FCC PART 15, SUBPART C
IC RSS-210, ISSUE 8, DECEMBER 2010

TEST AND MEASUREMENT REPORT

For

Ruckus Wireless, Inc.

350 West Java Drive,

Sunnyvale, CA 94089, USA

FCC ID: S9GZF7441
IC: 5912A-ZF7441

Report Type:	**Product Type:**
Original Report	Access Point

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Report Number:	R1303044-247
Report Date:	2013-06-13
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1303044-247	Original Report	2013-06-13

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test and measurement report was prepared on behalf of *Ruckus Wireless, Inc*., and their product model: *ZF 7441 with FCC ID: S9GZF7441, IC: 5912A-ZF7441* or the "EUT" as referred to in this report. The EUT is an Access Point which operates on the 2400-2483.5 MHz, 5150-5250 MHz, 5250-5350 MHz, 5470-5725 MHz and 5725-5850 MHz bands.

1.2 Mechanical Description of EUT

The EUT measures approximately 14.3 cm (L) x 11.1 cm (W) x 2.8 cm (H) and weighs 549g.

The test data gathered are from typical production sample, serial number: 1303044 assigned by BACL.

1.3 Objective

This report is prepared on behalf of *Ruckus Wireless, Inc*. in accordance with Part 2, Subpart J, and Part 15, Subparts B and C of the Federal Communication Commissions rules and IC RSS-210 Issue 8, Dec 2010.

The objective is to determine compliance with FCC Part 15.247 and IC RSS-210 rules for AC Line Conducted Emissions, Output Power, Antenna Requirements, 6 dB Bandwidth, Power Spectral Density, 100 kHz Bandwidth of Band Edges Measurement, and Conducted and Radiated Spurious Emissions.

1.4 Related Submittal(s)/Grant(s)

FCC Part 15.407 NII with FCC ID: S9GZF7441, IC: 5912A-ZF7441

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2009, 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.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the 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 CISPR16-4-2:2007, The Treatment of Uncertainty in EMC Measurements, the values ranging from $\pm$2.0 dB 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 Corp.

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 site at BACL Corp. 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 have 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 test site also complies with the test methods and procedures set forth in CISPR 22:2008 §10.4 for measurements below 1 GHz and §10.6 for measurements above 1 GHz as well as ANSI C63.4-2003, ANSI C63.4-2009, TIA/EIA-603 & CISPR 24:2010.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and they are listed under FCC registration number: 90464 and VCCI Registration No.: A-0027. 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 Corp. is an American Association for laboratory Accreditation (A2LA) accredited laboratory (Lab Code 3297-02). The current scope of accreditations can be found at

http://www.a2la.org/scopepdf/3297-02.pdf?CFID=1132286&CFTOKEN=e42a3240dac3f6ba-6DE17DCB-1851-9E57-477422F667031258&jsessionid=8430d44f1f47cf2996124343c704b367816b

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2009.

The EUT was tested in a 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.

2.2 EUT Exercise Software

The test utility used was St Bernard Art, was provided by Ruckus Wireless Inc., and was verified by Jeffery Wu to comply with the standard requirements being tested against.

2.3 Special Equipment

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

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 Local Support Equipment

Manufacturer	Description	Model	Serial Number
DELL	Laptop	Latitude E5420	-

2.6 EUT Internal Configuration Details

Manufacturer	Description	Model	Serial Number
Ruckus	Main PCB Board	RK13050032	94132600134

2.7 Interface Ports and Cables

Cable Description	Length (m)	To	From
RF Cable	<1.0	PSA	EUT
RJ 45 Cable	<1.0	Laptop	EUT

2.8 Power Supply List and Details

Manufacturer	Description	Model	Part Number
Ruckus	POE Switch-Mode Power Supply	NPE-5818	11A413366
Ruckus	Switching Adaptor	E305248	-
Ruckus	AC Adaptor of POE	PA1060-480T1A125	740-64156-001

3 Summary of Test Results

Results reported relate only to the product tested.

FCC & IC Rules	Description of Test	Results
FCC §15.247(i), §2.1091 IC RSS-102	RF Exposure	Compliant
FCC §15.203 IC RSS-Gen §7.1.2	Antenna Requirement	Compliant
FCC §15.207(a) IC RSS-Gen §7.2.4	AC Line Conducted Emissions	Compliant
FCC §15.247 (d) IC RSS-210 §A8.5	Spurious Emissions at Antenna Port	Compliant
FCC §15.205 IC RSS-210 §2.2	Restricted Bands	Compliant
FCC §15.209, §15.247 (d) IC RSS-210 §A8.5	Radiated Spurious Emissions	Compliant
FCC §15.247(a)(2) IC RSS-210 §A8.2	6 dB Emission Bandwidth	Compliant
FCC §15.247(b)(3) IC RSS-210 §A8.4	Maximum Peak Output Power	Compliant
FCC §15.247(d) IC RSS-210 §A8.5	100 kHz Bandwidth of Frequency Band Edge	Compliant
FCC §15.247(e) IC RSS-210 §A8.2(b)	Power Spectral Density	Compliant
IC RSS-210 §2.3 & RSS-Gen §6.1	Receiver Spurious Emission	Compliant

4 FCC §15.247 (i), §2.1091 & IC RSS-102 – RF Exposure

4.1 Applicable Standard

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.

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

Before equipment certification is granted, the procedure of IC RSS-102 must be followed concerning the exposure of humans to RF fields.

According to IC RSS-102 Issue 4 section 4.2, RF limits used for general public will be applied to the EUT.

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Time Averaging (min)
0.003 - 1	280	2.19	-	6
1 - 10	280 / f	2.19 / f	-	6
10 - 30	28	2.19 / f	-	6
30 – 300	28	0.073	2*	6
300 – 1 500	$1.585\ f^{0.5}$	$0.0042\ f^{0.5}$	f / 150	6
1 500 – 15 000	61.4	0.163	10	6
15 000 – 150 000	61.4	0.163	10	$616000 / f^{1.2}$
150 000- 300 000	$0.158\ f^{0.5}$	$4.21 \times 10^{-4}\ f^{0.5}$	$6.67 \times 10^{-5}\ f$	$616000 / f^{1.2}$

Note: *f* is frequency in MHz
* = Power density limit is applicable at frequencies greater than 100 MHz

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 = 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

4.3 MPE Results

2.4 GHz band:

Maximum peak output power at antenna input terminal (dBm):	27.79
Maximum peak output power at antenna input terminal (mW):	601.1
Prediction distance (cm):	20
Prediction frequency (MHz):	2437
Maximum Antenna Gain, typical (dBi):	2
Maximum Antenna Gain (numeric):	1.585
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.190
Power density of prediction frequency at 20.0 cm (W/m^2):	1.90
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0
MPE limit for uncontrolled exposure at prediction frequency (W/m^2):	10

5.8 GHz band:

Maximum peak output power at antenna input terminal (dBm):	27.83
Maximum peak output power at antenna input terminal (mW):	607.7
Prediction distance (cm):	20
Prediction frequency (MHz):	5745
Maximum Antenna Gain, typical (dBi):	2
Maximum Antenna Gain (numeric):	1.585
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.192
Power density of prediction frequency at 20.0 cm (W/m^2):	1.92
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0
MPE limit for uncontrolled exposure at prediction frequency (W/m^2):	10

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.192 mW/cm^2 (1.92W/m^2).

5 FCC §15.203 & IC RSS-Gen §7.1.2 – Antenna Requirements

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.

According to IC RSS-Gen §7.1.2: Transmitter Antenna

A transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 mW or less. For devices of output powers greater than 10 mW, except devices subject to RSS-210 Annex 8 (Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands) or RSS-210 Annex 9 (Local Area Network Devices), the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

5.2 Antenna List

The antenna used by the EUT will be 2 dBi gain (with cable loss considered) and contains an N-type connector; therefore, it complies with the antenna requirement. Professional installation is needed to ensure the product complies with legal restrictions.

6 FCC §15.207 & IC RSS-Gen §7.2.4 – AC Line Conducted Emissions

6.1 Applicable Standards

As per FCC §15.207 and IC RSS-Gen §7.2.4 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	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

Decreases with the logarithm of the frequency.

6.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4-2009 measurement procedure. The specification used was FCC §15.207 and IC RSS-Gen §7.2.4 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 EUT was connected with LISN-1 which provided 120 V / 60 Hz AC power.

6.3 Test Procedure

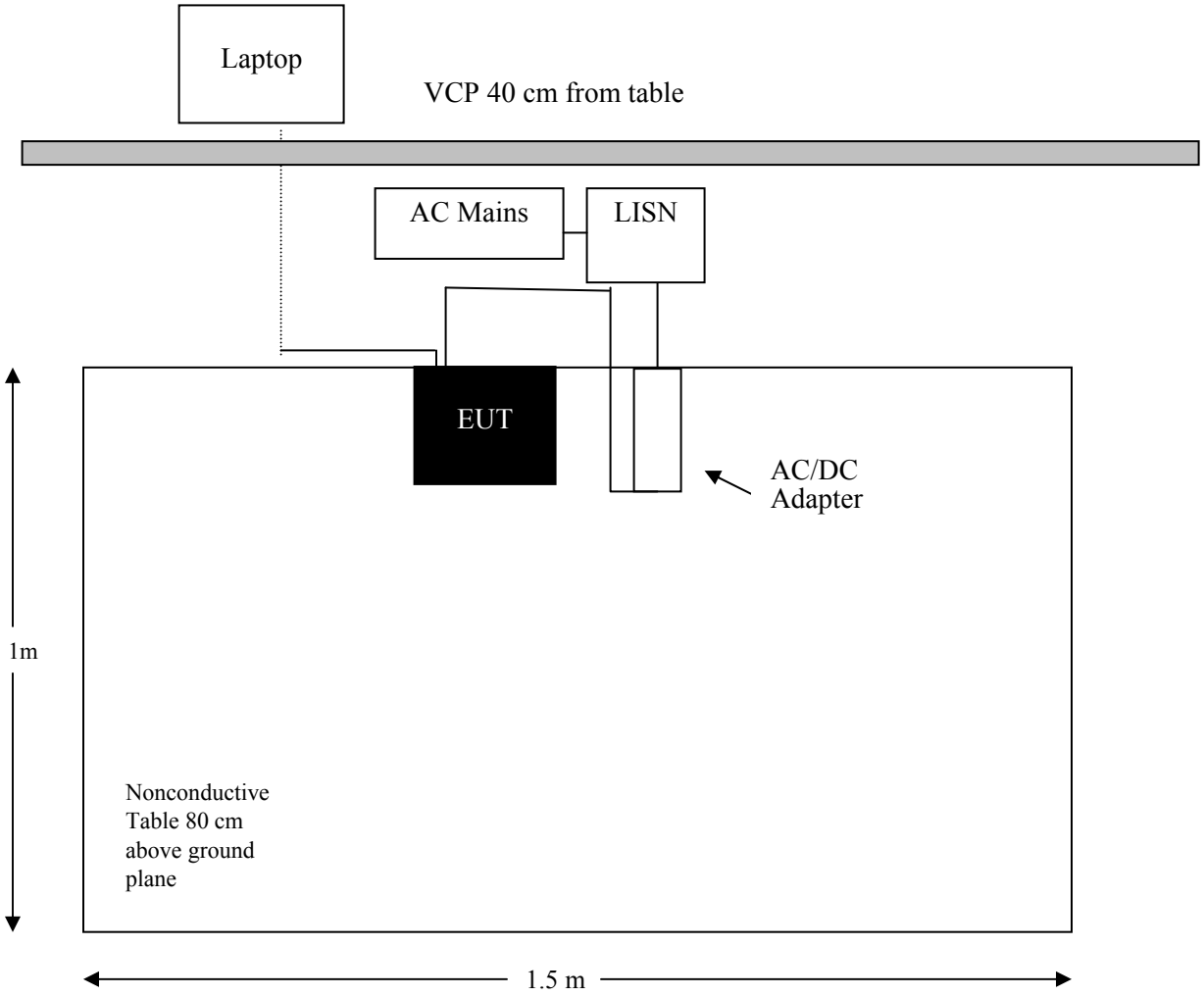
During the conducted emissions test, the power cord of the EUT host system was connected to the mains outlet of the LISN-2.

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

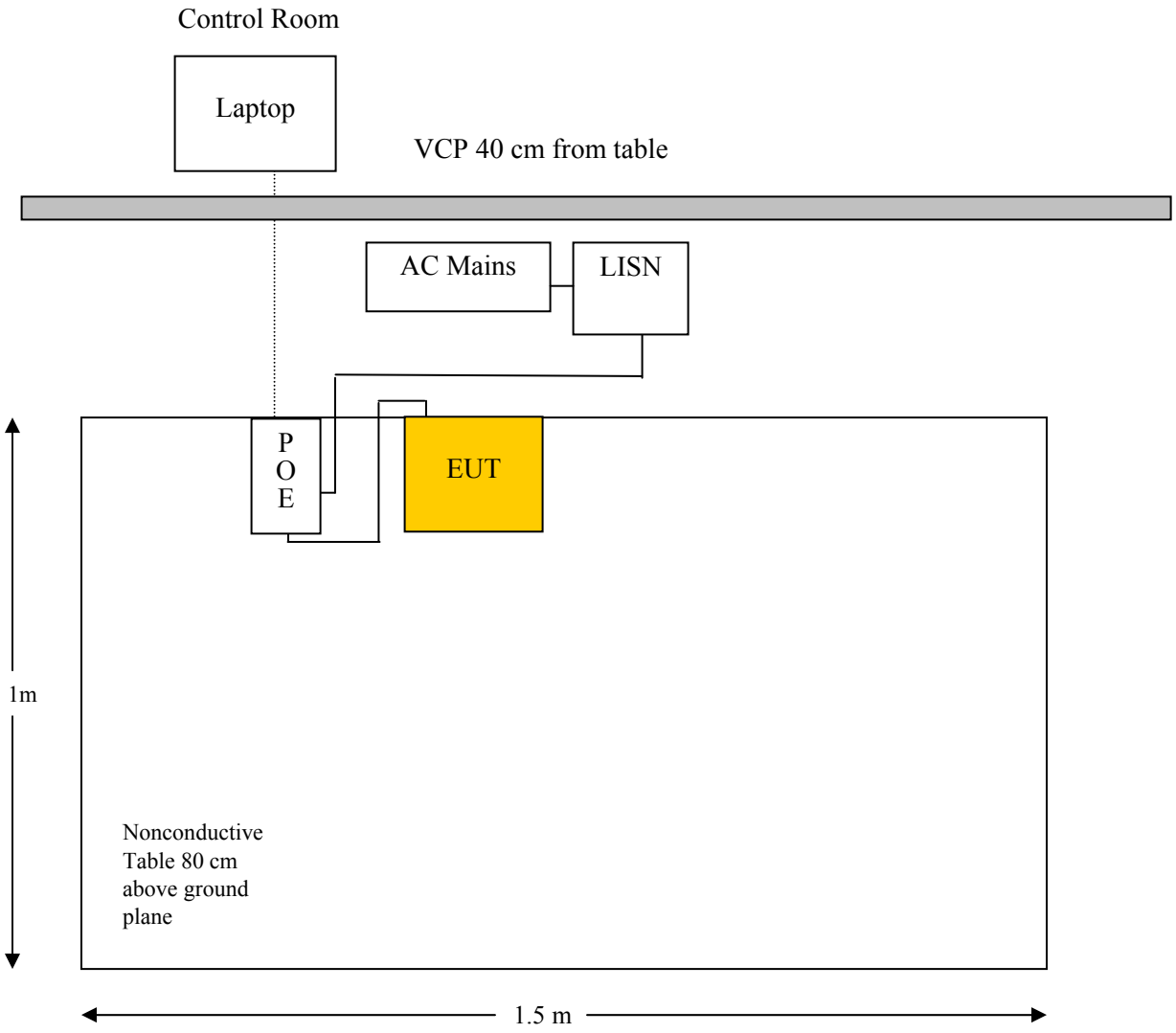
All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a “QP.” Average readings are distinguished with an “Ave”.

6.4 Test Setup Block Diagram

AC/DC Adaptor:



POE


Control Room
Laptop
VCP 40 cm from table
AC Mains
LISN
P
O
E
EUT
1m
Nonconductive
Table 80 cm
above ground
plane
1.5 m

6.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Cable Loss (CL), the Attenuator Factor (Atten) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + CL + Atten

For example, a corrected amplitude of 46.2 dBuV = Indicated Reading (32.5 dBuV) + Cable Loss (3.7 dB) + Attenuator (10 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within 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 - Limit

6.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2013-03-28	1 year
Solar Electronics	LISN	9252-R-24-BNC	511205	2012-06-25	1 year
TTE	Filter, High Pass	H9962-150K-50-21378	K7133	2012-05-30	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

6.7 Test Environmental Conditions

Temperature:	21 ºC
Relative Humidity:	51%
ATM Pressure:	101.42 kPa

The testing was performed by Wei Sun on 2013-05-03 in 5 m chamber 2.

6.8 Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC and IC standards conducted emissions limits, with the margin reading of:

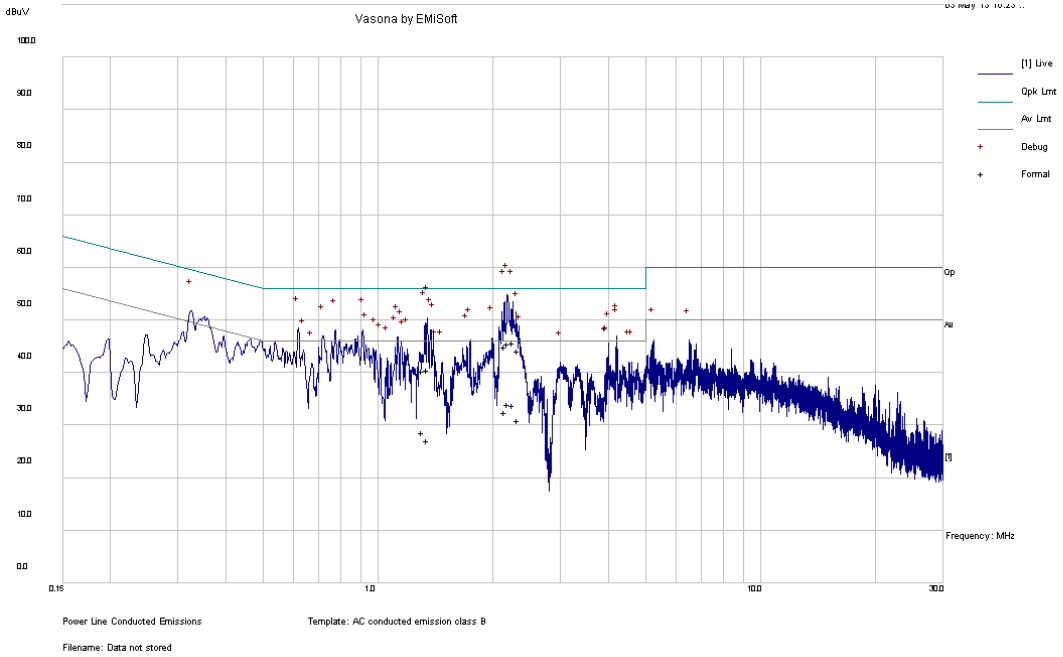
5 GHz band powered by POE

Connection: AC/DC adapter of POE is connected to 120 V/60 Hz			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Line/Neutral)**	**Range (MHz)**
-0.82	0.441545	Line	0.15-30

6.9 Conducted Emissions Test Plots and Data

Worst case in 2.4 GHz Band: 802.11b mode, middle channel

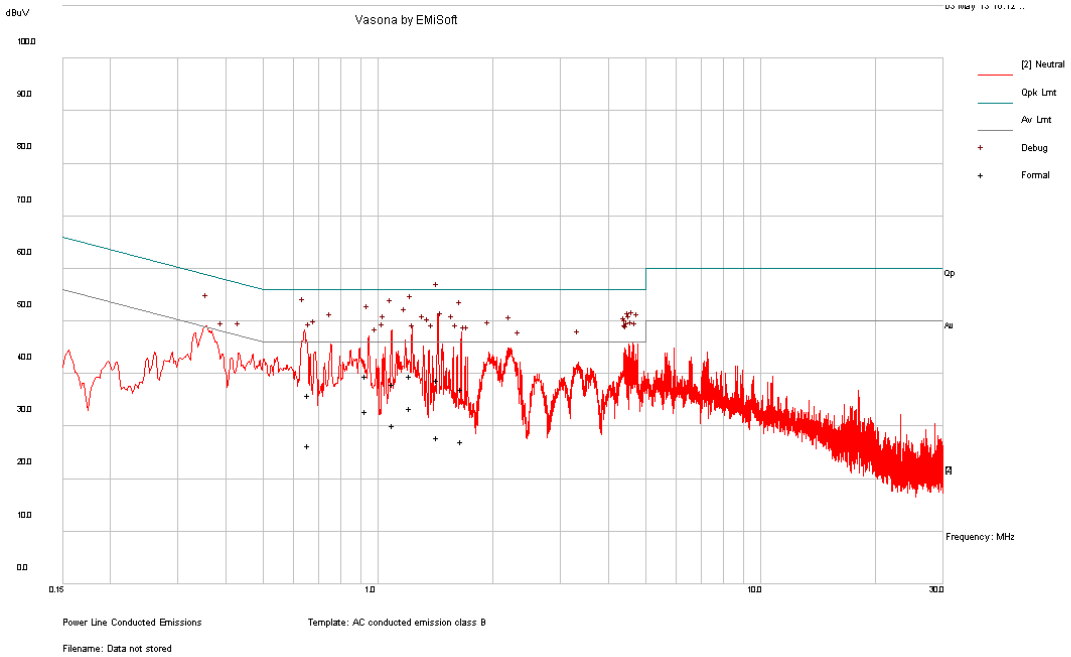
120 V, 60 Hz – Line, AC/DC Adaptor



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
2.191305	45.54	Line	56	-10.46	QP
2.143969	44.85	Line	56	-11.15	QP
2.25281	45.74	Line	56	-10.26	QP
1.346152	40.58	Line	56	-15.42	QP
1.307373	40.31	Line	56	-15.69	QP
2.323281	44.24	Line	56	-11.76	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
2.191305	33.98	Line	46	-12.02	Ave.
2.143969	32.48	Line	46	-13.52	Ave.
2.25281	33.8	Line	46	-12.20	Ave.
1.346152	27.05	Line	46	-18.95	Ave.
1.307373	28.58	Line	46	-17.42	Ave.
2.323281	30.98	Line	46	-15.02	Ave.

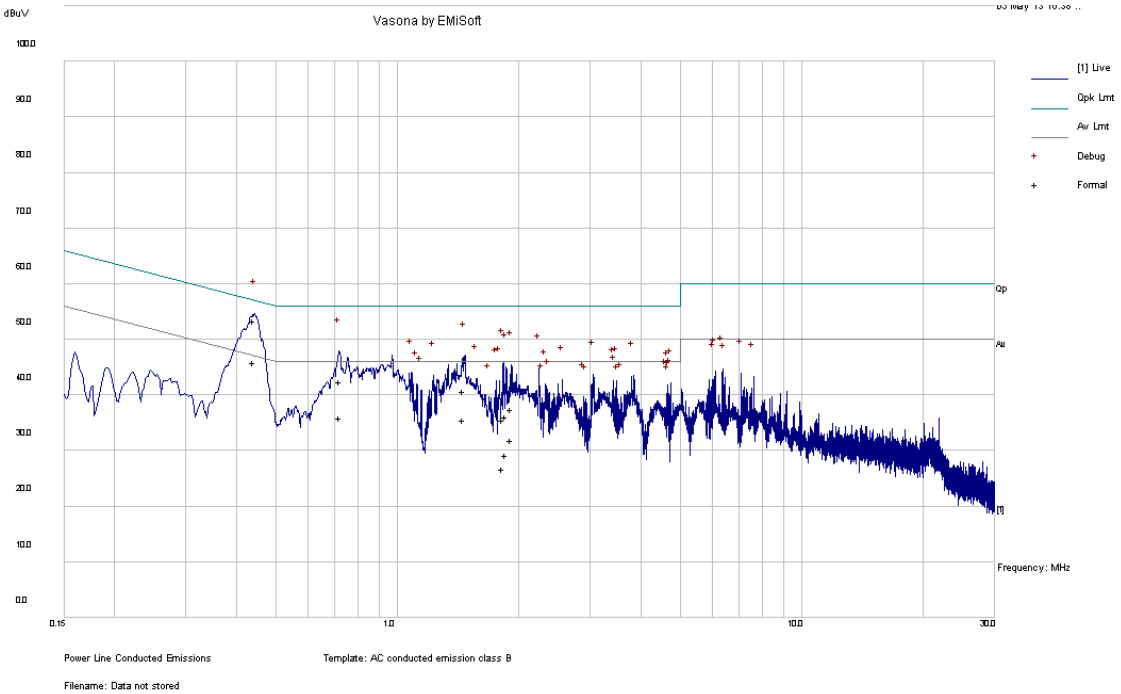
120 V, 60 Hz – Neutral, AC/DC Adaptor



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
1.435991	38.85	Neutral	56	-17.15	QP
1.21428	39.64	Neutral	56	-16.36	QP
0.658483	35.91	Neutral	56	-20.09	QP
1.09439	38.05	Neutral	56	-17.95	QP
1.653516	37.06	Neutral	56	-18.94	QP
0.932139	39.62	Neutral	56	-16.38	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
1.435991	27.91	Neutral	46	-18.09	Ave.
1.21428	33.38	Neutral	46	-12.62	Ave.
0.658483	26.43	Neutral	46	-19.57	Ave.
1.09439	30.11	Neutral	46	-15.89	Ave.
1.653516	27.15	Neutral	46	-18.85	Ave.
0.932139	32.79	Neutral	46	-13.21	Ave.

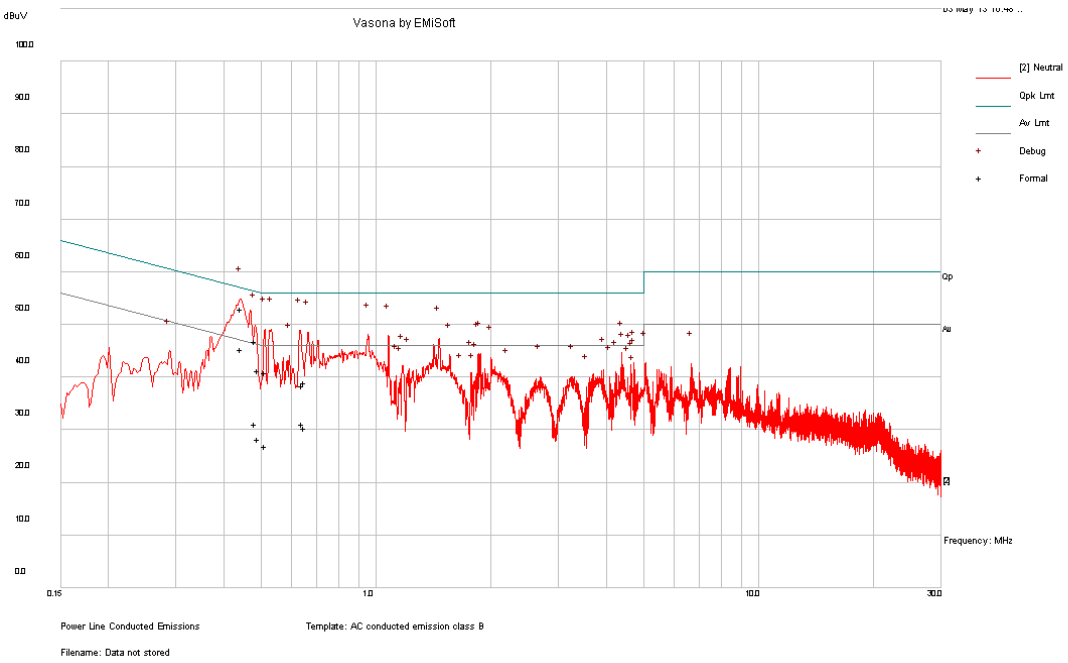
120 V, 60 Hz – Line, POE



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.443165	53.4	Line	57	-3.60	QP
0.720154	42.42	Line	56	-13.58	QP
1.455445	40.79	Line	56	-15.21	QP
1.819885	35.45	Line	56	-20.55	QP
1.914511	37.49	Line	56	-18.51	QP
1.85275	36.05	Line	56	-19.95	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.443165	45.87	Line	47	-1.13	Ave.
0.720154	35.84	Line	46	-10.16	Ave.
1.455445	35.61	Line	46	-10.39	Ave.
1.819885	26.75	Line	46	-19.25	Ave.
1.914511	31.85	Line	46	-14.15	Ave.
1.85275	29.26	Line	46	-16.74	Ave.

120 V, 60 Hz – Neutral, POE

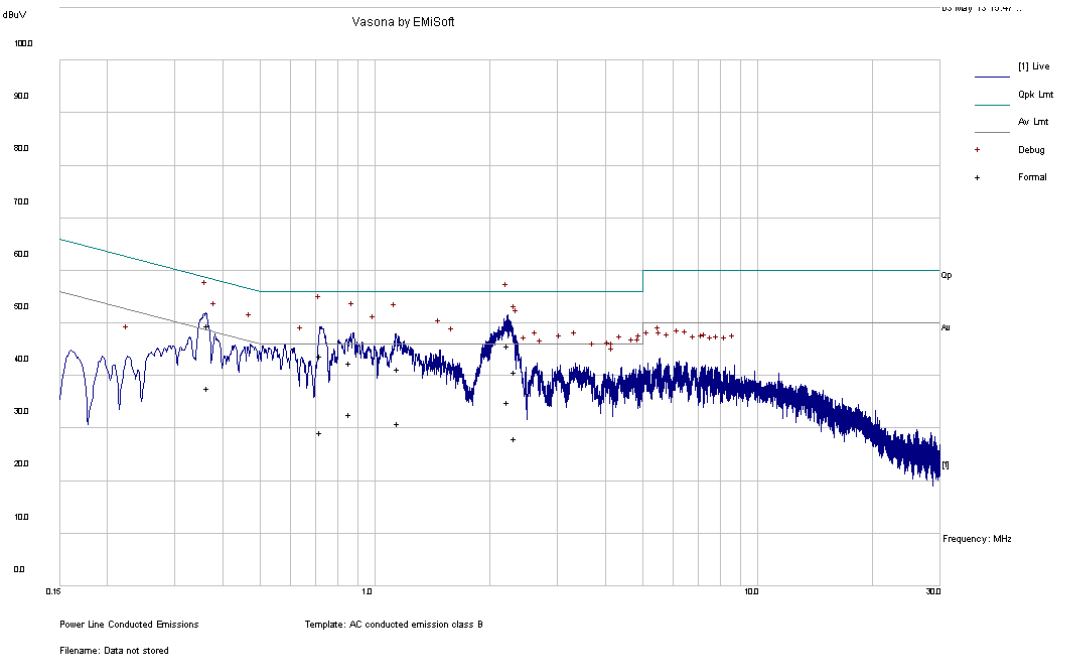


Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.443784	52.99	Neutral	56.99	-4.00	QP
0.482761	46.83	Neutral	56.29	-9.46	QP
0.515814	40.91	Neutral	56	-15.09	QP
0.494015	41.23	Neutral	56.1	-14.87	QP
0.644127	38.41	Neutral	56	-17.59	QP
0.650485	39	Neutral	56	-17.00	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.443784	45.27	Neutral	46.99	-1.72	Ave.
0.482761	31.05	Neutral	46.29	-15.24	Ave.
0.515814	26.89	Neutral	46	-19.11	Ave.
0.494015	28.21	Neutral	46.1	-17.89	Ave.
0.644127	31.07	Neutral	46	-14.93	Ave.
0.650485	30.28	Neutral	46	-15.72	Ave.

Worst case in 5.8 GHz Band, 802.11a mode, low channel

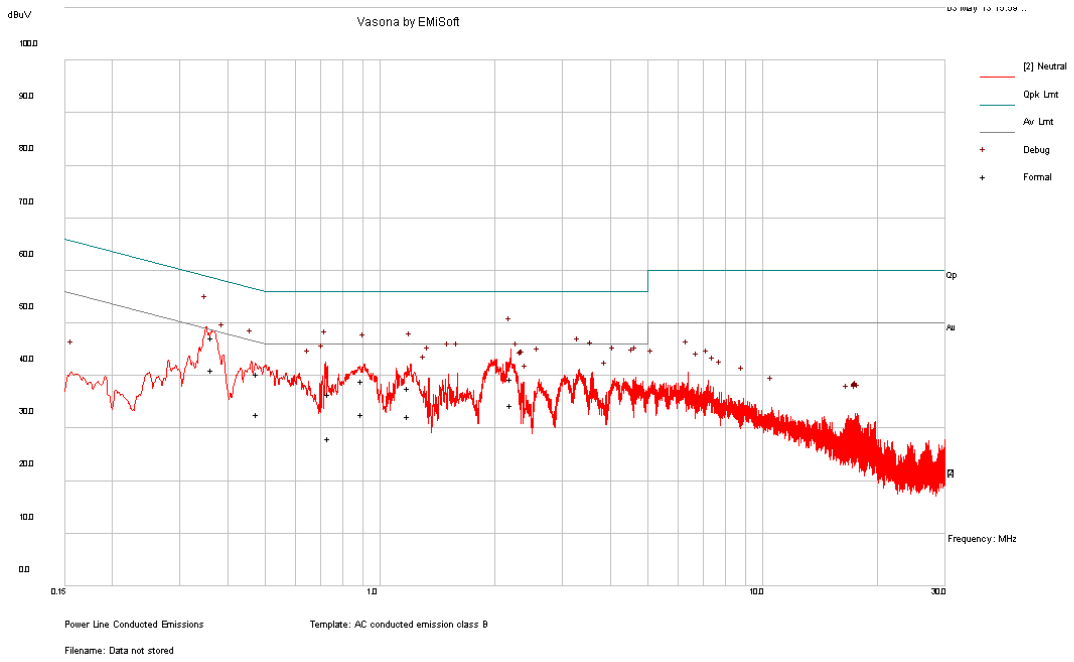
120 V, 60 Hz – Line, AC/DC Adaptor



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
2.226147	45.78	Line	56	-10.22	QP
0.720678	43.83	Line	56	-12.17	QP
0.365949	49.44	Line	58.59	-9.15	QP
0.862134	42.43	Line	56	-13.57	QP
1.148469	41.33	Line	56	-14.67	QP
2.323621	40.78	Line	56	-15.22	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
2.226147	34.98	Line	46	-11.02	Ave.
0.720678	29.3	Line	46	-16.70	Ave.
0.365949	37.68	Line	48.59	-10.91	Ave.
0.862134	32.68	Line	46	-13.32	Ave.
1.148469	31.02	Line	46	-14.98	Ave.
2.323621	28.12	Line	46	-17.88	Ave.

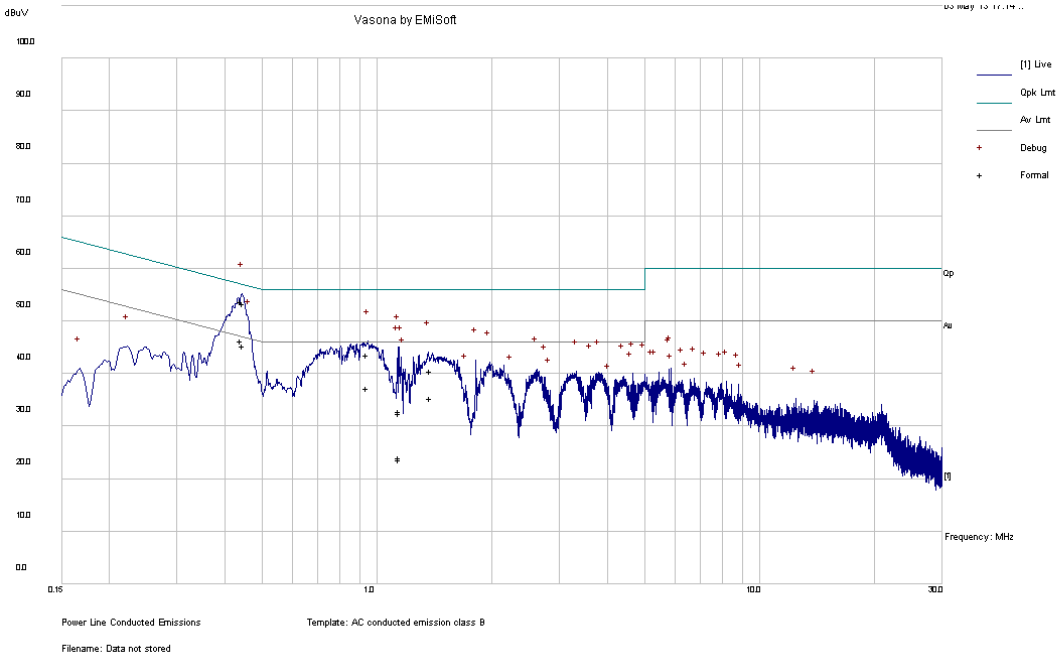
120 V, 60 Hz – Neutral, AC/DC Adaptor



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.365064	47.2	Neutral	58.61	-11.41	QP
2.202564	39.35	Neutral	56	-16.65	QP
0.734517	36.48	Neutral	56	-19.52	QP
1.185801	37.59	Neutral	56	-18.41	QP
0.478689	40.24	Neutral	56.36	-16.12	QP
0.898137	38.92	Neutral	56	-17.08	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.365064	41.01	Neutral	48.61	-7.60	Ave.
2.202564	34.47	Neutral	46	-11.53	Ave.
0.734517	28.02	Neutral	46	-17.98	Ave.
1.185801	32.22	Neutral	46	-13.78	Ave.
0.478689	32.7	Neutral	46.36	-13.66	Ave.
0.898137	32.69	Neutral	46	-13.31	Ave.

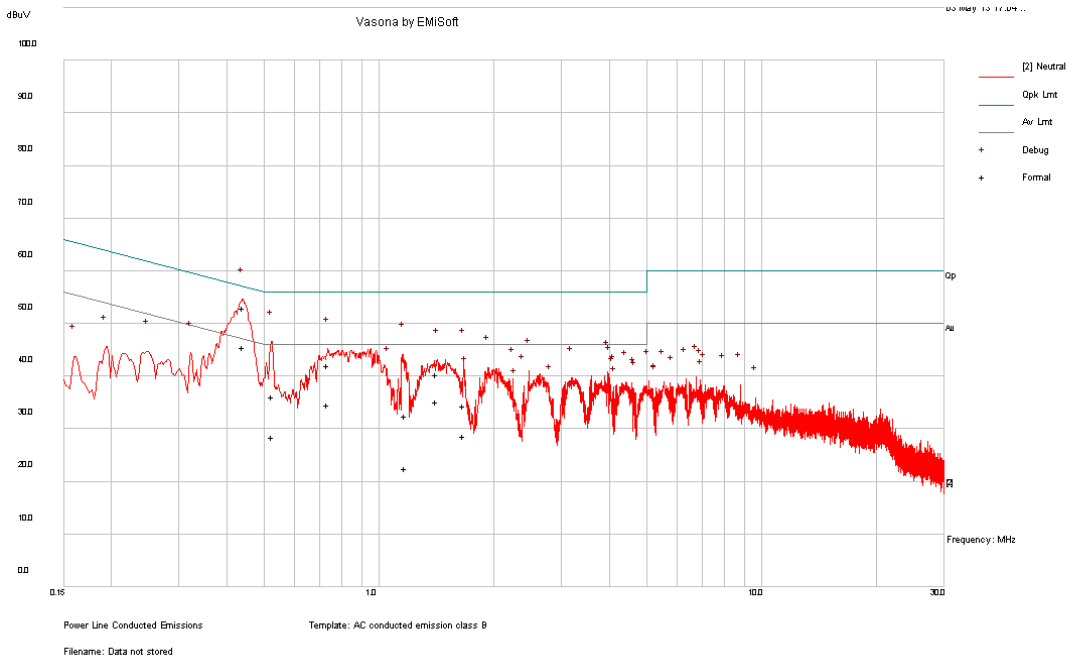
120 V, 60 Hz – Line, POE



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.441545	53.69	Line	57.03	-3.35	QP
0.44727	53.31	Line	56.93	-3.62	QP
0.944337	43.61	Line	56	-12.39	QP
1.144374	32.95	Line	56	-23.05	QP
1.381739	40.62	Line	56	-15.38	QP
1.141555	32.44	Line	56	-23.56	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.441545	46.22	Line	47.03	-0.82	Ave.
0.44727	45.26	Line	46.93	-1.67	Ave.
0.944337	37.29	Line	46	-8.71	Ave.
1.144374	23.59	Line	46	-22.41	Ave.
1.381739	35.43	Line	46	-10.57	Ave.
1.141555	24.05	Line	46	-21.95	Ave.

120 V, 60 Hz – Neutral, POE



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.443167	52.97	Neutral	57	-4.03	QP
0.527234	36.1	Neutral	56	-19.90	QP
0.733409	42.09	Neutral	56	-13.91	QP
1.172652	32.52	Neutral	56	-23.48	QP
1.416367	40.25	Neutral	56	-15.75	QP
1.666514	34.47	Neutral	56	-21.53	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.443167	45.51	Neutral	47	-1.49	Ave.
0.527234	28.45	Neutral	46	-17.55	Ave.
0.733409	34.58	Neutral	46	-11.42	Ave.
1.172652	22.48	Neutral	46	-23.52	Ave.
1.416367	35.11	Neutral	46	-10.89	Ave.
1.666514	28.71	Neutral	46	-17.29	Ave.

7 FCC §2.1051, §15.247(d) & IC RSS-210 §A8.5 – Spurious Emissions at Antenna Terminals

7.1 Applicable Standard

For FCC §15.247(d) and IC RSS-210 §A8.5 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.

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	Calibration Interval
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

7.4 Test Environmental Conditions

Temperature:	22-24 °C
Relative Humidity:	42-45 %
ATM Pressure:	101-102kPa

The testing was performed by Jeffrey Wu on 2013-04-12 at RF site.

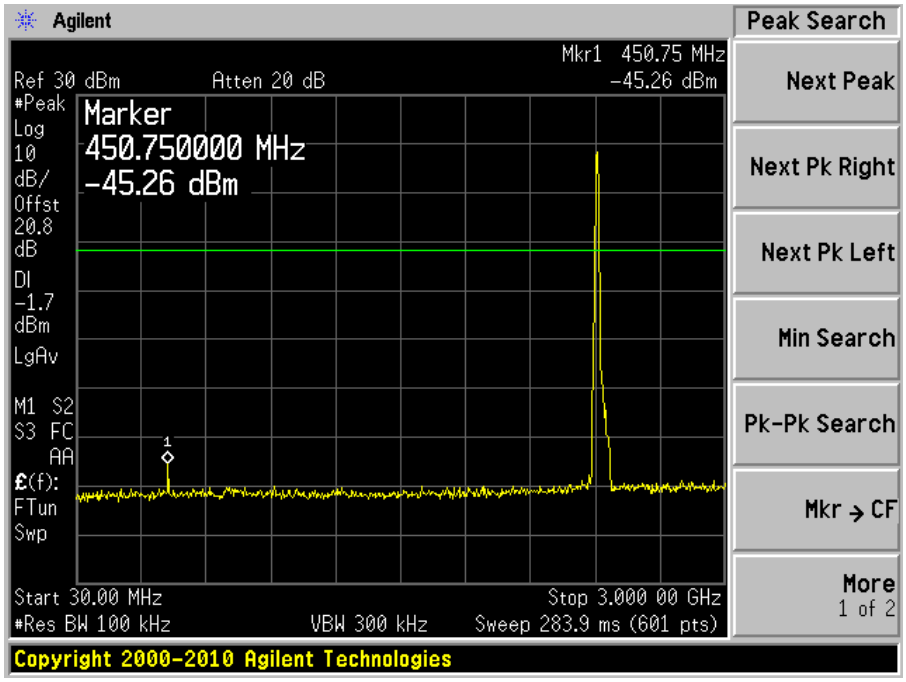
7.5 Test Results

Please refer to following plots of spurious emissions.

