



FCC PART 15.407



TEST AND MEASUREMENT REPORT

For

Sensity Systems, Inc.

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Sunnyvale, CA 94085, USA

FCC: SXNLSNM-0001-A

Report Type: Original Report	Product Type: Light Sensory Module
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Report Number: R1304307-407	
Report Date: 2013-09-24	
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* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*" (Rev.3)

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1304307-407	Original Report	2013-09-24

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *Sensity Systems, Inc.*, and their product model: *LSNM-0001-A* with *FCC ID: SXNLSNM-0001-A* or the “EUT” as referred to in this report. The EUT is a light sensory module operating in the 2.4, 5.2, 5.3 and 5.6 GHz bands.

1.2 Mechanical Description of EUT

The EUT measures approximately 15 cm (L) x 15 cm (W) x 12 cm (H) and weighs 620g.

The test data gathered are from typical production sample, serial number: 0102713A0000C250 provided by the manufacturer.

1.3 Objective

This report is prepared on behalf of *Sensity Systems, Inc.*, in accordance with FCC CFR47 §15.407.

The objective is to determine compliance with FCC rules for Antenna Requirements, AC Line 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)

N/A

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz and FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E

1.6 Measurement Uncertainty

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

Based on CISPR16-4-2:2007, The Treatment of Uncertainty in EMC Measurements, the values ranging from ± 2.0 dB for Conducted Emissions tests and ± 4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BAACL 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

Bay Area Compliance Laboratories Corp. (BACL) is:

1- An independent Commercial Test Laboratory accredited to **ISO 17025:2005** by **A2LA**, in the fields of: Electromagnetic Compatibility & Telecommunications covering Emissions, Immunity, Radio, RF Exposure, Safety and Telecom. This includes NEBS (Network Equipment Building System), Wireless RF, Telecommunications Terminal Equipment (TTE); Network Equipment; Information Technology Equipment (ITE); Medical Electrical Equipment; Industrial, Commercial, and Medical Test Equipment; Professional Audio and Video Equipment; Electronic (Digital) Products; Industrial and Scientific Instruments; Cabled Distribution Systems and Energy Efficiency Lighting.

2- An ENERGY STAR Recognized Laboratory, for the LM80 Testing, a wide variety of Luminaires and Computers.

3- A NIST Designated Phase-I and Phase-II CAB including: ACMA (Australian Communication and Media Authority), BSMI (Bureau of Standards, Metrology and Inspection of Taiwan), IDA (Infocomm Development Authority of Singapore), IC (Industry Canada), Korea (Ministry of Communications Radio Research Laboratory), NCC (Formerly DGT; Directorate General of Telecommunication of Chinese Taipei) OFTA (Office of the Telecommunications Authority of Hong Kong), Vietnam, VCCI - Voluntary Control Council for Interference of Japan and a designated EU CAB (Conformity Assessment Body) (Notified Body) for the EMC and R&TTE Directives.

4 - A Product Certification Body accredited to **ISO Guide 65:1996** by **A2LA** to certify:

1- Unlicensed, Licensed radio frequency devices and Telephone Terminal Equipment for the FCC. Scope A1, A2, A3, A4, B1, B2, B3, B4 & C.

2. Radio Standards Specifications (RSS) in the Category I Equipment Standards List and All Broadcasting Technical Standards (BETS) in Category I Equipment Standards List for Industry Canada.

3. Radio Communication Equipment for Singapore.

4. Radio Equipment Specifications, GMDSS Marine Radio Equipment Specifications, and Fixed Network Equipment Specifications for Hong Kong.

5. Japan MIC Telecommunication Business Law (A1, A2) and Radio Law (B1, B2 and B3).

6. Audio/Video, Battery Charging Systems, Computers, Displays, Enterprise Servers, Imaging Equipment, Set-Top Boxes, Telephony, Televisions, Ceiling Fans, CFLs (including GU24s), Decorative Light Strings, Integral LED Lamps, Luminaires, Residential Ventilating Fans.

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 C63.4-2009, 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 EUT Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2009 FCC KDB 789033 D01 General UNII Test Procedures v01r03

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

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

2.2 EUT Exercise Software

The test utility used was TeraTerm and was verified by Lionel Lara to comply with the standard requirements being tested against.

2.3 Equipment Modifications

No modifications were made to the EUT.

2.4 Special Accessories

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

2.5 Local Support Equipment

Manufacturer	Description	Model	Serial Number
DELL	Laptop	Latitude E5420	-

2.6 EUT Internal Configuration Details

Manufacturer	Description	Model	Serial Number
Sensity Systems	Main Board	U-Node V2	40313260134
Sensity Systems	Power Board	PMAC V2	40313260176
Sensity Systems	Sensor Board	D055	6MT064462-0089

2.7 Interface Ports and Cables

Cable Description	Length (m)	To	From
RF Cable	<1.0	PSA	EUT
USB cable	<1.0	Laptop	Interface Board
RJ 45 Cable	<1.0	Power Supply	EUT

2.8 Power Supply List and Details

Manufacturer	Description	Model	Part Number
BK Precision	DC Power Supply	1621A	D185052265

Note: EUT is AC powered only. A DC power supply was used for testing purposes only.

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)	Out of Band Emissions	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
FCC §15.407(h)	DFS	Note 1

- **Note 1:** please refer to the DFS report, Report number: R1304301-FCC client DFS

4 FCC §2.1091 & §15.407(f) - 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

W52 Band:

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>14.68</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>29.38</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5180</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>2.9</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>1.950</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.011</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>

W53 Band:

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>16.20</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>41.69</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5280</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>2.9</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>1.950</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.016</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>

W56 Band:

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>15.45</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>35.08</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5500</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>2.9</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>1.950</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.014</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>

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 by the EUT will be a -3.7 dBi gain chip antenna, and a 2.9 dBi gain dipole antenna which contains an N-type connector; therefore, the antennas comply with the antenna requirement.

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 μ H/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 C63.4-2009 measurement procedure. The specification used was FCC §15.207 limits.

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

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

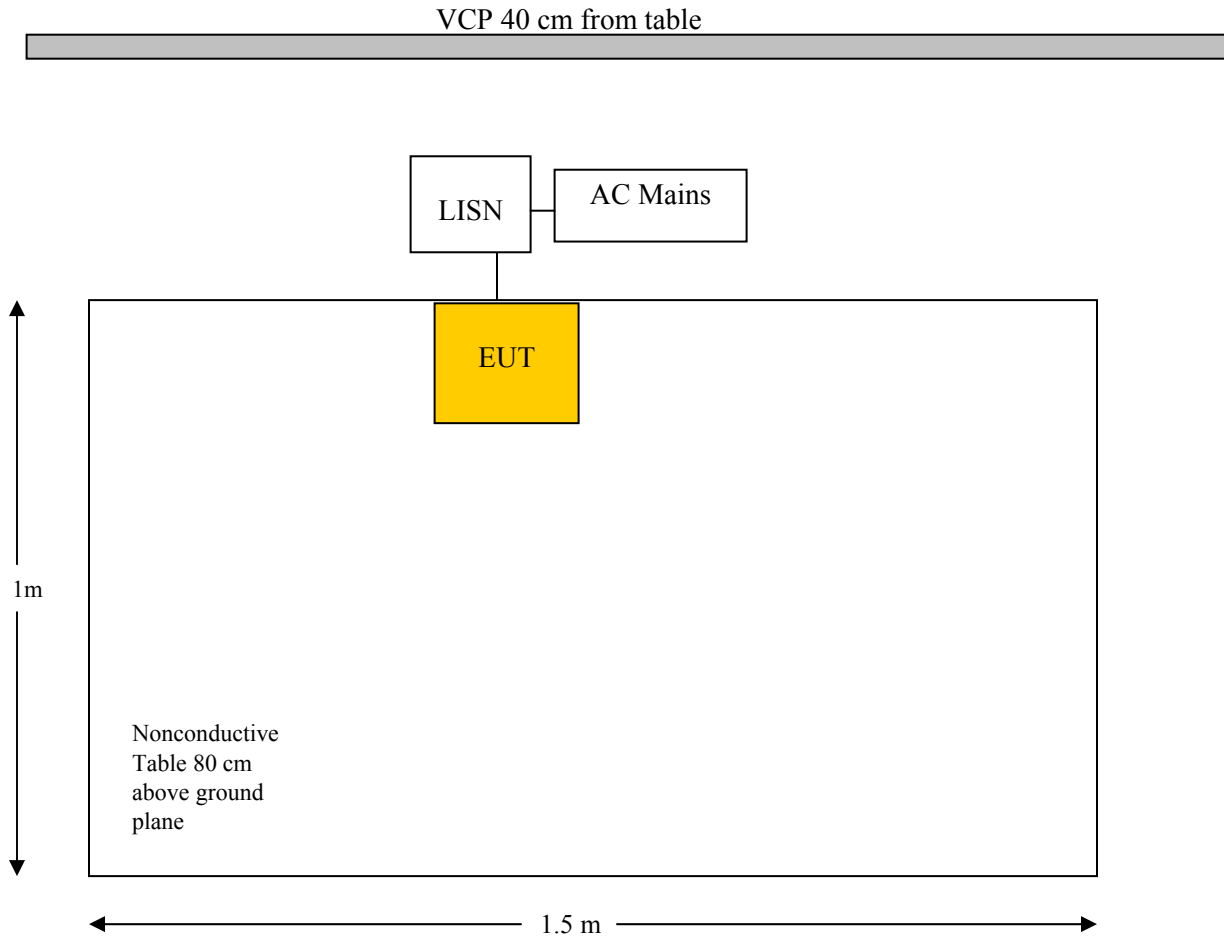
6.3 Test Procedure

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

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

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

6.4 Test Setup Block Diagram



6.5 Corrected Amplitude & Margin Calculation

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

$$CA = A_i + CL + \text{Atten}$$

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:

$$\text{Margin} = \text{Corrected Amplitude} - \text{Limit}$$

6.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100044	2013-04-23	1 year
Solar Electronics	LISN	9252-R-24-BNC	511205	2013-06-25	1 year
TTE	Filter, High Pass	H9962-150K-50-21378	K7133	2013-05-30	1 year

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

6.7 Test Environmental Conditions

Temperature:	20 °C
Relative Humidity:	58 %
ATM Pressure:	101.3 kPa

The testing was performed by Lionel Lara on 2013-08-05 in 5 m 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:

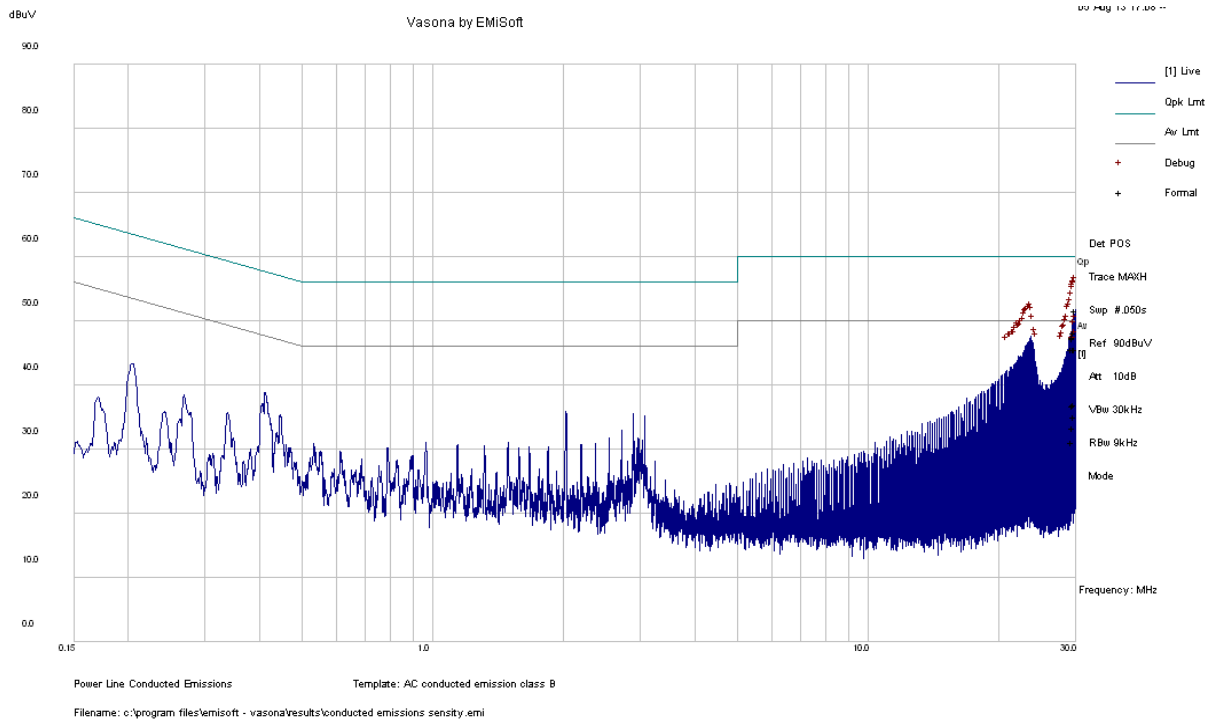
Transmitting Mode: Worst case with 5 GHz operating

Connection: 120 V/60 Hz, AC			
Margin (dB)	Frequency (MHz)	Conductor (Line/Neutral)	Range (MHz)
-4.42	30	Line	0.15-30

6.9 Conducted Emissions Test Plots and Data

Worst case in the 5 GHz Band:

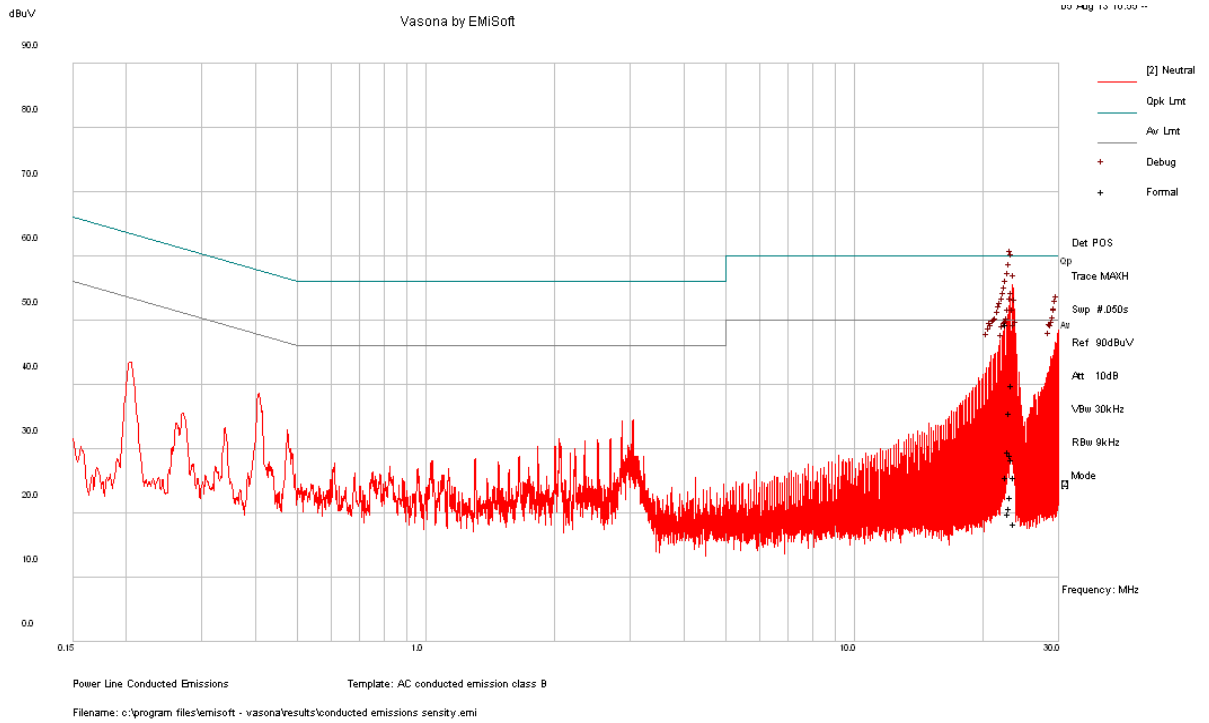
120 V, 60 Hz – Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
30	51.64	Line	60	-8.36	QP
29.81947	48.18	Line	60	-11.82	QP
29.65668	47.48	Line	60	-12.52	QP
29.62874	47.42	Line	60	-12.58	QP
29.819	45.67	Line	60	-14.33	QP
29.46753	45.59	Line	60	-14.41	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
30	45.58	Line	50	-4.42	Ave.
29.81947	37.03	Line	50	-12.97	Ave.
29.62874	36.8	Line	50	-13.2	Ave.
29.819	35.05	Line	50	-14.95	Ave.
29.65668	33.35	Line	50	-16.65	Ave.
29.46753	31.05	Line	50	-18.95	Ave.

120 V, 60 Hz – Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
22.74068	49.46	Neutral	60	-10.54	QP
23.10272	35.56	Neutral	60	-24.44	QP
22.95061	29.52	Neutral	60	-30.48	QP
23.26646	29.14	Neutral	60	-30.86	QP
23.44692	28.36	Neutral	60	-31.64	QP
23.61721	25.68	Neutral	60	-34.32	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
23.44692	39.86	Neutral	50	-10.14	Ave.
22.74068	25.54	Neutral	50	-24.46	Ave.
23.26646	22.57	Neutral	50	-27.43	Ave.
23.10272	20.85	Neutral	50	-29.15	Ave.
22.95061	20	Neutral	50	-30	Ave.
23.61721	18.39	Neutral	50	-31.61	Ave.

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		

As per FCC §15.407(b)(1)

(2) 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.

(3) 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.

7.2 Test Setup

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

The measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E section H: Unwanted emissions measurement, As well as ANSI C63.4: 2009 as described below:

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 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:

$$CA = A_i + CL + \text{Atten}$$

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:

$$\text{Margin} = \text{Corrected Amplitude} - \text{Limit}$$

7.5 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Cycle
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year
Sunol Science Corp	System Controller	SC99V	122303-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2012-06-18	1 Year
Hewlett Packard	Pre-amplifier	8447D	2944A06639	2013-06-09	1 Year
Mini-Circuits	Pre Amplifier	ZVA-183-S	570400946	2013-05-09	1 Year
EMCO	Horn antenna	3115	9511-4627	2012-10-17	1 Year
Rohde & Schwarz	EMI Test Receiver	ESCI 1166.5950K03	100337	2013-03-28	1 year

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

7.6 Test Environmental Conditions

Temperature:	18-22 °C
Relative Humidity:	45-48 %
ATM Pressure:	101.1-101.4 kPa

The testing was performed by Lionel Lara on 2013-05-14 to 2013-05-21 at 5m meter 3.

7.7 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15.205, 15.209 and 15.407 radiated emissions limits, and had the worst margin of:

5150-5250 MHz

Mode: Transmitting			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range, Mode (MHz)
-0.89	349.6863	Horizontal	30 to 1000, 802.11a
-1.93	10360	Horizontal	1 to 40000, 802.11a

5250-5350 MHz

Mode: Transmitting			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range (MHz)
-6.45	137.3993	Vertical	30 to 1000, 802.11a
-3.92	10520	Horizontal	1 to 40000, 802.11a

5470-5725 MHz

Mode: Transmitting			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range (MHz)
-8.39	130.494	Vertical	30 to 1000, 802.11a
-1.65	17010	Horizontal	1 to 40000, 802.11a

Note: The higher power setting (chip antenna settings) was used for all radiated emissions testing.

7.8 Radiated Emissions Test Result Data

1) Radiated Emission at 3 meters, 5150-5250 MHz Band, termination method was used.

30 MHz–1 GHz:

802.11a mode

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dB μ V/m)	Margin (dB)	Comment
349.6863	45.11	100	H	206	46	-0.89	QP
549.6785	41.23	112	V	339	46	-4.77	QP
134.7133	28.42	116	V	206	43.5	-15.08	QP
399.9098	24.04	301	H	185	46	-21.96	QP

802.11n-HT40 mode

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dB μ V/m)	Margin (dB)	Comment
349.6892	45.08	100	H	204	46	-0.92	QP
549.6844	41.2	110	V	334	46	-4.8	QP
134.7376	28.44	115	V	201	43.5	-15.06	QP
399.9109	24.12	289	H	185	46	-21.88	QP

Note: 1) All 30 MHz–1 GHz spurious are digital, other emissions are on the noise floor level. The worst case result was reported.

2) 802.11a/802.11n-HT20 is the same modulation, therefore only the worst case of the two was tested.

1 - 40 GHz:

802.11a Mode, Low Channel

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	46.34	206	144	V	38.33	6.14	26.98	63.83	74	-10.17	Peak
10360	48.13	129	133	H	38.33	6.14	26.98	65.62	74	-8.38	Peak
10360	32.97	206	144	V	38.33	6.14	26.98	50.46	54	-3.54	Ave
10360	34.58	129	133	H	38.33	6.14	26.98	52.07	54	-1.93	Ave
15540	35.19	153	127	V	38.43	7.47	25.92	55.17	74	-18.83	Peak
15540	38.75	176	100	H	38.43	7.47	25.92	58.73	74	-15.27	Peak
15540	19.74	153	127	V	38.43	7.47	25.92	39.72	54	-14.28	Ave
15540	22.99	176	100	H	38.43	7.47	25.92	42.97	54	-11.03	Ave
20720	31.91	0	100	V	34.4	9.36	29	46.67	74	-27.33	Peak
20720	31.91	0	100	H	34.4	9.36	29	46.67	74	-27.33	Peak
20720	17.19	0	100	V	34.4	9.36	29	31.95	54	-22.05	Ave
20720	17.19	0	100	H	34.4	9.36	29	31.95	54	-22.05	Ave

802.11a Mode, Middle Channel

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)	
Middle Channel 5200 MHz, measured at 3 meters											
10400	45.41	204	144	V	38.33	6.14	26.97	62.91	74	-11.09	Peak
10400	46.96	130	133	H	38.33	6.14	26.97	64.46	74	-9.54	Peak
10400	31.8	204	144	V	38.33	6.14	26.97	49.3	54	-4.7	Ave
10400	33.23	130	133	H	38.33	6.14	26.97	50.73	54	-3.27	Ave
15600	34.67	170	116	V	38.33	7.47	25.92	54.55	74	-19.45	Peak
15600	39.59	179	100	H	38.33	7.47	25.92	59.47	74	-14.53	Peak
15600	19.87	170	116	V	38.33	7.47	25.92	39.75	54	-14.25	Ave
15600	24.03	179	100	H	38.33	7.47	25.92	43.91	54	-10.09	Ave
20800	31.87	0	100	V	34.6	9.36	28.9	46.93	74	-27.07	Peak
20800	31.87	0	100	H	34.6	9.36	28.9	46.93	74	-27.07	Peak
20800	17.17	0	100	V	34.6	9.36	28.9	32.23	54	-21.77	Ave
20800	17.17	0	100	H	34.6	9.36	28.9	32.23	54	-21.77	Ave

802.11a Mode, High Channel

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)	
High Channel 5240 MHz, measured at 3 meters											
10480	44.75	206	100	V	38.34	6.14	26.93	62.3	74	-11.7	Peak
10480	44.84	129	131	H	38.34	6.14	26.93	62.39	74	-11.61	Peak
10480	30.81	206	100	V	38.34	6.14	26.93	48.36	54	-5.64	Ave
10480	31.44	129	131	H	38.34	6.14	26.93	48.99	54	-5.01	Ave
15720	37.86	158	114	V	38.19	7.47	25.97	57.55	74	-16.45	Peak
15720	42.82	179	100	H	38.19	7.47	25.97	62.51	74	-11.49	Peak
15720	22.49	158	114	V	38.19	7.47	25.97	42.18	54	-11.82	Ave
15720	27.2	179	100	H	38.19	7.47	25.97	46.89	54	-7.11	Ave
20960	32.62	0	100	V	34.6	9.36	29	47.58	74	-26.42	Peak
20960	32.62	0	100	H	34.6	9.36	29	47.58	74	-26.42	Peak
20960	17.55	0	100	V	34.6	9.36	29	32.51	54	-21.49	Ave
20960	17.55	0	100	H	34.6	9.36	29	32.51	54	-21.49	Ave

802.11n-HT40 Mode, Low Channel

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	41.22	210	129	V	38.33	6.14	26.97	58.72	74	-15.28	Peak
10380	43.87	131	136	H	38.33	6.14	26.97	61.37	74	-12.63	Peak
10380	27.49	210	129	V	38.33	6.14	26.97	44.99	54	-9.01	Ave
10380	30.69	131	136	H	38.33	6.14	26.97	48.19	54	-5.81	Ave
15570	33.86	177	100	V	38.33	7.47	25.92	53.74	74	-20.26	Peak
15570	38.36	178	100	H	38.33	7.47	25.92	58.24	74	-15.76	Peak
15570	18.81	177	100	V	38.33	7.47	25.92	38.69	54	-15.31	Ave
15570	21.58	178	100	H	38.33	7.47	25.92	41.46	54	-12.54	Ave
20760	31.74	0	100	V	34.6	9.36	28.9	46.8	74	-27.2	Peak
20760	31.74	0	100	H	34.6	9.36	28.9	46.8	74	-27.2	Peak
20760	17.16	0	100	V	34.6	9.36	28.9	32.22	54	-21.78	Ave
20760	17.16	0	100	H	34.6	9.36	28.9	32.22	54	-21.78	Ave

802.11n-HT40 Mode, High Channel

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)	
High Channel 5230 MHz, measured at 3 meters											
10460	41.3	204	143	V	38.34	6.14	26.93	58.85	74	-15.15	Peak
10460	42.53	132	131	H	38.34	6.14	26.93	60.08	74	-13.92	Peak
10460	28.37	204	143	V	38.34	6.14	26.93	45.92	54	-8.08	Ave
10460	29.19	132	131	H	38.34	6.14	26.93	46.74	54	-7.26	Ave
15690	35.56	160	100	V	38.19	7.47	25.97	55.25	74	-18.75	Peak
15690	40.28	176	100	H	38.19	7.47	25.97	59.97	74	-14.03	Peak
15690	20.28	160	100	V	38.19	7.47	25.97	39.97	54	-14.03	Ave
15690	23.86	176	100	H	38.19	7.47	25.97	43.55	54	-10.45	Ave
20920	32.11	0	100	V	34.6	9.36	29	47.07	74	-26.93	Peak
20920	32.11	0	100	H	34.6	9.36	29	47.07	74	-26.93	Peak
20920	17.32	0	100	V	34.6	9.36	29	32.28	54	-21.72	Ave
20920	17.32	0	100	H	34.6	9.36	29	32.28	54	-21.72	Ave

Note: 802.11a/802.11n-HT20 is the same modulation, therefore only the worst case of the two was tested.

2) Radiated Emission at 3 meters, 5250-5350 MHz Band, termination method was used.**30 MHz – 1 GHz**

802.11a Mode

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dB μ V/m)	Margin (dB)	Comment
137.3993	37.05	120	V	175	43.5	-6.45	QP
549.307	37.76	100	V	107	46	-8.24	QP
349.678	38.81	104	H	175	46	-7.19	QP
499.4328	27.84	203	V	131	46	-18.16	QP

802.11n-HT40 Mode

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dB μ V/m)	Margin (dB)	Comment
138.117	29.98	121	V	174	43.5	-13.52	QP
549.4583	37.75	98	V	108	46	-8.25	QP
349.6298	32.25	102	H	173	46	-13.75	QP
499.1295	23.7	202	V	131	46	-22.3	QP

Note: 1) All 30 MHz–1 GHz spurious are digital, other emissions are on the noise floor level. The worst case result was reported.

2) 802.11a/802.11n-HT20 is the same modulation, therefore only the worst case of the two was tested.

1 - 40 GHz:

802.11a Mode, Low Channel

Frequency (MHz)	S.A. Reading (dB μ V)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dB μ V/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	
Low Channel 5260 MHz, measured at 3 meters											
10520	43.61	159	161	V	38.34	7	26.9	62.05	74	-11.95	Peak
10520	44.17	215	129	H	38.34	7	26.9	62.61	74	-11.39	Peak
10520	30.27	159	161	V	38.34	7	26.9	48.71	54	-5.29	Ave
10520	31.64	215	129	H	38.34	7	26.9	50.08	54	-3.92	Ave
15780	38.37	157	100	V	37.93	8.35	26.01	58.64	74	-15.36	Peak
15780	44.21	181	100	H	37.93	8.35	26.01	64.48	74	-9.52	Peak
15780	23.19	157	100	V	37.93	8.35	26.01	43.46	54	-10.54	Ave
15780	28.3	181	100	H	37.93	8.35	26.01	48.57	54	-5.43	Ave
21040	32.35	0	100	V	34.6	9.36	29	47.31	74	-26.69	Peak
21040	32.35	0	100	H	34.6	9.36	29	47.31	74	-26.69	Peak
21040	17.36	0	100	V	34.6	9.36	29	32.32	54	-21.68	Ave
21040	17.36	0	100	H	34.6	9.36	29	32.32	54	-21.68	Ave

802.11a Mode, Middle Channel

Frequency (MHz)	S.A. Reading (dB μ V)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dB μ V/m)	FCC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	
Middle Channel 5280 MHz, measured at 3 meters											
10560	45.16	157	100	V	38.42	7.05	26.98	63.65	74	-10.35	Peak
10560	42.19	129	100	H	38.42	7.05	26.98	60.68	74	-13.32	Peak
10560	31.24	157	100	V	38.42	7.05	26.98	49.73	54	-4.27	Ave
10560	28.16	129	100	H	38.42	7.05	26.98	46.65	54	-7.35	Ave
15840	38.81	162	100	V	37.93	8.44	26.04	59.14	74	-14.86	Peak
15840	43.61	178	100	H	37.93	8.44	26.04	63.94	74	-10.06	Peak
15840	22.6	162	100	V	37.93	8.44	26.04	42.93	54	-11.07	Ave
15840	27.3	178	100	H	37.93	8.44	26.04	47.63	54	-6.37	Ave
21120	32.24	0	100	V	34.6	9.36	29	47.2	74	-26.8	Peak
21120	32.24	0	100	H	34.6	9.36	29	47.2	74	-26.8	Peak
21120	17.41	0	100	V	34.6	9.36	29	32.37	54	-21.63	Ave
21120	17.41	0	100	H	34.6	9.36	29	32.37	54	-21.63	Ave

802.11a Mode, High Channel

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)	
High Channel 5320 MHz, measured at 3 meters											
10640	44.72	160	100	V	38.42	7.07	26.92	63.29	74	-10.71	Peak
10640	40.86	129	128	H	38.42	7.07	26.92	59.43	74	-14.57	Peak
10640	31.03	160	100	V	38.42	7.07	26.92	49.6	54	-4.4	Ave
10640	27.05	129	128	H	38.42	7.07	26.92	45.62	54	-8.38	Ave
15960	39.41	204	100	V	37.87	8.39	26.05	59.62	74	-14.38	Peak
15960	43.97	182	100	H	37.87	8.39	26.05	64.18	74	-9.82	Peak
15960	24.46	204	100	V	37.87	8.39	26.05	44.67	54	-9.33	Ave
15960	28.08	182	100	H	37.87	8.39	26.05	48.29	54	-5.71	Ave
21280	33.17	0	100	V	34.6	9.4	29	48.17	74	-25.83	Peak
21280	33.17	0	100	H	34.6	9.4	29	48.17	74	-25.83	Peak
21280	18.07	0	100	V	34.6	9.4	29	33.07	54	-20.93	Ave
21280	18.07	0	100	H	34.6	9.4	29	33.07	54	-20.93	Ave

802.11n-HT40 Mode, Low Channel

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 5270 MHz, measured at 3 meters											
10540	41.18	158	155	V	38.34	7	26.9	59.62	74	-14.38	Peak
10540	41.39	214	160	H	38.34	7	26.9	59.83	74	-14.17	Peak
10540	28.14	158	155	V	38.34	7	26.9	46.58	54	-7.42	Ave
10540	27.8	214	160	H	38.34	7	26.9	46.24	54	-7.76	Ave
15810	36.84	157	100	V	37.93	8.35	26.01	57.11	74	-16.89	Peak
15810	42.62	180	100	H	37.93	8.35	26.01	62.89	74	-11.11	Peak
15810	21.37	157	100	V	37.93	8.35	26.01	41.64	54	-12.36	Ave
15810	26.18	180	100	H	37.93	8.35	26.01	46.45	54	-7.55	Ave
21080	32.06	0	100	V	34.6	9.36	29	47.02	74	-26.98	Peak
21080	32.06	0	100	H	34.6	9.36	29	47.02	74	-26.98	Peak
21080	17.19	0	100	V	34.6	9.36	29	32.15	54	-21.85	Ave
21080	17.19	0	100	H	34.6	9.36	29	32.15	54	-21.85	Ave

802.11n-HT40 Mode, High Channel

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)	
High Channel 5310 MHz, measured at 3 meters											
10620	38.78	156	160	V	38.42	7.07	26.92	57.35	74	-16.65	Peak
10620	39.24	209	100	H	38.42	7.07	26.92	57.81	74	-16.19	Peak
10620	25.33	156	160	V	38.42	7.07	26.92	43.9	54	-10.1	Ave
10620	25.69	209	100	H	38.42	7.07	26.92	44.26	54	-9.74	Ave
15930	39.16	185	100	V	37.87	8.39	26.05	59.37	74	-14.63	Peak
15930	43.84	183	100	H	37.87	8.39	26.05	64.05	74	-9.95	Peak
15930	22.61	185	100	V	37.87	8.39	26.05	42.82	54	-11.18	Ave
15930	27.48	183	100	H	37.87	8.39	26.05	47.69	54	-6.31	Ave
21240	32.82	0	100	V	34.6	9.4	29	47.82	74	-26.18	Peak
21240	32.82	0	100	H	34.6	9.4	29	47.82	74	-26.18	Peak
21240	18.09	0	100	V	34.6	9.4	29	33.09	54	-20.91	Ave
21240	18.09	0	100	H	34.6	9.4	29	33.09	54	-20.91	Ave

Note: 802.11a/802.11n-HT20 is the same modulation, therefore only the worst case of the two was tested.

3) Radiated Emission at 3 meters, 5470-5725 MHz Band, termination method was used**30 MHz – 1 GHz**

802.11a Mode

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dB μ V/m)	Margin (dB)	Comment
130.494	35.11	118	V	189	43.5	-8.39	QP
550.028	36.94	100	V	211	46	-9.06	QP
500.395	23.3	111	V	222	46	-22.7	QP
350.0093	26.78	247	H	180	46	-19.22	QP

802.11n-HT40 Mode

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dB μ V/m)	Margin (dB)	Comment
138.139	28.05	121	V	190	43.5	-15.45	QP
549.511	37.36	99	V	212	46	-8.64	QP
499.8538	28.57	108	V	246	46	-17.43	QP
349.8328	27.11	245	H	182	46	-18.89	QP

Note: 1) All 30 MHz–1 GHz spurious are digital, other emissions are on the noise floor level. The worst case result was reported.

2) 802.11a/802.11n-HT20 is the same modulation, therefore only the worst case of the two was tested.

1 - 40 GHz:

802.11a Mode, Low Channel

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 5500 MHz, measured at 3 meters											
11000	38.18	189	100	V	38.38	7.36	26.92	57	74	-17	Peak
11000	41.92	232	136	H	38.38	7.36	26.92	60.74	74	-13.26	Peak
11000	24.92	189	100	V	38.38	7.36	26.92	43.74	54	-10.26	Ave
11000	28.45	232	136	H	38.38	7.36	26.92	47.27	54	-6.73	Ave
16500	37.88	150	100	V	38.67	8.5	26.1	58.95	74	-15.05	Peak
16500	42.91	258	100	H	38.67	8.5	26.1	63.98	74	-10.02	Peak
16500	22.13	150	100	V	38.67	8.5	26.1	43.2	54	-10.8	Ave
16500	25.55	258	100	H	38.67	8.5	26.1	46.62	54	-7.38	Ave
22000	31.41	0	100	V	34.9	9.55	29.1	46.76	74	-27.24	Peak
22000	31.41	0	100	H	34.9	9.55	29.1	46.76	74	-27.24	Peak
22000	16.83	0	100	V	34.9	9.55	29.1	32.18	54	-21.82	Ave
22000	16.83	0	100	H	34.9	9.55	29.1	32.18	54	-21.82	Ave

802.11a Mode, Middle Channel

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)	
Middle Channel 5580 MHz, measured at 3 meters											
11160	43.62	157	105	V	38.7	7.52	26.94	62.9	74	-11.1	Peak
11160	43.79	37	120	H	38.7	7.52	26.94	63.07	74	-10.93	Peak
11160	30.59	157	105	V	38.7	7.52	26.94	49.87	54	-4.13	Ave
11160	31	37	120	H	38.7	7.52	26.94	50.28	54	-3.72	Ave
16740	39.41	156	100	V	39.84	8.63	26.12	61.76	74	-12.24	Peak
16740	43.19	255	110	H	39.84	8.63	26.12	65.54	74	-8.46	Peak
16740	23.1	156	100	V	39.84	8.63	26.12	45.45	54	-8.55	Ave
16740	26.87	255	110	H	39.84	8.63	26.12	49.22	54	-4.78	Ave
22320	32.16	0	100	V	34.9	9.6	29.1	47.56	74	-26.44	Peak
22320	32.16	0	100	H	34.9	9.6	29.1	47.56	74	-26.44	Peak
22320	17.03	0	100	V	34.9	9.6	29.1	32.43	54	-21.57	Ave
22320	17.03	0	100	H	34.9	9.6	29.1	32.43	54	-21.57	Ave

802.11a Mode, High Channel

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)	
High Channel 5700 MHz, measured at 3 meters											
11400	42.47	150	126	V	38.88	7.57	27	61.92	74	-12.08	Peak
11400	45.59	237	146	H	38.88	7.57	27	65.04	74	-8.96	Peak
11400	29.84	150	126	V	38.88	7.57	27	49.29	54	-4.71	Ave
11400	32.57	237	146	H	38.88	7.57	27	52.02	54	-1.98	Ave
17100	39.58	149	100	V	42.64	8.66	26.03	64.85	74	-9.15	Peak
17100	40.59	248	110	H	42.64	8.66	26.03	65.86	74	-8.14	Peak
17100	22.82	149	100	V	42.64	8.66	26.03	48.09	54	-5.91	Ave
17100	23.69	248	110	H	42.64	8.66	26.03	48.96	54	-5.04	Ave
22800	31.98	0	100	V	35.4	9.74	28.9	48.22	74	-25.78	Peak
22800	31.98	0	100	H	35.4	9.74	28.9	48.22	74	-25.78	Peak
22800	17.29	0	100	V	35.4	9.74	28.9	33.53	54	-20.47	Ave
22800	17.29	0	100	H	35.4	9.74	28.9	33.53	54	-20.47	Ave

802.11n-HT40 Mode, Low Channel

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 5510 MHz, measured at 3 meters											
11020	38.59	156	140	V	38.38	7.36	26.92	57.41	74	-16.59	Peak
11020	41.63	163	128	H	38.38	7.36	26.92	60.45	74	-13.55	Peak
11020	21.39	156	140	V	38.38	7.36	26.92	40.21	54	-13.79	Ave
11020	23.53	163	128	H	38.38	7.36	26.92	42.35	54	-11.65	Ave
16530	36.86	202	100	V	38.67	8.5	26.1	57.93	74	-16.07	Peak
16530	42.84	238	100	H	38.67	8.5	26.1	63.91	74	-10.09	Peak
16530	20.69	202	100	V	38.67	8.5	26.1	41.76	54	-12.24	Ave
16530	24.88	238	100	H	38.67	8.5	26.1	45.95	54	-8.05	Ave
22040	30.99	0	100	V	34.9	9.55	29.1	46.34	74	-27.66	Peak
22040	30.99	0	100	H	34.9	9.55	29.1	46.34	74	-27.66	Peak
22040	16.47	0	100	V	34.9	9.55	29.1	31.82	54	-22.18	Ave
22040	16.47	0	100	H	34.9	9.55	29.1	31.82	54	-22.18	Ave

802.11n-HT40 Mode, Middle Channel

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 5550 MHz, measured at 3 meters											
11050	39.21	156	144	V	38.7	7.52	26.94	58.49	74	-15.51	Peak
11050	44.66	163	141	H	38.7	7.52	26.94	63.94	74	-10.06	Peak
11050	22.85	156	144	V	38.7	7.52	26.94	42.13	54	-11.87	Ave
11050	27.99	163	141	H	38.7	7.52	26.94	47.27	54	-6.73	Ave
16550	37.97	215	100	V	39.84	8.63	26.12	60.32	74	-13.68	Peak
16550	42.39	237	100	H	39.84	8.63	26.12	64.74	74	-9.26	Peak
16550	20.81	215	100	V	39.84	8.63	26.12	43.16	54	-10.84	Ave
16550	24.84	237	100	H	39.84	8.63	26.12	47.19	54	-6.81	Ave
22050	32.08	0	100	V	35	9.6	29.1	47.58	74	-26.42	Peak
22050	32.08	0	100	H	35	9.6	29.1	47.58	74	-26.42	Peak
22050	17.17	0	100	V	35	9.6	29.1	32.67	54	-21.33	Ave
22050	17.17	0	100	H	35	9.6	29.1	32.67	54	-21.33	Ave

802.11n-HT40 Mode, High Channel

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)	
High Channel 5670 MHz, measured at 3 meters											
11340	41.18	151	100	V	38.88	7.57	27	60.63	74	-13.37	Peak
11340	46.82	228	149	H	38.88	7.57	27	66.27	74	-7.73	Peak
11340	26.6	151	100	V	38.88	7.57	27	46.05	54	-7.95	Ave
11340	32.14	228	149	H	38.88	7.57	27	51.59	54	-2.41	Ave
17010	37.65	131	100	V	41.83	8.61	26.03	62.06	74	-11.94	Peak
17010	44.71	234	100	H	41.83	8.61	26.03	69.12	74	-4.88	Peak
17010	21.88	131	100	V	41.83	8.61	26.03	46.29	54	-7.71	Ave
17010	27.89	23	100	H	41.83	8.66	26.03	52.35	54	-1.65	Ave
22680	32.1	0	100	V	35.4	9.74	28.9	48.34	74	-25.66	Peak
22680	32.1	0	100	H	35.4	9.74	28.9	48.34	74	-25.66	Peak
22680	17.06	0	100	V	35.4	9.74	28.9	33.3	54	-20.7	Ave
22680	17.06	0	100	H	35.4	9.74	28.9	33.3	54	-20.7	Ave

Note: 802.11a/802.11n-HT20 is the same modulation, therefore only the worst case of the two was tested.

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

8.1 Applicable Standard

FCC §15.407(a)

8.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section C: Emission bandwidth and section D: 99 Percent Occupied Bandwidth

8.3 Test Equipment List and Details

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

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

8.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

The testing was performed by Lionel Lara on 2013-05-07 in the RF site.

8.5 Test Results

5150-5250 MHz Band

802.11a mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5180	19.097	16.4574	Compliant
Middle	5200	19.633	16.4423	Compliant
High	5240	18.834	16.4454	Compliant

802.11n-HT20 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5180	20.327	17.6982	Compliant
Middle	5200	19.975	17.7053	Compliant
High	5240	19.957	17.7087	Compliant

802.11n-HT40 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5190	38.696	36.2337	Compliant
High	5230	39.106	36.2670	Compliant

5250-5350 MHz Band

802.11a mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5260	19.221	16.4618	Compliant
Middle	5280	19.444	16.4450	Compliant
High	5320	19.638	16.4672	Compliant

802.11n-HT20 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5260	19.896	17.7017	Compliant
Middle	5280	20.028	17.6862	Compliant
High	5320	20.148	17.6787	Compliant

802.11n-HT40 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5270	39.357	36.2795	Compliant
High	5310	38.581	36.2617	Compliant

5470-5725 MHz Band

802.11a mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5500	20.245	16.4740	Compliant
Middle	5580	19.656	16.4711	Compliant
High	5700	20.057	16.4802	Compliant

802.11n-HT20 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5500	19.952	17.6797	Compliant
Middle	5580	20.118	17.7173	Compliant
High	5700	20.596	17.7127	Compliant

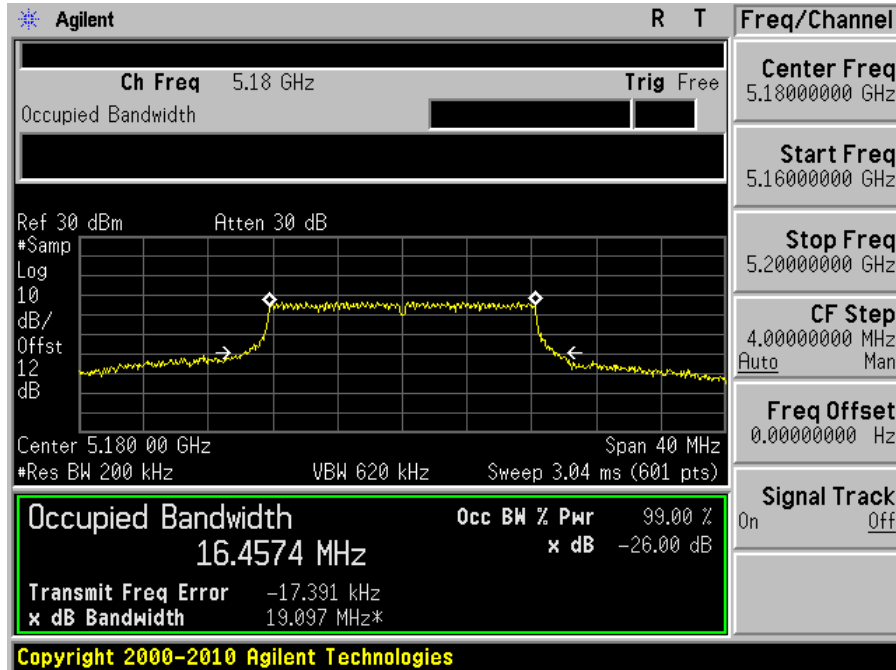
802.11n-HT40 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)	Results
Low	5510	39.399	36.2844	Compliant
Middle	5550	39.344	36.2820	Compliant
High	5670	39.159	36.2979	Compliant

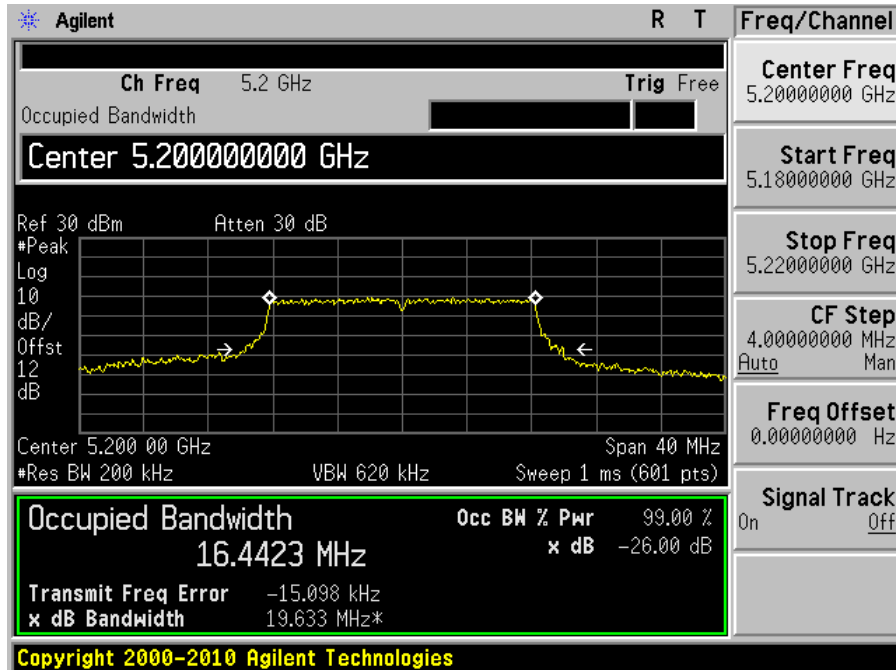
Note: The higher power setting (chip antenna settings) was used for all occupied bandwidth testing.

