FCC PART 15.407
TEST AND MEASUREMENT REPORT

For

Actiontec Electronics, Inc.

760 N. Mary Avenue,

Sunnyvale, CA 94085, USA

FCC ID: LNQ802DRN
Model: 802DRN

Report Type:	**Product Type:**
Original Report	802.11 a/b/g/n WLAN Module

Prepared By:	Wei Sun
Report Number:	R1203021-407
Report Date:	2012-06-04
Reviewed By:	Victor Zhang EMC/RF Lead

Bay Area Compliance Laboratories Corp.
1274 Anvilwood Ave.
Sunnyvale, CA 94089, USA
Tel: (408) 732-9162
Fax: (408) 732-9164

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1203021-407	Draft Report	2012-05-25

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of Actiontec Electronics, Inc., and their product model: *802DRN, FCC ID:LNQ802DRN* or the "EUT" as referred to in this report. The EUT is a 802.11 a/b/g/n Wireless module with 4 antenna ports; however, only 3 antenna ports were tested, which was requested by Actiontec.

1.2 Mechanical Description of EUT

The "EUT" measures approximately 7.4cm (L) x 5.1cm (W) x 1.6cm (H), and weighs approximately 57.5g.

The test data gathered are from typical production sample, serial number: 20700018, provided by the manufacturer.

1.3 Objective

This report is prepared on behalf of Actiontec Electronics, Inc., *in* accordance with FCC CFR47 §15.407 for Non-DFS band only 5150-5250MHz.

The objective is to determine compliance with FCC rules for Conducted Emissions, Occupied Bandwidth, Maximum Peak Output Power, Power Spectral Density, Radiated and Conducted Spurious Emissions, and Band Edge.

1.4 Related Submittal(s)/Grant(s)

FCC ID: LNQ802DRN, 2.4 and 5.8 GHz Band

1.5 Test Methodology

FCC CFR 47 Part2, Part15.407.

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 CISPR16-4-2:2003, 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.

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

1.7 Test Facility

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

The test 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 C63.4-2003.

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 software used, Tera Term, Marvell Labtool were provided by client and verified by Wei Sun to comply with the standard requirements being tested against.

2.3 Equipment Modifications

No modifications were made to the EUT.

2.4 Special Accessories

Manufacturer	Description	Model No.	Serial No.
Marvell Semiconductor Inc.	Module Supporting Board	AC2KING120301	GFC421110076

2.5 Local Support Equipment

Manufacturer	Description	Model No.	Serial No.
-	-	-	-

2.6 Power Supply and Line Filters

Manufacturer	Description	Model No.	Serial No.
-.	-	-	-

2.7 EUT Internal Configuration

NA: Only the module card was tested the s/n can be found in section 1.2.

2.8 External I/O Cabling List and Details

Cable Description	Length (m)	From	To
-	-	-	-

3 Summary of Test Results

FCC Rules	Description of Test	Result
FCC §15.407(f), §2.1091	RF Exposure	Compliant
FCC §15.203	Antenna Requirement	Compliant
FCC §15.207	AC Power Line Conducted Emissions	Compliant
FCC §15.209(a), 15.407(b)	Spurious Radiated Emissions	Compliant
FCC §15.407(a)	26 dB and 99% Emission Bandwidth	Compliant
FCC §407(a)(1)	Peak Output Power Measurement	Compliant
FCC §2.1051, §15.407(b)	Band Edges	Compliant
FCC §15.407(a)(1)	Power Spectral Density	Compliant
FCC §15.407(a)(6)	Peak Excursion Ratio	Compliant
FCC §2.1051, §15.407(b)	Spurious Emissions at Antenna Terminals	Compliant

4 FCC §15.407(f), §2.1091 - RF Exposure

4.1 Applicable Standard

According to FCC §15.407(f) 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

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

Maximum peak output power at antenna input terminal (dBm):	16.89
Maximum peak output power at antenna input terminal (mW):	48.87
Prediction distance (cm):	20
Prediction frequency (MHz):	5200
Maximum Antenna Gain, typical (dBi):	4.82
Maximum Antenna Gain (numeric):	3.03
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.029
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

The device meets FCC MPE requirement for uncontrolled exposure environment at 20 cm distance.

5 FCC §15.203 – 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.

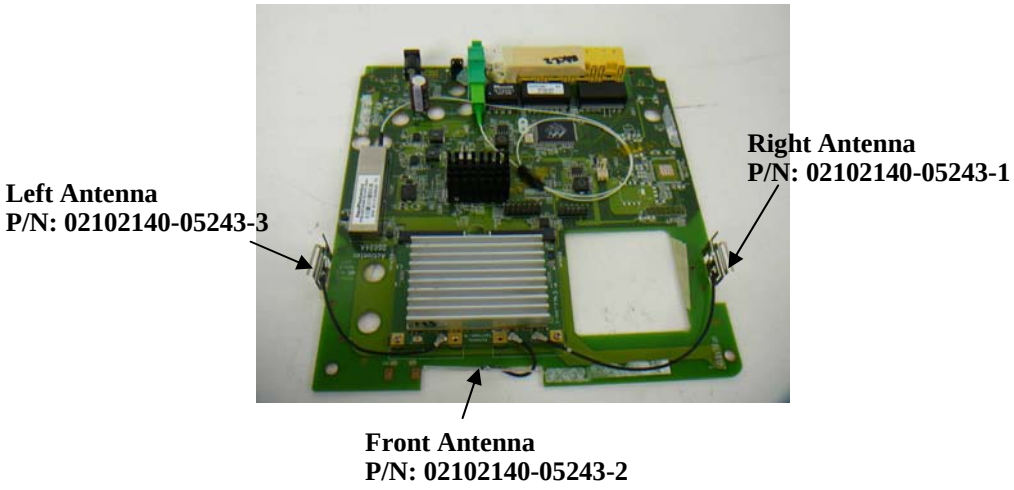
5.2 Antenna List

The antenna used on the device has a unique connector – U.F.L – and the antenna gain is less then 6dBi, therefore the antenna used fulfilled the antenna requirement above.

EUT has two configurations, one with three Galtronics antennas, one with three Airgain antennas, since Galtronics antennas has higher gain with the same type, therefore only Galtronics antenna was tested with the unit during radiated emissions.

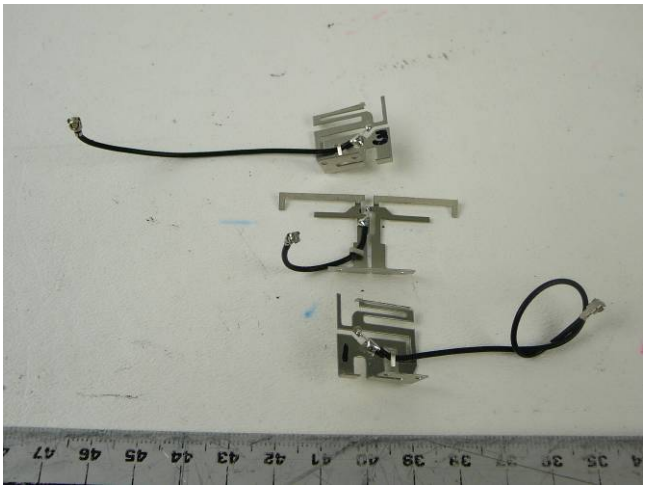
Manufacture/Antenna Model	Antenna Product Number/ Antenna Model	Antenna Gain (dBi)
Galtronics	02102140-05243-1	3.5 (at 2.4GHz) 4.21 (at 5GHz)
Galtronics	02102140-05243-2	5.59 (at 2.4GHz) 4.82 (at 5GHz)
Galtronics	02102140-05243-3	3.5 (at 2.4GHz) 4.21 (at 5GHz)
Airgain	M2450DLCB	3.5 (at 2.4 GHz) 4.0 (at 5 GHz)
Airgain	N2420DS	3.1 (at 2.44 GHz) 3.2 (at 5.2 GHz)

Please refer to the below pictures for detail:

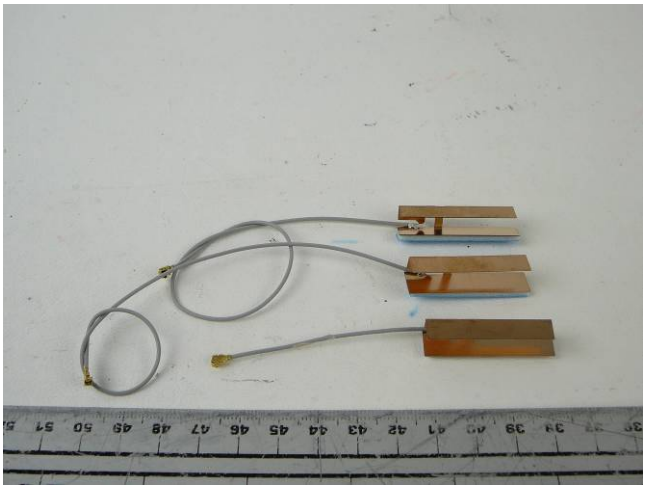


Testing configuration with Galtronics Antennas

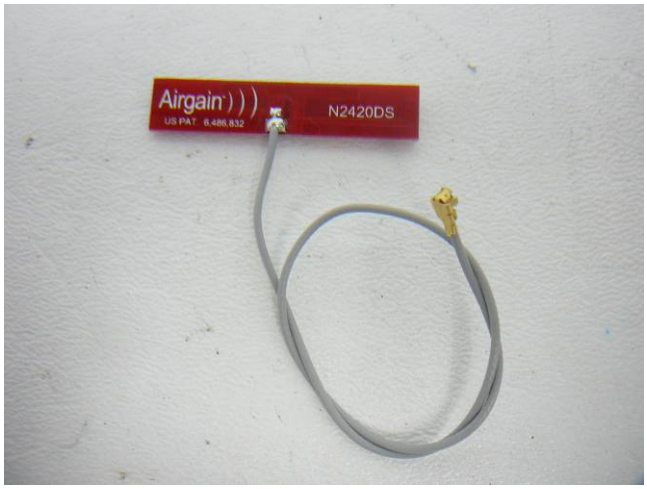
Tested Galtronics Antennas



Airgain M2450DLCB Antennas



Airgain N2420DS Antenna



6 FCC §15.207 - AC Power Line Conducted Emissions

6.1 Applicable Standards

As per FCC §15.207 Conducted limits:

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

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 Note 1	56 to 46 Note 1
0.5-5	56	46
5-30	60	50

Note 1 Decreases with the logarithm of the frequency.

6.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4-2003 measurement procedure. The specification used was FCC §15.207 limit.

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

The AC/DC power adapter of the test support board was connected with LISN-1 which provided 120 V / 60 Hz AC power.

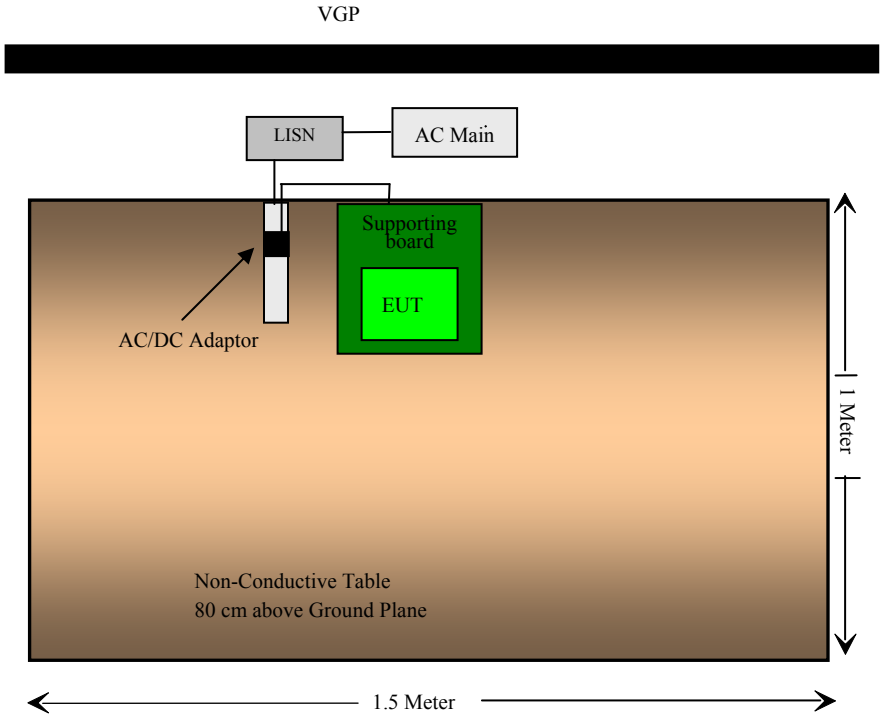
6.3 Test Procedure

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



6.5 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

6.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2012-04-14
Solar Electronics	LISN	9252-R-24-BNC	511205	2011-06-25
TTE	Filter, High Pass	H9962-150K-50-21378	K7133	2011-06-10

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:	18~23 °C
Relative Humidity:	36~45 %
ATM Pressure:	101-102 kPa

The testing was performed by Wei Sun on 05-01-2012 in 5 meter chamber 3.

6.8 Summary of Test Results

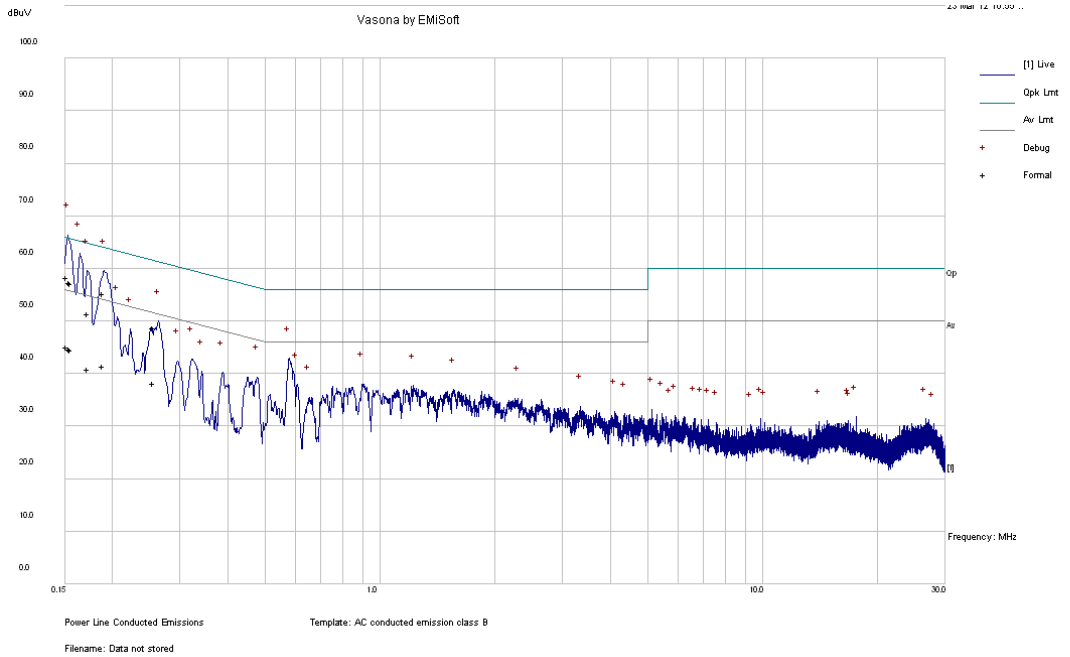
According to the recorded data in following table, the EUT complied with the FCC standard's conducted emissions limits, with the margin reading of:

Connection: 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor (Line/Neutral)**	**Range (MHz)**
-7.49	0.151917	Line	0.15 to 30

6.9 Conducted Emissions Test Plots and Data

802.11n 20 MHz mode Middle channel

120 V, 60 Hz – Line



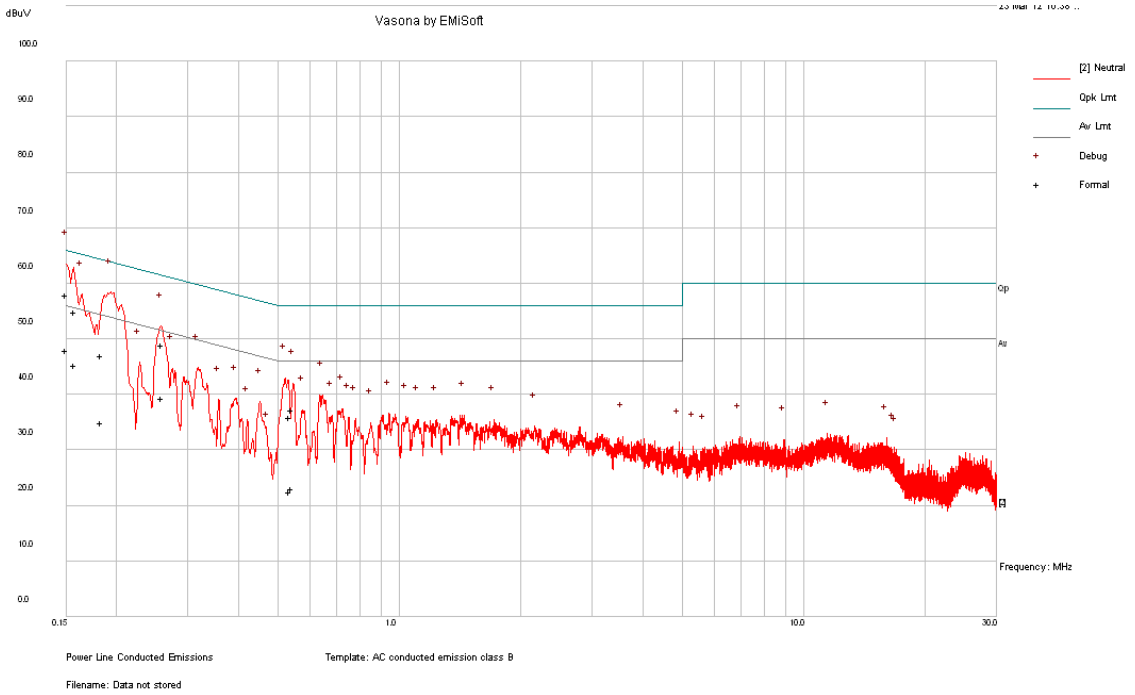
Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.151917	58.4	Line	65.89	-7.49
0.155175	57.33	Line	65.72	-8.39
0.155709	57.14	Line	65.69	-8.55
0.188934	55.28	Line	64.08	-8.80
0.255762	48.69	Line	61.57	-12.87
0.172335	51.36	Line	64.85	-13.49

Average Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.151917	45.06	Line	55.89	-10.83
0.155175	44.68	Line	55.72	-11.03
0.155709	44.5	Line	55.69	-11.19
0.188934	41.56	Line	54.08	-12.52
0.255762	38.26	Line	51.57	-13.31
0.172335	40.84	Line	54.85	-14.01

120 V, 60 Hz – Neutral



Quasi-Peak Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.1504	57.95	Neutral	65.98	-8.03
0.158001	54.94	Neutral	65.57	-10.63
0.258609	48.94	Neutral	61.48	-12.54
0.183234	47.07	Neutral	64.34	-17.27
0.542097	37.22	Neutral	56	-18.78
0.535482	35.98	Neutral	56	-20.02

Average Measurements

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)
0.1504	48.08	Neutral	55.98	-7.90
0.158001	45.26	Neutral	55.57	-10.31
0.258609	39.35	Neutral	51.48	-12.12
0.183234	35.01	Neutral	54.34	-19.33
0.542097	23.01	Neutral	46	-22.99
0.535482	22.56	Neutral	46	-23.44

7 FCC §15.209, §15.407(b) - Spurious Radiated Emissions

7.1 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): 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 Note 1	3
88 - 216	150 Note 1	3
216 - 960	200 Note 1	3
Above 960	500	3

Note 1: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

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

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		

7.2 Test Setup

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

The spacing between the peripherals was 10 centimeters.

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

7.3 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:

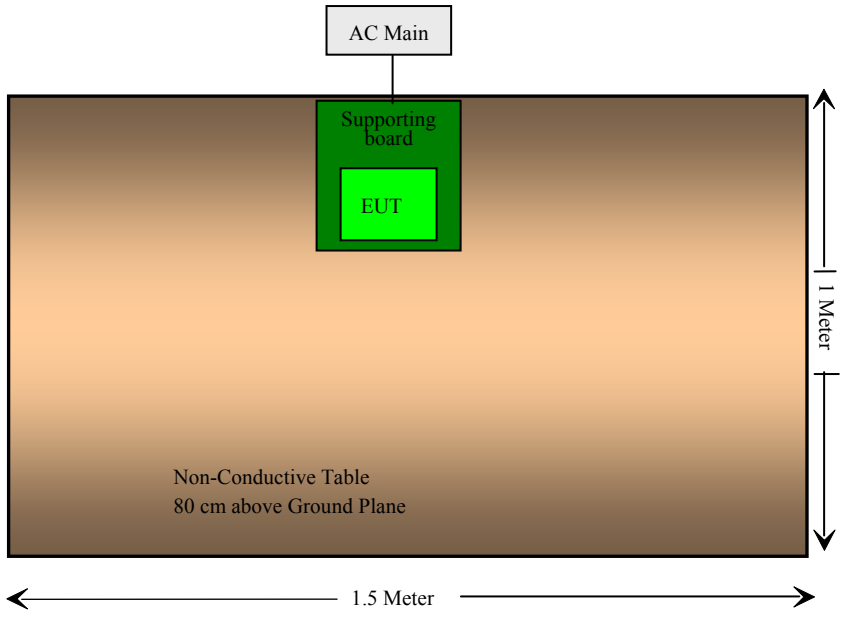
Below 1000 MHz:

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

7.4 Test Setup Block Diagram



7.5 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

7.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Hewlett Packard	Pre amplifier	8447D	2944A07030	2012-03-18
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2012-04-14
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2011-06-29
HP	Pre Amplifier	8449B	3147A00400	2012-02-03
Agilent	PSA Series Spectrum Analyzer	E4440A	MY44303352	2011-05-10
EMCO	Horn antenna	DRG-1181A	3315	2011-10-03

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

7.7 Test Environmental Conditions

Temperature:	18~23 °C
Relative Humidity:	36~45 %
ATM Pressure:	101-102 kPa

The testing was performed by Wei Sun on 2012-05-02 in 5 meter chamber 2.

7.8 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15, Subpart C, section 15.205, 15.209 and 15.407 standard's radiated emissions limits, and had the worst margin of:

Emissions within Restricted Bands

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode**
-14.31	73.65	Vertical	N40 mode Middle Channel

Harmonic Emissions

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

* Note: Emissions are in the level of noise floor.

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

7.9 Radiated Emissions Test Result Data

Emissions within Restricted Bands, 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		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
322.94	31.12	97	100	V	13.7	11.05	26.99	28.88	46	-17.12	QP
322.94	30.08	33	208	H	13.7	11.05	26.99	27.84	46	-18.16	QP
273	32.98	71	333	V	13.1	10.95	27.39	29.64	46	-16.36	QP
273	24.04	120	136	H	13.1	10.95	27.39	20.7	46	-25.3	QP
73.65	35.12	271	213	V	8.1	10.52	28.51	25.23	40	-14.77	QP
73.65	30.6	307	180	H	8.1	10.52	28.51	20.71	40	-19.29	QP
Middle Channel 5200 MHz, measured at 3 meters											
322.94	28.21	35	119	V	13.7	11.05	26.99	25.97	46	-20.03	QP
322.94	30.34	311	112	H	13.7	11.05	26.99	28.1	46	-17.9	QP
273	33.56	147	290	V	13.1	10.95	27.39	30.22	46	-15.78	QP
273	26.12	270	182	H	13.1	10.95	27.39	22.78	46	-23.22	QP
73.65	27.8	221	127	V	8.1	10.52	28.51	17.91	40	-22.09	QP
73.65	29	39	101	H	8.1	10.52	28.51	19.11	40	-20.89	QP
High Channel 5240 MHz, measured at 3 meters											
322.94	29.56	0	100	V	13.7	11.05	26.99	27.32	46	-18.68	QP
322.94	30.65	27	245	H	13.7	11.05	26.99	28.41	46	-17.59	QP
273	32.47	108	113	V	13.1	10.95	27.39	29.13	46	-16.87	QP
273	29.71	379	142	H	13.1	10.95	27.39	26.37	46	-19.63	QP
73.65	30.49	155	173	V	8.1	10.52	28.51	20.6	40	-19.4	QP
73.65	29.87	311	100	H	8.1	10.52	28.51	19.98	40	-20.02	QP

802.11n 20 MHz mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
322.94	31.34	197	200	V	13.7	11.05	26.99	29.1	46	-16.9	QP
322.94	30.43	133	308	H	13.7	11.05	26.99	28.19	46	-17.81	QP
273	22.99	171	233	V	13.1	10.95	27.39	19.65	46	-16.35	QP
273	24.19	220	136	H	13.1	10.95	27.39	20.85	46	-25.15	QP
73.65	35.35	171	113	V	8.1	10.52	28.51	25.46	40	-14.54	QP
73.65	30.33	207	280	H	8.1	10.52	28.51	20.44	40	-19.56	QP
Middle Channel 5200 MHz, measured at 3 meters											
322.94	29.8	135	219	V	13.7	11.05	26.99	27.56	46	-18.44	QP
322.94	30.06	211	212	H	13.7	11.05	26.99	27.82	46	-18.18	QP
273	33.33	47	190	V	13.1	10.95	27.39	29.99	46	-16.01	QP
273	26.61	170	82	H	13.1	10.95	27.39	23.27	46	-22.73	QP
73.65	32.27	121	227	V	8.1	10.52	28.51	22.38	40	-17.62	QP
73.65	29.92	139	201	H	8.1	10.52	28.51	20.03	40	-19.97	QP
High Channel 5240 MHz, measured at 3 meters											
322.94	28.87	4	109	V	13.7	11.05	26.99	26.63	46	-19.37	QP
322.94	31.26	97	345	H	13.7	11.05	26.99	29.02	46	-16.98	QP
273	31.42	108	132	V	13.1	10.95	27.39	28.08	46	-17.92	QP
273	28.87	379	124	H	13.1	10.95	27.39	25.53	46	-20.47	QP
73.65	29.04	155	117	V	8.1	10.52	28.51	19.15	40	-20.85	QP
73.65	27.98	311	100	H	8.1	10.52	28.51	18.09	40	-21.91	QP

802.11n 40 MHz mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
322.94	31.1	197	200	V	13.7	11.05	26.99	28.86	46	-17.14	QP
322.94	32.26	133	308	H	13.7	11.05	26.99	30.02	46	-15.98	QP
273	22.25	171	233	V	13.1	10.95	27.39	28.91	46	-17.09	QP
273	24.4	220	136	H	13.1	10.95	27.39	21.06	46	-24.94	QP
73.65	35.58	171	113	V	8.1	10.52	28.51	25.69	40	-14.31	QP
73.65	30.06	207	280	H	8.1	10.52	28.51	20.17	40	-19.83	QP
High Channel 5240 MHz, measured at 3 meters											
322.94	28.15	4	109	V	13.7	11.05	26.99	25.91	46	-20.09	QP
322.94	31.08	97	345	H	13.7	11.05	26.99	28.84	46	-17.16	QP
273	31.6	108	132	V	13.1	10.95	27.39	28.26	46	-17.74	QP
273	28.15	379	124	H	13.1	10.95	27.39	24.81	46	-21.19	QP
73.65	29.04	155	117	V	8.1	10.52	28.51	19.15	40	-20.85	QP
73.65	27.17	311	100	H	8.1	10.52	28.51	17.28	40	-22.72	QP

Harmonic Emissions, 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		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
10360	9.91	0	100	NA*	39.12	6.14	27.2	27.97	88.7	-60.73	Peak
10360	0.31	0	100	NA*	39.12	6.14	27.2	18.37	78.85	-60.48	Ave
15540	9.35	0	100	NA*	39.19	7.47	25.9	30.11	74	-43.89	Peak
15540	0.13	0	100	NA*	39.19	7.47	25.9	20.89	54	-33.11	Ave
20720	9.17	0	100	NA*	46.47	9.28	25.3	39.62	74	-34.38	Peak
20720	0.06	0	100	NA*	46.47	9.28	25.3	30.51	54	-23.49	Ave
Middle Channel 5200 MHz, measured at 3 meters											
10400	9.9	0	100	NA*	39.12	6.14	27.3	27.86	98.74	-60.88	Peak
10400	0.18	0	100	NA*	39.12	6.14	27.3	18.14	76.23	-58.09	Ave
15600	9.13	0	100	NA*	39.09	7.47	26	29.69	74	-44.31	Peak
15600	0.21	0	100	NA*	39.09	7.47	26	20.77	54	-33.23	Ave
20800	9.81	0	100	NA*	46.47	9.36	25.3	40.34	74	-33.66	Peak
20800	0.17	0	100	NA*	46.47	9.36	25.3	30.7	54	-23.3	Ave
High Channel 5240 MHz, measured at 3 meters											
10480	9.16	0	100	NA*	39.2	6.14	27.3	27.2	98.23	-61.03	Peak
10480	0.15	0	100	NA*	39.2	6.14	27.3	18.19	80.29	-62.1	Ave
15720	9.53	0	100	NA*	39.09	7.33	26	29.95	74	-44.05	Peak
15720	0.12	0	100	NA*	39.09	7.33	26	20.54	54	-33.46	Ave
20960	9.12	0	100	NA*	46.47	9.36	25.3	39.65	74	-34.35	Peak
20960	0.11	0	100	NA*	46.47	9.36	25.3	30.64	54	-23.36	Ave

* Note: Emission are in the level of noise floor.

802.11n 20 MHz mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
10360	9.45	0	100	NA*	39.12	6.14	27.2	27.51	50.53	-23.02	Peak
10360	0.13	0	100	NA*	39.12	6.14	27.2	18.19	37.14	-18.95	Ave
15540	9.95	0	100	NA*	39.19	7.47	25.9	30.71	74	-43.29	Peak
15540	0.18	0	100	NA*	39.19	7.47	25.9	20.94	54	-33.06	Ave
20720	9.97	0	100	NA*	46.47	9.28	25.3	40.42	74	-33.58	Peak
20720	0.16	0	100	NA*	46.47	9.28	25.3	30.61	54	-23.39	Ave
Middle Channel 5200 MHz, measured at 3 meters											
10400	9.34	0	100	NA*	39.12	6.14	27.3	27.3	50.53	-23.23	Peak
10400	0.12	0	100	NA*	39.12	6.14	27.3	18.08	36.05	-17.97	Ave
15600	9.13	0	100	NA*	39.09	7.47	26	29.69	74	-44.31	Peak
15600	0.1	0	100	NA*	39.09	7.47	26	20.66	54	-33.34	Ave
20800	9.26	0	100	NA*	46.47	9.36	25.3	39.79	74	-34.21	Peak
20800	0.15	0	100	NA*	46.47	9.36	25.3	30.68	54	-23.32	Ave
High Channel 5240 MHz, measured at 3 meters											
10480	9.78	0	100	NA*	39.2	6.14	27.3	27.82	48.28	-20.46	Peak
10480	0.19	0	100	NA*	39.2	6.14	27.3	18.23	36.3	-18.07	Ave
15720	9.2	0	100	NA*	39.09	7.33	26	29.62	74	-44.38	Peak
15720	0.11	0	100	NA*	39.09	7.33	26	20.53	54	-33.47	Ave
20960	9.14	0	100	NA*	46.47	9.36	25.3	39.67	74	-34.33	Peak
20960	0.1	0	100	NA*	46.47	9.36	25.3	30.63	54	-23.37	Ave

* Note: Emission are in the level of noise floor.

802.11n 40 MHz mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5190 MHz, measured at 3 meters											
10380	9.79	0	100	NA*	39.12	6.14	27.2	27.85	49.61	-21.76	Peak
15570	9.41	0	100	NA*	39.19	7.47	25.9	30.17	74	-43.83	Peak
20760	36	0	100	NA*	46.47	9.28	25.3	66.45	74	-7.55	Peak
10380	0.19	0	100	NA*	39.12	6.14	27.2	18.25	37.44	-19.19	Ave
15570	0.3	0	100	NA*	39.19	7.47	25.9	21.06	54	-32.94	Ave
20760	0.39	0	100	NA*	46.47	9.28	25.3	30.84	54	-23.16	Ave
High Channel 5230 MHz, measured at 3 meters											
10460	9.66	0	100	NA*	39.2	6.14	27.3	27.7	48.21	-20.51	Peak
15690	9.53	0	100	NA*	39.09	7.33	26	29.95	74	-44.05	Peak
20920	9.24	0	100	NA*	46.47	9.36	25.3	39.77	74	-34.23	Peak
10460	0.22	0	100	NA*	39.2	6.14	27.3	18.26	37.1	-18.84	Ave
15690	0.09	0	100	NA*	39.09	7.33	26	20.51	54	-33.49	Ave
20920	0.11	0	100	NA*	46.47	9.36	25.3	30.64	54	-23.36	Ave

* Note: Emission are in the level of noise floor.

Fundamental Emissions, 802.11 a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
5180	70.41	0	100	V	33.77	4.52	0	108.7	NA	108.7	Peak
5180	69.79	0	100	H	33.77	4.52	0	108.08	NA	108.08	Peak
5180	60.56	0	100	V	33.77	4.52	0	98.85	NA	98.85	Ave
5180	59.14	0	100	H	33.77	4.52	0	97.43	NA	97.43	Ave
Middle Channel 5200 MHz, measured at 3 meters											
5200	70.45	0	100	V	33.77	4.52	0	108.74	NA	108.74	Peak
5200	68.9	0	100	H	33.77	4.52	0	107.19	NA	107.19	Peak
5200	59.65	0	100	V	33.77	4.52	0	97.94	NA	97.94	Ave
5200	58.64	0	100	H	33.77	4.52	0	96.93	NA	96.93	Ave
High Channel 5240 MHz, measured at 3 meters											
5240	67.94	0	100	V	33.77	4.52	0	106.23	NA	106.23	Peak
5240	65.15	0	100	H	33.77	4.52	0	103.44	NA	103.44	Peak
5240	60	0	100	V	33.77	4.52	0	98.29	NA	98.29	Ave
5240	57.61	0	100	H	33.77	4.52	0	95.9	NA	95.9	Ave

802.11n 20 MHz mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz, measured at 3 meters											
5180	68.24	0	100	V	33.77	4.52	0	108.53	NA	108.53	Peak
5180	67.17	0	100	H	33.77	4.52	0	107.46	NA	107.46	Peak
5180	46.85	0	100	V	33.77	4.52	0	95.14	NA	95.14	Ave
5180	41.51	0	100	H	33.77	4.52	0	91.8	NA	91.8	Ave
Middle Channel 5200 MHz, measured at 3 meters											
5200	80.24	0	100	V	33.77	4.52	0	108.53	NA	108.53	Peak
5200	78.55	0	100	H	33.77	4.52	0	106.84	NA	106.84	Peak
5200	55.76	0	100	V	33.77	4.52	0	94.05	NA	94.05	Ave
5200	58.06	0	100	H	33.77	4.52	0	96.35	NA	96.35	Ave
High Channel 5240 MHz, measured at 3 meters											
5240	67.99	0	100	V	33.77	4.52	0	106.28	NA	106.28	Peak
5240	65.71	0	100	H	33.77	4.52	0	104	NA	104	Peak
5240	56.01	0	100	V	33.77	4.52	0	94.3	NA	94.3	Ave
5240	55.76	0	100	H	33.77	4.52	0	94.05	NA	94.05	Ave

802.11n 40 MHz mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5190 MHz, measured at 3 meters											
5190	71.32	0	100	V	33.77	4.52	0	109.61	NA	109.61	Peak
5190	70.37	0	100	H	33.77	4.52	0	108.66	NA	108.66	Peak
5190	59.15	0	100	V	33.77	4.52	0	97.44	NA	97.44	Ave
5190	55.11	0	100	H	33.77	4.52	0	93.4	NA	93.4	Ave
High Channel 5230 MHz, measured at 3 meters											
5230	69.92	0	100	V	33.77	4.52	0	108.21	NA	68.21	Peak
5230	67.27	0	100	H	33.77	4.52	0	105.56	NA	65.56	Peak
5230	58.81	0	100	V	33.77	4.52	0	97.1	NA	57.1	Ave
5230	57.17	0	100	H	33.77	4.52	0	95.46	NA	55.46	Ave

8 FCC §15.407(a) – 26 dB & 99% Emission Bandwidth

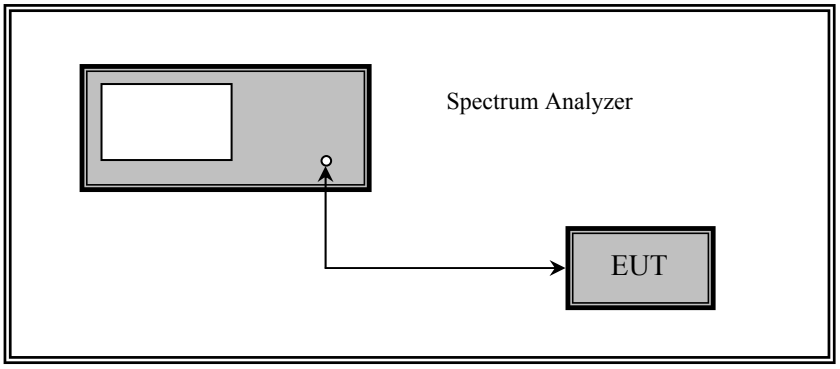
8.1 Applicable Standard

FCC §15.407(a).

8.2 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 26 dB from the reference level. Record the frequency difference as the emissions bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

8.3 Test Setup Block Diagram



8.4 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

8.5 Test Environmental Conditions

Temperature:	21~25 °C
Relative Humidity:	38~50 %
ATM Pressure:	101.2-102 kPa

The testing was performed by Wei Sun on 2012-05-02 in RF site.

8.6 Test Results

802.11a mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (kHz)	Results
Chain J1					
Low	5180	20.326	16.5881	> 500	Compliant
Middle	5200	20.334	16.5994	> 500	Compliant
High	5240	20.098	16.5428	> 500	Compliant
Chain J2					
Low	5180	20.504	16.5880	> 500	Compliant
Middle	5200	20.555	16.6424	> 500	Compliant
High	5240	20.141	16.5419	> 500	Compliant
Chain J3					
Low	5180	20.472	16.6313	> 500	Compliant
Middle	5200	20.537	16.6415	> 500	Compliant
High	5240	20.129	16.5612	> 500	Compliant

Chain J4 is not active during test

802.11n20 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (kHz)	Results
Chain J1					
Low	5180	20.472	17.8106	> 500	Compliant
Middle	5200	20.496	17.8274	> 500	Compliant
High	5240	20.579	17.8572	> 500	Compliant
Chain J2					
Low	5180	20.608	17.8414	> 500	Compliant
Middle	5200	20.659	17.8527	> 500	Compliant
High	5240	20.815	17.8680	> 500	Compliant
Chain J3					
Low	5180	20.490	17.7556	> 500	Compliant
Middle	5200	20.533	17.7686	> 500	Compliant
High	5240	20.630	17.8013	> 500	Compliant

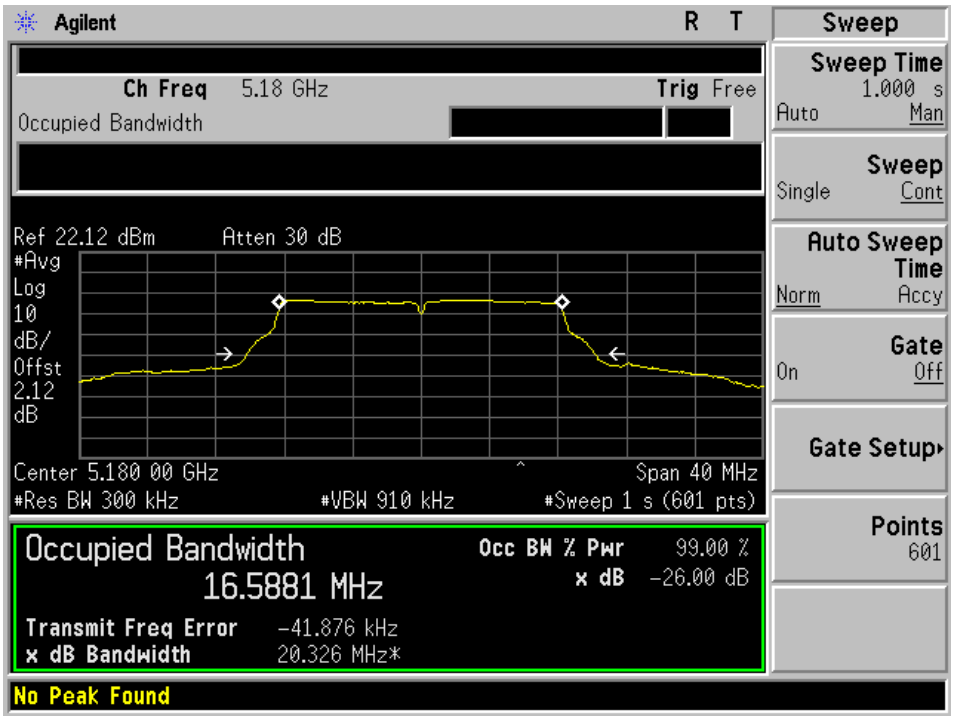
Chain J4 is not active during test

802.11n40 mode

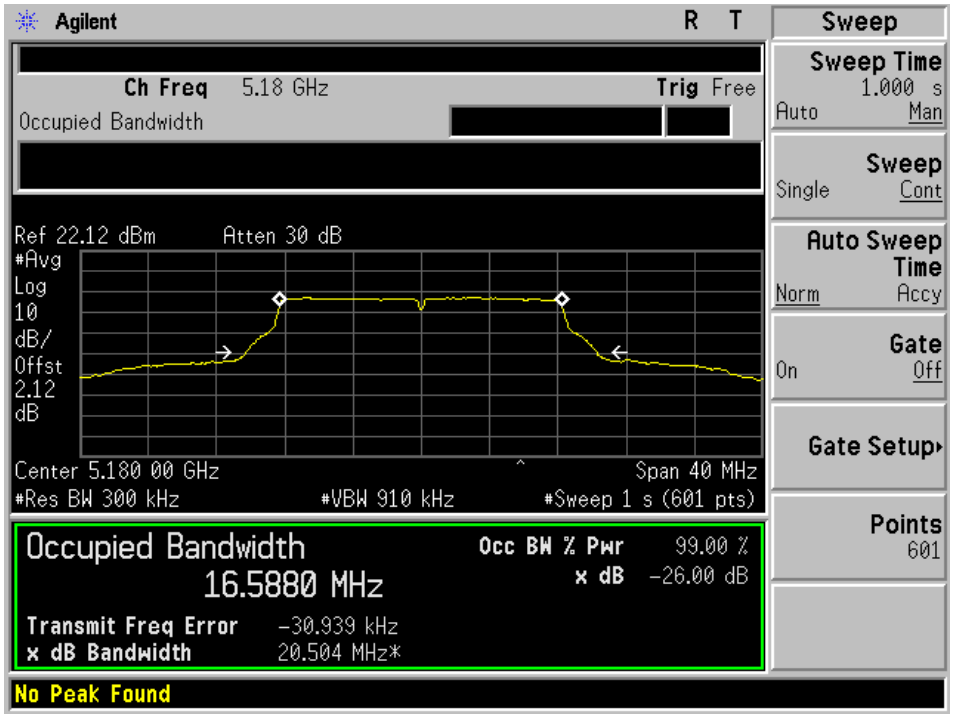
Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Limit (kHz)	Results
Chain J1					
Low	5190	48.193	37.4954	> 500	Compliant
High	5230	55.458	37.4827	> 500	Compliant
Chain J2					
Low	5190	59.134	37.5514	> 500	Compliant
High	5230	59.610	36.5687	> 500	Compliant
Chain J3					
Low	5190	49.816	37.6073	> 500	Compliant
High	5230	53.164	37.6088	> 500	Compliant

