Lab Code: 200167-0

FCC PART 15 SUBPART C

TEST AND MEASUREMENT REPORT

For

Actiontec Electronics, Inc.

760 N. Mary Avenue,

Sunnyvale, CA 94085, USA

FCC ID: LNQMI424WRI
Model: MI424WR Rev.I

Report Type:	**Product Type:**
Original Report	802.11b/g/n Wireless Broadband Router

Test Engineer:	Kevin Li
Report Number:	R1104076-247
Report Date:	2011-05-04
Reviewed By:	Jack Liu RF Engineer
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1104076-247	Original	2011-05-04

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *Actiontec Electronics, Inc*., and their product, FCC ID: LNQMI424WRI, model: MI424WR Rev. I which will be henceforth referred to as the EUT (Equipment under Test). The EUT is a 2x2 802.11 b/g/n with 20 MHz channel bandwidth wireless broadband router.

1.2 Mechanical Description of EUT

The EUT measures approximately 25.5cm L x 14cm W x 4cm H and weighs approximately 598g.

The test data gathered are from production sample, S/N: CSJI1122600019, provided by the manufacturer.

1.3 Objective

This report is prepared on behalf of *Actiontec Electronics, Inc.* in accordance with Part 2, Subpart J, and Part 15, Subparts B and C of the Federal Communication Commissions rules, June 2007.

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.

1.4 Related Submittal(s)/Grant(s)

N/A

1.5 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 and ANSI C63.10-2009, American National Standard for Testing Unlicensed Wireless Devices.

1.6 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 $\pm$2.0 for Conducted Emissions tests and $\pm$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.

1.7 Test Facility

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

The test sites at BACL have 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 C63.4-2003.

The Federal Communications Commission, Industry Canada, and Voluntary Control Council for Interference has the reports on file and is listed under FCC registration number: 90464, IC registration number: 3062A, and VCCI Registration Number: C-2463 and R-2698. The test site has been approved by the FCC, IC, 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/Standards/scopes/2001670.htm

2 System Test Configuration

2.1 Justification

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

2.2 EUT Exercise Software

Actiontech_sg200 is used for the EUT configuration provided by the customer.

The EUT had been tested with the following Power settings (worst case):

Radio Mode	Bandwidth (MHz)	Frequency and Power Setting					
		Low CH (MHz)	Power Setting (dBm)	Mid CH (MHz)	Power Setting (dBm)	High CH (MHz)	Power Setting (dBm)
802.11b	20	2412	20	2437	20	2462	20
802.11g	20	2412	20	2437	20	2462	20
802.11n	20	2412	20	2437	20	2462	20

2.3 Equipment Modifications

No modification of the EUT was necessary to meet testing requirements.

2.4 Power Supply and Line Filters

Manufacturer	Description	Model	Serial Number
Actiontec Electronics, Inc.	AC/DC Power Adaptor	STD-12018U1	C1950391

2.5 Remote Support Equipment

Manufacturer	Description	Model	Serial Number
Dell	Notebook	D600	-

2.6 Interface Ports and Cabling

Cable Description	Length (m)	From	To
USB Driver x 2	0.01	USB port/ EUT	USB Driver
Unshielded RJ 45 Cable	1.50	RJ45 Port/EUT	Terminators

3 Summary of Test Results

Results reported relate only to the product tested.

FCC Rules	Description of Test	Results
§15.247 (i), §2.1091	RF Exposure (MPE) Information	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§2.1051 §15.247 (d)	Spurious Emissions at Antenna Port	Compliant
§15.205	Restricted Bands	Compliant
§15.209 (a) §15.247 (d)	Radiated Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Bandwidth	Compliant
§15.247 (b)(3)	Maximum Peak Output Power	Compliant
§15.247 (d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247 (e)	Power Spectral Density	Compliant

4 FCC §15.247(i) & §2.1091 - RF Exposure Information

4.1 Applicable Standards

According to FCC §15.247(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)
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

4.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

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

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

4.3 MPE Results

Mode	Frequency Band	MPE Distance (cm)	Output Power (dBm)	Output Power (mw)	Antenna Gain (dBi)	Power Density (mw/cm^2)	MPE Limit (mw/cm^2)
WLAN	2.4 GHz	20	22.69	185.78	2.0	0.06	1.0

The predicted power density level at 20 cm is 0.06 mw/cm^2 which is below the uncontrolled exposure limit of 1.0 mW/cm^2. The EUT is used at least 20 cm away from user's body. It is determined as mobile equipment and complies with the MPE limit.

5 FCC §15.203 - Antenna Requirement

5.1 Applicable Standard

According to FCC §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 FCC §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.

5.2 Antenna Connector Construction

EUT has two Transmitter/Receiver antennae which are both external antennae and features a permanent attachment to the EUT chassis as well as non-standard connector. The Transmitter antenna has a max gain of 2 dBi which fulfills the requirements of FCC rule 15.203.

Frequency Band	Antenna 0 Gain (dBi)	Antenna 1 Gain (dBi)	Maximum Effective Gain (dBi)
2.4 GHz	2.0	2.0	5.01

5.3 Test result

Compliant

6 FCC §15.207 – AC Line Conducted Emissions

6.1 Applicable Standard

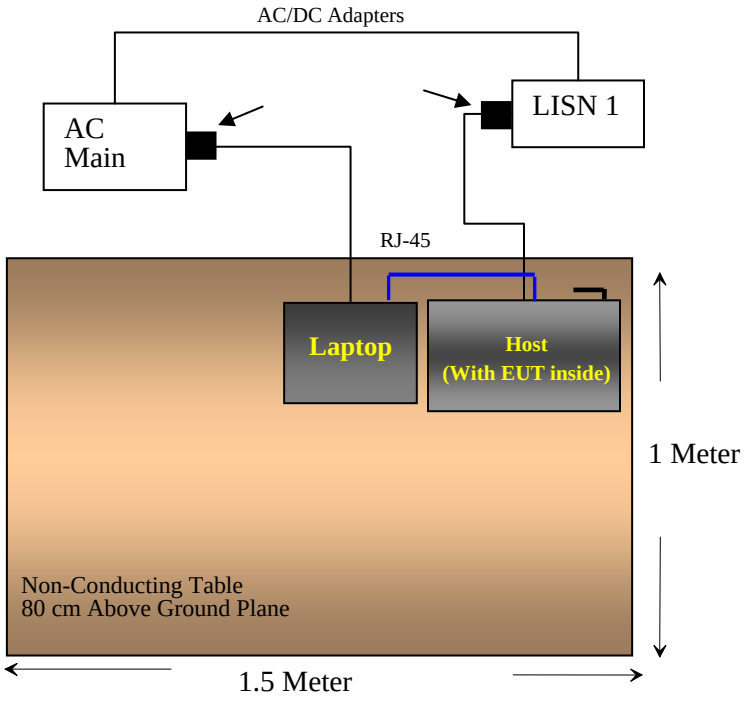
Section 15.207 Conducted limits:

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 (1) 56 60	56 to 46 (1) 46 50

(1) *Decreases with the logarithm of the frequency.*

6.2 Test Setup Block Diagram



6.3 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4-2003 measurement procedure. The specification used was FCC Part15.207 limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.
The AC/DC power adapter of the unit was connected with LISN-1 which provided 120 V / 60 Hz AC power.

6.4 Test Procedure

During the conducted emissions test, the power cord of the EUT host system 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".

6.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2011-03-24
Solar Electronics	LISN	9252-R-24-BNC	511205	2010-06-25

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

6.6 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

The testing was performed by Kevin Li on 2011-04-15 at 5m Chamber3.

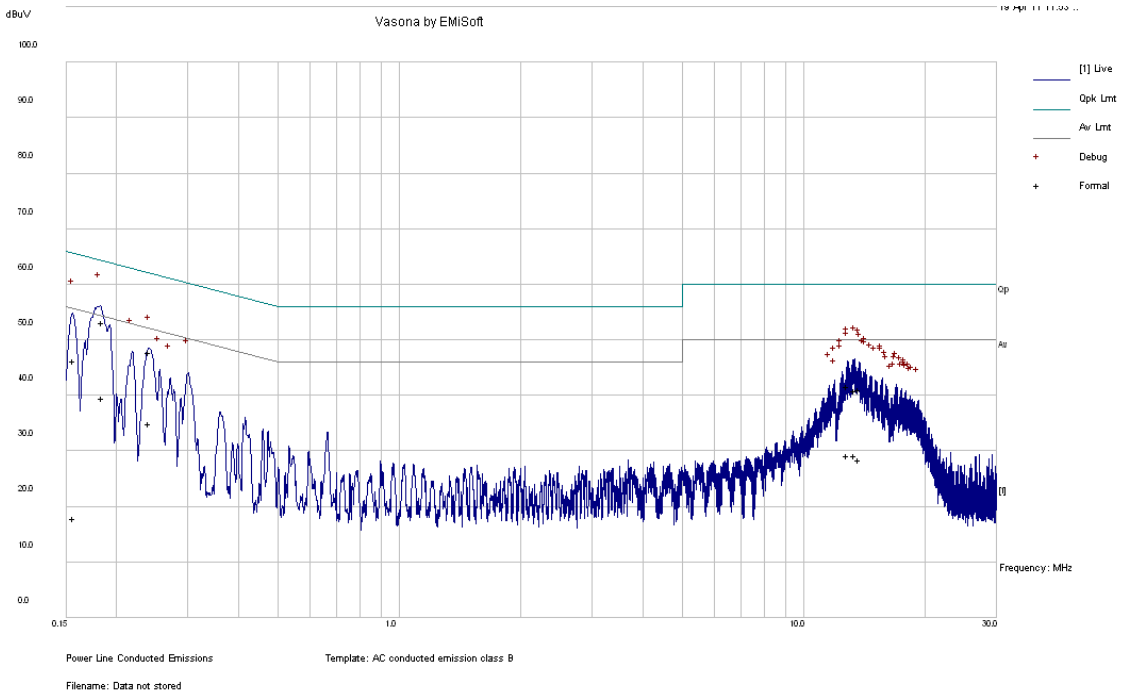
6.7 Summary of Test Results

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

Connection: AC/DC adapter connected to 120 V/60 Hz AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Line/Neutral)**	**Range (MHz)**
-9.04	0.180987	Neutral	0.15 to 30

6.8 Conducted Emissions Test Plots and Data

120 V, 60 Hz – Line



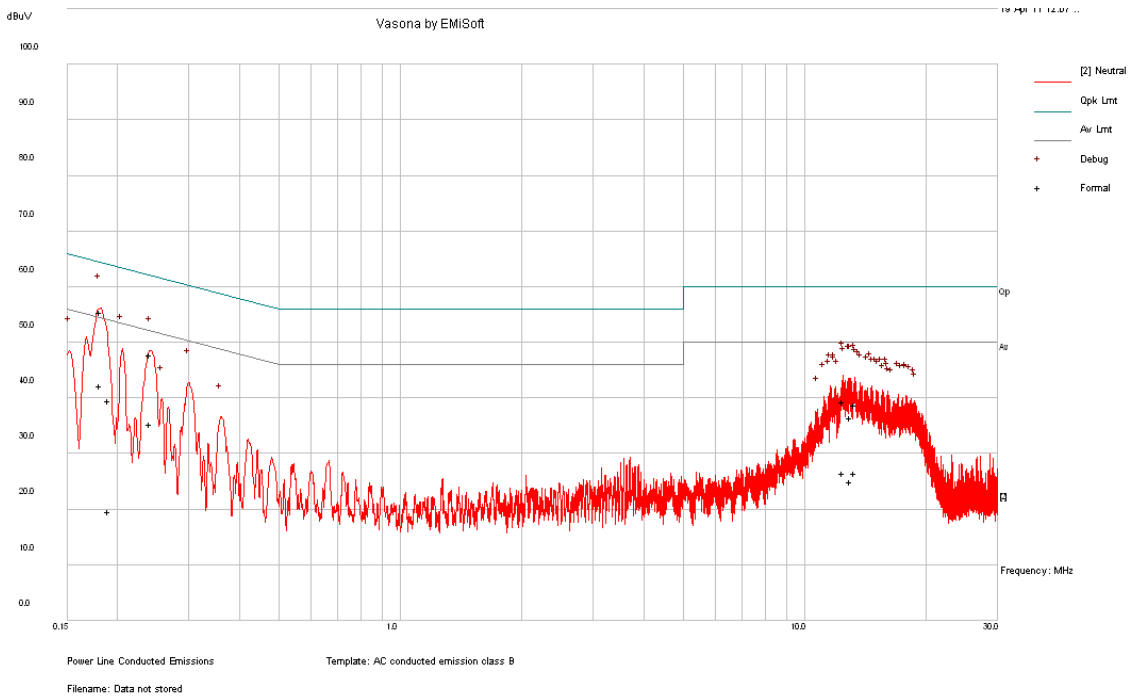
Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.18426	53.19	Line	64.29	-11.10
0.241167	47.78	Line	62.06	-14.28
12.82241	41.68	Line	60	-18.32
13.7225	41.18	Line	60	-18.82
13.3739	40.94	Line	60	-19.06
0.156408	46.35	Line	65.65	-19.30

Average Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.18426	39.54	Line	54.29	-14.76
0.241167	35.05	Line	52.06	-17.00
12.82241	29.29	Line	50	-20.71
13.3739	29.23	Line	50	-20.77
13.7225	28.5	Line	50	-21.50
0.156408	18.01	Line	55.65	-37.64

120 V, 60 Hz – Neutral



Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.180987	55.4	Neutral	64.44	-9.04
0.240699	47.71	Neutral	62.07	-14.36
12.44866	39.34	Neutral	60	-20.66
13.29914	38.75	Neutral	60	-21.25
12.96709	36.47	Neutral	60	-23.53
0.190395	39.59	Neutral	64.02	-24.43

Average Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.180987	42.2	Neutral	54.44	-12.24
0.240699	35.32	Neutral	52.07	-16.75
13.29914	26.55	Neutral	50	-23.45
12.44866	26.53	Neutral	50	-23.47
12.96709	25.03	Neutral	50	-24.97
0.190395	19.6	Neutral	54.02	-34.42

7 FCC §2.1051 & §15.247(d) - Spurious Emissions at Antenna Terminals

7.1 Applicable Standard

For FCC §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.

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

7.2 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 10th harmonic.

7.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2010-05-09

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

7.4 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

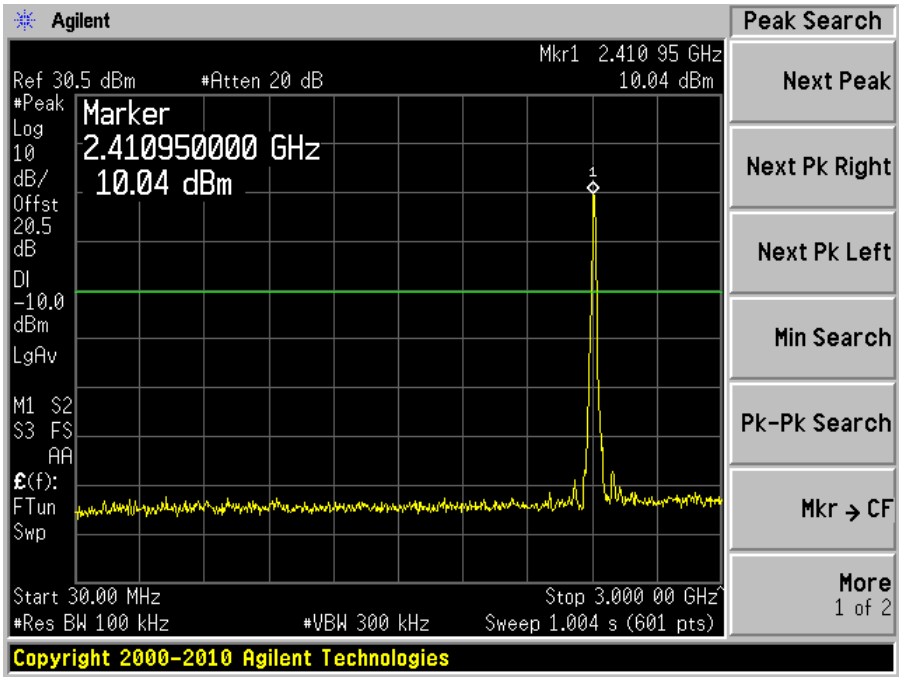
The testing was performed by Kevin Li on 2011-04-22 at RF Site.

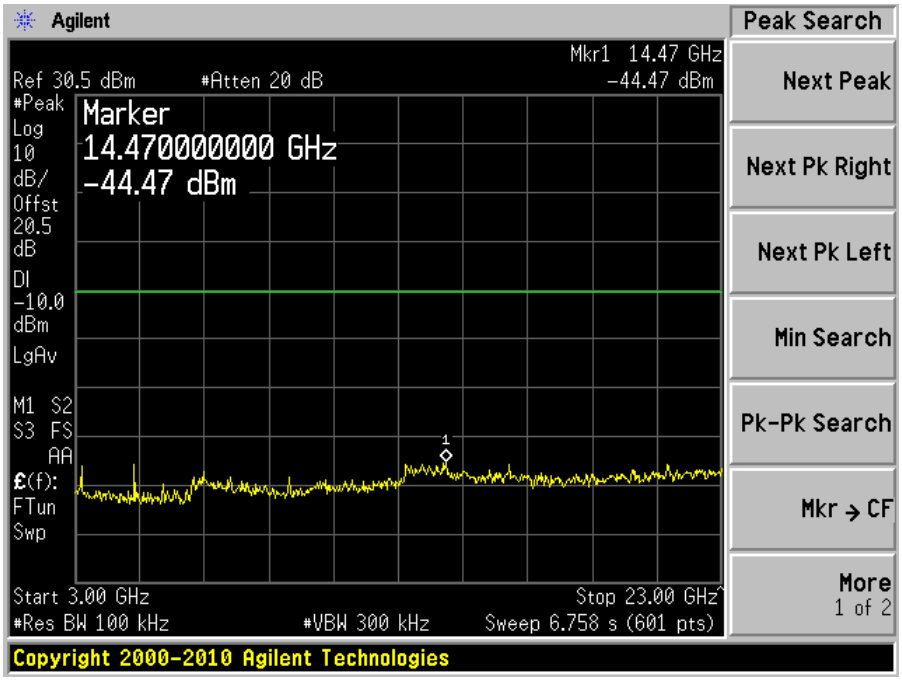
7.5 Measurement Result

Please refer to following plots of spurious emissions.

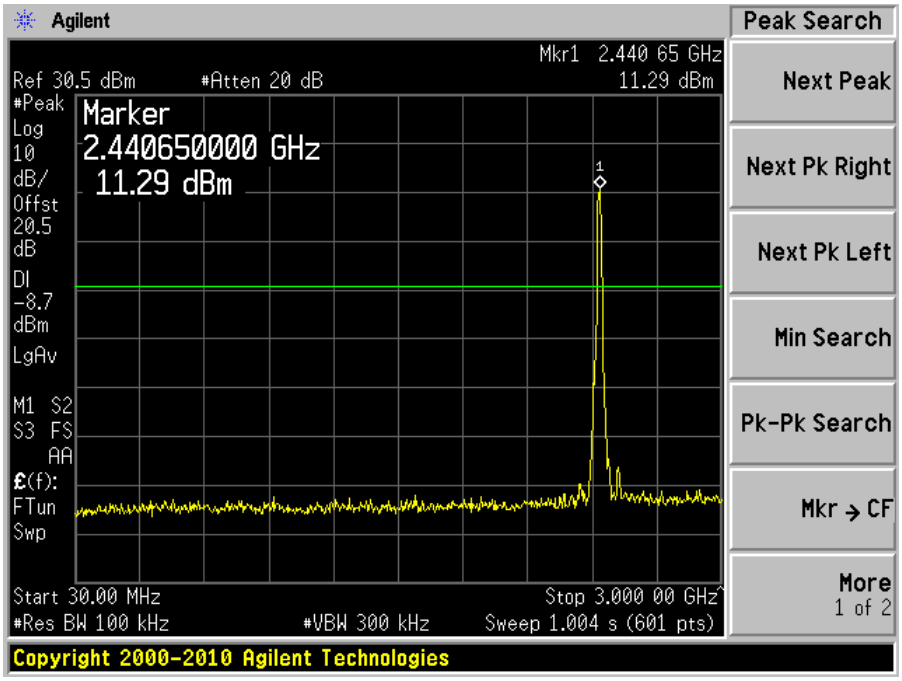
802.11 b (Antenna #0)

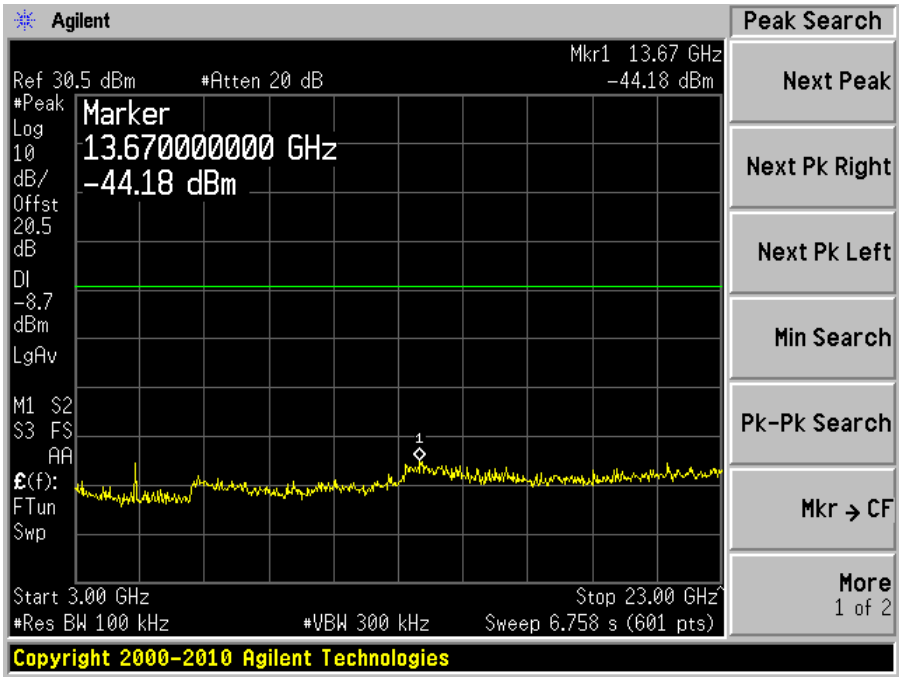
Low Channel 2412 MHz



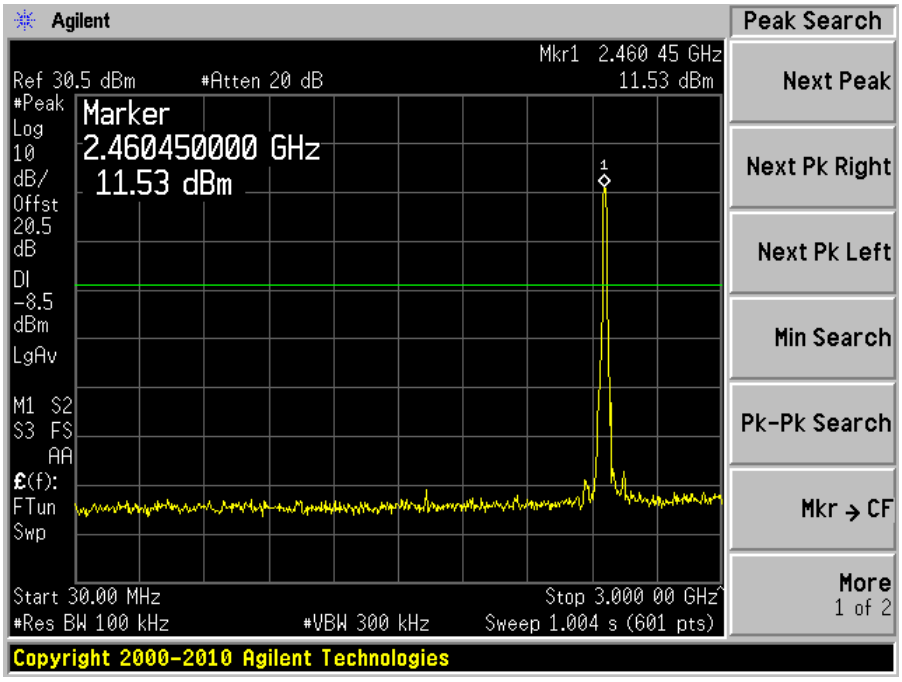


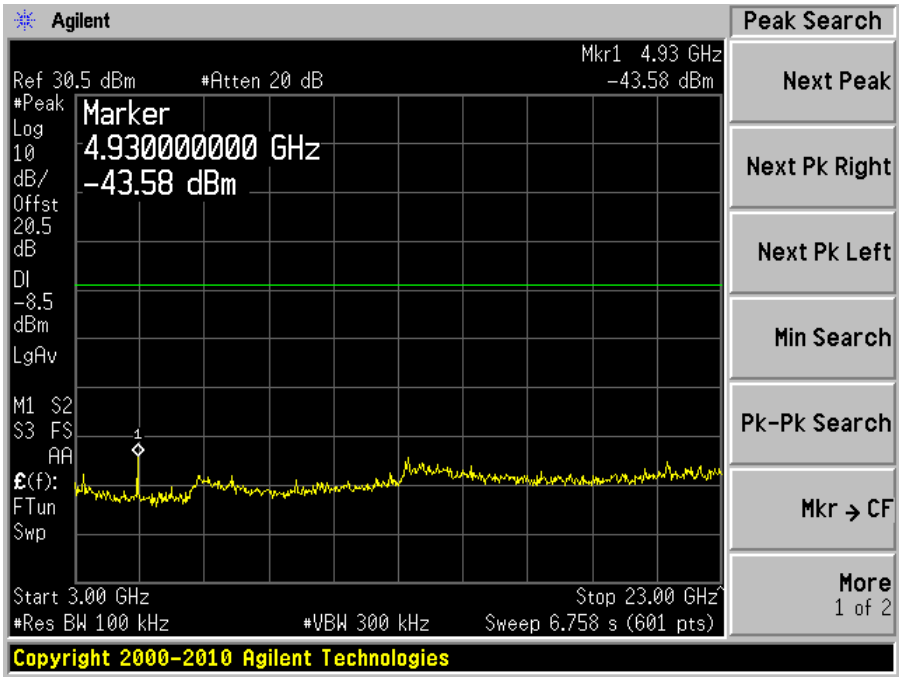
Middle Channel 2437 MHz





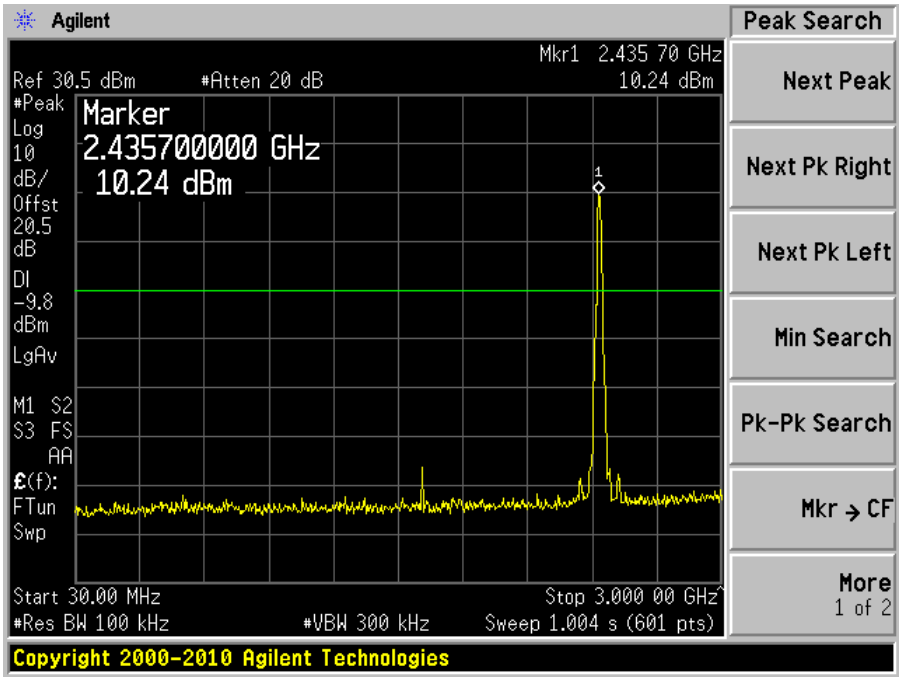
High Channel 2462 MHz

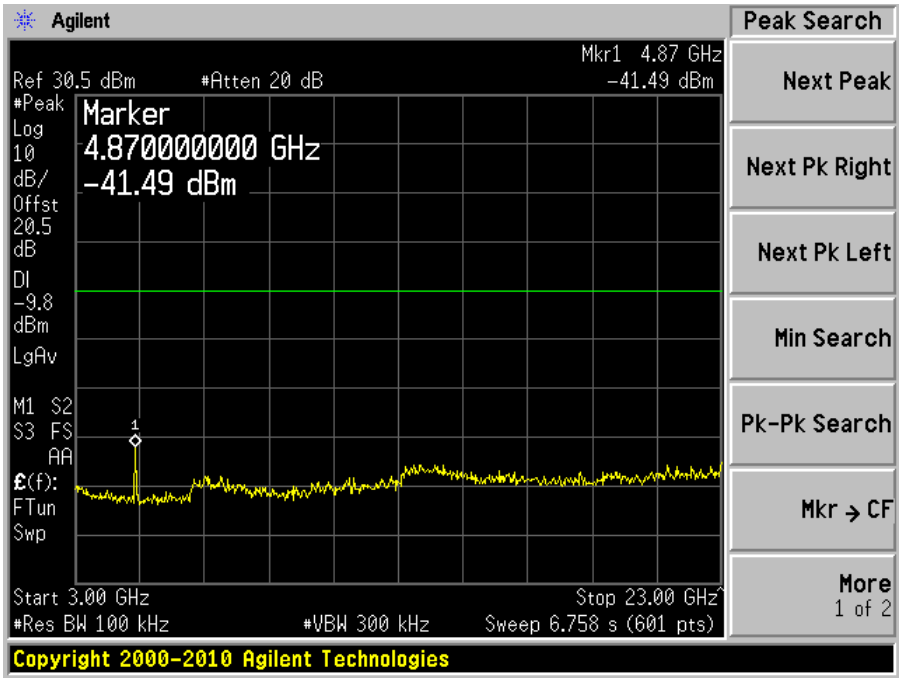




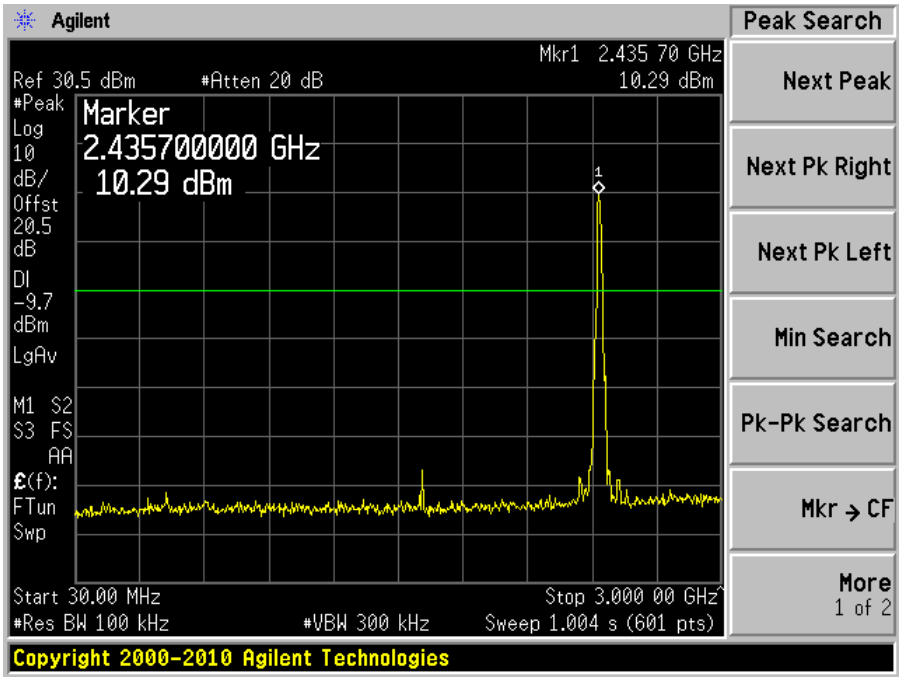
802.11 b (Antenna #1)