5150-5250 MHz Band

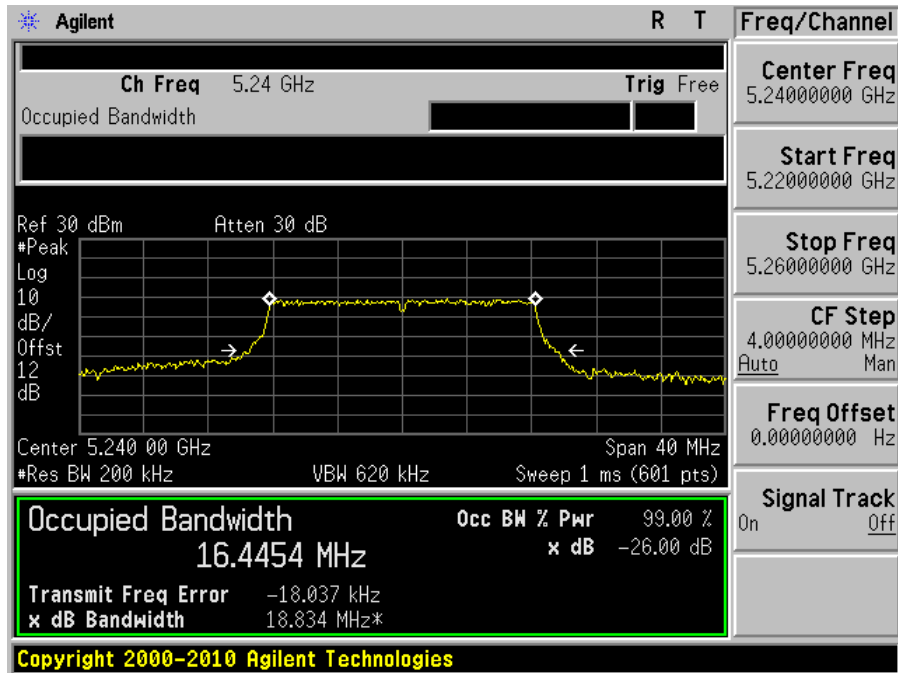
802.11a mode, 5180 MHz



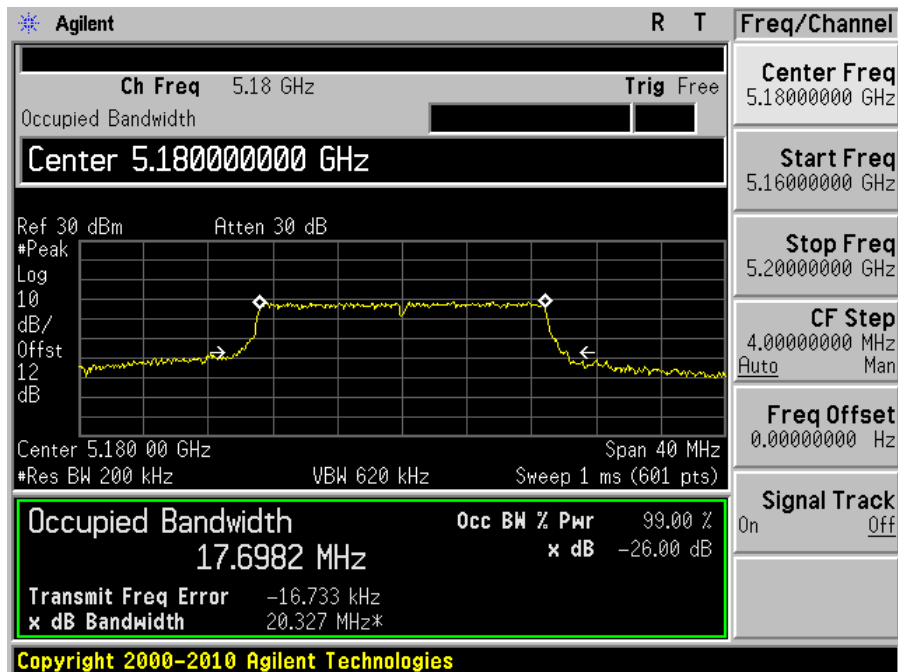
802.11a mode, 5200 MHz



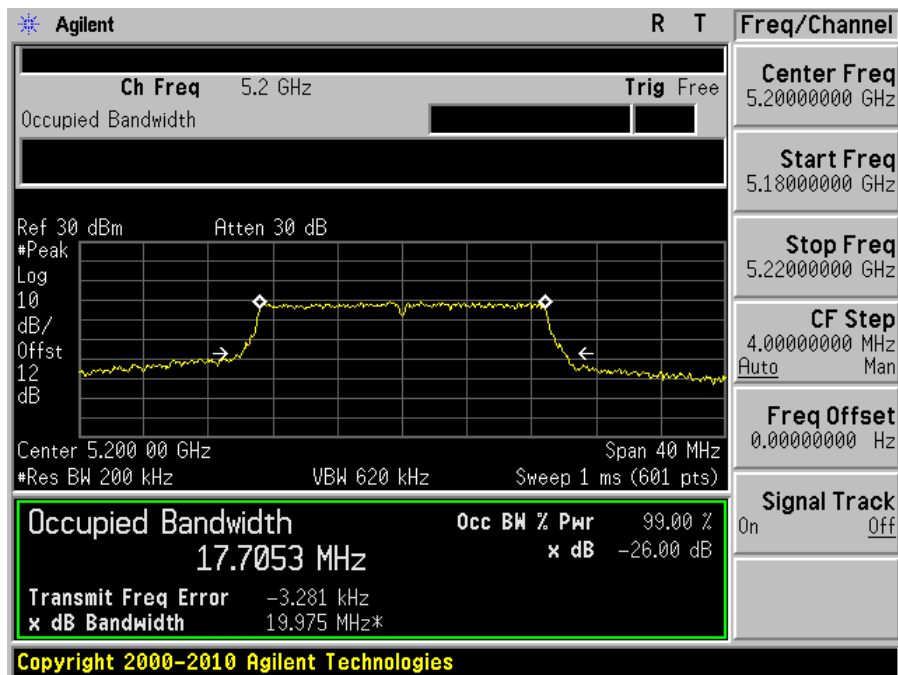
802.11a mode, 5240 MHz



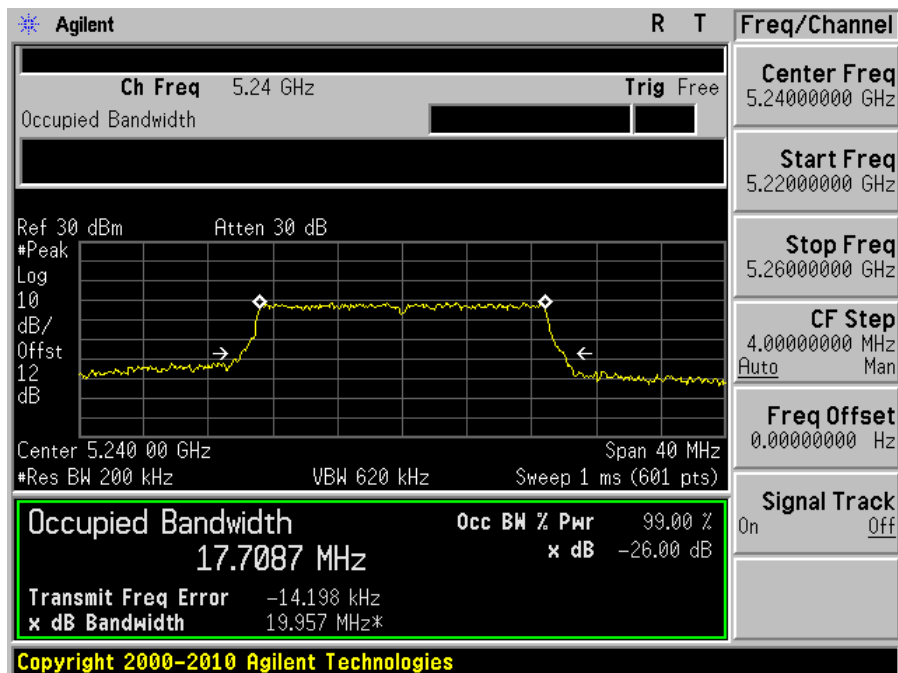
802.11n-HT20 mode, 5180 MHz



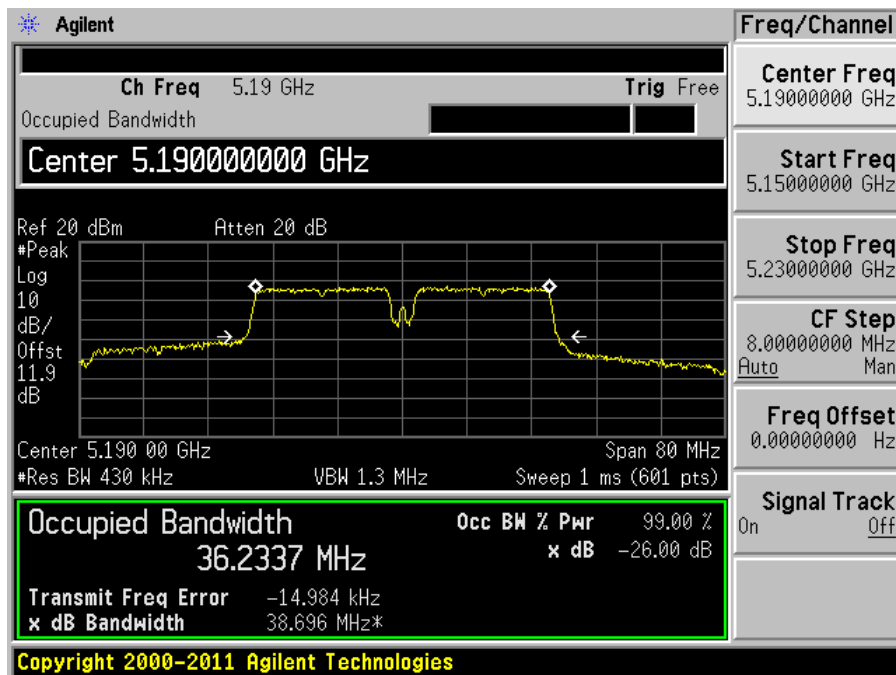
802.11n-HT20 mode, 5200 MHz



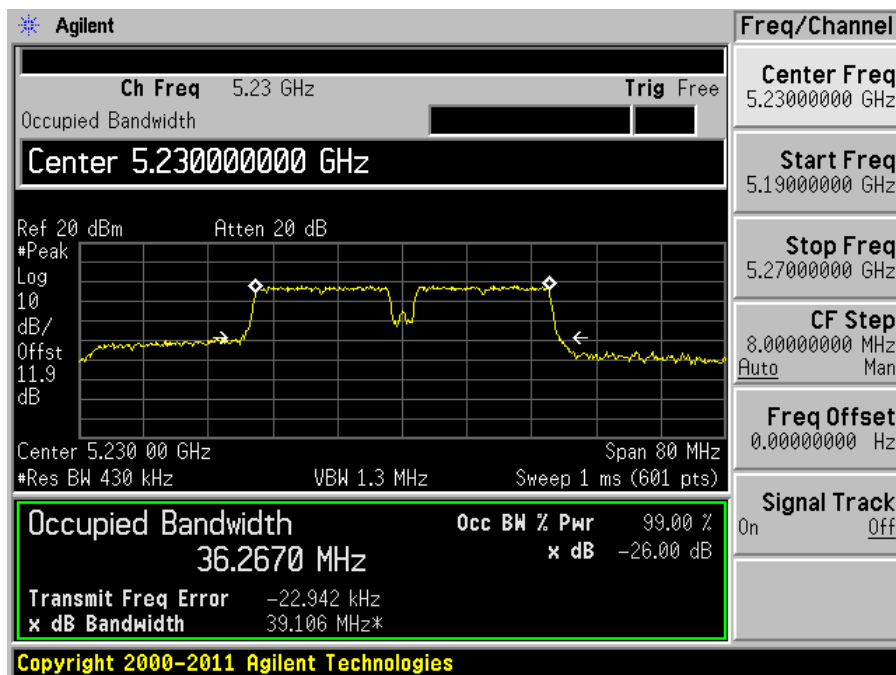
802.11n-HT20 mode, 5240 MHz



802.11n-HT40 mode, 5190 MHz

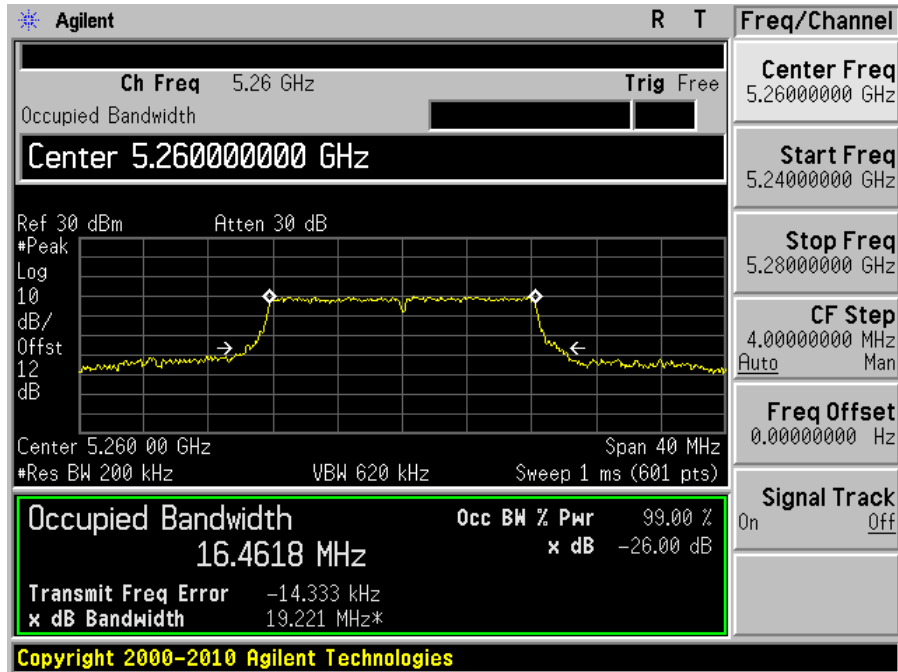


802.11n-HT40 mode, 5230 MHz

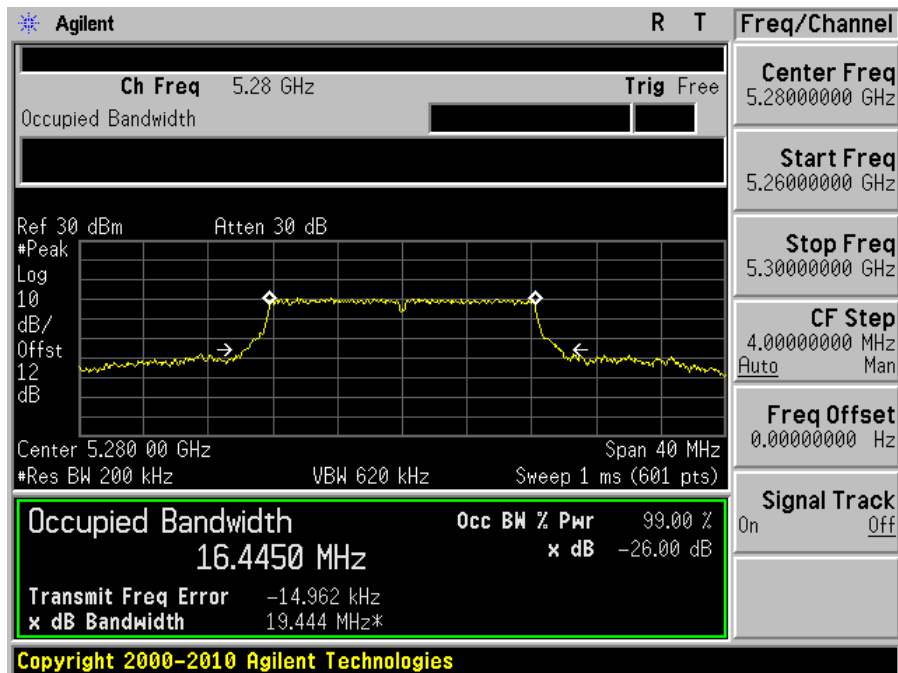


5250-5350 MHz Band

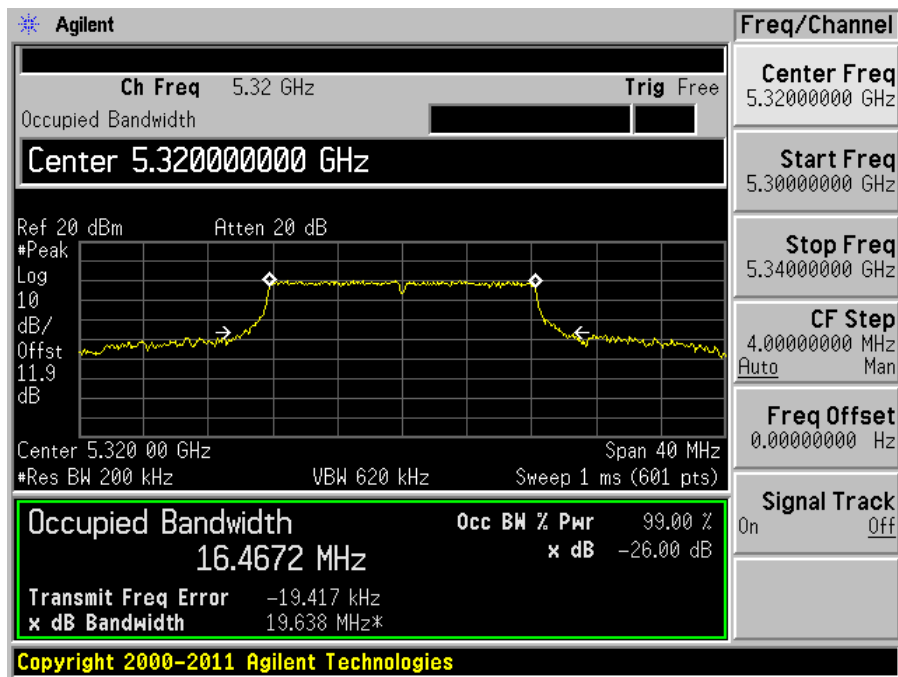
802.11a mode, 5260 MHz



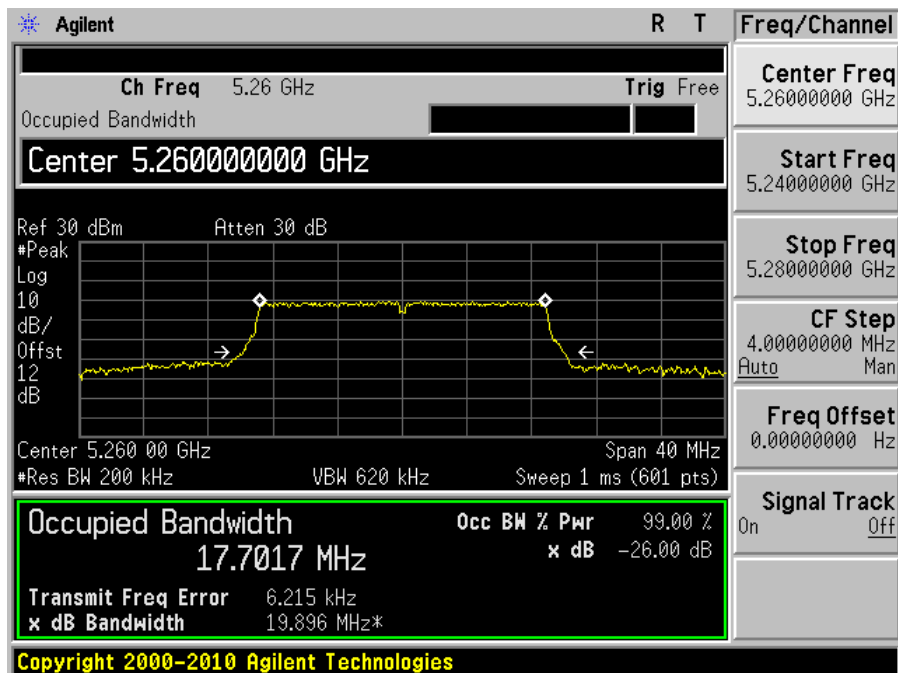
802.11a mode, 5280 MHz



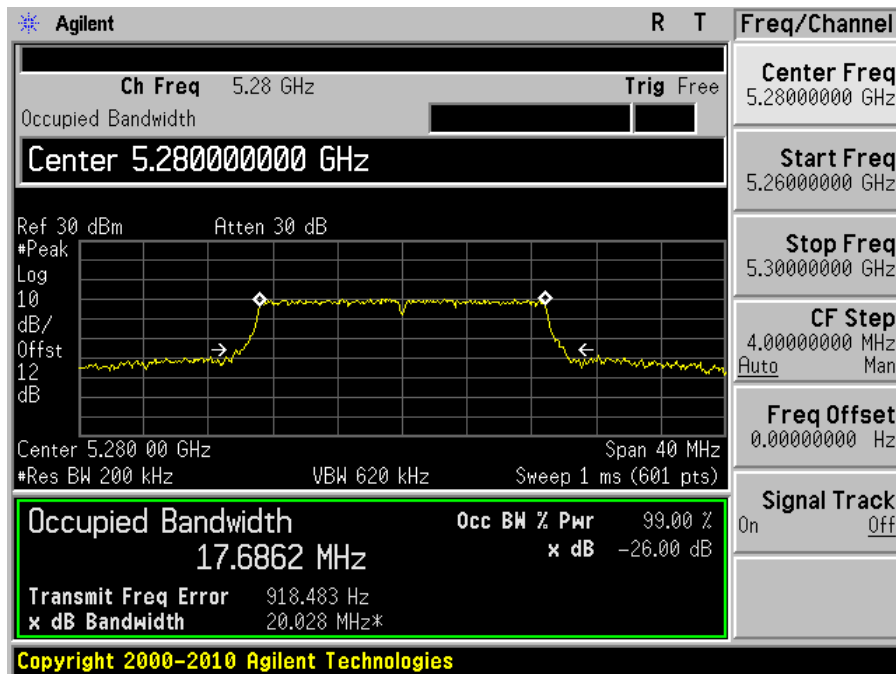
802.11a mode, 5320 MHz



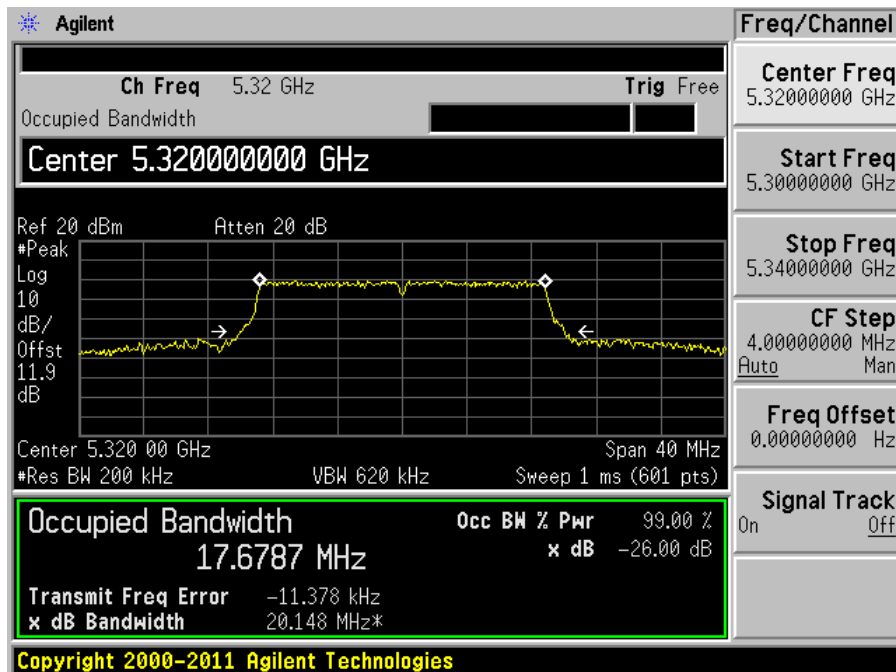
802.11n-HT20 mode, 5260 MHz



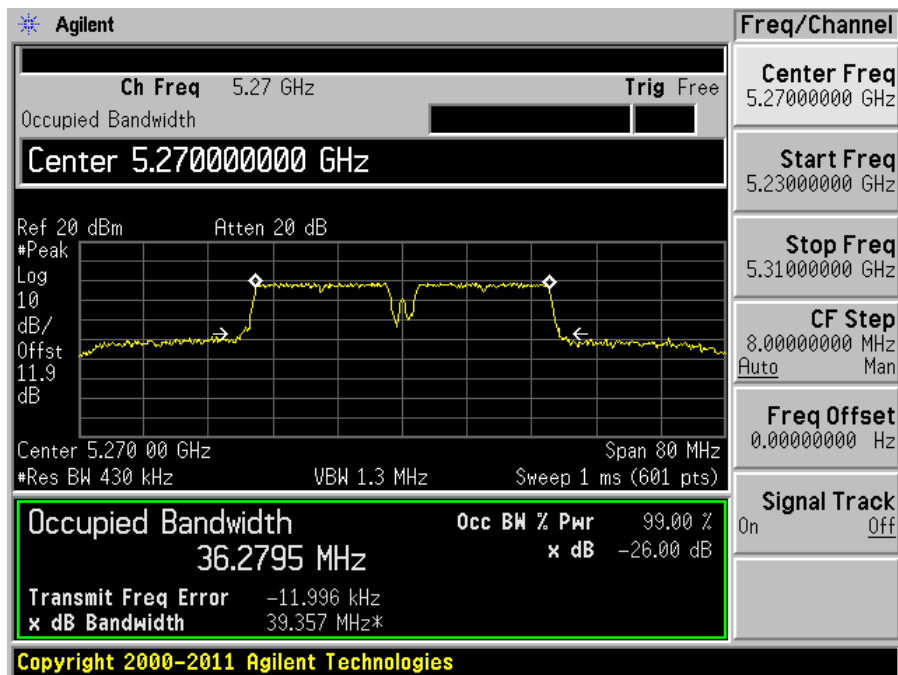
802.11n-HT20 mode, 5280 MHz



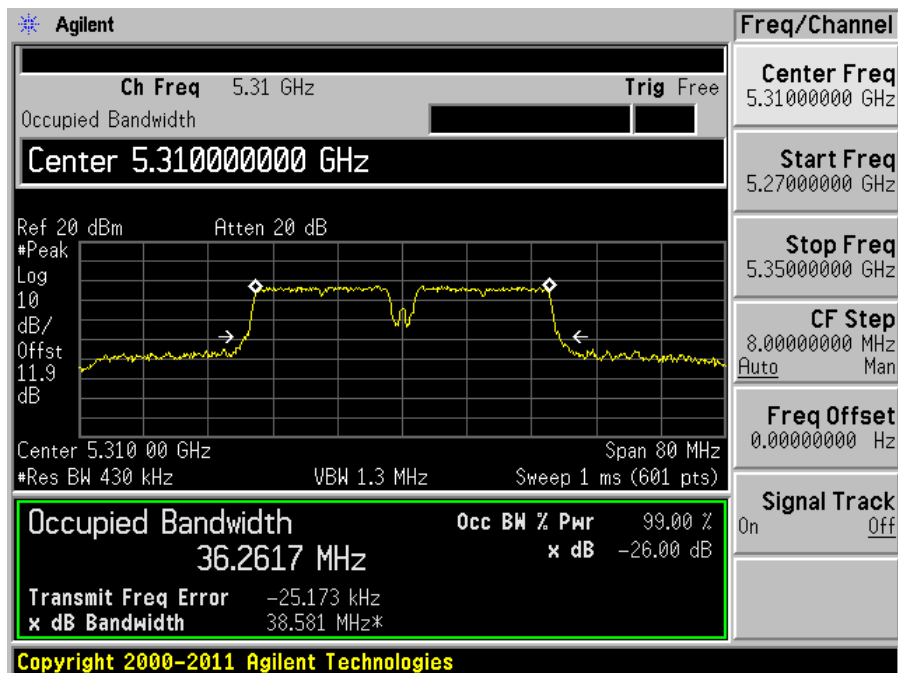
802.11n-HT20 mode, 5320 MHz



802.11n-HT40 mode, 5270 MHz

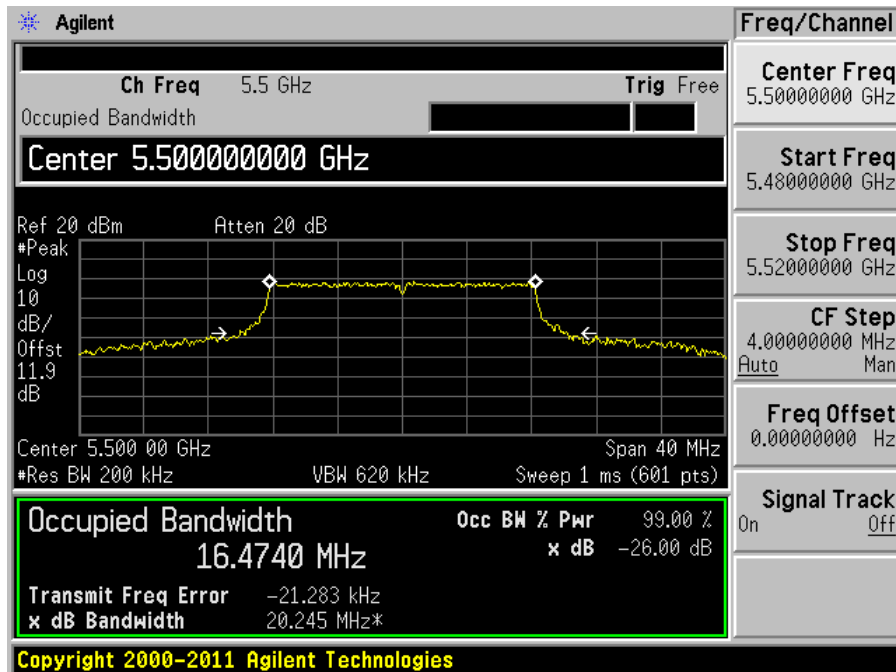


802.11n-HT40 mode, 5310 MHz

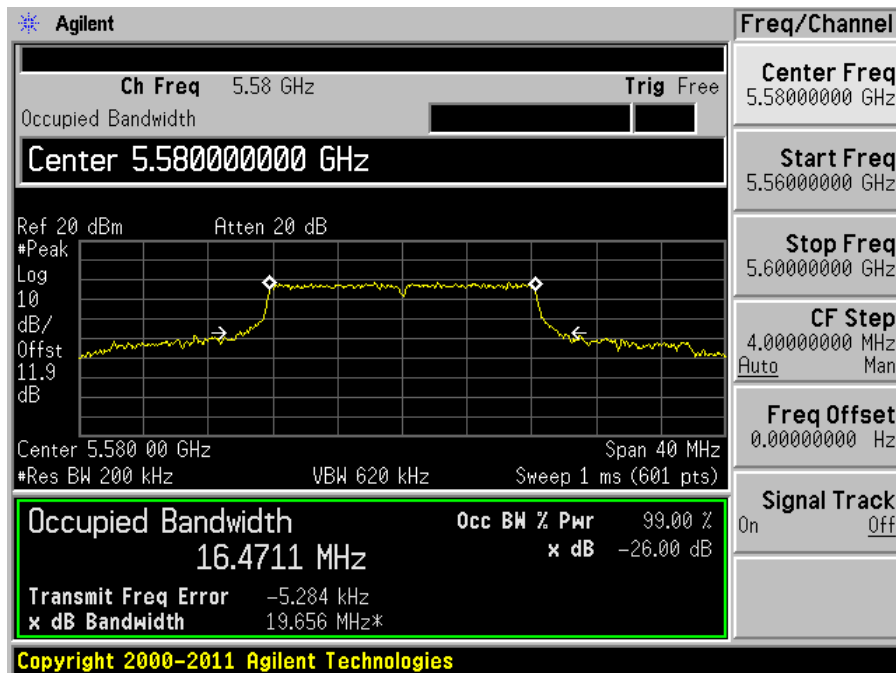


5470-5725 MHz Band

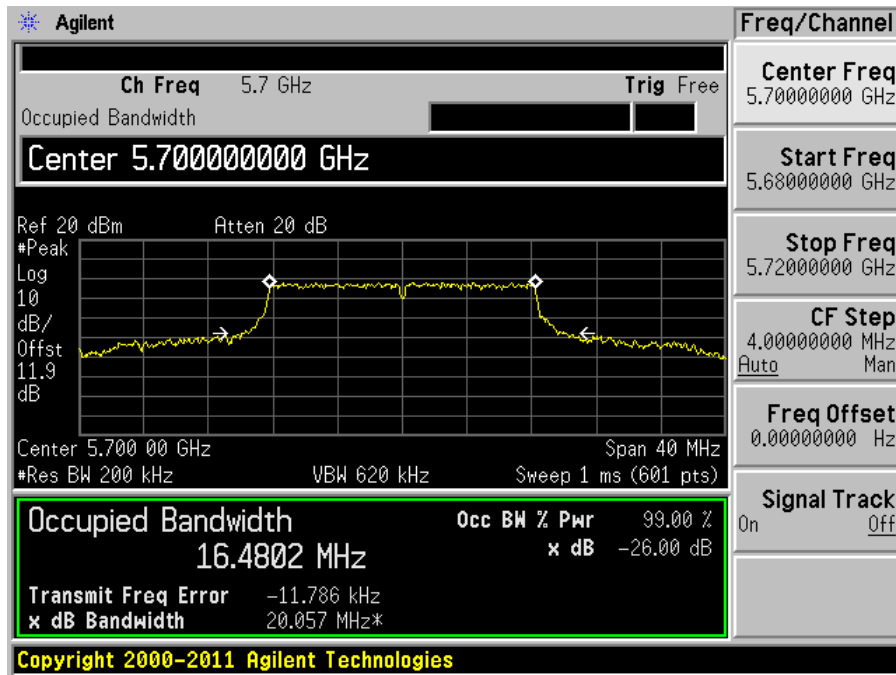
802.11a mode, 5500 MHz



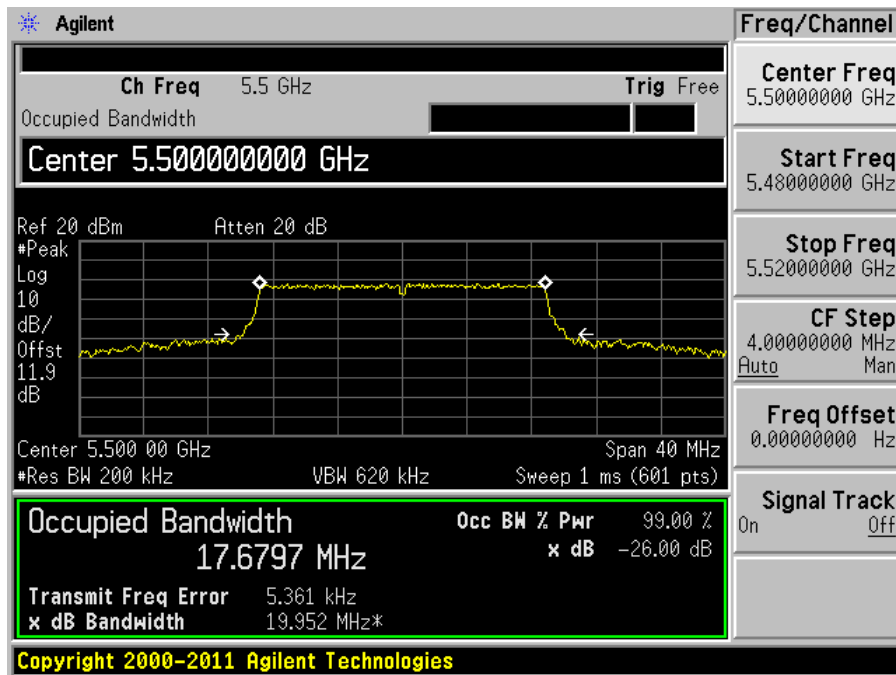
802.11a mode, 5580 MHz



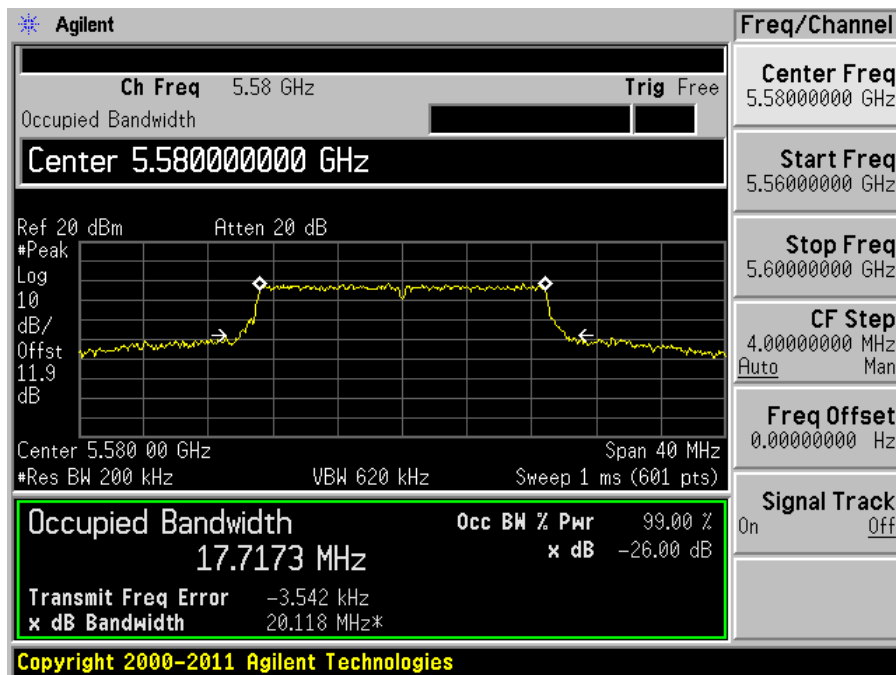
802.11a mode, 5700 MHz



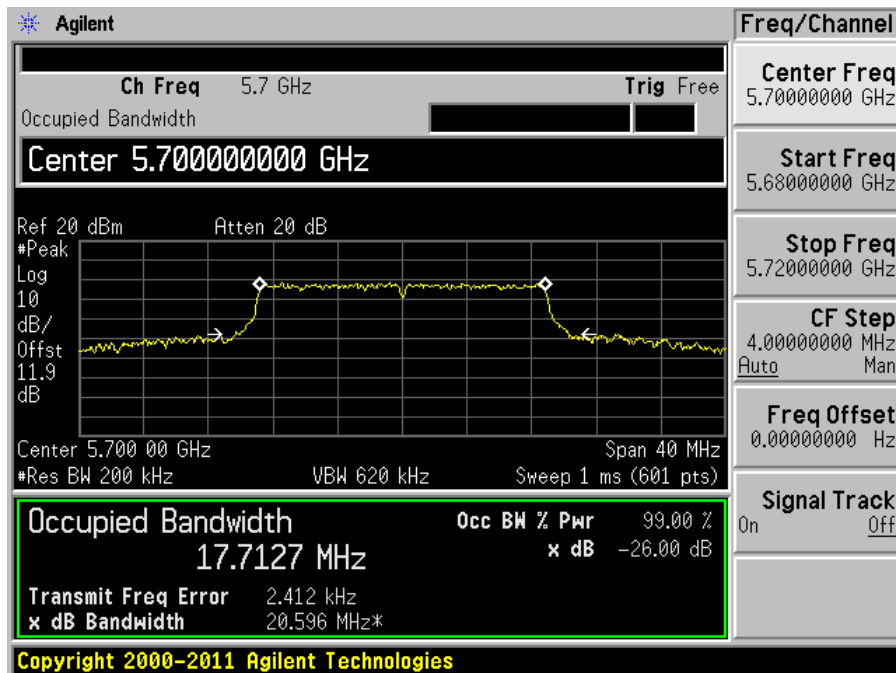
802.11n-HT20 mode, 5500 MHz



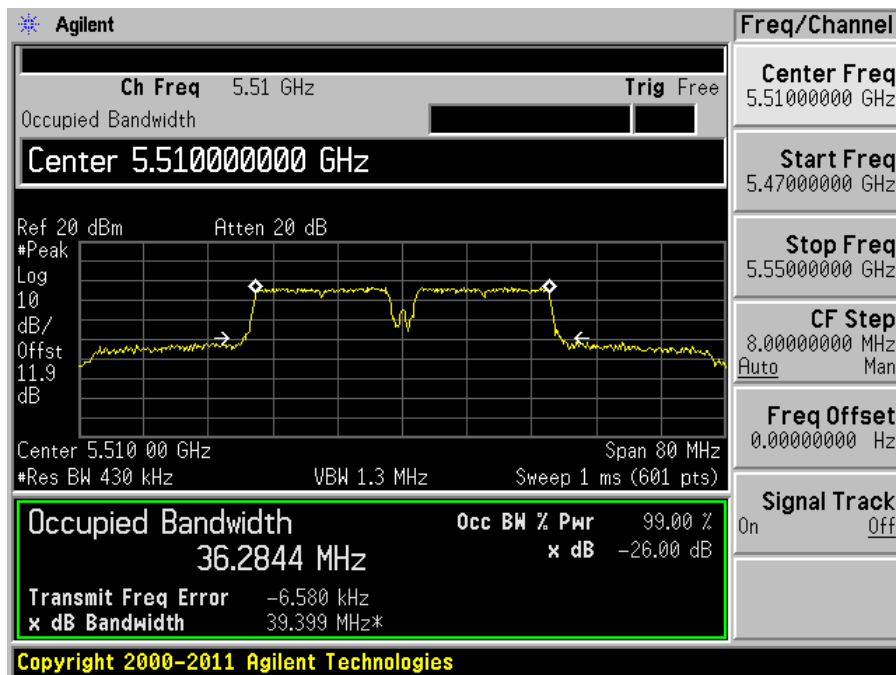
802.11n-HT20 mode, 5580 MHz



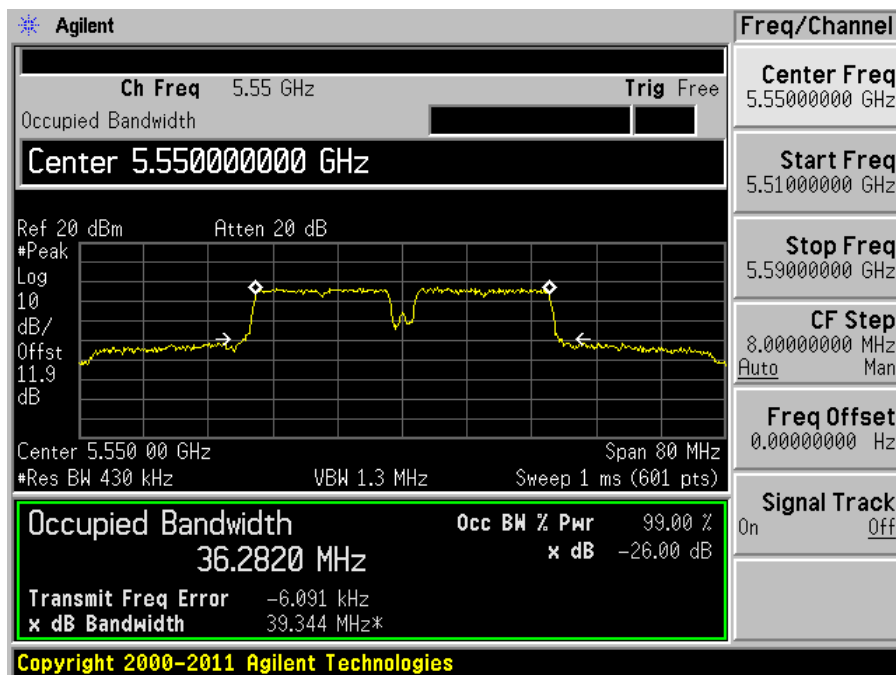
802.11n-HT20 mode, 5700 MHz



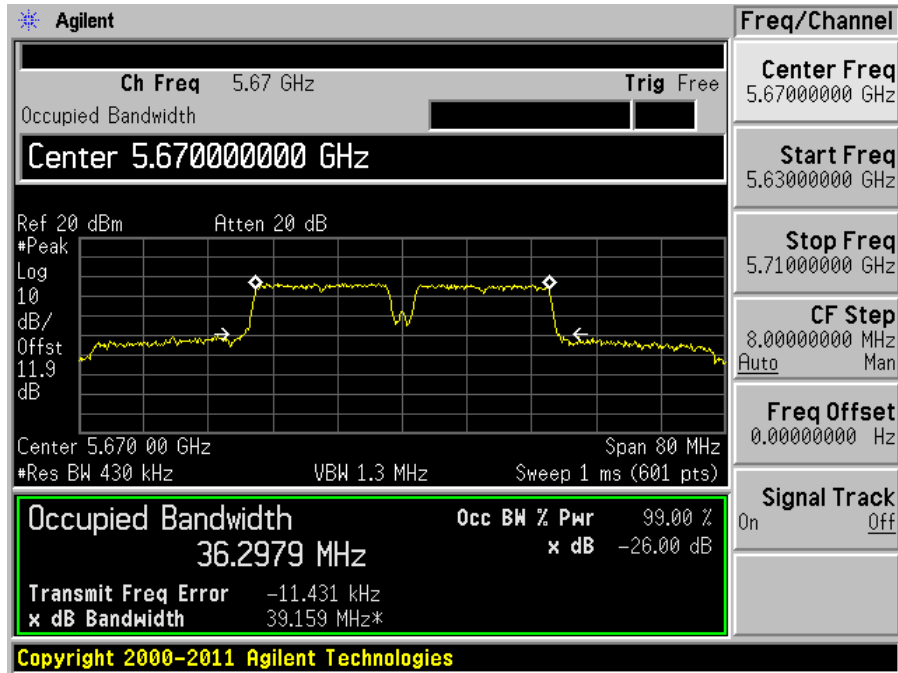
802.11n-HT40 mode, 5510 MHz



802.11n-HT40 mode, 5550 MHz



802.11n-HT40 mode, 5670 MHz



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

9.1 Applicable Standard

According to FCC §15.407(a)(2)

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.