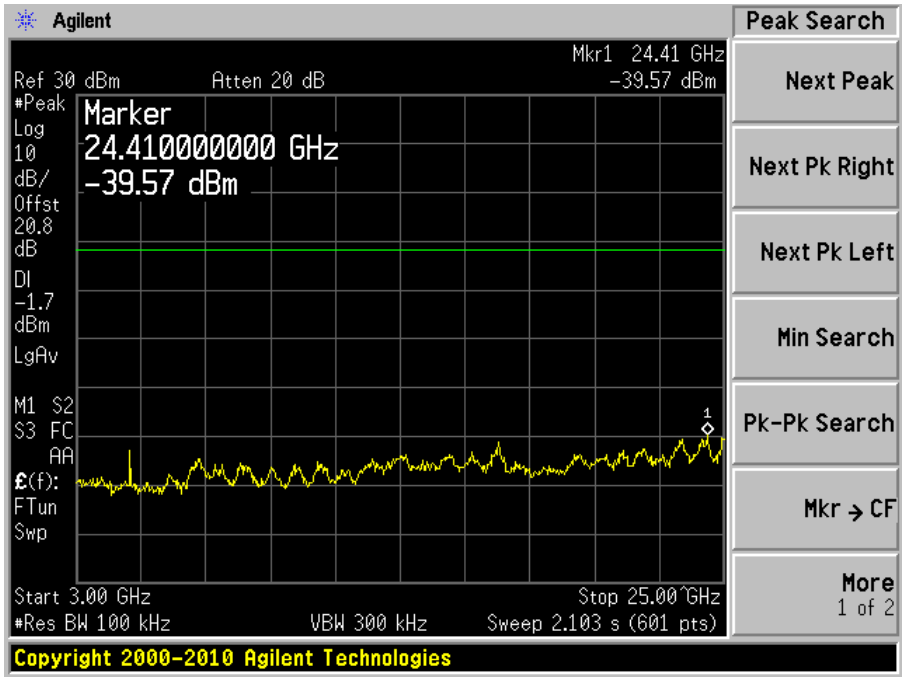
2400-2483.5 MHz

802.11b, Low Channel, 2412 MHz

30 MHz – 3 GHz

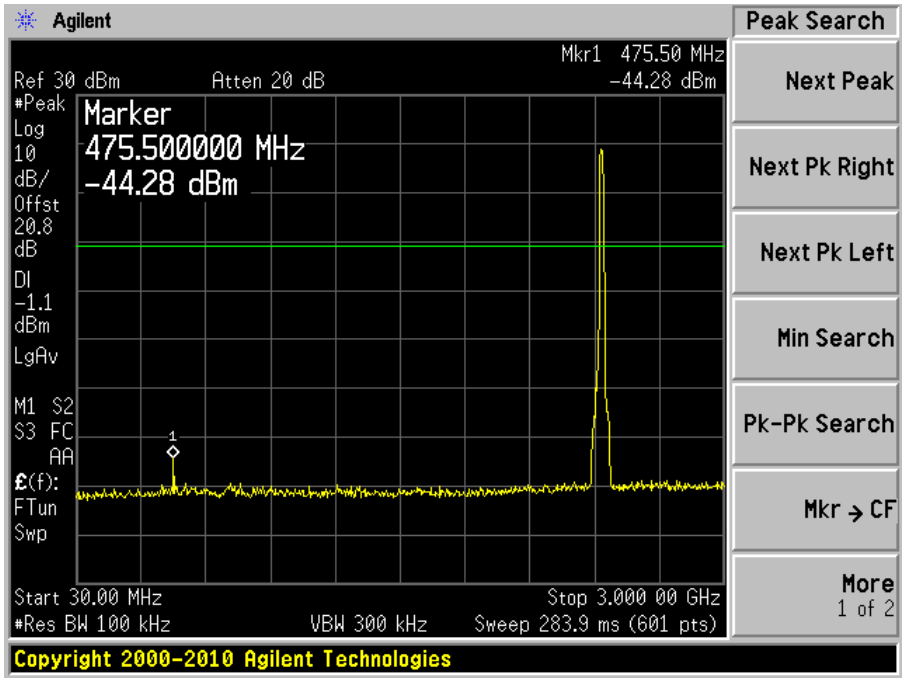


3 GHz – 25 GHz

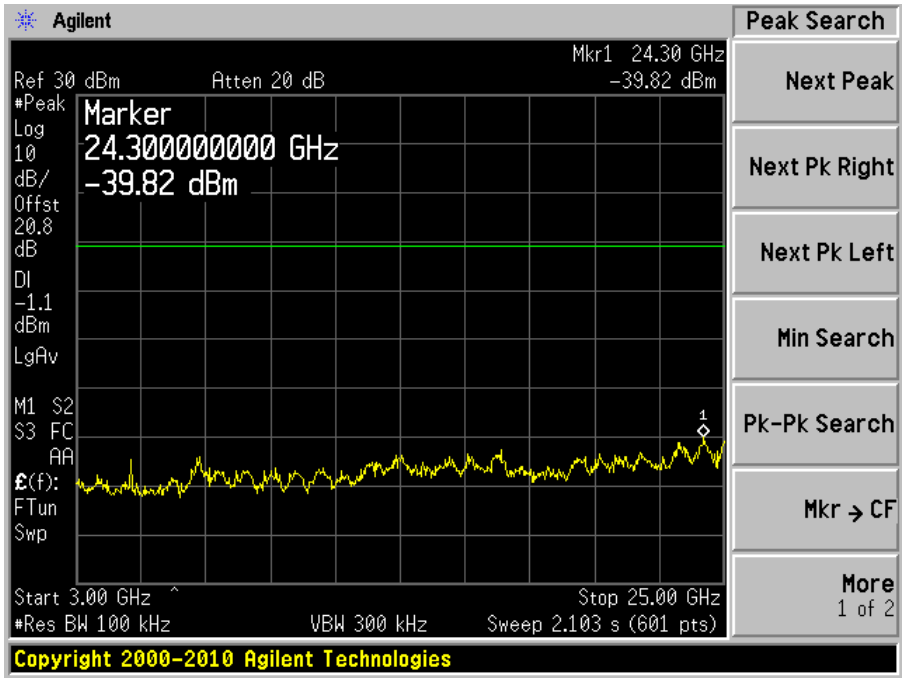


802.11b, Middle Channel, 2437 MHz

30 MHz – 3 GHz

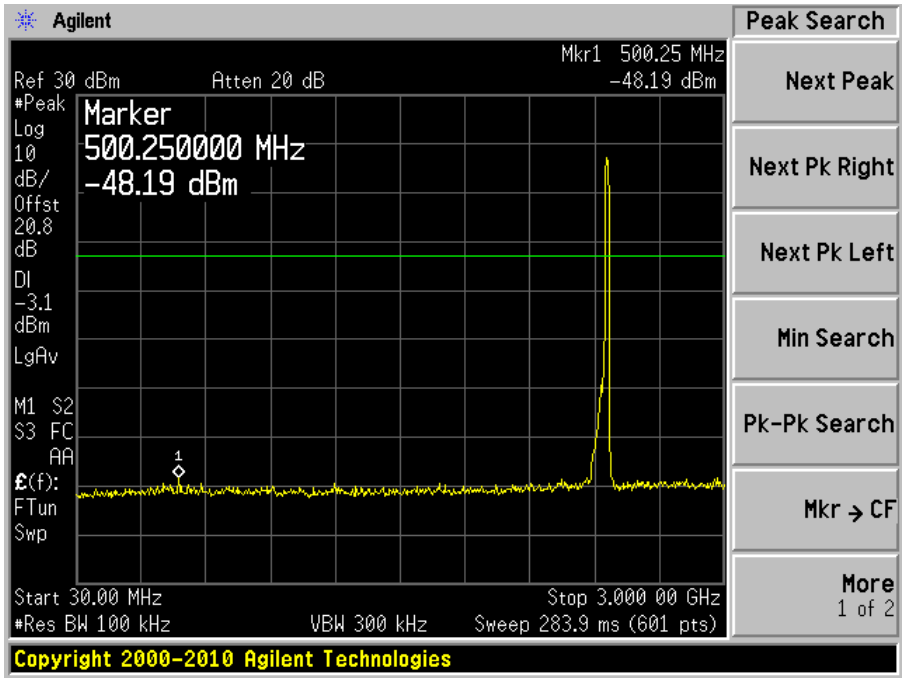


3 GHz – 25 GHz

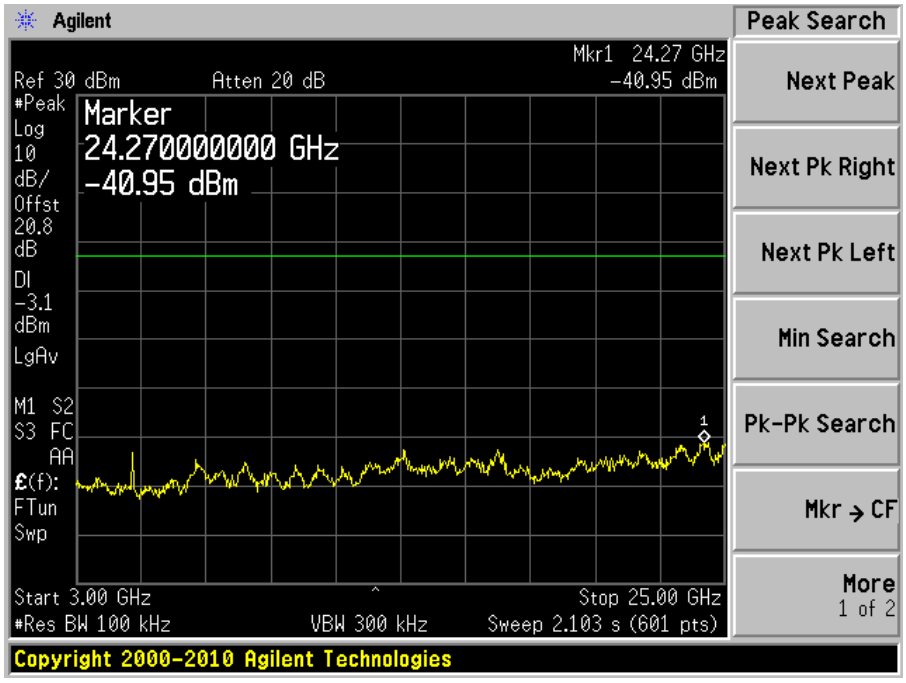


802.11b, High Channel, 2462 MHz

30 MHz – 3 GHz

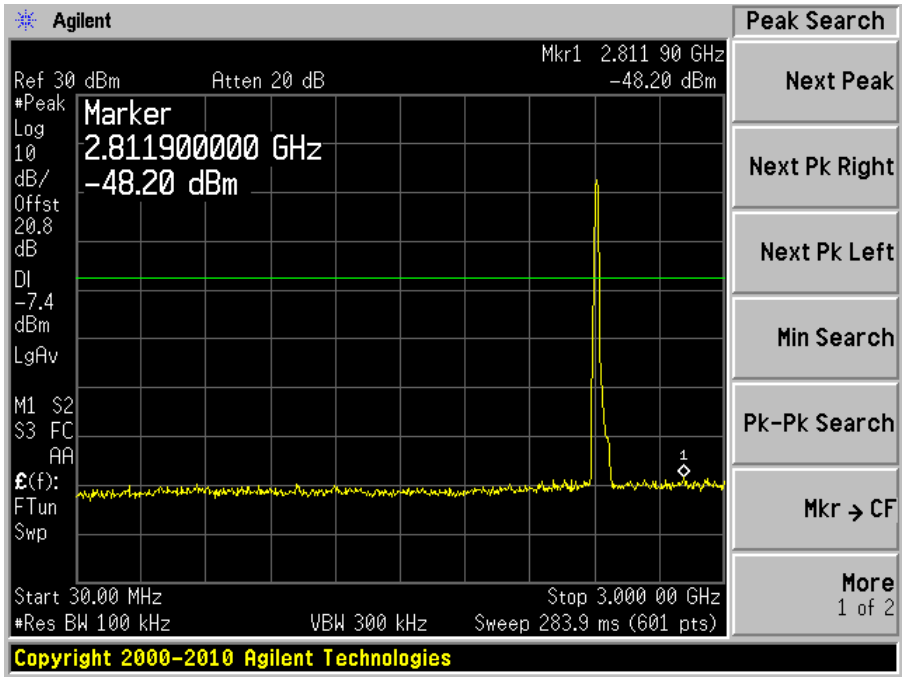


3 GHz – 25 GHz

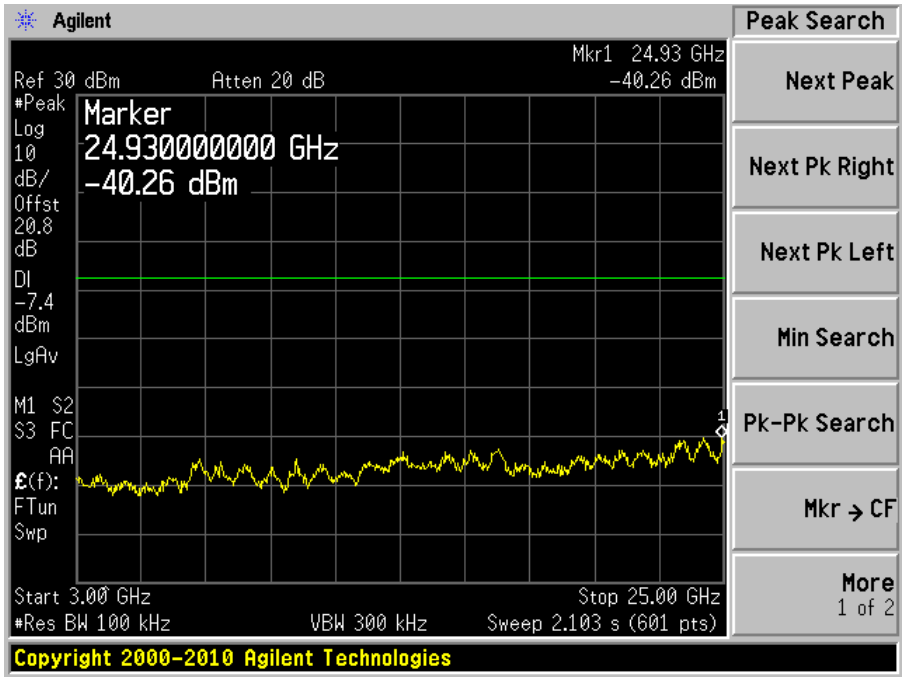


802.11g, Low Channel 2412 MHz

30 MHz – 3 GHz

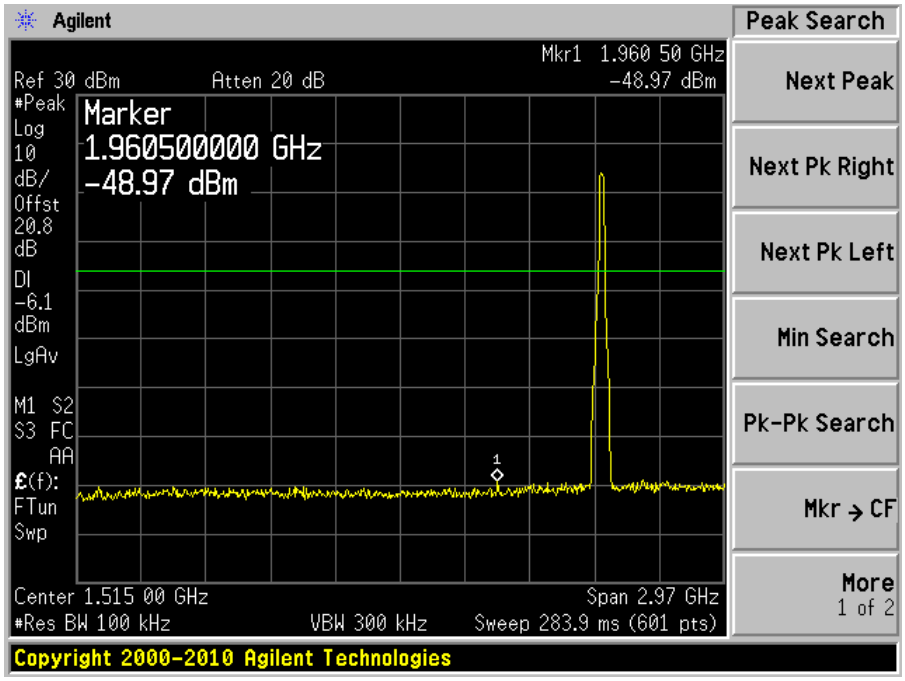


3 GHz – 25 GHz

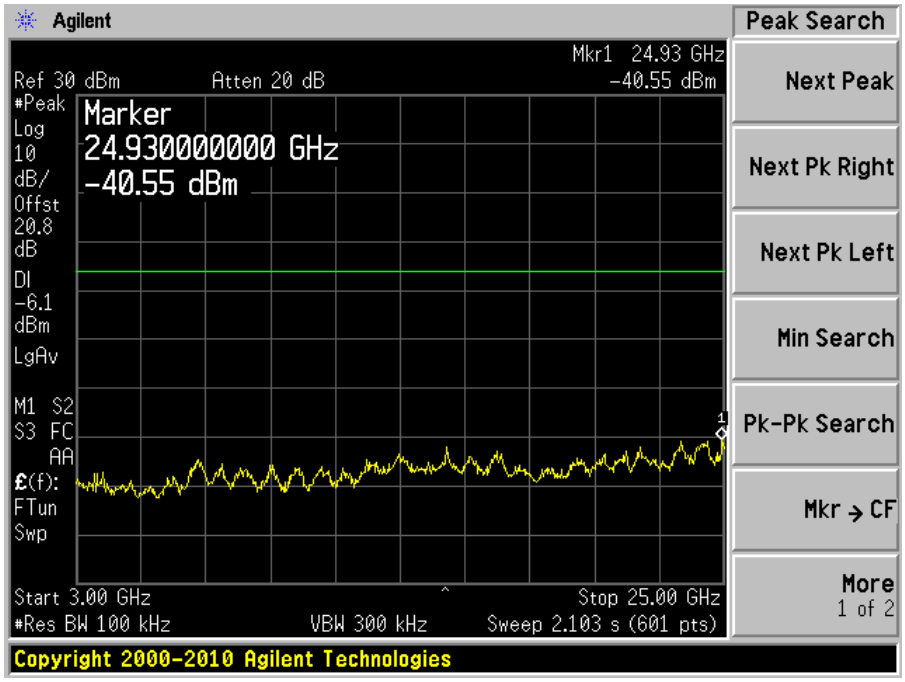


802.11g, Middle Channel 2437 MHz

30 MHz – 3 GHz

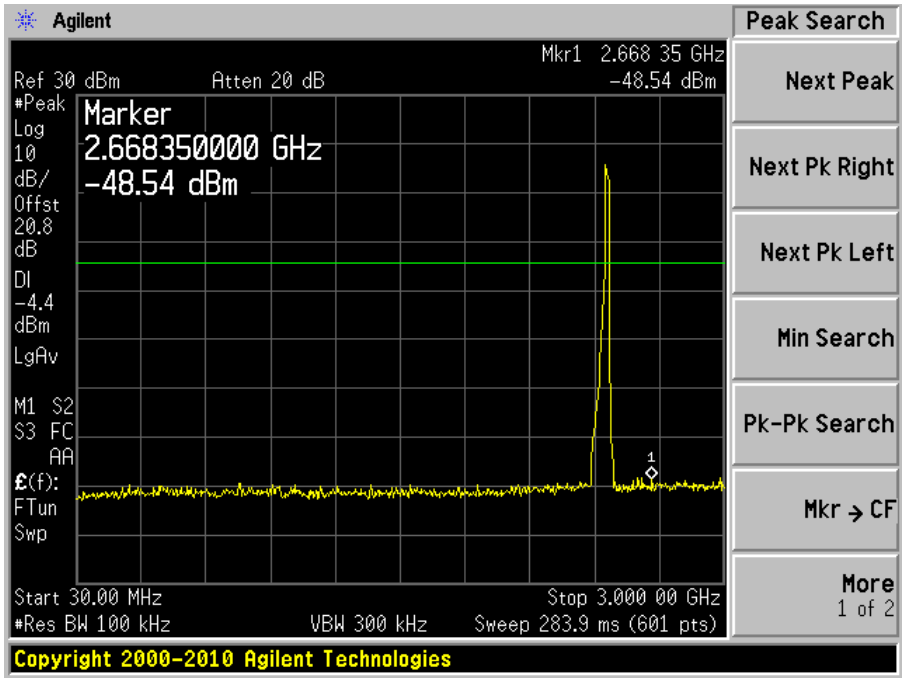


3 GHz – 25 GHz

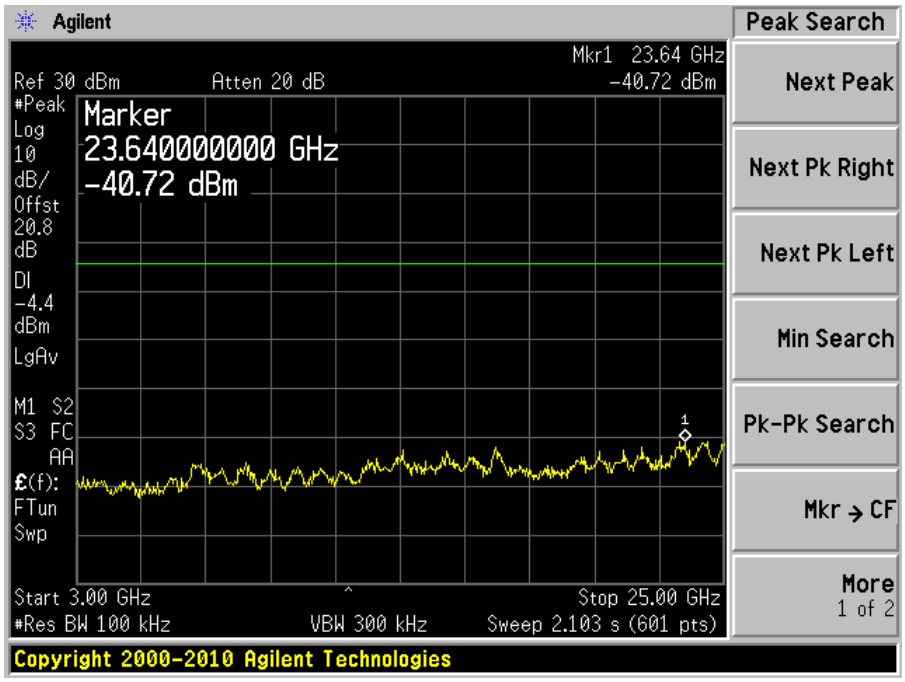


802.11g, High Channel 2462 MHz

30 MHz – 3 GHz

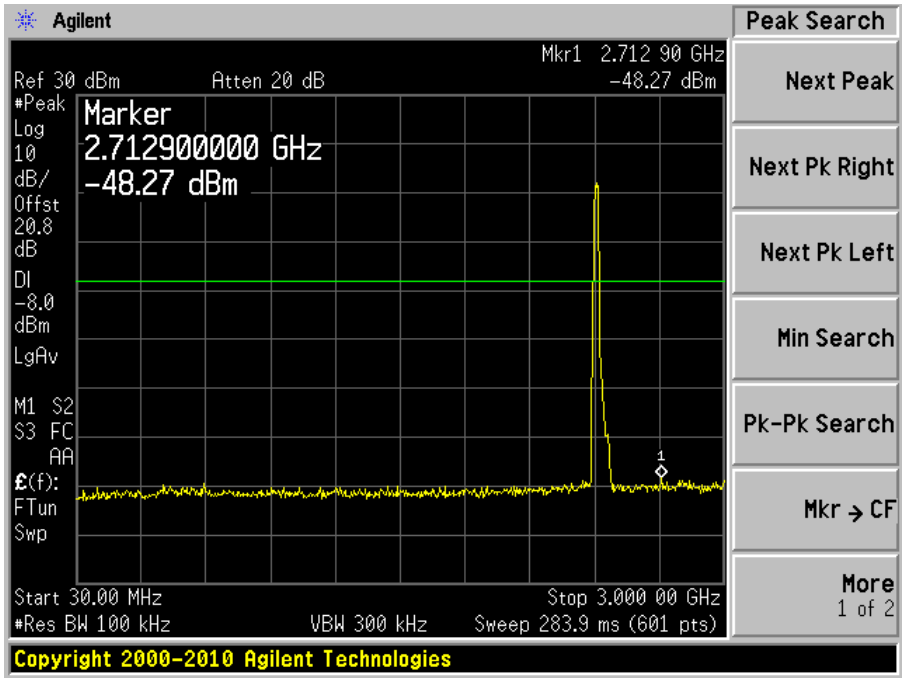


3 GHz – 25 GHz

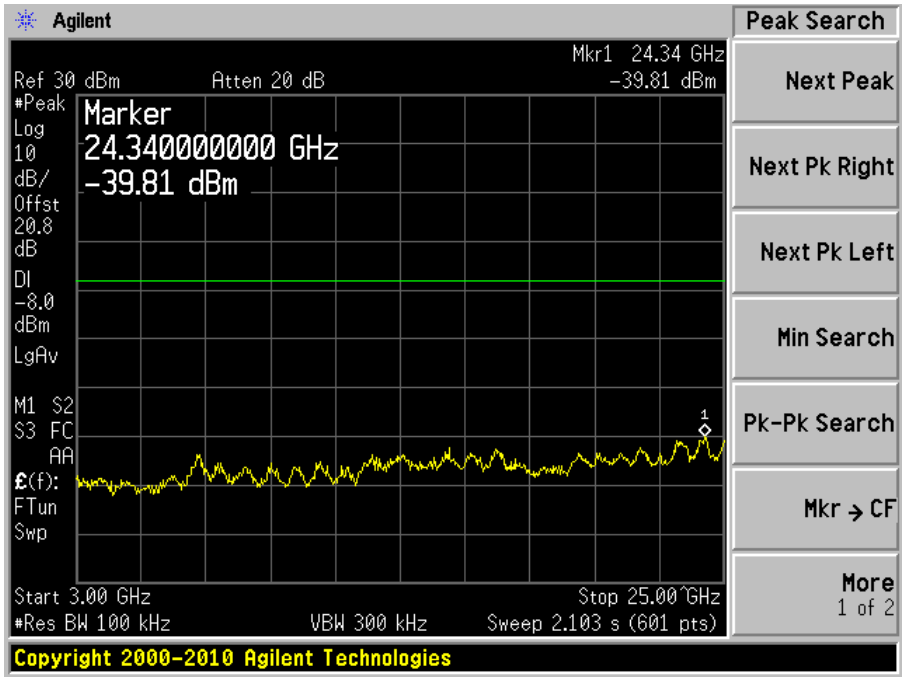


802.11n HT20, Low Channel 2412 MHz

30 MHz – 3 GHz

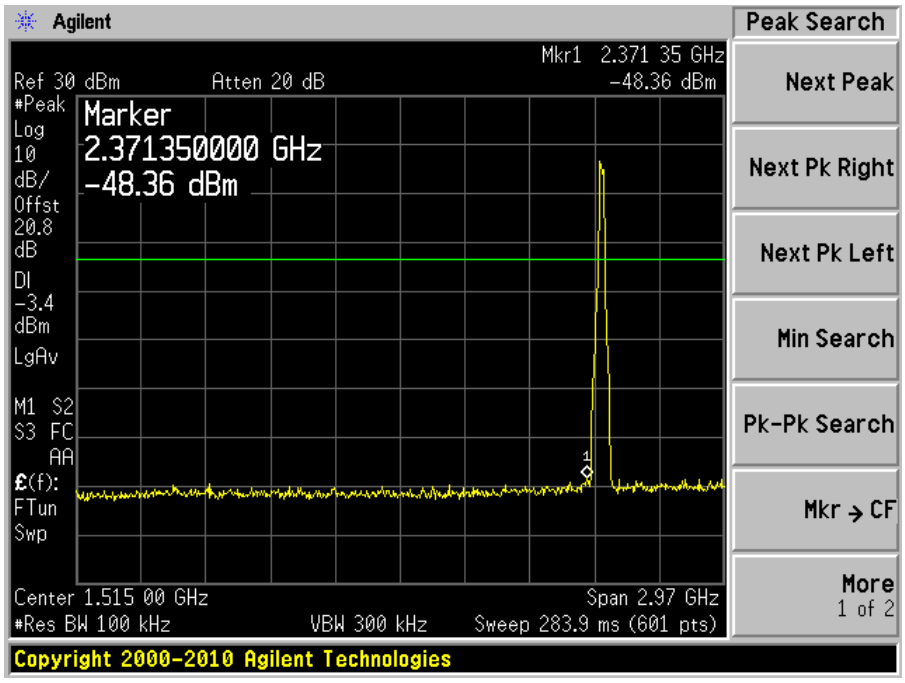


3 GHz – 25 GHz

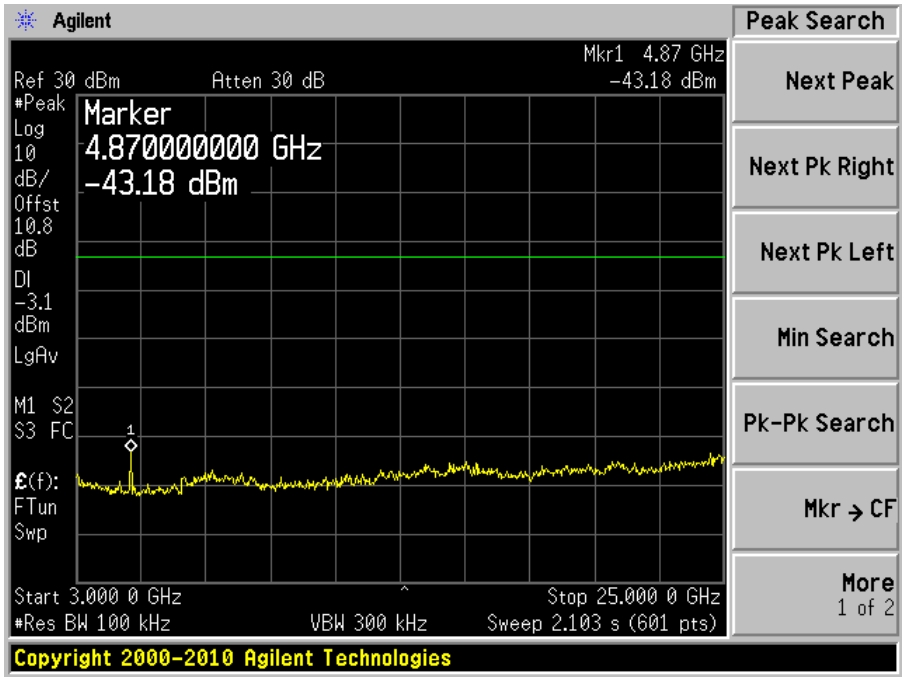


802.11n HT20, Middle Channel 2437 MHz

30 MHz – 3 GHz

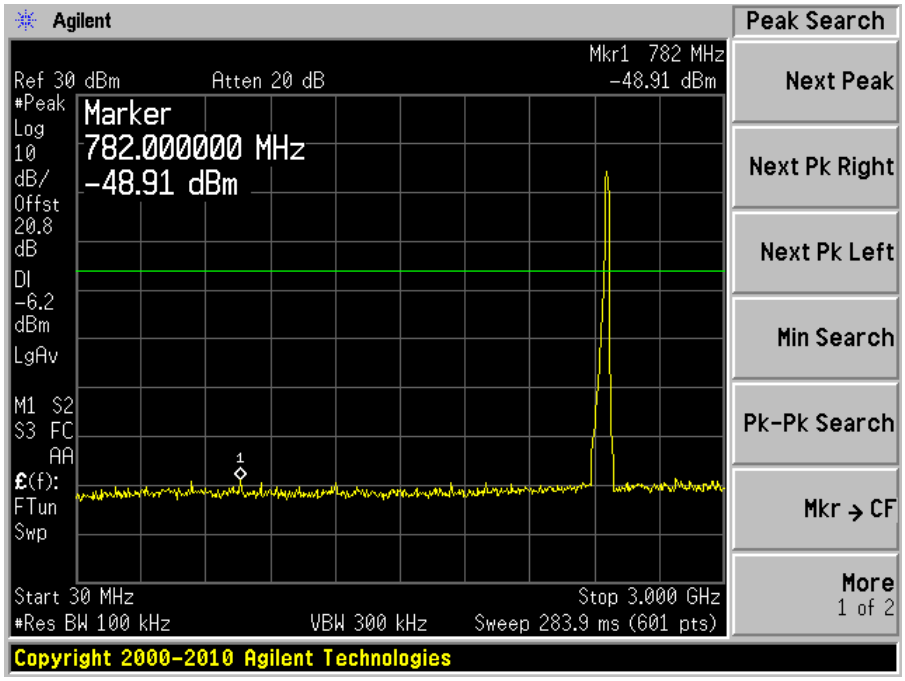


3 GHz – 25 GHz

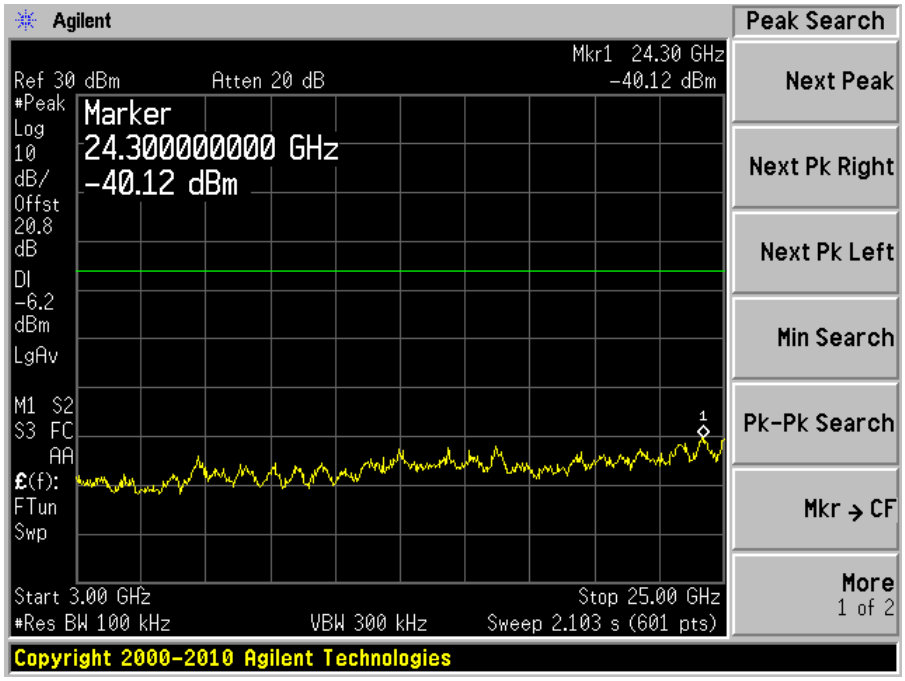


802.11n HT20, High Channel 2462 MHz

30 MHz – 3 GHz

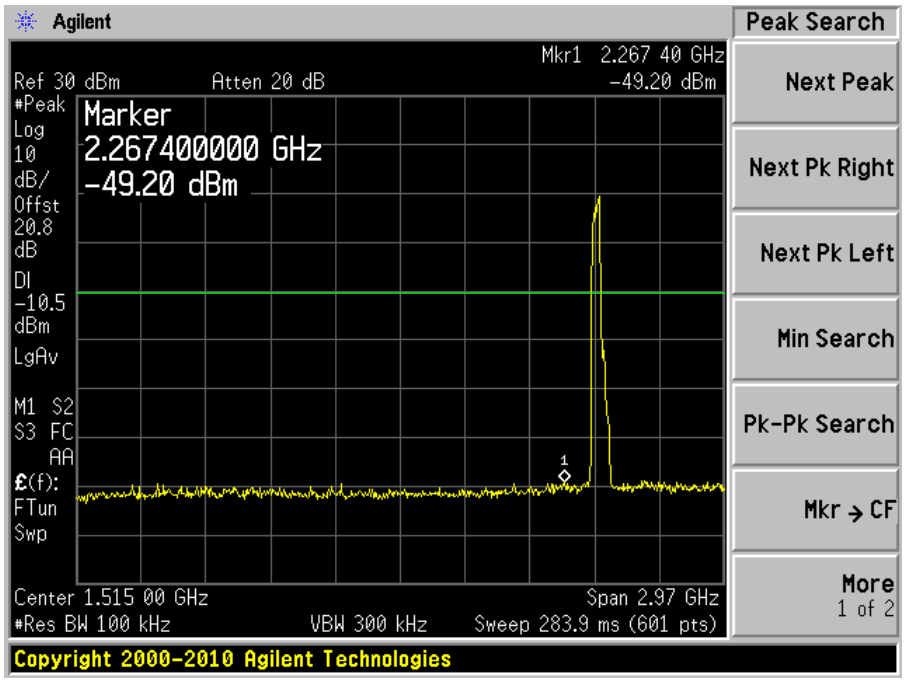


3 GHz – 25 GHz

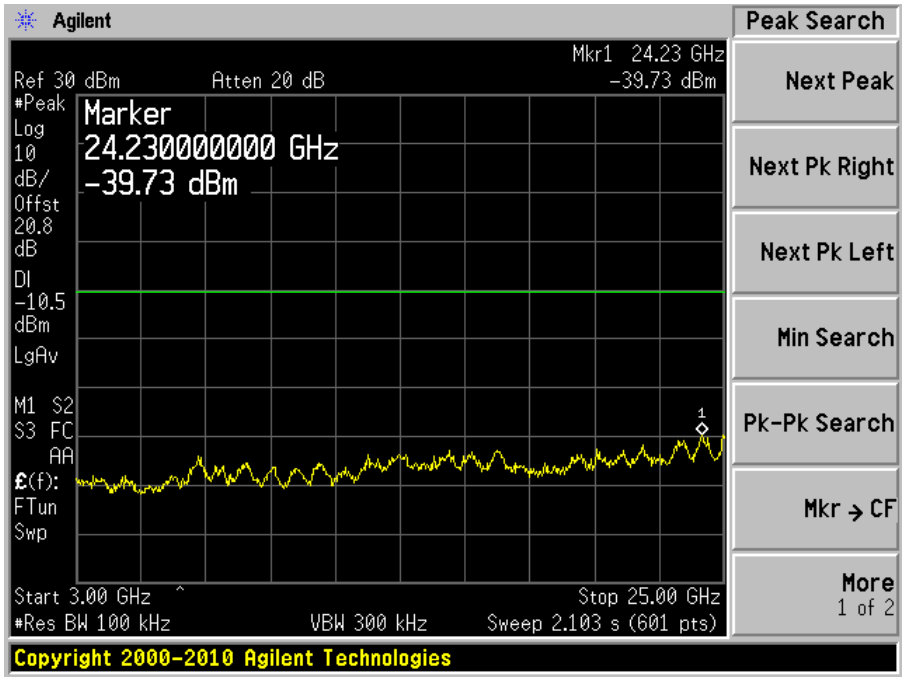


802.11n HT40, Low Channel 2422 MHz

30 MHz – 3 GHz

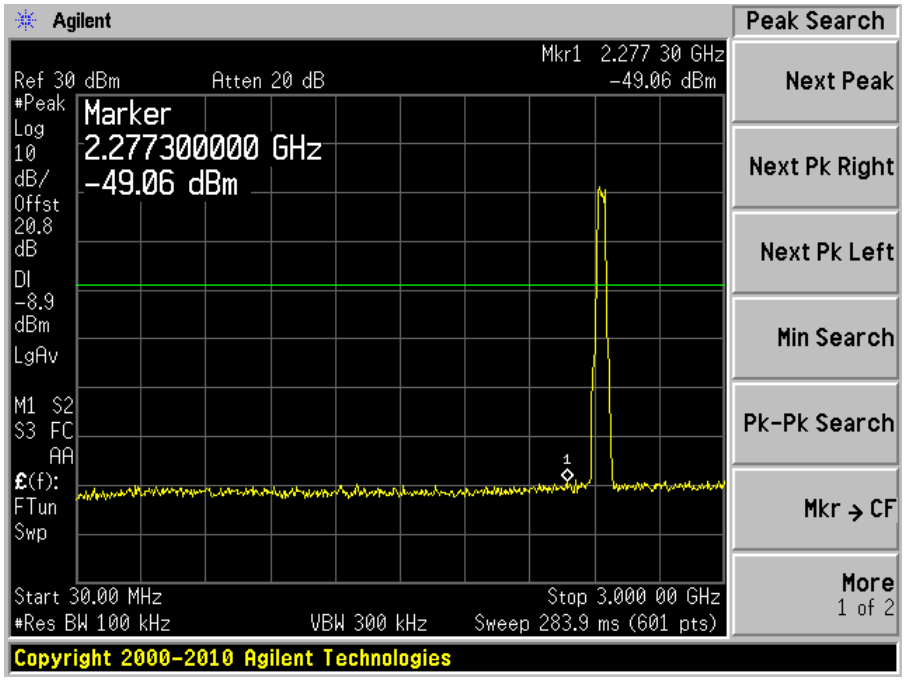


3 GHz – 25 GHz

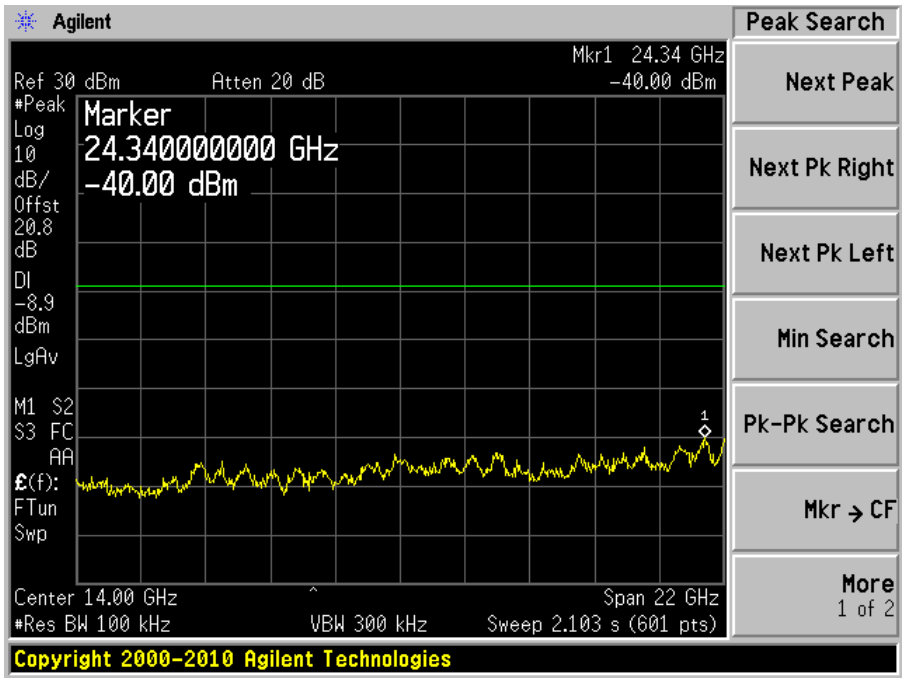


802.11n HT40, Middle Channel 2437 MHz

30 MHz – 3 GHz

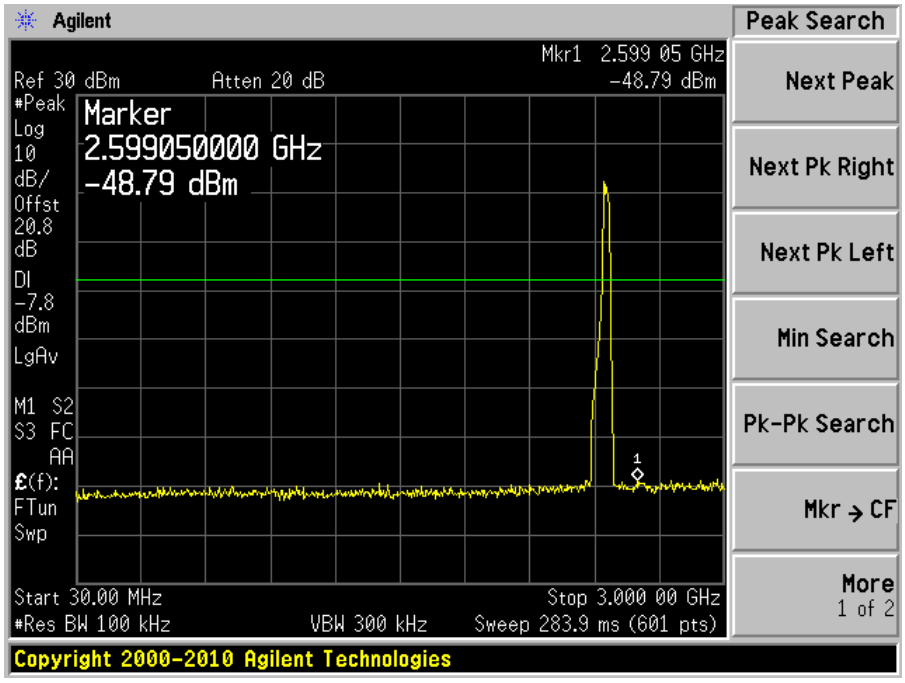


3 GHz – 25 GHz

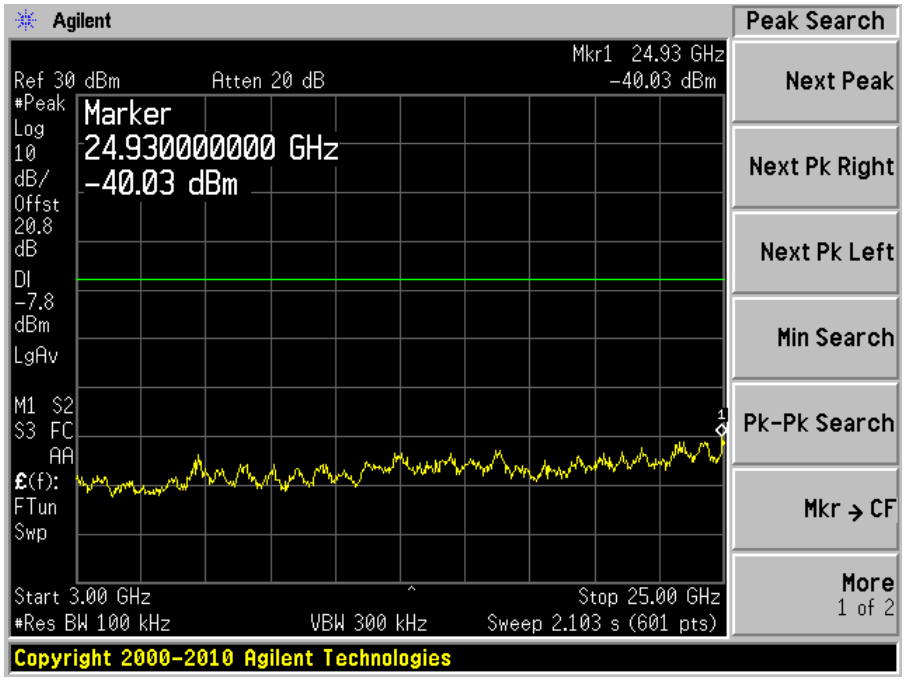


802.11n HT40, High Channel 2452 MHz

30 MHz – 3 GHz



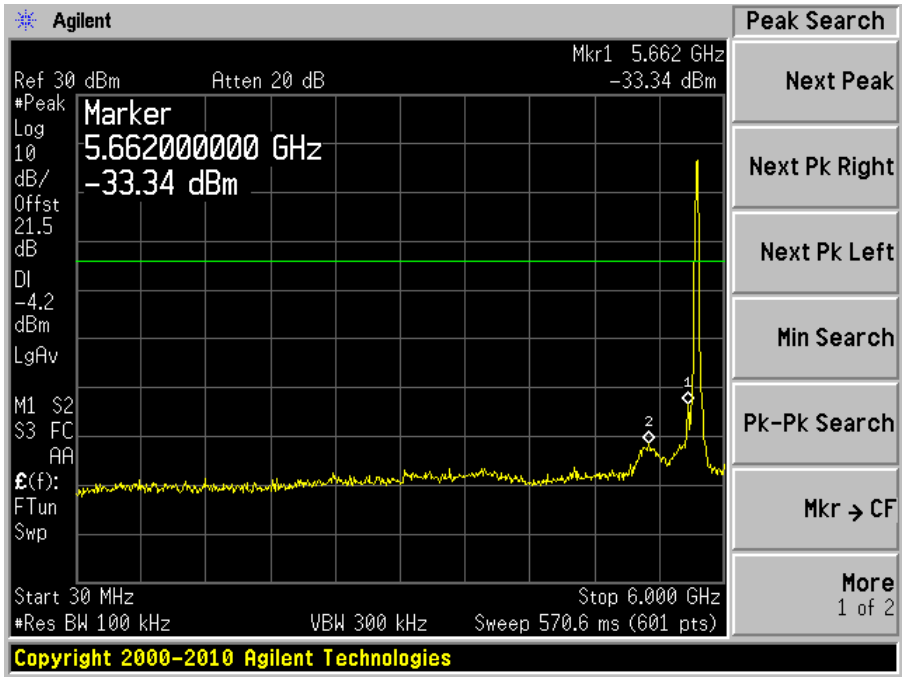
3 GHz – 25 GHz



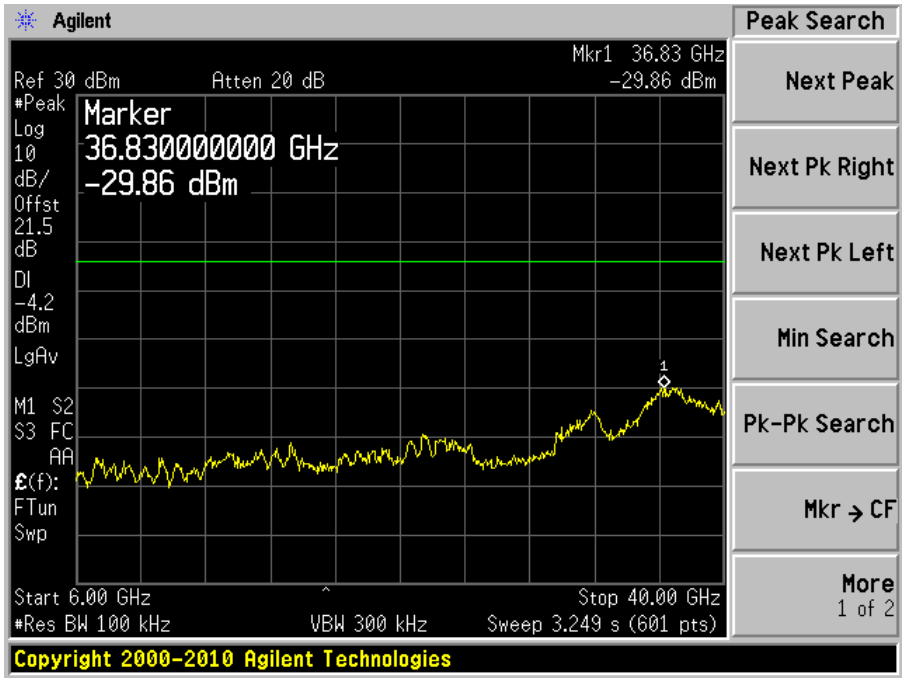
5725-5845 MHz

802.11a, Low Channel 5745 MHz

30 MHz – 6 GHz

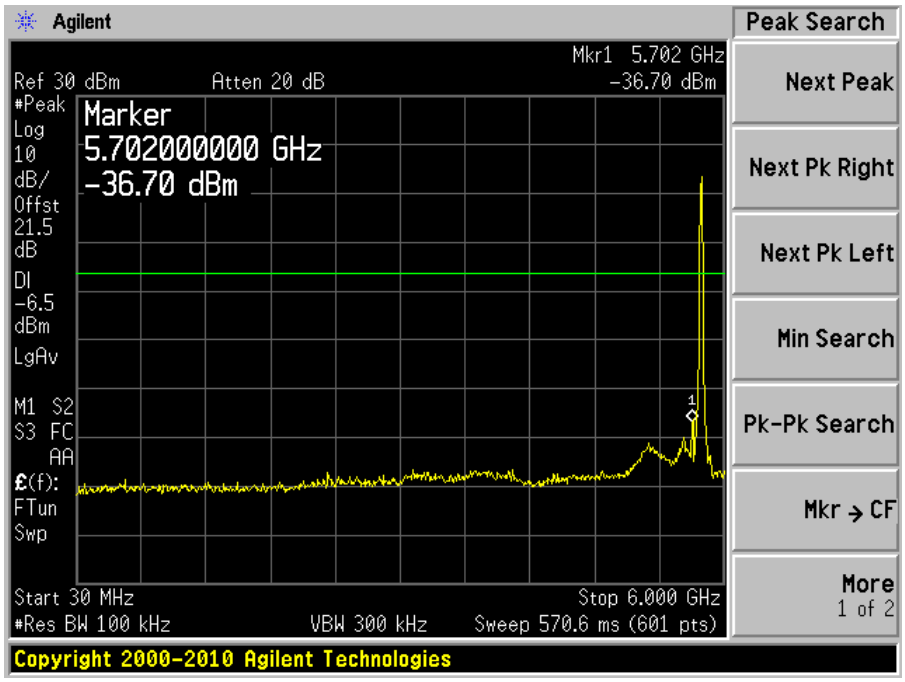


6 GHz – 40 GHz

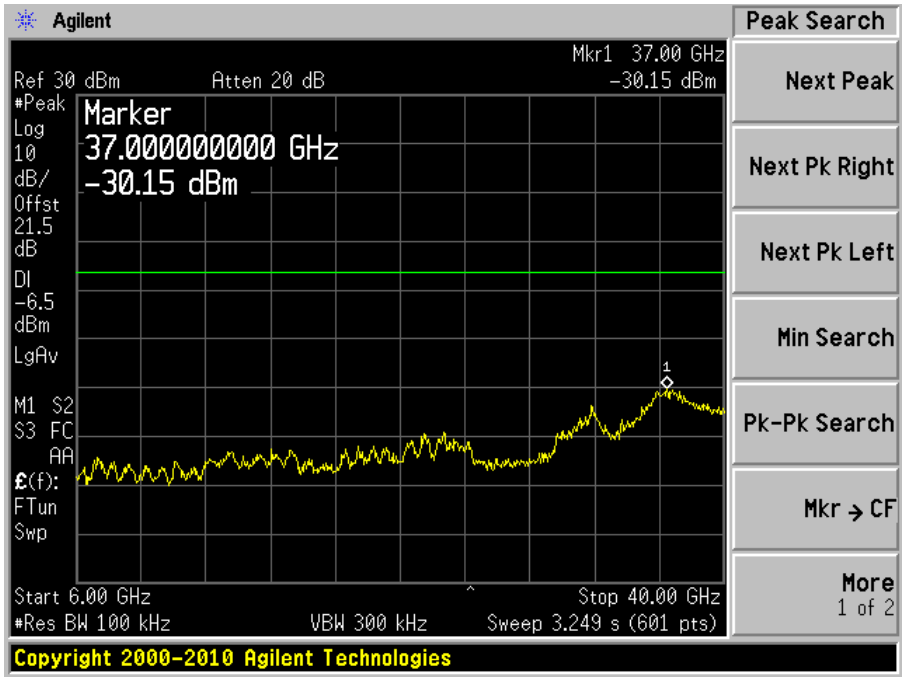


802.11a, Middle Channel 5785 MHz

30 MHz – 6 GHz

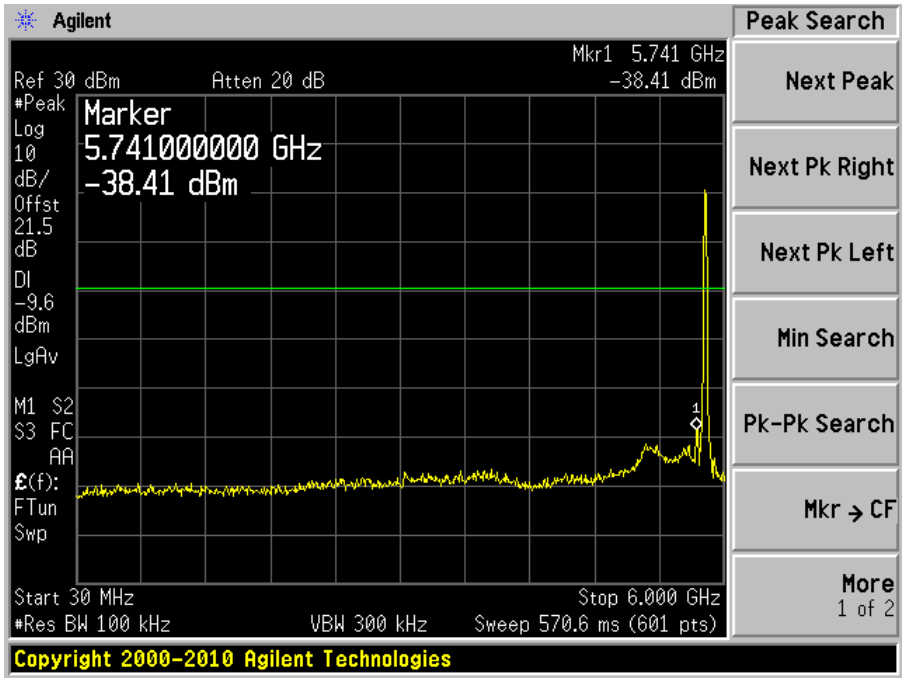


6 GHz – 40 GHz

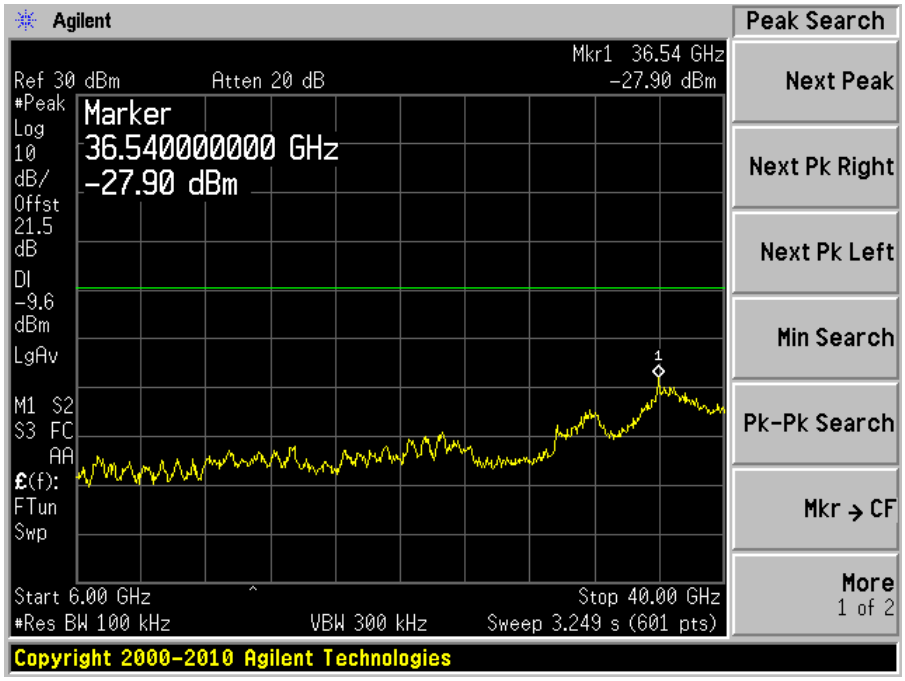


802.11a, High Channel 5825 MHz

30 MHz – 6 GHz

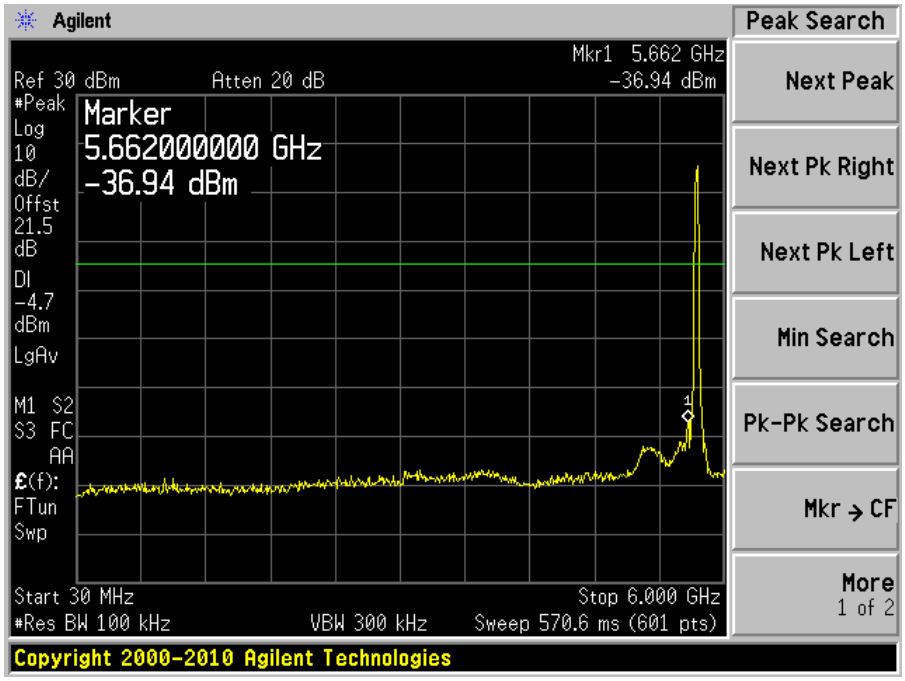


6 GHz – 40 GHz

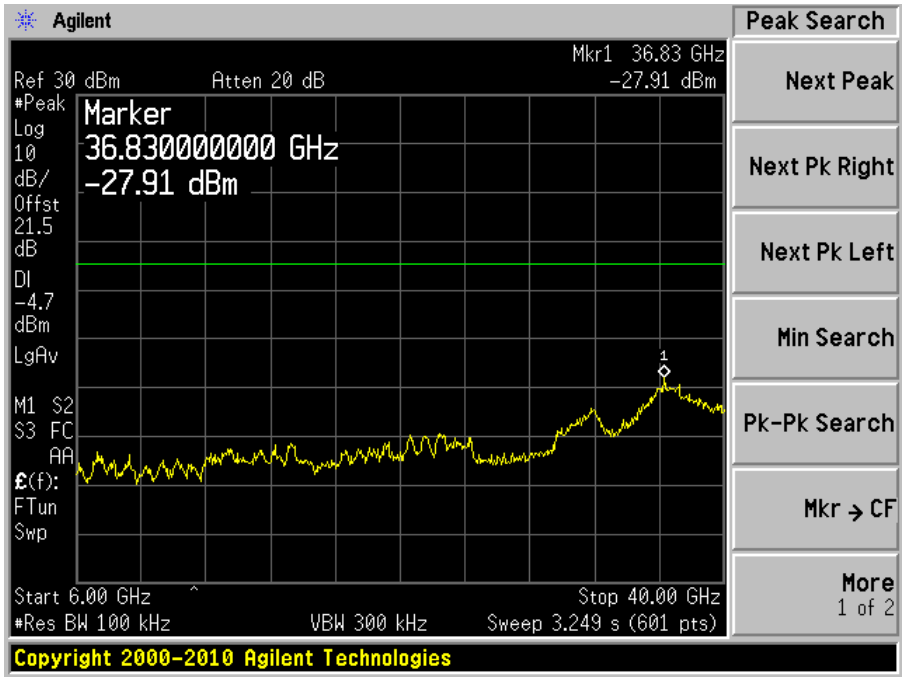


802.11n HT20, Low Channel 5745 MHz

30 MHz – 6 GHz

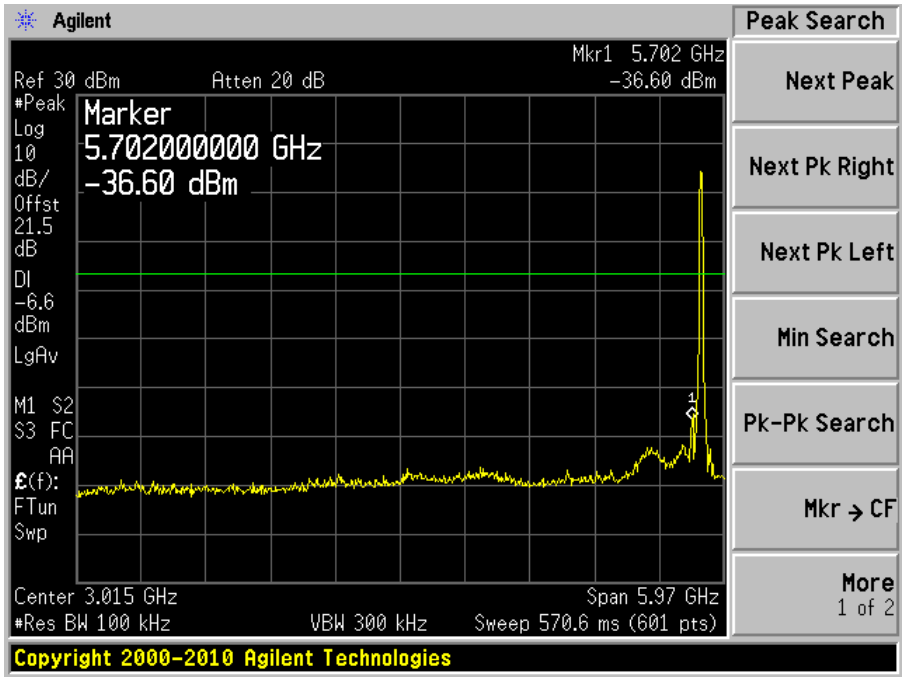


6 GHz – 40 GHz

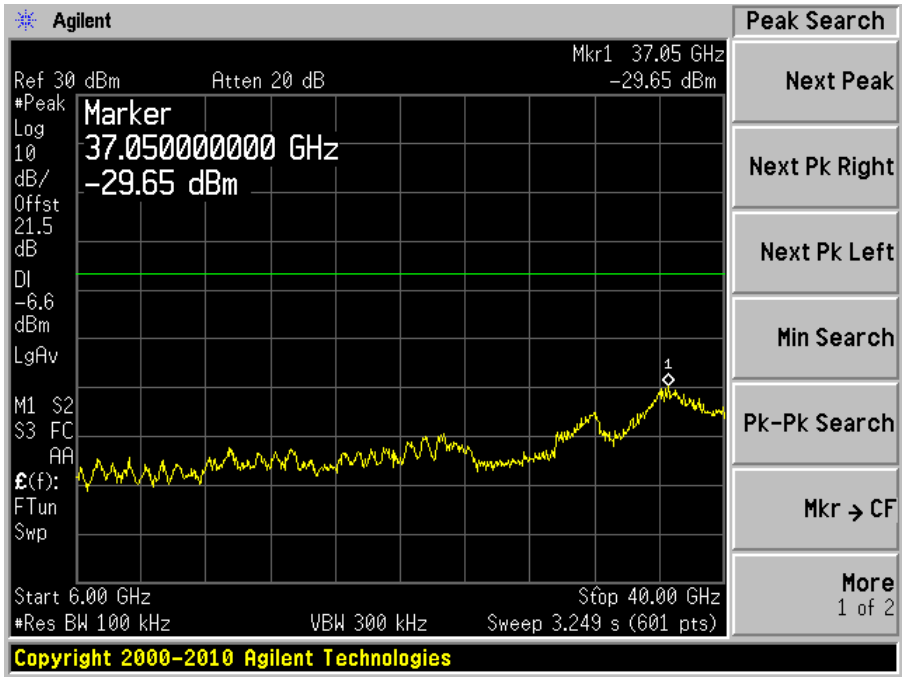


802.11n HT20, Middle Channel 5785 MHz

30 MHz – 6 GHz

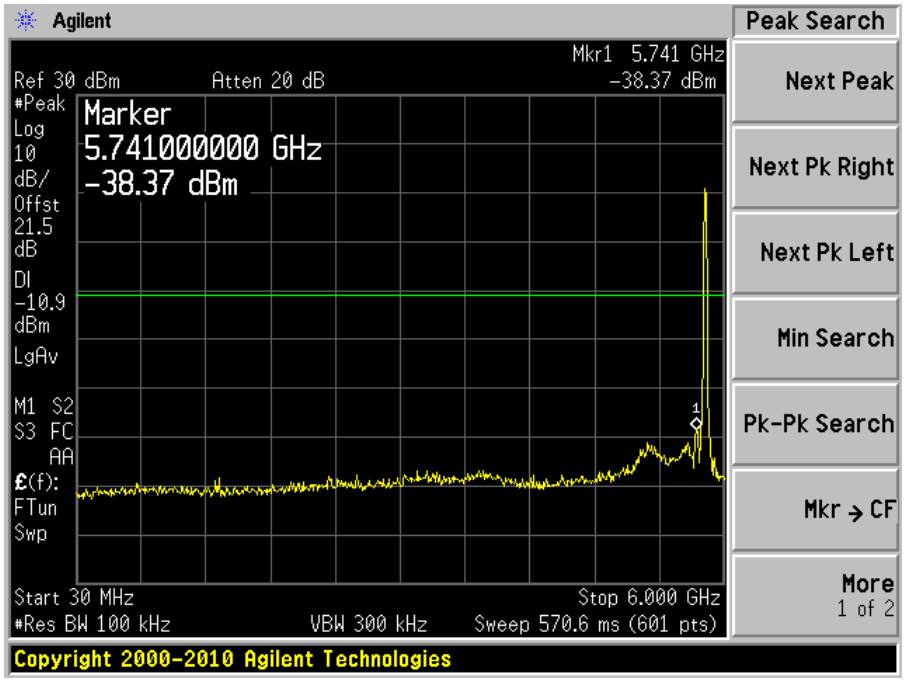


3 GHz – 25 GHz

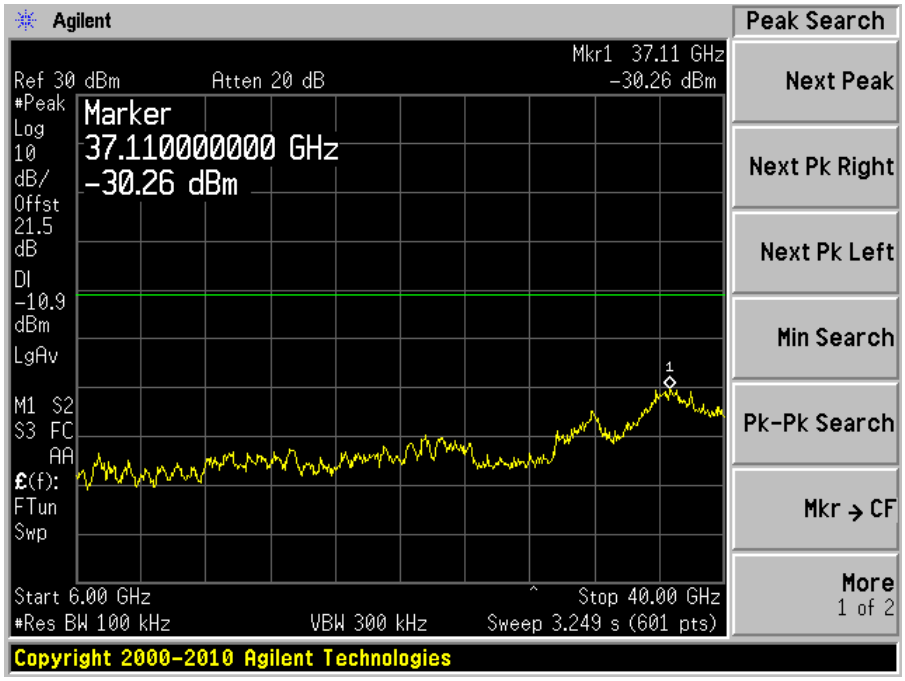


802.11n HT20, High Channel 5825 MHz

30 MHz – 6 GHz

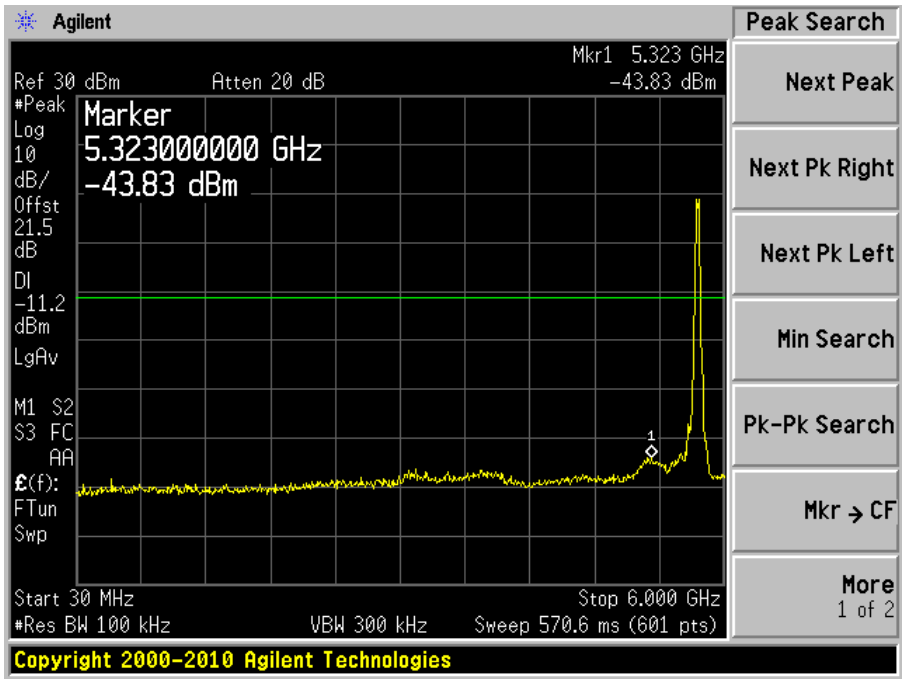


6 GHz – 40 GHz

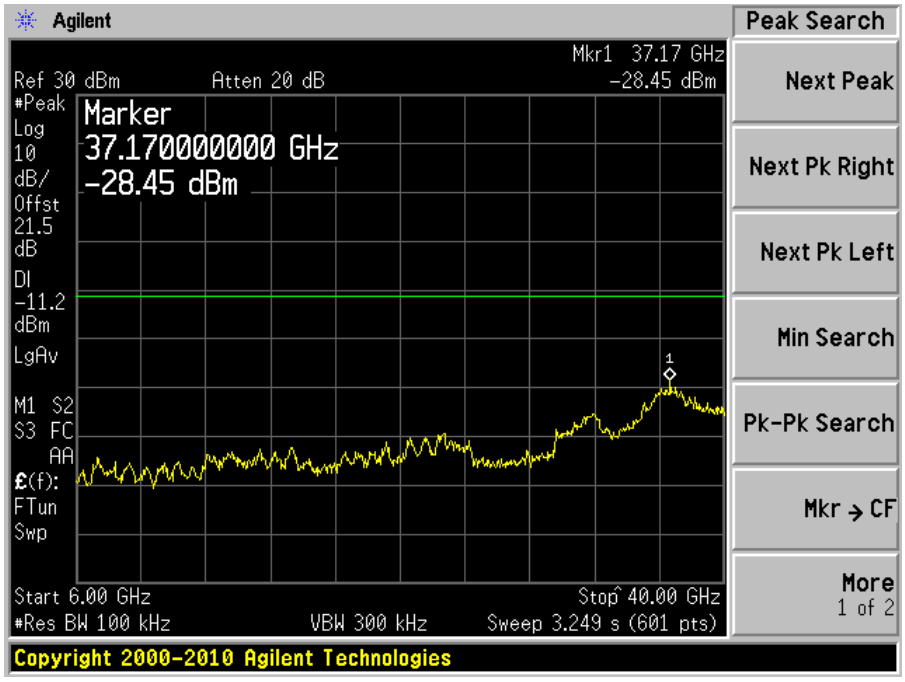


802.11n HT40, Low Channel 5755 MHz

30 MHz – 6 GHz

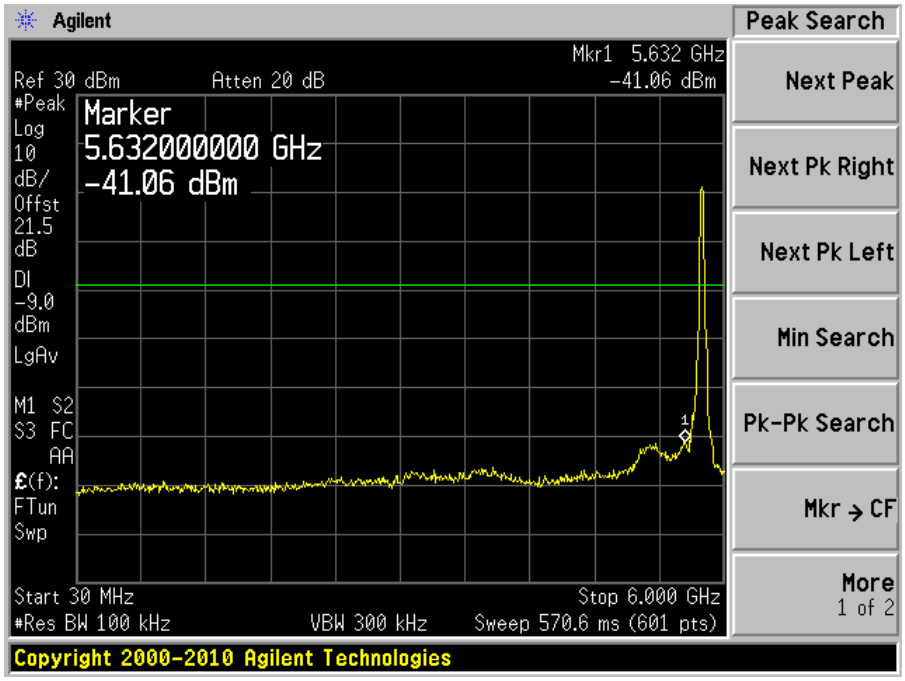


6 GHz – 40 GHz

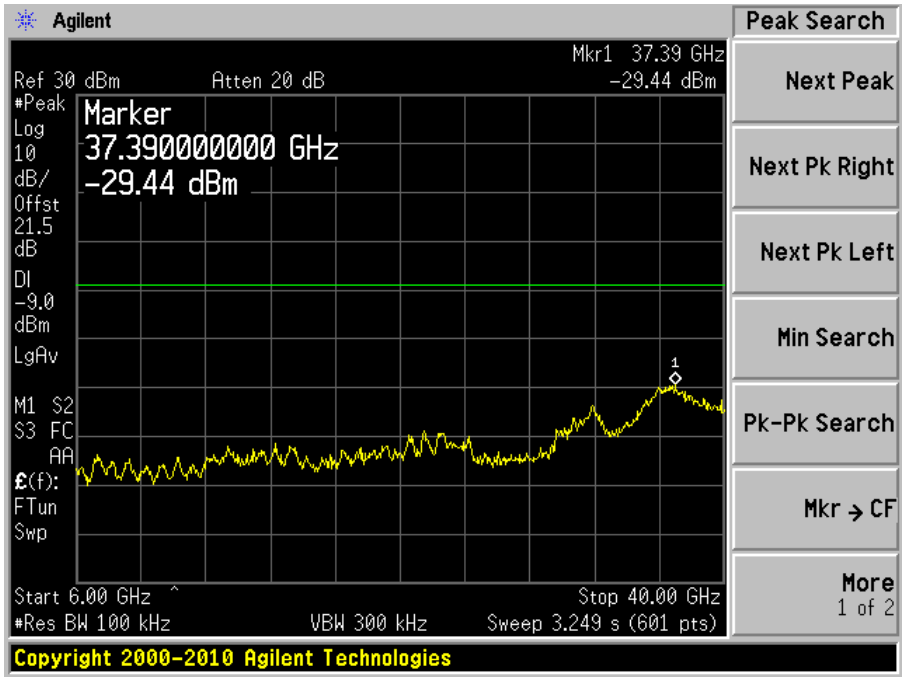


802.11n HT40, High Channel 5795 MHz

30 MHz – 6 GHz



6 GHz – 40 GHz



8 FCC §15.205, §15.209 & §15.247(d) & IC RSS-210 §A8.5 – Spurious Radiated Emissions

8.1 Applicable Standard

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) and RSS-210: 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**	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 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:

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		

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).

As per IC RSS-210 A8.5 Out-of-band Emissions, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

8.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.4-2009. The specification used was the FCC 15 Subpart C and IC RSS-210 limits.

The spacing between the peripherals was 3 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 (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within 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 - Limit

8.5 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Cycle
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year
Sunol Science Corp	System Controller	SC99V	122303-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2012-06-18	1 Year
Hewlett Packard	Pre-amplifier	8447D	2944A10187	2012-06-08	1 Year
Mini-Circuits	Pre-amplifier	ZVA-183-S	667400960	2012-05-08	1 Year
Eaton	Horn antenna	96001	3/1/1907	2012-10-17	1 Year
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2013-03-28	1 year
Wisewave	Low Noise Amplifier	ALN-22093530-01	12263-01	2012-06-13	2 years
Wisewave	Horn Antenna	ARH-4223-02	10555-02	2010-06-14	3 years

Statement of Traceability: BACL *attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.*

8.6 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	45-48 %
ATM Pressure:	101-102 kPa

The testing was performed by Wei Sun on 2013-05-01 in 5 meters 3.

8.7 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Title 47, Part 15C and IC RSS-210 standard's radiated emissions limits, and had the worst margin of:

30-1000 MHz:

2.4 GHz Band

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel, Antenna**
-15.49	108.669	Vertical	HT40 mode, high channel

5.8 GHz Band

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel, Antenna**
