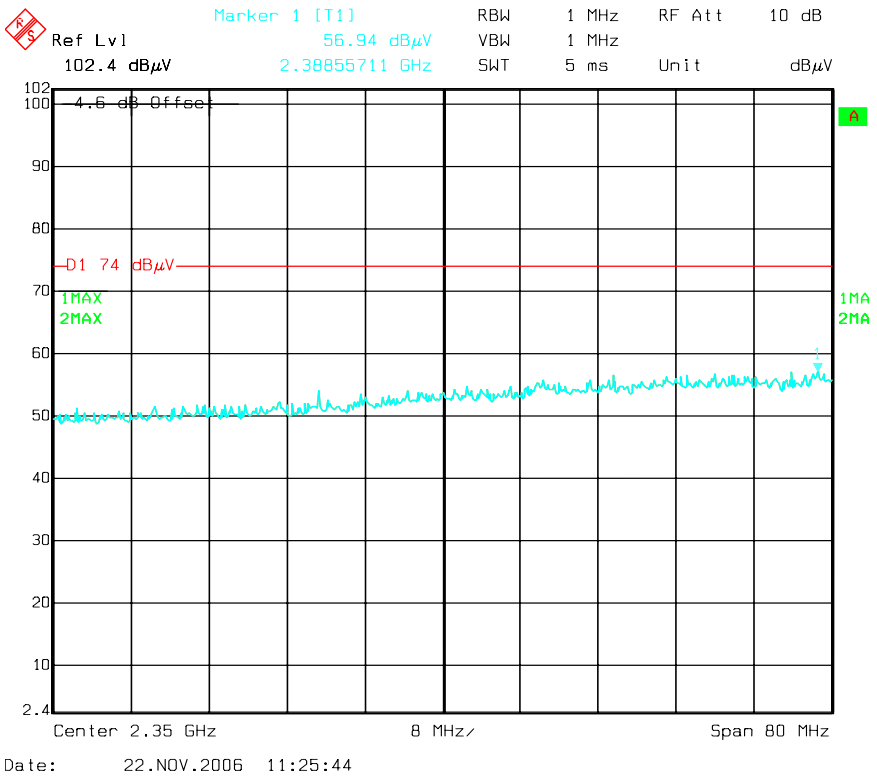
High channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2452.0000	118.3	83	1.2	V	28.7	2.7	35.8	113.8	-	-	Fund/Peak
2452.0000	112.2	227	1.0	H	28.7	2.7	35.8	107.7	-	-	Fund/Peak
2452.0000	109.3	83	1.2	V	28.7	2.7	35.8	104.9	-	-	Ave
2452.0000	102.1	227	1.0	H	28.7	2.7	35.8	97.6	-	-	Ave
7356.0000	37.9	169	1.2	V	36.7	4.8	35.1	44.2	54	-9.8	Ave
7356.0000	37.1	84	1.1	H	36.7	4.8	35.1	43.5	54	-10.5	Ave
4904.0000	39.2	161	1.6	V	32.5	3.9	35.0	40.6	54	-13.4	Ave
4904.0000	39.2	166	1.2	H	32.5	3.9	35.0	40.6	54	-13.4	Ave
9808.0000	30.3	152	1.3	H	38.1	5.6	37.0	37.0	54	-17.0	Ave
9808.0000	30.0	138	1.5	V	38.1	5.6	37.0	36.8	54	-17.2	Ave
7356.0000	49.7	169	1.2	V	36.7	4.8	35.1	56.1	74	-17.9	Peak
7356.0000	48.0	84	1.1	H	36.7	4.8	35.1	54.4	74	-19.6	Peak
4904.0000	52.1	161	1.6	V	32.5	3.9	35.0	53.5	74	-20.5	Peak
4904.0000	51.8	166	1.2	H	32.5	3.9	35.0	53.2	74	-20.8	Peak
9808.0000	43.1	138	1.5	V	38.1	5.6	37.0	49.8	74	-24.2	Peak
9808.0000	42.7	152	1.3	H	38.1	5.6	37.0	49.5	74	-24.5	Peak

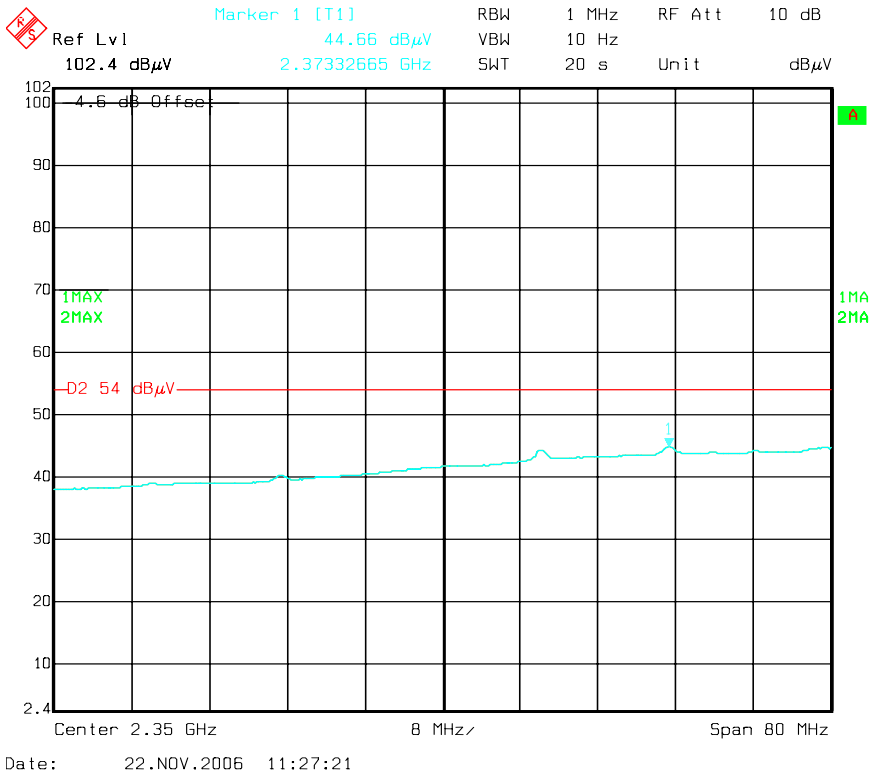
Restricted band edge

Low channel

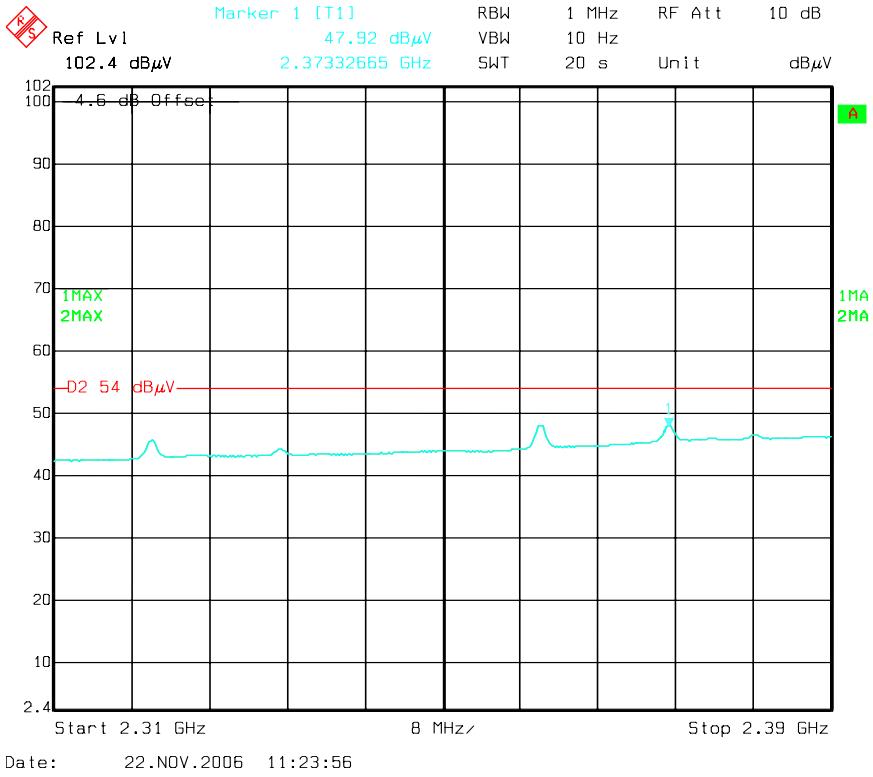
Peak, Horizontal



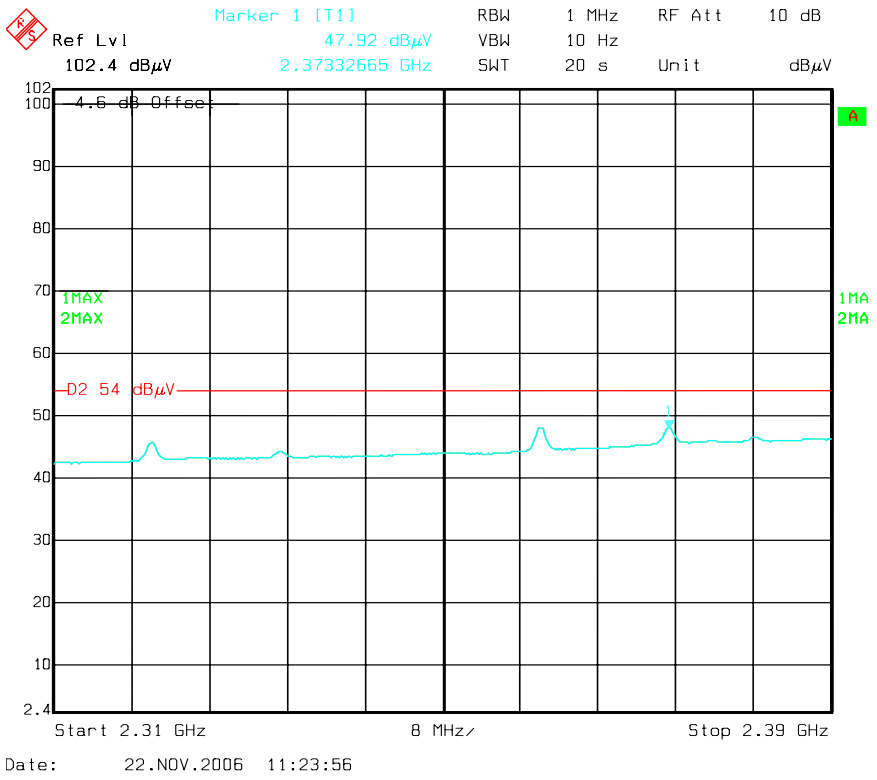
Average, Horizontal



Peak, Vertical

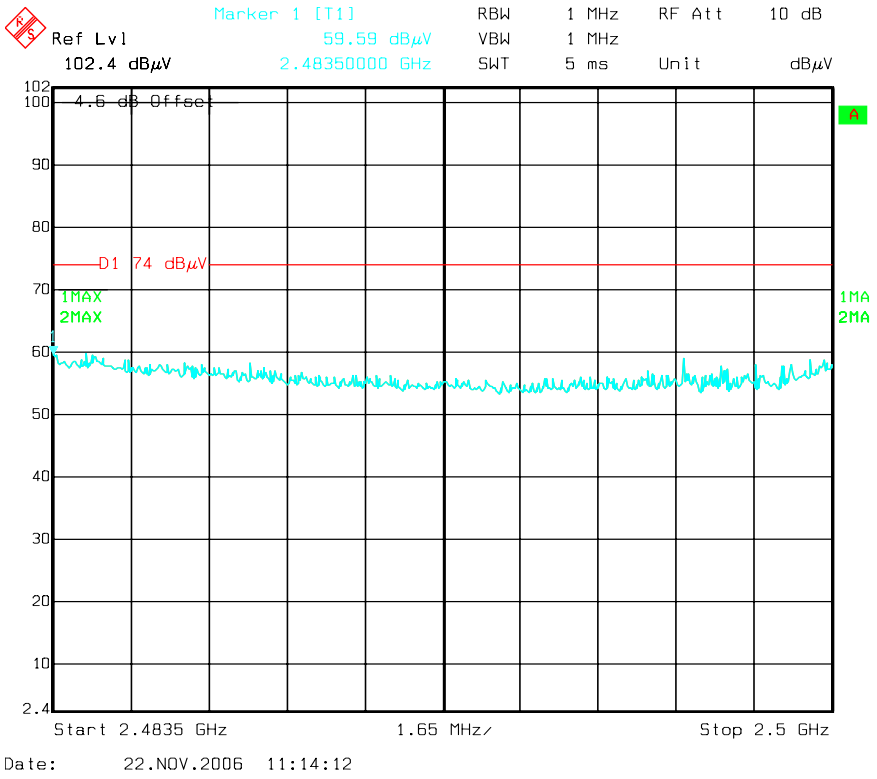


Average, Vertical

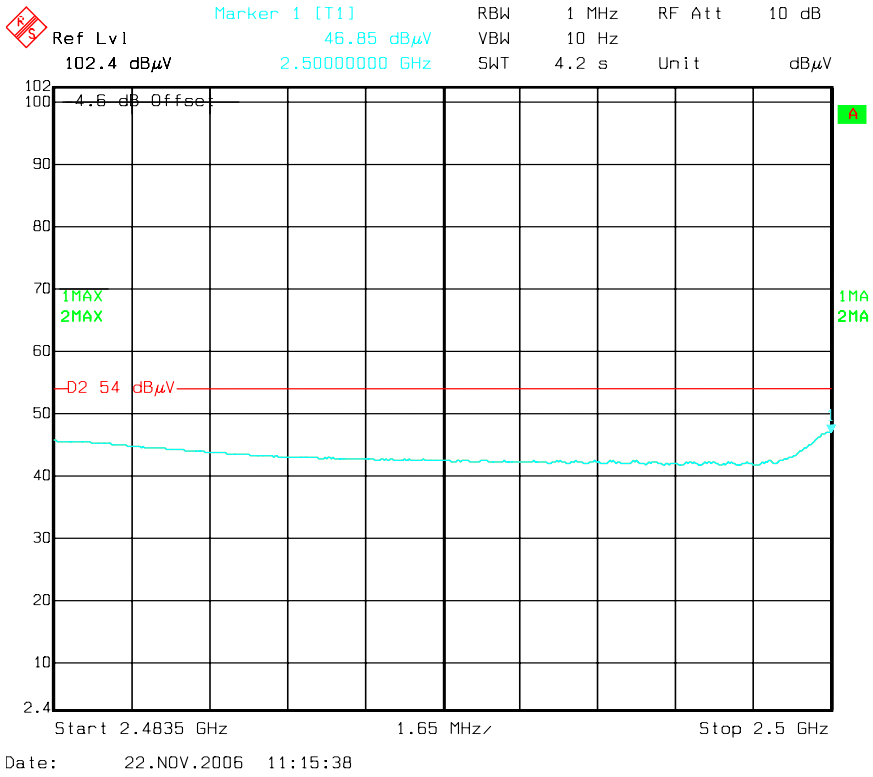


High channel

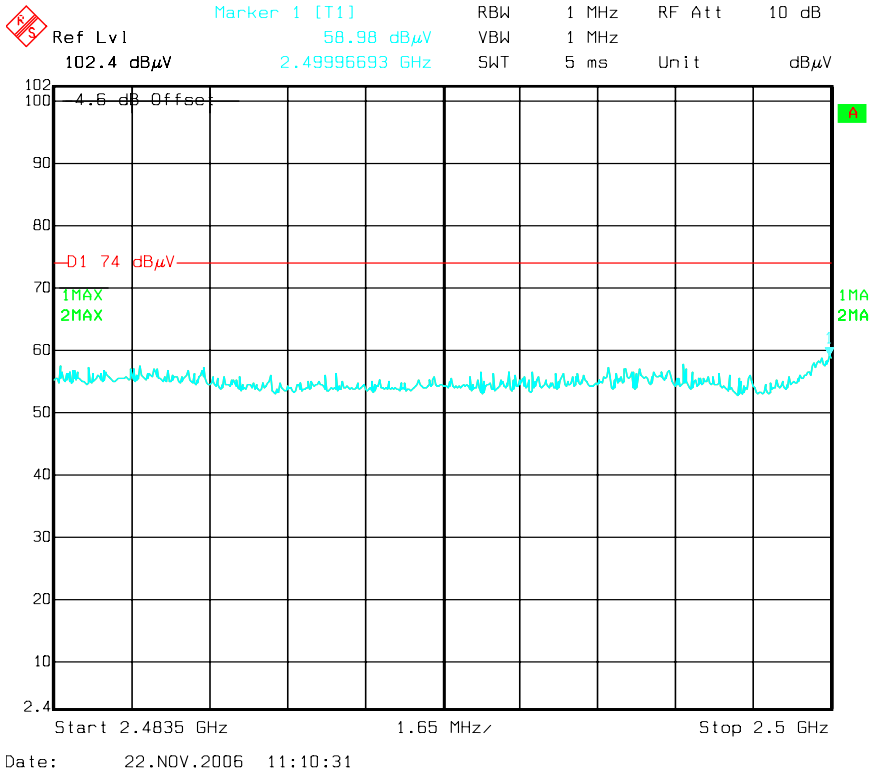
Peak, Horizontal



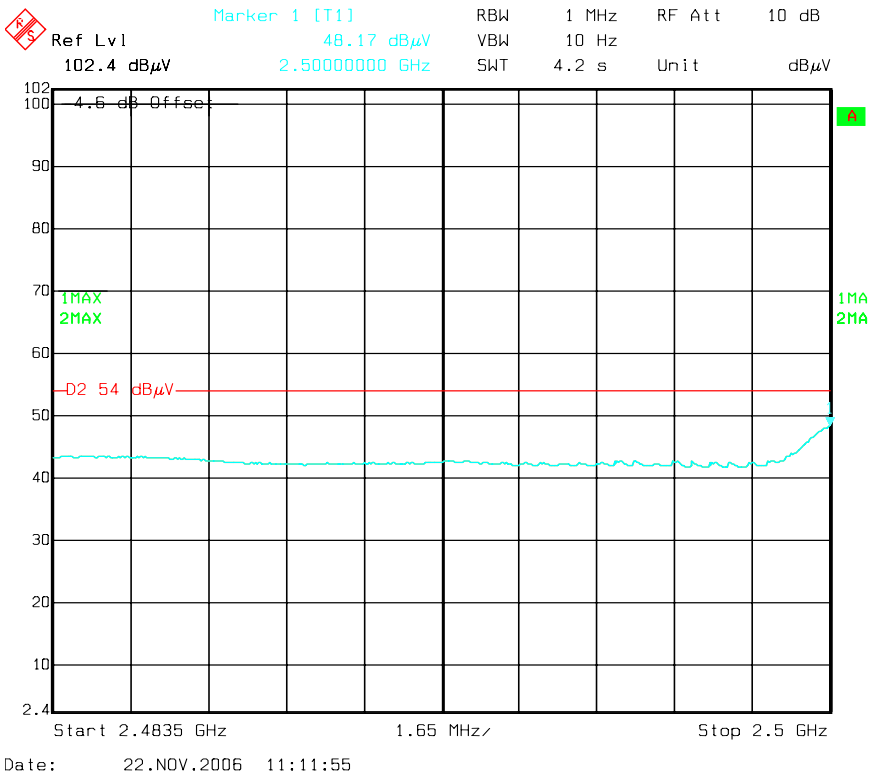
Average, Horizontal



Peak, Vertical



Average, Vertical



802.11n: 20MHz rate/channel

Low channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2412.0000	107.0	80	1.5	V	28.7	2.7	35.8	102.5	-	-	Fund/Peak
2412.0000	111.7	275	1.5	H	28.7	2.7	35.8	107.2	-	-	Fund/Peak
2412.0000	96.3	80	1.5	V	28.7	2.7	35.8	91.8	-	-	Ave
2412.0000	101.0	275	1.5	H	28.7	2.7	35.8	96.5	-	-	Ave
7236.0000	37.3	110	1.5	V	36.7	4.8	34.9	43.9	54	-10.1	Ave
7236.0000	34.6	40	1.6	H	36.7	4.8	34.9	41.2	54	-12.8	Ave
4824.0000	37.3	200	1.5	H	32.5	3.8	34.8	38.8	54	-15.2	Ave
4824.0000	36.2	220	1.5	V	32.5	3.8	34.8	37.7	54	-16.3	Ave
7236.0000	49.2	110	1.5	V	36.7	4.8	34.9	55.8	74	-18.2	Peak
7236.0000	48.8	40	1.6	H	36.7	4.8	34.9	55.4	74	-18.6	Peak
4824.0000	51.9	200	1.5	H	32.5	3.8	34.8	53.4	74	-20.6	Peak
4824.0000	50.3	220	1.5	V	32.5	3.8	34.8	51.8	74	-22.2	Peak

Mid channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2437.0000	111.1	90	1.5	V	28.7	2.7	35.8	106.6	-	-	Fund/Peak
2437.0000	113.2	250	1.5	H	28.7	2.7	35.8	108.7	-	-	Fund/Peak
2437.0000	100.2	90	1.5	V	28.7	2.7	35.8	95.7	-	-	Ave
2437.0000	101.5	250	1.5	H	28.7	2.7	35.8	97.0	-	-	Ave
7311.0000	45.2	110	1.4	V	36.7	4.8	35.1	51.6	54	-2.4	Ave
4874.0000	48.7	20	1.5	H	32.5	3.8	34.8	50.2	54	-3.8	Ave
7311.0000	40.5	210	1.6	H	36.7	4.8	35.1	46.9	54	-7.1	Ave
4874.0000	44.8	170	1.5	V	32.5	3.8	34.8	46.3	54	-7.7	Ave
9748.0000	34.6	210	1.5	H	38.1	5.6	36.7	41.7	54	-12.3	Ave
9748.0000	34.2	220	1.5	V	38.1	5.6	36.7	41.3	54	-12.7	Ave
4874.0000	60.7	20	1.5	H	32.5	3.8	34.8	62.2	74	-11.8	Peak
7311.0000	57.5	110	1.4	V	36.7	4.8	35.1	63.9	74	-10.1	Peak
4874.0000	58.5	170	1.5	V	32.5	3.8	34.8	60.0	74	-14.0	Peak
7311.0000	50.8	210	1.6	H	36.7	4.8	35.1	57.2	74	-16.8	Peak
9748.0000	47.9	220	1.5	V	38.1	5.6	36.7	55.0	74	-19.0	Peak
9748.0000	47.8	210	1.5	H	38.1	5.6	36.7	54.9	74	-19.1	Peak

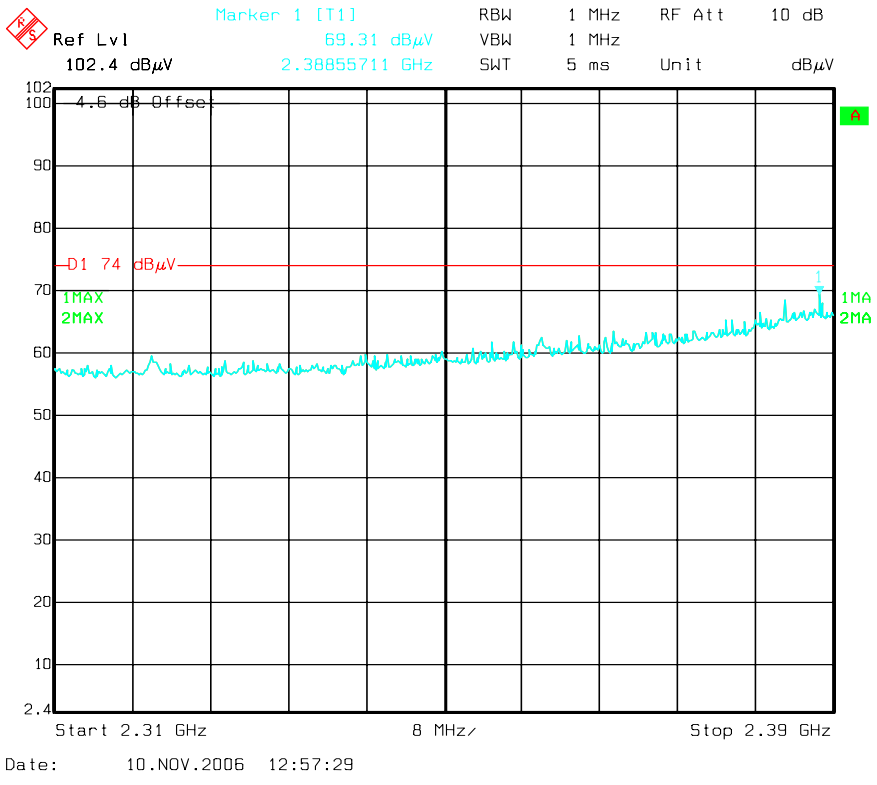
High channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2462.0000	106.1	70	1.5	V	28.7	2.7	35.8	101.6	-	-	Fund/Peak
2462.0000	109.8	280	1.5	H	28.7	2.7	35.8	105.3	-	-	Fund/Peak
2462.0000	95.3	70	1.5	V	28.7	2.7	35.8	90.8	-	-	Ave
2462.0000	99.3	280	1.5	H	28.7	2.7	35.8	94.8	-	-	Ave
7386.0000	35.2	60	1.7	V	36.7	4.8	35.1	41.6	54	-12.4	Ave
7386.0000	33.5	210	1.6	H	36.7	4.8	35.1	39.9	54	-14.1	Ave
4924.0000	36.9	200	1.6	V	32.5	3.9	35.0	38.3	54	-15.7	Ave
4924.0000	36.8	188	1.6	H	32.5	3.9	35.0	38.1	54	-15.9	Ave
7386.0000	50.0	60	1.7	V	36.7	4.8	35.1	56.4	74	-17.6	Peak
7386.0000	47.2	210	1.6	H	36.7	4.8	35.1	53.6	74	-20.4	Peak
4924.0000	50.7	200	1.6	V	32.5	3.9	35.0	52.1	74	-21.9	Peak
4924.0000	51.1	188	1.6	H	32.5	3.9	35.0	52.5	74	-21.5	Peak

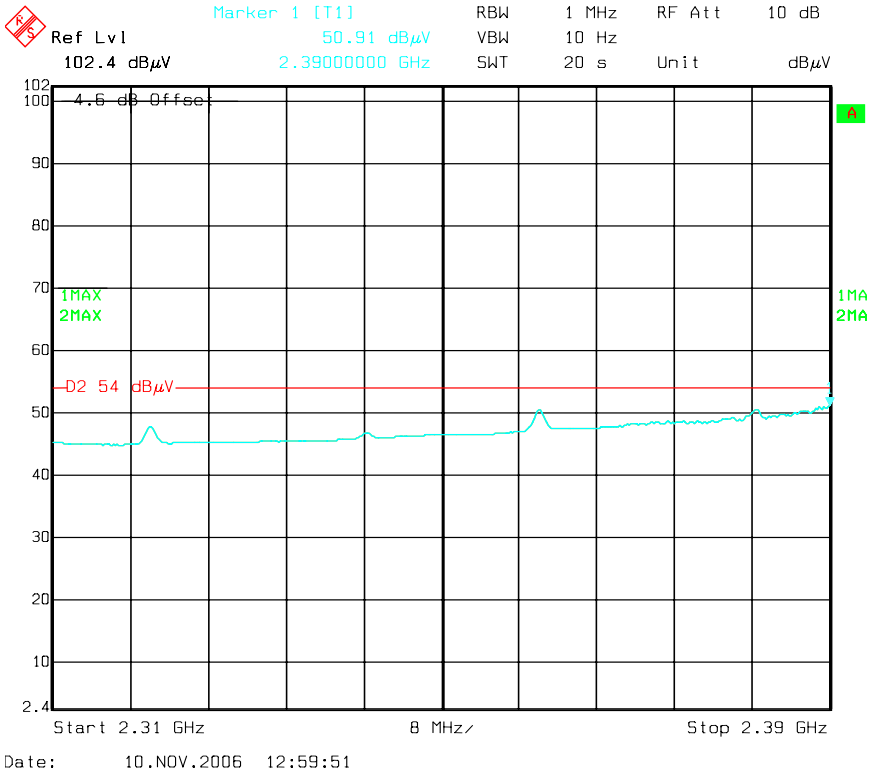
Restricted band edge

Low channel

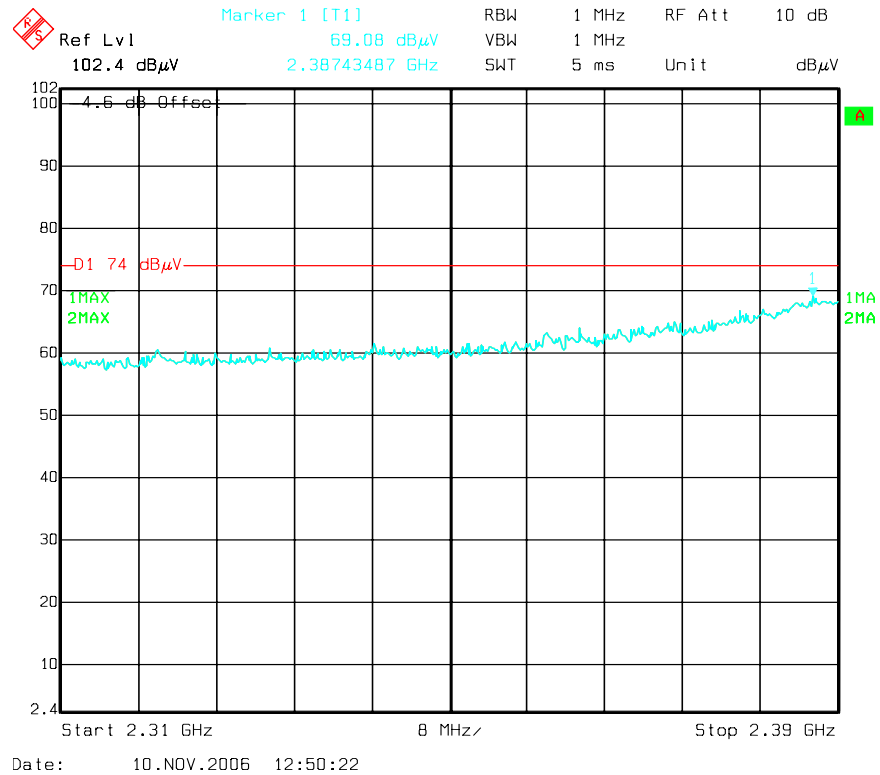
Peak, Horizontal



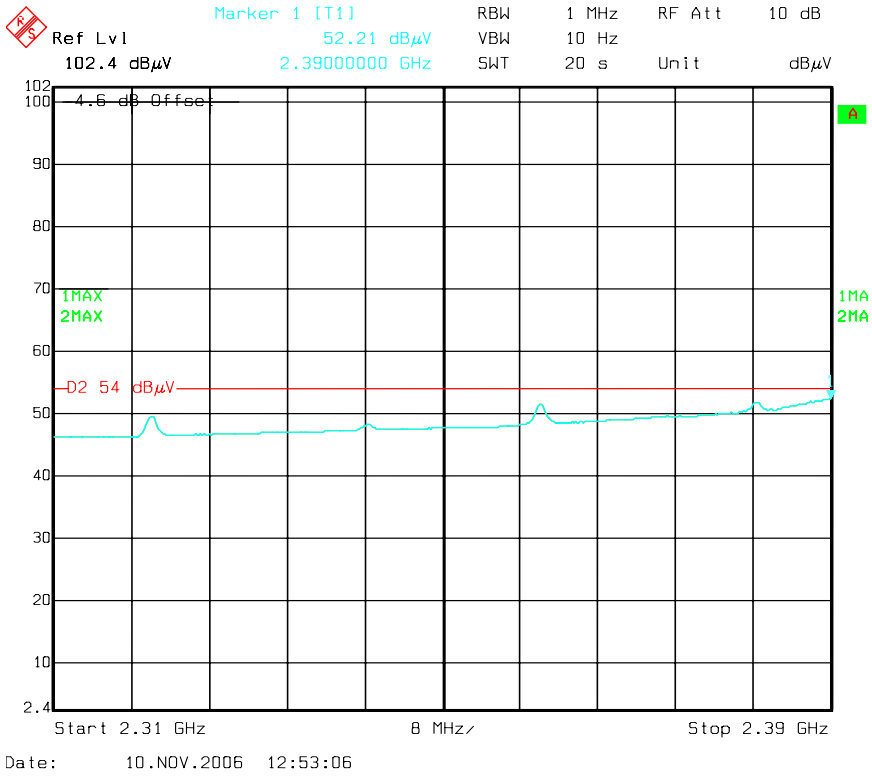
Average, Horizontal



Peak, Vertical

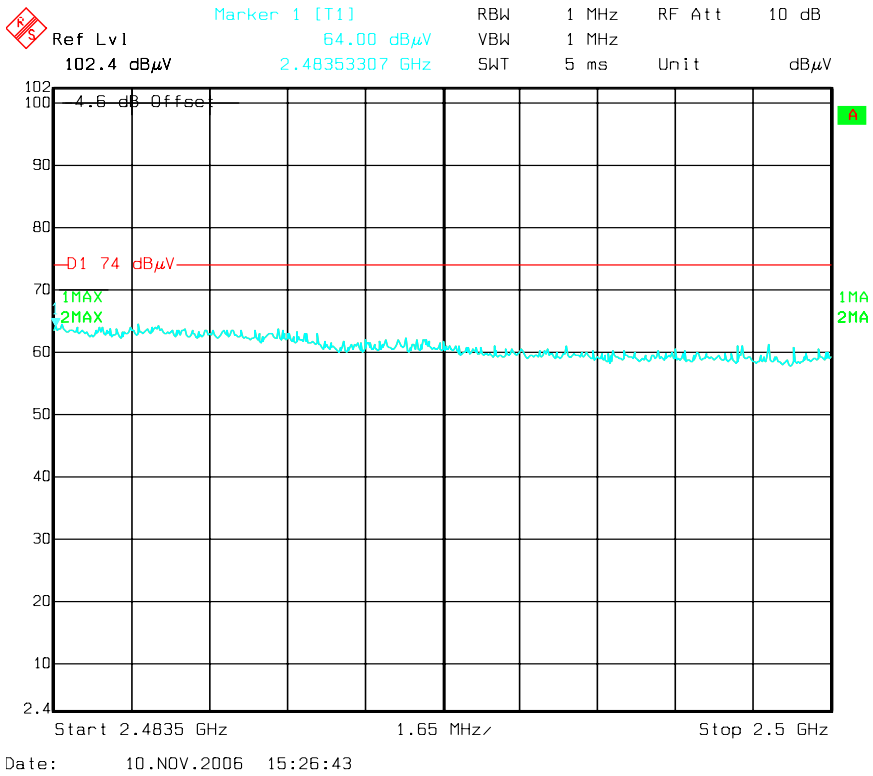


Average, Vertical

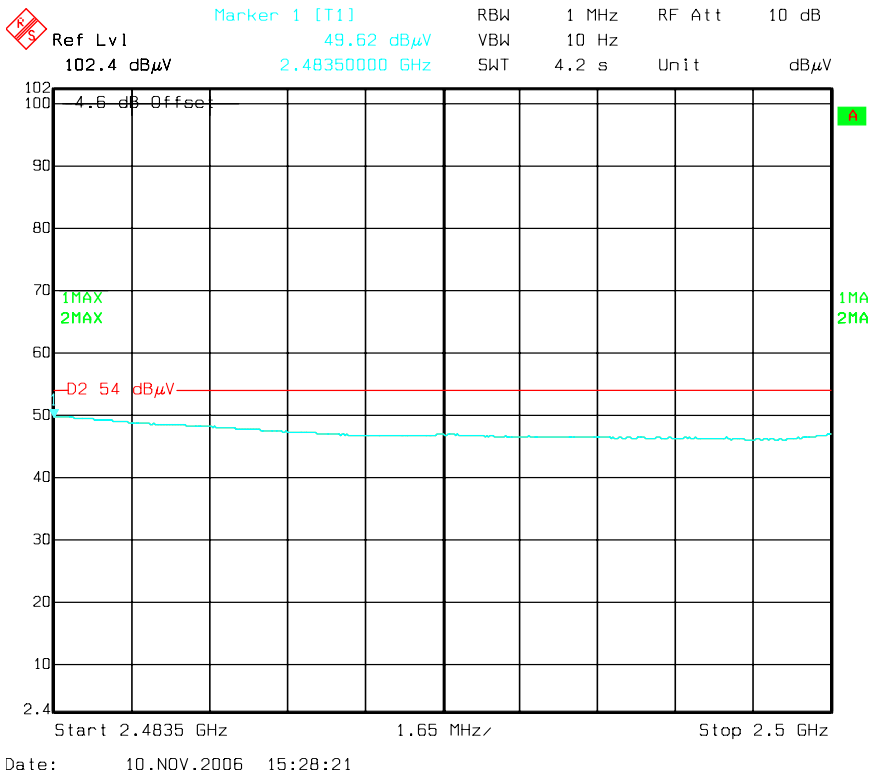


High channel

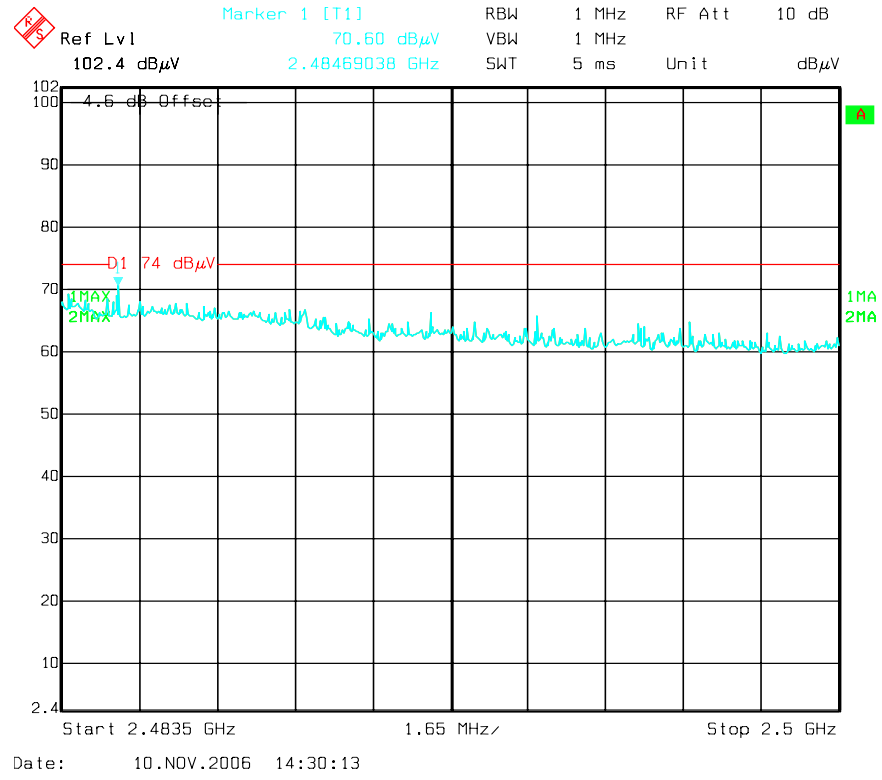
Peak, Horizontal



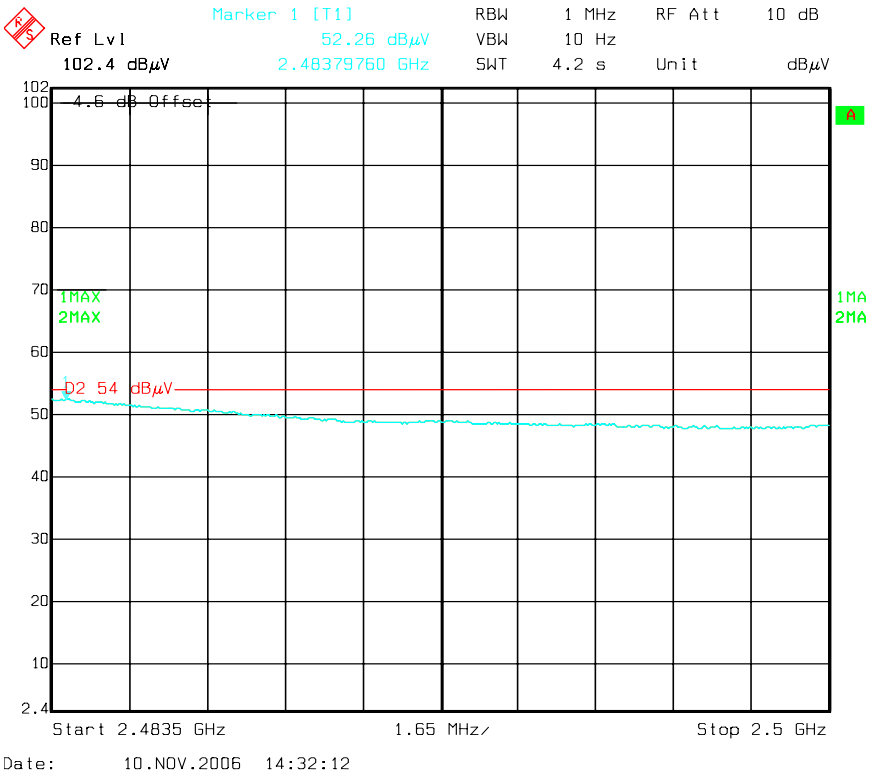
Average, Horizontal



Peak, Vertical



Average, Vertical



802.11n: 40MHz rate/channel

Low channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2422.0000	106.7	268	1.1	V	28.7	2.7	35.8	102.2	-	-	Fund/Peak
2422.0000	105.7	372	1.1	H	28.7	2.7	35.8	101.2	-	-	Fund/Peak
2422.0000	96.8	268	1.1	V	28.7	2.7	35.8	92.3	-	-	Ave
2422.0000	96.5	372	1.1	H	28.7	2.7	35.8	92.0	-	-	Ave
4844.0000	27.1	134	1.5	V	32.5	3.8	34.8	28.6	54	-25.4	Ave
4844.0000	26.1	201	1.4	H	32.5	3.8	34.8	27.7	54	-26.3	Ave
4844.0000	40.7	134	1.5	V	32.5	3.8	34.8	42.3	74	-31.7	Peak
4844.0000	39.4	201	1.4	H	32.5	3.8	34.8	40.9	74	-33.1	Peak

Mid channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2437.0000	109.4	68	1.0	V	28.7	2.7	35.8	104.9	-	-	Fund/Peak
2437.0000	108.0	216	1.0	H	28.7	2.7	35.8	103.5	-	-	Fund/Peak
2437.0000	99.0	68	1.0	V	28.7	2.7	35.8	94.5	-	-	Ave
2437.0000	97.7	216	1.0	H	28.7	2.7	35.8	93.2	-	-	Ave
4874.0000	51.2	20	1.5	H	32.5	3.8	34.8	52.7	54	-1.3	Ave
7311.0000	46.3	55	1.2	H	36.7	4.8	35.1	52.7	54	-1.3	Ave
4874.0000	50.7	183	1.2	V	32.5	3.8	34.8	52.2	54	-1.8	Ave
7311.0000	45.2	314	1.4	V	36.7	4.8	35.1	51.6	54	-2.4	Ave
4874.0000	64.6	147	1.2	H	32.5	3.8	34.8	66.1	74	-7.9	Peak
7311.0000	58.4	55	1.2	H	36.7	4.8	35.1	64.8	74	-9.2	Peak
4874.0000	63.2	183	1.2	V	32.5	3.8	34.8	64.7	74	-9.3	Peak
7311.0000	57.5	314	1.4	V	36.7	4.8	35.1	63.9	74	-10.1	Peak

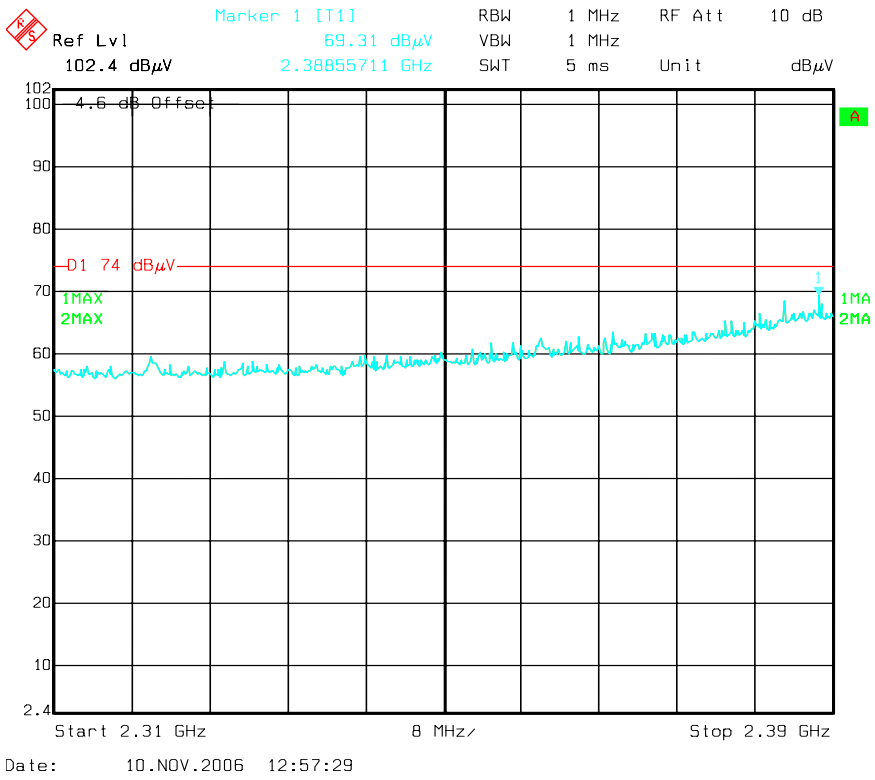
High channel

Frequency MHz	Reading dBuV/m	Direction Degree	Height Meter	Polar. H / V	Antenna Factor dB/m	Cable loss dB	Amplifier dB	Correction Factor dBuV/m	Limit dBuV/m	Margin dB	Comments
2452.0000	107.0	336	1.2	V	28.7	2.7	35.8	102.5	-	-	Fund/Peak
2452.0000	103.8	311	1.5	H	28.7	2.7	35.8	99.3	-	-	Fund/Peak
2452.0000	96.2	336	1.2	V	28.7	2.7	35.8	91.8	-	-	Ave
2452.0000	95.3	311	1.5	H	28.7	2.7	35.8	90.9	-	-	Ave
4904.0000	31.2	370	1.2	H	32.5	3.9	35.0	32.6	54	-21.4	Ave
4904.0000	30.4	280	1.2	V	32.5	3.9	35.0	31.8	54	-22.2	Ave
4904.0000	43.7	280	1.2	V	32.5	3.9	35.0	45.0	74	-29.0	Peak
4904.0000	43.3	370	1.2	H	32.5	3.9	35.0	44.7	74	-29.3	Peak