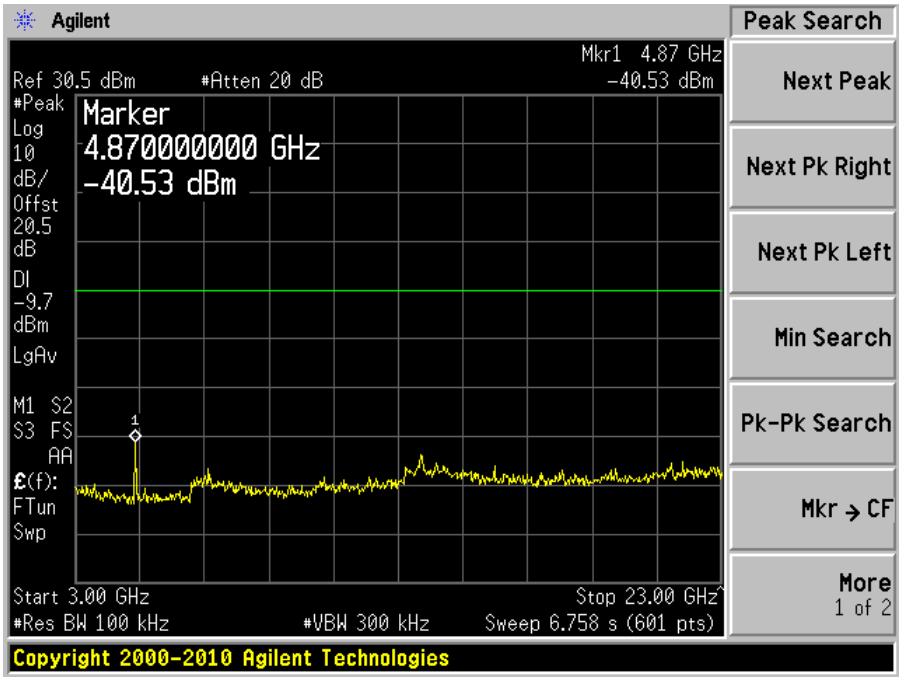
Low Channel 2412 MHz



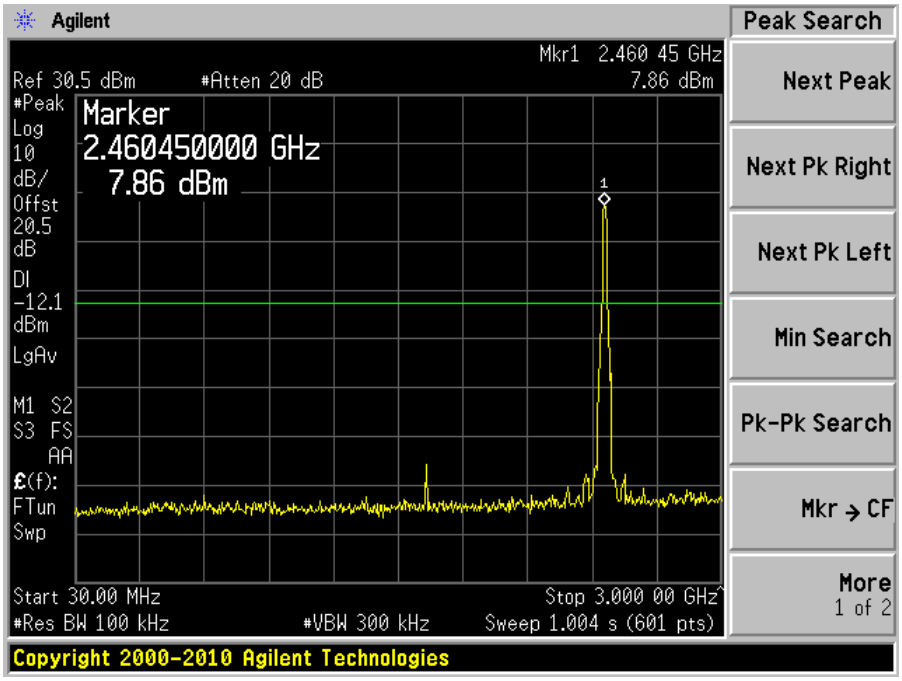


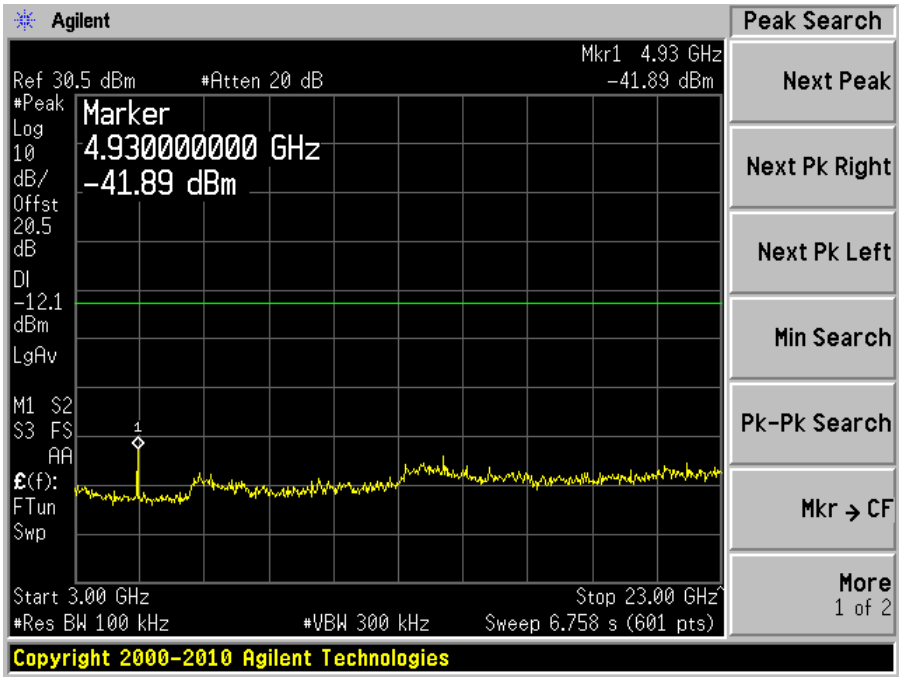
Middle Channel 2437 MHz





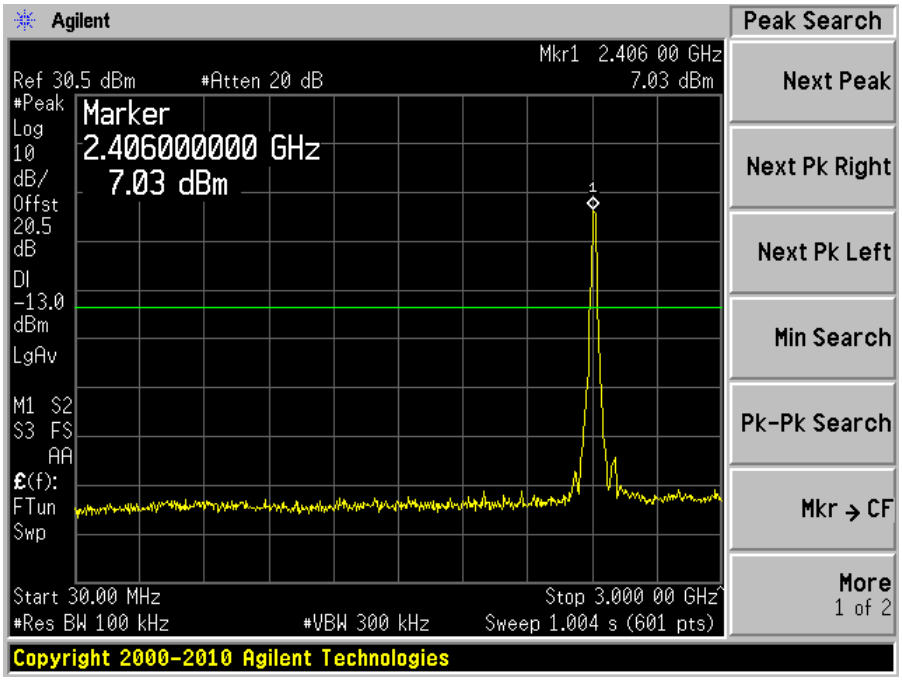
High Channel 2462 MHz

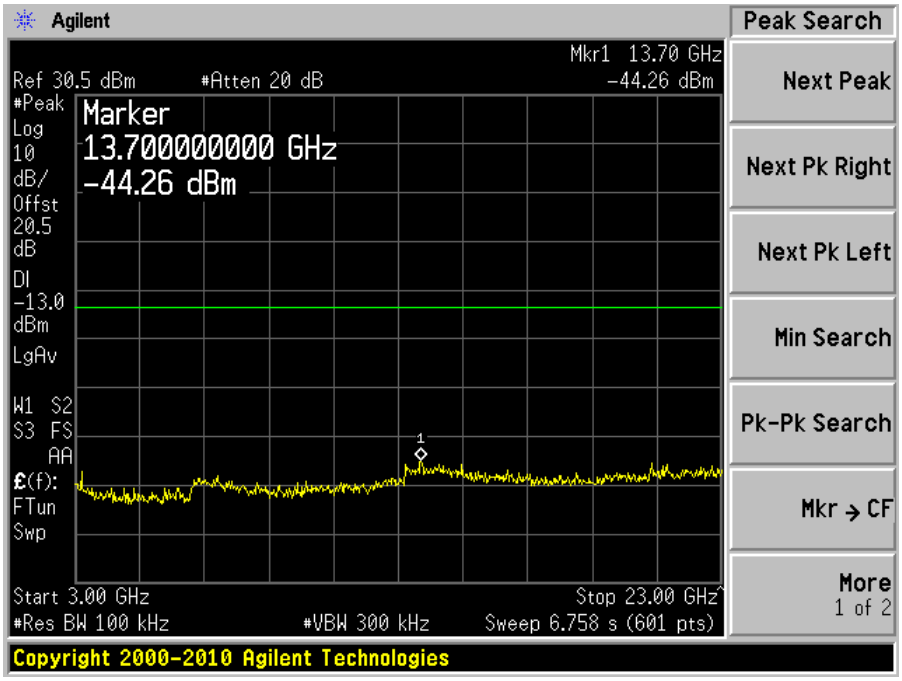




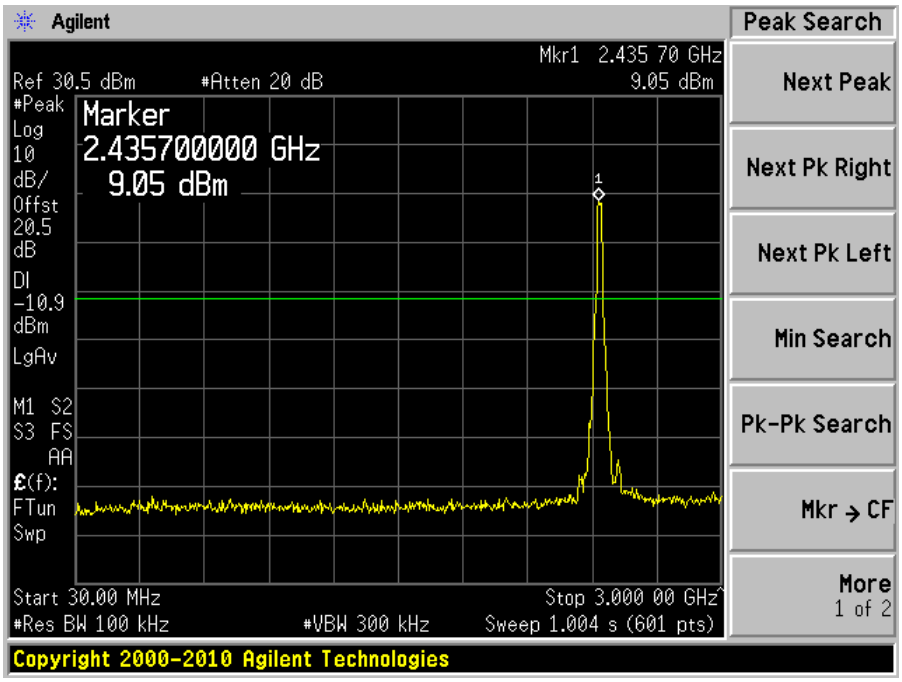
802.11 g (Antenna #0)

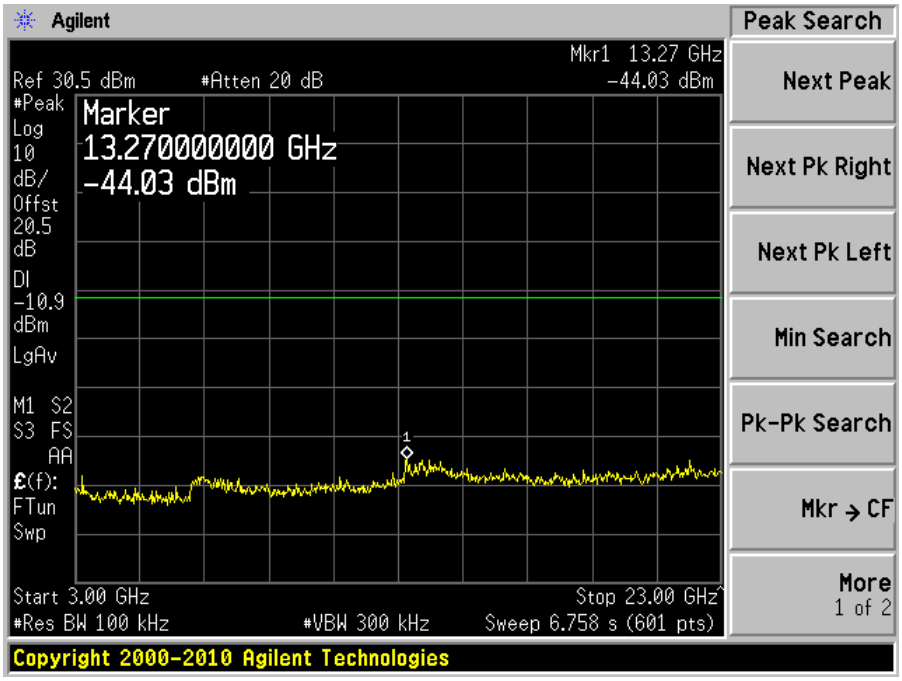
Low Channel 2412 MHz



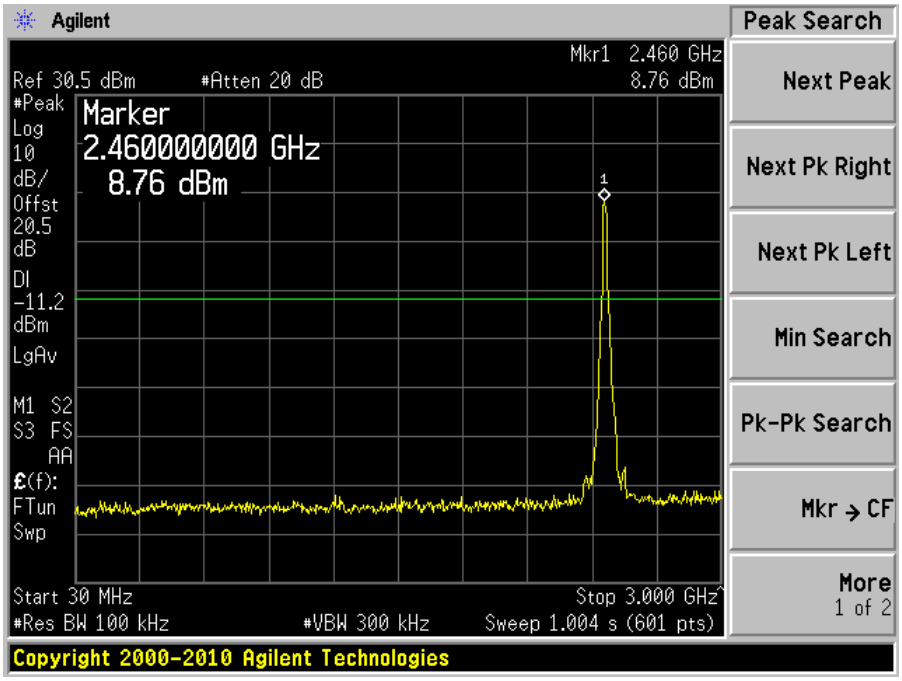


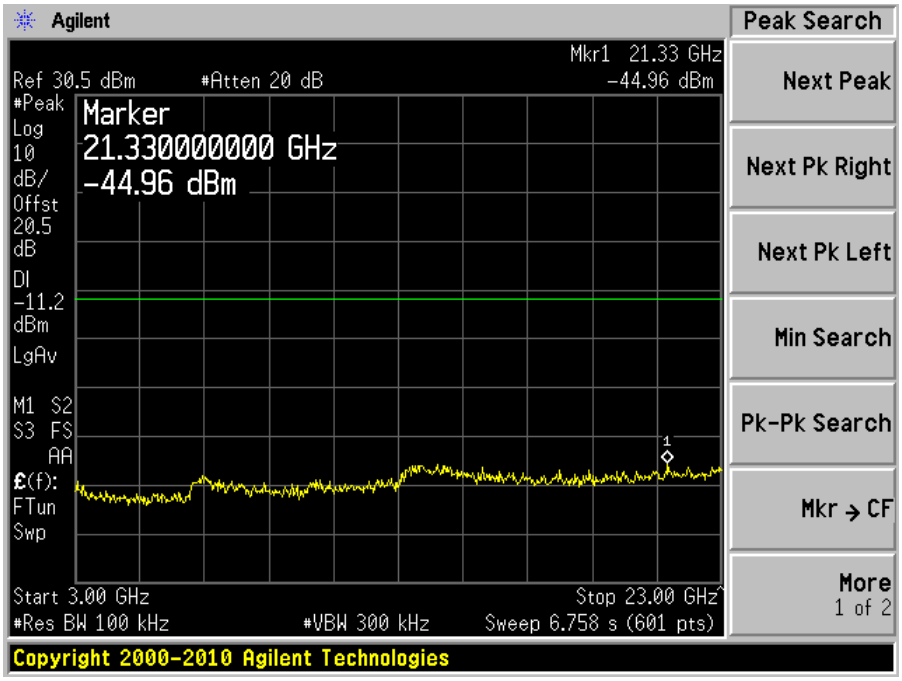
Middle Channel 2437 MHz





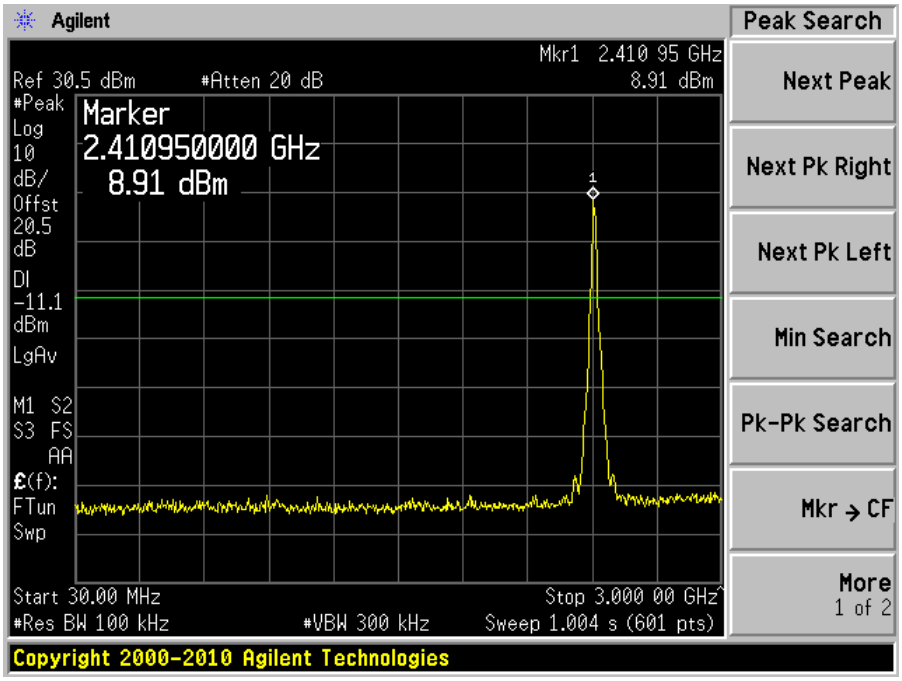
High Channel 2462 MHz

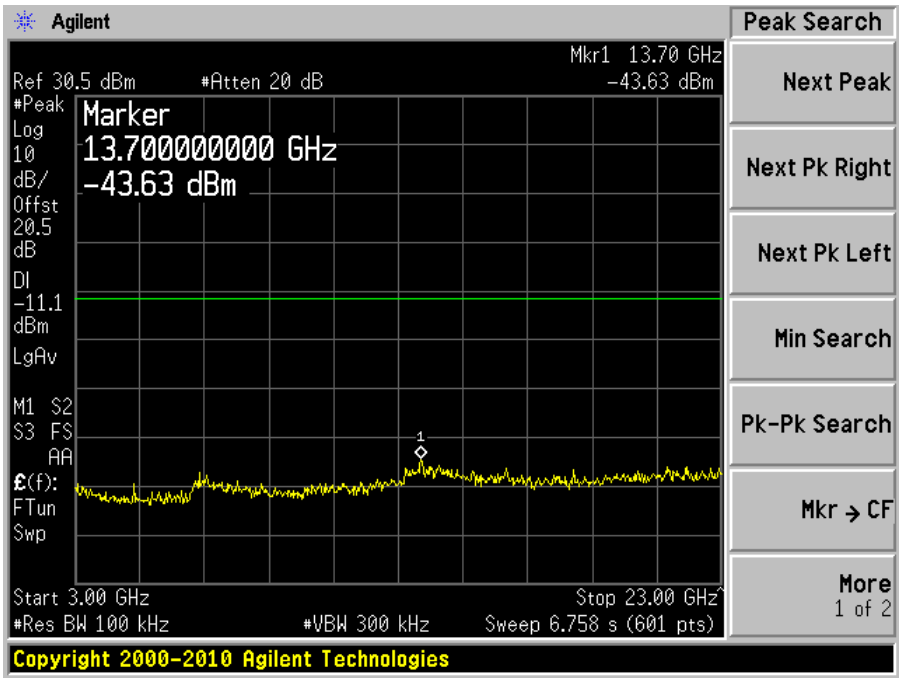




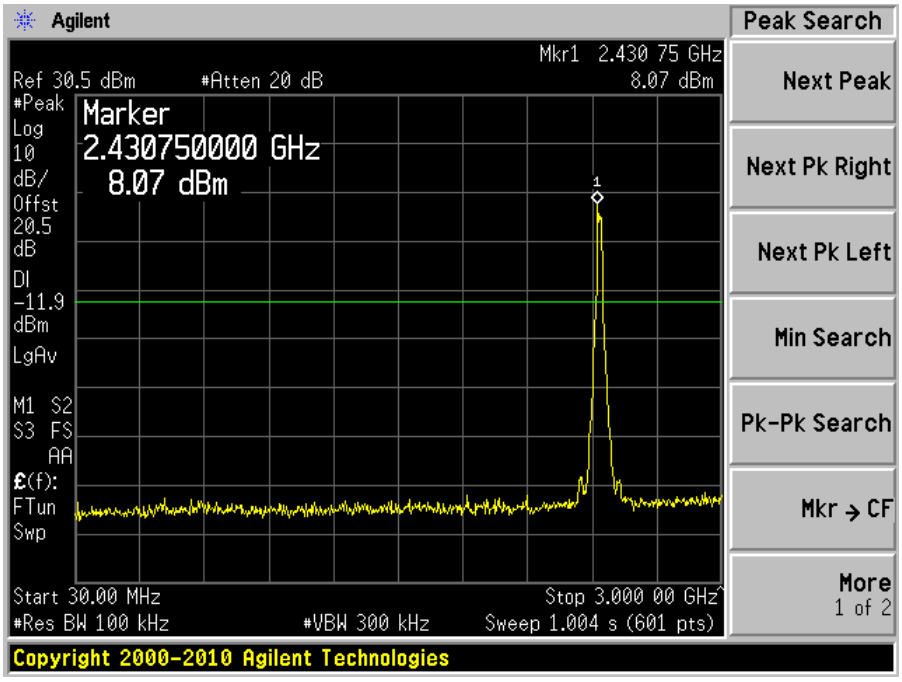
802.11 g (Antenna #1)