-18.96	108.6783	Vertical	HT20 mode, low channel

1 – 25 GHz:

2.4 GHz Band

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel, Antenna**
-11.756	4824	Vertical	B mode, low channel

1-40 GHz:

5.8 GHz Band

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel, Antenna**
-*	-*	-*	-*

*note: all the emissions are in the level of noise floor.

Please refer to the following table and plots for specific test result details

8.8 Radiated Emissions Test Data and Plots

1) 30 MHz – 1 GHz, Measured at 3 meters; termination method was used

2.4 GHz Band, Quasi-Peak Measurements

802.11b mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11b mode, Low Channel						
992.5498	23.06	380	V	42	54	-30.94
128.849	11.85	206	V	17	43.5	-31.65
802.11b mode, Middle Channel						
999.913	22.99	392	H	153	54	-31.01
118.3463	11.65	402	V	54	43.5	-31.85
802.11b mode, High Channel						
968.405	24.62	137	V	111	54	-29.38
108.66	14.16	196	V	61	43.5	-29.34

802.11g mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11g mode, Low Channel						
993.21	24.76	198	V	217	54	-29.24
105.66	14.19	126	V	44	43.5	-29.31
802.11g mode, Middle Channel						
961.5358	22.85	282	V	185	54	-31.15
126.877	12.45	350	V	137	43.5	-31.05
802.11g mode, High Channel						
74.873	5.59	369	V	201	40	-34.41
131.267	15.02	121	V	18	43.5	-28.48

802.11n HT20 mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11n HT20 mode, Low Channel						
967.3648	19.04	274	H	173	54	-34.96
325.0005	28.77	100	H	248	46	-17.23
802.11n HT20 mode, Middle Channel						
966.3853	18.94	144	V	181	54	-35.06
324.999	28.81	100	H	56	46	-17.19
802.11n HT20 mode, High Channel						
607.7265	14.55	290	H	291	46	-31.45
324.9895	29.25	100	H	60	46	-16.75

802.11n HT40 mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11n HT40 mode, Low Channel						
116.2733	15.05	131	V	181	43.5	-28.45
802.11n HT40 mode, Middle Channel						
171.5693	9.82	H	140	18	43.5	-33.68
802.11n HT40 mode, High Channel						
108.669	28.01	142	V	187	43.5	-15.49

5.8 GHz Band, Quasi-Peak Measurements

802.11a mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11a mode, Low Channel						
149.928	12.66	156	V	338	43.5	-30.84
802.11a mode, Middle Channel						
37.51525	18.98	157	V	171	40	-21.02
802.11a mode, High Channel						
134.275	20.61	217	H	28	43.5	-22.89

802.11n HT20 mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11n HT20 mode, Low Channel						
108.6783	24.54	100	V	160	43.5	-18.96
802.11n HT20 mode, Middle Channel						
324.88	26.42	173	H	321	46	-19.58
802.11n HT20 mode, High Channel						
108.6123	22.92	104	V	234	43.5	-20.58

802.11n HT40 mode

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)
802.11n HT40 mode, Low Channel						
108.3945	18.86	126	V	138	43.5	-24.64
802.11n HT40 mode, High Channel						
399.976	26.31	172	V	272	46	-19.69

2) 1–25 GHz, Measured at 3 meters; termination method was used

2.4 GHz Band

802.11b mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
4824	38.15	191	100	V	33.08	4.06	27.70	47.594	74	-26.406	Peak
4824	34.86	200	100	H	33.08	4.06	27.70	44.304	74	-29.696	Peak
4824	32.8	191	100	V	33.08	4.06	27.70	42.244	54	-11.756	Ave
4824	25.4	200	100	H	33.08	4.06	27.70	34.844	54	-19.156	Ave
7236	30*	0	100	V	35.93	4.93	27.6	43.278	74	-30.722	Peak
7236	30*	0	100	H	35.93	4.93	27.6	43.278	74	-30.722	Peak
7236	18*	0	100	V	35.93	4.93	27.6	31.278	54	-22.722	Ave
7236	18*	0	100	H	35.93	4.93	27.6	31.278	54	-22.722	Ave
9648	30*	0	100	V	37.95	5.82	27.06	46.706	74	-27.294	Peak
9648	30*	0	100	H	37.95	5.82	27.06	46.706	74	-27.294	Peak
9648	18*	0	100	V	37.95	5.82	27.06	34.706	54	-19.294	Ave
9648	18*	0	100	H	37.95	5.82	27.06	34.706	54	-19.294	Ave
Middle Channel 2437 MHz, measured at 3 meters											
4874	36.13	203	100	V	33.33	4.10	27.8	45.797	74	-28.203	Peak
4874	34.47	200	100	H	33.33	4.10	27.8	44.137	74	-29.863	Peak
4874	29.82	203	100	V	33.33	4.10	27.8	39.487	54	-14.513	Ave
4874	26.61	200	100	H	33.33	4.10	27.8	36.277	54	-17.723	Ave
7311	30*	0	100	V	36.36	4.88	27.5	43.727	74	-30.273	Peak
7311	30*	0	100	H	36.36	4.88	27.5	43.727	74	-30.273	Peak
7311	18*	0	100	V	36.36	4.88	27.5	31.727	54	-22.273	Ave
7311	18*	0	100	H	36.36	4.88	27.5	31.727	54	-22.273	Ave
9748	30*	0	100	V	38.06	5.74	30.0	43.817	74	-30.183	Peak
9748	30*	0	100	H	38.06	5.74	30.0	43.817	74	-30.183	Peak
9748	18*	0	100	V	38.06	5.74	30.0	31.817	54	-22.183	Ave
9748	18*	0	100	H	38.06	5.74	30.0	31.817	54	-22.183	Ave

* Note: all the readings are in the level of noise floor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz, measured at 3 meters											
4924	34.74	306	100	V	33.33	4.10	27.8	44.417	74	-29.583	Peak
4924	35.76	310	100	H	33.33	4.10	27.8	45.437	74	-28.563	Peak
4924	27.28	306	100	V	33.33	4.10	27.8	36.957	54	-17.043	Ave
4924	29.26	310	100	H	33.33	4.10	27.8	38.937	54	-15.063	Ave
7386	30*	0	100	V	36.51	4.89	27.5	43.885	74	-30.115	Peak
7386	30*	0	100	H	36.51	4.89	27.5	43.885	74	-30.115	Peak
7386	18*	0	100	V	36.51	4.89	27.5	31.885	54	-22.115	Ave
7386	18*	0	100	H	36.51	4.89	27.5	31.885	54	-22.115	Ave
9848	30*	0	100	V	38.29	5.77	27.0	47.077	74	-26.923	Peak
9848	30*	0	100	H	38.29	5.77	27.0	47.077	74	-26.923	Peak
9848	18*	0	100	V	38.29	5.77	27.0	35.077	54	-18.923	Ave
9848	18*	0	100	H	38.29	5.77	27.0	35.077	54	-18.923	Ave