Chain J4 is not active during test

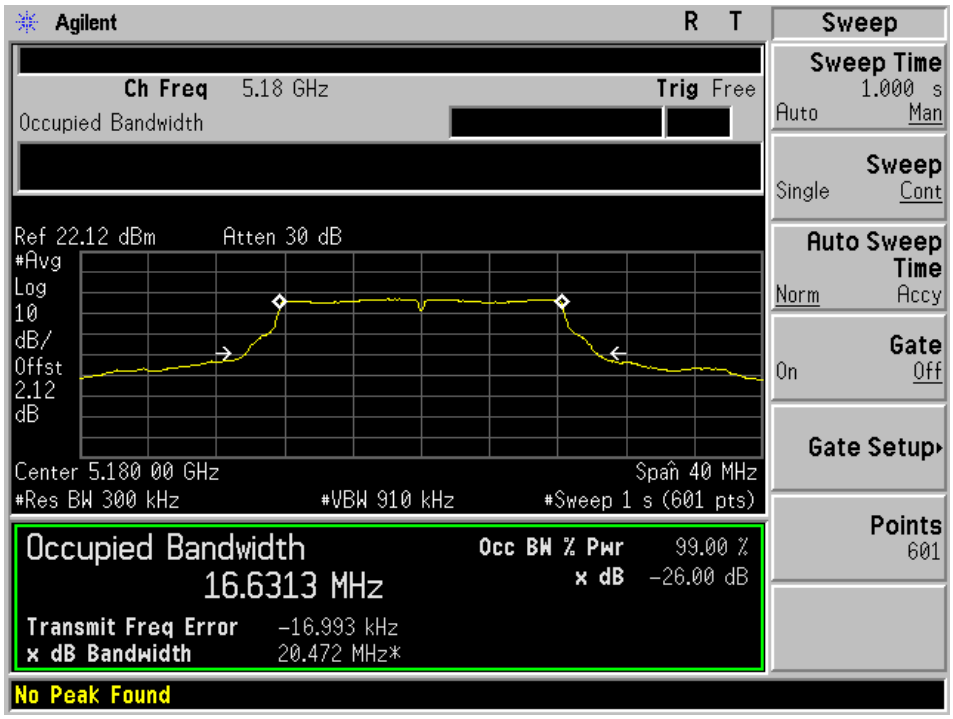
802.11a mode, Low Channel, Chain J1



802.11a mode, Low Channel, Chain J2

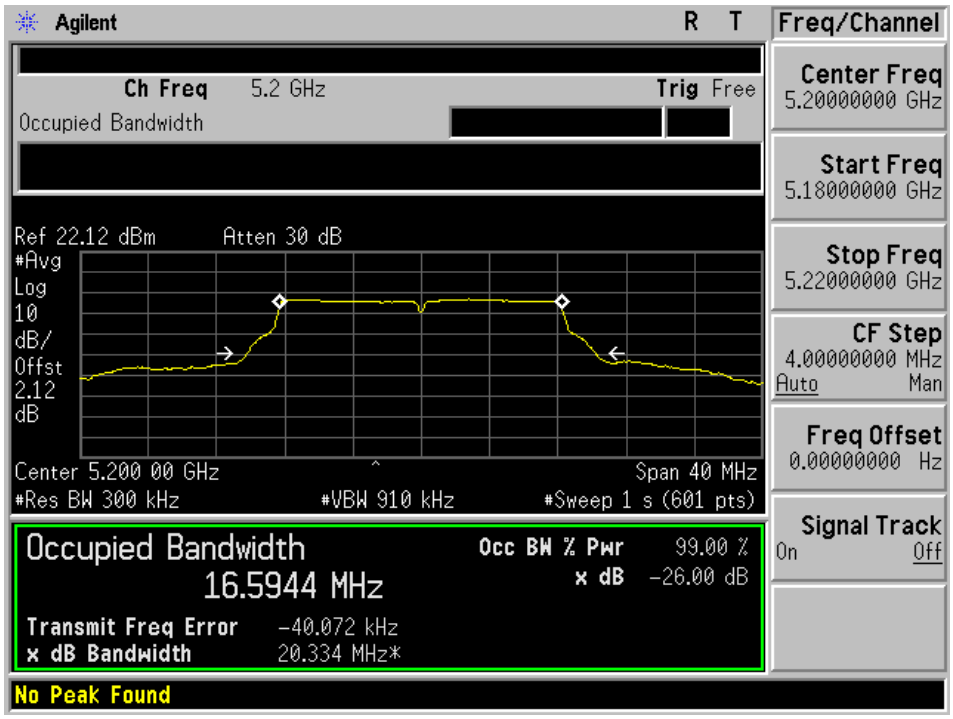


802.11a mode, Low Channel, Chain J3

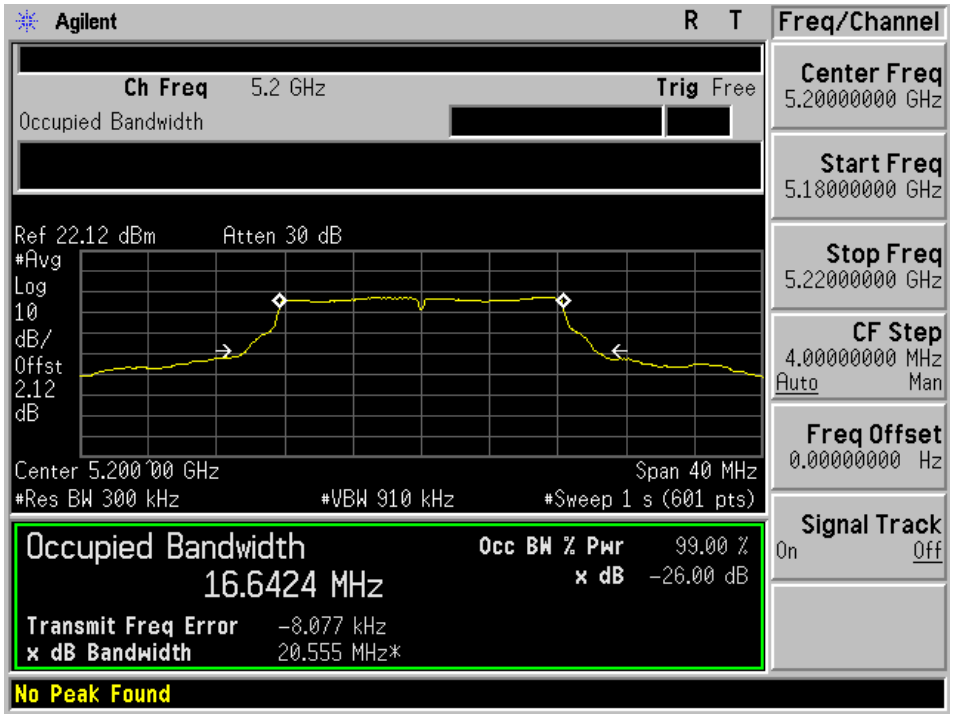


Chain J4 is not active during test

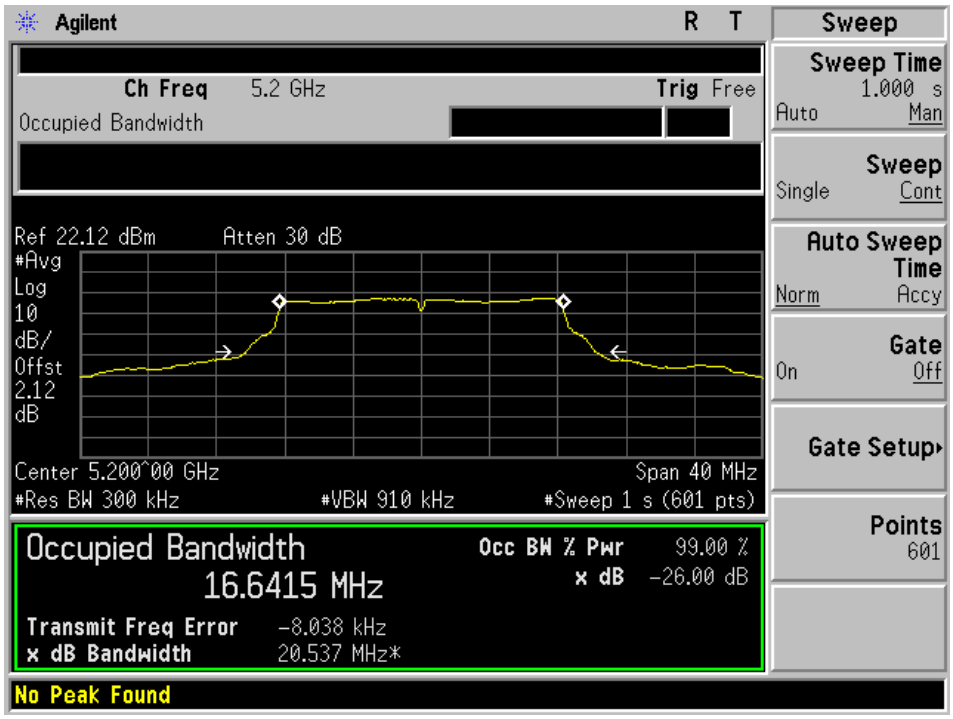
802.11a mode, Middle Channel, Chain J1



802.11a mode, Middle Channel, Chain J2

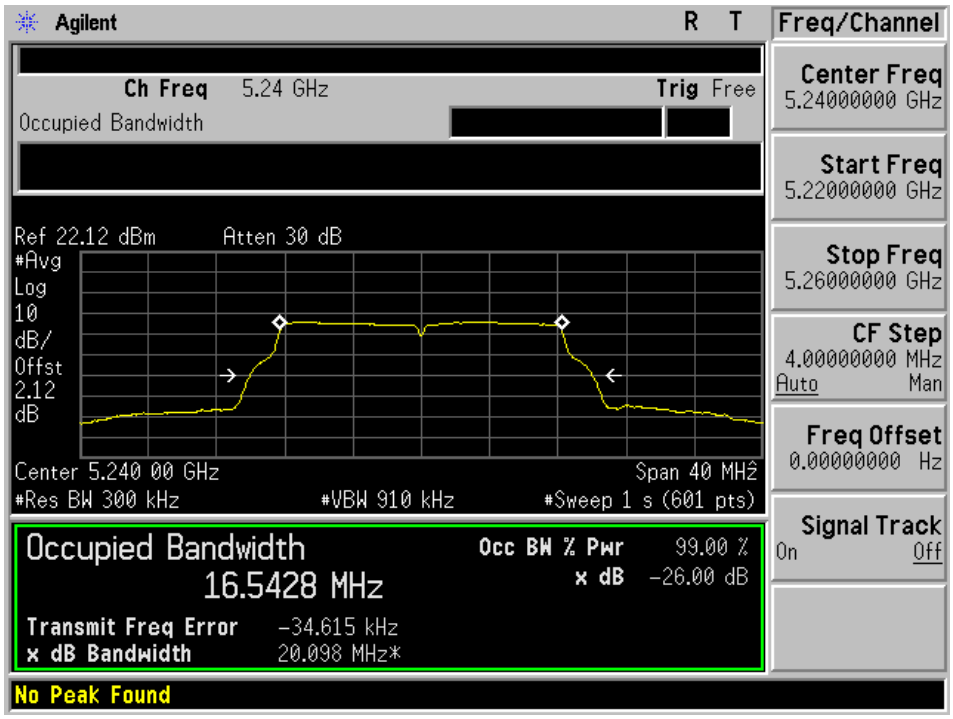


802.11a mode, Middle Channel, Chain J3

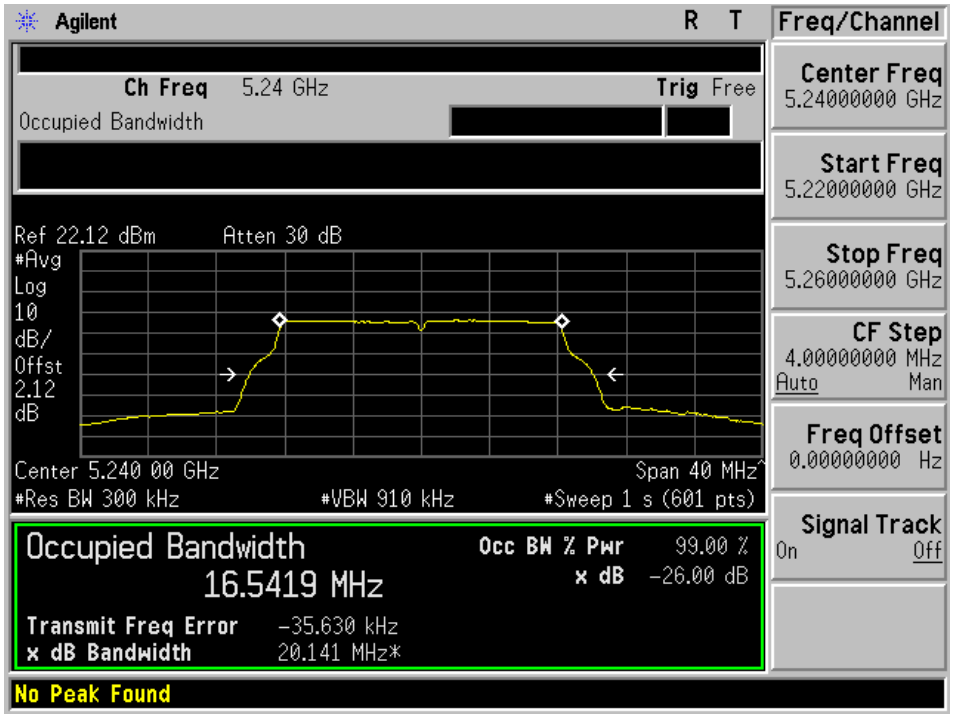


Chain J4 is not active during test

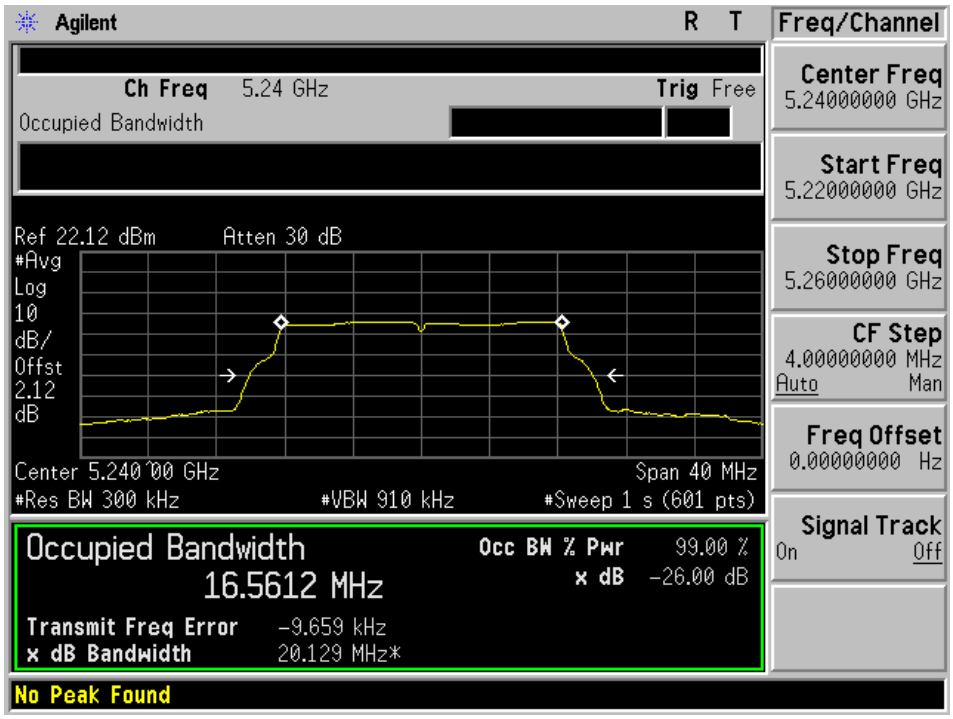
802.11a mode, High Channel, Chain J1



802.11a mode, High Channel, Chain J2

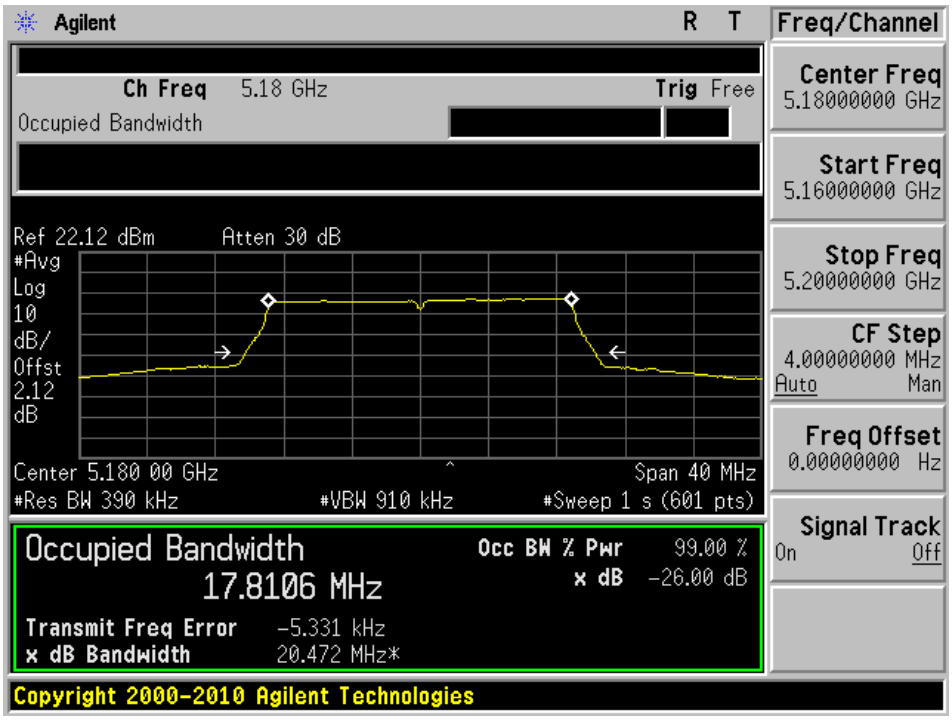


802.11a mode, High Channel, Chain J3

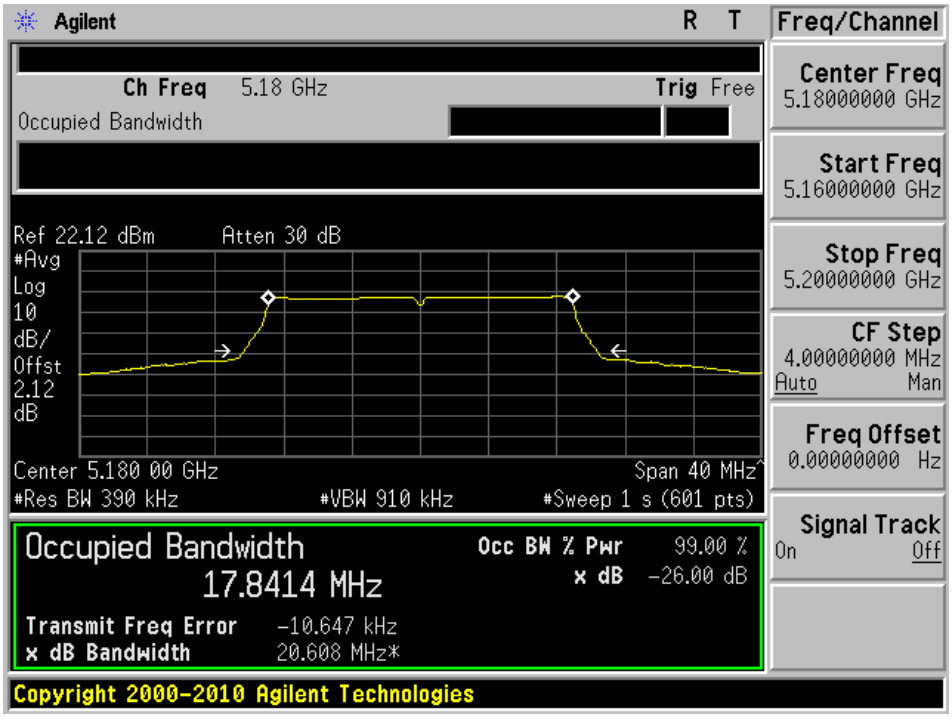


Chain J4 is not active during test

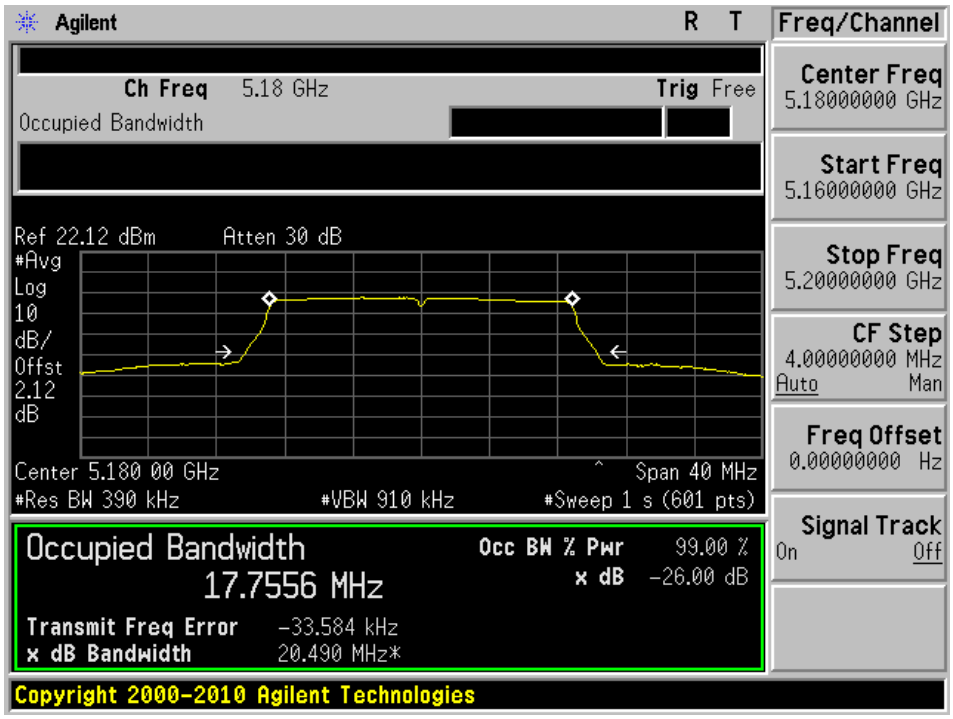
802.11n 20 MHz mode, Low Channel, Chain J1



802.11n 20 MHz mode, Low Channel, Chain J2

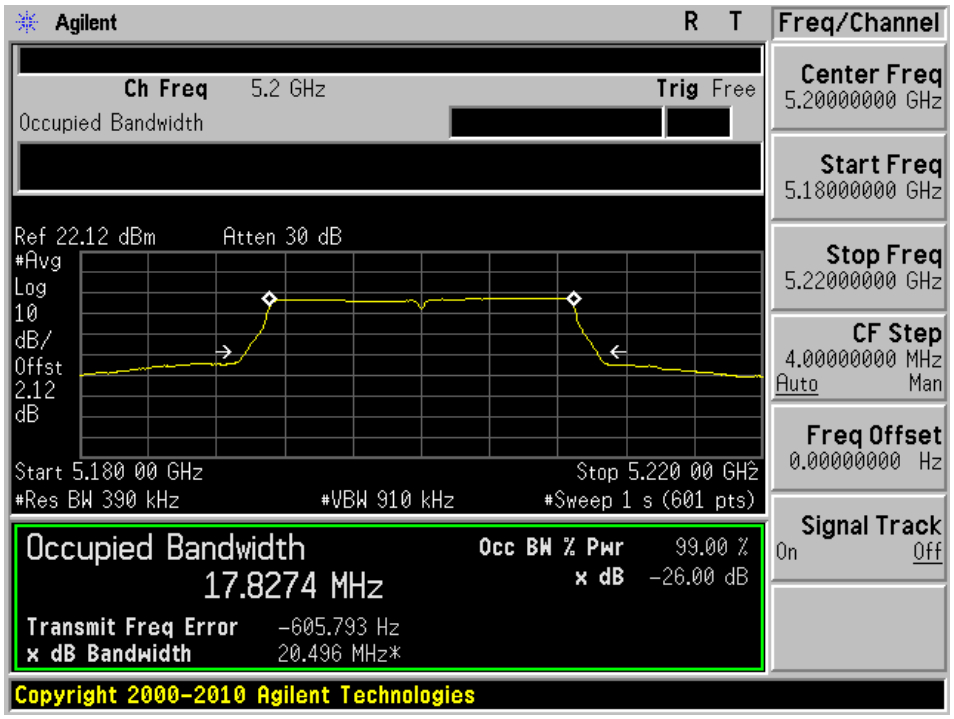


802.11n 20 MHz mode, Low Channel, Chain J3

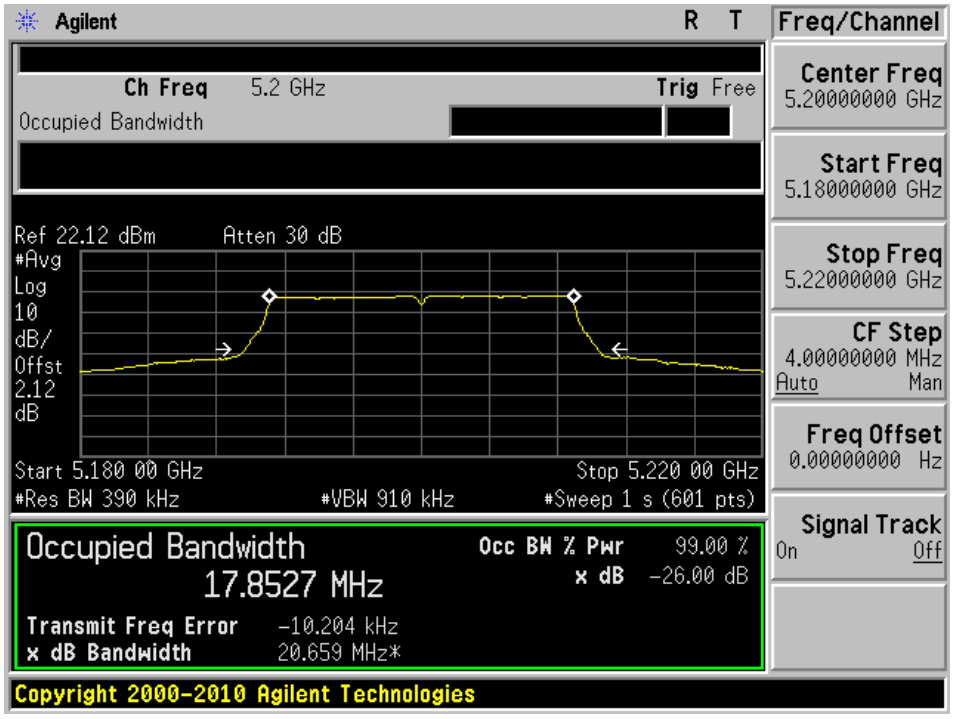


Chain J4 is not active during test

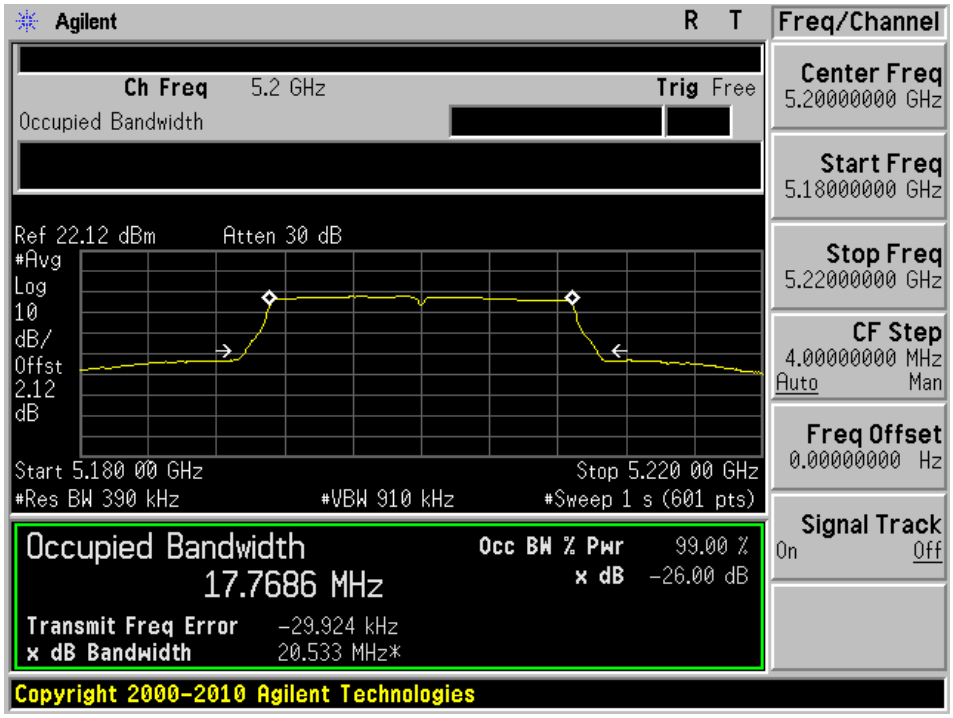
802.11n 20 MHz mode, Middle Channel, Chain J1



802.11n 20 MHz mode, Middle Channel, Chain J2

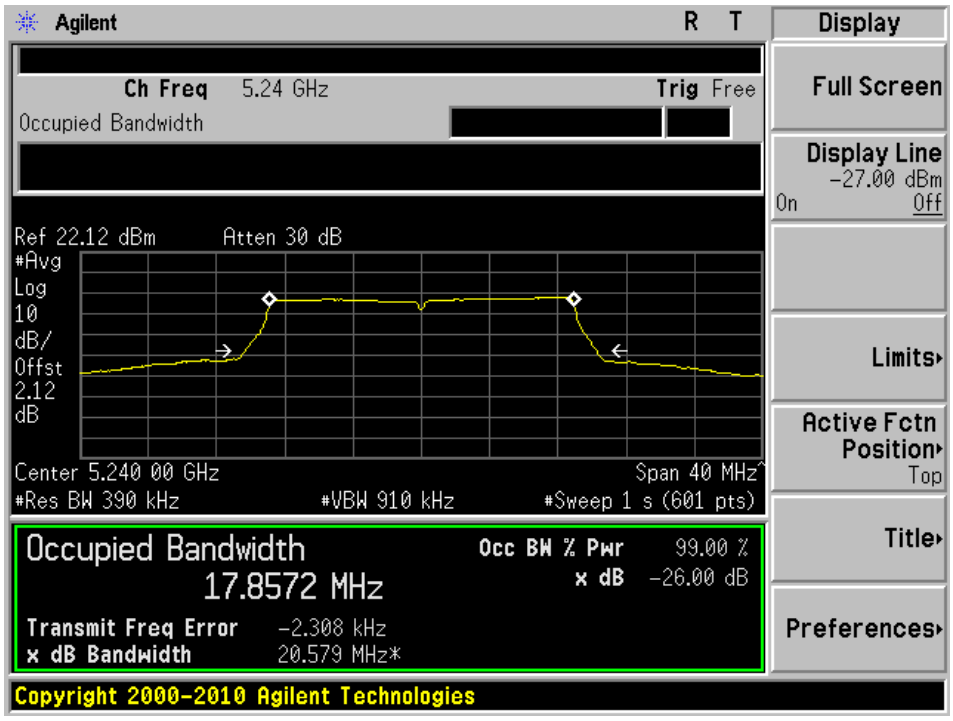


802.11n 20 MHz mode, Middle Channel, Chain J3

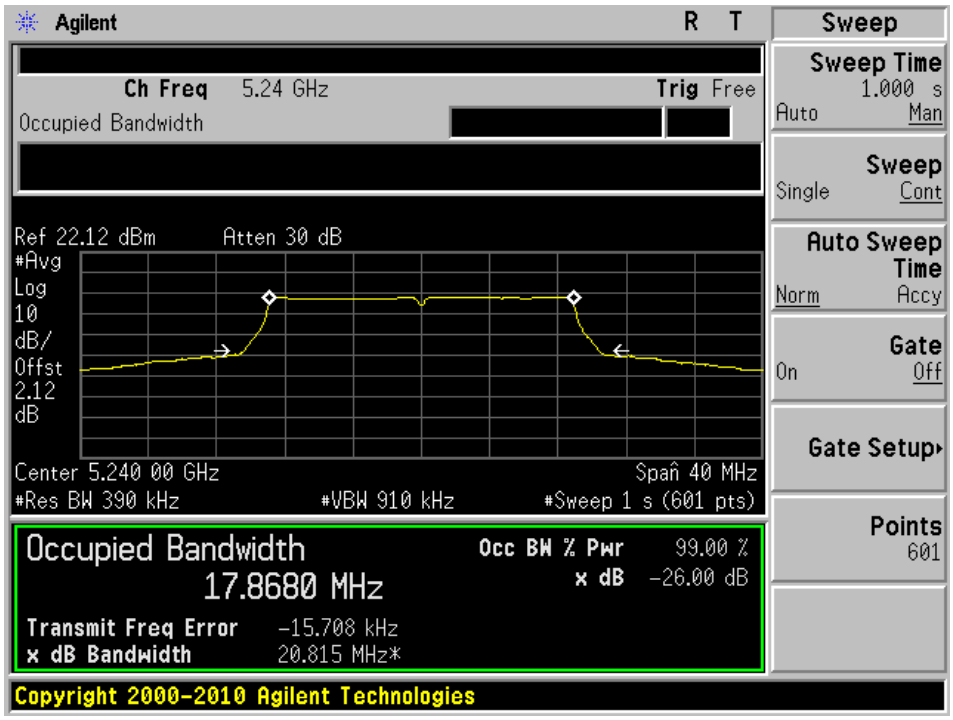


Chain J4 is not active during test

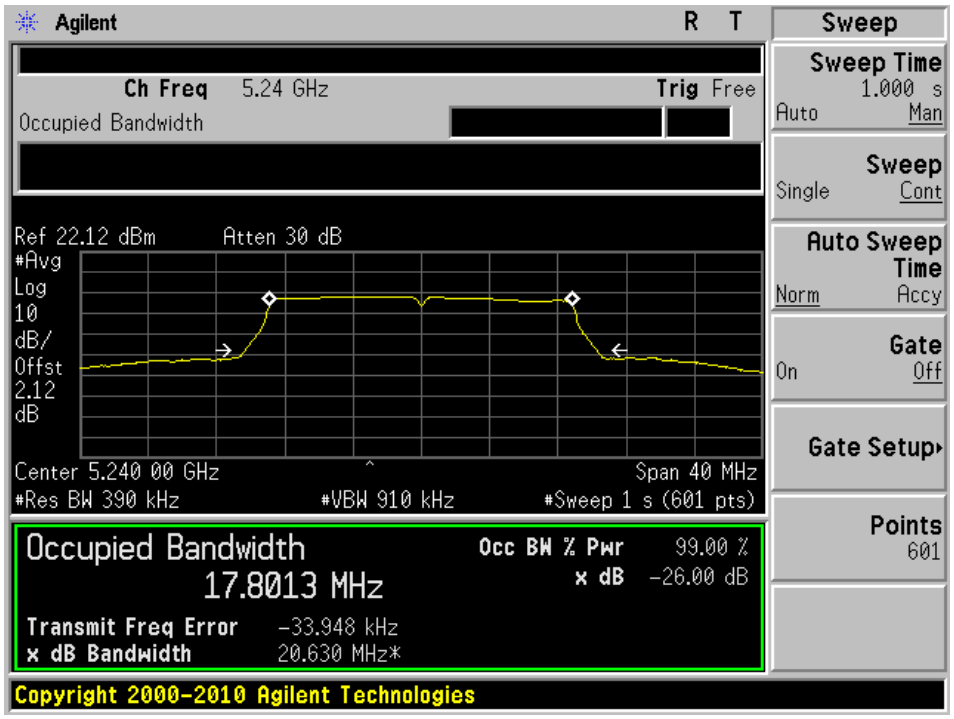
802.11n 20 MHz mode, High Channel, Chain J1



802.11n 20 MHz mode, High Channel, Chain J2

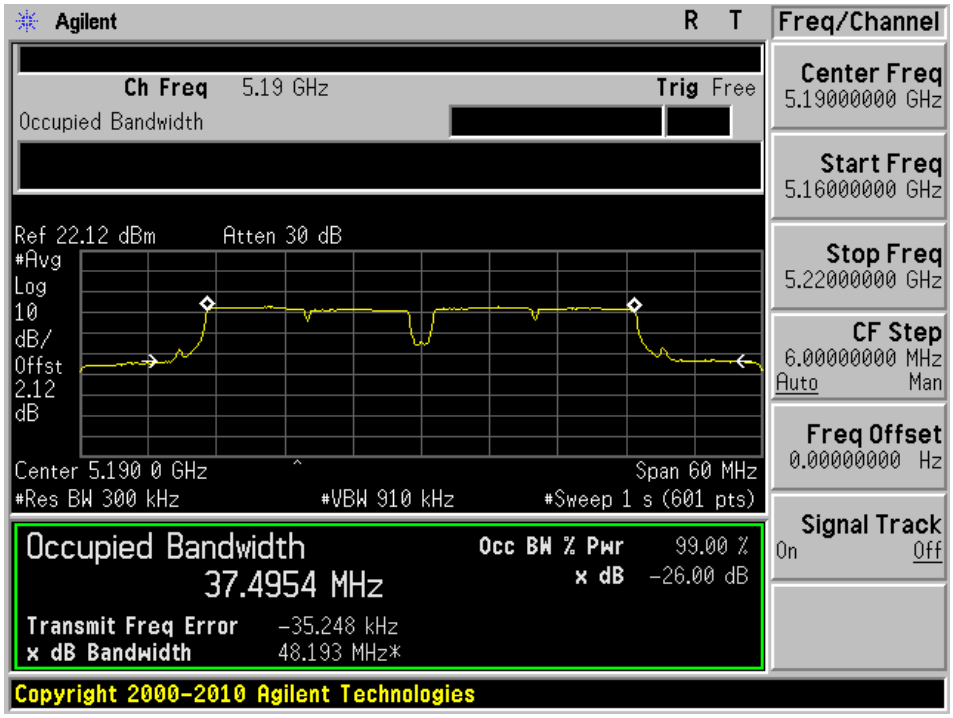


802.11n 20 MHz mode, High Channel, Chain J3

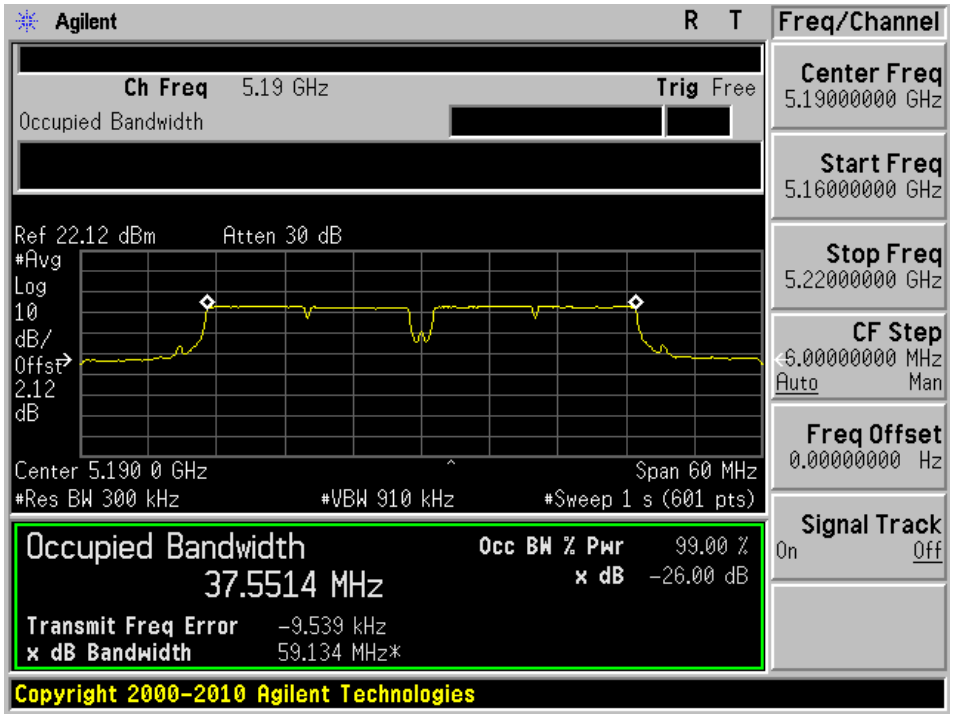


Chain J4 is not active during test

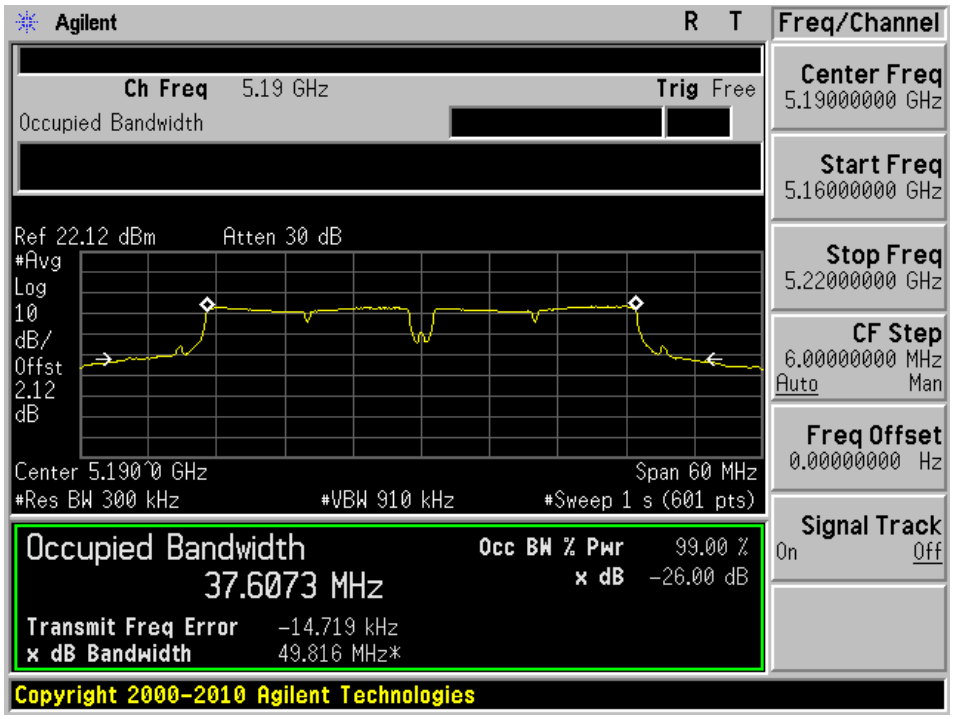
802.11n 40 MHz mode, Low Channel, Chain J1



802.11n 40 MHz mode, Low Channel, Chain J2

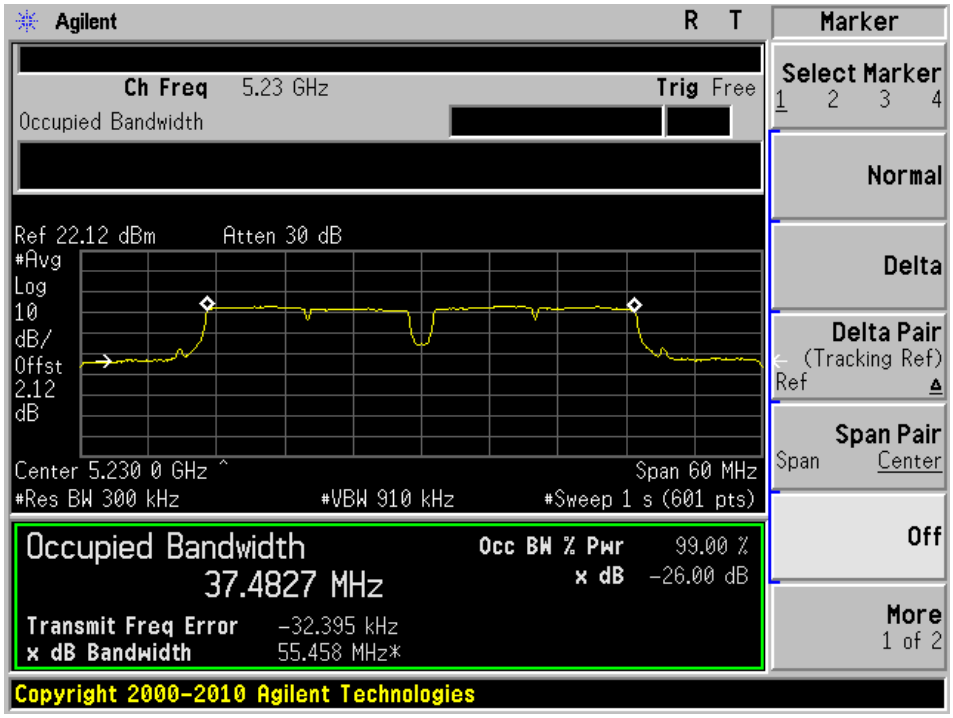


802.11n 40 MHz mode, Low Channel, Chain J3

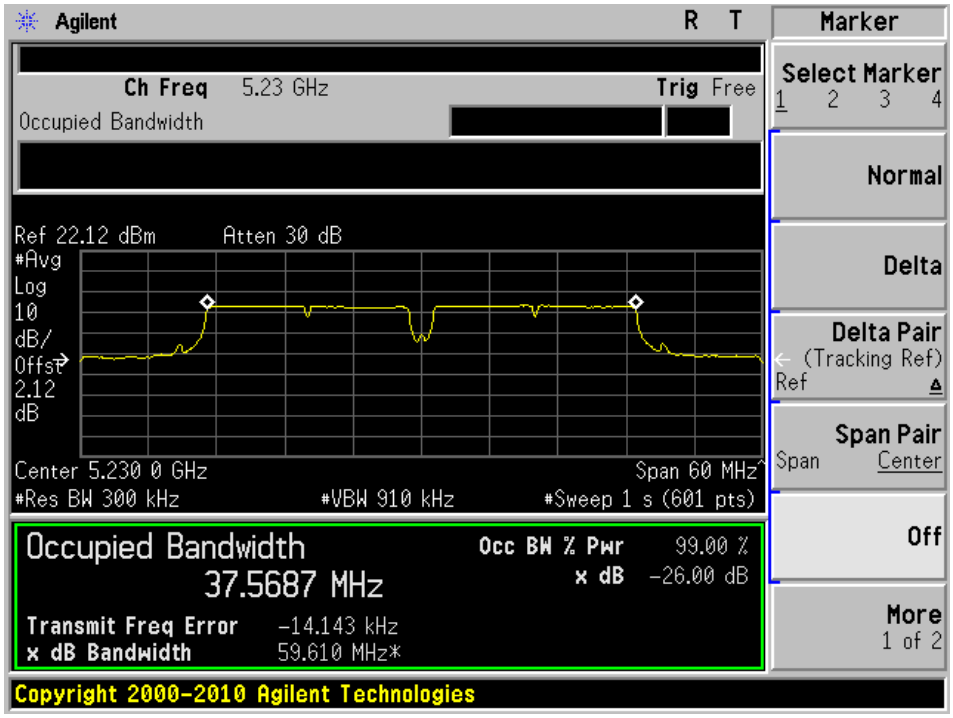


Chain J4 is not active during test

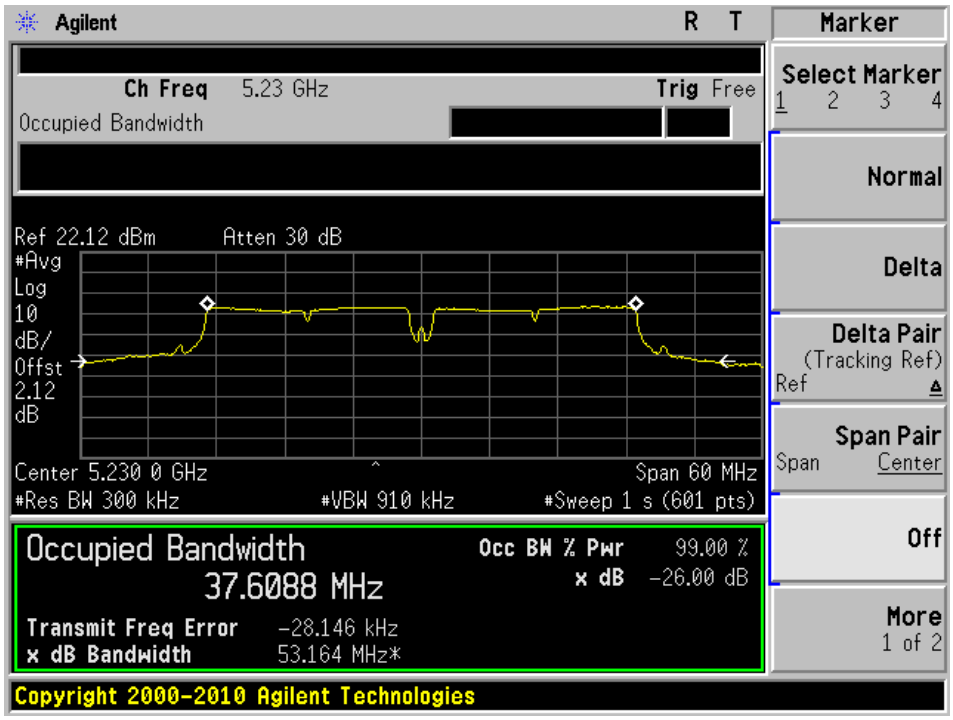
802.11n 40 MHz mode, High Channel, Chain J1



802.11n 40 MHz mode, High Channel, Chain J2



802.11n 40 MHz mode, High Channel, Chain J3



Chain J4 is not active during test

9 FCC §407(a)(1) - Peak Output Power Measurement

9.1 Applicable Standard

According to FCC §15.407(a)(1)

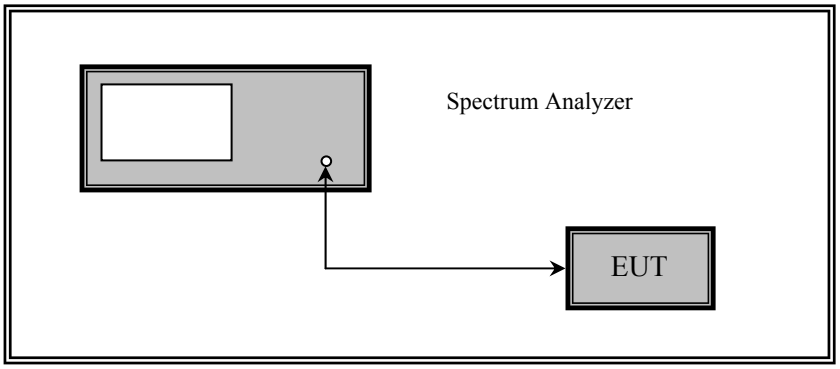
(1) For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2) For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

9.2 Measurement Procedure

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

9.3 Test Set up Block Diagram



9.4 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

9.5 Test Environmental Conditions

Temperature:	21~25 °C
Relative Humidity:	38~50 %
ATM Pressure:	101.2-102 kPa

The testing was performed by Wei Sun on 2012-05-03 in RF site.