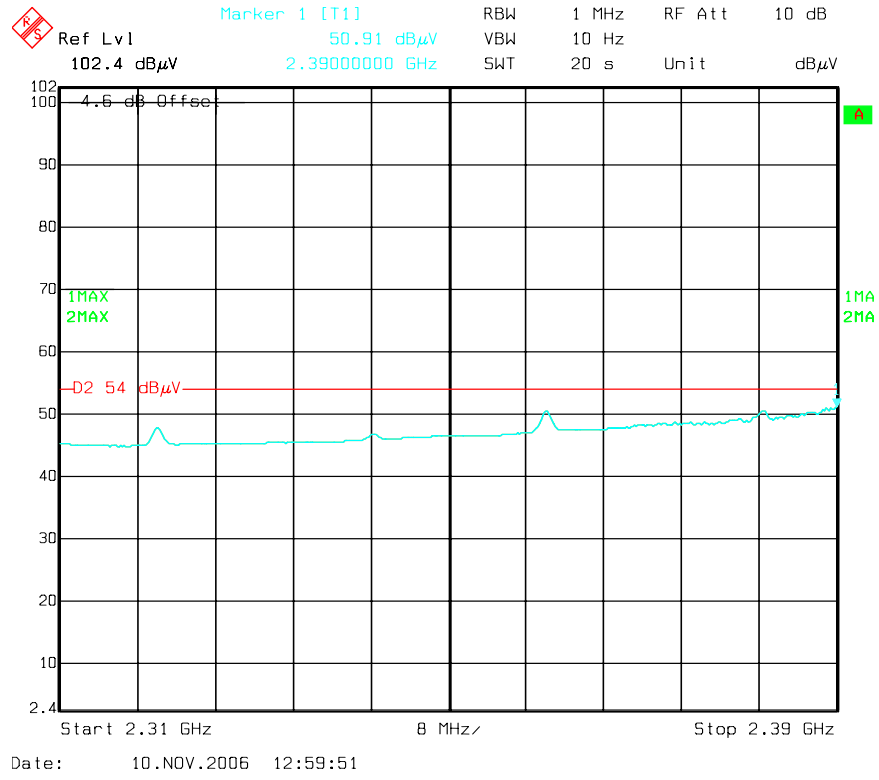
Restricted band edge

Low channel

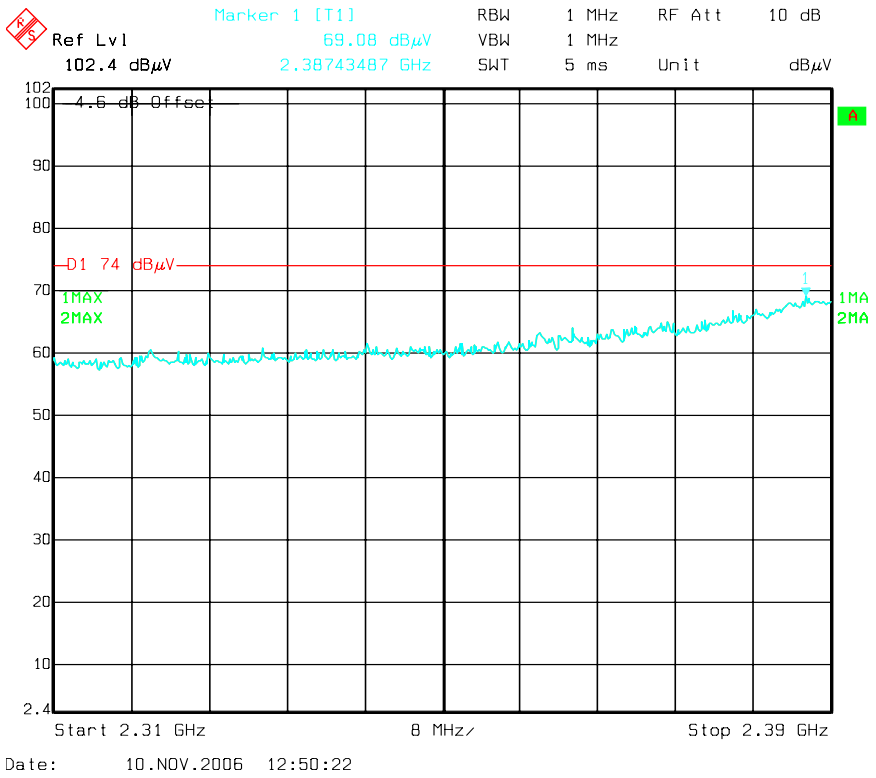
Peak, Horizontal



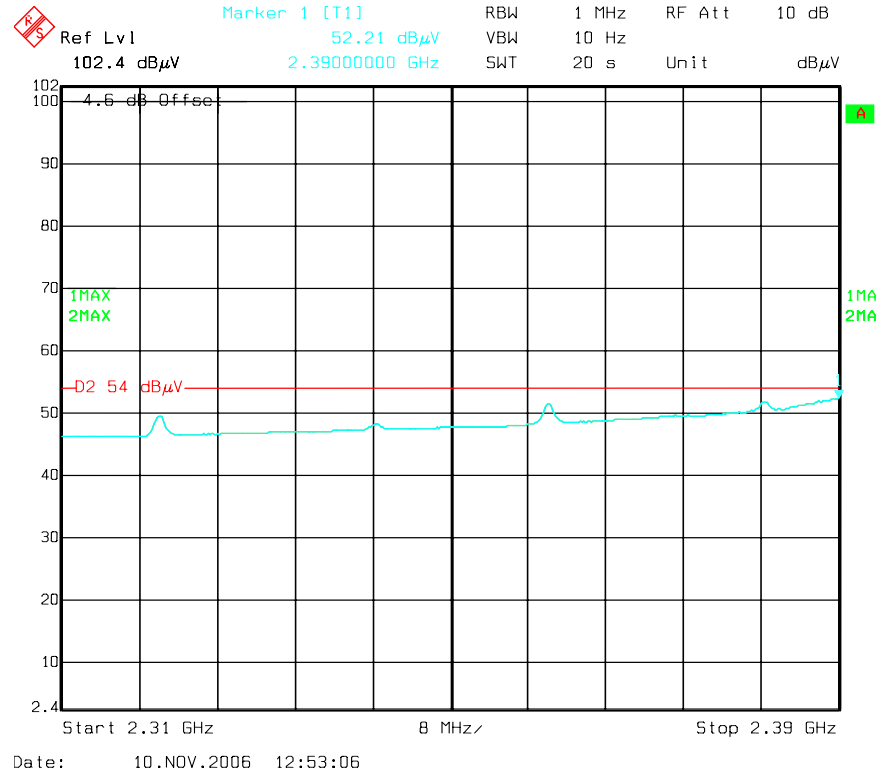
Average, Horizontal



Peak, Vertical

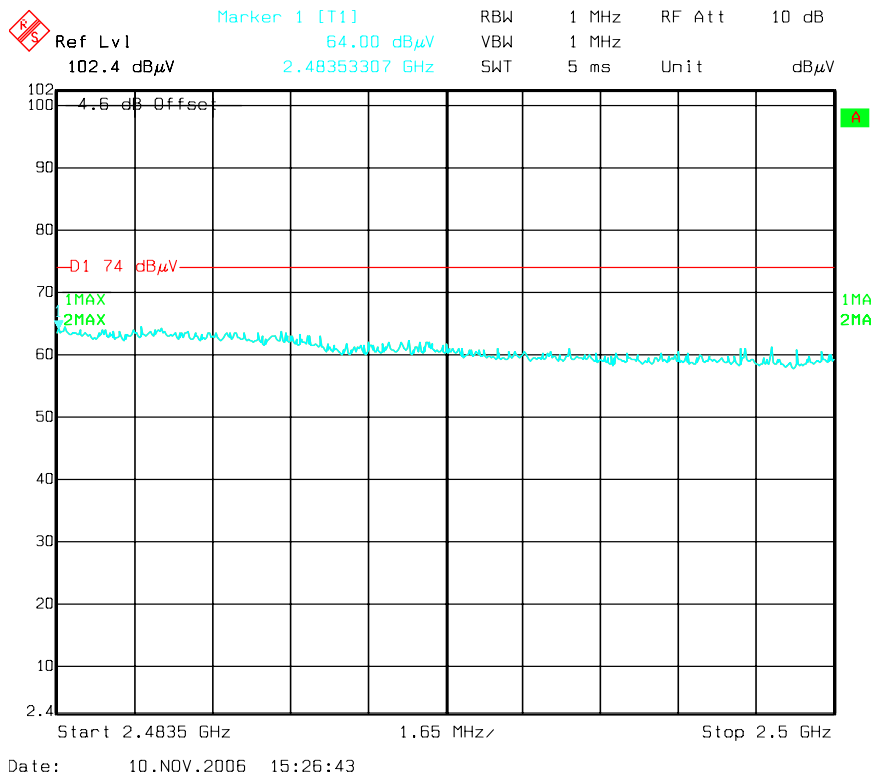


Average, Vertical

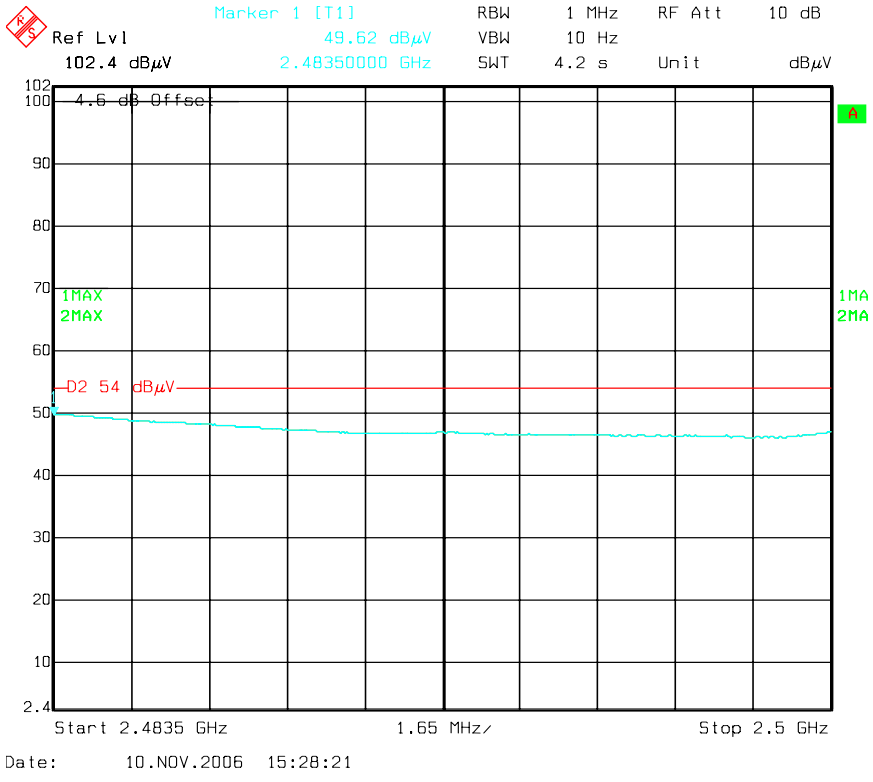


High channel

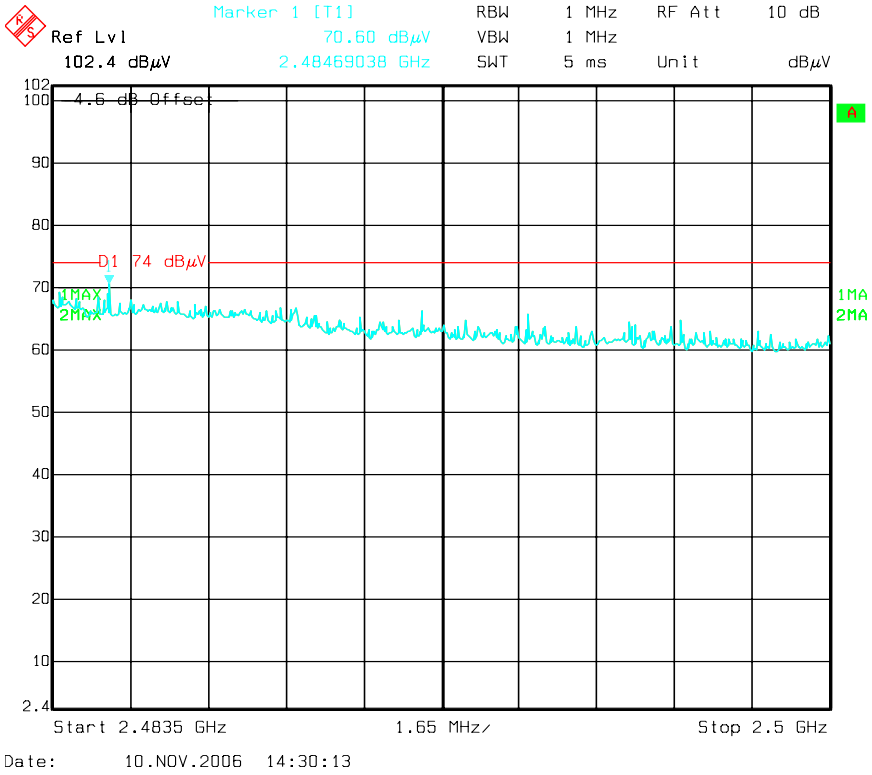
Peak, Horizontal



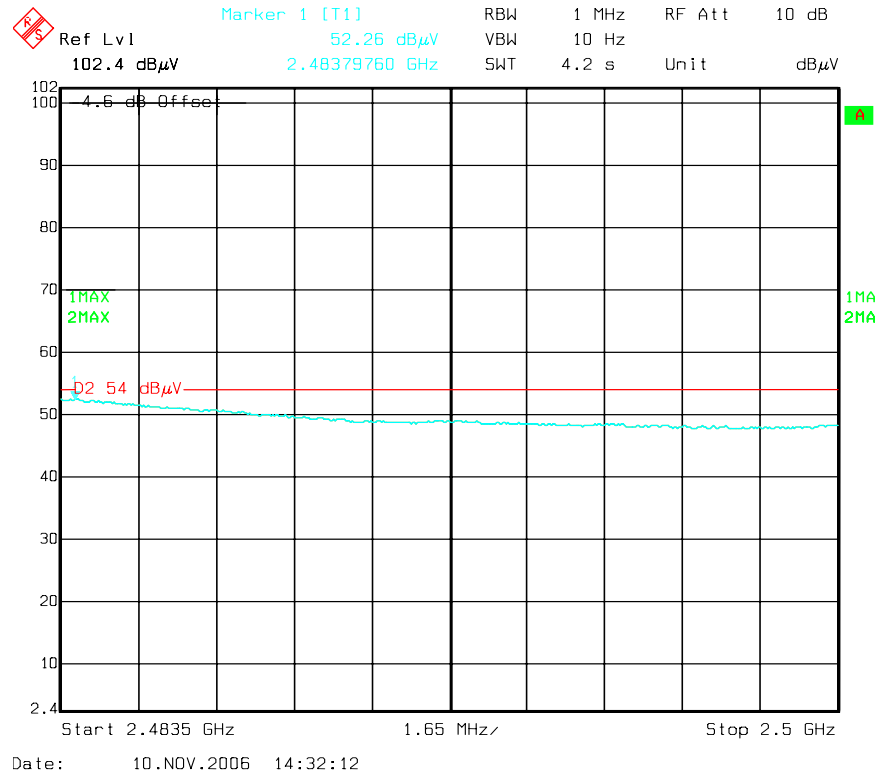
Average, Horizontal



Peak, Vertical



Average, Vertical



§15.247(a) (2) – 6 dB & 99% BANDWIDTH

Applicable Standard

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

Measurement Procedure

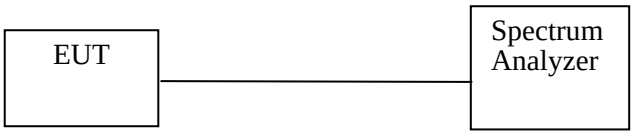
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emissions bandwidth. (6 dB bandwidth for DTS)
4. Repeat above procedures until all frequencies measured were complete.

Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

** The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

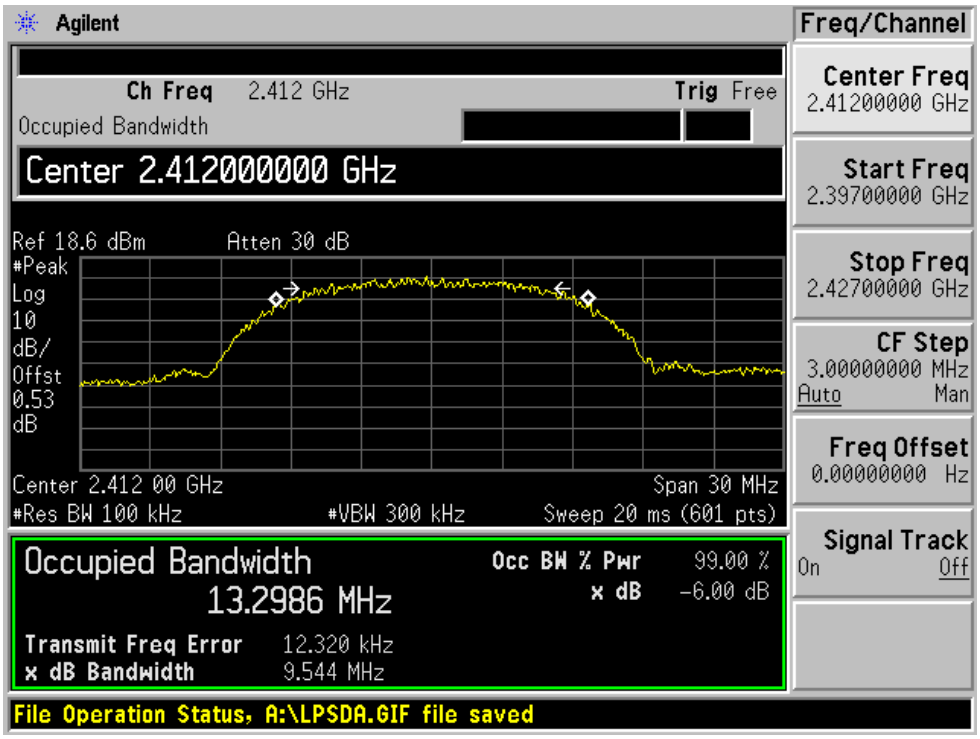
Test Results: Please refer to the plots.

Channel	Frequency (MHz)	6 dB BW Chain A (kHz)	6 dB BW Chain B (kHz)	Minimum Limit (kHz)	Result
802.11 b 20MHz					
Low	2412	9544	8917	500	Pass
Middle	2437	9547	8916	500	Pass
High	2462	9546	9545	500	Pass
802.11 b 40MHz					
Low	2422	9934	9936	500	Pass
Middle	2437	2956	2956	500	Pass
High	2452	9626	9624	500	Pass
802.11 g 20 MHz					
Low	2412	16551	16336	500	Pass
Middle	2437	16564	16416	500	Pass
High	2462	16538	16351	500	Pass
802.11g 40MHz					
Low	2422	36594	36600	500	Pass
Middle	2437	36607	36598	500	Pass
High	2452	36618	36615	500	Pass
802.11 n HT20					
Low	2412	16589	16588	500	Pass
Middle	2437	16563	15445	500	Pass
High	2462	17791	17763	500	Pass
802.11 n HT40					
Low	2422	36564	36610	500	Pass
Middle	2437	36561	36564	500	Pass
High	2452	36580	36602	500	Pass

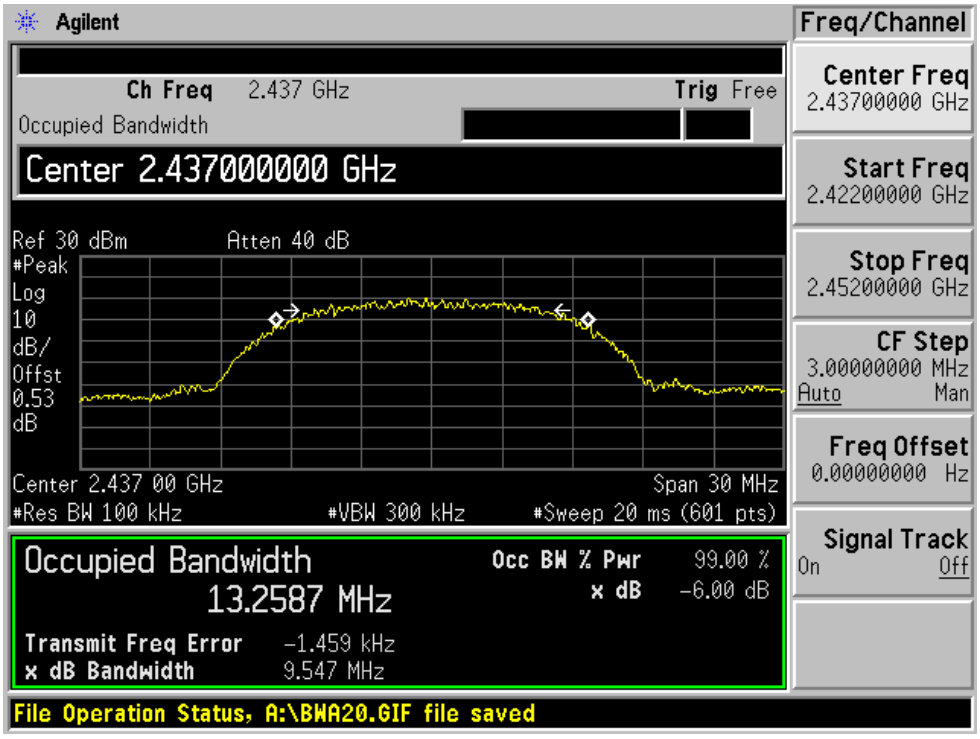
Channel	Frequency (MHz)	99% BW Chain A (MHz)	99% BW Chain B (MHz)
802.11 b 20MHz			
Low	2412	13.2986	13.3031
Middle	2437	13.2587	13.2880
High	2462	13.2505	13.2950
802.11 b 40MHz			
Low	2422	13.3336	13.3283
Middle	2437	32.3894	32.2227
High	2452	13.3166	13.3236
802.11 g 20 MHz			
Low	2412	16.5142	16.4805
Middle	2437	16.5550	16.4917
High	2462	16.5032	16.4643
802.11g 40MHz			
Low	2422	36.2951	36.3009
Middle	2437	36.4691	36.4841
High	2452	36.3041	36.3061
802.11 n HT20			
Low	2412	16.5103	16.5117
Middle	2437	16.5966	16.5279
High	2462	17.6583	17.6596
802.11 n HT40			
Low	2422	36.1767	36.1980
Middle	2437	36.2116	36.1886
High	2452	36.1740	36.1950