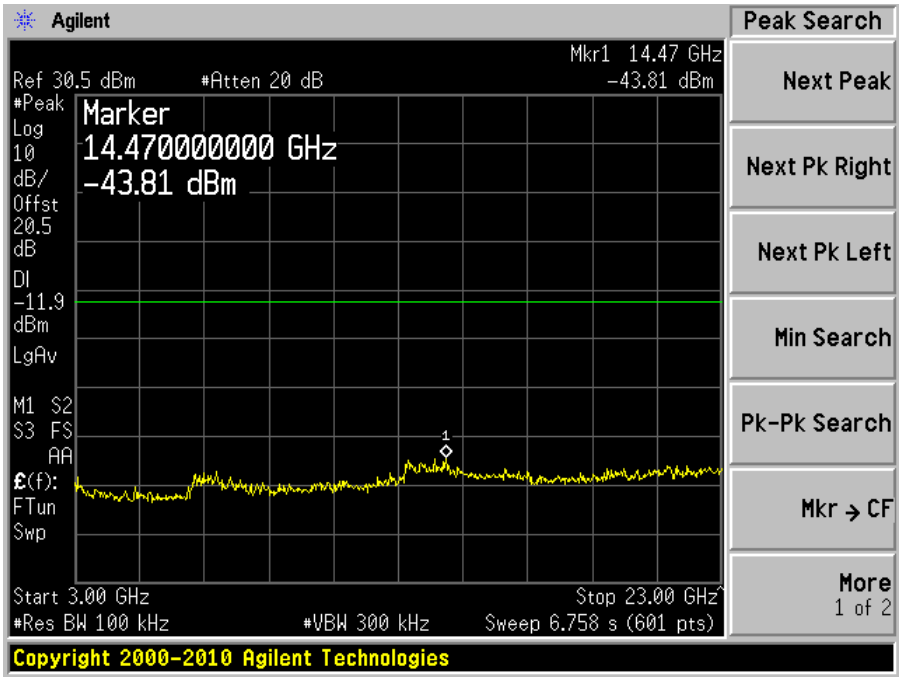
Low Channel 2412 MHz



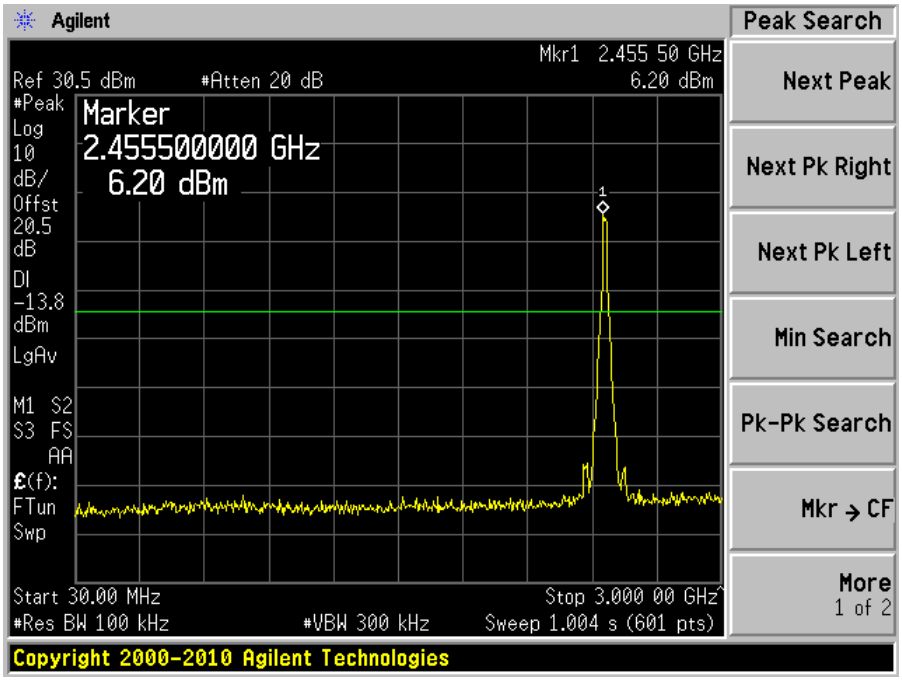


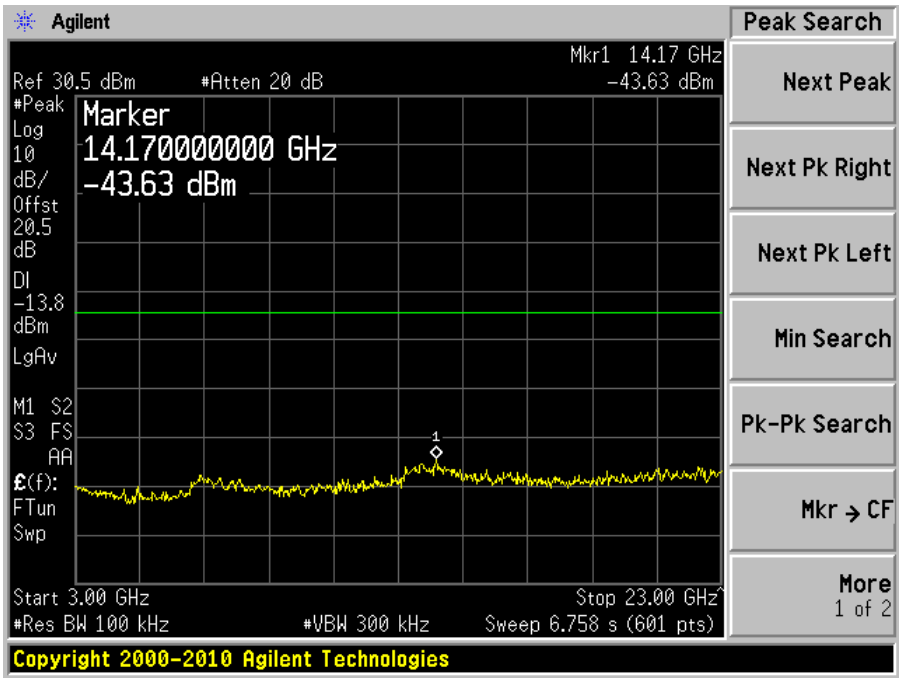
Middle Channel 2437 MHz





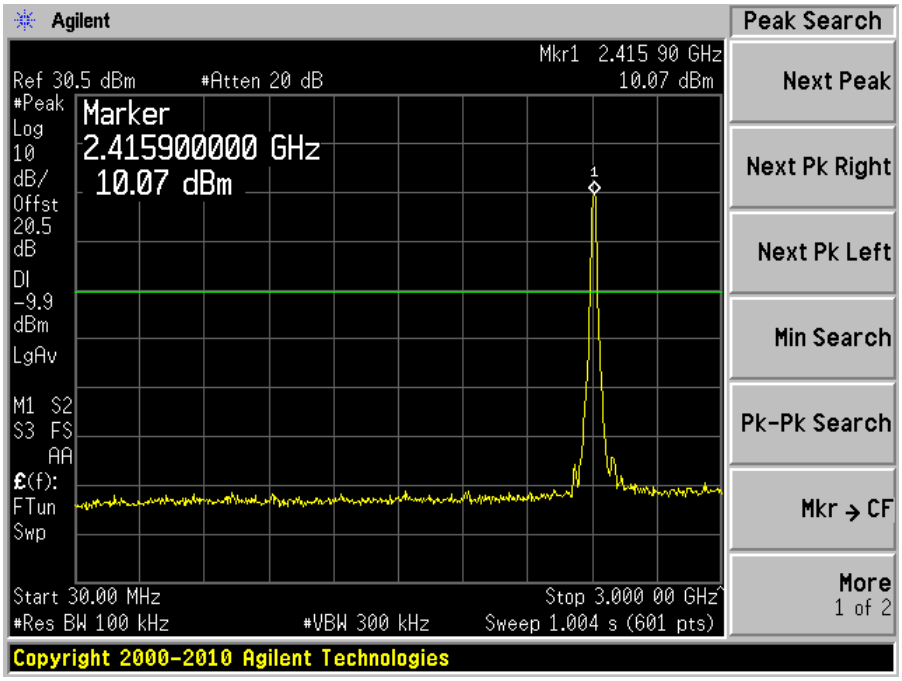
High Channel 2462 MHz

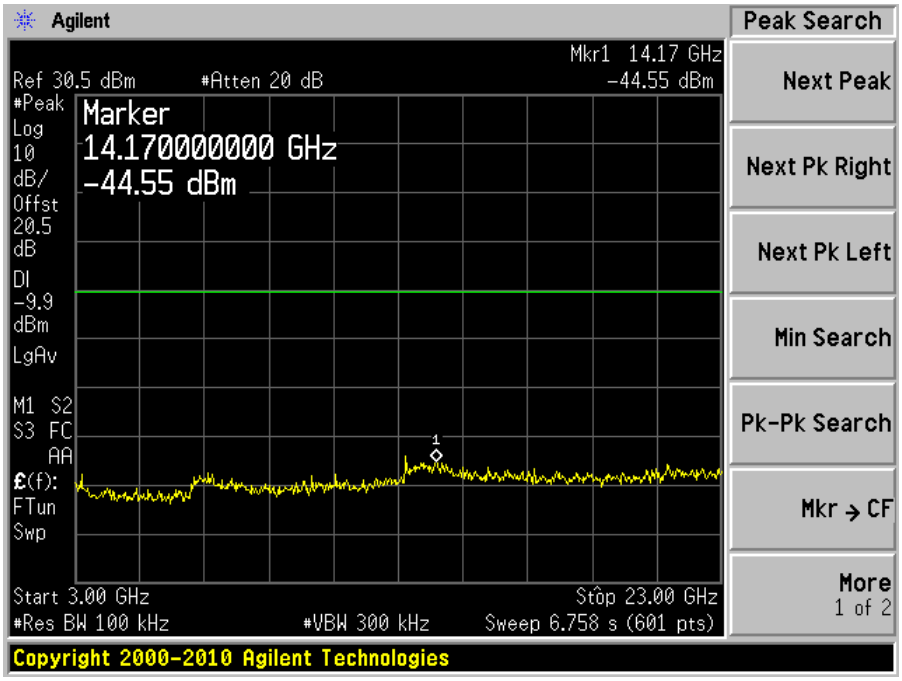




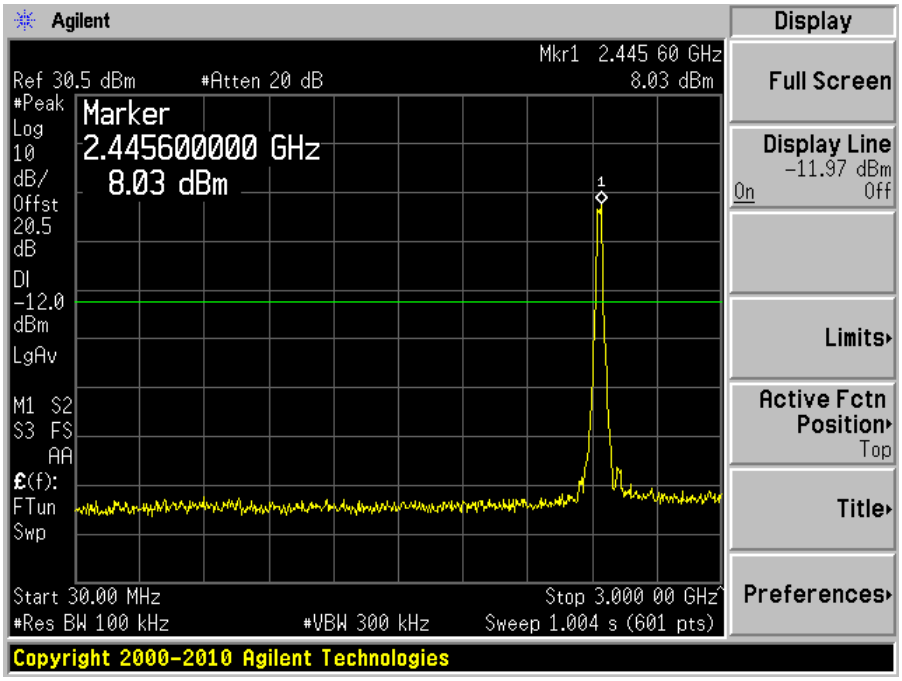
802.11 n (Antenna #0)

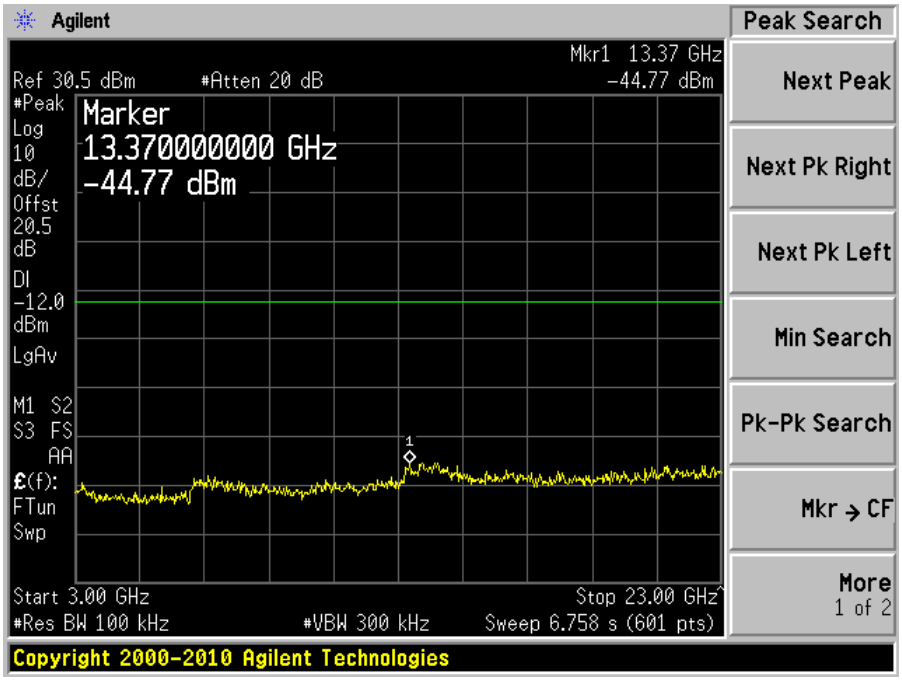
Low Channel 2412 MHz



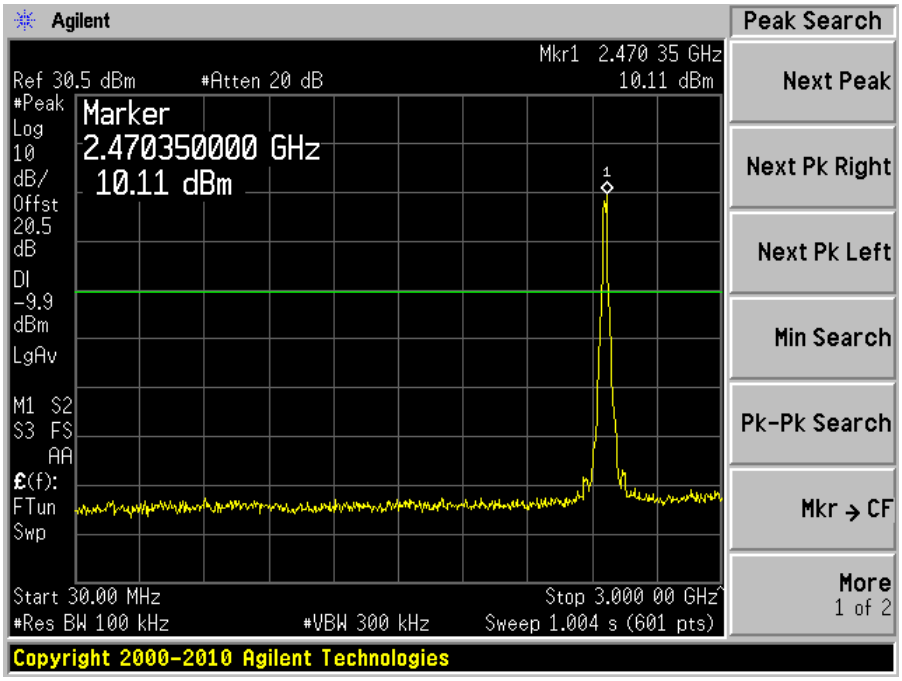


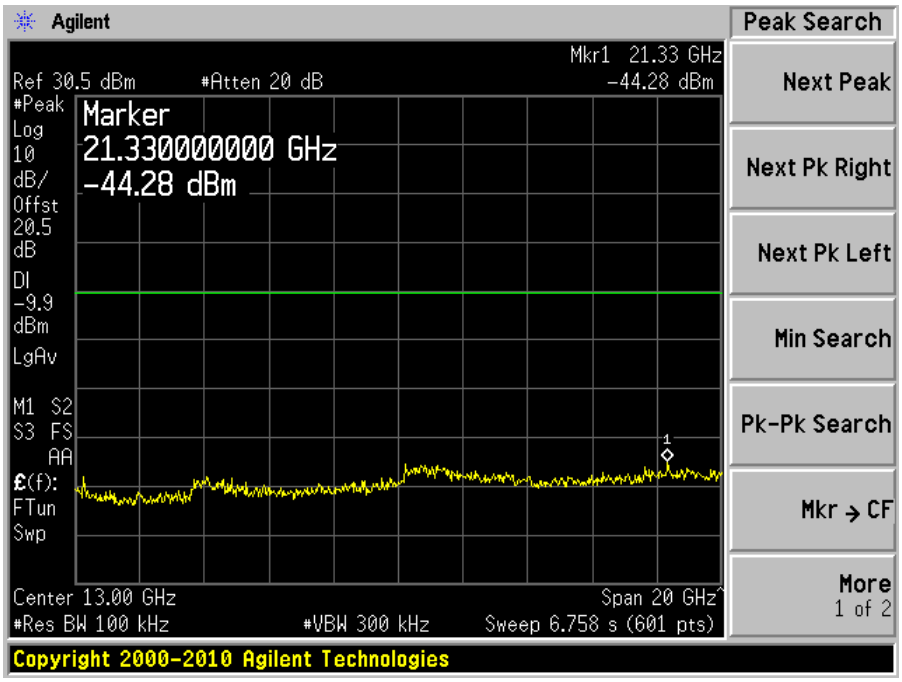
Middle Channel 2437 MHz





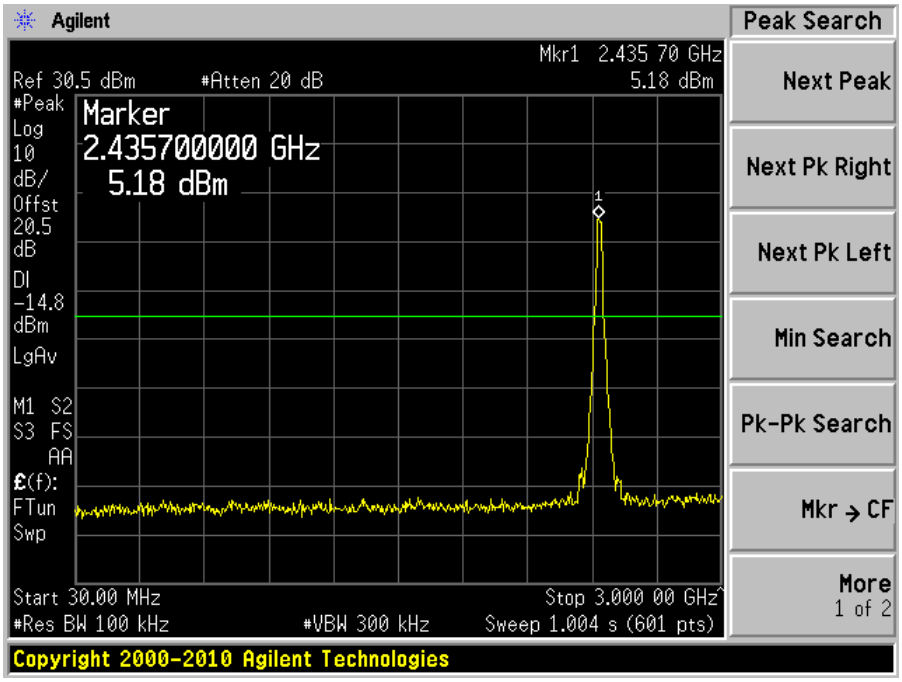
High Channel 2462 MHz

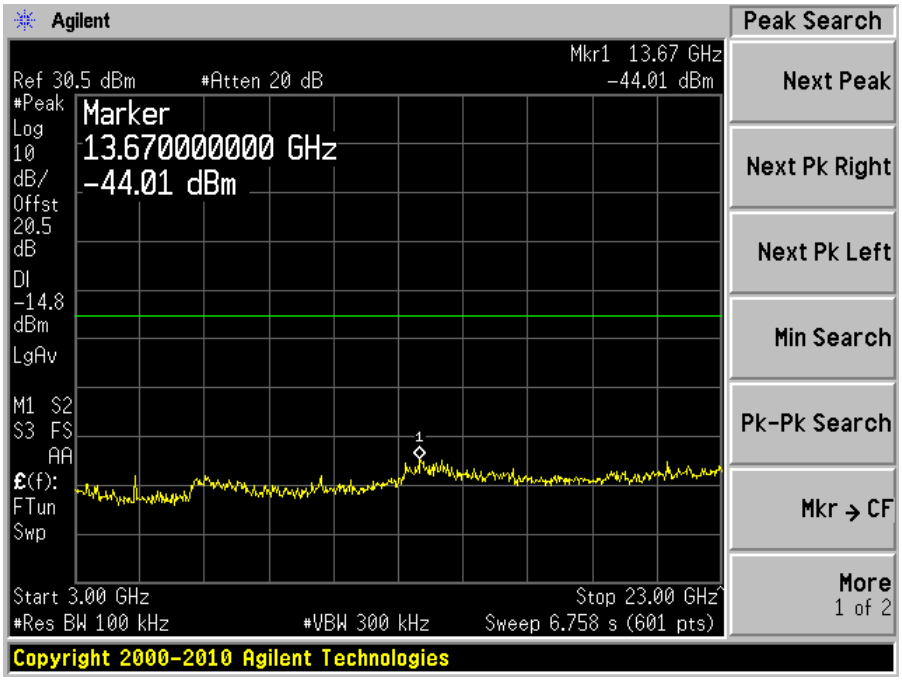




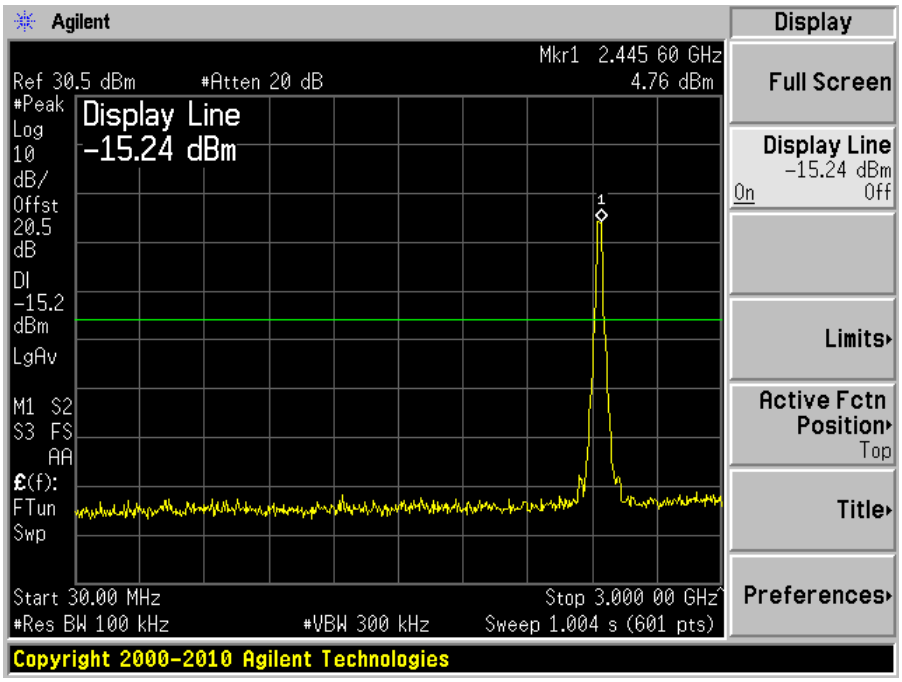
802.11 n (Antenna #1)