9.6 Test Results

Channel	Frequency (MHz)	TX Chain J1 Power (dBm)	TX Chain J2 Power (dBm)	TX Chain J3 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a mode								
Low	5180	11.43	11.23	11.8	16.26	17	0.74	17
Middle	5200	11.64	12.45	11.84	16.76	17	0.24	17
High	5240	11	11.85	11.42	16.21	17	0.79	17
802.11n20 mode								
Low	5180	11.39	12.2	11.67	16.54	17	0.46	17
Middle	5200	12.03	12.37	11.96	16.89	17	0.11	17
High	5240	11.64	12.13	11.7	16.6	17	0.4	16
802.11n40 mode								
Low	5190	11.32	11.39	11.41	16.14	17	0.86	17
High	5230	11.34	11.9	11.55	16.37	17	0.63	17

10 FCC §15.407(b) - Out of Band Emissions

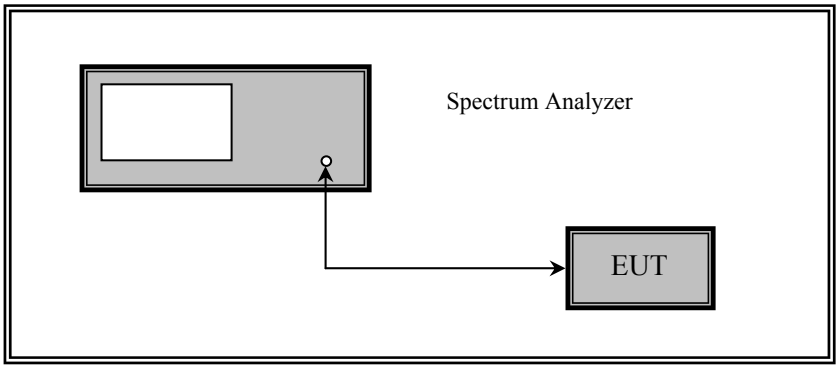
10.1 Applicable Standard

According to FCC §15.407(b) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band. For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

10.2 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.

10.3 Test Setup Block Diagram



10.4 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

10.5 Test Environmental Conditions

Temperature:	21~25 °C
Relative Humidity:	38~50 %
ATM Pressure:	101.2-102 kPa

The testing was performed by Wei Sun on 2012-05-05 in RF site.

10.6 Test Results

802.11 a Mode

Channel	Band Edge	Frequency (MHz)	Reading (dBm)	Antenna Gain (dBi)	E.I.R.P. Value (dBm)	Limit
J1	Low	5150	-49.69	4.0	-45.69	-27
	High	5350	-52.19	4.0	-4.19	-27
J2	Low	5150	-42.21	4.0	-38.21	-27
	High	5350	-52.58	4.0	-48.58	-27
J3	Low	5150	-46.58	4.0	-42.58	-27
	High	5350	-49.27	4.0	-45.27	-27

Channel	Band Edge	Frequency (MHz)	Reading (dBm)	Antenna Gain (dBi)	E.I.R.P. Value (dBm)	Limit
All Three Chains Combined	Low	5150	-46.68	4.0	-42.68	-27
	High	5350	-47.08	4.0	-43.08	-27

802.11 n 20 MHz Mode

Channel	Band Edge	Frequency (MHz)	Reading (dBm)	Antenna Gain	E.I.R.P. Value (dBm)	Limit
J1	Low	5150	-45.86	4.0	-41.86	-27
	High	5350	-52.65	4.0	-48.65	-27
J2	Low	5150	-44.81	4.0	-40.81	-27
	High	5350	-52.05	4.0	-48.05	-27
J3	Low	5150	-45.48	4.0	-41.48	-27
	High	5350	-49.13	4.0	-45.13	-27

Channel	Band Edge	Frequency (MHz)	Reading (dBm)	Antenna Gain (dBi)	E.I.R.P. Value (dBm)	Limit
All Three Chains Combined	Low	5150	-47.39	4.0	-44.39	-27
	High	5350	-46.22	4.0	-42.22	-27

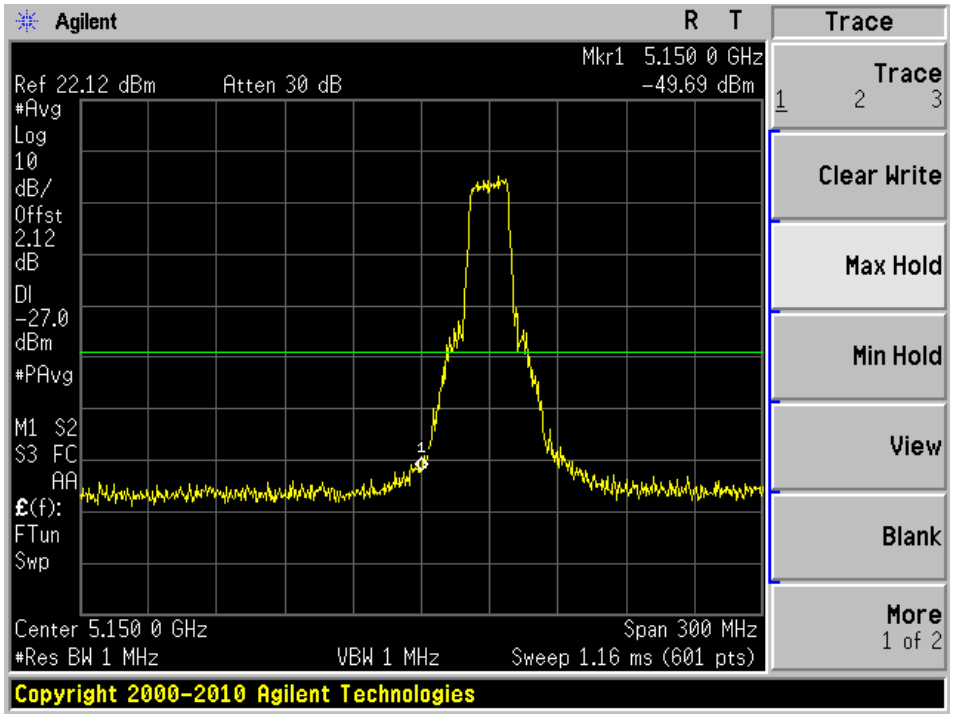
802.11 n 40 MHz Mode

Channel	Band Edge	Frequency (MHz)	Reading (dBm)	Antenna Gain	E.I.R.P. Value (dBm)	Limit
J1	Low	5150	-31.33	4.0	-27.33	-27
	High	5350	-51.56	4.0	-47.56	-27
J2	Low	5150	-31.79	4.0	-27.79	-27
	High	5350	-52.74	4.0	-48.74	-27
J3	Low	5150	-31.38	4.0	-27.38	-27
	High	5350	-48.36	4.0	-44.36	-27

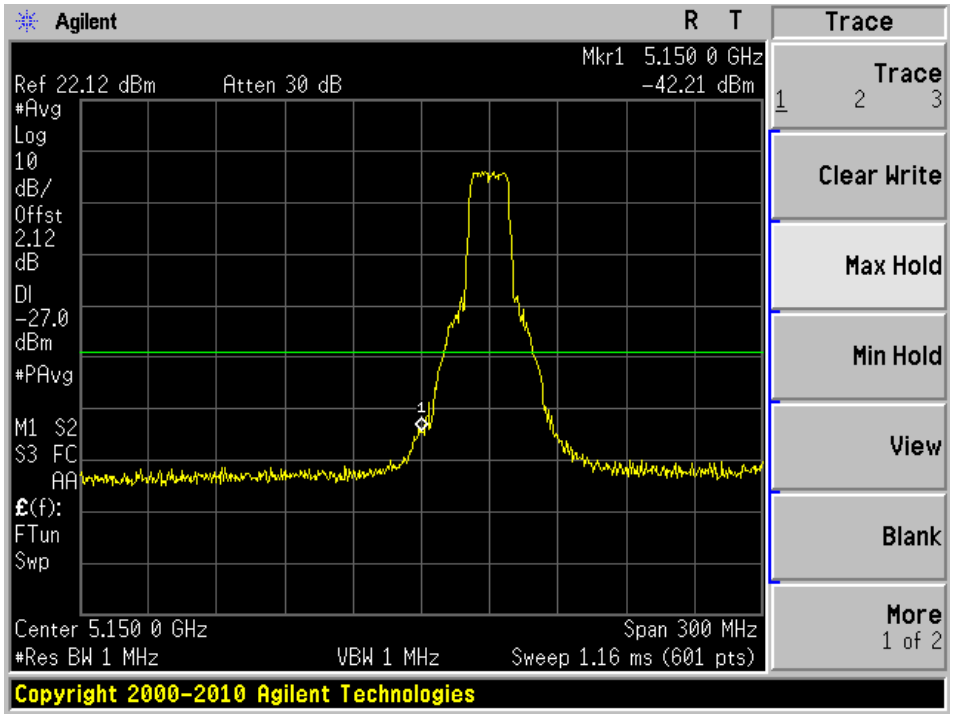
Channel	Band Edge	Frequency (MHz)	Reading (dBm)	Antenna Gain (dBi)	E.I.R.P. Value (dBm)	Limit
All Three Chains Combined	Low	5150	-38.05	4.0	-34.05	-27
	High	5350	-45.92	4.0	-41.92	-27

Please refer to following pages for plots of band edge.

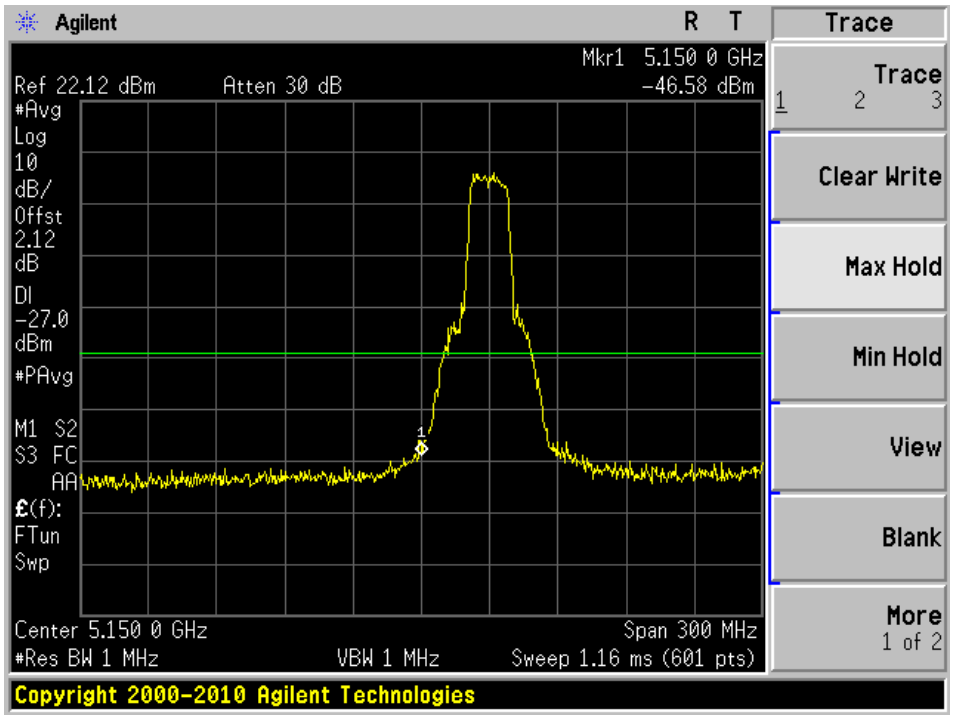
802.11 a mode, Low Channel, Chain J1



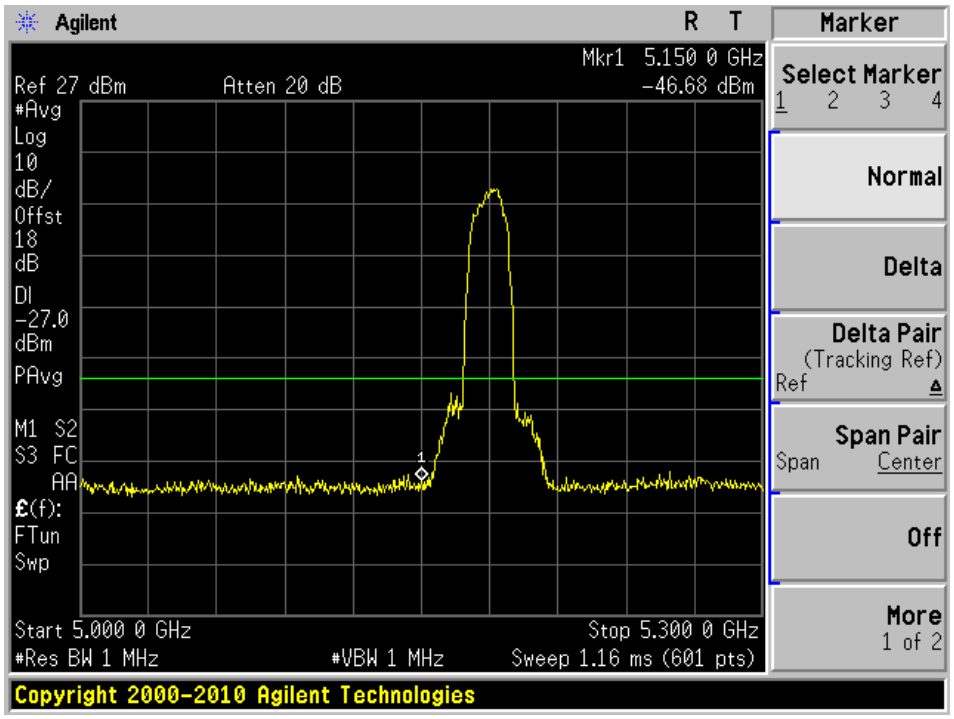
802.11 a mode, Low Channel, Chain J2



802.11 a mode, Low Channel, Chain J3

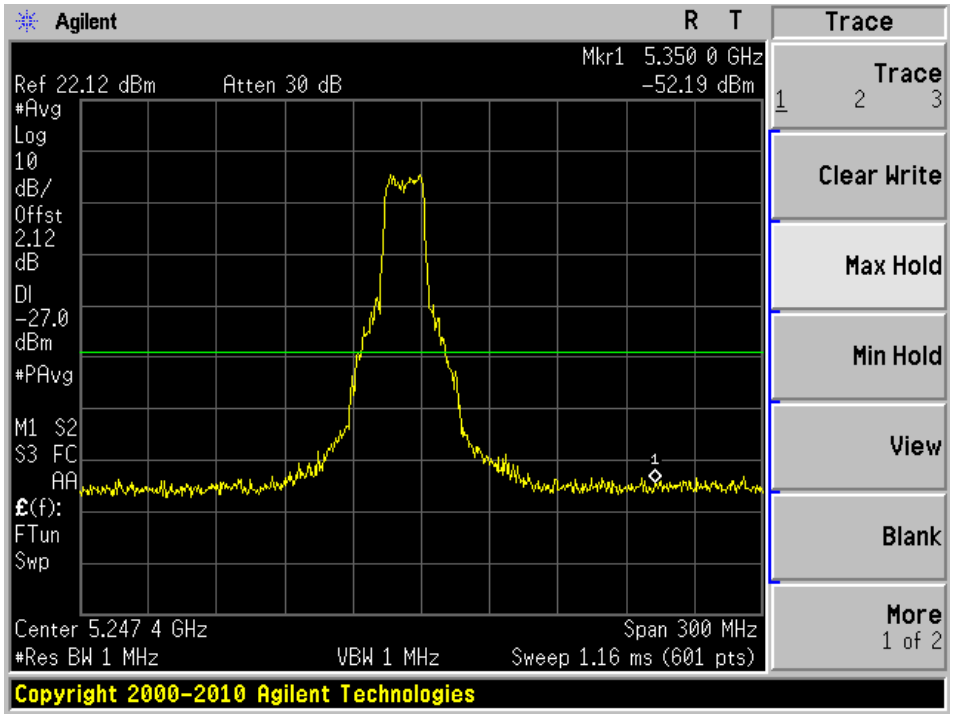


802.11 a mode, Low Channel, Chain J1+J2+J3

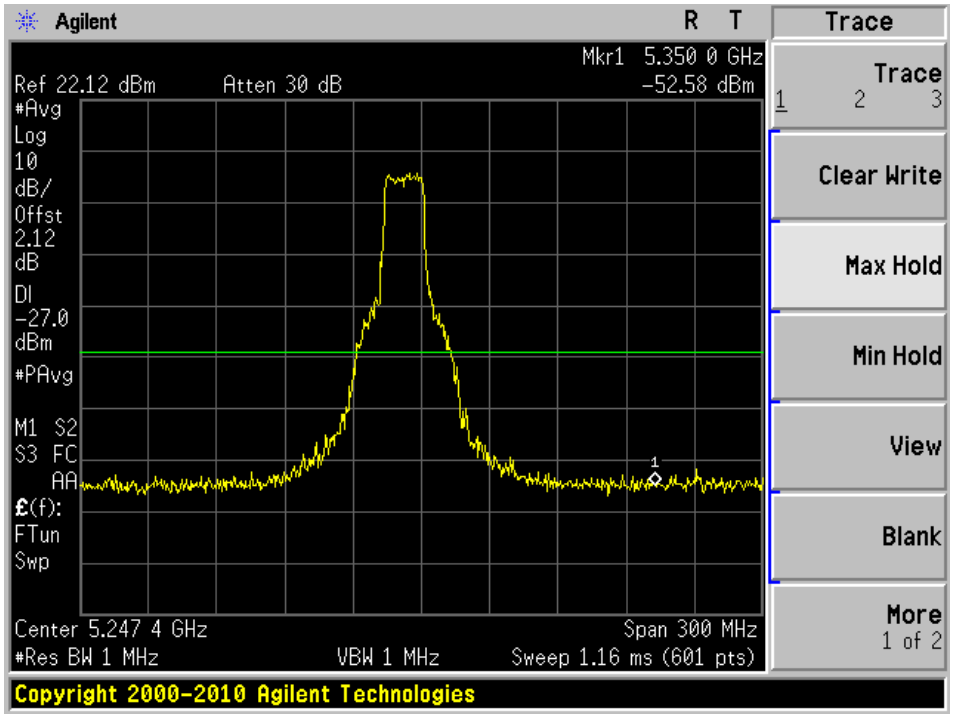


Chain J4 is not active during test

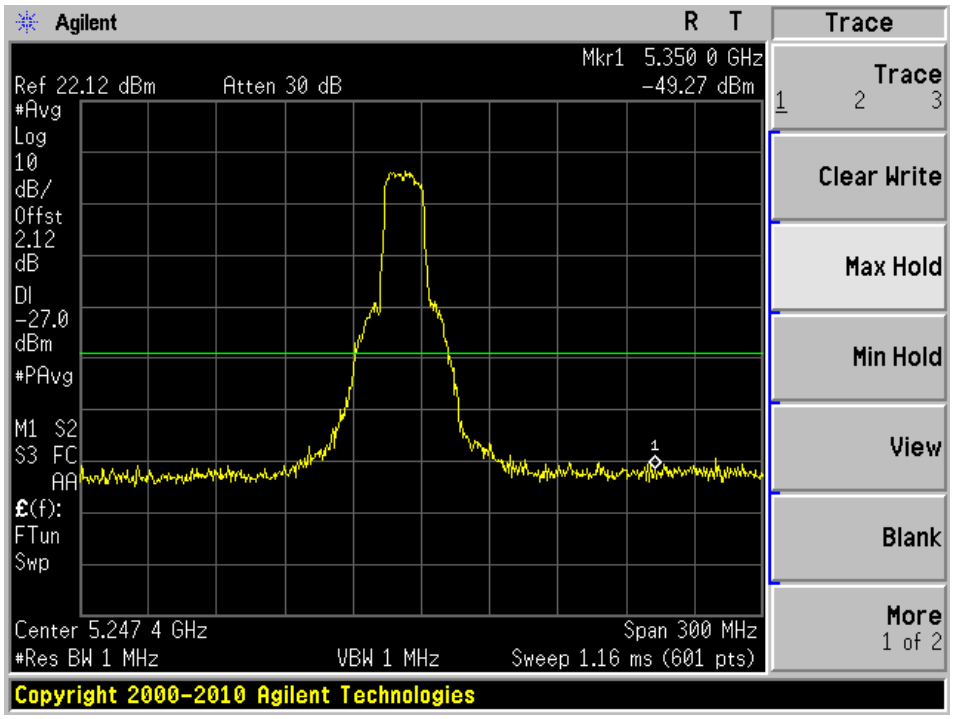
802.11 a mode, High Channel, Chain J1



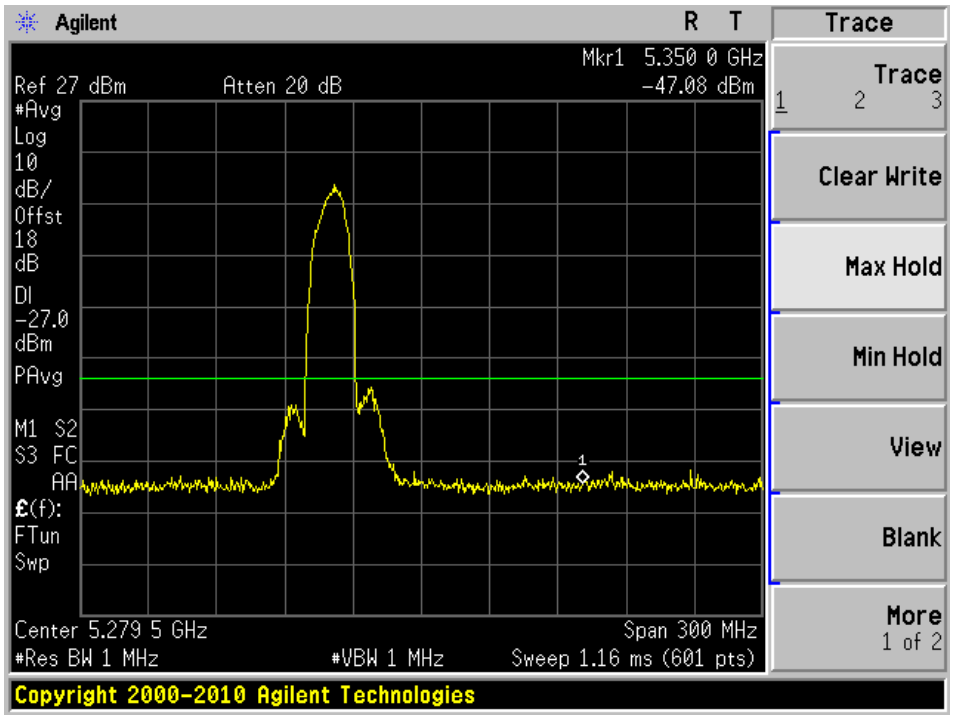
802.11 a mode, High Channel, Chain J2



802.11 a mode, High Channel, Chain J3

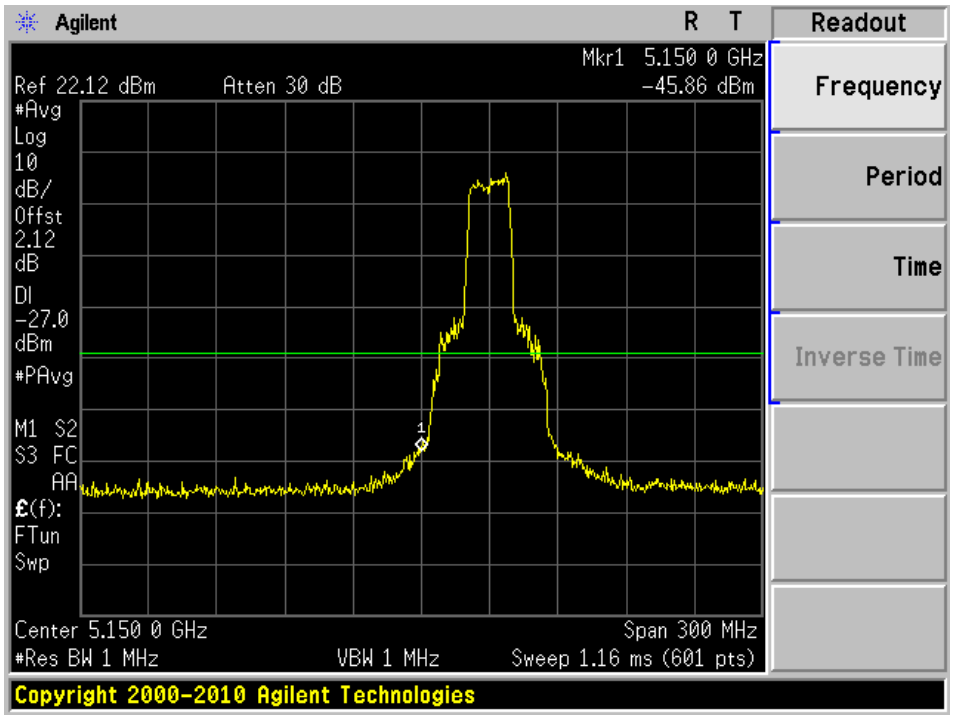


802.11 a mode, High Channel, Chain J1+J2+J3

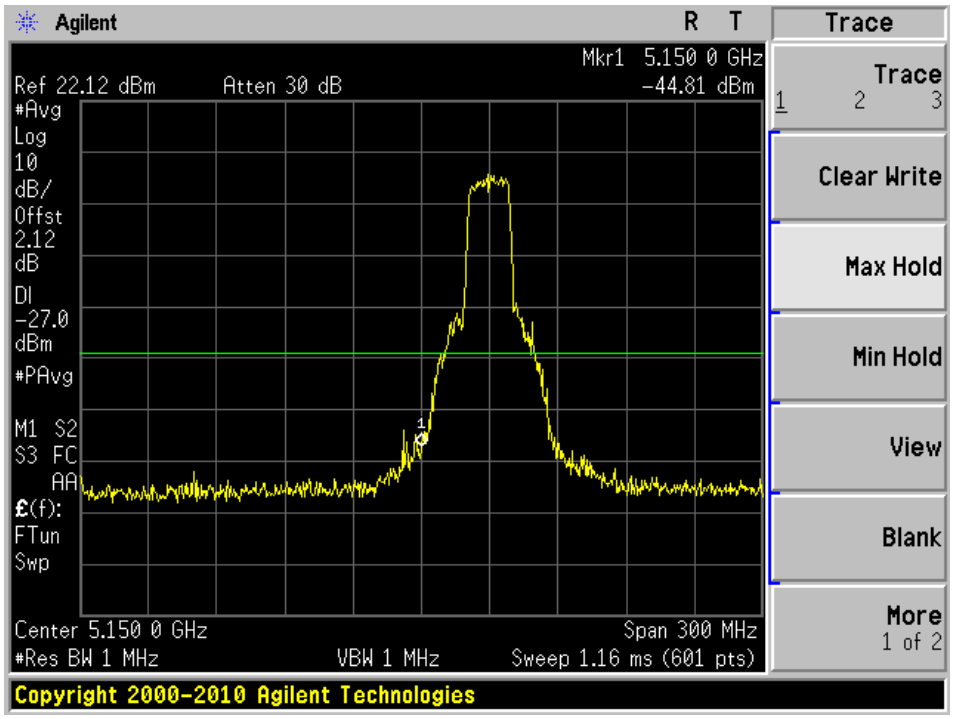


Chain J4 is not active during test

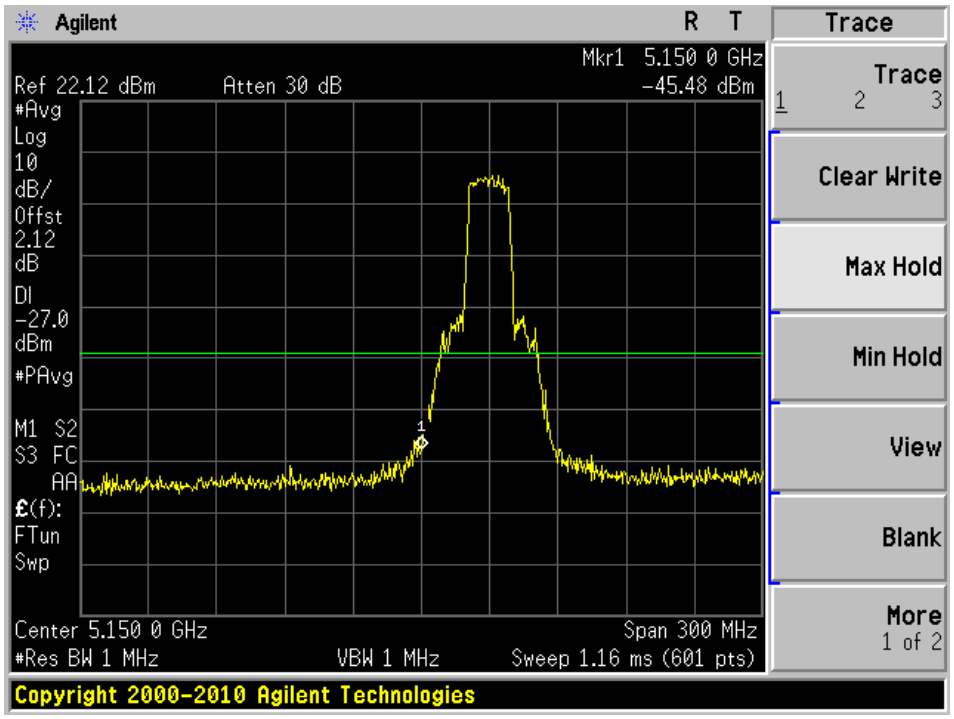
802.11 n 20 MHz mode, Low Channel, Chain J1



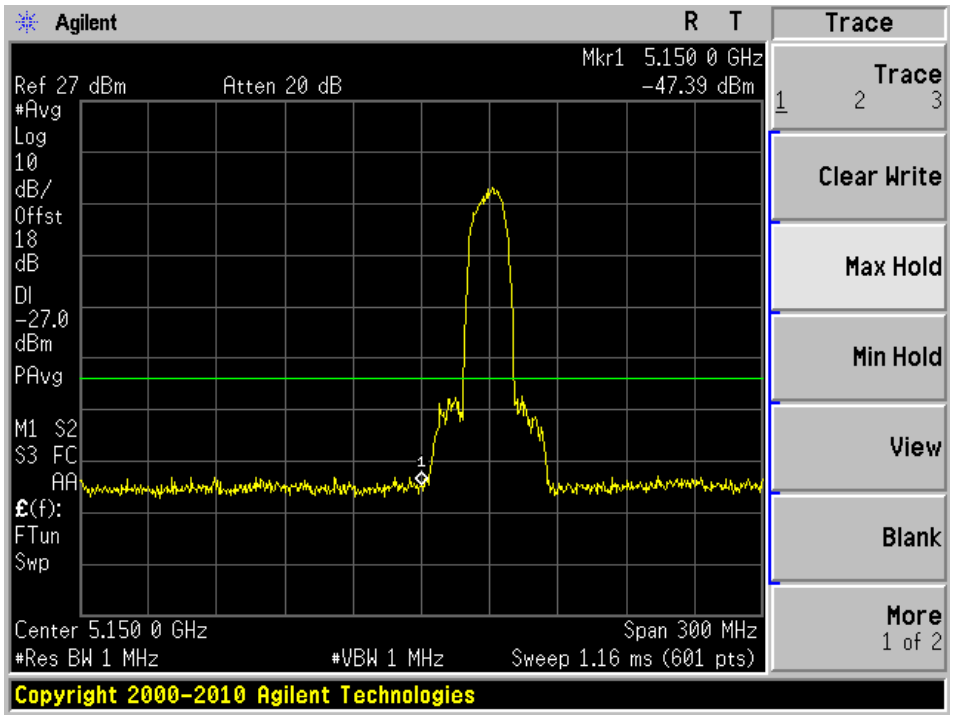
802.11 n 20 MHz mode, Low Channel, Chain J2



802.11 n 20 MHz mode, Low Channel, Chain J3

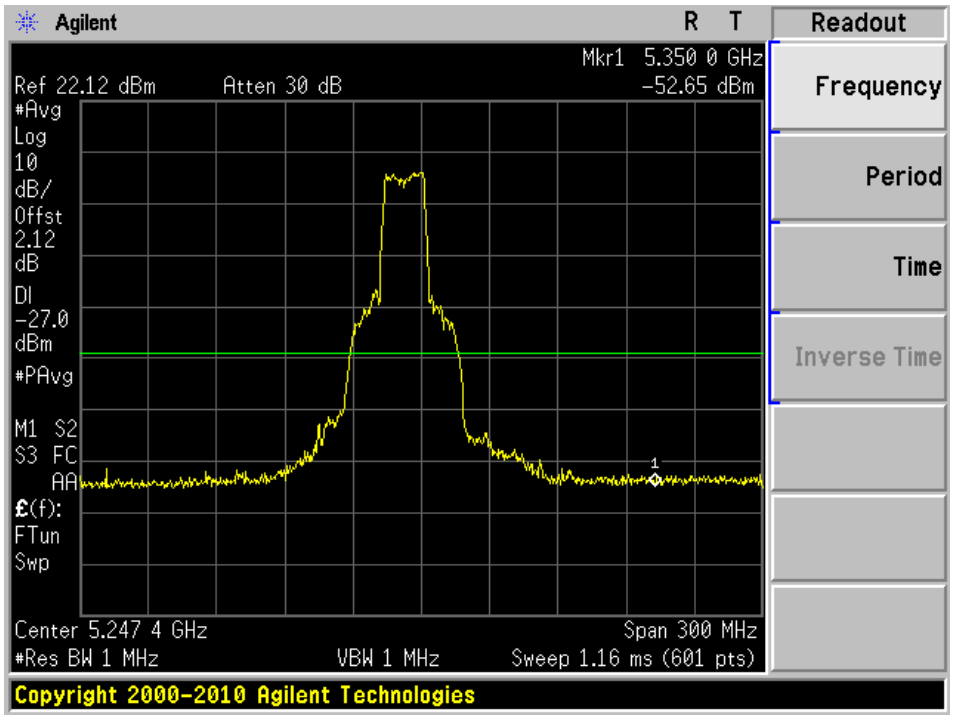


802.11 n 20 MHz mode, Low Channel, Chain J1+J2+J3

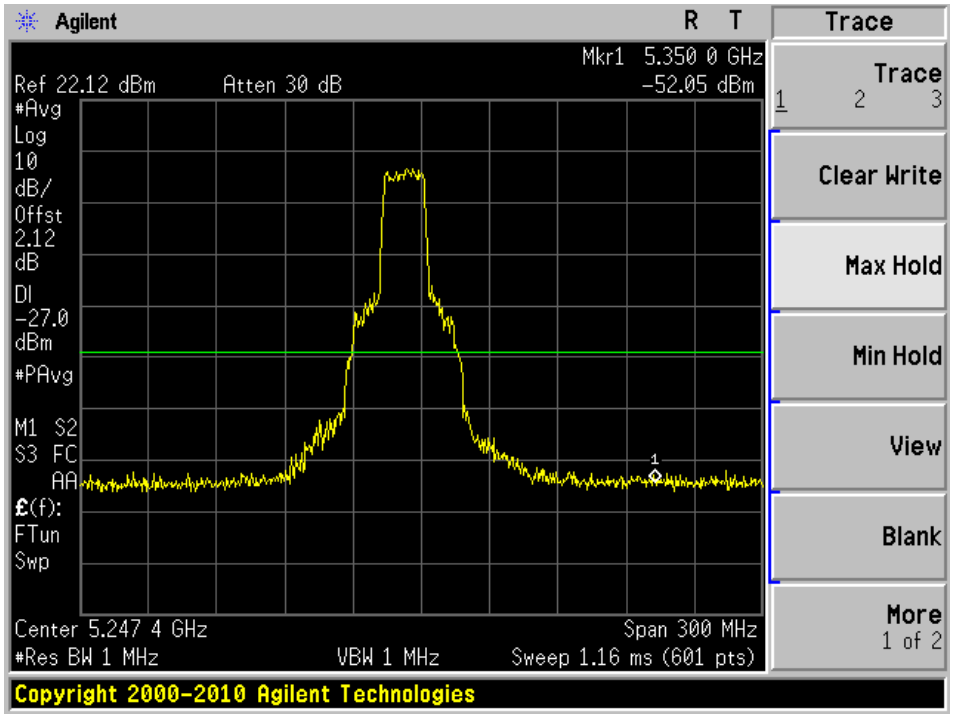


Chain J4 is not active during test

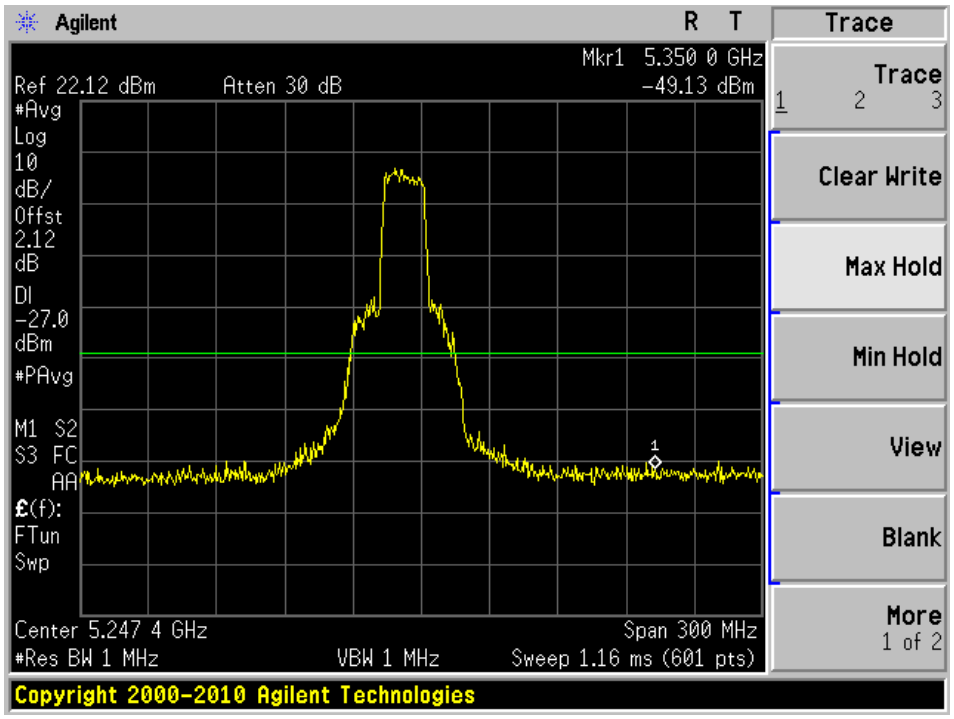
802.11 n 20 MHz mode, High Channel, Chain J1



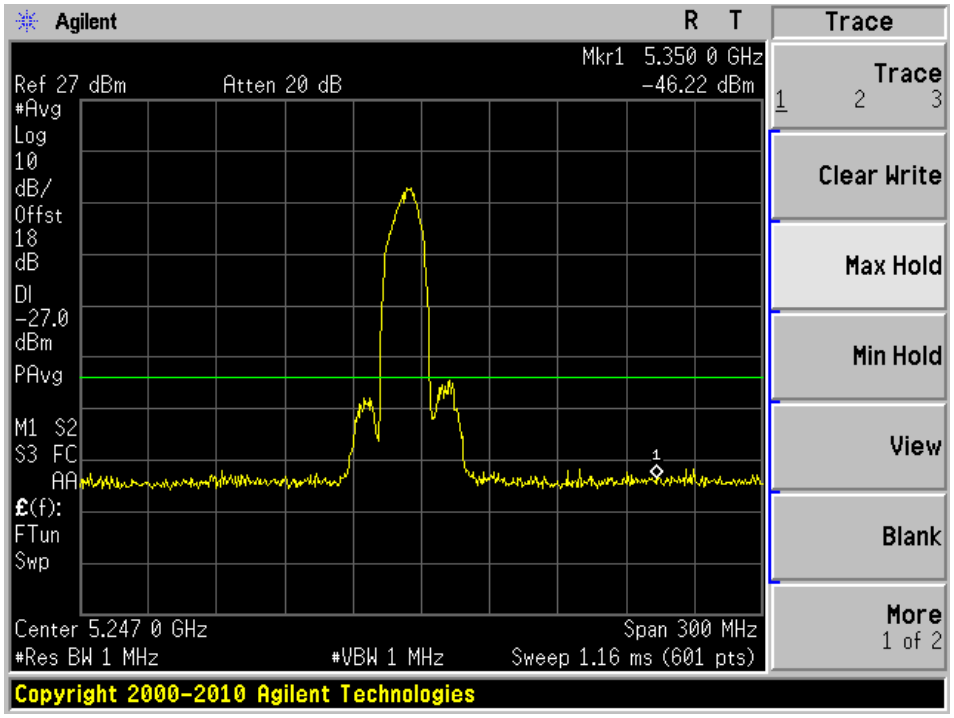
802.11 n 20 MHz mode, High Channel, Chain J2



802.11 n 20 MHz mode, High Channel, Chain J3

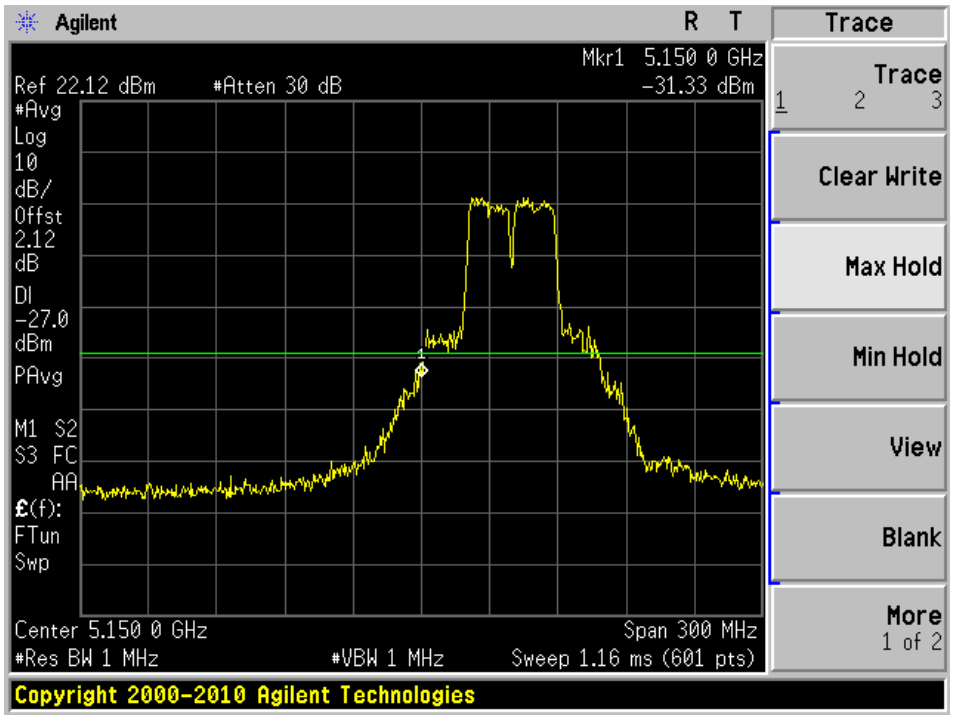


802.11 n 20 MHz mode, High Channel, Chain J1+J2+J3

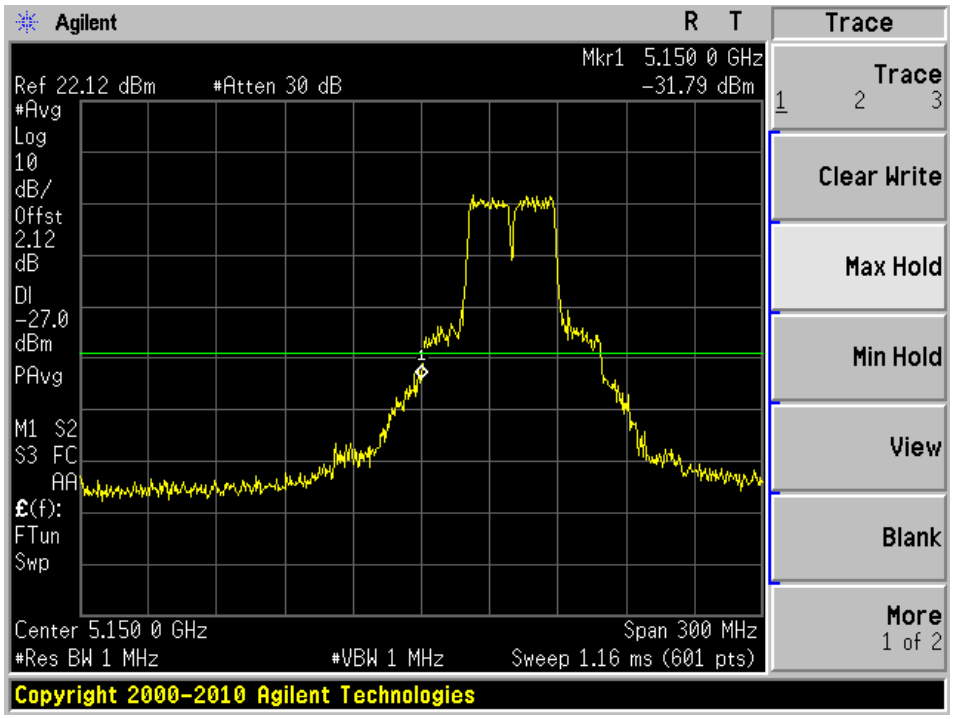


Chain J4 is not active during test

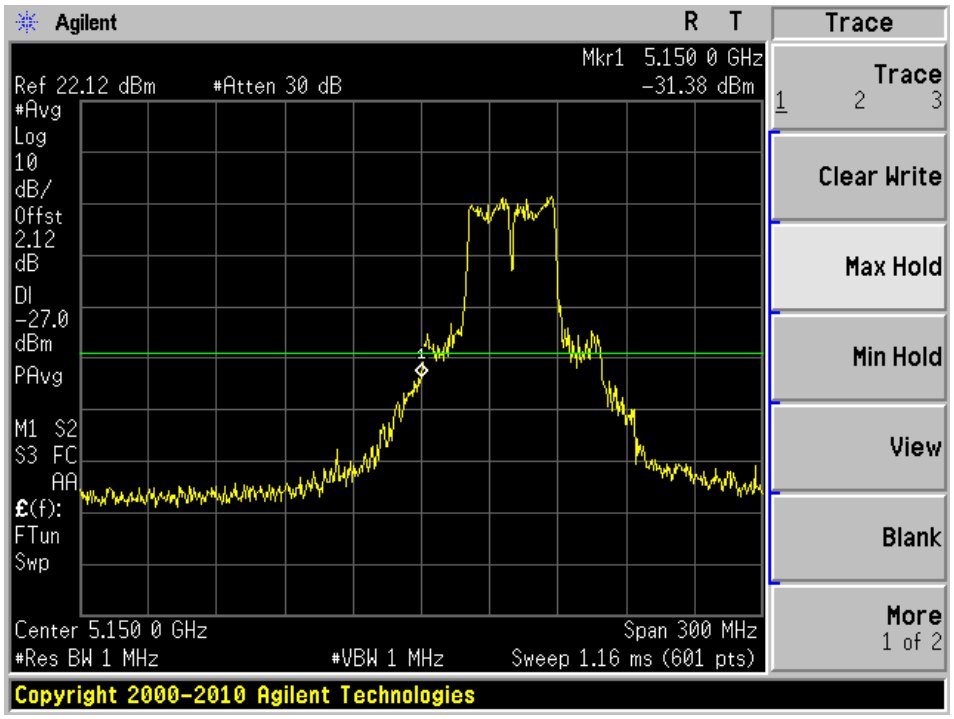
802.11 n 40 MHz mode, Low Channel, Chain J1