802.11b: 20MHz rate/channel, Chain A

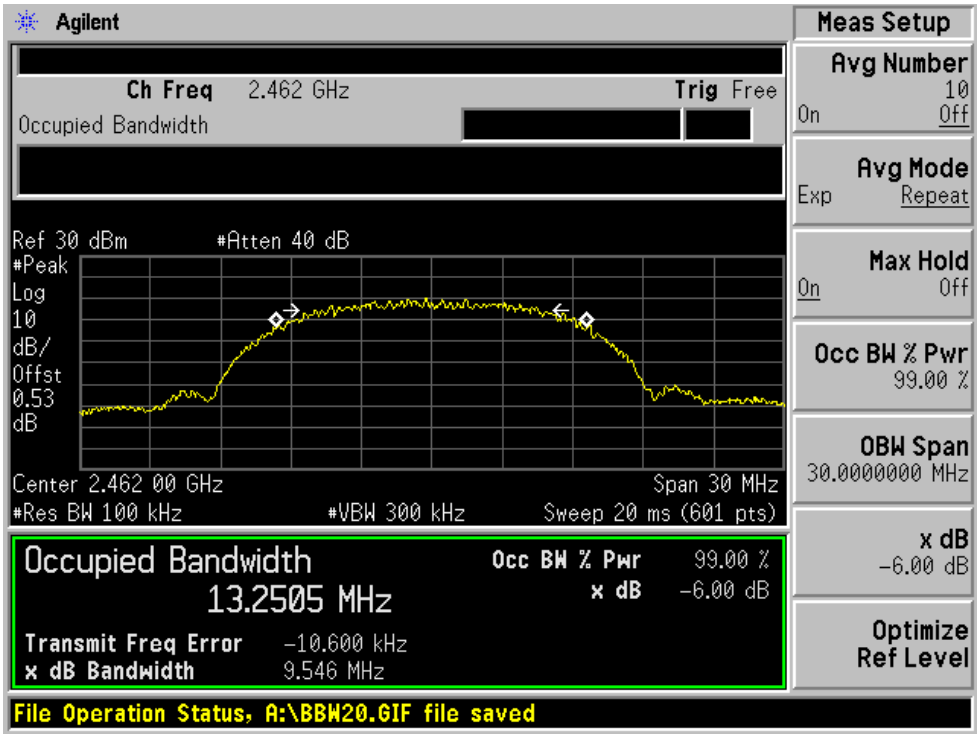
Low Channel



Middle Channel

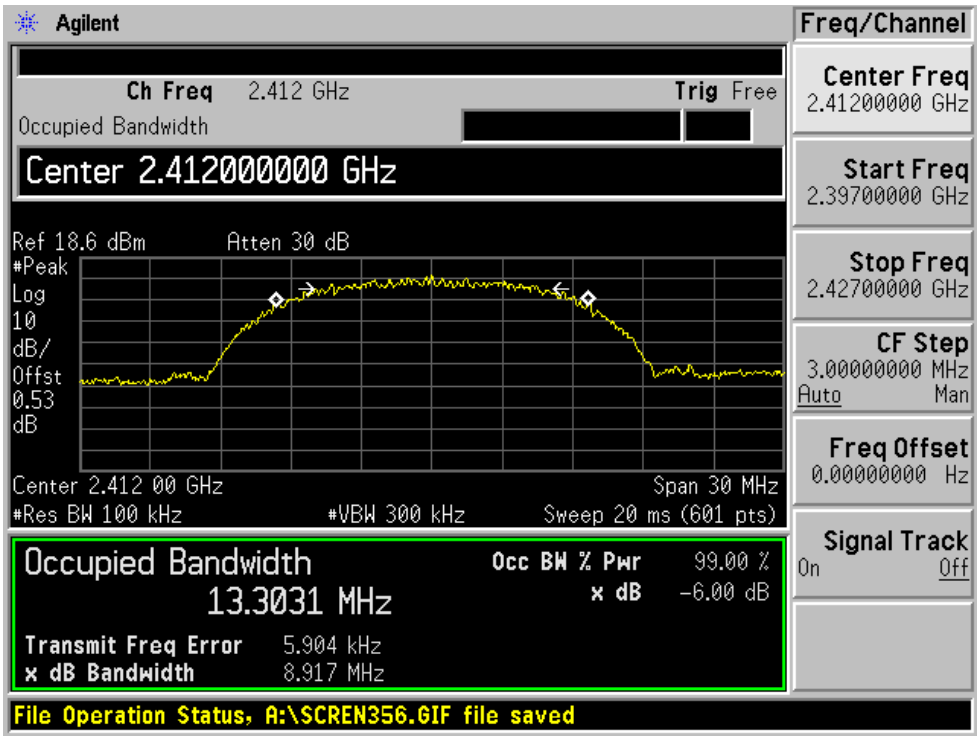


High Channel

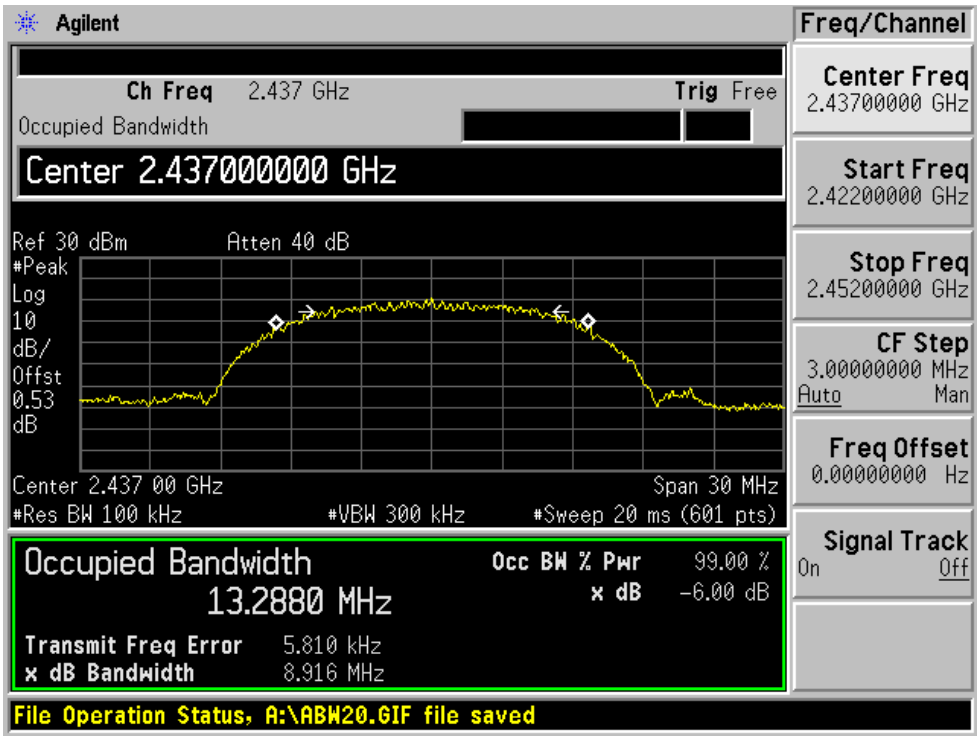


802.11b: 20MHz rate/channel, Chain B

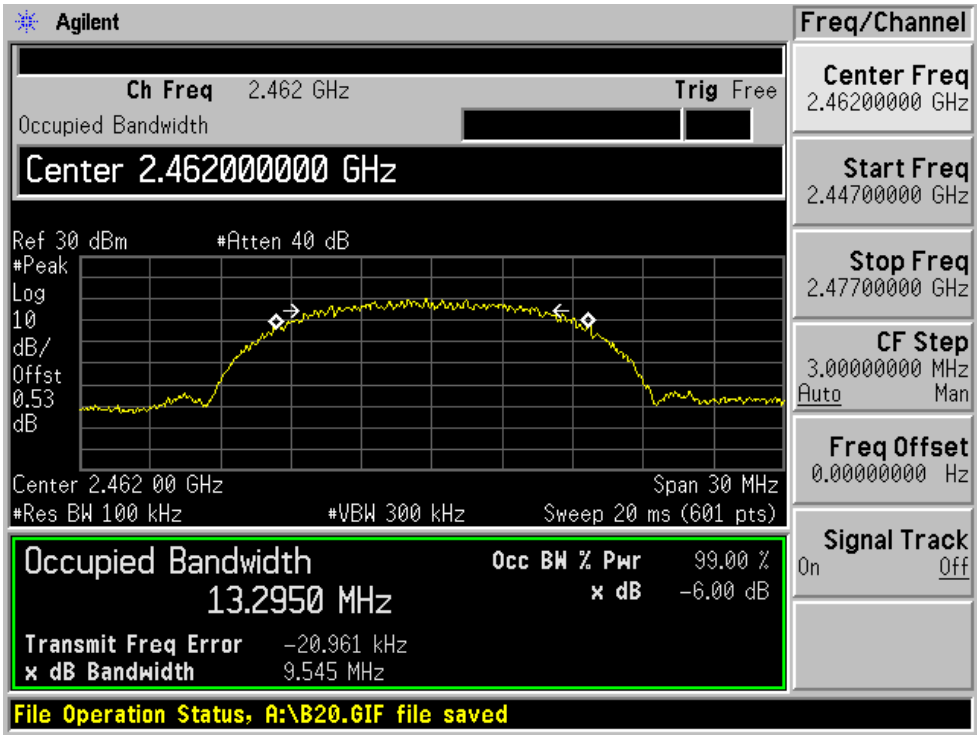
Low Channel



Middle Channel

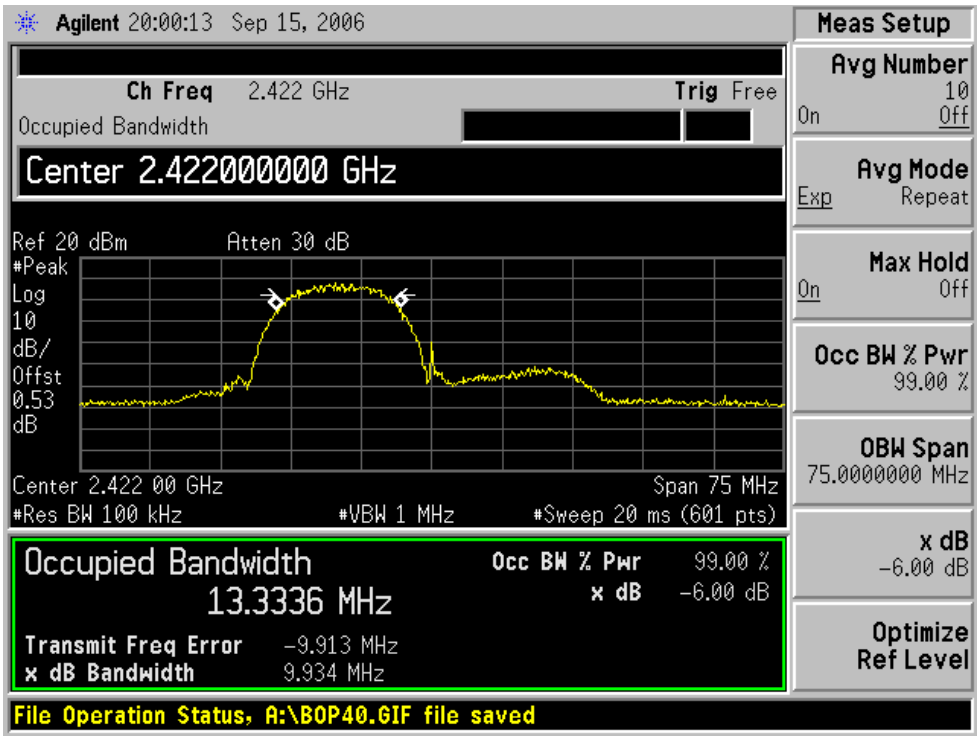


High Channel

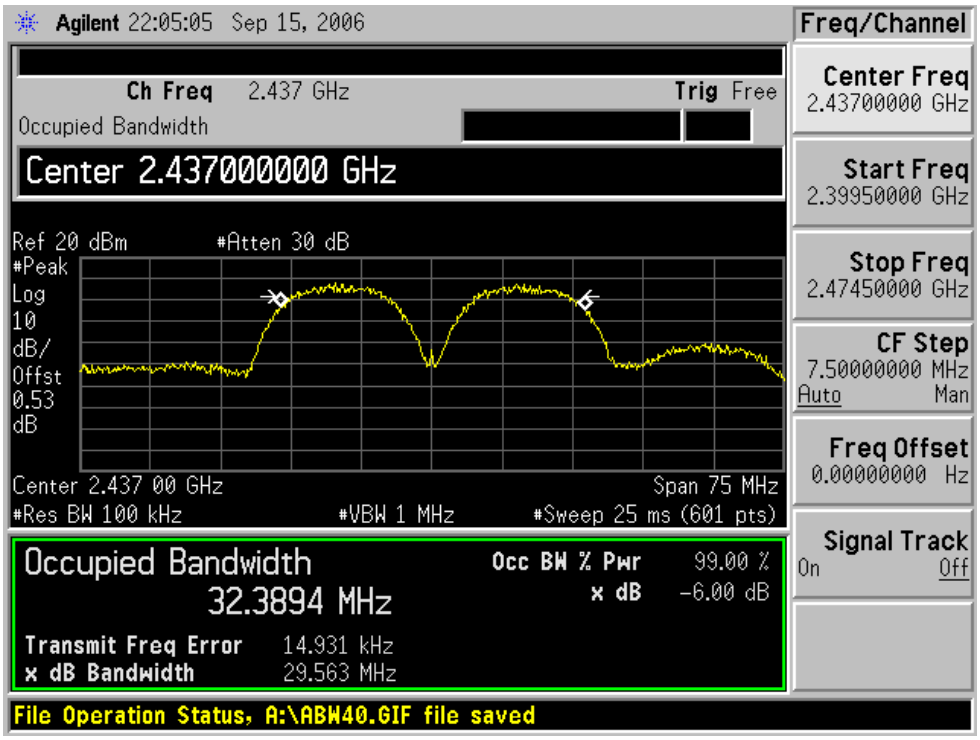


802.11b: 40MHz rate/channel, Chain A

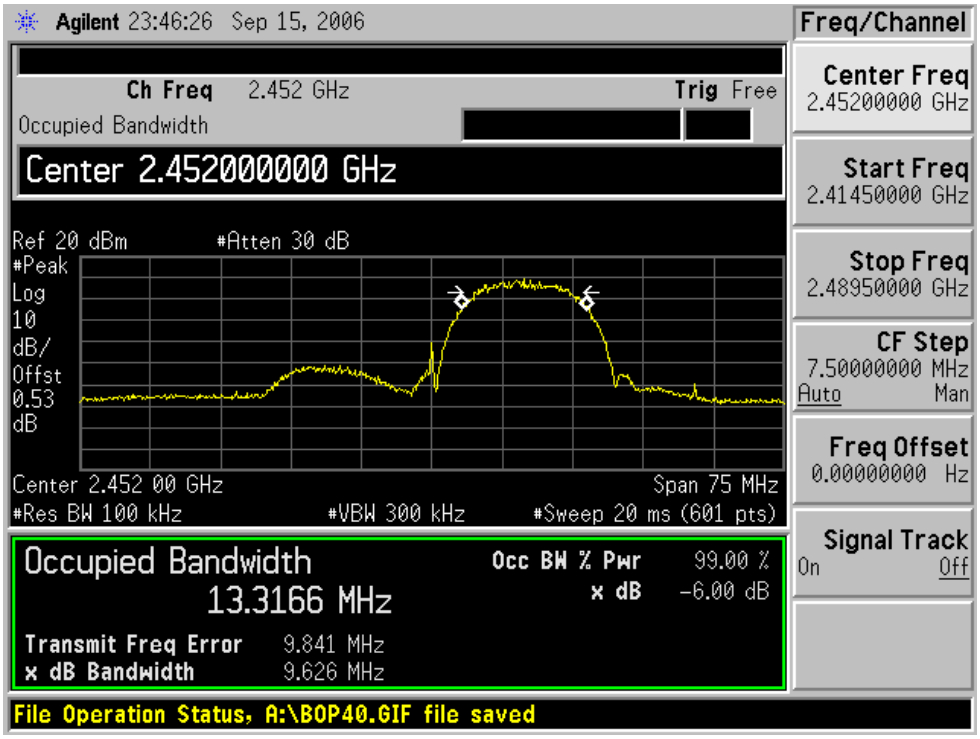
Low Channel



Middle Channel

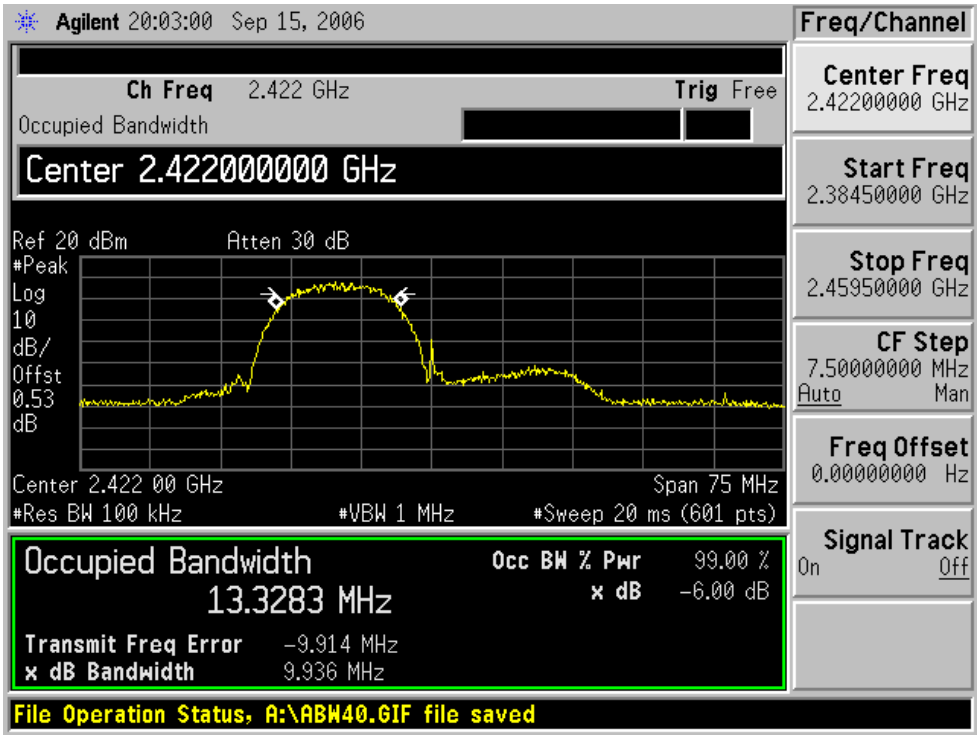


High Channel

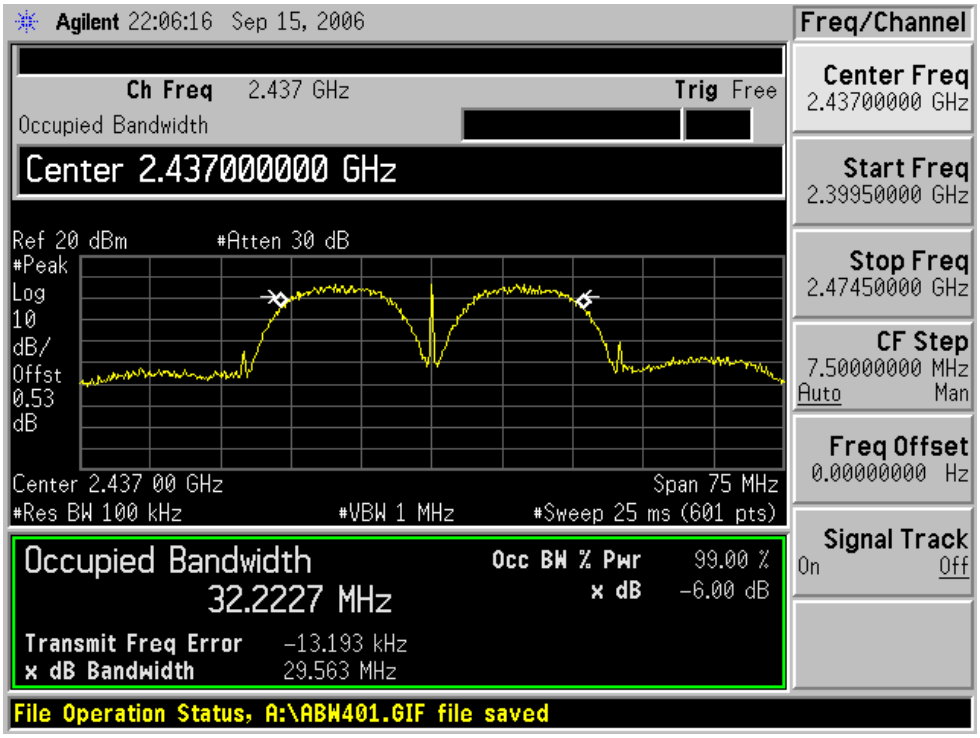


802.11b: 40MHz rate/channel, Chain B

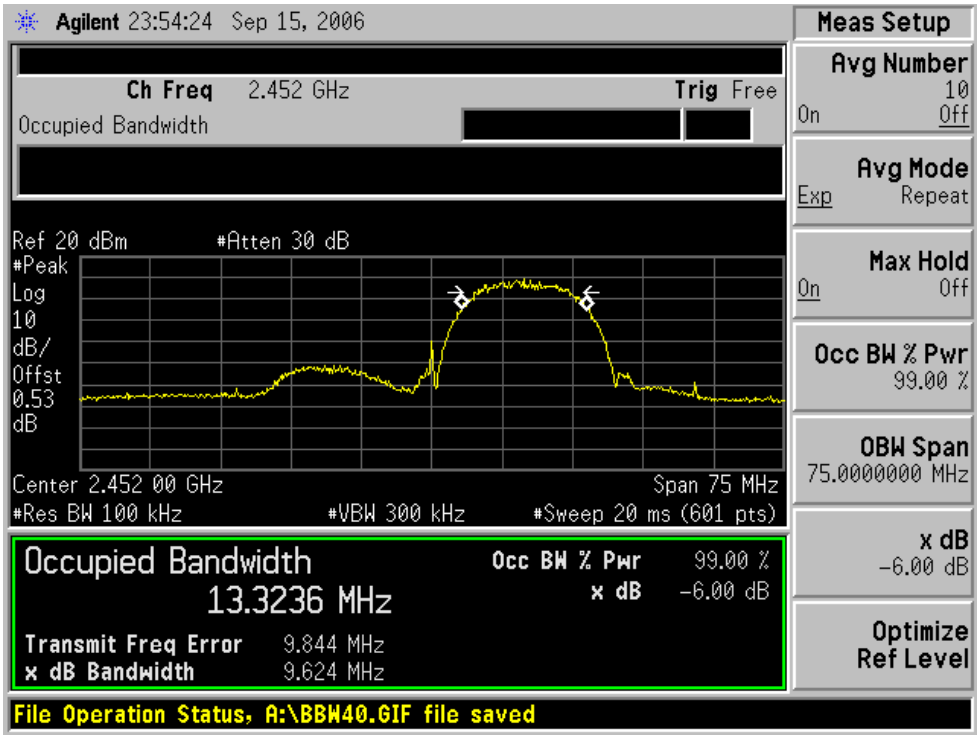
Low Channel



Middle Channel

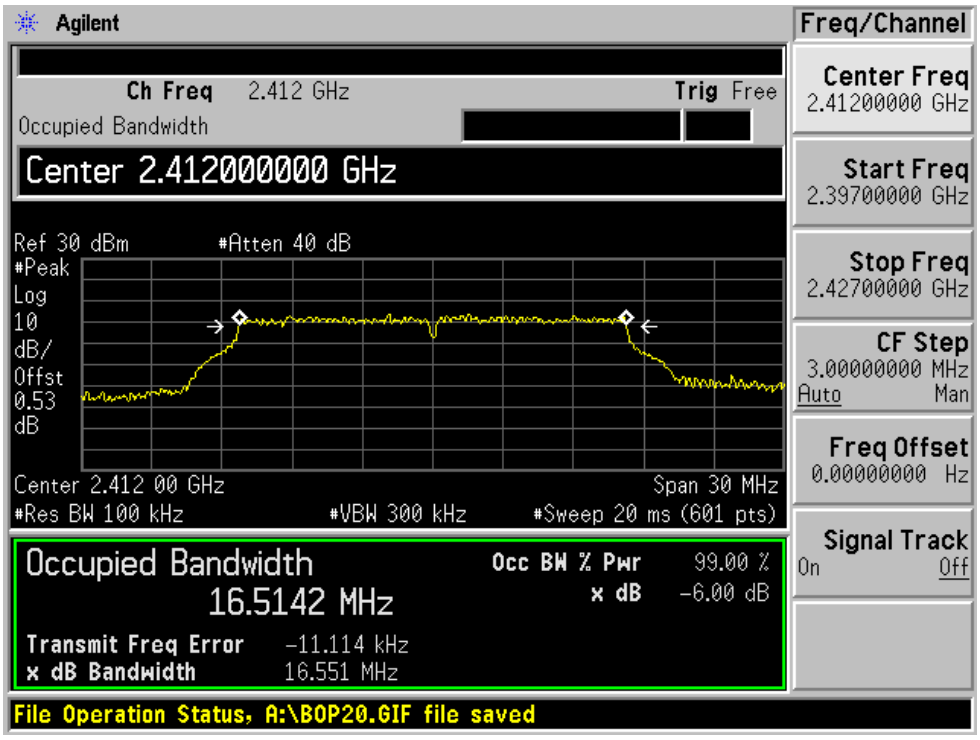


High Channel

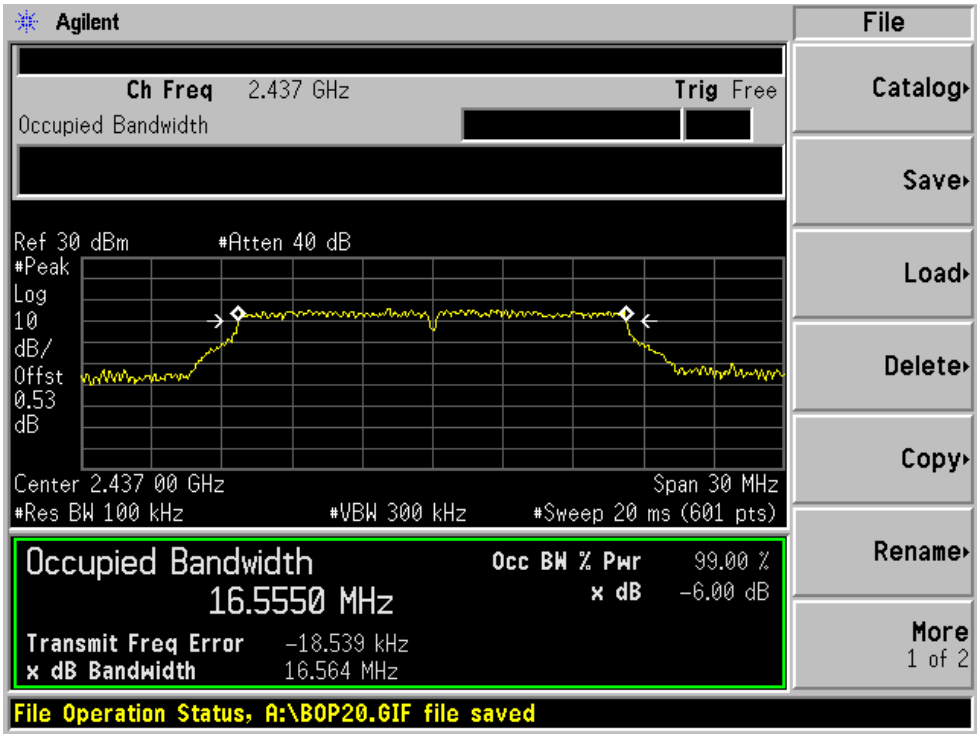


802.11g: 20MHz rate/channel, Chain A

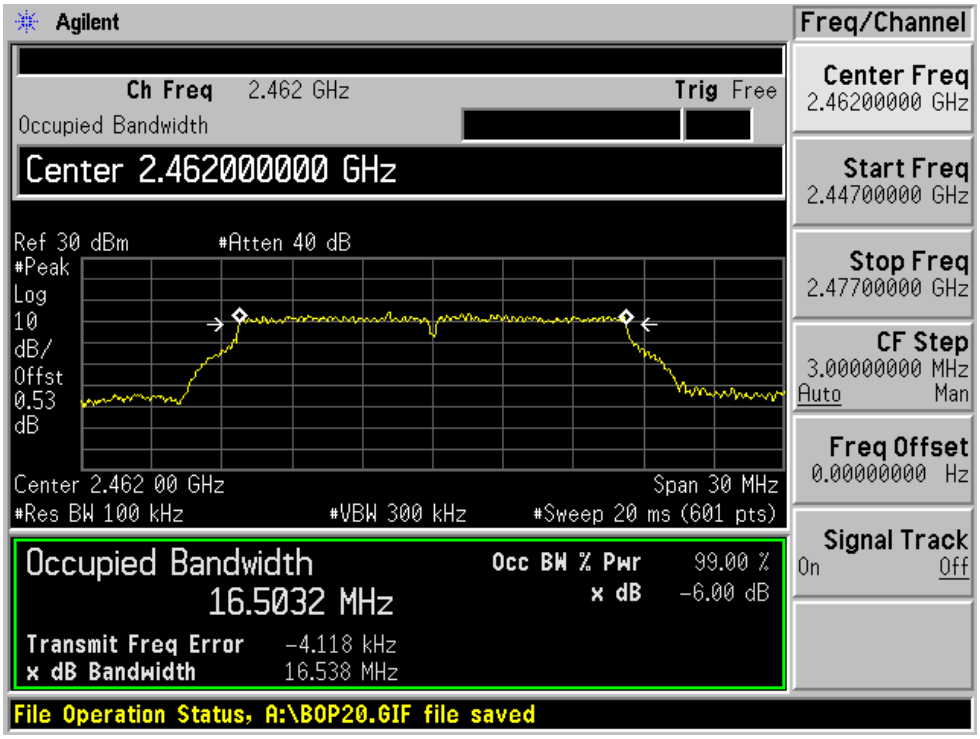
Low Channel



Middle Channel

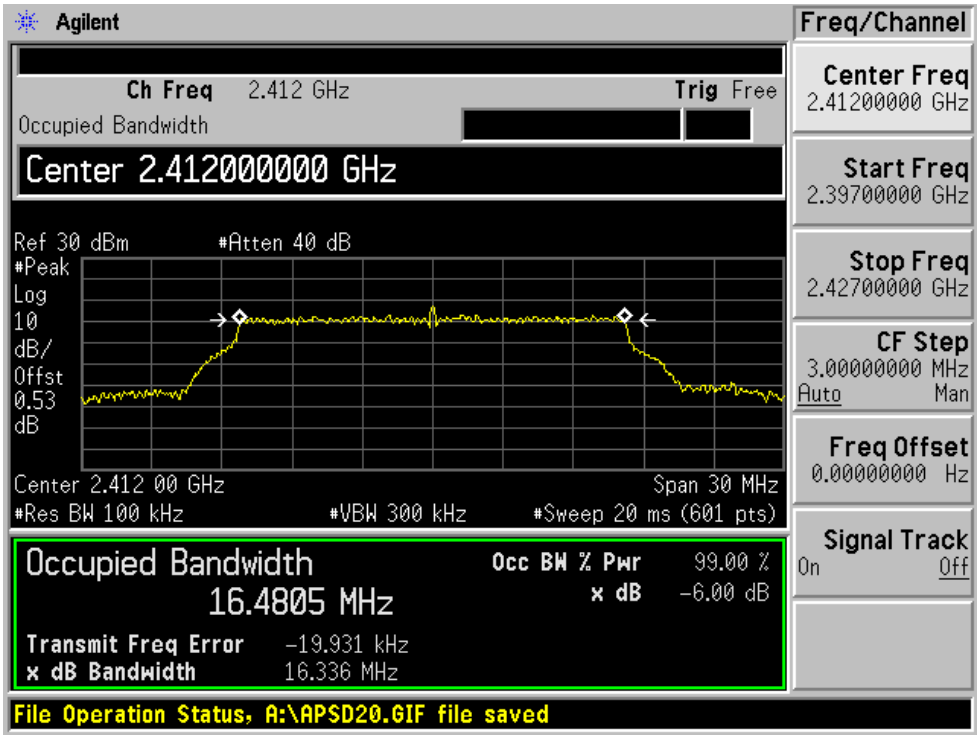


High Channel

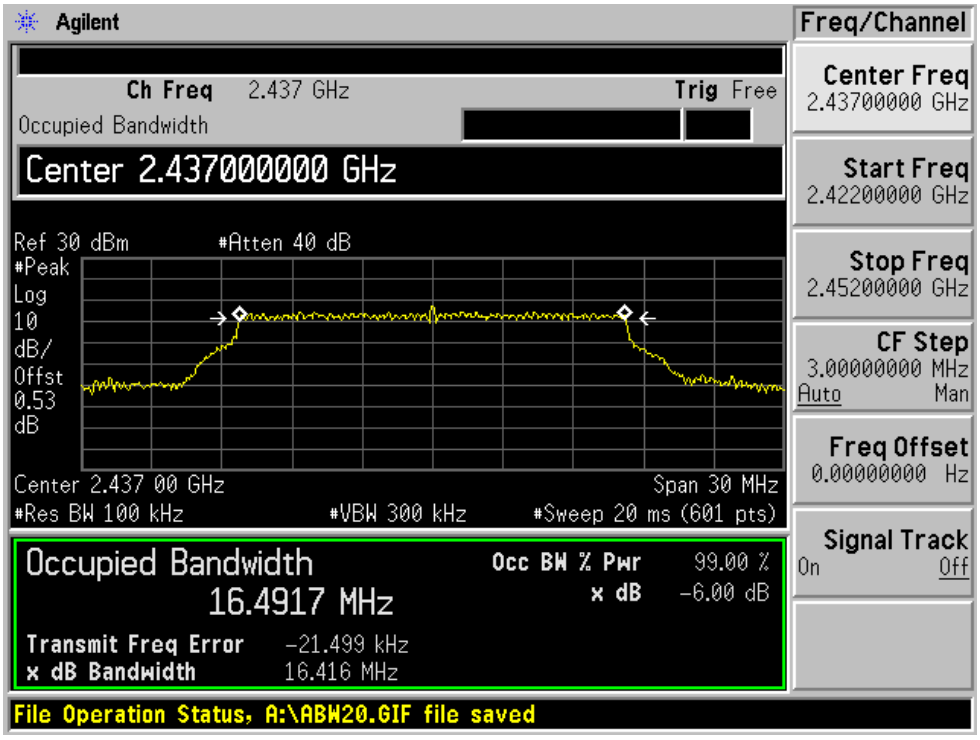


802.11g: 20MHz rate/channel, Chain B

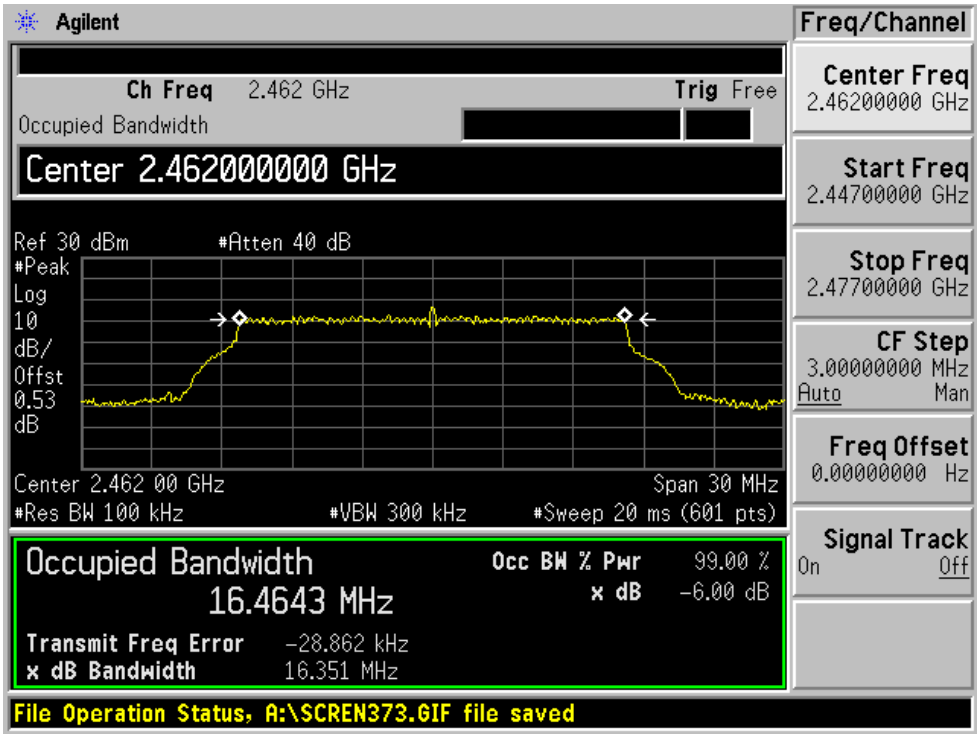
Low Channel



Middle Channel

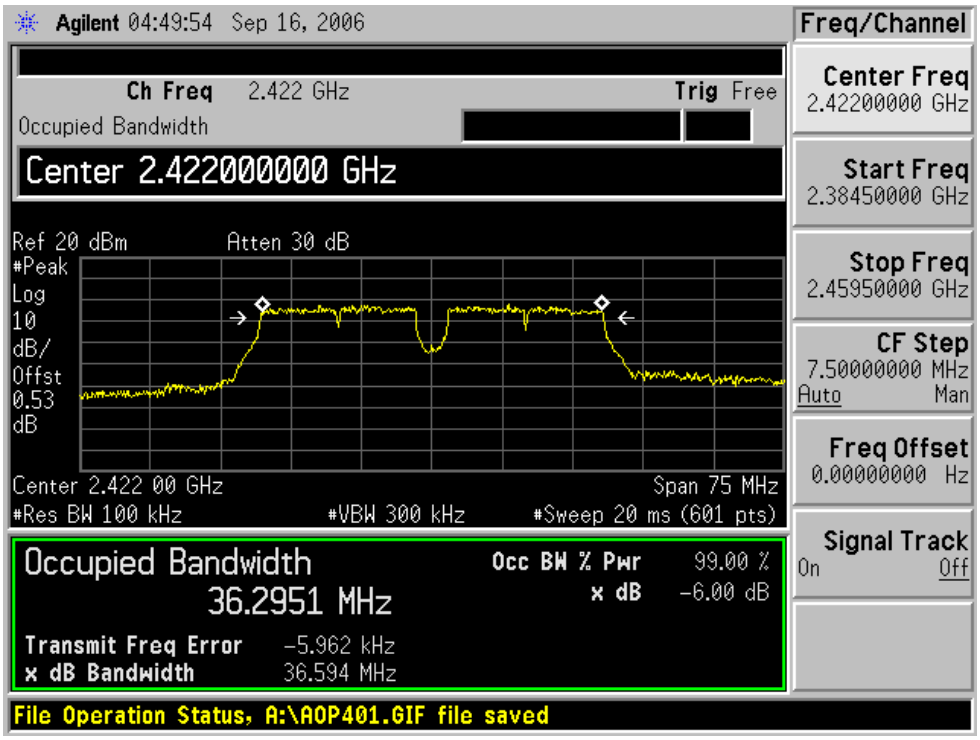


High Channel

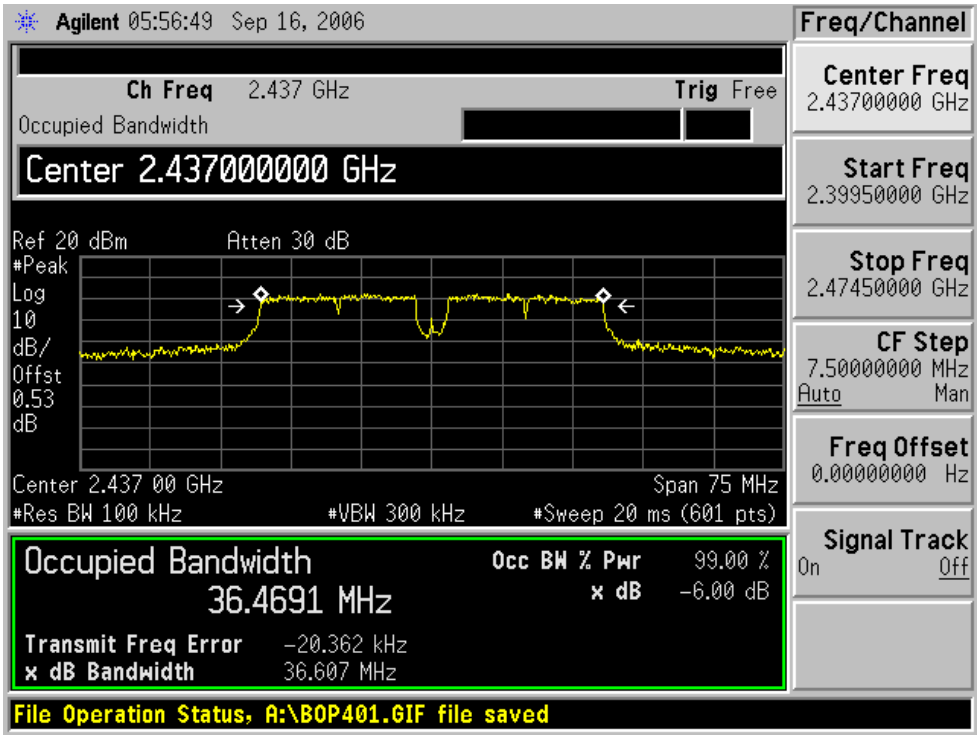


802.11g: 40MHz rate/channel, Chain A

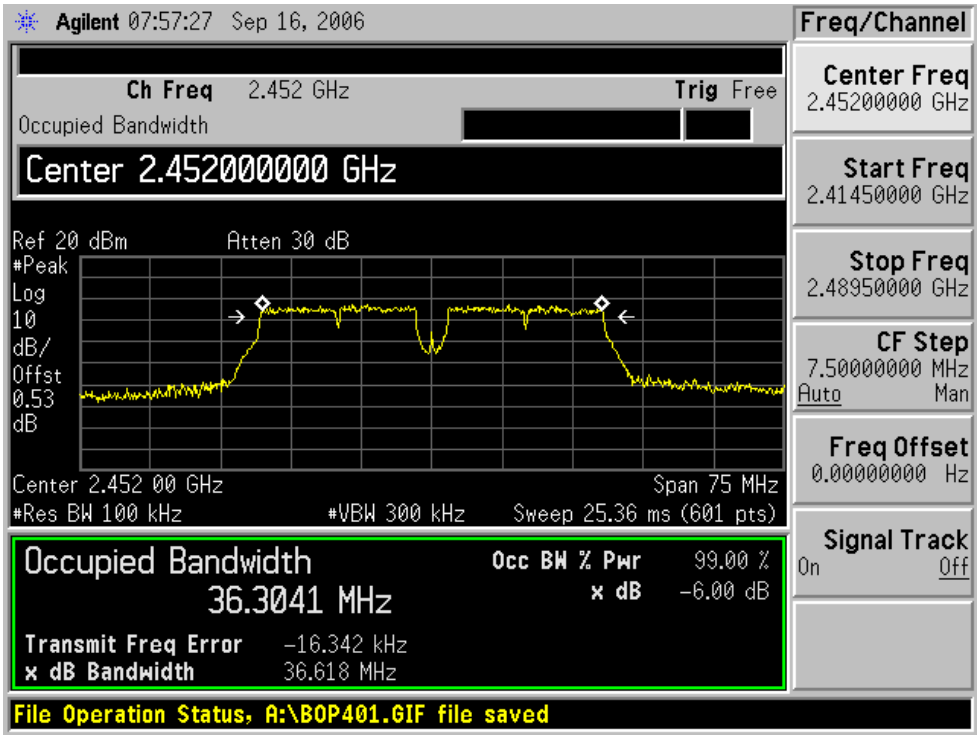
Low Channel



Middle Channel

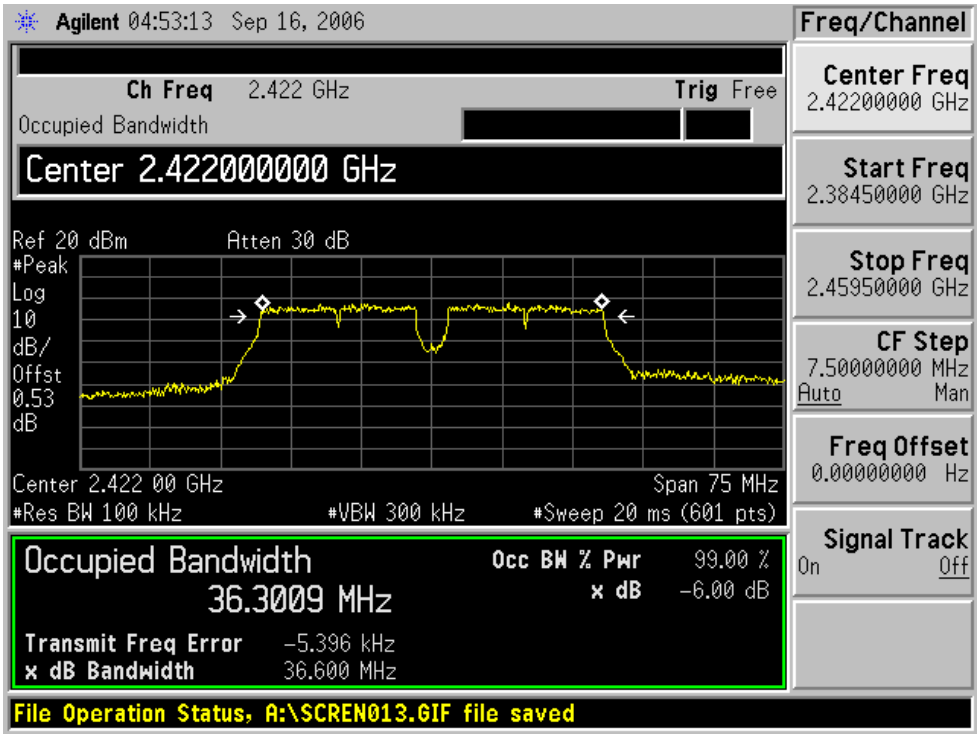


High Channel

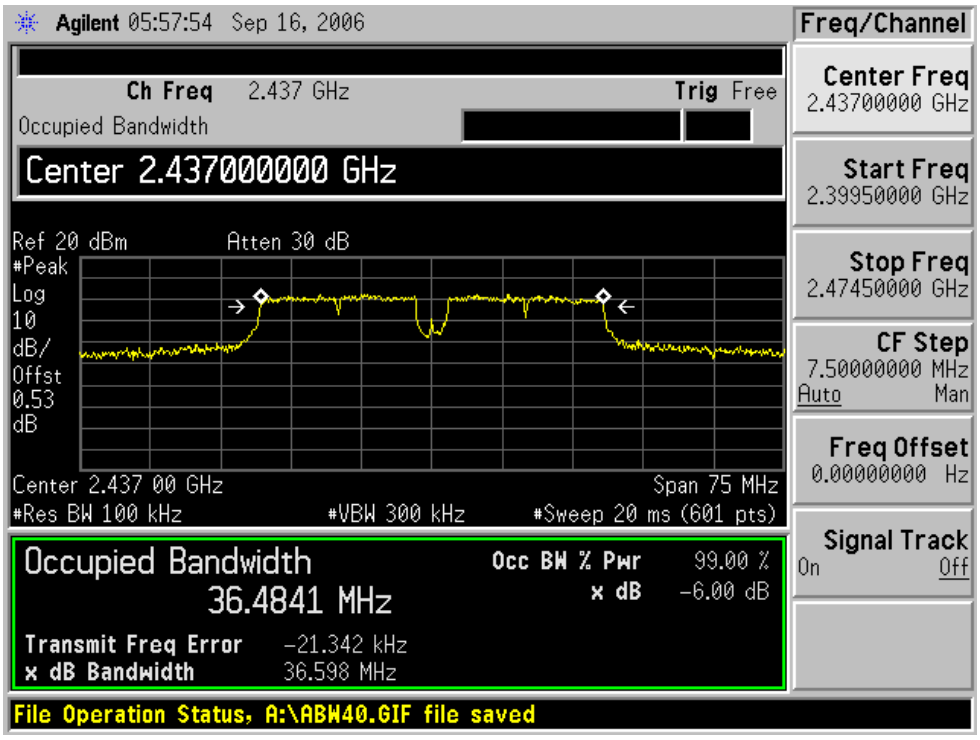


802.11g: 40MHz rate/channel, Chain B

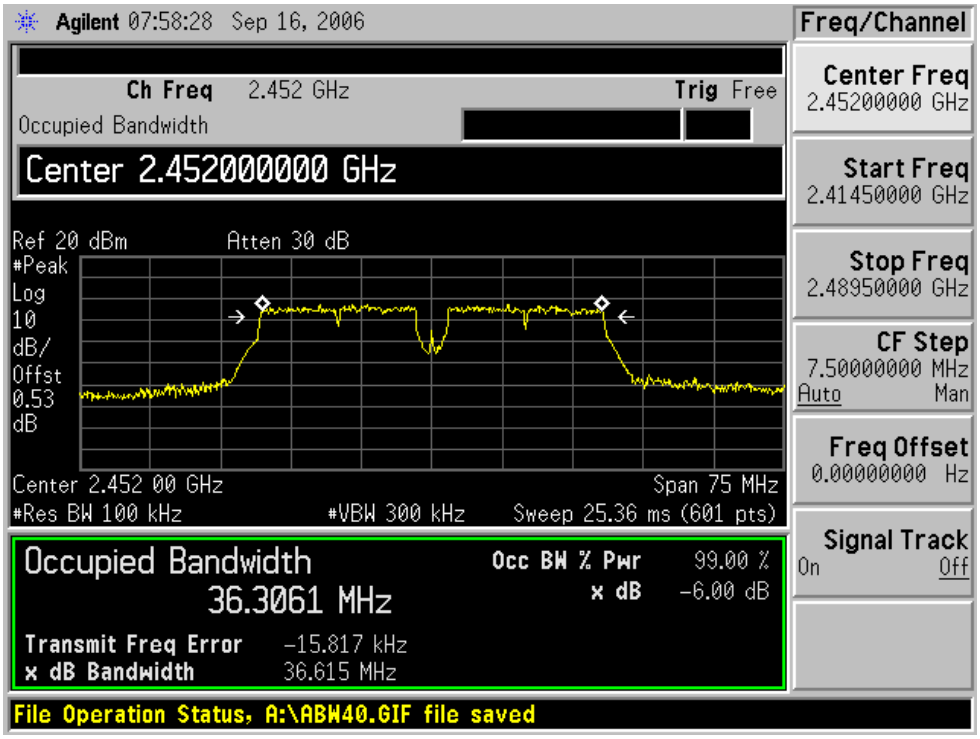
Low Channel



Middle Channel

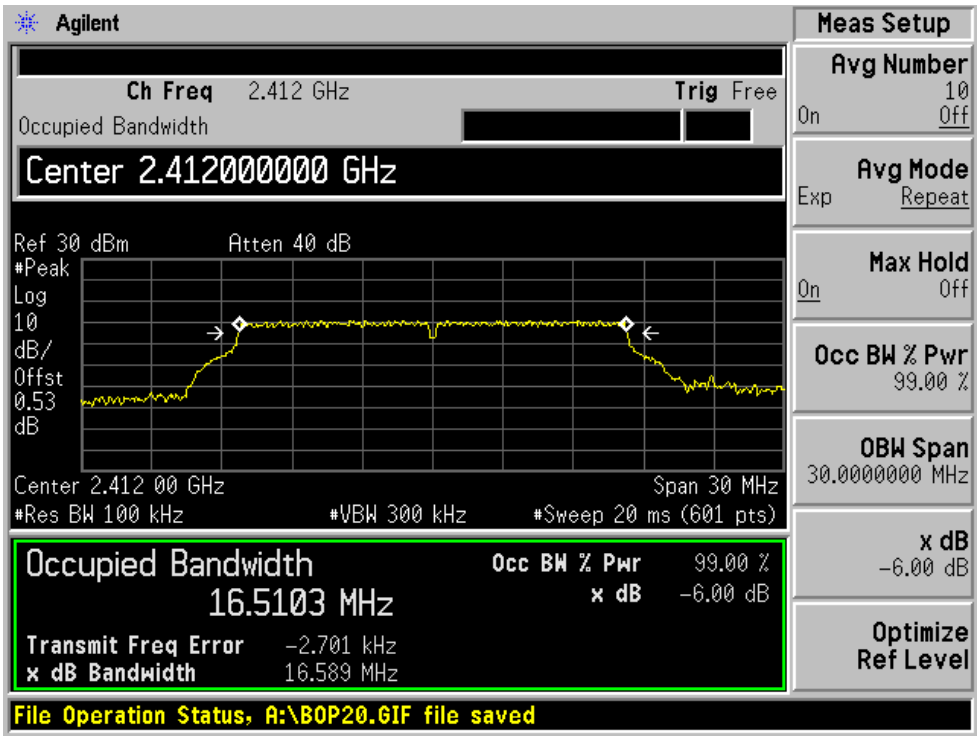


High Channel

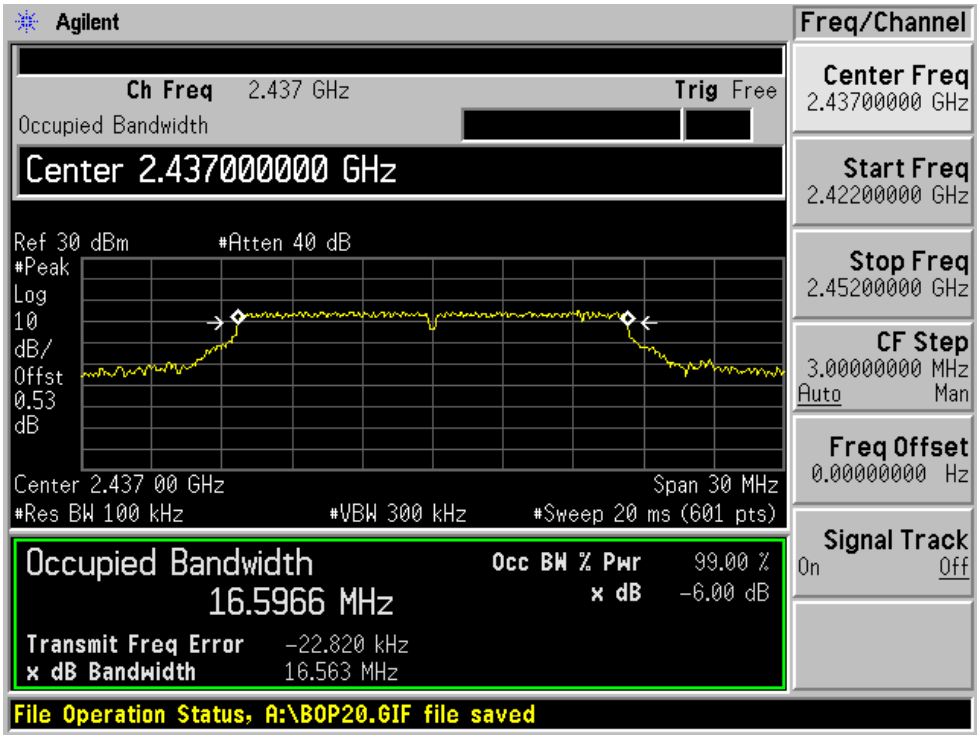


802.11n: 20MHz rate/channel, Chain A

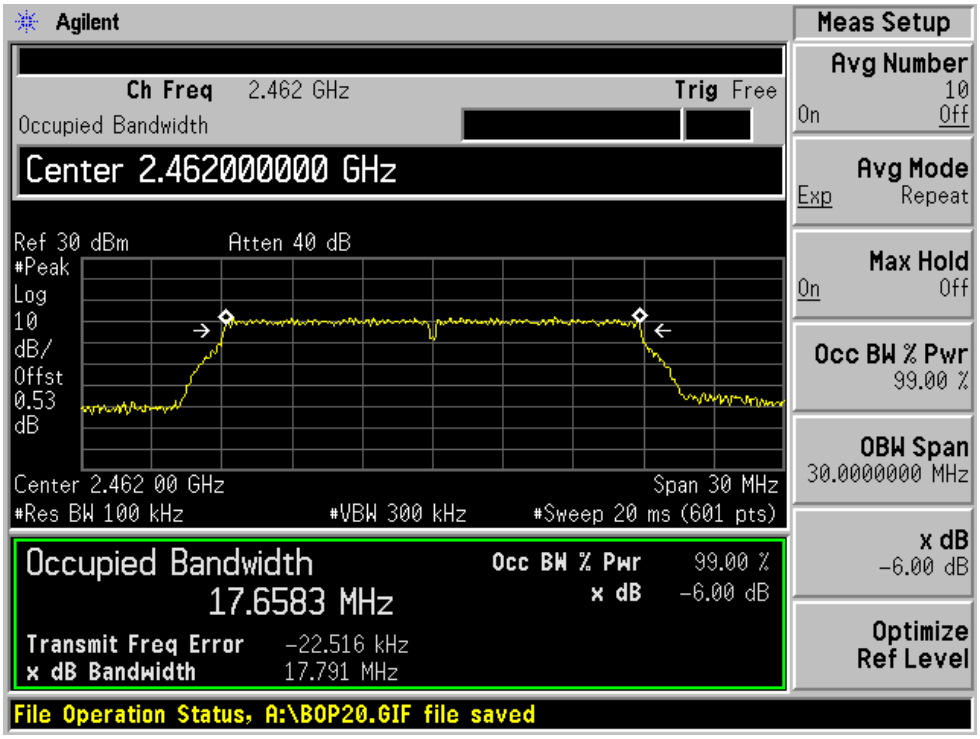
Low Channel



Middle Channel

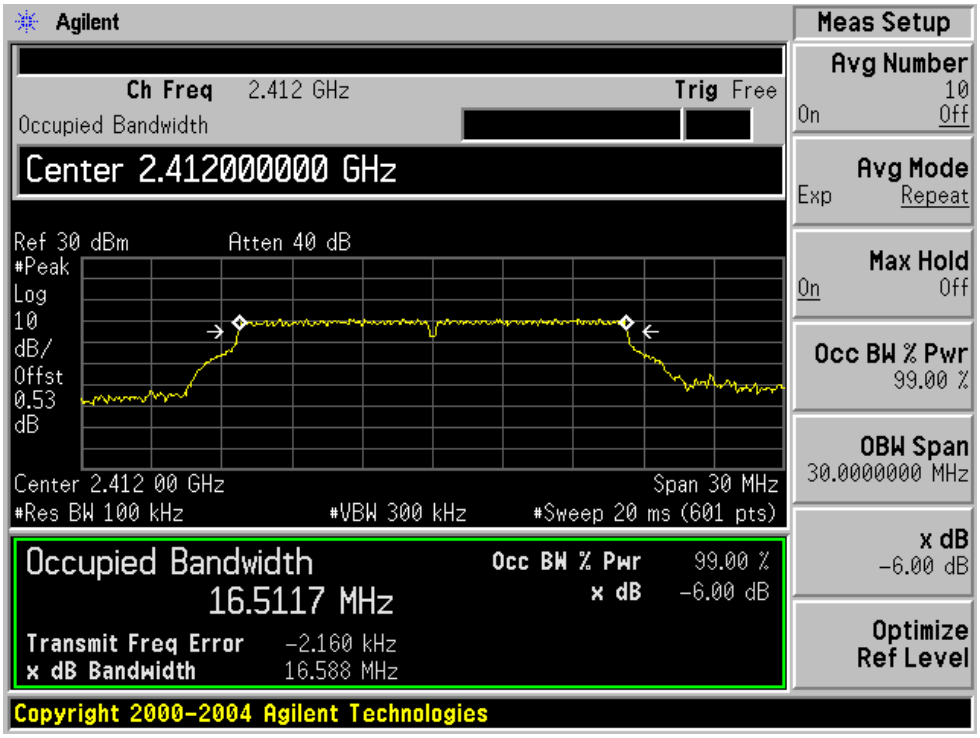


High Channel

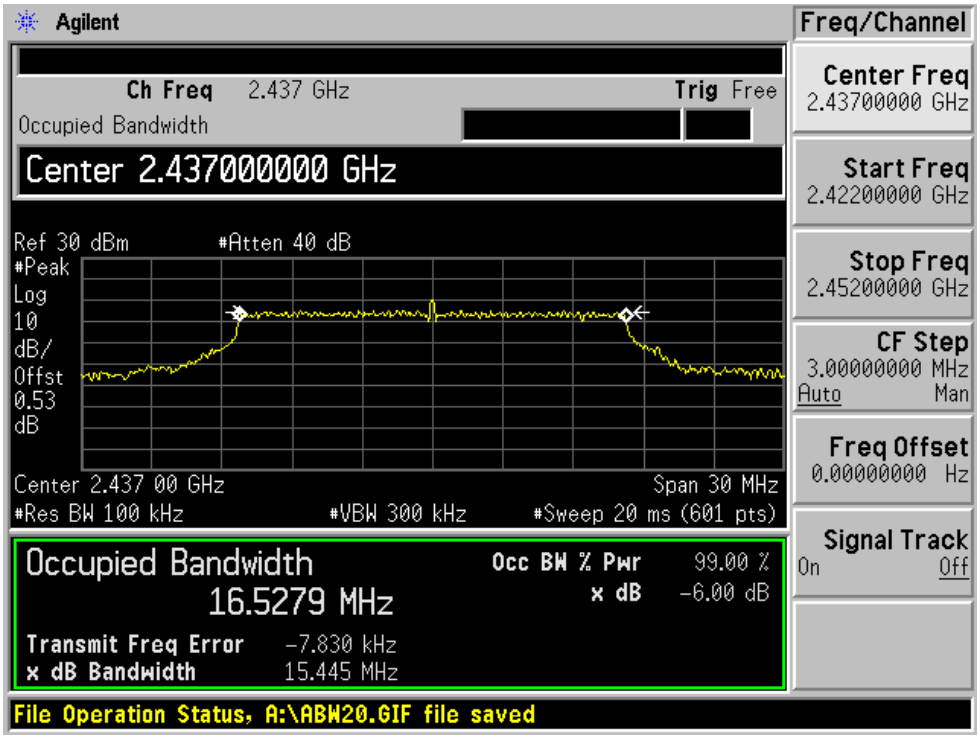


802.11n: 20MHz rate/channel, Chain B

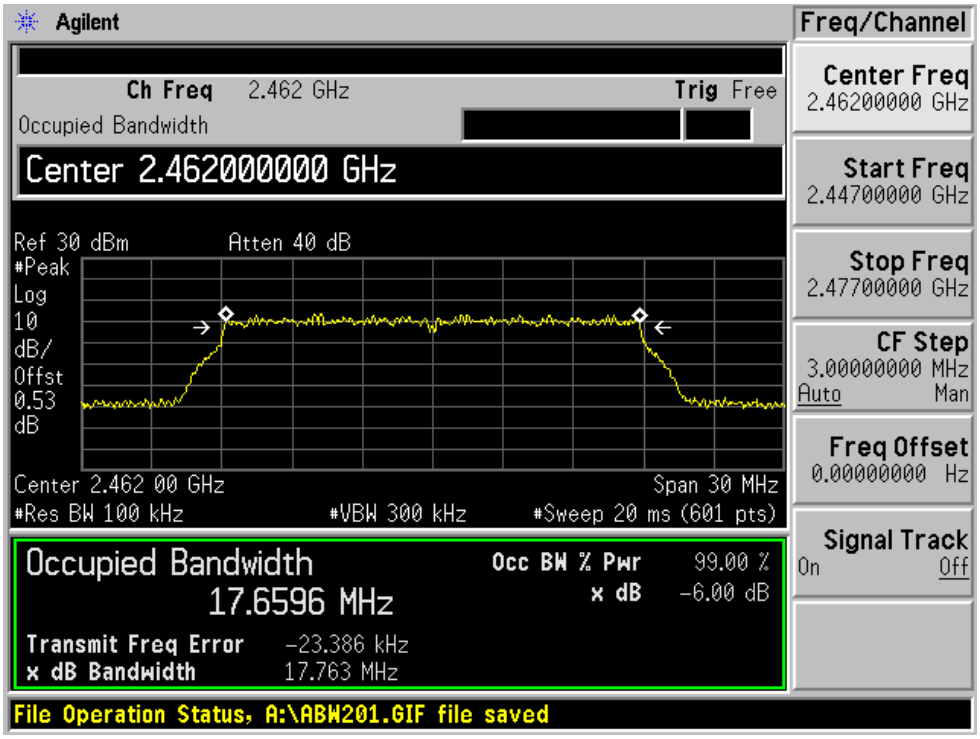
Low Channel



Middle Channel

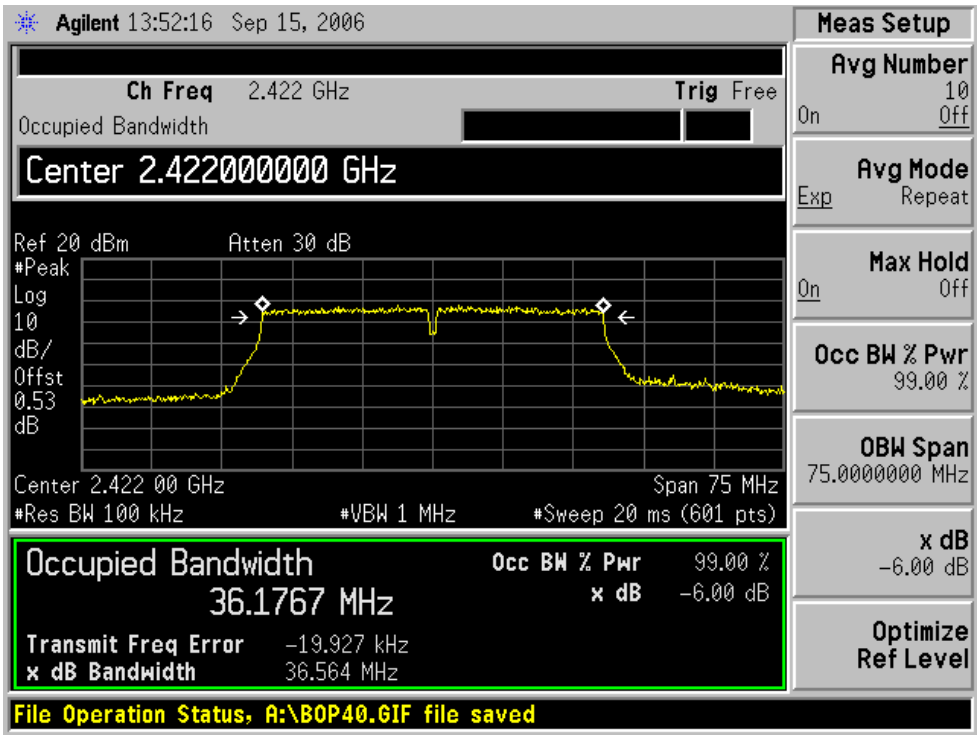


High Channel

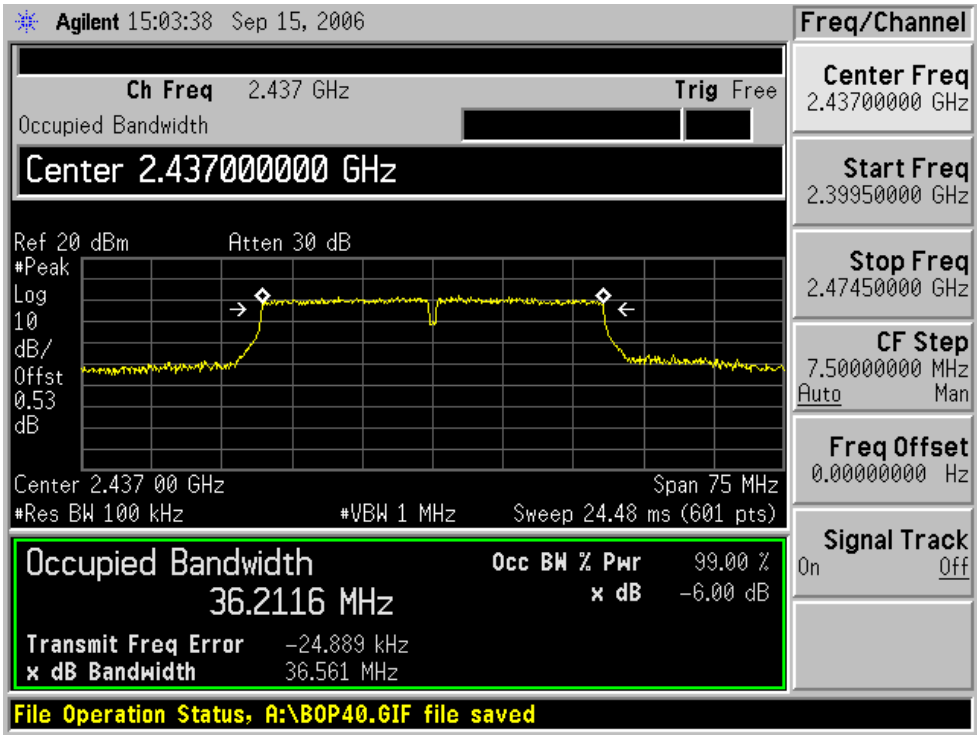


802.11n: 40MHz rate/channel, Chain A

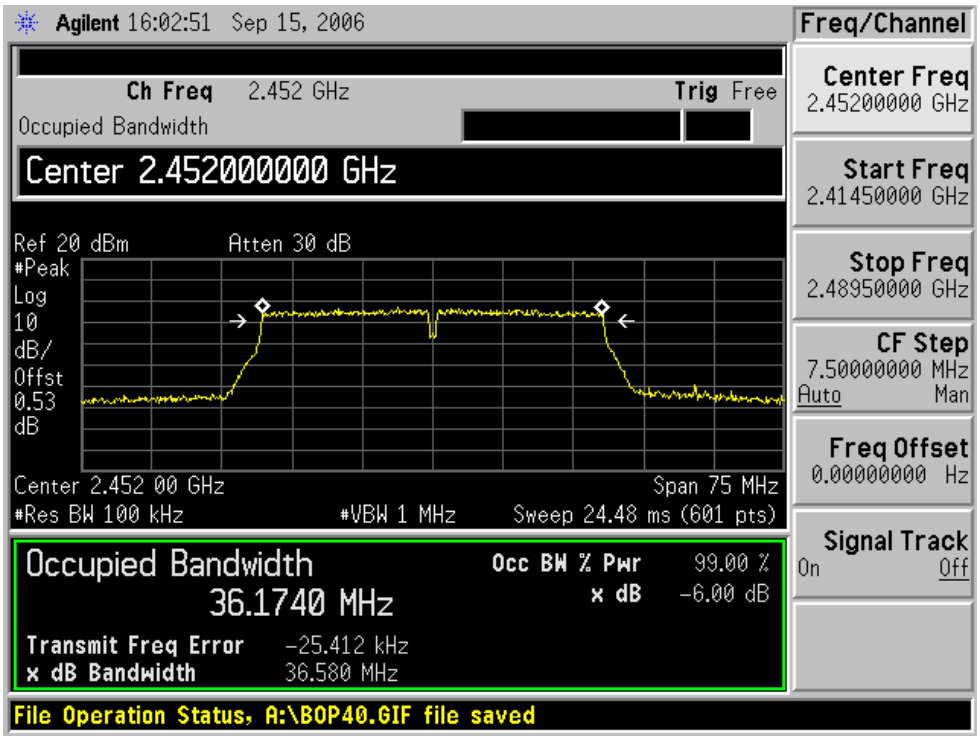
Low Channel



Middle Channel

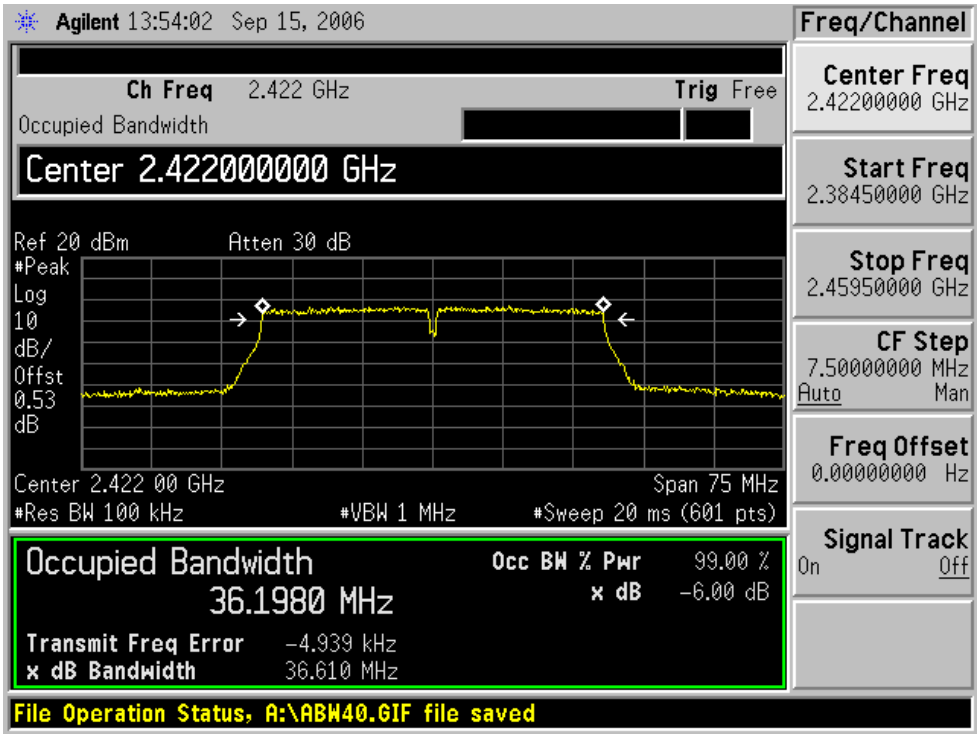


High Channel

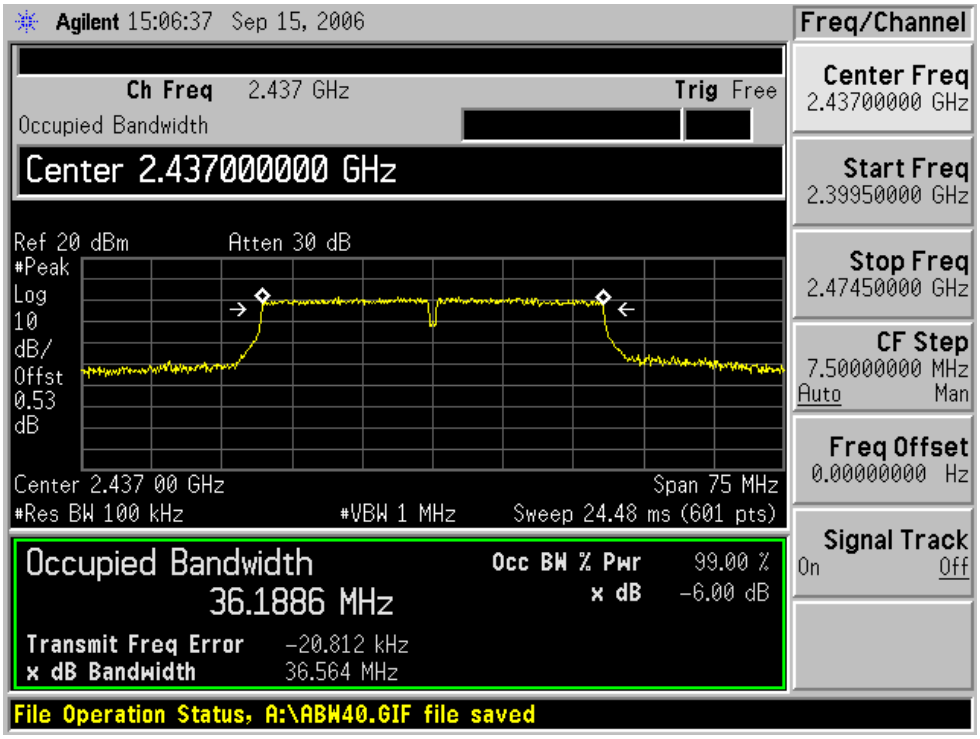


802.11n: 40MHz rate/channel, Chain B

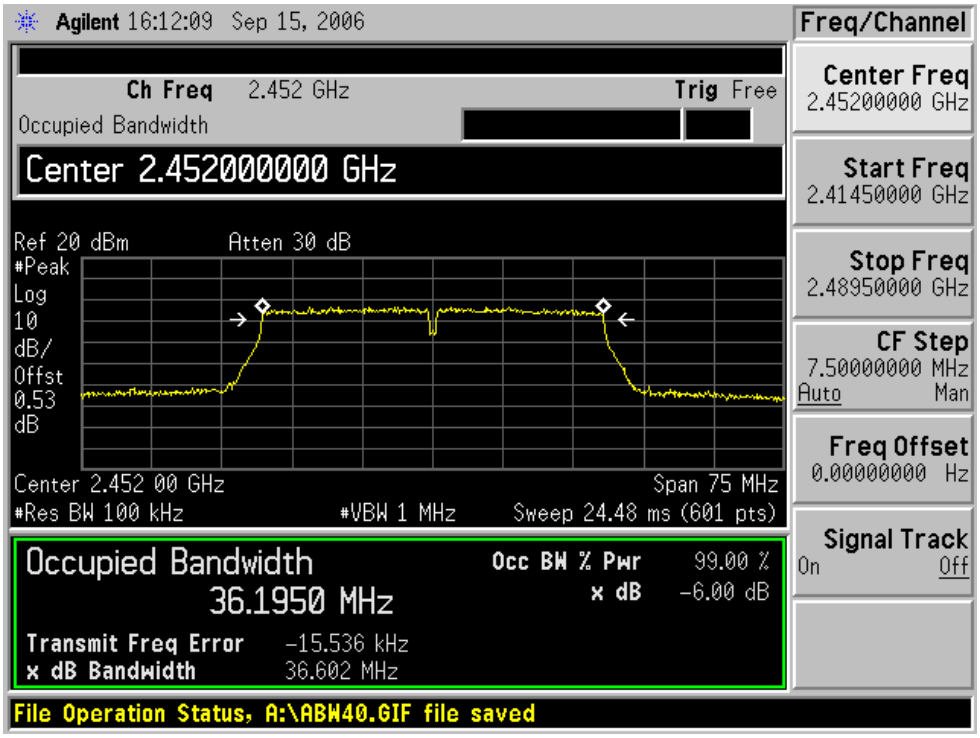
Low Channel



Middle Channel



High Channel



§15.247(b) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

§15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following:

§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.