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

The measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section E: Maximum conducted output power

9.3 Test Equipment List and Details

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

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

9.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

The testing was performed by Lionel Lara on 2013-05-07 in the RF site.

9.5 Test Results

Chip Antenna:

5150 - 5250 MHz

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a mode					
Low	5180	14.16	17	-2.84	19
Middle	5200	14.26	17	-2.74	19
High	5240	14.25	17	-2.75	19
802.11n-HT20 mode					
Low	5180	14.68	17	-2.32	19
Middle	5200	14.24	17	-2.76	19
High	5240	13.97	17	-3.03	19
802.11n-HT40 mode					
Low	5190	11.83	17	-5.17	16
High	5230	14.34	17	-2.66	19

5250 - 5350 MHz

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a mode					
Low	5260	15.67	24	-8.33	20
Middle	5280	15.95	24	-8.05	20
High	5320	16.82	24	-7.18	20
802.11n-HT20 mode					
Low	5260	15.68	24	-8.32	20
Middle	5280	16.20	24	-7.8	20
High	5320	16.68	24	-7.32	20
802.11n-HT40 mode					
Low	5270	15.12	24	-8.88	20
High	5310	12.45	24	-11.55	16

5470 - 5725 MHz

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a mode					
Low	5500	15.20	24	-8.8	20
Middle	5580	15.12	24	-8.88	20
High	5700	15.29	24	-8.71	20
802.11n-HT20 mode					
Low	5500	15.45	24	-8.55	20
Middle	5580	14.99	24	-9.01	20
High	5700	14.58	24	-9.42	19
802.11n-HT40 mode					
Low	5510	12.07	24	-11.93	16
Middle	5550	14.04	24	-9.96	20
High	5670	14.96	24	-9.04	20

Dipole Antenna:

Note: Only the channels with different power settings were remeasured; All other data shares from the chip antenna.

5150 - 5250 MHz

802.11n-HT40 mode

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5190	10.41	17	-6.59	15

5250 - 5350 MHz

Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a mode					
High	5320	14.84	24	-9.16	19
802.11n-HT20 mode					
High	5320	14.69	24	-9.31	19
802.11n-HT40 mode					
High	5310	10.69	24	-13.31	15

5470 - 5725 MHz

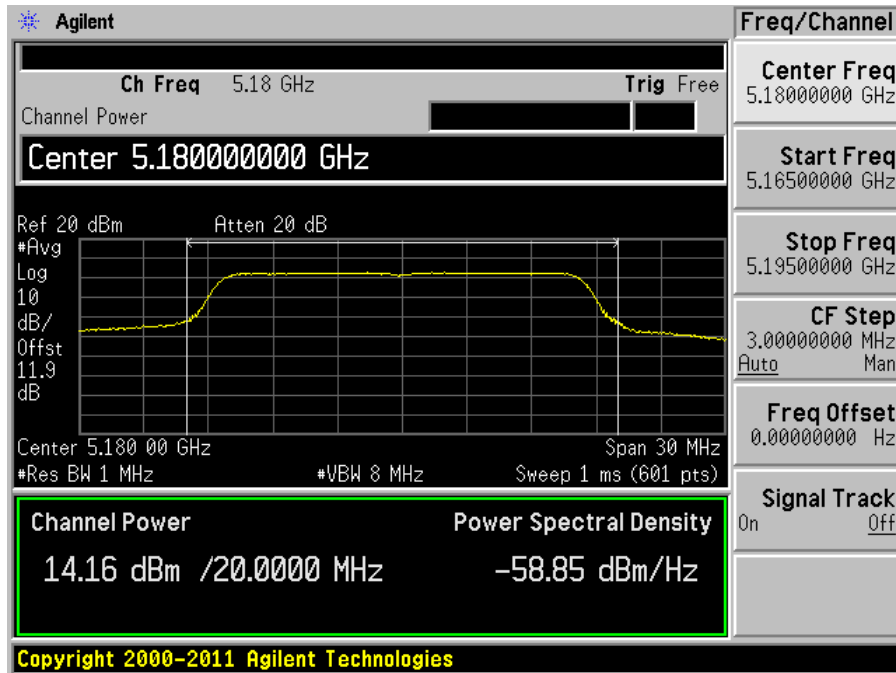
Channel	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a mode					
High	5700	13.87	24	-10.13	19
802.11n-HT20 mode					
High	5700	12.73	24	-11.27	17
802.11n-HT40 mode					
Low	5510	10.35	24	-13.65	15
High	5670	13.17	24	-10.83	19

Please refer to the following plots.

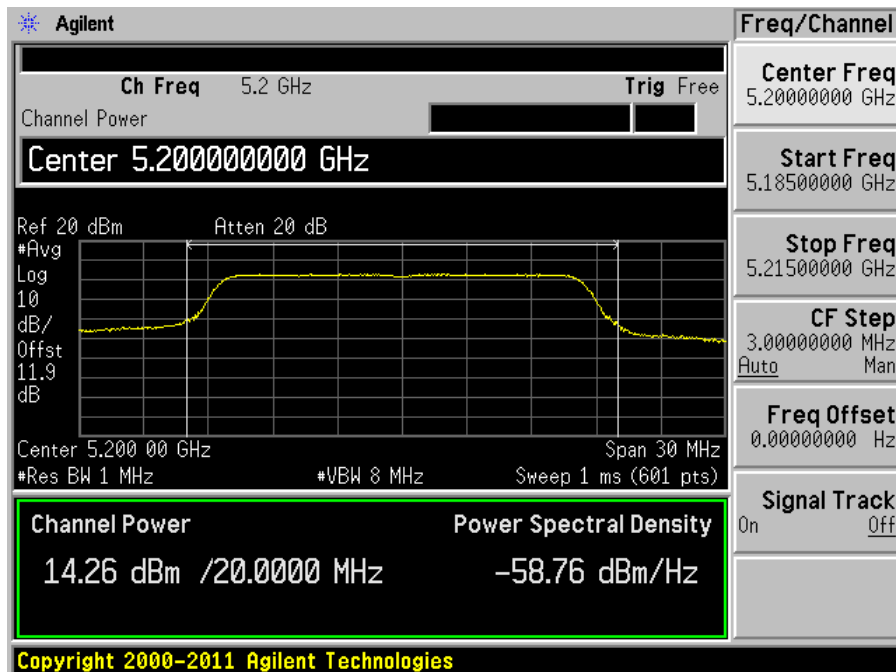
Chip Antenna :

5150 - 5250 MHz

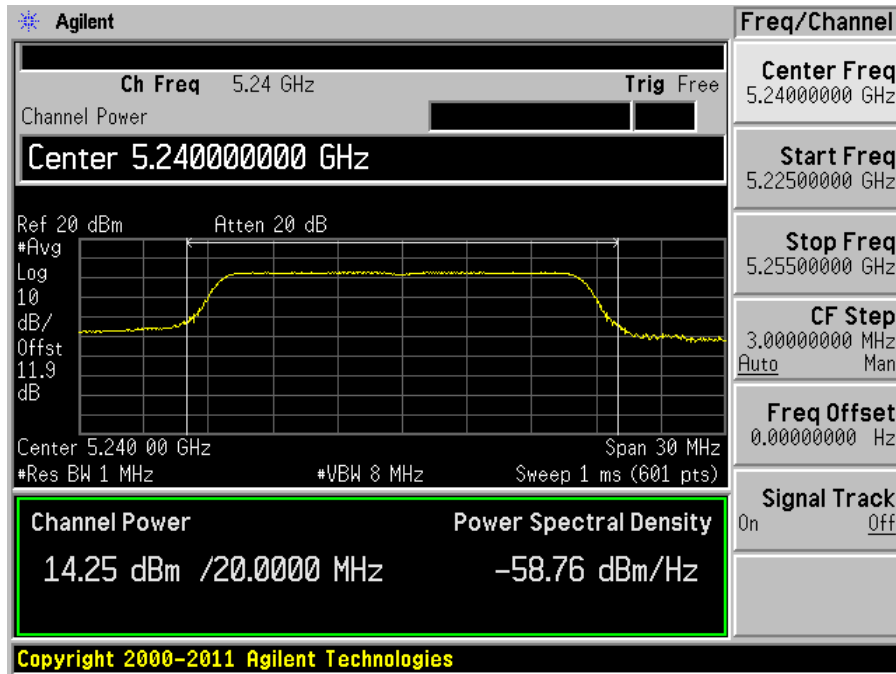
802.11a mode, Low Channel : 5180 MHz



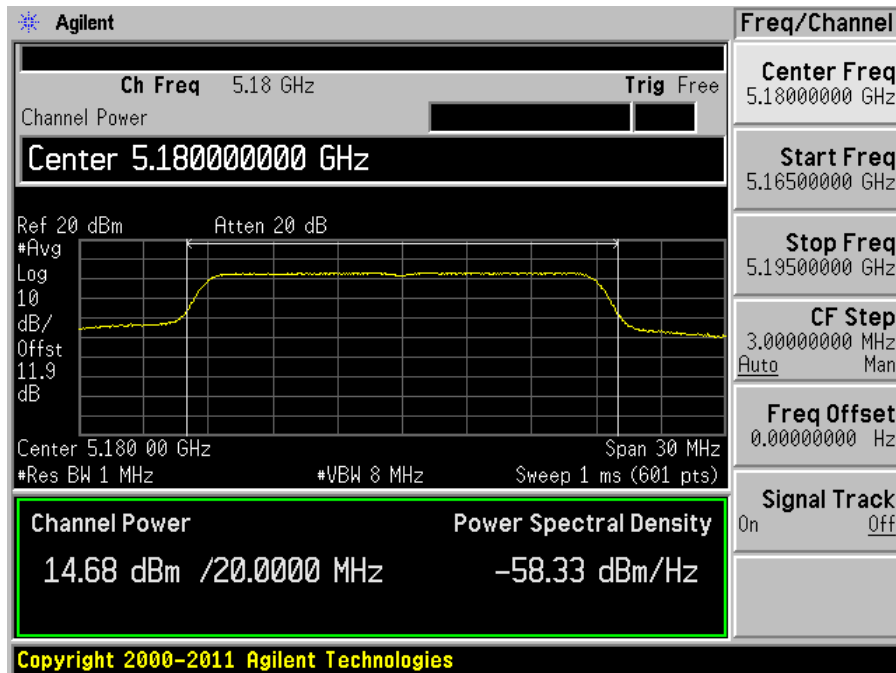
802.11a mode, Middle Channel : 5200 MHz



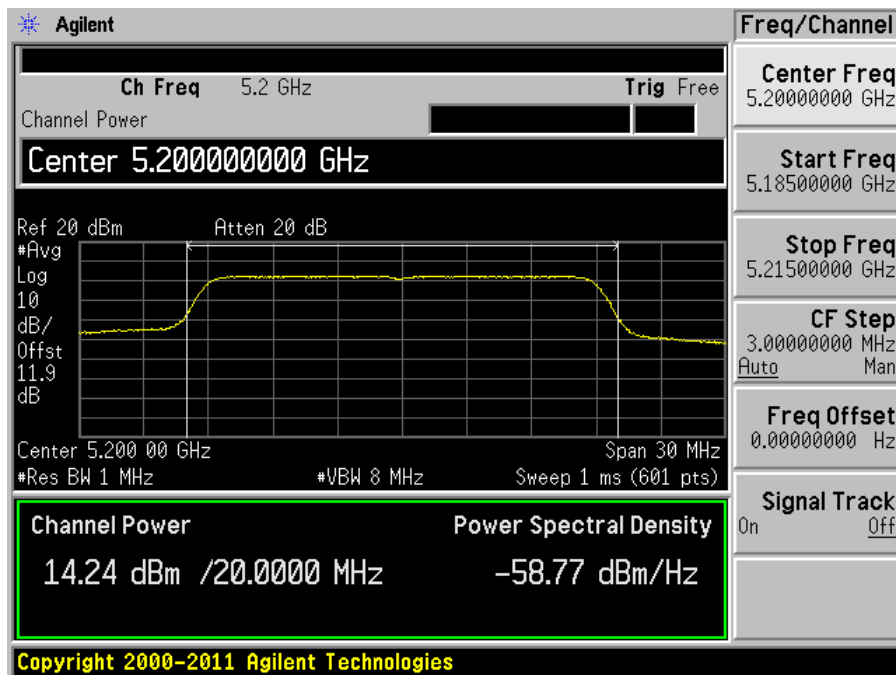
802.11a mode, High Channel : 5240 MHz



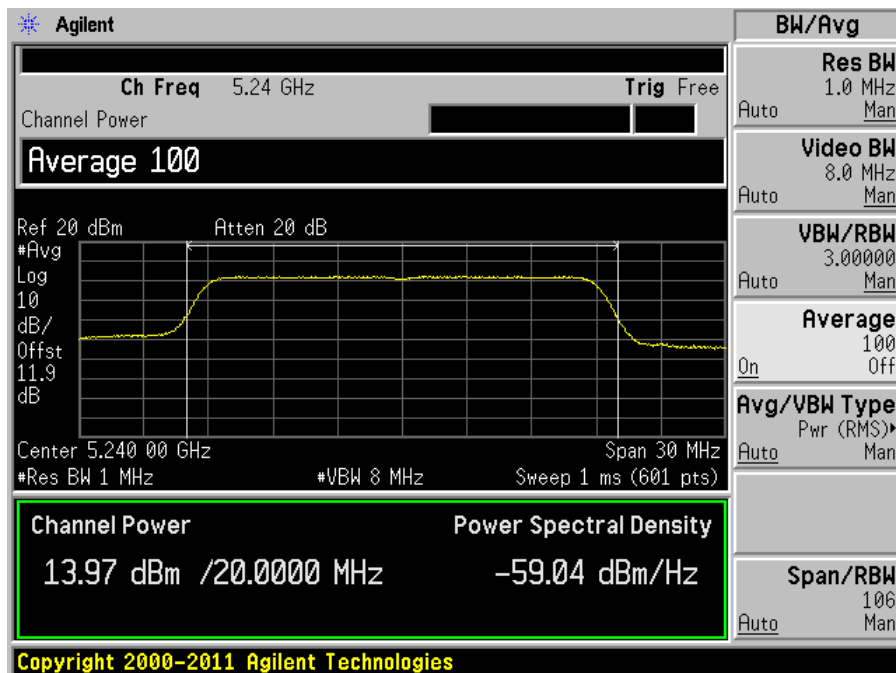
802.11n-HT20 mode, Low Channel: 5180 MHz



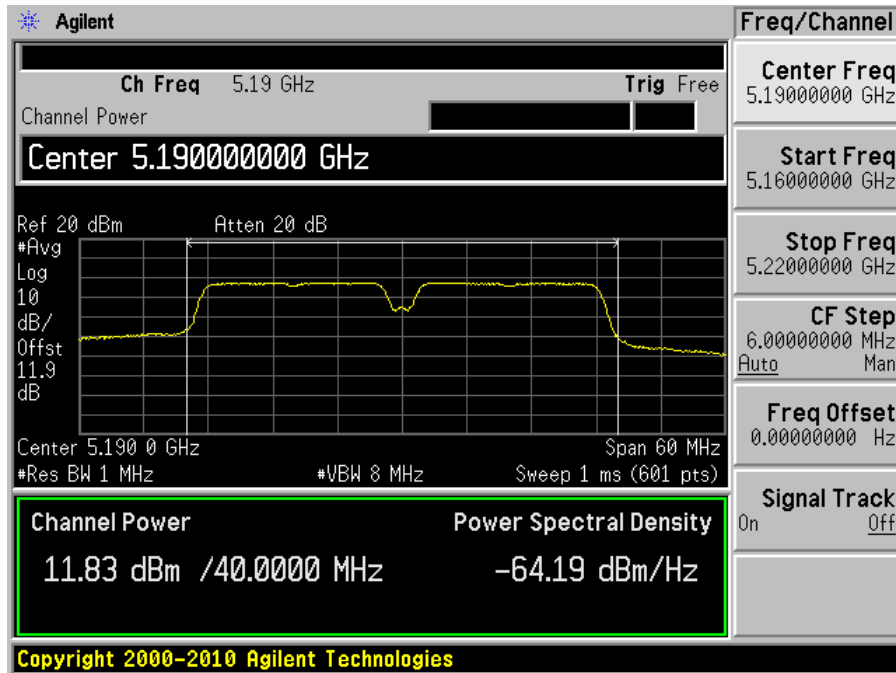
802.11n-HT20 mode, Middle Channel: 5200 MHz



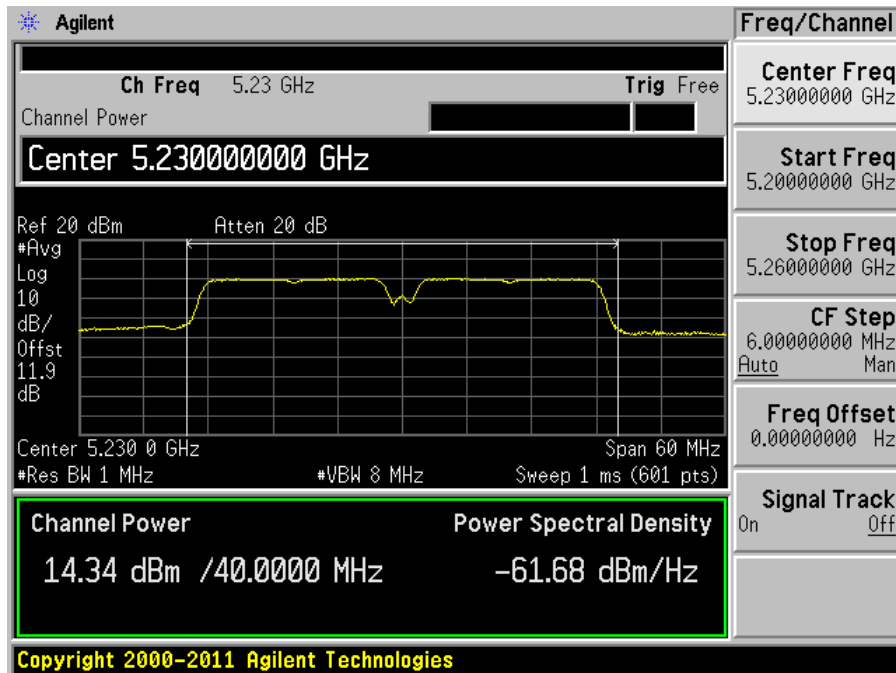
802.11n-HT20 mode, High Channel: 5240 MHz



802.11n-HT40 mode, Low Channel: 5190 MHz

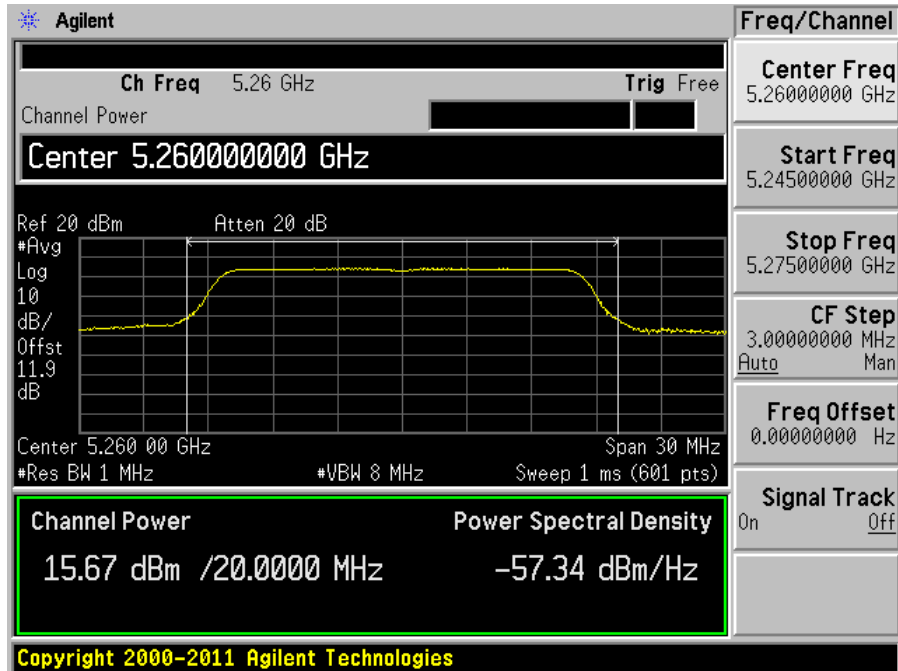


802.11n-HT40 mode, High Channel: 5230 MHz

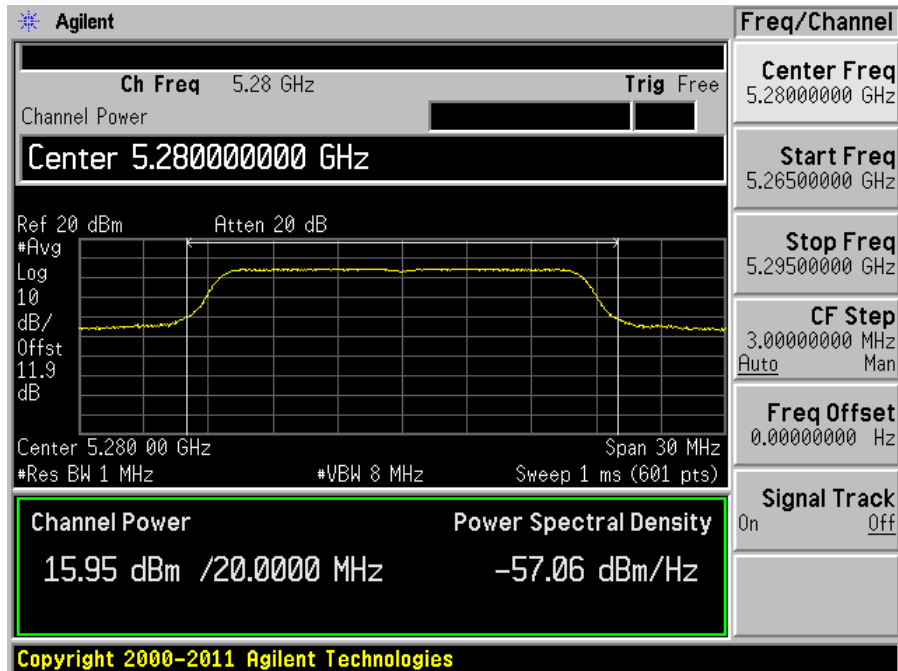


5250 - 5350 MHz

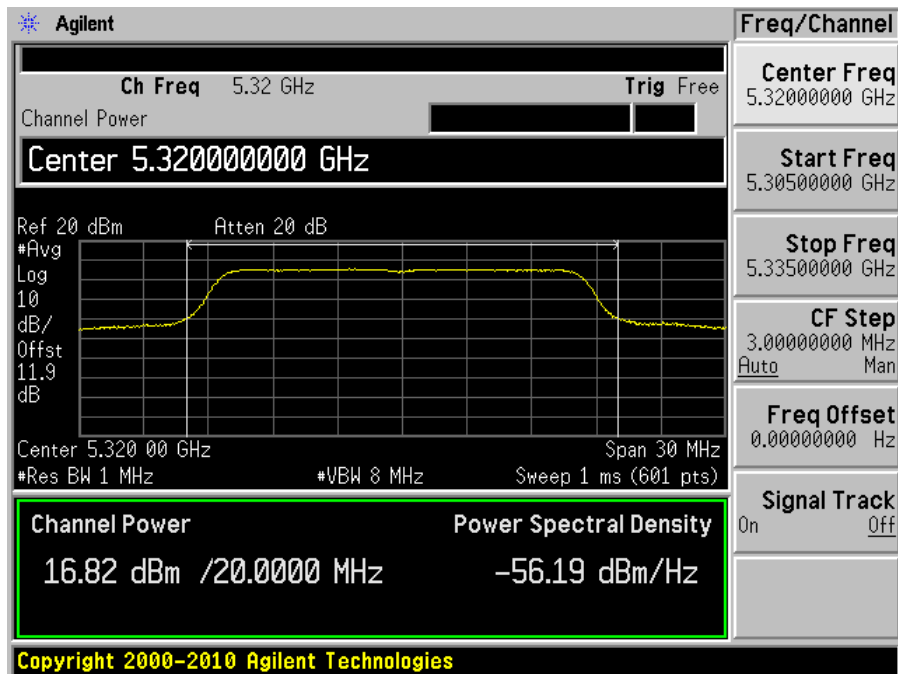
802.11a mode, Low Channel: 5260 MHz



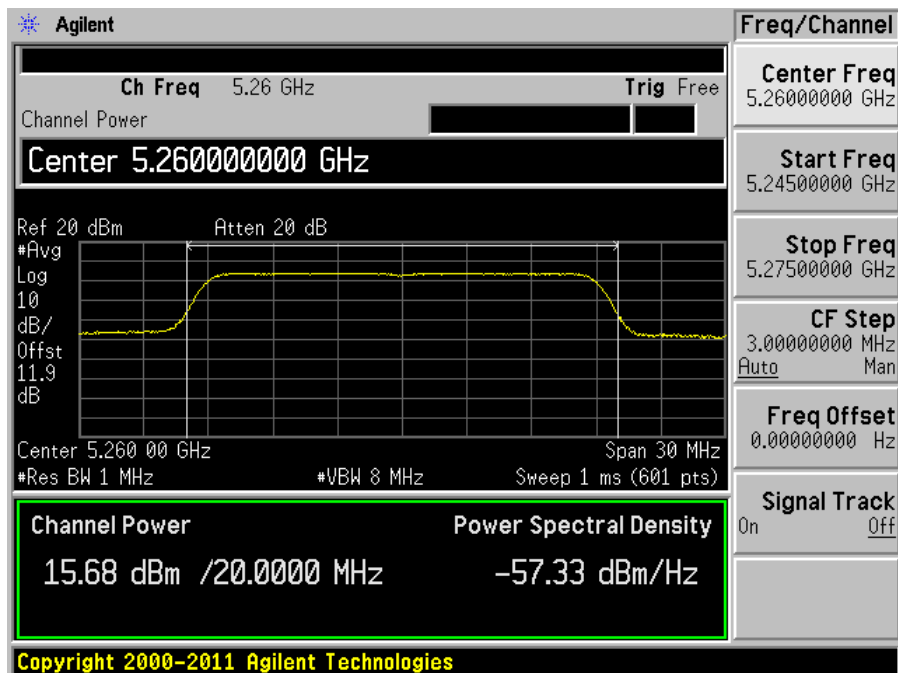
802.11a mode, Middle Channel: 5280 MHz



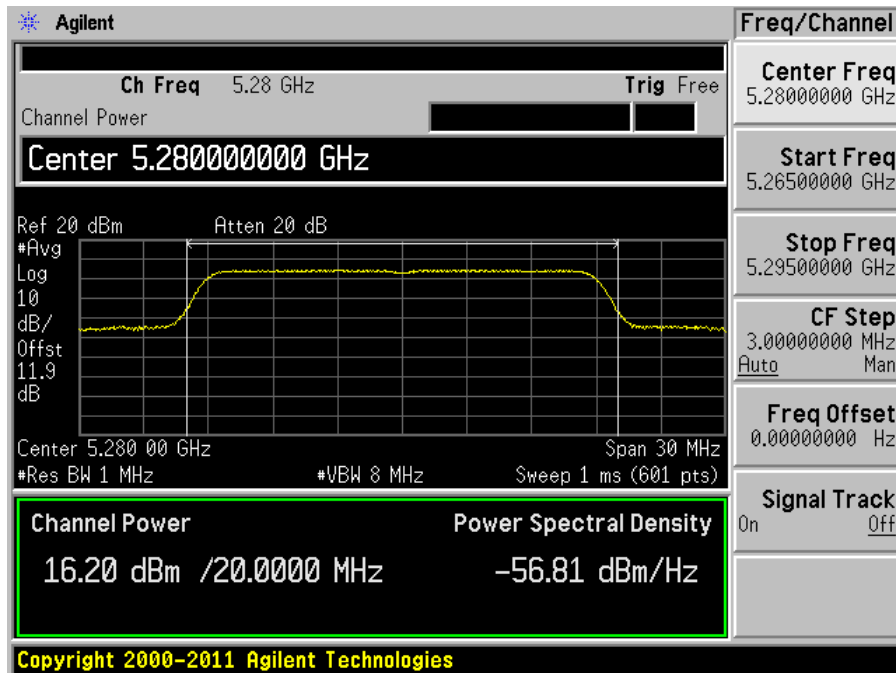
802.11a mode, High Channel: 5320 MHz



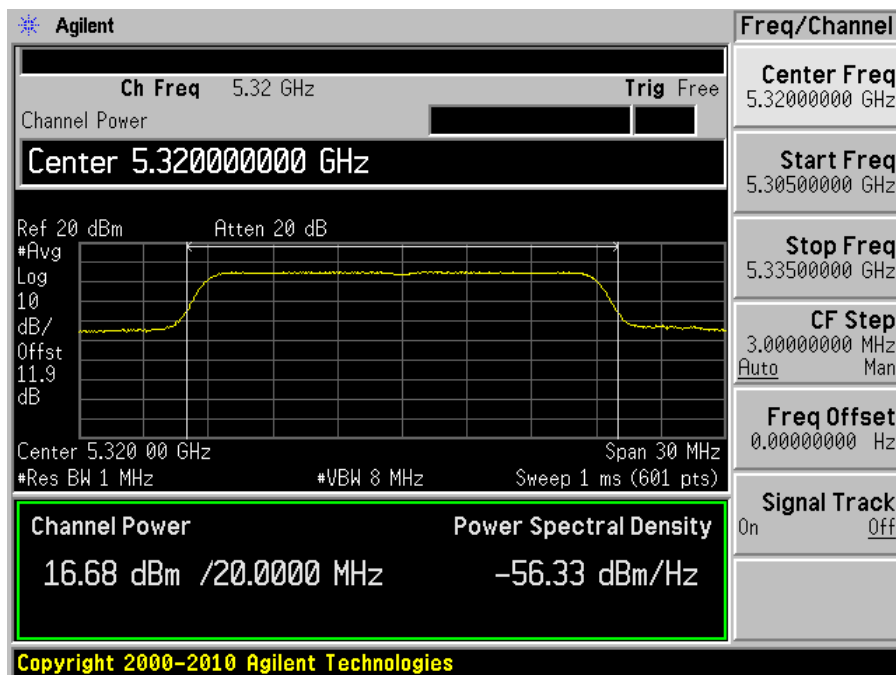
802.11n-HT20 mode, Low Channel: 5260 MHz



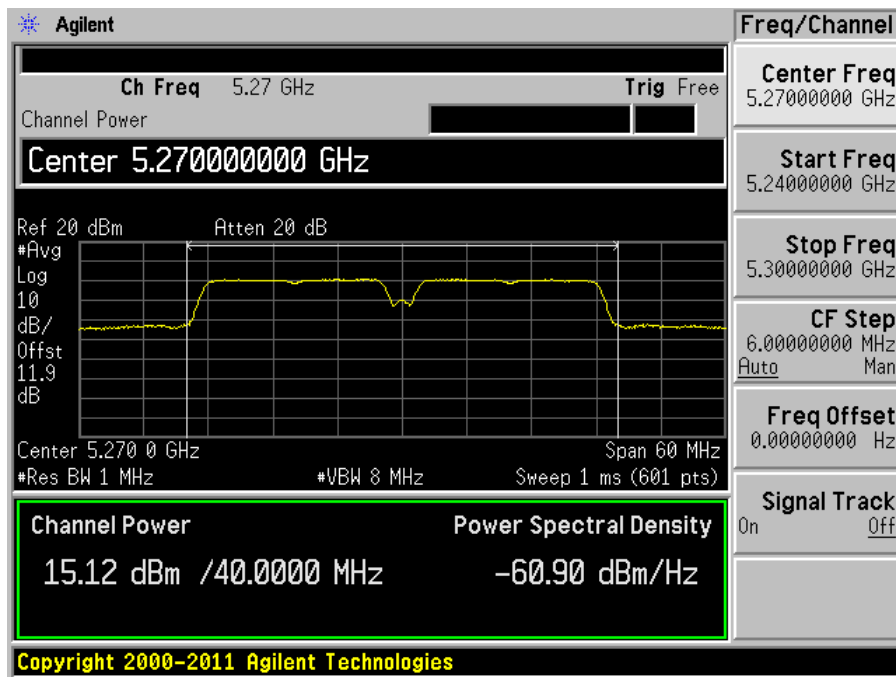
802.11n-HT20 mode, Middle Channel: 5280 MHz



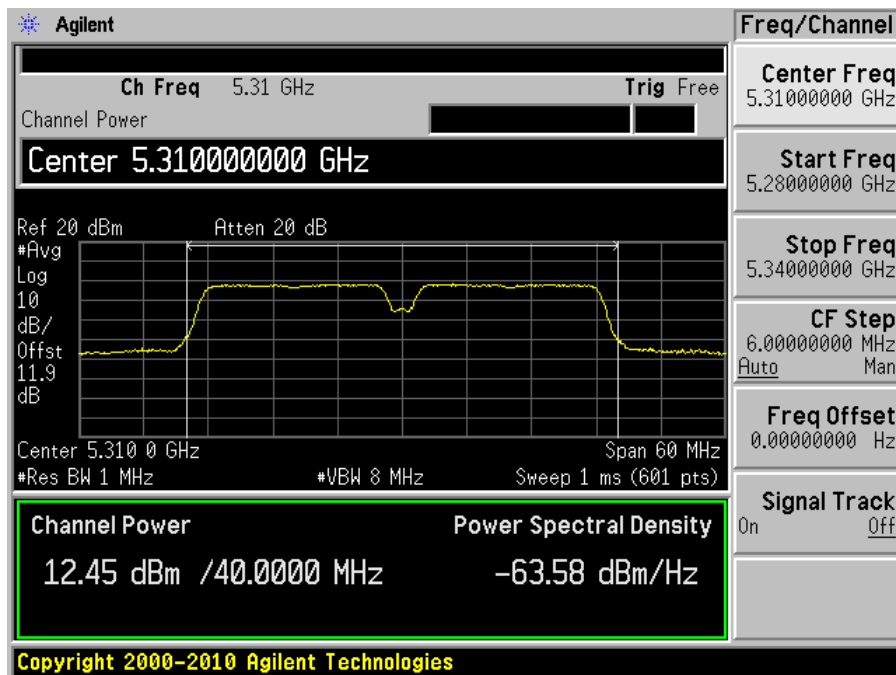
802.11n-HT20 mode, High Channel: 5320 MHz



802.11n-HT40 mode, Low Channel: 5270 MHz

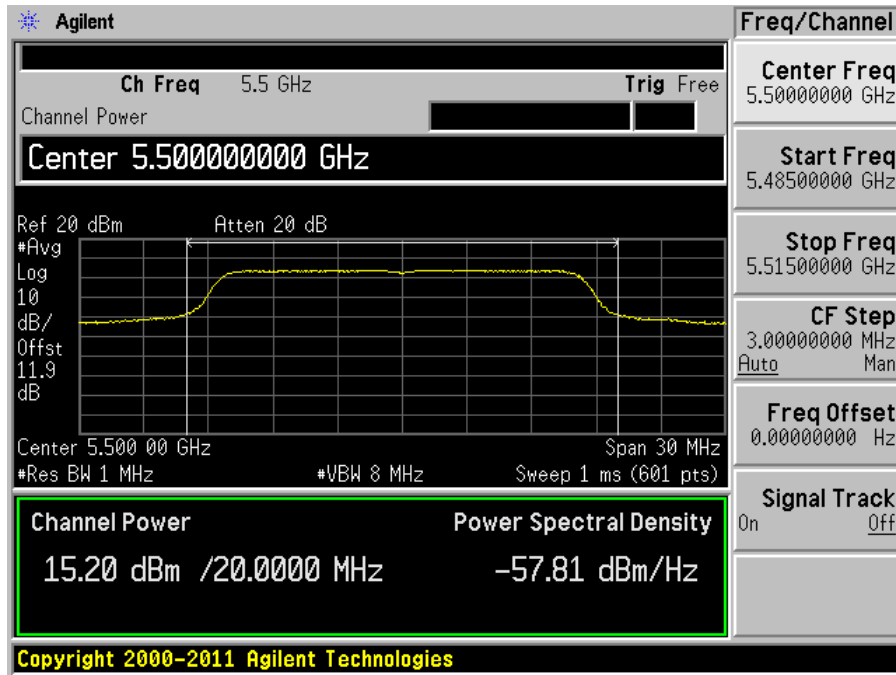


802.11n-HT40 mode, High Channel: 5310 MHz

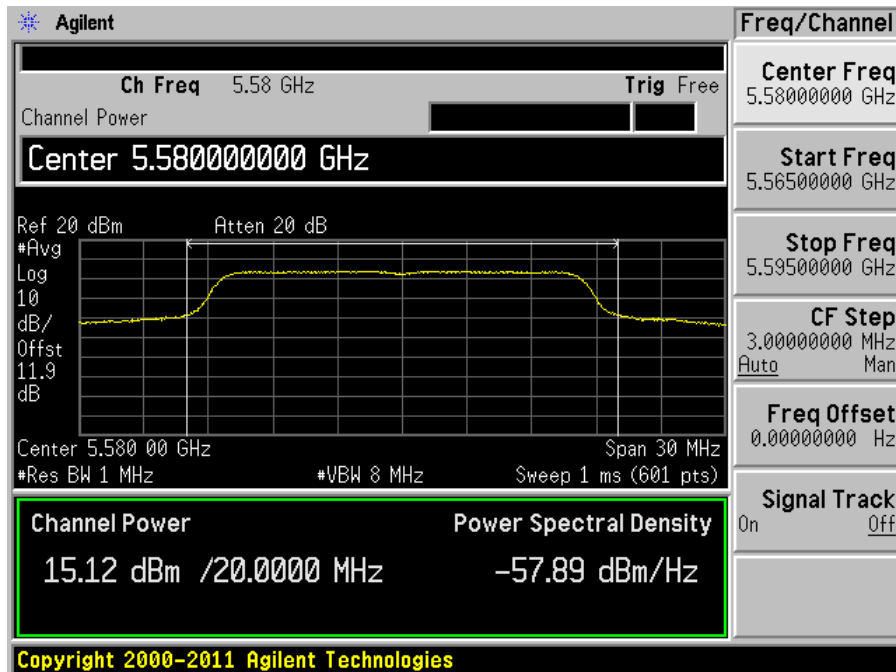


5470 - 5725 MHz

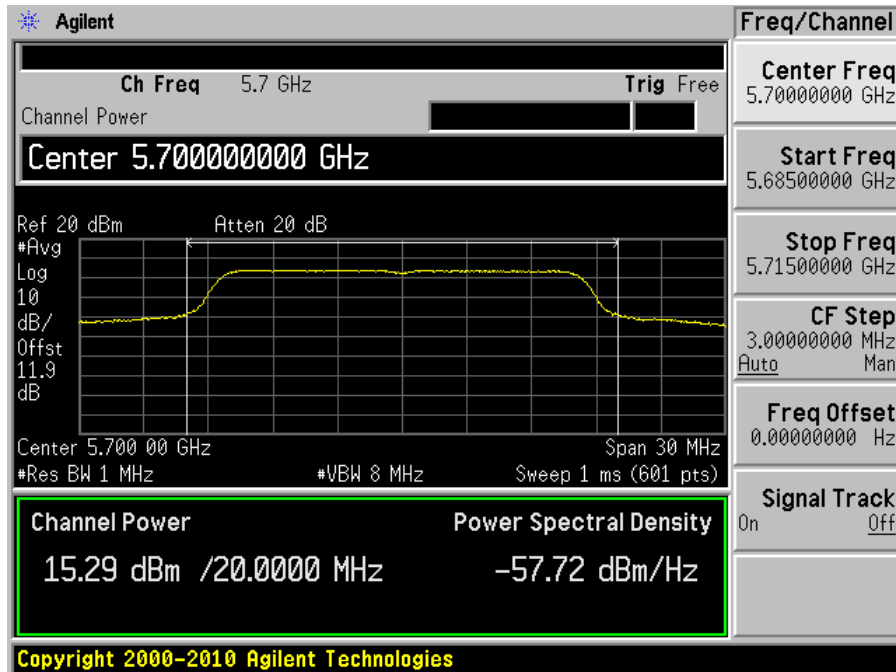
802.11a mode, Low Channel: 5500 MHz



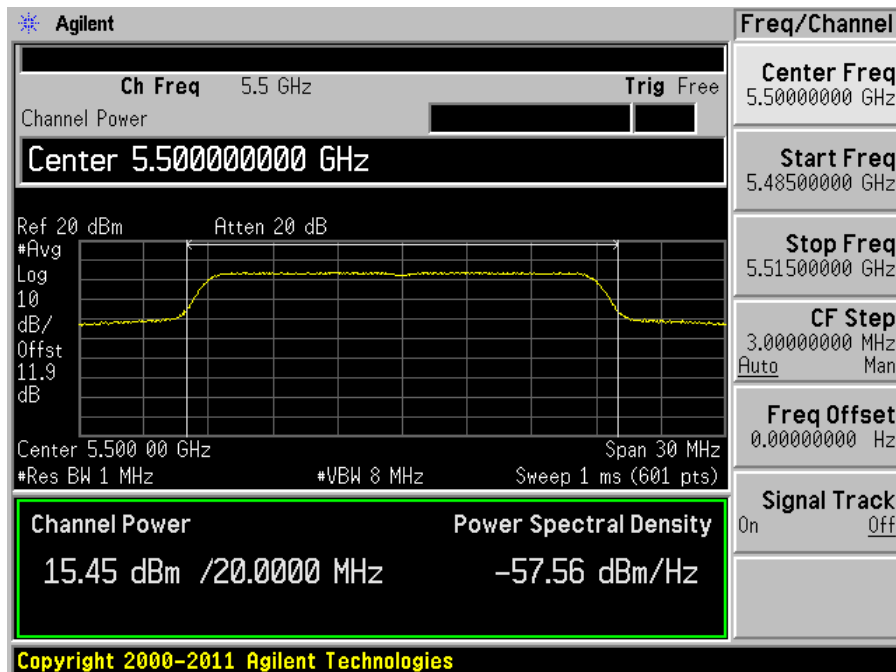
802.11a mode, Middle Channel: 5580 MHz



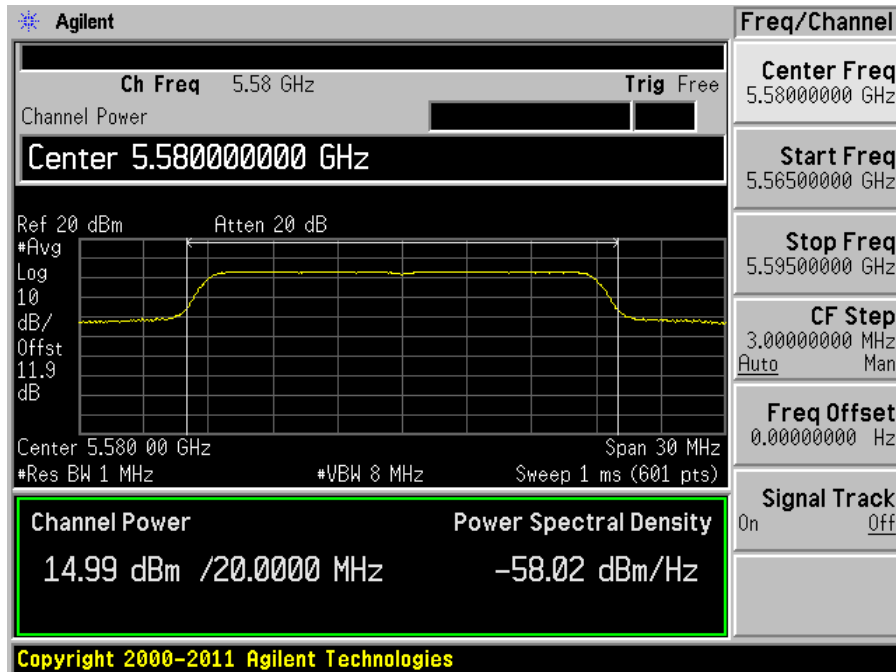
802.11a mode, High Channel: 5700 MHz



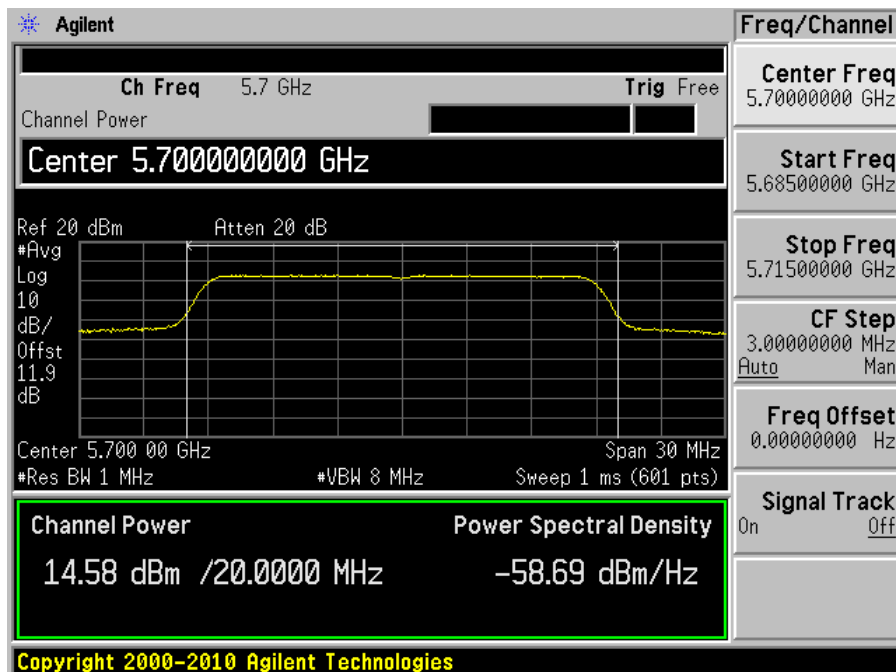
802.11n-HT20 mode, Low Channel: 5500 MHz