* Note: all the readings are in the level of noise floor

802.11g mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
4824	30*	0	100	V	33.08	4.06	27.70	39.444	74	-34.556	Peak
4824	30*	0	100	H	33.08	4.06	27.70	39.444	74	-34.556	Peak
4824	18*	0	100	V	33.08	4.06	27.70	27.444	54	-26.556	Ave
4824	18*	0	100	H	33.08	4.06	27.70	27.444	54	-26.556	Ave
7236	30*	0	100	V	35.93	4.93	27.6	43.278	74	-30.722	Peak
7236	30*	0	100	H	35.93	4.93	27.6	43.278	74	-30.722	Peak
7236	18*	0	100	V	35.93	4.93	27.6	31.278	54	-22.722	Ave
7236	18*	0	100	H	35.93	4.93	27.6	31.278	54	-22.722	Ave
9648	30*	0	100	V	37.95	5.82	27.06	46.706	74	-27.294	Peak
9648	30*	0	100	H	37.95	5.82	27.06	46.706	74	-27.294	Peak
9648	18*	0	100	V	37.95	5.82	27.06	34.706	54	-19.294	Ave
9648	18*	0	100	H	37.95	5.82	27.06	34.706	54	-19.294	Ave
Middle Channel 2437 MHz, measured at 3 meters											
4874	30*	0	100	V	33.33	4.10	27.8	39.667	74	-34.333	Peak
4874	30*	0	100	H	33.33	4.10	27.8	39.667	74	-34.333	Peak
4874	18*	0	100	V	33.33	4.10	27.8	27.667	54	-26.333	Ave
4874	18*	0	100	H	33.33	4.10	27.8	27.667	54	-26.333	Ave
7311	30*	0	100	V	36.36	4.88	27.5	43.727	74	-30.273	Peak
7311	30*	0	100	H	36.36	4.88	27.5	43.727	74	-30.273	Peak
7311	18*	0	100	V	36.36	4.88	27.5	31.727	54	-22.273	Ave
7311	18*	0	100	H	36.36	4.88	27.5	31.727	54	-22.273	Ave
9748	30*	0	100	V	38.06	5.74	30.0	43.817	74	-30.183	Peak
9748	30*	0	100	H	38.06	5.74	30.0	43.817	74	-30.183	Peak
9748	18*	0	100	V	38.06	5.74	30.0	31.817	54	-22.183	Ave
9748	18*	0	100	H	38.06	5.74	30.0	31.817	54	-22.183	Ave

* Note: all the readings are in the level of noise floor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz, measured at 3 meters											
4924	30*	0	100	V	33.33	4.10	27.8	39.677	74	-34.323	Peak
4924	30*	0	100	H	33.33	4.10	27.8	39.677	74	-34.323	Peak
4924	18*	0	100	V	33.33	4.10	27.8	27.677	54	-26.323	Ave
4924	18*	0	100	H	33.33	4.10	27.8	27.677	54	-26.323	Ave
7386	30*	0	100	V	36.51	4.89	27.5	43.885	74	-30.115	Peak
7386	30*	0	100	H	36.51	4.89	27.5	43.885	74	-30.115	Peak
7386	18*	0	100	V	36.51	4.89	27.5	31.885	54	-22.115	Ave
7386	18*	0	100	H	36.51	4.89	27.5	31.885	54	-22.115	Ave
9848	30*	0	100	V	38.29	5.77	27.0	47.077	74	-26.923	Peak
9848	30*	0	100	H	38.29	5.77	27.0	47.077	74	-26.923	Peak
9848	18*	0	100	V	38.29	5.77	27.0	35.077	54	-18.923	Ave
9848	18*	0	100	H	38.29	5.77	27.0	35.077	54	-18.923	Ave

* Note: all the readings are in the level of noise floor

802.11n HT20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2412 MHz, measured at 3 meters											
4824	30*	0	100	V	33.08	4.06	27.70	39.444	74	-34.556	Peak
4824	30*	0	100	H	33.08	4.06	27.70	39.444	74	-34.556	Peak
4824	18*	0	100	V	33.08	4.06	27.70	27.444	54	-26.556	Ave
4824	18*	0	100	H	33.08	4.06	27.70	27.444	54	-26.556	Ave
7236	30*	0	100	V	35.93	4.93	27.6	43.278	74	-30.722	Peak
7236	30*	0	100	H	35.93	4.93	27.6	43.278	74	-30.722	Peak
7236	18*	0	100	V	35.93	4.93	27.6	31.278	54	-22.722	Ave
7236	18*	0	100	H	35.93	4.93	27.6	31.278	54	-22.722	Ave
9648	30*	0	100	V	37.95	5.82	27.06	46.706	74	-27.294	Peak
9648	30*	0	100	H	37.95	5.82	27.06	46.706	74	-27.294	Peak
9648	18*	0	100	V	37.95	5.82	27.06	34.706	54	-19.294	Ave
9648	18*	0	100	H	37.95	5.82	27.06	34.706	54	-19.294	Ave
Middle Channel 2437 MHz, measured at 3 meters											
4874	30*	0	100	V	33.33	4.10	27.8	39.667	74	-34.333	Peak
4874	30*	0	100	H	33.33	4.10	27.8	39.667	74	-34.333	Peak
4874	18*	0	100	V	33.33	4.10	27.8	27.667	54	-26.333	Ave
4874	18*	0	100	H	33.33	4.10	27.8	27.667	54	-26.333	Ave
7311	30*	0	100	V	36.36	4.88	27.5	43.727	74	-30.273	Peak
7311	30*	0	100	H	36.36	4.88	27.5	43.727	74	-30.273	Peak
7311	18*	0	100	V	36.36	4.88	27.5	31.727	54	-22.273	Ave
7311	18*	0	100	H	36.36	4.88	27.5	31.727	54	-22.273	Ave
9748	30*	0	100	V	38.06	5.74	30.0	43.817	74	-30.183	Peak
9748	30*	0	100	H	38.06	5.74	30.0	43.817	74	-30.183	Peak
9748	18*	0	100	V	38.06	5.74	30.0	31.817	54	-22.183	Ave
9748	18*	0	100	H	38.06	5.74	30.0	31.817	54	-22.183	Ave

* Note: all the readings are in the level of noise floor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2462 MHz, measured at 3 meters											
4924	30*	0	100	V	33.33	4.10	27.8	39.677	74	-34.323	Peak
4924	30*	0	100	H	33.33	4.10	27.8	39.677	74	-34.323	Peak
4924	18*	0	100	V	33.33	4.10	27.8	27.677	54	-26.323	Ave
4924	18*	0	100	H	33.33	4.10	27.8	27.677	54	-26.323	Ave
7386	30*	0	100	V	36.51	4.89	27.5	43.885	74	-30.115	Peak
7386	30*	0	100	H	36.51	4.89	27.5	43.885	74	-30.115	Peak
7386	18*	0	100	V	36.51	4.89	27.5	31.885	54	-22.115	Ave
7386	18*	0	100	H	36.51	4.89	27.5	31.885	54	-22.115	Ave
9848	30*	0	100	V	38.29	5.77	27.0	47.077	74	-26.923	Peak
9848	30*	0	100	H	38.29	5.77	27.0	47.077	74	-26.923	Peak
9848	18*	0	100	V	38.29	5.77	27.0	35.077	54	-18.923	Ave
9848	18*	0	100	H	38.29	5.77	27.0	35.077	54	-18.923	Ave

* Note: all the readings are in the level of noise floor

802.11n HT40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 2422 MHz, measured at 3 meters											
4844	30*	0	100	V	32.58	4.56	27.7	39.440	74	-34.560	Peak
4844	30*	0	100	H	32.58	4.56	27.7	39.440	74	-34.560	Peak
4844	18*	0	100	V	32.58	4.56	27.7	27.440	54	-26.560	Ave
4844	18*	0	100	H	32.58	4.56	27.7	27.440	54	-26.560	Ave
7266	30*	0	100	V	36.61	5.49	27.56	44.540	74	-29.460	Peak
7266	30*	0	100	H	36.61	5.49	27.56	44.540	74	-29.460	Peak
7266	18*	0	100	V	36.61	5.49	27.56	32.540	54	-21.460	Ave
7266	18*	0	100	H	36.61	5.49	27.56	32.540	54	-21.460	Ave
9688	30*	0	100	V	37.18	6.56	26.98	46.760	74	-27.240	Peak
9688	30*	0	100	H	37.18	6.56	26.98	46.760	74	-27.240	Peak
9688	18*	0	100	V	37.18	6.56	26.98	34.760	54	-19.240	Ave
9688	18*	0	100	H	37.18	6.56	26.98	34.760	54	-19.240	Ave
Middle Channel 2437 MHz, measured at 3 meters											
4874	30*	0	100	V	32.75	4.54	27.22	40.070	74	-33.930	Peak
4874	30*	0	100	H	32.75	4.54	27.22	40.070	74	-33.930	Peak
4874	18*	0	100	V	32.75	4.54	27.22	28.070	54	-25.930	Ave
4874	18*	0	100	H	32.75	4.54	27.22	28.070	54	-25.930	Ave
7311	30*	0	100	V	36.61	5.57	27.51	44.670	74	-29.330	Peak
7311	30*	0	100	H	36.61	5.57	27.51	44.670	74	-29.330	Peak
7311	18*	0	100	V	36.61	5.57	27.51	32.670	54	-21.330	Ave
7311	18*	0	100	H	36.61	5.57	27.51	32.670	54	-21.330	Ave
9748	30*	0	100	V	37.18	6.62	26.98	46.820	74	-27.180	Peak
9748	30*	0	100	H	37.18	6.62	26.98	46.820	74	-27.180	Peak
9748	18*	0	100	V	37.18	6.62	26.98	34.820	54	-19.180	Ave
9748	18*	0	100	H	37.18	6.62	26.98	34.820	54	-19.180	Ave

* Note: all the readings are in the level of noise floor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 2452 MHz, measured at 3 meters											
4904	30*	0	100	V	32.75	4.52	27.75	39.520	74	-34.480	Peak
4904	30*	0	100	H	32.75	4.52	27.75	39.520	74	-34.480	Peak
4904	18*	0	100	V	32.75	4.52	27.75	27.520	54	-26.480	Ave
4904	18*	0	100	H	32.75	4.52	27.75	27.520	54	-26.480	Ave
7356	30*	0	100	V	36.51	5.62	27.57	44.560	74	-29.440	Peak
7356	30*	0	100	H	36.51	5.62	27.57	44.560	74	-29.440	Peak
7356	18*	0	100	V	36.51	5.62	27.57	32.560	54	-21.440	Ave
7356	18*	0	100	H	36.51	5.62	27.57	32.560	54	-21.440	Ave
9808	30*	0	100	V	37.3	6.58	27.02	46.860	74	-27.140	Peak
9808	30*	0	100	H	37.3	6.58	27.02	46.860	74	-27.140	Peak
9808	18*	0	100	V	37.3	6.58	27.02	34.860	54	-19.140	Ave
9808	18*	0	100	H	37.3	6.58	27.02	34.860	54	-19.140	Ave

* Note: all the readings are in the level of noise floor

3) 1–40 GHz, Measured at 3 meters

5.8 GHz Band

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5745 MHz, measured at 3 meters											
11490	30*	0	100	H	39.41	6.9	33.87	42.44	74	-31.56	Peak
11490	30*	0	100	V	39.41	6.9	33.87	42.44	74	-31.56	Peak
11490	18*	0	100	H	39.41	6.9	33.87	30.44	54	-23.56	Ave
11490	18*	0	100	V	39.41	6.9	33.87	30.44	54	-23.56	Ave
17235	30*	0	100	H	45.87	8.49	25.94	58.42	74	-15.58	Peak
17235	30*	0	100	V	45.87	8.49	25.94	58.42	74	-15.58	Peak
17235	18*	0	100	H	45.87	8.49	25.94	46.42	54	-7.58	Ave
17235	18*	0	100	V	45.87	8.49	25.94	46.42	54	-7.58	Ave
22980	30*	0	100	H	34.72	9.74	28.9	45.56	74	-28.44	Peak
22980	30*	0	100	V	34.72	9.74	28.9	45.56	74	-28.44	Peak
22980	18*	0	100	H	34.72	9.74	28.9	33.56	54	-20.44	Ave
22980	18*	0	100	V	34.72	9.74	28.9	33.56	54	-20.44	Ave
Middle Channel 5785 MHz, measured at 3 meters											
11570	30*	0	100	H	40.14	6.14	26.99	49.29	74	-24.71	Peak
11570	30*	0	100	V	40.14	6.14	26.99	49.29	74	-24.71	Peak
11570	18*	0	100	H	40.14	6.14	26.99	37.29	54	-16.71	Ave
11570	18*	0	100	V	40.14	6.14	26.99	37.29	54	-16.71	Ave
17355	30*	0	100	H	45.87	8.49	25.86	58.5	74	-15.5	Peak
17355	30*	0	100	V	45.87	8.49	25.86	58.5	74	-15.5	Peak
17355	18*	0	100	H	45.87	8.49	25.86	46.5	54	-7.5	Ave
17355	18*	0	100	V	45.87	8.49	25.86	46.5	54	-7.5	Ave
23140	30*	0	100	H	34.64	9.74	28.8	45.58	74	-28.42	Peak
23140	30*	0	100	V	34.64	9.74	28.8	45.58	74	-28.42	Peak
23140	18*	0	100	H	34.64	9.74	28.8	33.58	54	-20.42	Ave
23140	18*	0	100	V	34.64	9.74	28.8	33.58	54	-20.42	Ave

* Note: all the readings are in the level of noise floor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 5825 MHz, measured at 3 meters											
11650	30*	0	100	H	40.47	6.2	27.04	49.63	74	-24.37	Peak
11650	30*	0	100	V	40.47	6.2	27.04	49.63	74	-24.37	Peak
11650	18*	0	100	H	40.47	6.2	27.04	37.63	54	-16.37	Ave
11650	18*	0	100	V	40.47	6.2	27.04	37.63	54	-16.37	Ave
17475	30*	0	100	H	46.21	8.49	25.79	58.91	74	-15.09	Peak
17475	30*	0	100	V	46.21	8.49	25.79	58.91	74	-15.09	Peak
17475	18*	0	100	H	46.21	8.49	25.79	46.91	54	-7.09	Ave
17475	18*	0	100	V	46.21	8.49	25.79	46.91	54	-7.09	Ave
23300	30*	0	100	H	34.64	9.74	28.6	45.78	74	-28.22	Peak
23300	30*	0	100	V	34.64	9.74	28.6	45.78	74	-28.22	Peak
23300	18*	0	100	H	34.64	9.74	28.6	33.78	54	-20.22	Ave
23300	18*	0	100	V	34.64	9.74	28.6	33.78	54	-20.22	Ave

* Note: all the readings are in the level of noise floor

802.11n HT20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5745 MHz, measured at 3 meters											
11490	30*	0	100	H	39.41	6.9	33.87	42.44	74	-31.56	Peak
11490	30*	0	100	V	39.41	6.9	33.87	42.44	74	-31.56	Peak
11490	18*	0	100	H	39.41	6.9	33.87	30.44	54	-23.56	Ave
11490	18*	0	100	V	39.41	6.9	33.87	30.44	54	-23.56	Ave
17235	30*	0	100	H	45.87	8.49	25.94	58.42	74	-15.58	Peak
17235	30*	0	100	V	45.87	8.49	25.94	58.42	74	-15.58	Peak
17235	18*	0	100	H	45.87	8.49	25.94	46.42	54	-7.58	Ave
17235	18*	0	100	V	45.87	8.49	25.94	46.42	54	-7.58	Ave
22980	30*	0	100	H	34.72	9.74	28.9	45.56	74	-28.44	Peak
22980	30*	0	100	V	34.72	9.74	28.9	45.56	74	-28.44	Peak
22980	18*	0	100	H	34.72	9.74	28.9	33.56	54	-20.44	Ave
22980	18*	0	100	V	34.72	9.74	28.9	33.56	54	-20.44	Ave
Middle Channel 5785 MHz, measured at 3 meters											
11570	30*	0	100	H	40.14	6.14	26.99	49.29	74	-24.71	Peak
11570	30*	0	100	V	40.14	6.14	26.99	49.29	74	-24.71	Peak
11570	18*	0	100	H	40.14	6.14	26.99	37.29	54	-16.71	Ave
11570	18*	0	100	V	40.14	6.14	26.99	37.29	54	-16.71	Ave
17355	30*	0	100	H	45.87	8.49	25.86	58.5	74	-15.5	Peak
17355	30*	0	100	V	45.87	8.49	25.86	58.5	74	-15.5	Peak
17355	18*	0	100	H	45.87	8.49	25.86	46.5	54	-7.5	Ave
17355	18*	0	100	V	45.87	8.49	25.86	46.5	54	-7.5	Ave
23140	30*	0	100	H	34.64	9.74	28.8	45.58	74	-28.42	Peak
23140	30*	0	100	V	34.64	9.74	28.8	45.58	74	-28.42	Peak
23140	18*	0	100	H	34.64	9.74	28.8	33.58	54	-20.42	Ave
23140	18*	0	100	V	34.64	9.74	28.8	33.58	54	-20.42	Ave

* Note: all the readings are in the level of noise floor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 5825 MHz, measured at 3 meters											
11650	30*	0	100	H	40.47	6.2	27.04	49.63	74	-24.37	Peak
11650	30*	0	100	V	40.47	6.2	27.04	49.63	74	-24.37	Peak
11650	18*	0	100	H	40.47	6.2	27.04	37.63	54	-16.37	Ave
11650	18*	0	100	V	40.47	6.2	27.04	37.63	54	-16.37	Ave
17475	30*	0	100	H	46.21	8.49	25.79	58.91	74	-15.09	Peak
17475	30*	0	100	V	46.21	8.49	25.79	58.91	74	-15.09	Peak
17475	18*	0	100	H	46.21	8.49	25.79	46.91	54	-7.09	Ave
17475	18*	0	100	V	46.21	8.49	25.79	46.91	54	-7.09	Ave
23300	30*	0	100	H	34.64	9.74	28.6	45.78	74	-28.22	Peak
23300	30*	0	100	V	34.64	9.74	28.6	45.78	74	-28.22	Peak
23300	18*	0	100	H	34.64	9.74	28.6	33.78	54	-20.22	Ave
23300	18*	0	100	V	34.64	9.74	28.6	33.78	54	-20.22	Ave

* Note: all the readings are in the level of noise floor

802.11n HT40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5755 MHz, measured at 3 meters											
11510	30*	0	100	H	39.41	7.6	26.94	50.07	74	-23.93	Peak
11510	30*	0	100	V	39.41	7.6	26.94	50.07	74	-23.93	Peak
11510	18*	0	100	H	39.41	7.6	26.94	38.07	54	-15.93	Ave
11510	18*	0	100	V	39.41	7.6	26.94	38.07	54	-15.93	Ave
17265	30*	0	100	H	45.87	8.63	25.94	58.56	74	-15.44	Peak
17265	30*	0	100	V	45.87	8.63	25.94	58.56	74	-15.44	Peak
17265	18*	0	100	H	45.87	8.63	25.94	46.56	54	-7.44	Ave
17265	18*	0	100	V	45.87	8.63	25.94	46.56	54	-7.44	Ave
23020	30*	0	100	H	34.72	9.74	28.9	45.56	74	-28.44	Peak
23020	30*	0	100	V	34.72	9.74	28.9	45.56	74	-28.44	Peak
23020	18*	0	100	H	34.72	9.74	28.9	33.56	54	-20.44	Ave
23020	18*	0	100	V	34.72	9.74	28.9	33.56	54	-20.44	Ave
High Channel 5795 MHz, measured at 3 meters											
11590	30*	0	100	H	39.68	7.69	26.99	50.38	74	-23.62	Peak
11590	30*	0	100	V	39.68	7.69	26.99	50.38	74	-23.62	Peak
11590	18*	0	100	H	39.68	7.69	26.99	38.38	54	-15.62	Ave
11590	18*	0	100	V	39.68	7.69	26.99	38.38	54	-15.62	Ave
17385	30*	0	100	H	46.21	8.66	25.86	59.01	74	-14.99	Peak
17385	30*	0	100	V	46.21	8.66	25.86	59.01	74	-14.99	Peak
17385	18*	0	100	H	46.21	8.66	25.86	47.01	54	-6.99	Ave
17385	18*	0	100	V	46.21	8.66	25.86	47.01	54	-6.99	Ave
23180	30*	0	100	H	34.64	9.74	28.7	45.68	74	-28.32	Peak
23180	30*	0	100	V	34.64	9.74	28.7	45.68	74	-28.32	Peak
23180	18*	0	100	H	34.64	9.74	28.7	33.68	54	-20.32	Ave
23180	18*	0	100	V	34.64	9.74	28.7	33.68	54	-20.32	Ave

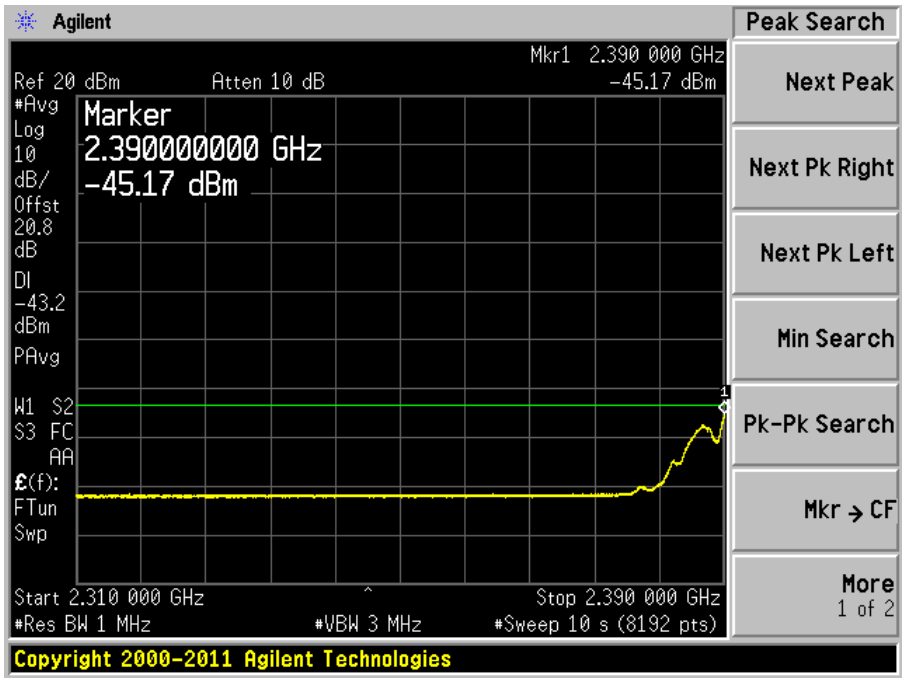
* Note: all the readings are in the level of noise floor