§15.247(b) (4) (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.
3. Add a correction factor to the display.

Each chain is measured separately and the total power is calculated using the following formula:

Total Power = 10 log (10^ (Chain A Power / 10) + 10 ^ (Chain B Power / 10))

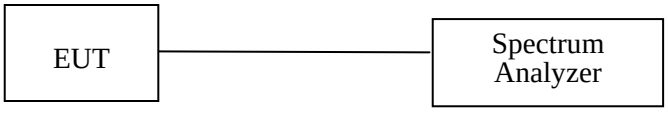
Effective Antenna Gain = Antenna Gain + 10 log (Number Tx Chains)

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum analyzer	E4446A	US44300386	2006-03-06
Agilent	Power Meter	E4419B	MY4121511	2006-09-13
Agilent	Sensor	E9301A	MY41497252	2006-10-12

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

** The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

Test Result

802.11b: 20MHz rate/channel

Frequency (MHz)	Max Power Chain A (dBm)	Max Power Chain B (dBm)	Max Power Total (dBm)	Limit (dBm)	Result
2412	18.66	18.80	21.74	30	Pass
2437	19.26	19.28	22.28	30	Pass
2462	19.28	19.29	22.30	30	Pass

802.11b: 40MHz rate/channel

Frequency (MHz)	Max Power Chain A (dBm)	Max Power Chain B (dBm)	Max Power Total (dBm)	Limit (dBm)	Result
2412	17.88	18.12	21.01	30	Pass
2437	19.87	19.55	22.72	30	Pass
2462	19.03	18.71	21.88	30	Pass

802.11g: 20MHz rate/channel

Frequency (MHz)	Max Power Chain A (dBm)	Max Power Chain B (dBm)	Max Power Total (dBm)	Limit (dBm)	Result
2412	16.37	16.49	19.44	30	Pass
2437	19.00	19.26	22.14	30	Pass
2462	16.30	16.66	19.49	30	Pass

802.11g: 40MHz rate/channel

Frequency (MHz)	Max Power Chain A (dBm)	Max Power Chain B (dBm)	Max Power Total (dBm)	Limit (dBm)	Result
2422	12.41	13.41	16.39	30	Pass
2437	16.67	18.59	21.54	30	Pass
2452	12.55	12.99	15.92	30	Pass

802.11n: 20MHz rate/channel

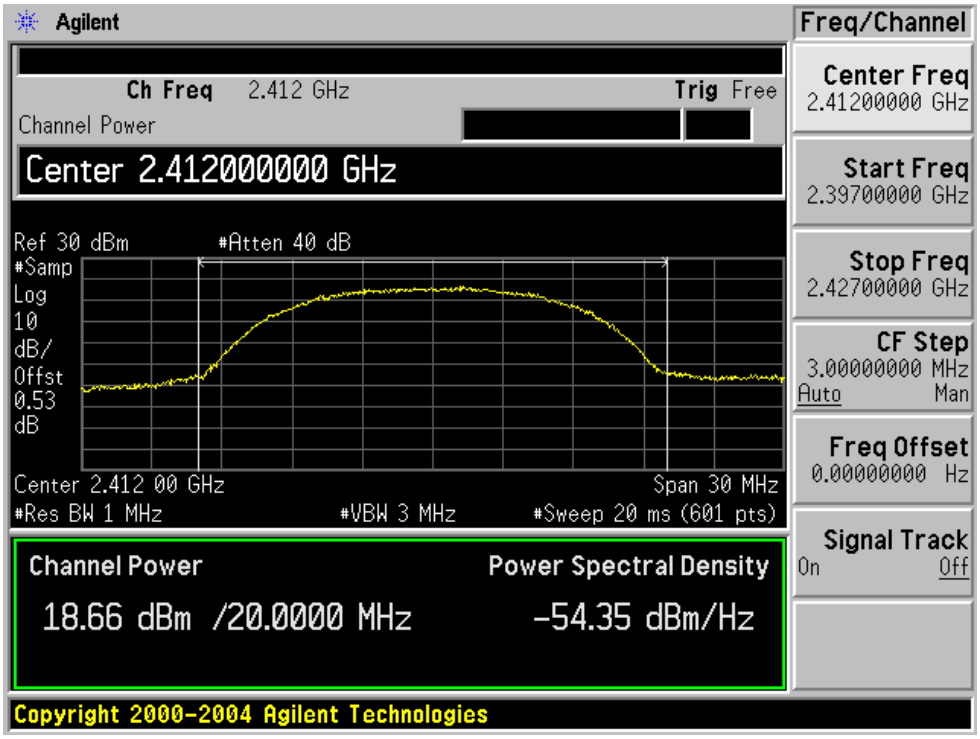
Frequency (MHz)	Max Power Chain A (dBm)	Max Power Chain B (dBm)	Max Power Total (dBm)	Limit (dBm)	Result
2412	15.52	15.53	18.56	30	Pass
2437	19.55	19.54	22.56	30	Pass
2462	16.00	15.98	19.00	30	Pass

802.11n: 40MHz rate/channel

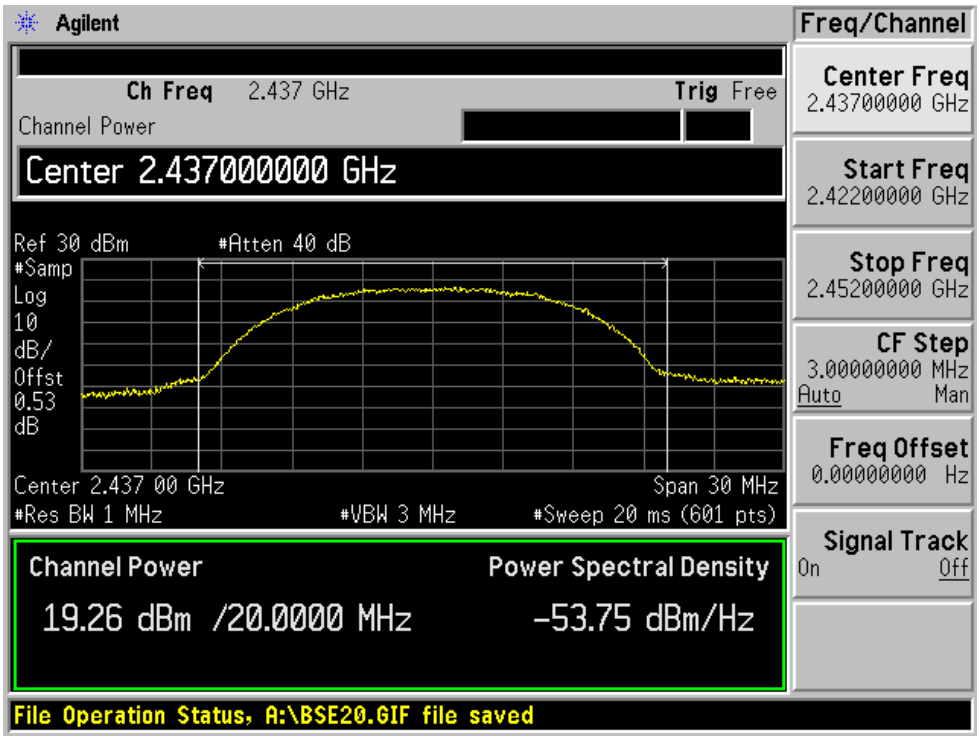
Frequency (MHz)	Max Power Chain A (dBm)	Max Power Chain B (dBm)	Max Power Total (dBm)	Limit (dBm)	Result
2422	12.95	12.9	15.94	30	Pass
2437	18.2	18.34	21.28	30	Pass
2452	12.95	12.81	15.89	30	Pass

802.11b: 20MHz rate/channel, Chain A

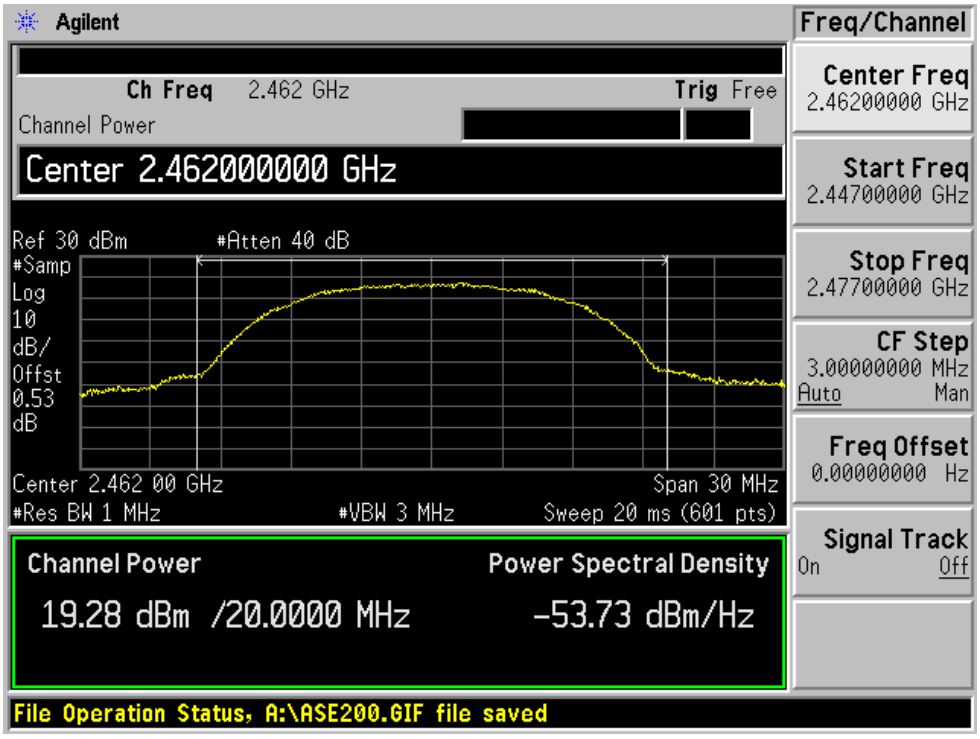
Low Channel



Middle Channel

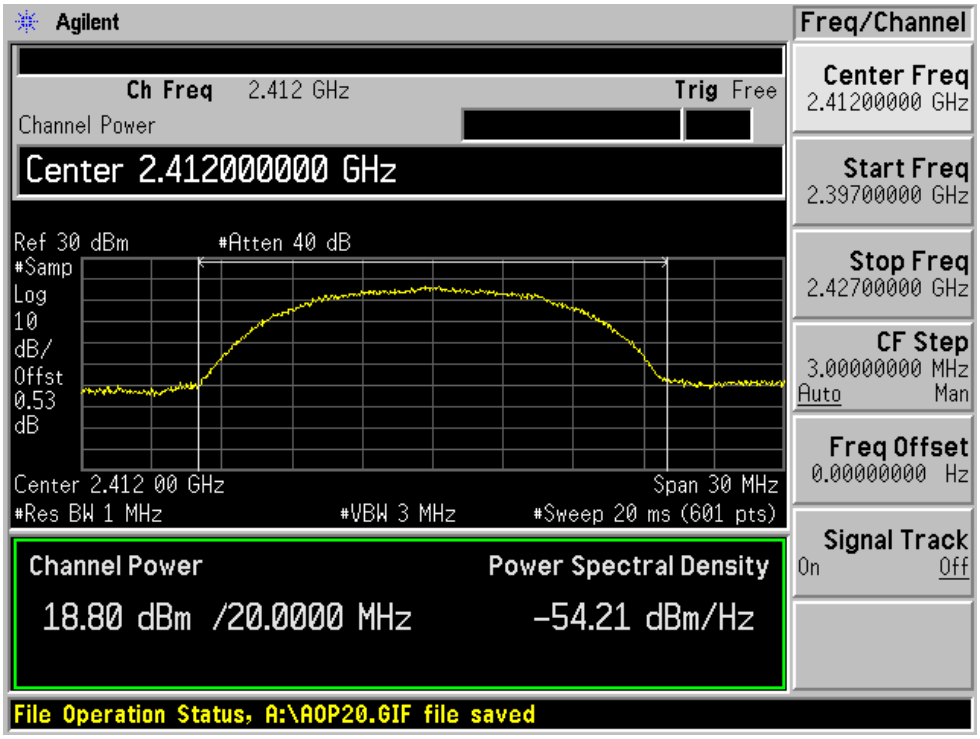


High Channel

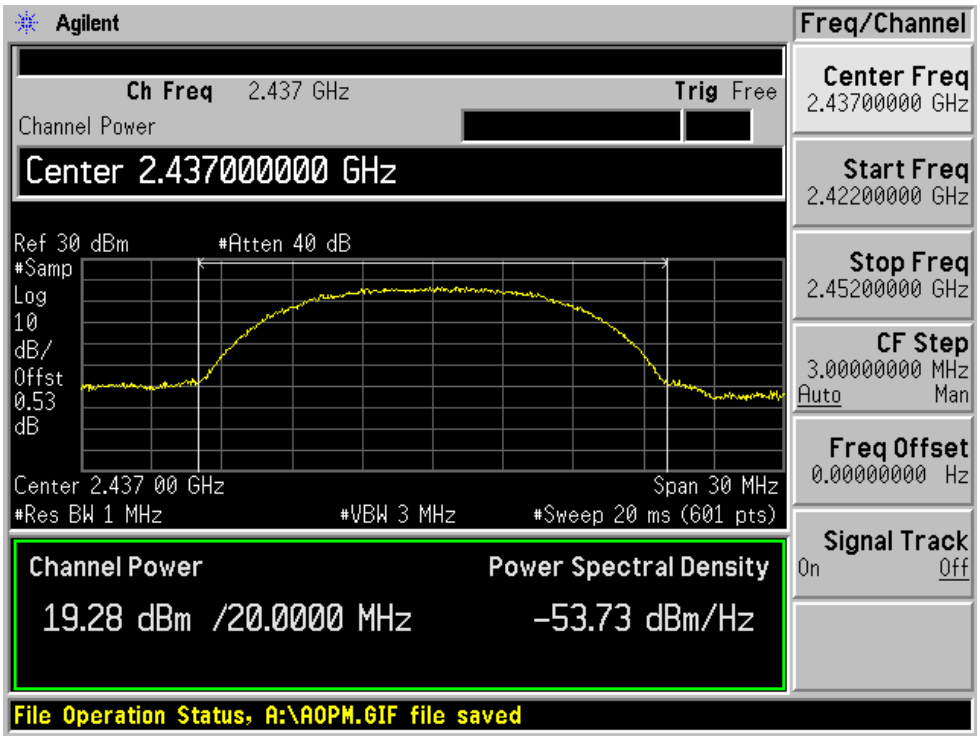


802.11b: 20MHz rate/channel, Chain B

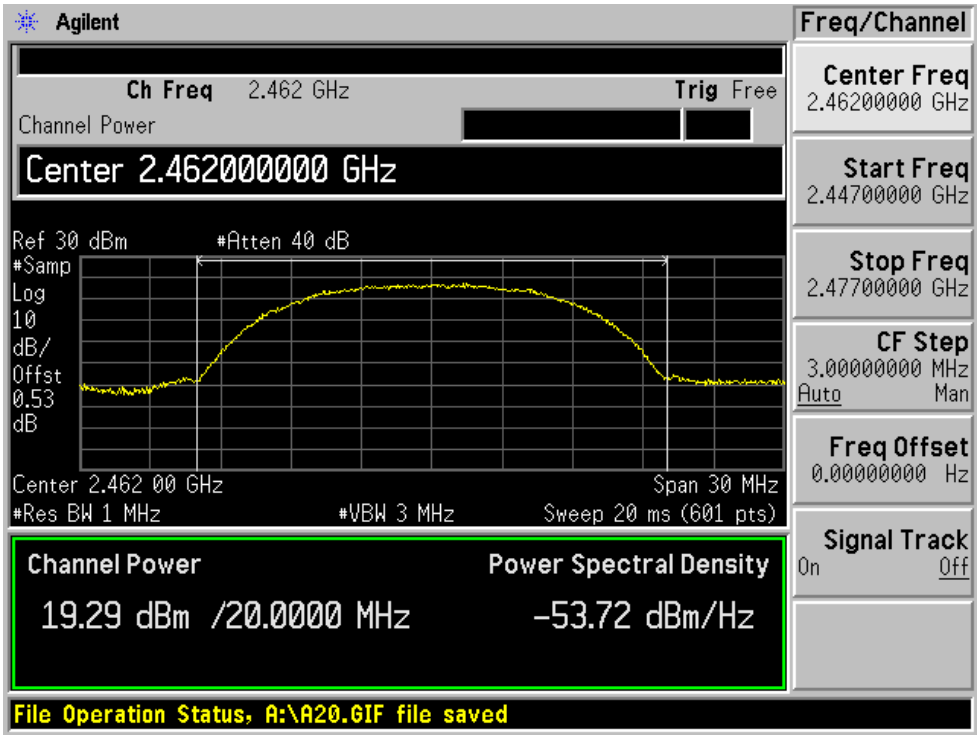
Low Channel



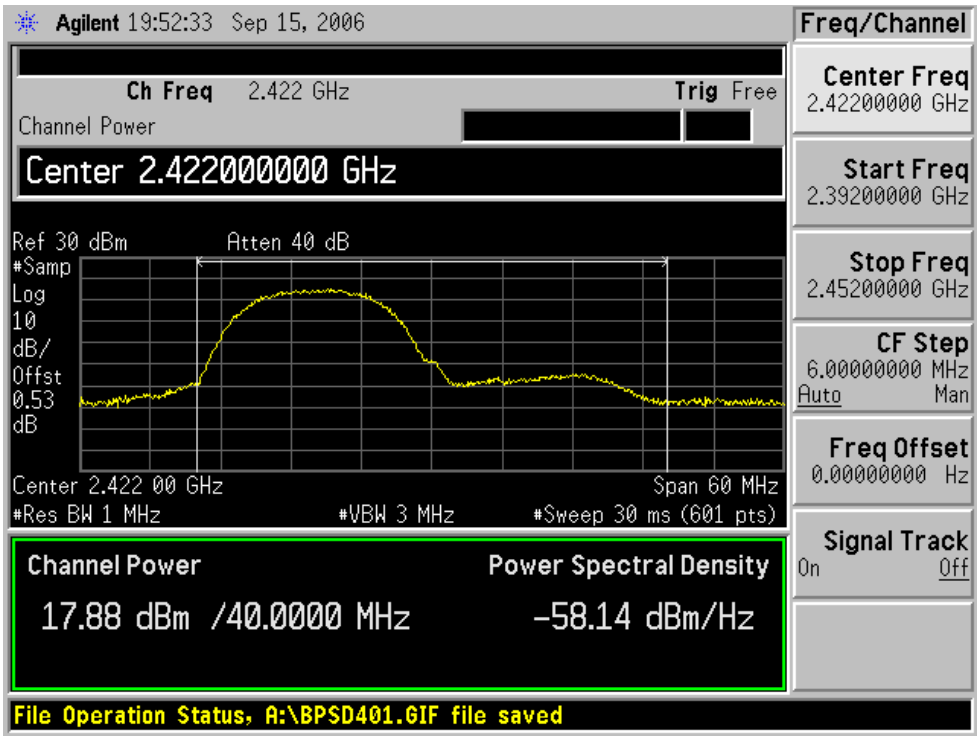
Middle Channel



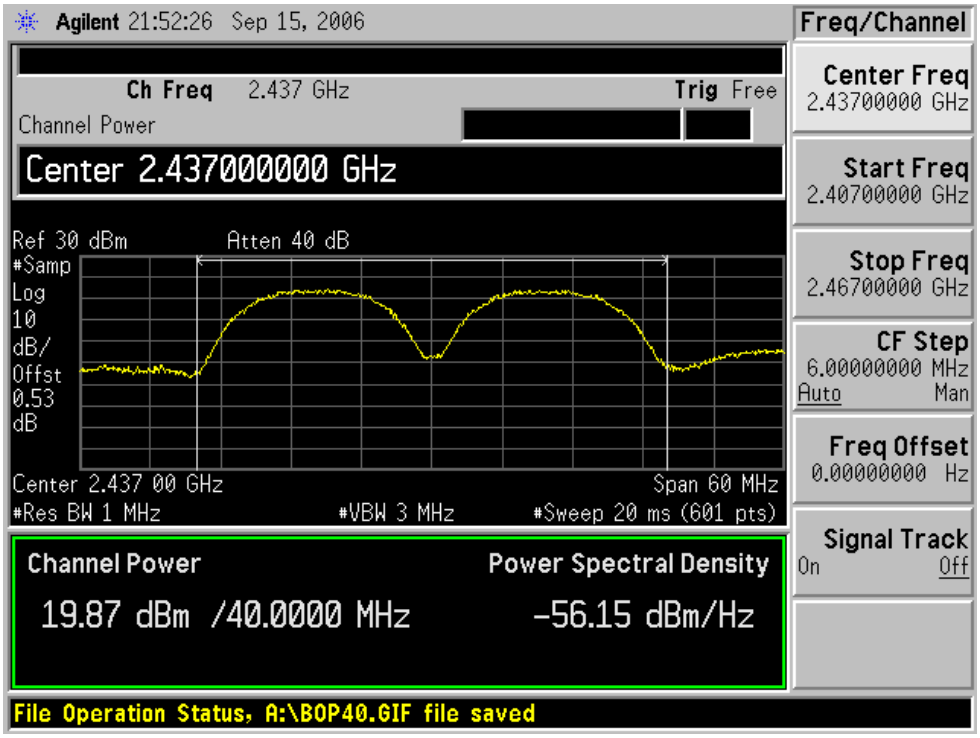
High Channel



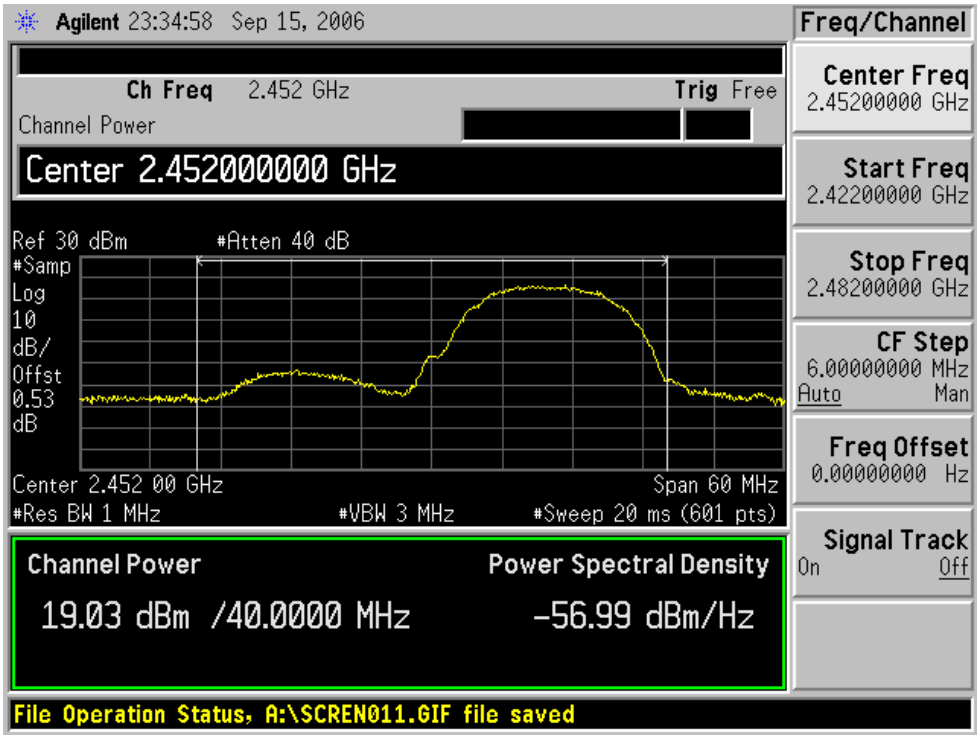
802.11b: 40MHz rate/channel, Chain A
Low Channel