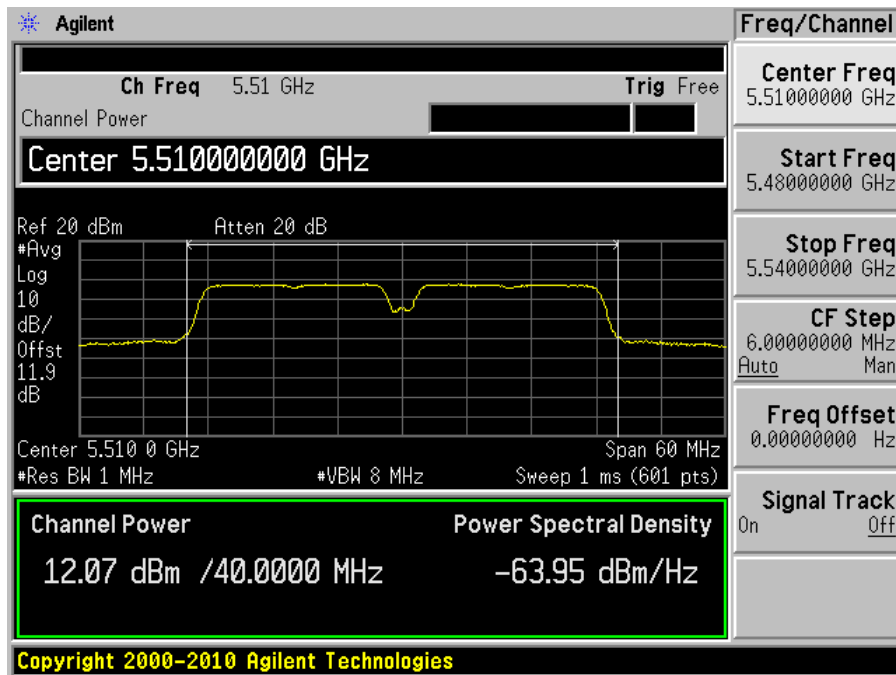
802.11n-HT20 mode, Middle Channel: 5580 MHz



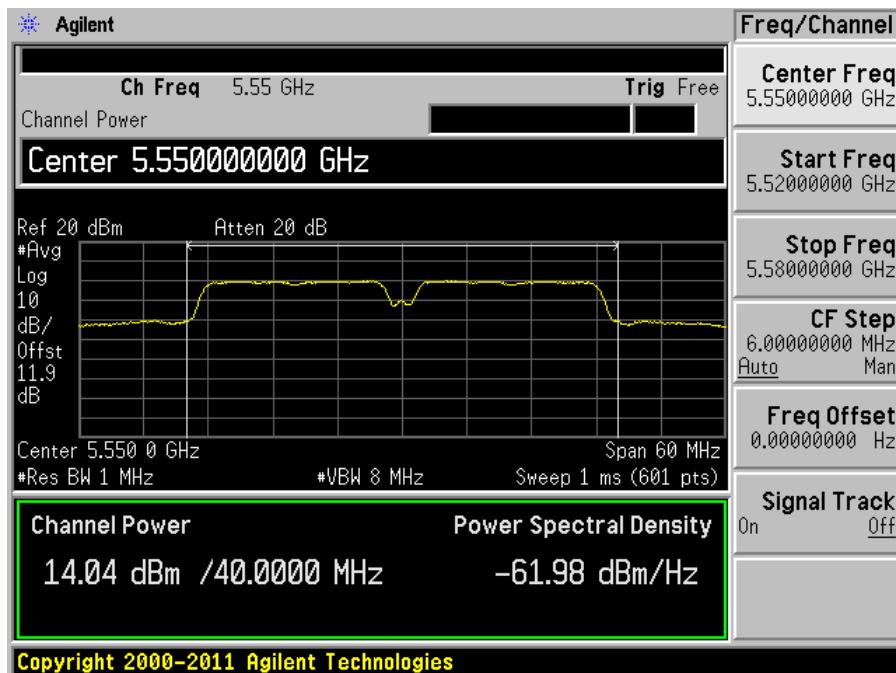
802.11n-HT20 mode, High Channel: 5700 MHz



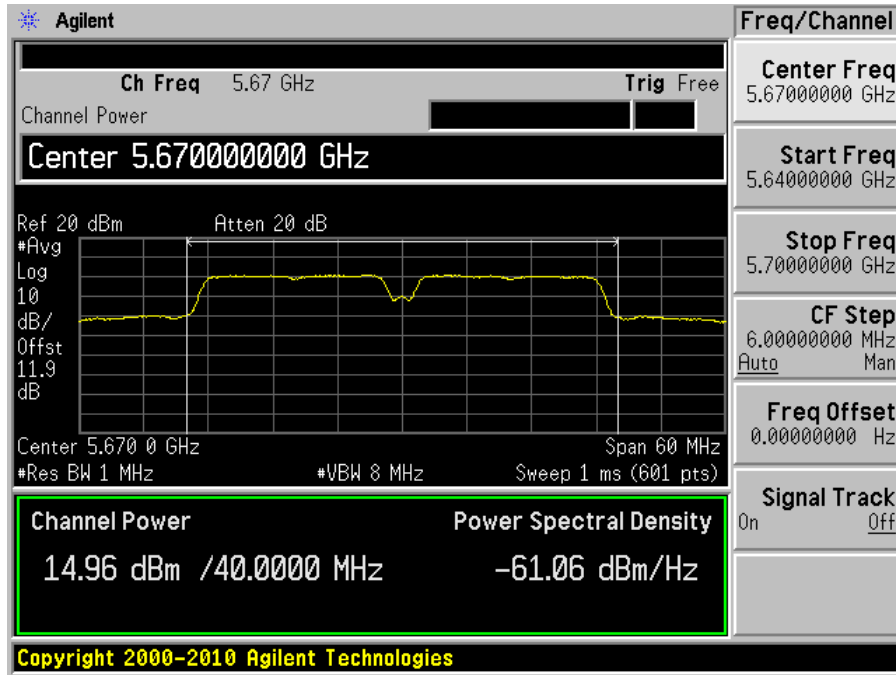
802.11n-HT40 mode, Low Channel: 5510 MHz



802.11n-HT40 mode, Middle Channel: 5550 MHz



802.11n-HT40 mode, High Channel: 5670 MHz

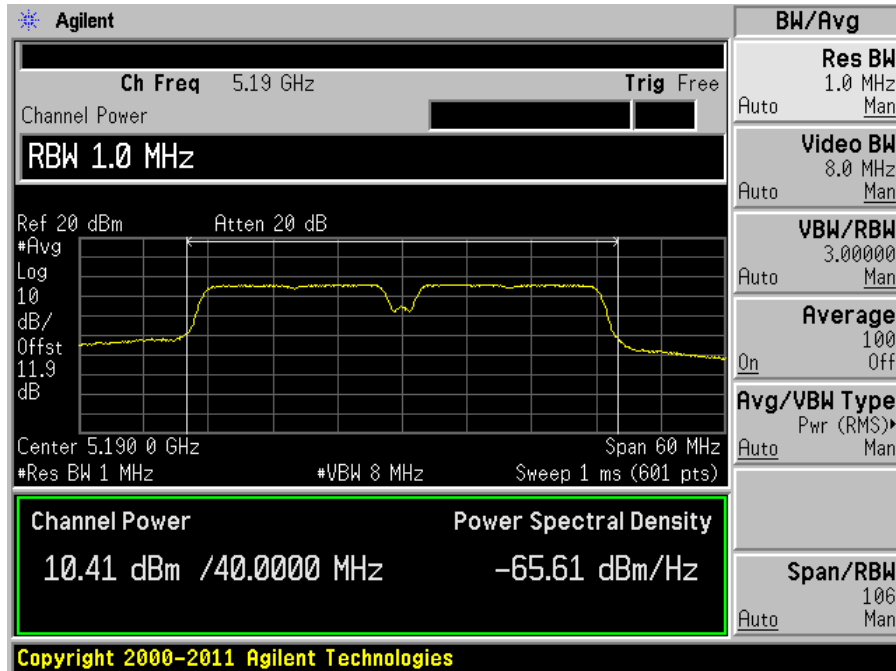


Dipole Antenna:

Note: Only the channels with different power settings were remeasured; all other data shares from the chip antenna.

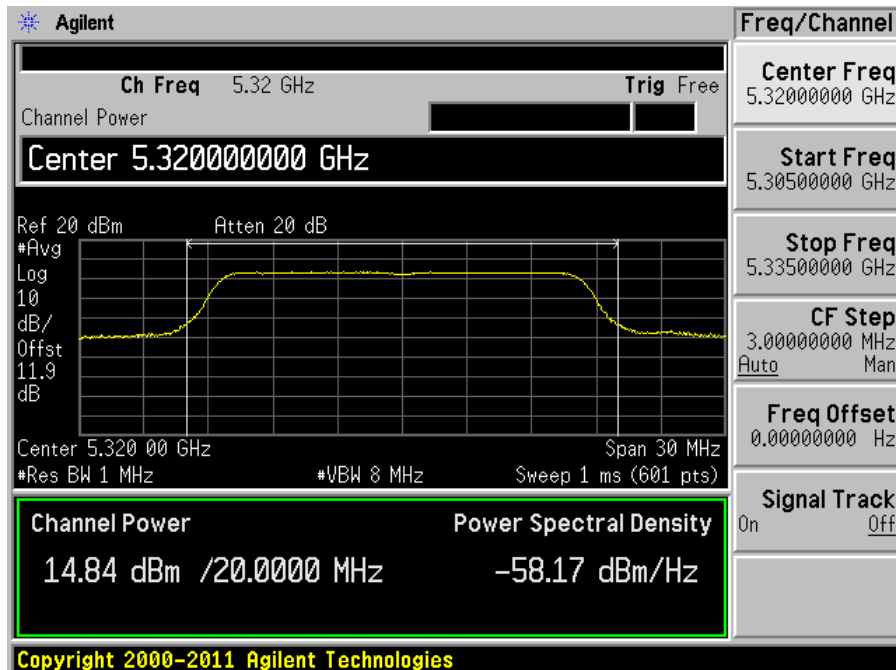
5150 - 5250 MHz

802.11n-HT40 mode, Low Channel: 5190 MHz

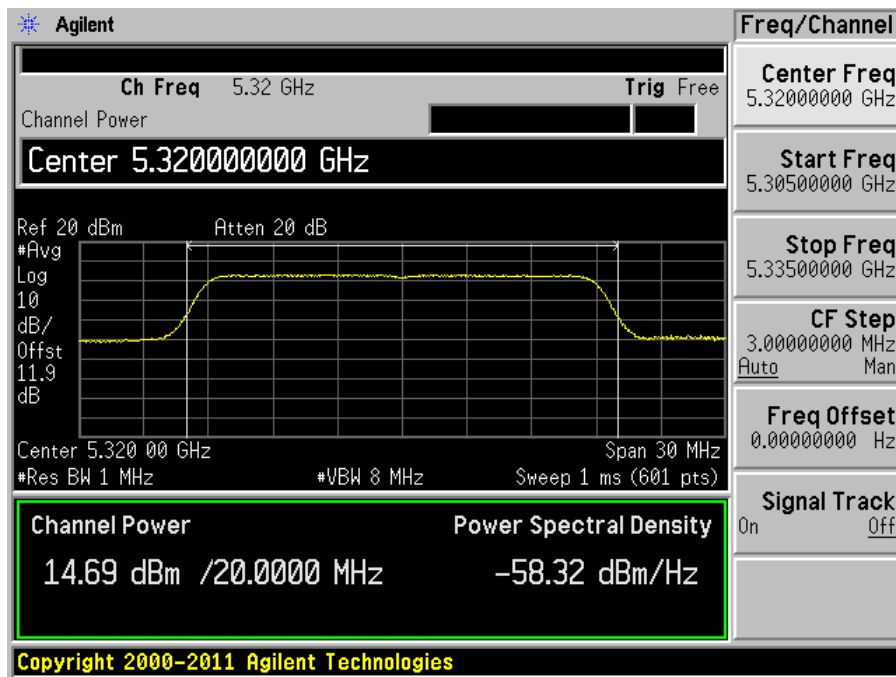


5250 - 5350 MHz

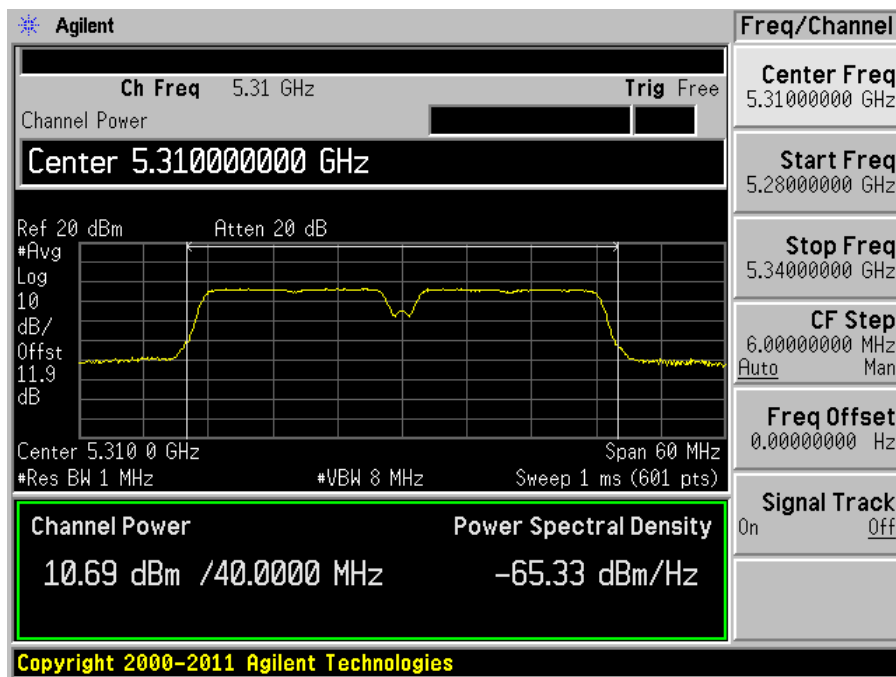
802.11a mode, High Channel: 5320 MHz



802.11n-HT20 mode, High Channel: 5320 MHz

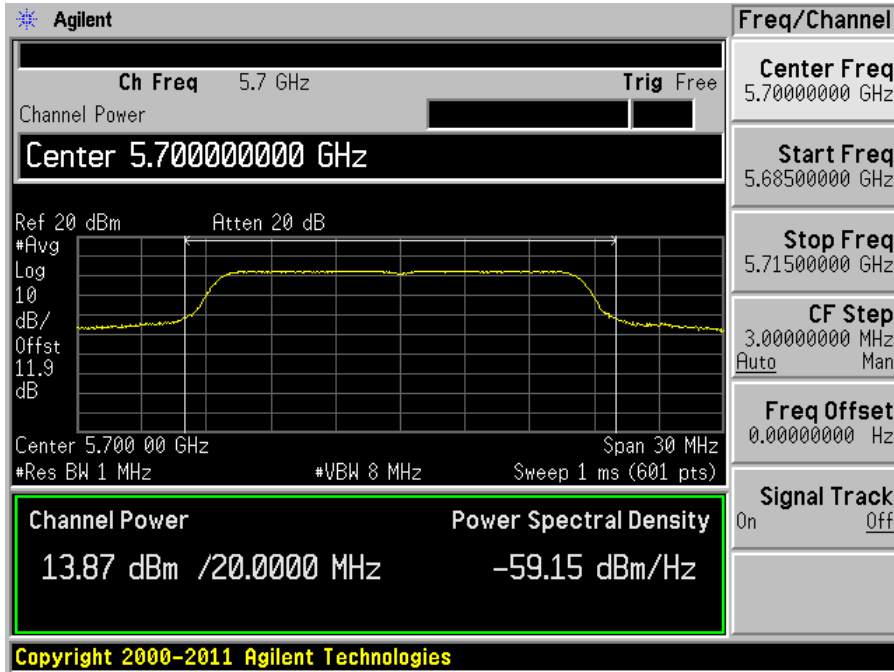


802.11n-HT40 mode, High Channel: 5310 MHz

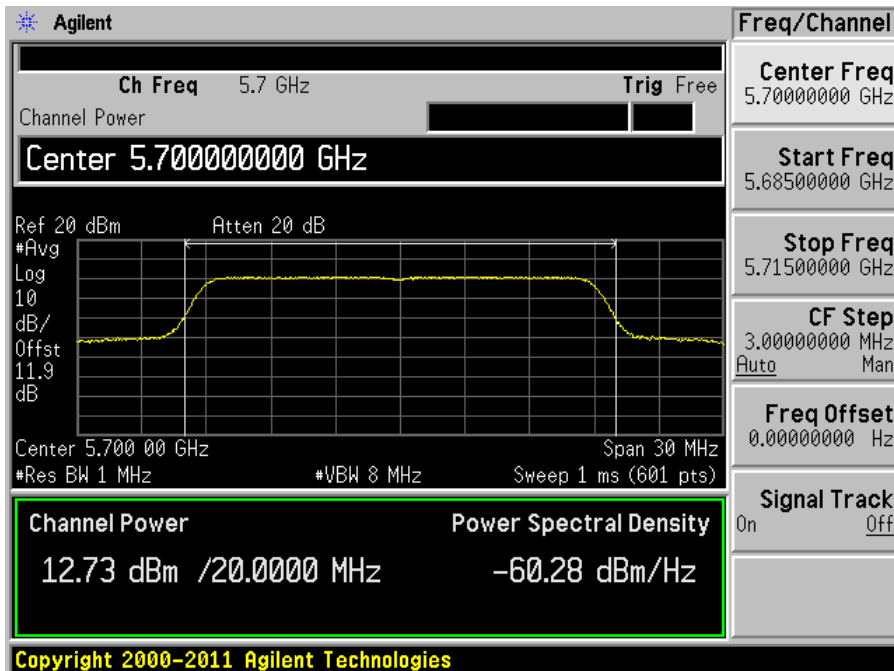


5470 - 5725 MHz

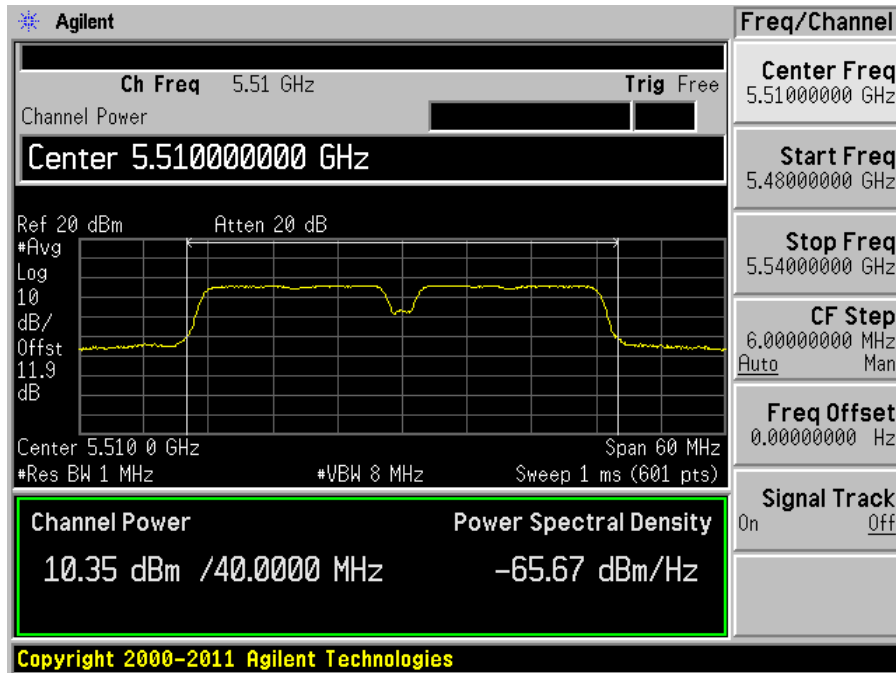
802.11a mode, High Channel: 5700 MHz



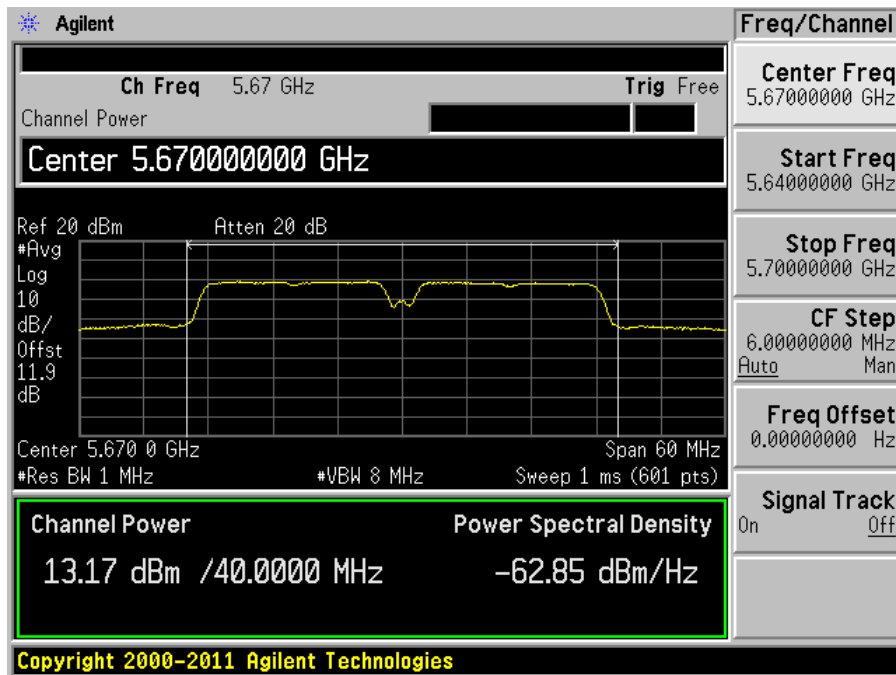
802.11n-HT20 mode, High Channel: 5700 MHz



802.11n-HT40 mode, Low Channel: 5510 MHz



802.11n-HT40 mode, High Channel: 5670 MHz



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

10.1 Applicable Standard

According to FCC §15.407(b)

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz

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

The measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section H: Unwanted emissions measurement

10.3 Test Equipment List and Details

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

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

10.4 Test Environmental Conditions

Temperature:	20 °C
Relative Humidity:	49 %
ATM Pressure:	101.1 kPa

The testing was performed by Lionel Lara on 2013-05-10 in the RF site.

10.5 Test Results

Please refer to following pages for plots of band edge.

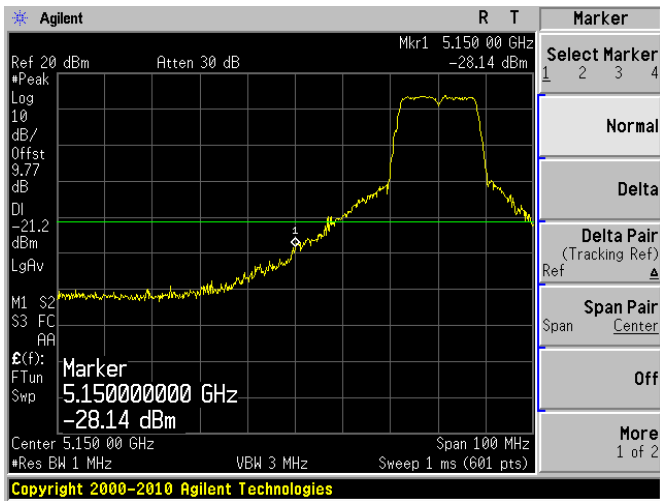
Dipole Antenna:

Note: The antenna gain was included in the offset of these plots.

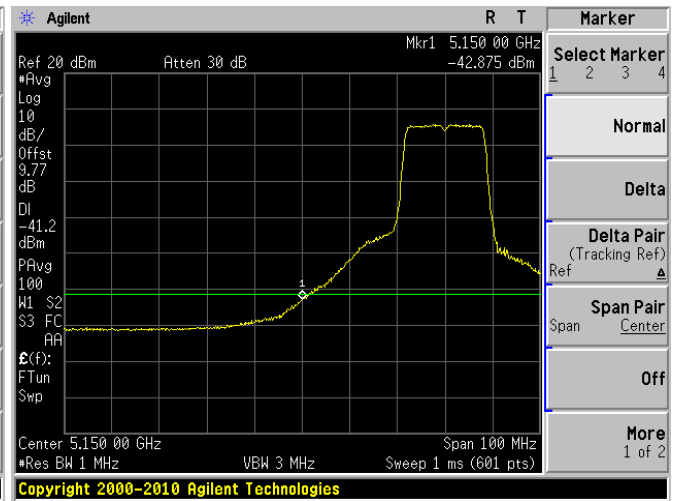
5150-5250 MHz Band

802.11a mode, Low Channel

Peak

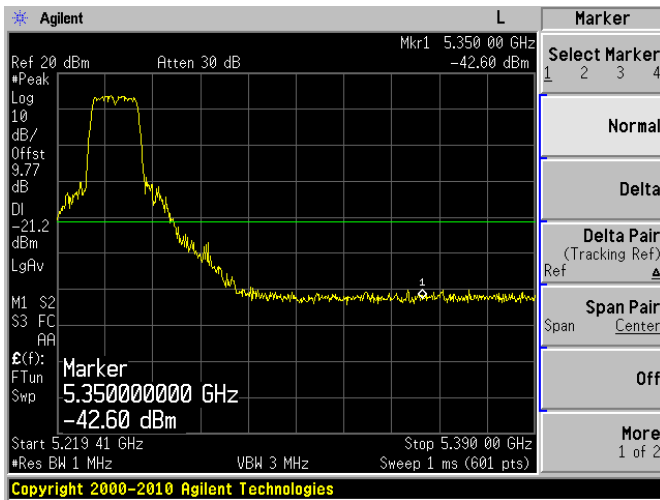


Average

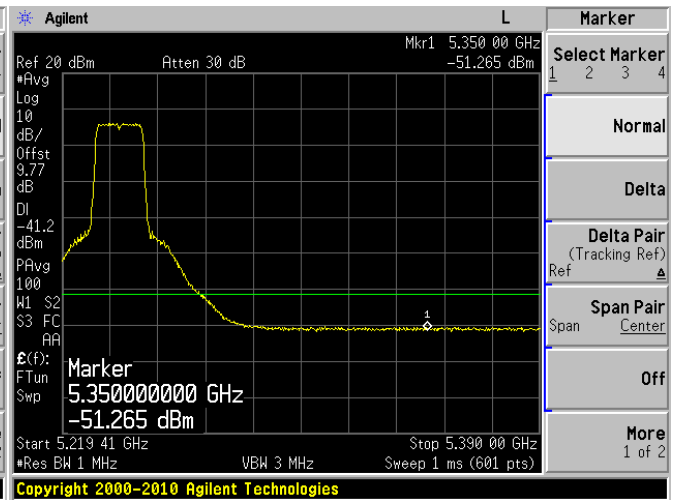


802.11a mode, High Channel

Peak



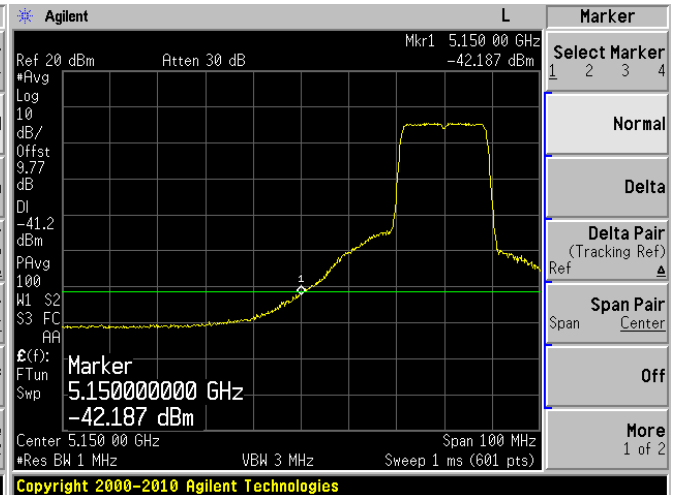
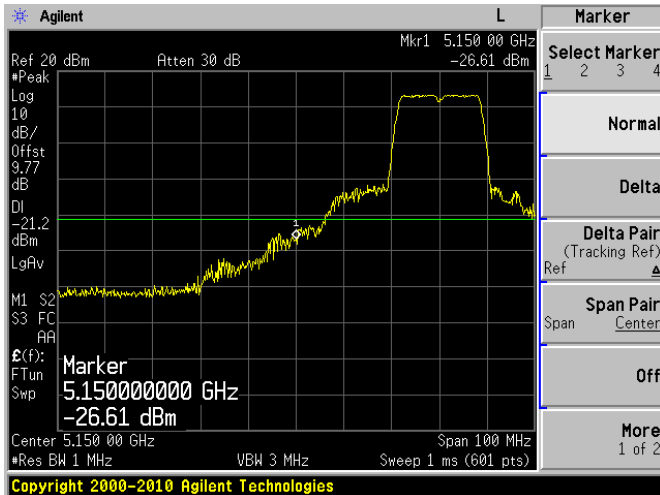
Average



802.11n-HT20 mode, Low Channel

Peak

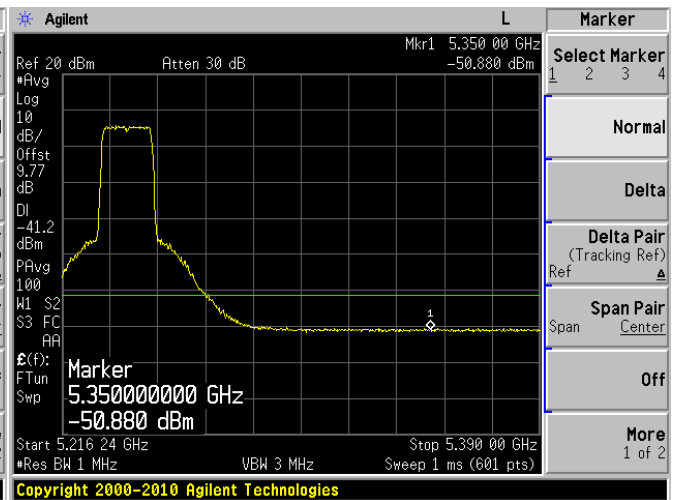
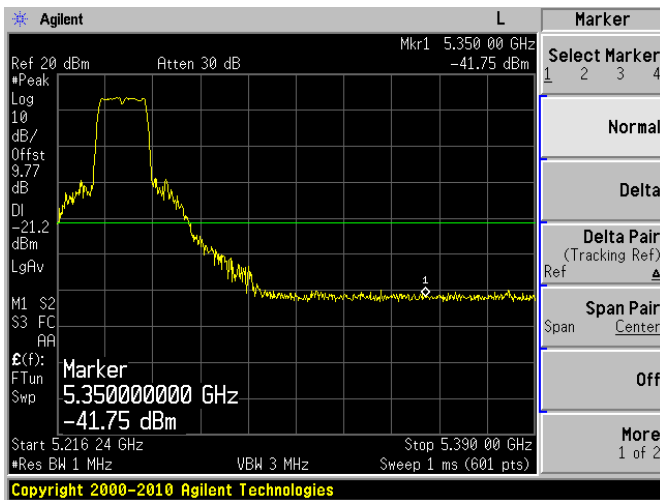
Average



802.11n-HT20 mode, High Channel

Peak

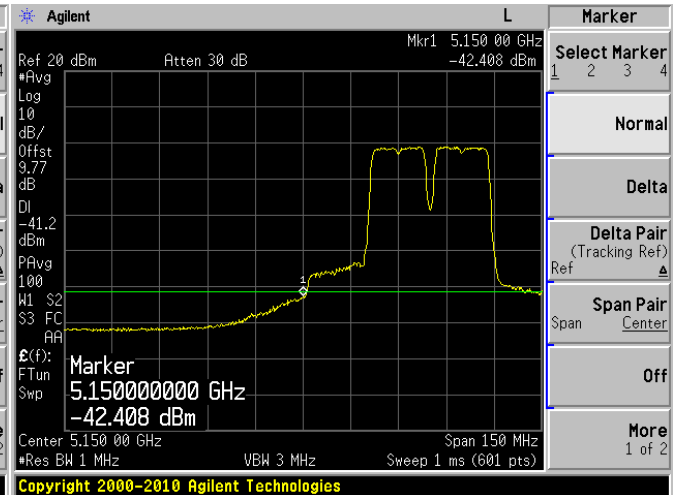
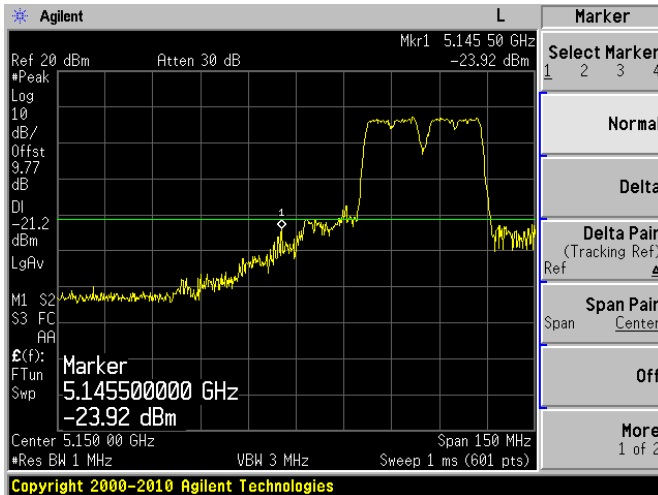
Average



802.11n-HT40 mode, Low Channel

Peak

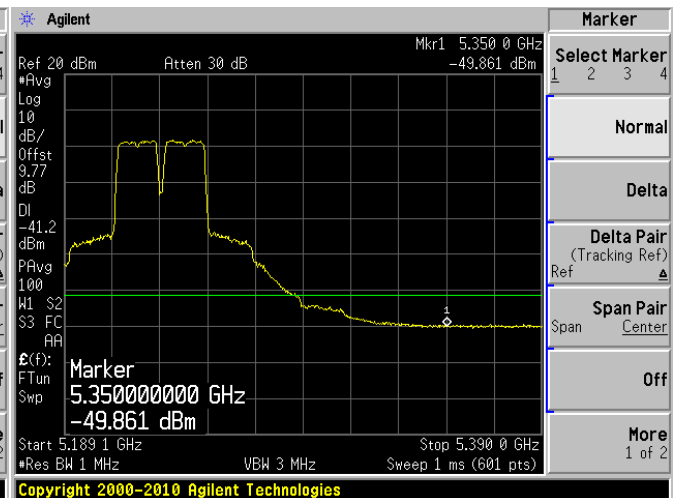
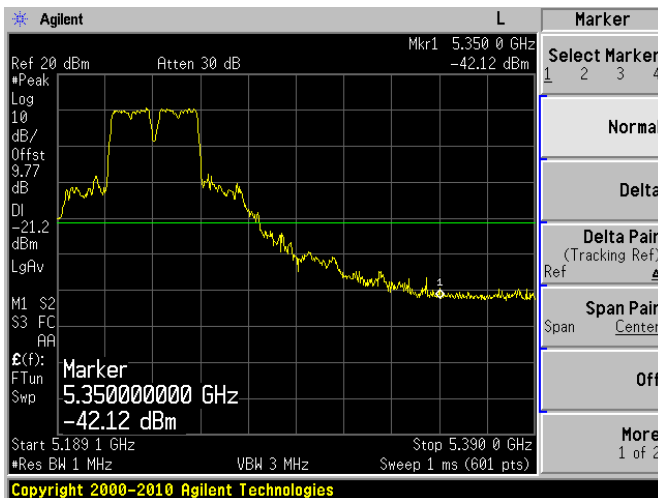
Average



802.11n-HT40 mode, High Channel

Peak

Average

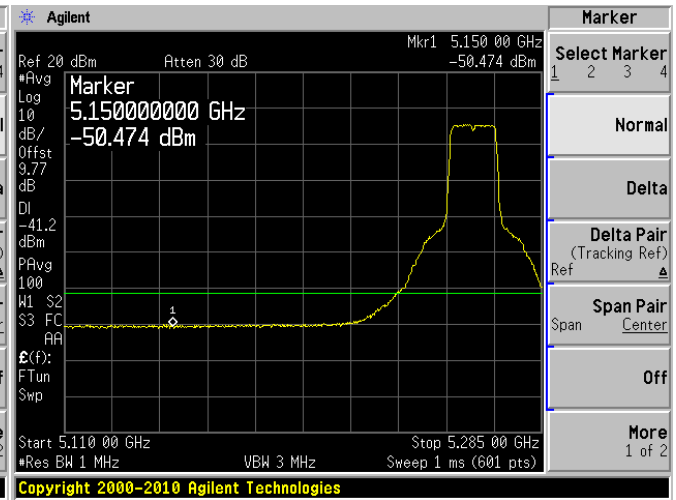
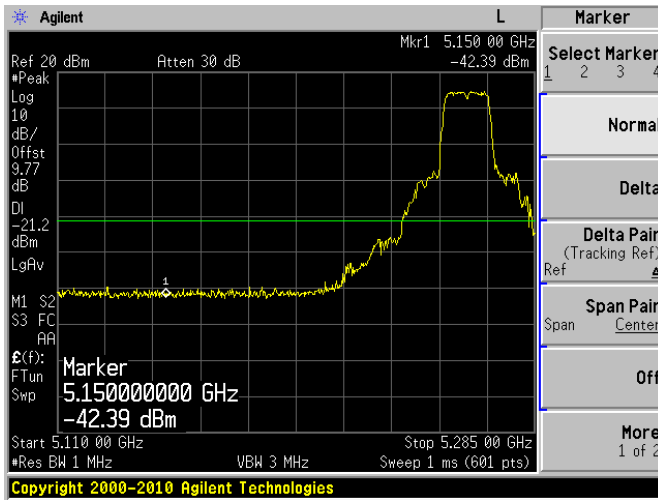


5250-5350 MHz Band

802.11a mode, Low Channel

Peak

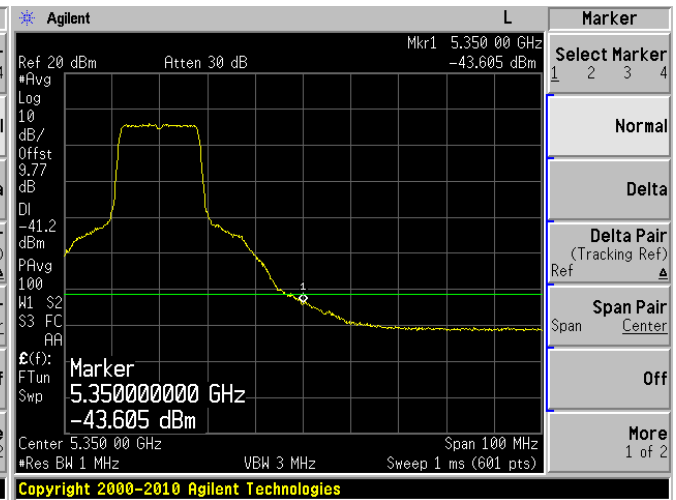
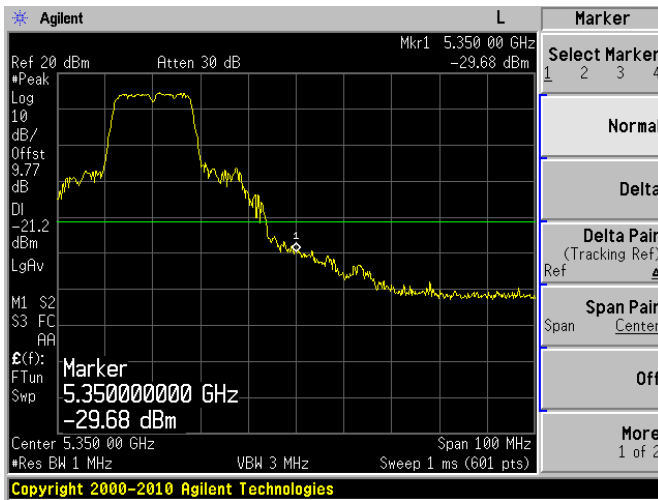
Average



802.11a mode, High Channel

Peak

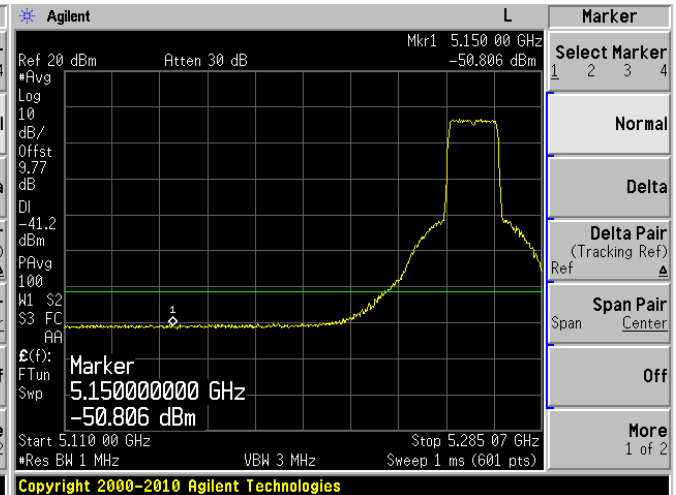
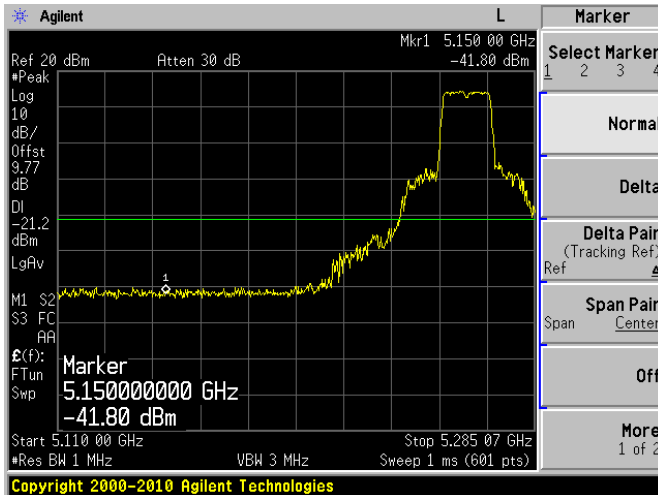
Average



802.11n-HT20 mode, Low Channel

Peak

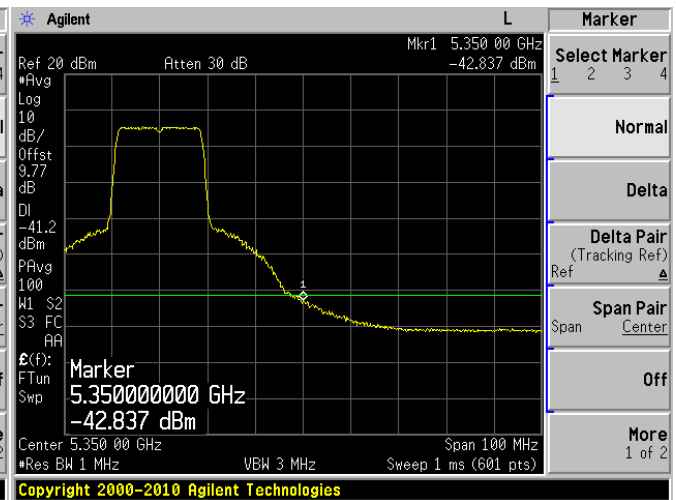
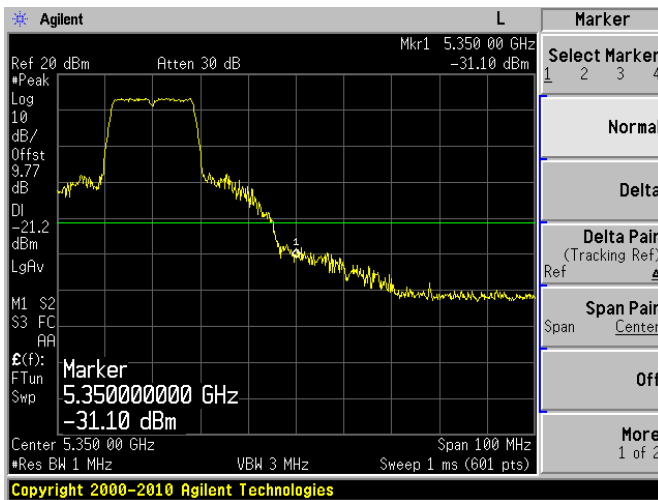
Average



802.11n-HT20 mode, High Channel

Peak

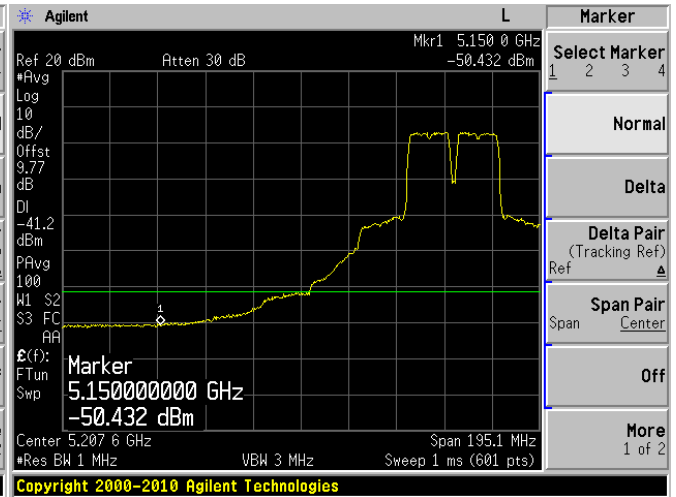
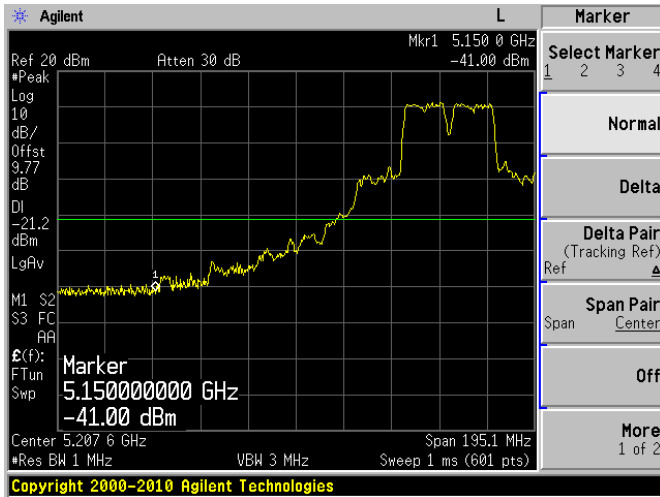
Average