4) Restricted Band Edges

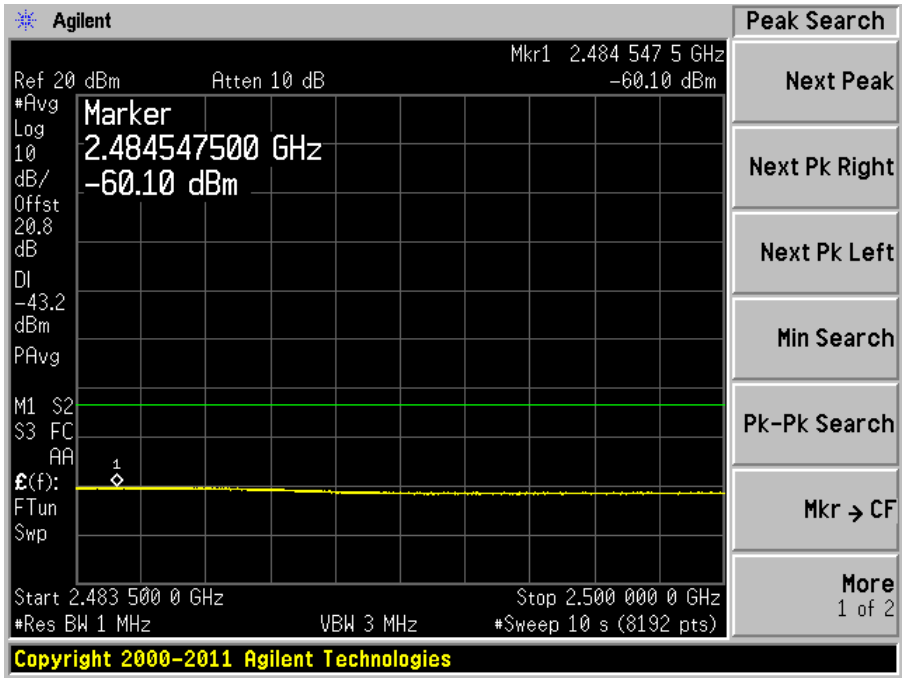
2.4GHz Band

802.11b mode, Low Channel

Restricted Band: 2310 MHz – 2390 MHz

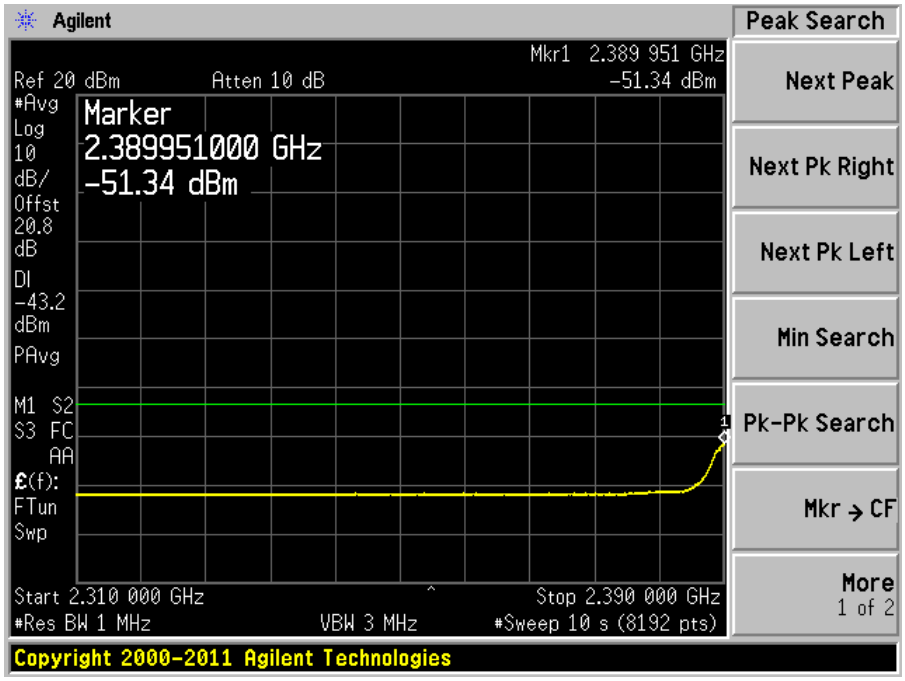


Restricted Band: 2483.5 MHz – 2500 MHz

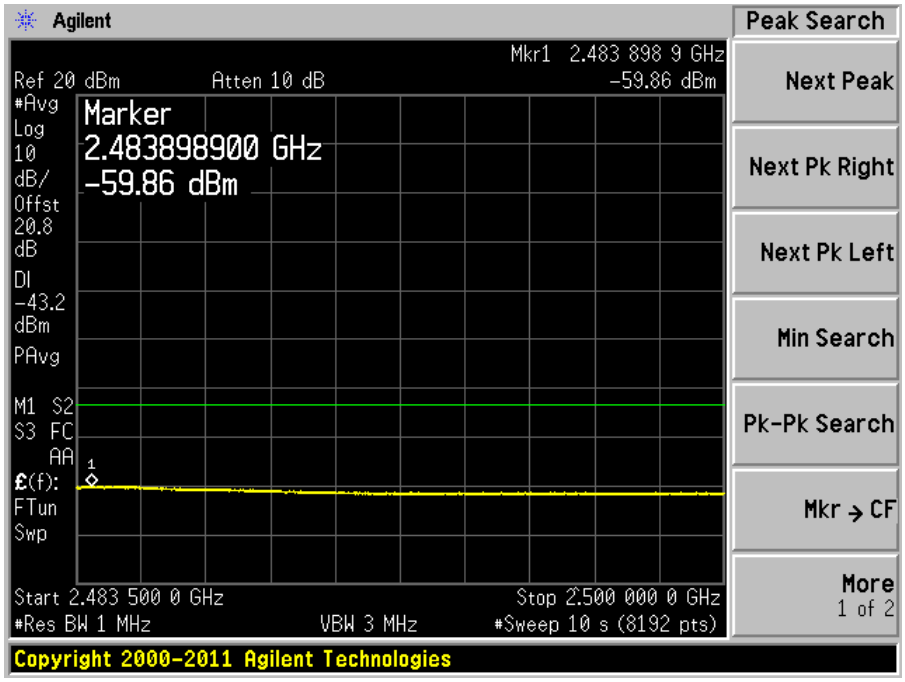


802.11b mode, Middle Channel

Restricted Band: 2310 MHz – 2390 MHz

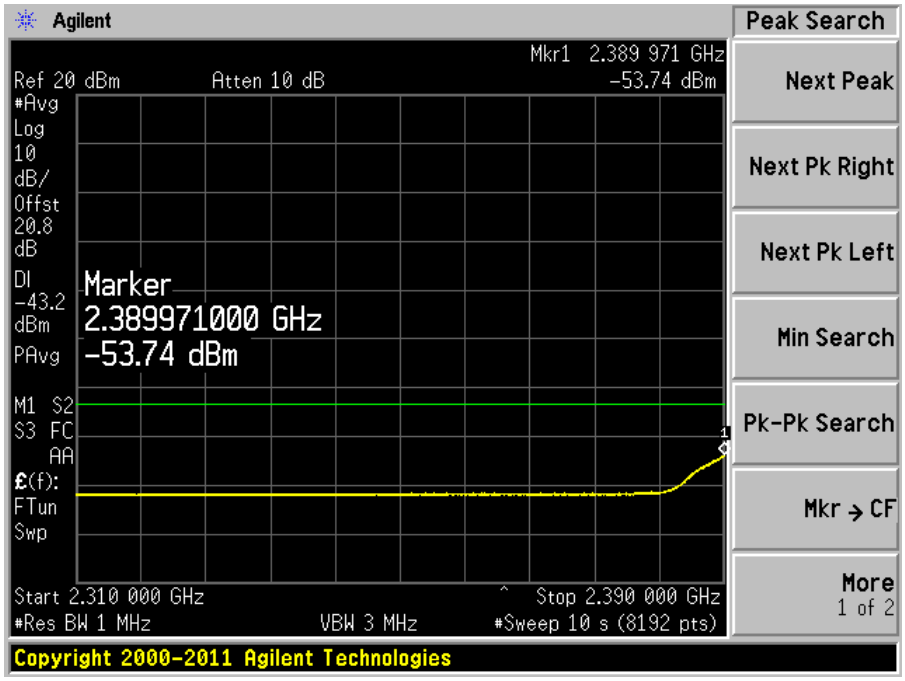


Restricted Band: 2483.5 MHz – 2500 MHz

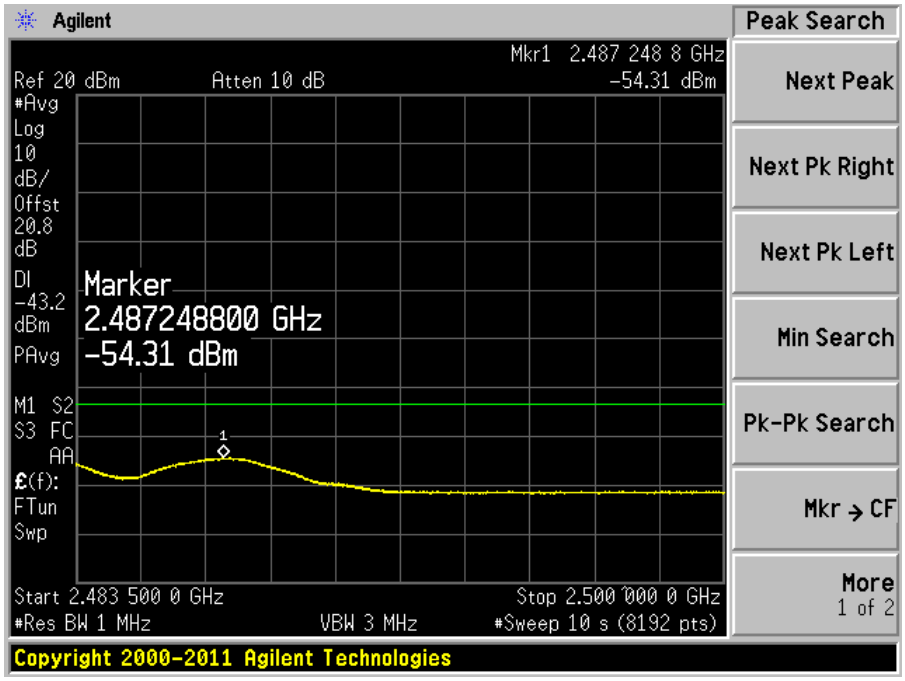


802.11b mode, High Channel

Restricted Band: 2310 MHz – 2390 MHz

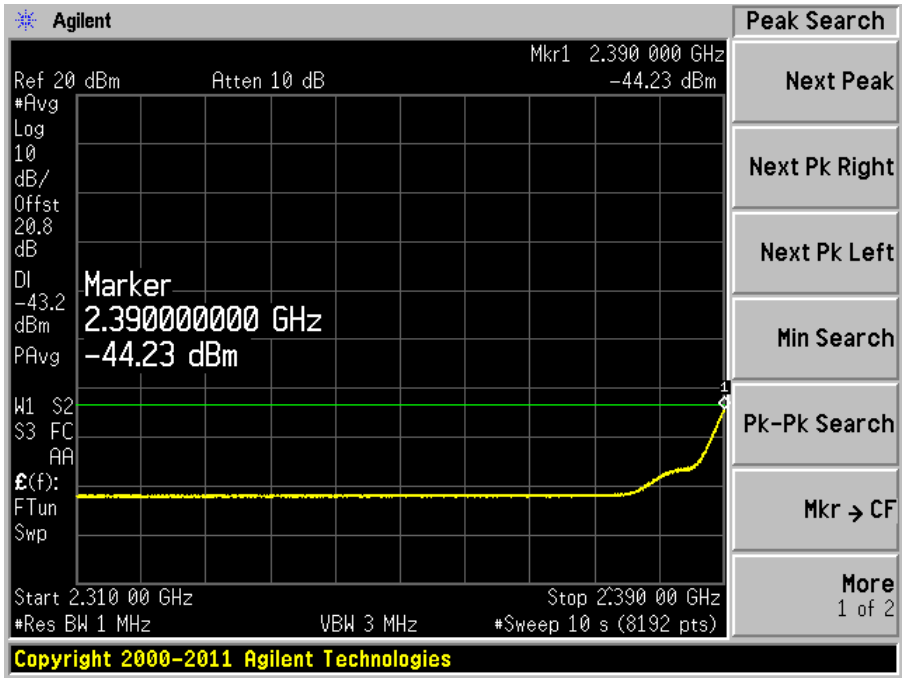


Restricted Band: 2483.5 MHz – 2500 MHz

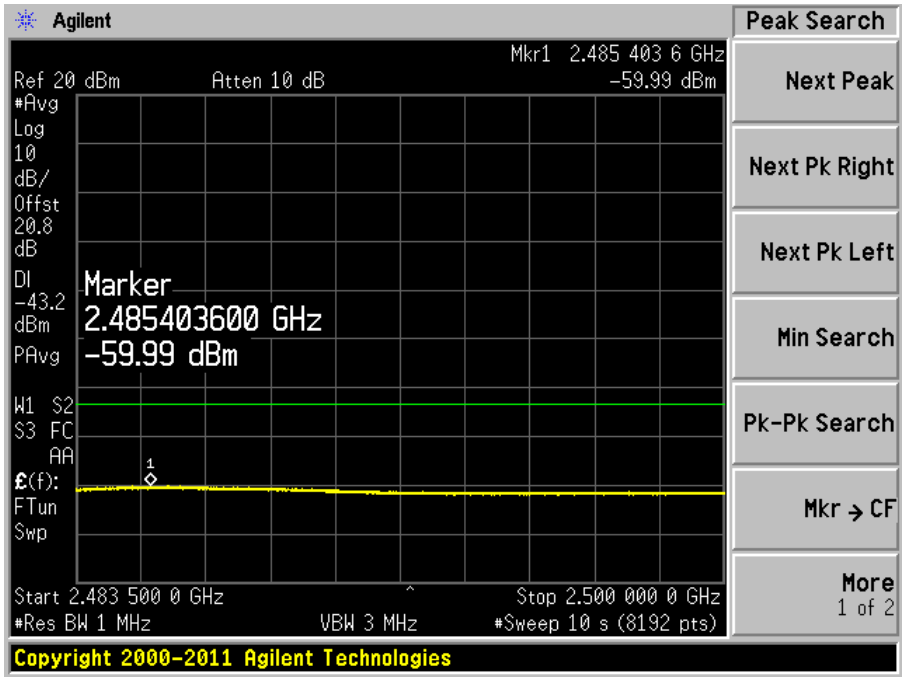


802.11g mode, Low Channel

Restricted Band: 2310 MHz – 2390 MHz

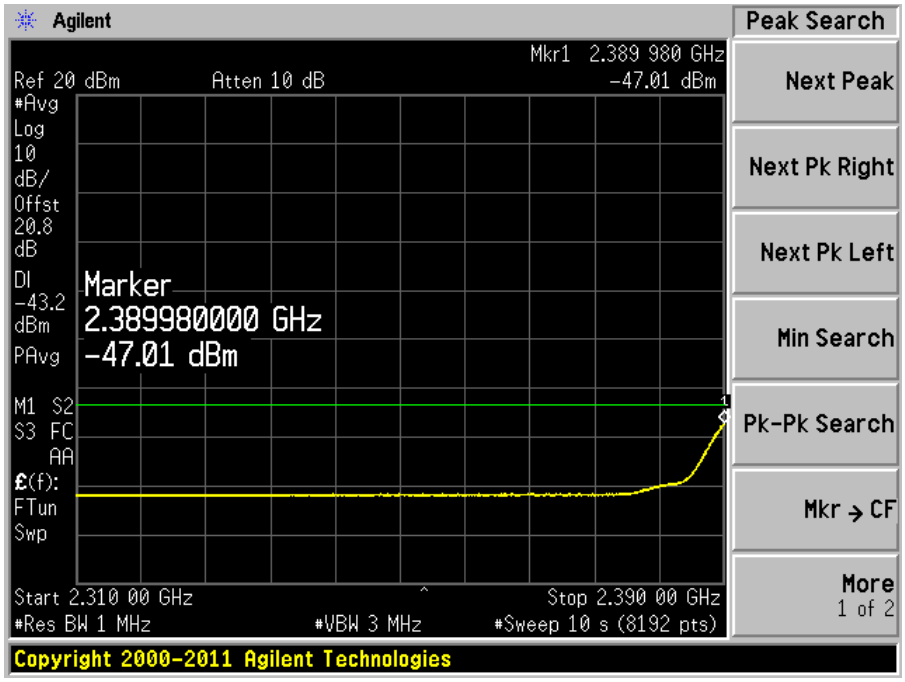


Restricted Band: 2483.5 MHz – 2500 MHz

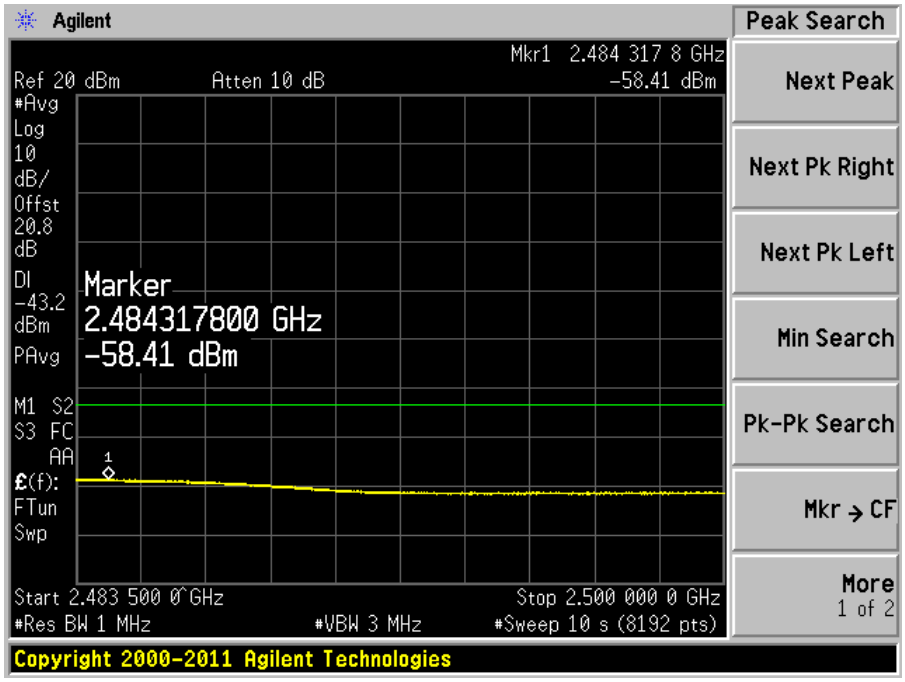


802.11g mode, Middle Channel

Restricted Band: 2310 MHz – 2390 MHz

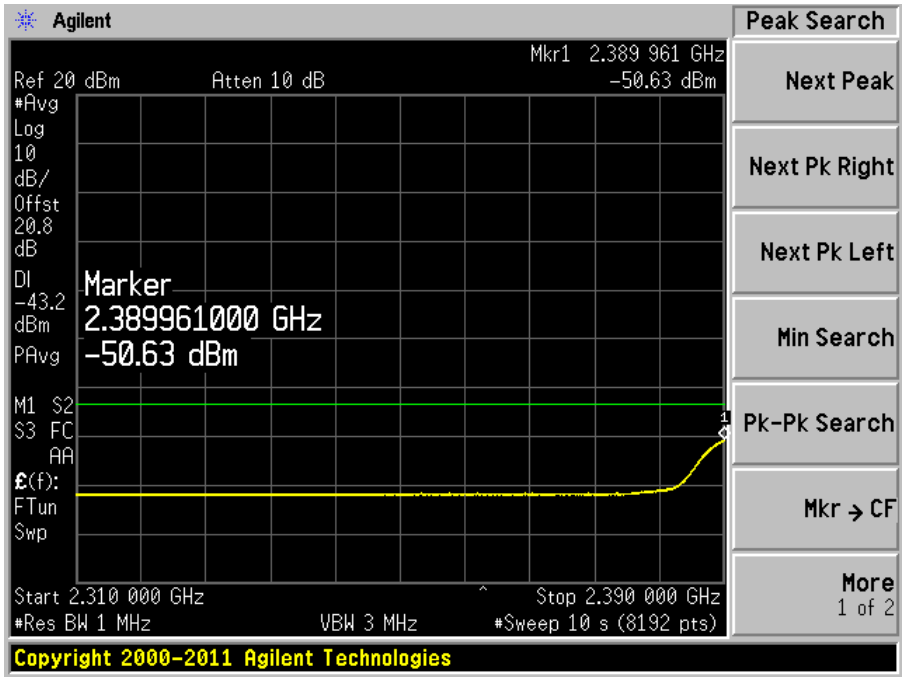


Restricted Band: 2483.5 MHz – 2500 MHz

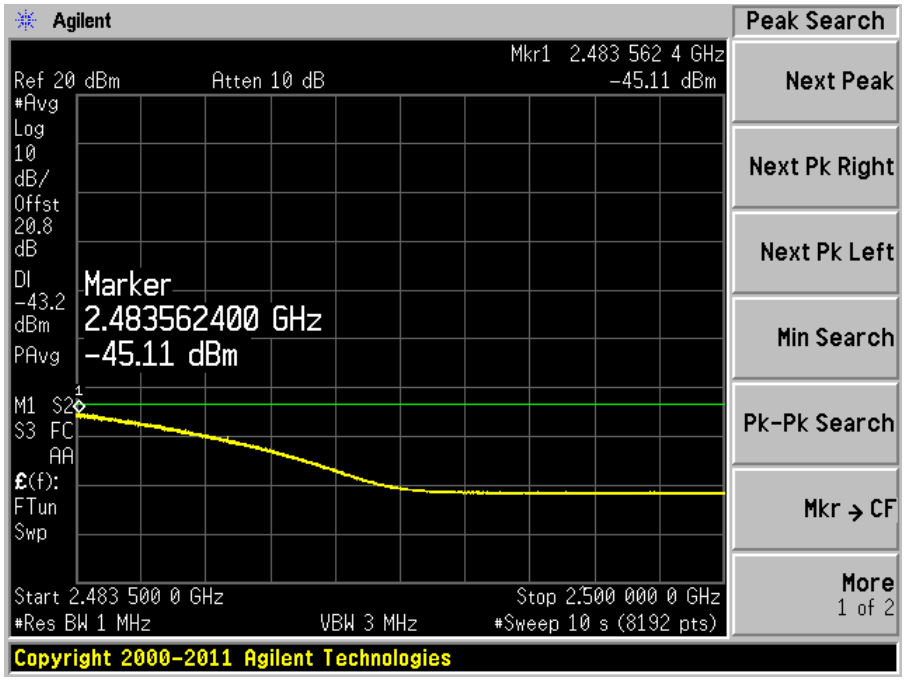


802.11g mode, High Channel

Restricted Band: 2310 MHz – 2390 MHz

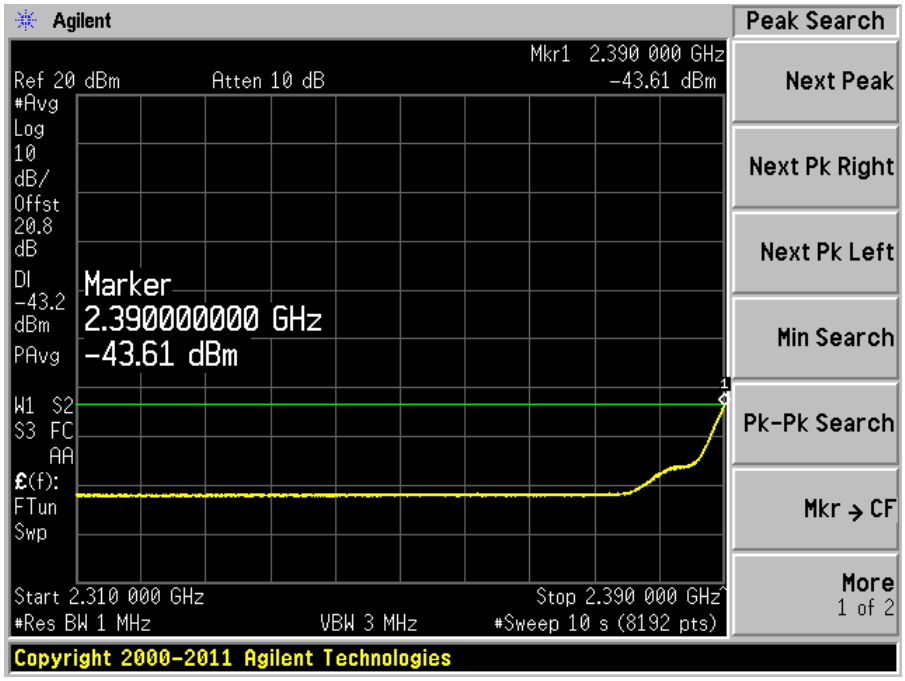


Restricted Band: 2483.5 MHz – 2500 MHz

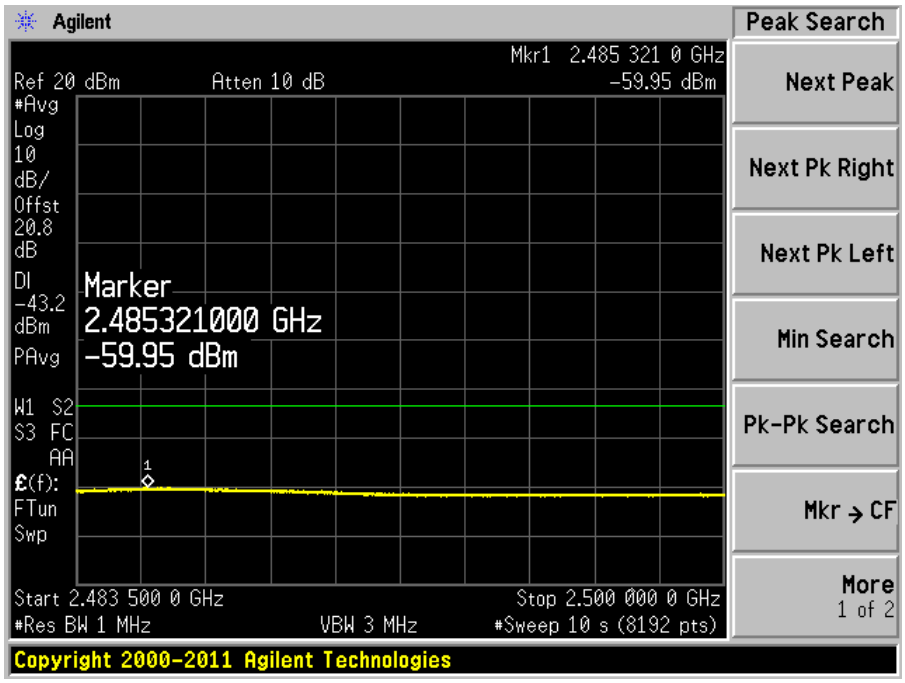


802.11n HT20 mode, Low Channel

Restricted Band: 2310 MHz – 2390 MHz

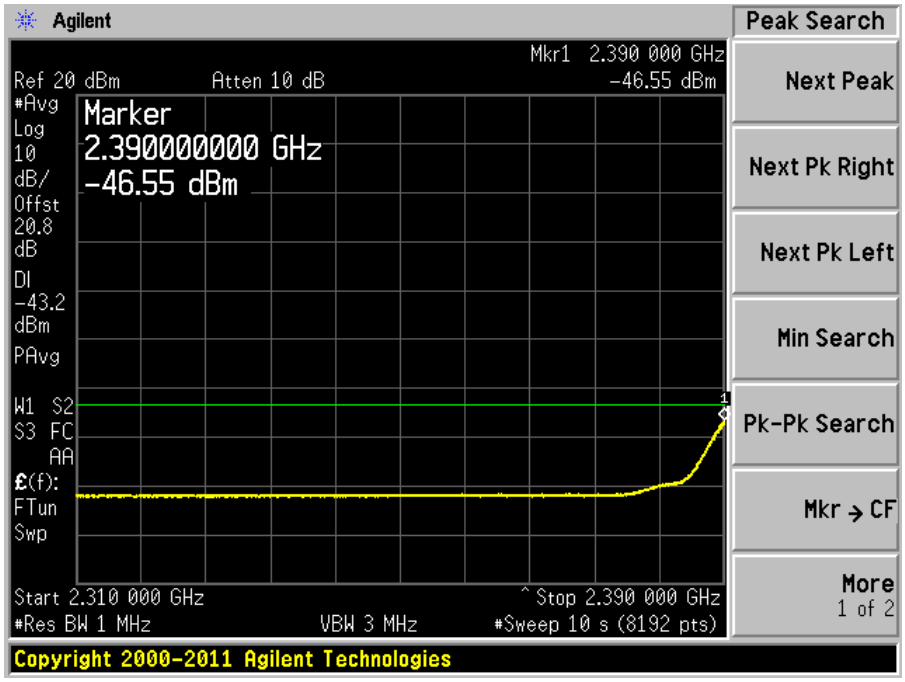


Restricted Band: 2483.5 MHz – 2500 MHz

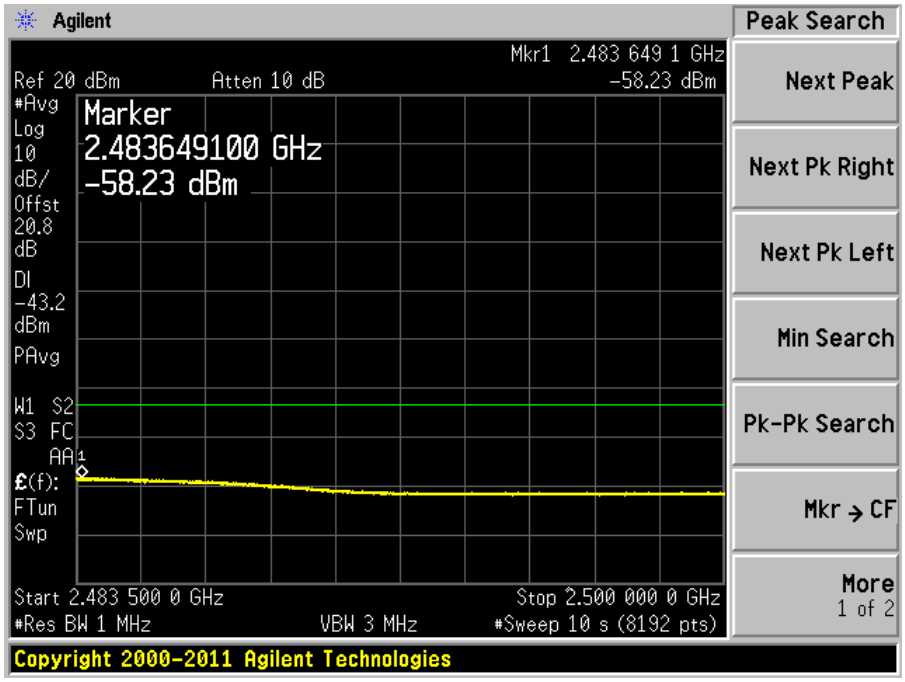


802.11n HT20 mode, Middle Channel

Restricted Band: 2310 MHz – 2390 MHz

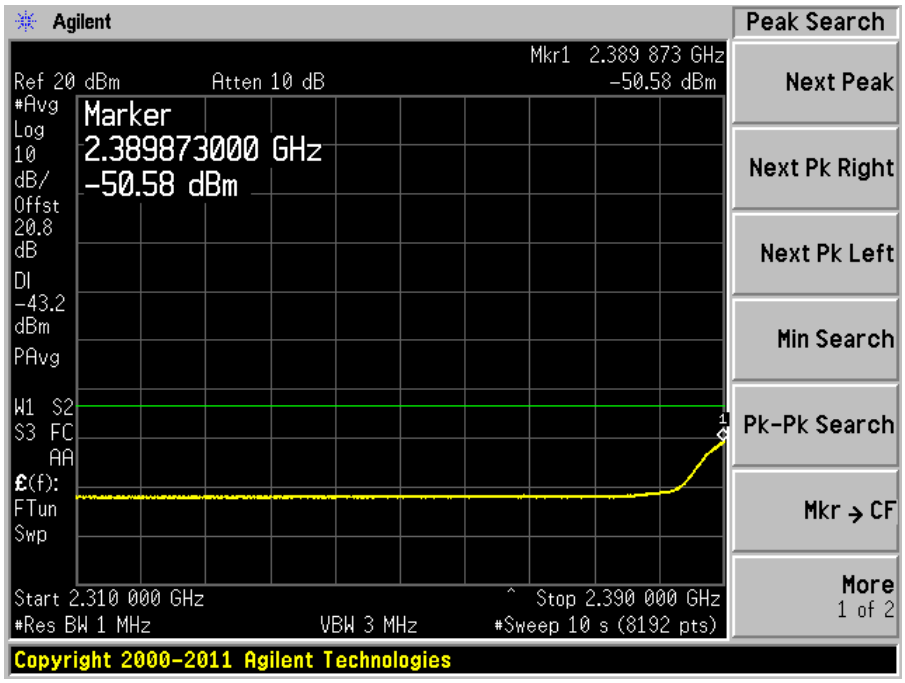


Restricted Band: 2483.5 MHz – 2500 MHz

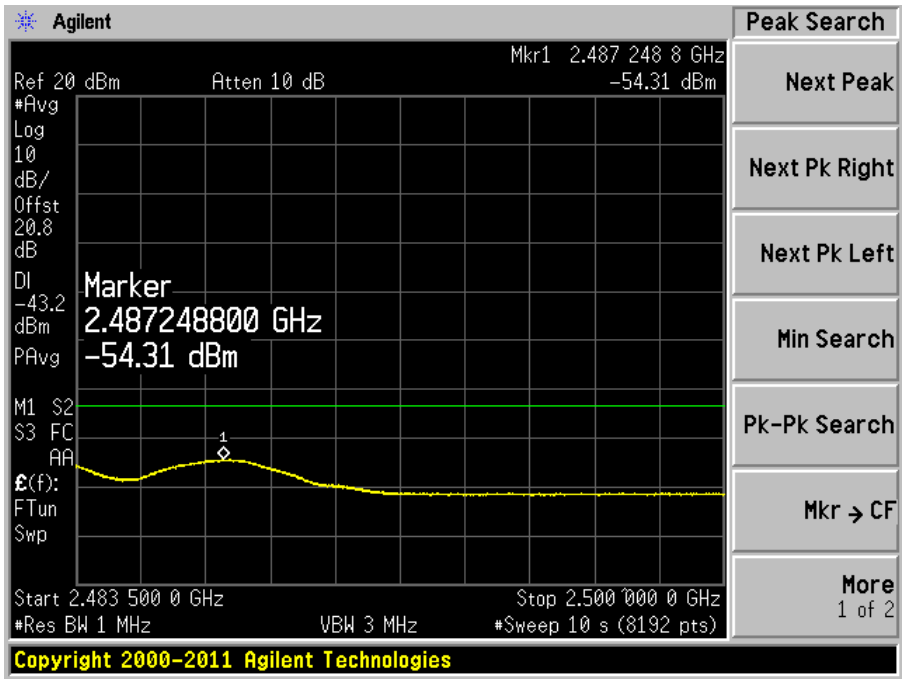


802.11n HT20 mode, High Channel

Restricted Band: 2310 MHz – 2390 MHz

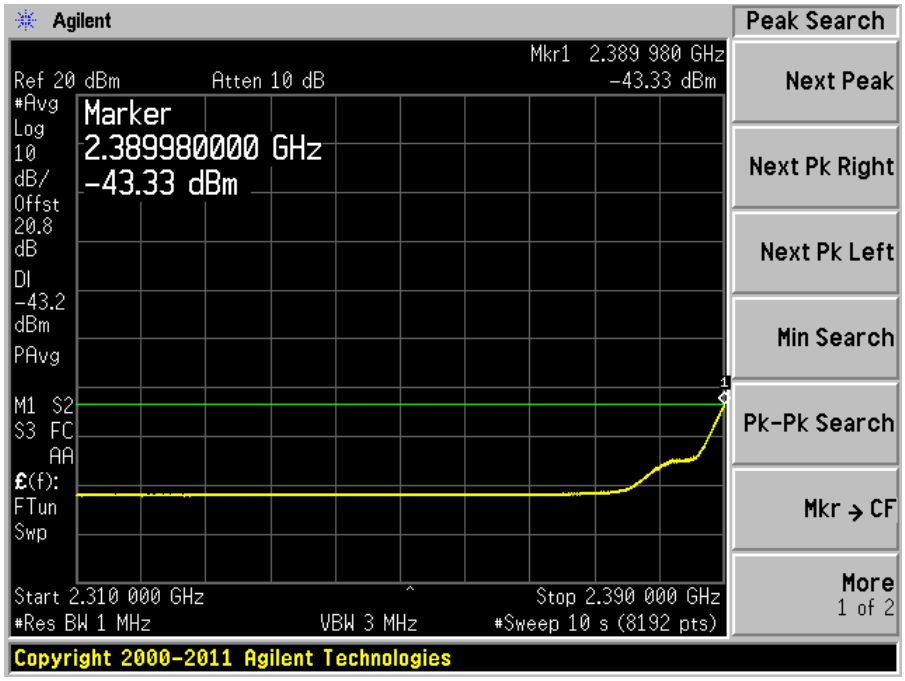


Restricted Band: 2483.5 MHz – 2500 MHz

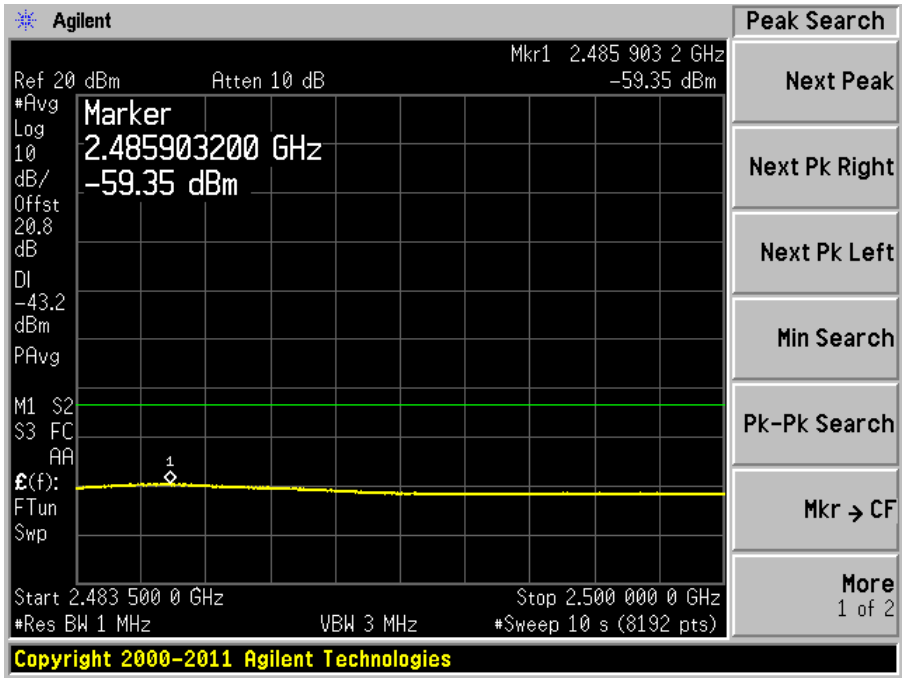


802.11n HT40 mode, Low Channel

Restricted Band: 2310 MHz – 2390 MHz

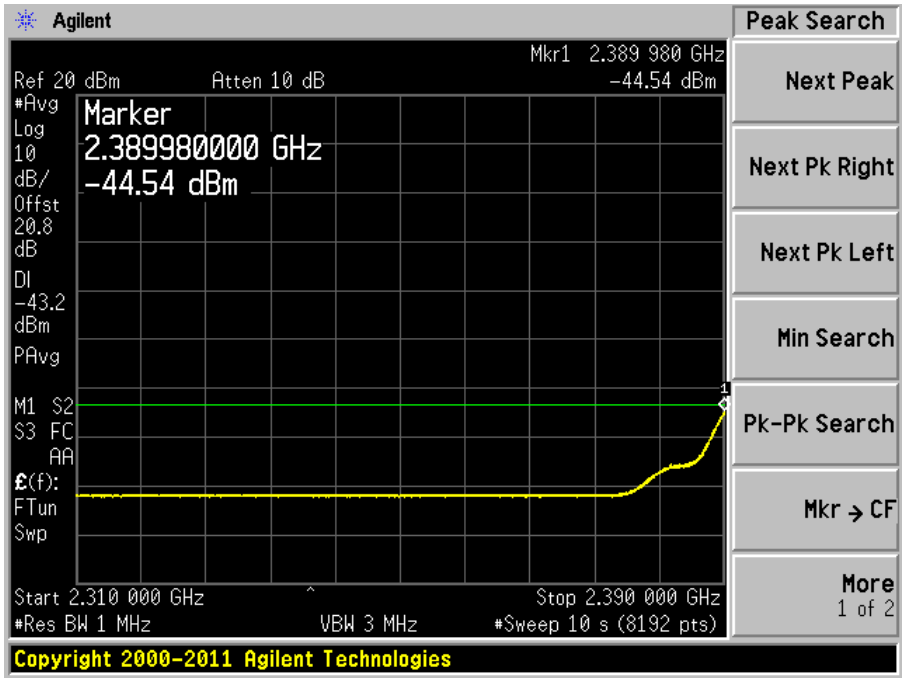


Restricted Band: 2483.5 MHz – 2500 MHz

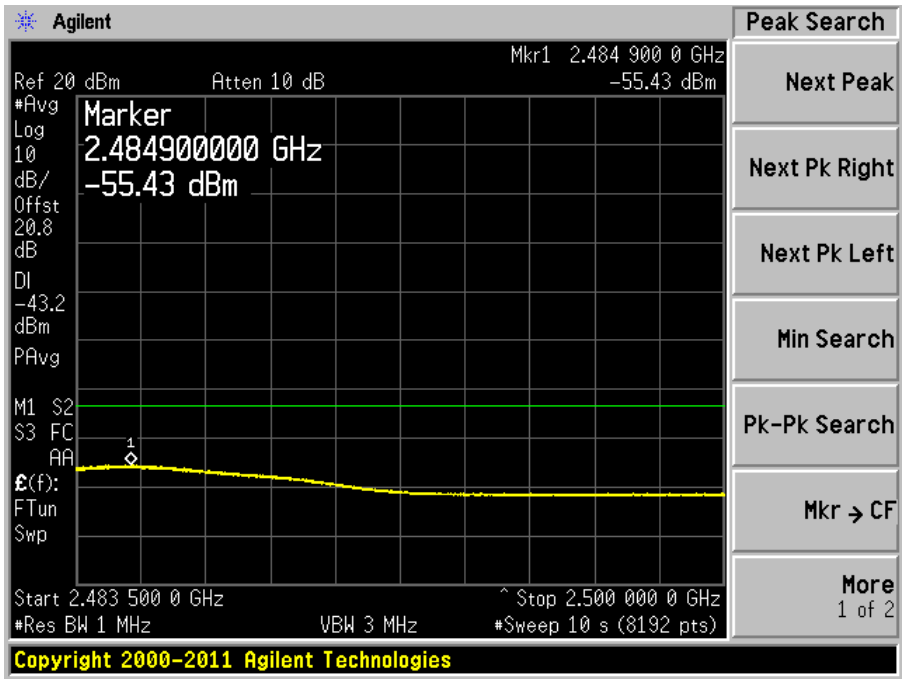


802.11n HT40 mode, Middle Channel

Restricted Band: 2310 MHz – 2390 MHz

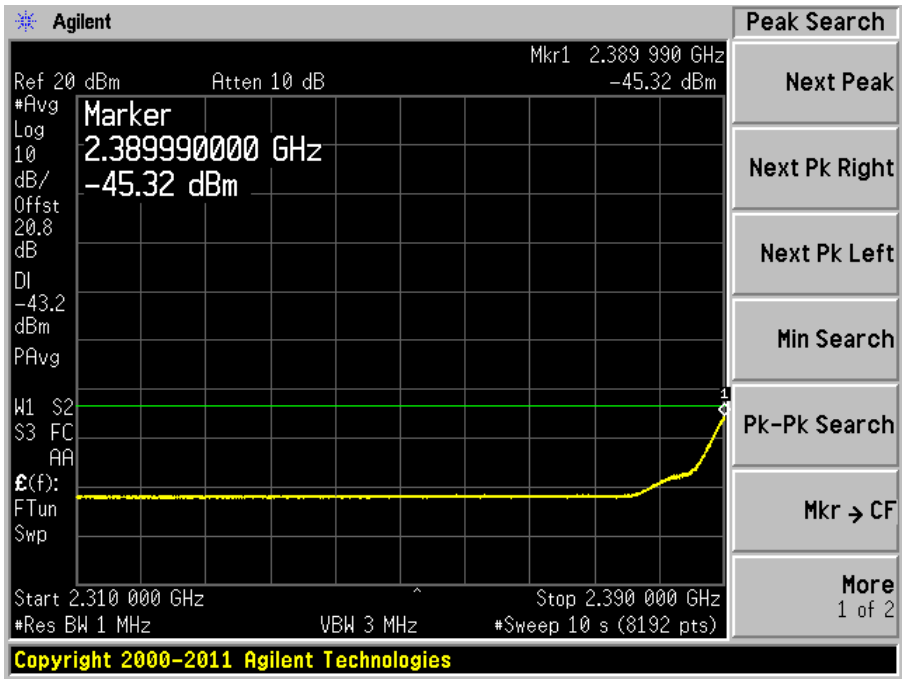


Restricted Band: 2483.5 MHz – 2500 MHz

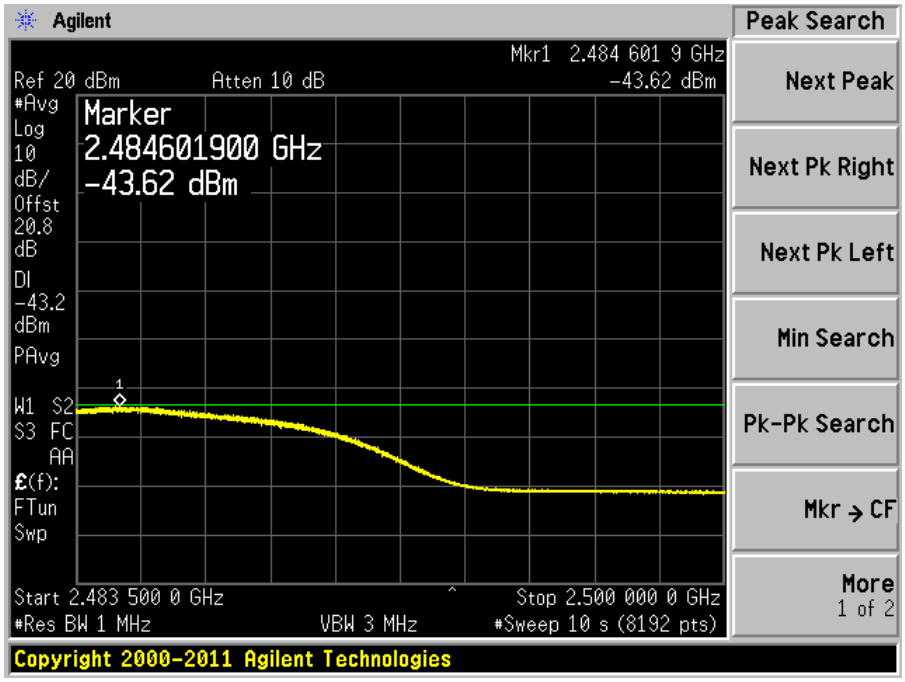


802.11n HT40 mode, High Channel

Restricted Band: 2310 MHz – 2390 MHz



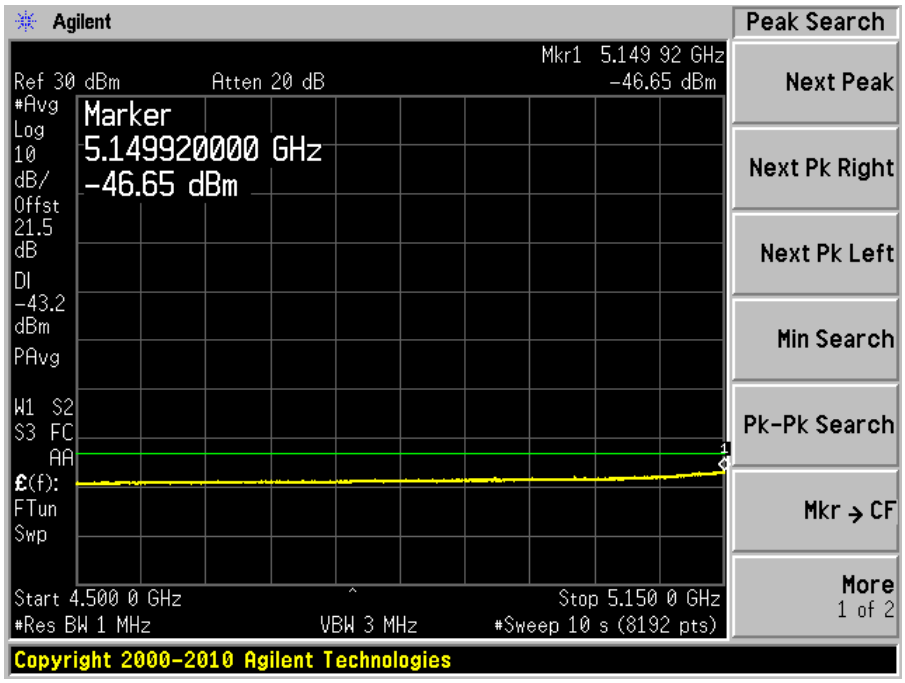
Restricted Band: 2483.5 MHz – 2500 MHz



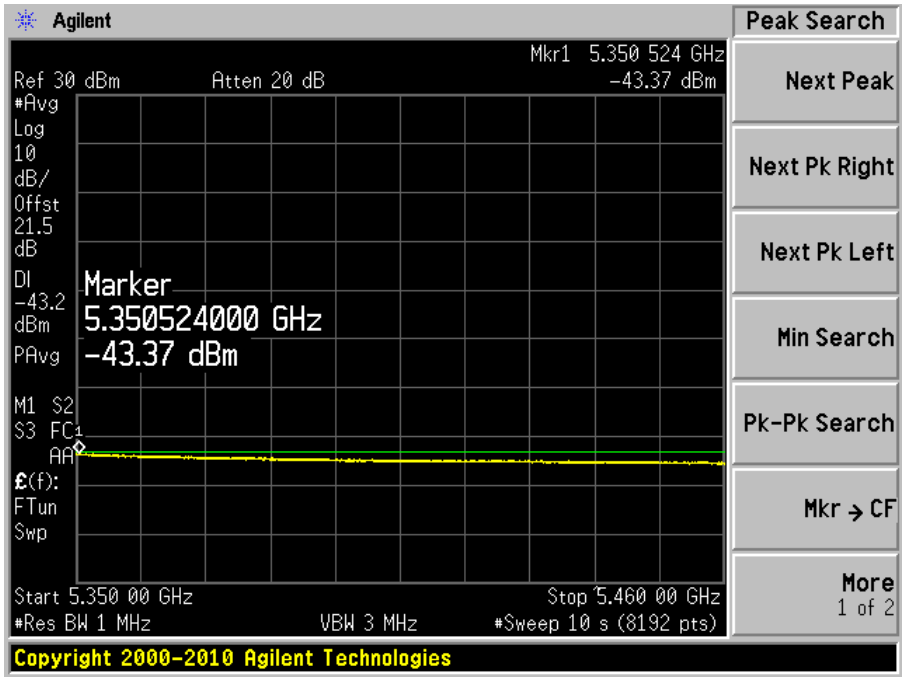
5.8 GHz Band

802.11a mode, Low Channel

Restricted Band: 4500 MHz – 5150 MHz

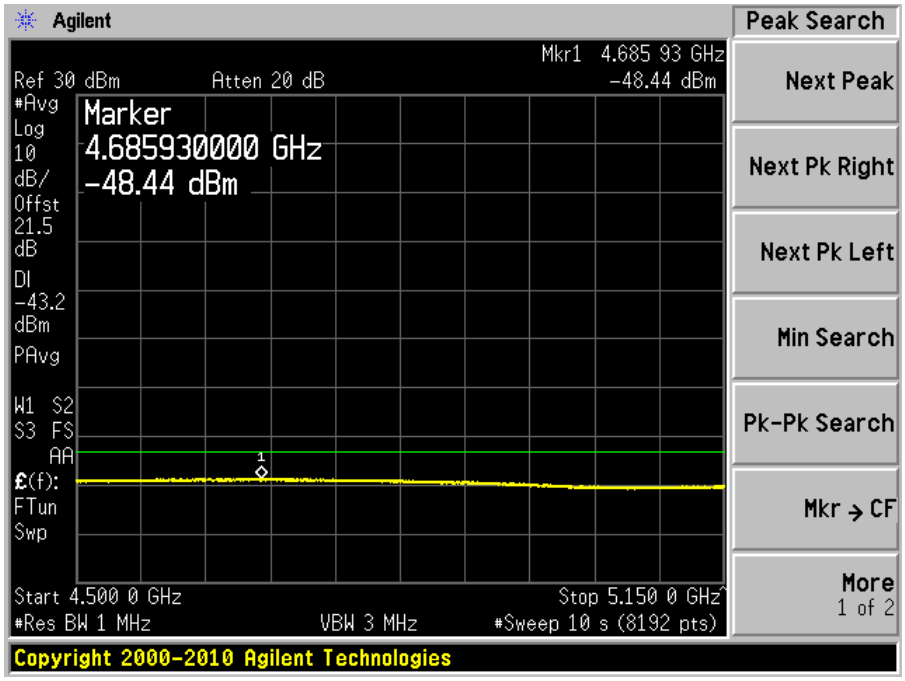


Restricted Band: 5350 MHz – 5460 MHz

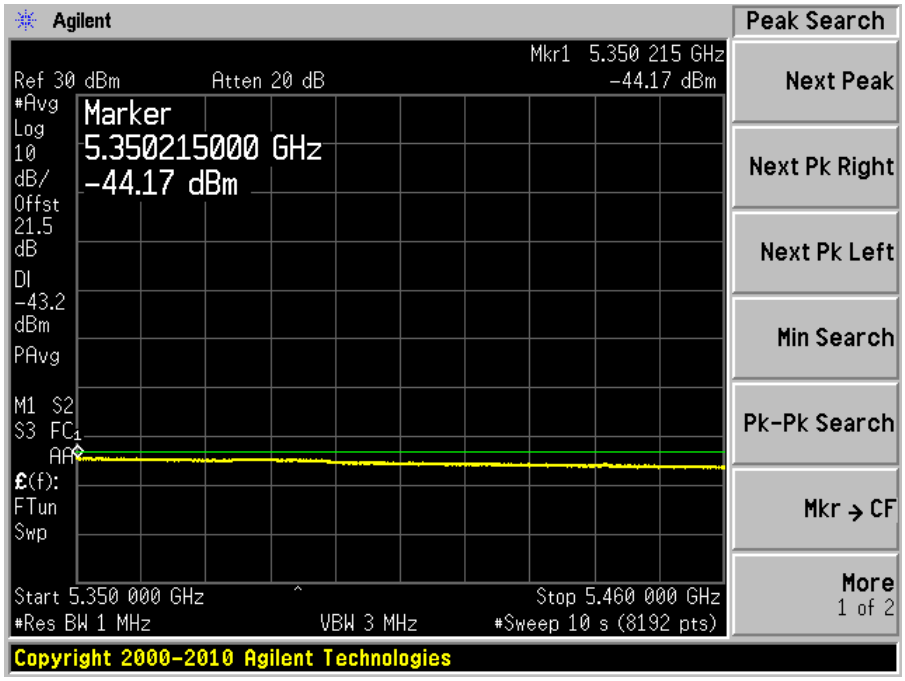


802.11a mode, Middle Channel

Restricted Band: 4500 MHz – 5150 MHz

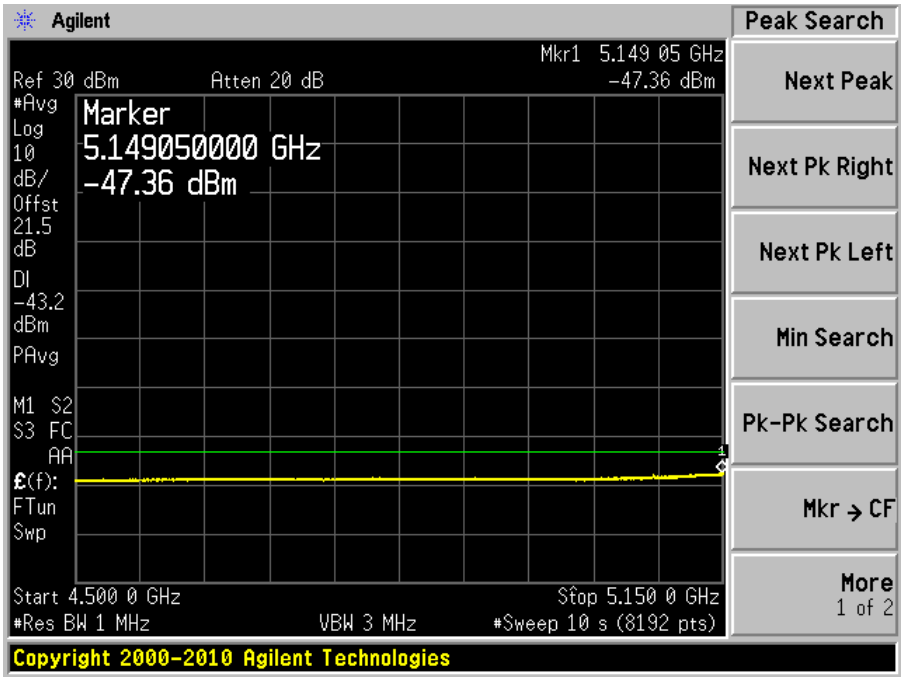


Restricted Band: 5350 MHz – 5460 MHz

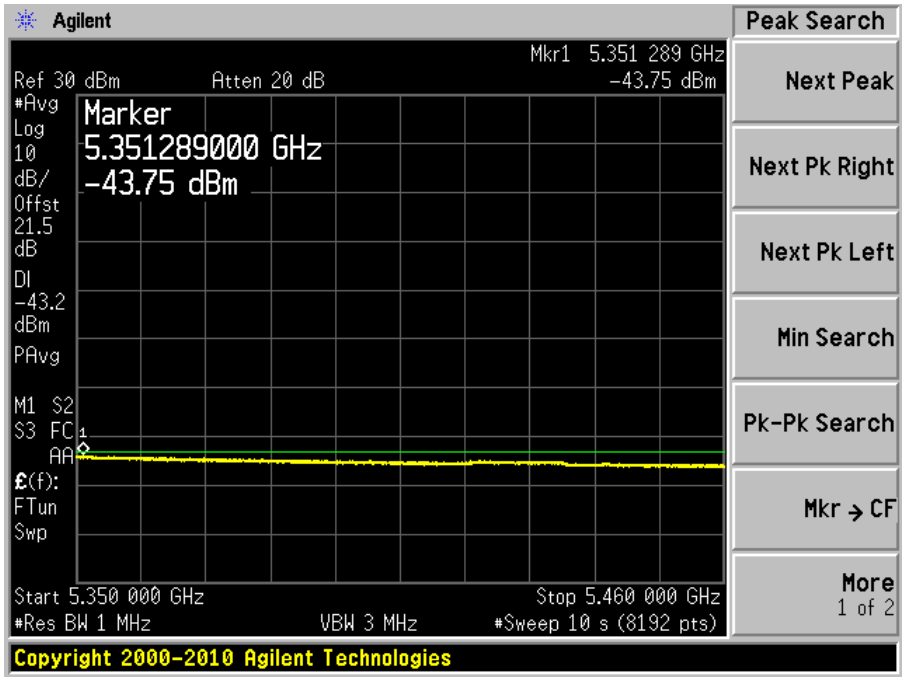


802.11a mode, High Channel

Restricted Band: 4500 MHz – 5150 MHz