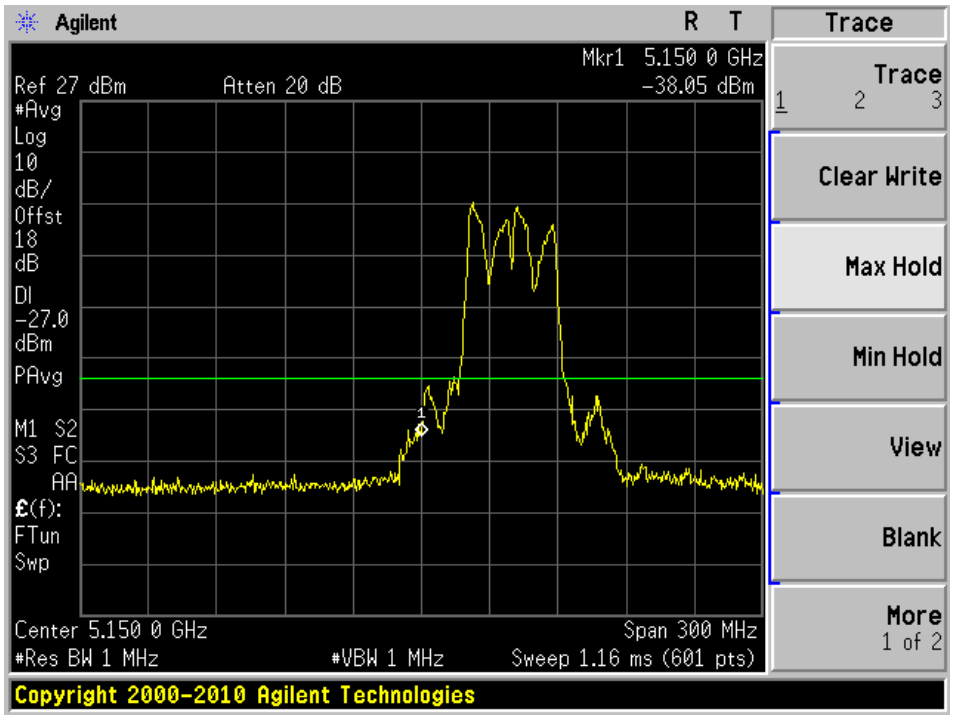
802.11 n 40 MHz mode, Low Channel, Chain J2



802.11 n 40 MHz mode, Low Channel, Chain J3

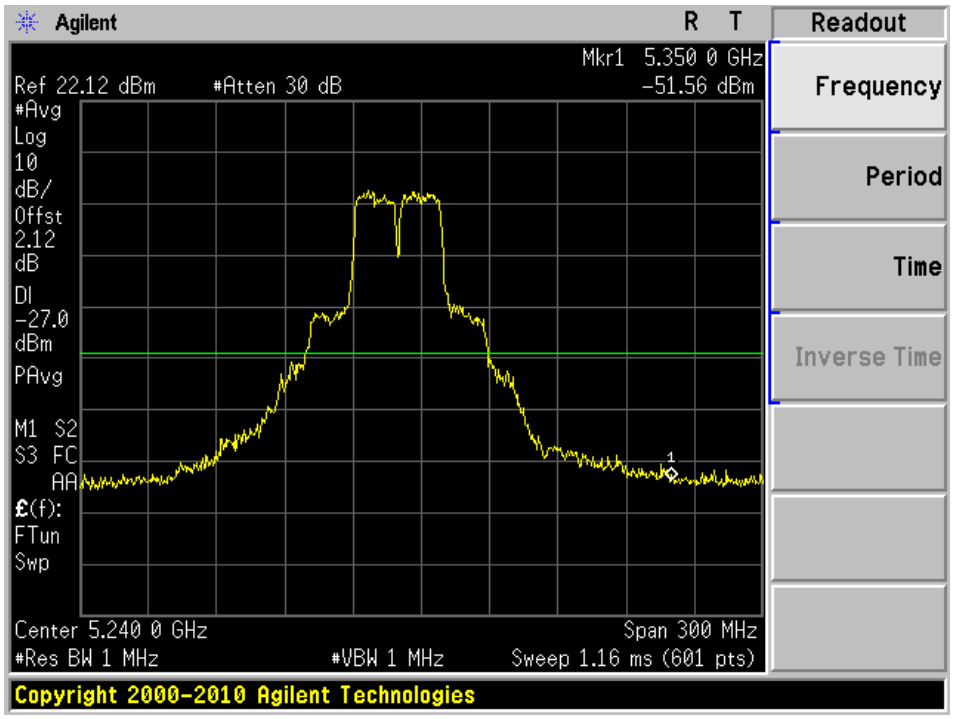


802.11 n 40 MHz mode, Low Channel, Chain J1+J2+J3

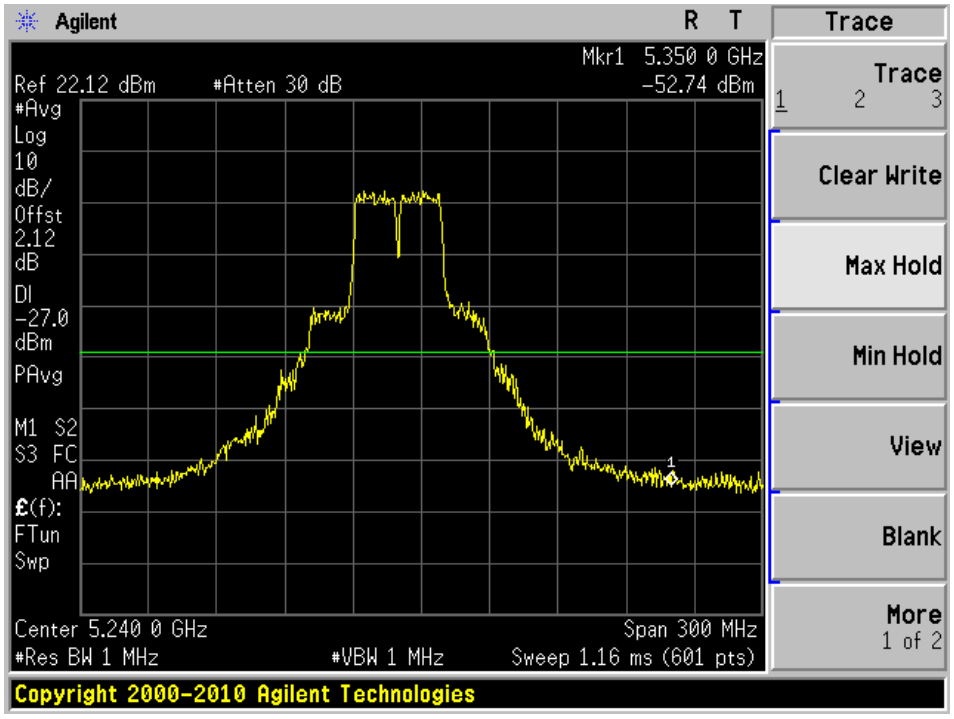


Chain J4 is not active during test

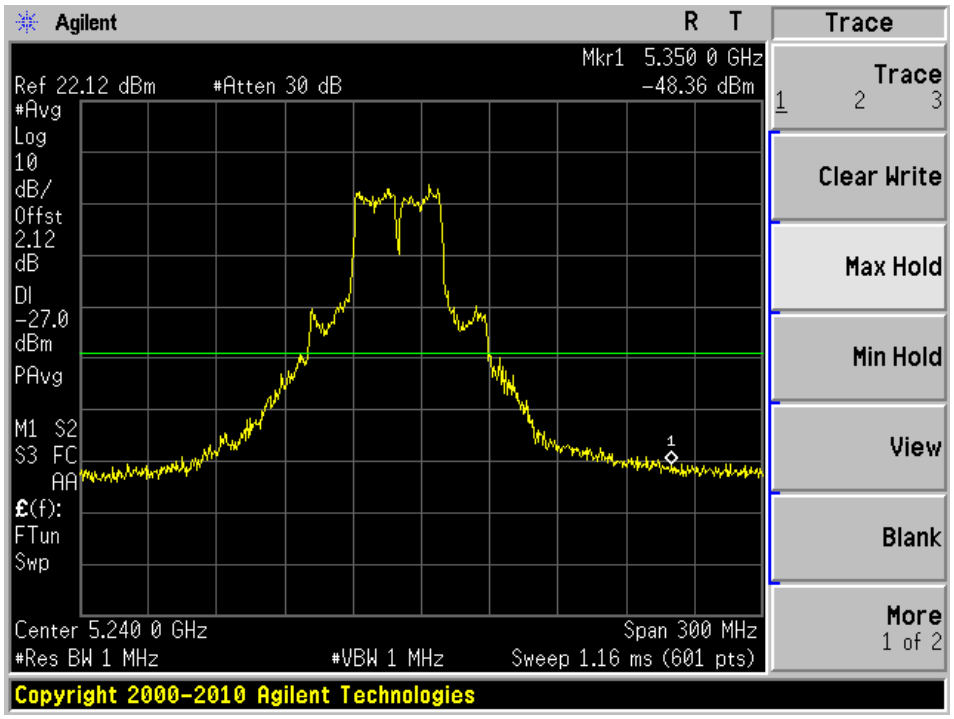
802.11 n 40 MHz mode, High Channel, Chain J1



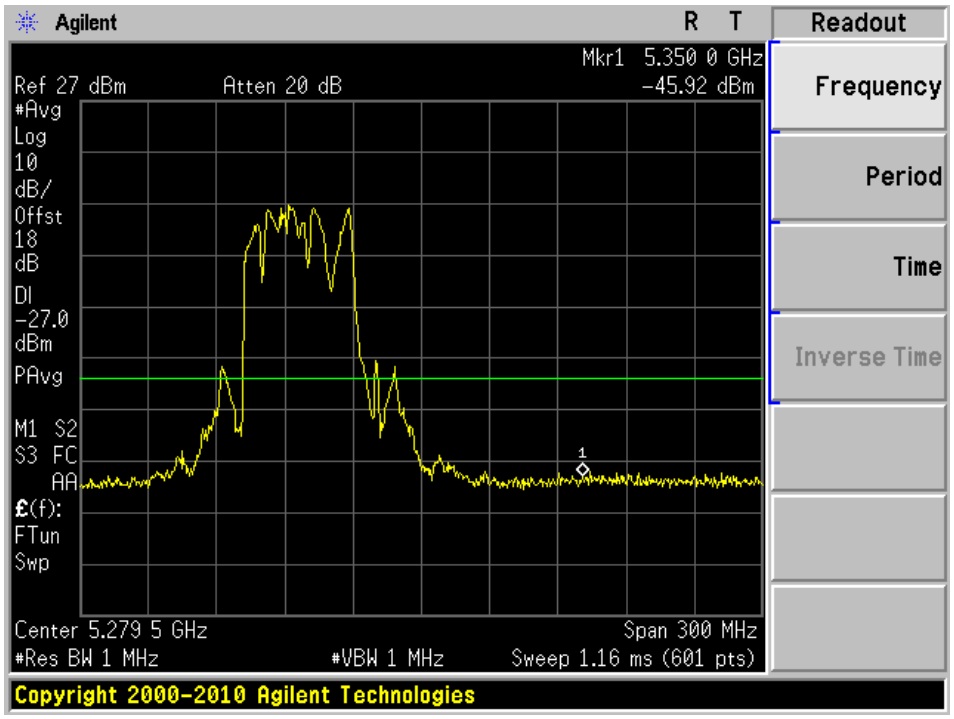
802.11 n 40 MHz mode, High Channel, Chain J2



802.11 n 40 MHz mode, High Channel, Chain J3



802.11 n 40 MHz mode, High Channel, Chain J1+J2+J3



Chain J4 is not active during test

11 FCC §15.407(a)(1) - Power Spectral Density

11.1 Applicable Standard

According to FCC §15.407(a)(1)

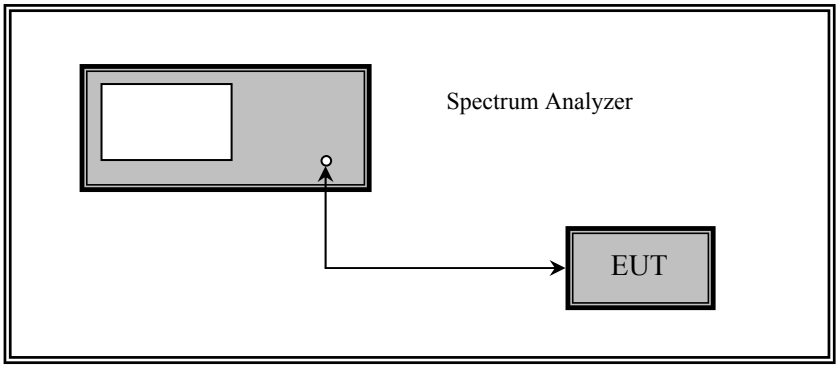
(1) For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2) For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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 was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to the span bigger than the EBW. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Repeat above procedures until all frequencies measured were complete.

11.3 Test Setup Block Diagram



11.4 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

11.5 Test Environmental Conditions

Temperature:	21~25 °C
Relative Humidity:	38~50 %
ATM Pressure:	101.2-102 kPa

The testing was performed by Wei Sun on 2012-05-04 in RF site.

11.6 Test Results

802.11 a Mode

Channel	Channel	Frequency (MHz)	Power Spectral Density (dBm/1MHz)	Limit (dBm/1MHz)
J1	Low	5180	-3.53	4
	Middle	5200	-3.87	4
	High	5240	-3.56	4
J2	Low	5180	-3.38	4
	Middle	5200	-3.95	4
	High	5240	-3.38	4
J3	Low	5180	-3.65	4
	Middle	5200	-3.76	4
	High	5240	-3.33	4

Channel	Channel	Frequency (MHz)	Total Power Spectral Density (dBm/1MHz)	Limit (dBm/1MHz)
All Three Chains Combined	Low	5180	1.25	4
	Middle	5200	0.91	4
	High	5240	1.35	4

802.11 n 20 MHz Mode

Channel	Channel	Frequency (MHz)	Power Spectral Density (dBm/1MHz)	Limit (dBm/1MHz)
J1	Low	5180	-4.05	4
	Middle	5200	-3.65	4
	High	5240	-3.08	4
J2	Low	5180	-3.91	4
	Middle	5200	-3.82	4
	High	5240	-3.60	4
J3	Low	5180	-4.06	4
	Middle	5200	-3.67	4
	High	5240	-3.14	4

Channel	Channel	Frequency (MHz)	Total Power Spectral Density (dBm/1MHz)	Limit (dBm/1MHz)
All Three Chains Combined	Low	5180	0.77	4
	Middle	5200	1.06	4
	High	5240	1.50	4

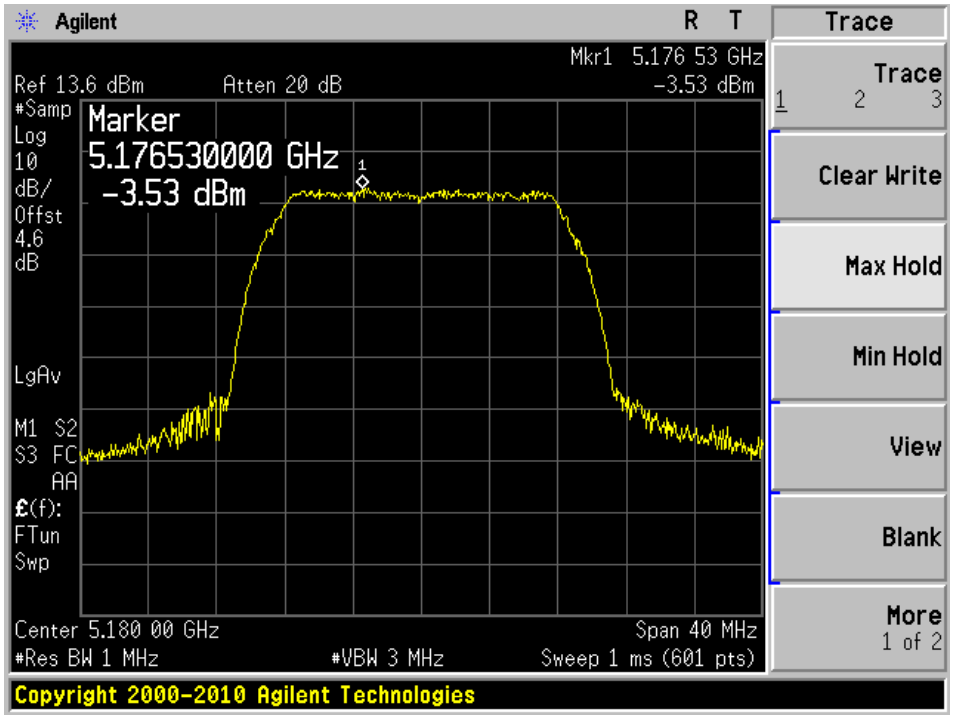
802.11 n 40 MHz Mode

Channel	Channel	Frequency (MHz)	Power Spectral Density (dBm/1MHz)	Limit (dBm/1MHz)
J1	Low	5190	-4.25	4
	Middle	-	-	-
	High	5240	-3.86	4
J2	Low	5190	-4.36	4
	Middle	-	-	-
	High	5230	-3.99	4
J3	Low	5180	-4.22	4
	Middle	-	-	-
	High	5230	-3.64	4

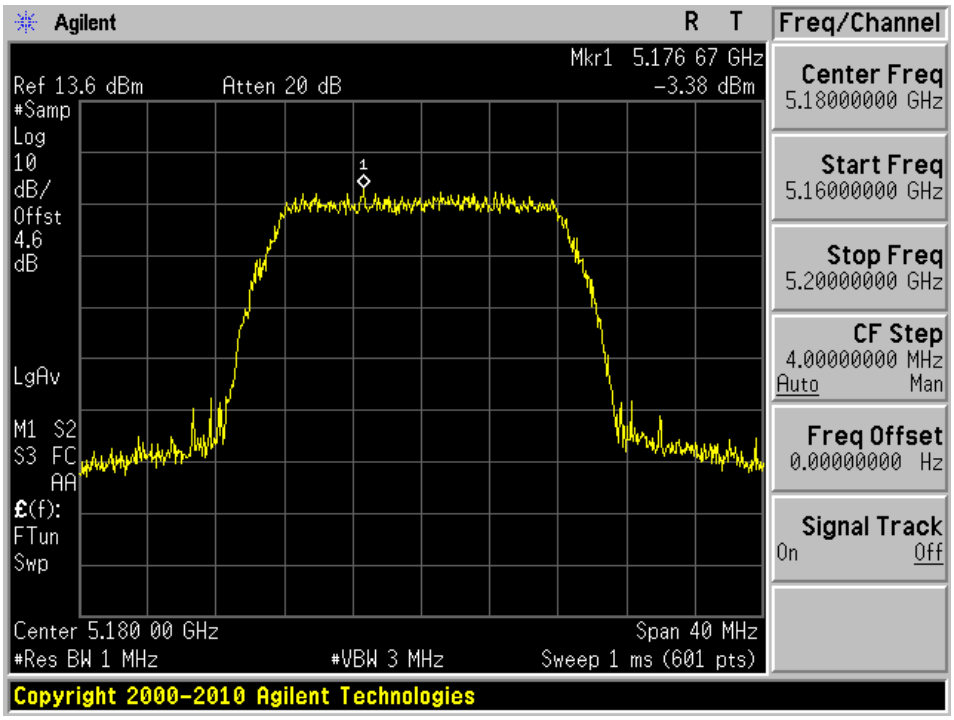
Channel	Channel	Frequency (MHz)	Total Power Spectral Density (dBm/1MHz)	Limit (dBm/1MHz)
All Three Chains Combined	Low	5190	0.49	4
	Middle	-	-	-
	High	5230	0.94	4

Please refer to the following plots.

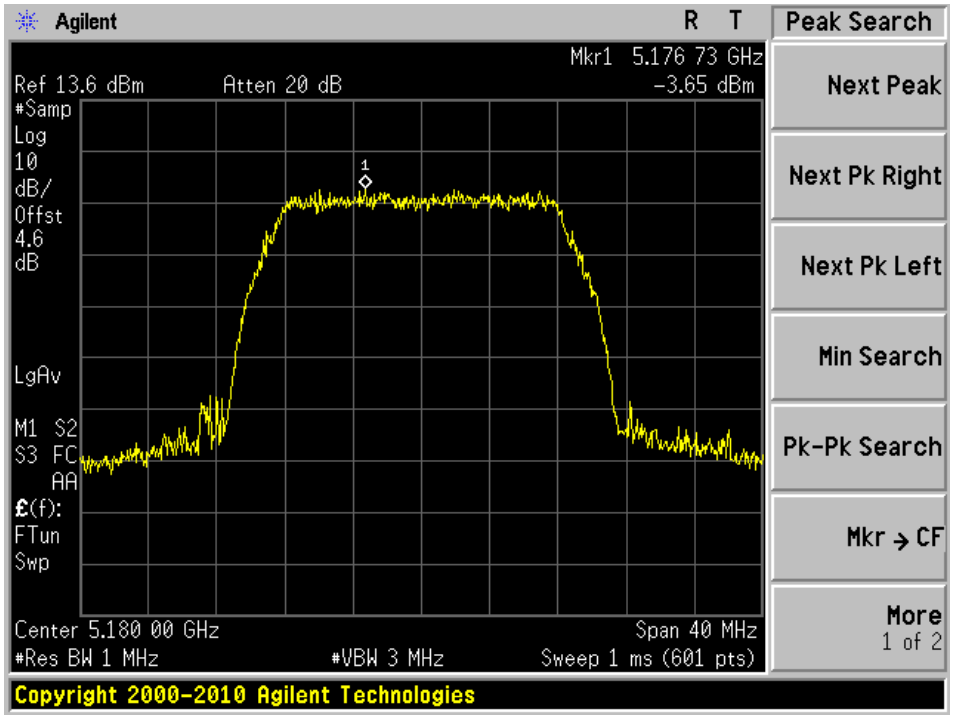
802.11 a mode, Low Channel, Chain J1



802.11 a mode, Low Channel, Chain J2

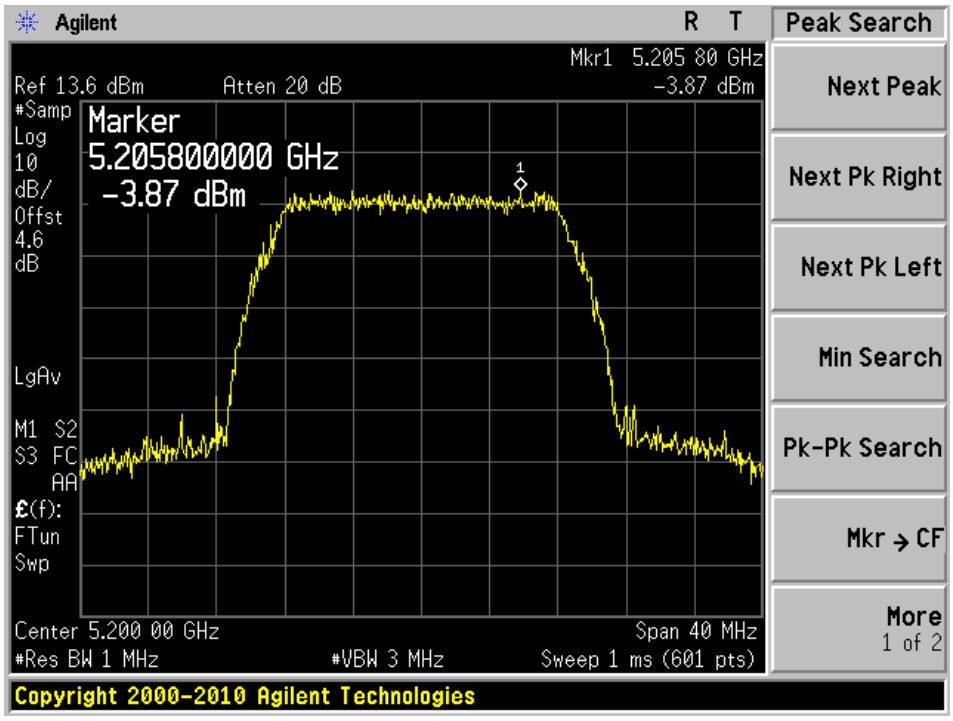


802.11 a mode, Low Channel, Chain J3

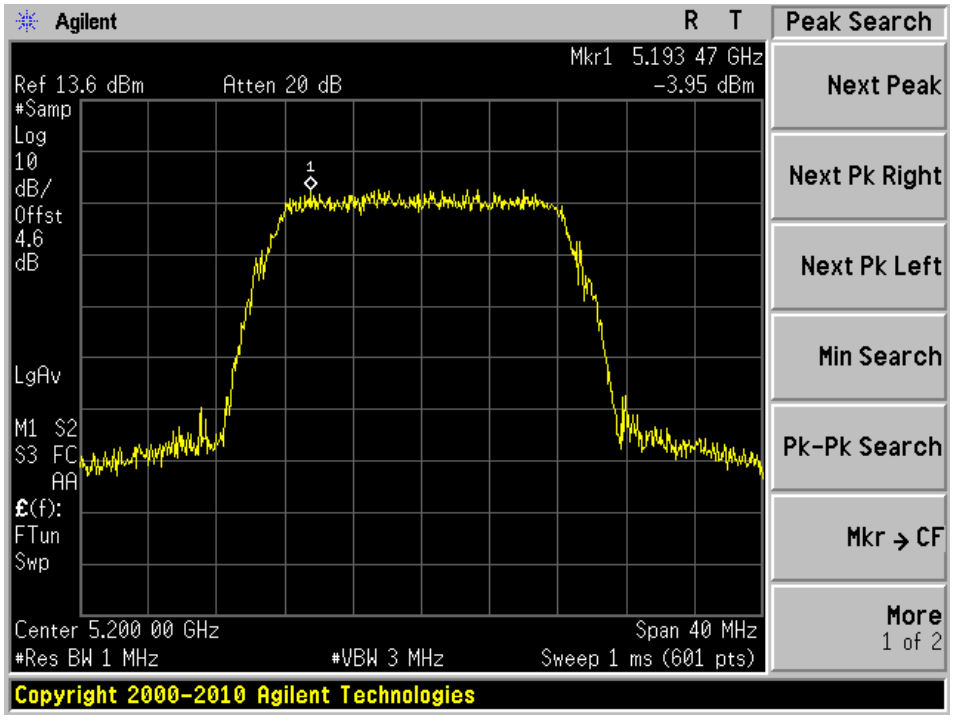


Chain J4 is not active during test

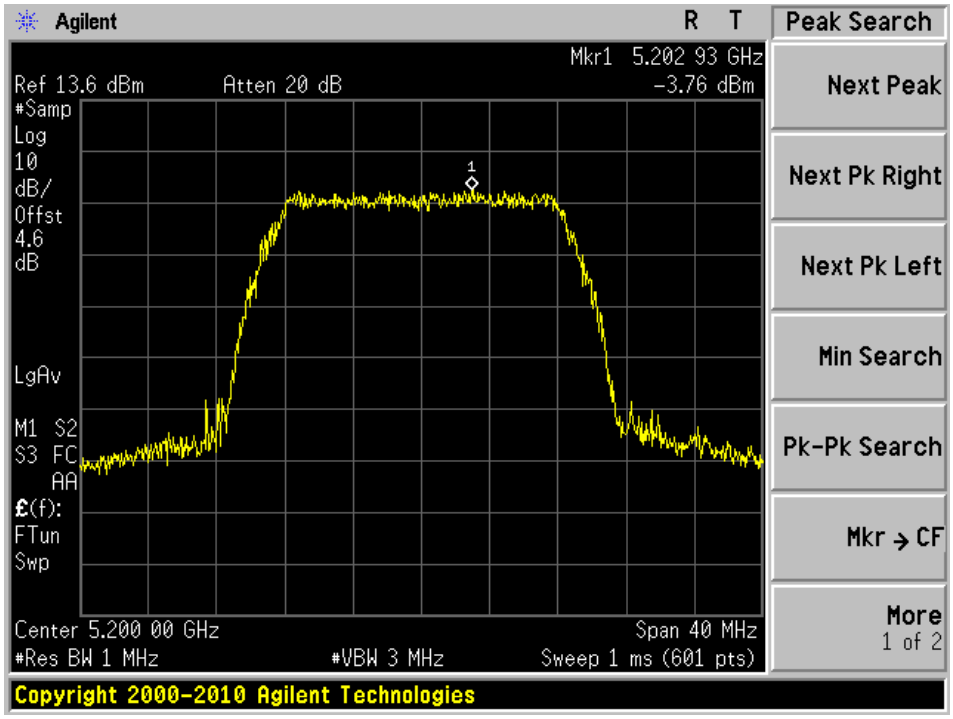
802.11 a mode, Middle Channel, Chain J1



802.11 a mode, Middle Channel, Chain J2

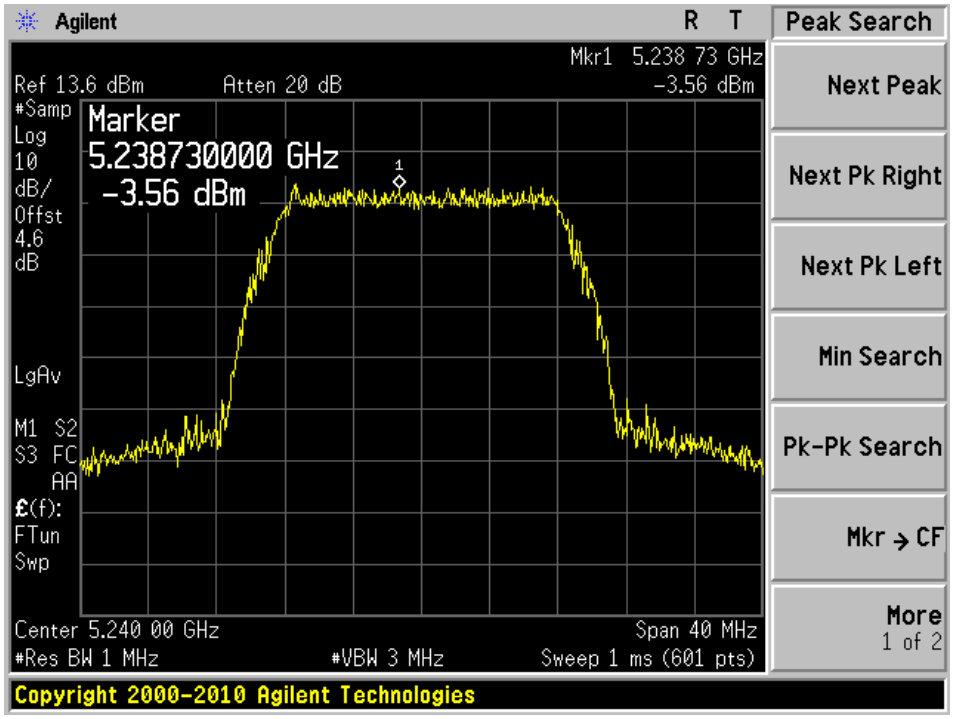


802.11 a mode, Middle Channel, Chain J3

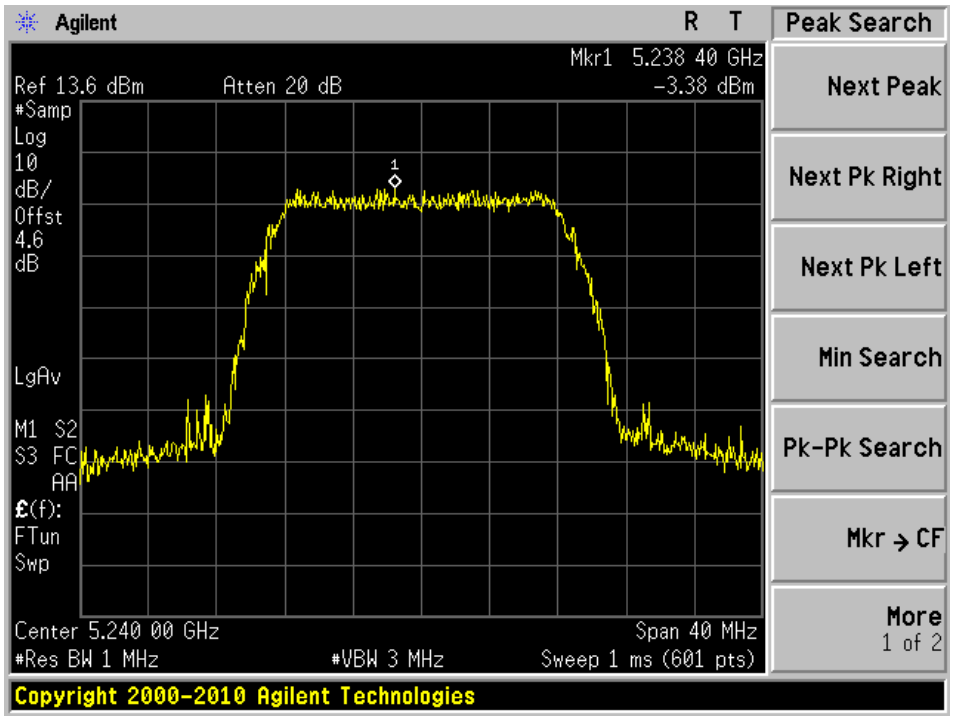


Chain J4 is not active during test

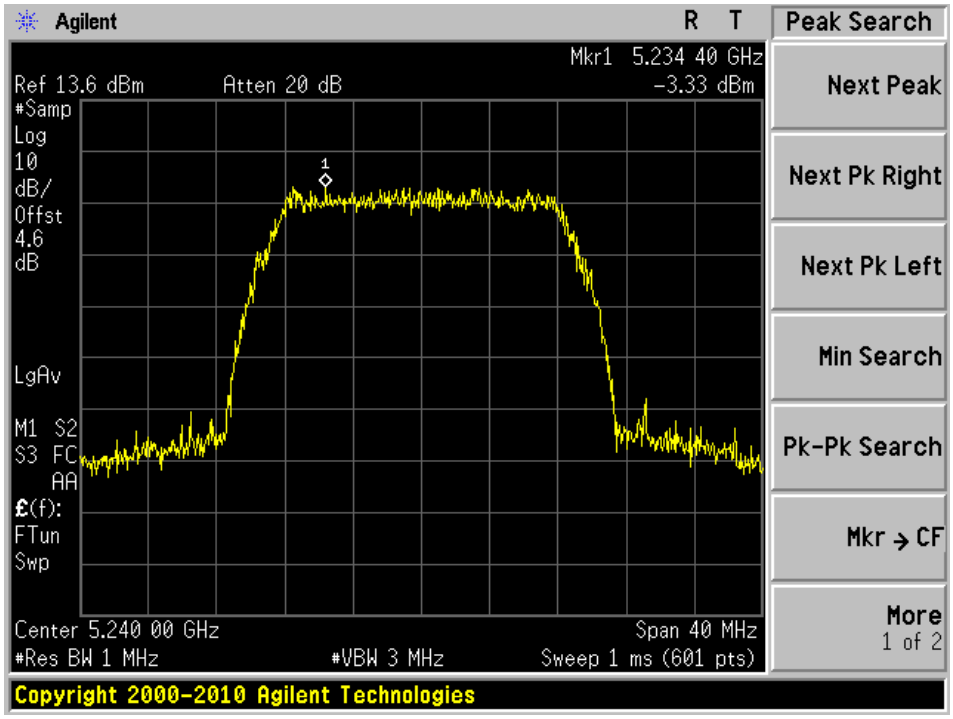
802.11 a mode, High Channel, Chain J1



802.11 a mode, High Channel, Chain J2

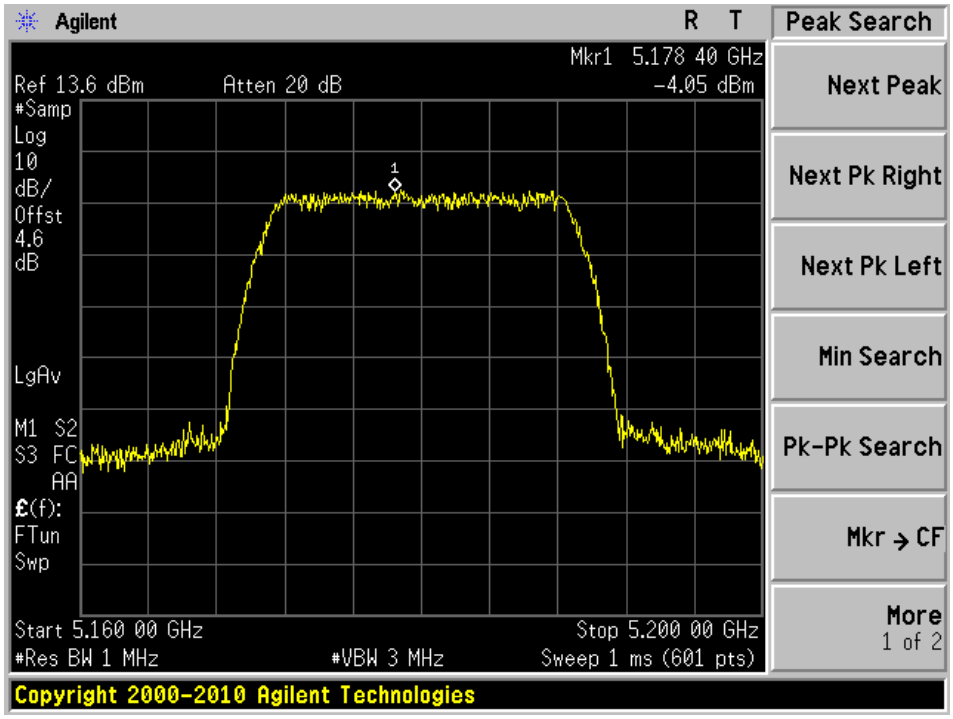


802.11 a mode, High Channel, Chain J3

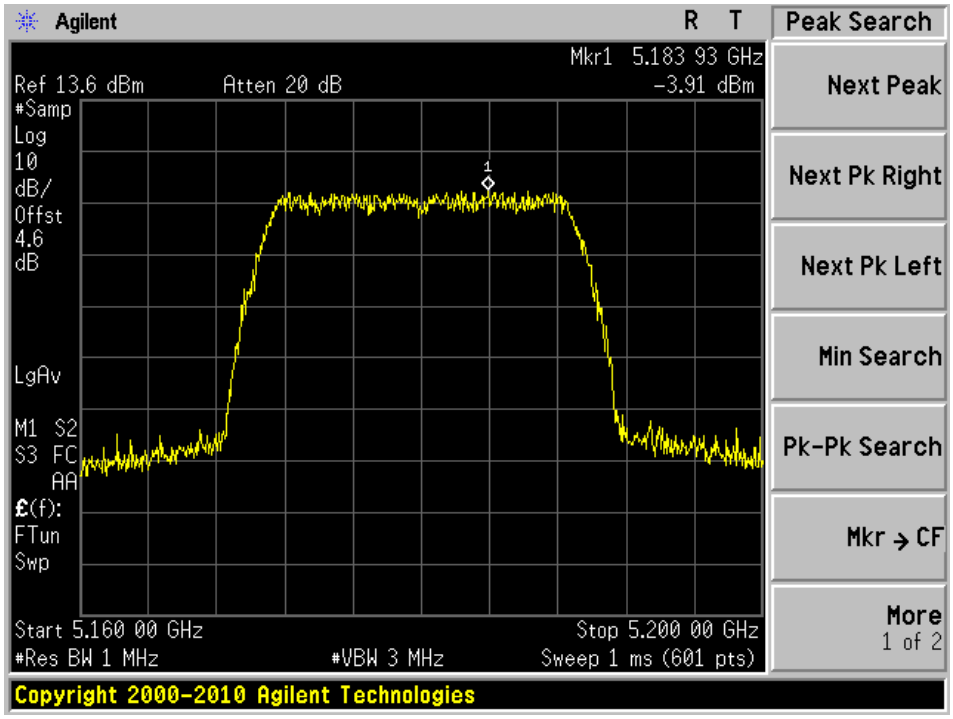


Chain J4 is not active during test

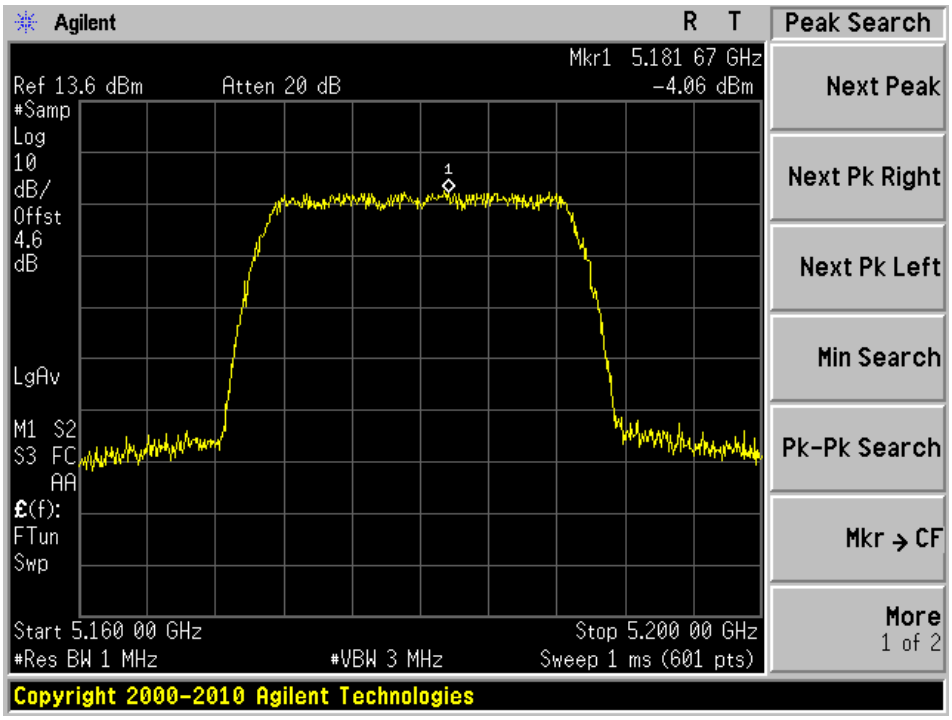
802.11 n 20 MHz mode, Low Channel, Chain J1