802.11n-HT40 mode, Low Channel

Peak

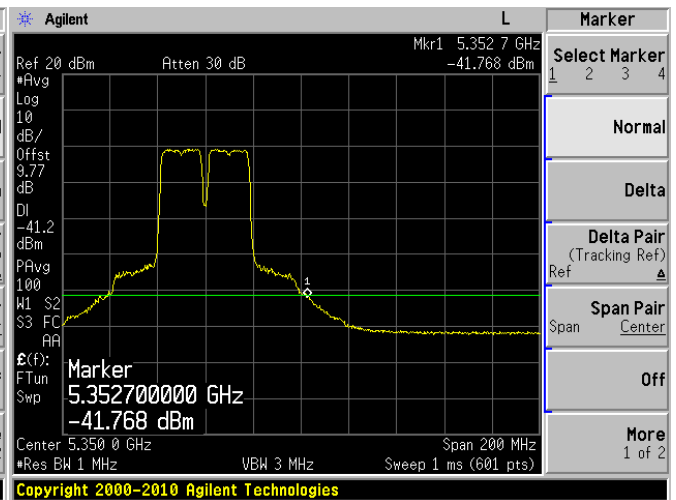
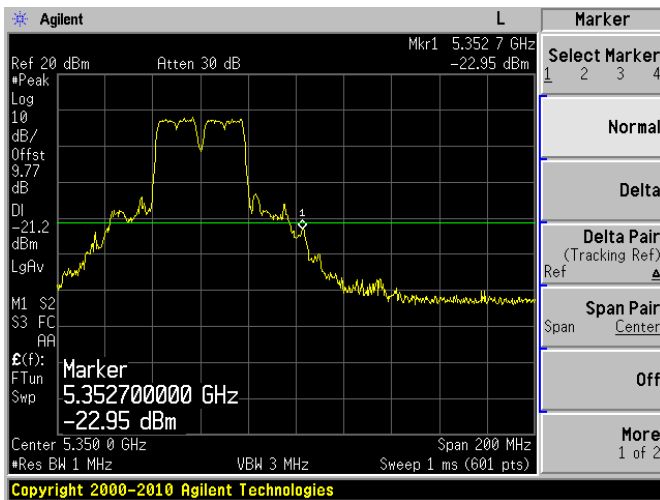
Average



802.11n-HT40 mode, High Channel

Peak

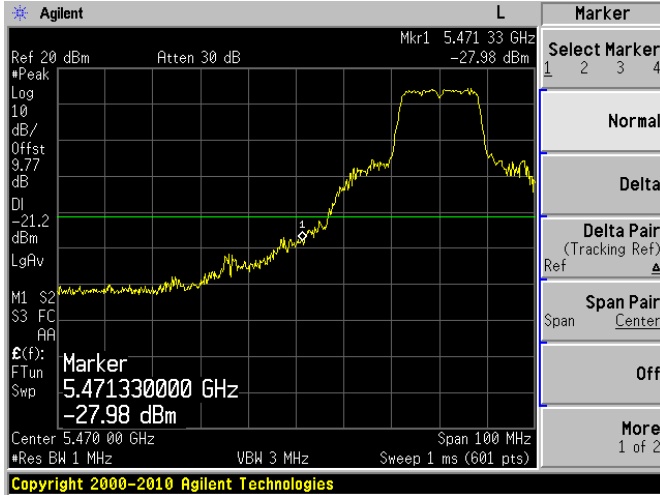
Average



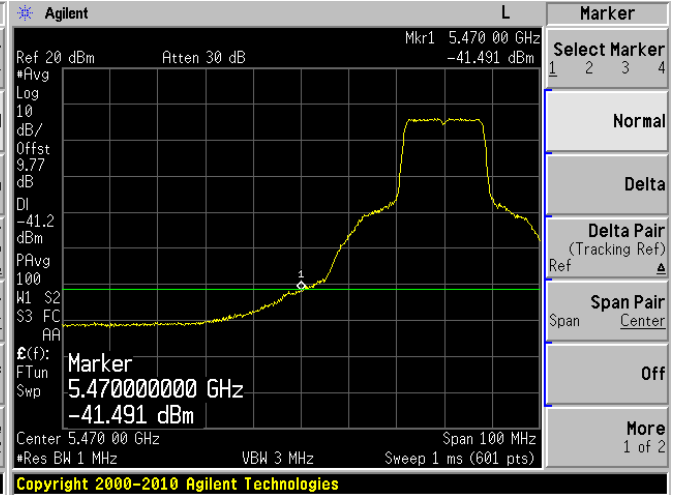
5470-5725 MHz Band

802.11a mode, Low Channel

Peak

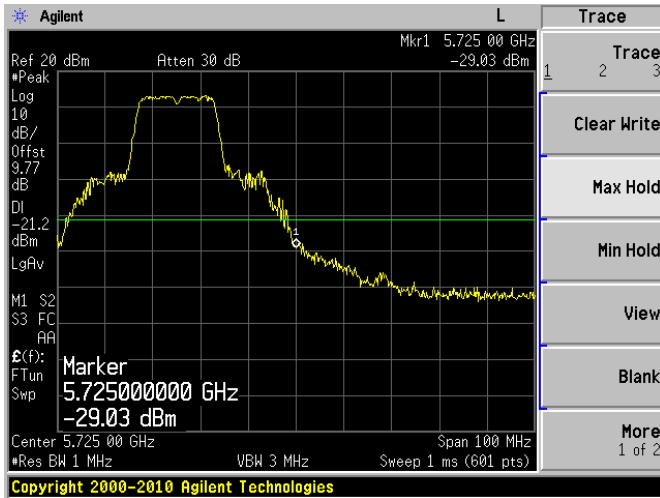


Average

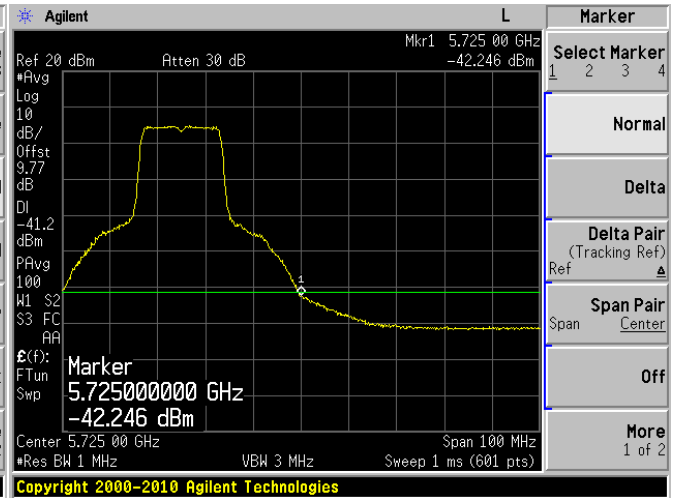


802.11a mode, High Channel

Peak

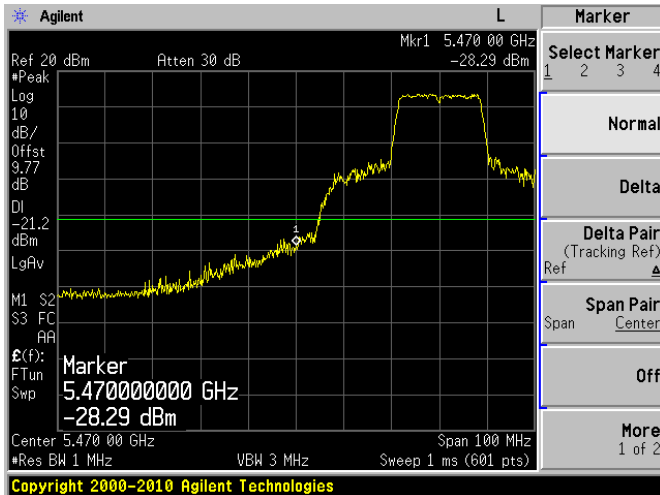


Average

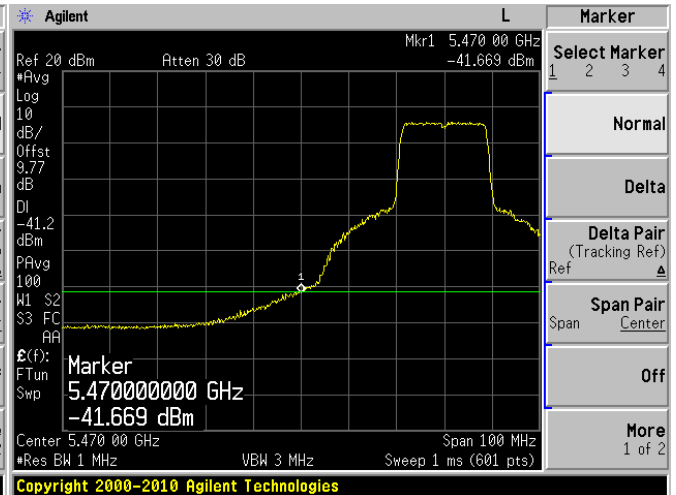


802.11n-HT20 mode, Low Channel

Peak

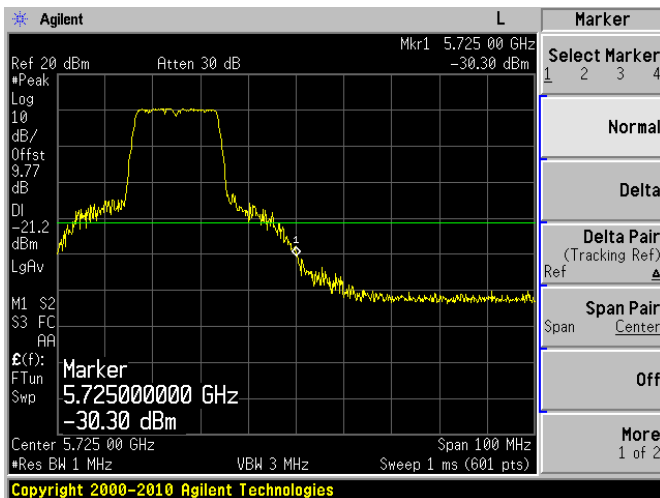


Average

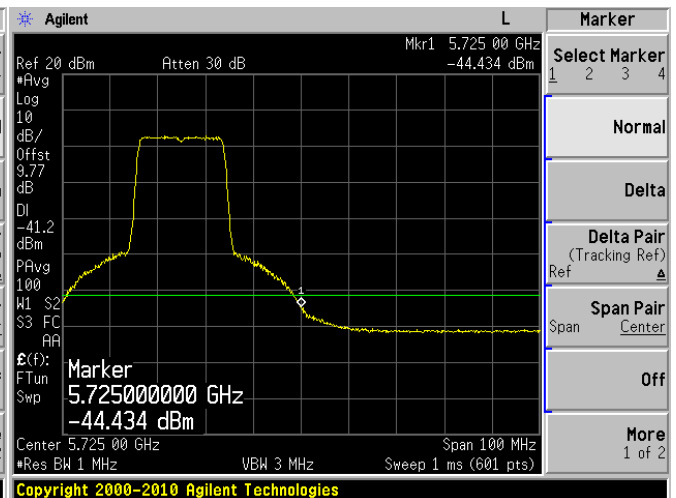


802.11n-HT20 mode, High Channel

Peak



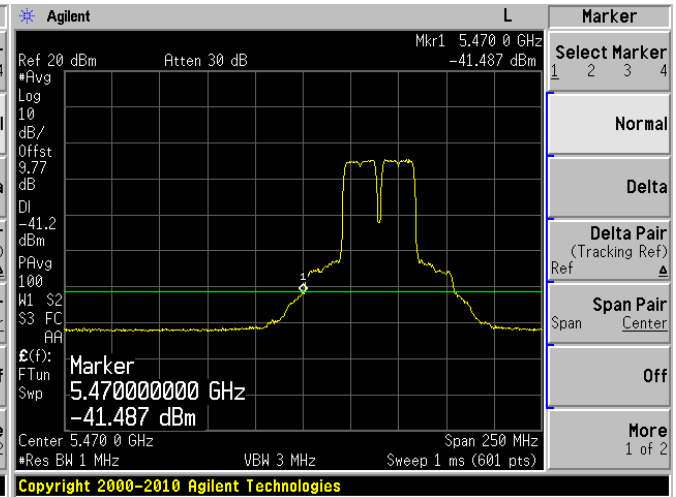
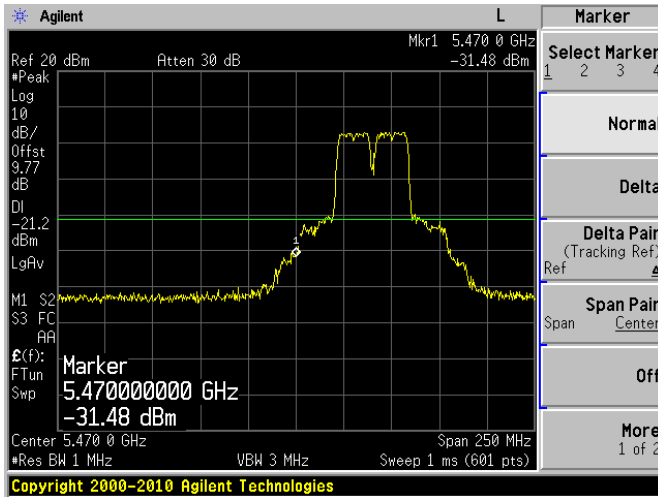
Average



802.11n-HT40 mode, Low Channel

Peak

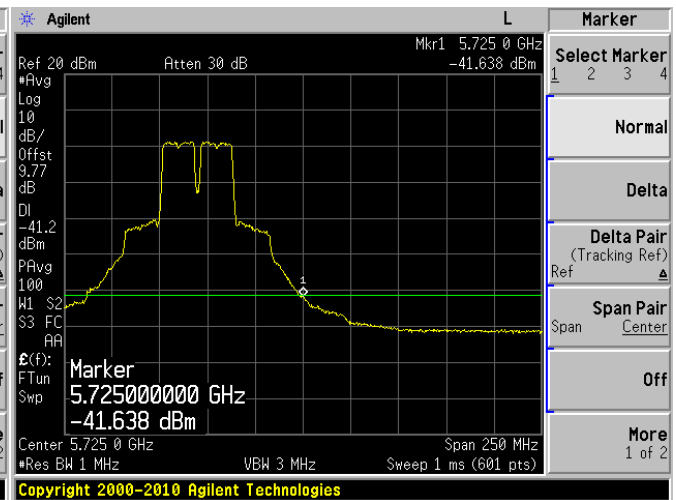
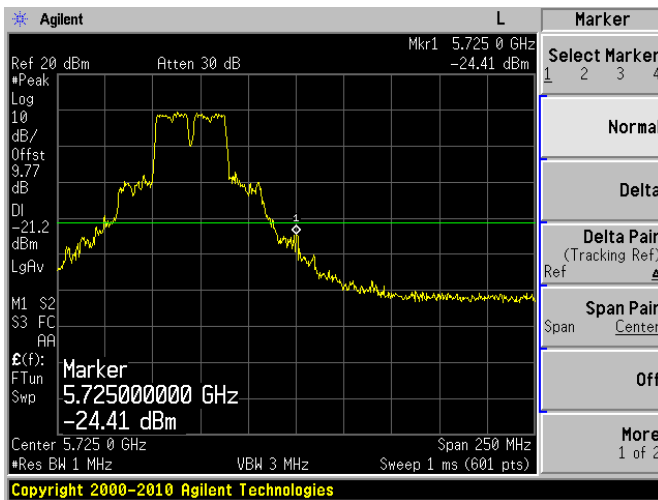
Average



802.11n-HT40 mode, High Channel

Peak

Average



Chip Antenna:

Note 1: The antenna gain was included in the offset of these plots.

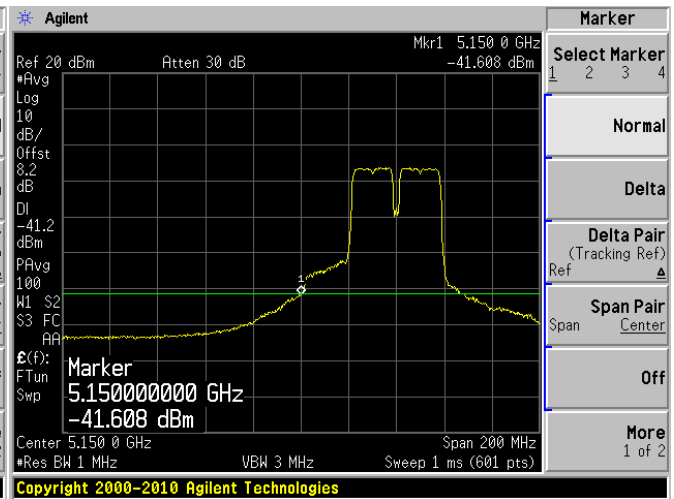
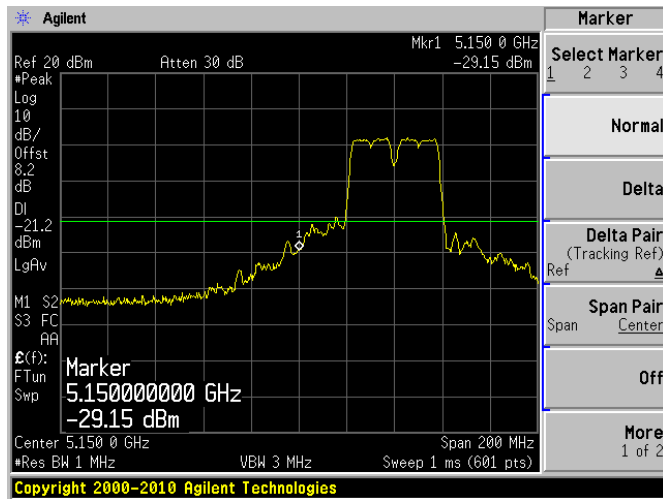
Note 2: The chip antenna has a lower gain than the dipole antenna (-3.7dBi vs. 2.9dBi); therefore only the channels with different power settings were remeasured; all other plots share with the dipole antenna.

5150-5250 MHz Band

802.11n-HT40 mode, Low Channel

Peak

Average

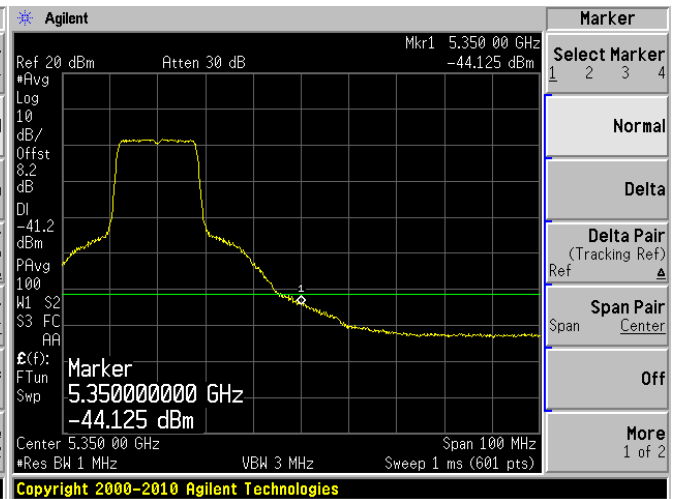
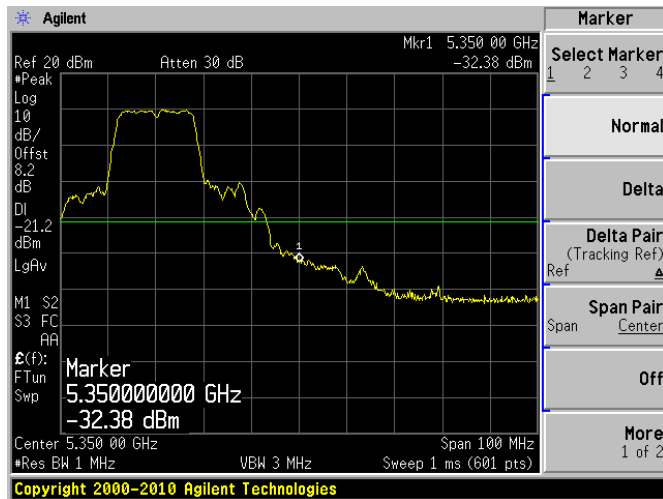


5250-5350 MHz Band

802.11a mode, High Channel

Peak

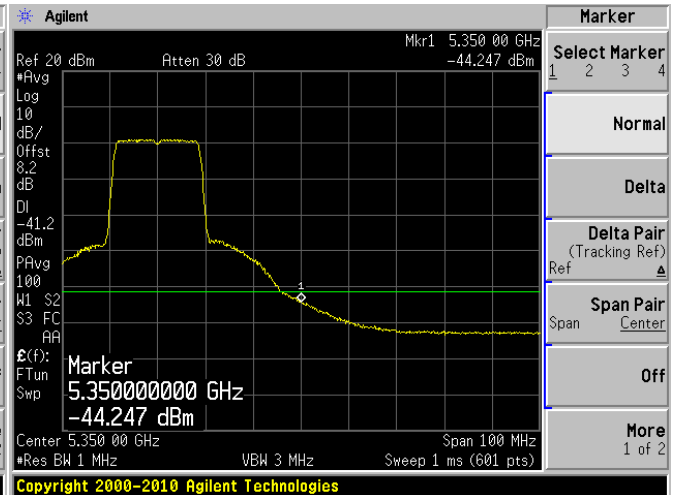
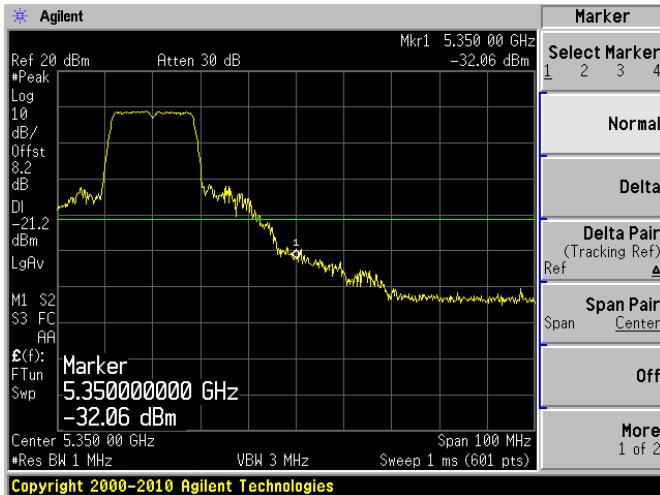
Average



802.11n-HT20 mode, High Channel

Peak

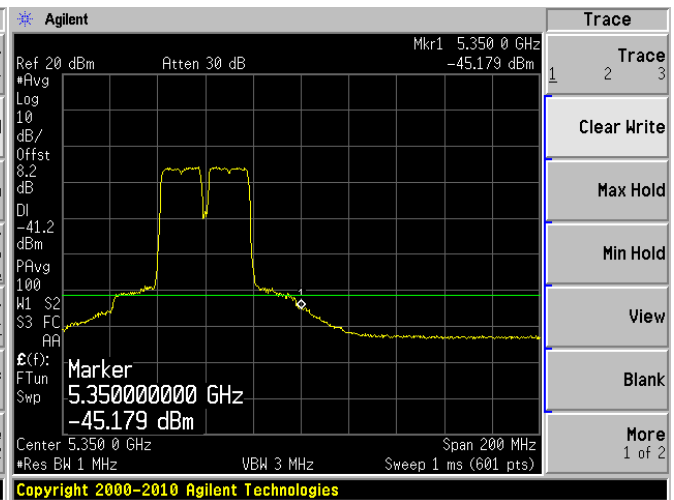
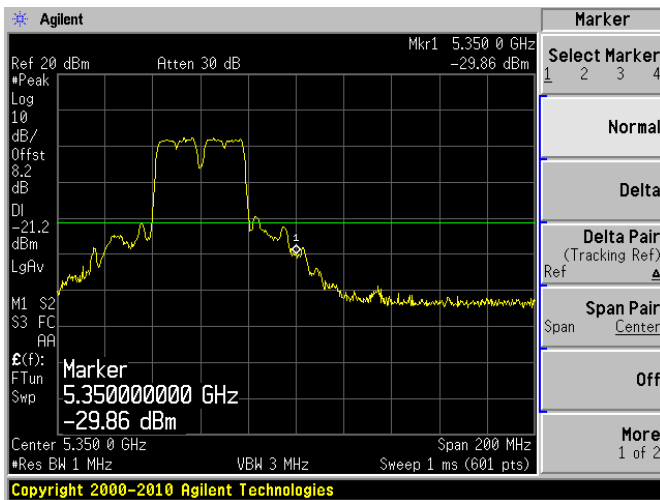
Average



802.11n-HT40 mode, High Channel

Peak

Average

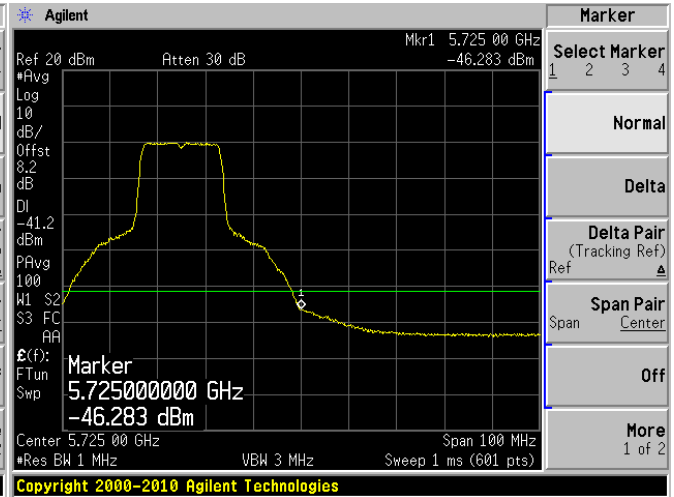
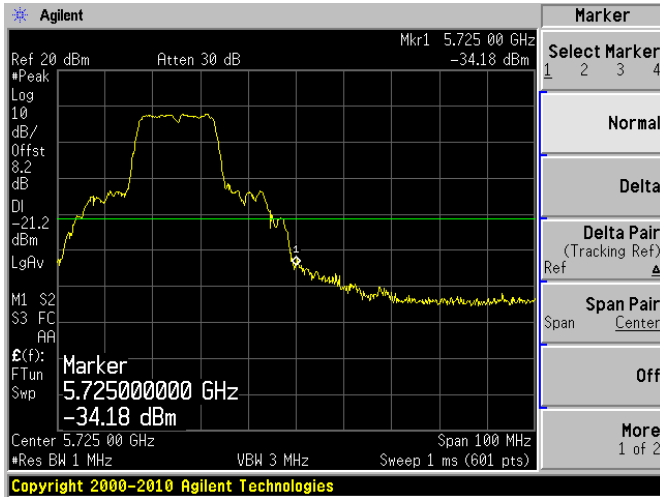


5470-5725 MHz Band

802.11a mode, High Channel

Peak

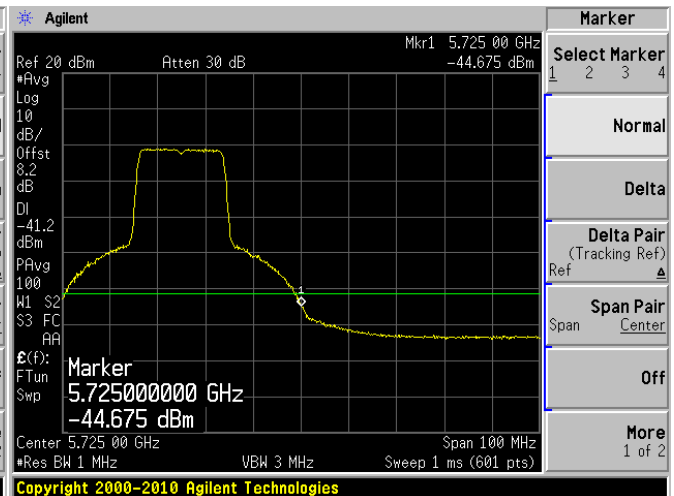
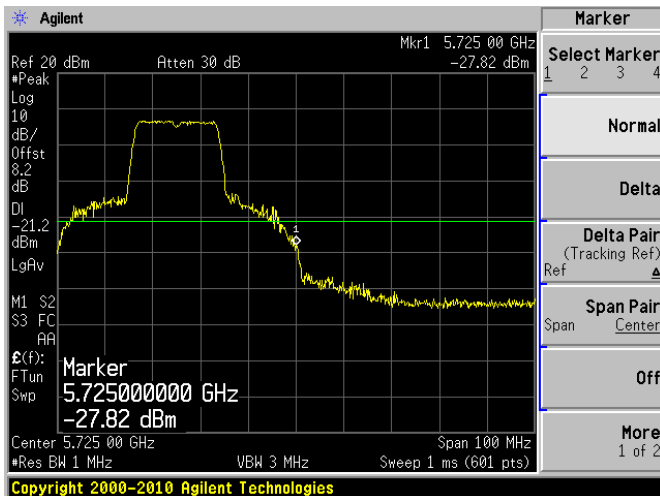
Average



802.11n-HT20 mode, High Channel

Peak

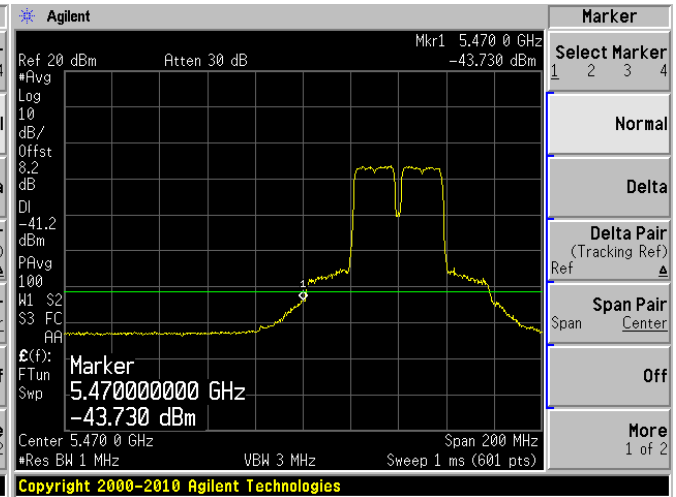
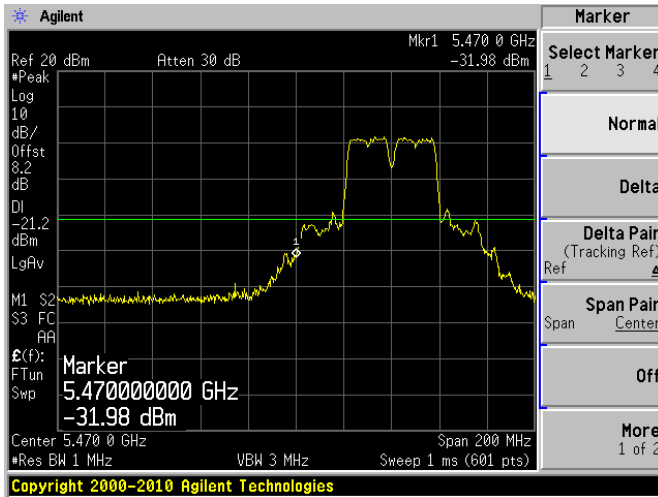
Average



802.11n-HT40 mode, Low Channel

Peak

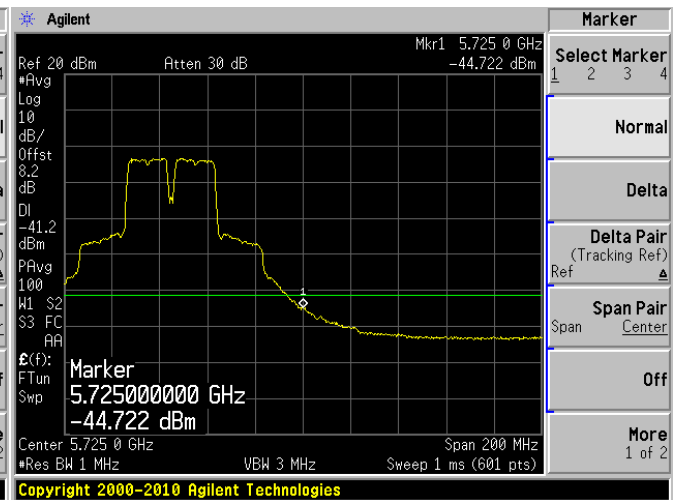
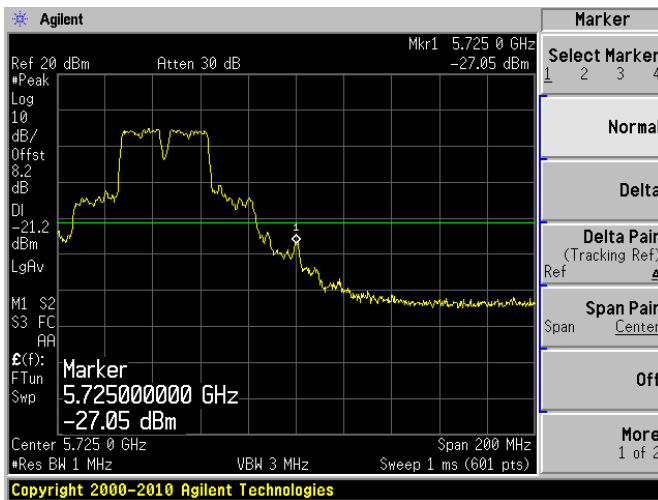
Average



802.11n-HT40 mode, High Channel

Peak

Average



11 FCC §15.407(a)(2) - Power Spectral Density

11.1 Applicable Standard

According to FCC §15.407(a)(2)

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.

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

The measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section F:
Peak power spectral density (PPSD)

11.3 Test Equipment List and Details

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

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

11.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

The testing was performed by Lionel Lara on 2013-05-07 in the RF site.

11.5 Test Results

Note: The higher power setting (chip antenna settings) was used for all power spectral density testing.

5150-5250 MHz

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
802.11a mode				
Low	5180	3.712	4	-0.288
Middle	5200	3.862	4	-0.138
High	5240	3.667	4	-0.333
802.11n-HT20 mode				
Low	5180	3.130	4	-0.87
Middle	5200	3.284	4	-0.716
High	5240	3.325	4	-0.675
802.11n-HT40 mode				
Low	5190	-2.097	4	-6.097
High	5230	0.832	4	-3.168

5250-5350 MHz

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
802.11a mode				
Low	5260	4.865	11	-6.135
Middle	5280	5.443	11	-5.557
High	5320	4.677	11	-6.323
802.11n-HT20 mode				
Low	5260	4.496	11	-6.504
Middle	5280	4.888	11	-6.112
High	5320	4.193	11	-6.807
802.11n-HT40 mode				
Low	5270	-0.557	11	-11.557
High	5310	-2.285	11	-13.285

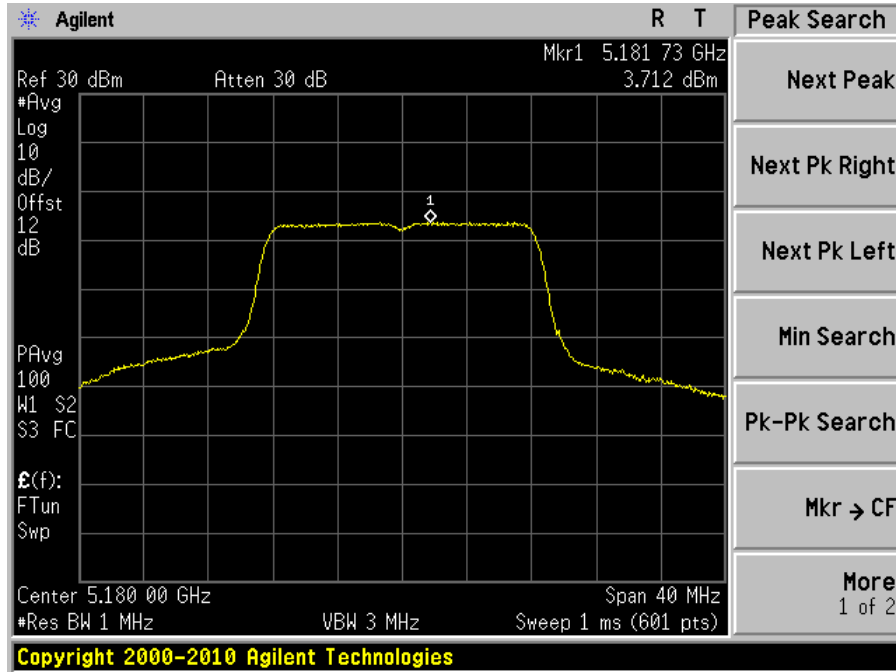
5470-5725 MHz

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
802.11a mode				
Low	5500	4.288	11	-6.712
Middle	5580	4.171	11	-6.829
High	5700	2.405	11	-8.595
802.11n-HT20 mode				
Low	5500	3.903	11	-7.097
Middle	5580	3.985	11	-7.015
High	5700	0.536	11	-10.464
802.11n-HT40 mode				
Low	5510	-2.650	11	-13.65
Middle	5550	0.097	11	-10.903
High	5670	-0.313	11	-11.313

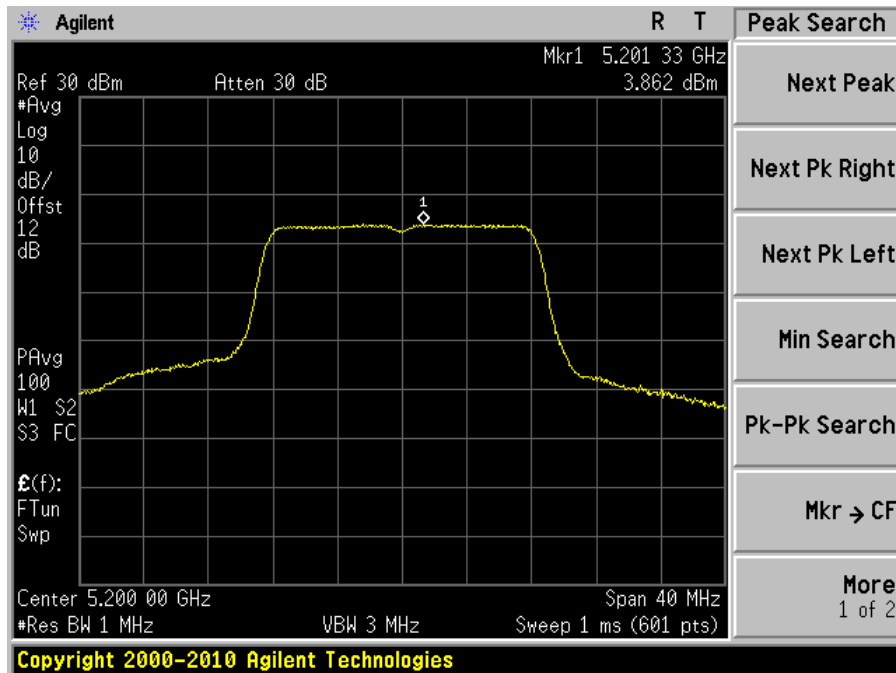
Please refer to the following plots.