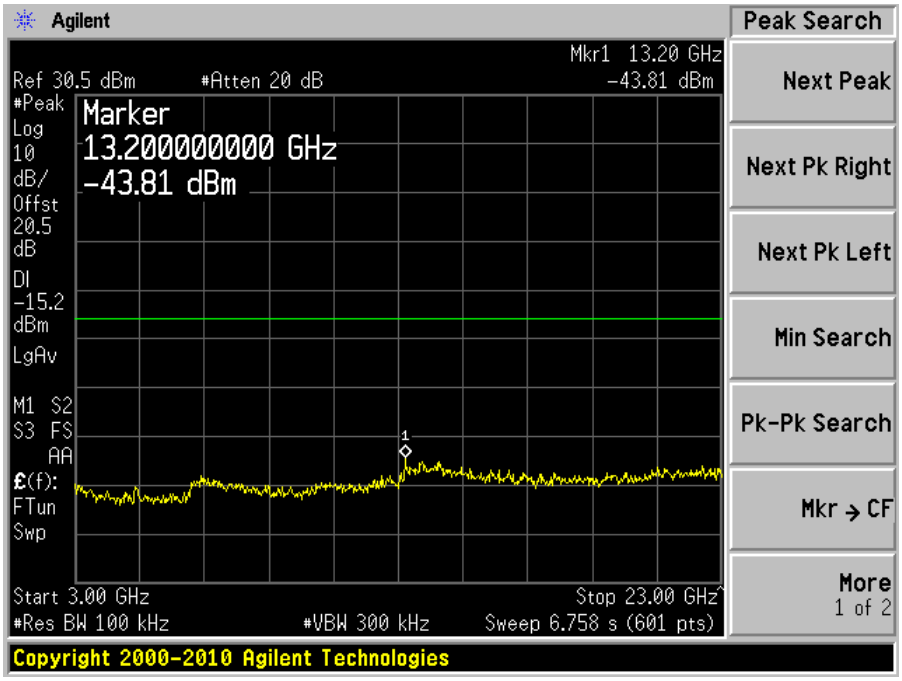
Low Channel 2412 MHz



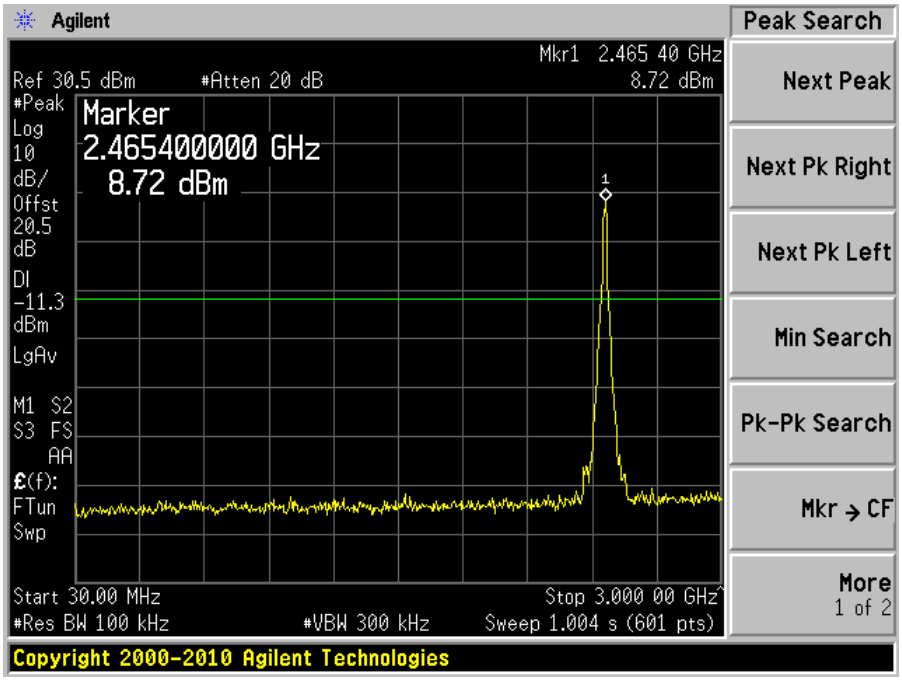


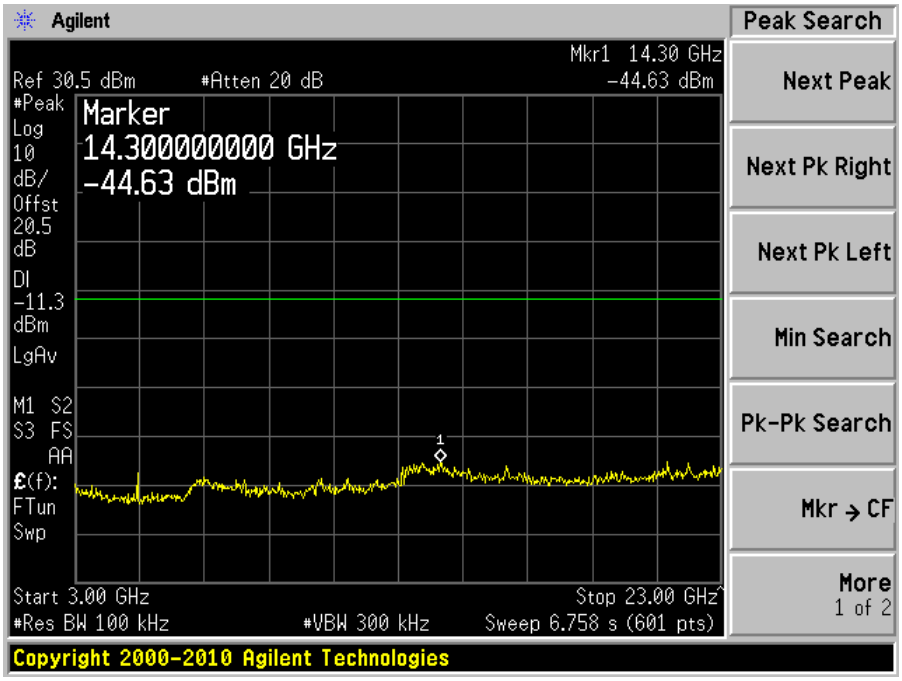
Middle Channel 2437 MHz





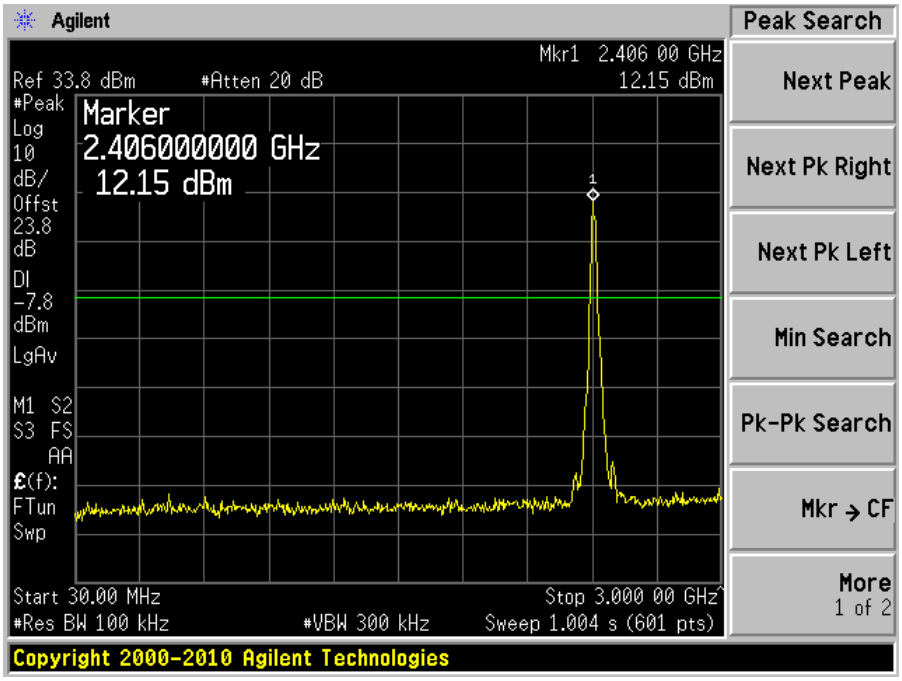
High Channel 2462 MHz

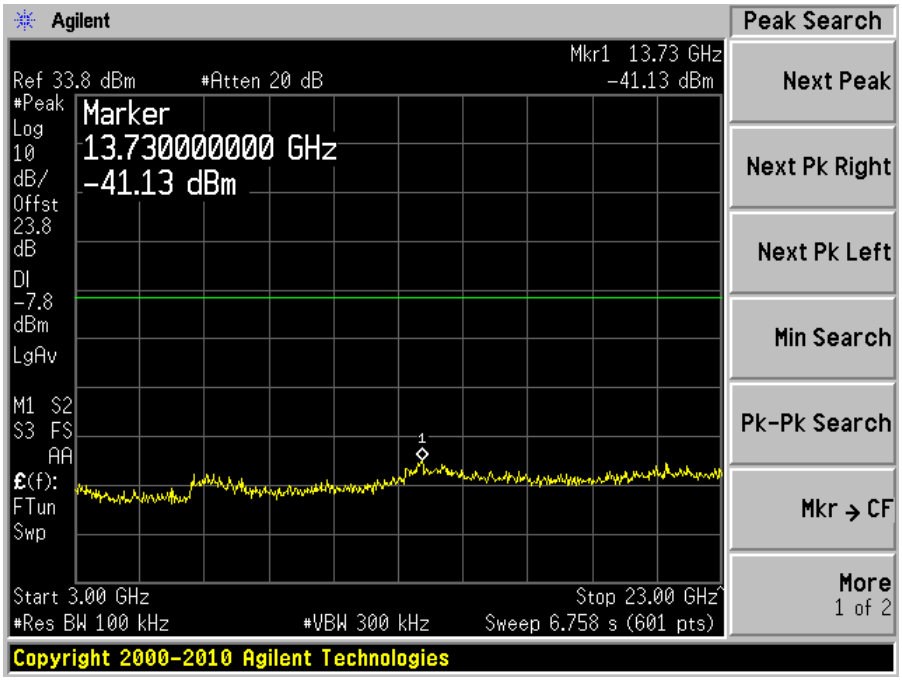




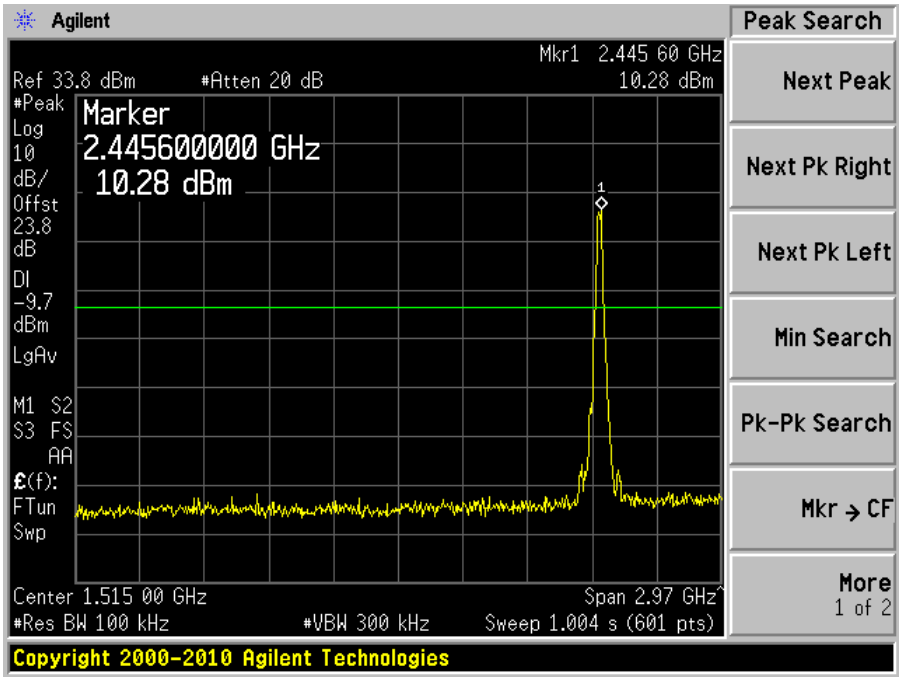
802.11 n (Antenna # 0+1)

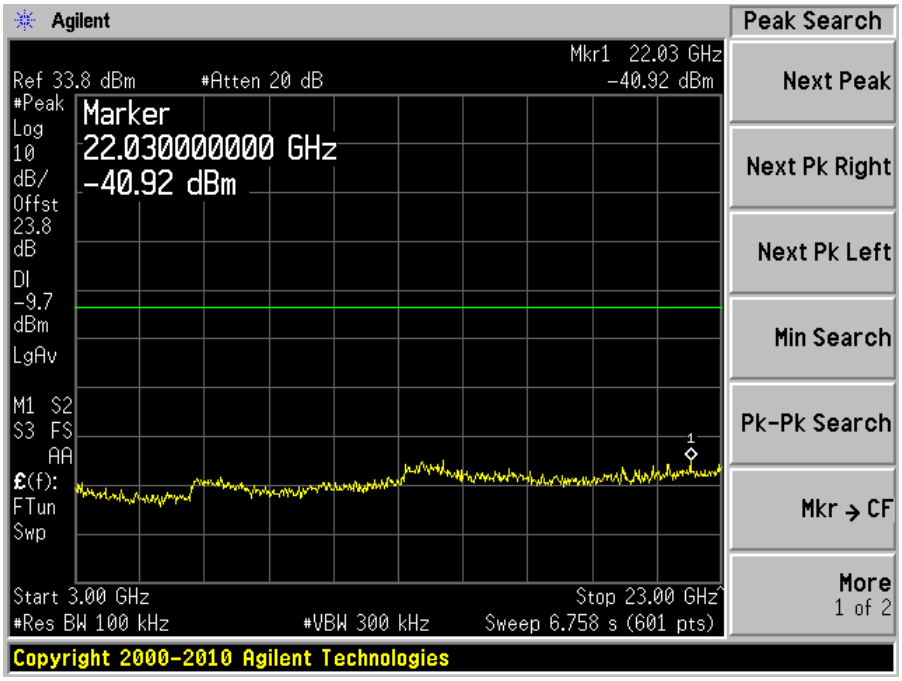
Low Channel 2412 MHz



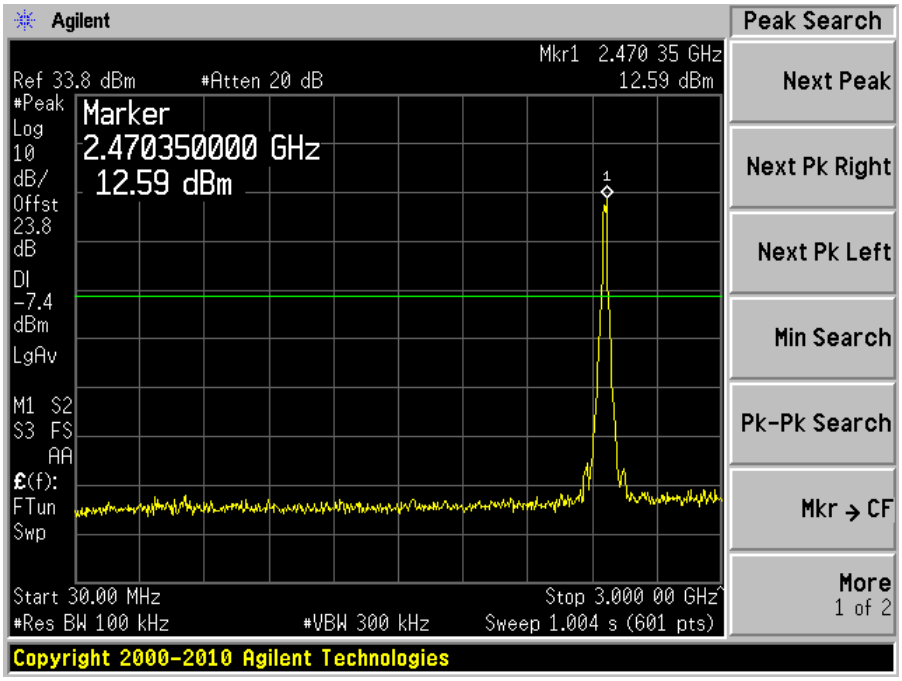


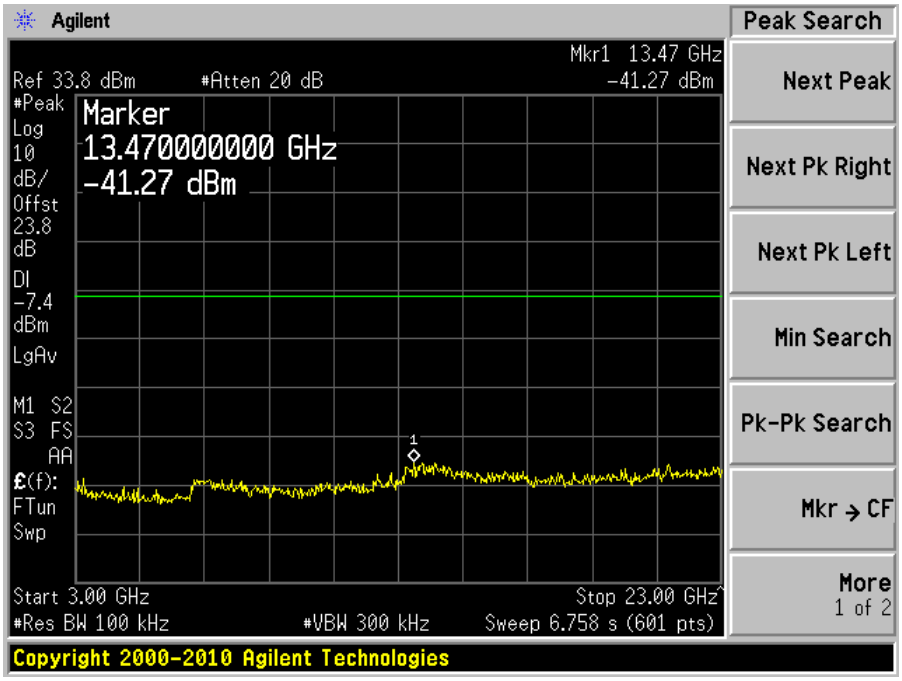
Middle Channel 2437 MHz





High Channel 2462 MHz





8 FCC §15.205, §15.209 & §15.247(d) - Spurious Radiated Emissions

8.1 Applicable Standards

As per FCC §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 FCC §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 (micro volts/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 (1)	3
88 - 216	150 (1)	3
216 - 960	200 (1)	3
Above 960	500	3

(1) 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 FCC §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:

f (MHz)	f (MHz)	f (MHz)	f (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 – 3339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	33458 – 3358	23.6 – 24.0
12.29 – 12.293	240 – 285	3600 – 4400	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		

As Per FCC §15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

8.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart C 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.

8.3 Test Procedure

For the radiated emissions test, the EUT host, 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 meter, 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 1000 MHz:

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

Above 1000 MHz:

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

8.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna 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 -7 dB means the emission is 7 dB below the maximum limit.
The equation for margin calculation is as follows:

Margin = Corrected Amplitude - FCC Limit

8.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2010-05-09
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2010-04-24
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Sunol Science Corp	Combination Antenna	JB3	A0020106-3	2010-06-16
Hewlett Packard	Pre-amplifier	8447D	2944A06639	2010-06-18
Mini-Circuits	Pre-amplifier	ZVA-183-S	570400946	2010-05-10
A.R.A Inc	Horn antenna	DRG-1181A	1132	2010-12-15

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

8.6 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

The testing was performed by Kevin Li from 2011-04-12 to 2011-04-15 at 5m Chamber 3.

8.7 Summary of Test Results

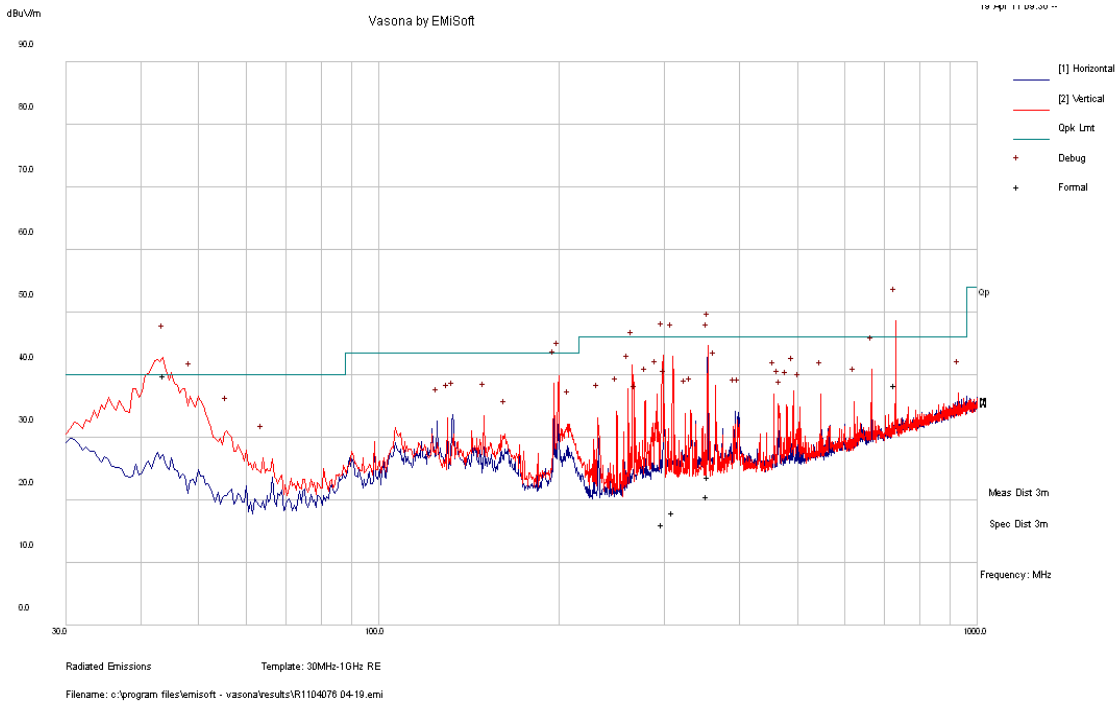
According to the data hereinafter, the EUT complied with the limits presented in FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247, and had the worst margin of:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Channel, Range**
30-1000 MHz			
-1.04	43.78075	Vertical	Middle, 30 MHz – 1 GHz
Above 1 GHz			
-0.3	4874	Vertical	Middle, 1 GHz – 25 GHz

8.8 Radiated Emissions Test plot & data

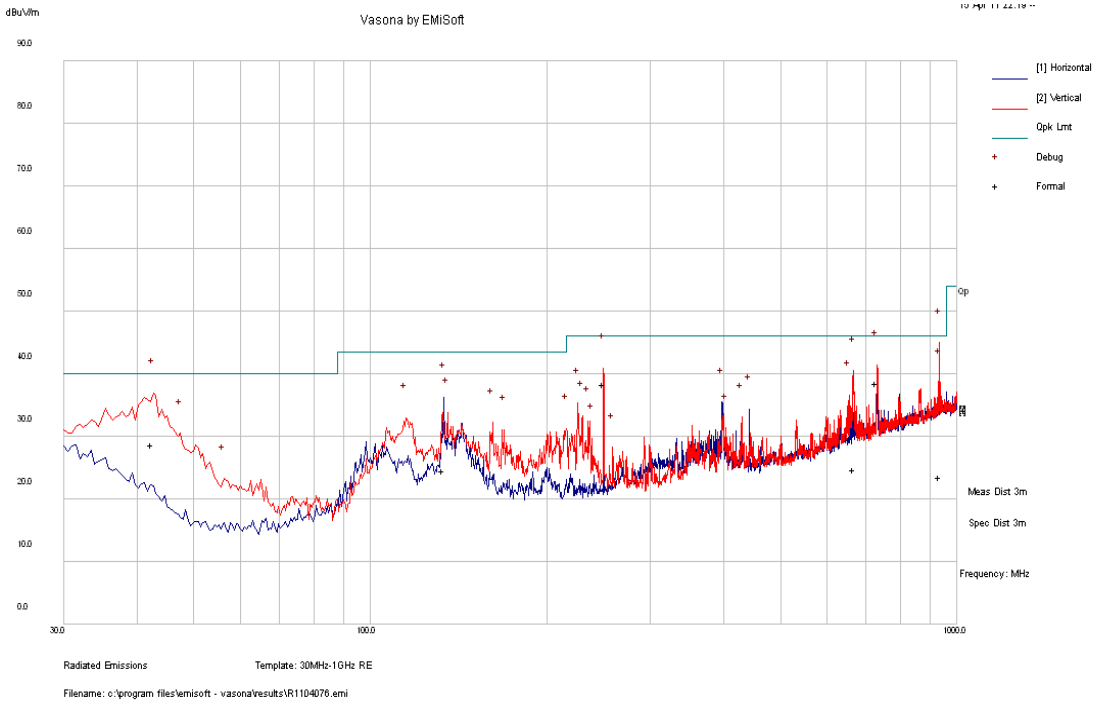
1) 30 – 1000 MHz Measured at 3 meters:

802.11 b mode (Worst Case, Middle Channel 2437 MHz, measured at 3 meters)



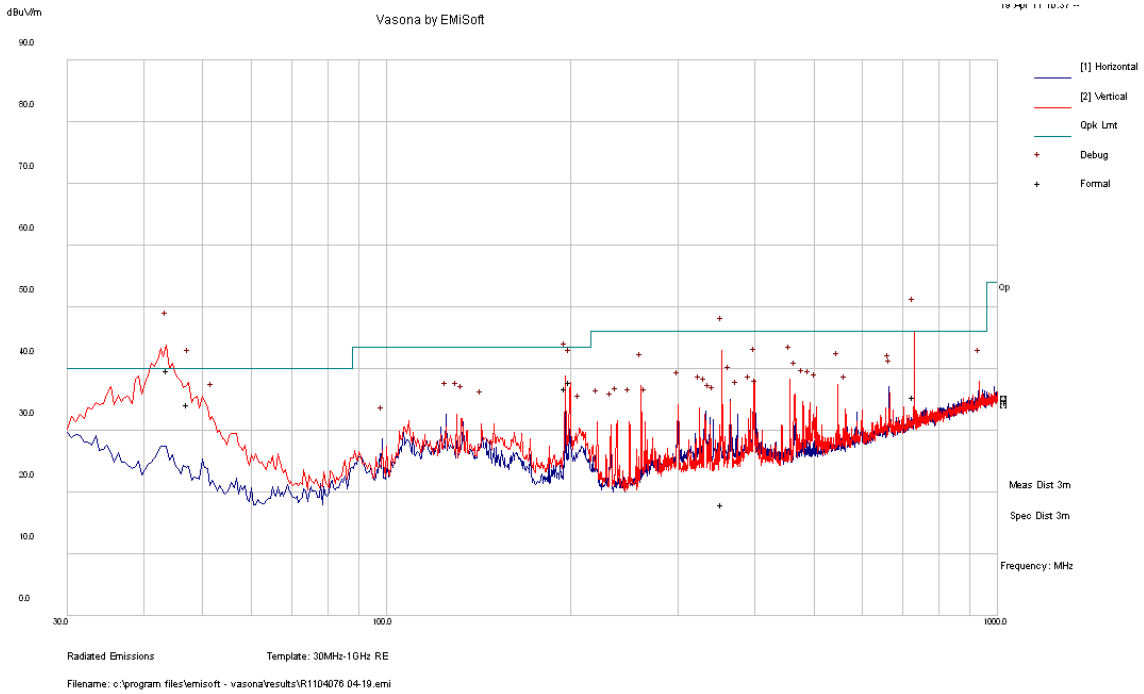
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
43.78075	38.96	115	V	77	40	-1.04
729.177	38.44	122	V	255	46	-7.56
355.0385	23.72	142	V	159	46	-22.28
353.526	20.64	242	H	360	46	-25.36
309.457	18.06	174	V	308	46	-27.94
298.202	16.09	310	V	165	46	-29.91

802.11 g mode (Worst Case, Middle Channel 2437 MHz, measured at 3 meters)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
729.2628	38.48	100	V	118	46	-7.52
249.955	38.29	100	V	162	46	-7.71
42.38125	28.7	202	V	164	40	-11.3
133.171	24.64	171	H	93	43.5	-18.86
666.0528	24.74	201	V	245	46	-21.26
933.617	23.47	155	V	142	46	-22.53

802.11 n mode (Worst Case, Middle Channel 2437 MHz, measured at 3 meters)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
43.804	38.83	116	V	19	40	-1.17
199.7915	37.9	99	V	183	43.5	-5.60
47.2925	34.2	105	V	353	40	-5.80
196.6015	36.89	106	V	45	43.5	-6.61
729.1263	35.52	141	V	162	46	-10.48
353.479	18.06	296	V	102	46	-27.94

2) Above 1 GHz Measured at 3 meters:

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBµV/m)	Part 15C		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
802.11 b mode, Low Channel 2412 MHz, measured at 3 meters											
4824	46.67	146	152	V	32.8	4.54	27.4	56.61	74	-17.39	peak
4824	44	207	139	H	32.8	4.54	27.4	53.94	74	-20.06	peak
4824	41.78	146	152	V	32.8	4.54	27.4	51.72	54	-2.28	Ave
4824	39.5	207	139	H	32.8	4.54	27.4	49.44	54	-4.56	Ave
802.11 b mode, Middle Channel 2437 MHz, measured at 3 meters											
4874	46.47	307	128	V	32.9	4.54	27.4	56.51	74	-17.49	peak
4874	41.96	169	1226	H	32.9	4.54	27.4	52	74	-22	peak
4874	43.66	307	128	V	32.9	4.54	27.4	53.7	54	-0.3	Ave
4874	36.22	169	1226	H	32.9	4.54	27.4	46.26	54	-7.74	Ave
802.11 b mode, High Channel 2462 MHz, measured at 3 meters											
4924	46.43	232	125	V	32.9	4.52	27.4	56.45	74	-17.55	peak
4924	40.78	5	154	H	32.9	4.52	27.4	50.8	74	-23.2	peak
4924	43.15	232	125	V	32.9	4.52	27.4	53.17	54	-0.83	Ave
4924	33.16	5	154	H	32.9	4.52	27.4	43.18	54	-10.82	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBµV/m)	Part 15C		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
802.11 g mode, Low Channel 2412 MHz, measured at 3 meters											
4824	49.98	141	154	V	32.8	4.54	27.4	59.92	74	-14.08	peak
4824	47.58	177	141	H	32.8	4.54	27.4	57.52	74	-16.48	peak
4824	36.81	141	154	V	32.8	4.54	27.4	46.75	54	-7.25	Ave
4824	34.07	177	141	H	32.8	4.54	27.4	44.01	54	-9.99	Ave
802.11 g mode, Middle Channel 2437 MHz, measured at 3 meters											
4874	54.54	171	140	V	32.8	4.54	27.4	64.48	74	-9.52	peak
4874	45.08	230	157	H	32.8	4.54	27.4	55.02	74	-18.98	peak
4874	41.19	171	140	V	32.8	4.54	27.4	51.13	54	-2.87	Ave
4874	32.2	230	157	H	32.8	4.54	27.4	42.14	54	-11.86	Ave
802.11 g mode, High Channel 2462 MHz, measured at 3 meters											
4924	52.56	180	123	V	32.9	4.52	27.4	62.58	74	-11.42	peak
4924	45.91	234	158	H	32.9	4.52	27.4	55.93	74	-18.07	peak
4924	39.02	180	123	V	32.9	4.52	27.4	49.04	54	-4.96	Ave
4924	32.62	234	158	H	32.9	4.52	27.4	42.64	54	-11.36	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBµV/m)	Part 15C		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
802.11 n mode, Low Channel 2412 MHz, measured at 3 meters											
4824	46.52	152	154	V	32.8	4.54	27.4	56.46	74	-17.54	peak
4824	44.70	168	141	H	32.8	4.54	27.4	54.64	74	-19.36	peak
4824	32.42	152	154	V	32.8	4.54	27.4	42.36	54	-11.64	Ave
4824	30.87	168	141	H	32.8	4.54	27.4	40.81	54	-13.19	Ave
802.11 n mode, Middle Channel 2437 MHz, measured at 3 meters											
4874	47.19	163	140	V	32.8	4.54	27.4	57.13	74	-16.87	peak
4874	45.96	227	157	H	32.8	4.54	27.4	55.90	74	-18.10	peak
4874	31.87	163	140	V	32.8	4.54	27.4	41.81	54	-12.19	Ave
4874	31.65	227	157	H	32.8	4.54	27.4	41.59	54	-12.41	Ave
802.11 n mode, High Channel 2462 MHz, measured at 3 meters											
4924	45.78	171	123	V	32.9	4.52	27.4	55.8	74	-18.2	peak
4924	45.06	218	158	H	32.9	4.52	27.4	55.08	74	-18.92	peak
4924	32.73	171	123	V	32.9	4.52	27.4	42.75	54	-11.25	Ave
4924	31.08	218	158	H	32.9	4.52	27.4	41.10	54	-12.90	Ave

3) Restricted Band Edge:

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBµV/m)	Part 15C		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
802.11 b mode, Low Channel 2412 MHz											
2355.2	38.27	152	102	V	32.8	4.54	27.4	48.21	74	-25.79	peak
2355.2	37.56	148	106	H	32.8	4.54	27.4	47.50	74	-26.5	peak
2355.2	25.13	152	102	V	32.8	4.54	27.4	35.07	54	-18.93	Ave
2355.2	24.92	148	106	H	32.8	4.54	27.4	34.86	54	-19.14	Ave
802.11 b mode, High Channel 2462 MHz											
2499.6	39.09	128	107	V	32.9	4.52	27.4	49.11	74	-24.89	peak
2499.6	38.13	176	103	H	32.9	4.52	27.4	48.15	74	-25.85	peak
2499.6	25.15	128	107	V	32.9	4.52	27.4	35.17	54	-18.83	Ave
2499.6	24.92	176	103	H	32.9	4.52	27.4	34.94	54	-19.06	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBµV/m)	Part 15C		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
802.11 g mode, Low Channel 2412 MHz											
2379.3	41.52	138	108	V	32.8	4.54	27.4	51.46	74	-22.54	peak
2379.3	38.24	156	100	H	32.8	4.54	27.4	48.18	74	-25.82	peak
2379.3	26.25	138	108	V	32.8	4.54	27.4	36.19	54	-17.81	Ave
2379.3	24.48	156	100	H	32.8	4.54	27.4	34.42	54	-19.58	Ave
802.11 g mode, High Channel 2462 MHz											
2485.9	39.21	132	117	V	32.9	4.52	27.4	49.23	74	-24.77	peak
2485.9	38.56	181	138	H	32.9	4.52	27.4	48.58	74	-25.42	peak
2485.9	25.45	132	117	V	32.9	4.52	27.4	35.47	54	-18.53	Ave
2485.9	25.01	181	138	H	32.9	4.52	27.4	35.03	54	-18.97	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBµV/m)	Part 15C		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
802.11 n mode, Low Channel 2412 MHz											
2325.2	40.35	145	120	V	32.8	4.54	27.4	50.29	74	-23.71	peak
2325.2	38.31	130	115	H	32.8	4.54	27.4	48.25	74	-25.75	peak
2325.2	26.97	145	120	V	32.8	4.54	27.4	36.91	54	-17.09	Ave
2325.2	26.07	130	115	H	32.8	4.54	27.4	36.01	54	-17.99	Ave
802.11 n mode, High Channel 2462 MHz											
2499.4	38.38	125	123	V	32.9	4.52	27.4	48.4	74	-25.6	peak
2499.4	40.36	178	152	H	32.9	4.52	27.4	50.38	74	-23.62	peak
2499.4	25.16	125	123	V	32.9	4.52	27.4	35.18	54	-18.82	Ave
2499.4	26.78	178	152	H	32.9	4.52	27.4	36.8	54	-17.2	Ave

9 FCC §15.247(a) (2) – 6 dB & 99% Emission Bandwidth

9.1 Applicable Standard

According to FCC §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

9.2 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.
4. Repeat above procedures until all frequencies measured were complete.