802.11 n 20 MHz mode, Low Channel, Chain J2

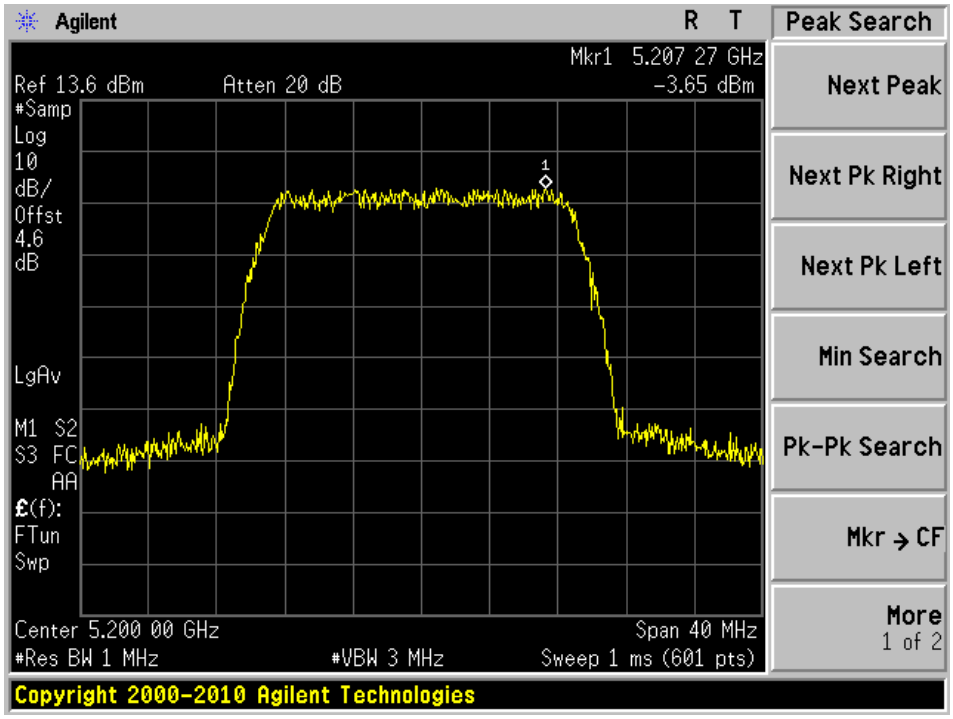


802.11 n 20 MHz mode, Low Channel, Chain J3

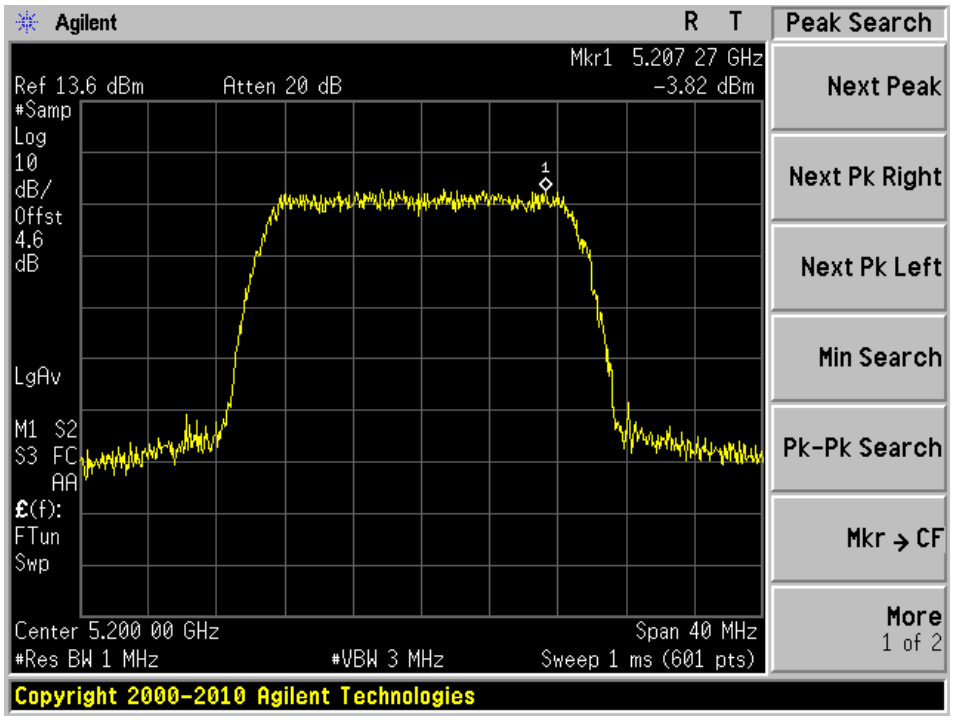


Chain J4 is not active during test

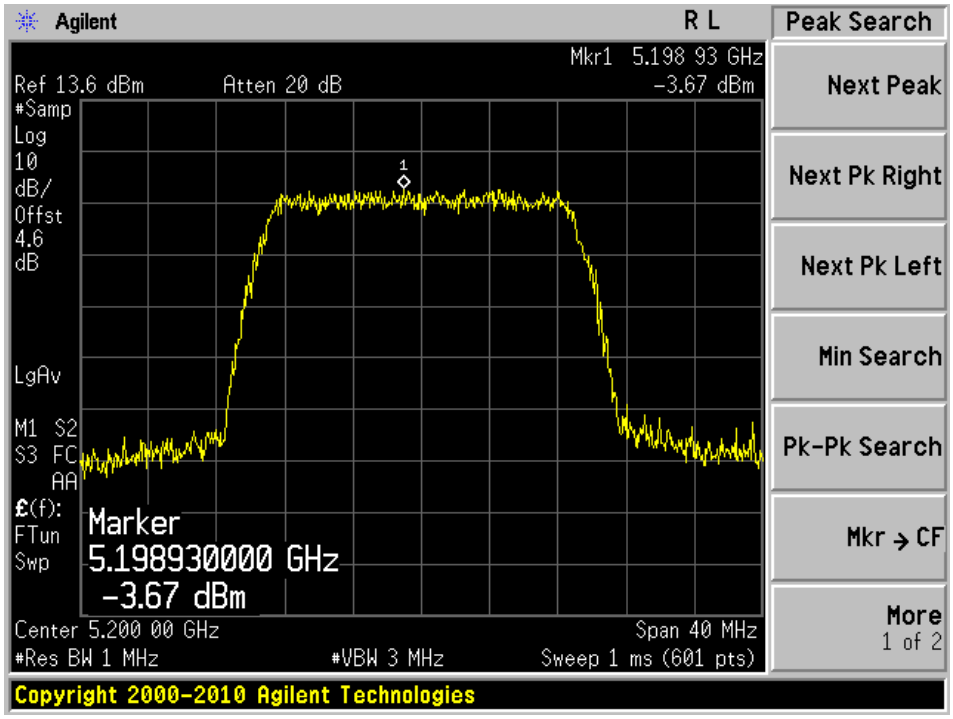
802.11 n 20 MHz mode, Middle Channel, Chain J1



802.11 n 20 MHz mode, Middle Channel, Chain J2

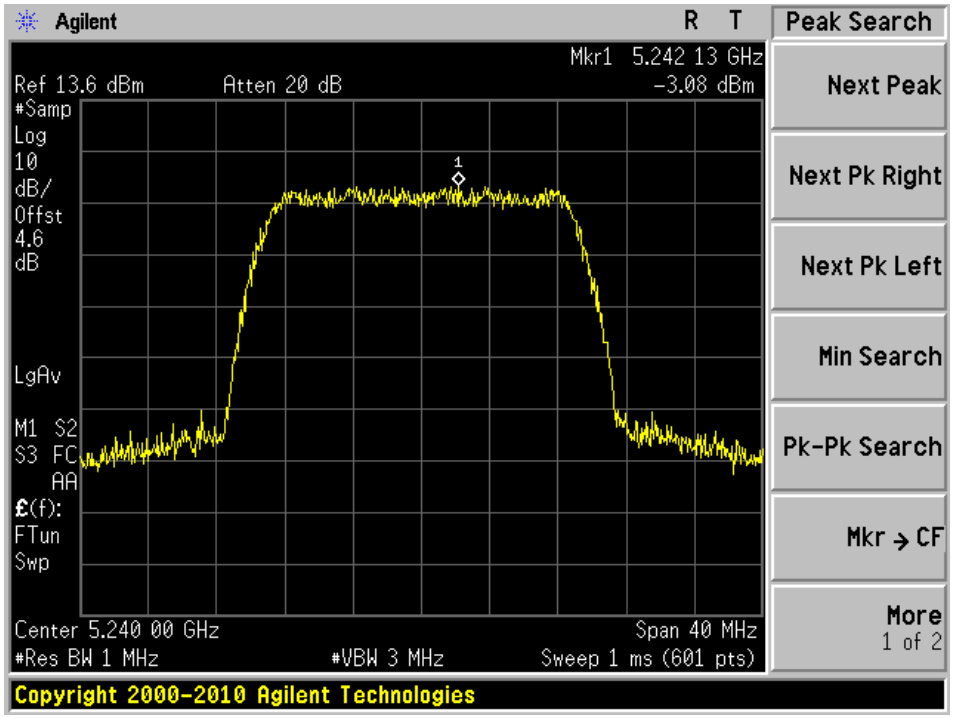


802.11 n 20 MHz mode, Middle Channel, Chain J3

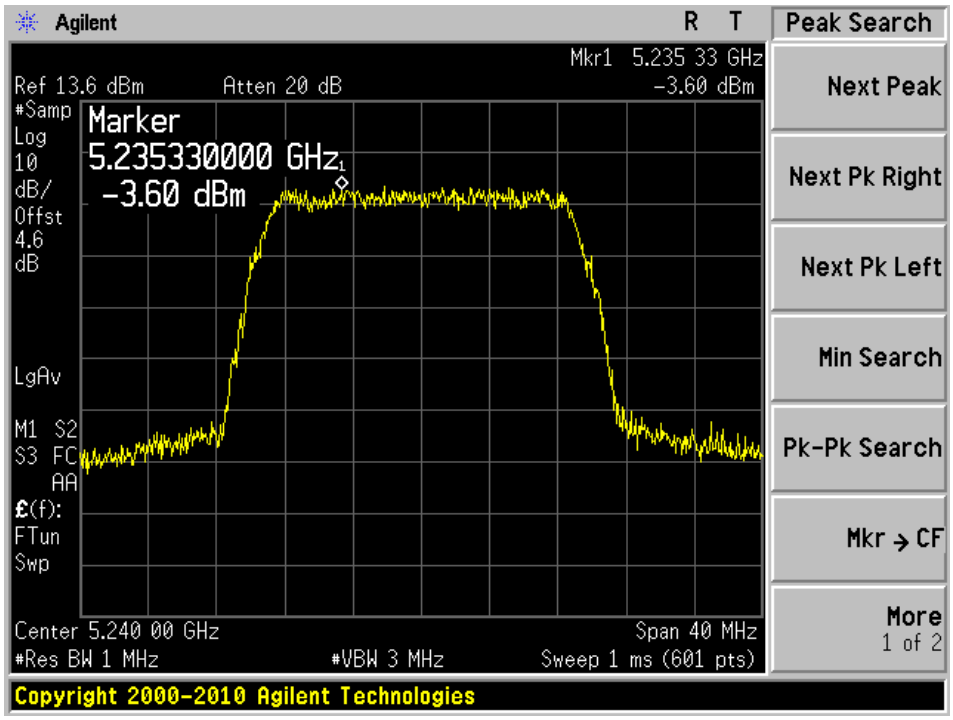


Chain J4 is not active during test

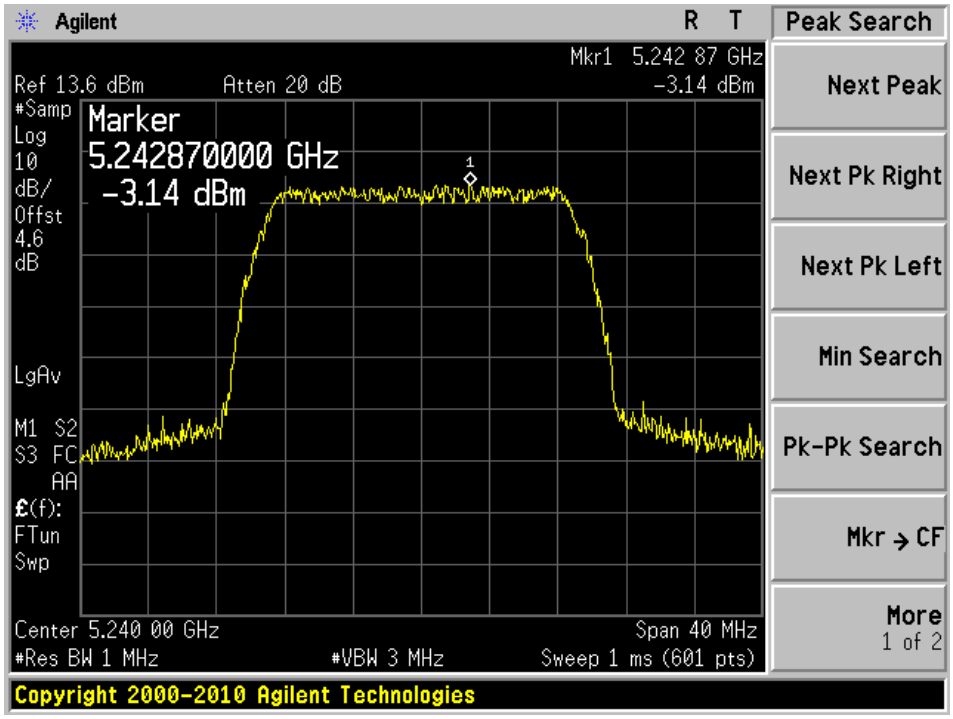
802.11 n 20 MHz mode, High Channel, Chain J1



802.11 n 20 MHz mode, High Channel, Chain J2

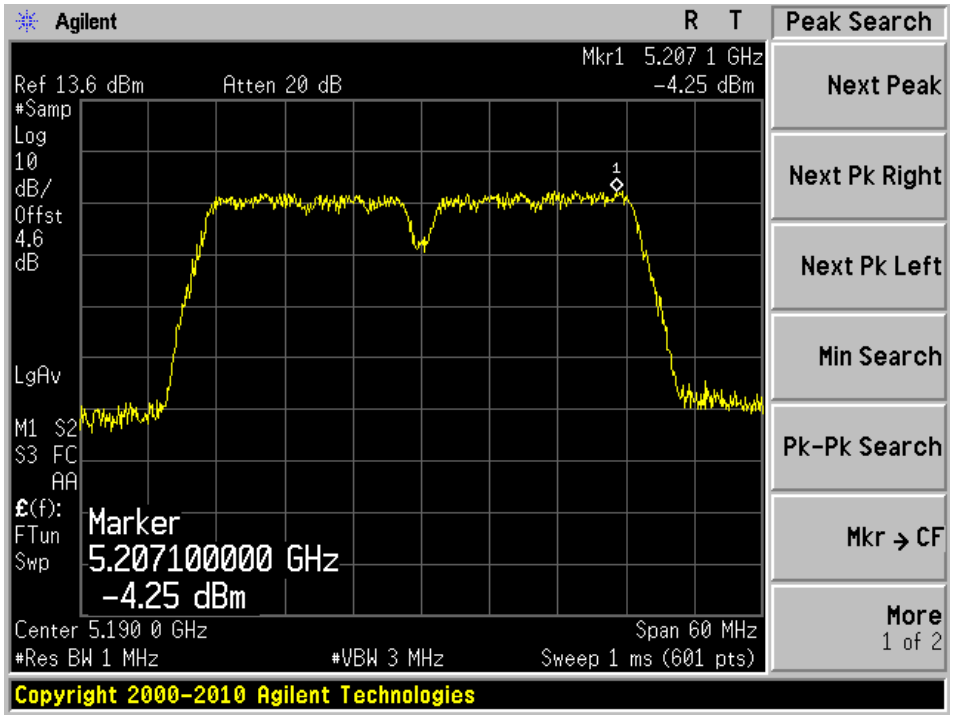


802.11 n 20 MHz mode, High Channel, Chain J3

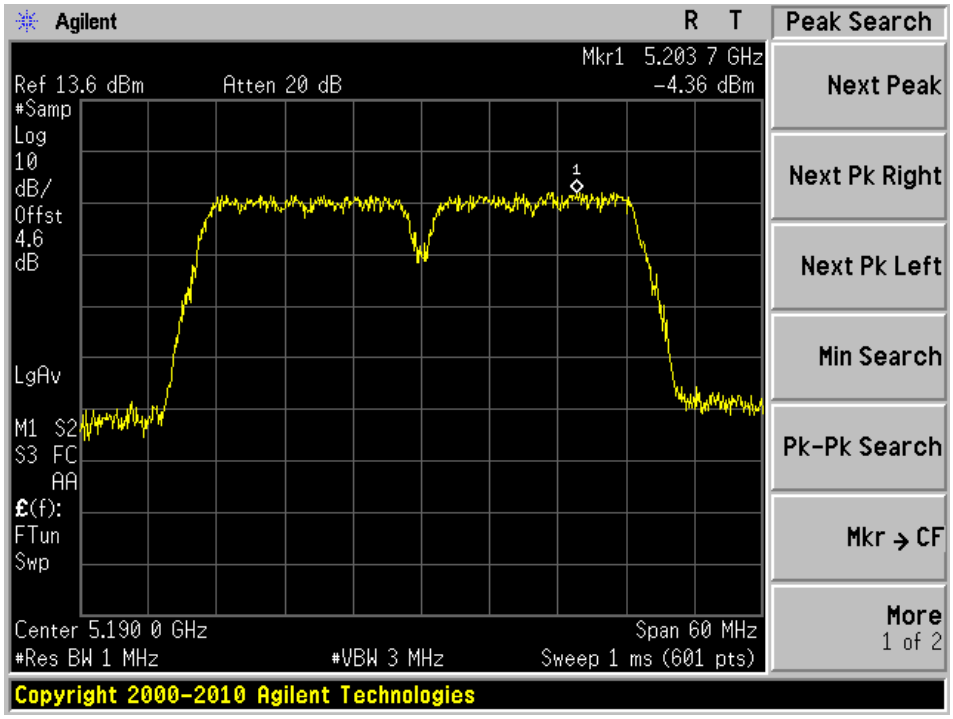


Chain J4 is not active during test

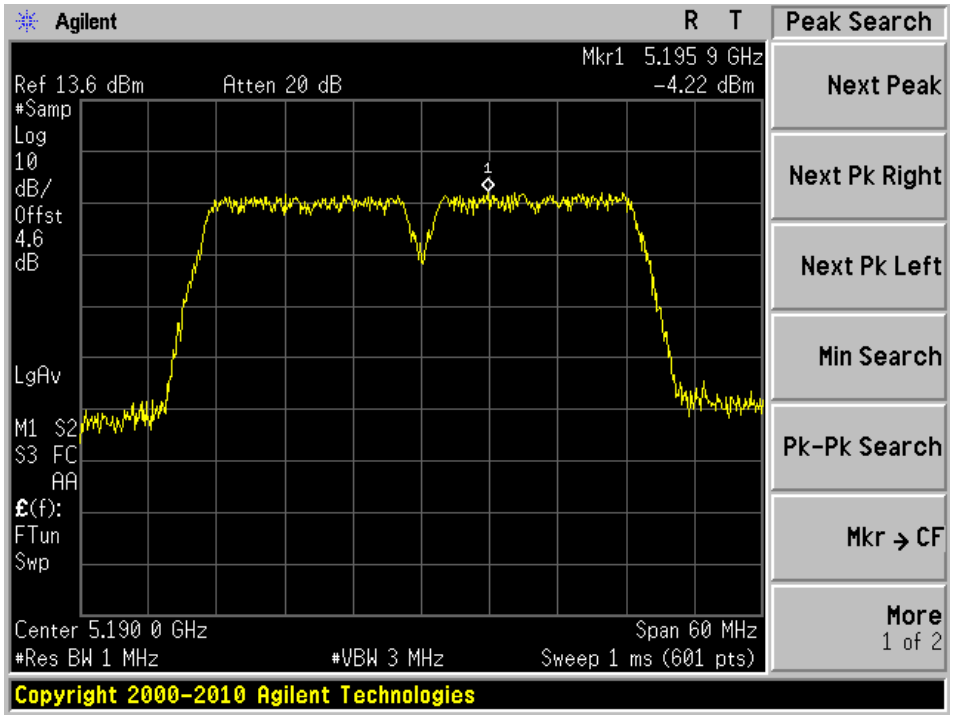
802.11 n 40 MHz mode, Low Channel, Chain J1



802.11 n 40 MHz mode, Low Channel, Chain J2

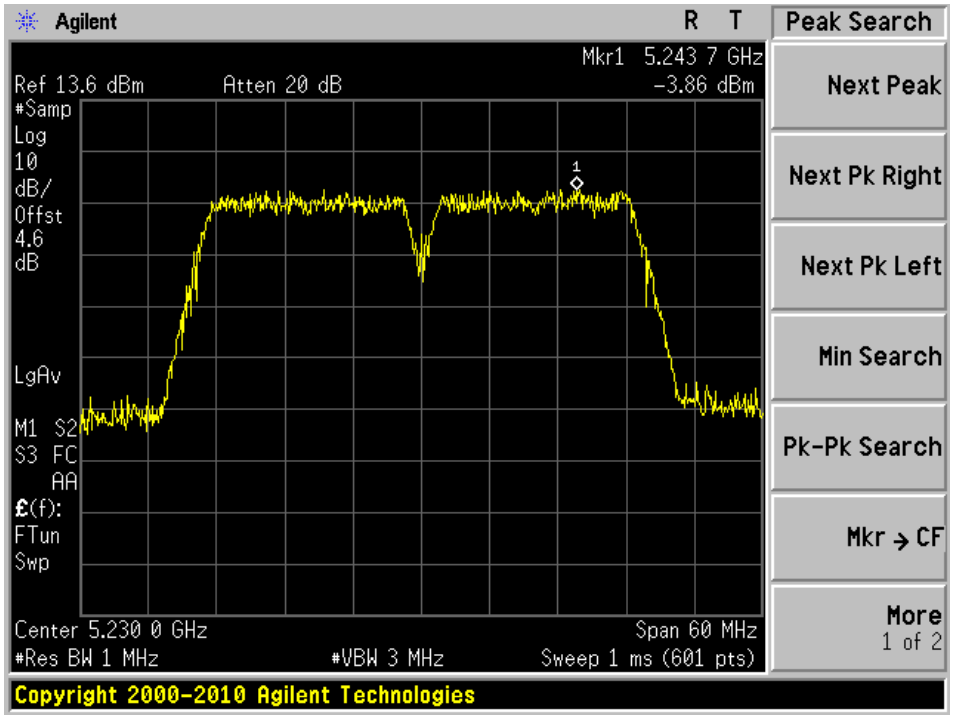


802.11 n 40 MHz mode, Low Channel, Chain J3

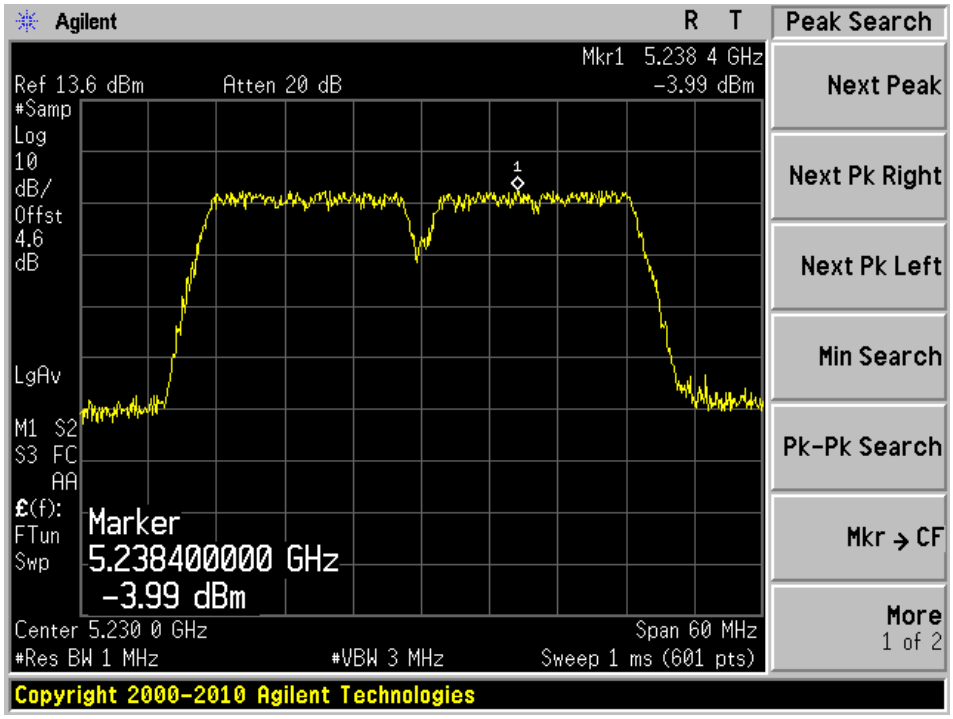


Chain J4 is not active during test

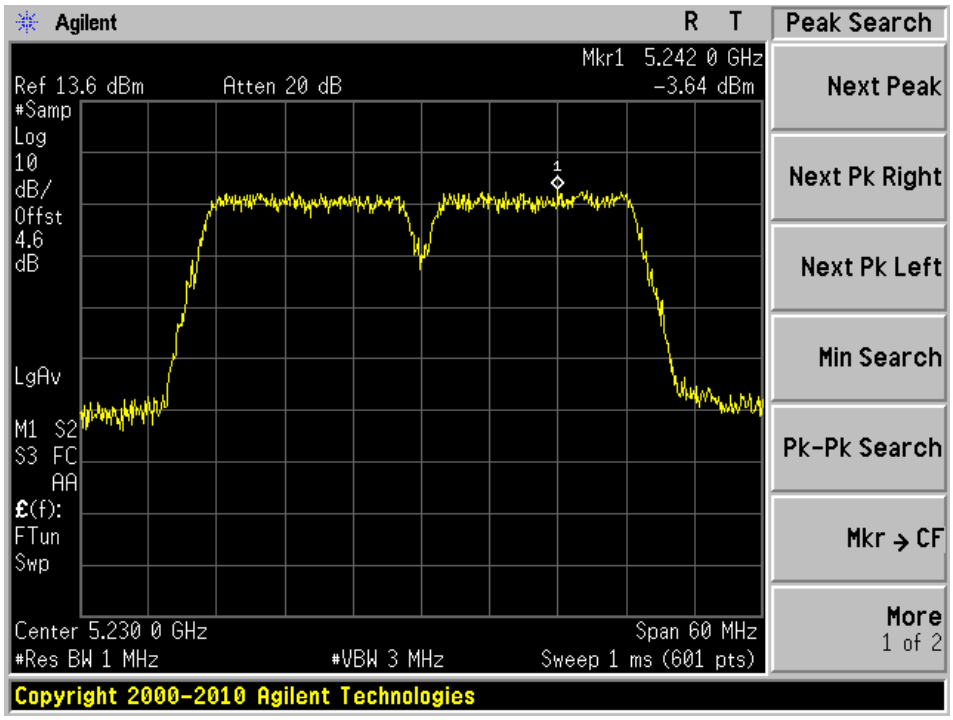
802.11 n 40 MHz mode, High Channel, Chain J1



802.11 n 40 MHz mode, High Channel, Chain J2



802.11 n 40 MHz mode, High Channel, Chain J3



Chain J4 is not active during test

12 FCC §15.407(a)(6) – Peak Excursion Ratio

12.1 Applicable Standard

According to FCC §15.407(a) (6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

12.2 Test Procedure

Set the spectrum analyzer span to view the entire emission bandwidth.
The largest difference between the following two traces must be ≤ 13 dB for all frequencies across the emission bandwidth. Submit a plot.

1st Trace:
• Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.

2nd Trace:
• create the 2nd trace using the settings described in the section "FCC §15.407(a)(1)(2) – CONDUCTED TRANSMITTER OUTPUT POWER".

12.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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:	21~25 °C
Relative Humidity:	38~50 %
ATM Pressure:	101.2-102 kPa

The testing was performed by Wei Sun on 2012-05-01 in RF site.

12.5 Test Results

Channel	Frequency (MHz)	TX Chain J1 PER (dB)	TX Chain J2 PER (dB)	TX Chain J3 PER (dB)	Limit (dB)
802.11a mode					
Low	5180	9.385	9.614	9.108	13
Middle	5200	9.141	9.234	9.836	
High	5240	9.000	10.061	9.784	
802.11n20 mode					
Low	5180	9.657	9.111	9.218	13
Middle	5200	9.538	9.269	9.493	
High	5240	9.619	9.894	9.141	
802.11n40 mode					
Low	5190	10.050	9.239	9.666	13
High	5230	9.734	9.587	9.071	

13 FCC §15.407(b) - Spurious Emissions at Antenna Terminals

13.1 Applicable Standard

For FCC §15.407(b) , For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band. For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

13.2 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.

13.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4440A	MY44303352	2011-05-10

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

13.4 Test Environmental Conditions

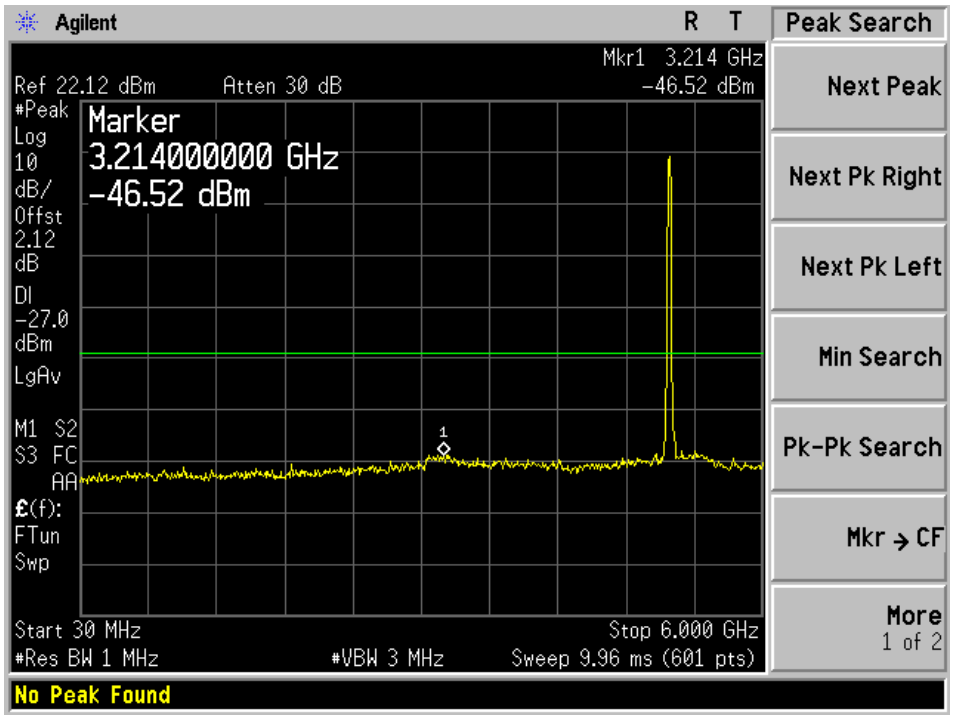
Temperature:	21~25 °C
Relative Humidity:	38~50 %
ATM Pressure:	101.2-102 kPa

The testing was performed by Wei Sun on 2012-05-01 in RF site.

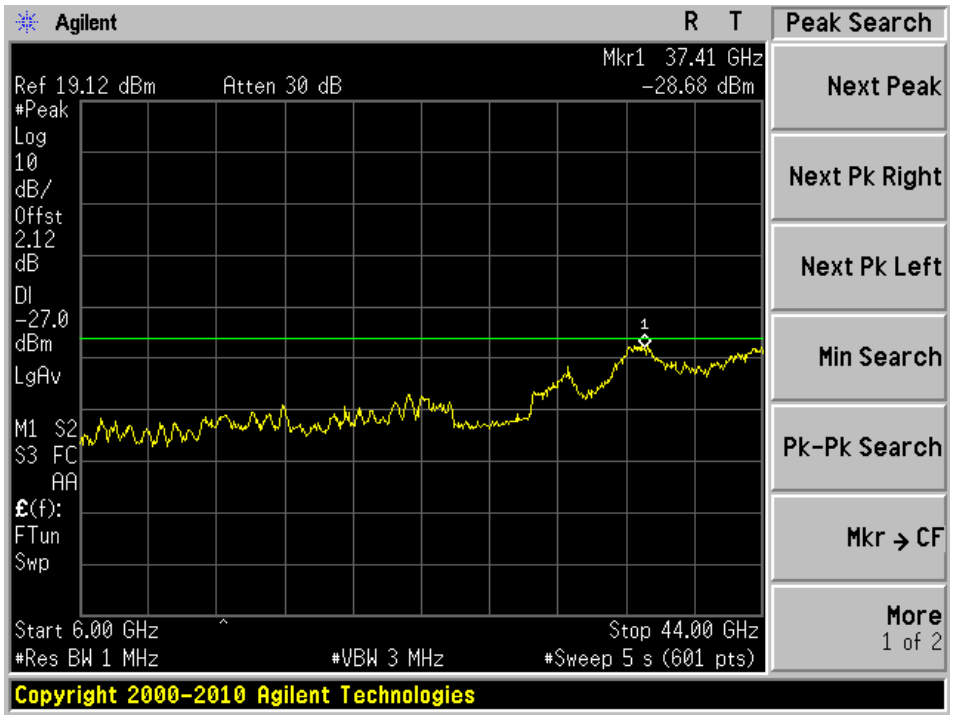
13.5 Test Results

Please refer to following plots of spurious emissions.

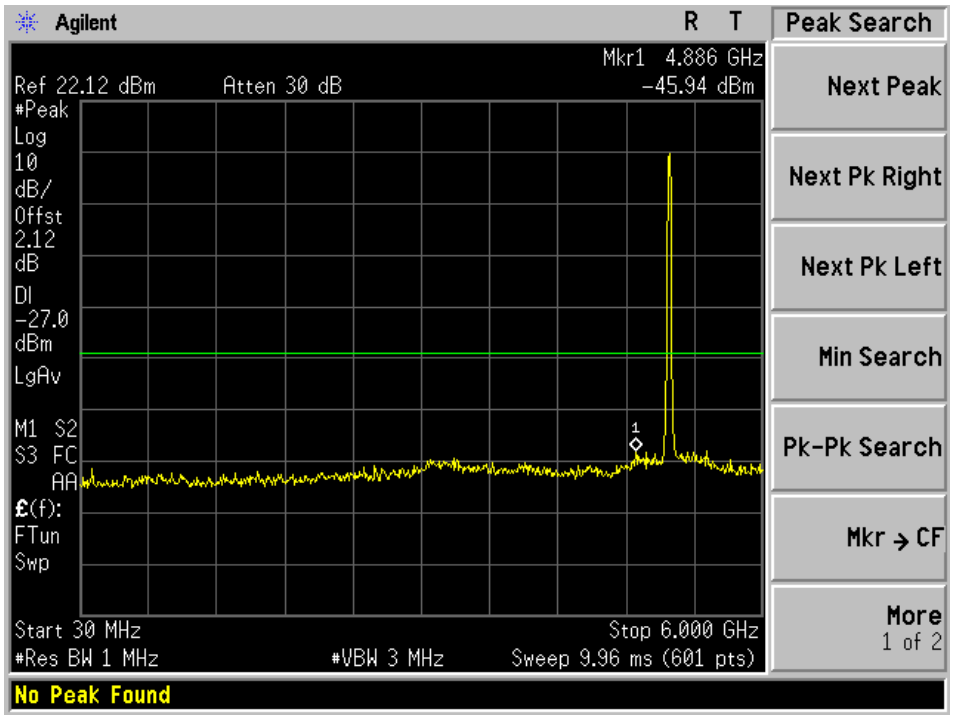
802.11 a mode. Low Channel, Chain J1 below 6 GHz



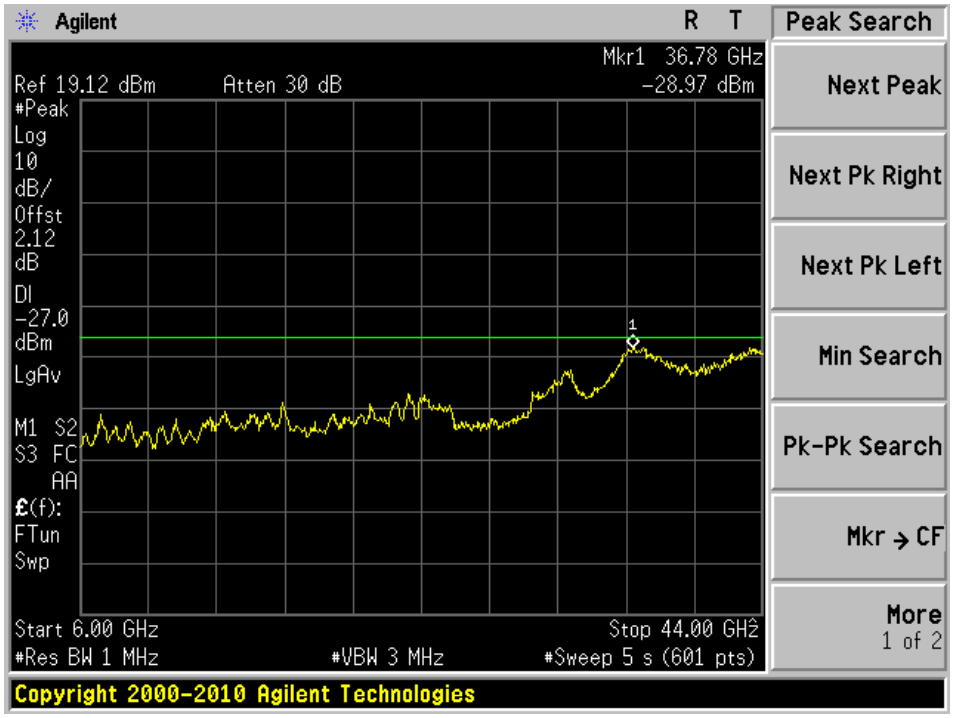
802.11 a mode. Low Channel, Chain J1 above 6 GHz



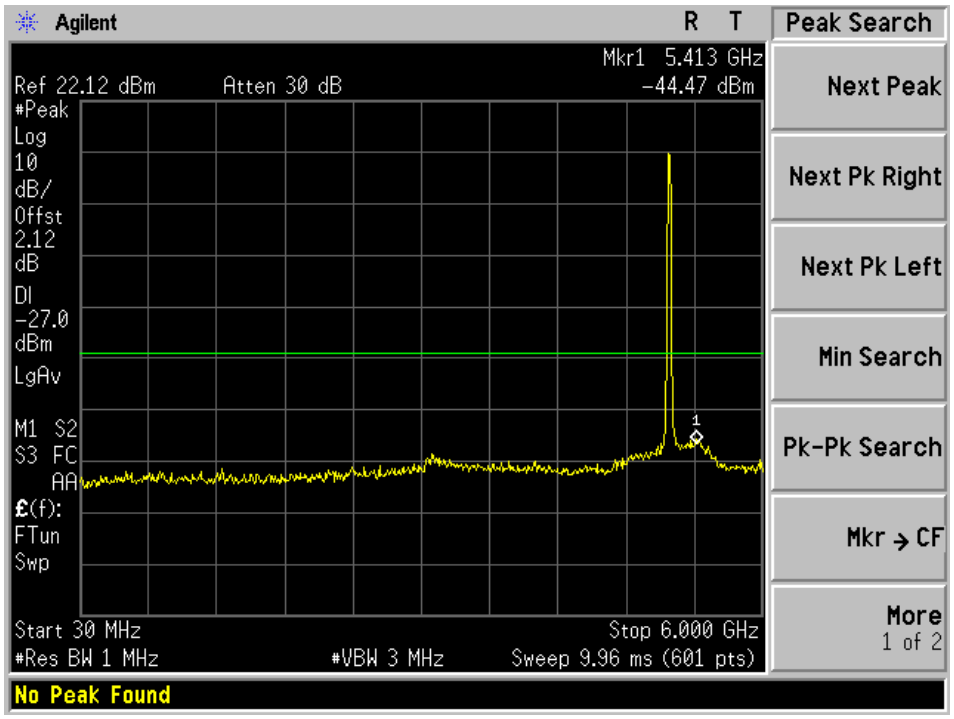
802.11 a mode. Low Channel, Chain J2 below 6 GHz



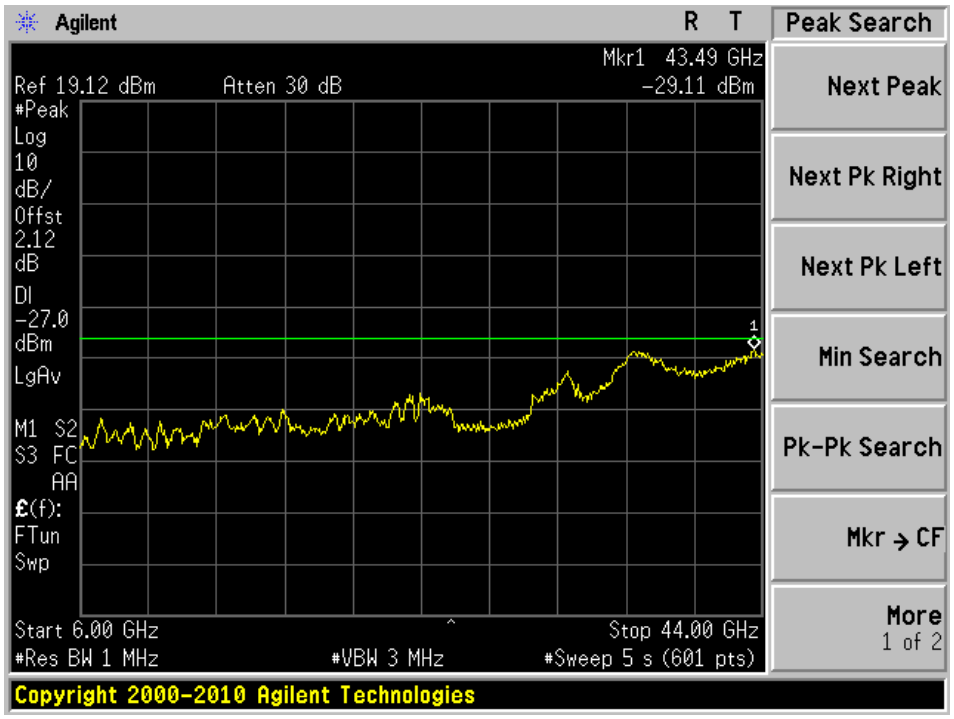
802.11 a mode. Low Channel, Chain J2 above 6 GHz



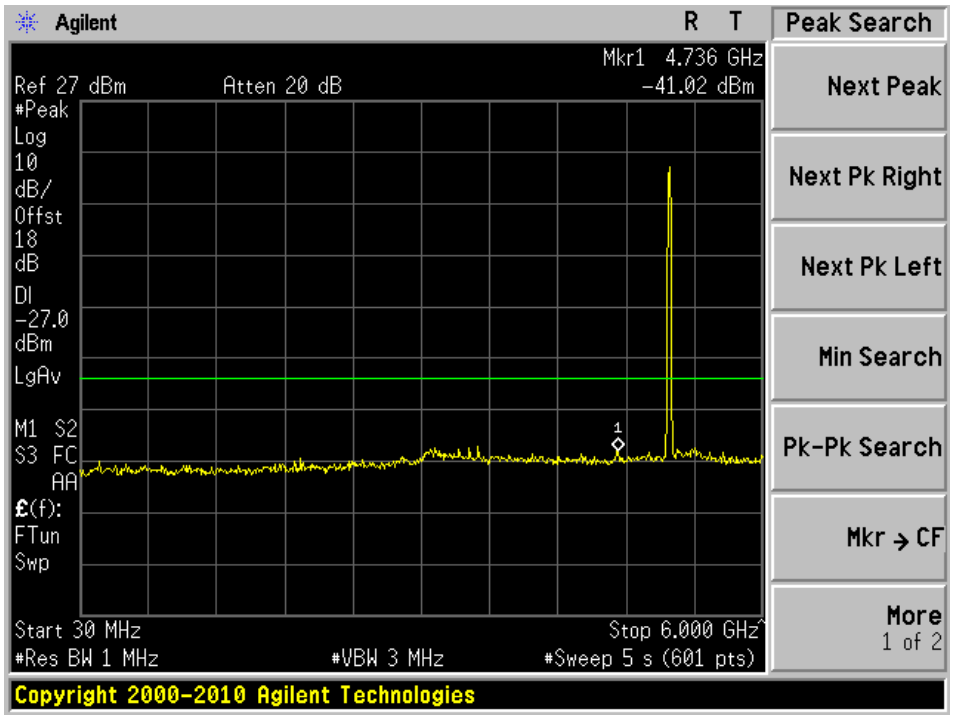
802.11 a mode. Low Channel, Chain J3 below 6 GHz



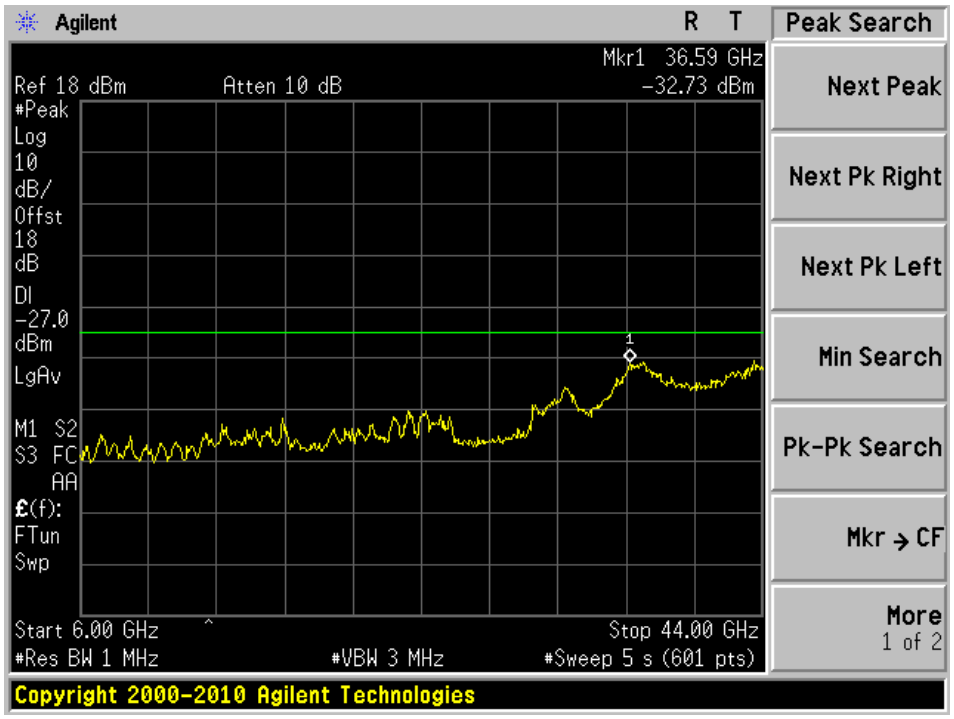
802.11 a mode. Low Channel, Chain J3 above 6 GHz