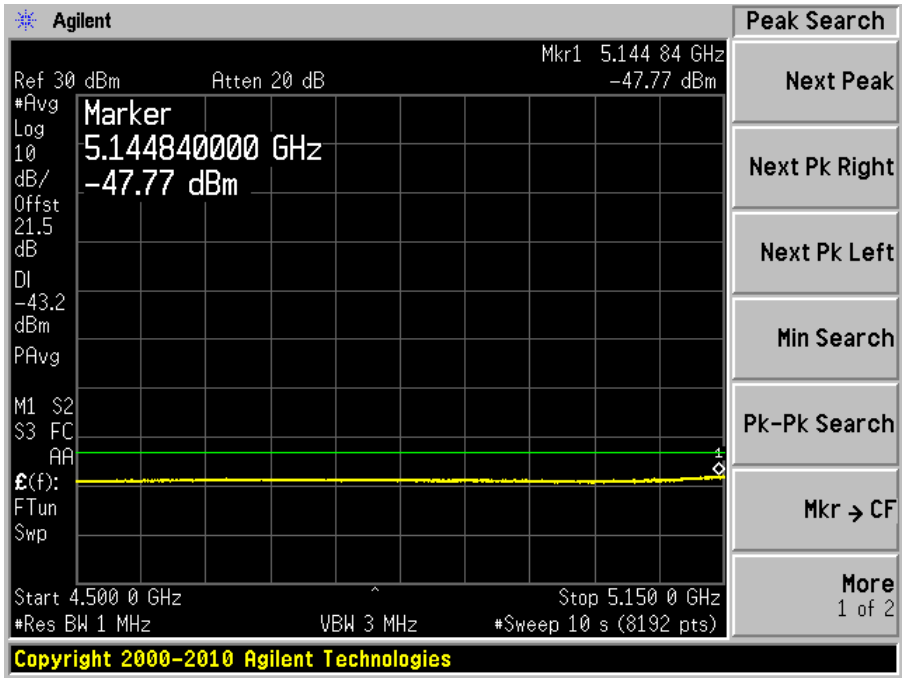


Restricted Band: 5350 MHz – 5460 MHz

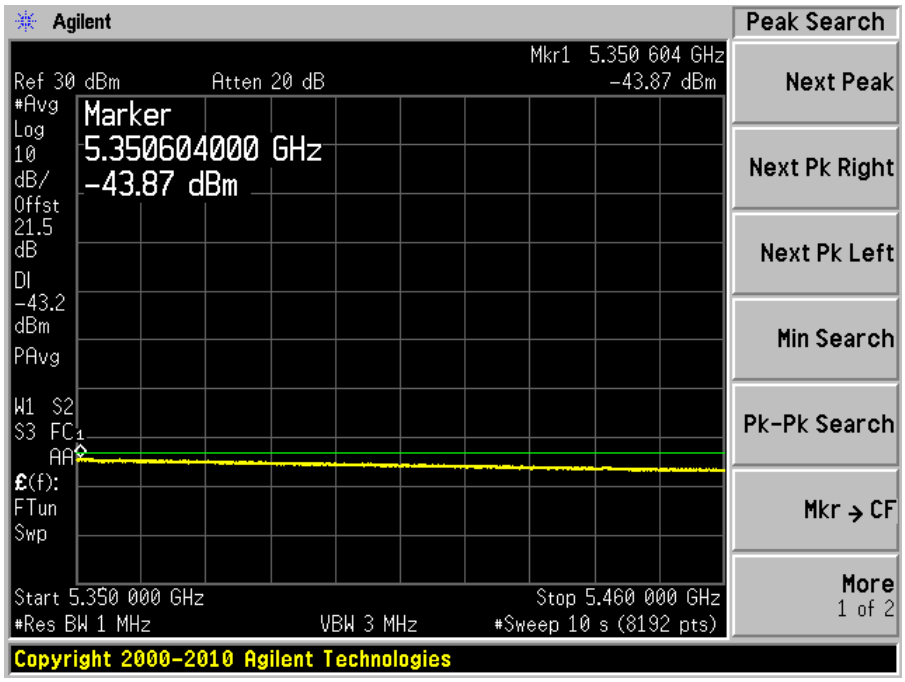


802.11n HT20 mode, Low Channel

Restricted Band: 4500 MHz – 5150 MHz

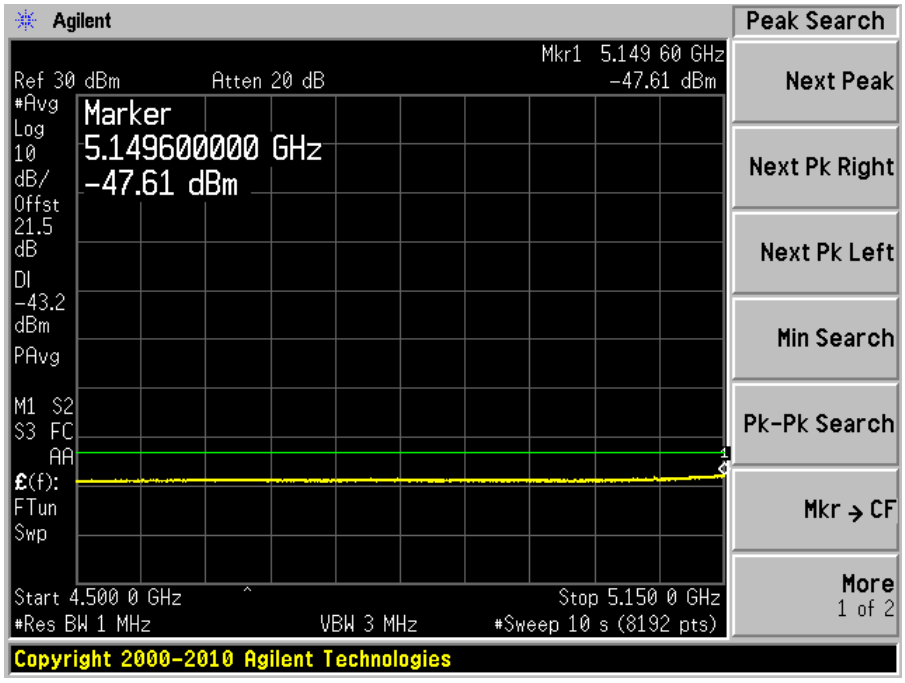


Restricted Band: 5350 MHz – 5460 MHz

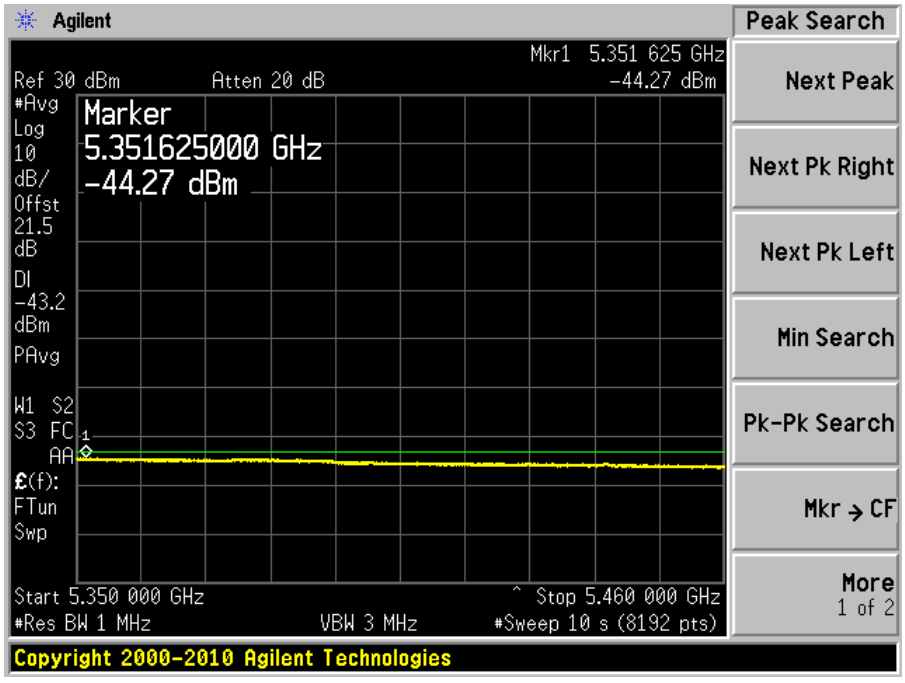


802.11n HT20 mode, Middle Channel

Restricted Band: 4500 MHz – 5150 MHz

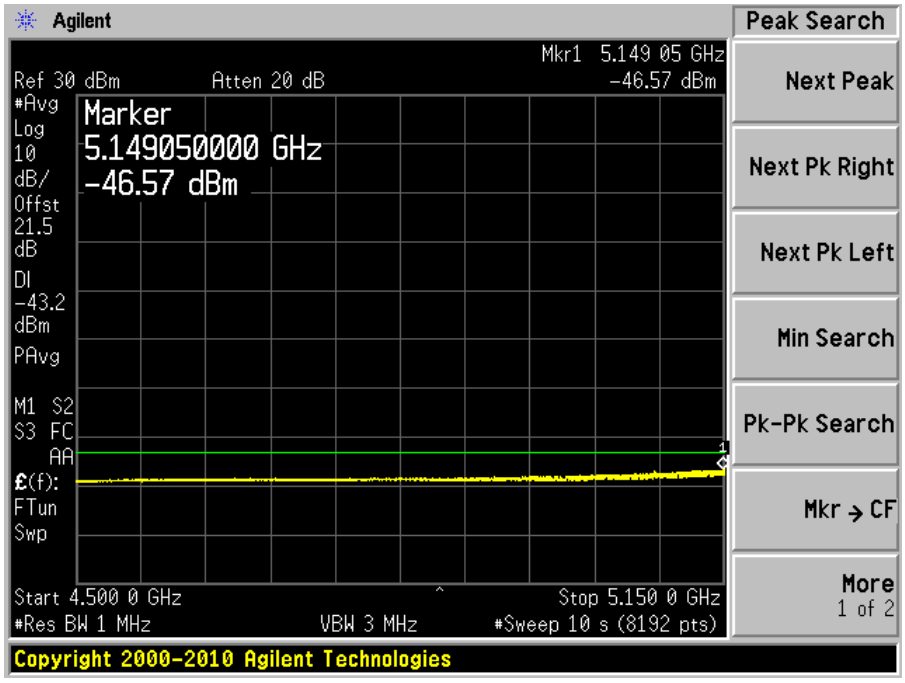


Restricted Band: 5350 MHz – 5460 MHz

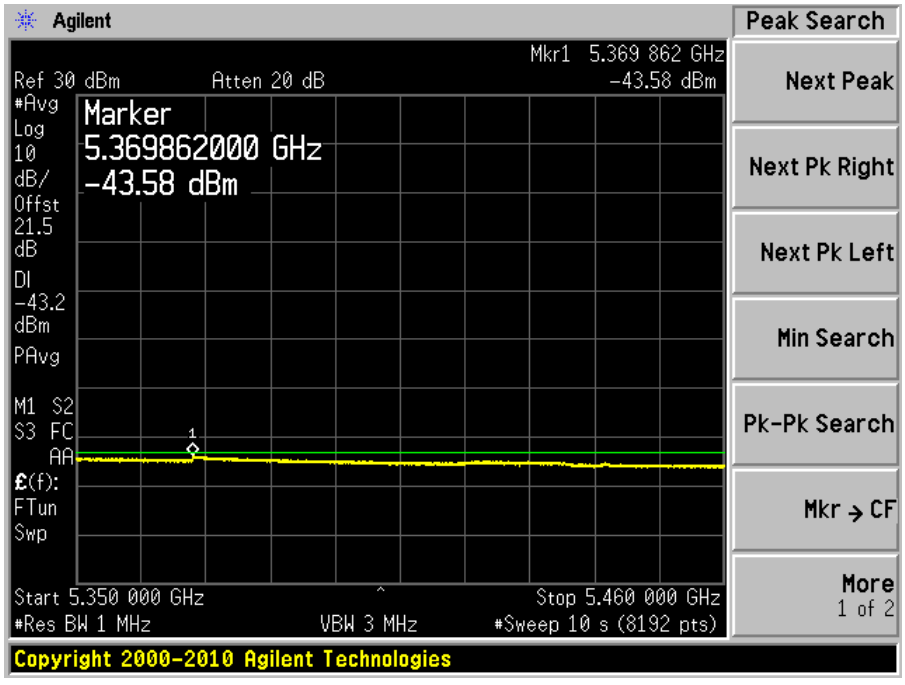


802.11n HT20 mode, High Channel

Restricted Band: 4500 MHz – 5150 MHz

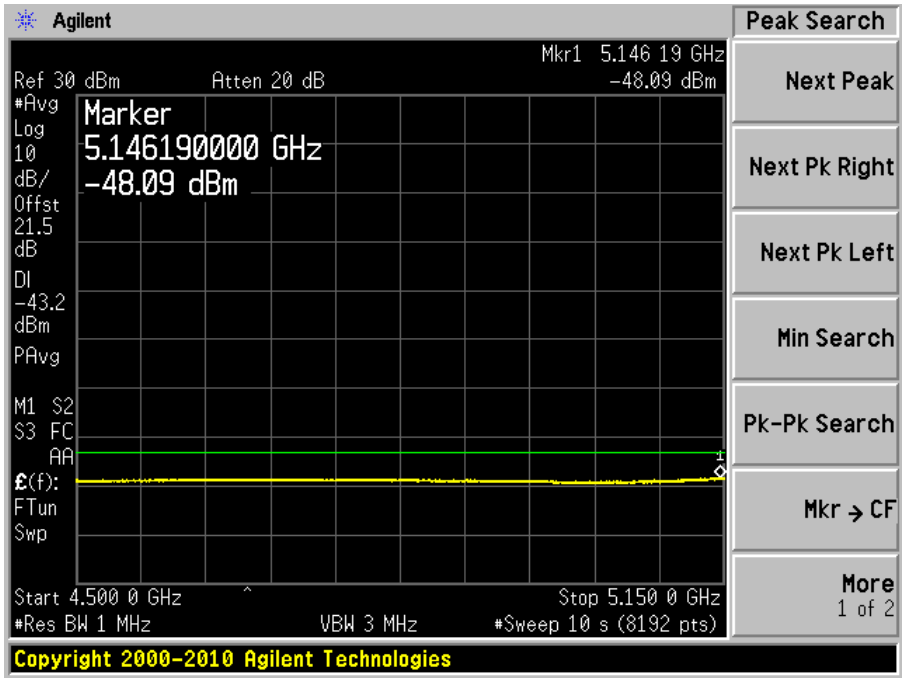


Restricted Band: 5350 MHz – 5460 MHz

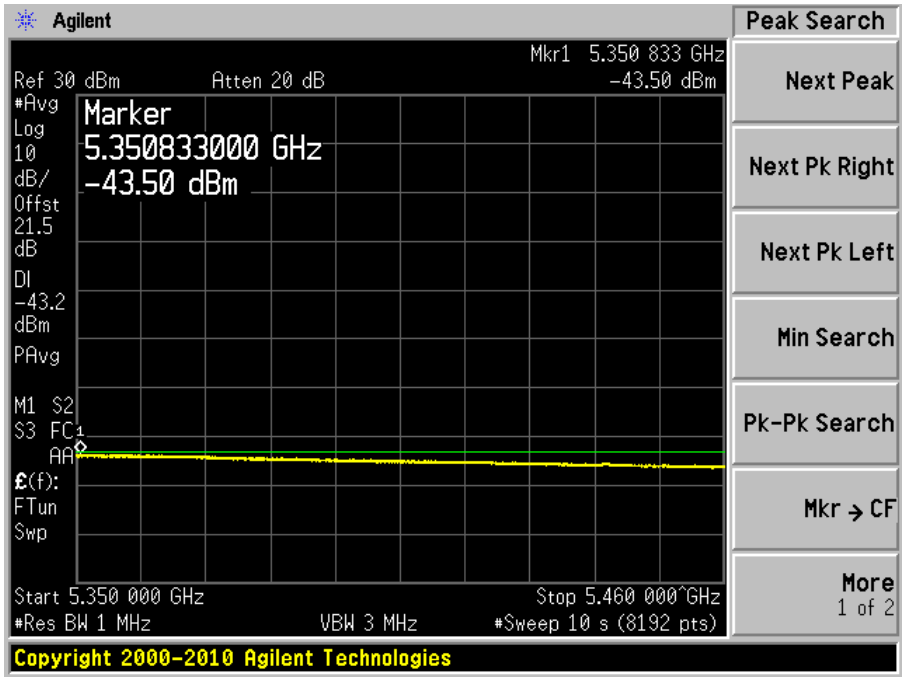


802.11n HT40 mode, Low Channel

Restricted Band: 4500 MHz – 5150 MHz

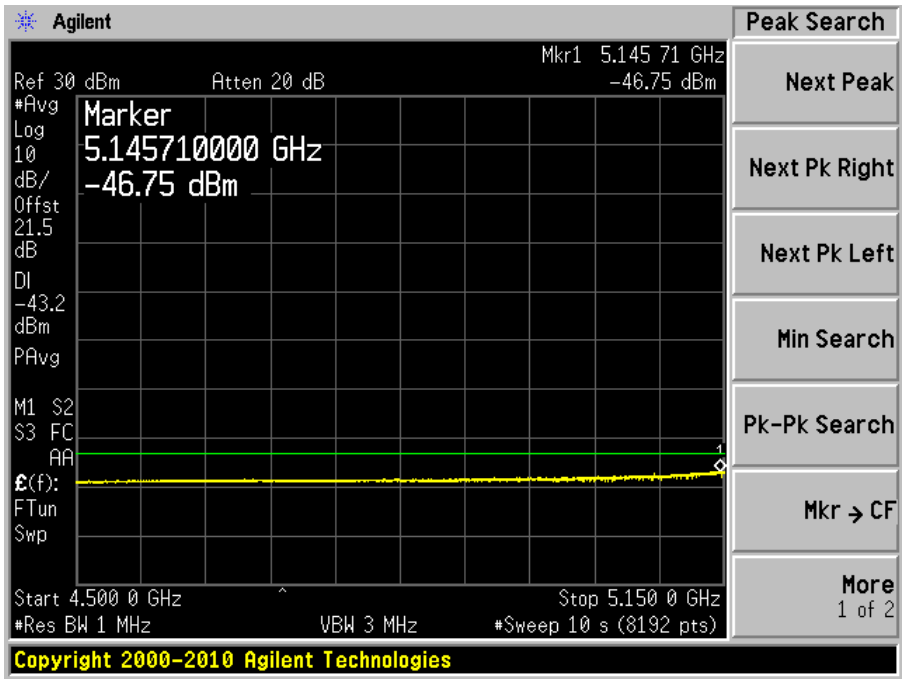


Restricted Band: 5350 MHz – 5460 MHz

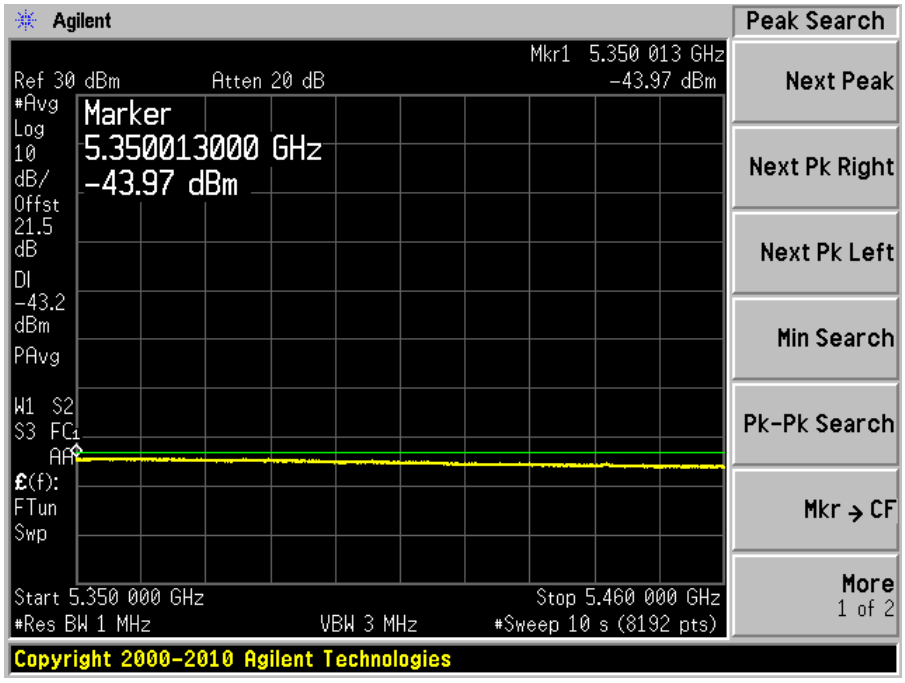


802.11n HT40 mode, High Channel

Restricted Band: 4500 MHz – 5150 MHz



Restricted Band: 5350 MHz – 5460 MHz



9 FCC§15.247(a)(2) & IC RSS-210 §A8.2 – 6 dB & 99% Emission Bandwidth

9.1 Applicable Standard

According to FCC §15.247(a)(2) and IC RSS-210 A8.2 (a), 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	Calibration Interval
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

9.4 Test Environmental Conditions

Temperature:	22-24 °C
Relative Humidity:	42-45 %
ATM Pressure:	101-102kPa

The testing was performed by Jeffrey Wu from 2013-04-25 at RF site.

9.5 Test Results

2.4 GHz Band:

802.11 b mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	2412	10.254	13.7670	> 0.5	Compliant
Middle	2437	10.264	13.8257	> 0.5	Compliant
High	2462	9.738	13.3393	> 0.5	Compliant

802.11 g mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	2412	16.306	17.0679	> 0.5	Compliant
Middle	2437	16.474	17.4904	> 0.5	Compliant
High	2462	16.007	17.1527	> 0.5	Compliant

802.11n HT20 mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	2412	17.599	17.9825	> 0.5	Compliant
Middle	2437	17.669	18.6134	> 0.5	Compliant
High	2462	16.660	18.0665	> 0.5	Compliant

802.11n HT40 mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	2422	35.964	36.7449	> 0.5	Compliant
Middle	2437	36.459	36.6208	> 0.5	Compliant
High	2452	35.900	36.6004	> 0.5	Compliant

5.8 GHz Band:

802.11a mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	5745	16.392	18.5826	> 0.5	Compliant
Middle	5785	16.384	16.6222	> 0.5	Compliant
High	5825	16.409	16.5483	> 0.5	Compliant

802.11n HT20 mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	5745	17.631	17.8362	> 0.5	Compliant
Middle	5785	17.208	17.7241	> 0.5	Compliant
High	5825	17.658	17.6954	> 0.5	Compliant

802.11n HT40 mode:

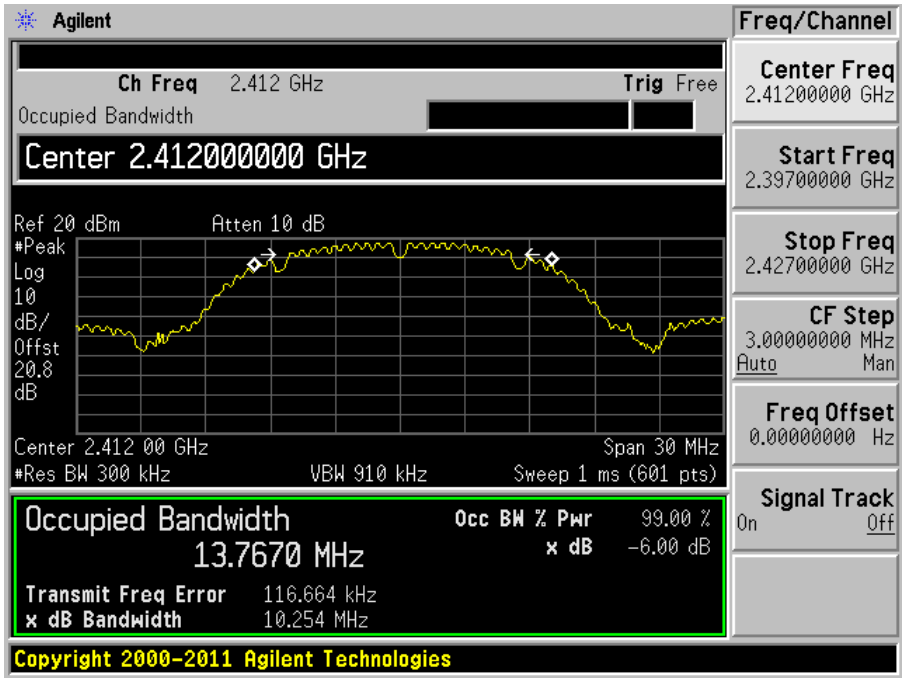
Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (MHz)	Results
Low	5755	36.390	36.1971	> 0.5	Compliant
High	5795	36.124	36.2532	> 0.5	Compliant