9.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2010-05-09

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

9.4 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

The testing was performed by Kevin Li on 2011-04-22 at RF Site.

9.5 Test Results

802.11 b mode

Antenna	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Results
#0	Low	2412	14.35	10.12	> 500	Compliant
	Middle	2437	14.31	10.13	> 500	Compliant
	High	2462	14.26	10.14	> 500	Compliant
#1	Low	2412	15.49	10.31	> 500	Compliant
	Middle	2437	15.81	10.30	> 500	Compliant
	High	2462	15.93	10.29	> 500	Compliant

802.11 g mode

Antenna	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Results
#0	Low	2412	16.76	16.72	> 500	Compliant
	Middle	2437	16.78	16.72	> 500	Compliant
	High	2462	16.90	16.73	> 500	Compliant
#1	Low	2412	19.63	16.74	> 500	Compliant
	Middle	2437	19.08	16.73	> 500	Compliant
	High	2462	19.60	16.71	> 500	Compliant

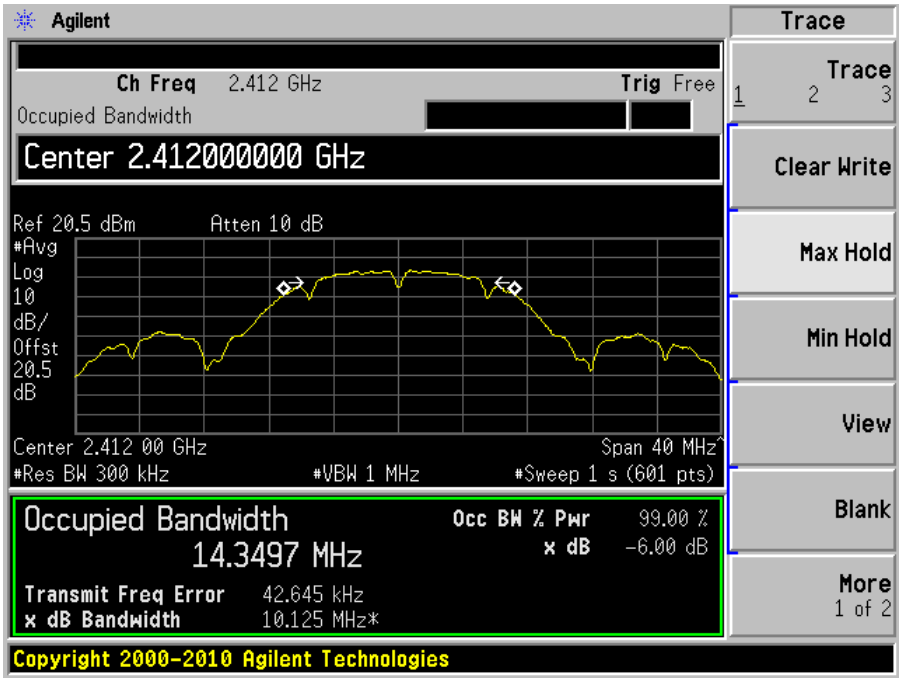
802.11 n mode

Antenna	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Results
#0	Low	2412	17.94	17.97	> 500	Compliant
	Middle	2437	17.93	17.96	> 500	Compliant
	High	2462	17.98	17.97	> 500	Compliant
#1	Low	2412	19.42	17.97	> 500	Compliant
	Middle	2437	19.47	17.96	> 500	Compliant
	High	2462	19.70	17.94	> 500	Compliant

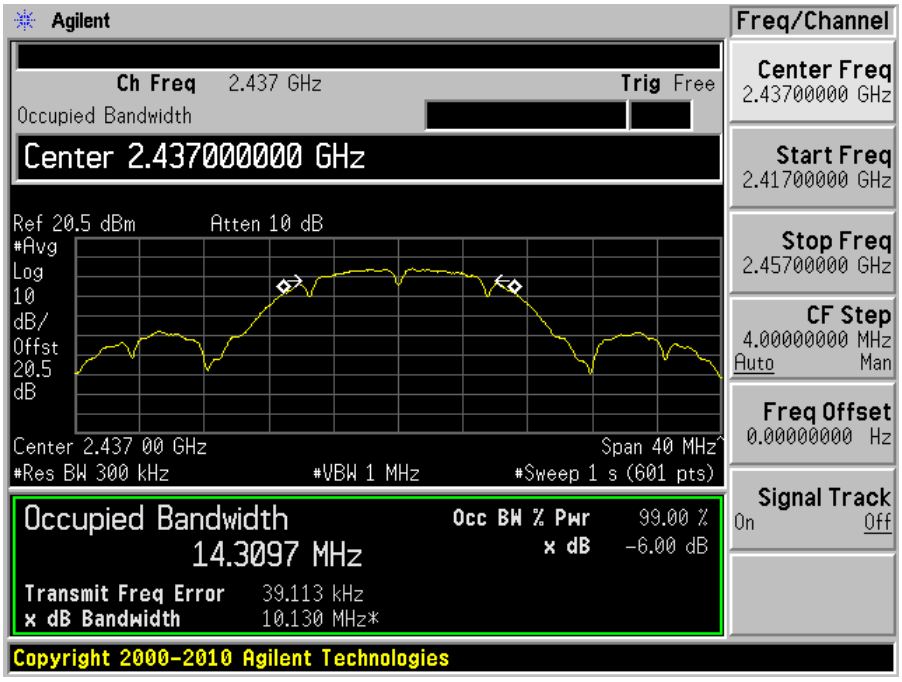
Please refer to the following plots for detailed test results

802.11 b mode (Antenna #0)

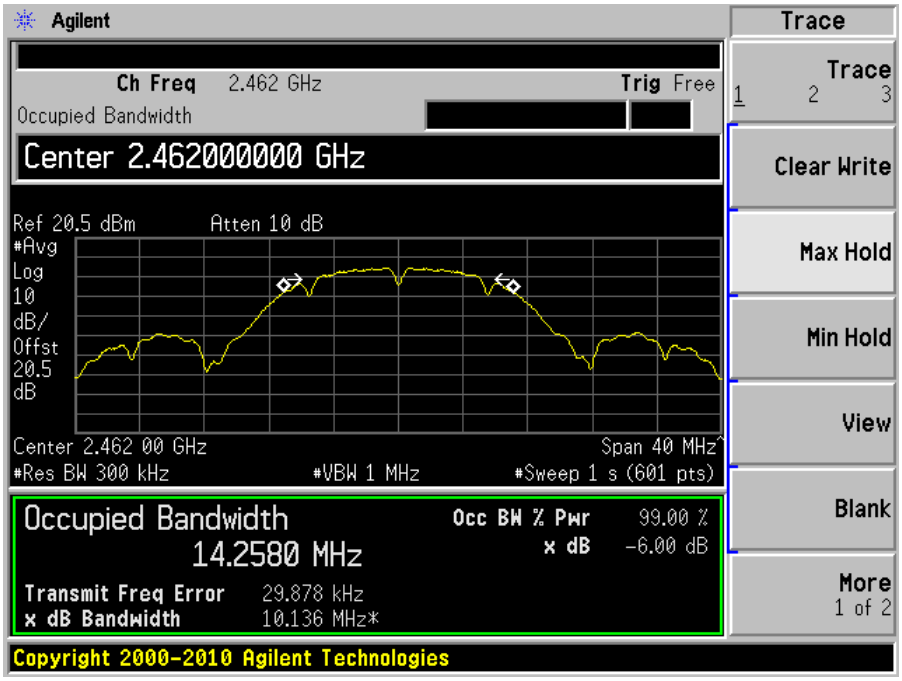
Low Channel 2412 MHz



Middle Channel 2437 MHz

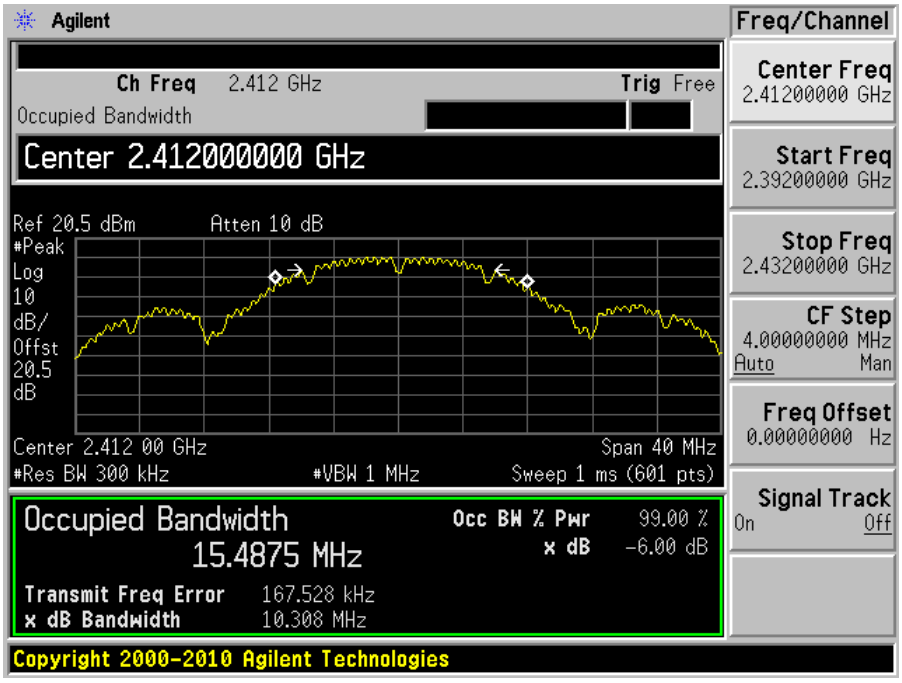


High Channel 2462 MH

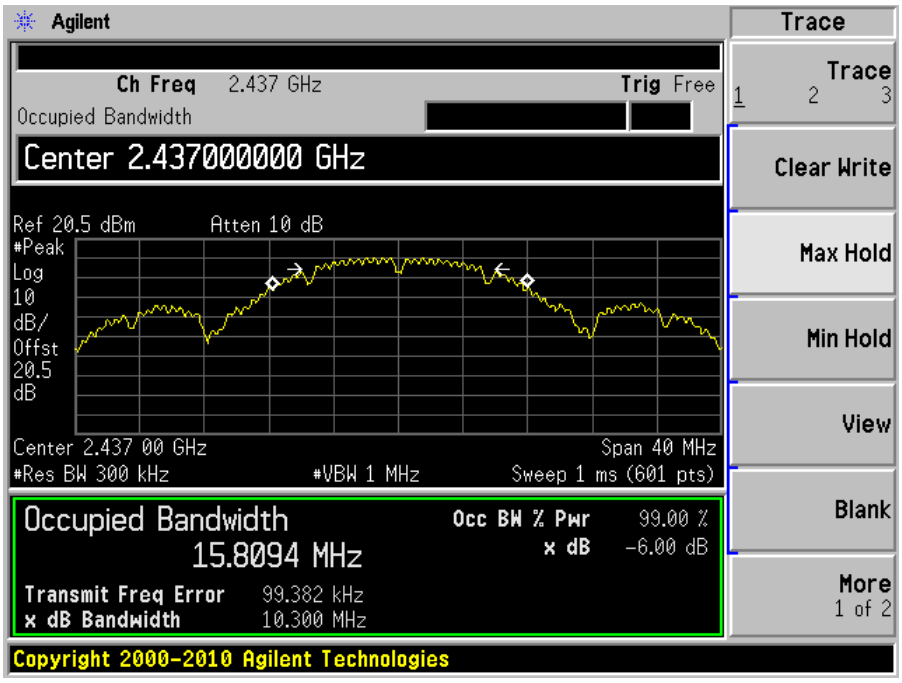


802.11 b mode (Antenna #1)

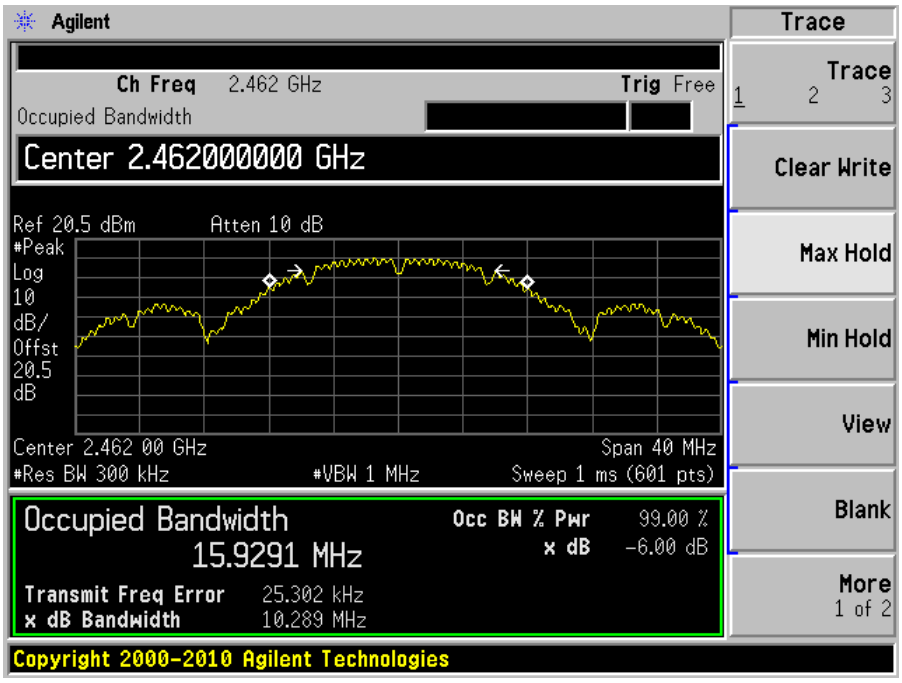
Low Channel 2412 MHz



Middle Channel 2437 MHz

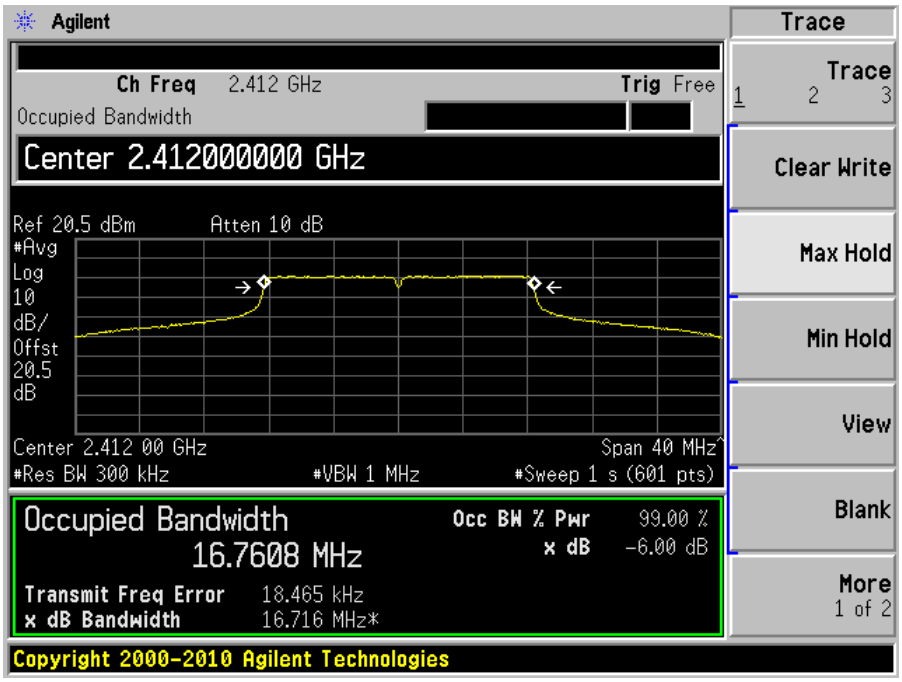


High Channel 2462 MHz

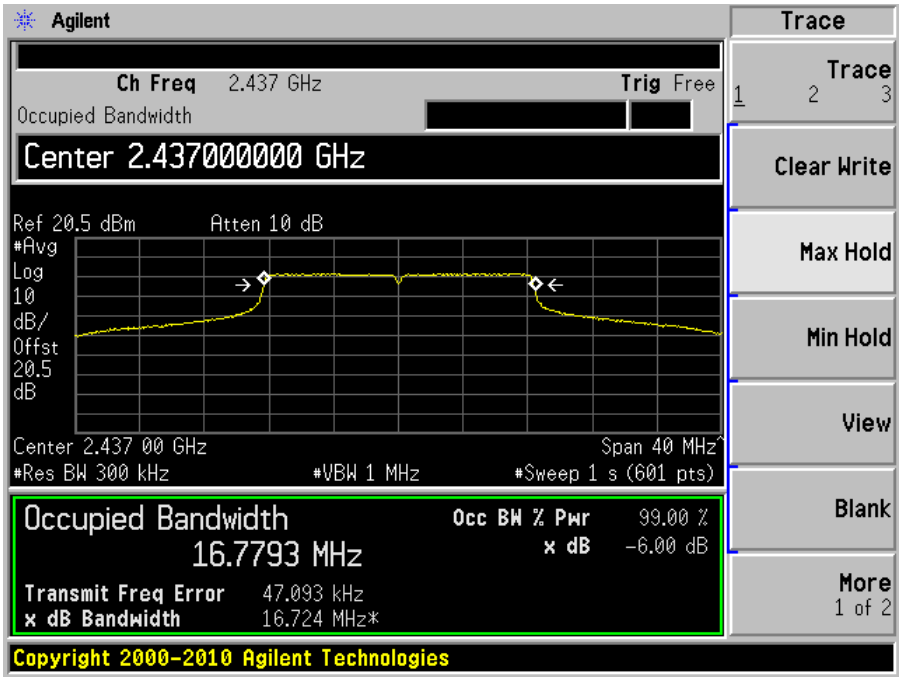


802.11 g mode (Antenna #0)

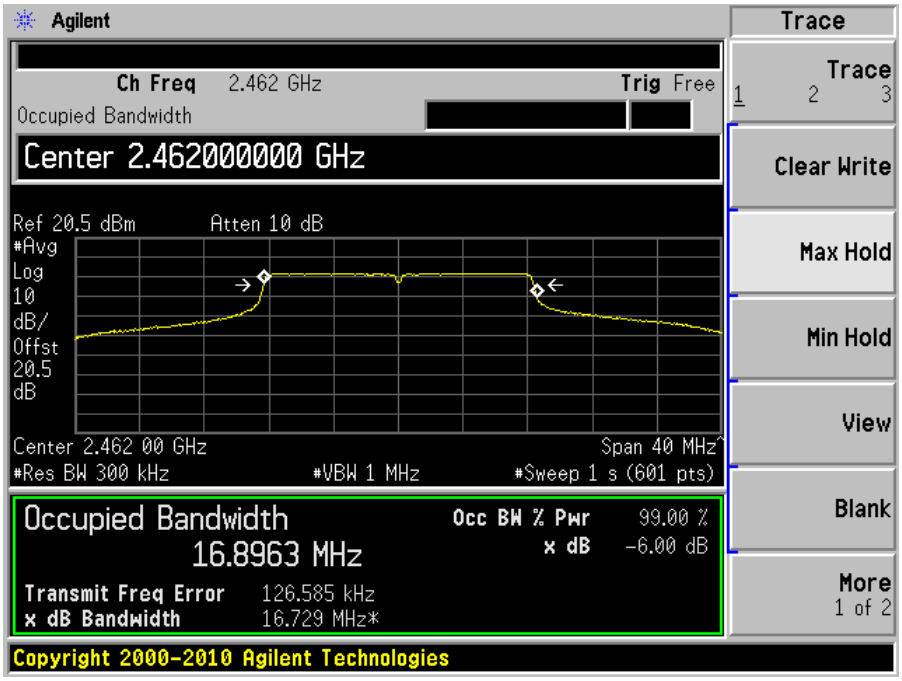
Low Channel 2412 MHz



Middle Channel 2437 MHz

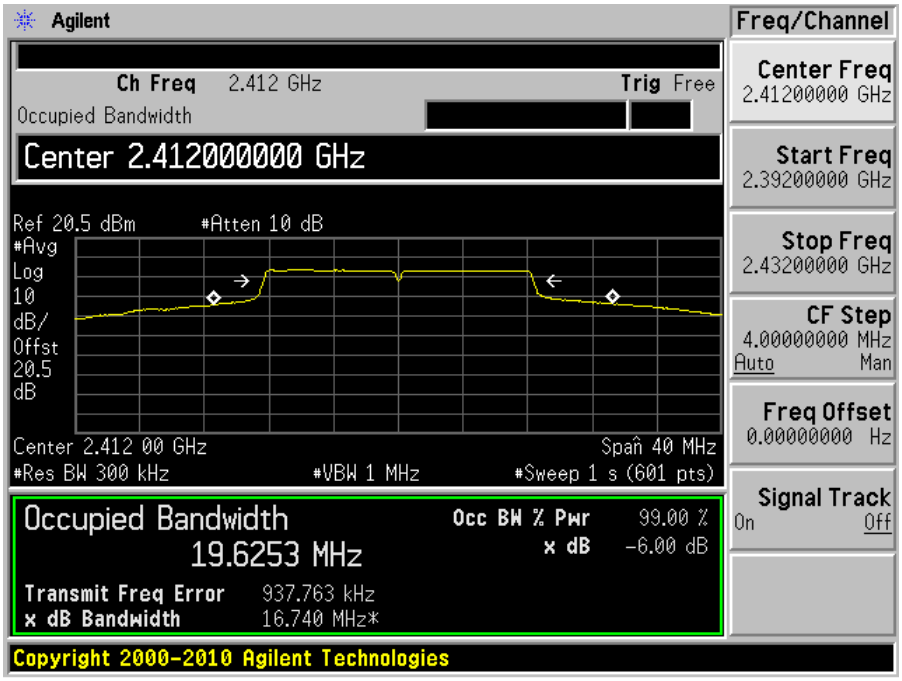


High Channel 2462 MHz

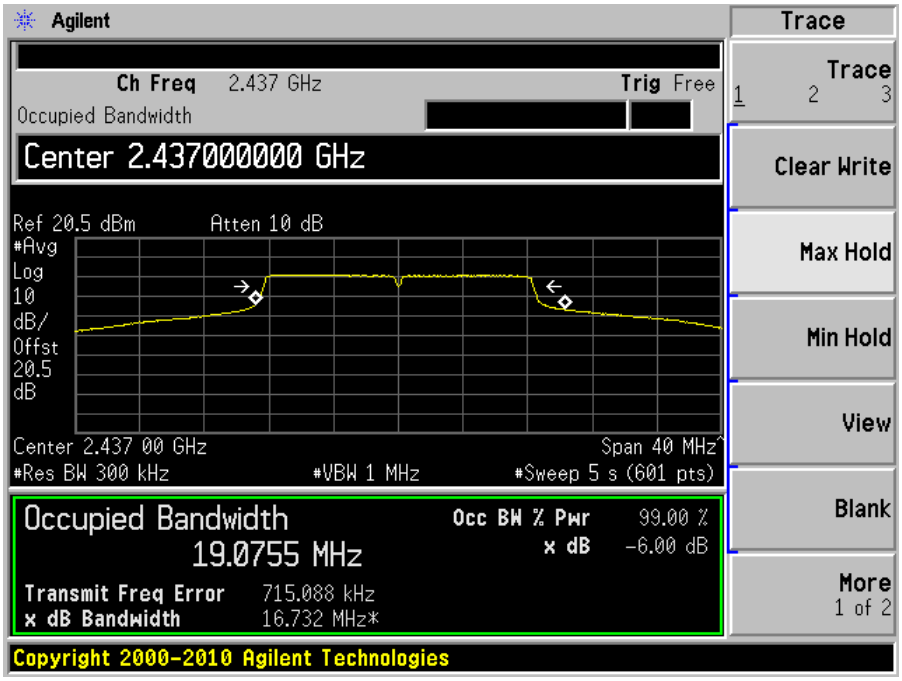


802.11 g mode (Antenna #1)