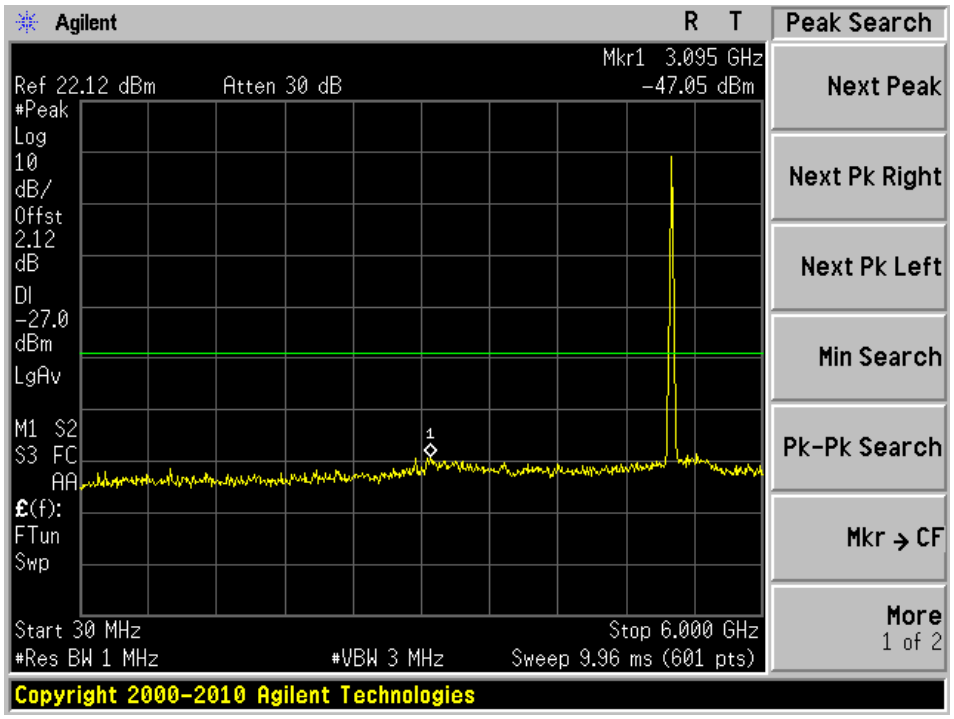
802.11 a mode. Low Channel, Chain J1+J2+J3 below 6 GHz



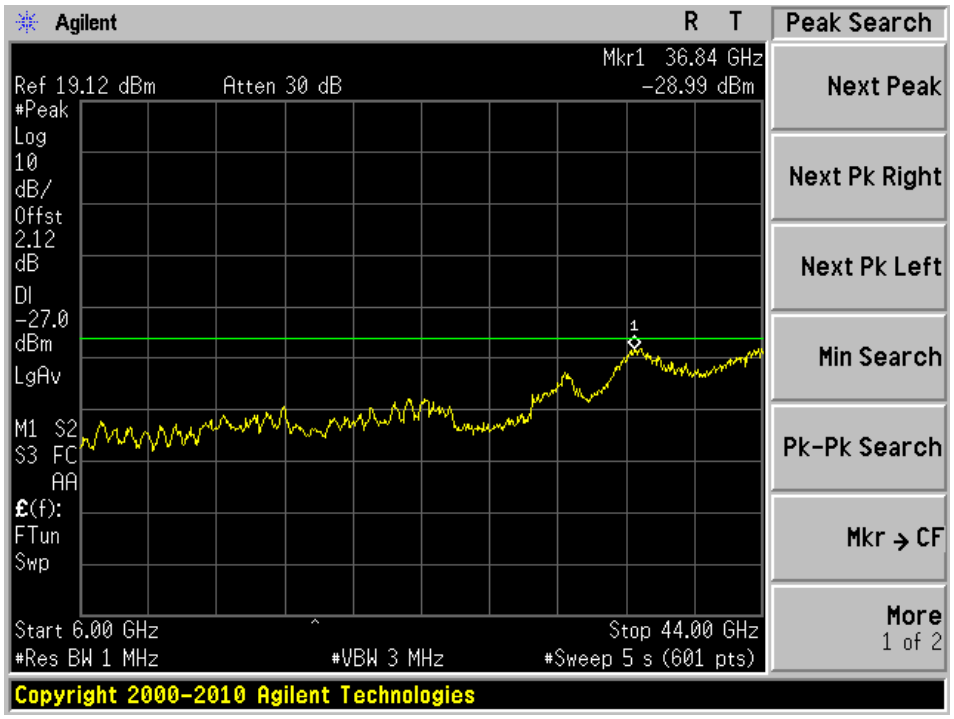
802.11 a mode. Low Channel, Chain J1+J2+J3 above 6 GHz



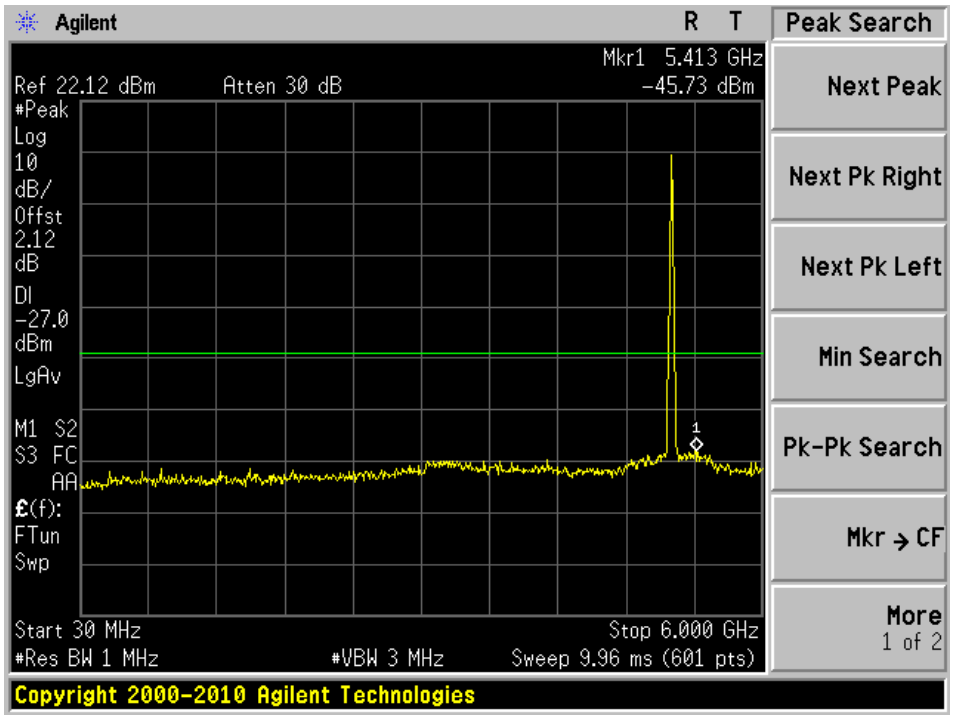
802.11 a mode. Middle Channel, Chain J1 below 6 GHz



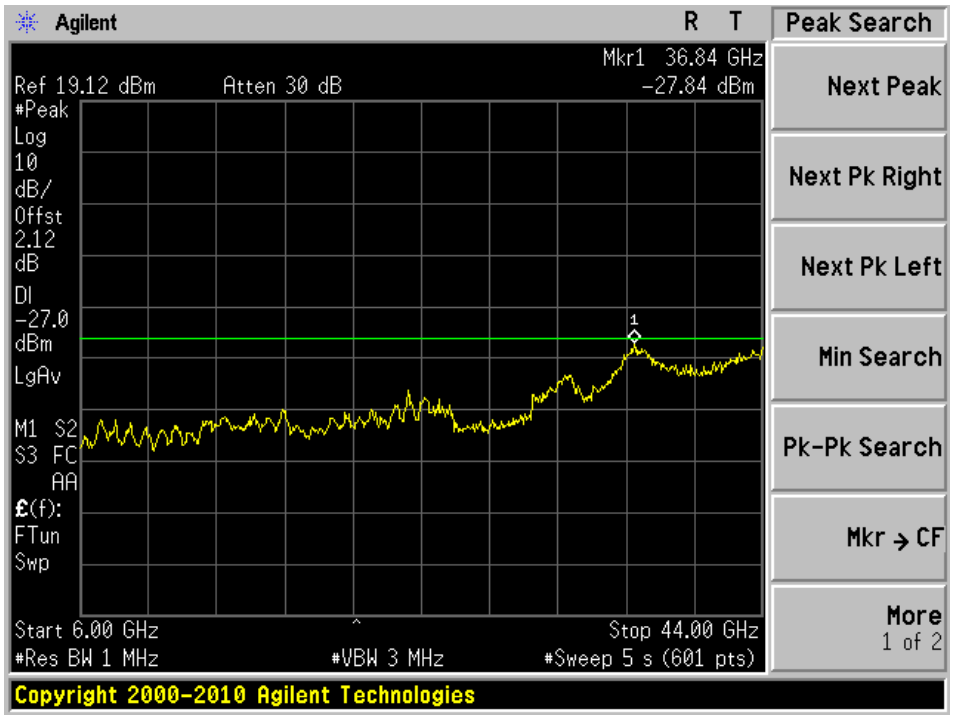
802.11 a mode. Middle Channel, Chain J1 above 6 GHz



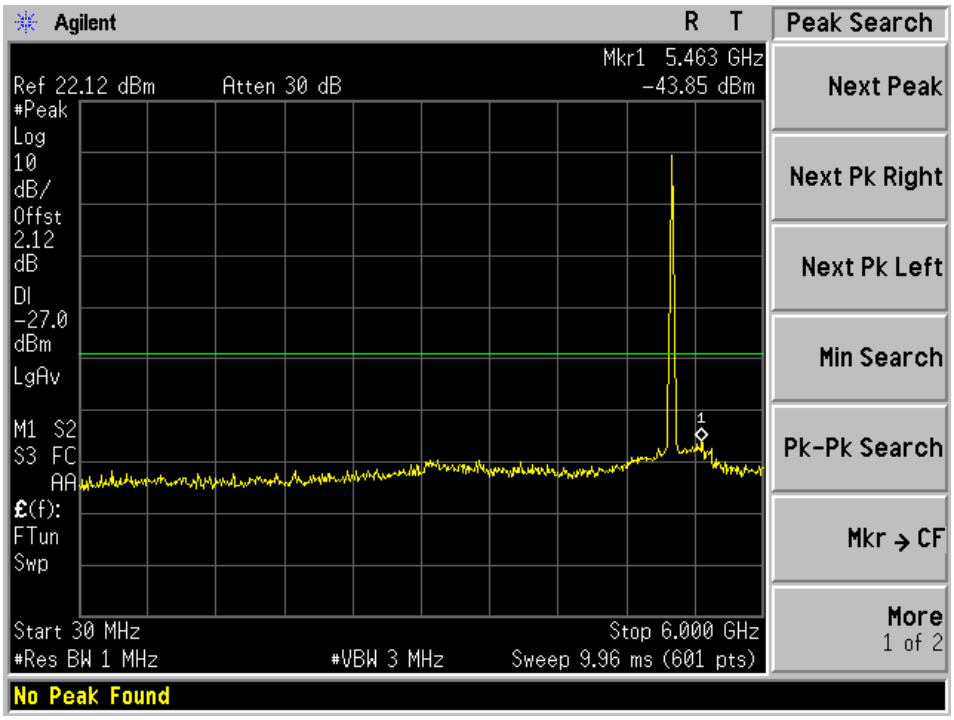
802.11 a mode. Middle Channel, Chain J2 below 6 GHz



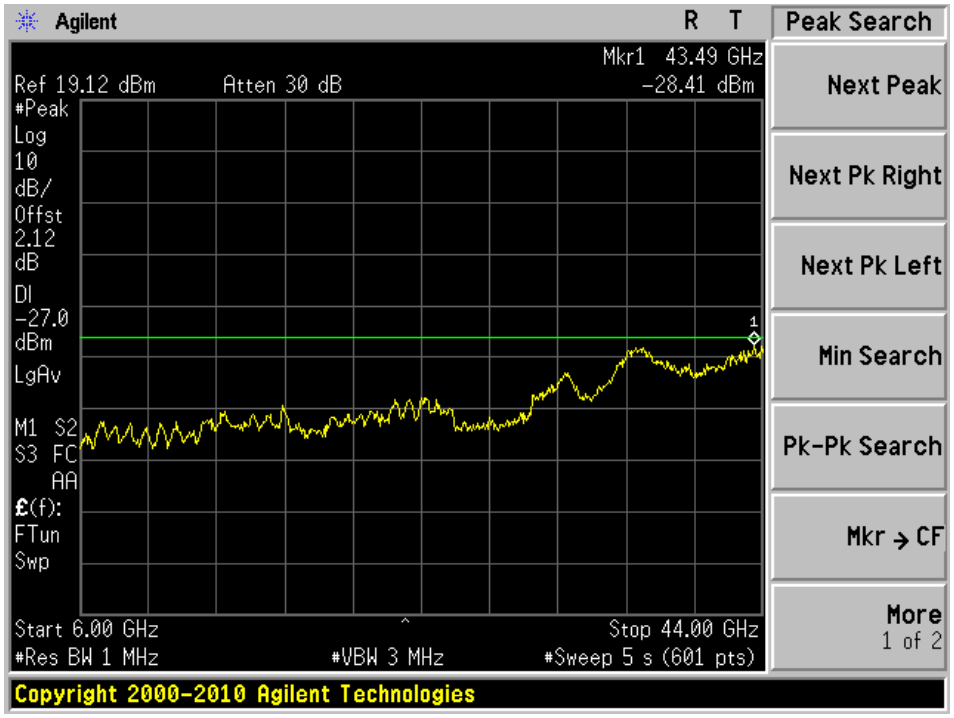
802.11 a mode. Middle Channel, Chain J2 above 6 GHz



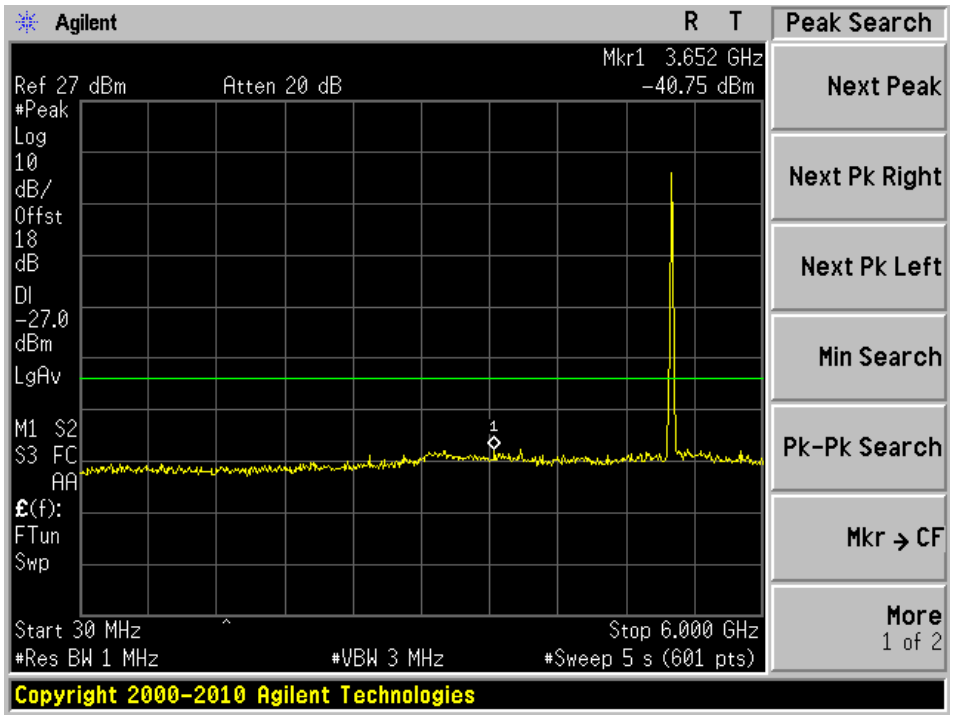
802.11 a mode. Middle Channel, Chain J3 below 6 GHz



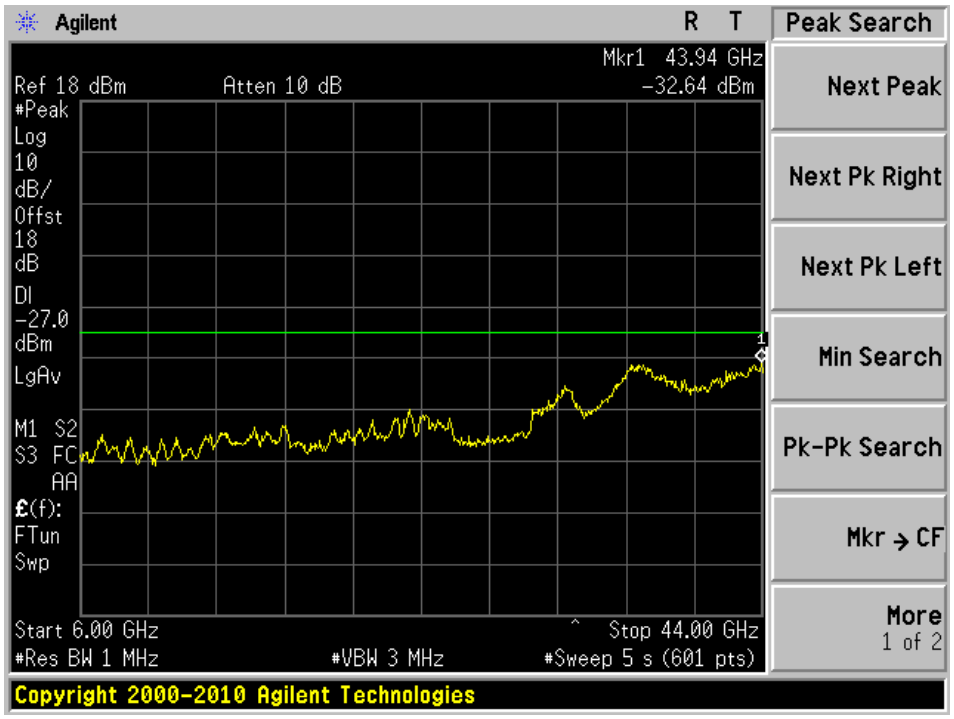
802.11 a mode. Middle Channel, Chain J3 above 6 GHz



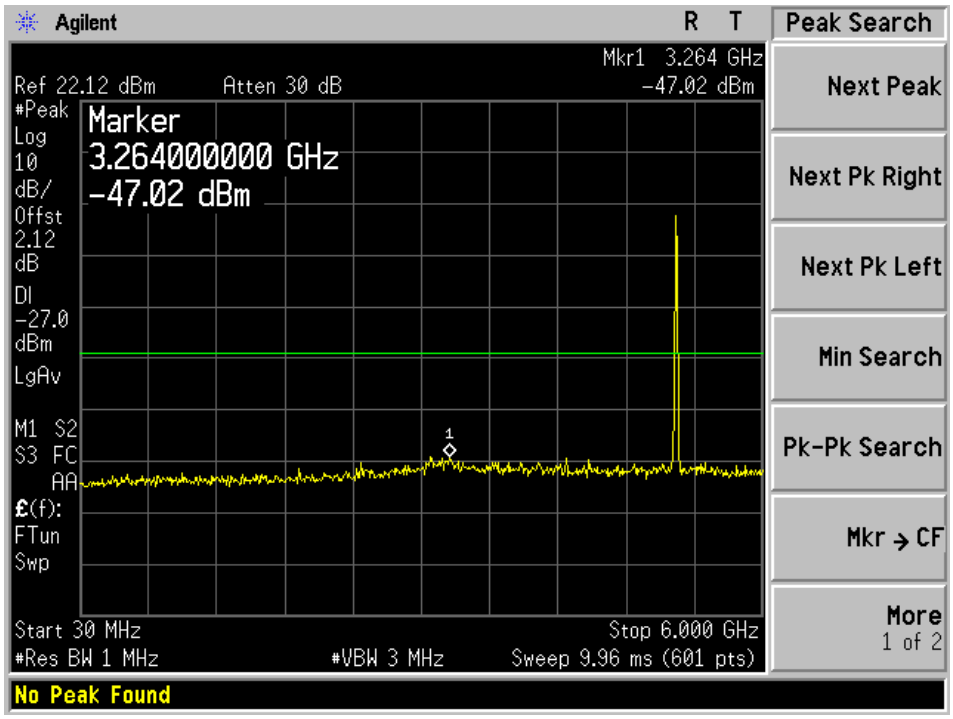
802.11 a mode. Middle Channel, Chain J1+J2+J3 below 6 GHz



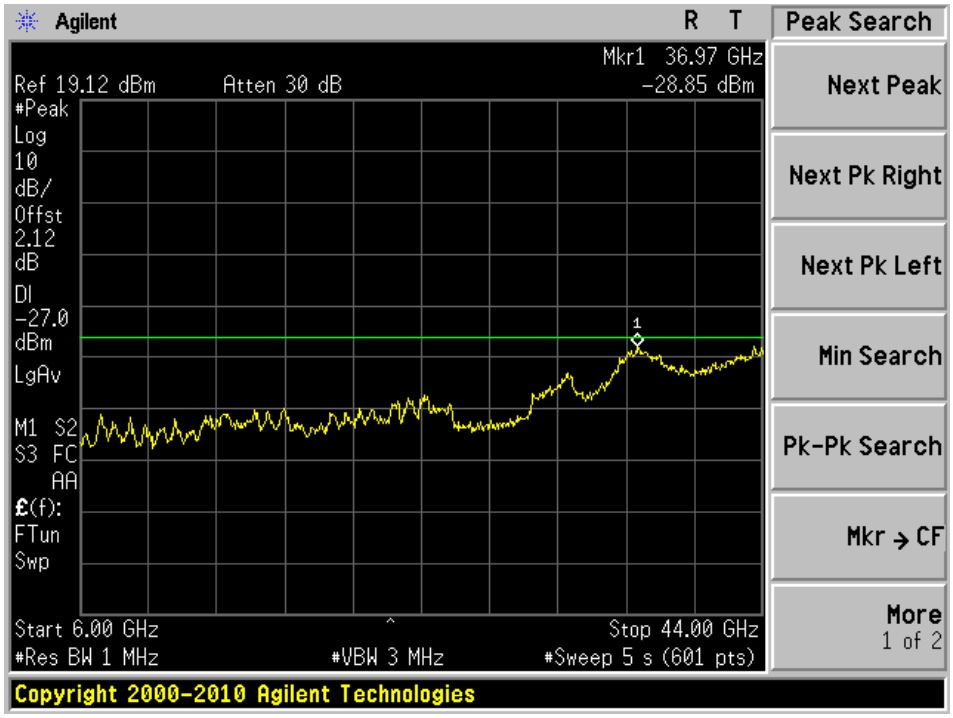
802.11 a mode. Middle Channel, Chain J1+J2+J3 above 6 GHz



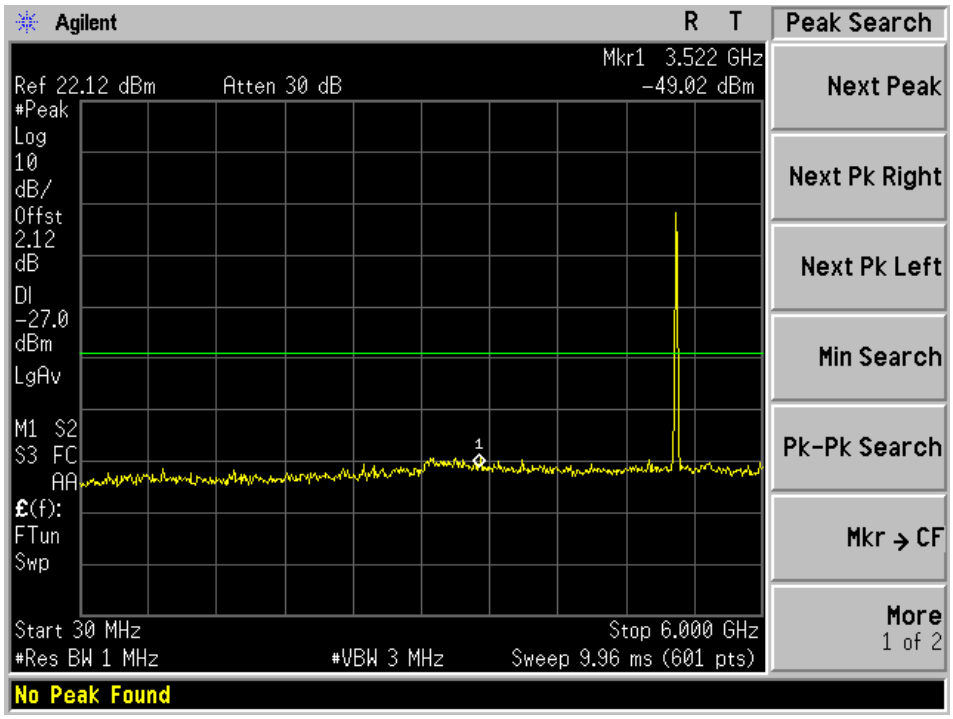
802.11 a mode. High Channel, Chain J1 below 6 GHz



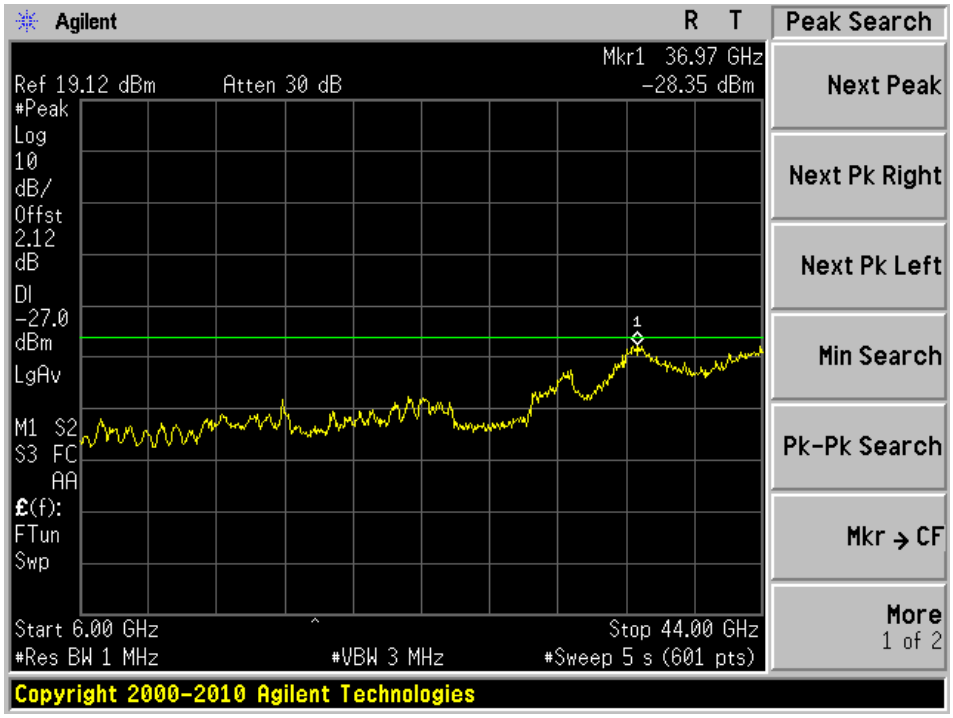
802.11 a mode. High Channel, Chain J1 above 6 GHz



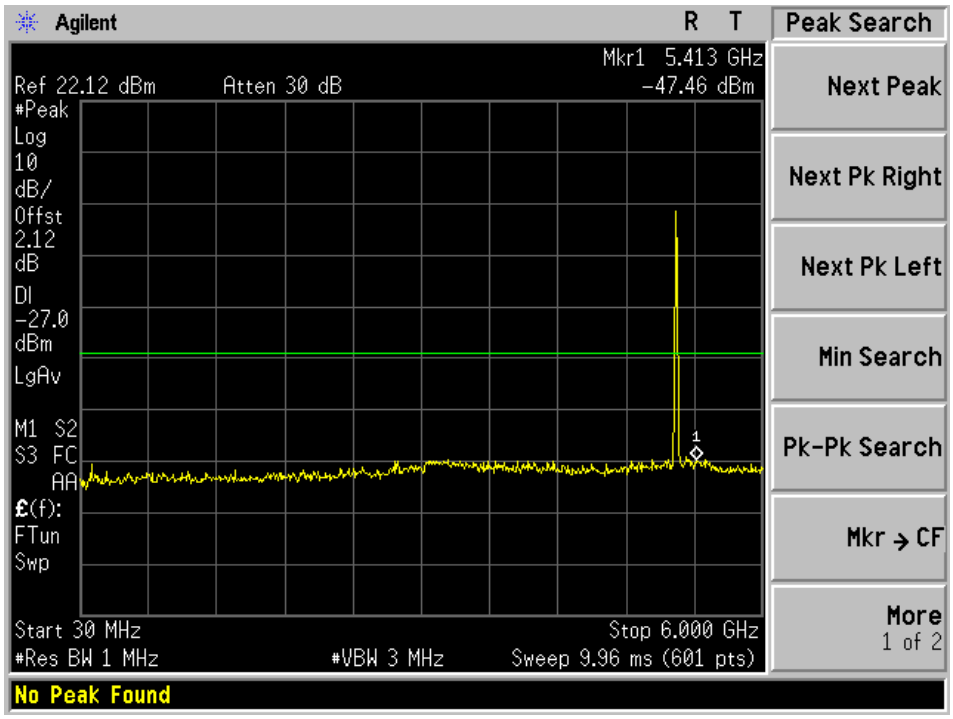
802.11 a mode. High Channel, Chain J2 below 6 GHz



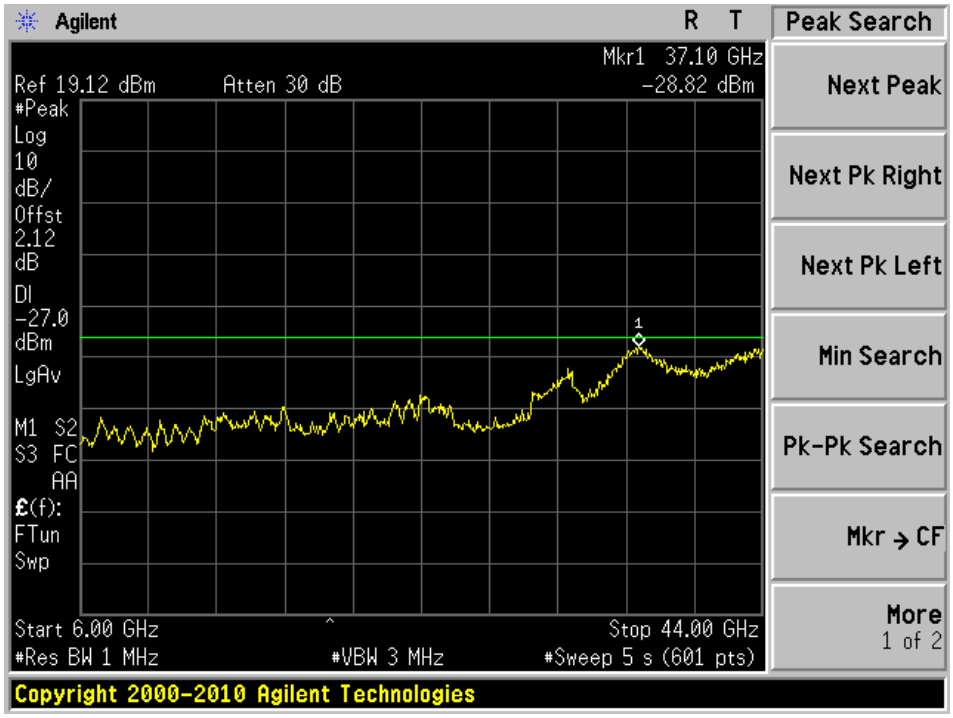
802.11 a mode. High Channel, Chain J2 above 6 GHz



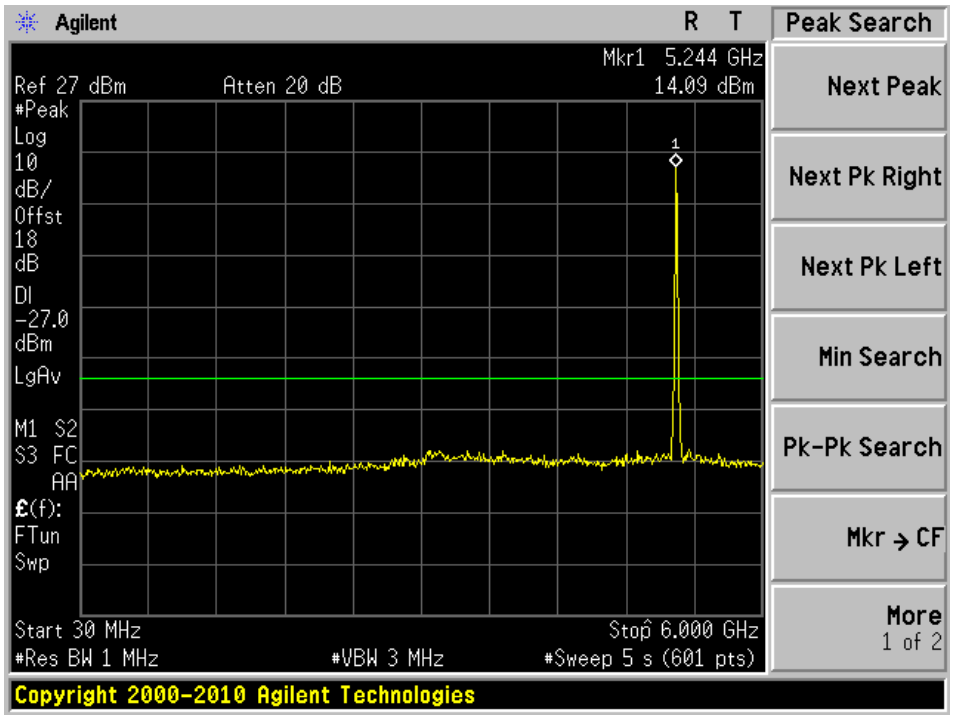
802.11 a mode. High Channel, Chain J3 below 6 GHz



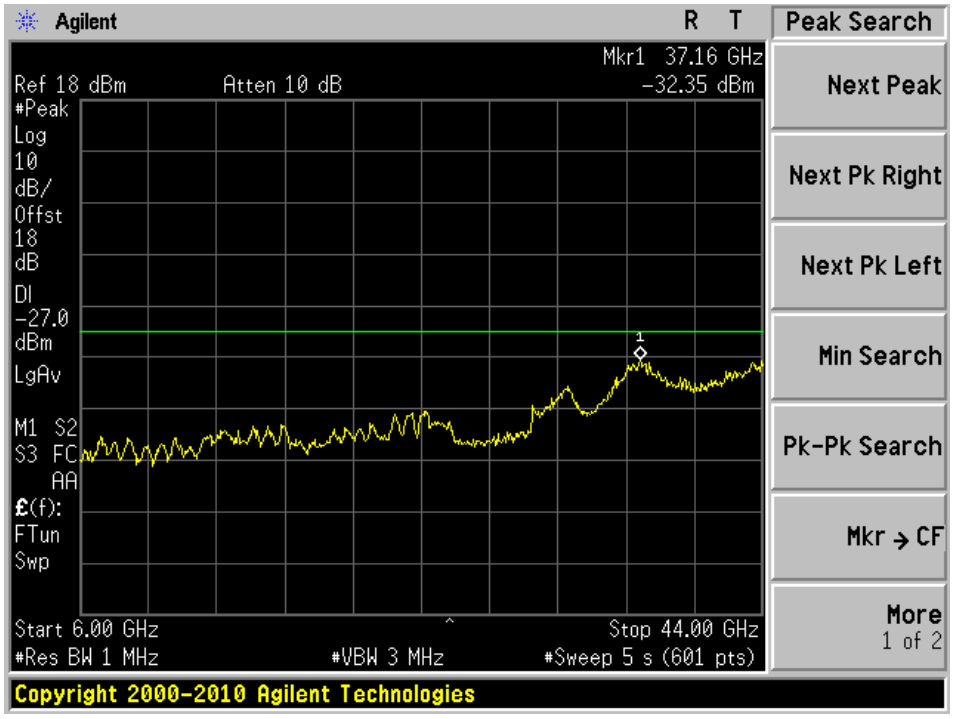
802.11 a mode. High Channel, Chain J3 above 6 GHz



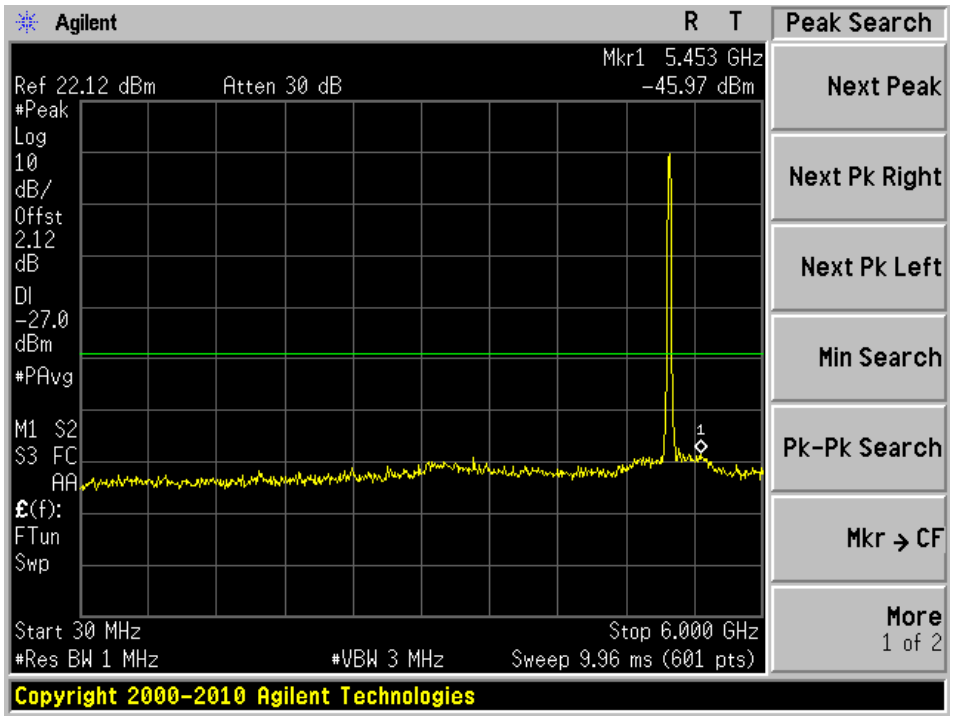
802.11 a mode. High Channel, Chain J1+J2+J3 below 6 GHz



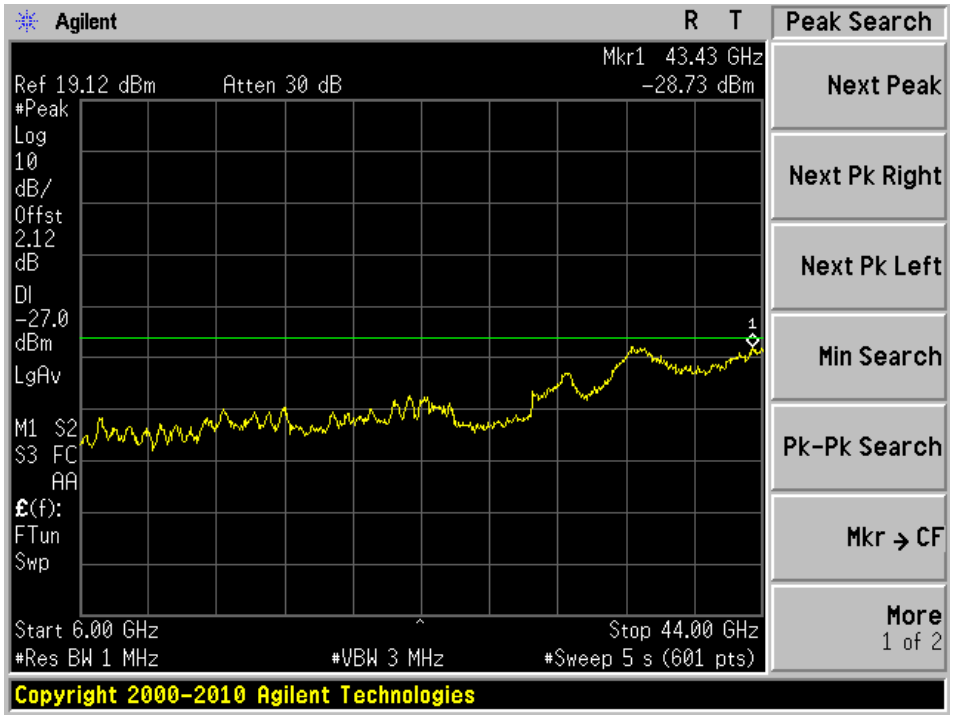
802.11 a mode. High Channel, Chain J1+J2+J3 above 6 GHz



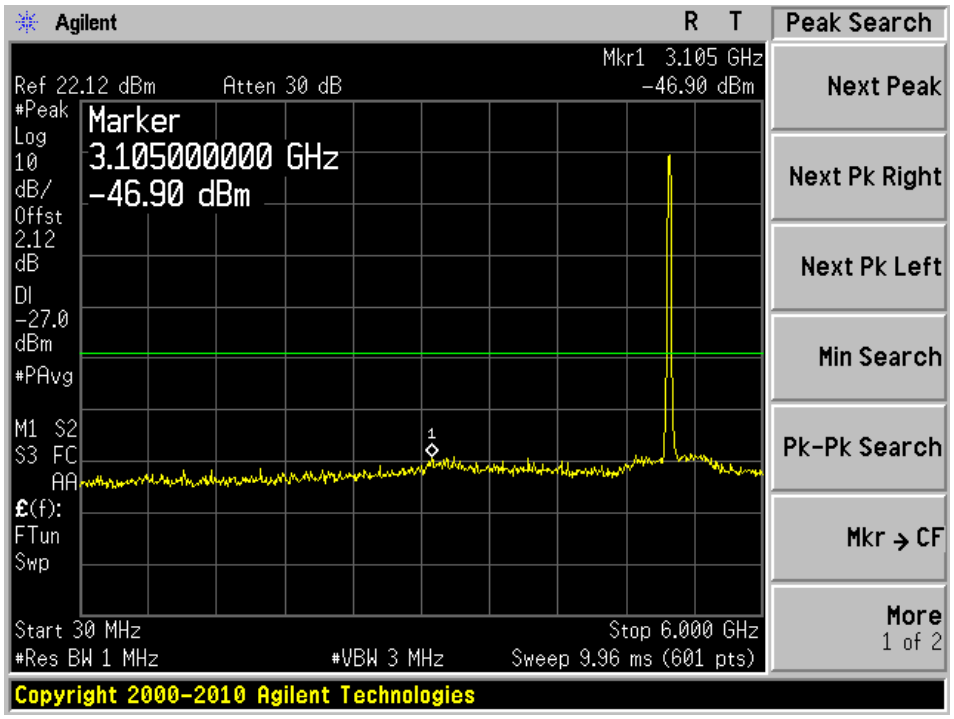
802.11 n 20 MHz mode, Low Channel, Chain J1 below 6 GHz



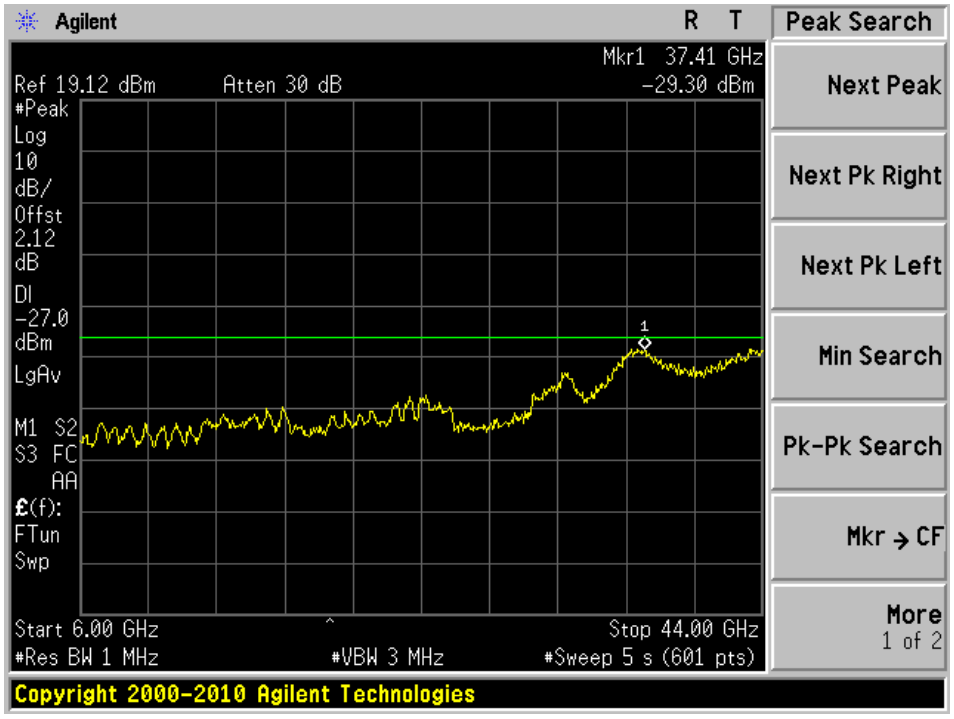
802.11 n 20 MHz mode, Low Channel, Chain J1 above 6 GHz



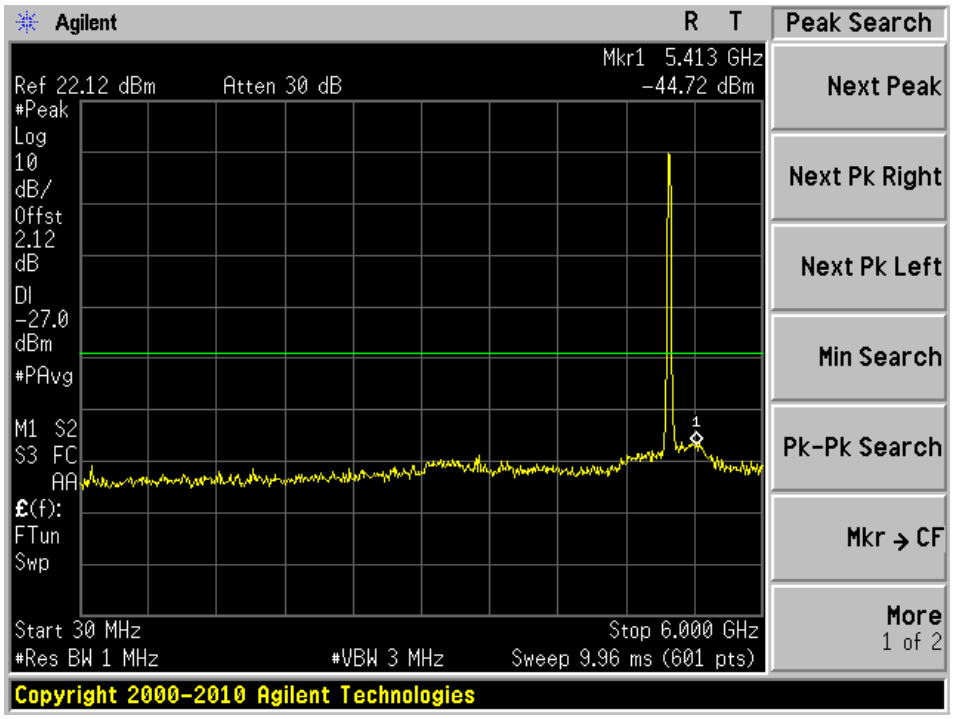
802.11 n 20 MHz mode, Low Channel, Chain J2 below 6 GHz