Please refer to the following plots for detailed test results

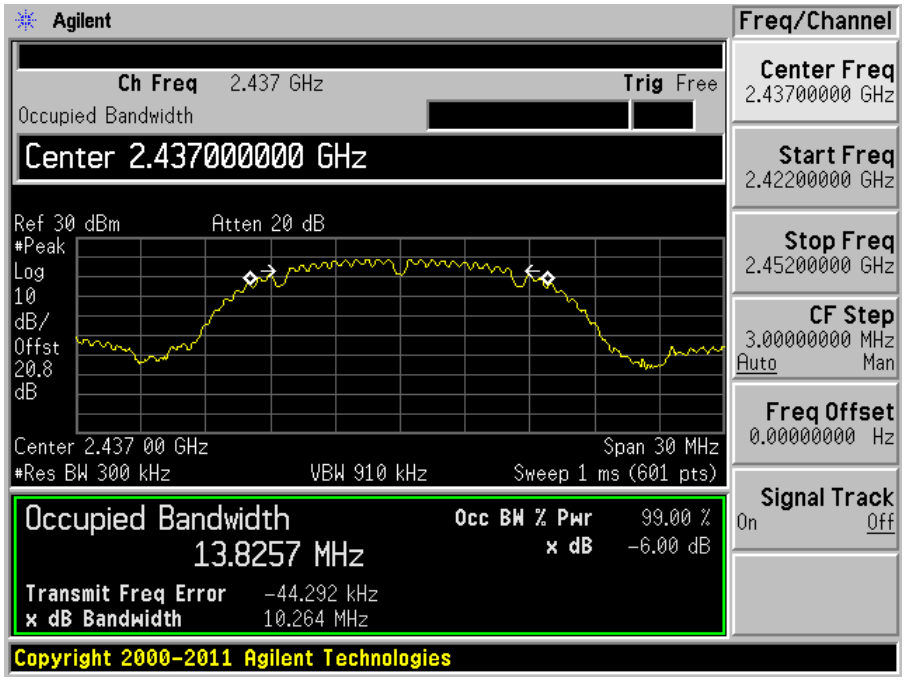
2.4 GHz Band

802.11b mode

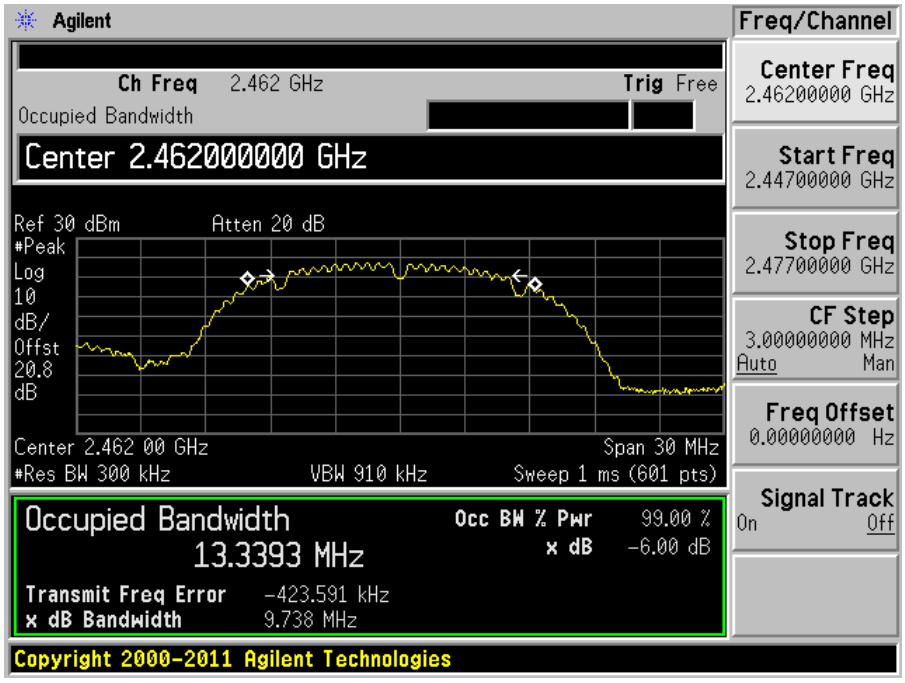
Low channel: 2412 MHz



Middle channel: 2437 MHz

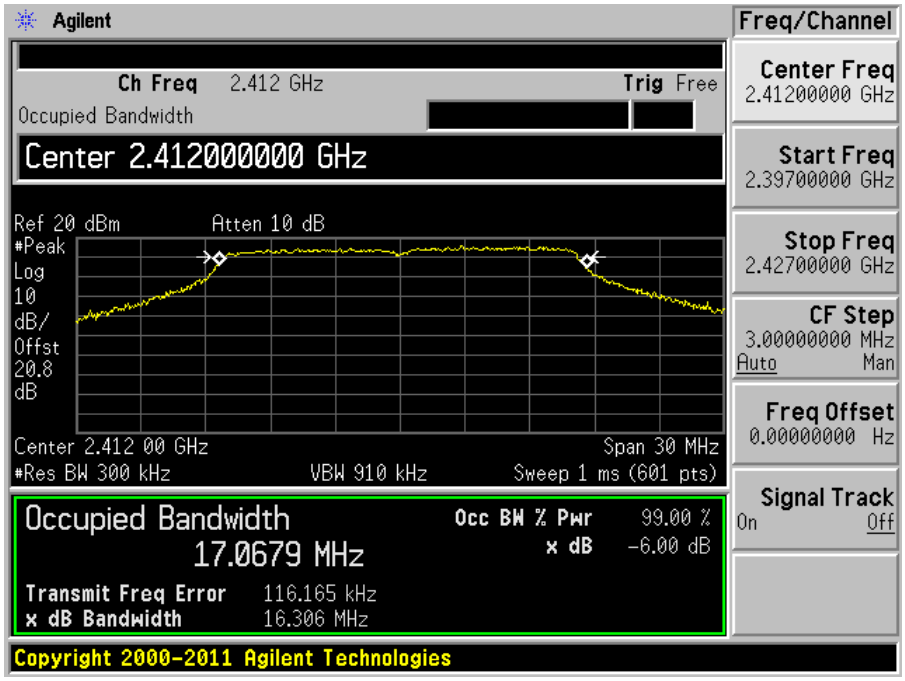


High channel: 2462 MHz

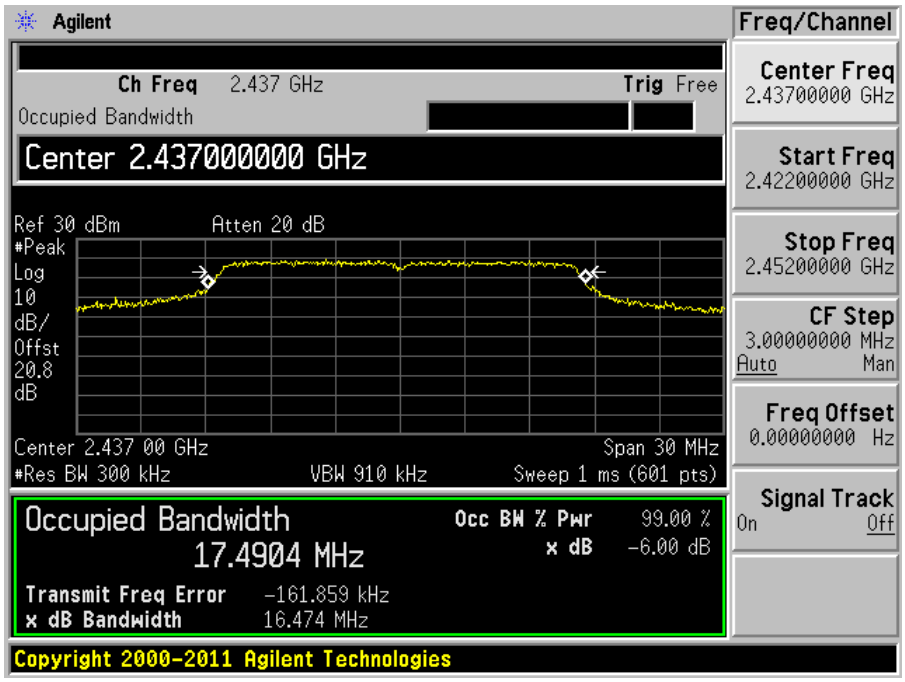


802.11g mode

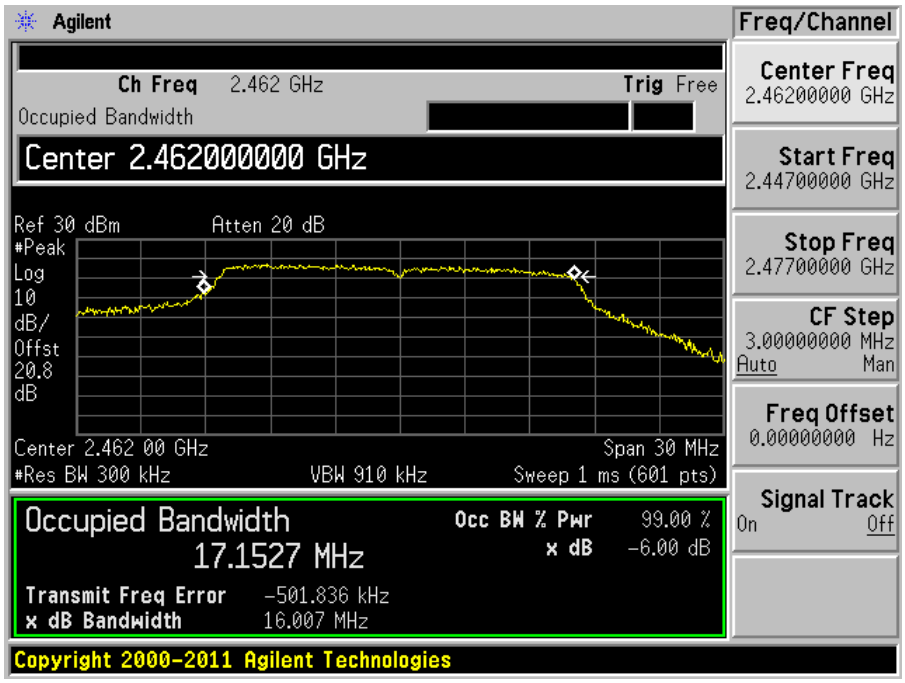
Low channel: 2412 MHz



Middle channel: 2437 MHz

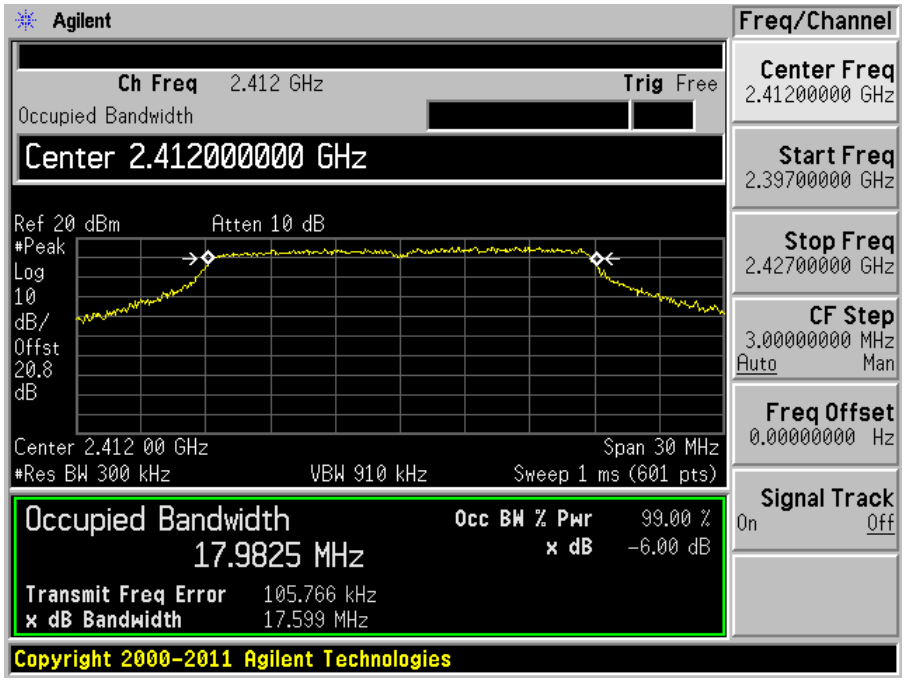


High channel: 2462 MHz

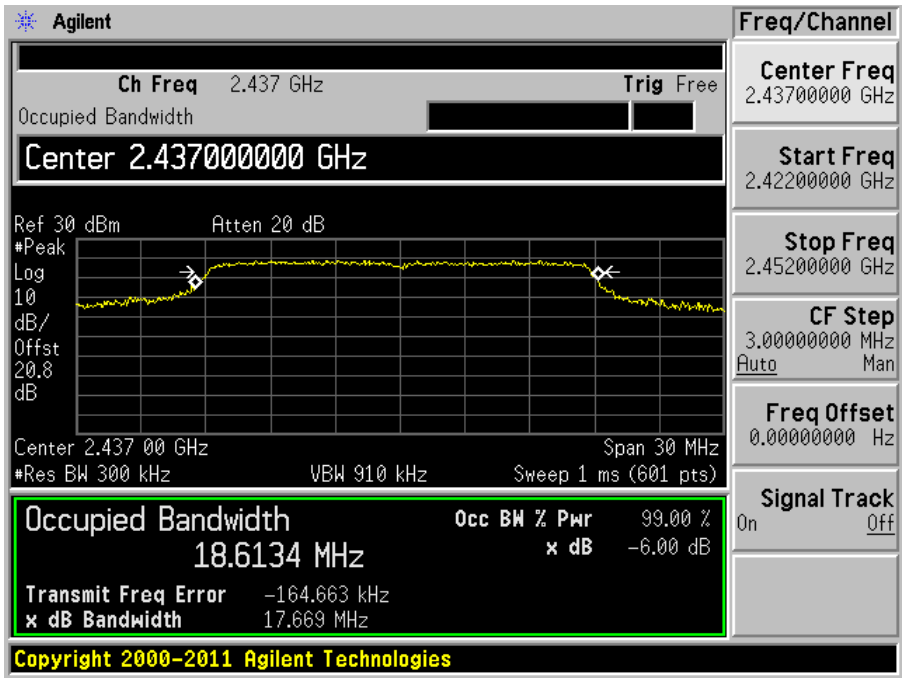


802.11n HT20 mode

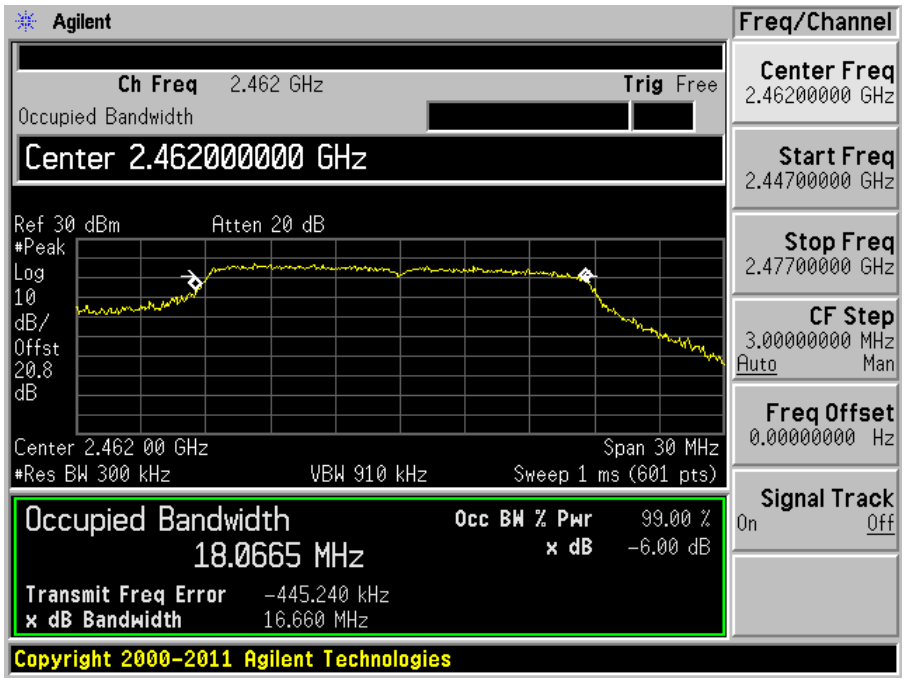
Low channel: 2412 MHz



Middle channel: 2437 MHz

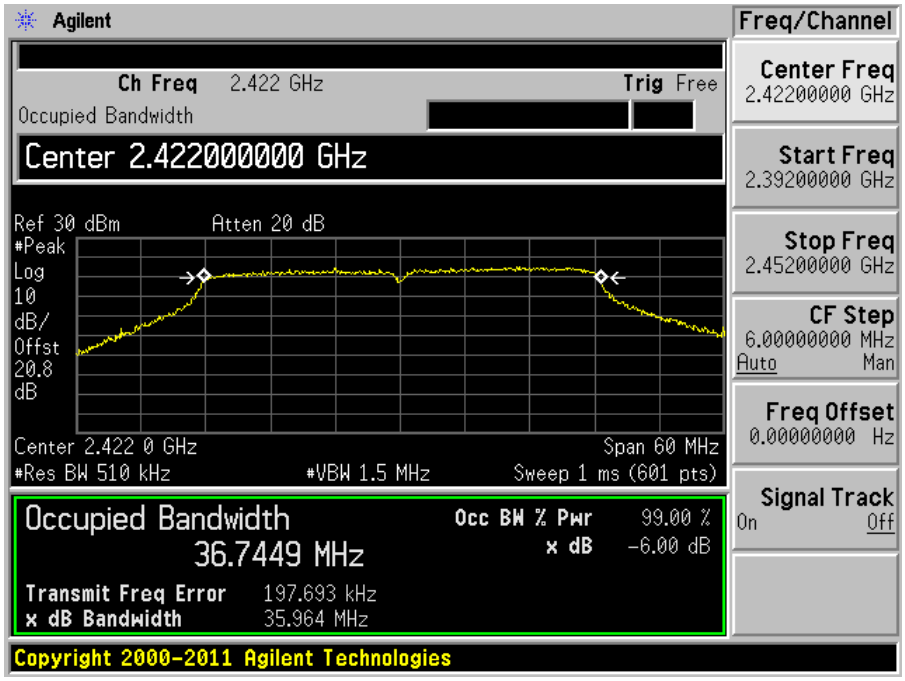


High channel: 2462 MHz

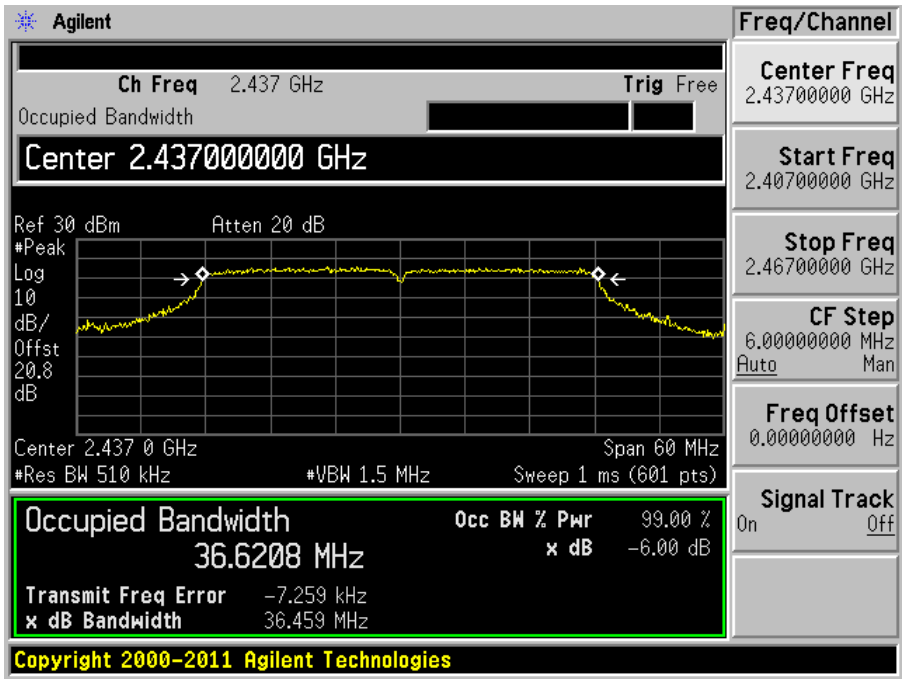


802.11n HT40 mode

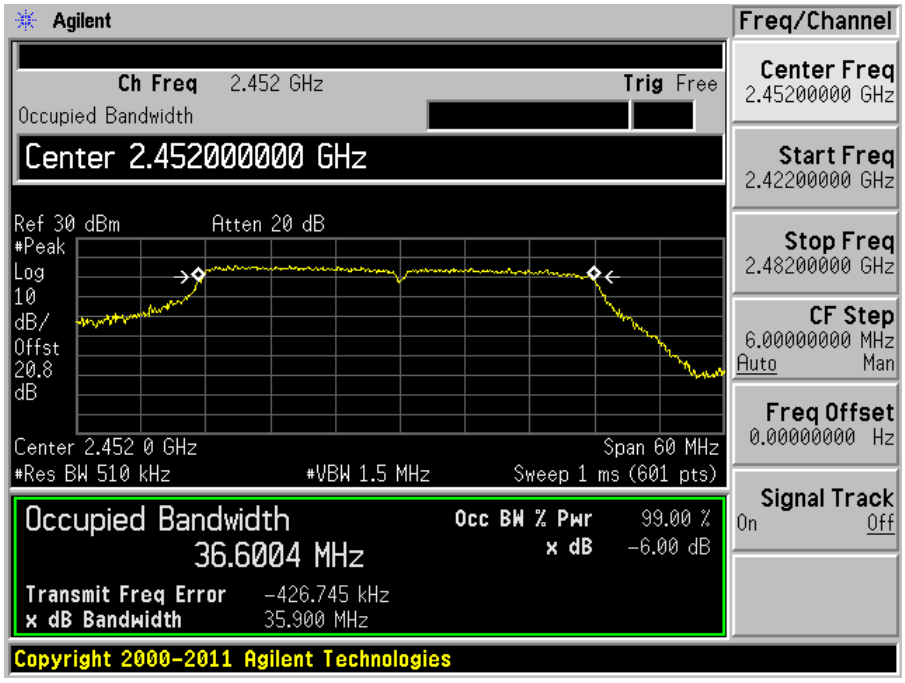
Low channel: 2422 MHz



Middle channel: 2437 MHz



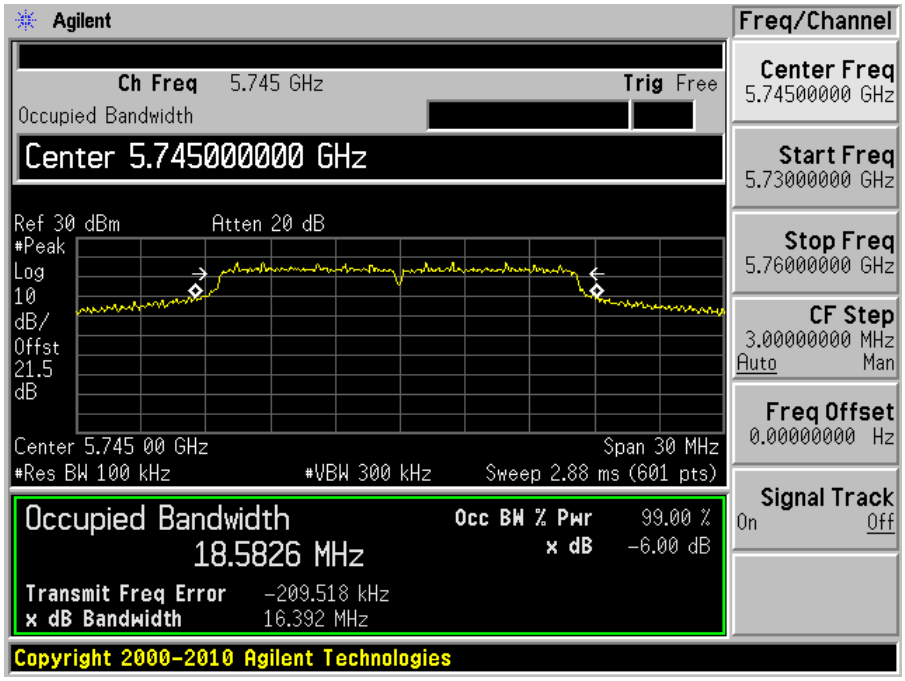
High channel: 2452 MHz



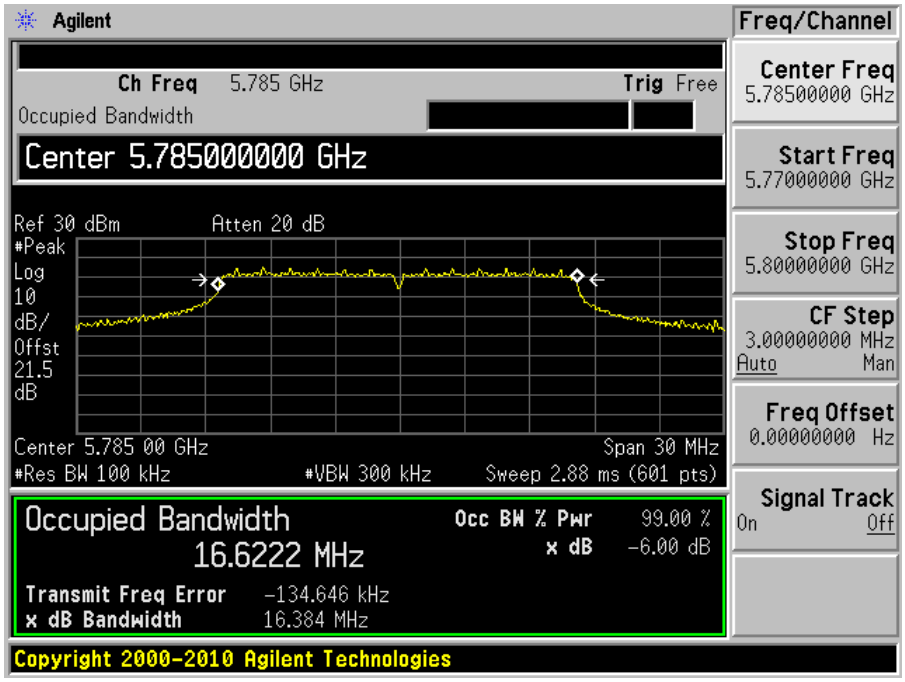
5.8 GHz Band

802.11a mode

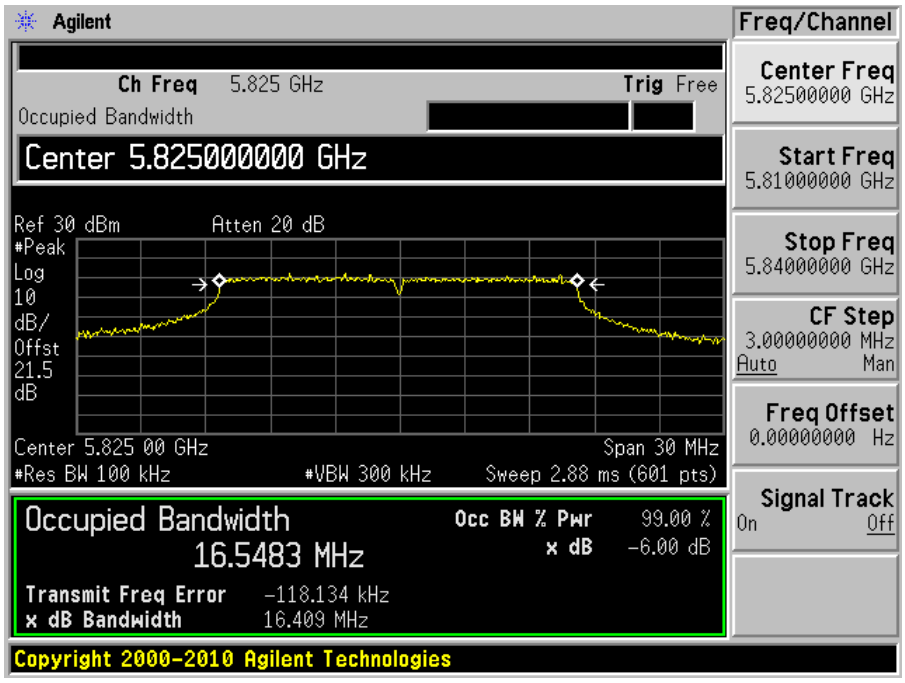
Low channel: 5745 MHz



Middle channel: 5785 MHz

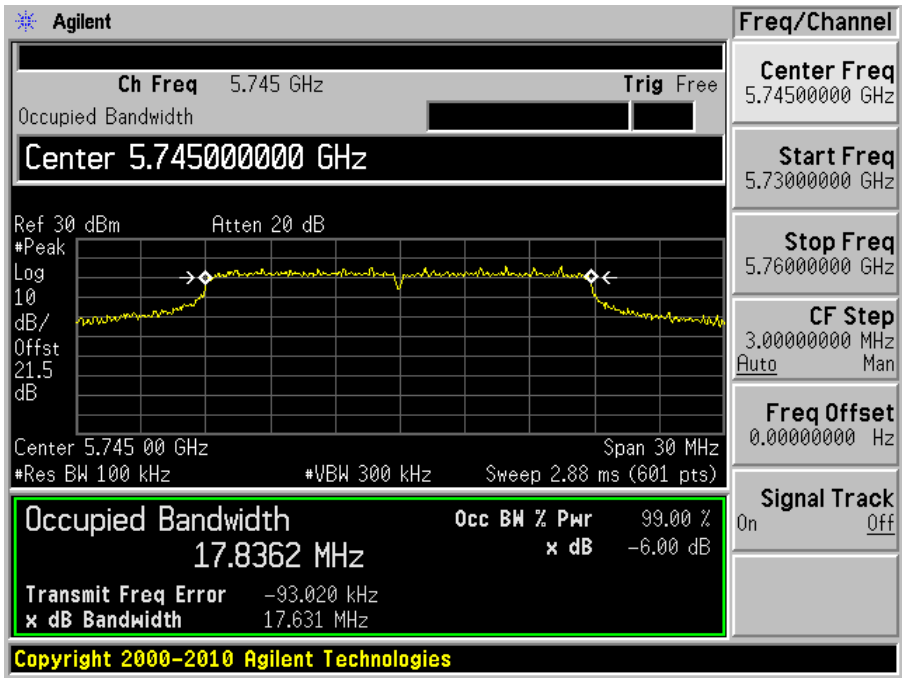


High channel: 5825 MHz

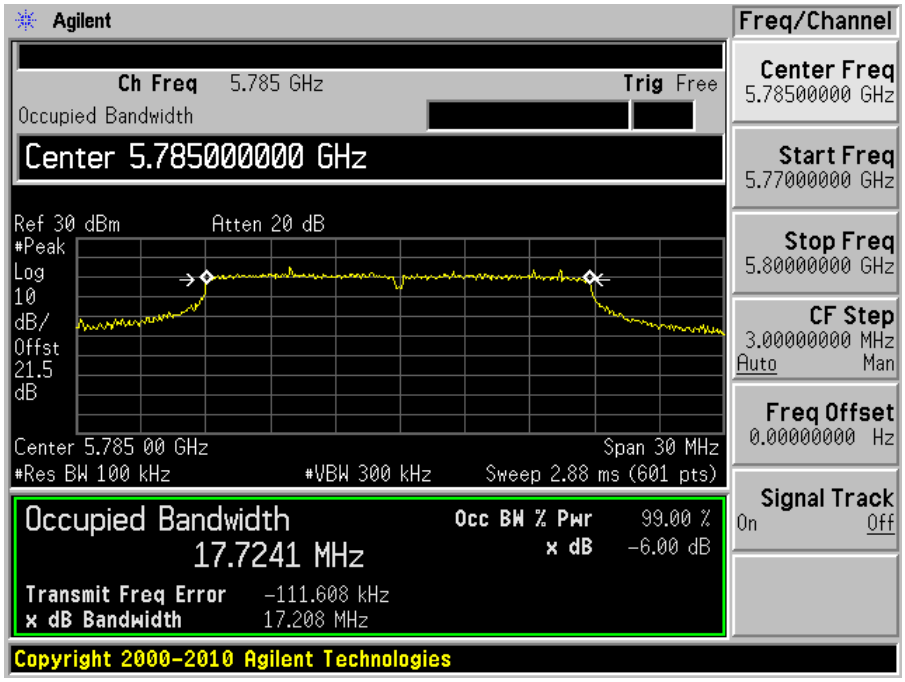


802.11n HT20 mode

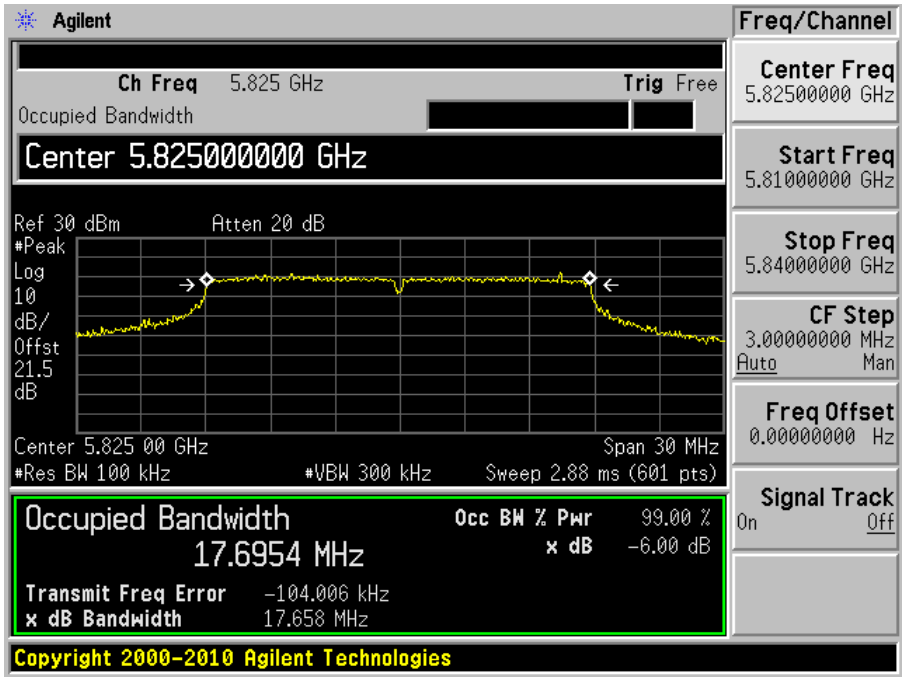
Low channel: 5745 MHz



Middle channel: 5785 MHz

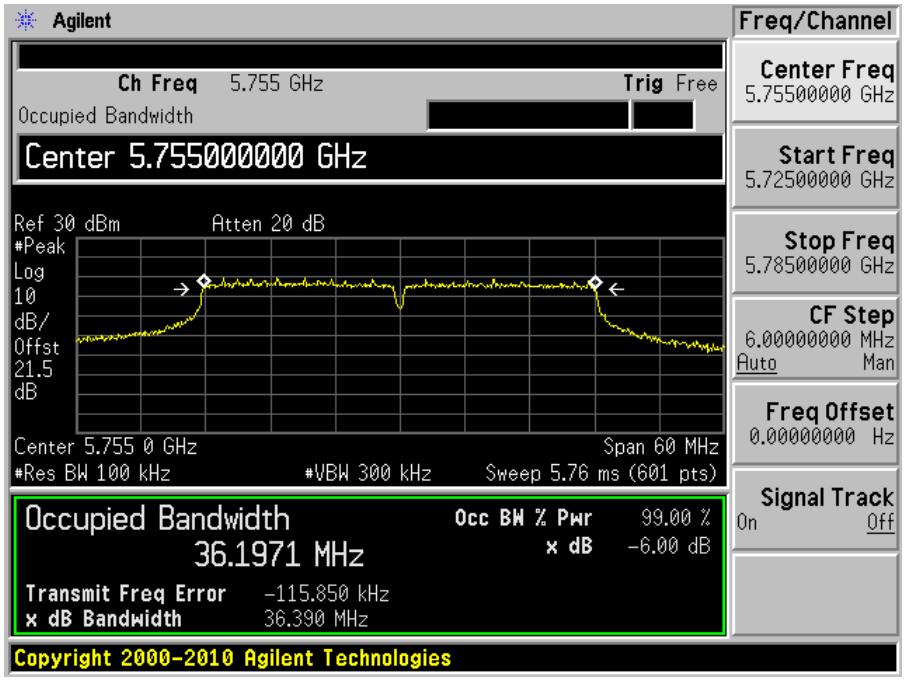


High channel: 5825 MHz

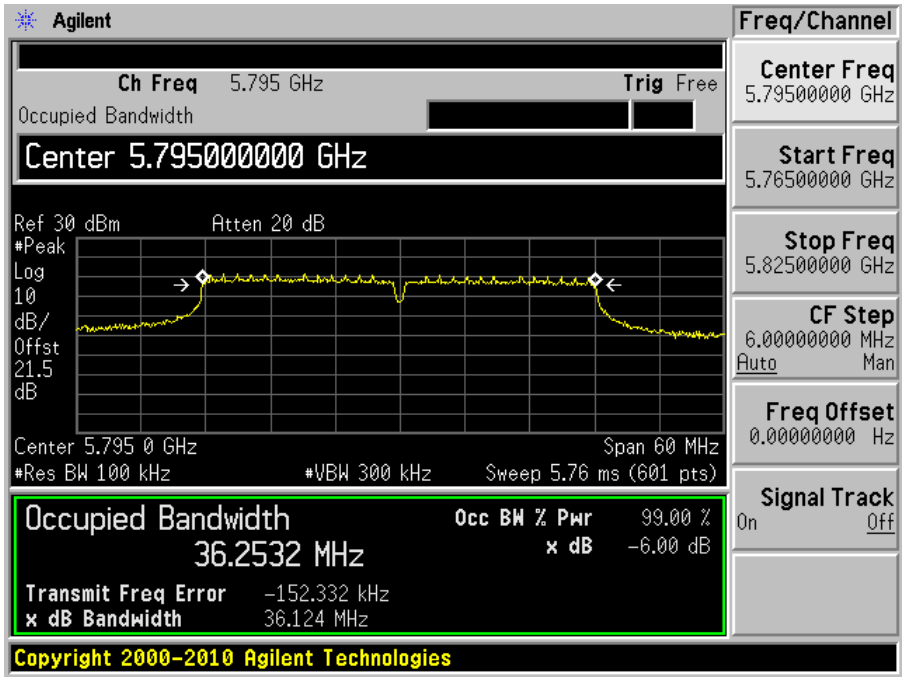


802.11n HT40 mode

Low channel: 5755 MHz



High channel: 5795 MHz



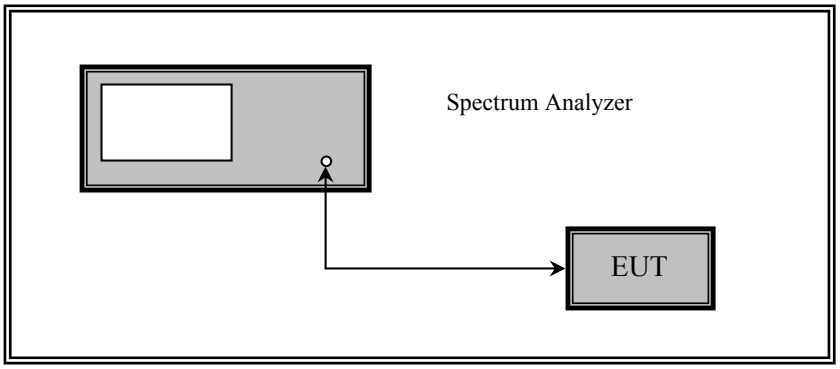
10 FCC §15.247(b) & IC RSS-210 §A8.4 – Peak Output Power Measurement

10.1 Applicable Standard

According to FCC §15.247(b) and IC RSS-210 §A8.4 (4) 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	Calibration Interval
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

10.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	43 %
ATM Pressure:	101.3kPa

The testing was performed by Jeffery Wu on 2013-04-15 at the RF site.

10.5 Test Results

2.4 GHz

Mode	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Software Power Setting
802.11b	2412	27.26	30	-2.74	30
	2437	27.79	30	-2.21	30
	2462	26.21	30	-3.79	30
802.11g	2412	24.20	30	-5.80	26.5
	2437	27.74	30	-2.26	30
	2462	25.39	30	-4.61	29
802.11n HT20	2412	24.37	30	-5.63	26.5
	2437	27.83	30	-2.17	30
	2462	25.31	30	-4.69	29
802.11n HT40	2422	23.84	30	-6.16	25
	2437	25.49	30	-4.51	26.5
	2452	25.71	30	-4.29	28

5.8 GHz Band

Mode	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Software Power Setting
802.11a	5745	27.83	30	-2.17	31
	5785	25.70	30	-4.30	27
	5825	24.18	30	-5.82	26
802.11n HT20	5745	26.96	30	-3.04	29
	5785	25.74	30	-4.26	27
	5825	24.16	30	-5.86	26
802.11n HT40	5755	23.53	30	-6.47	25
	5795	25.50	30	-4.50	27

11 FCC §15.247(d) & IC RSS-210 §A8.5 – 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 §15.209(a) see §15.205(c).

According to IC Rss-210 §A8.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced 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 section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

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	Calibration Interval
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

11.4 Test Environmental Conditions

Temperature:	22-24 °C
Relative Humidity:	42-45 %
ATM Pressure:	101-102kPa

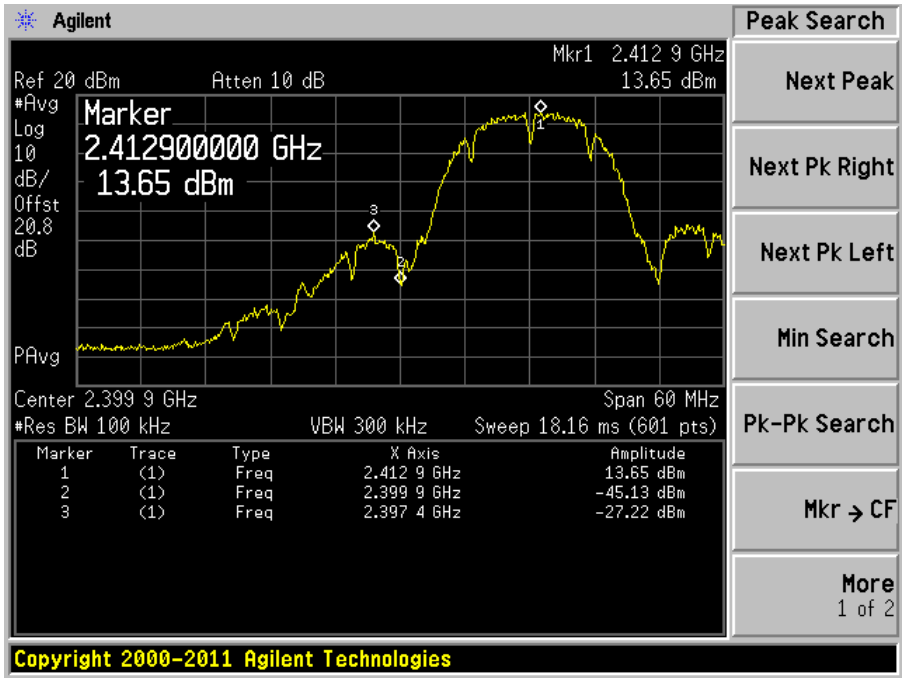
The testing was performed by Jeffrey Wu from 2013-04-16 at RF site.

11.5 Test Results

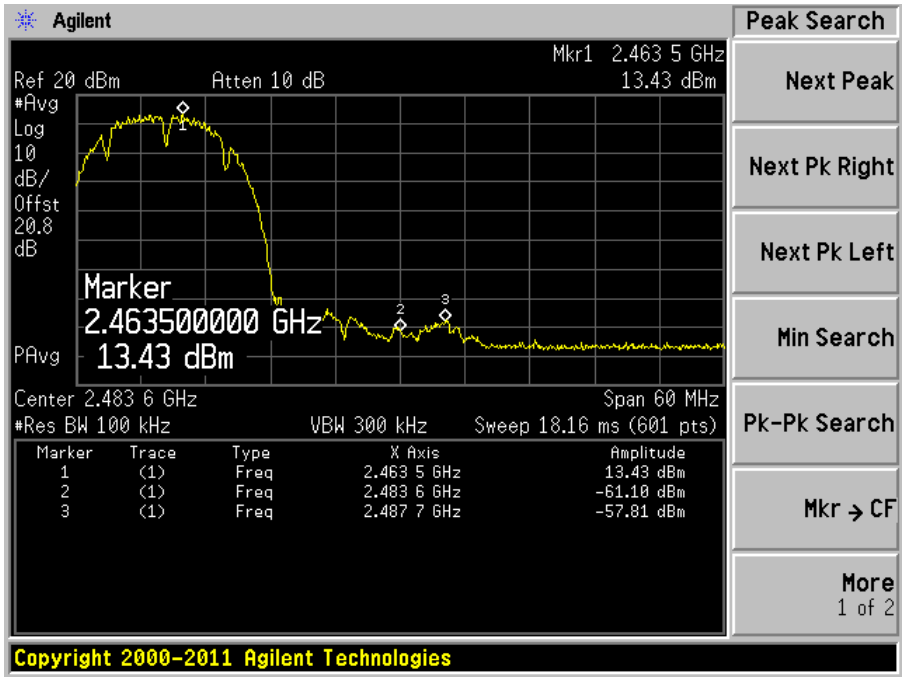
Please refer to following pages for plots of band edge.

2.4 GHz Band

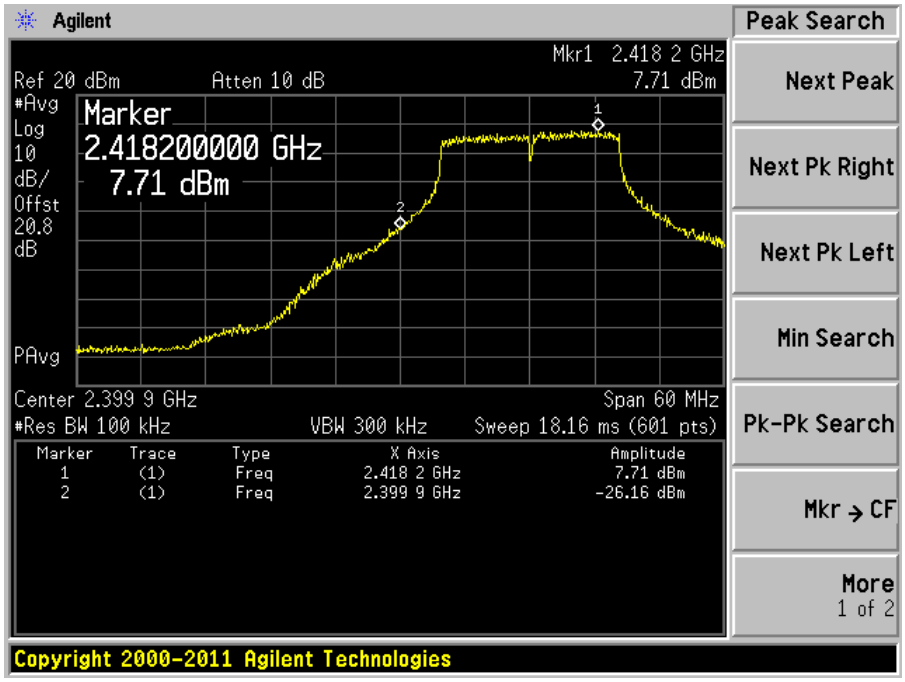
802.11b, Low Band Edge



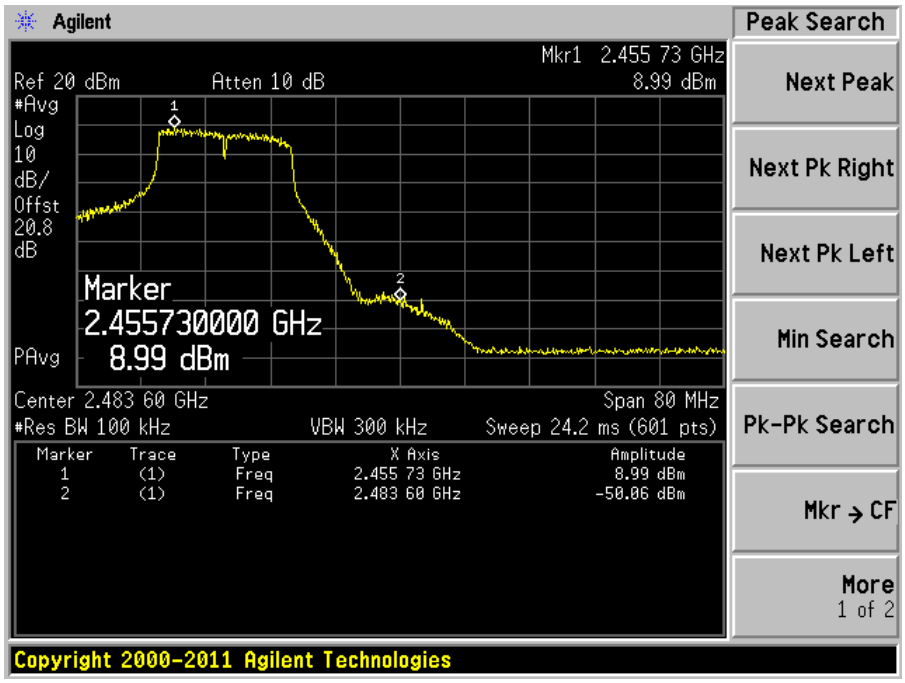
802.11b, High Band Edge



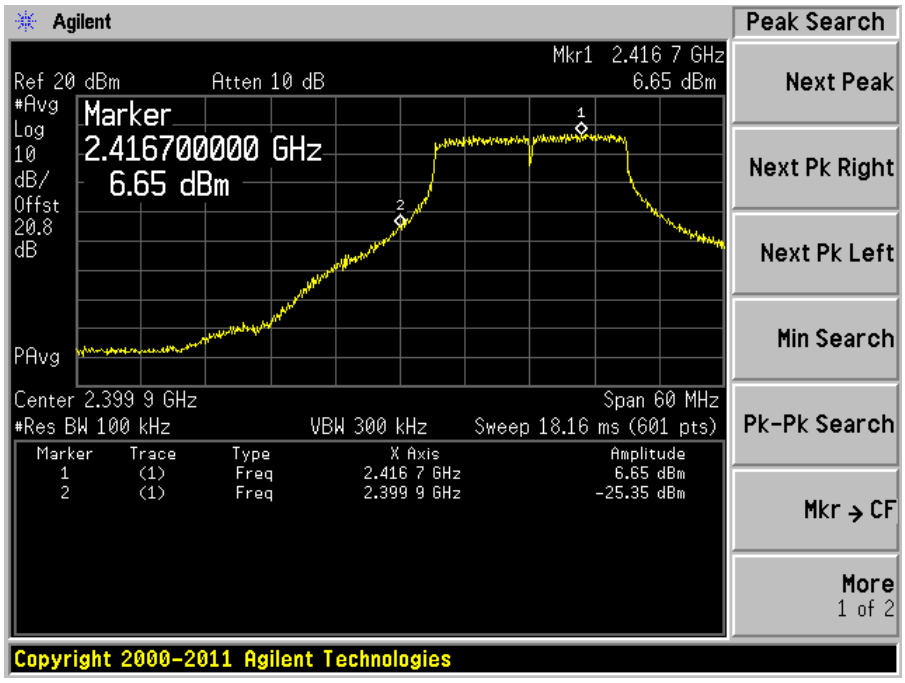
802.11g, Low Band Edge



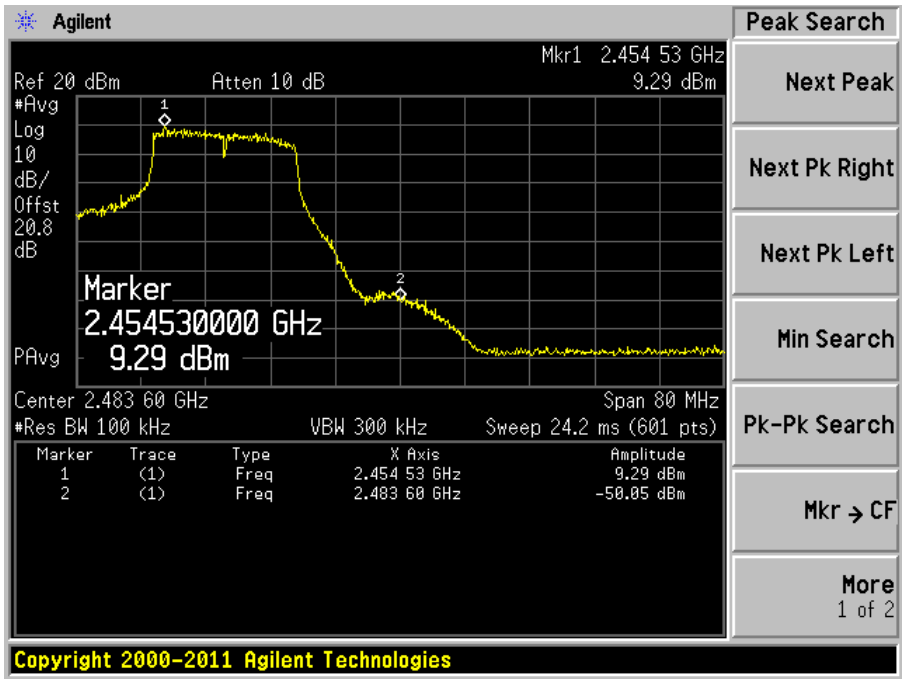
802.11g, High Band Edge



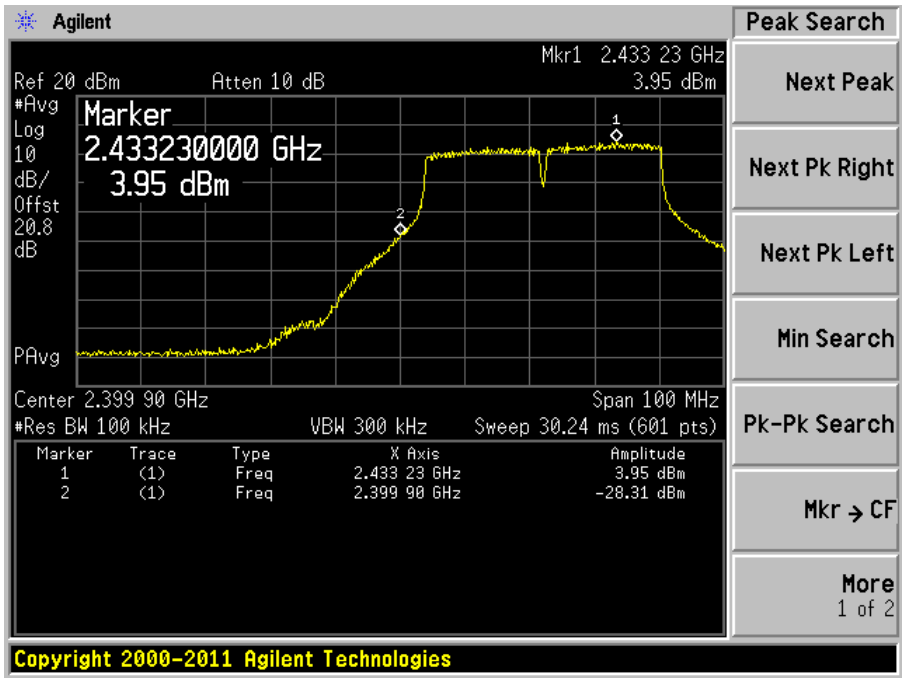
802.11n HT20, Low Band Edge



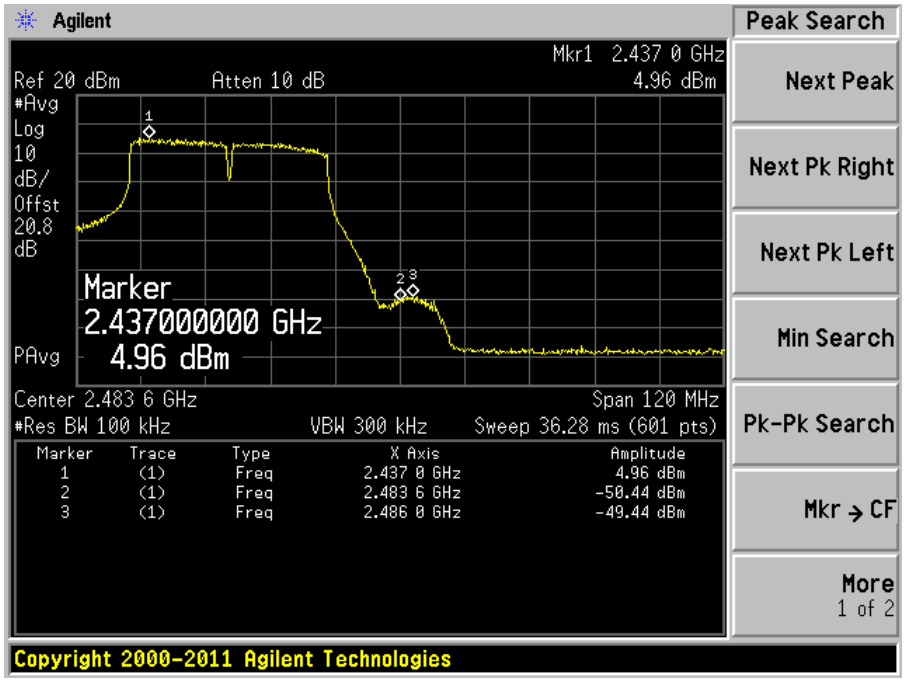
802.11n HT20, High Band Edge



802.11n HT40, Low Band Edge

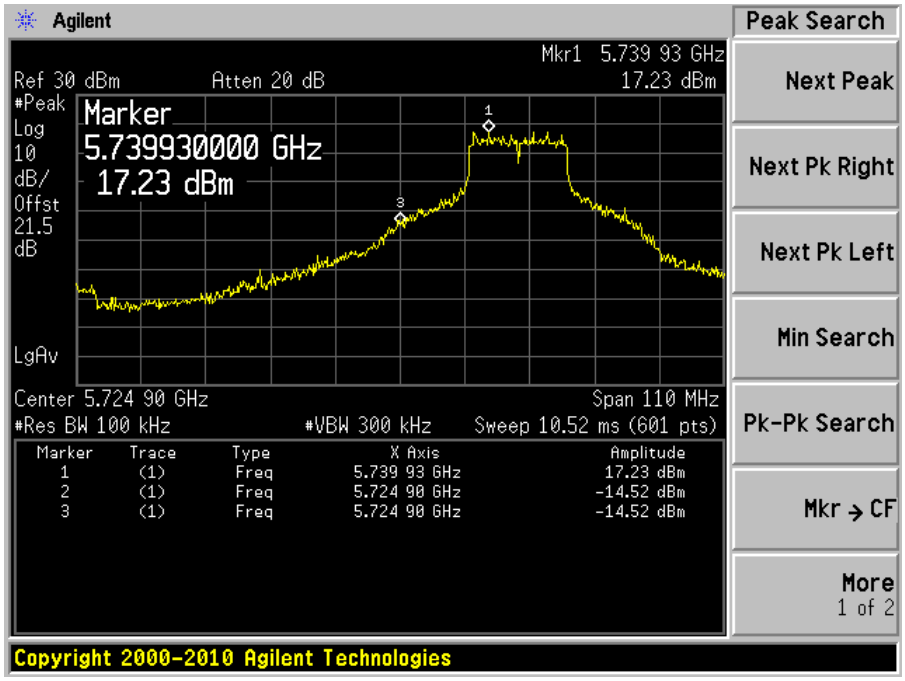


802.11n HT40, High Band Edge

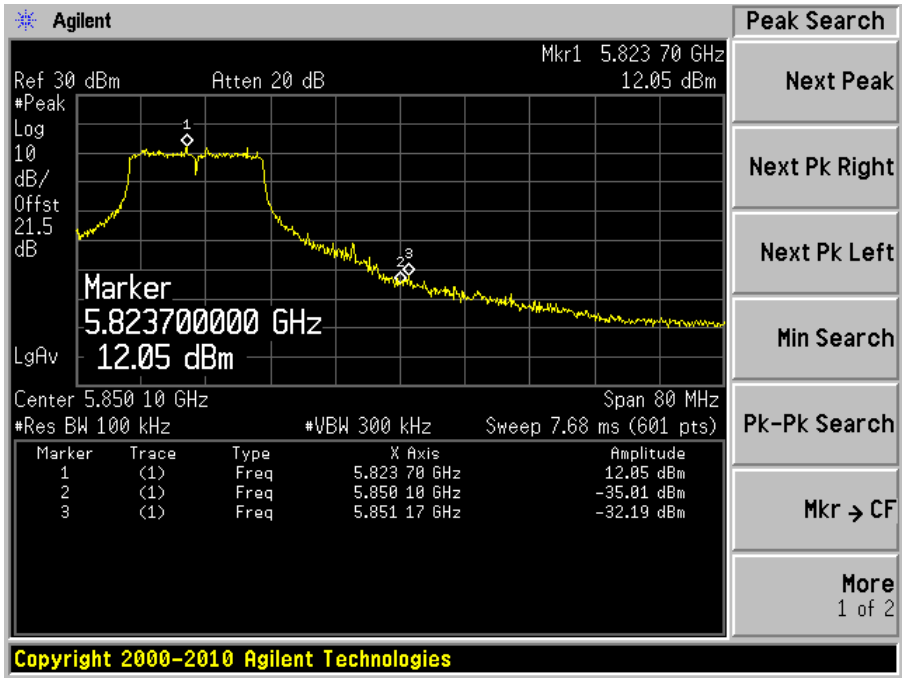


5.8 GHz Band

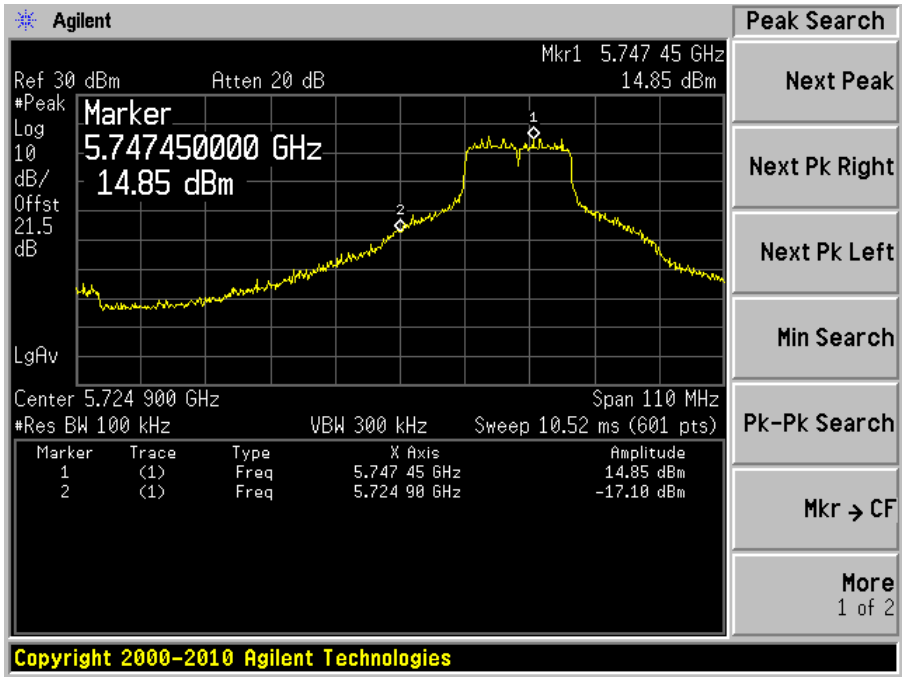
802.11a, Low Band Edge



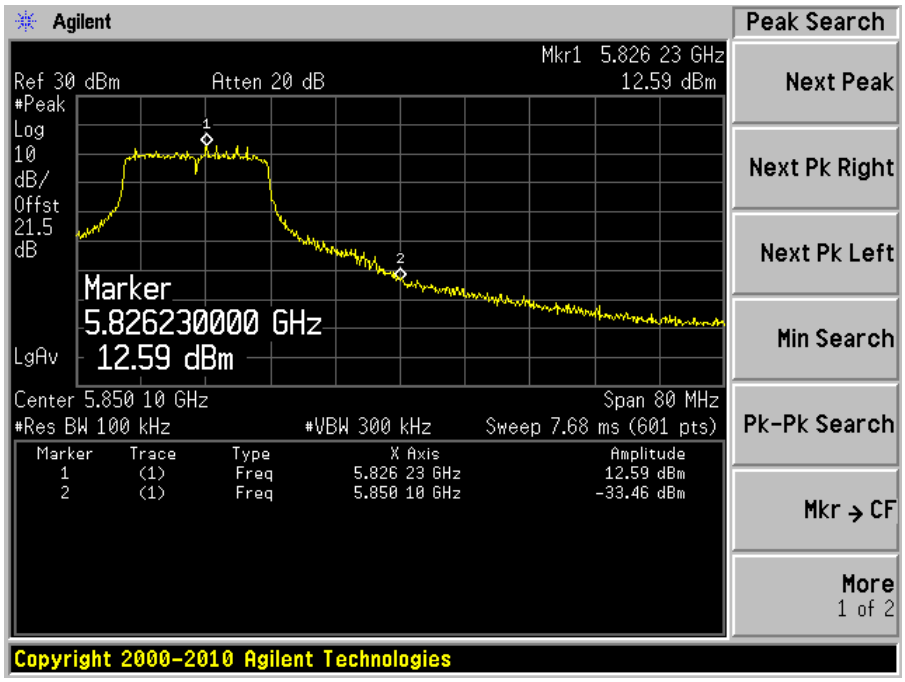
802.11a, High Band Edge



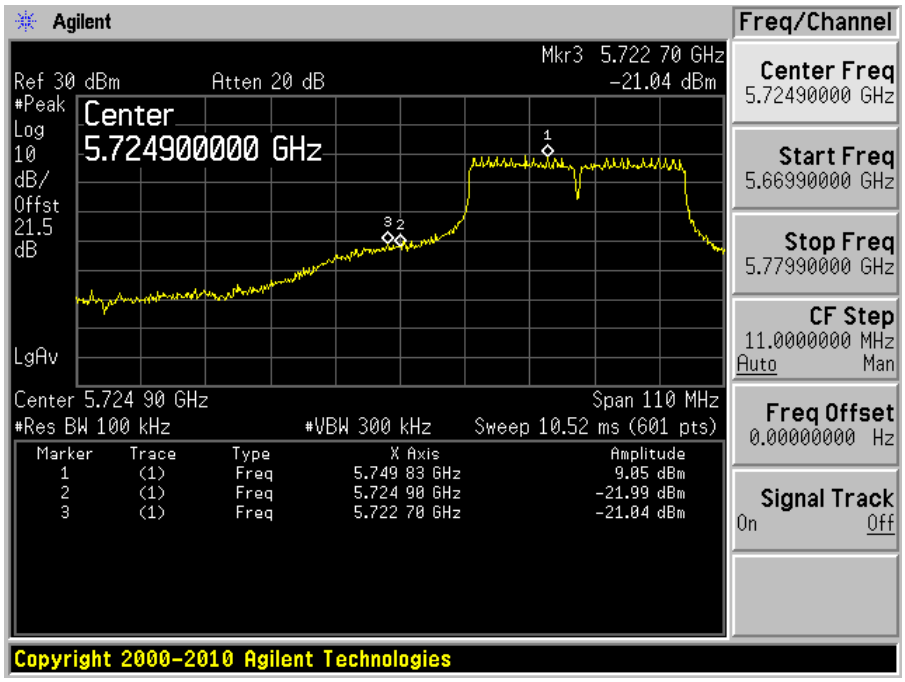
802.11n HT20, Low Band Edge



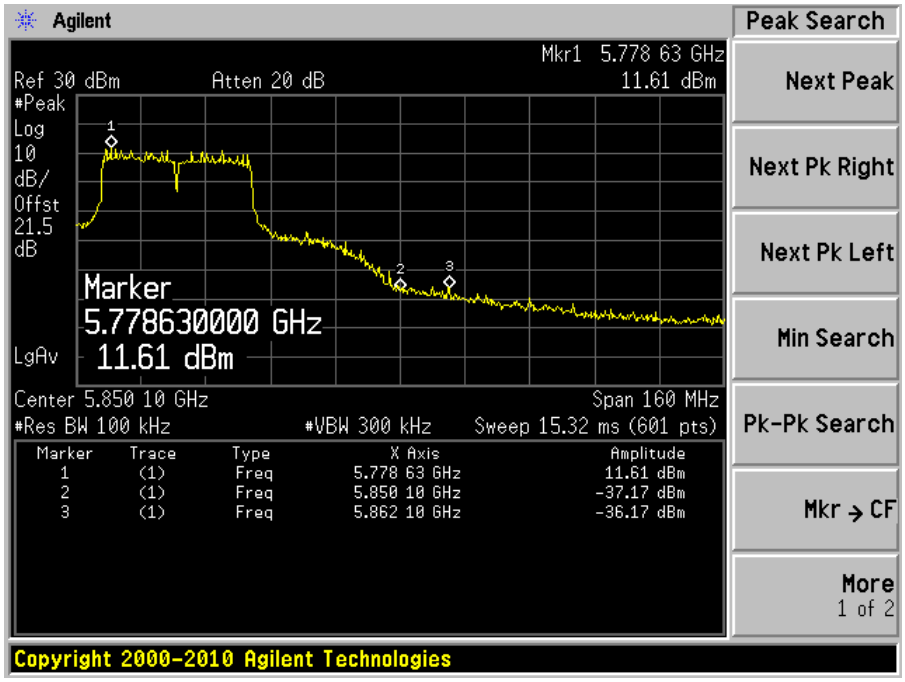
802.11n HT20, High Band Edge



802.11n HT40, Low Band Edge



802.11n HT40, High Band Edge



12 FCC §15.247(e) & IC RSS-210 §A8.2 (b) – Power Spectral Density

12.1 Applicable Standard

According to FCC §15.247(e) and RSS-210 §A8.2 (b) , 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. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW = 3 kHz.
4. Set the VBW ≥ 3 x RBW
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

12.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year

Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

12.4 Test Environmental Conditions

Temperature:	23 °C
Relative Humidity:	45 %
ATM Pressure:	101.7kPa

The testing was performed by Jeffery Wu on 2013-04-21 at the RF site.