Middle Channel

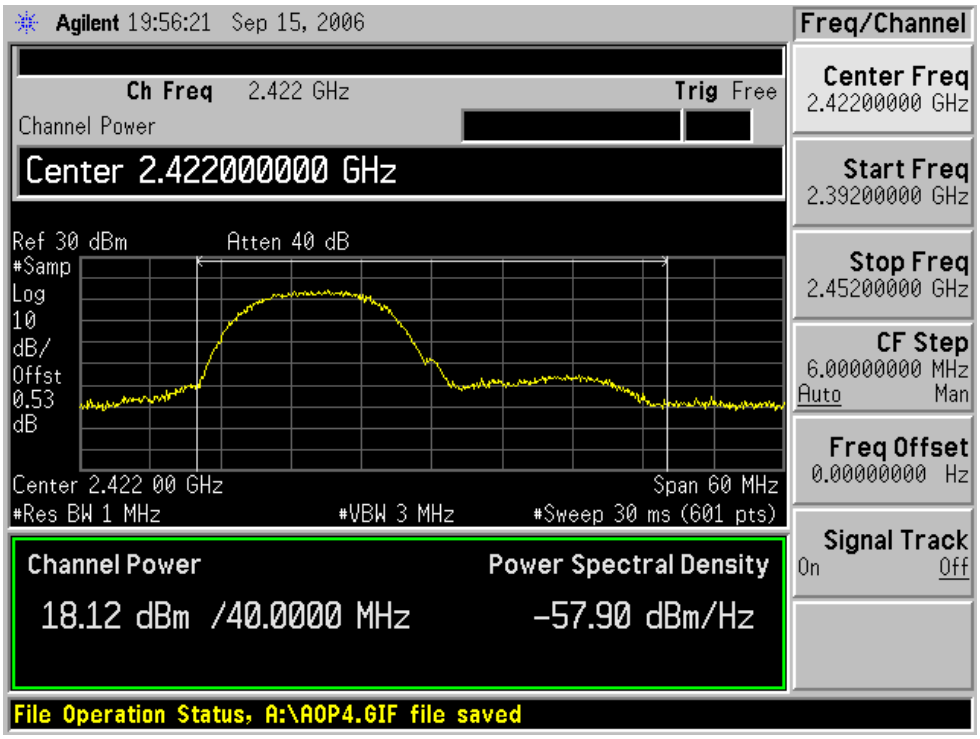


High Channel

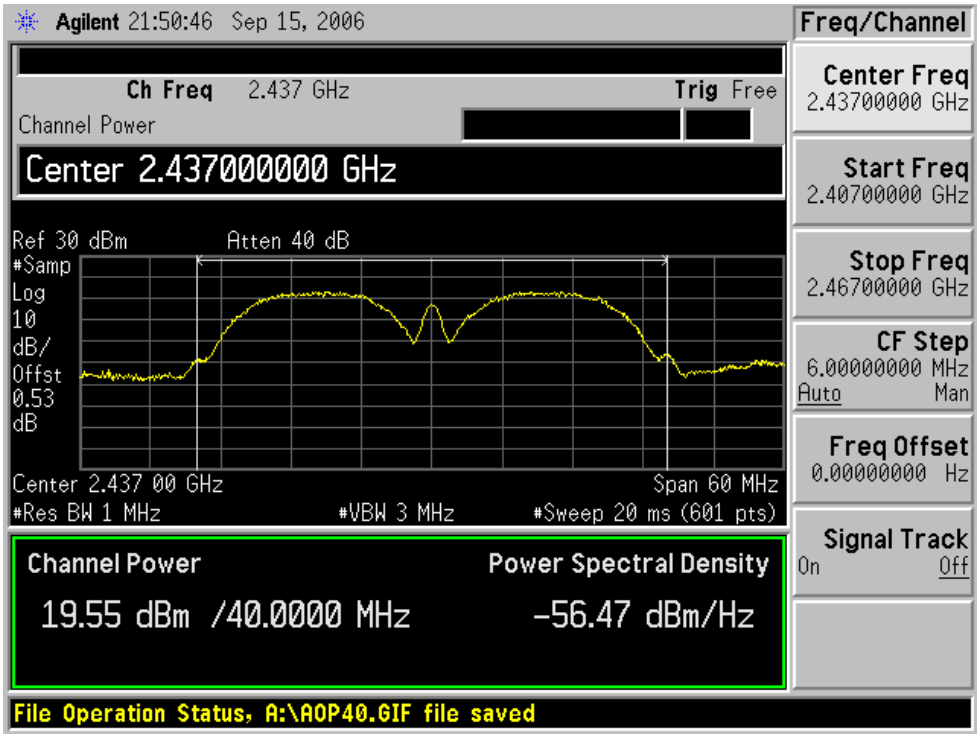


802.11b: 40MHz rate/channel, Chain B

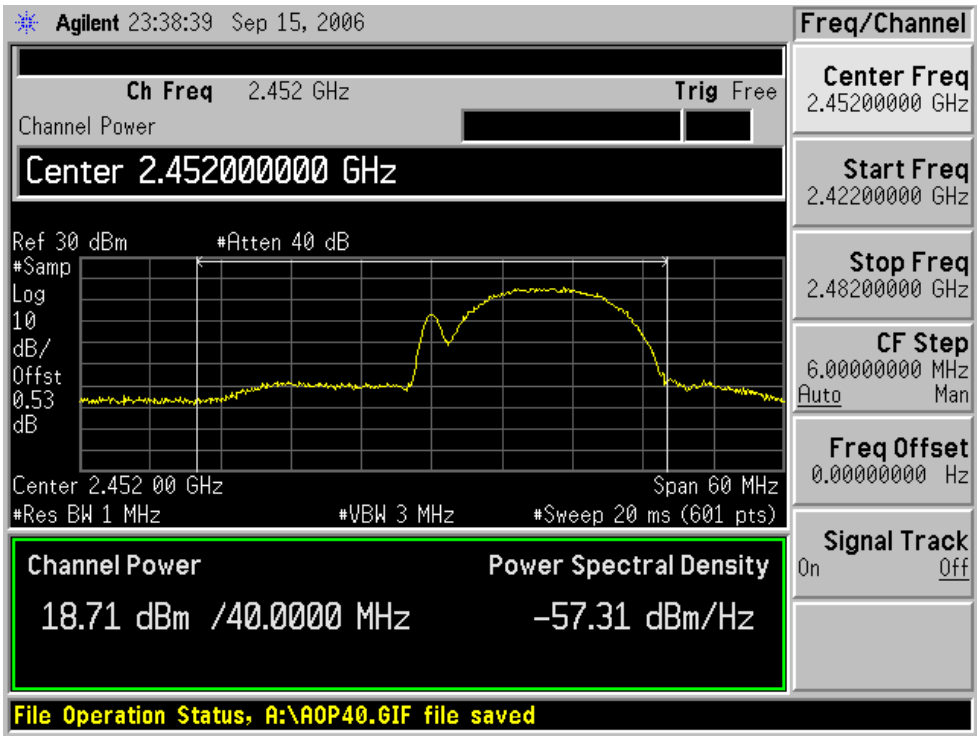
Low Channel



Middle Channel

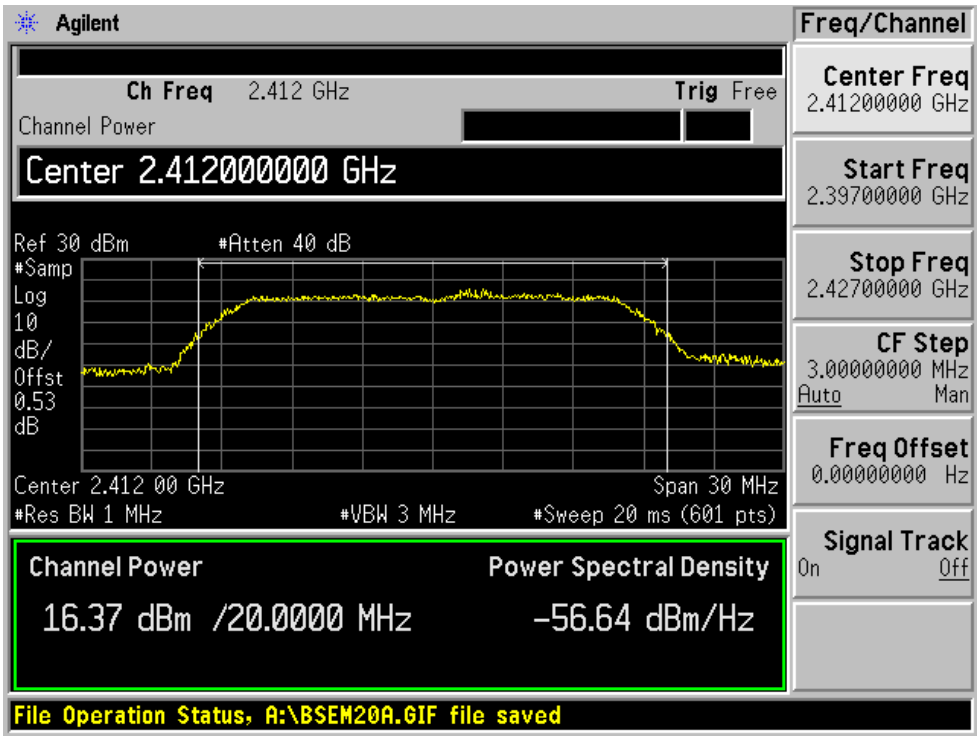


High Channel

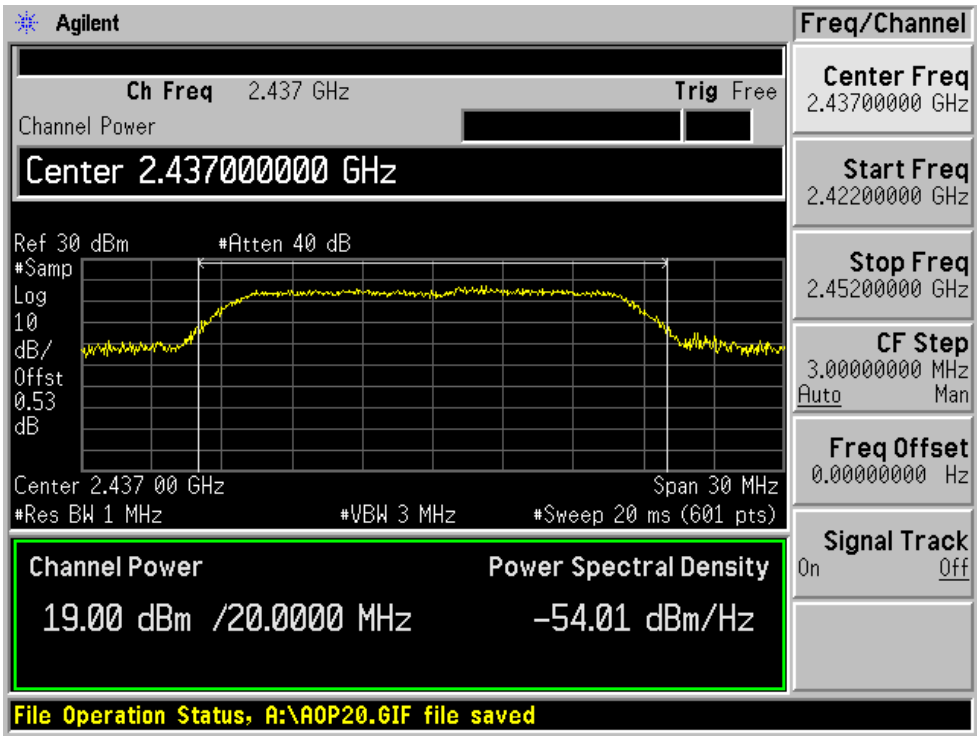


802.11g: 20MHz rate/channel, Chain A

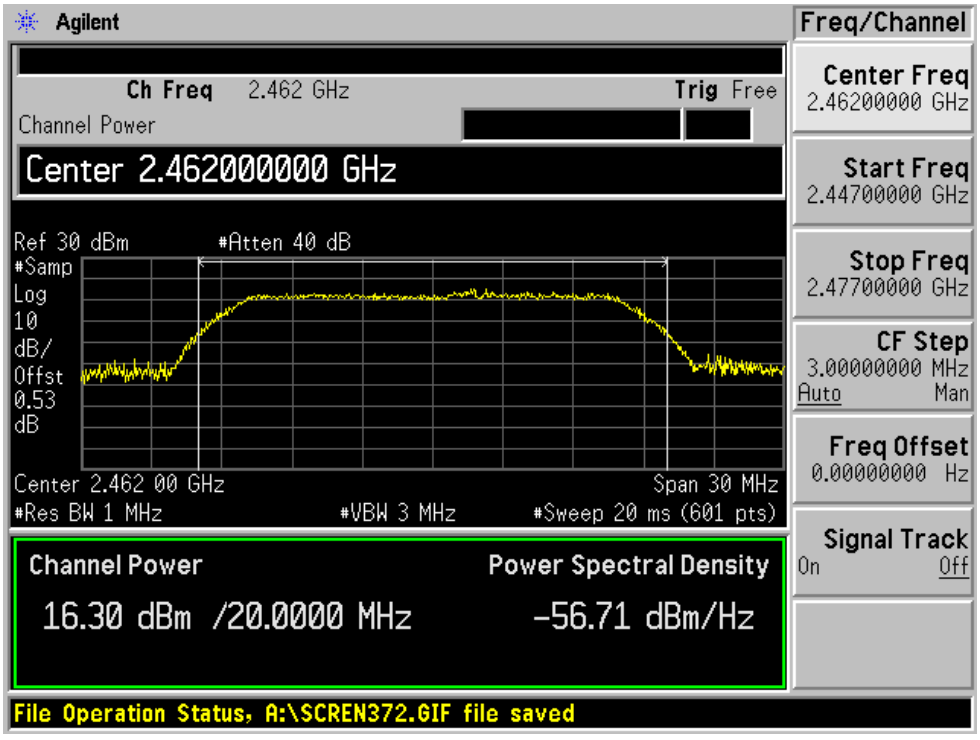
Low Channel



Middle Channel

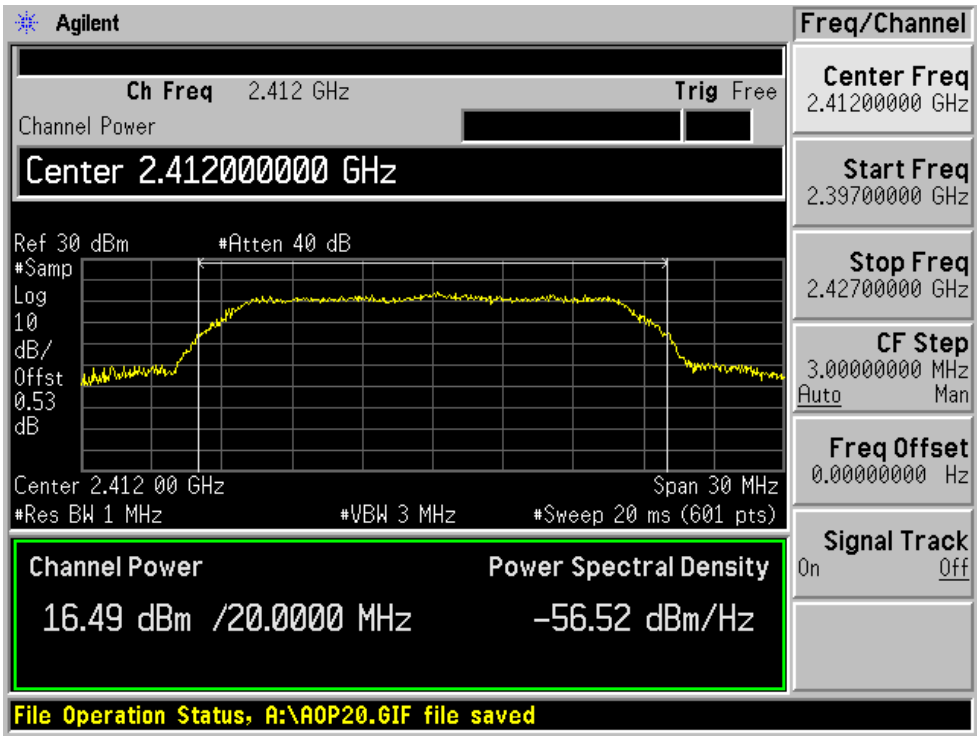


High Channel

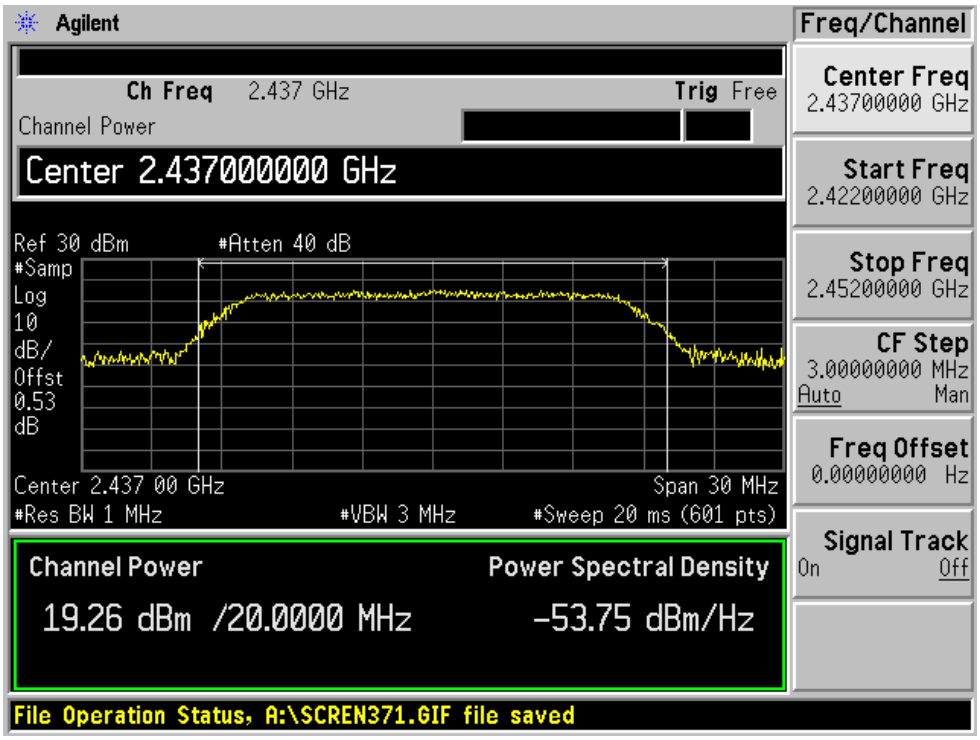


802.11g: 20MHz rate/channel, Chain B

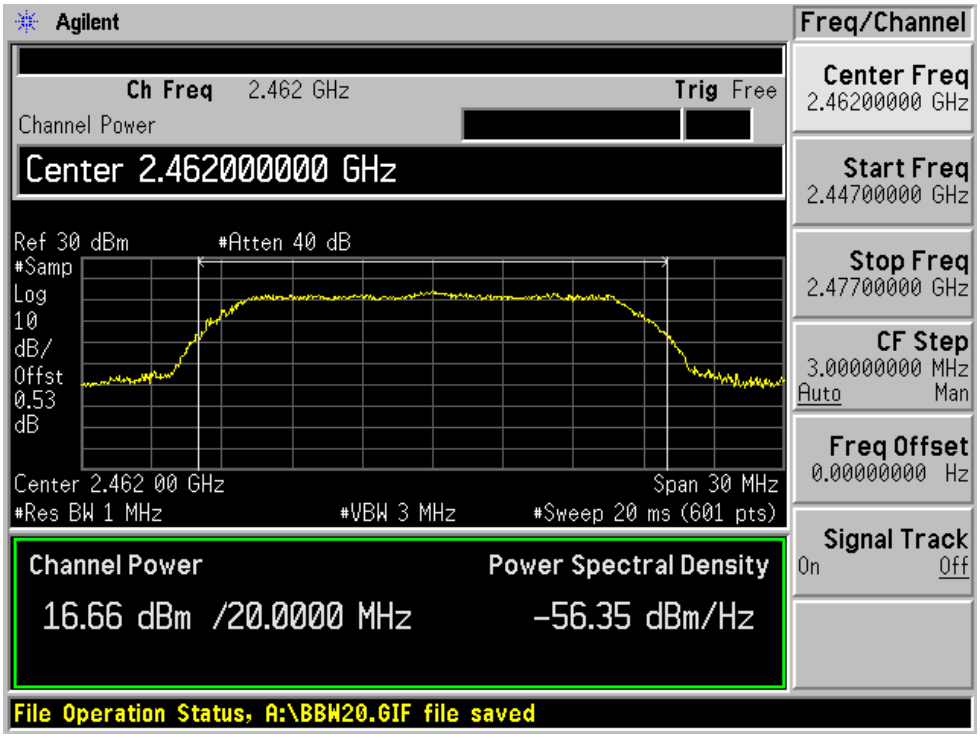
Low Channel



Middle Channel

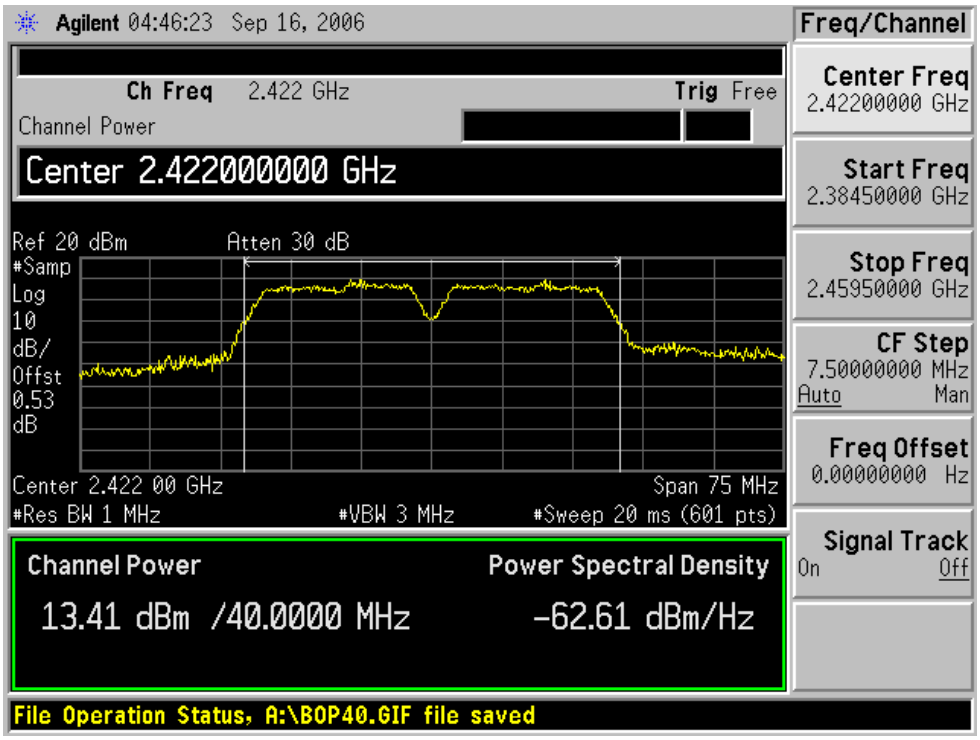


High Channel

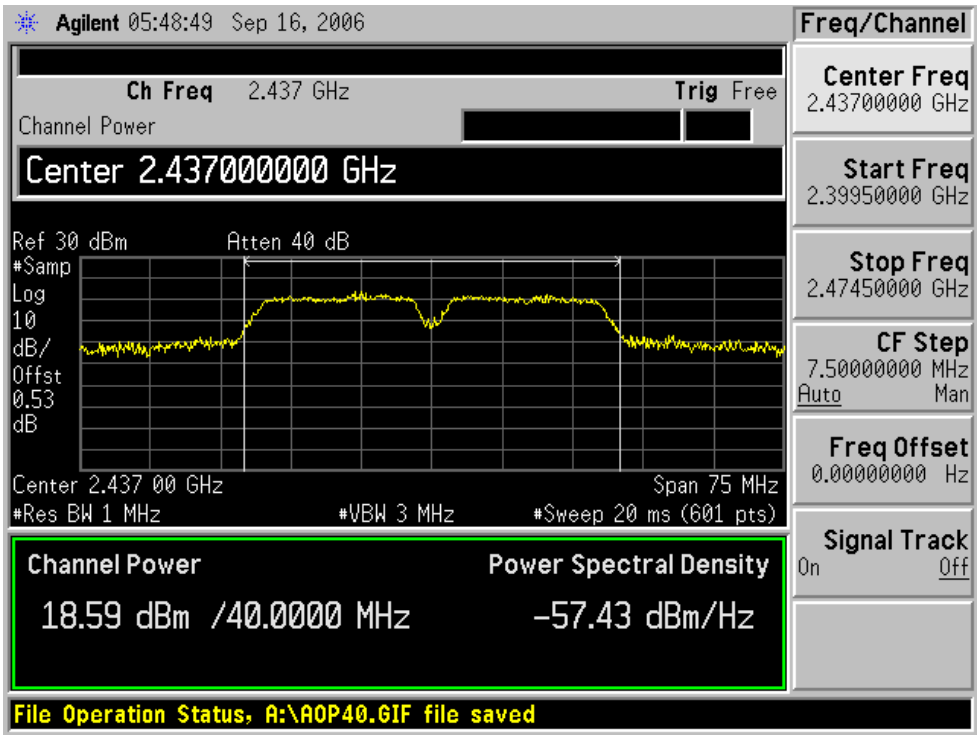


802.11g: 40MHz rate/channel, Chain A

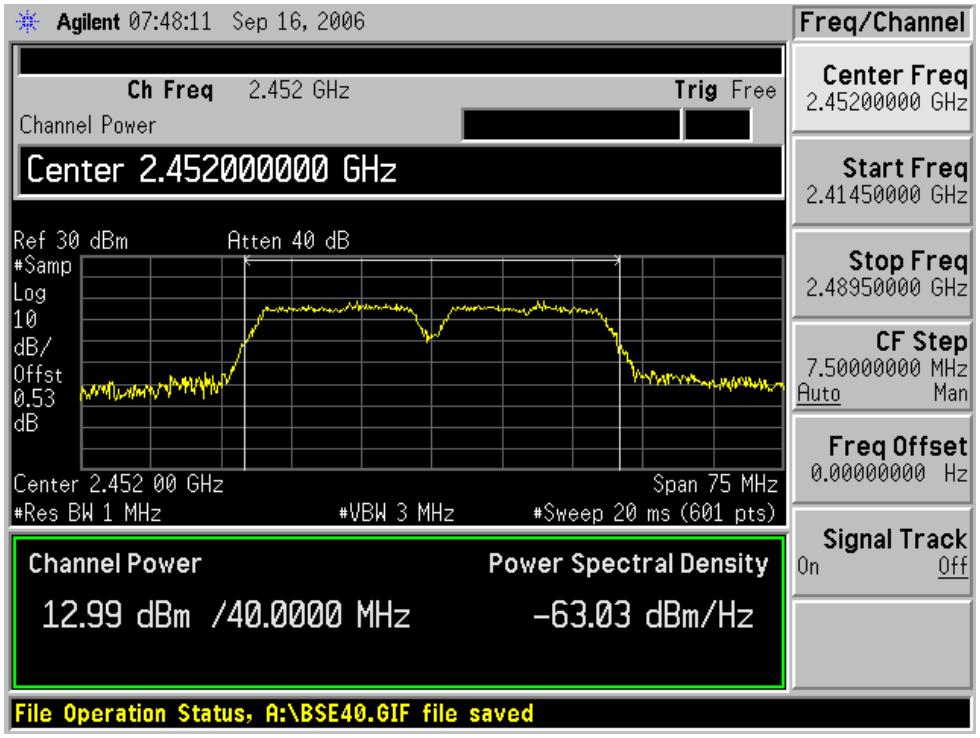
Low Channel



Middle Channel

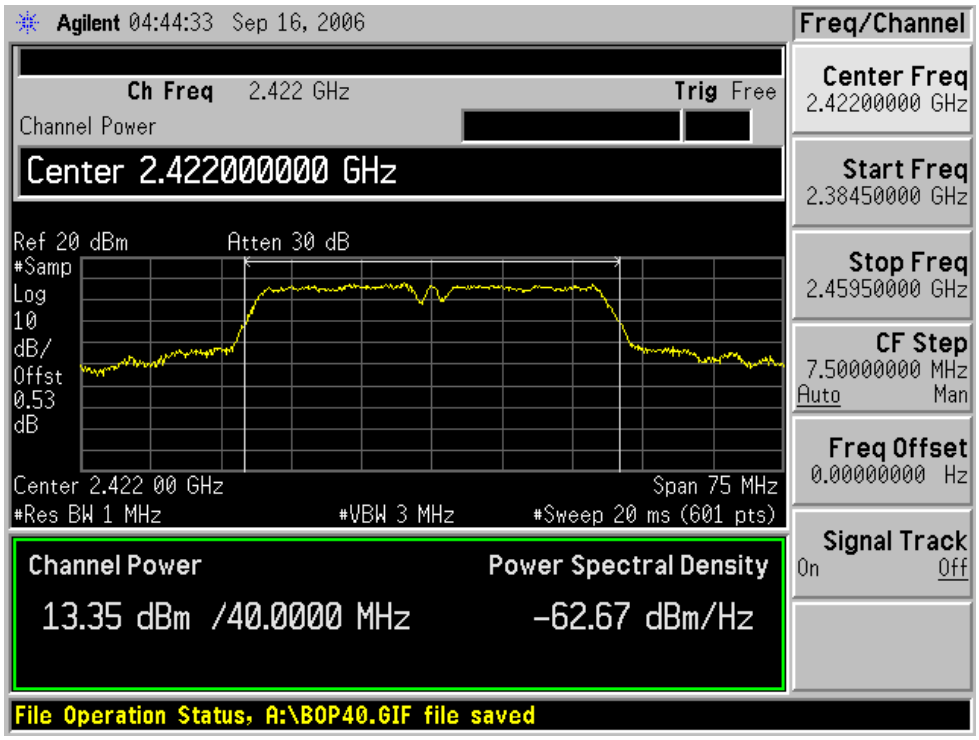


High Channel

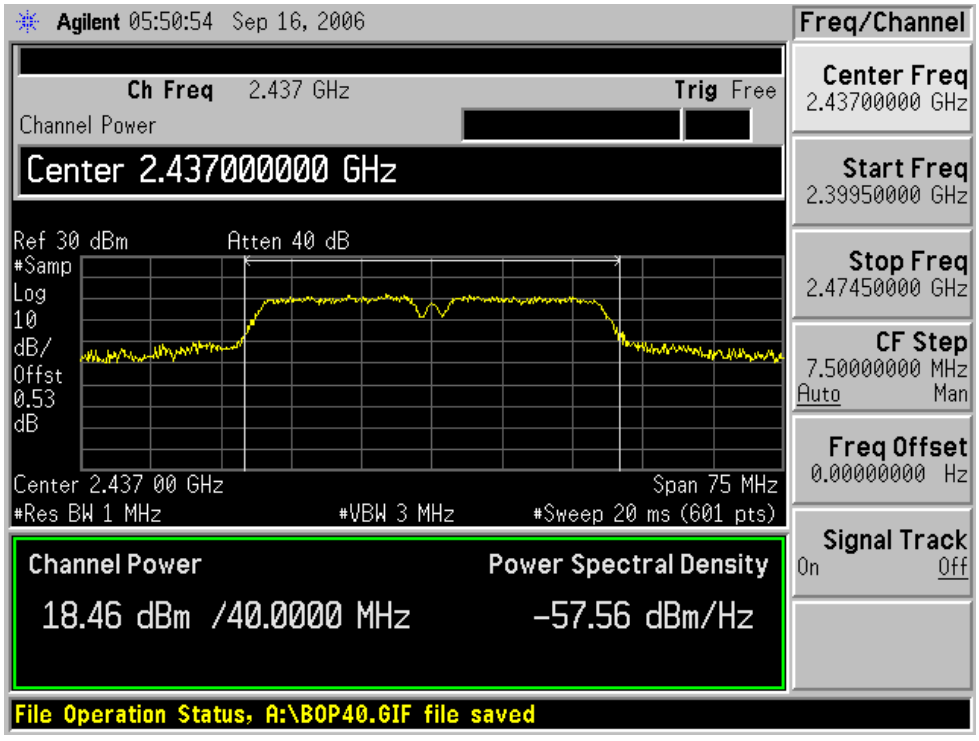


802.11g: 40MHz rate/channel, Chain B

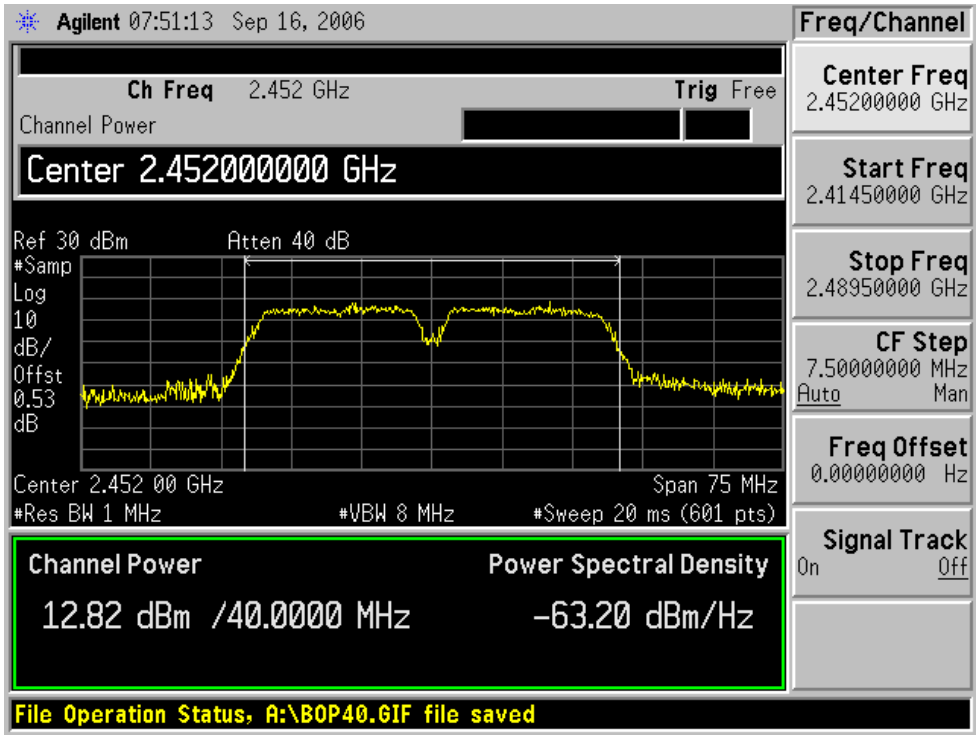
Low Channel



Middle Channel

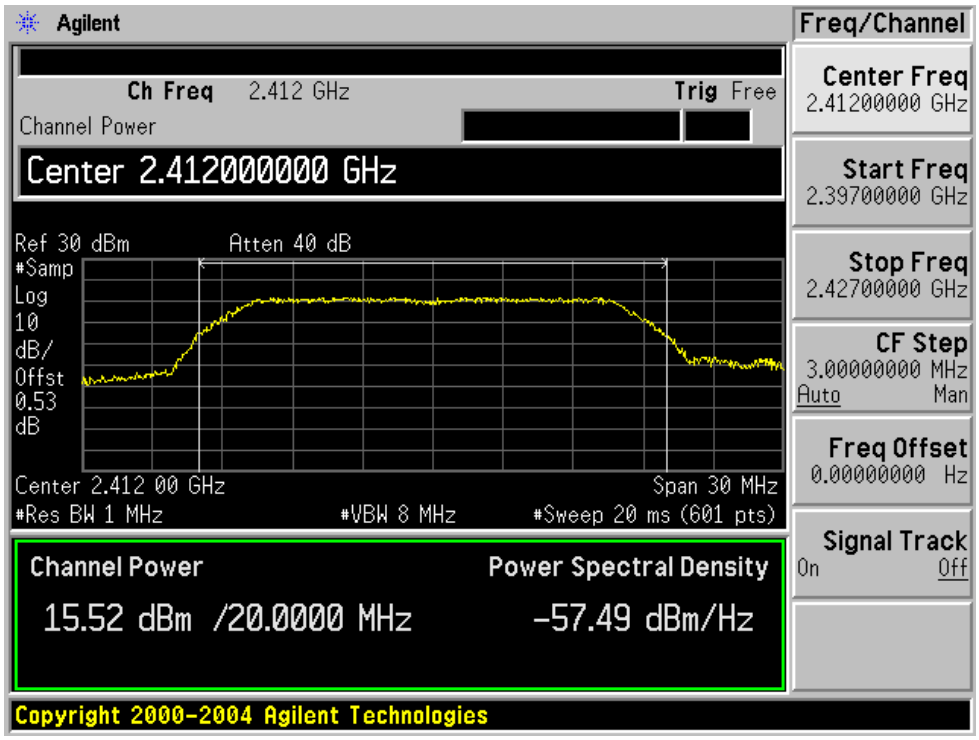


High Channel

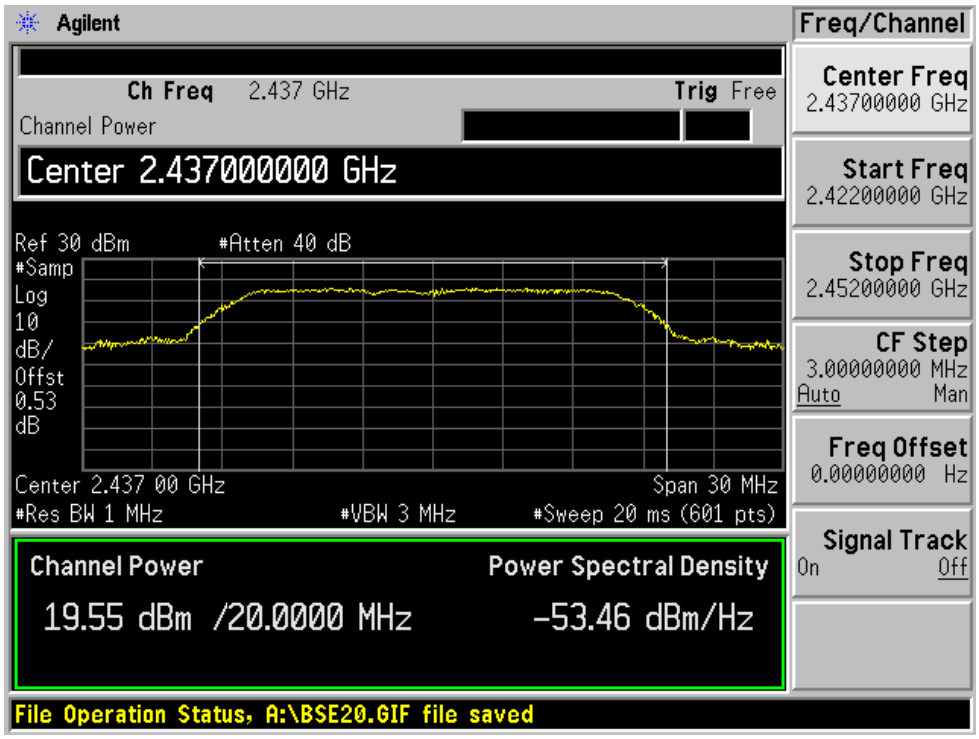


802.11n: 20MHz rate/channel, Chain A

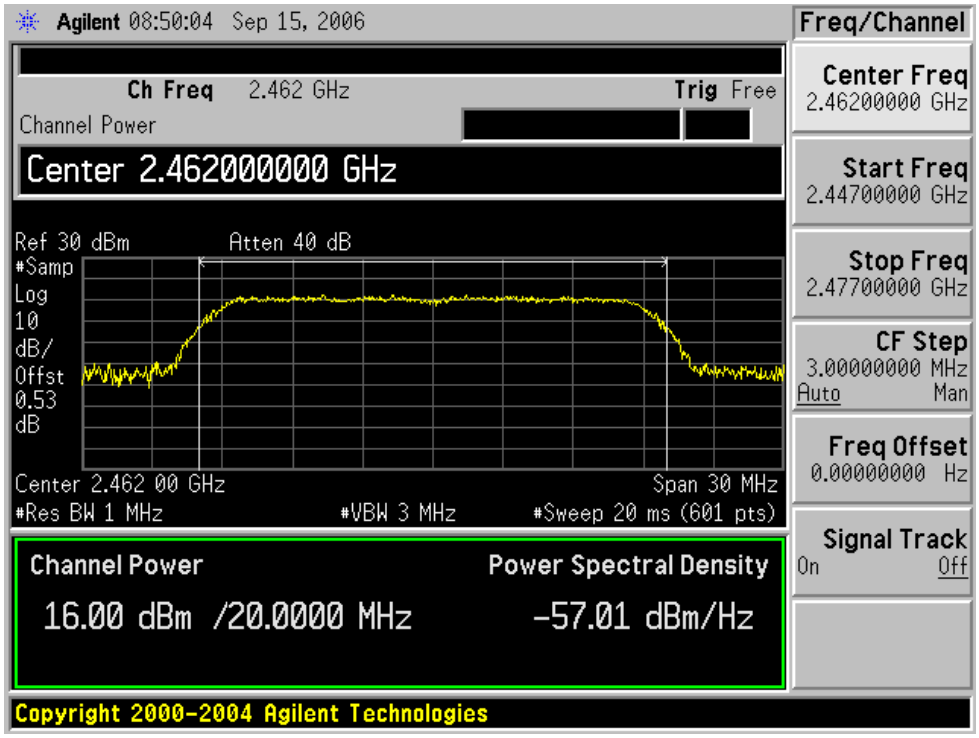
Low Channel



Middle Channel

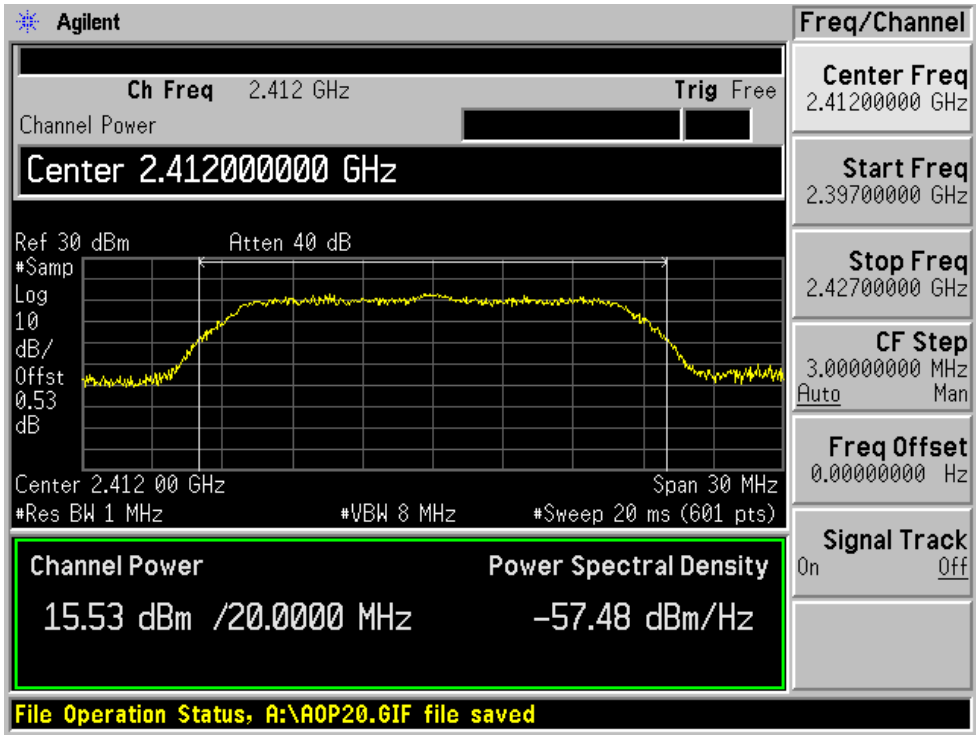


High Channel

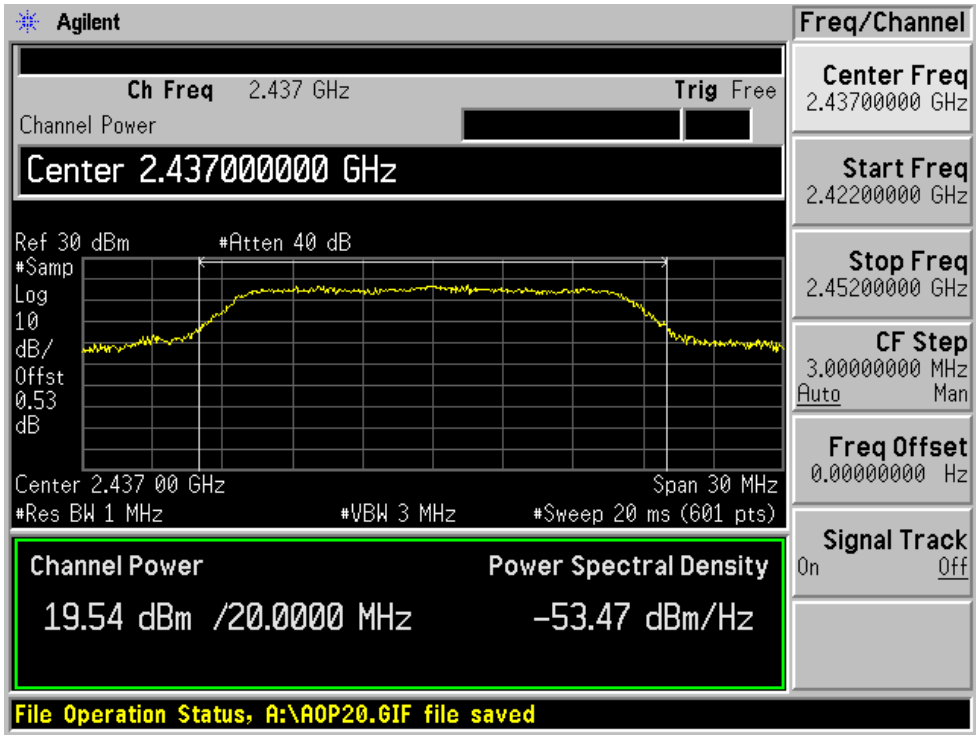


802.11n: 20MHz rate/channel, Chain B

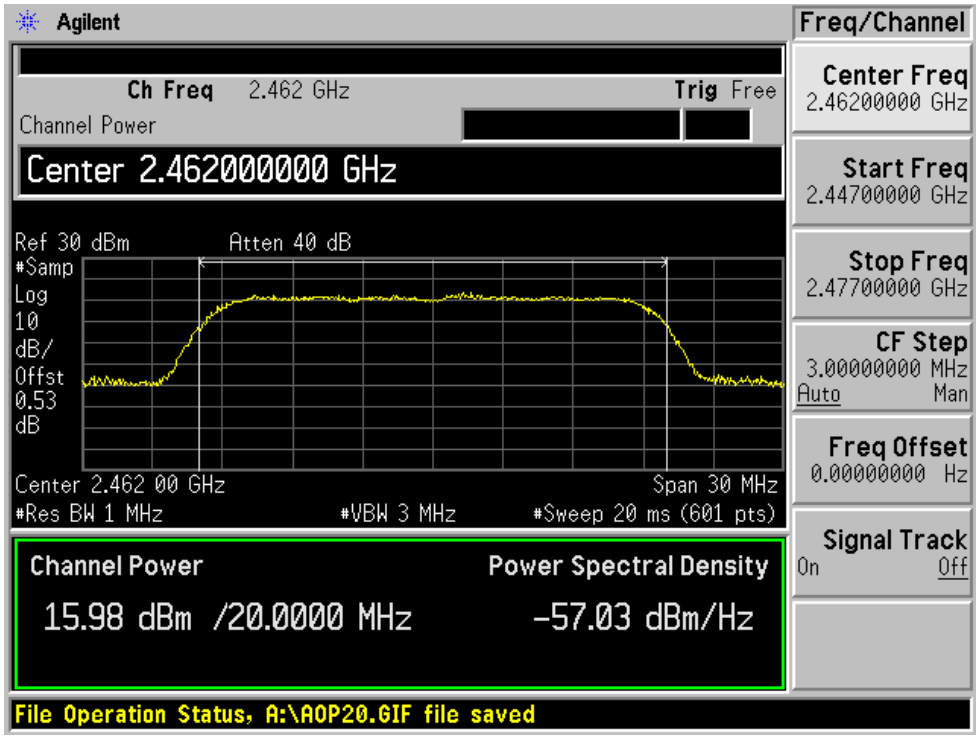
Low Channel



Middle Channel

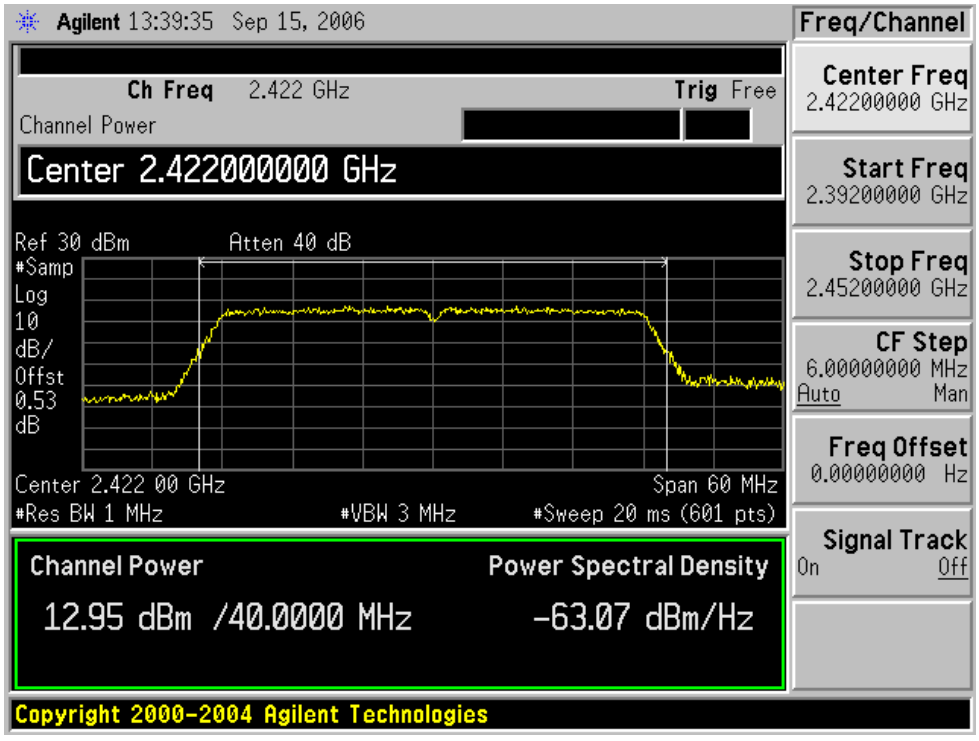


High Channel

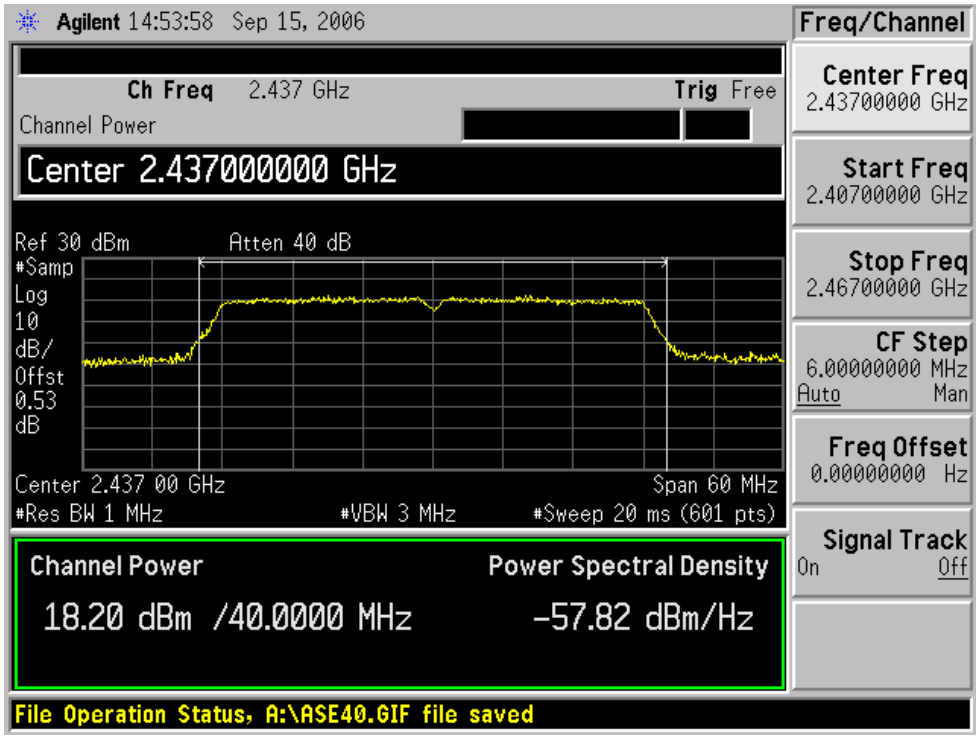


802.11n: 40MHz rate/channel, Chain A

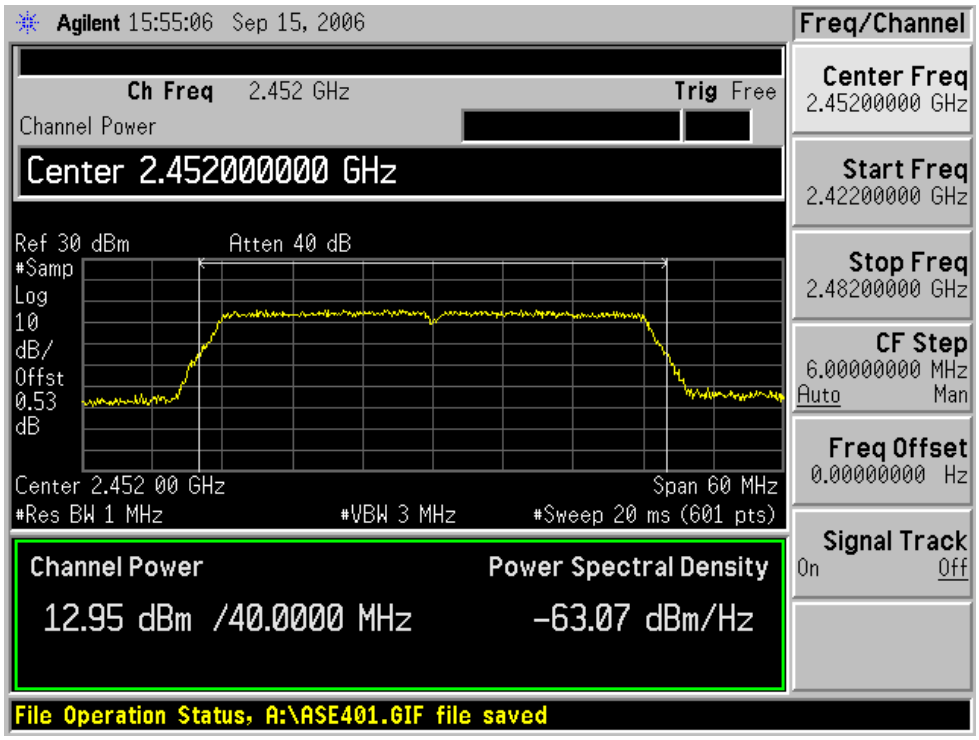
Low Channel



Middle Channel

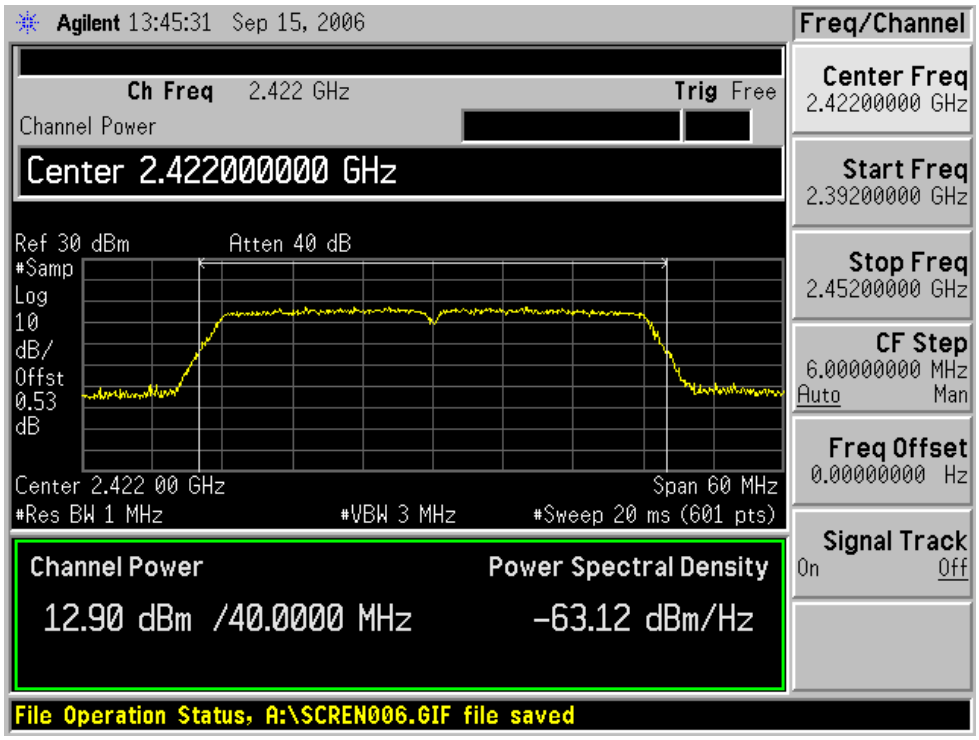


High Channel

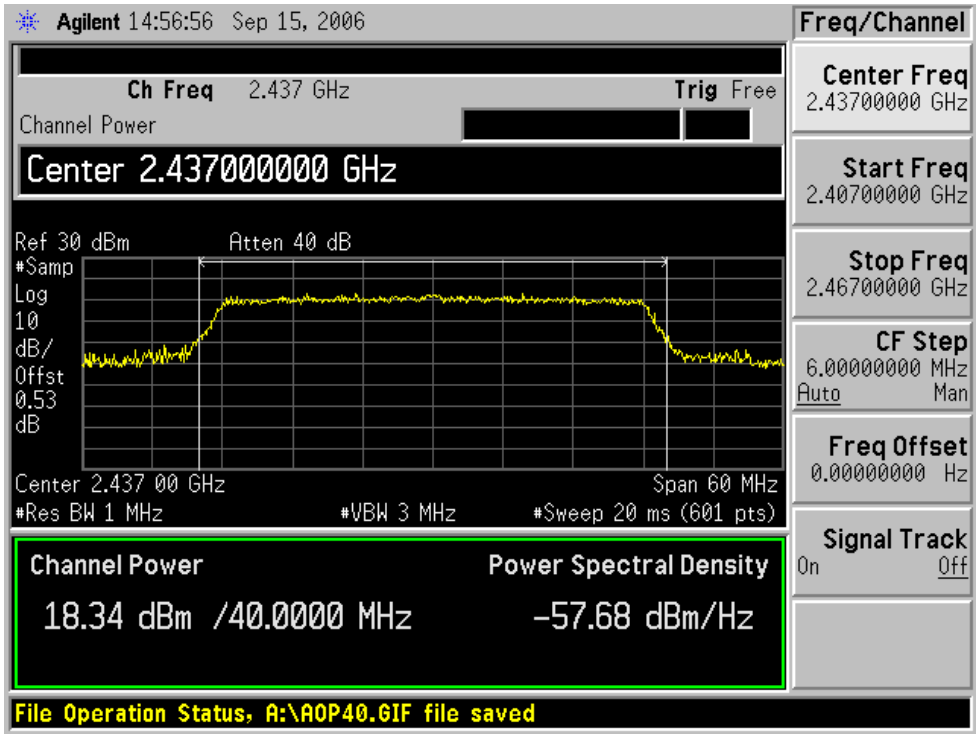


802.11n: 40MHz rate/channel, Chain B

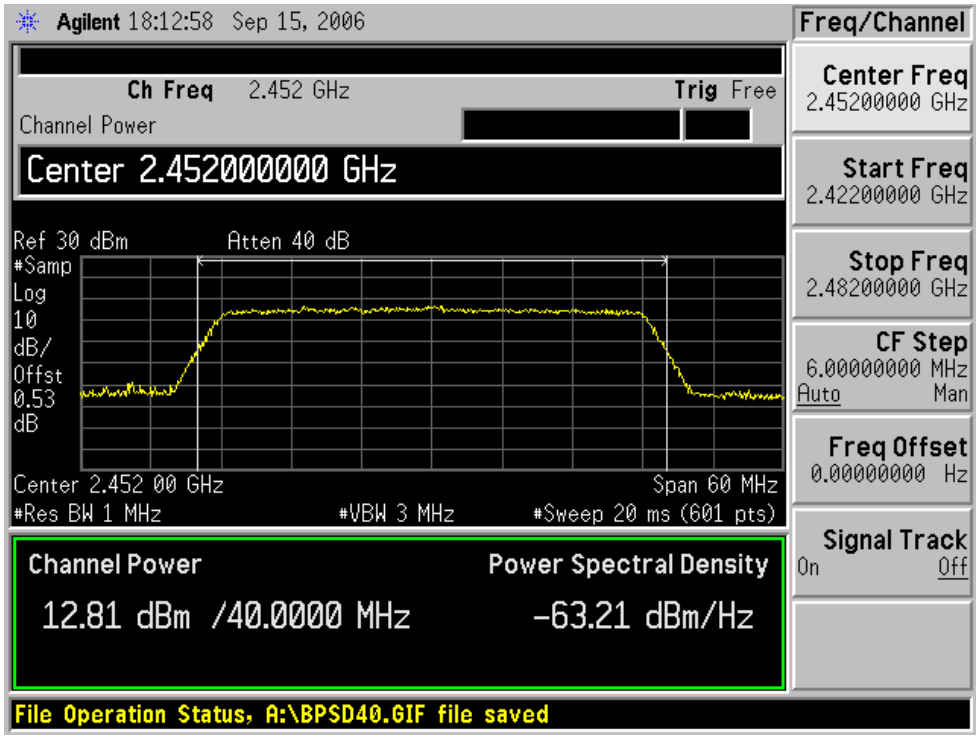
Low Channel



Middle Channel



High Channel



Average Output Power

No limit, just for reporting purpose only.