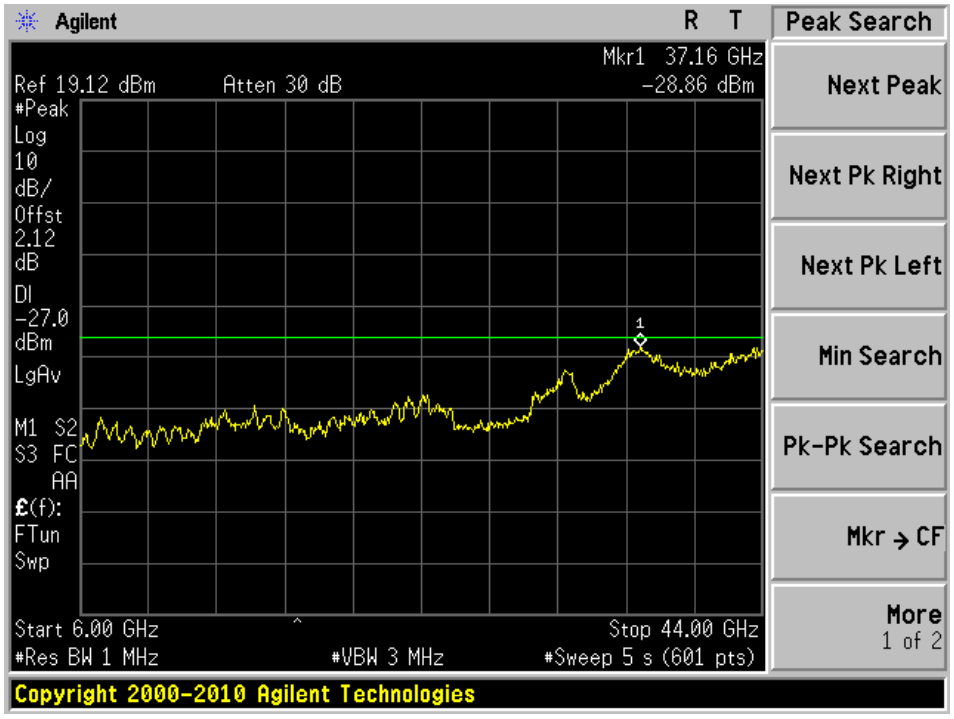
802.11 n 20 MHz mode, Low Channel, Chain J2 above 6 GHz



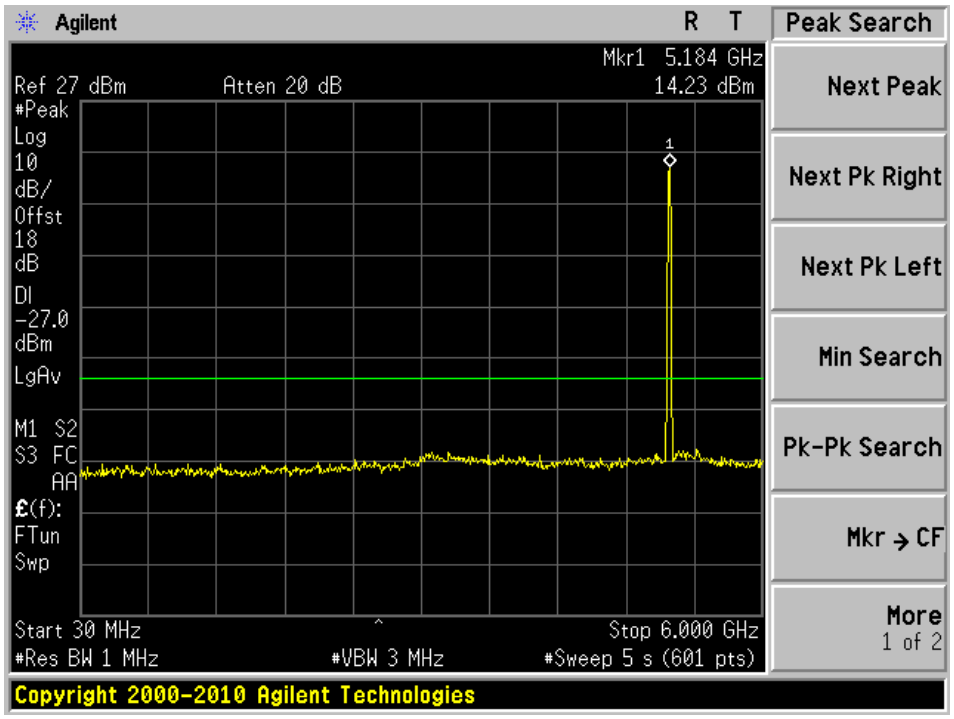
802.11 n 20 MHz mode, Low Channel, Chain J3 below 6 GHz



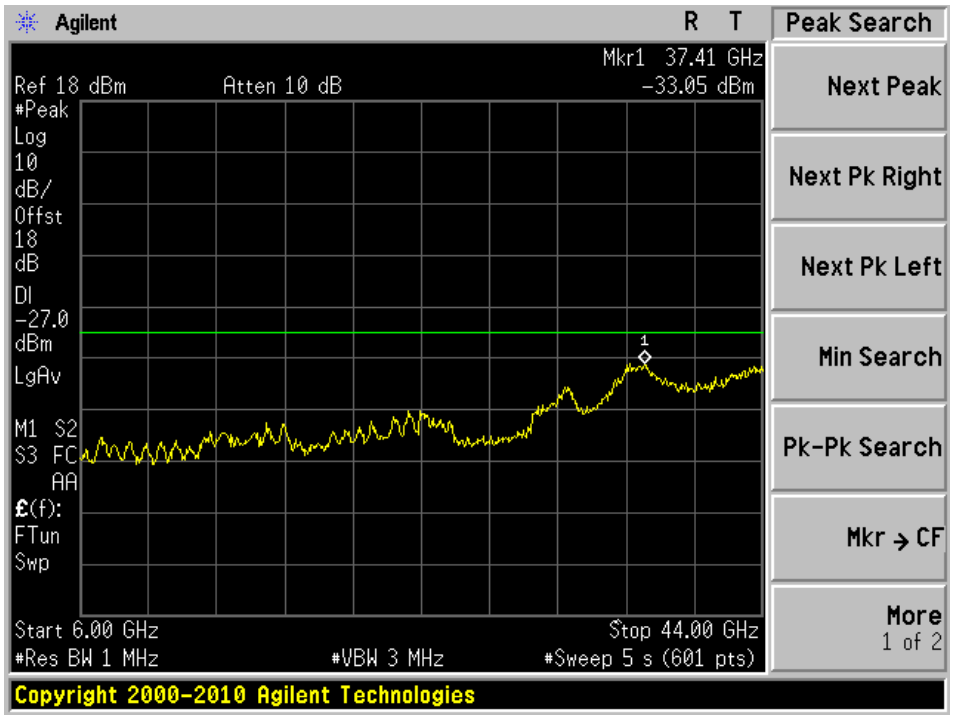
802.11 n 20 MHz mode, Low Channel, Chain J3 above 6 GHz



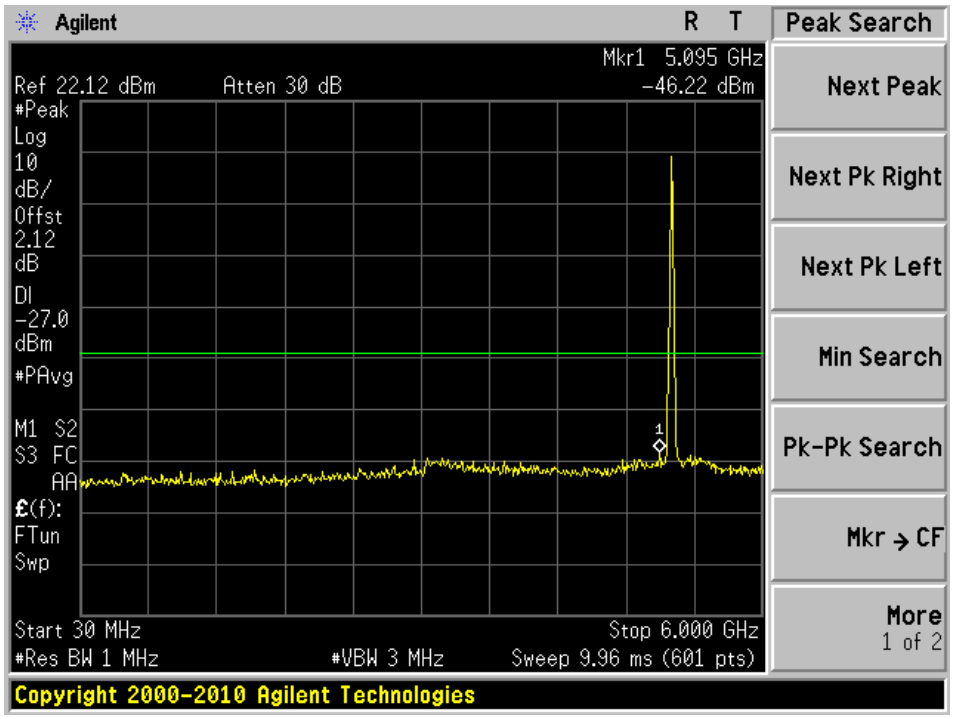
802.11 n 20 MHz mode, Low Channel, Chain J1+J2+J3 below 6 GHz



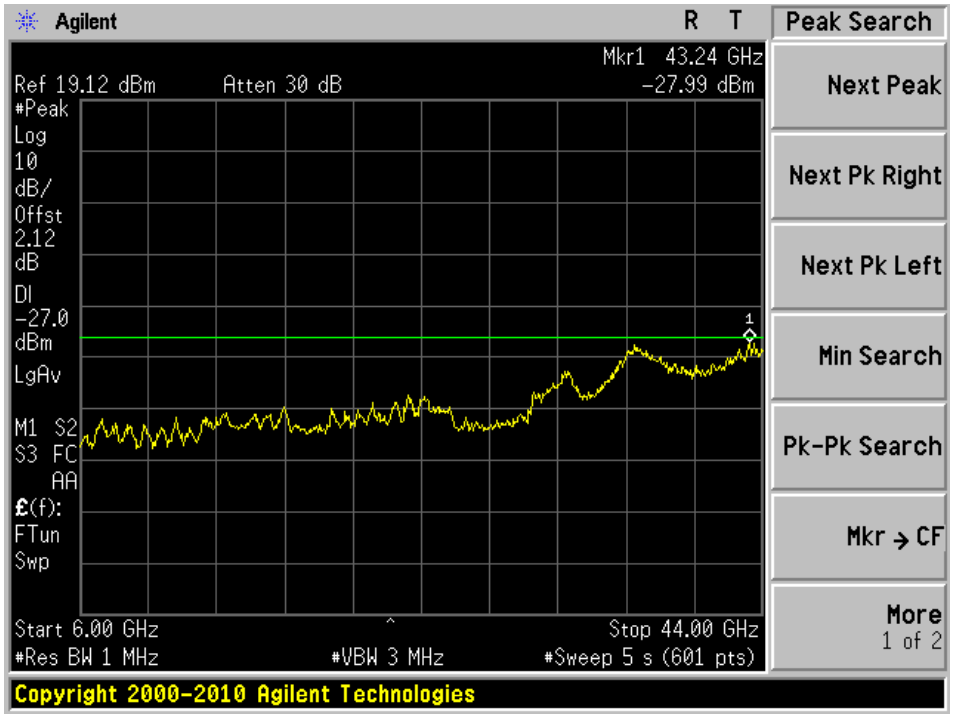
802.11 n 20 MHz mode, Low Channel, Chain J1+J2+J3 above 6 GHz



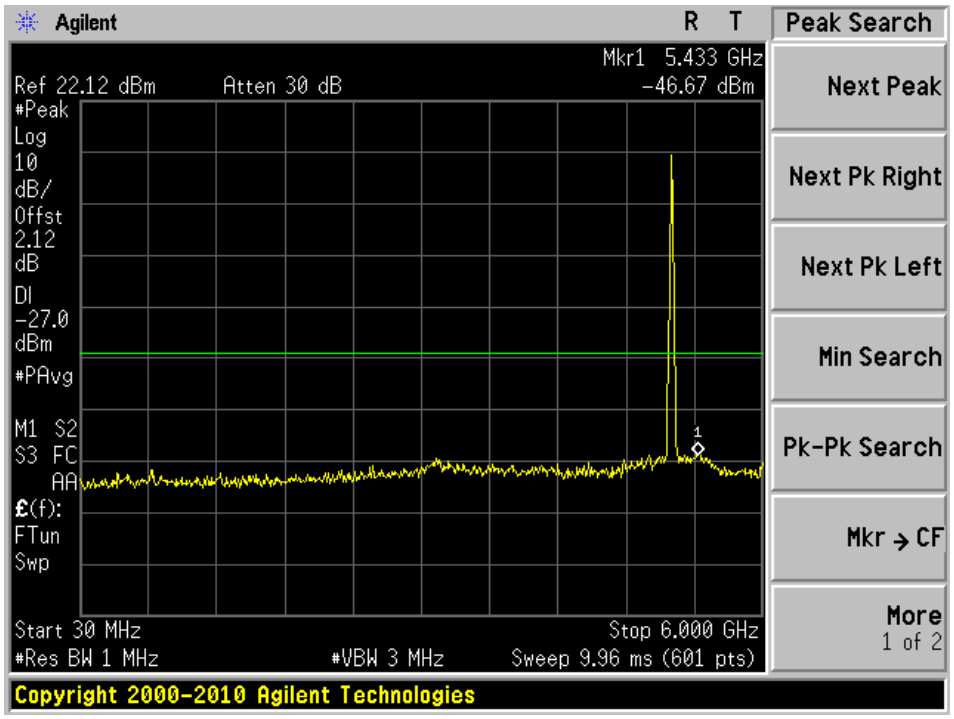
802.11 n 20 MHz mode, Middle Channel, Chain J1 below 6 GHz



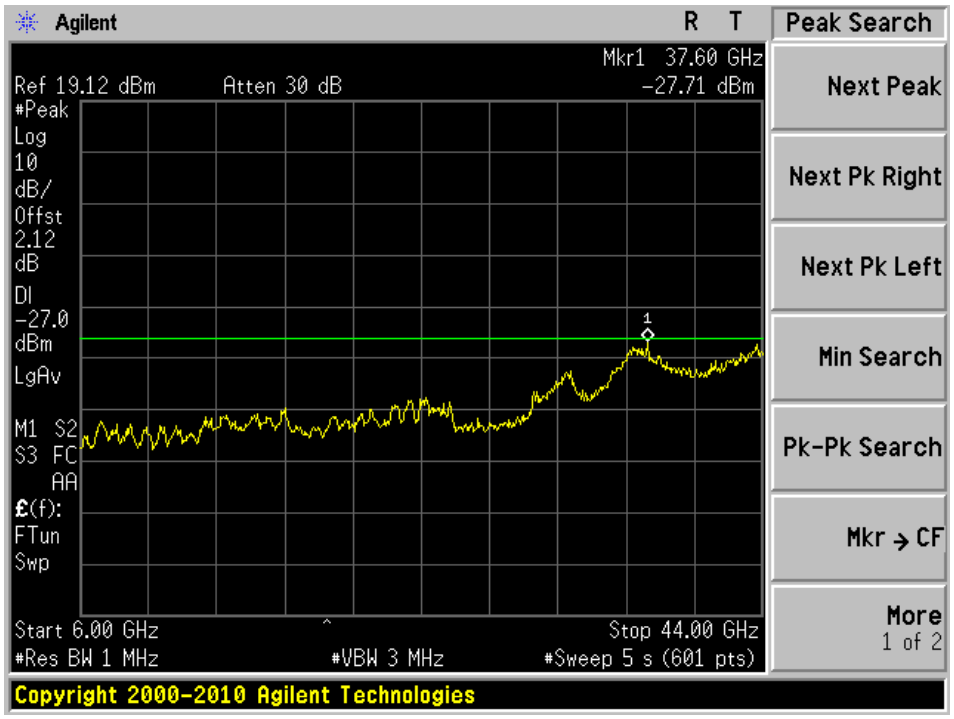
802.11 n 20 MHz mode, Middle Channel, Chain J1 above 6 GHz



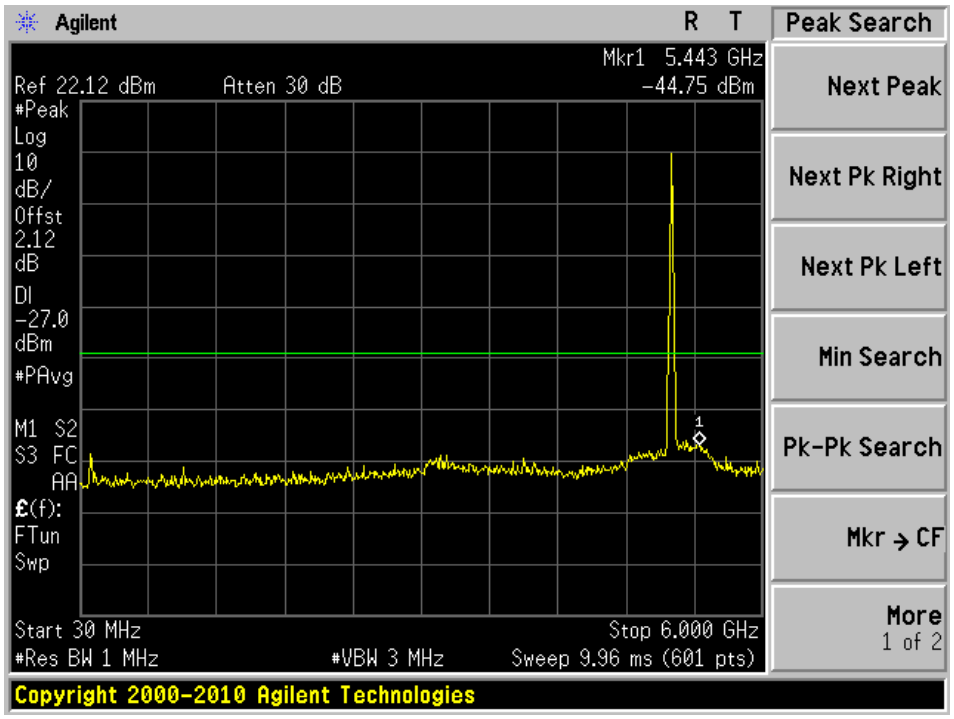
802.11 n 20 MHz mode, Middle Channel, Chain J2 below 6 GHz



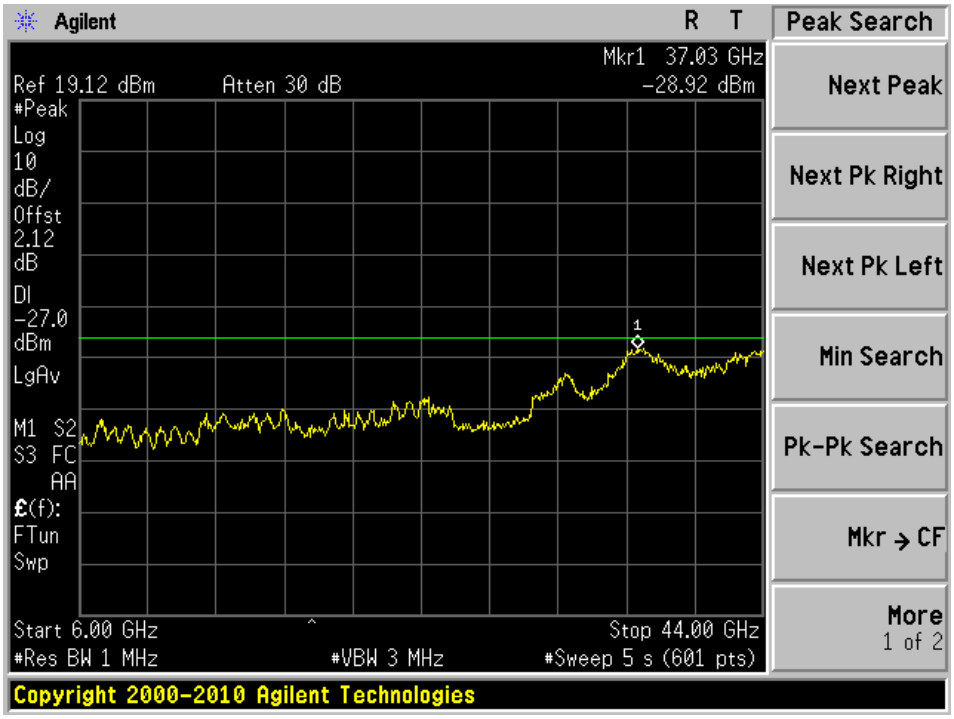
802.11 n 20 MHz mode, Middle Channel, Chain J2 above 6 GHz



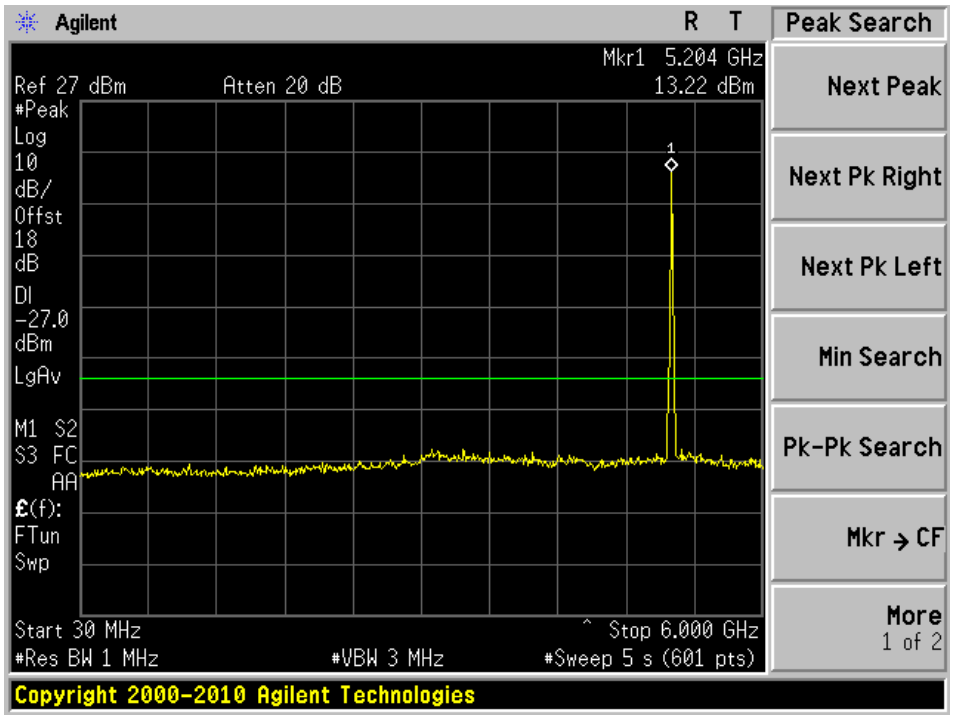
802.11 n 20 MHz mode, Middle Channel, Chain J3 below 6 GHz



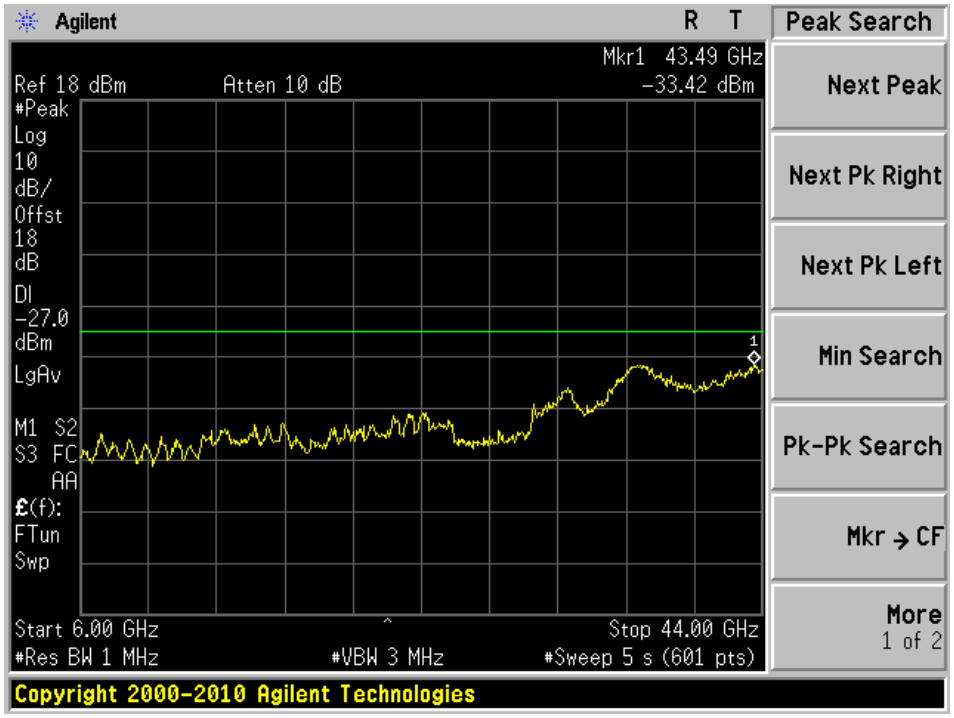
802.11 n 20 MHz mode, Middle Channel, Chain J3 above 6 GHz



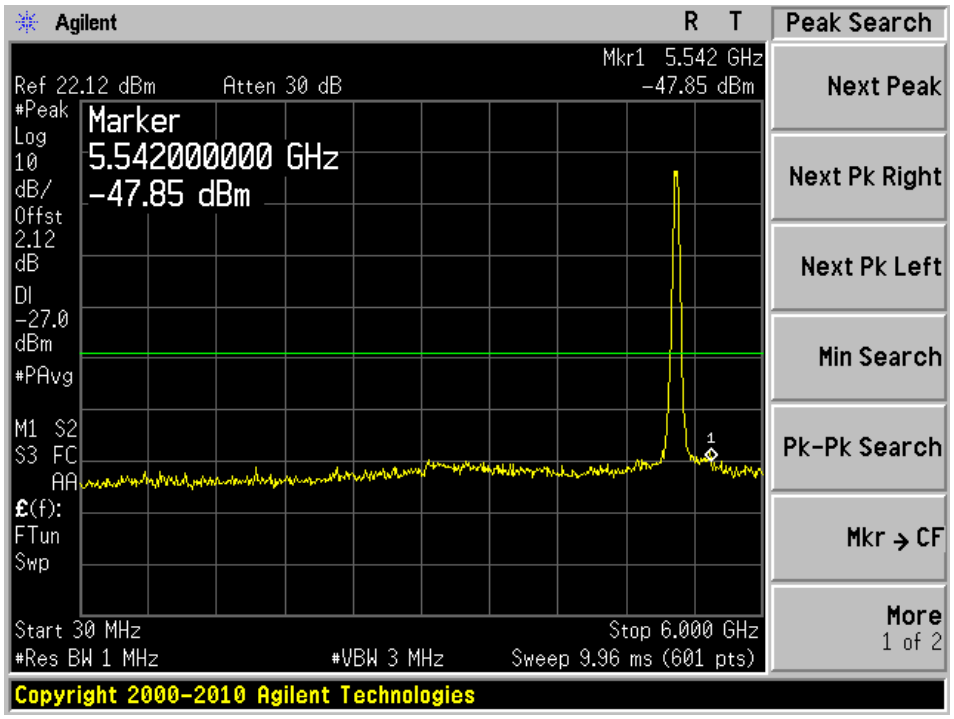
802.11 n 20 MHz mode, Middle Channel, Chain J1+J2+J3 below 6 GHz



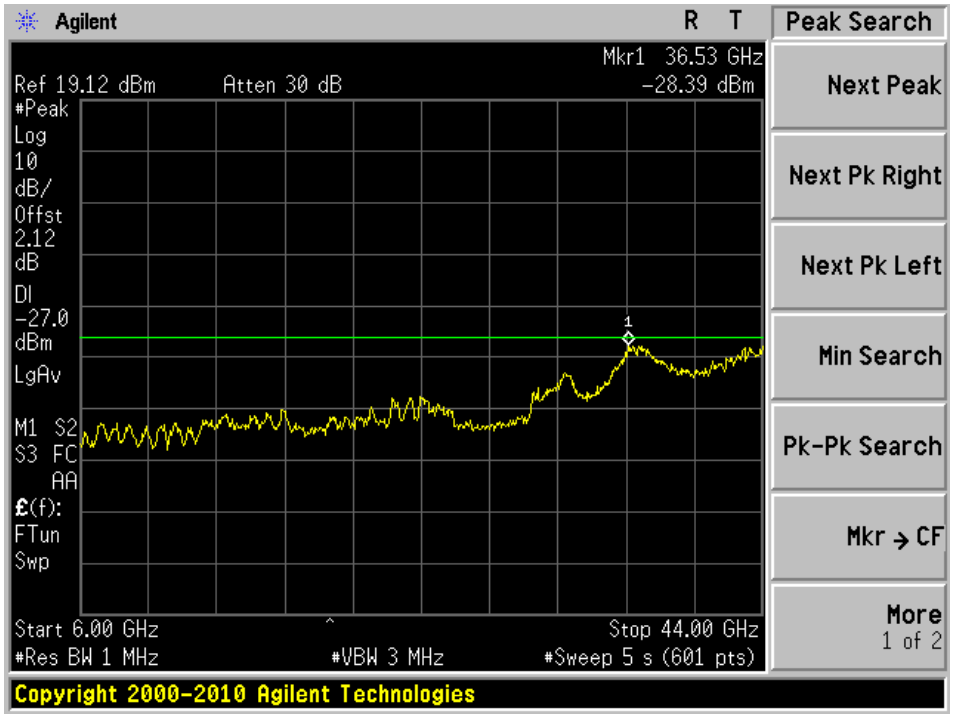
802.11 n 20 MHz mode, Middle Channel, Chain J1+J2+J3 above 6 GHz



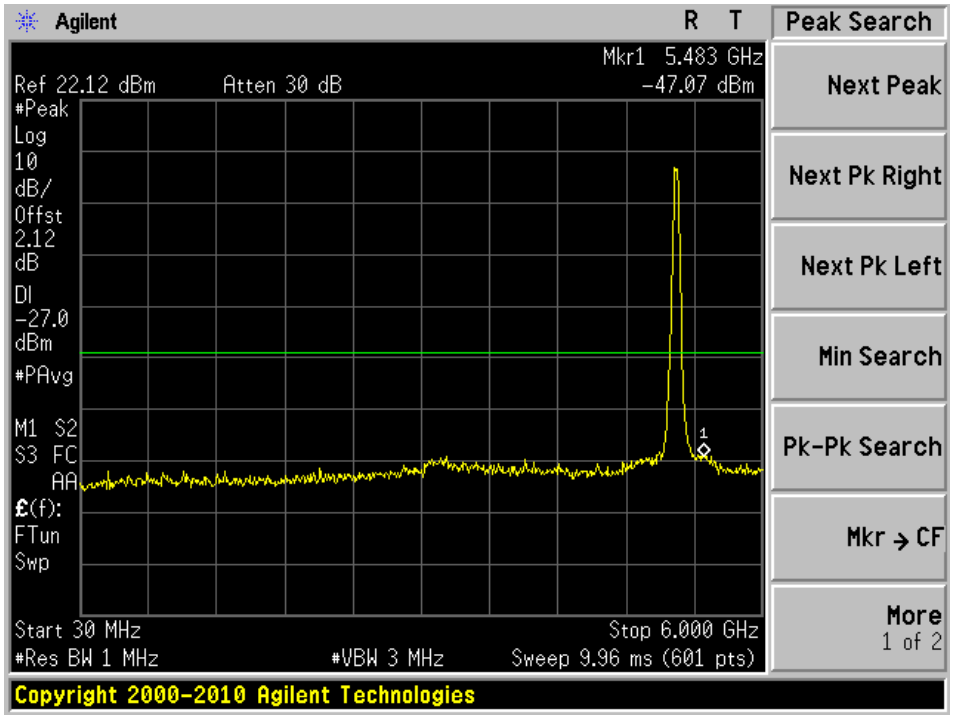
802.11 n 20 MHz mode, High Channel, Chain J1 below 6 GHz



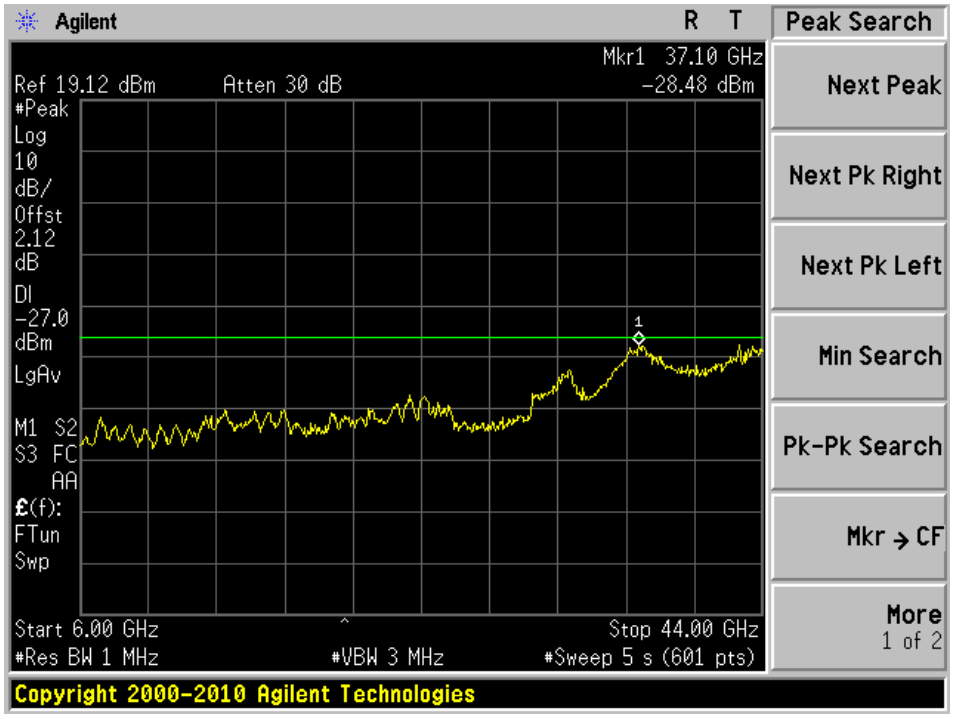
802.11 n 20 MHz mode, High Channel, Chain J1 above 6 GHz



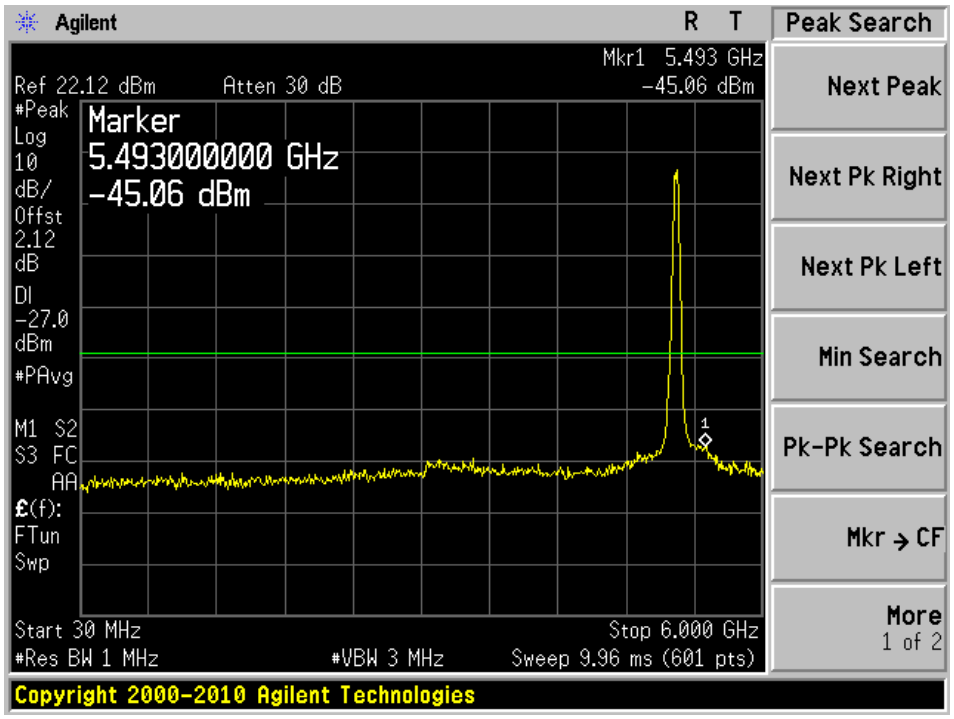
802.11 n 20 MHz mode, High Channel, Chain J2 below 6 GHz



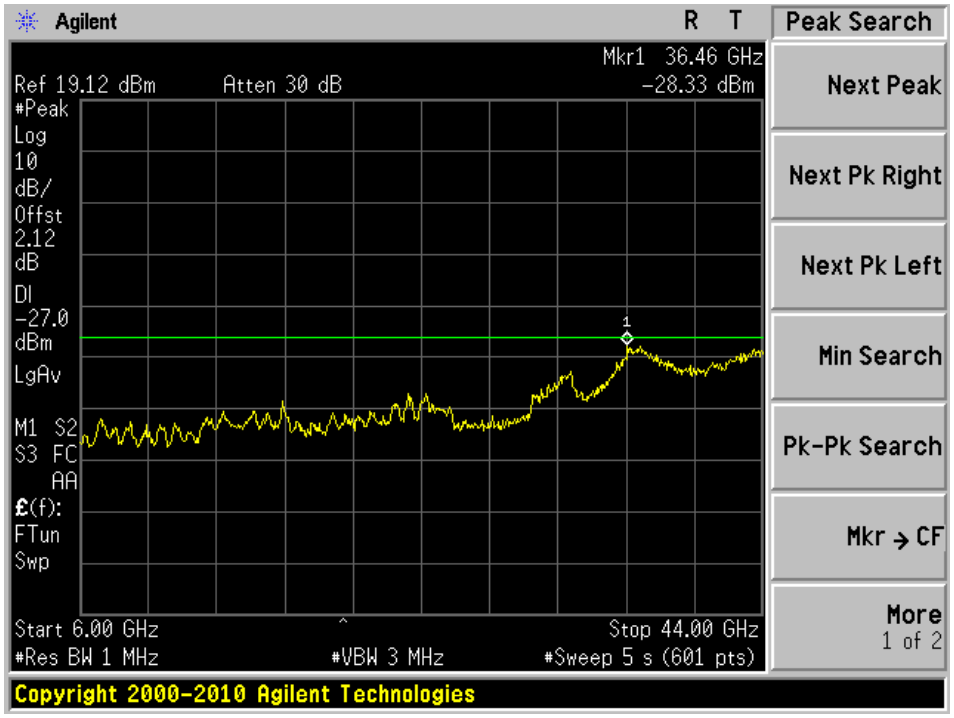
802.11 n 20 MHz mode, High Channel, Chain J2 above 6 GHz



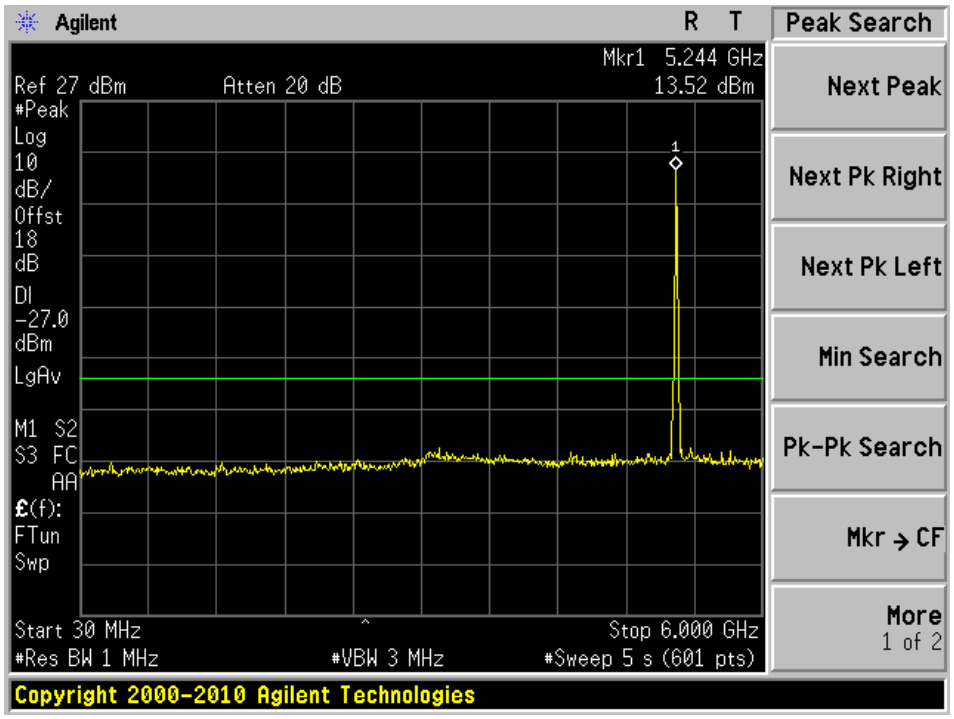
802.11 n 20 MHz mode, High Channel, Chain J3 below 6 GHz



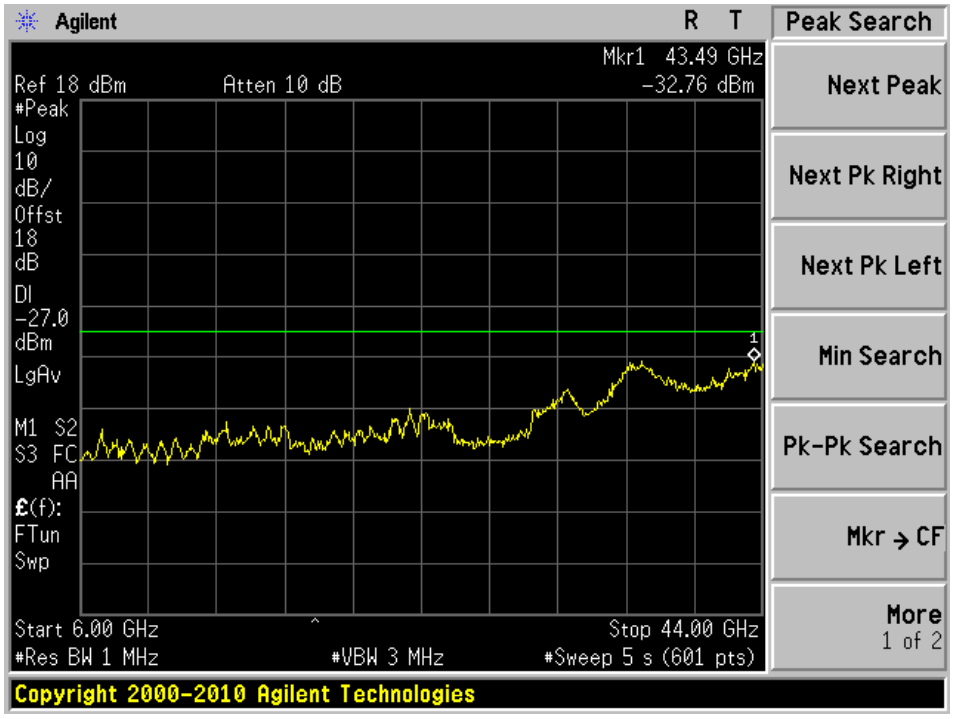
802.11 n 20 MHz mode, High Channel, Chain J3 above 6 GHz



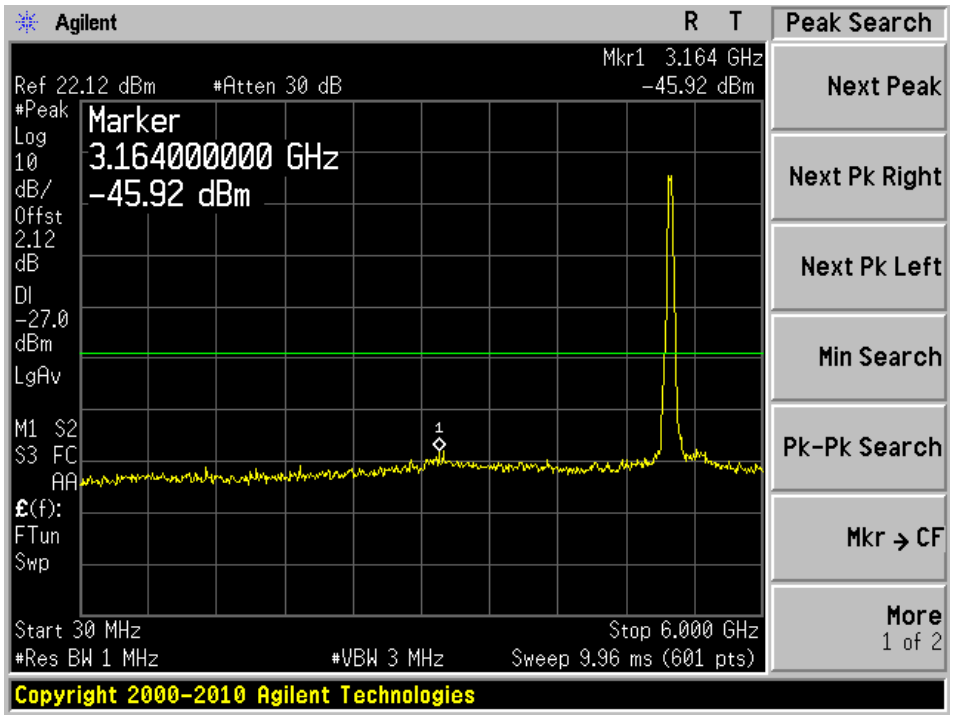
802.11 n 20 MHz mode, High Channel, Chain J1+J2+J3 below 6 GHz