5150-5250 MHz

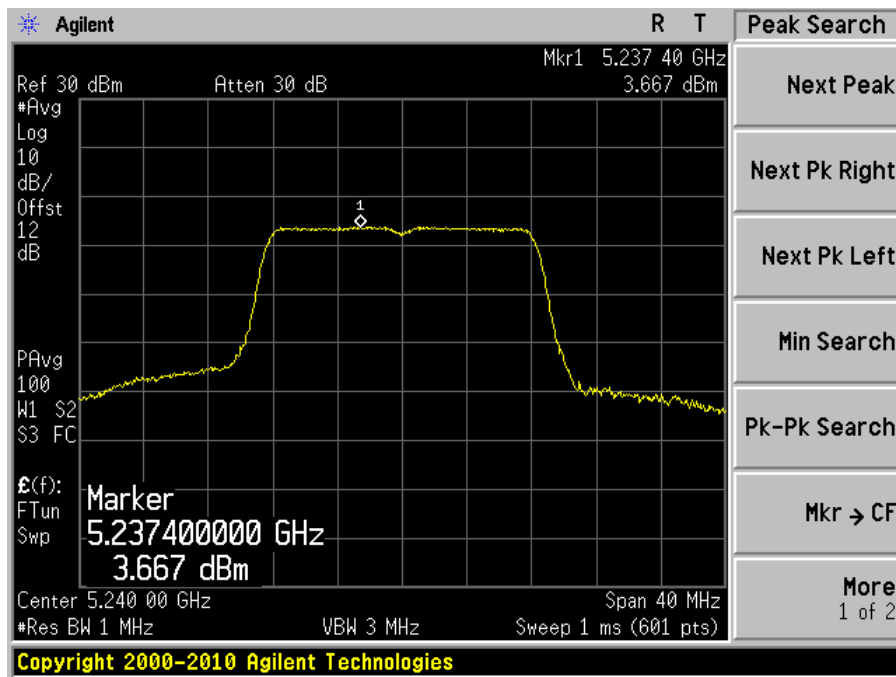
802.11a mode, 5180 MHz



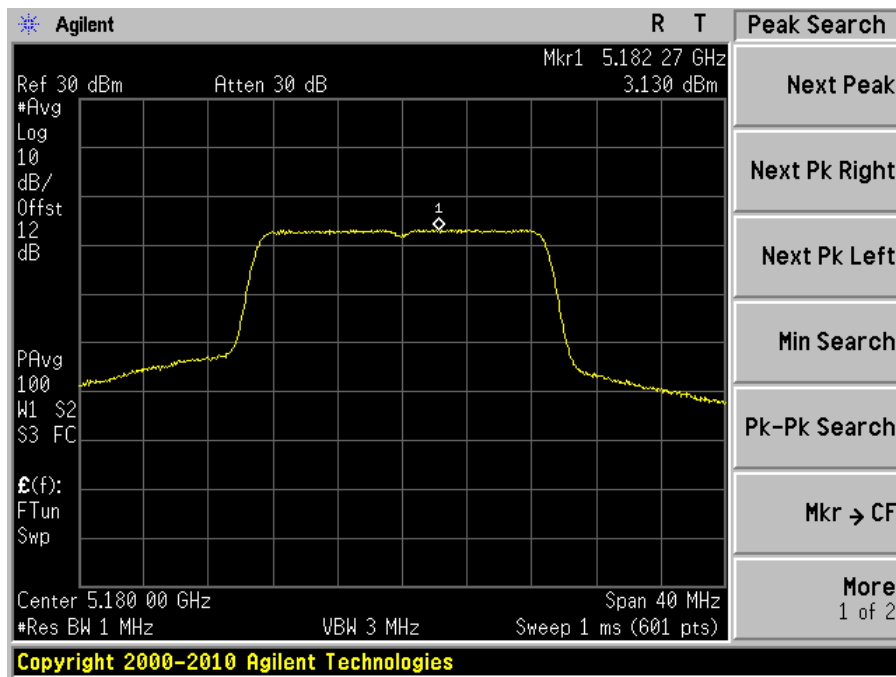
802.11a mode, 5200 MHz



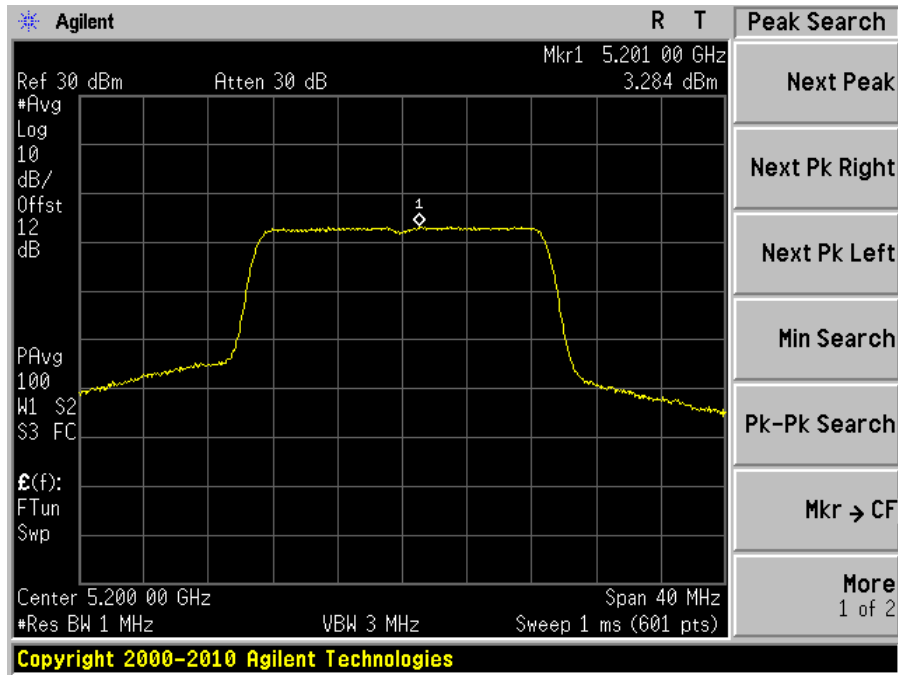
802.11a mode, 5240 MHz



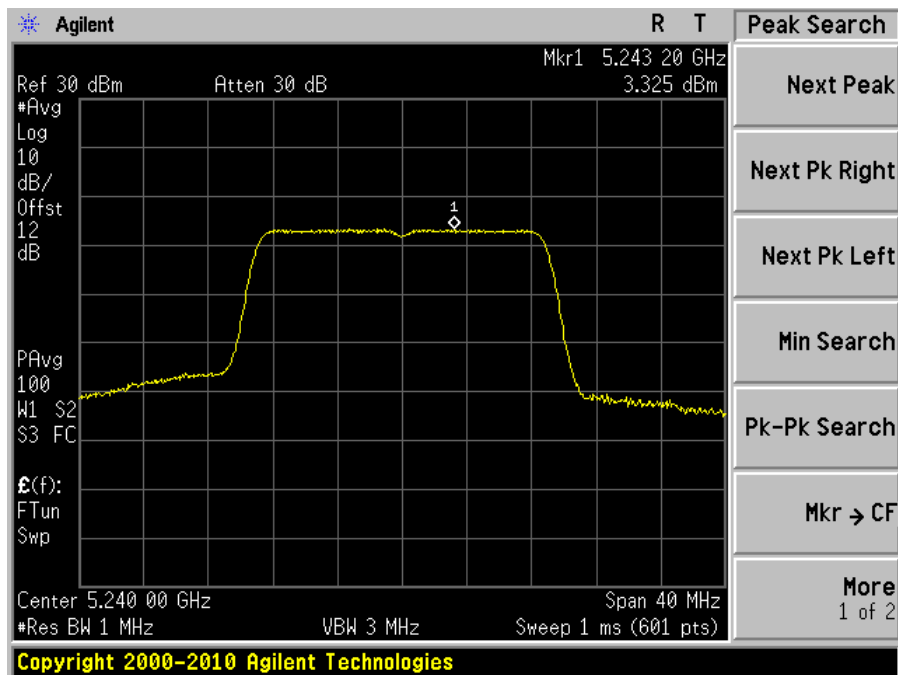
802.11n-HT20 mode, 5180 MHz



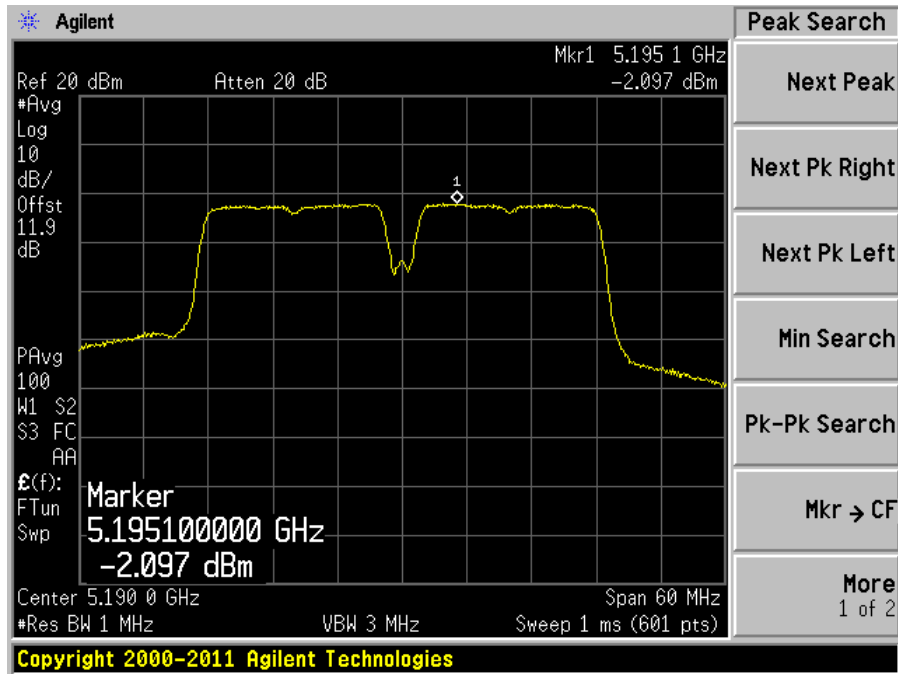
802.11n-HT20 mode, 5200 MHz



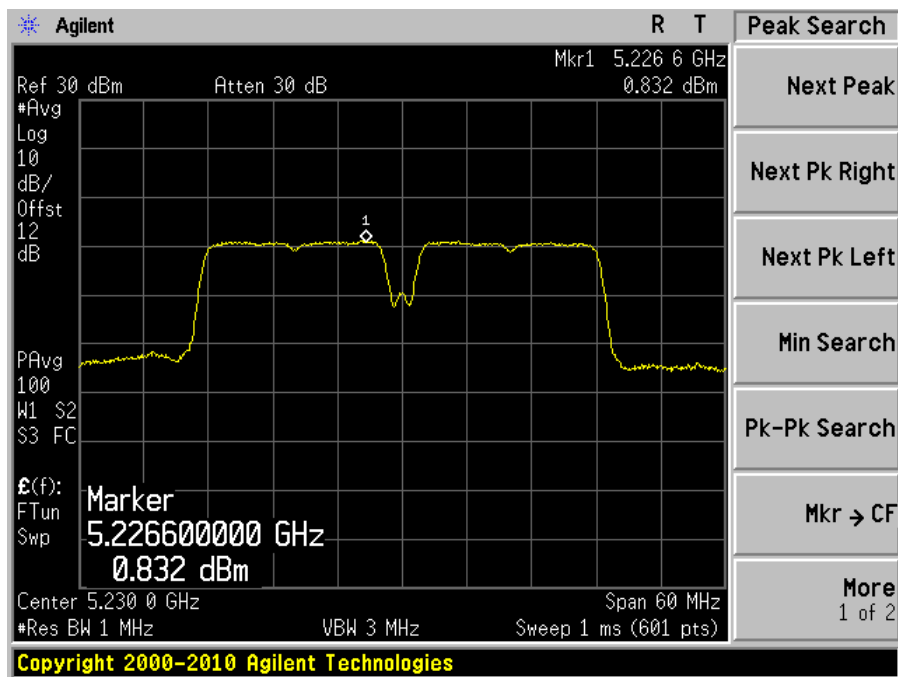
802.11n-HT20 mode, 5240 MHz



802.11n-HT40 mode, 5190 MHz

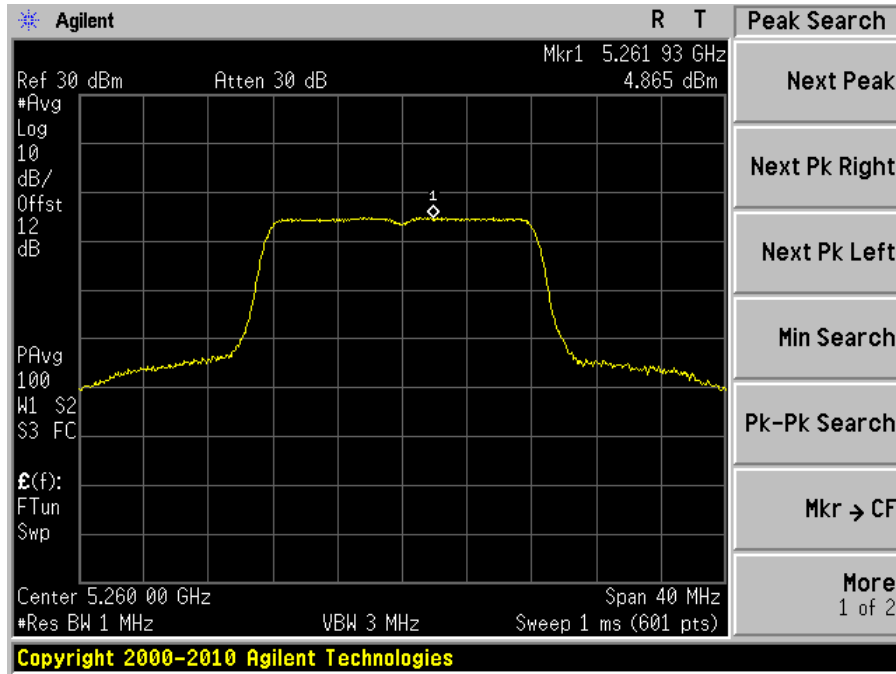


802.11n-HT40 mode, 5230 MHz

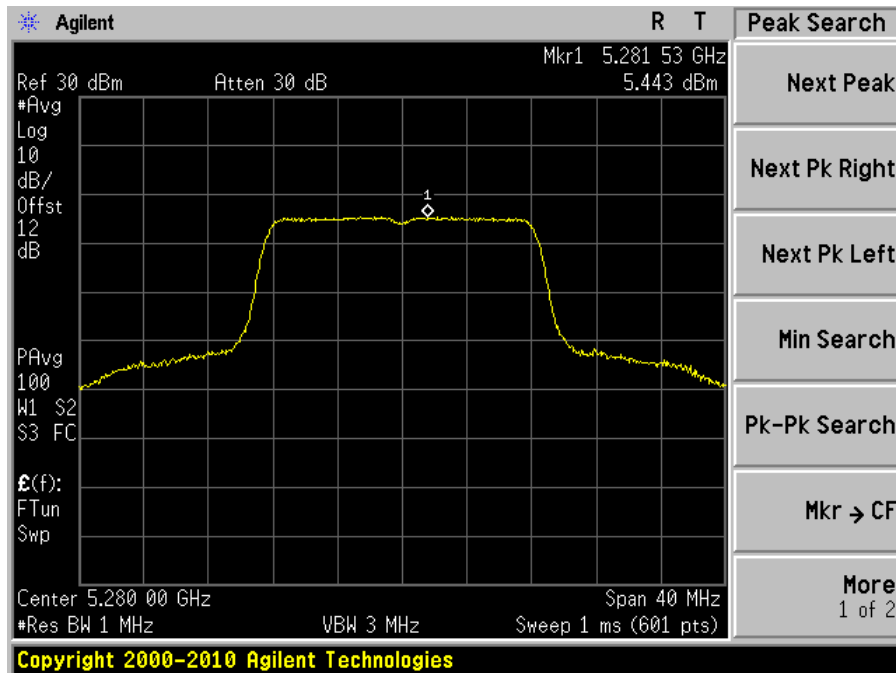


5250-5350 MHz

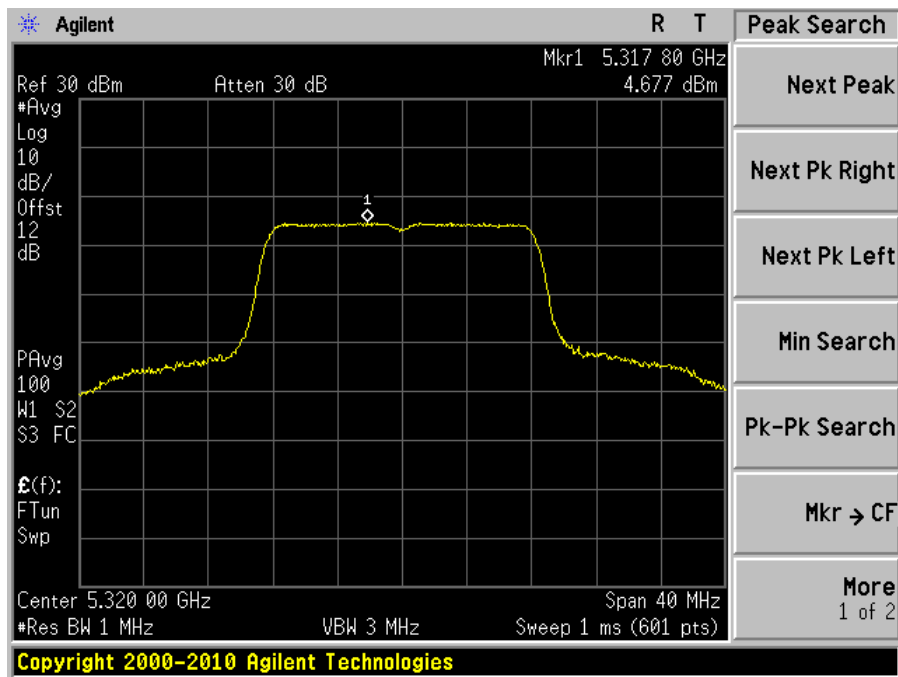
802.11a mode, 5260 MHz



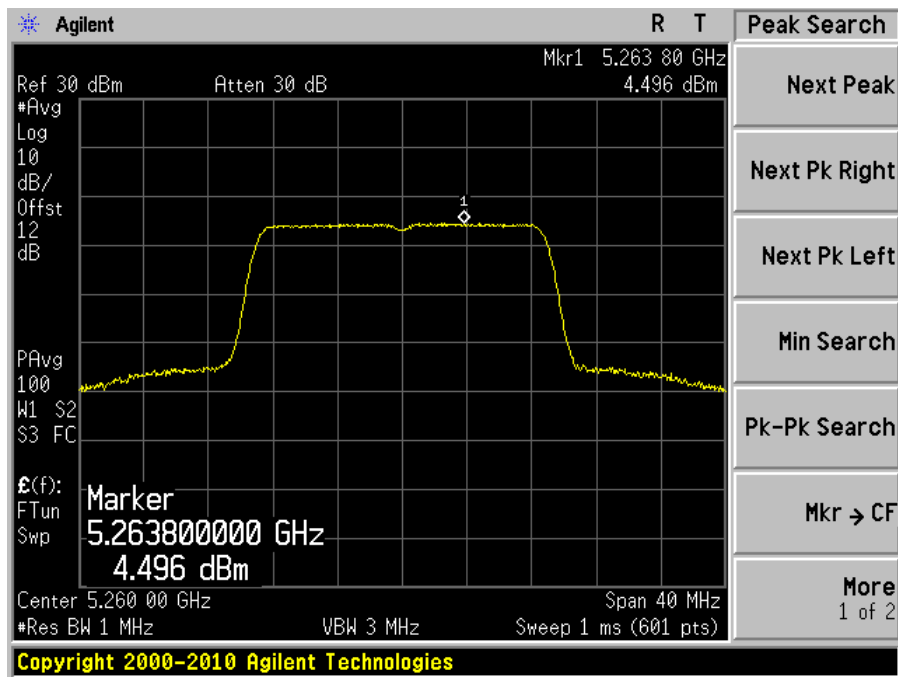
802.11a mode, 5280 MHz



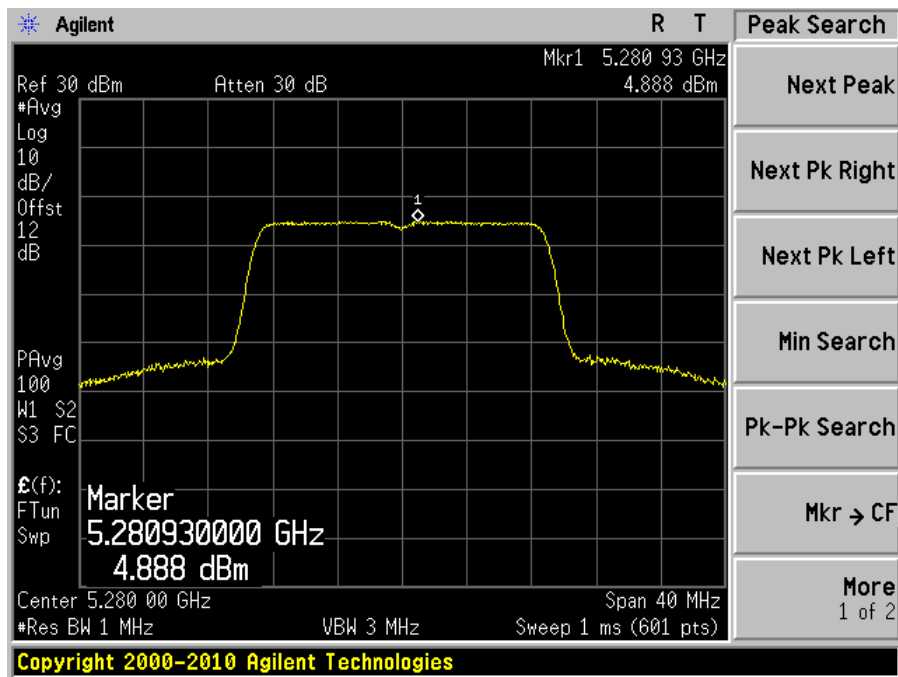
802.11a mode, 5320 MHz



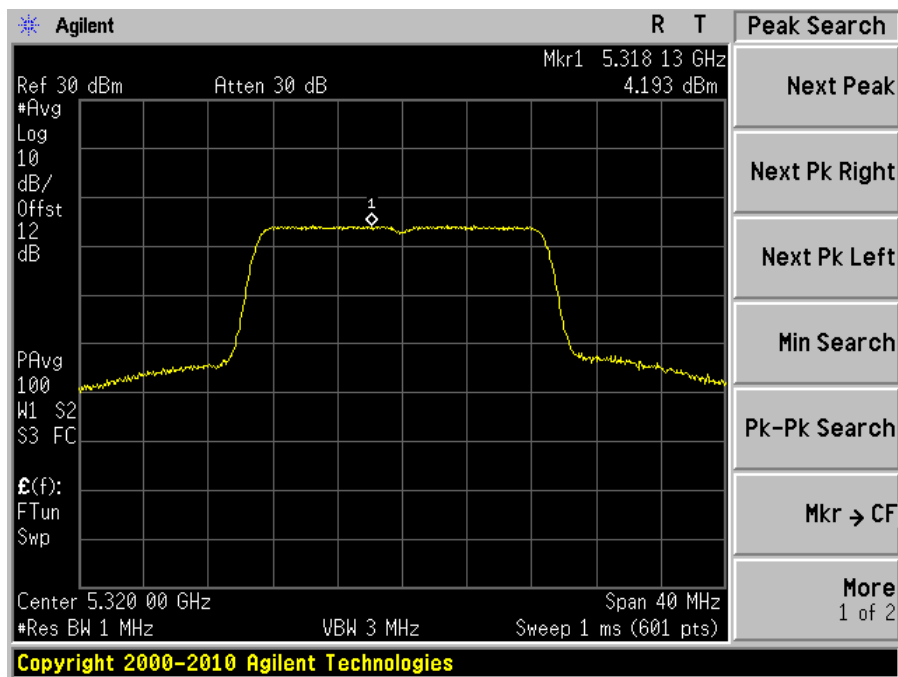
802.11n-HT20 mode, 5260 MHz



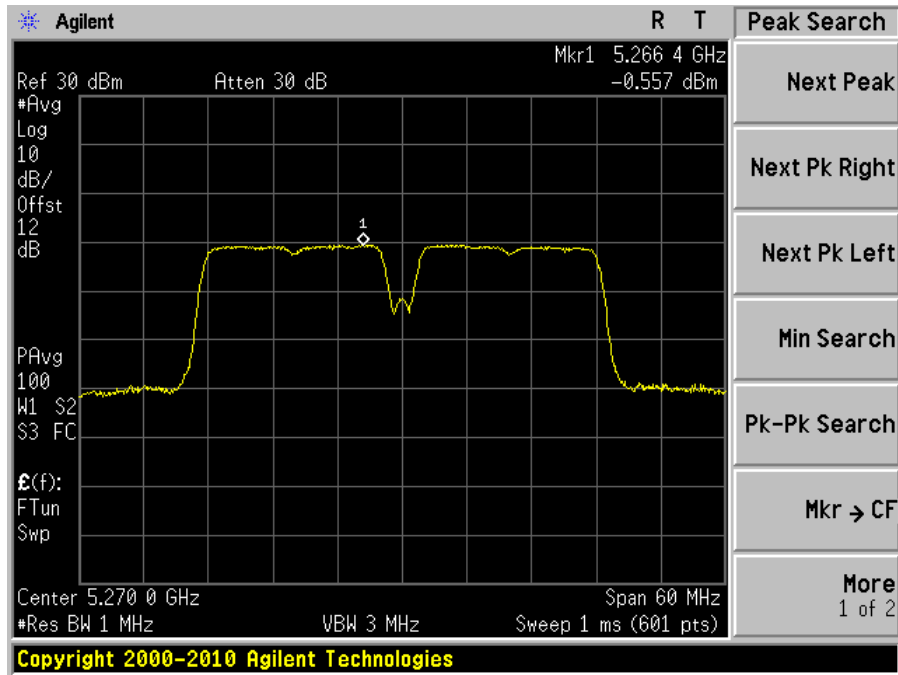
802.11n-HT20 mode, 5280 MHz



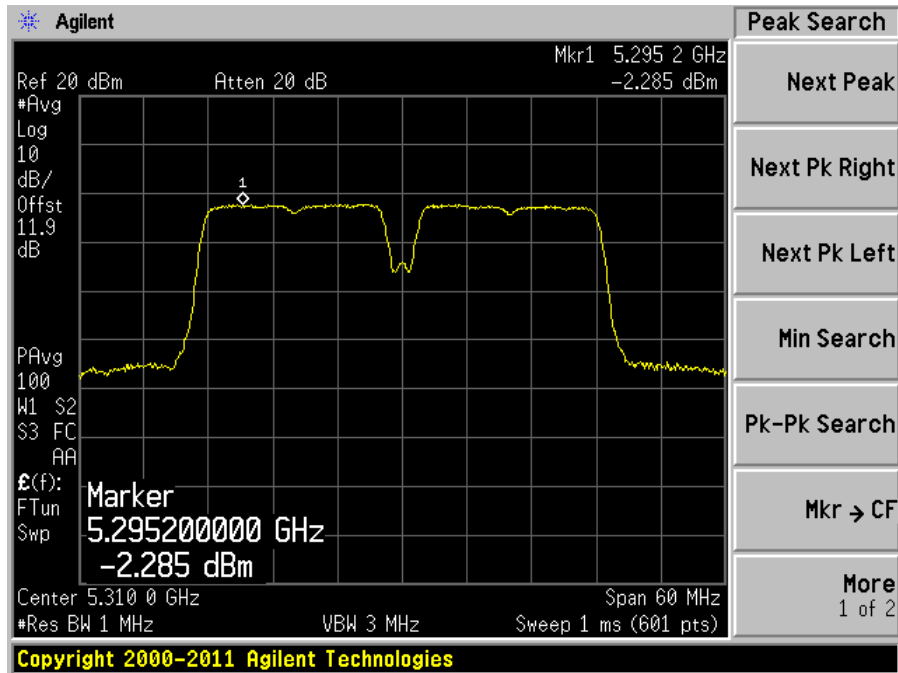
802.11n-HT20 mode, 5320 MHz



802.11n-HT40 mode, 5270 MHz

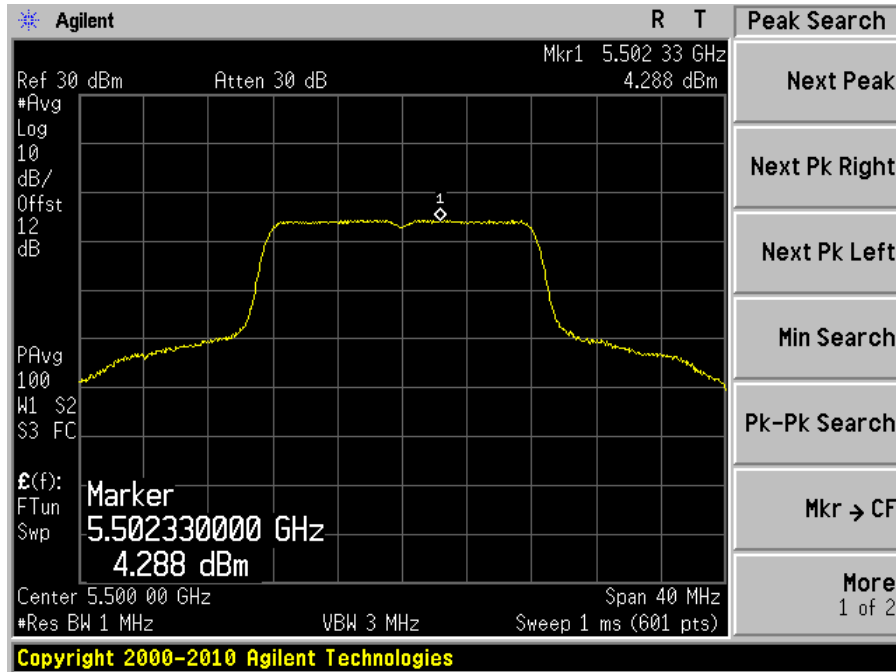


802.11n-HT40 mode, 5310 MHz

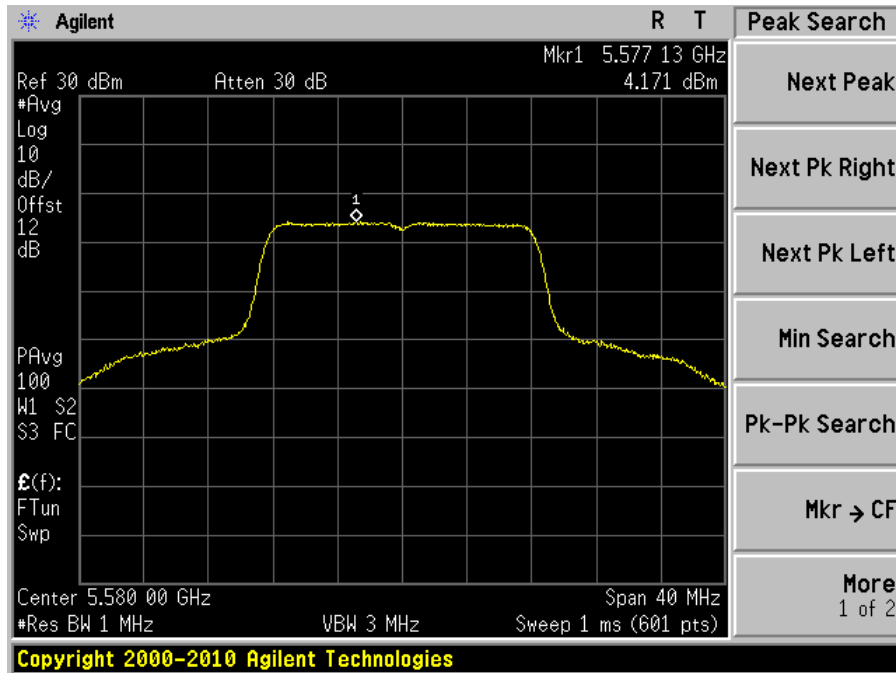


5470-5725 MHz

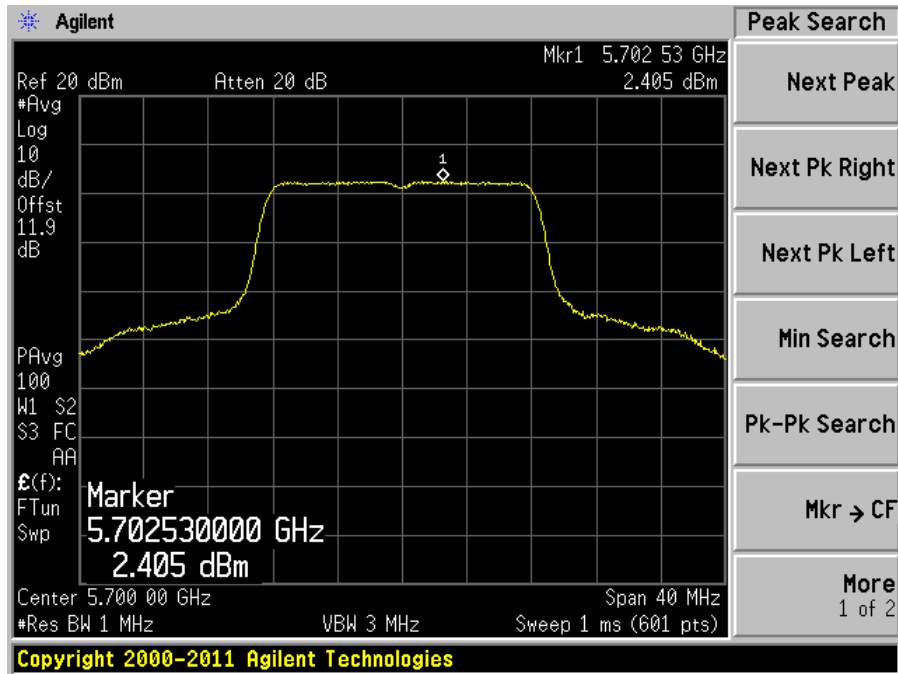
802.11a mode, 5500 MHz



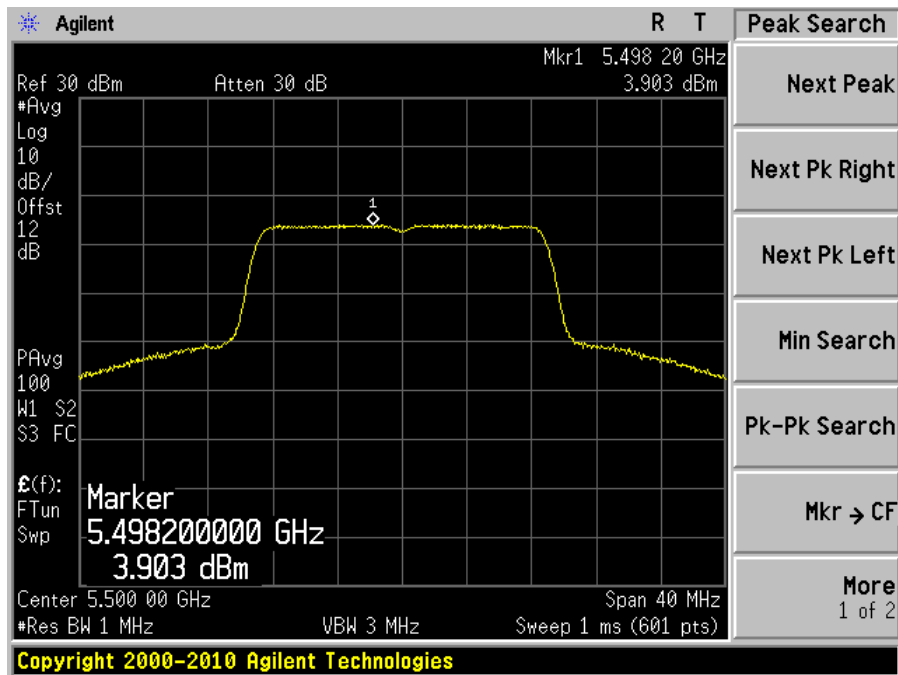
802.11a mode, 5580 MHz



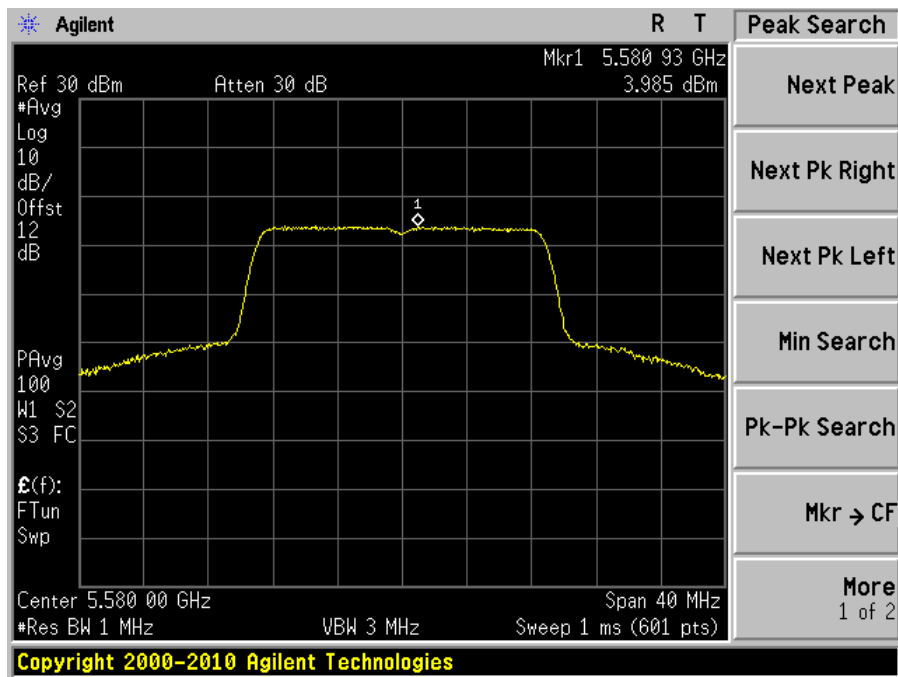
802.11a mode, 5700 MHz



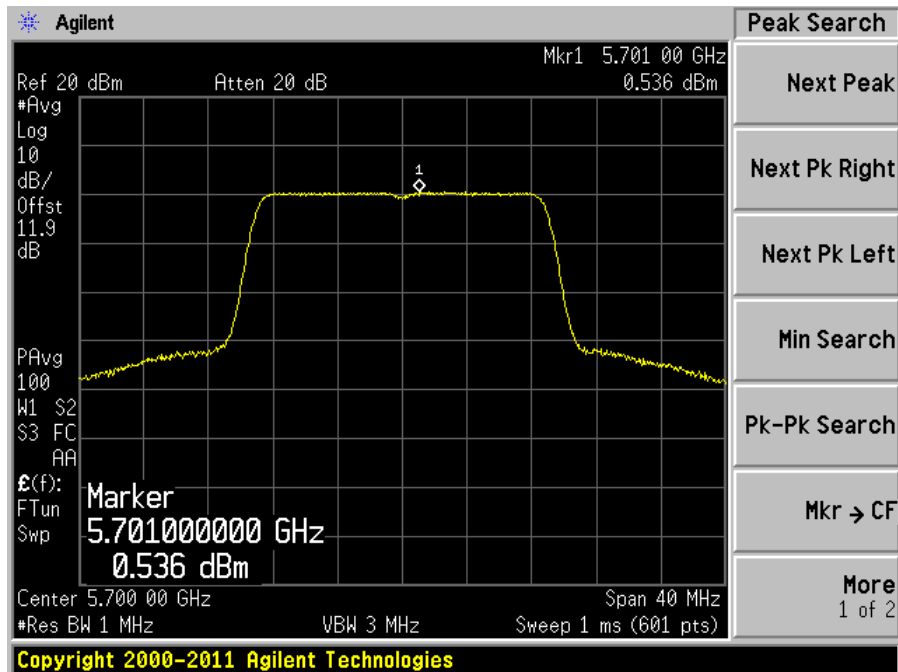
802.11n-HT20 mode, 5500 MHz



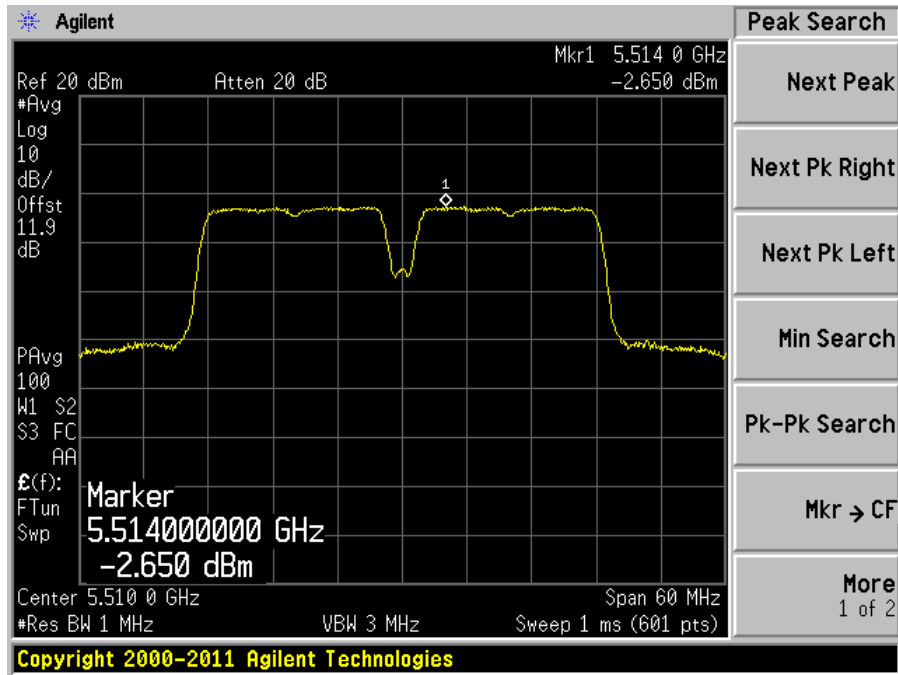
802.11n-HT20 mode, 5580 MHz



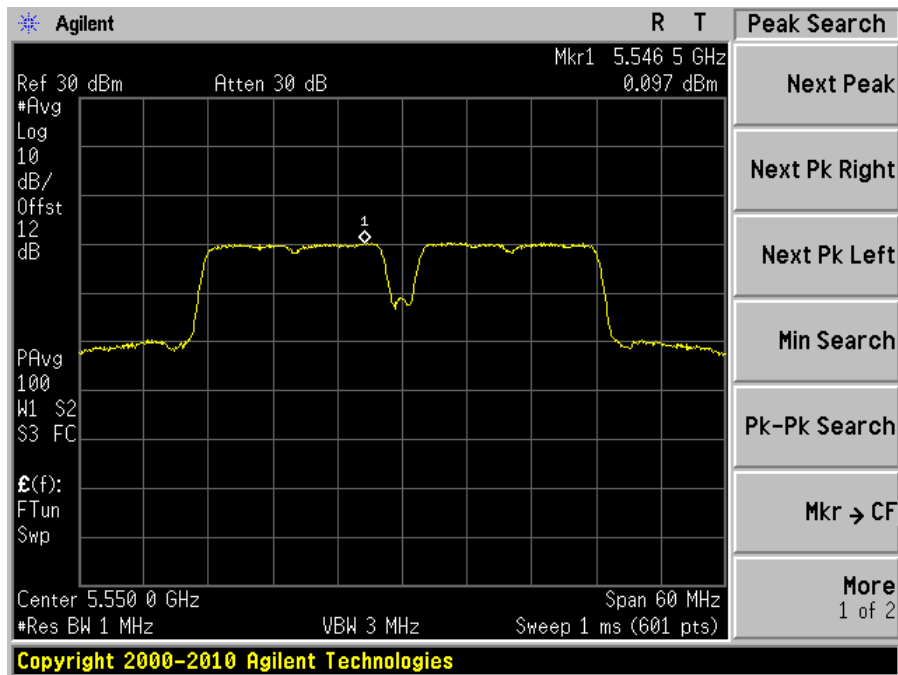
802.11n-HT20 mode, 5700 MHz



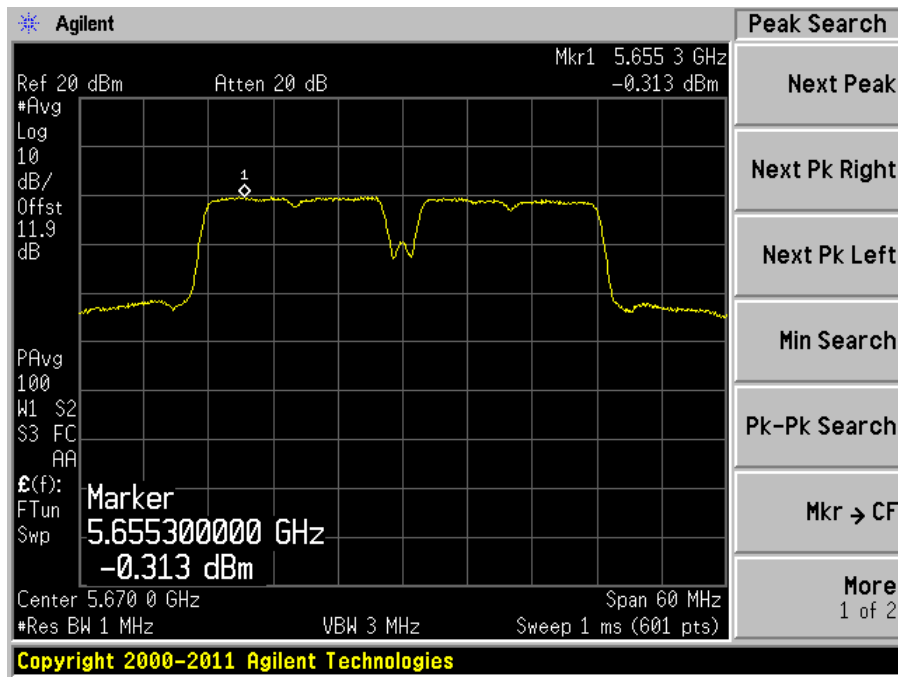
802.11n-HT40 mode, 5510 MHz



802.11n-HT40 mode, 5550 MHz



802.11n-HT40 mode, 5670 MHz



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

The measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section G: Peak excursion measurement

12.3 Test Equipment List and Details

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

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

12.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	51 %
ATM Pressure:	101.3 kPa

The testing was performed by Lionel Lara on 2013-05-07 in the RF site.

12.5 Test Results**5150-5250 MHz Band**

802.11a mode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5200	8.348	13

802.11n-HT20 amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5200	8.746	13

802.11n-HT40 amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Low	5190	12.017	13

5250-5350 MHz Band

802.11a mode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5280	7.897	13

802.11n-HT20 amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5280	8.352	13

802.11n-HT40 amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Low	5270	9.997	13

5470-5725 MHz Band

802.11a amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5580	8.139	13

802.11n-HT20 amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5580	7.975	13

802.11n-HT40 amode

Channel	Frequency (MHz)	Results (dB)	Limit (dB)
Middle	5550	8.433	13

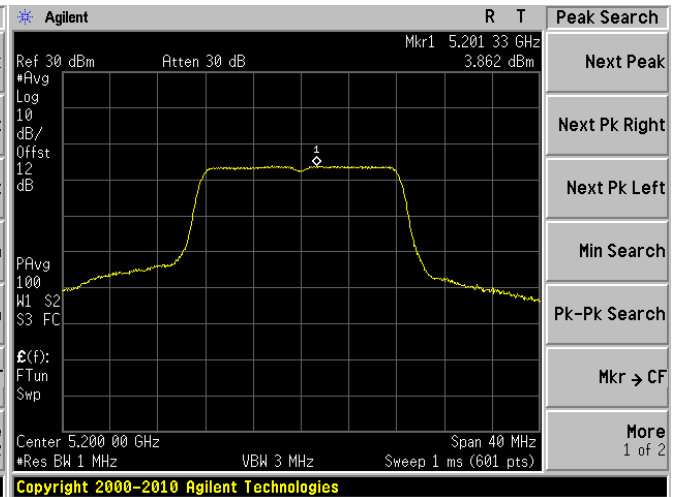
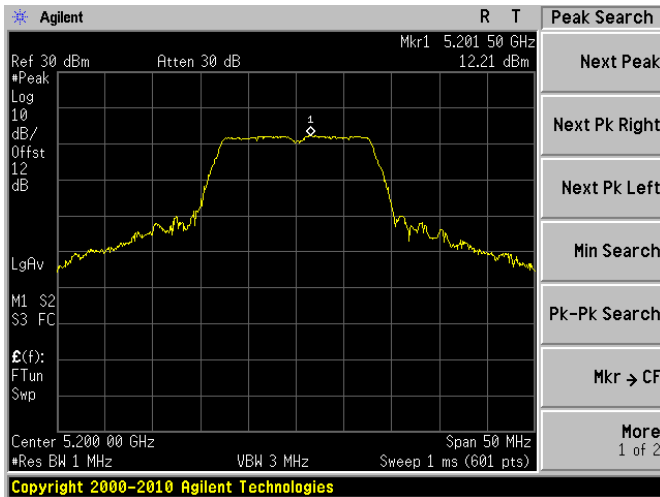
Please refer to the following plots for detailed test results:

5150-5250 MHz Band

802.11a mode, 5200 MHz

Peak

Average

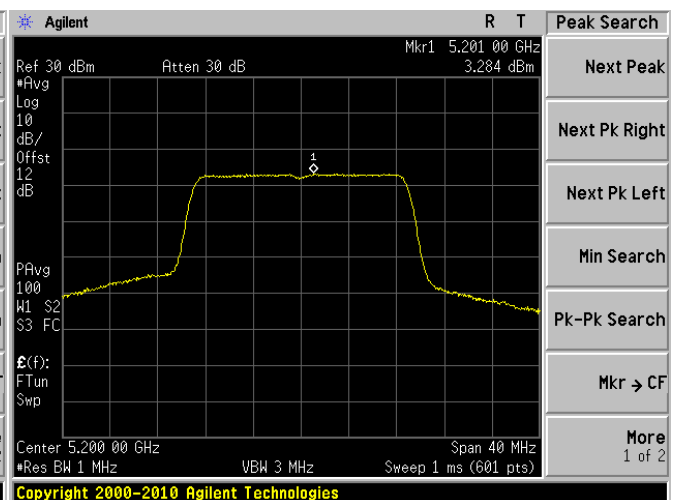
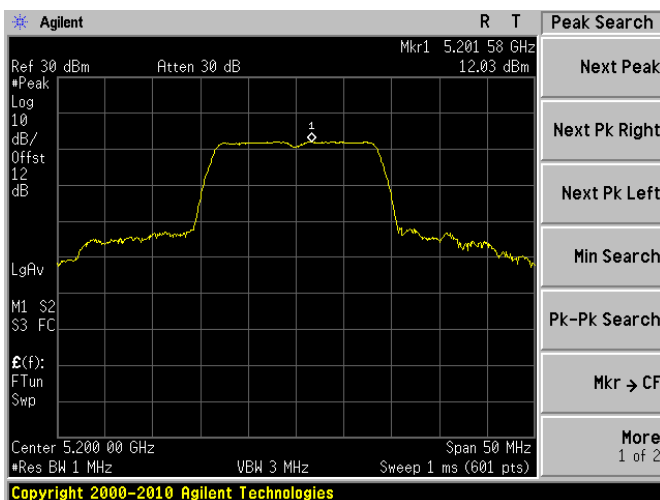


Note: The peak excursion ratio is $12.21 \text{ dBm} - 3.862 \text{ dBm} = 8.348 \text{ dB}$

802.11n-HT20 mode, 5200 MHz

Peak

Average

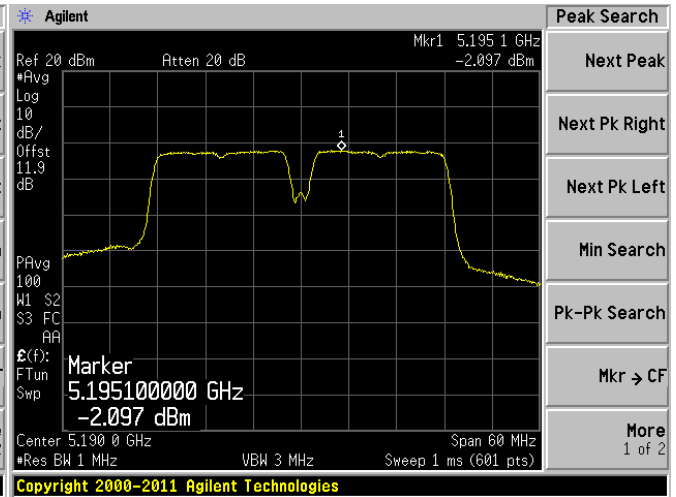
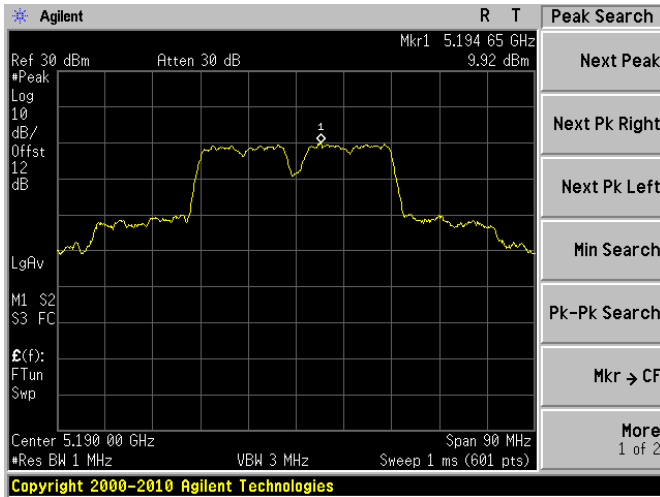


Note: The peak excursion ratio is $12.03 \text{ dBm} - 3.284 \text{ dBm} = 8.746 \text{ dB}$

802.11n-HT40 mode, 5190 MHz

Peak

Average



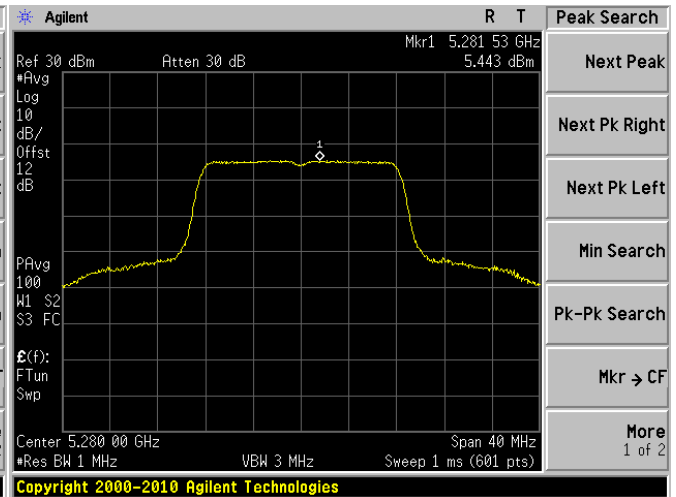
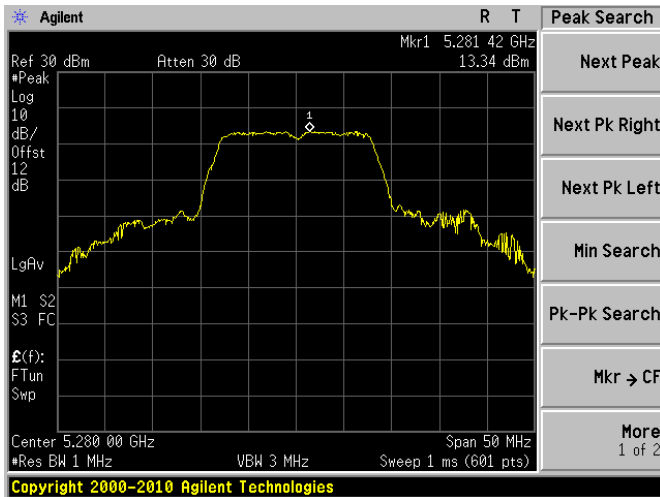
Note: The peak excursion ratio is $9.92 \text{ dBm} - (-2.097) \text{ dBm} = 12.017 \text{ dB}$