Measurement Procedure

The transmitter output is connected to a power meter, each chain is measured separately and the total power is calculated using the following formula:

Total Average Power = 10 log (10^ (Chain A Power / 10) + 10 ^ (Chain B Power / 10))

Test Results

802.11b: 20MHz rate/channel

Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average power Total (dBm)
2412	18.46	18.63	21.56
2437	19.00	19.10	22.06
2462	19.00	19.05	22.04

802.11b: 40MHz rate/channel

Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average power Total (dBm)
2412	17.32	17.93	20.61
2437	19.50	19.32	22.42
2462	18.69	18.09	21.41

802.11g: 20MHz rate/channel

Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average power Total (dBm)
2412	16.27	16.30	19.30
2437	18.64	18.65	21.66
2462	15.65	16.12	18.90

802.11g: 40MHz rate/channel

Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average power Total (dBm)
2422	12.96	12.68	15.83
2437	18.01	18.10	21.07
2452	12.63	12.70	15.68

802.11n: 20MHz rate/channel

Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average power Total (dBm)
2412	15.84	14.53	18.25
2437	19.20	19.30	22.26
2462	14.56	14.81	17.70

802.11n: 40MHz rate/channel

Frequency (MHz)	Average Power Chain A (dBm)	Average Power Chain B (dBm)	Average power Total (dBm)
2422	12.79	12.40	15.61
2437	18.10	18.10	21.11
2452	12.70	12.40	15.56

§15.247(d) - 100 kHz BANDWIDTH OF BAND EDGES

Applicable Standard

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

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum analyzer	E4446A	US44300386	2006-03-06

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram

Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

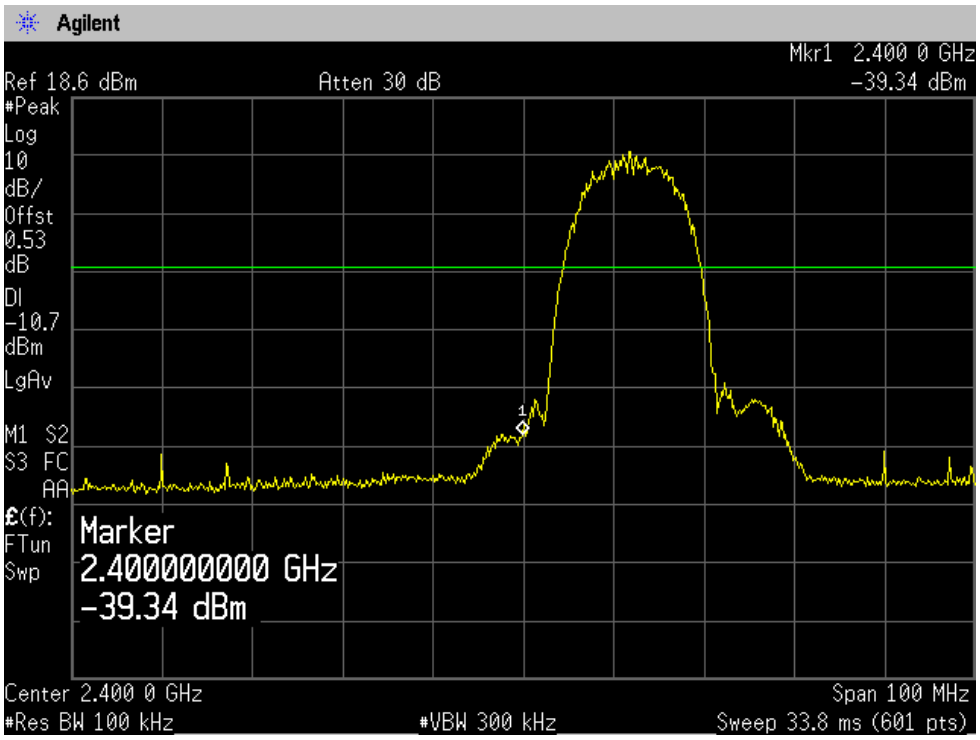
**The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

Measurement Result

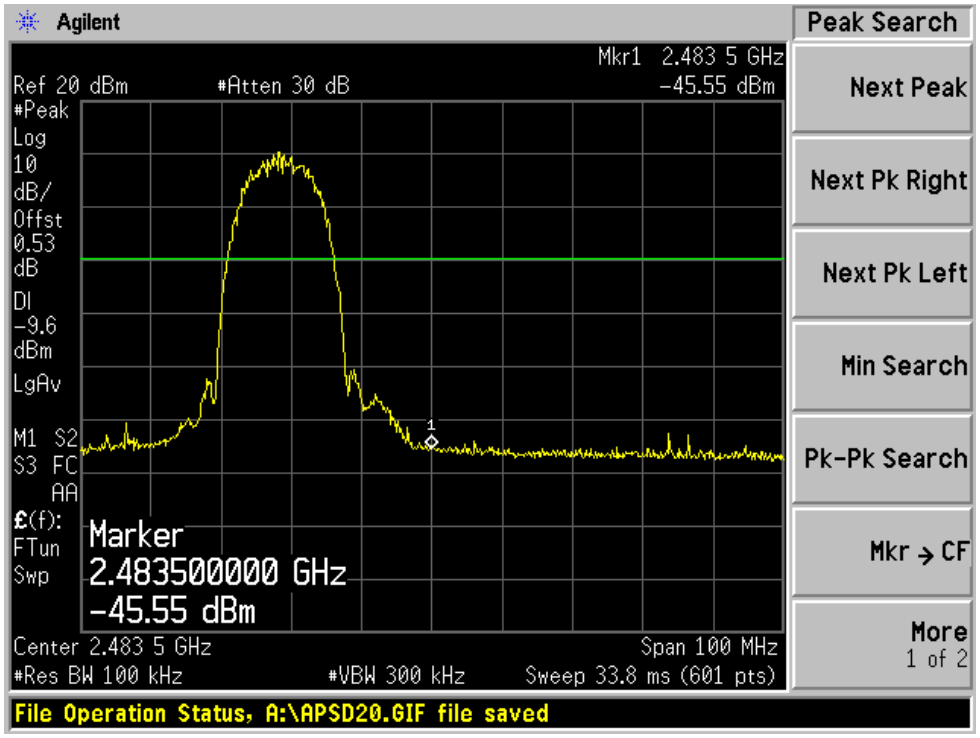
Please refer to following pages for plots of band edge.