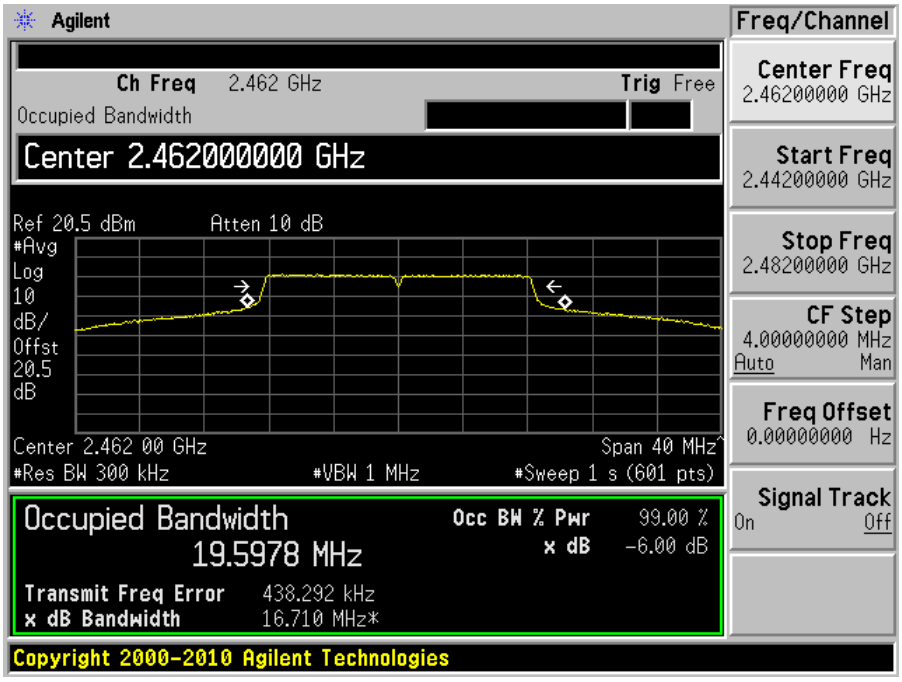
Low Channel 2412 MHz



Middle Channel 2437 MHz

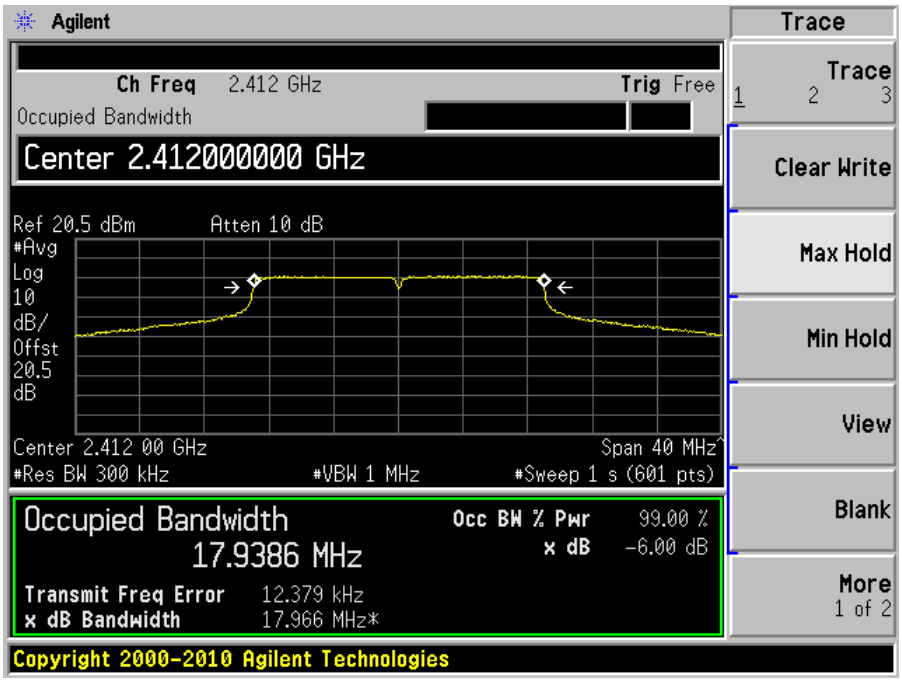


High Channel 2462 MHz

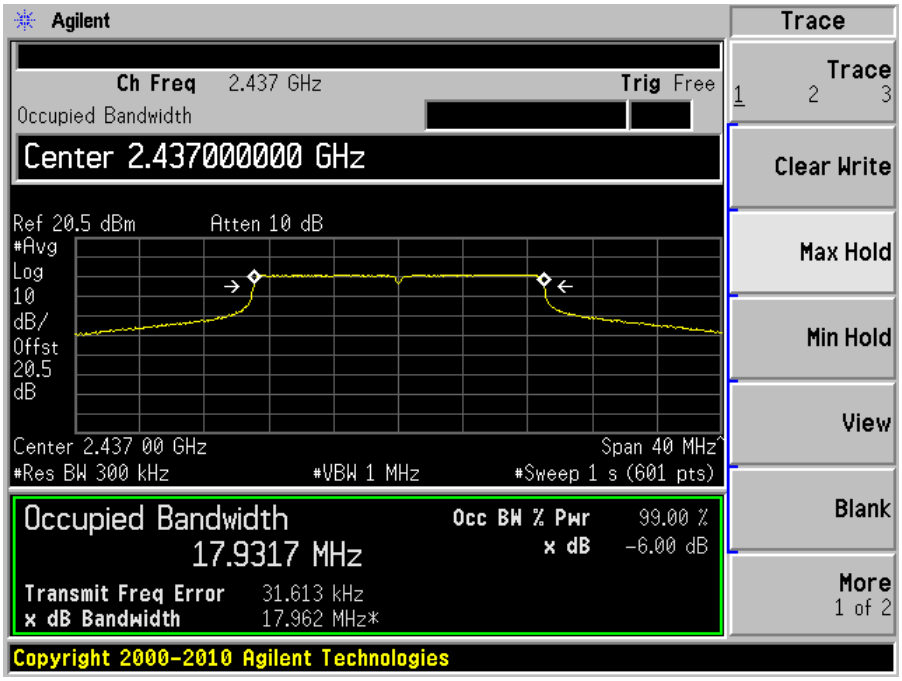


802.11 n mode (Antenna #0)

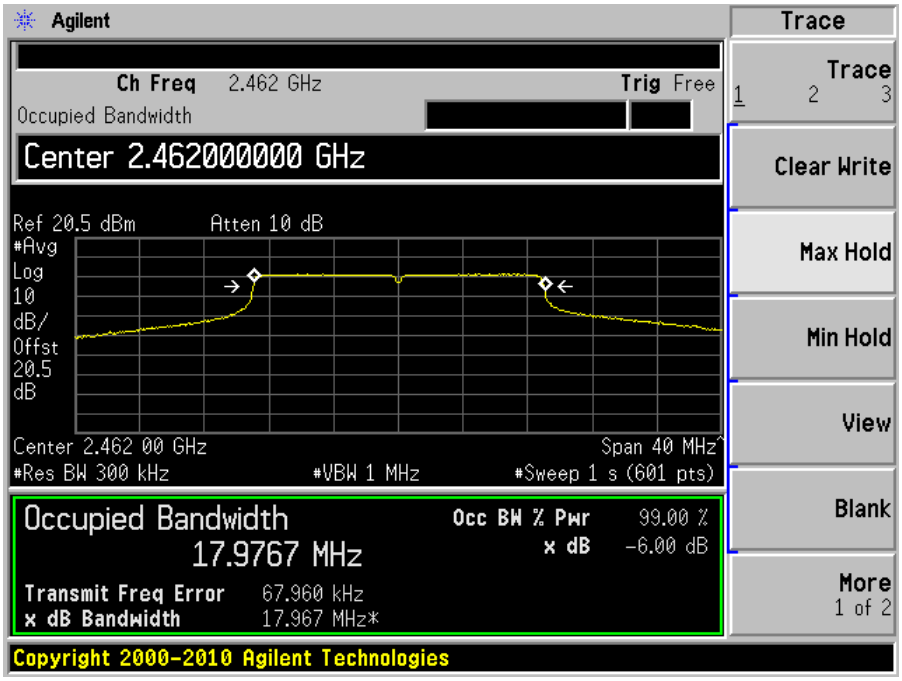
Low Channel 2412 MHz



Middle Channel 2437 MHz

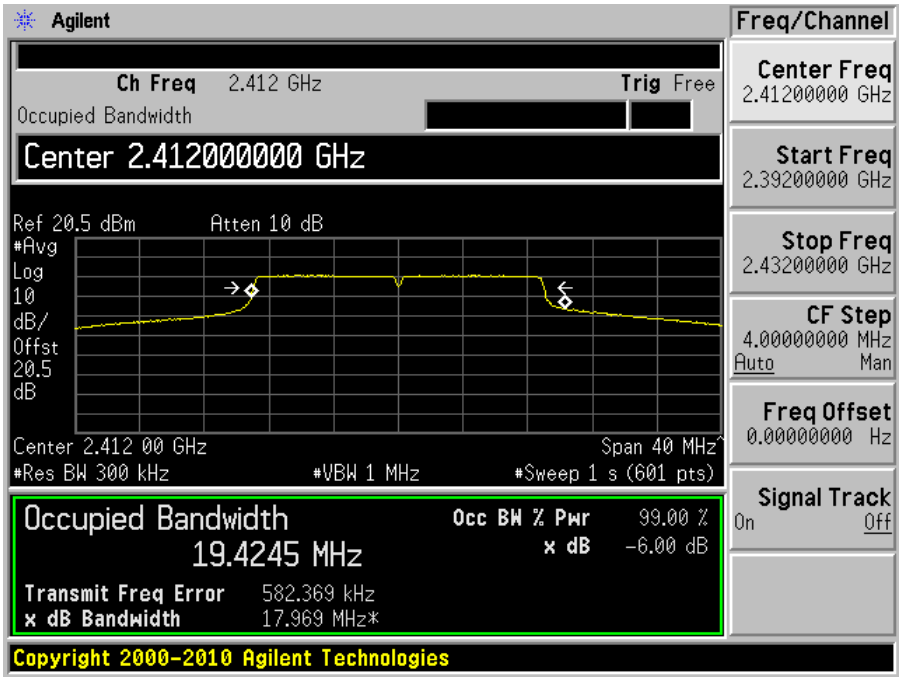


High Channel 2462 MHz

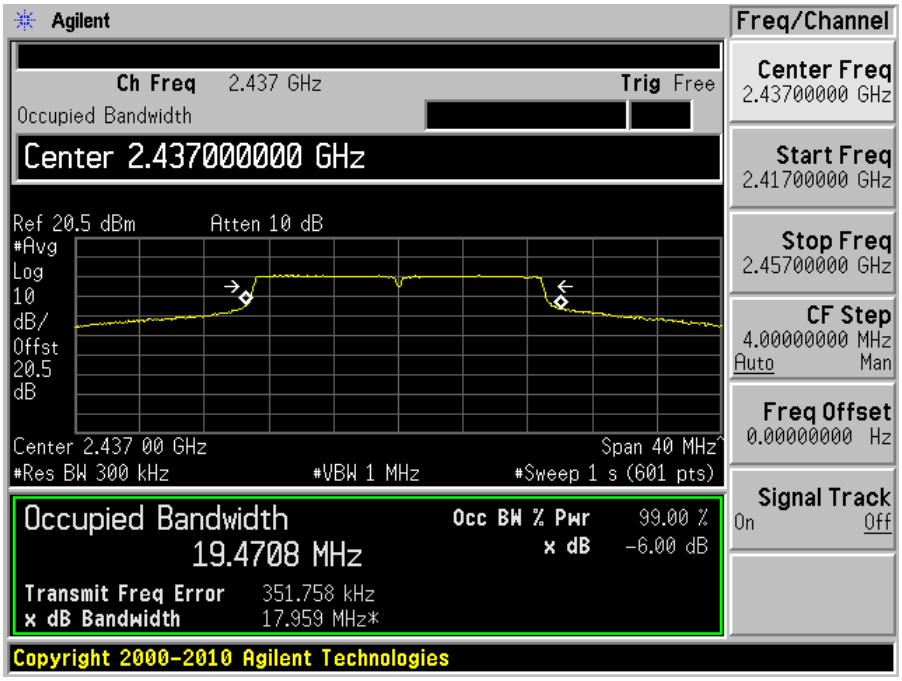


802.11 n mode (Antenna #1)

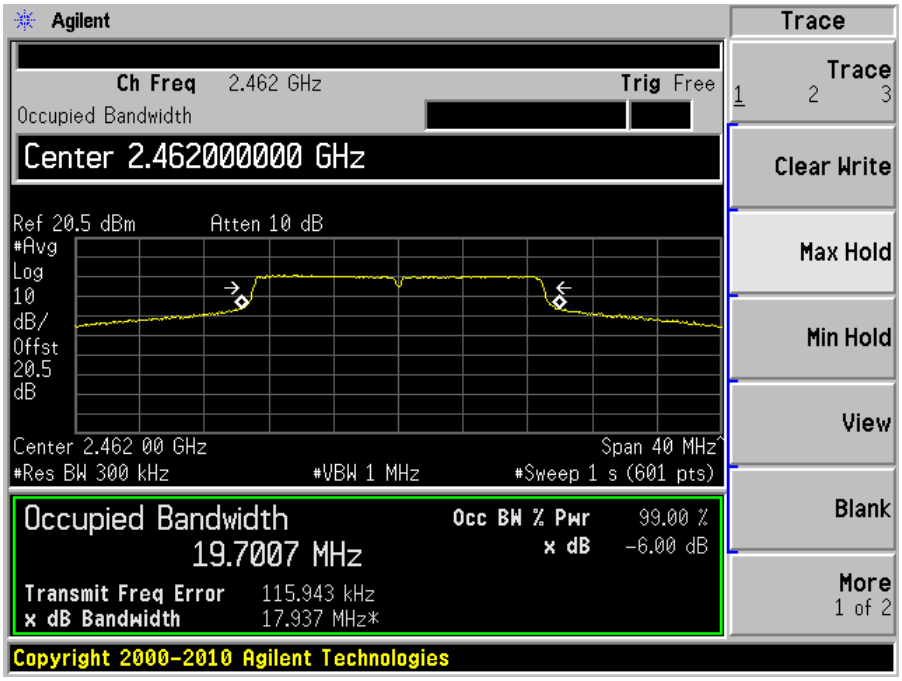
Low Channel 2412 MHz



Middle Channel 2437 MHz



High Channel 2462 MHz



10 FCC §15.247(b) - Peak Output Power Measurement

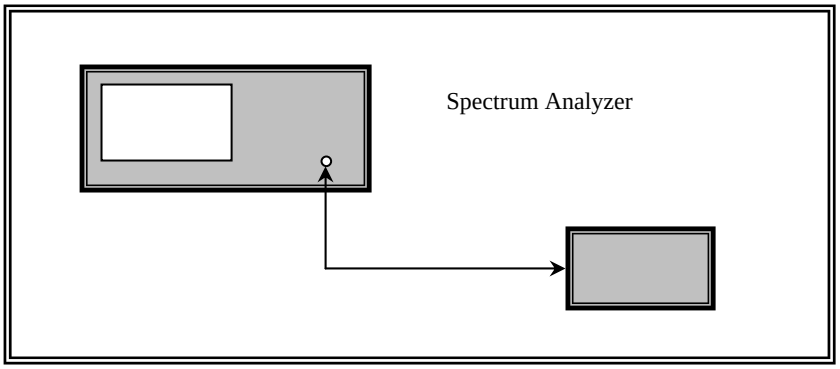
10.1 Applicable Standard

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

FCC §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.

10.2 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.



10.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2010-05-09

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

10.4 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

The testing was performed by Kevin Li on 2011-04-28 at RF Site.

10.5 Test Results

802.11 b mode:

Channel	Frequency (MHz)	Chain	Output Power (dBm)	Output Power (mW)	Limit (dBm)	Margin (dB)
Low	2412	Chain #0	19.78	95.06	30	-10.22
		Chain #1	19.53	89.74	30	-10.47
Mid	2437	Chain #0	20.32	107.65	30	-9.68
		Chain #1	19.40	87.10	30	-10.60
High	2462	Chain #0	19.35	86.10	30	-10.65
		Chain #1	19.30	85.11	30	-10.70

802.11 g mode:

Channel	Frequency (MHz)	Chain	Output Power (dBm)	Output Power (mW)	Limit (dBm)	Margin (dB)
Low	2412	Chain #0	19.36	86.30	30	-10.64
		Chain #1	19.60	91.20	30	-10.40
Mid	2437	Chain #0	19.35	86.10	30	-10.65
		Chain #1	19.47	88.51	30	-10.53
High	2462	Chain #0	19.51	89.33	30	-10.49
		Chain #1	19.43	87.70	30	-10.57

802.11 n mode:

Channel	Frequency (MHz)	Output Power Chain #0 (dBm)	Output Power Chain #1 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	19.78	19.58	22.69	30	-10.06
Mid	2437	19.37	19.45	22.42	30	-9.58
High	2462	19.67	19.48	22.59	30	-9.93

11 FCC §15.247(d) - 100 kHz Bandwidth of Band Edges

11.1 Applicable Standard

According to FCC §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 FCC §15.209(a) see FCC §15.205(c)).

11.2 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.

11.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2010-05-09

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

11.4 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

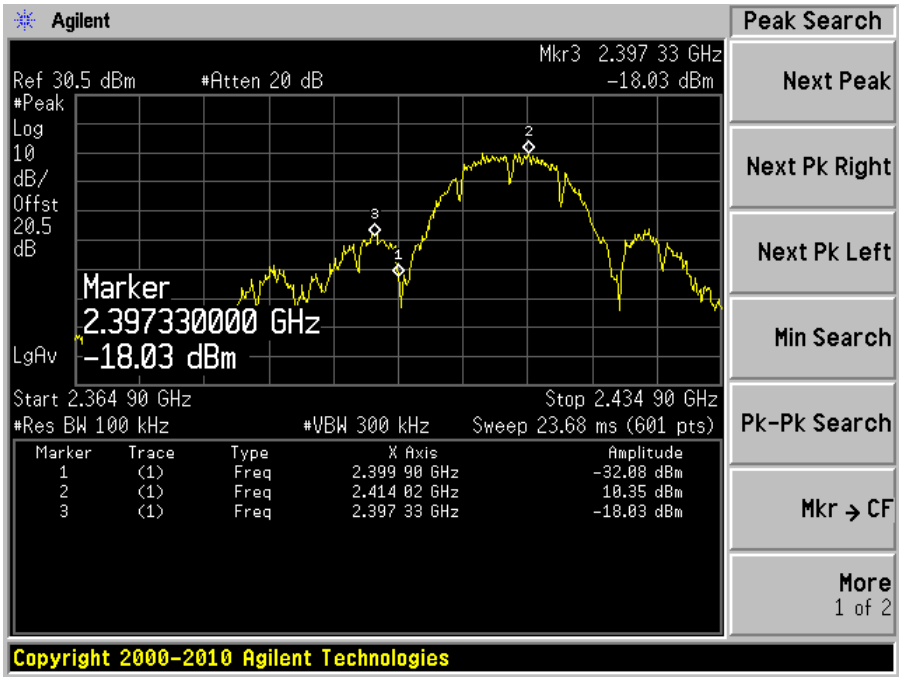
The testing was performed by Kevin Li on 2011-04-22 at RF Site.

11.5 Measurement Results

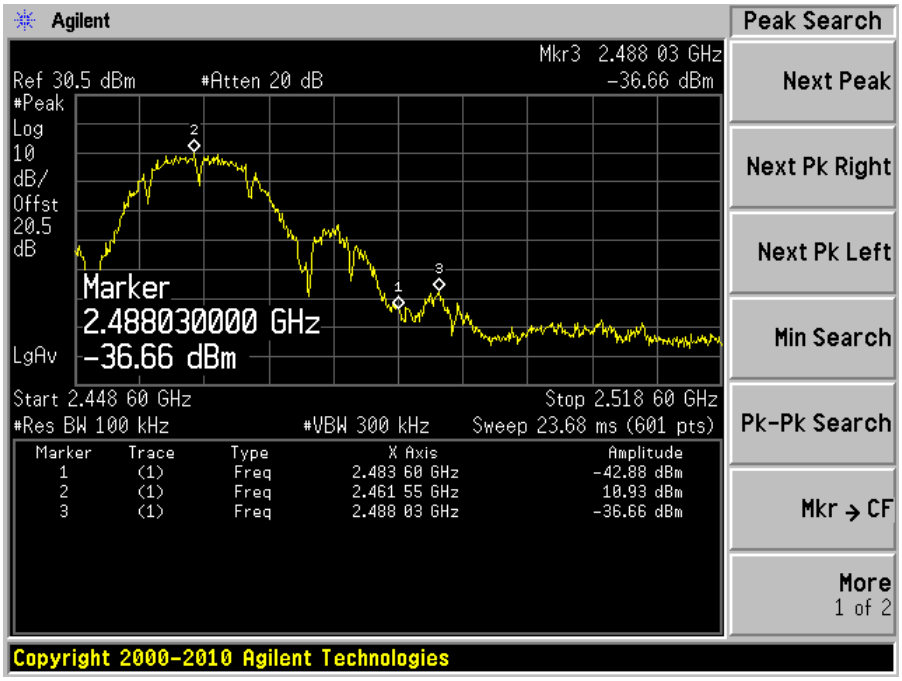
Please refer to following pages for plots of band edge.