5250-5350 MHz Band

802.11a mode, 5280 MHz

Peak

Average

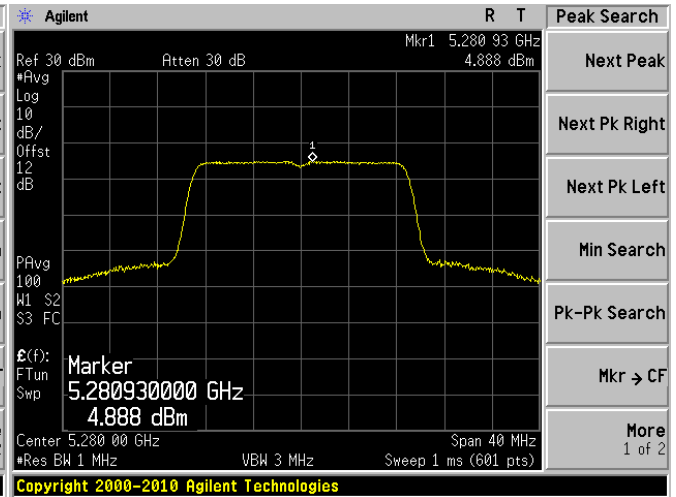
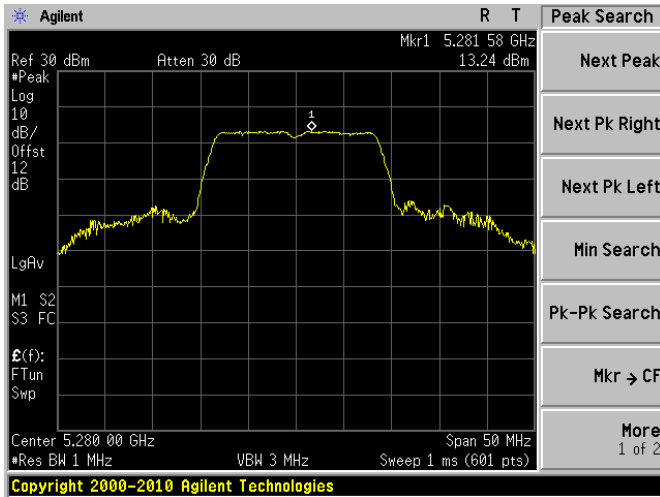


Note: The peak excursion ratio is $13.34 \text{ dBm} - 5.443 \text{ dBm} = 7.897 \text{ dB}$

802.11n-HT20 mode, 5280 MHz

Peak

Average

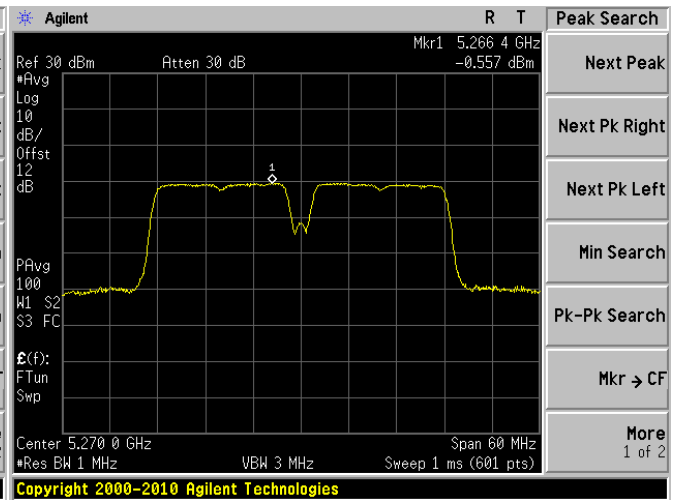
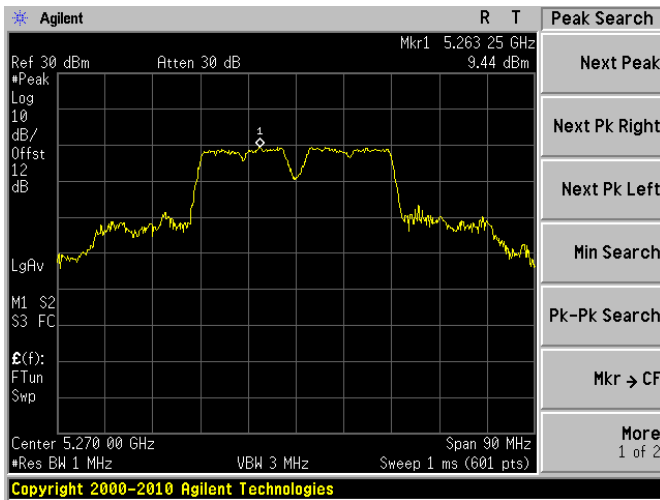


Note: The peak excursion ratio is 13.24 dBm – 4.888 dBm = 8.352 dB

802.11n-HT40 mode, 5270 MHz

Peak

Average



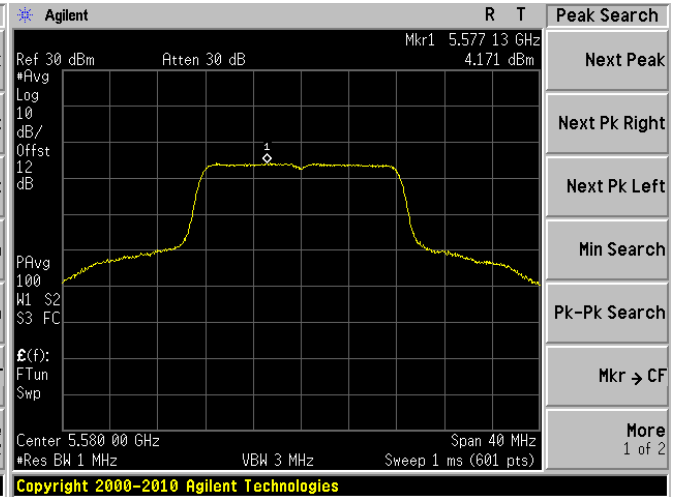
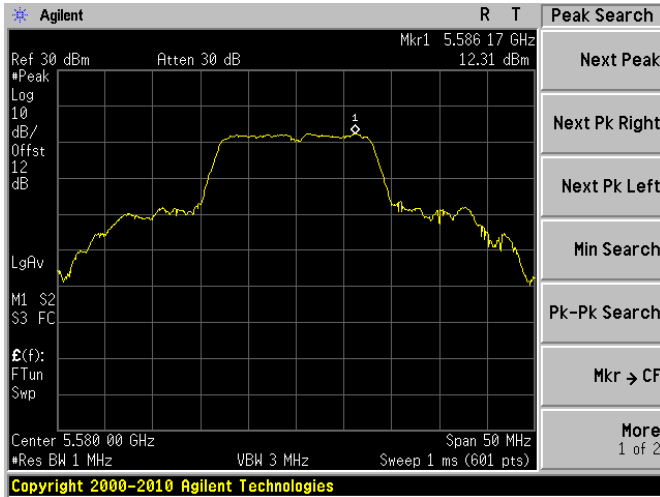
Note: The peak excursion ratio is 9.44 dBm – (-0.557) dBm = 9.997 dB

5470-5725 MHz Band

802.11a mode, 5580 MHz

Peak

Average

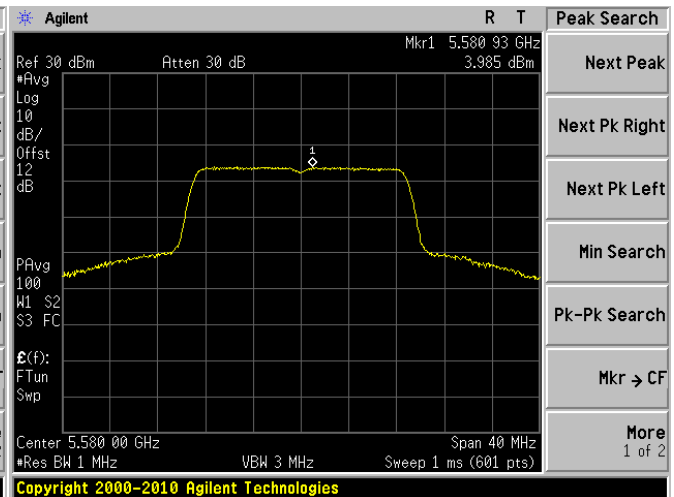
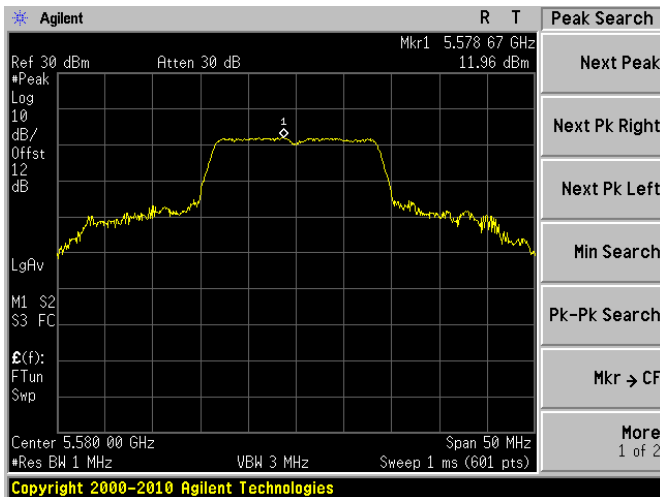


Note: The peak excursion ratio is $12.31 \text{ dBm} - 4.171 \text{ dBm} = 8.139 \text{ dB}$

802.11n-HT20 mode, 5580 MHz

Peak

Average

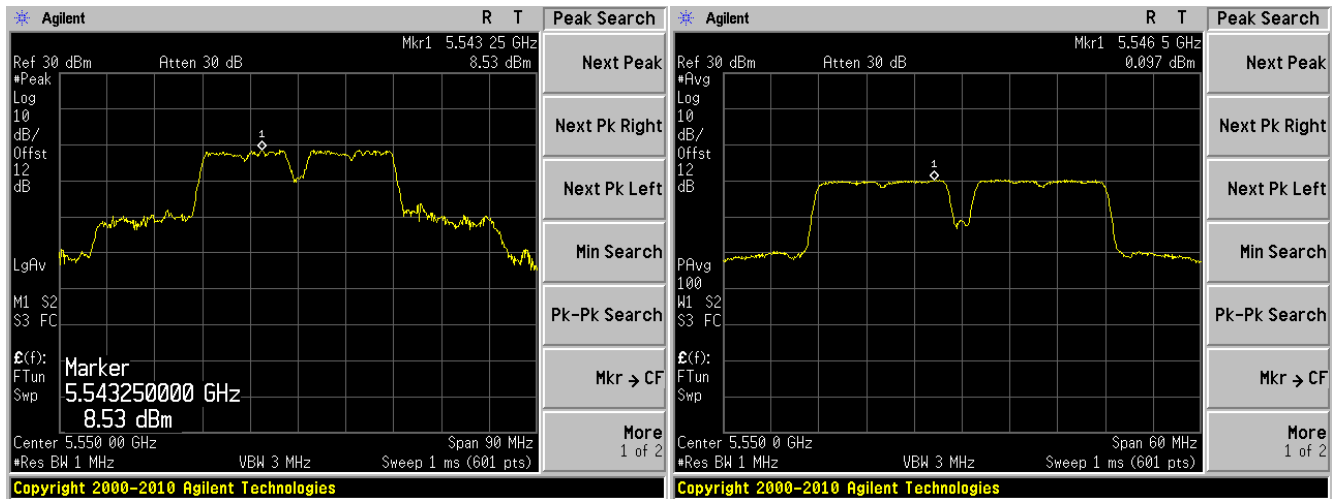


Note: The peak excursion ratio is $11.96 \text{ dBm} - 3.985 \text{ dBm} = 7.975 \text{ dB}$

802.11n-HT40 mode, 5550 MHz

Peak

Average



Note: The peak excursion ratio is $8.53 \text{ dBm} - 0.097 \text{ dBm} = 8.433 \text{ dB}$

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

13.1 Applicable Standard

According to FCC §15.407(b)

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

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 measurements are base on FCC KDB 789033 D01 General UNII Test Procedures v01r03: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section H: Unwanted emissions measurement

13.3 Test Equipment List and Details

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

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

13.4 Test Environmental Conditions

Temperature:	22 °C
Relative Humidity:	48 %
ATM Pressure:	101.3 kPa

The testing was performed by Lionel Lara on 2013-05-17 in the RF site.

13.5 Test Results

Please refer to following plots of spurious emissions.

Note: Only spurious emissions that fall into the restricted bands were remeasured with a smaller span.

Dipole Antenna:

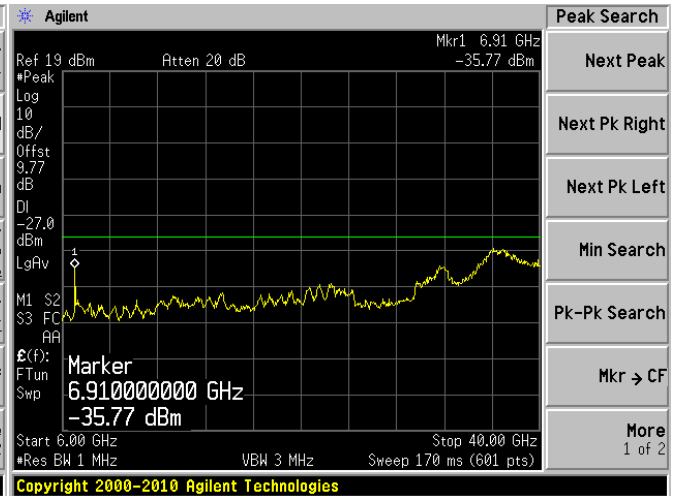
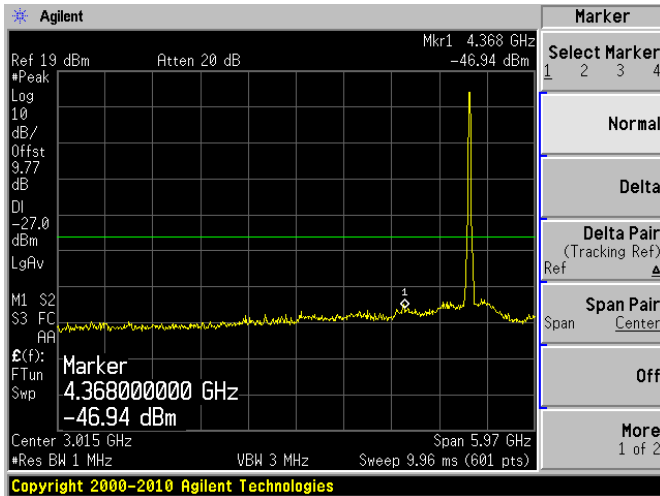
Note 1: The antenna gain was included in the offset of these plots.

5150-5250 MHz Band

802.11a, Low Channel, 5180 MHz

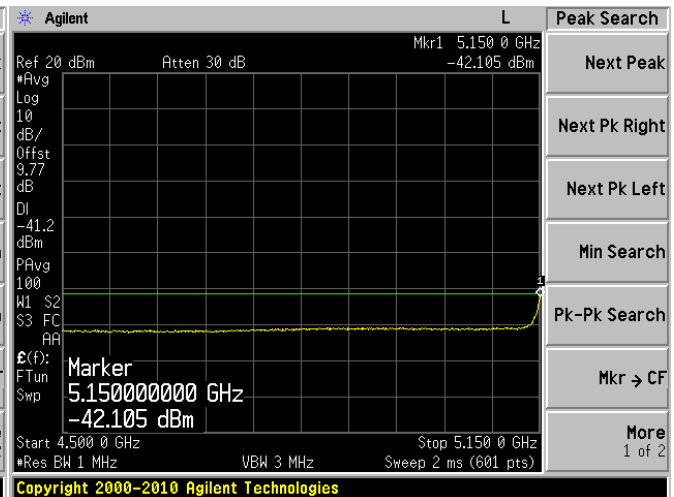
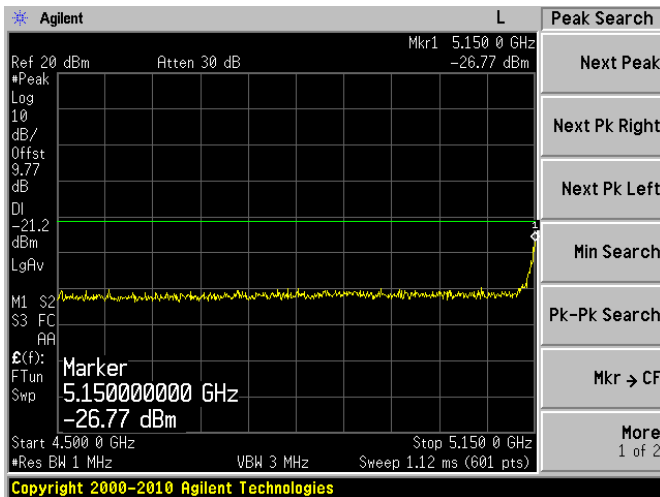
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

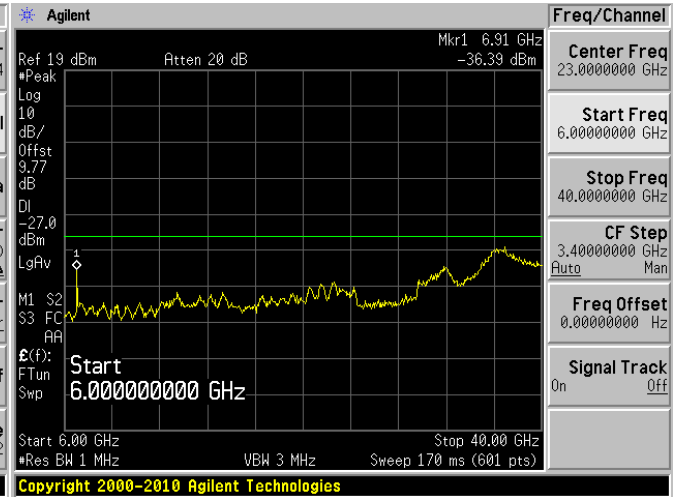
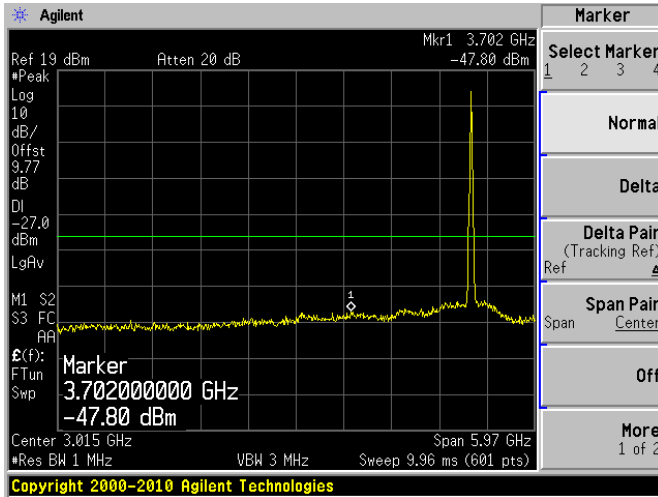
Restricted Band Edge Average



802.11a, Middle Channel, 5200 MHz

30 MHz – 6 GHz

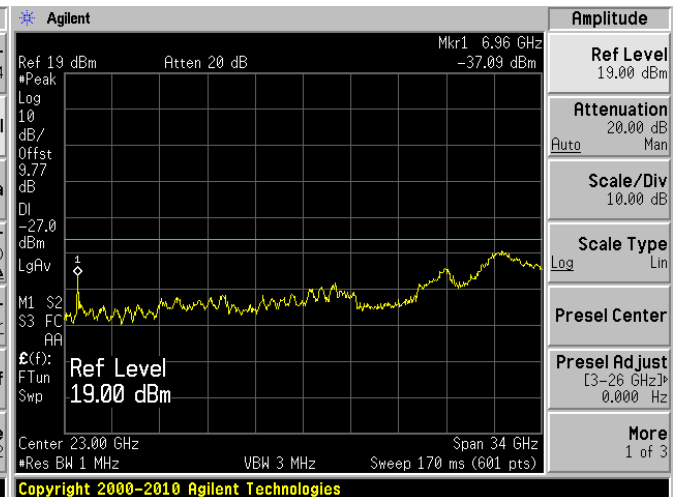
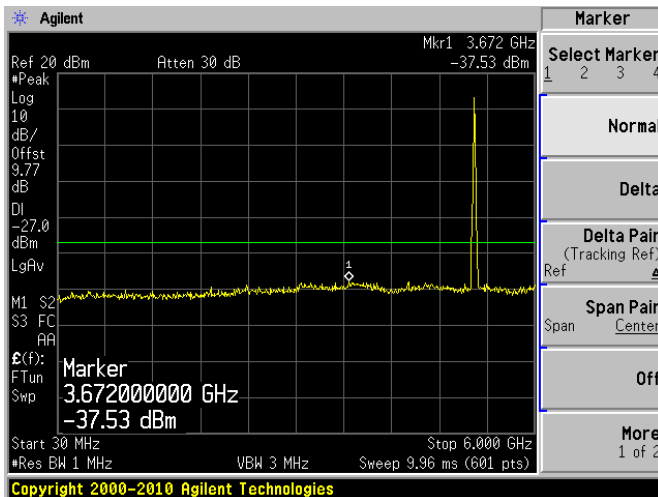
6 GHz – 40 GHz



802.11a, High Channel, 5240 MHz

30 MHz – 6 GHz

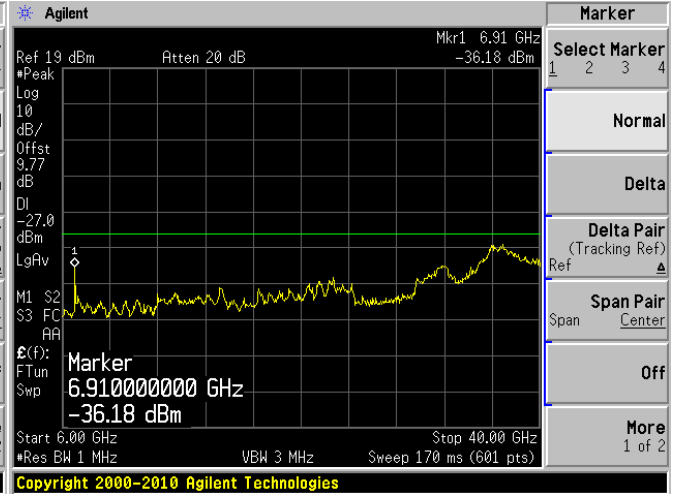
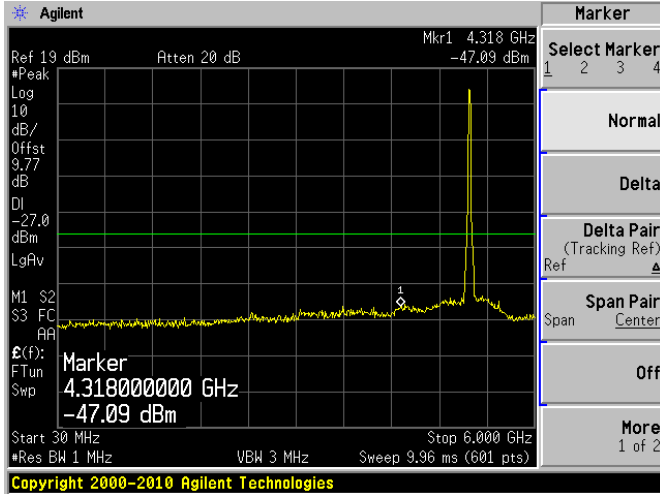
6 GHz – 40 GHz



802.11n-HT20, Low Channel, 5180 MHz

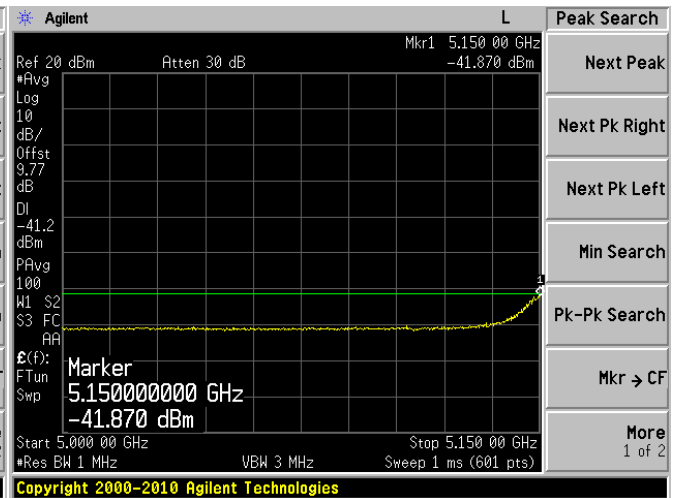
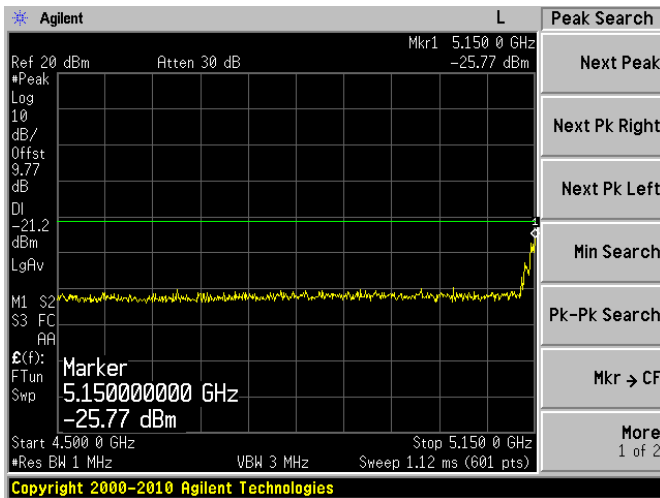
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

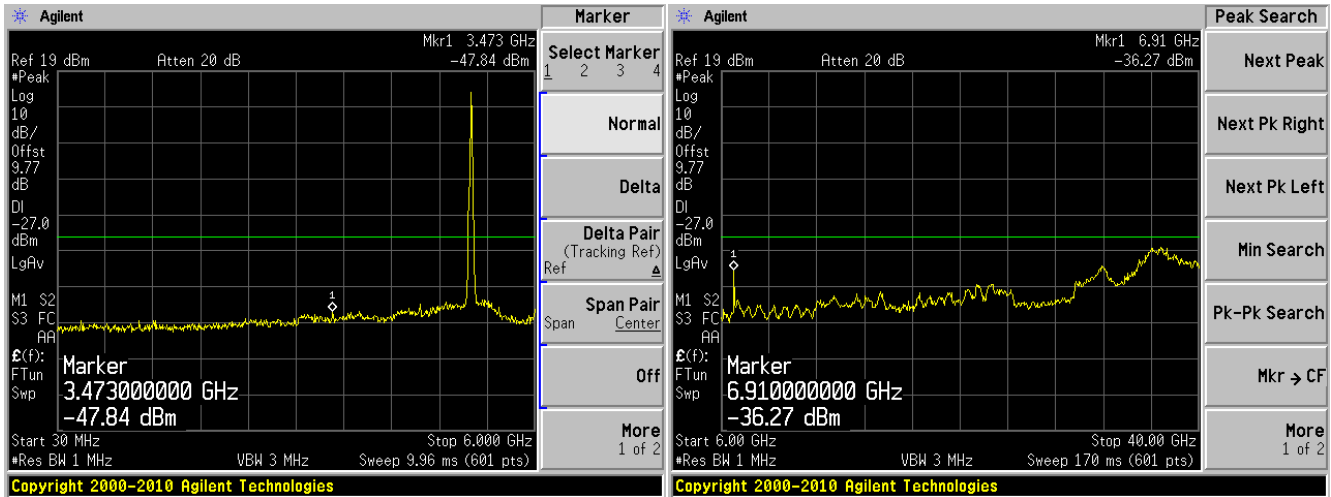
Restricted Band Edge Average



802.11n-HT20, Middle Channel, 5200 MHz

30 MHz – 6 GHz

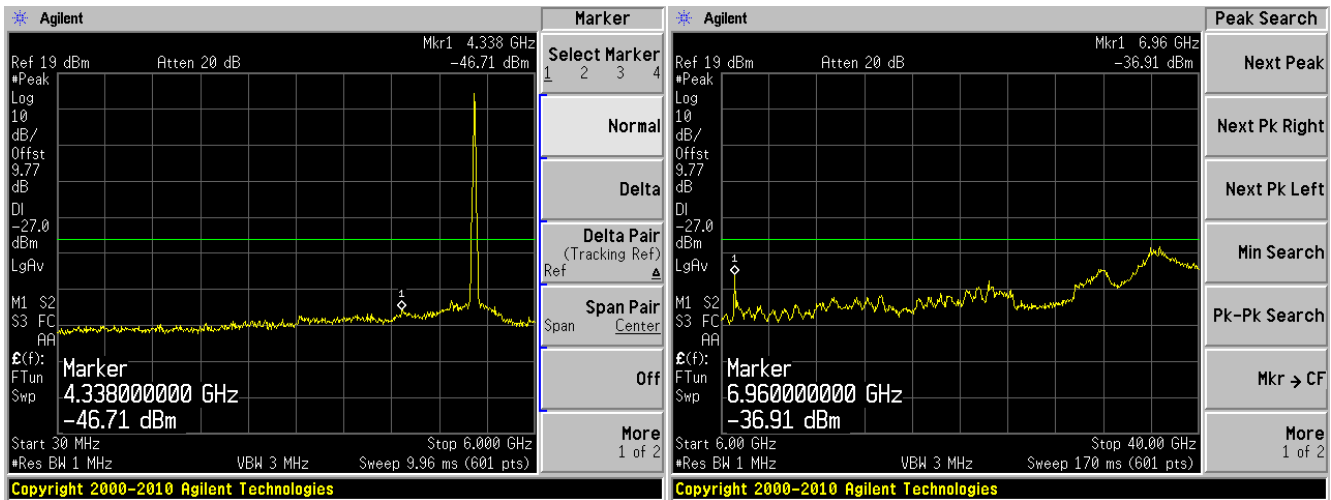
6 GHz – 40 GHz



802.11n-HT20, High Channel, 5240 MHz

30 MHz – 6 GHz

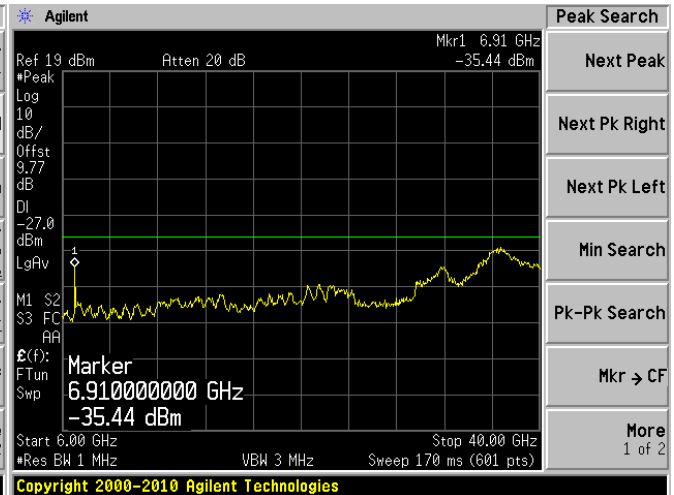
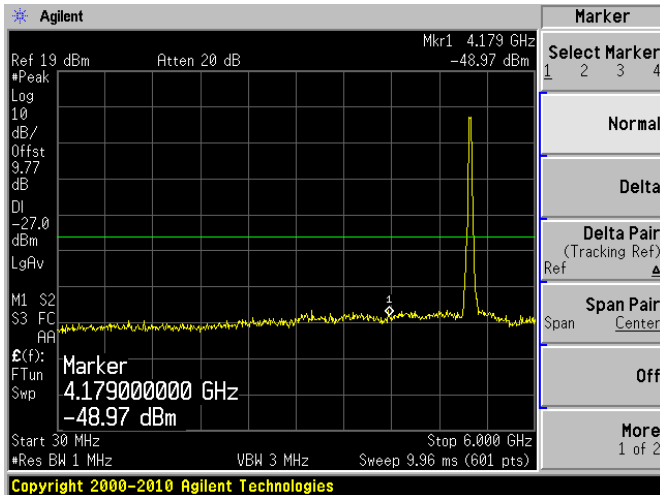
6 GHz – 40 GHz



802.11n-HT40, Low Channel, 5190 MHz

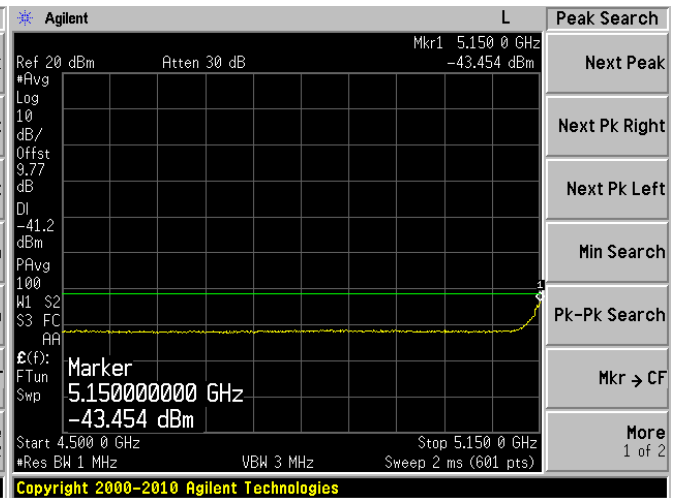
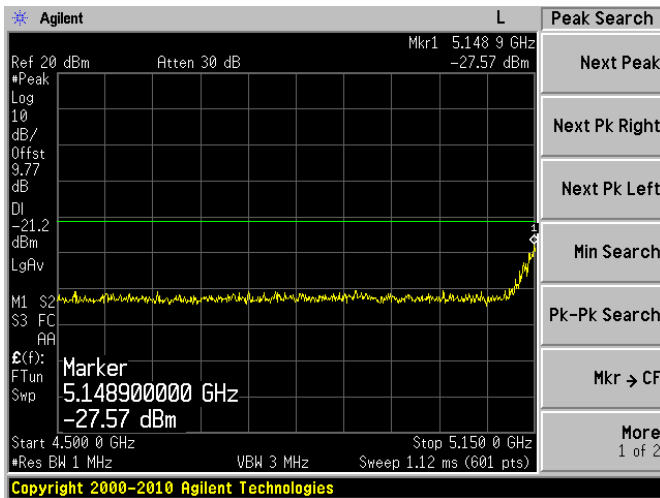
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

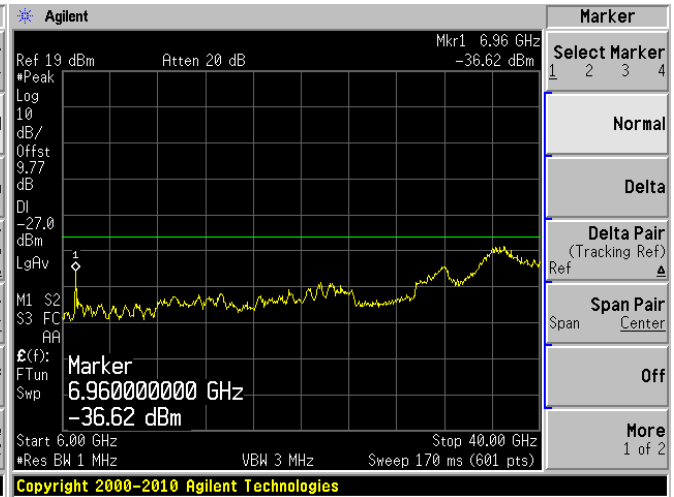
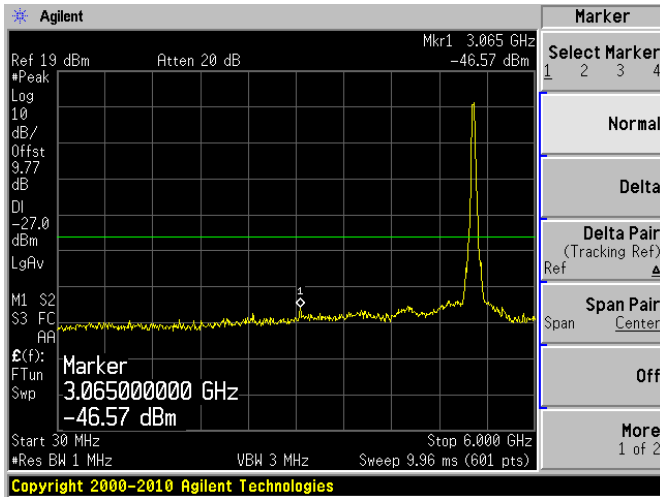
Restricted Band Edge Average



802.11n-HT40, High Channel, 5230 MHz

30 MHz – 6 GHz

6 GHz – 40 GHz

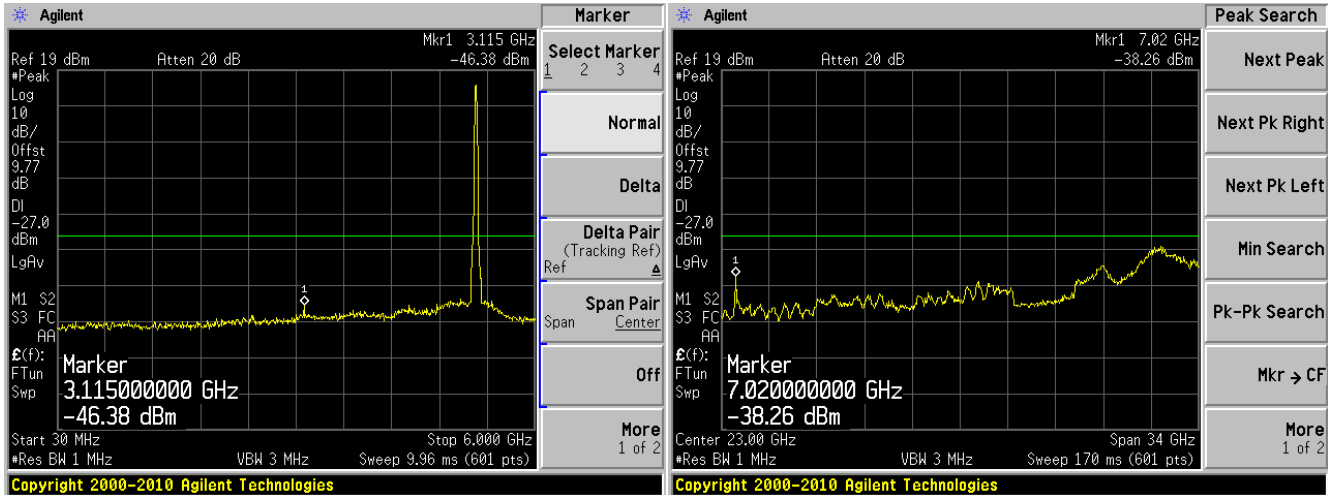


5250-5350 MHz Band

802.11a, Low Channel, 5260 MHz

30 MHz – 6 GHz

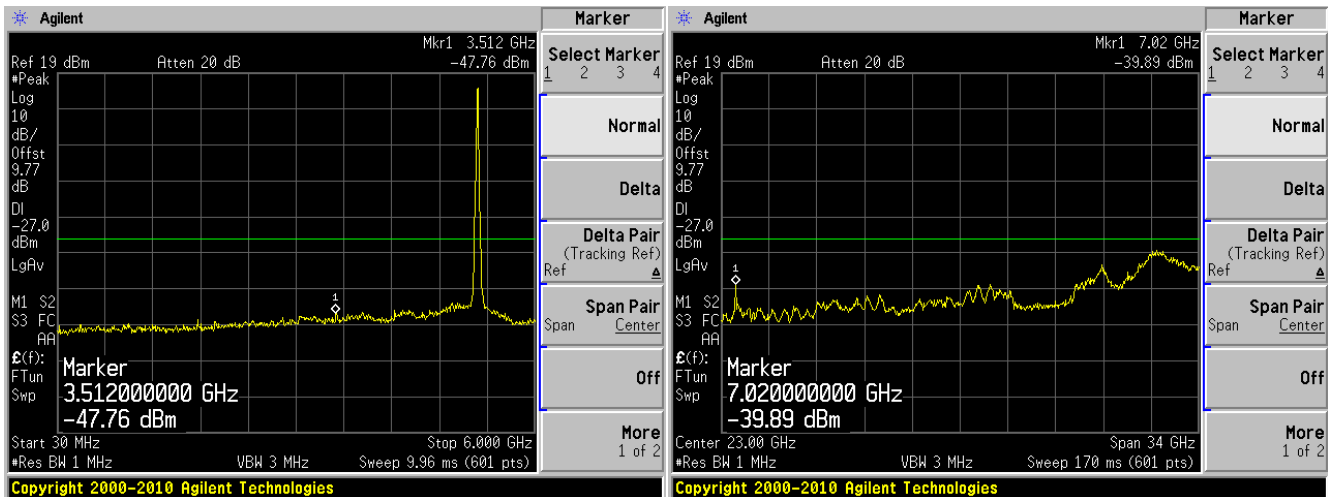
6 GHz – 40 GHz



802.11a, Middle Channel, 5280 MHz

30 MHz – 6 GHz

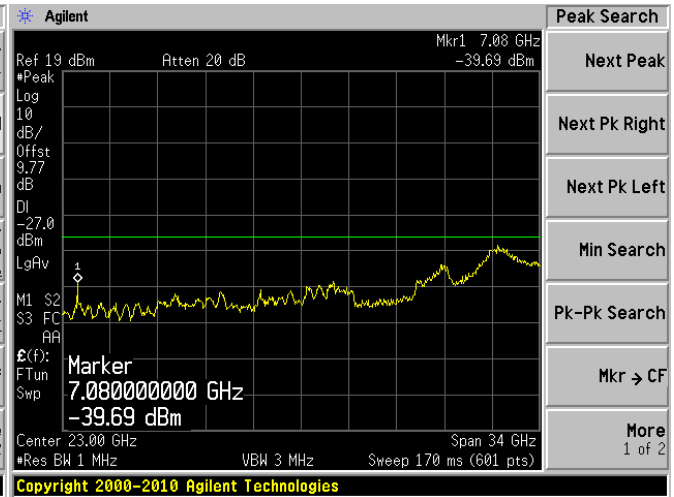
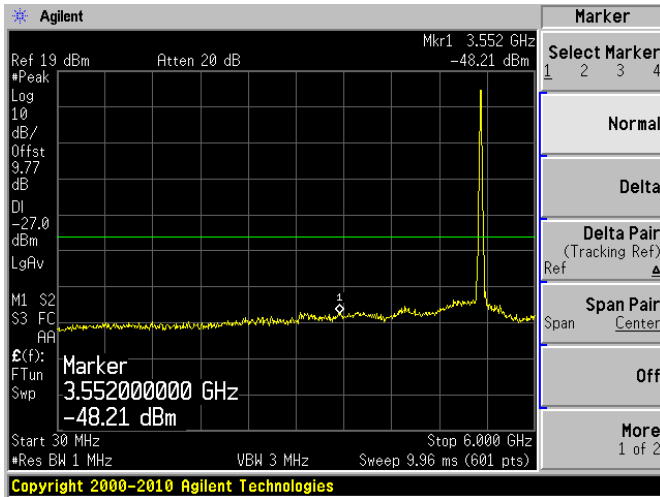
6 GHz – 25 GHz



802.11a, High Channel, 5320 MHz

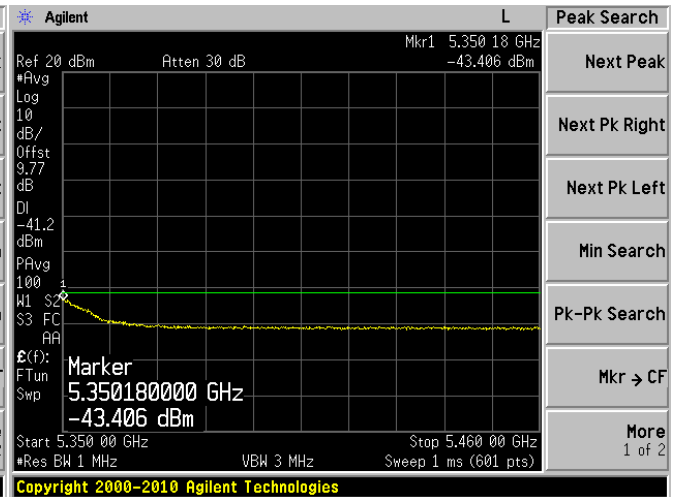
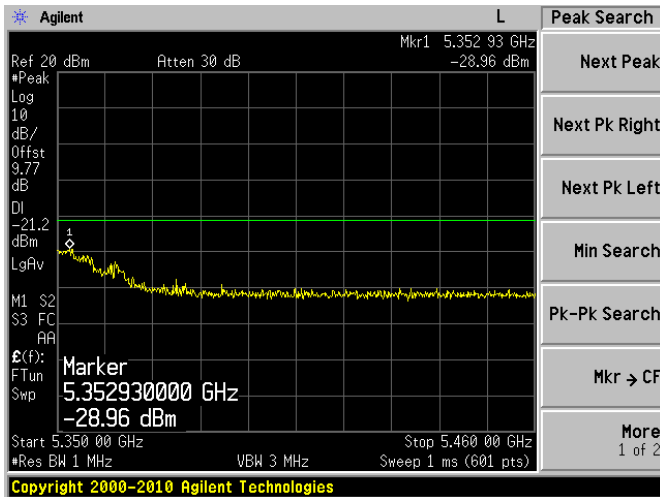
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