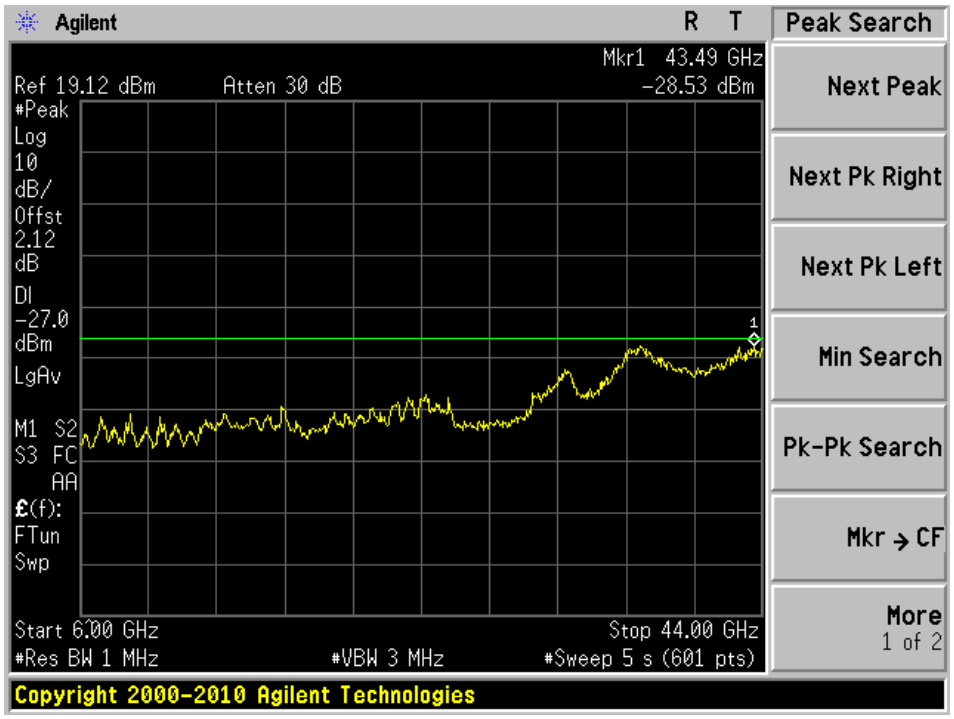
802.11 n 20 MHz mode, High Channel, Chain J1+J2+J3 above 6 GHz



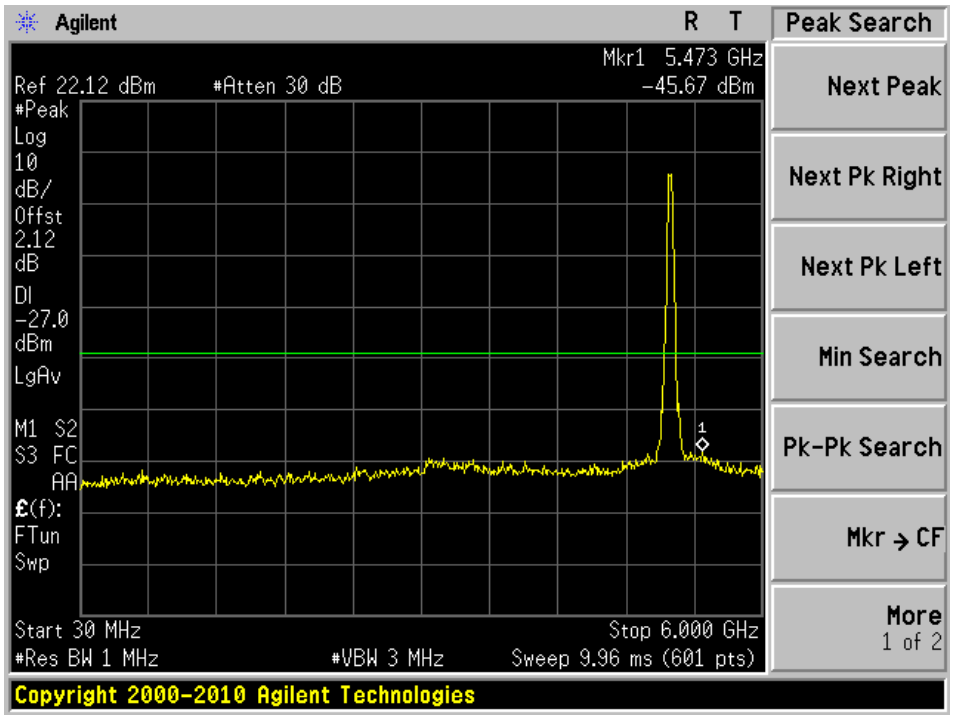
802.11 n 40 MHz mode, Low Channel, Chain J1 below 6 GHz



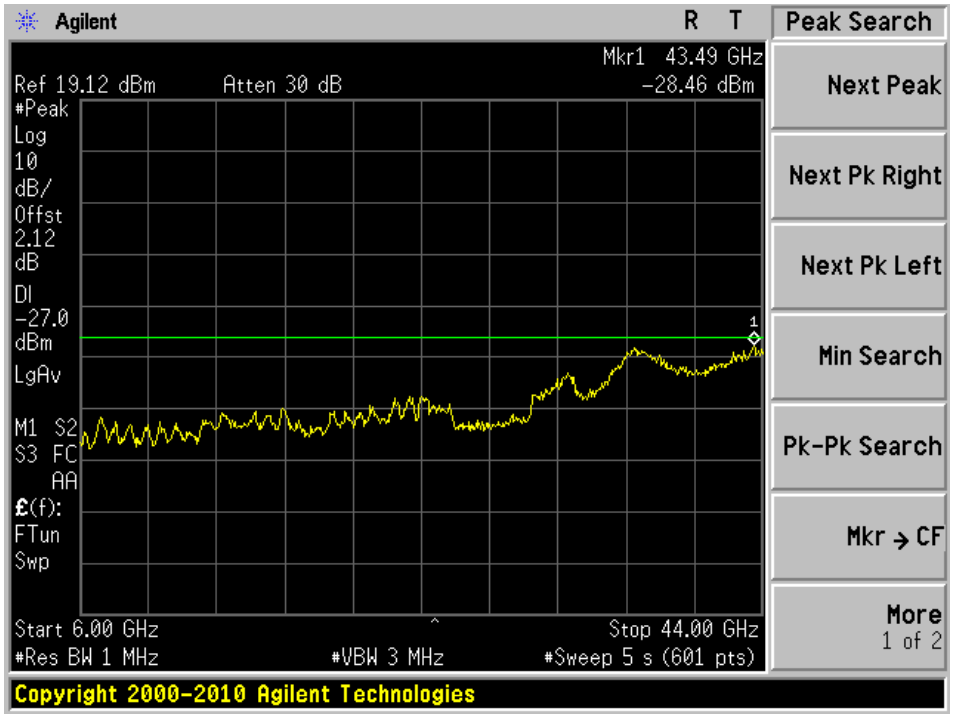
802.11 n 40 MHz mode, Low Channel, Chain J1 above 6 GHz



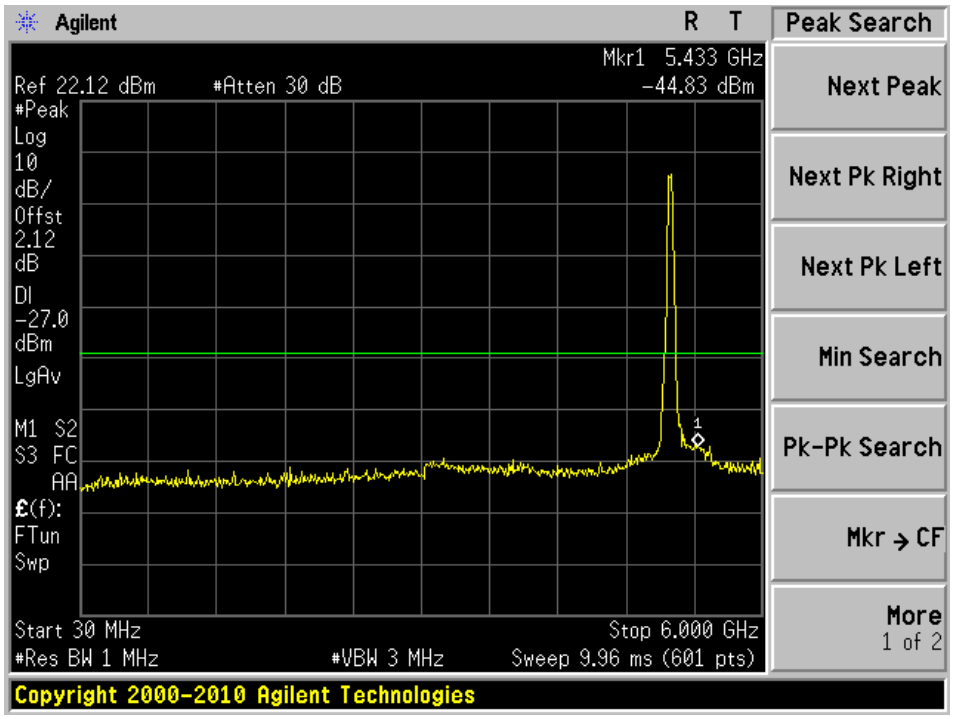
802.11 n 40 MHz mode, Low Channel, Chain J2 below 6 GHz



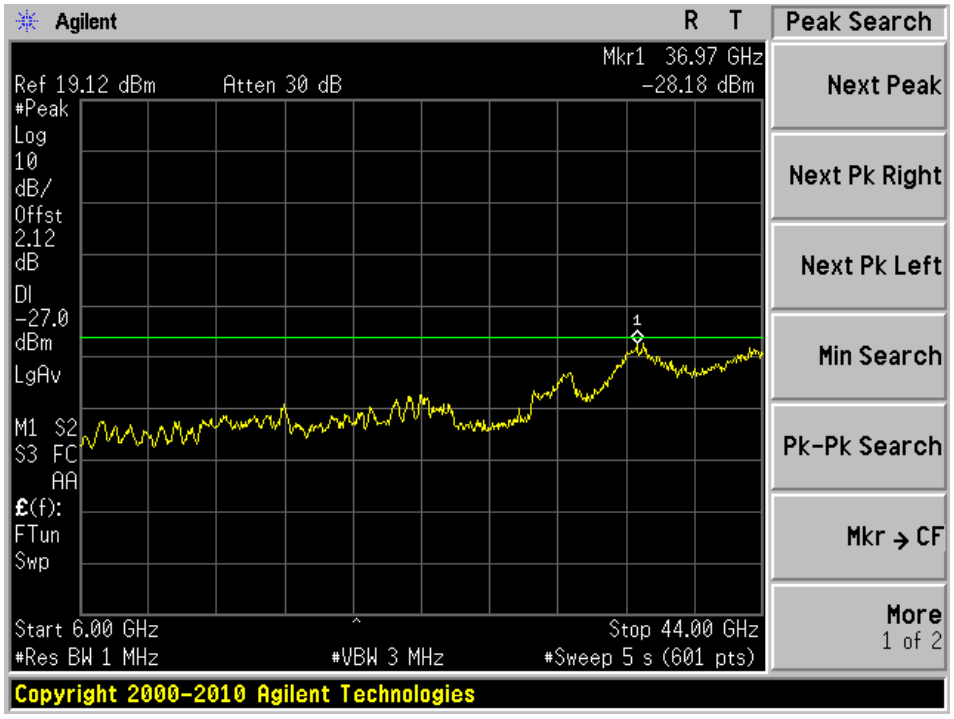
802.11 n 40 MHz mode, Low Channel, Chain J2 above 6 GHz



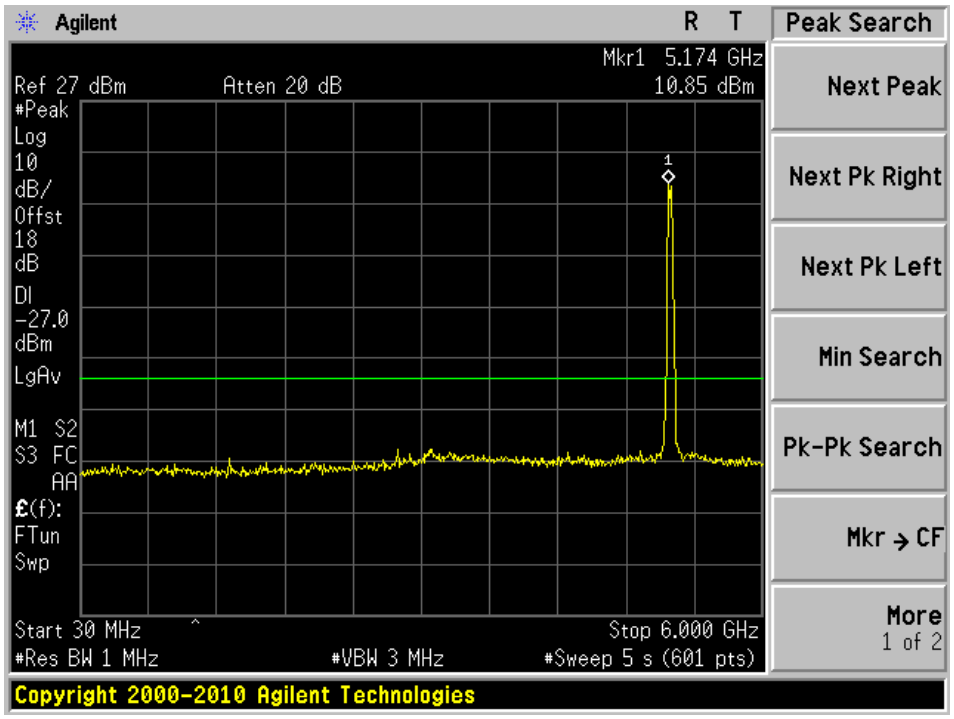
802.11 n 40 MHz mode, Low Channel, Chain J3 below 6 GHz



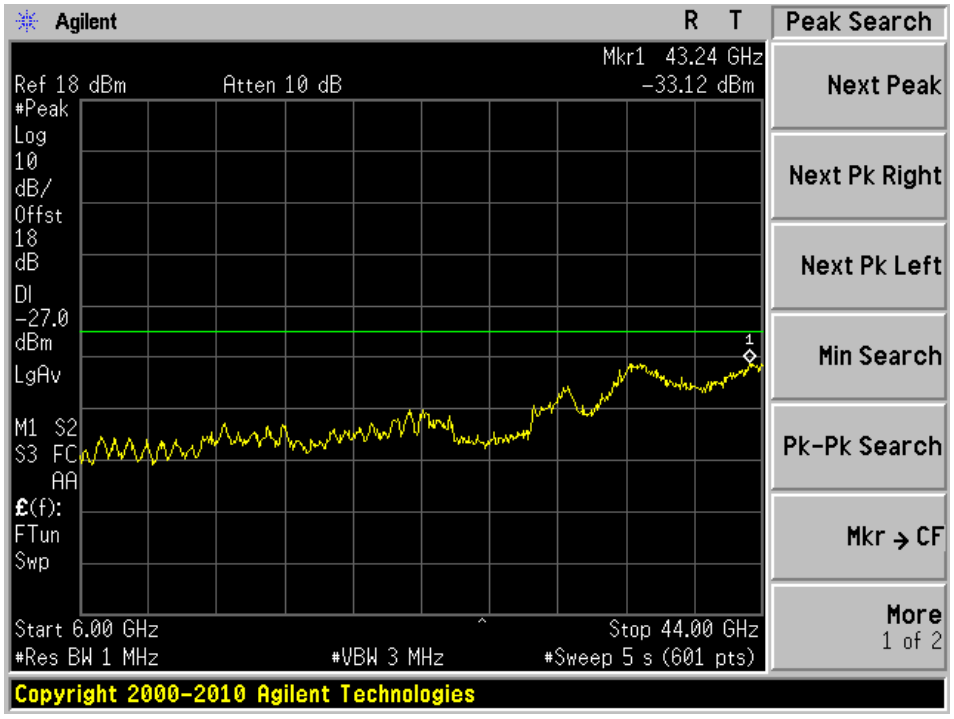
802.11 n 40 MHz mode, Low Channel, Chain J3 above 6 GHz



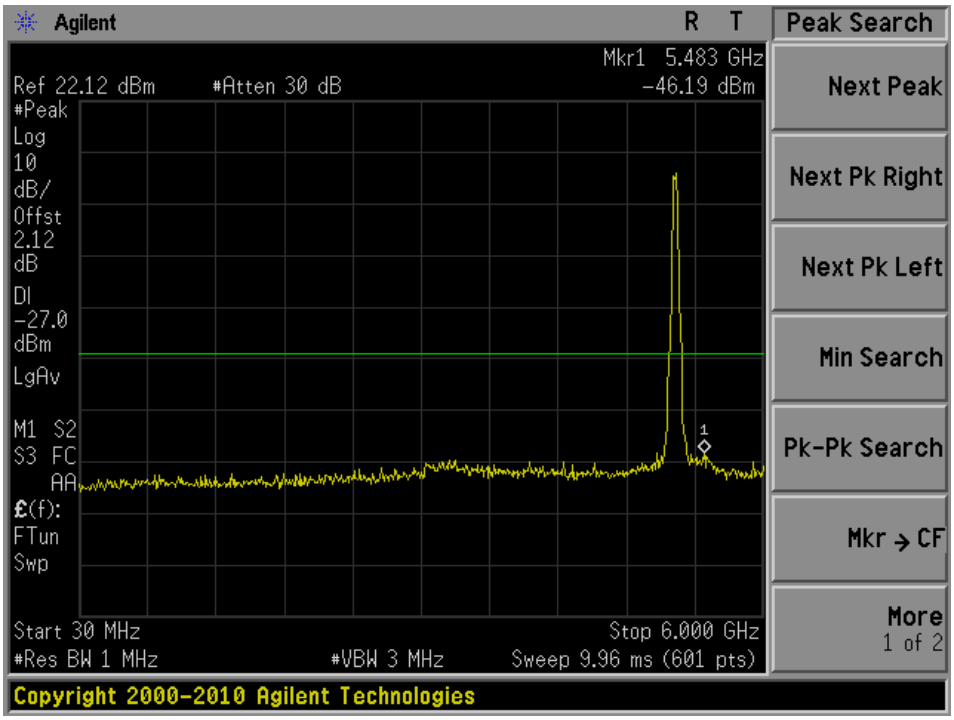
802.11 n 40 MHz mode, Low Channel, Chain J1+J2+J3 below 6 GHz



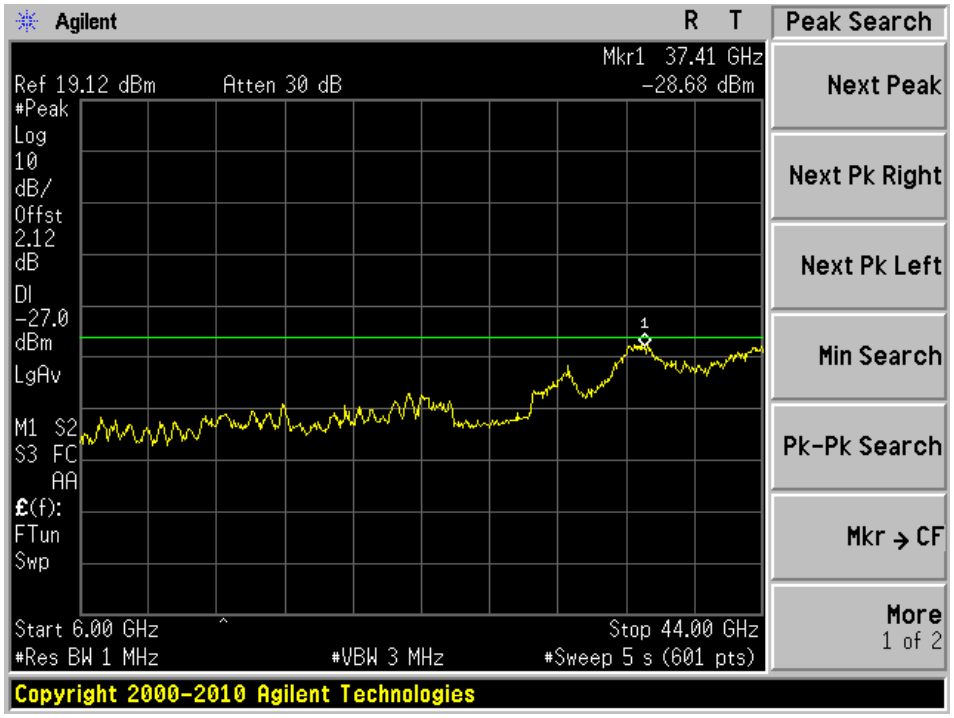
802.11 n 40 MHz mode, Low Channel, Chain J1+J2+J3 above 6 GHz



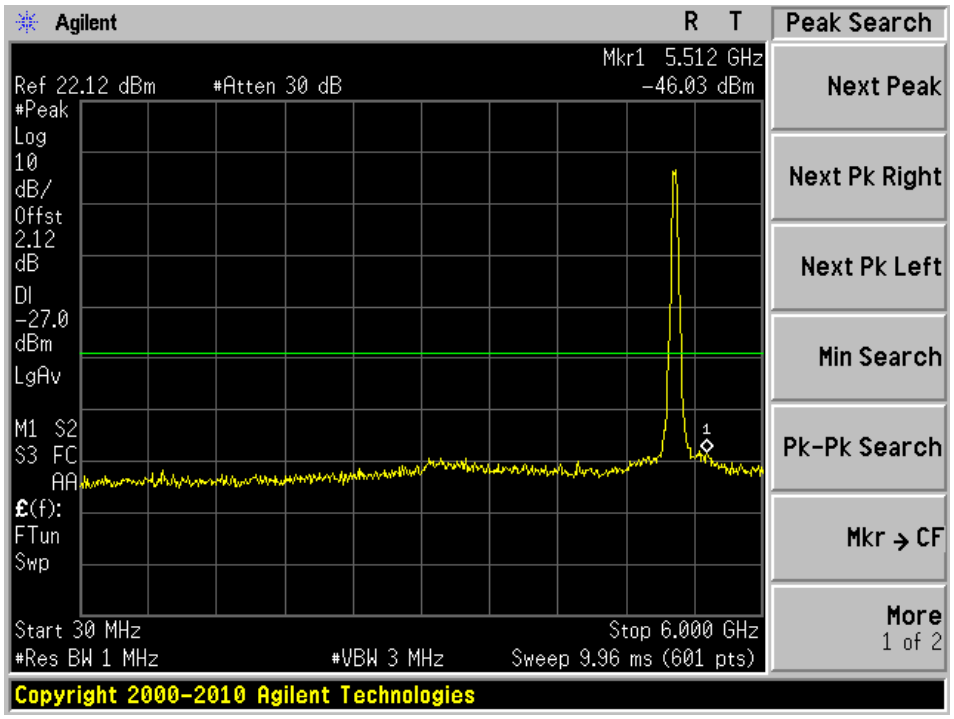
802.11 n 40 MHz mode, High Channel, Chain J1 below 6 GHz



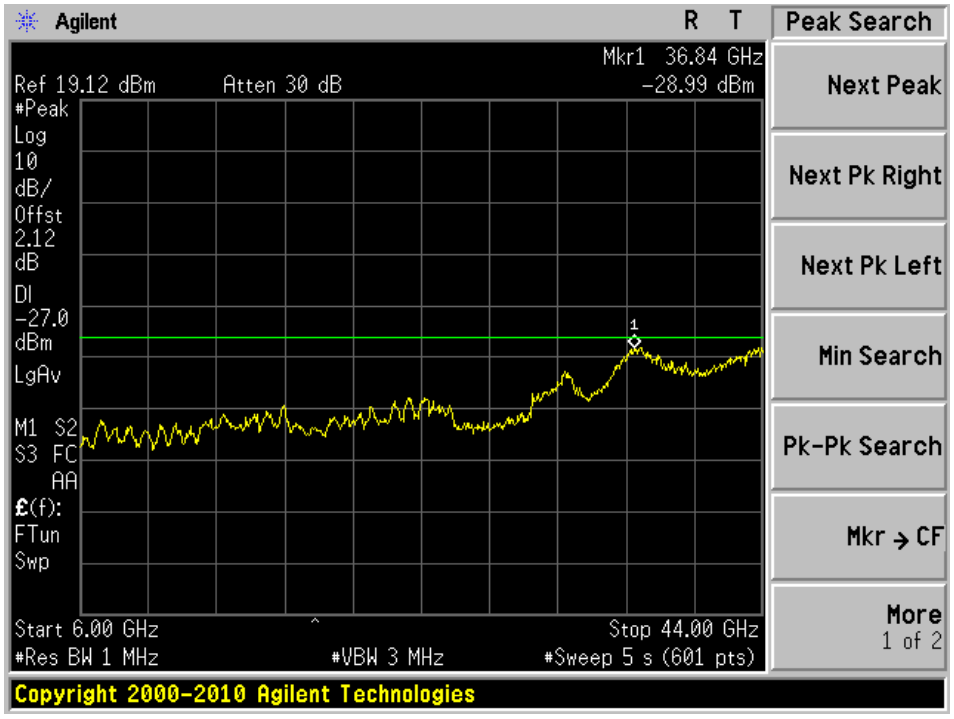
802.11 n 40 MHz mode, High Channel, Chain J1 above 6 GHz



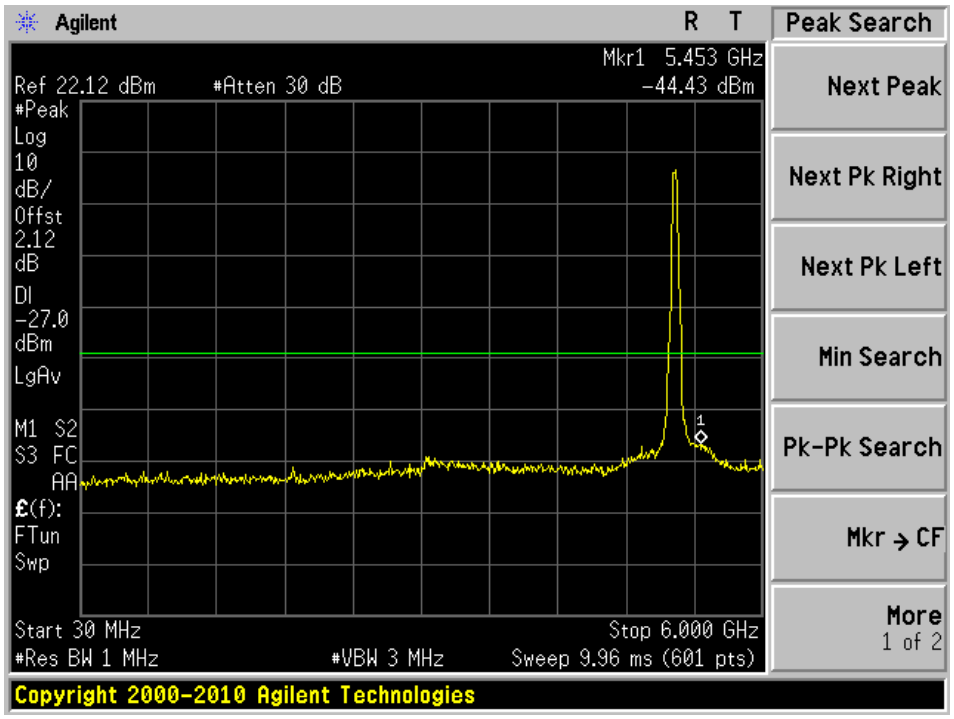
802.11 n 40 MHz mode, High Channel, Chain J2 below 6 GHz



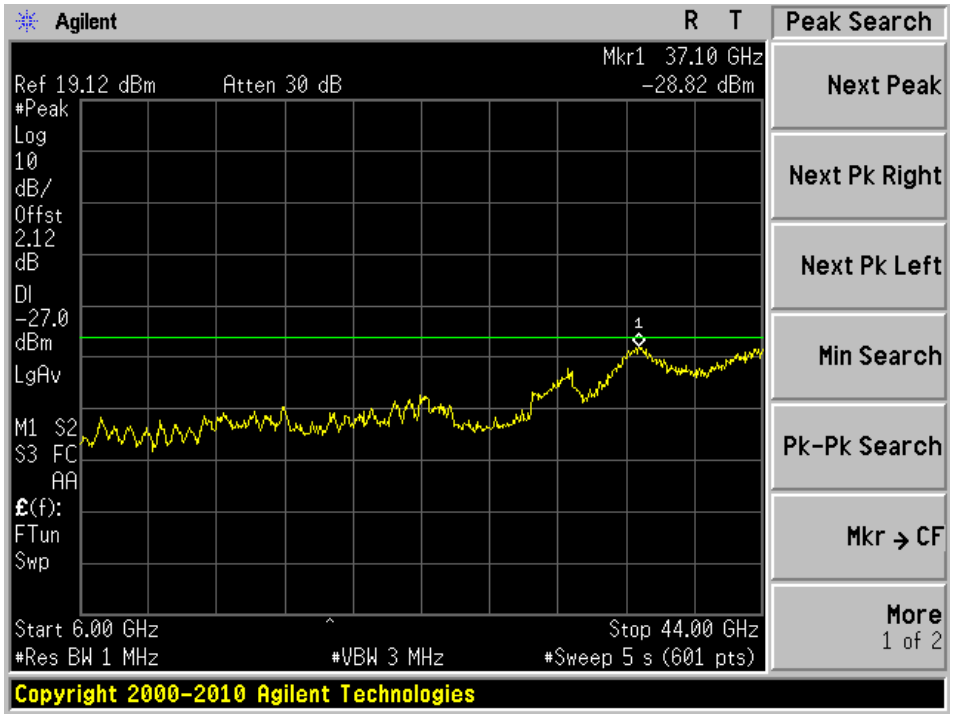
802.11 n 40 MHz mode, High Channel, Chain J2 above 6 GHz



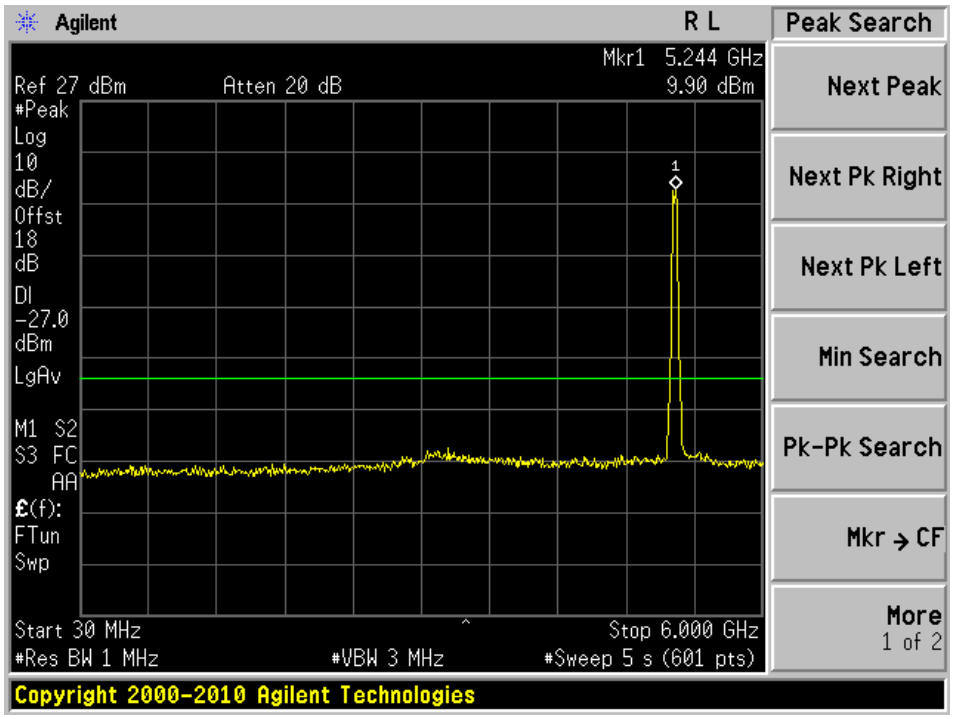
802.11 n 40 MHz mode, High Channel, Chain J3 below 6 GHz



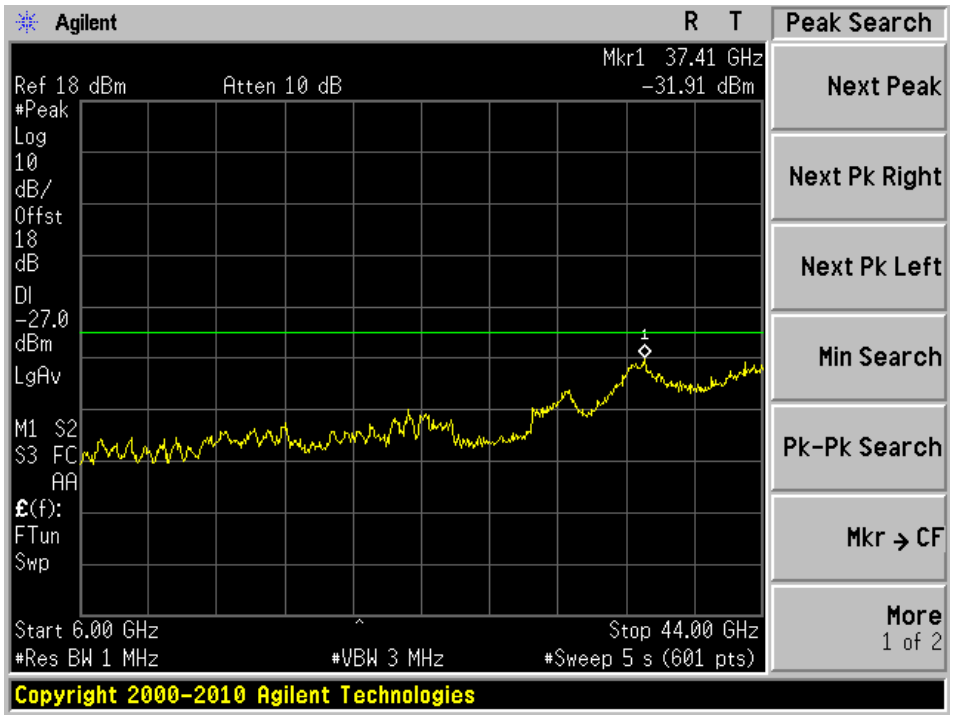
802.11 n 40 MHz mode, High Channel, Chain J3 above 6 GHz



802.11 n 40 MHz mode, High Channel, Chain J1+J2+J3 below 6 GHz



802.11 n 40 MHz mode, High Channel, Chain J1+J2+J3 above 6 GHz



14 Exhibit A - FCC ID Label Information

14.1 FCC ID Label Requirements

As Per FCC §2.925,

(a) Each equipment covered in an application for equipment authorization shall bear a nameplate or label listing the following:

(1) FCC Identifier consisting of the two elements in the exact order specified in §2.926. The FCC Identifier shall be preceded by the term *FCC ID* in capital letters on a single line, and shall be of a type size large enough to be legible without the aid of magnification.

Example: FCC ID: XXX123

XXX—Grantee Code 123—Equipment Product Code

As Per FCC §15.19

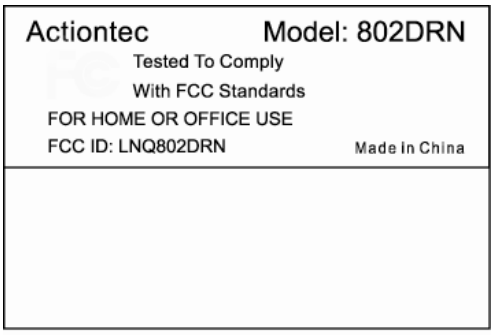
(a) In addition to the requirements in part 2 of this chapter, a device subject to certification, or verification shall be labeled as follows:

(3) All other devices shall bear the following statement in a conspicuous location on the device:

> This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

14.2 FCC ID Label Content

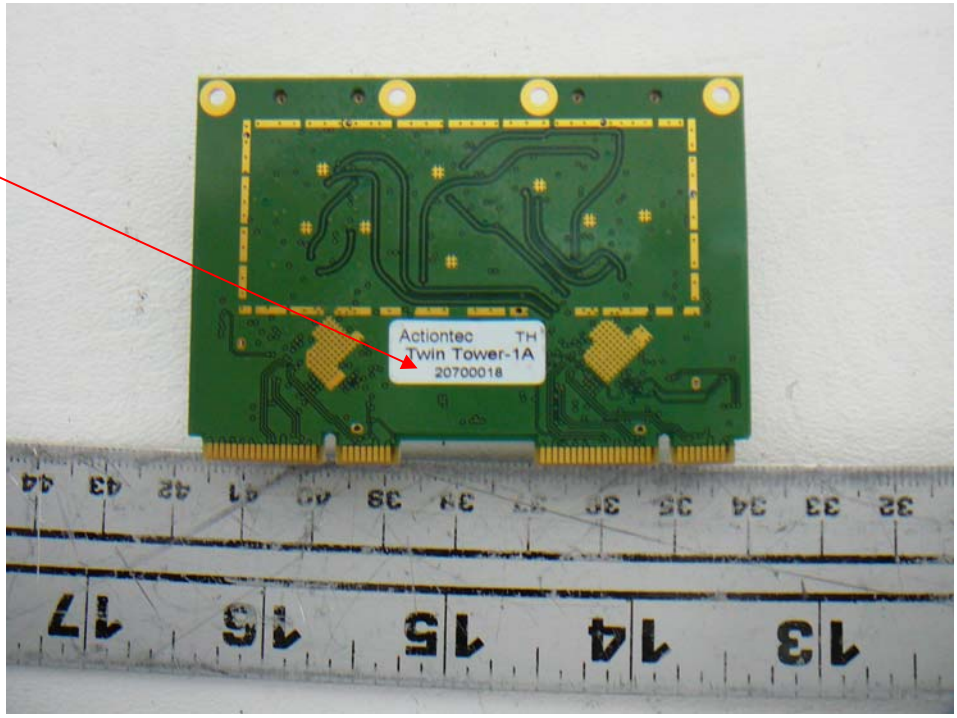


30mm (W) x 20mm (H)

As per FCC §15.19 (b) (4), the label shall not be a stick-on, paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in Section 2.925(d) of this chapter. "Permanently affixed" means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

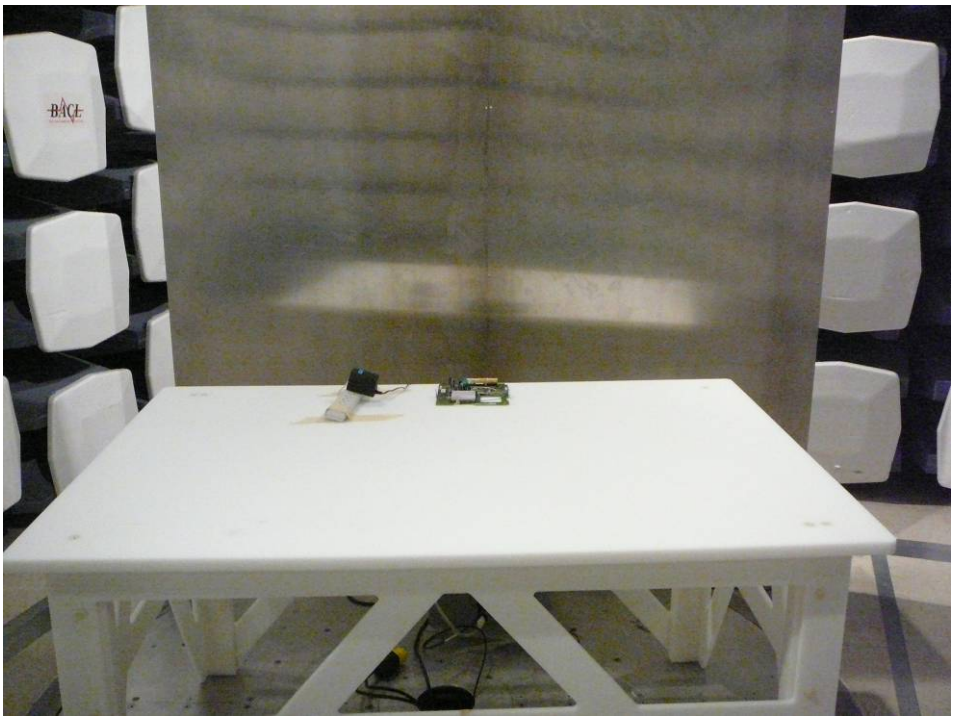
14.3 FCC ID Label Location on EUT

Label here

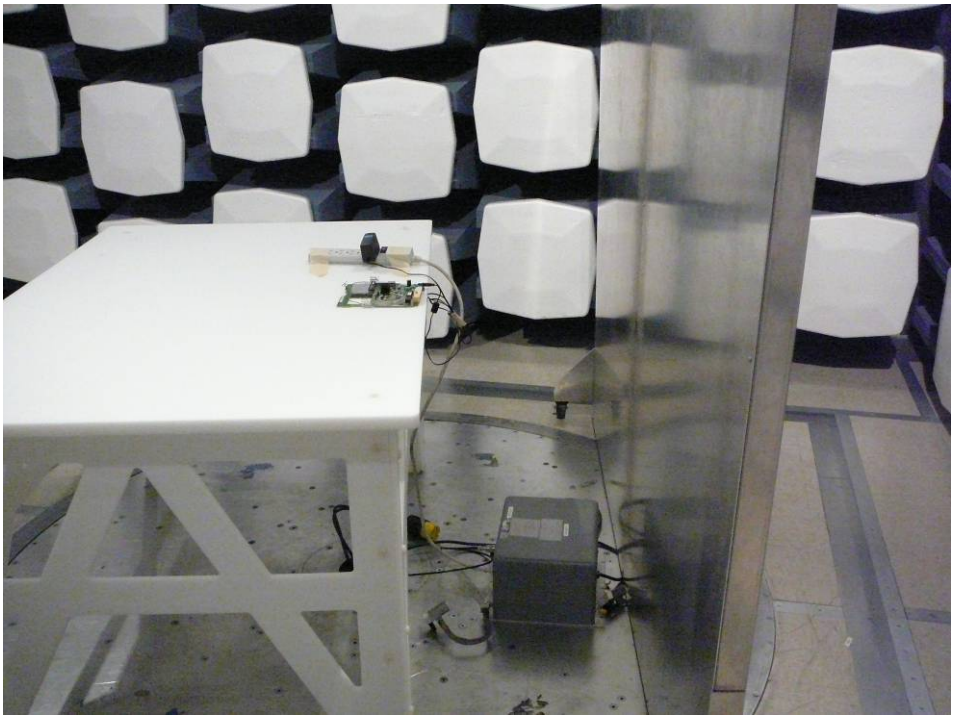


15 Exhibit B - Test Setup Photographs

15.1 Conducted Emission Front View

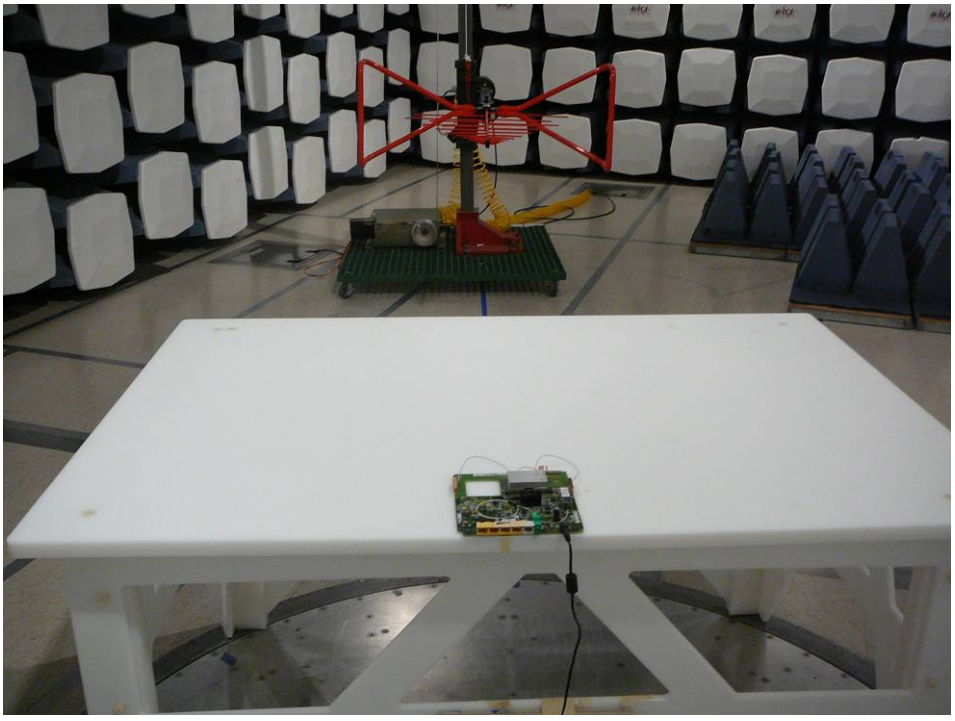


15.2 Conducted Emission Side View



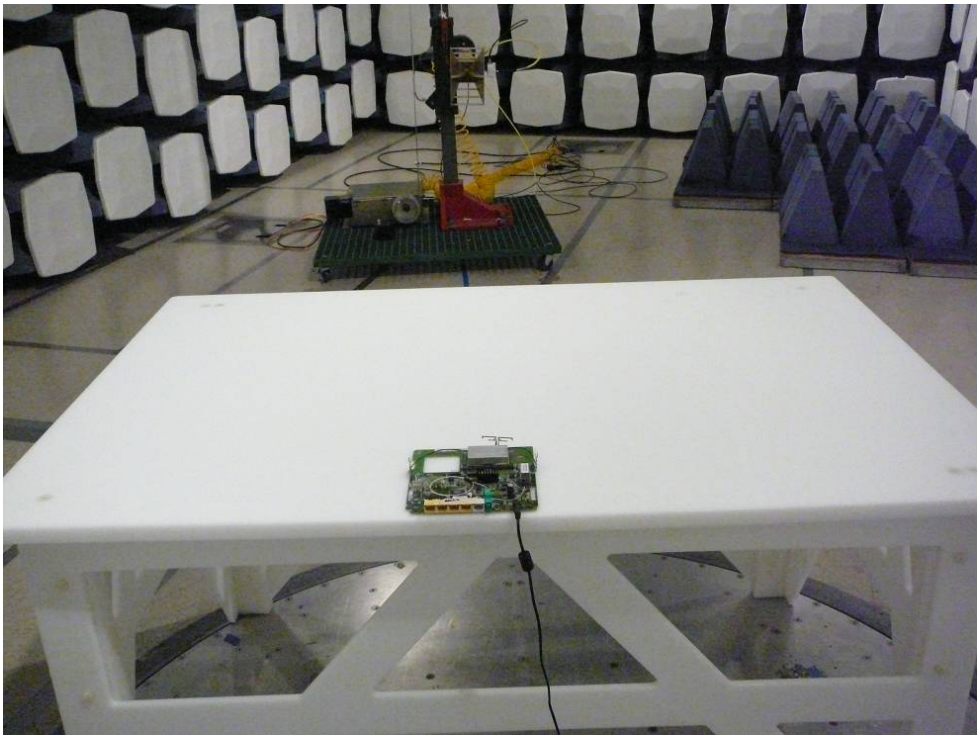
15.3 Radiated Emission below 1GHz Front View

15.4 Radiated Emission below 1 GHz Rear View



15.5 Radiated Emission above 1 GHz Front View

15.6 Radiated Emission above 1 GHz Rear View



15.7 Conducted Test