802.11b: 20MHz rate/channel, Chain A

Low Channel

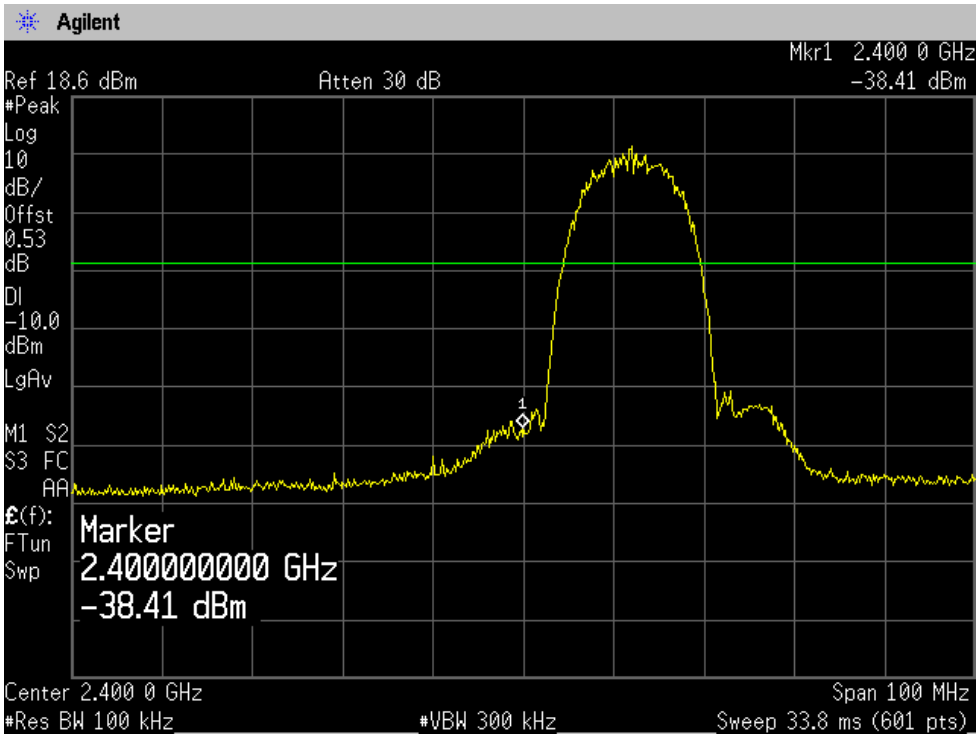


High Channel

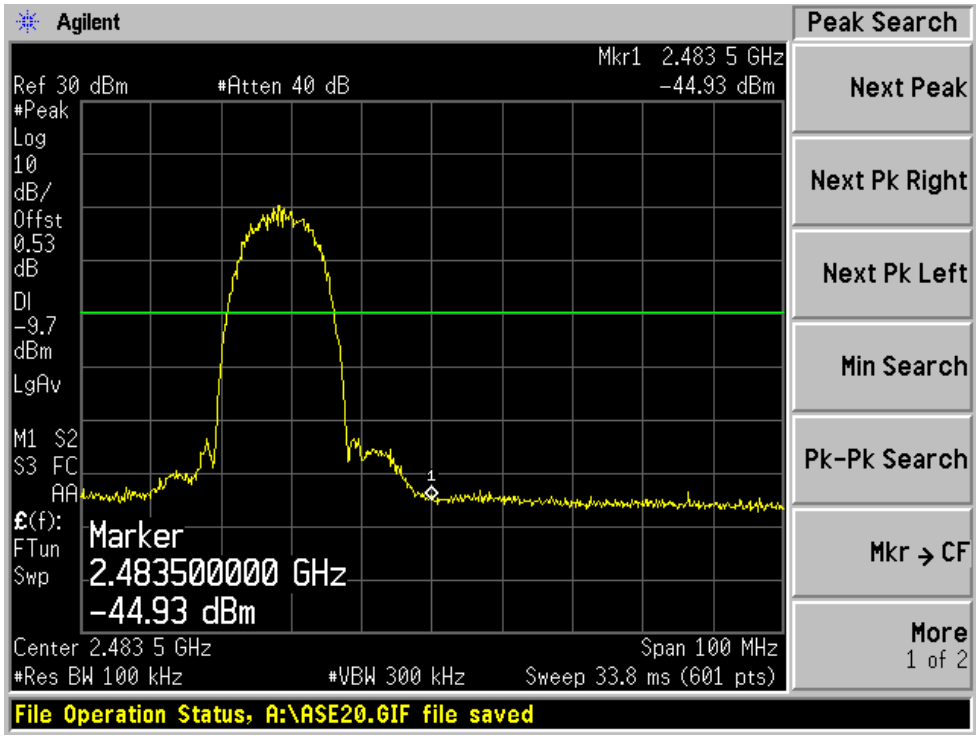


802.11b: 20MHz rate/channel, Chain B

Low Channel

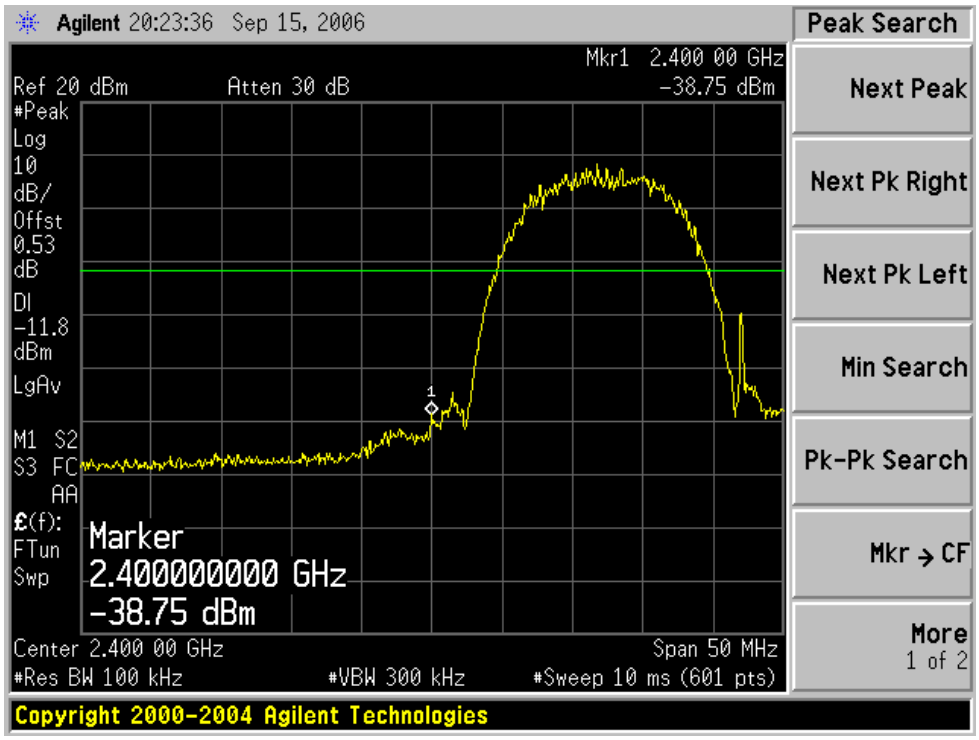


High Channel

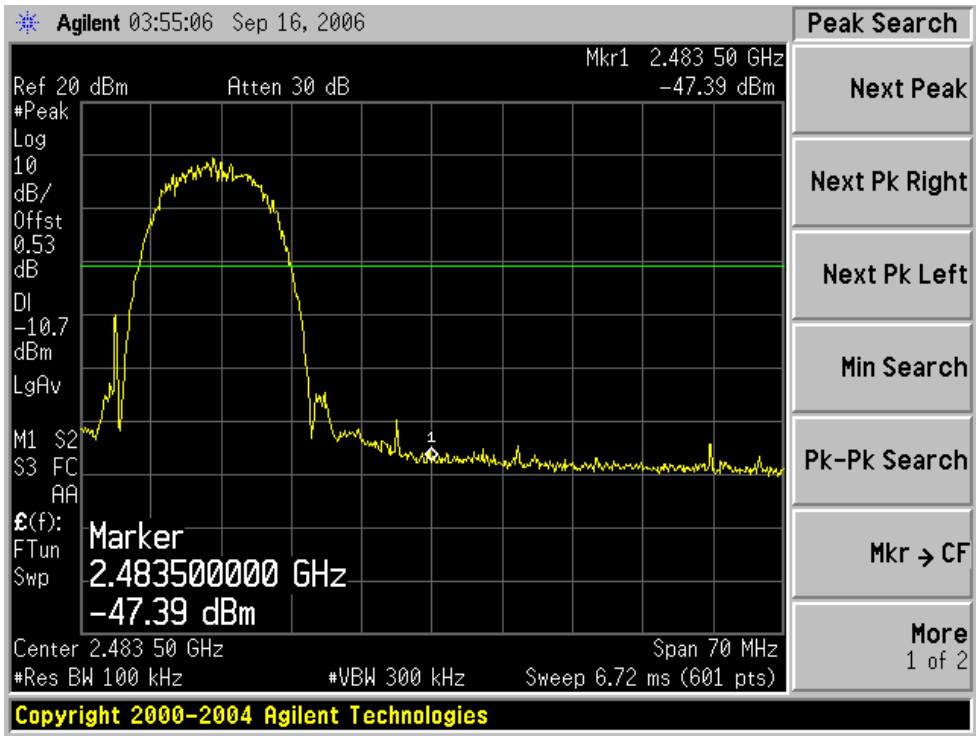


802.11b: 40MHz rate/channel, Chain A

Low Channel

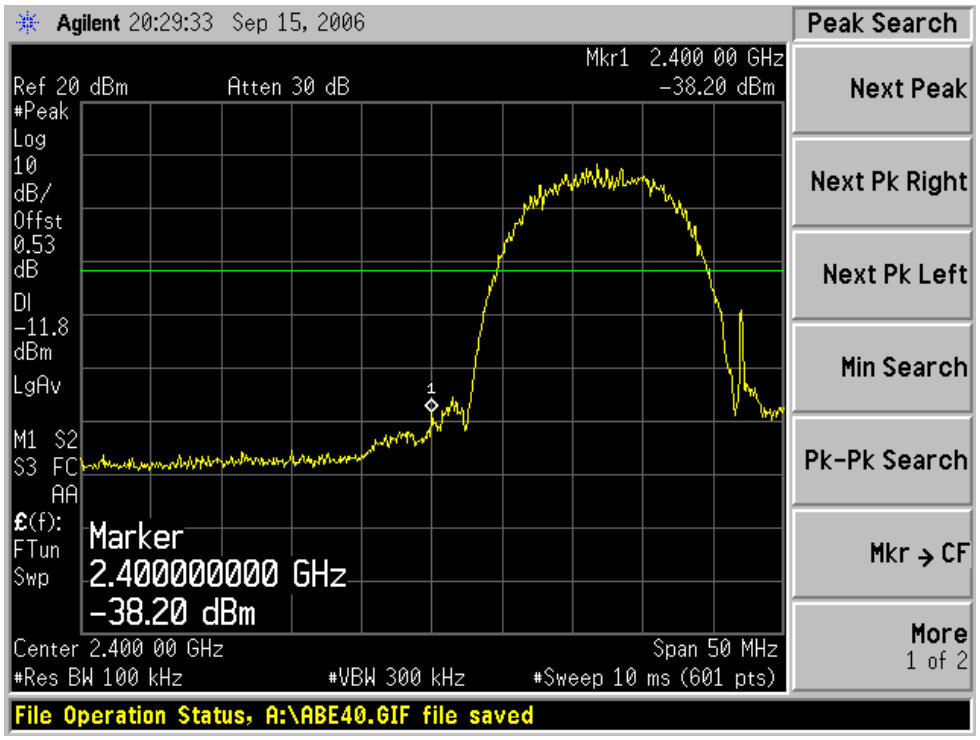


High Channel

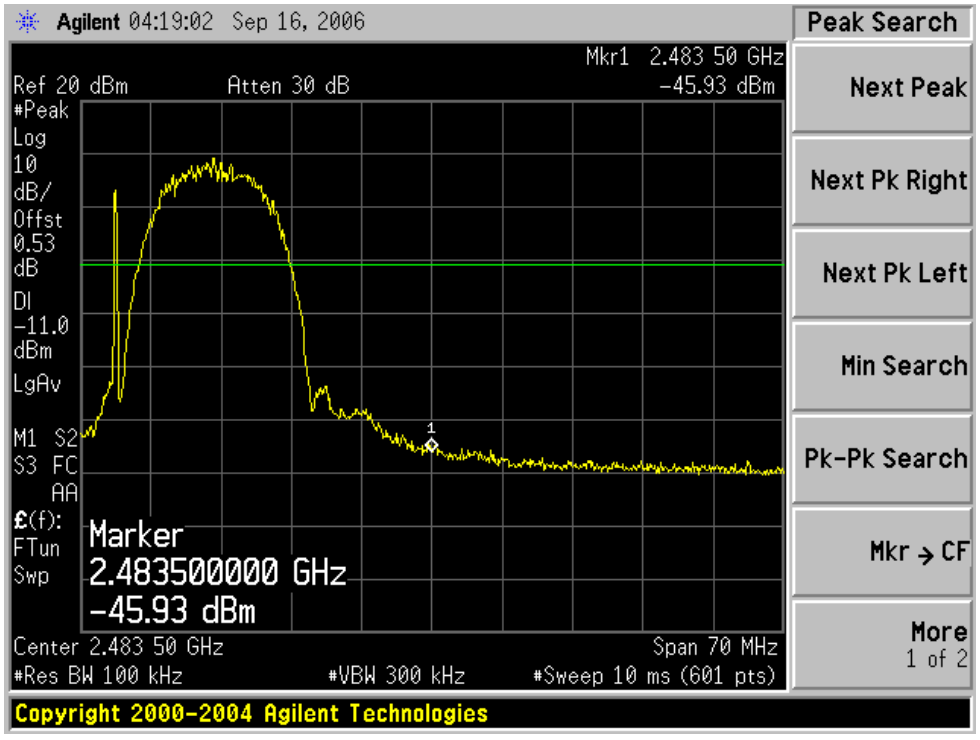


802.11b: 40MHz rate/channel, Chain B

Low Channel

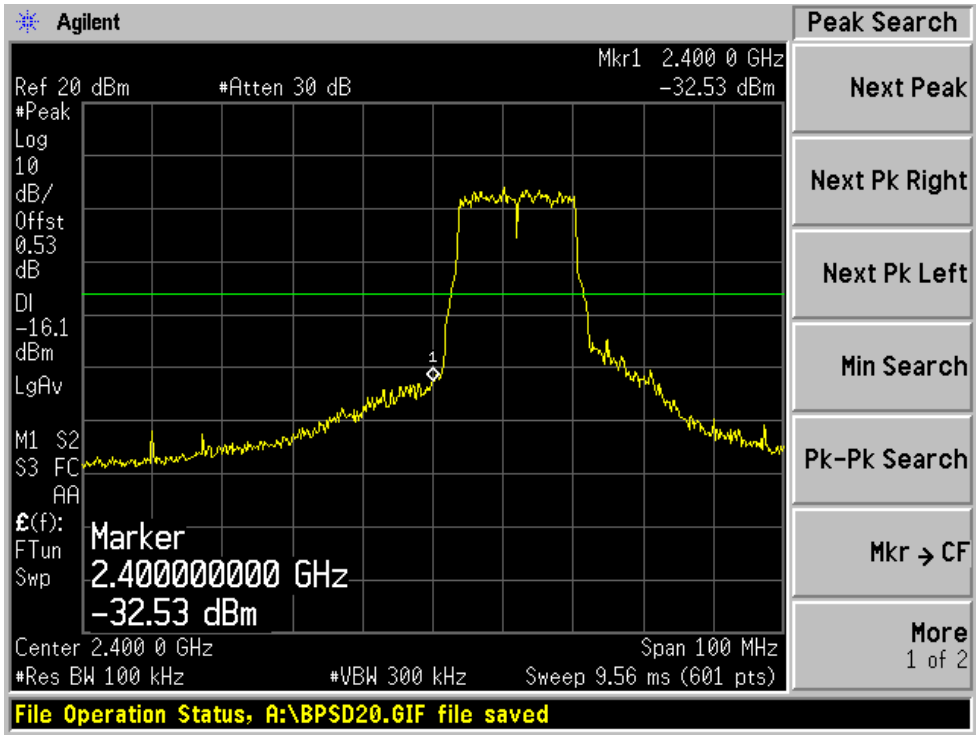


High Channel

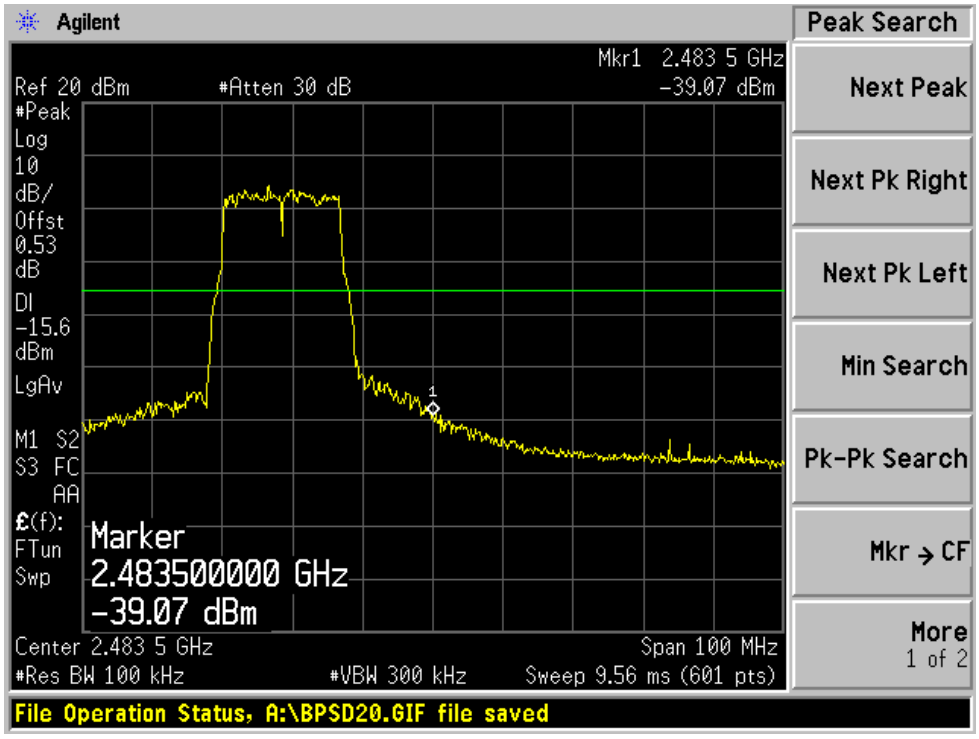


802.11g: 20MHz rate/channel, Chain A

Low Channel

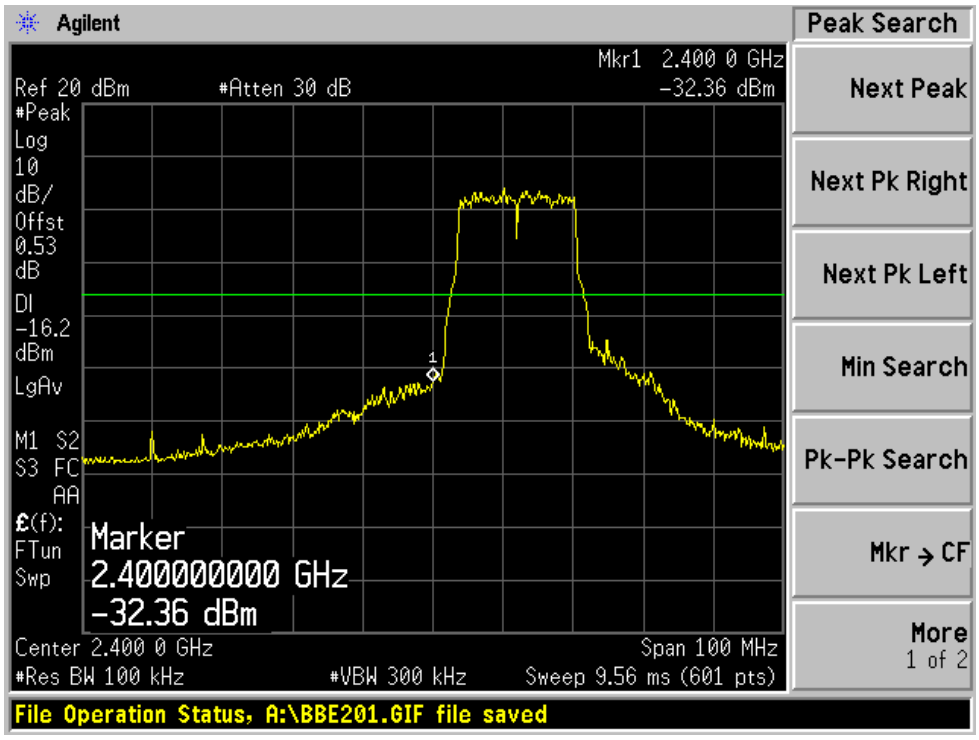


High Channel

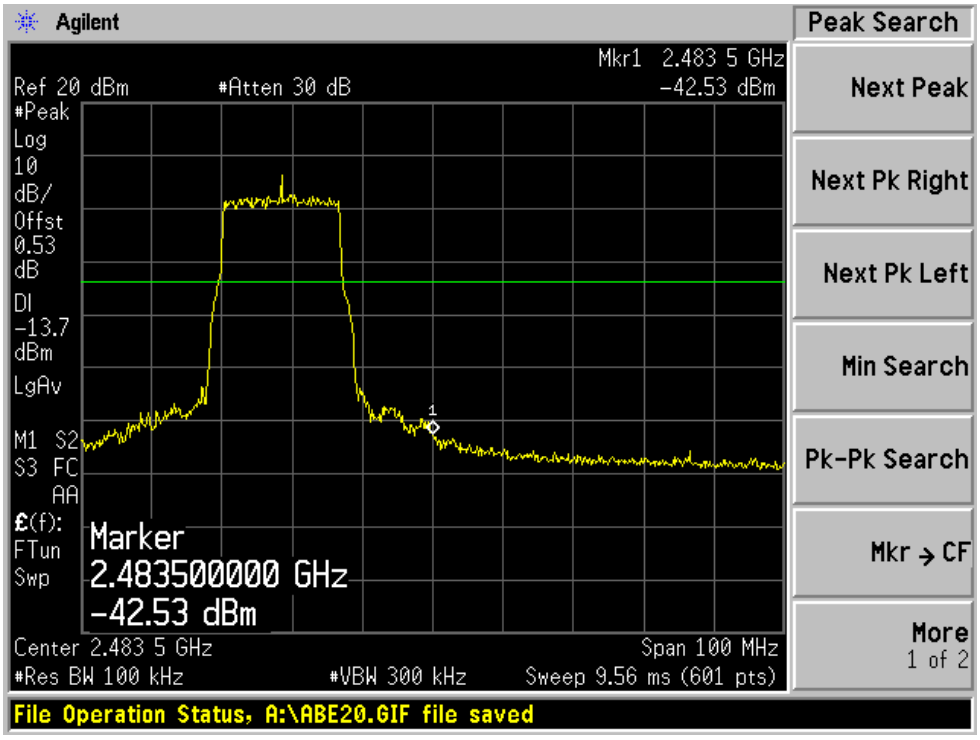


802.11g: 20MHz rate/channel, Chain B

Low Channel

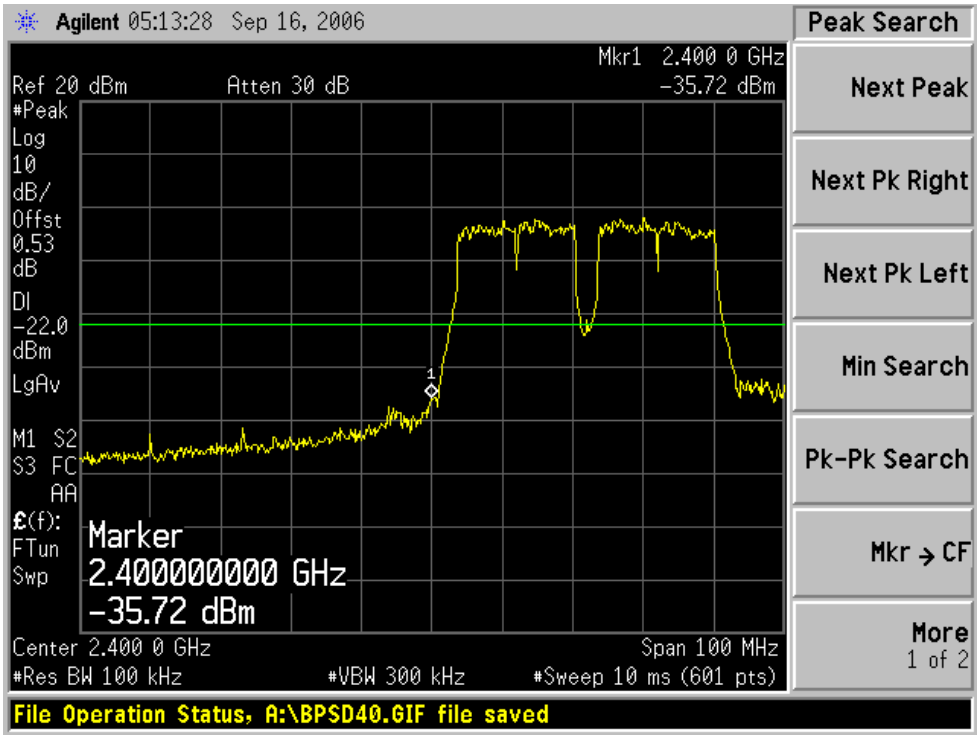


High Channel

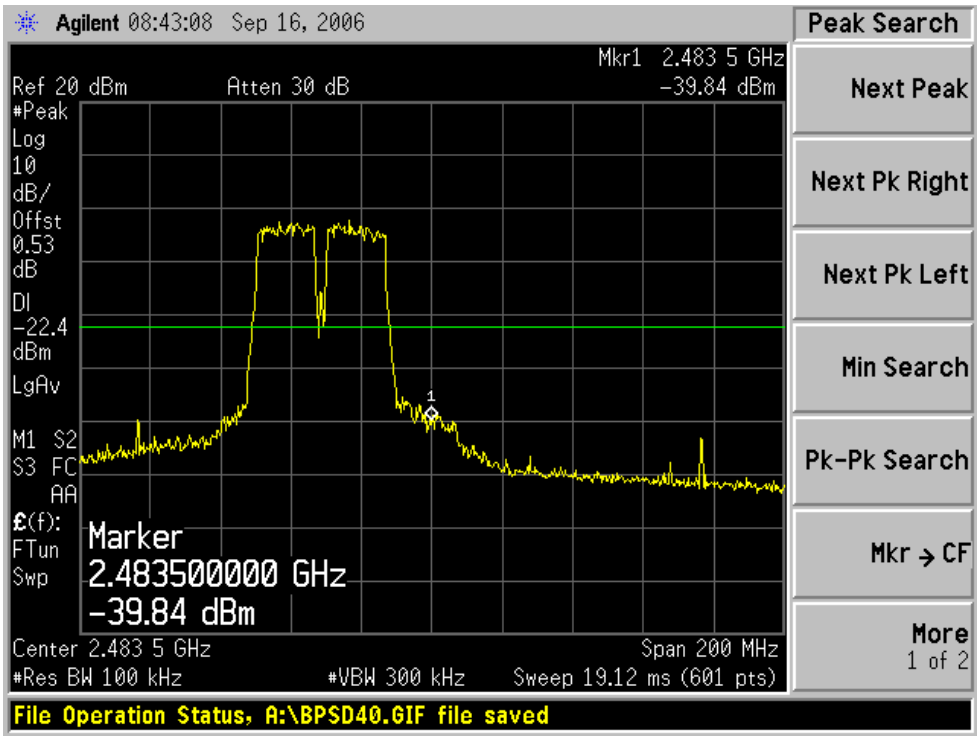


802.11g: 40MHz rate/channel, Chain A

Low Channel

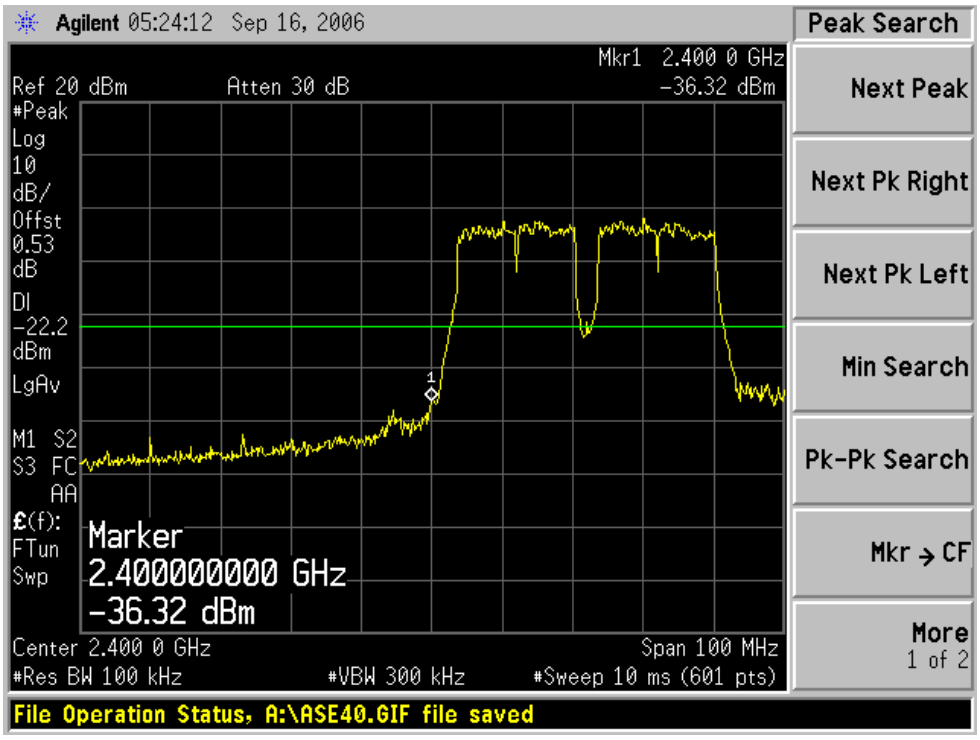


High Channel

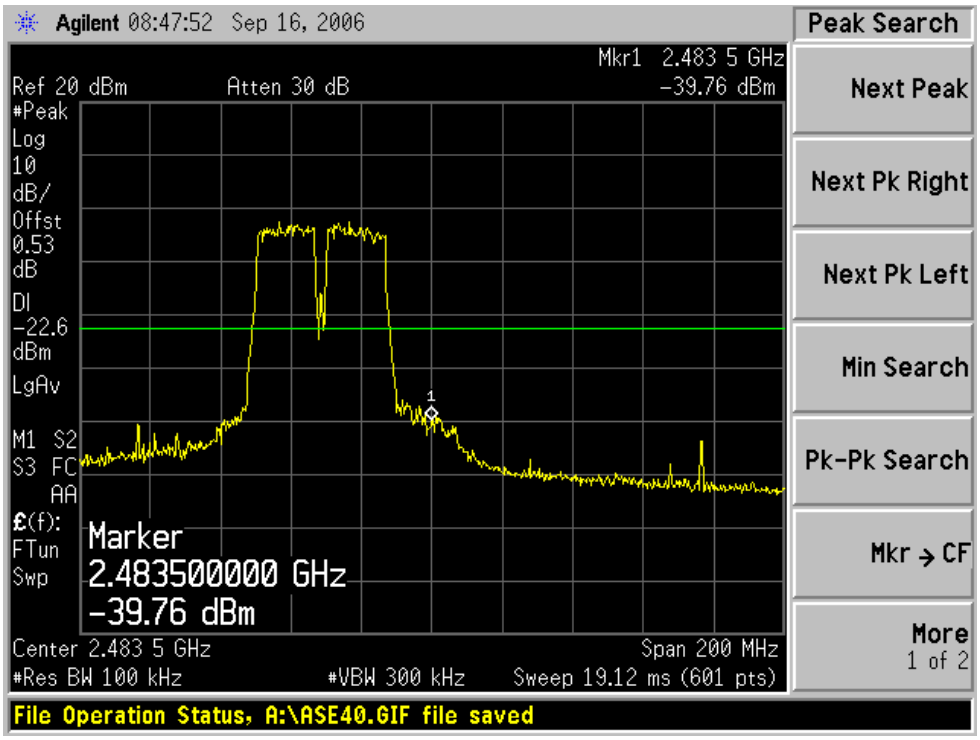


802.11g: 40MHz rate/channel, Chain B

Low Channel

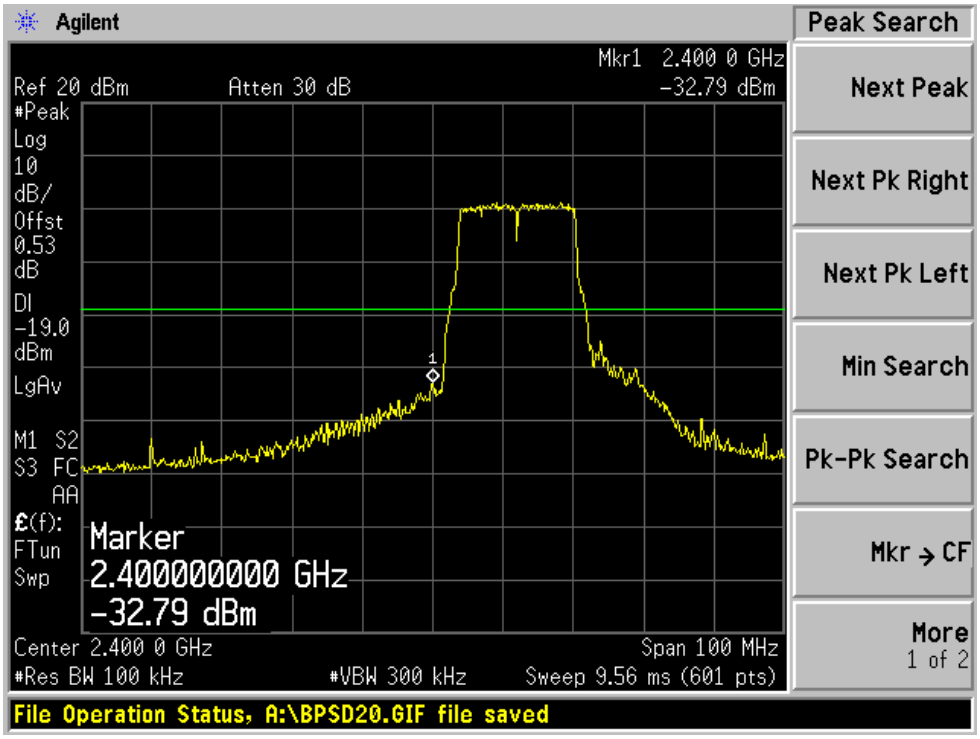


High Channel

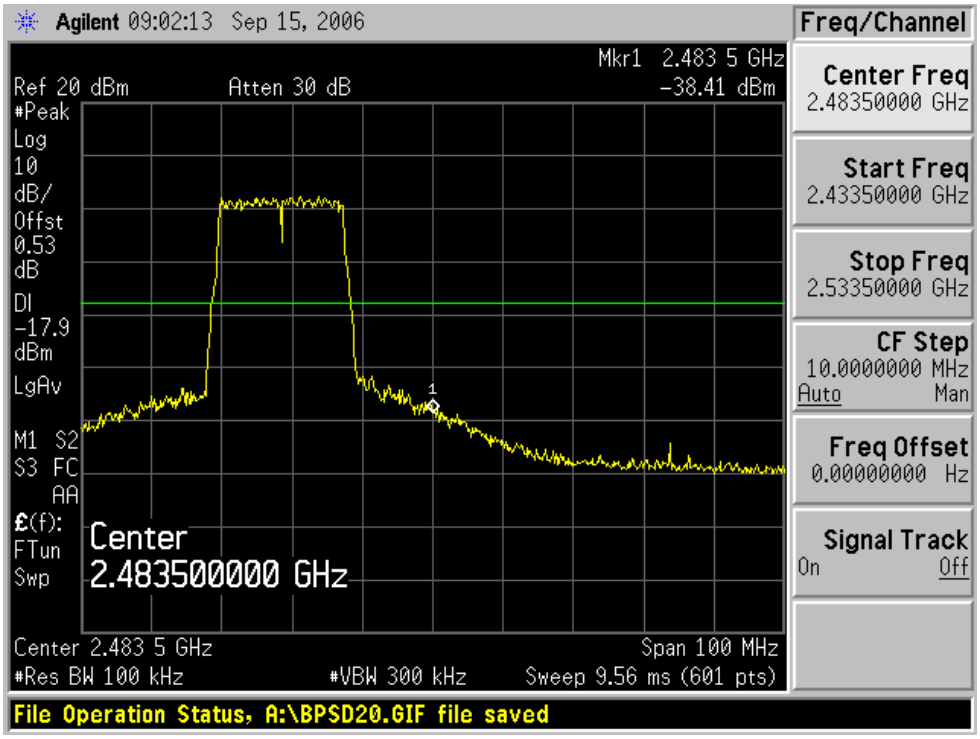


802.11n: 20MHz rate/channel, Chain A

Low Channel

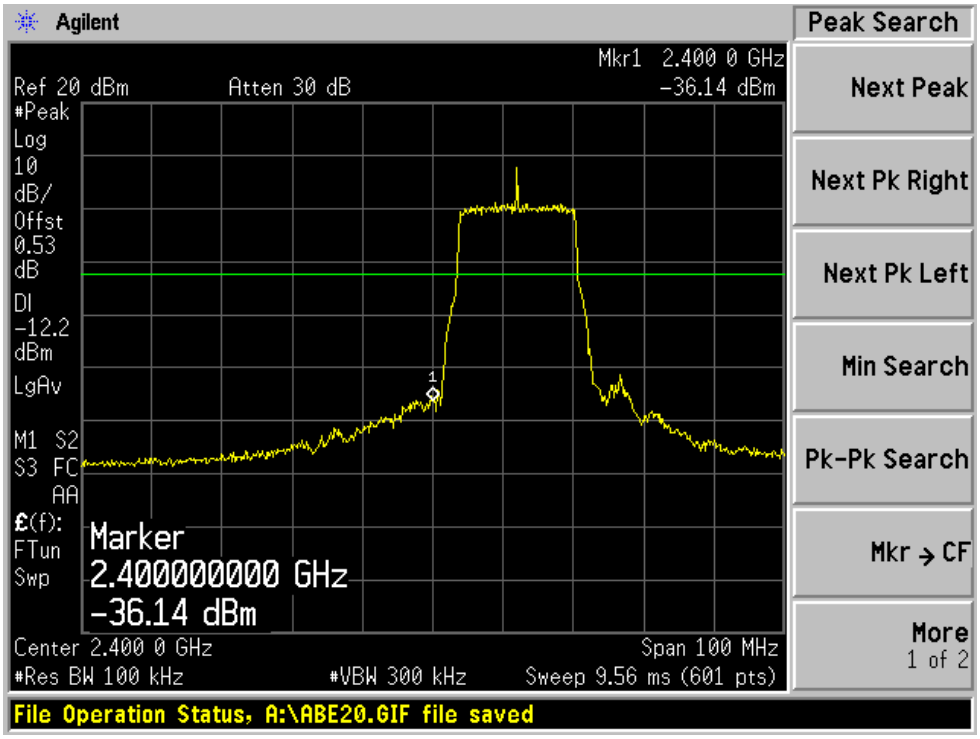


High Channel

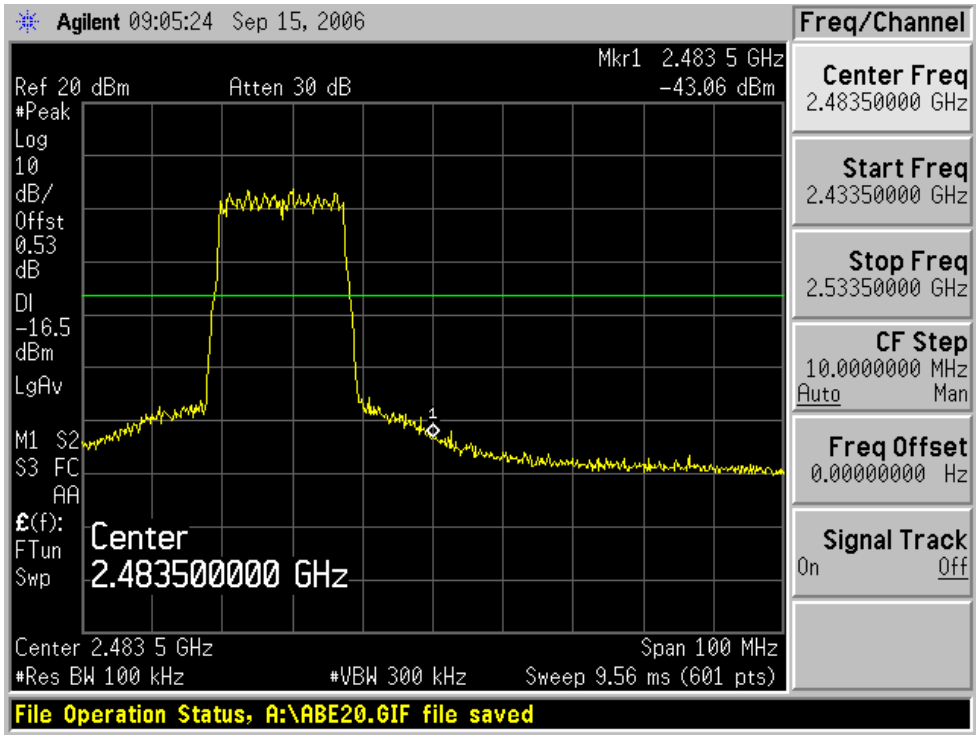


802.11n: 20MHz rate/channel, Chain B

Low Channel

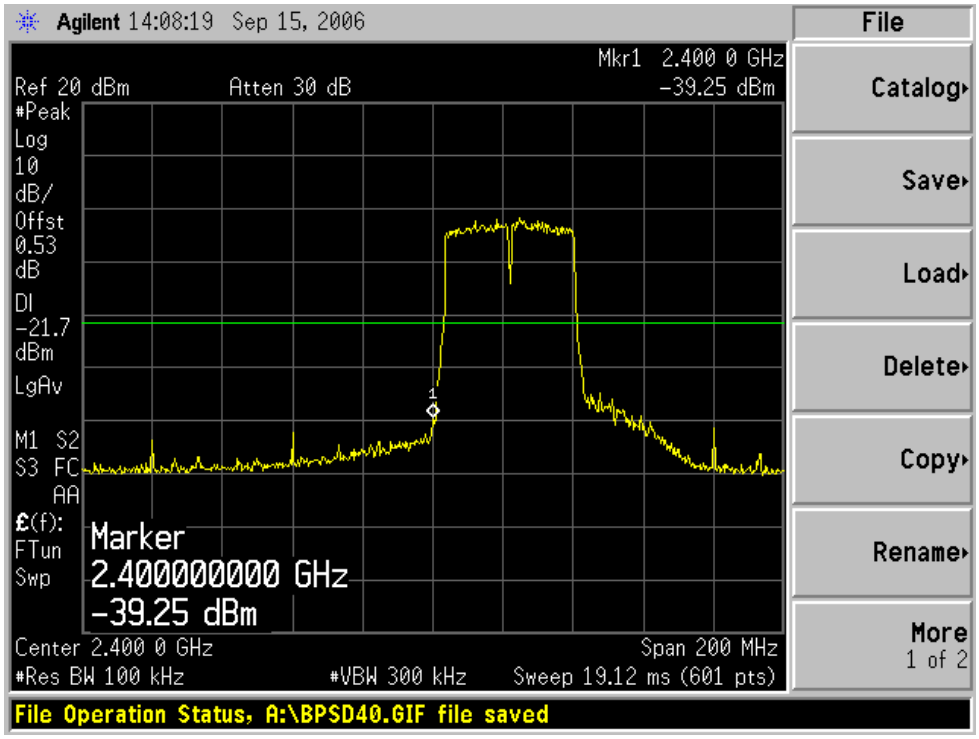


High Channel

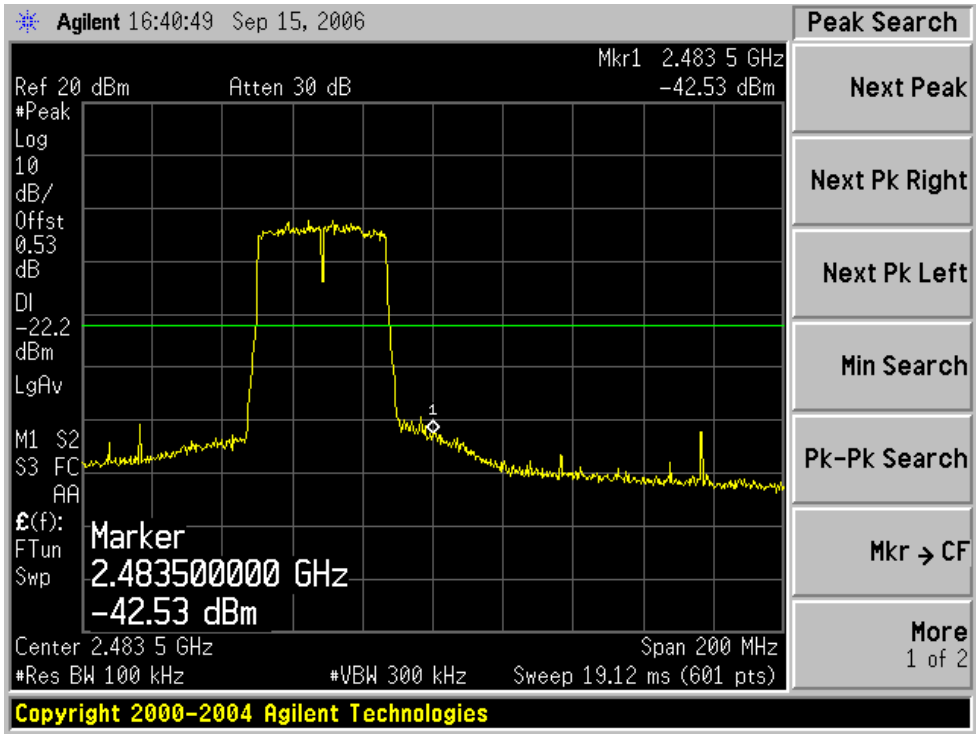


802.11n: 40MHz rate/channel, Chain A

Low Channel

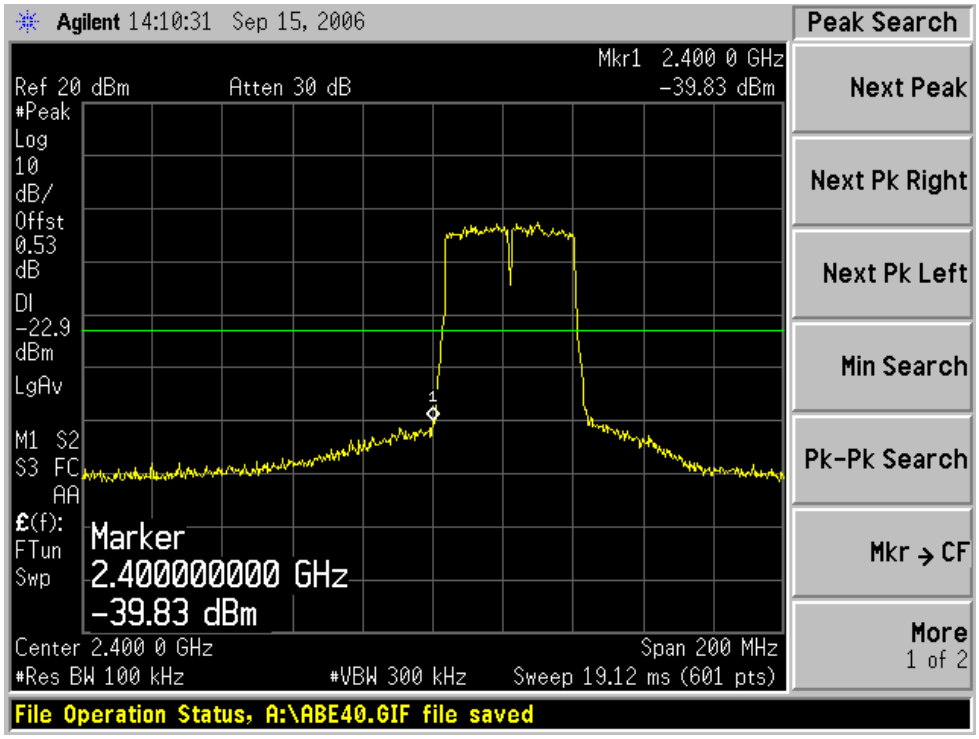


High Channel

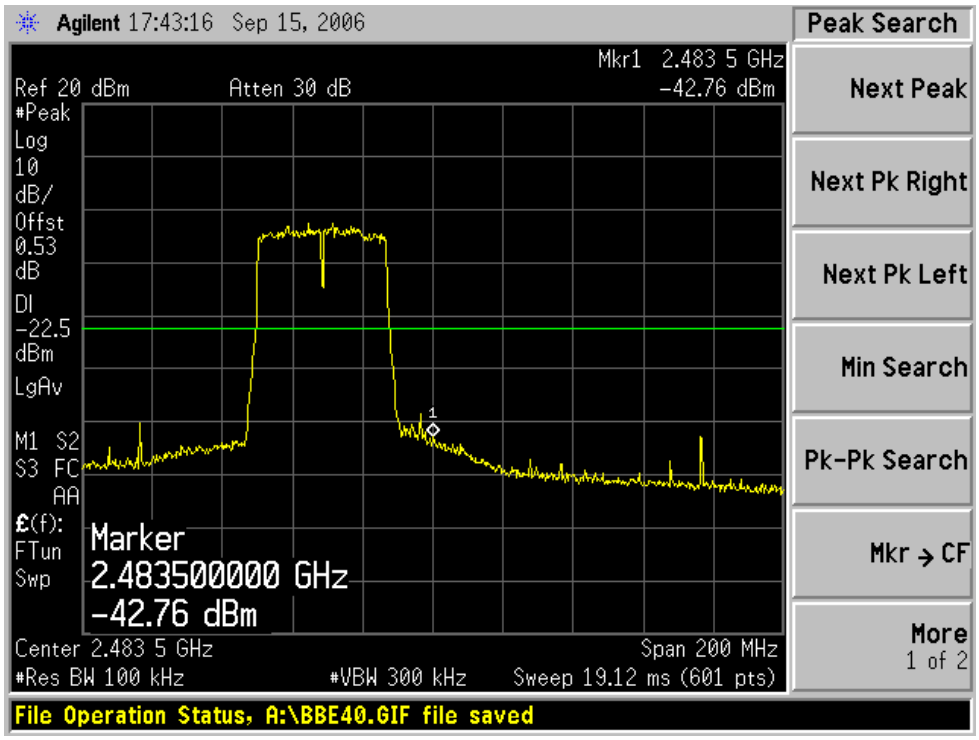


802.11n: 40MHz rate/channel, Chain B

Low Channel



High Channel



§15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

According to §15.247 (e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 1.5MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.

Each chain is measured separately and the total PPSD is calculated using the following formula:

Total PPSD = 10 log (10^ (Chain A PPSD / 10) + 10^(Chain B PPSD / 10))

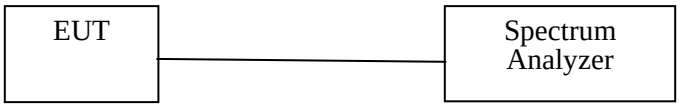
Effective Antenna Gain = Antenna Gain + 10 log (Number Tx Chains)

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum analyzer	E4446A	US44300386	2006-03-06

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Setup Diagram



Environmental Conditions

Temperature:	22° C
Relative Humidity:	56 %
ATM Pressure:	1041 mbar

**The testing was performed by Dan Coronia from 2006-11-08 to 2006-11-28*

802.11b: 20MHz rate/channel

Frequency (MHz)	PPSD Chain A (dBm)	PPSD Chain B (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
2412	-6.10	-5.65	-2.86	8	Pass
2437	-4.93	-4.51	-1.70	8	Pass
2462	-5.19	-4.86	-2.01	8	Pass

802.11b: 40MHz rate/channel

Frequency (MHz)	PPSD Chain A (dBm)	PPSD Chain B (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
2412	-5.71	-5.24	-2.46	8	Pass
2437	-6.75	-7.34	-4.02	8	Pass
2462	-7.85	-6.9	-4.34	8	Pass

802.11g: 20MHz rate/channel

Frequency (MHz)	PPSD Chain A (dBm)	PPSD Chain B (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
2412	-17.23	-17.74	-14.47	8	Pass
2437	-12.81	-12.47	-9.63	8	Pass
2462	-16.24	-15.84	-13.03	8	Pass

802.11g: 40MHz rate/channel

Frequency (MHz)	PPSD Chain A (dBm)	PPSD Chain B (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
2422	-17.61	-16.97	-14.27	8	Pass
2437	-15.90	-16.20	-13.04	8	Pass
2452	-19.18	-19.19	-16.17	8	Pass

802.11n: 20MHz rate/channel

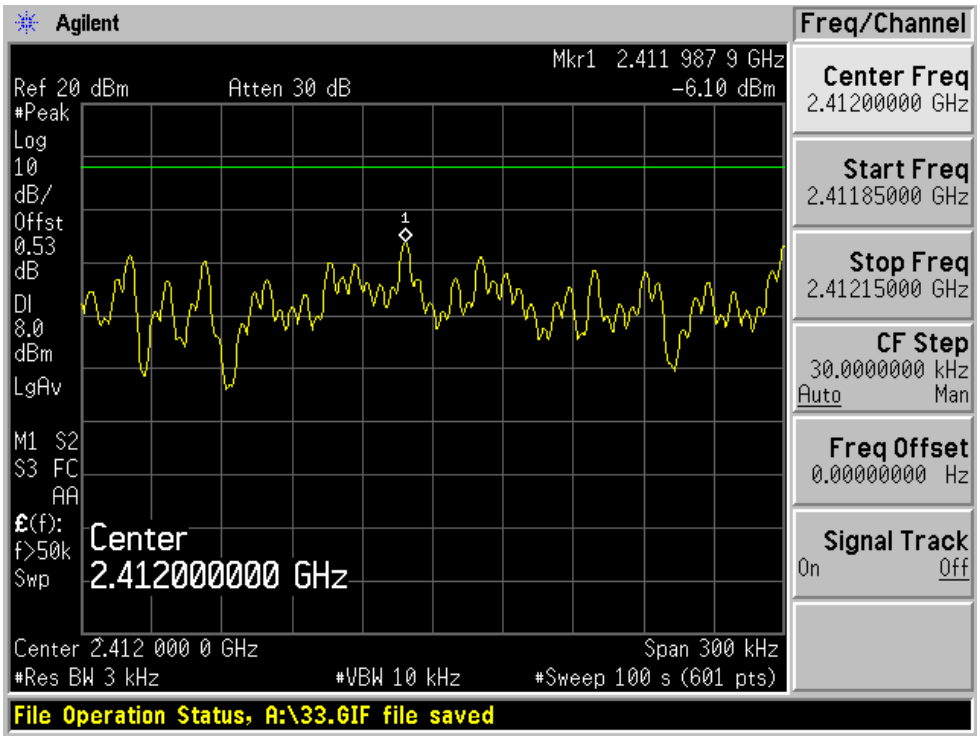
Frequency (MHz)	PPSD Chain A (dBm)	PPSD Chain B (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
2412	-8.38	-7.90	-5.12	8	Pass
2437	-4.90	-4.60	-1.74	8	Pass
2462	-8.2	-7.23	-4.68	8	Pass

802.11n: 40MHz rate/channel

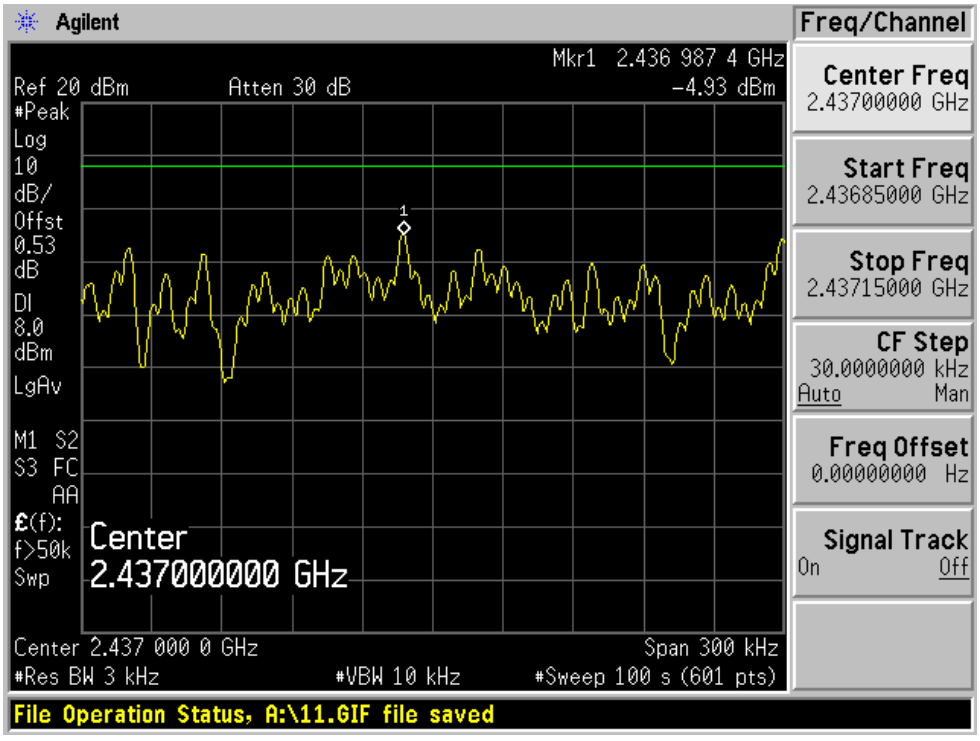
Frequency (MHz)	PPSD Chain A (dBm)	PPSD Chain B (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
2422	-17.41	-17.95	-14.66	8	Pass
2437	-12.95	-12.65	-9.79	8	Pass
2452	-17.85	-17.39	-14.60	8	Pass