802.11 b mode – Antenna #0

Low Band Edge

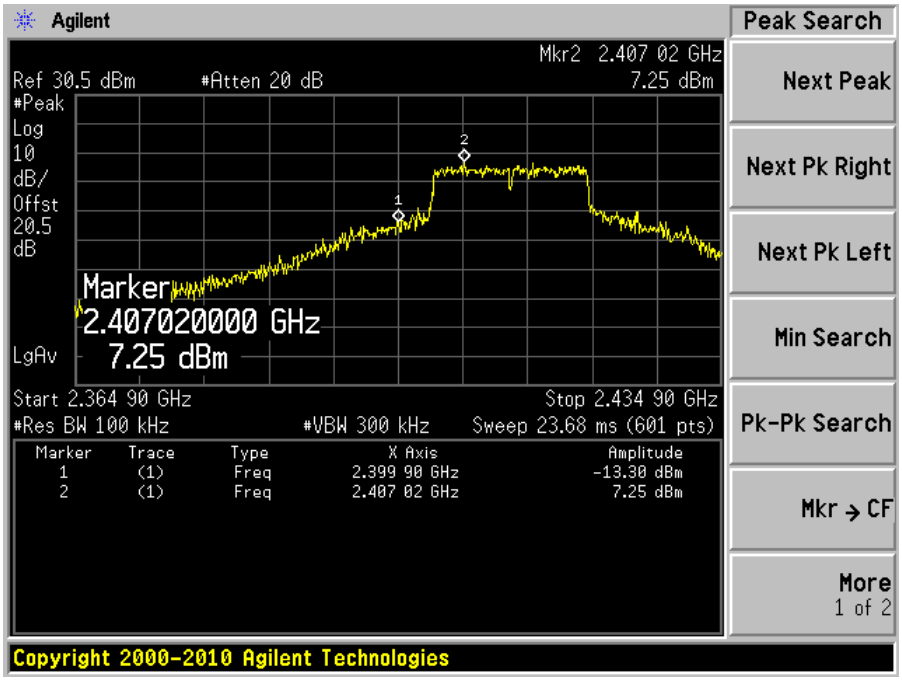


High Band Edge

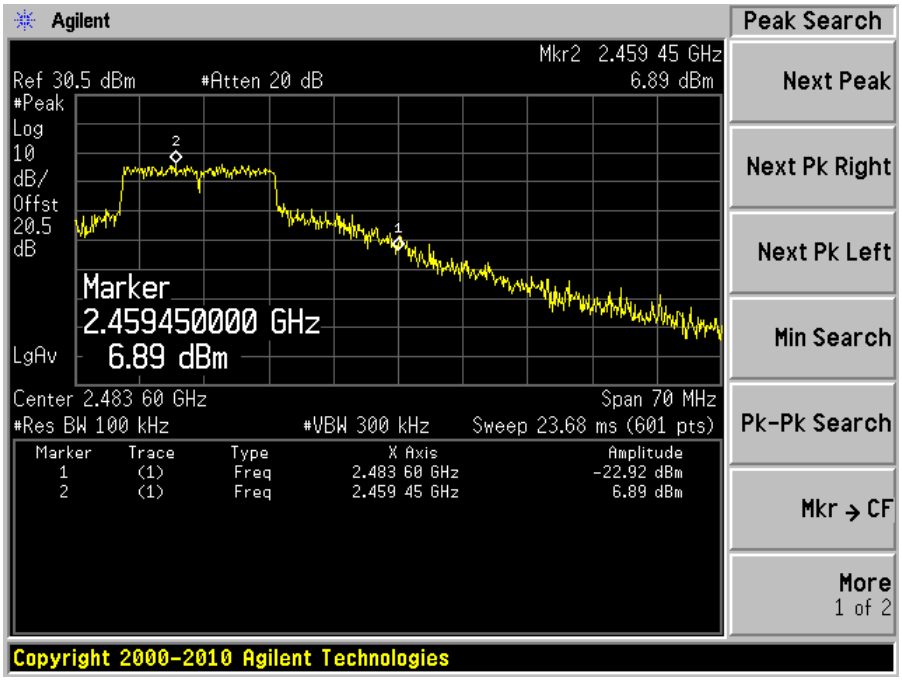


802.11 g mode – Antenna #0

Low Band Edge

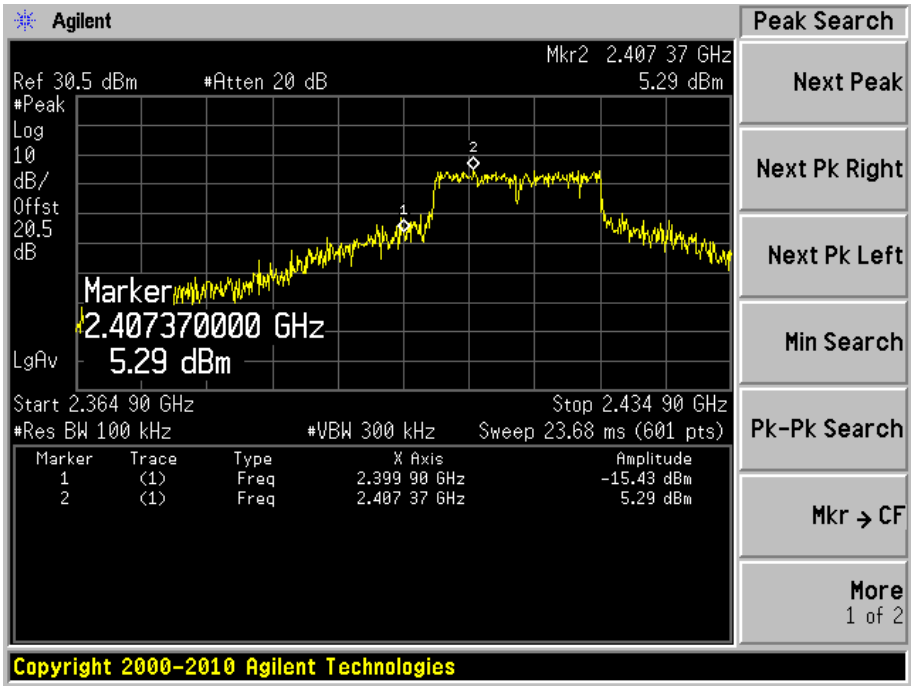


High Band Edge

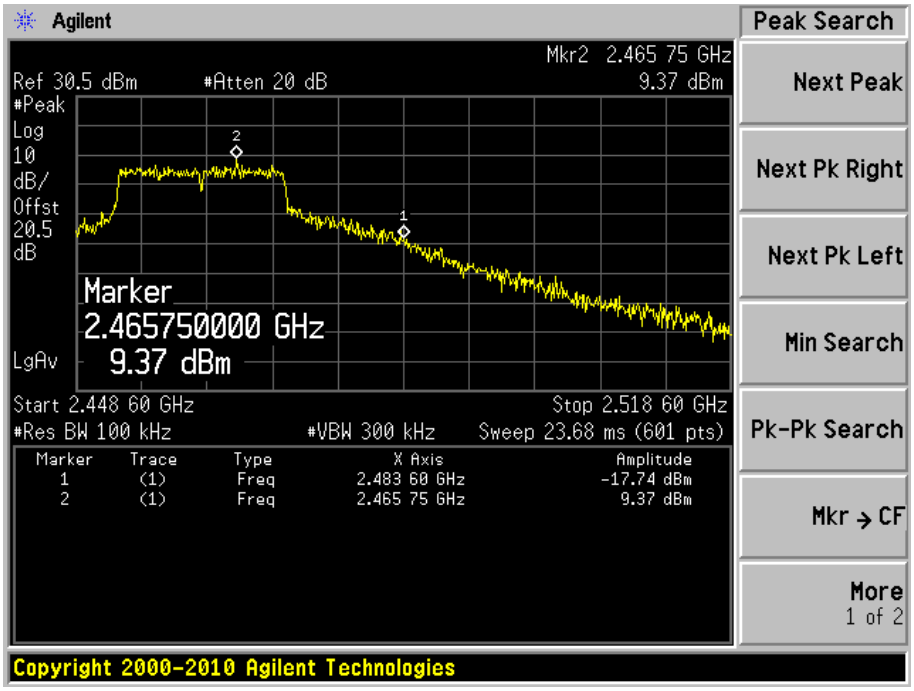


802.11 n mode – Antenna #0

Low Band Edge

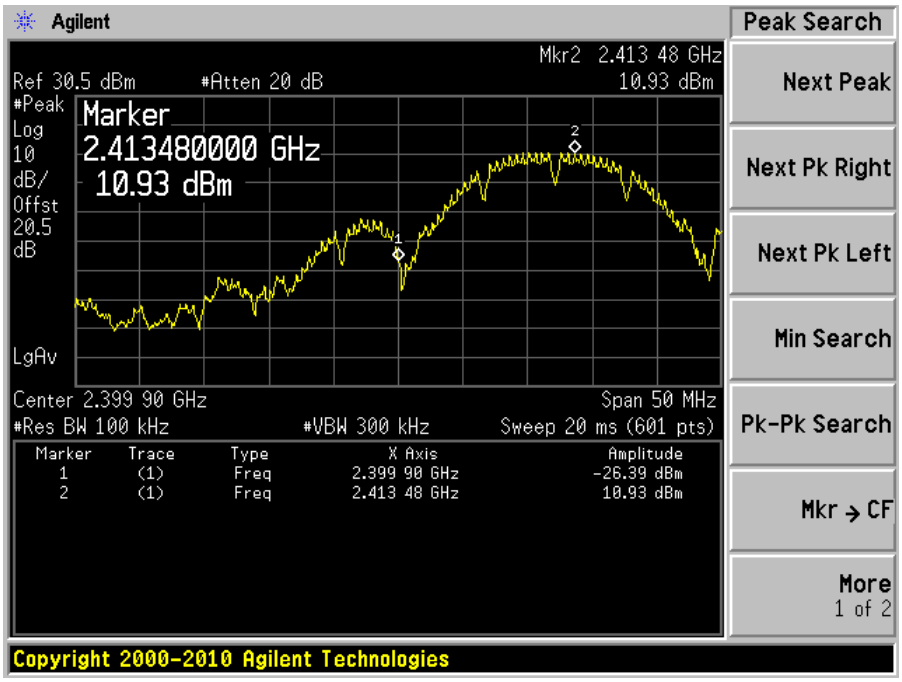


High Band Edge

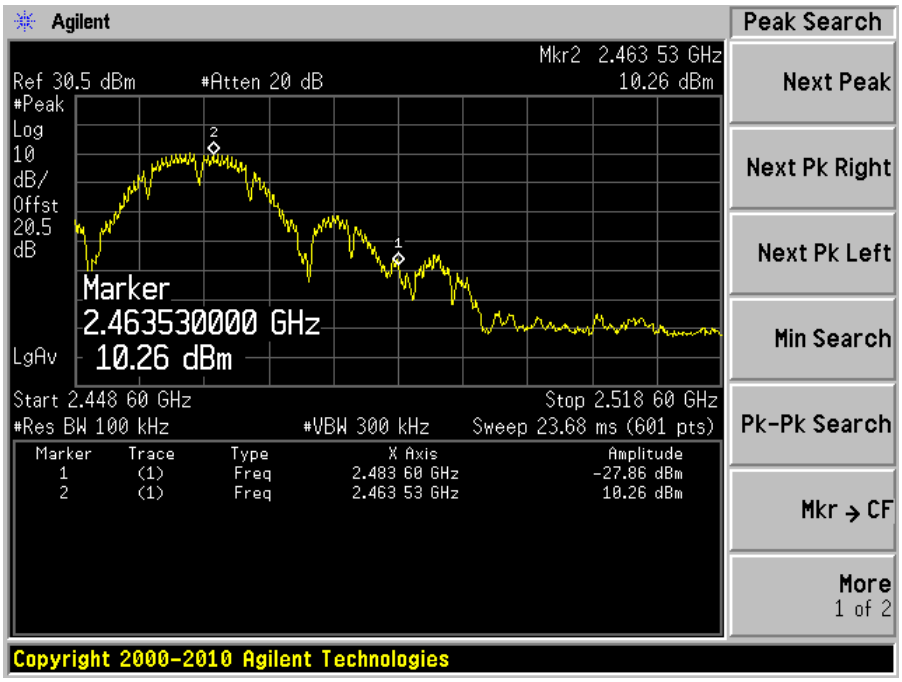


802.11 b mode – Antenna #1

Low Band Edge

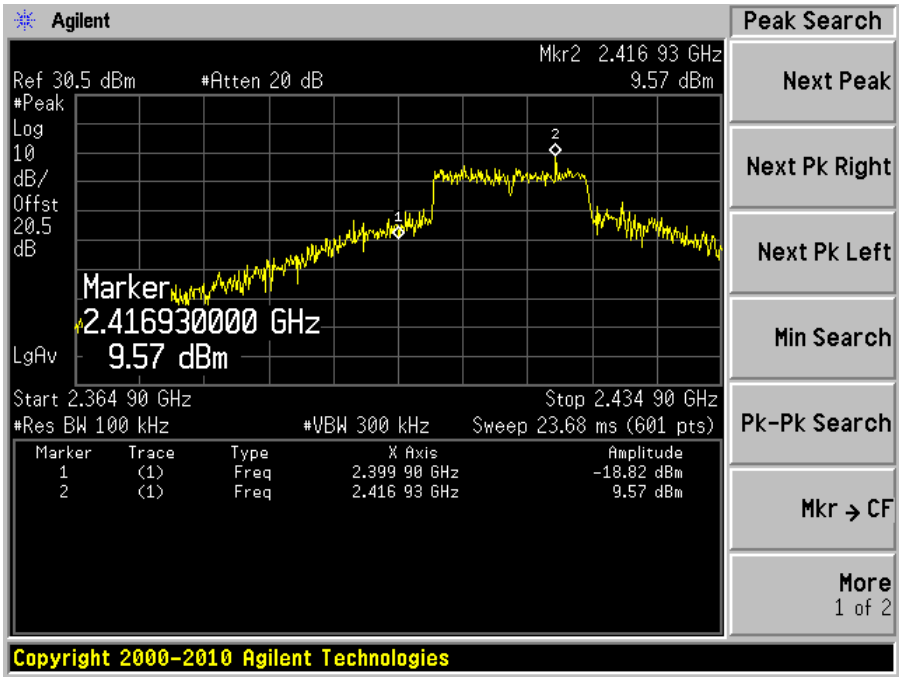


High Band Edge

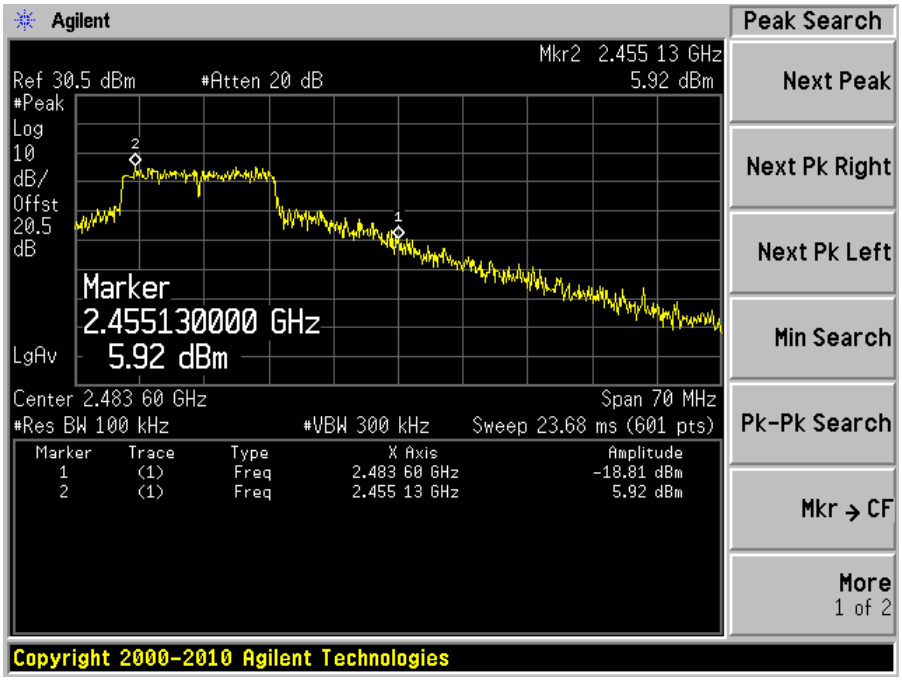


802.11 g mode – Antenna #1

Low Band Edge

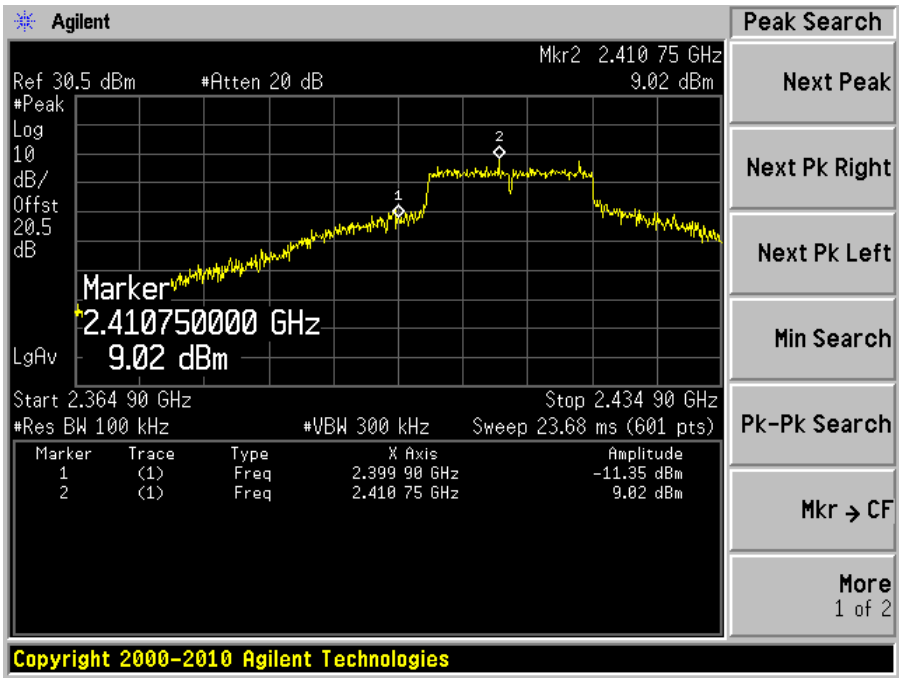


High Band Edge

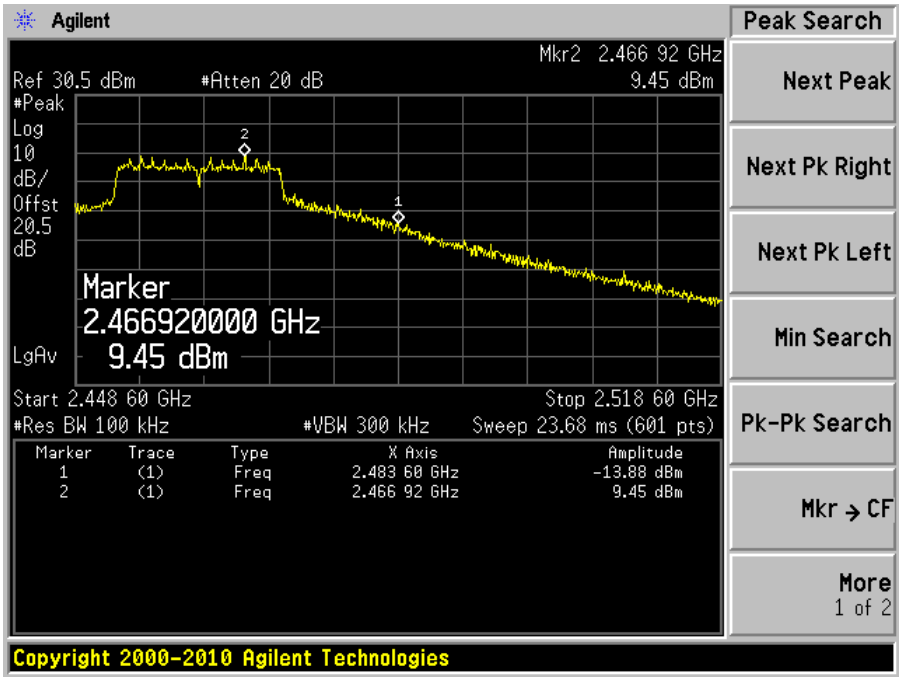


802.11 n mode – Antenna #1

Low Band Edge

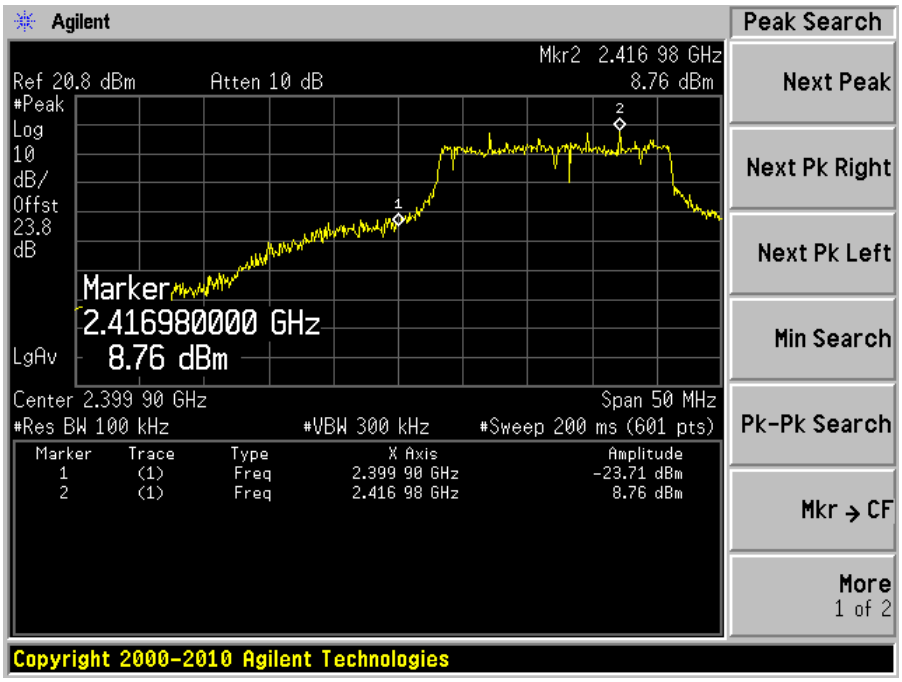


High Band Edge

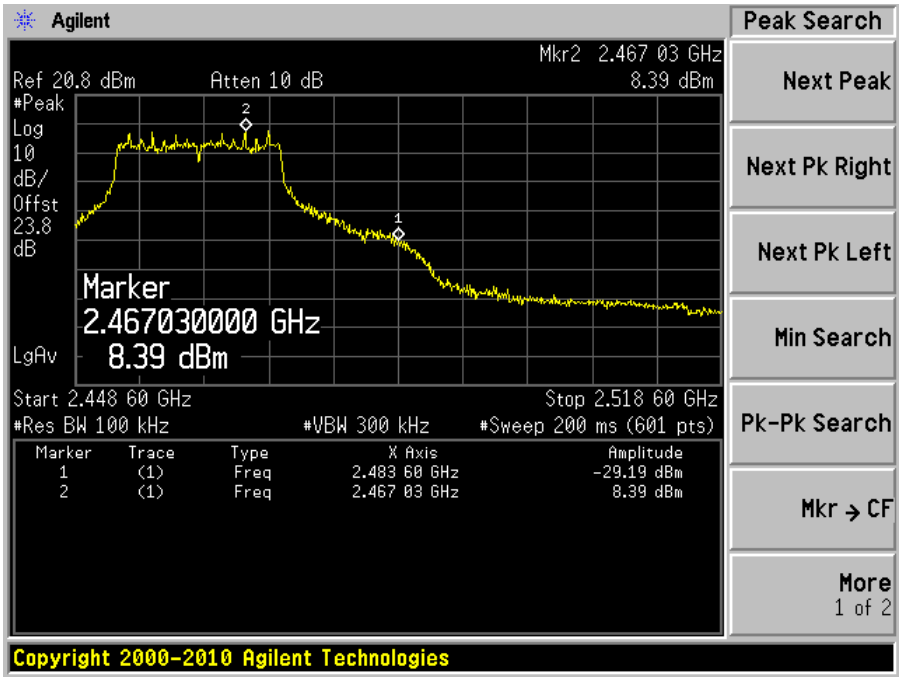


802.11 n mode – Antenna #0+#1

Low Band Edge



High Band Edge



12 FCC §15.247(e) - Power Spectral Density

12.1 Applicable Standard

According to FCC §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.

12.2 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 1.5 MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Repeat above procedures until all frequencies measured were complete.

12.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2010-05-09

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

12.4 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	40-44 %
ATM Pressure:	101-103kPa

The testing was performed by Kevin Li on 2011-04-22 at RF Site.

12.5 Test Results

802.11 b mode:

Antenna	Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm)	Results
#0	Low	2412	-12.22	8	Compliant
	Mid	2437	-8.75	8	Compliant
	High	2462	-9.02	8	Compliant
#1	Low	2412	-12.16	8	Compliant
	Mid	2437	-9.10	8	Compliant
	High	2462	-12.04	8	Compliant

802.11 g mode:

Antenna	Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm)	Results
#0	Low	2412	-12.10	8	Compliant
	Mid	2437	-13.02	8	Compliant
	High	2462	-7.44	8	Compliant
#1	Low	2412	-9.73	8	Compliant
	Mid	2437	-8.84	8	Compliant
	High	2462	-9.95	8	Compliant

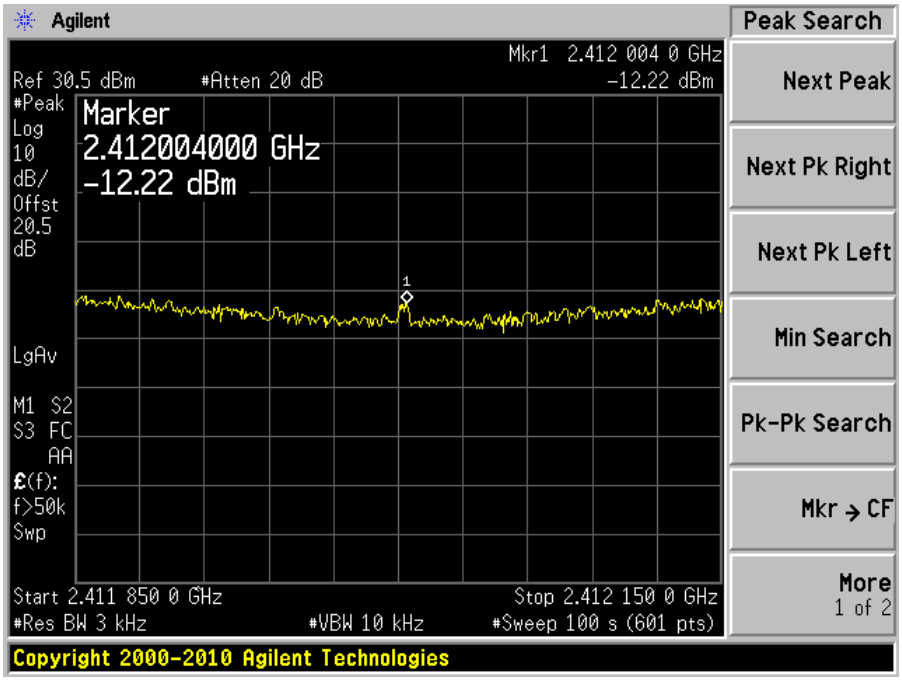
802.11 n mode:

Antenna	Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm)	Results
#0	Low	2412	-7.15	8	Compliant
	Mid	2437	-8.87	8	Compliant
	High	2462	-9.95	8	Compliant
#1	Low	2412	-11.79	8	Compliant
	Mid	2437	-7.89	8	Compliant
	High	2462	-12.99	8	Compliant
#0 + #1	Low	2412	-9.32	8	Compliant
	Mid	2437	-9.79	8	Compliant
	High	2462	-10.74	8	Compliant

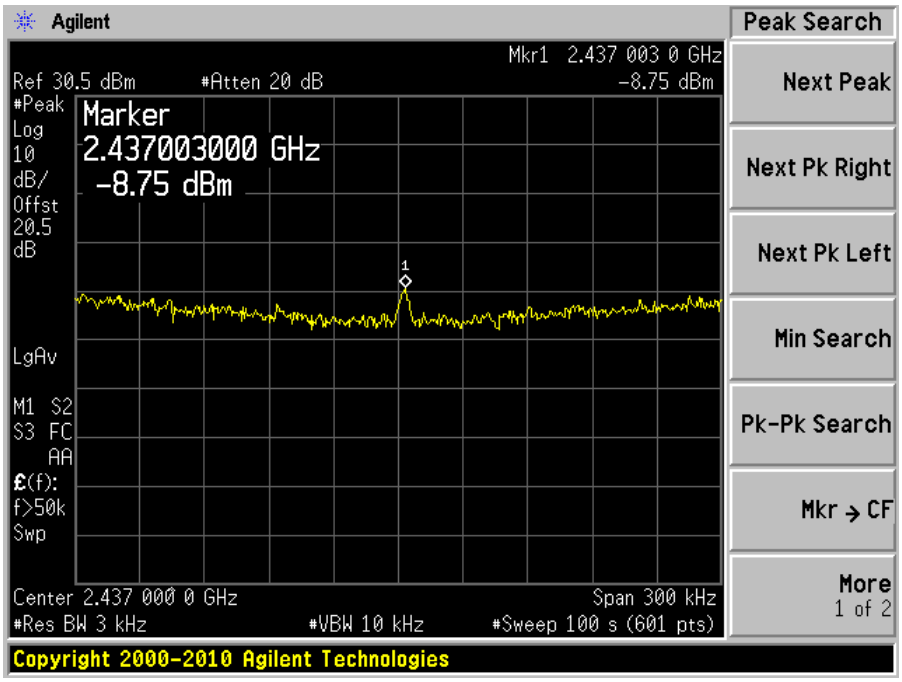
Please refer to the following plots for detailed test results:

802.11 b mode (Antenna #0)

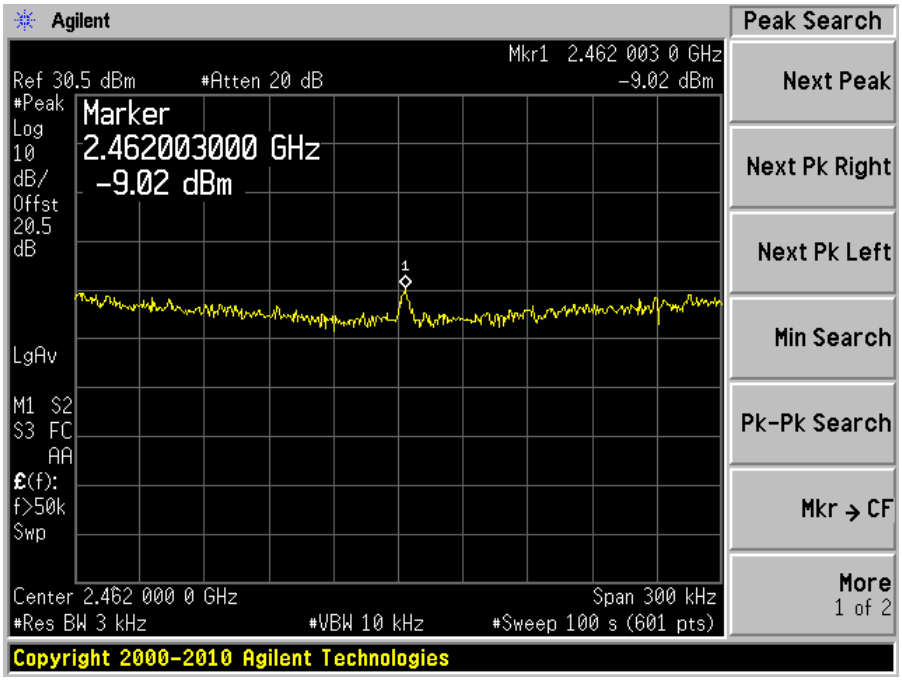
Low Channel 2412 MHz



Middle Channel 2437 MHz

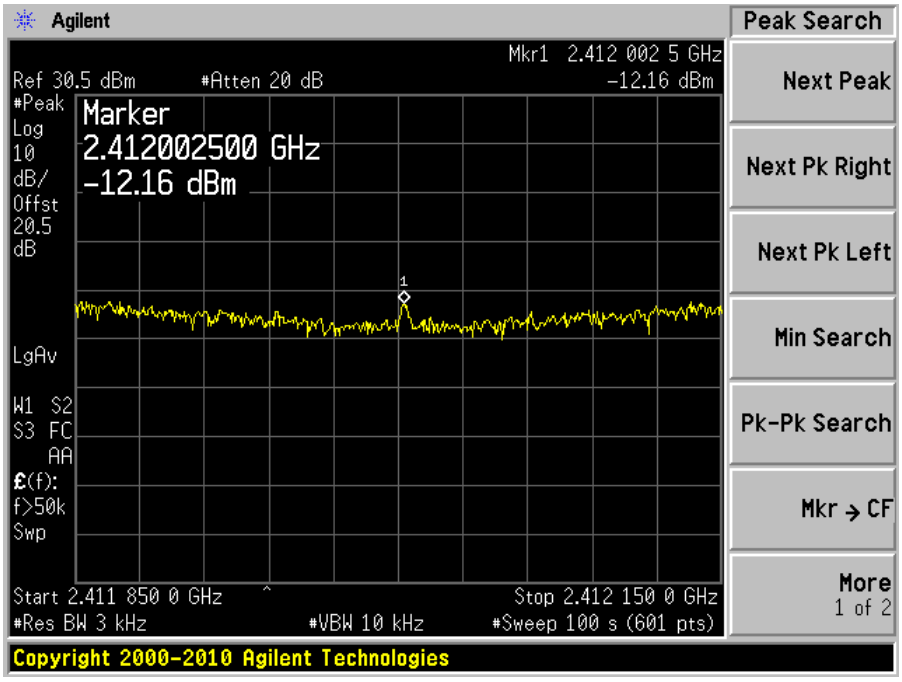


High Channel 2462 MHz

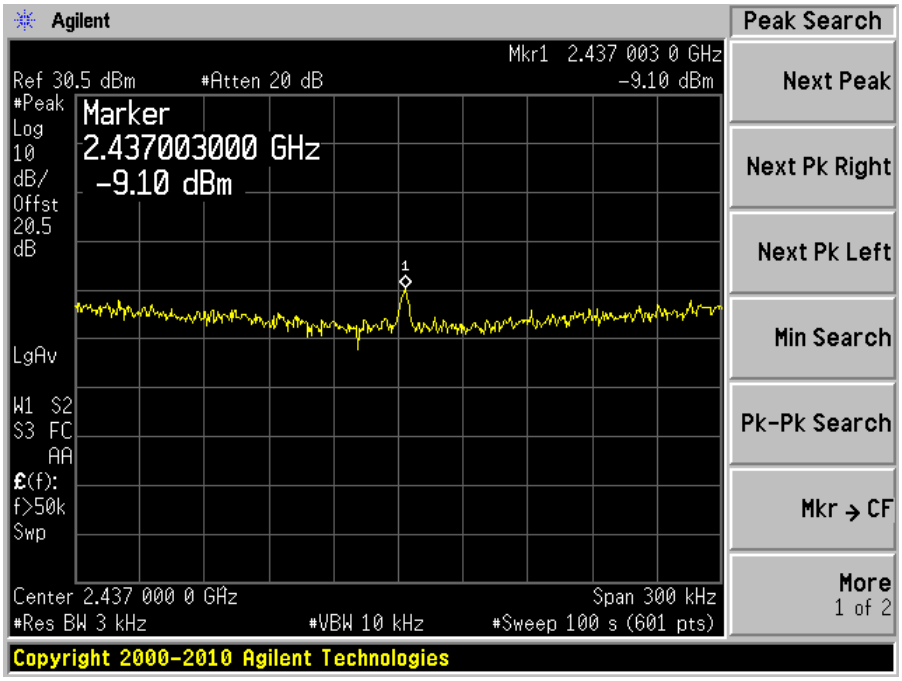


802.11 b mode (Antenna #1)