12.5 Test Results

2.4 GHz Band

Mode	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Software Power Setting
802.11b	2412	4.48	8	30
	2437	4.49	8	30
	2462	2.04	8	30
802.11g	2412	-0.22	8	26.5
	2437	3.11	8	30
	2462	2.20	8	29
802.11n HT20	2412	-0.73	8	26.5
	2437	3.29	8	30
	2462	1.13	8	29
802.11n HT40	2422	-2.85	8	25
	2437	-2.98	8	26.5
	2452	-2.47	8	28

5.8 GHz Band

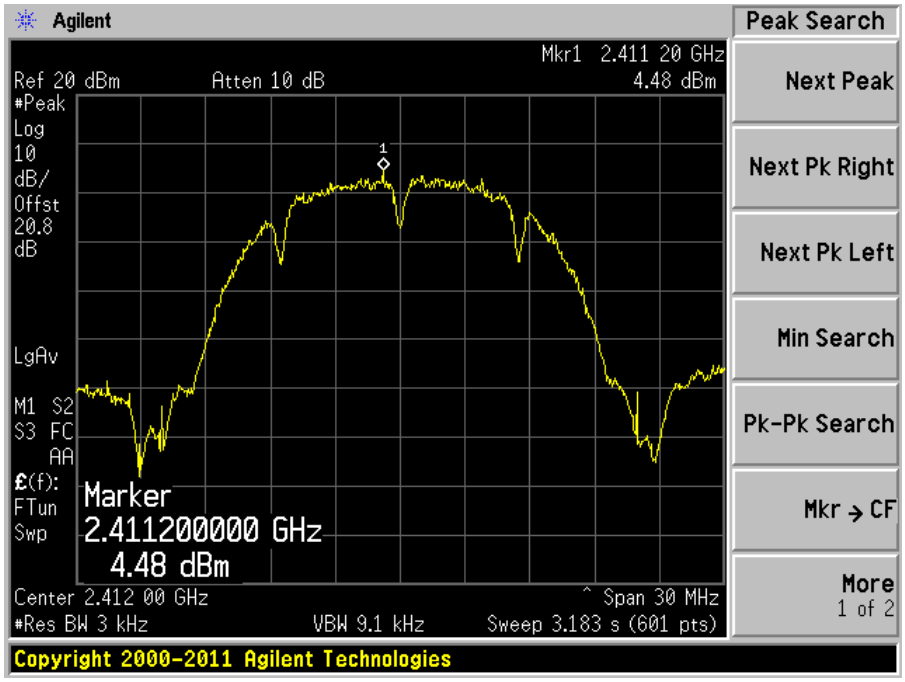
Mode	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Software Power Setting
802.11a	5745	3.91	8	31
	5785	0.46	8	27
	5825	-1.36	8	26
802.11n HT20	5745	2.54	8	29
	5785	-0.08	8	27
	5825	-1.19	8	26
802.11n HT40	5755	-5.30	8	25
	5795	-1.39	8	27

Please refer to the following plots for detailed test results:

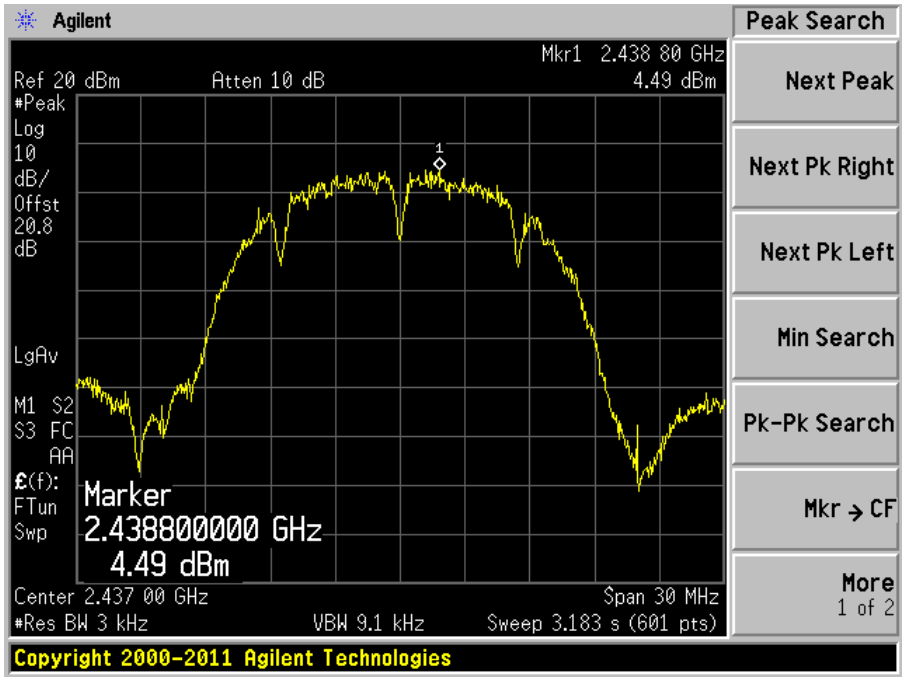
2.4 GHz Band

802.11b mode

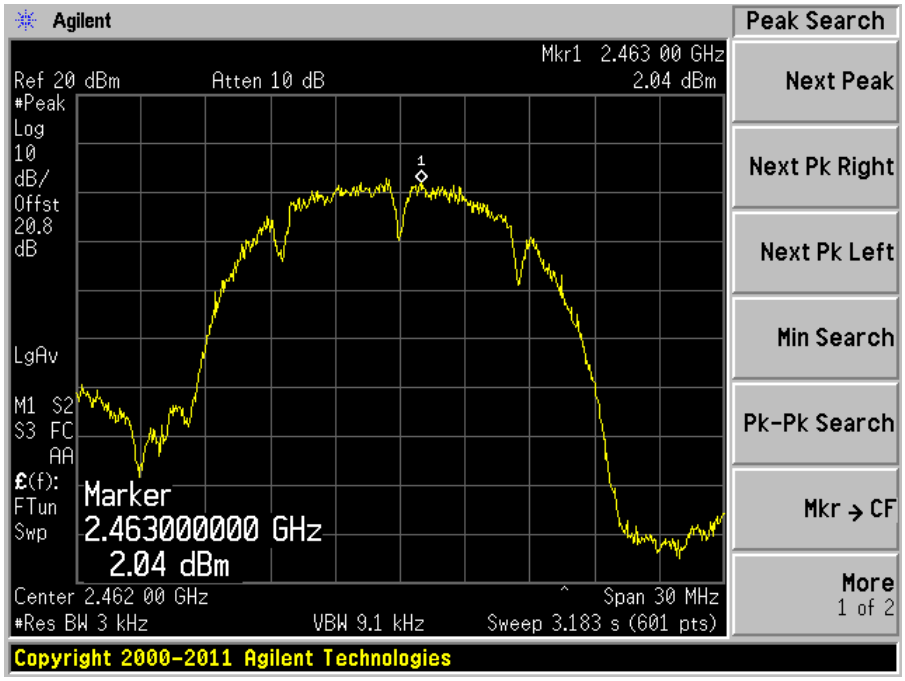
Low channel: 2412 MHz



Middle channel: 2437 MHz

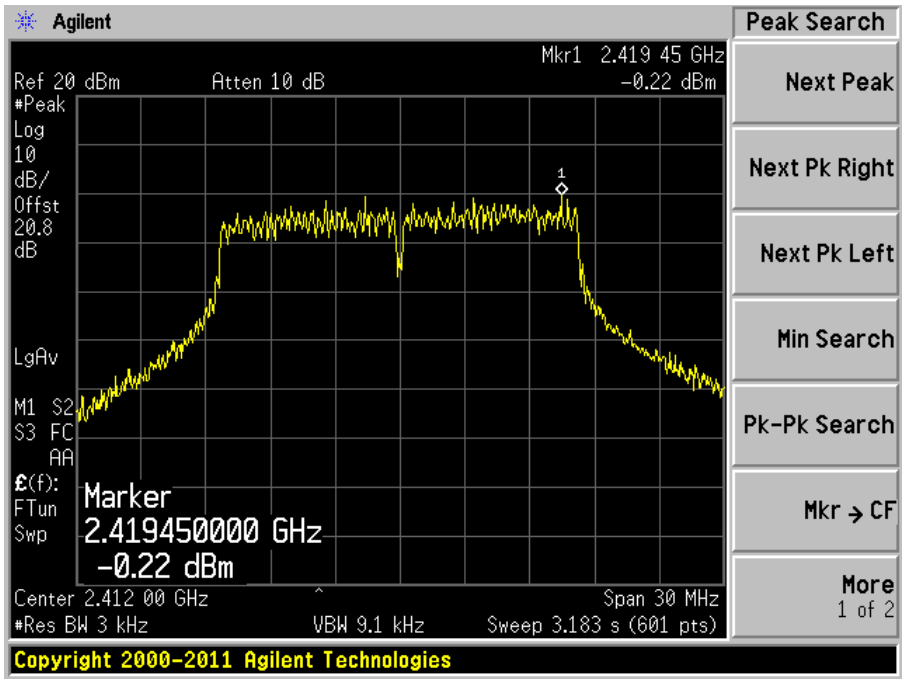


High channel: 2462 MHz

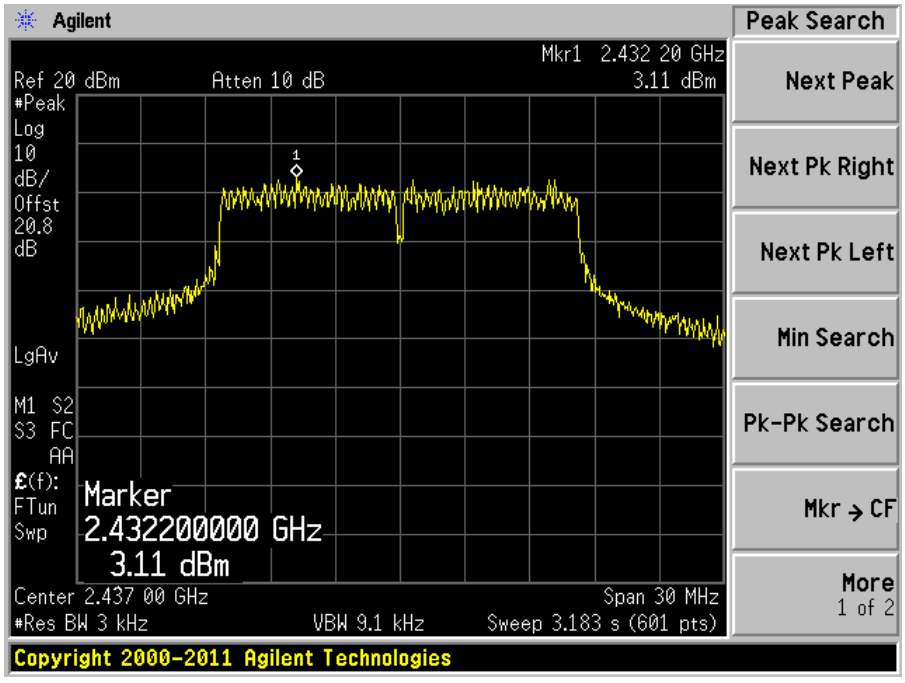


802.11g mode

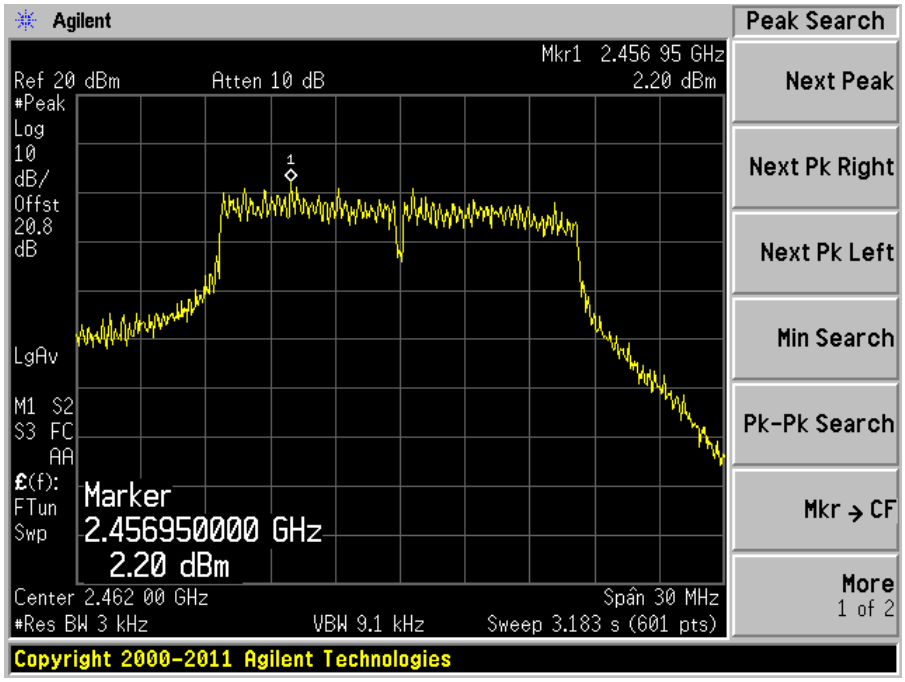
Low channel: 2412 MHz



Middle channel: 2437 MHz

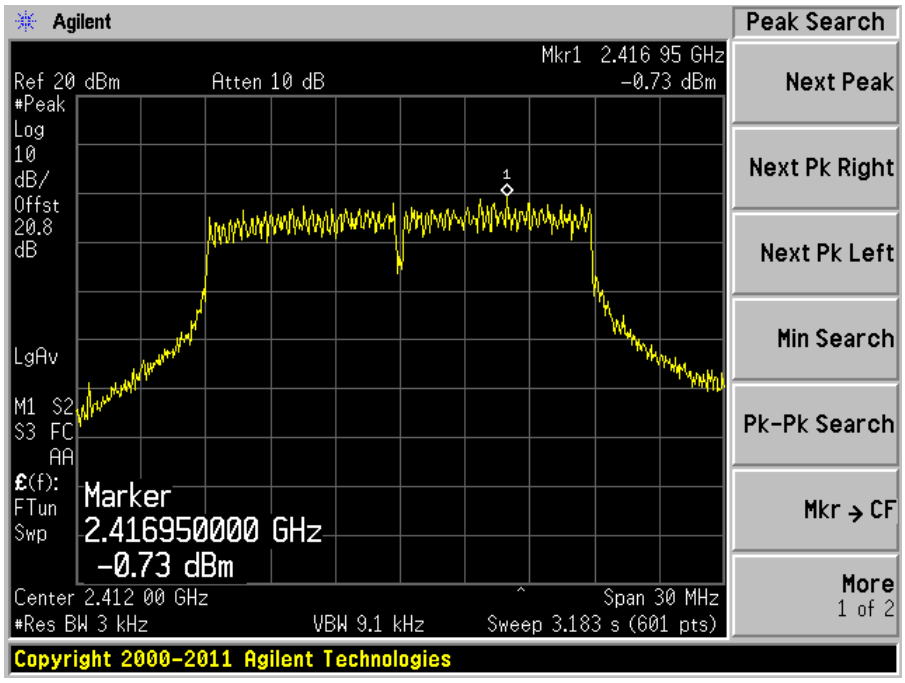


High channel: 2462 MHz

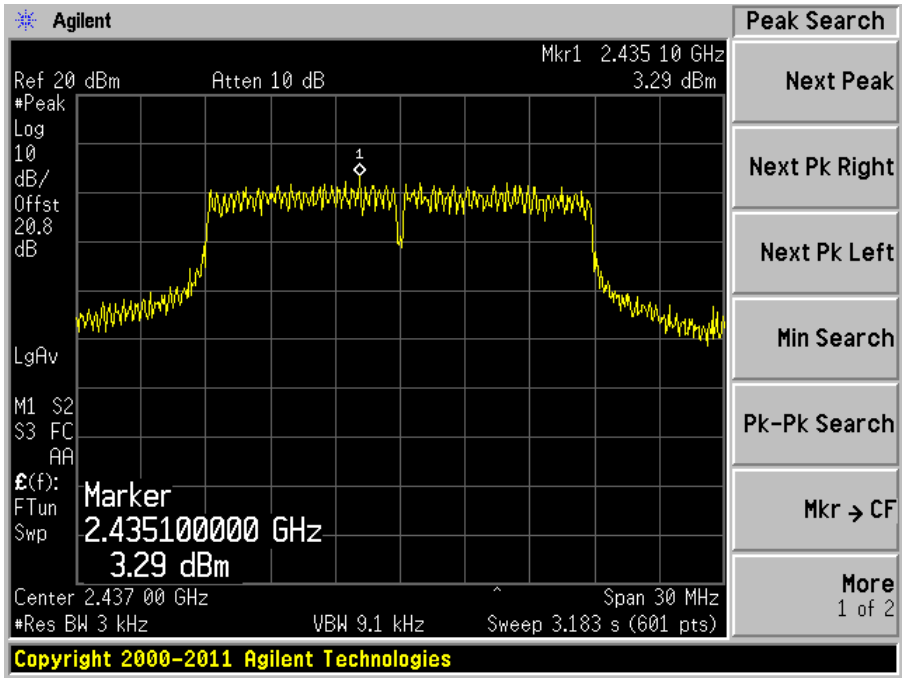


802.11n HT20 mode

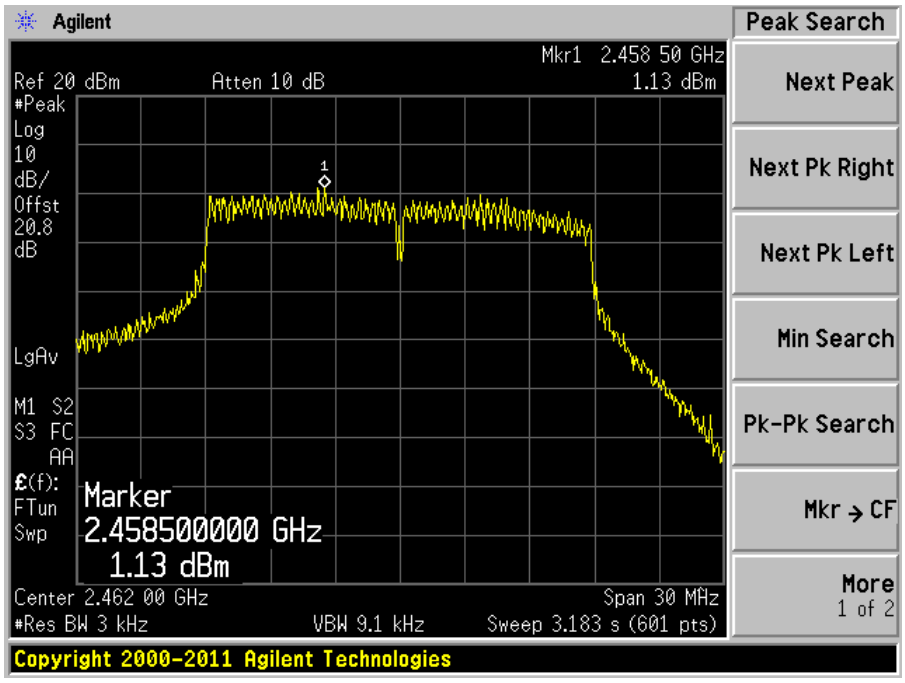
Low channel: 2412 MHz



Middle channel: 2437 MHz

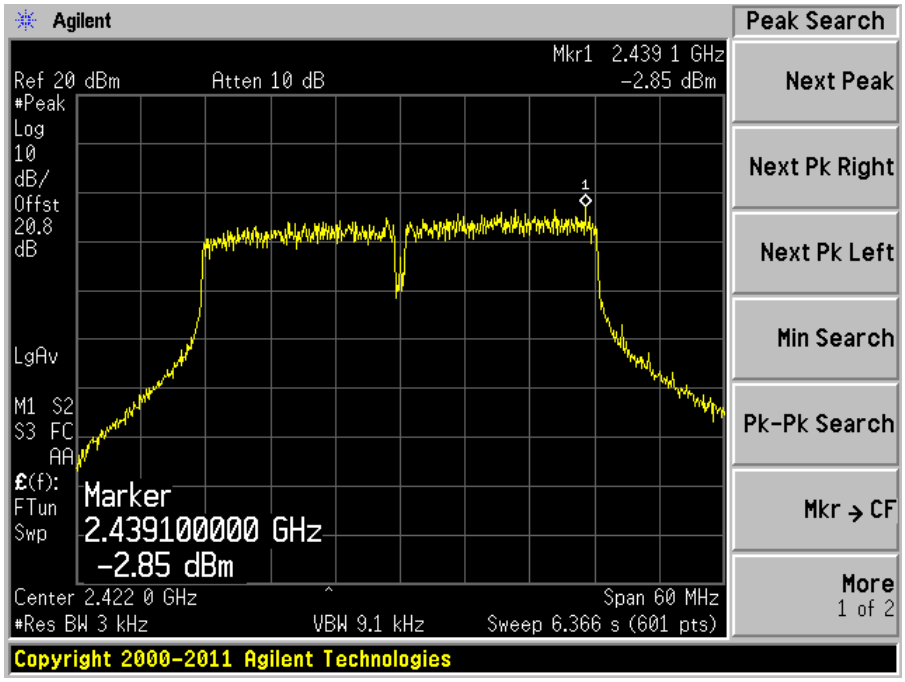


High channel: 2462 MHz

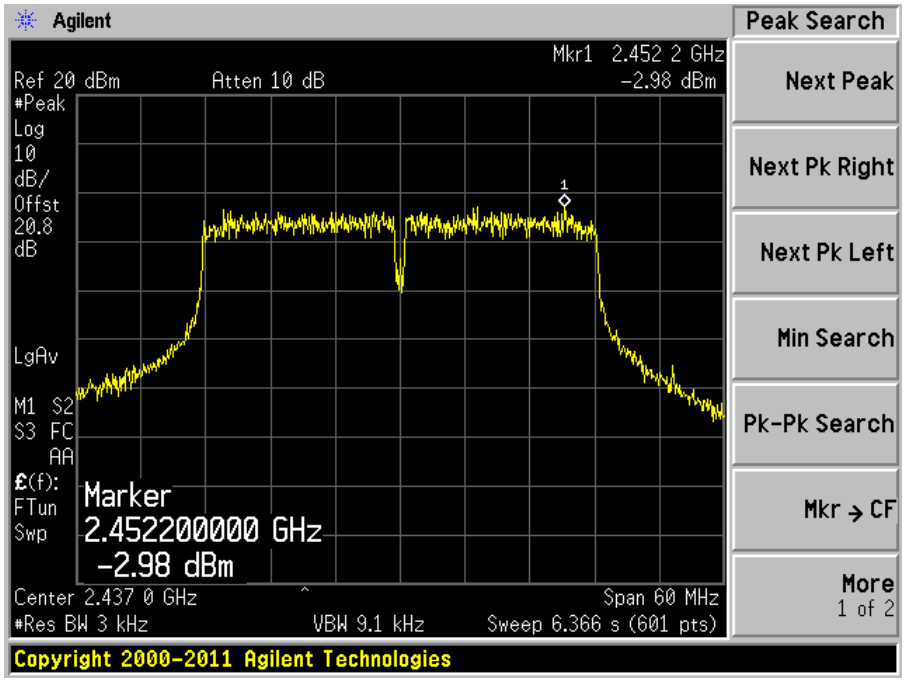


802.11n HT40 mode

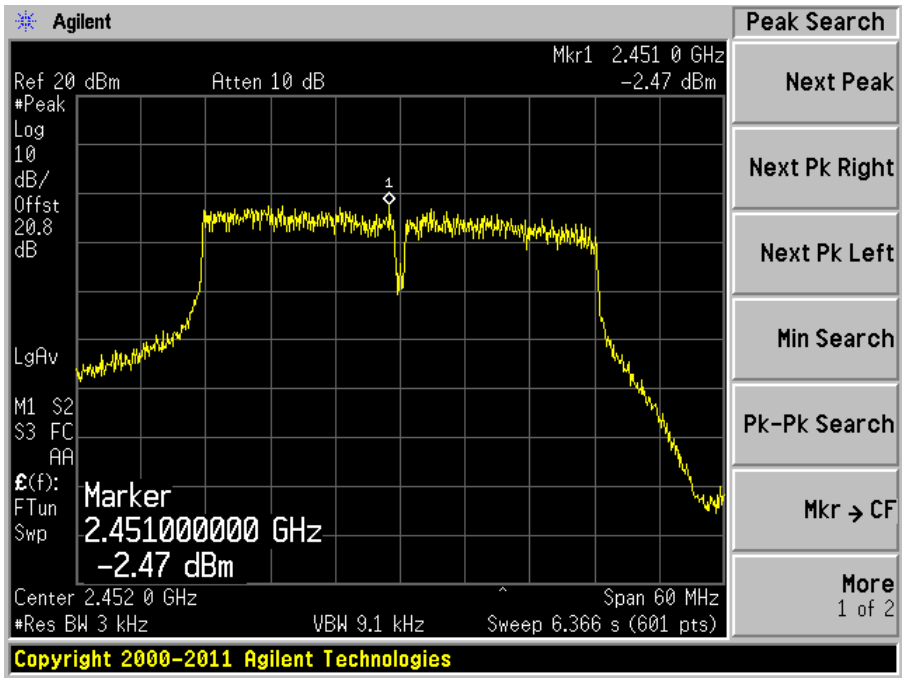
Low channel: 2422 MHz



Middle channel: 2437 MHz



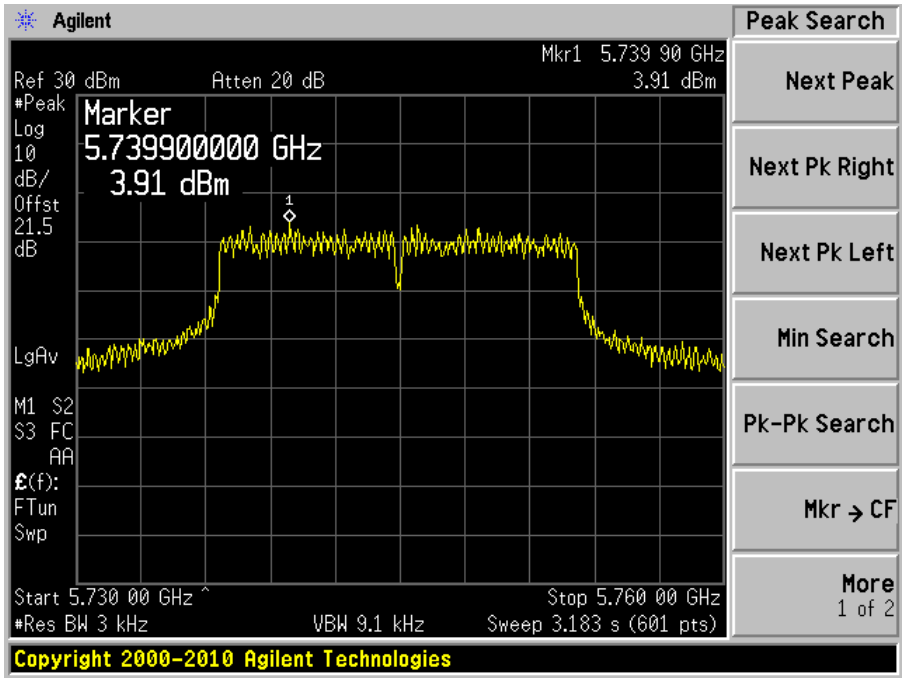
High channel: 2452 MHz



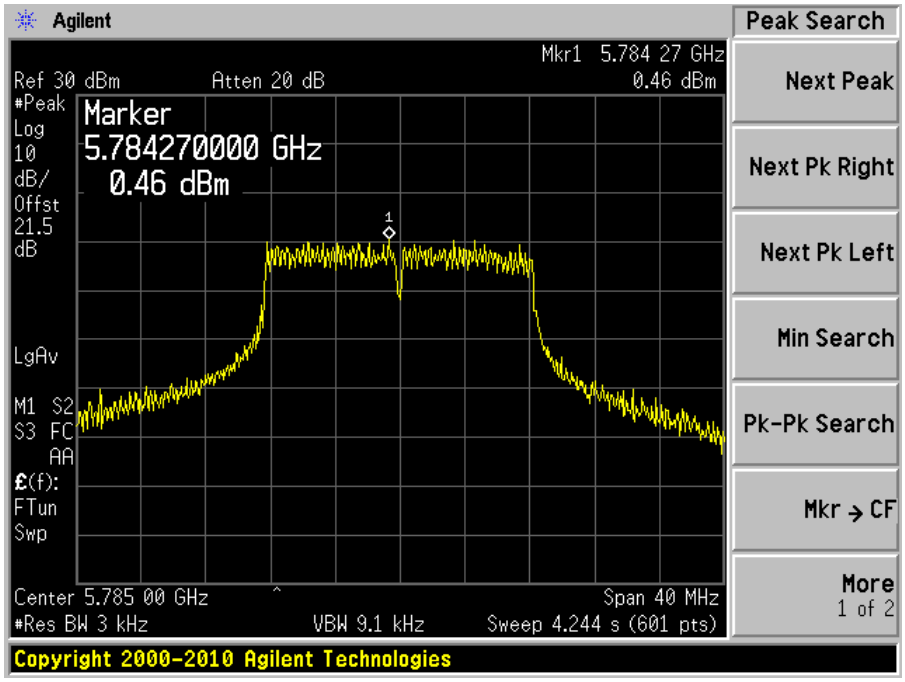
5.8 GHz Band

802.11a mode

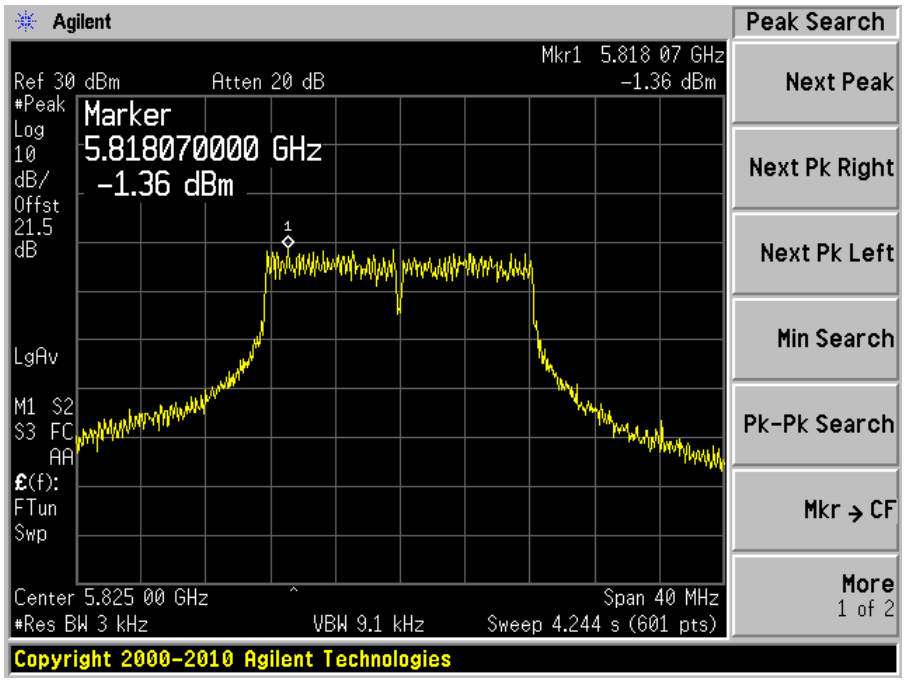
Low channel: 5745 MHz



Middle channel: 5785 MHz

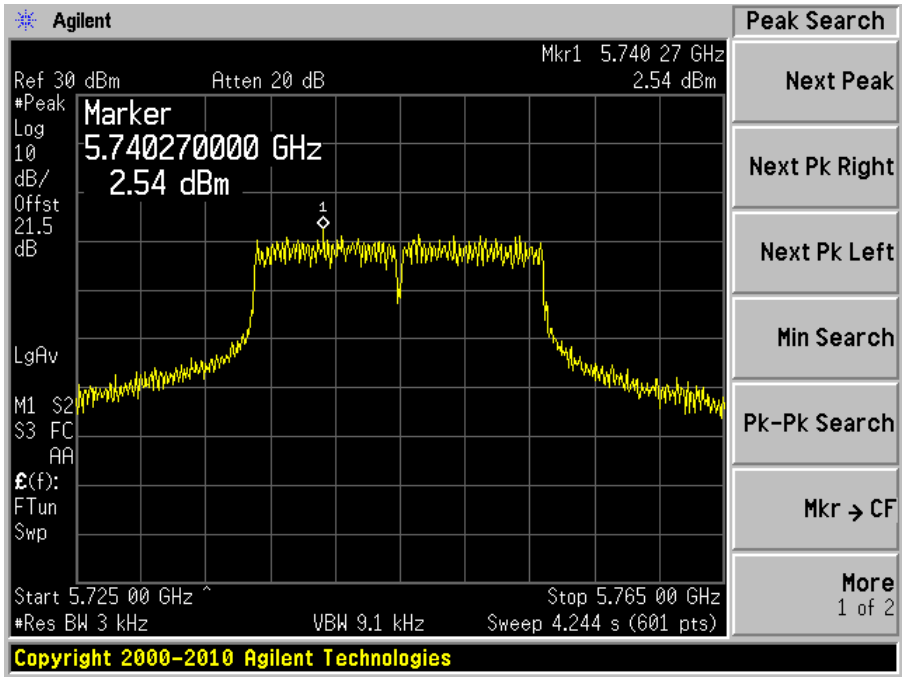


High channel: 5825 MHz

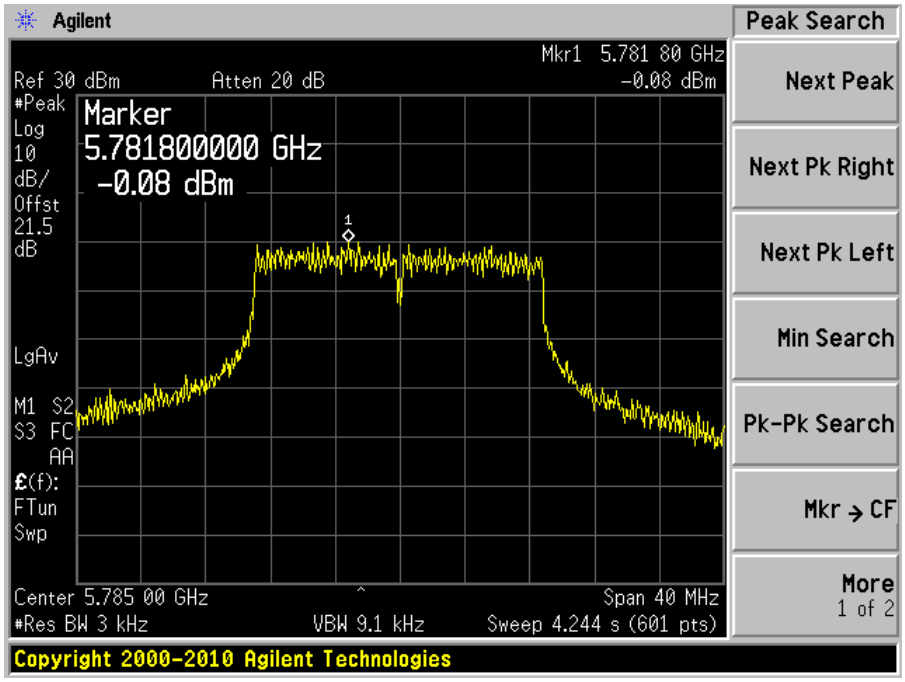


802.11n HT20 mode

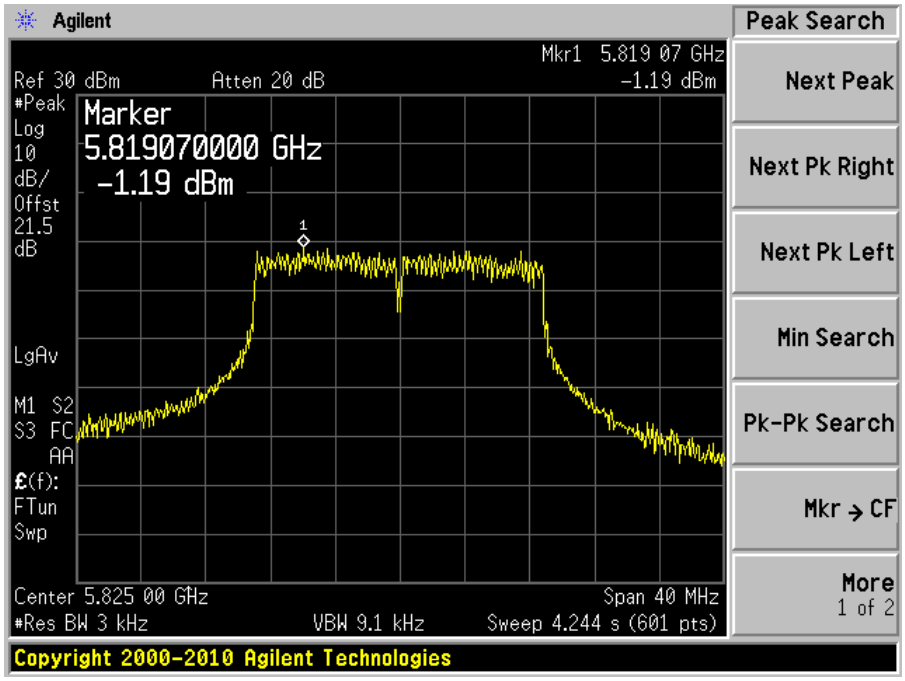
Low channel: 5745 MHz



Middle channel: 5785 MHz

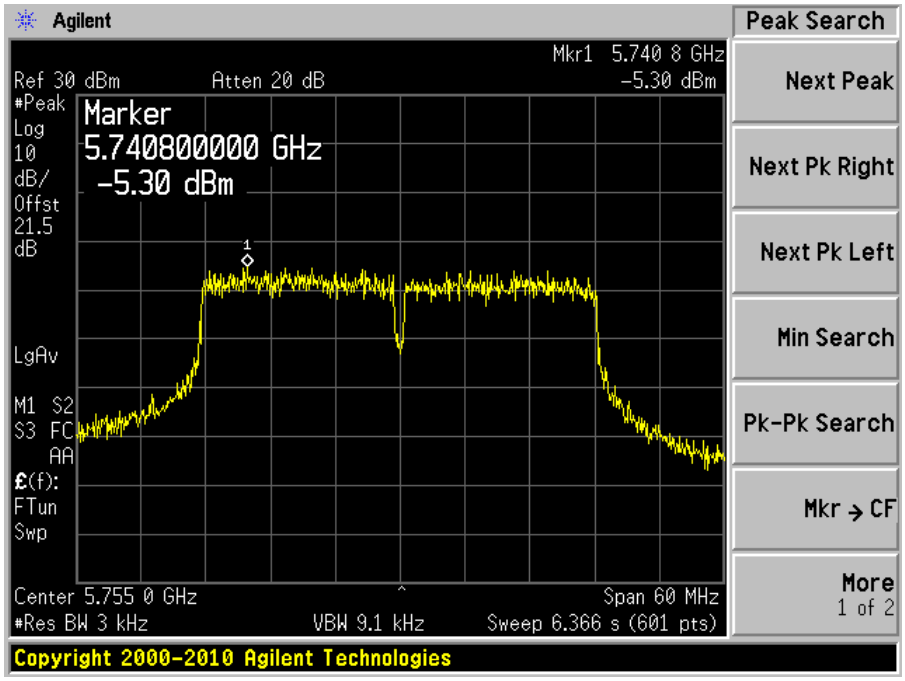


High channel: 5825 MHz

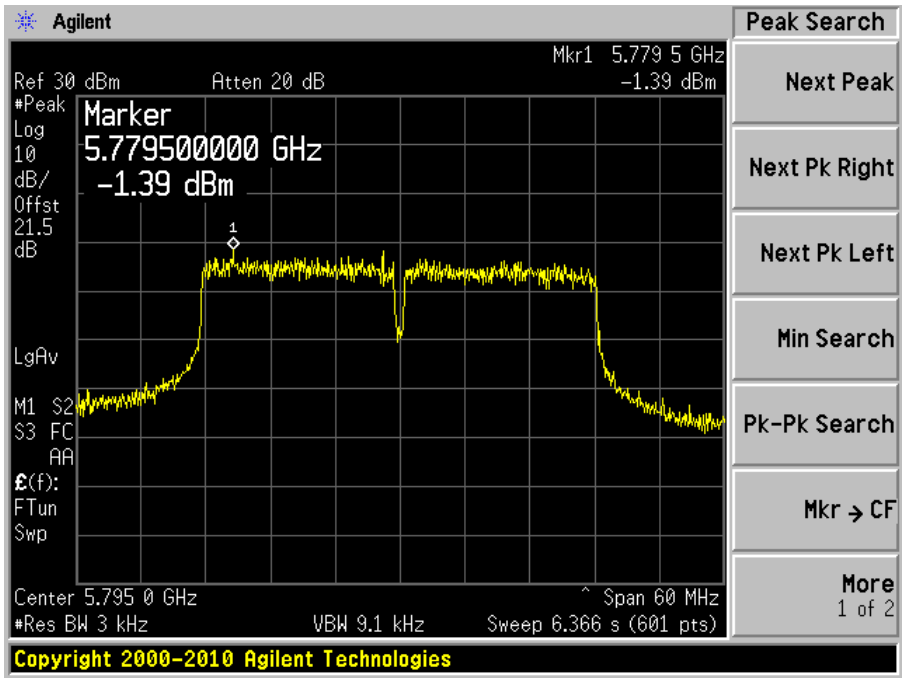


802.11n HT40 mode

Low channel: 5755 MHz



High channel: 5795 MHz



13 IC RSS-210 §2.3 & RSS-Gen §6.1 – Receiver Spurious Radiated Emissions

13.1 Applicable Standard

According to IC RSS-Gen §6.1, spurious emissions from receivers shall not exceed the radiated limits shown in the table below.

Table 2: General Field Strength Limits for Transmitters and Receivers at Frequencies above 30 MHz

Frequency (MHz)	Field Strength Microvolts/m at 3 meters
30-88	100
88-216	150
216-960	200
Above 960	500

13.2 EUT Setup

The radiated emissions tests were performed in the 3 meter chamber, using the setup in accordance with ANSI C63.4-2009.

13.3 Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations.

All data were recorded in the peak detection mode. Quasi-peak readings was performed only when an emissions was found to be marginal (within -4 dB of specification limits), and are distinguished with a "**QP**" in the data table.

13.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, a corrected amplitude of 40.3 dBuV/m = Indicated Reading (32.5 dBuV) + Antenna Factor (+23.5dB) + Cable Loss (3.7 dB) + Attenuator (10 dB) - Amplifier Gain (29.4 dB)

The "**Margin**" column of the following data tables indicates the degree of compliance within 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 - Limit

13.5 Test Equipment Lists and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Sunol Science Corp	System Controller	SC99V	122303-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-2	2012-08-15	1 year
Hewlett Packard	Pre-amplifier	8447D	2944A06639	2012-06-09	1 year
Mini-Circuits	Pre-amplifier	ZVA-183-S	570400946	2012-05-09	1 year
Agilent	Spectrum Analyzer	E4440A	MY44303352	2012-10-16	1 year
EMCO	Horn Antenna	3115	9511-4627	2012-10-17	1 year
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100338	2012-09-19	1 year

Statement of Traceability: *BACL attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.*

13.6 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	45-48 %
ATM Pressure:	101-102 kPa

The testing was performed by Wei Sun on 2013-05-03 at 5 meters 3.

13.7 Summary of Test Results

According to the test data, the EUT complied with the RSS-210, with the closest margins from the limit listed below:

Mode: Receiving			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz), Antenna**
-4.86	142.382	Horizontal	30-18000

13.8 Test Results

Please refer to the following tables.

1) 30-1000 MHz, Measured at 3 meters

With AC/DC Adaptor

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector (QP/Ave.)
31.62625	17.22	155	V	301	40	-22.78	QP
40.6135	10.61	119	V	53	40	-29.39	QP
963.1473	23.07	292	H	269	54	-30.93	QP
199.5725	11.03	107	H	248	43.5	-32.47	QP

With POE

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Detector (QP/Ave.)
142.382	38.64	186	H	37	43.5	-4.86	QP
186.0805	37.27	153	H	23	43.5	-6.23	QP
34.736	16.63	129	V	336	40	-23.37	QP
40.52075	12.49	201	V	360	40	-27.51	QP
151.5075	29.12	208	H	48	43.5	-14.38	QP
48.8795	10.87	103	V	1	40	-29.13	QP

2) Above 1 GHz Measured at 3 meters

With AC/DC Adaptor

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
4800	30*	0	100	V	33.08	4.06	27.70	39.444	74	-34.556	Peak
4800	30*	0	100	H	33.08	4.06	27.70	39.444	74	-34.556	Peak
4800	18*	0	100	V	33.08	4.06	27.70	27.444	54	-26.556	Ave
4800	18*	0	100	H	33.08	4.06	27.70	27.444	54	-26.556	Ave

With POE

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
4800	30*	0	100	V	33.08	4.06	27.70	39.444	74	-34.556	Peak
4800	30*	0	100	H	33.08	4.06	27.70	39.444	74	-34.556	Peak
4800	18*	0	100	V	33.08	4.06	27.70	27.444	54	-26.556	Ave
4800	18*	0	100	H	33.08	4.06	27.70	27.444	54	-26.556	Ave

* Note: all the readings are in the level of noise floor.