802.11b: 20MHz rate/channel, Chain A

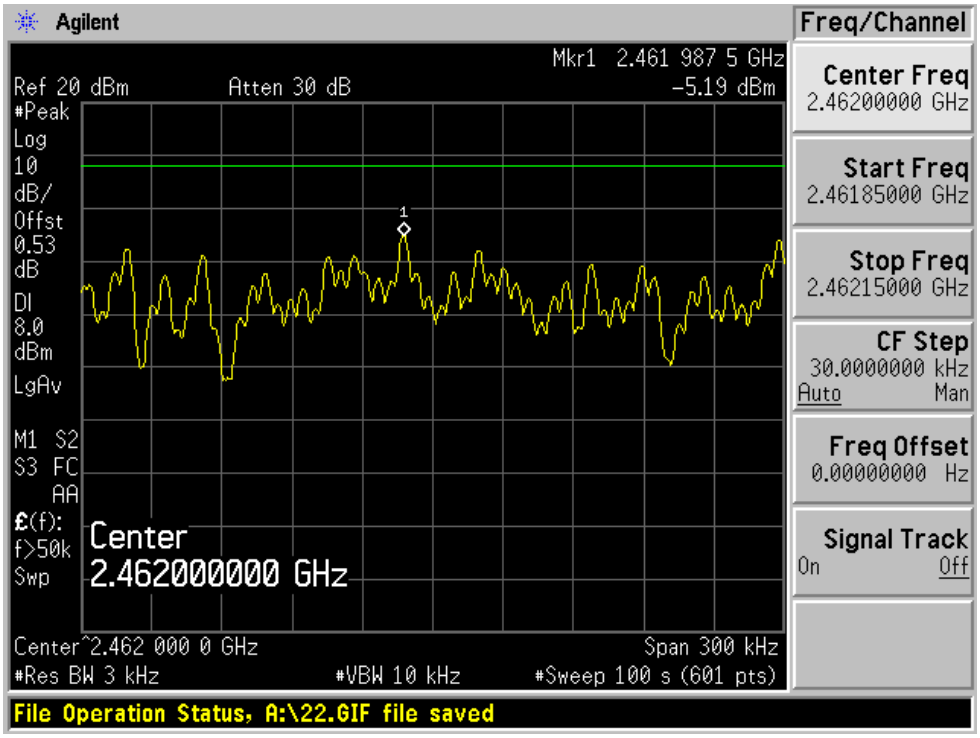
Low Channel



Middle Channel

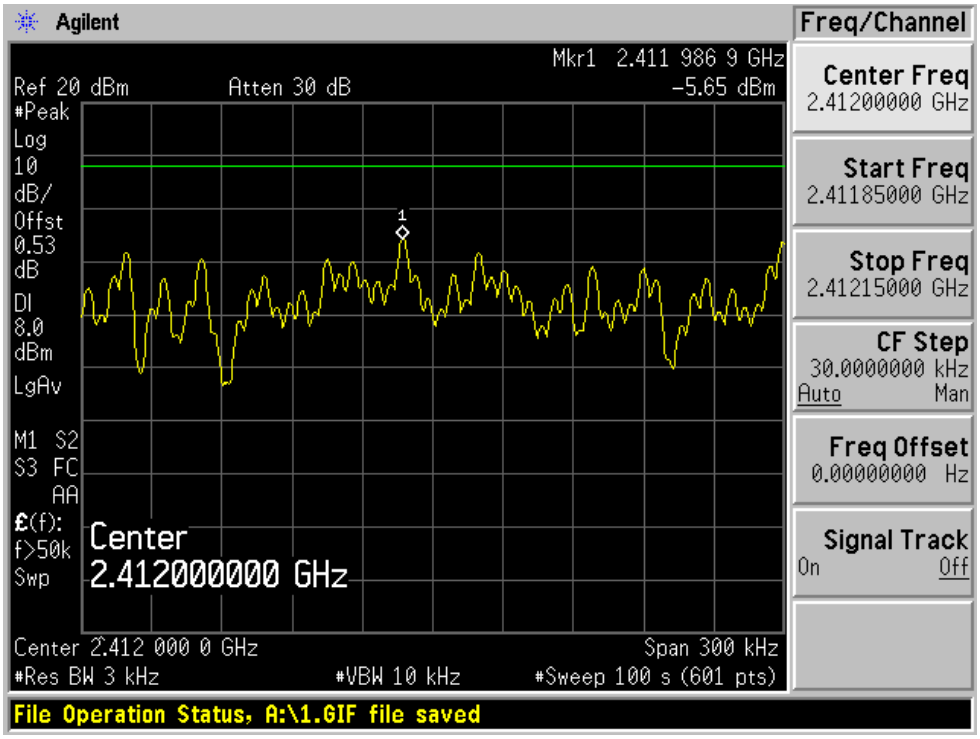


High Channel

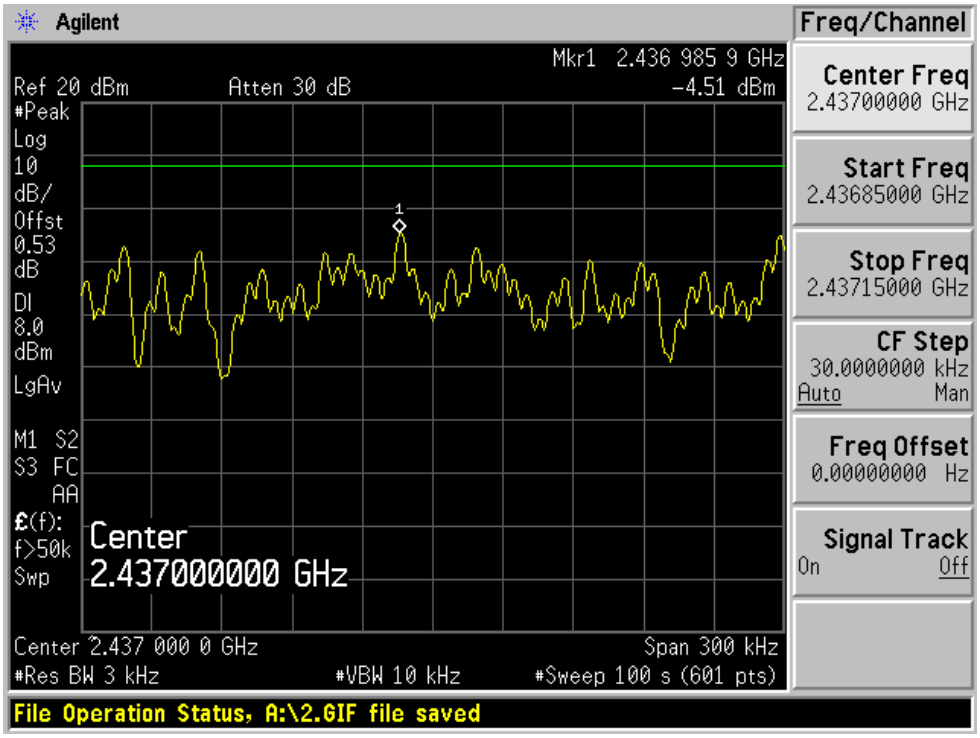


802.11b: 20MHz rate/channel, Chain B

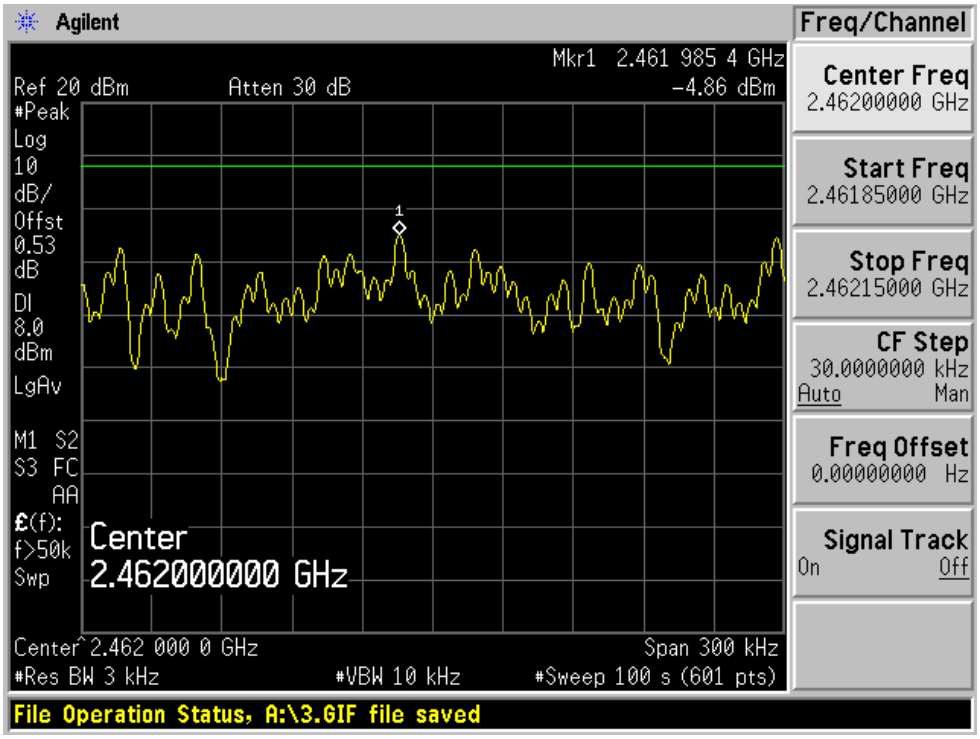
Low Channel



Middle Channel

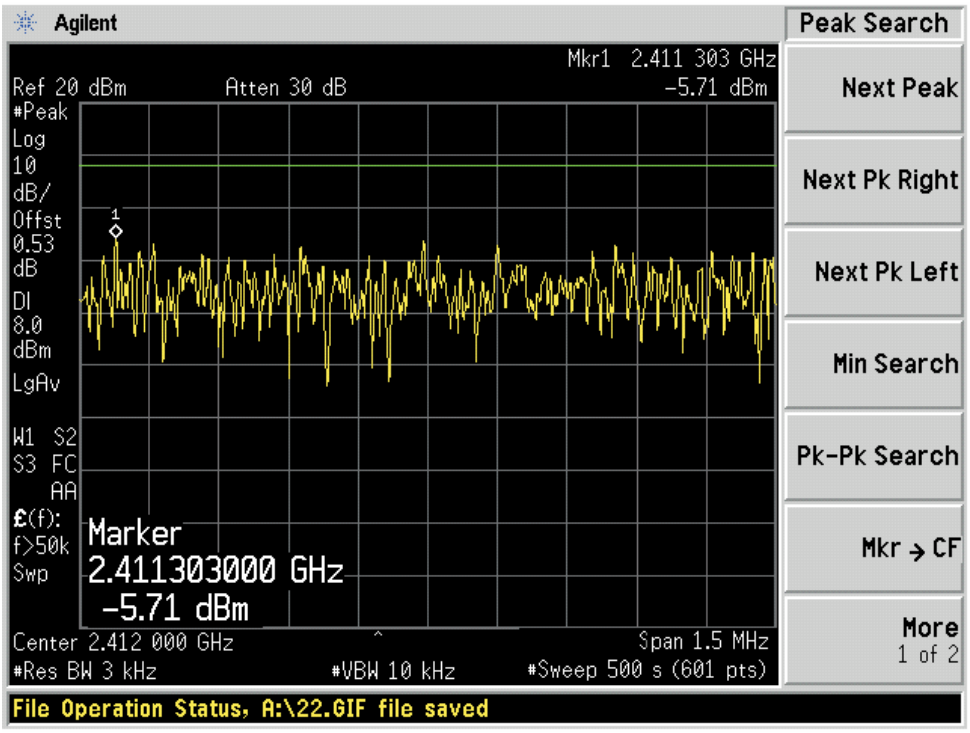


High Channel

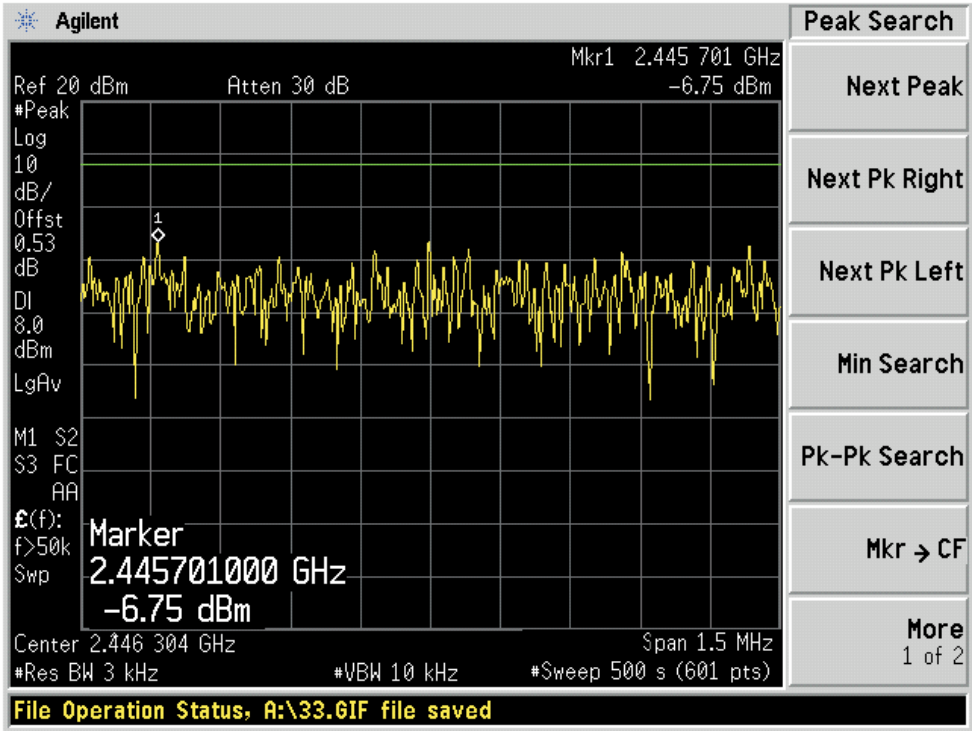


802.11b: 40MHz rate/channel, Chain A

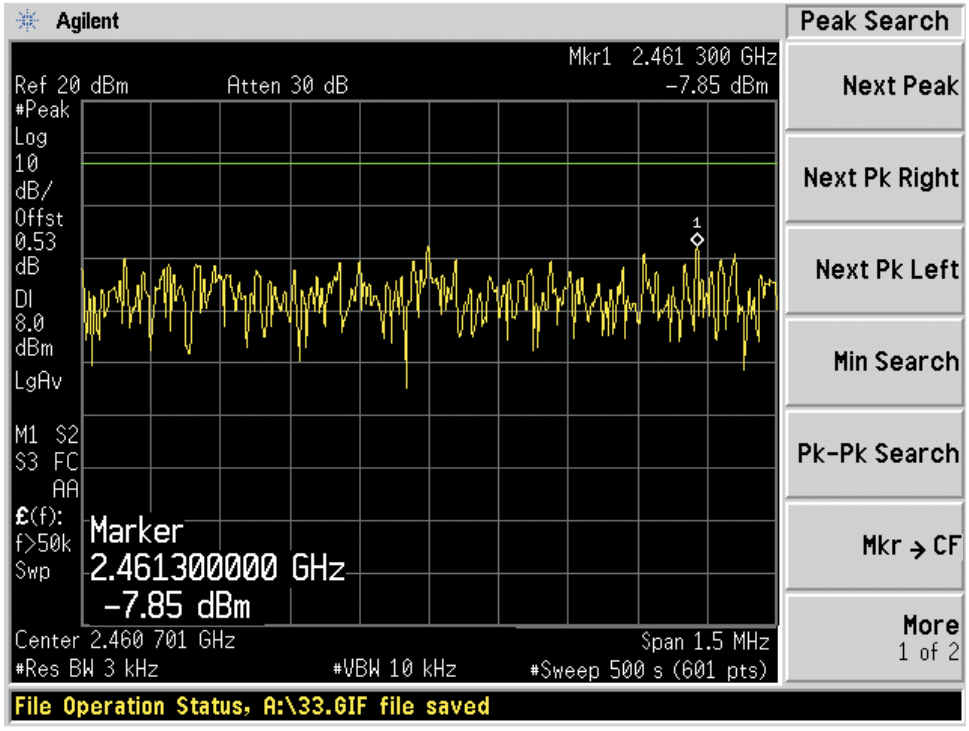
Low Channel



Middle Channel

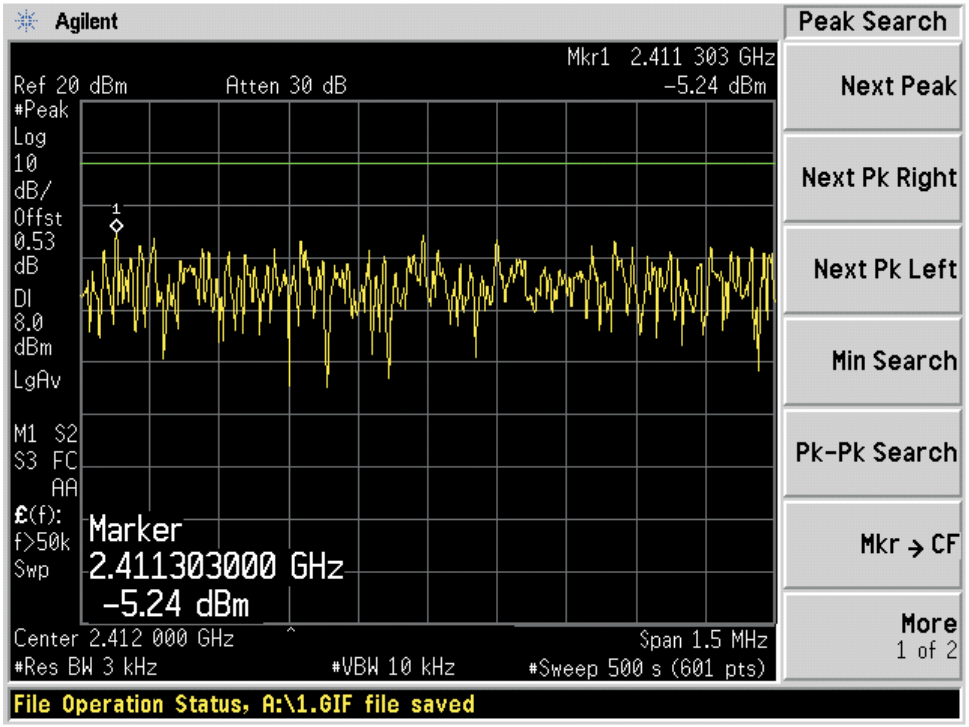


High Channel

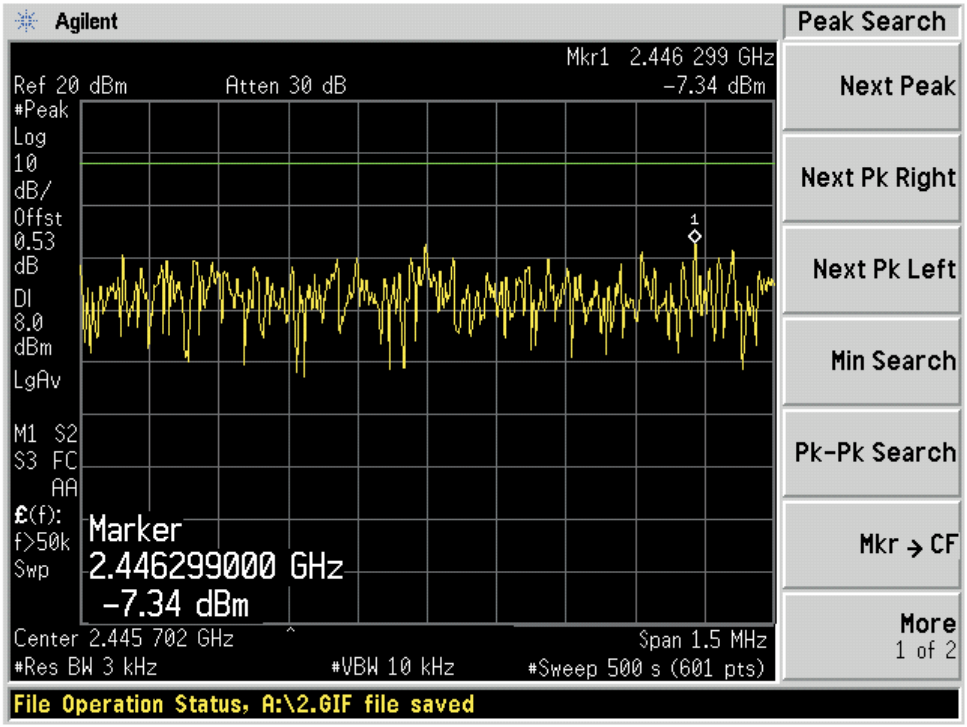


802.11b: 40MHz rate/channel, Chain B

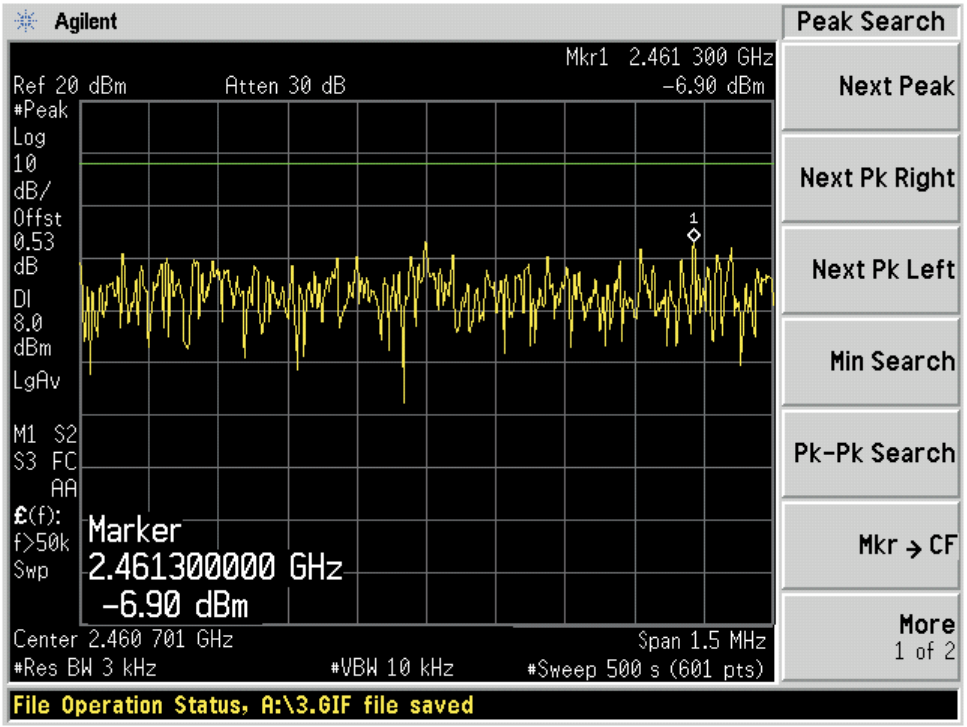
Low Channel



Middle Channel

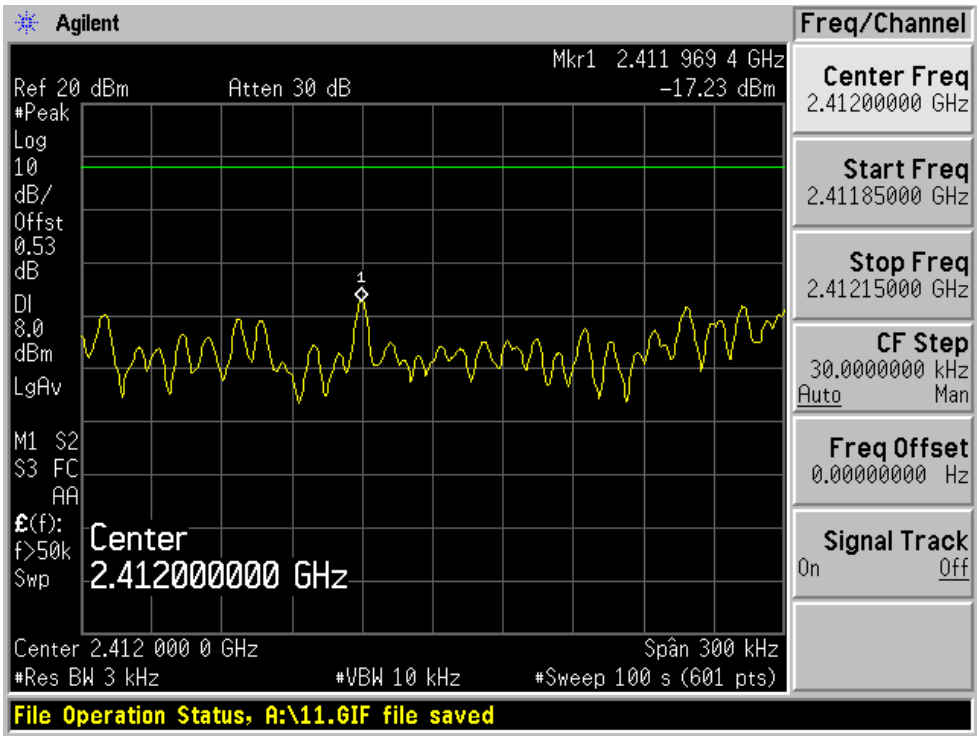


High Channel

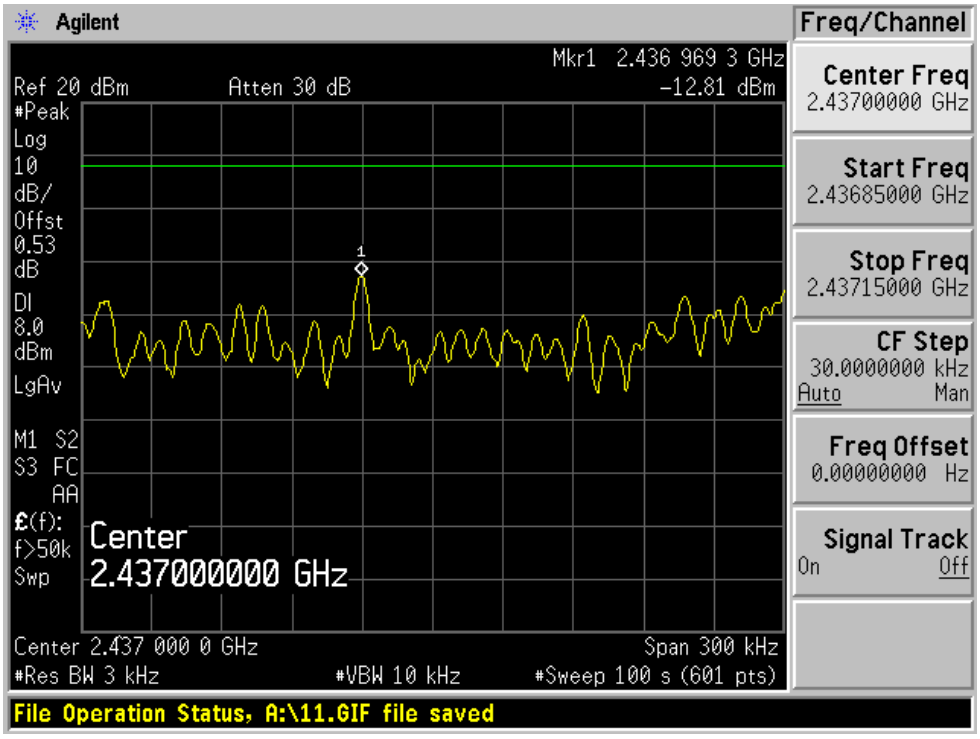


802.11g: 20MHz rate/channel, Chain A

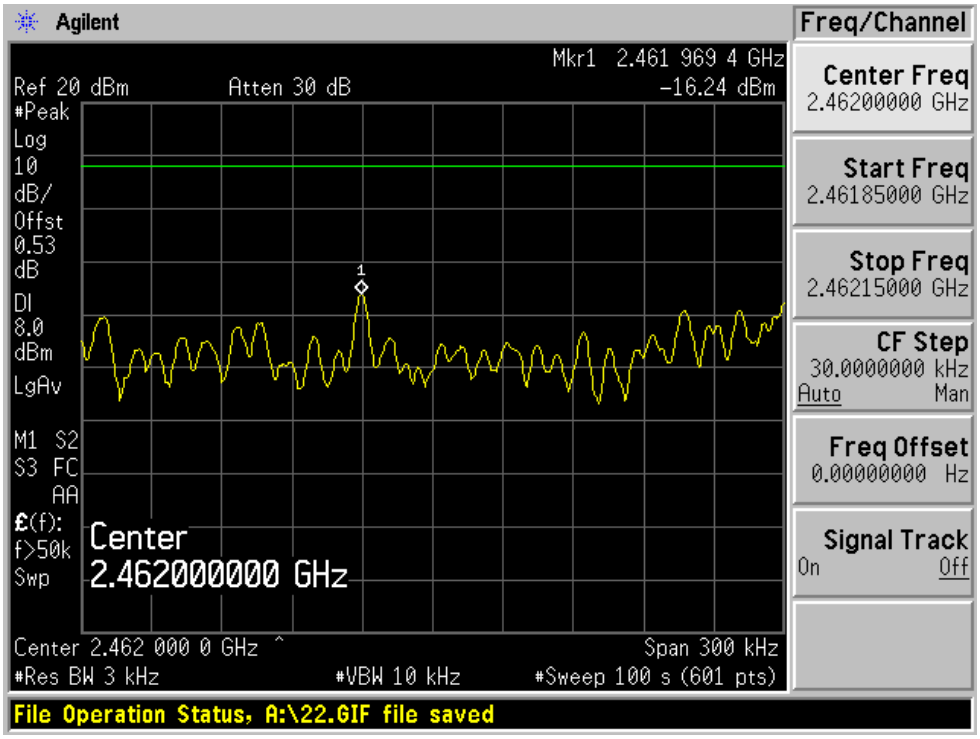
Low Channel



Middle Channel

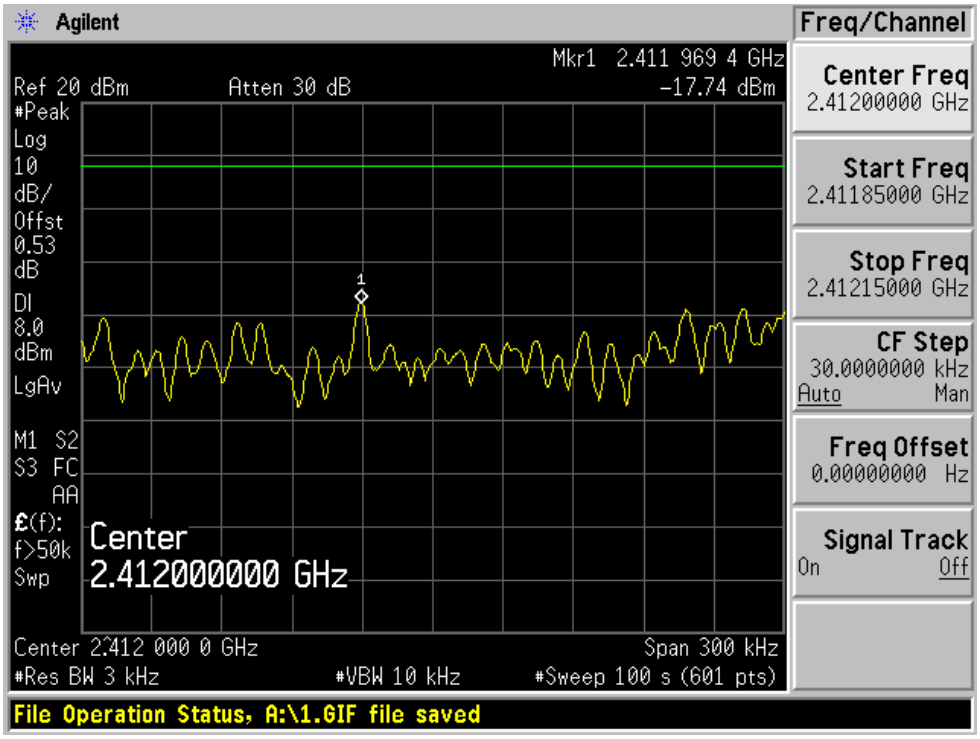


High Channel

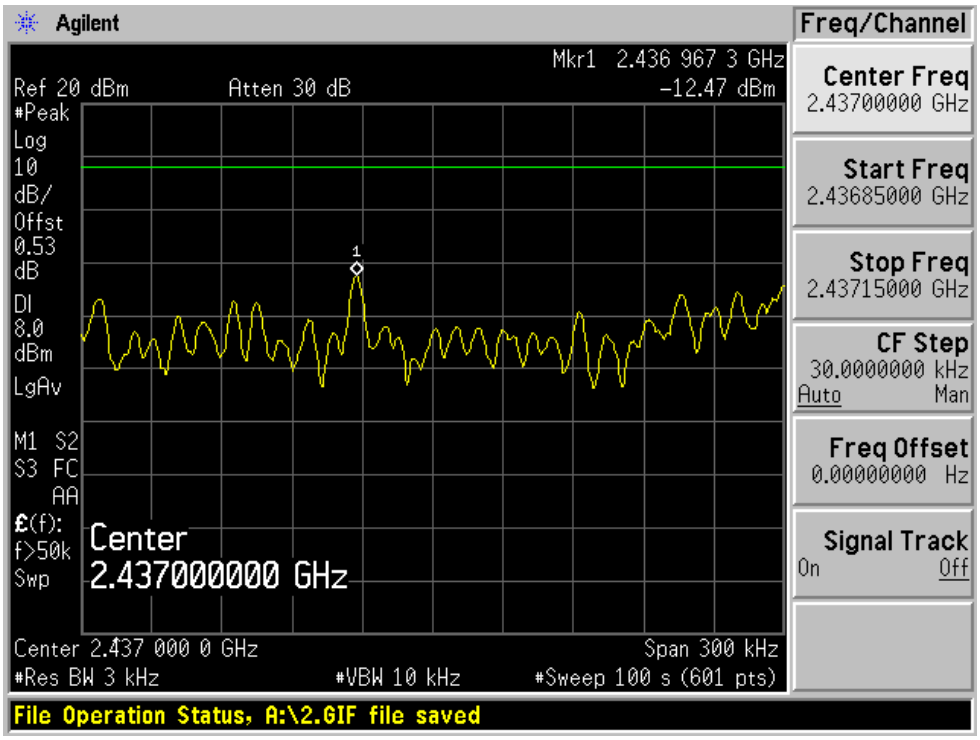


802.11g: 20MHz rate/channel, Chain B

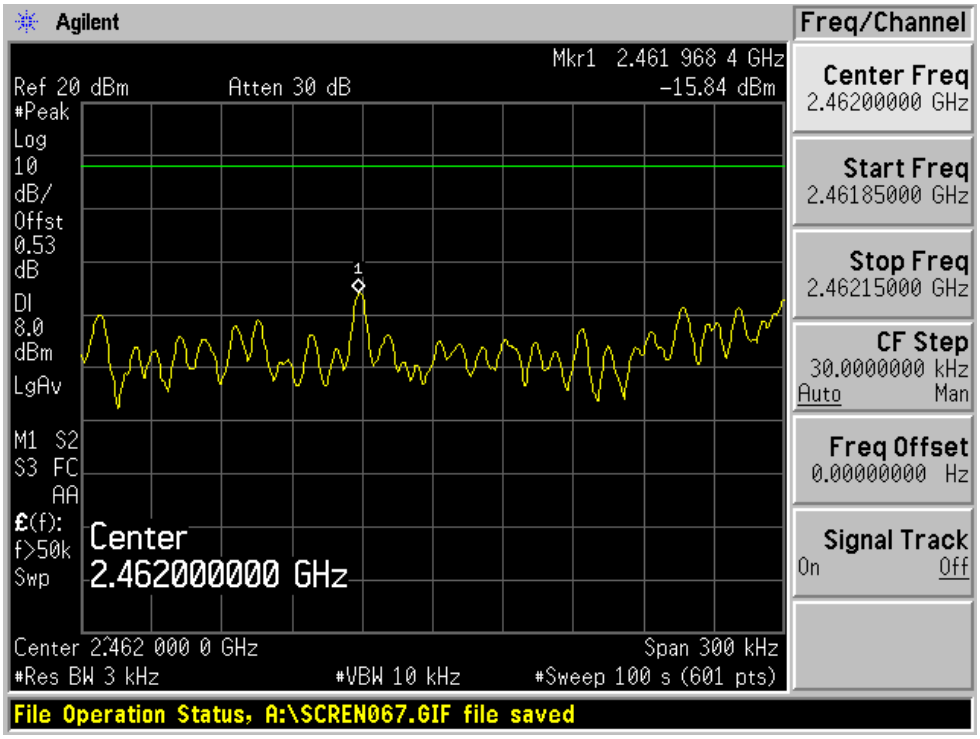
Low Channel



Middle Channel

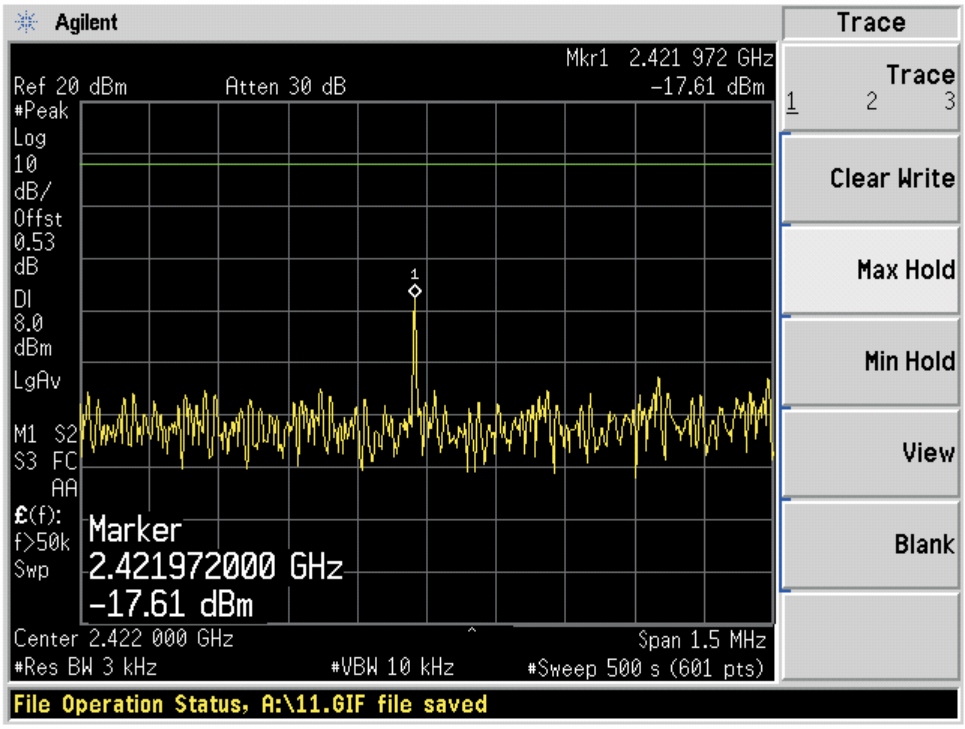


High Channel

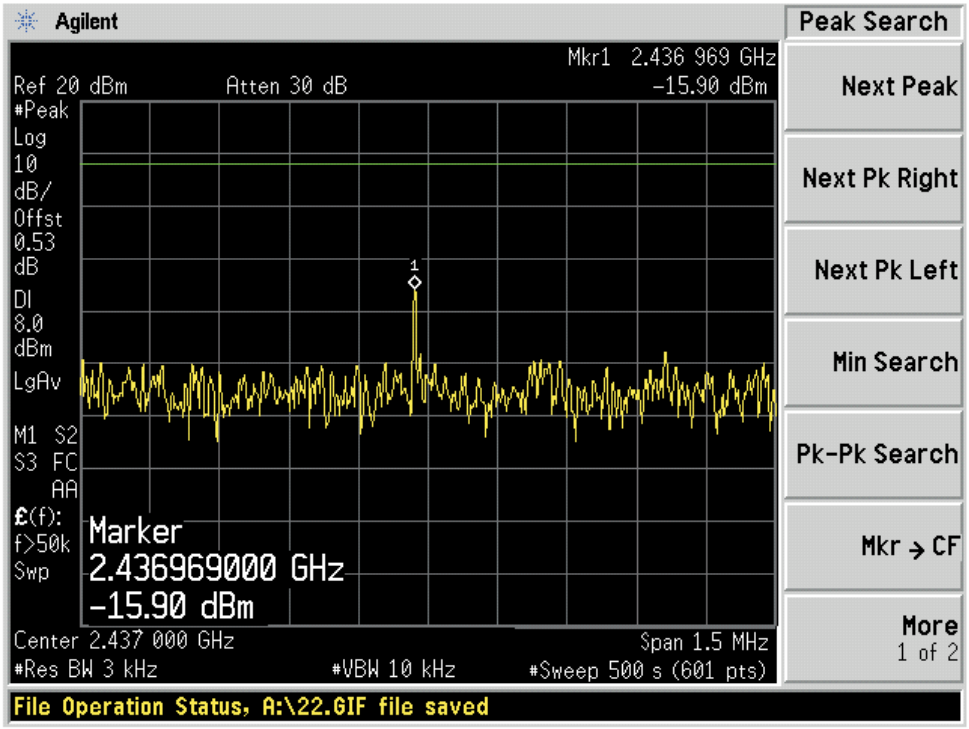


802.11g: 40MHz rate/channel, Chain A

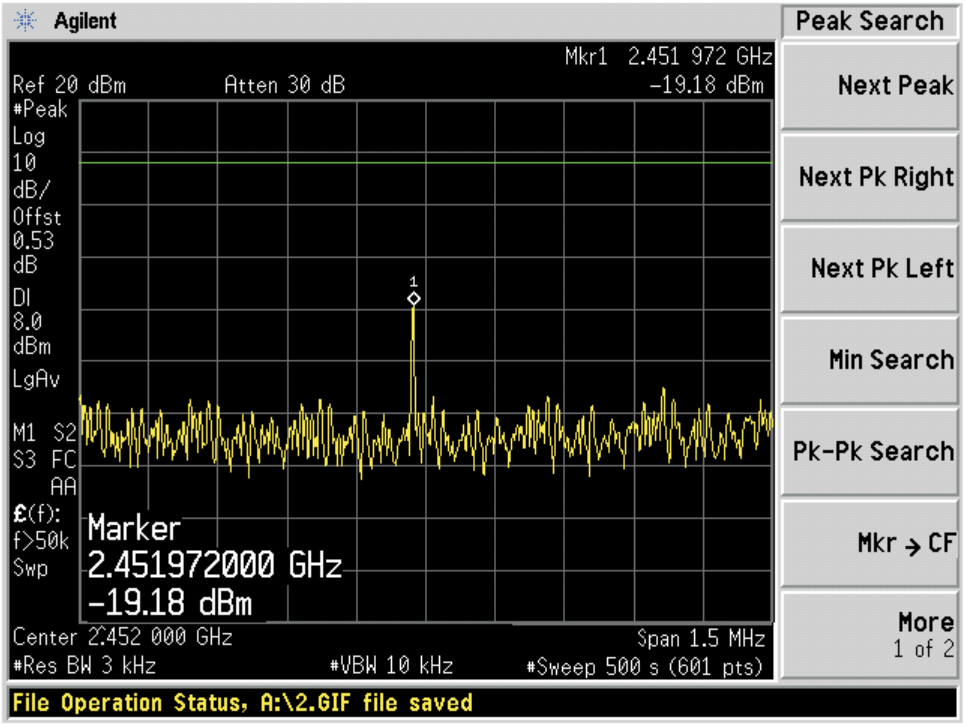
Low Channel



Middle Channel

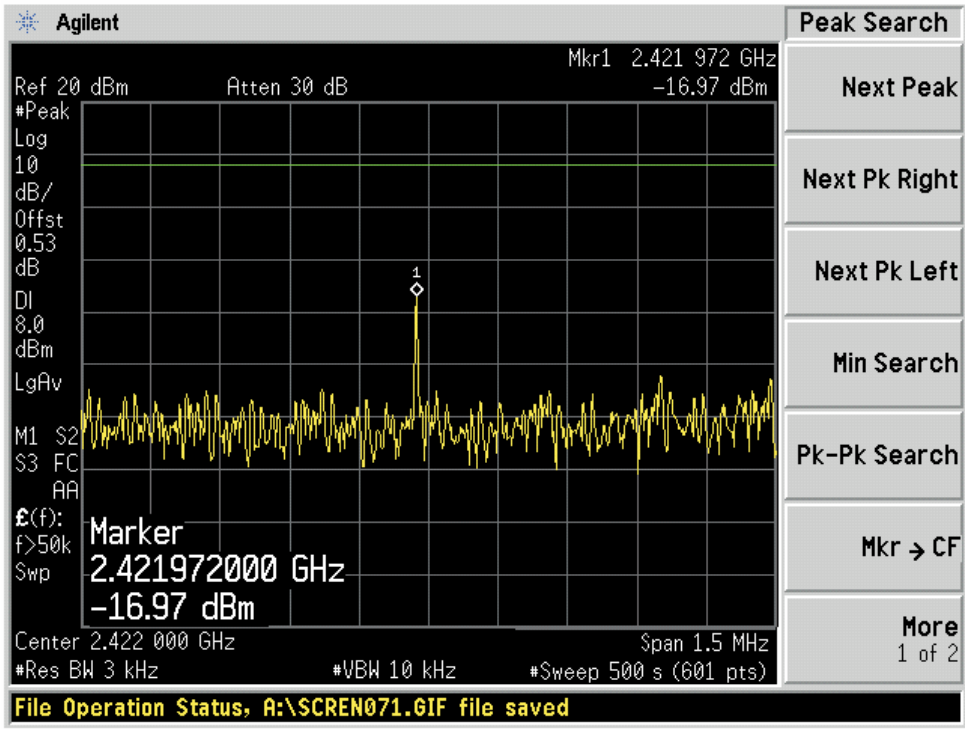


High Channel

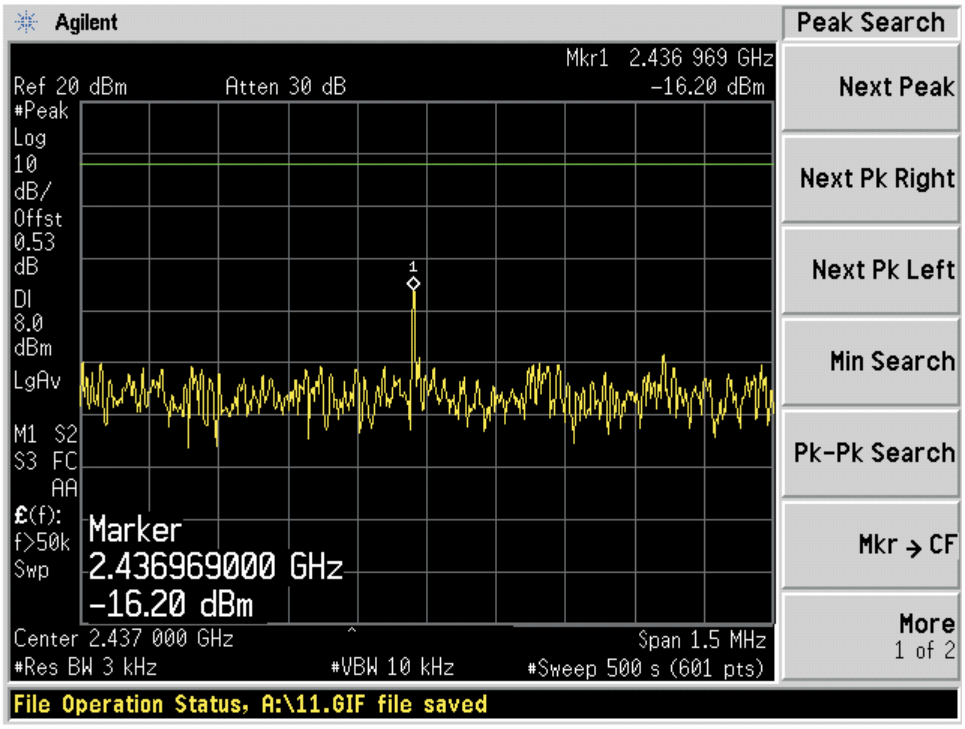


802.11g: 40MHz rate/channel, Chain B

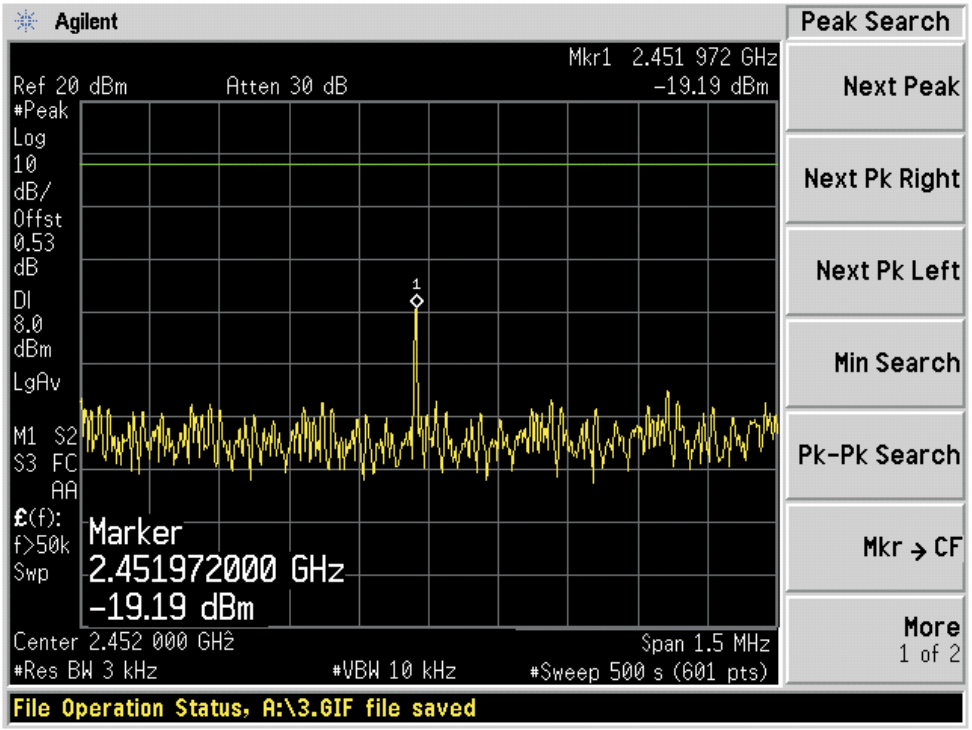
Low Channel



Middle Channel

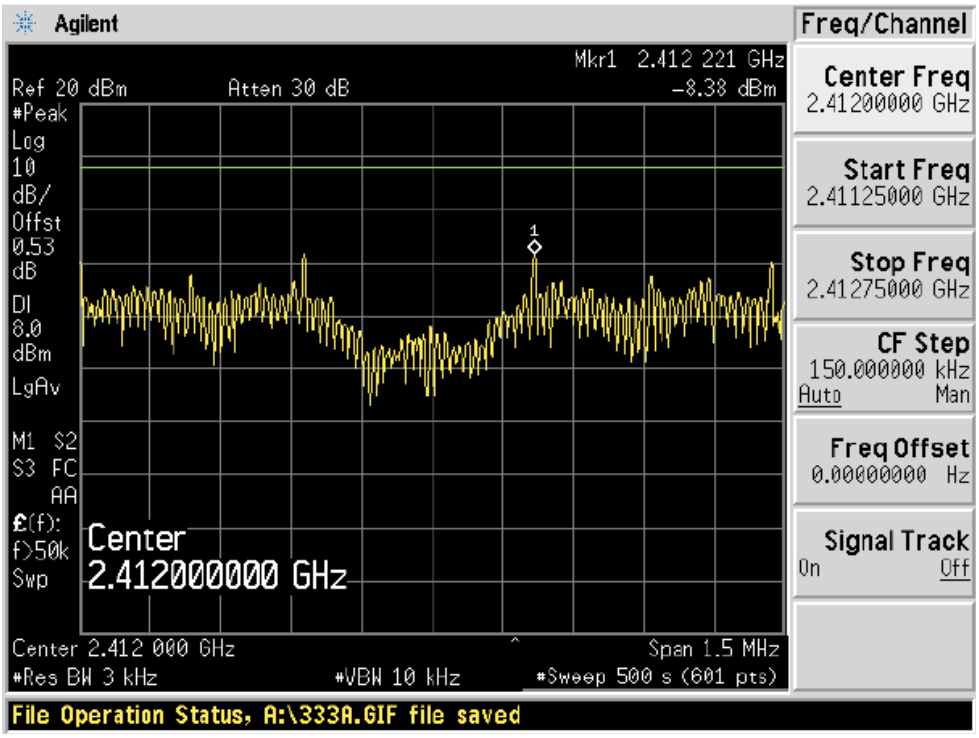


High Channel

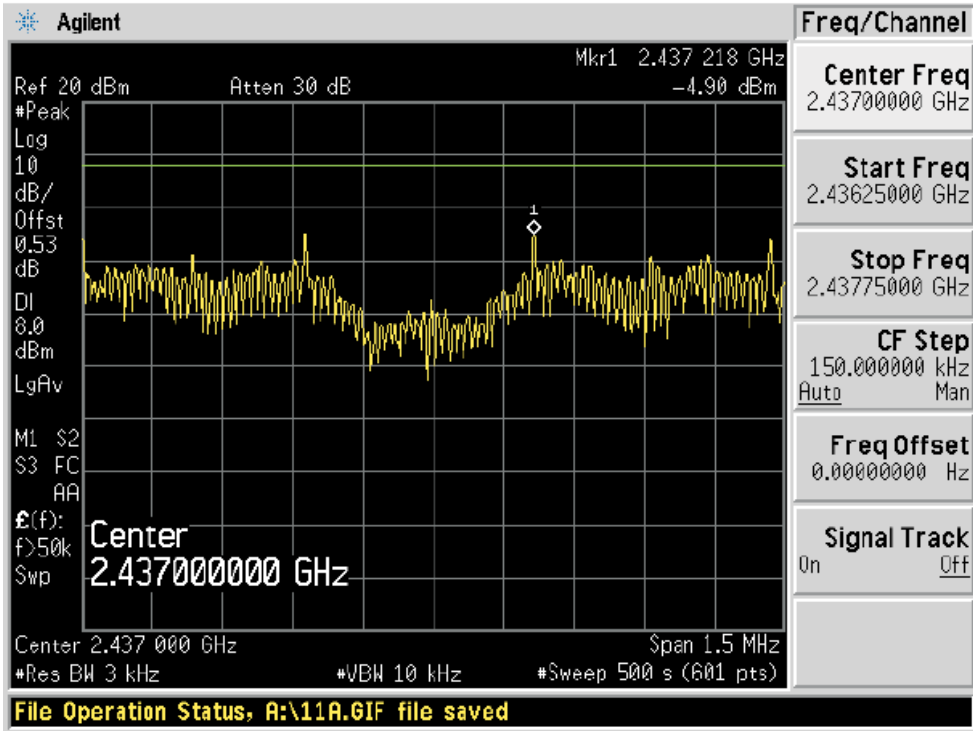


802.11n: 20MHz rate/channel, Chain A

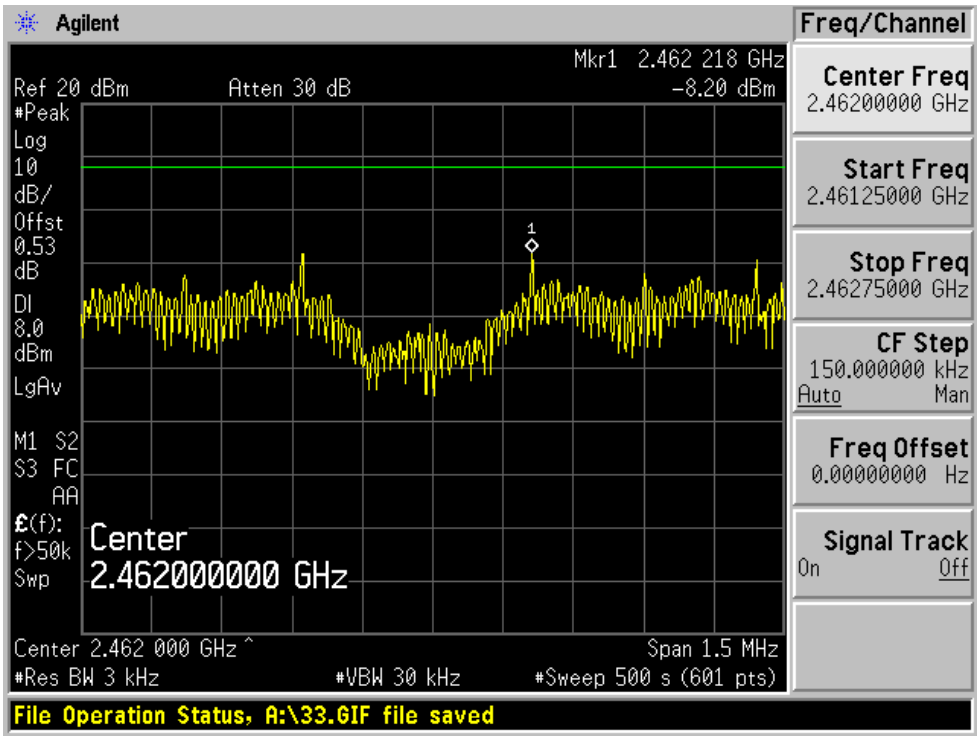
Low Channel



Middle Channel

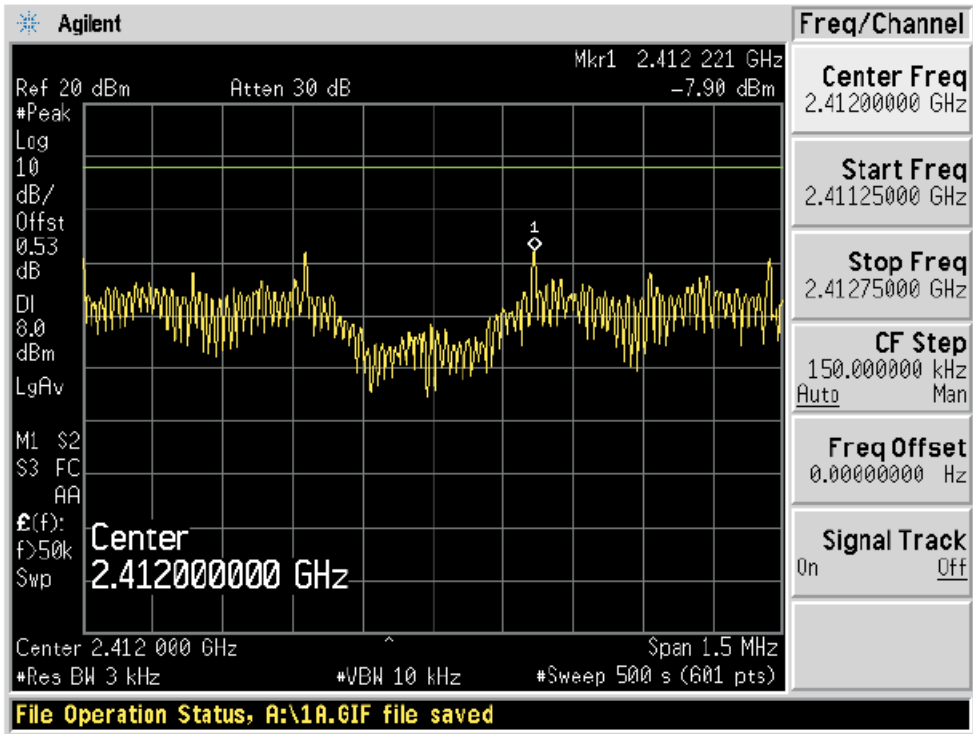


High Channel

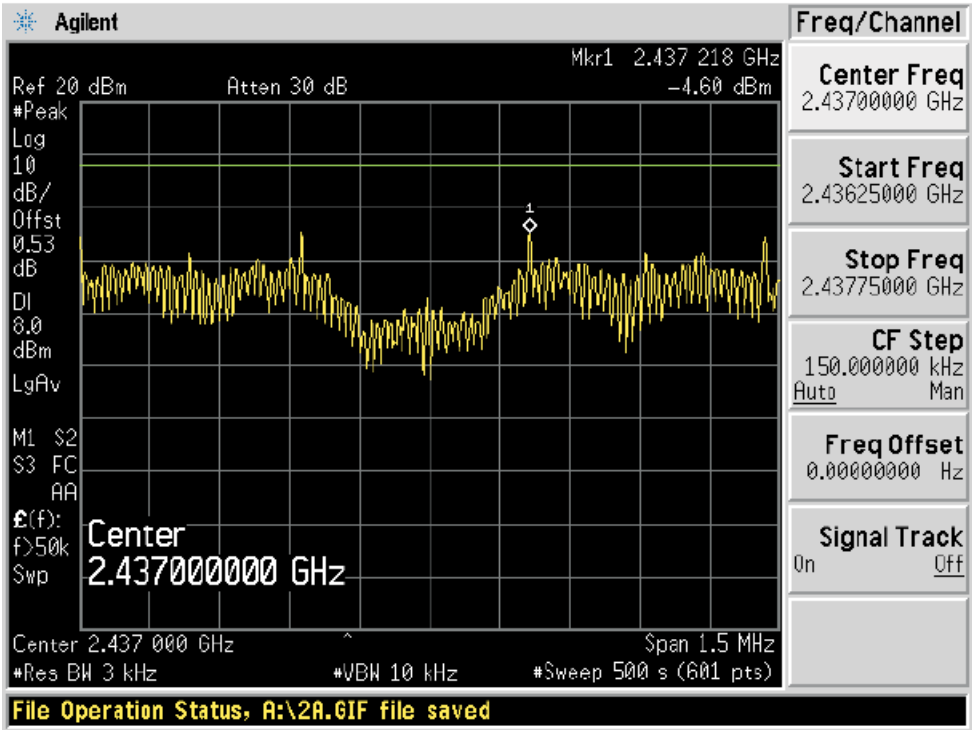


802.11n: 20MHz rate/channel, Chain B

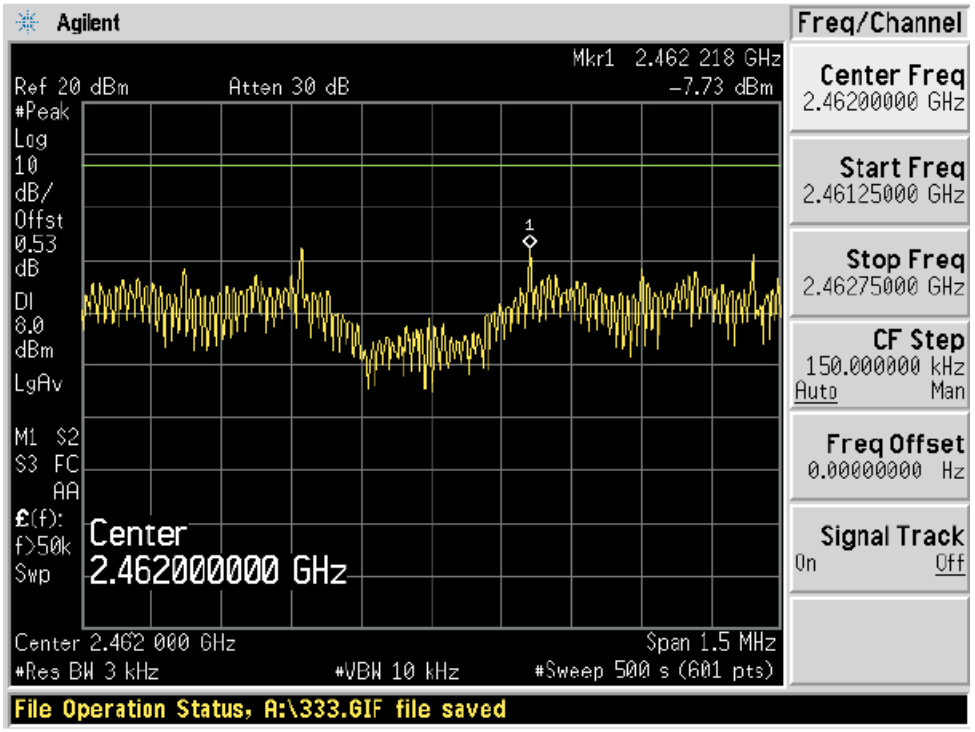
Low Channel



Middle Channel

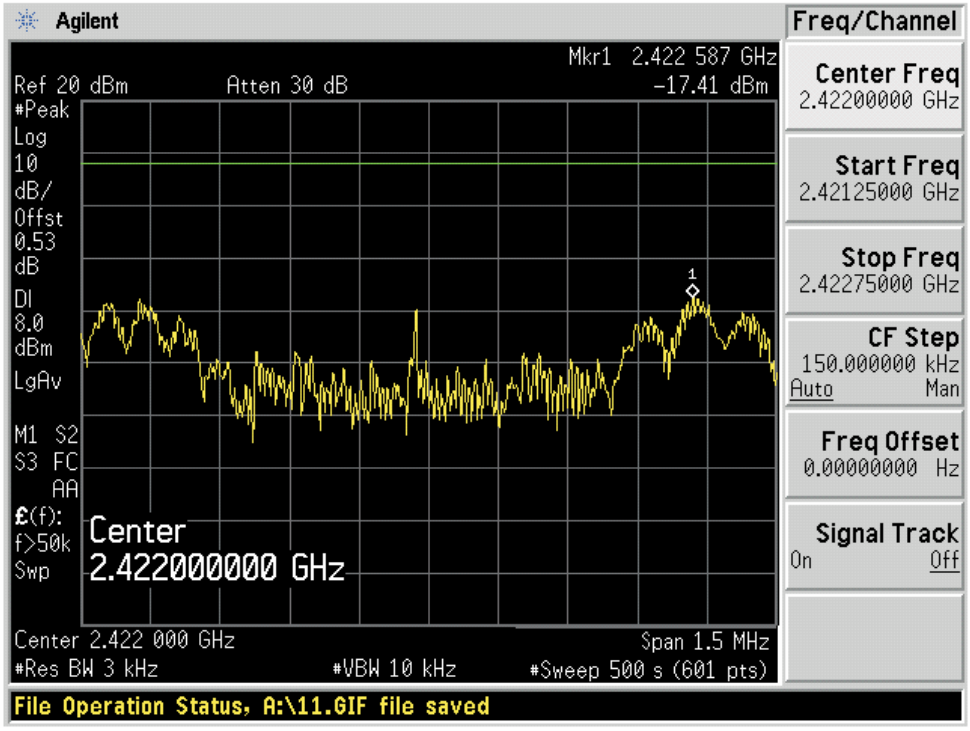


High Channel

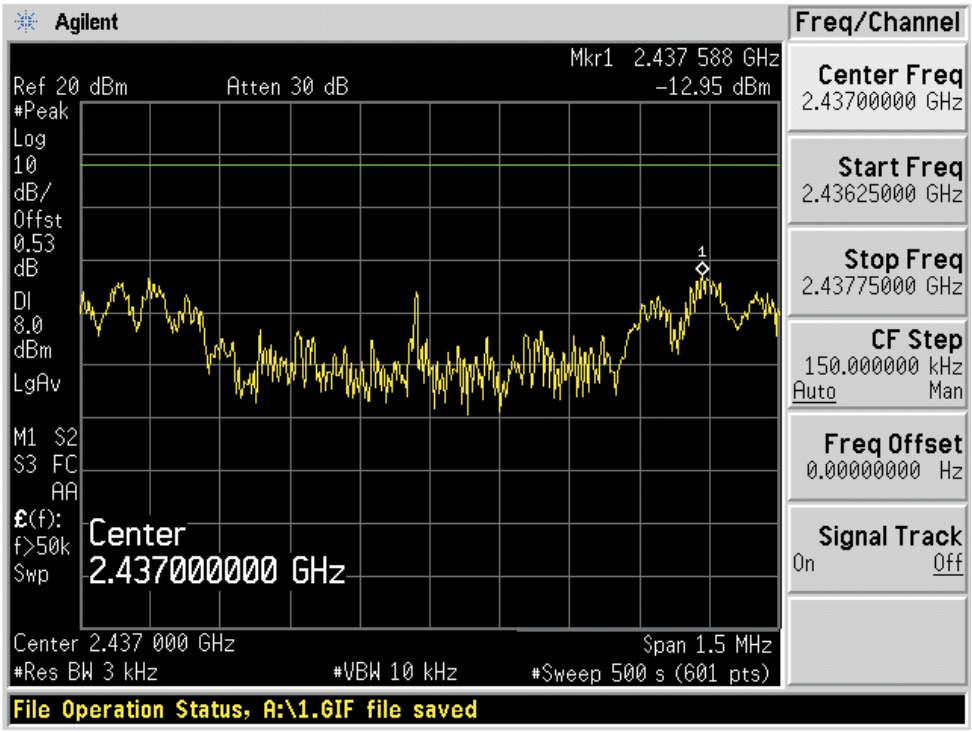


802.11n: 40MHz rate/channel, Chain A

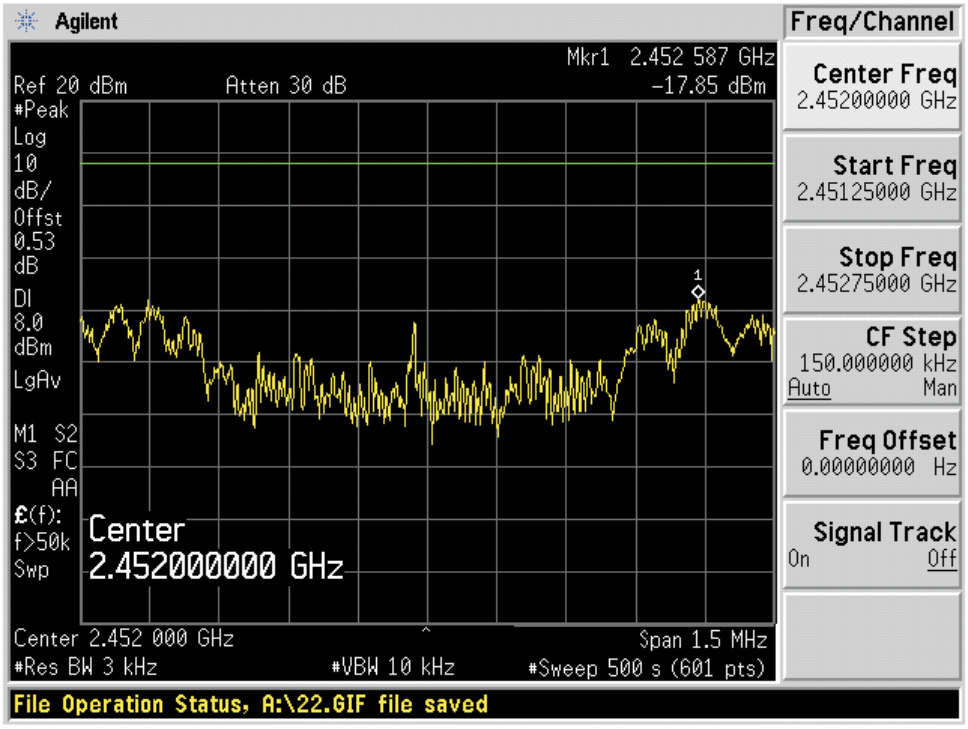
Low Channel



Middle Channel

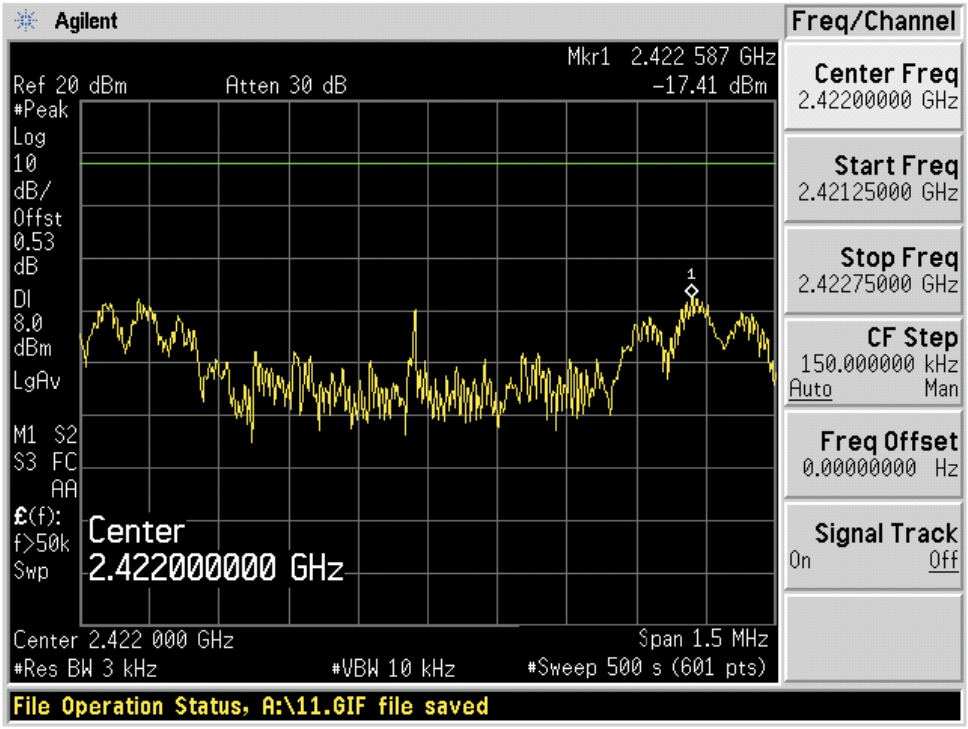


High Channel

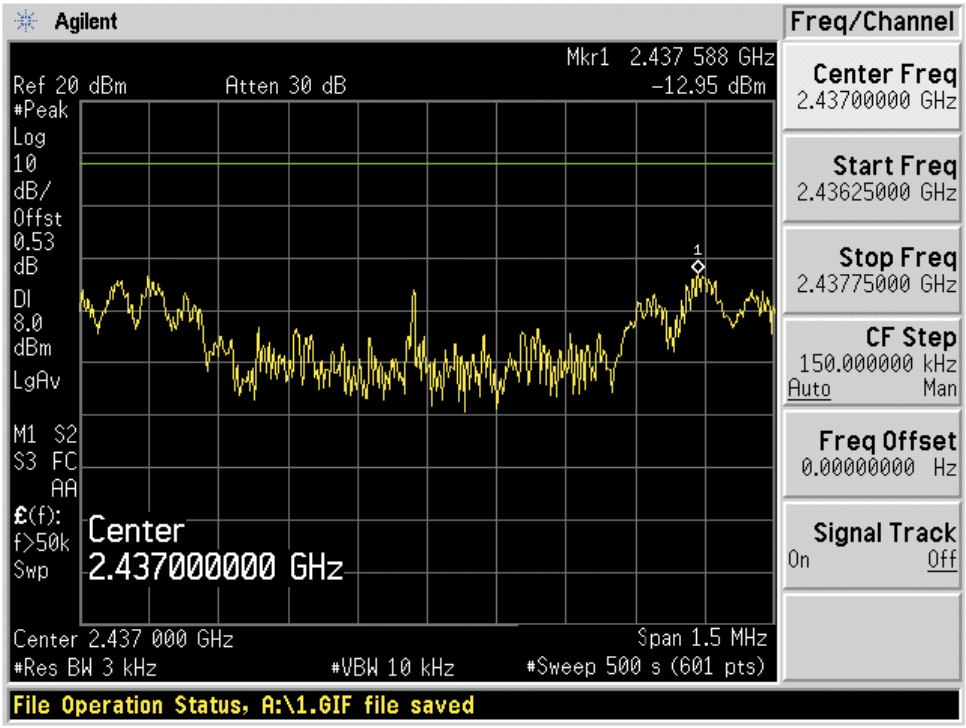


802.11n: 40MHz rate/channel, Chain B

Low Channel



Middle Channel



High Channel