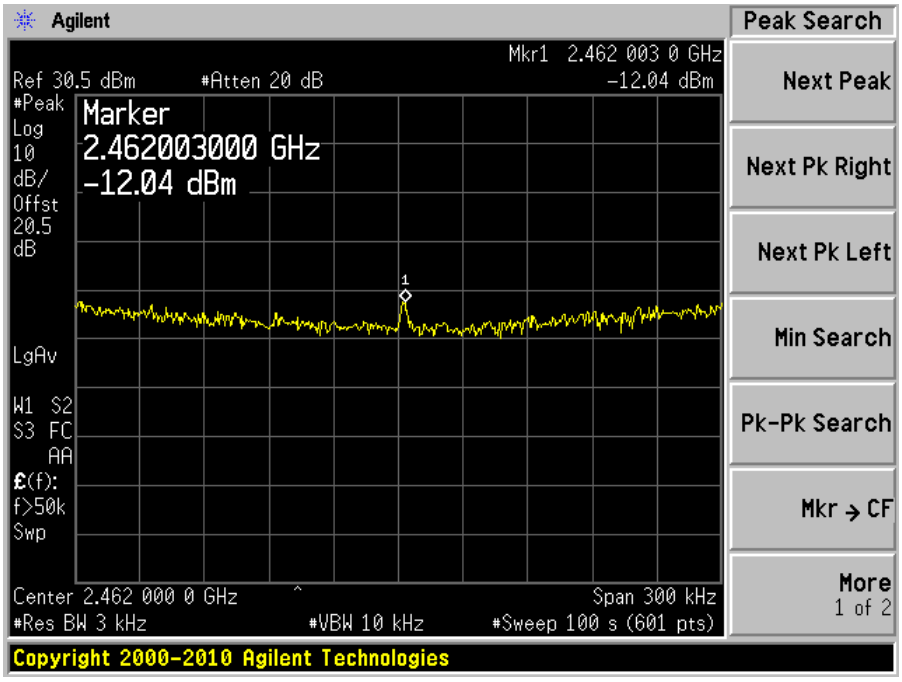
Low Channel 2412 MHz



Middle Channel 2437 MHz

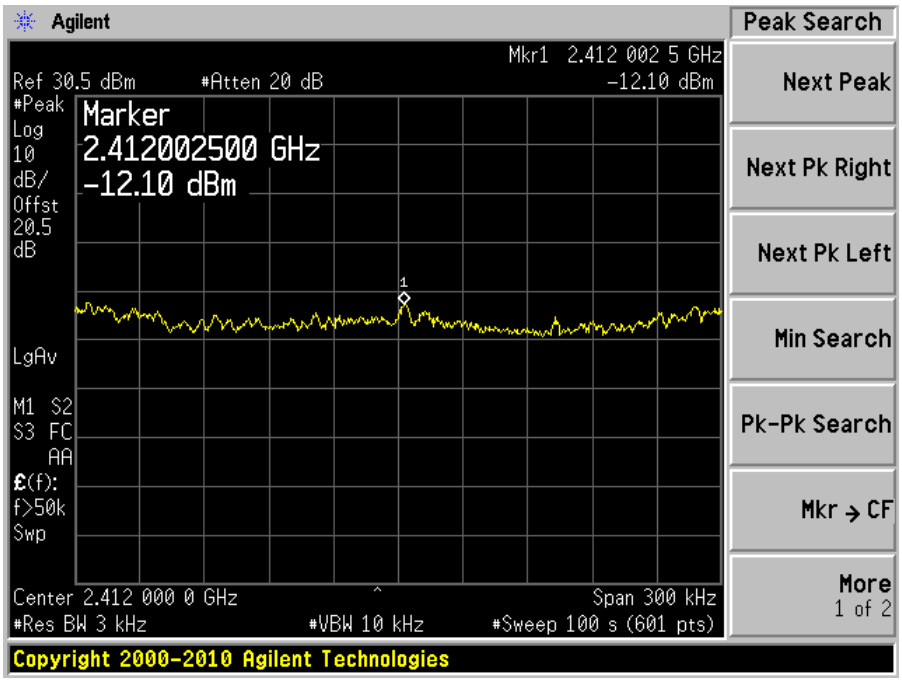


High Channel 2462 MHz

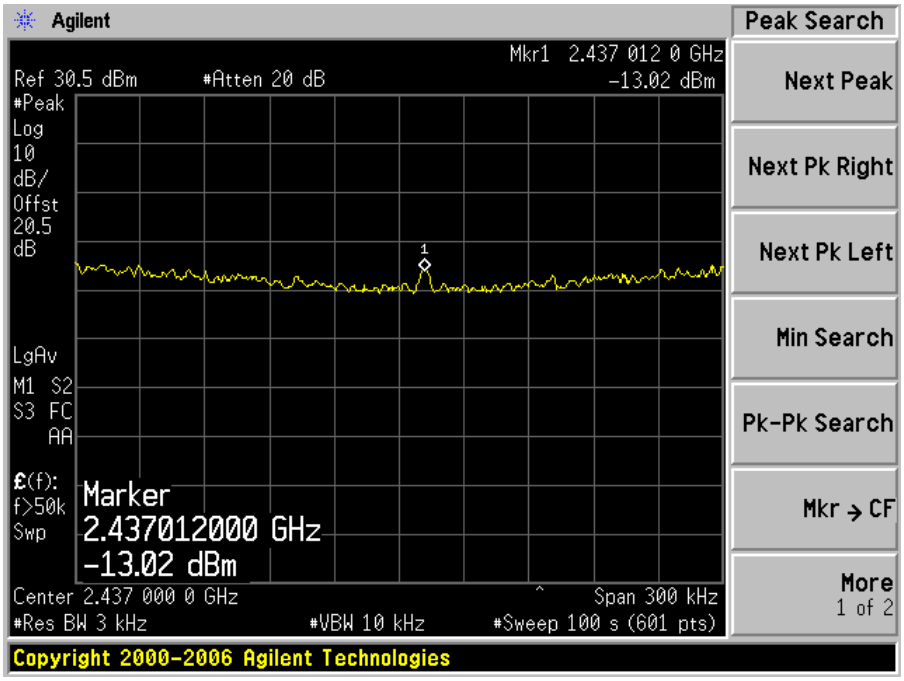


802.11 g mode (Antenna #0)

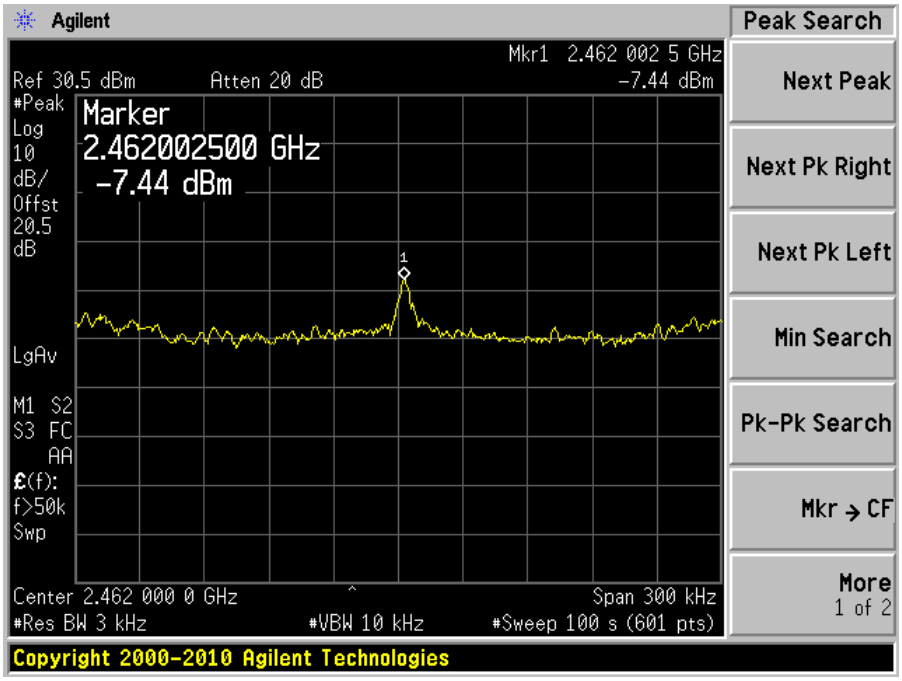
Low Channel 2412 MHz



Middle Channel 2437 MHz

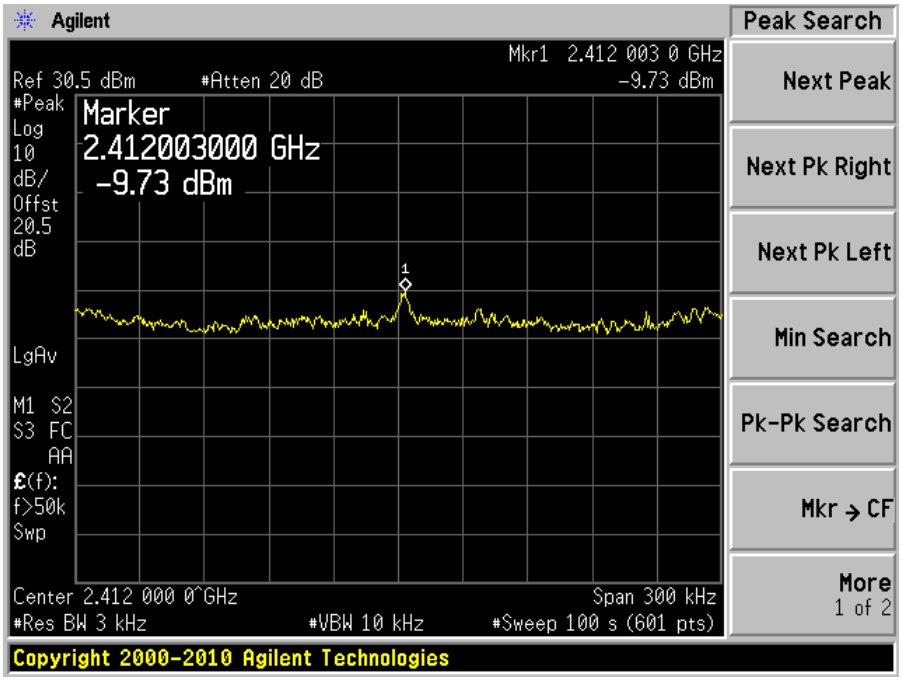


High Channel 2462 MHz

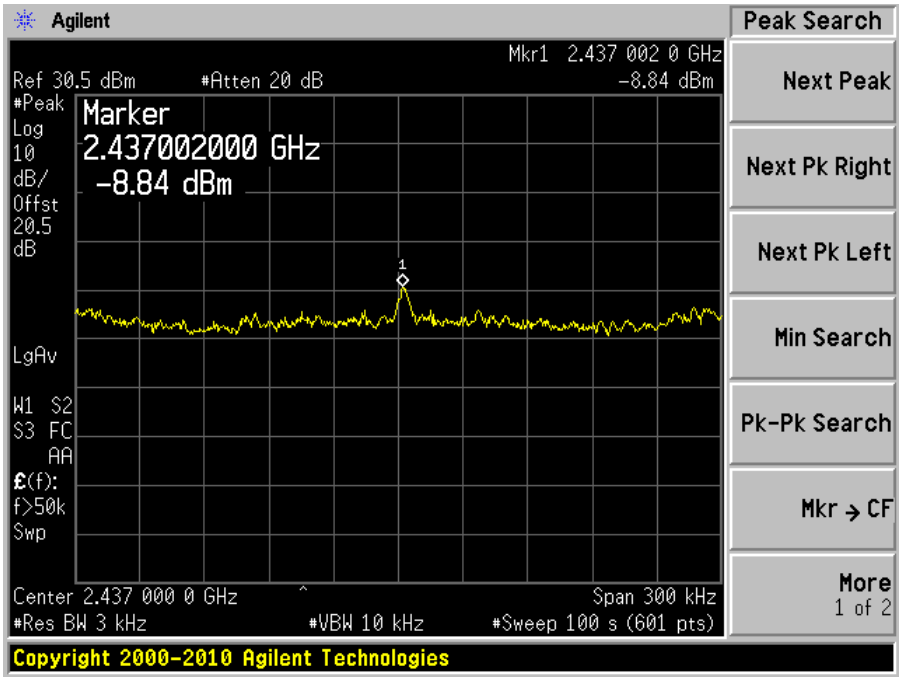


802.11 g mode (Antenna #1)

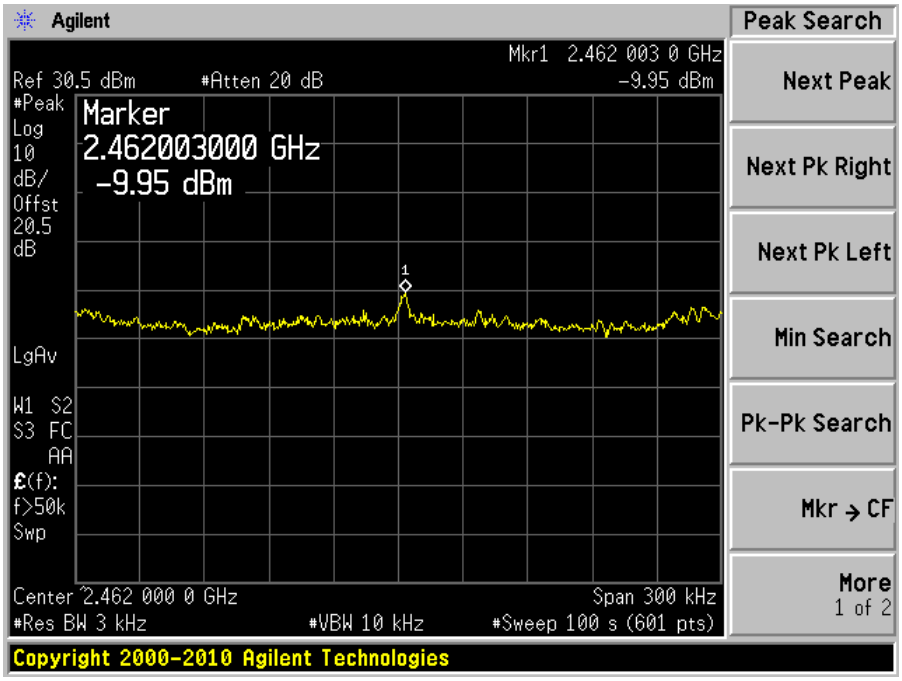
Low Channel 2412 MHz



Middle Channel 2437 MHz

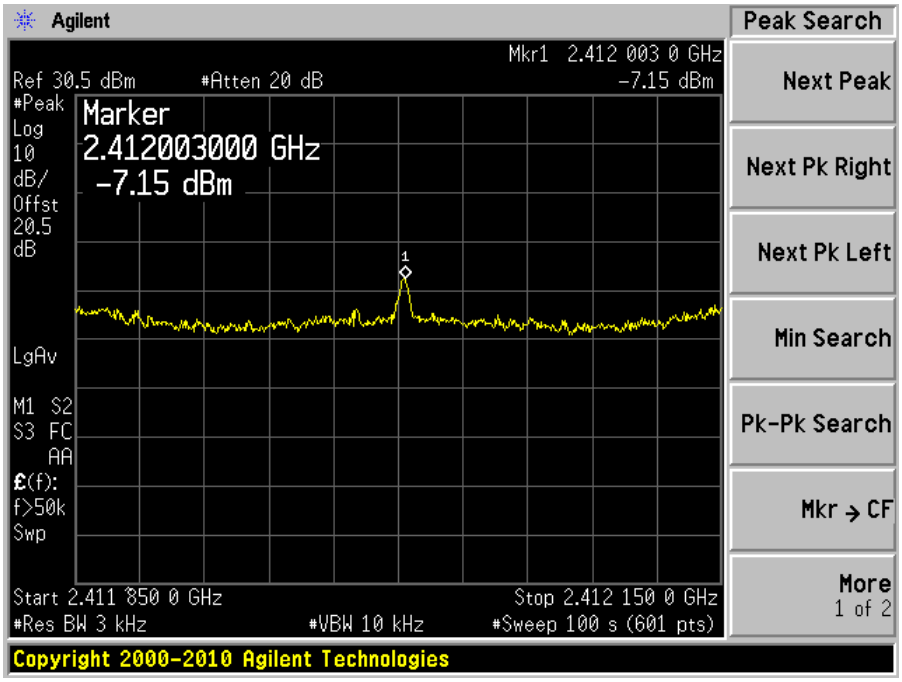


High Channel 2462 MHz

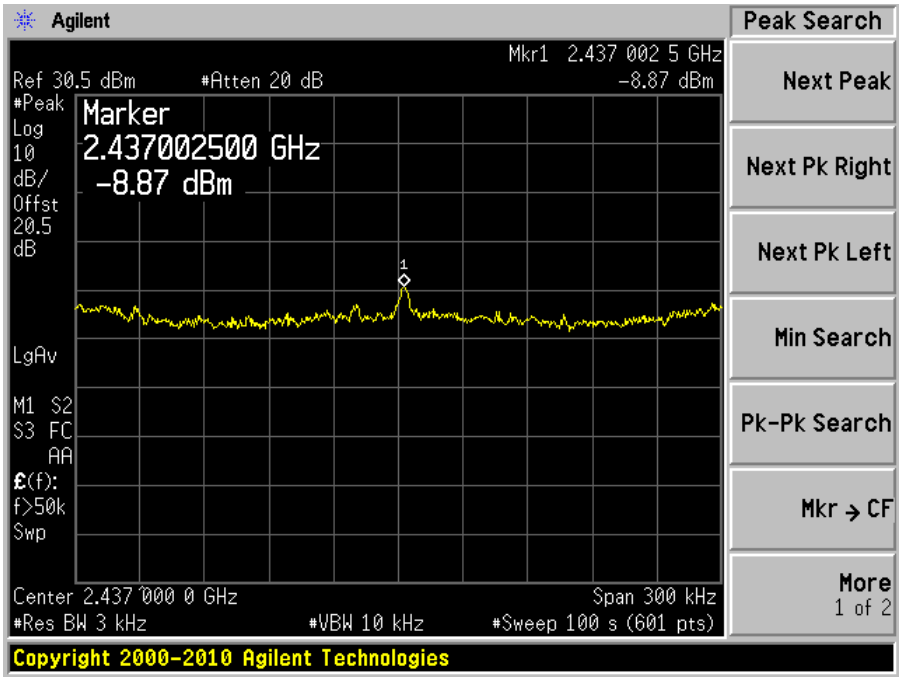


802.11 n mode (Antenna #0)

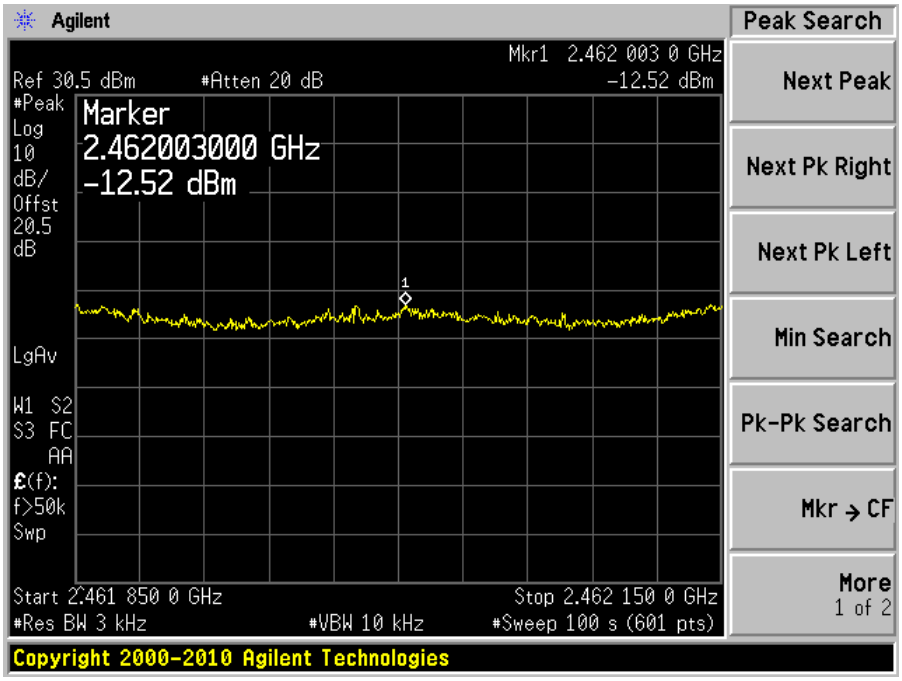
Low Channel 2412 MHz



Middle Channel 2437 MHz

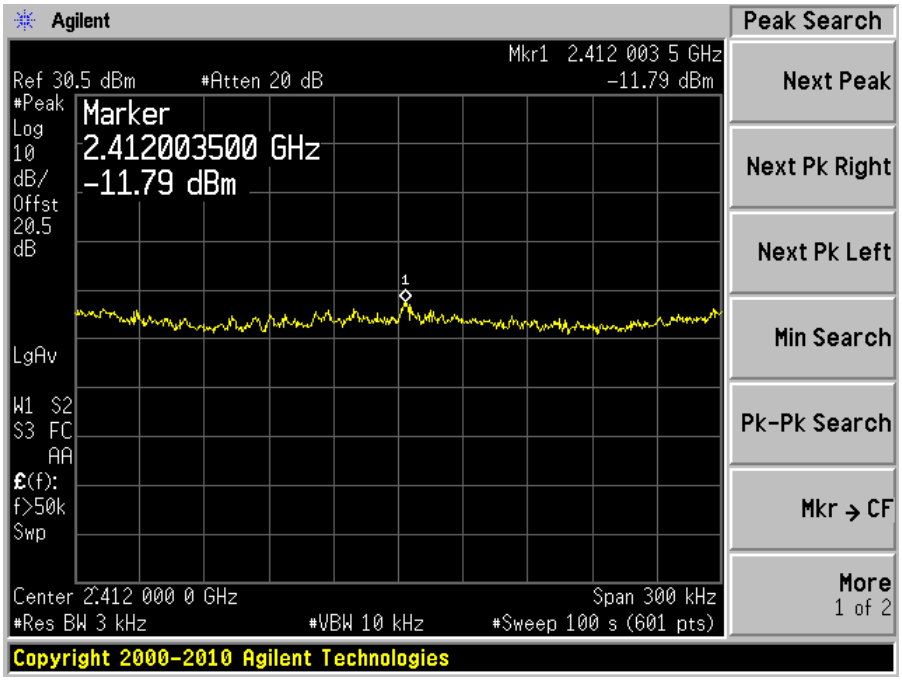


High Channel 2462 MHz

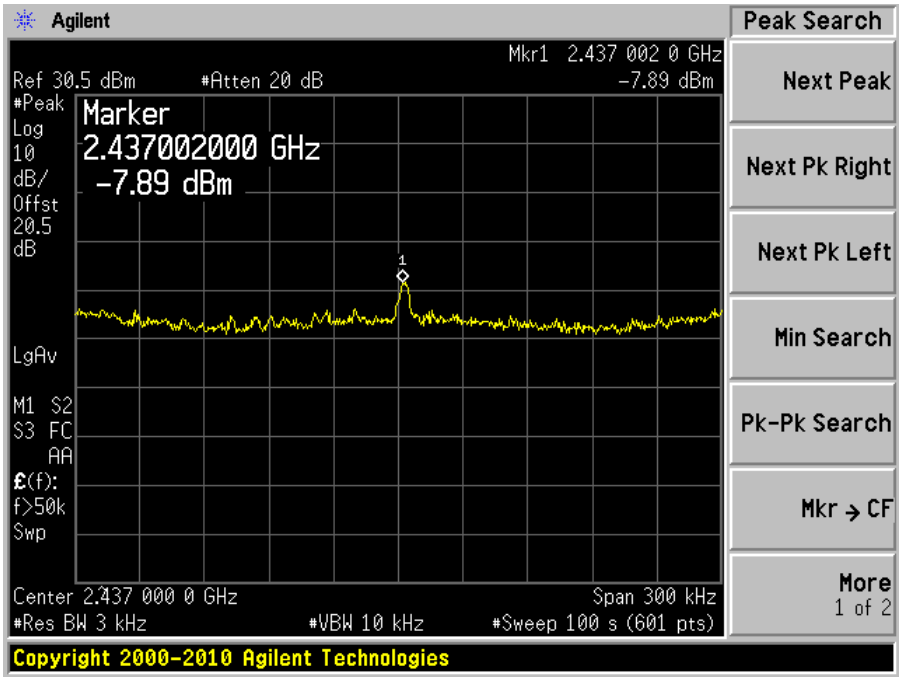


802.11 n mode (Antenna #1)

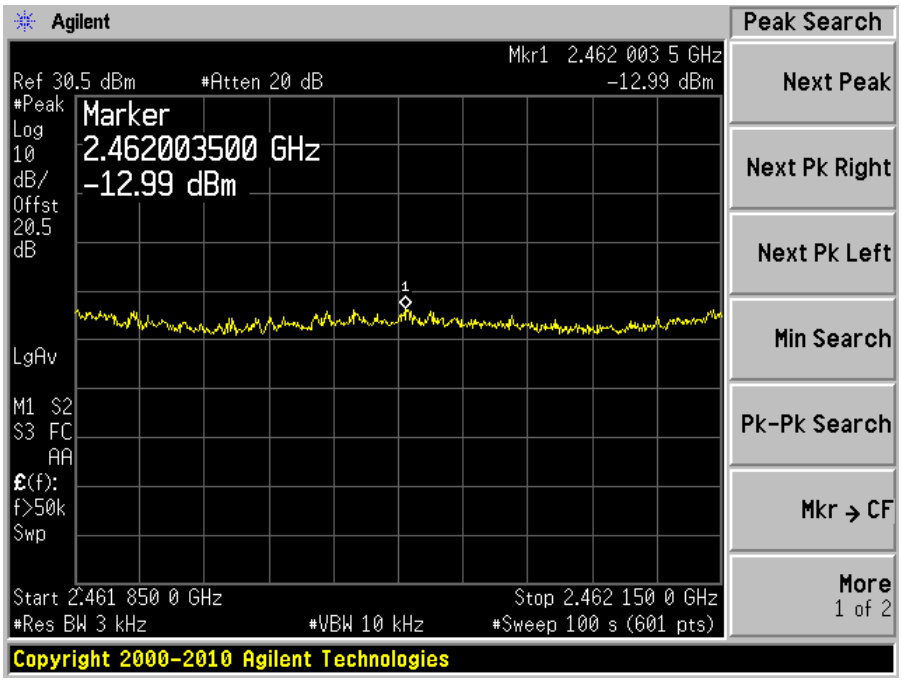
Low Channel 2412 MHz



Middle Channel 2437 MHz

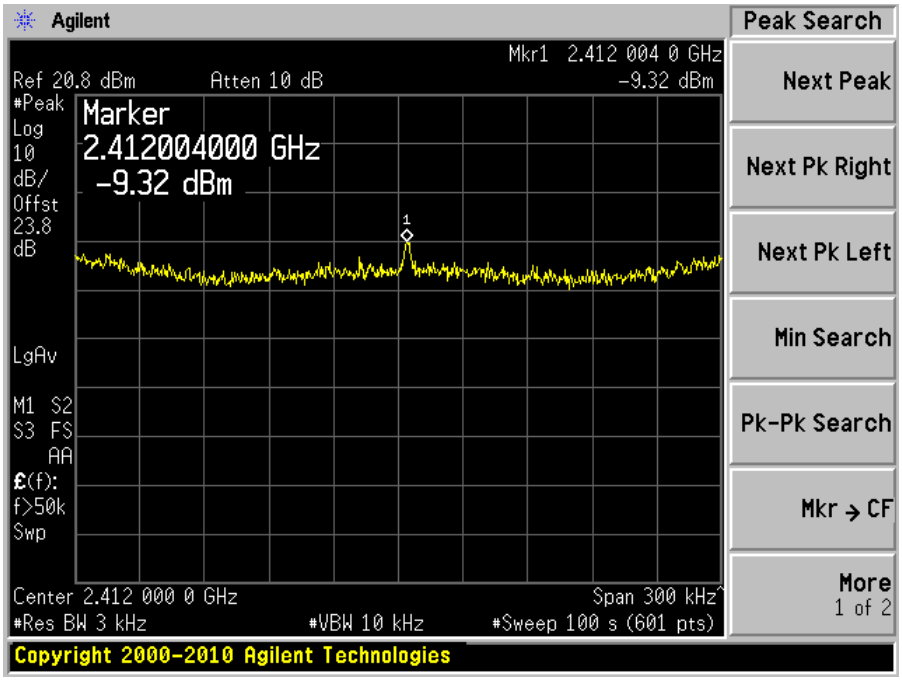


High Channel 2462 MHz

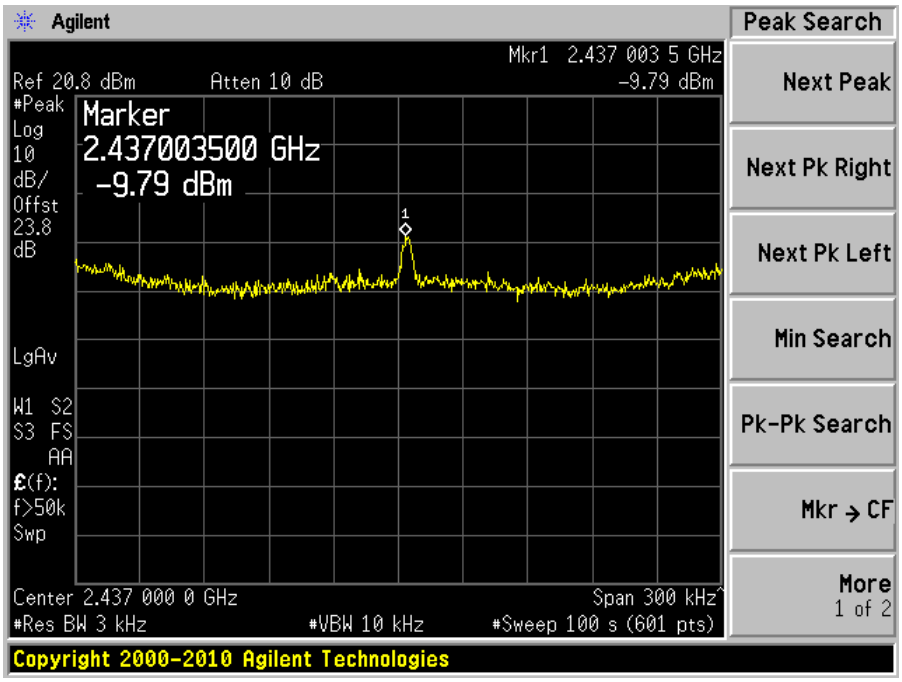


802.11 n mode (Antenna #0 + Antenna #1)

Low Channel 2412 MHz



Middle Channel 2437 MHz



High Channel 2462 MHz