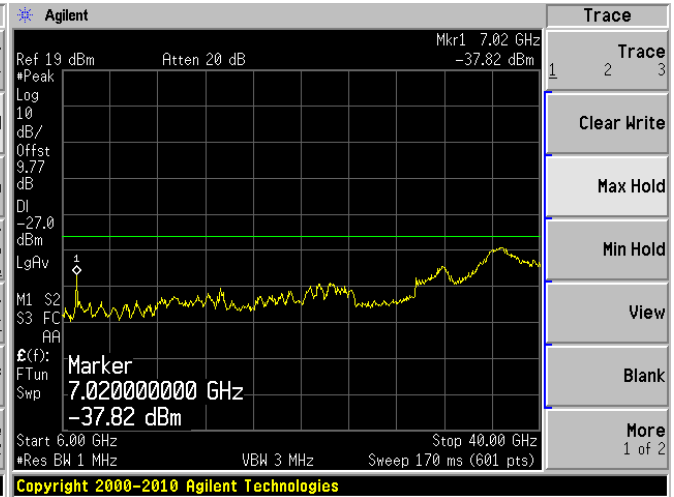
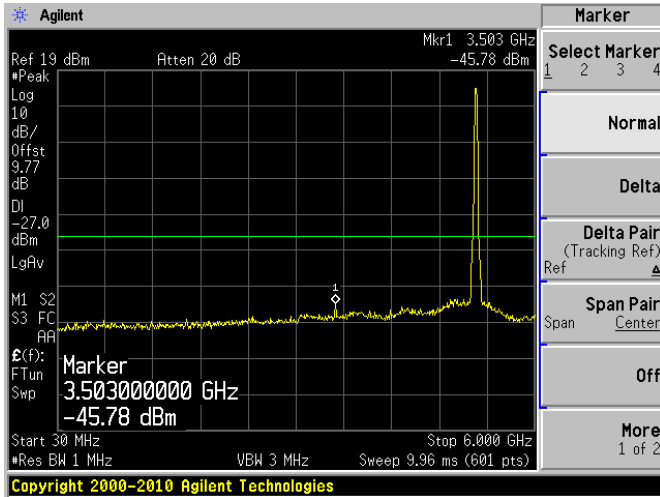
Restricted Band Edge Average



802.11n-HT20, Low Channel, 5260 MHz

30 MHz – 6 GHz

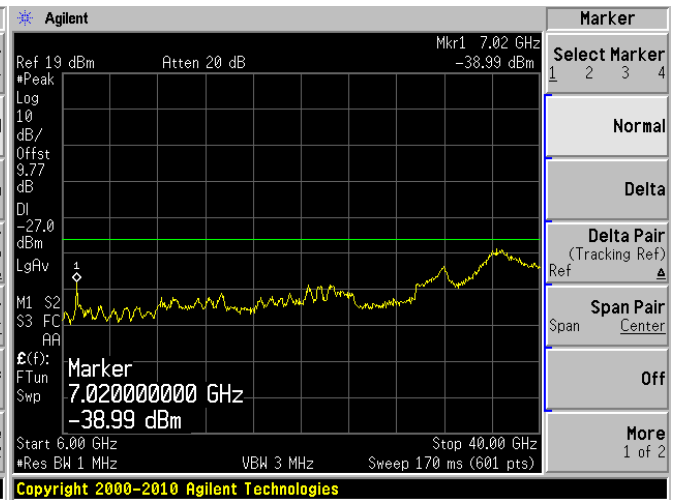
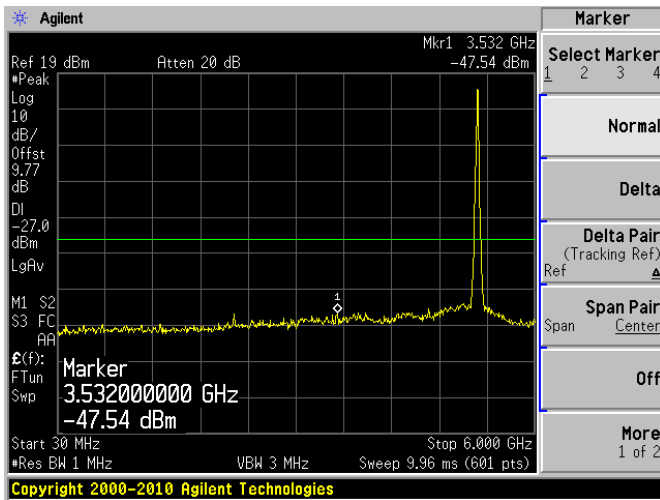
6 GHz – 40 GHz



802.11n HT20, Middle Channel, 5280 MHz

30 MHz – 6 GHz

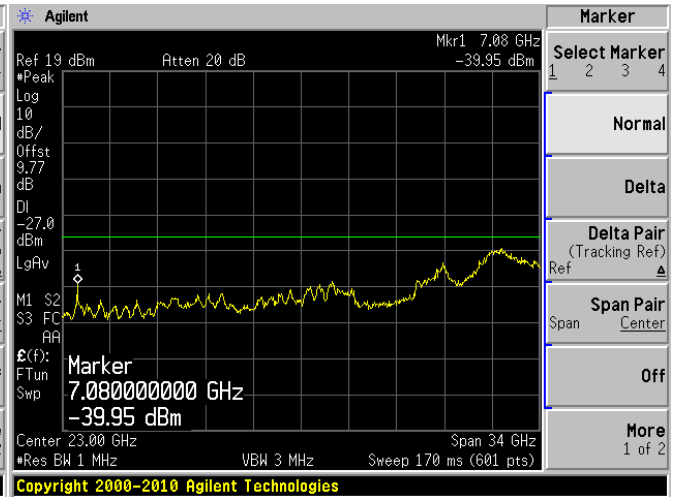
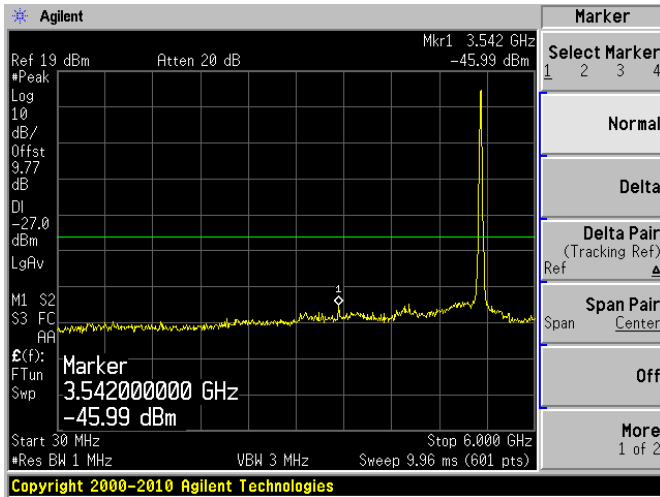
6 GHz – 40 GHz



802.11n-HT20, High Channel, 5320 MHz

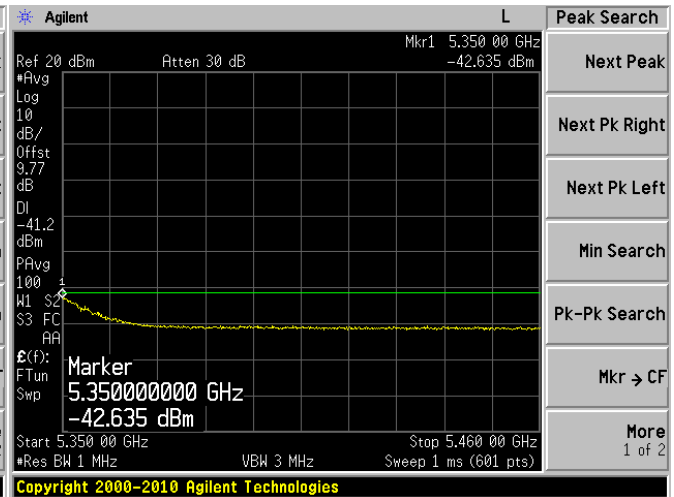
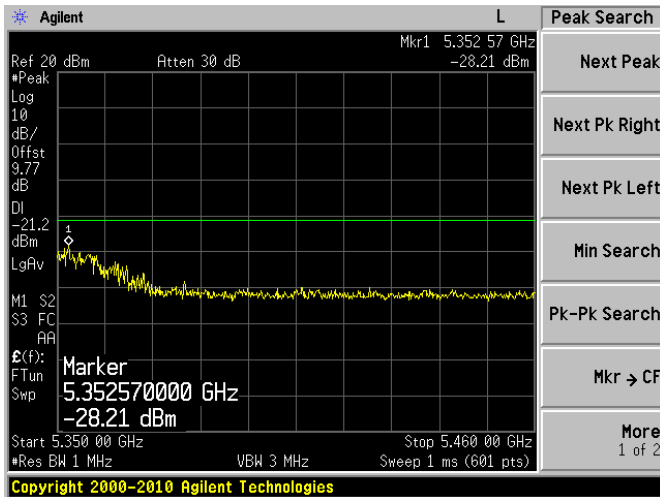
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

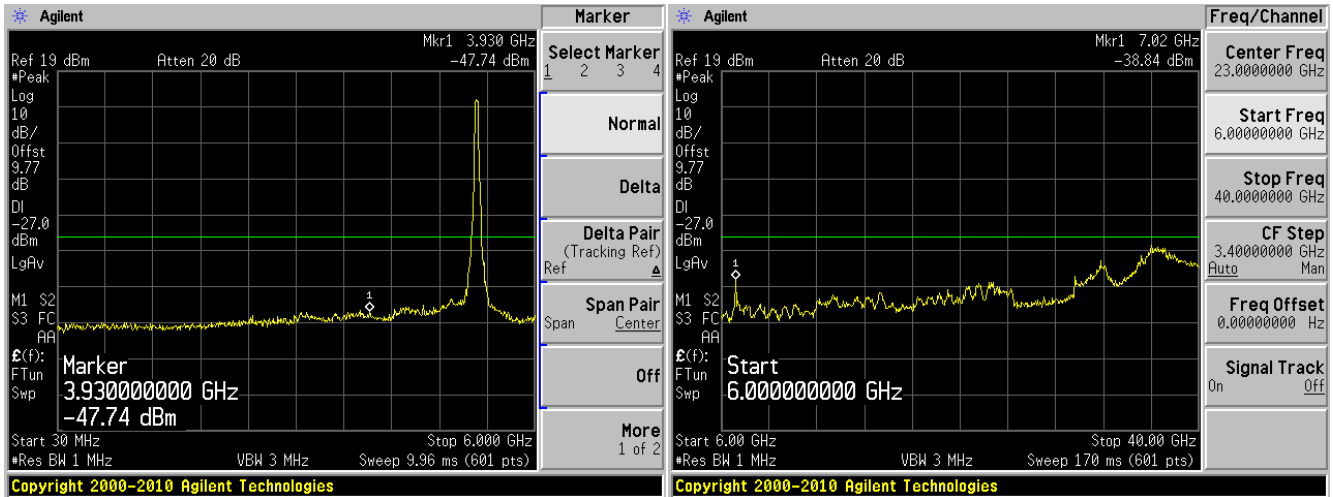
Restricted Band Edge Average



802.11n-HT40, Low Channel, 5270 MHz

30 MHz – 6 GHz

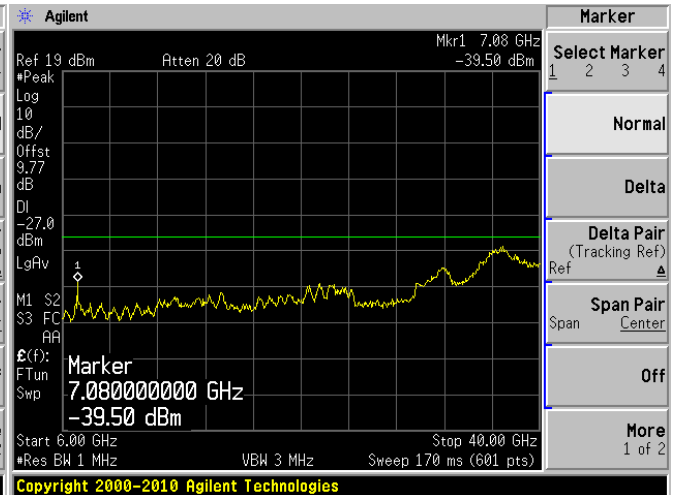
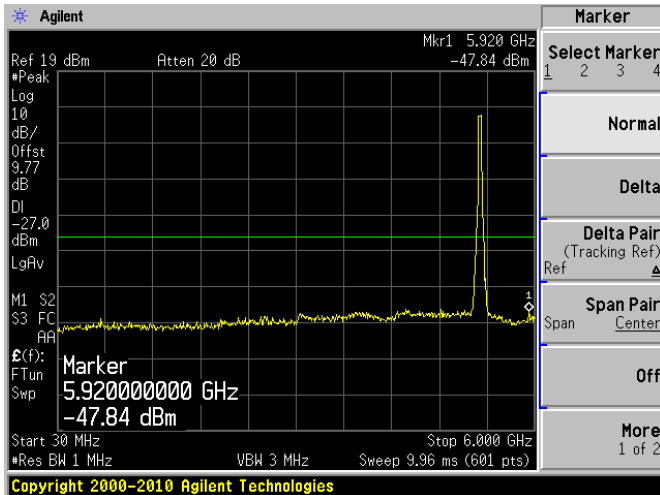
6 GHz – 40 GHz



802.11n-HT40, High Channel, 5310 MHz

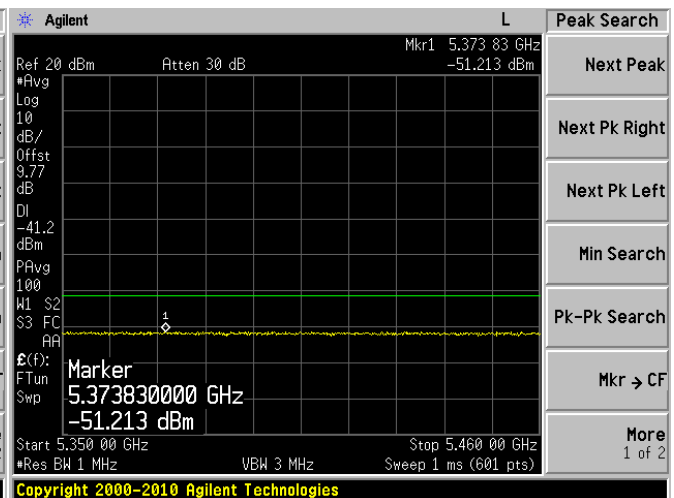
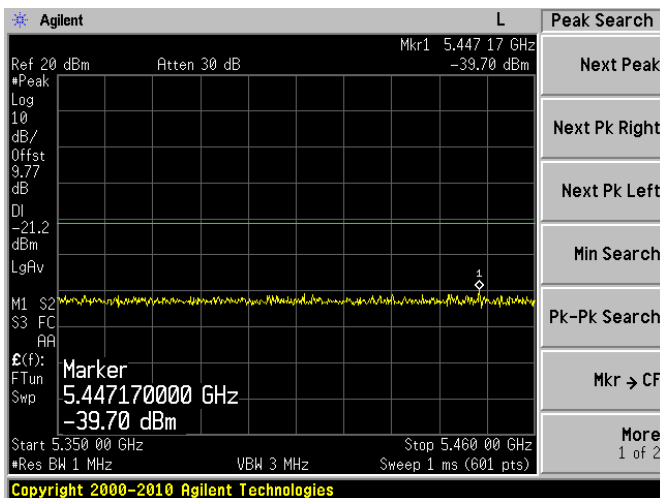
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

Restricted Band Edge Average

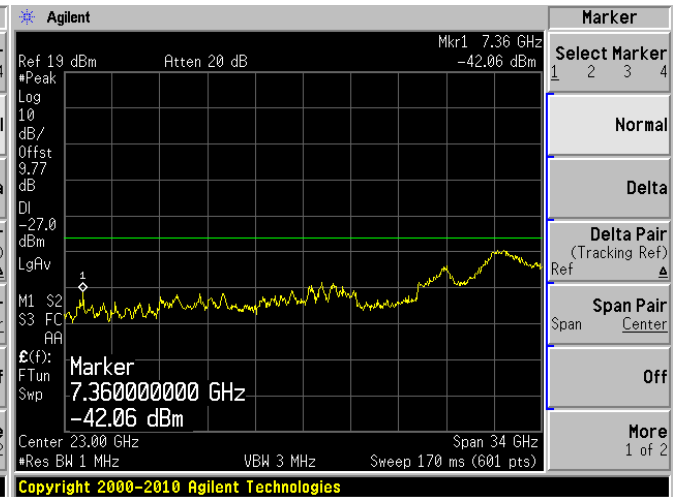
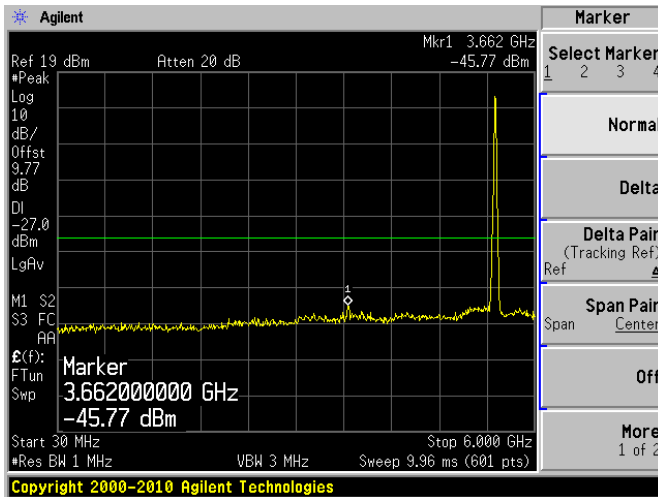


5470-5725 MHz Band

802.11a, Low Channel, 5500 MHz

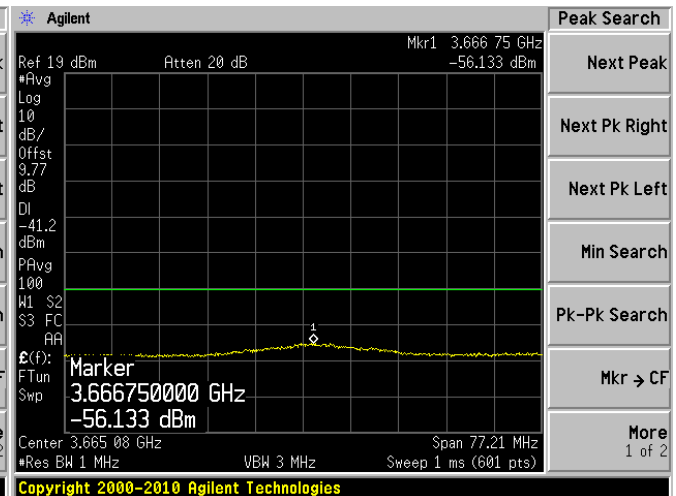
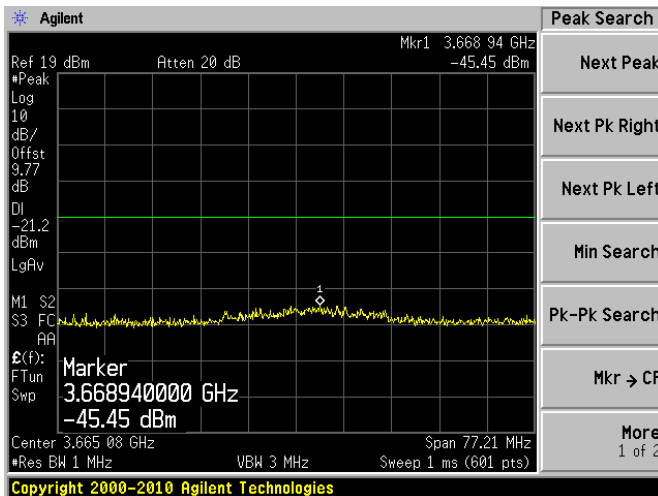
30 MHz – 6 GHz

6 GHz – 40 GHz

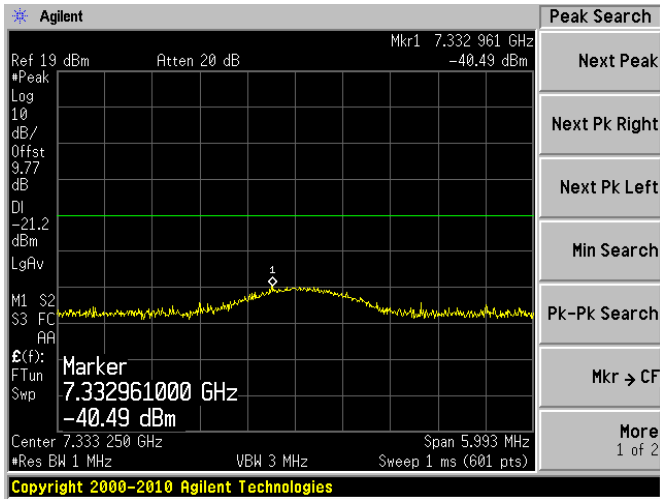


Spurious Emission 1 Peak

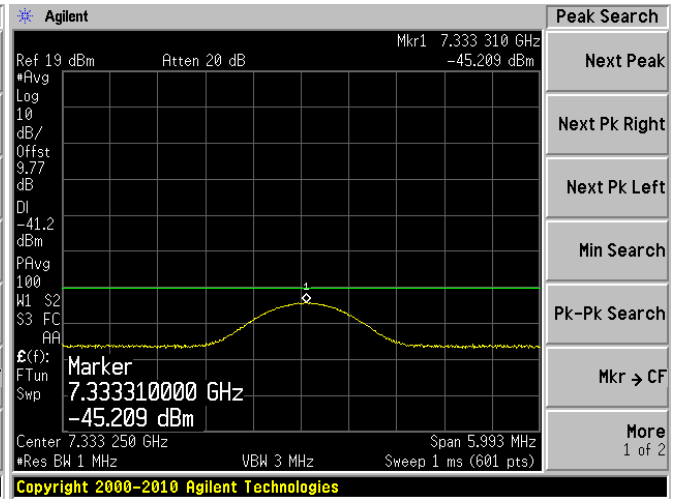
Spurious Emission 1 Average



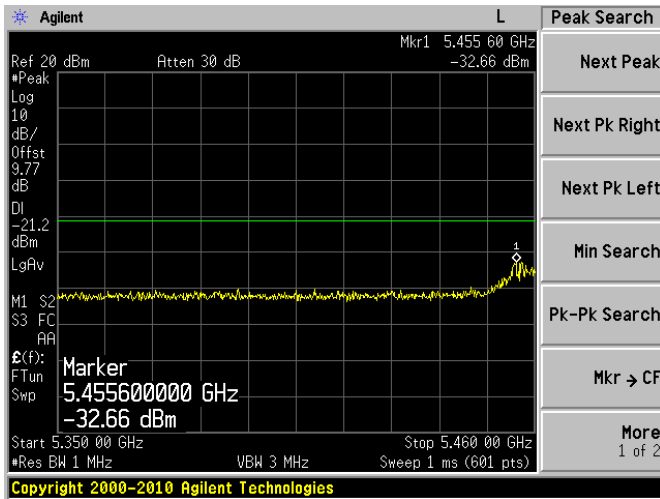
Spurious Emission 2 Peak



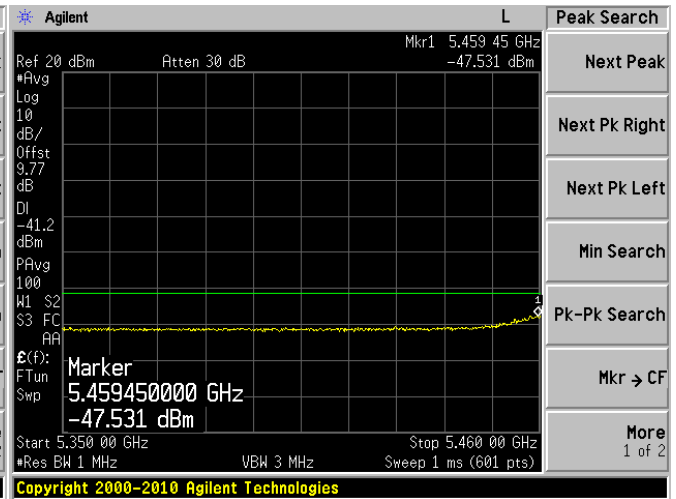
Spurious Emission 2 Average



Restricted Band Edge Peak



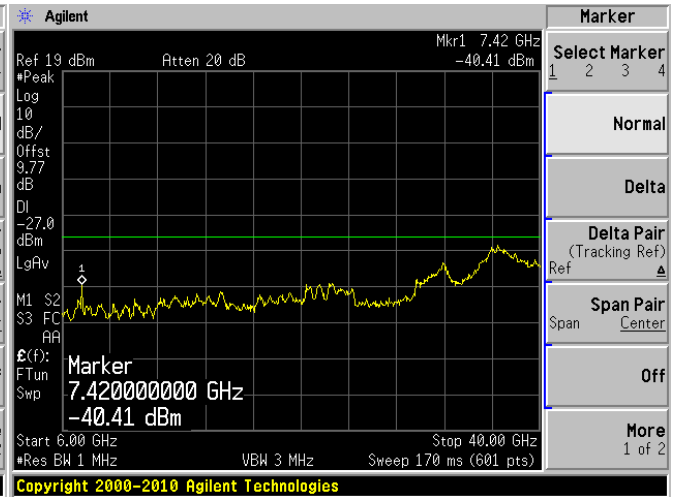
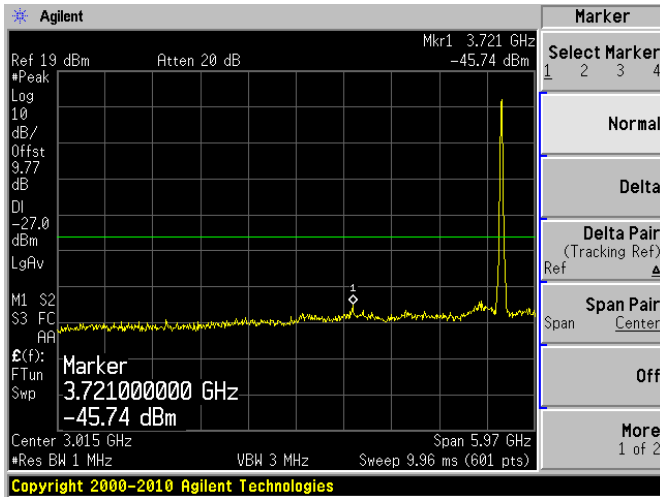
Restricted Band Edge Average



802.11a, Middle Channel, 5580 MHz

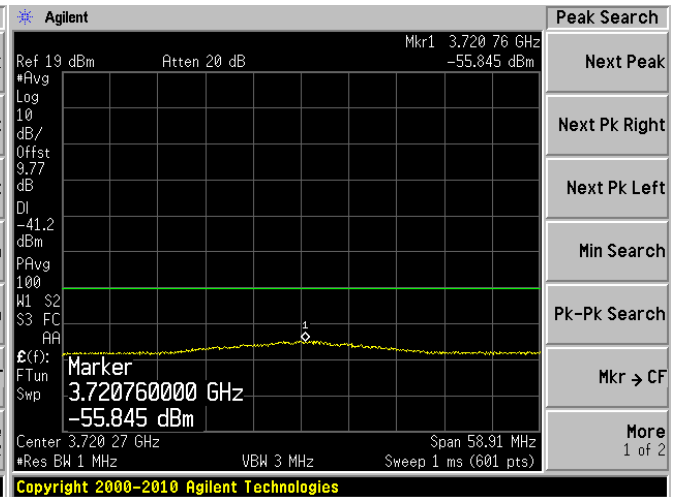
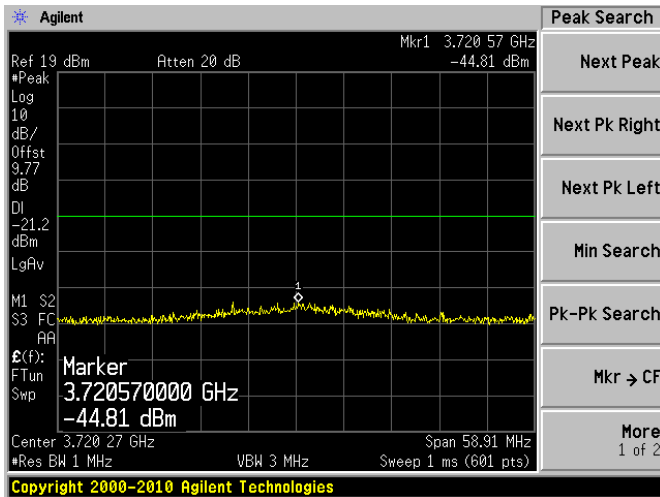
30 MHz – 6 GHz

6 GHz – 40 GHz



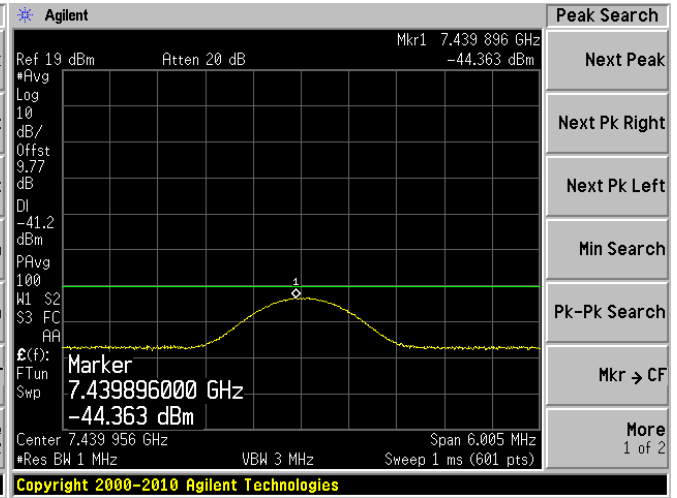
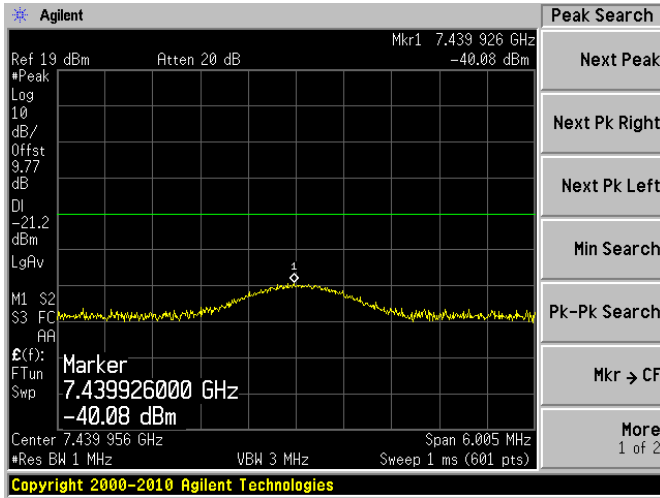
Spurious Emission 1 Peak

Spurious Emission 1 Average



Spurious Emission 2 Peak

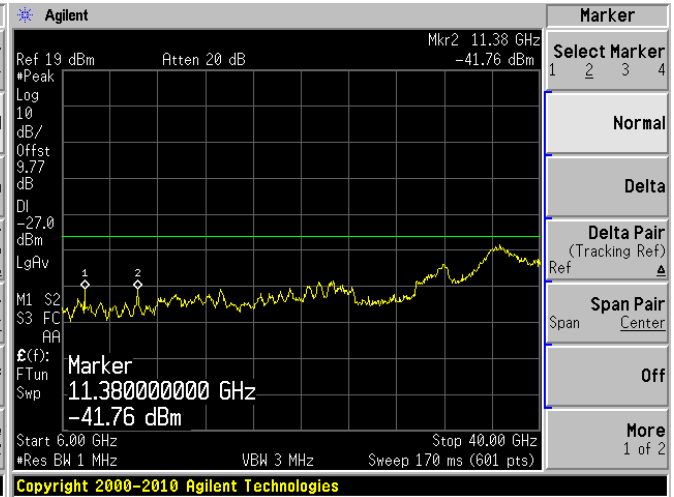
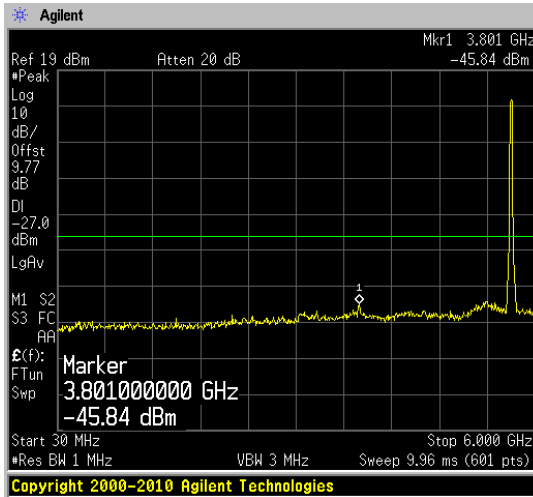
Spurious Emission 2 Average



802.11a, High Channel, 5700 MHz

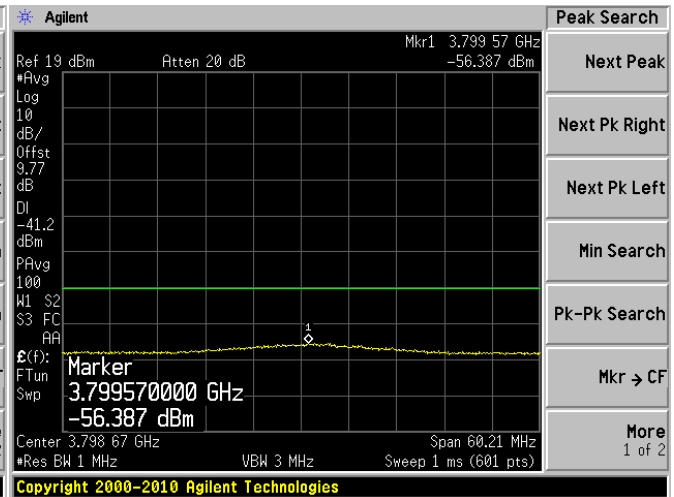
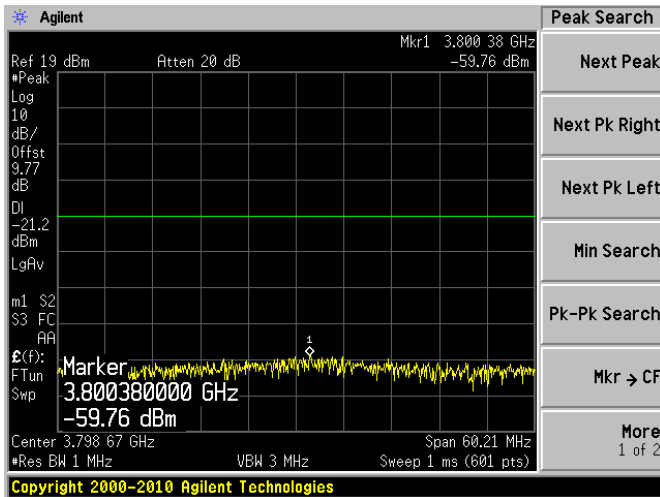
30 MHz – 6 GHz

6 GHz – 40 GHz



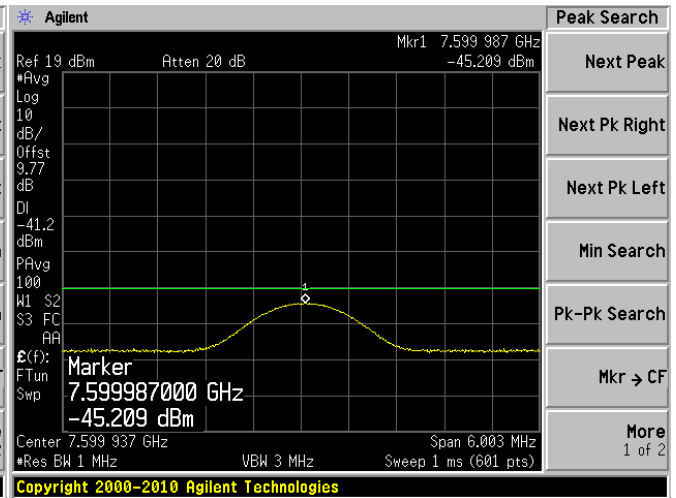
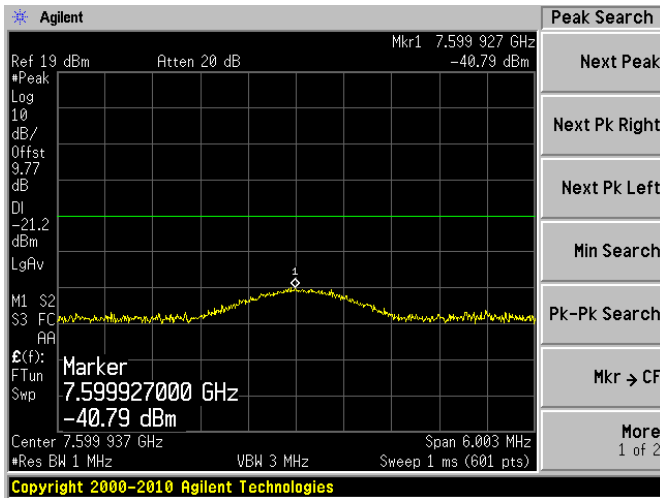
Spurious Emission 1 Peak

Spurious Emission 1 Average



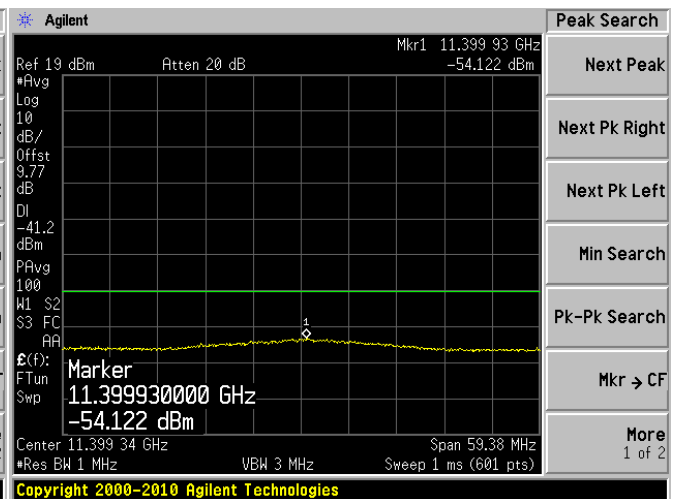
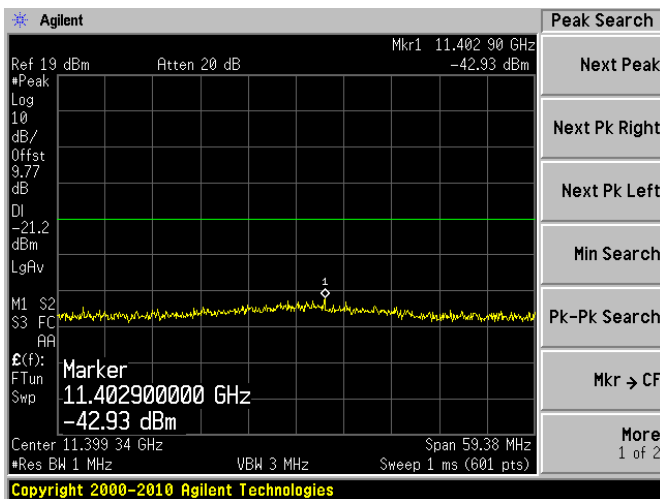
Spurious Emission 2 Peak

Spurious Emission 2 Average



2nd Harmonic Peak

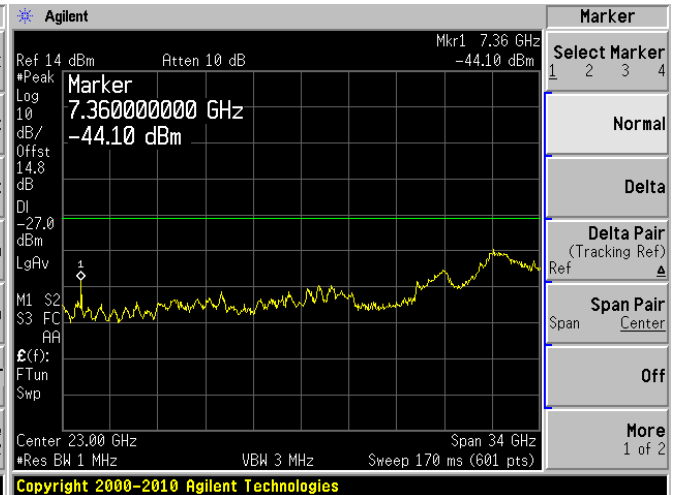
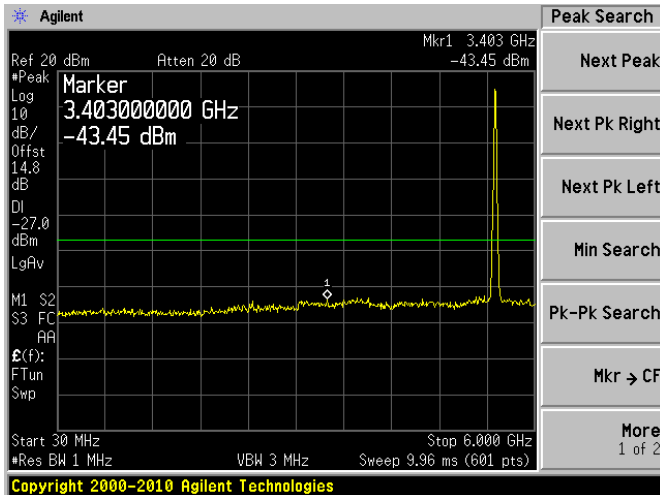
2nd Harmonic Average



802.11n-HT20, Low Channel, 5500 MHz

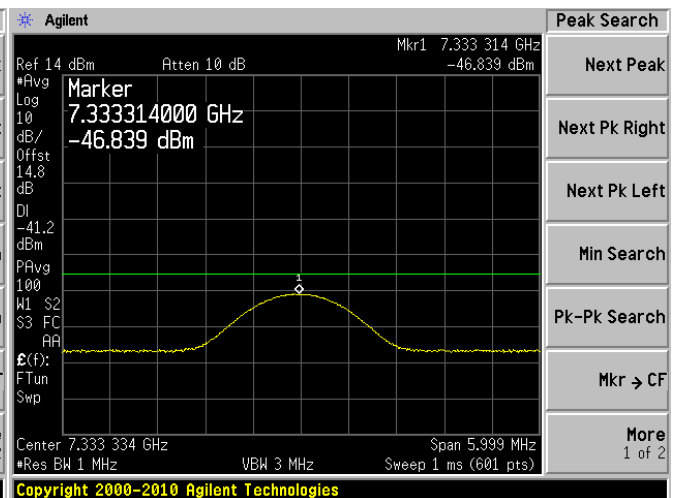
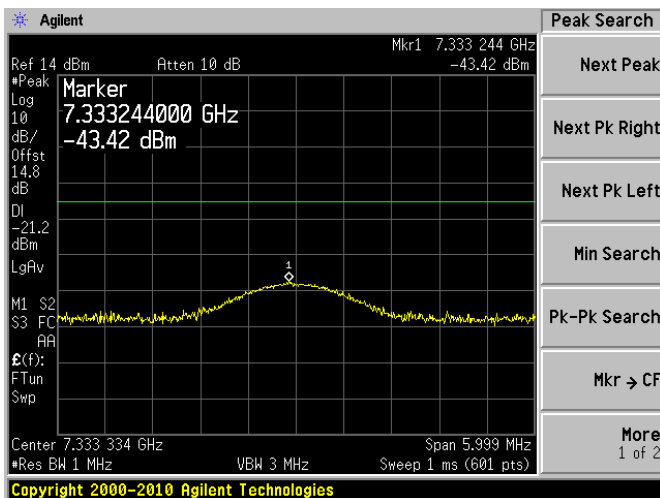
30 MHz – 6 GHz

6 GHz – 40 GHz



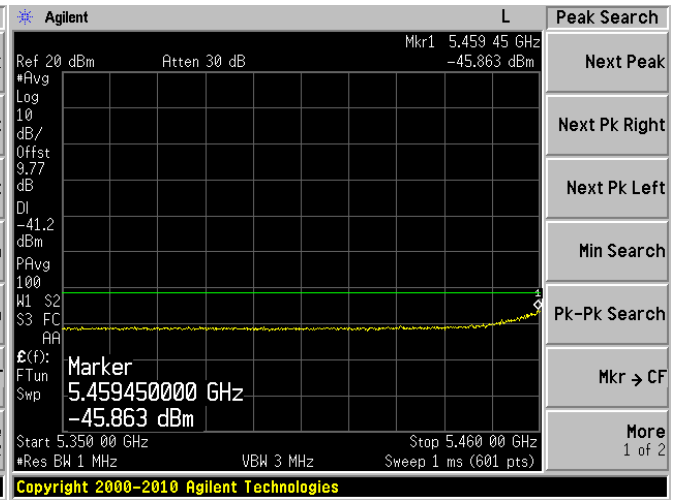
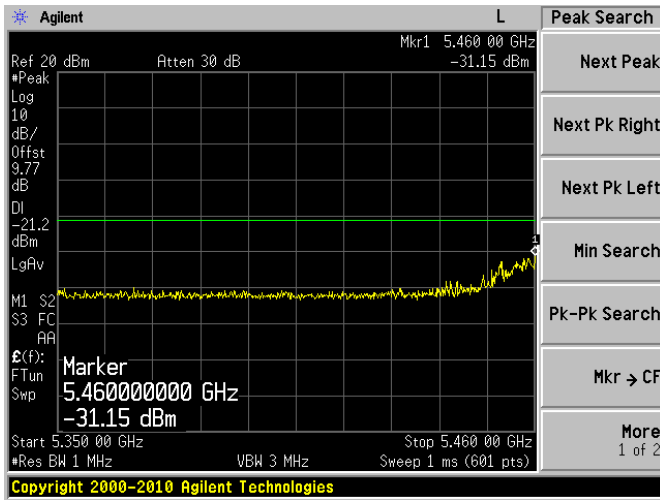
Spurious Emission 1 Peak

Spurious Emission 1 Average



Restricted Band Edge Peak

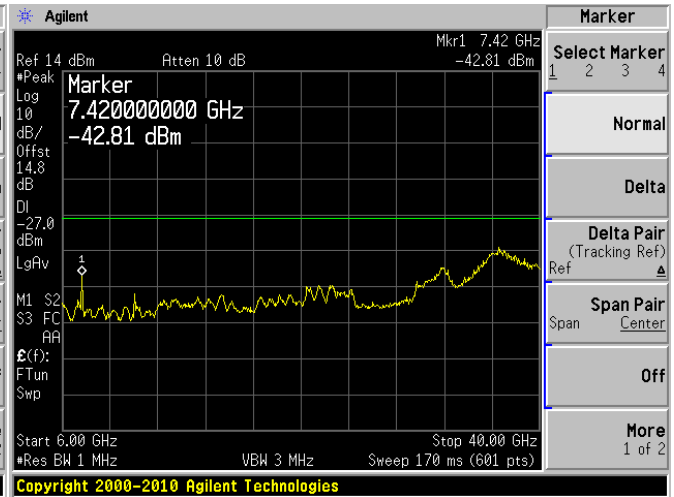
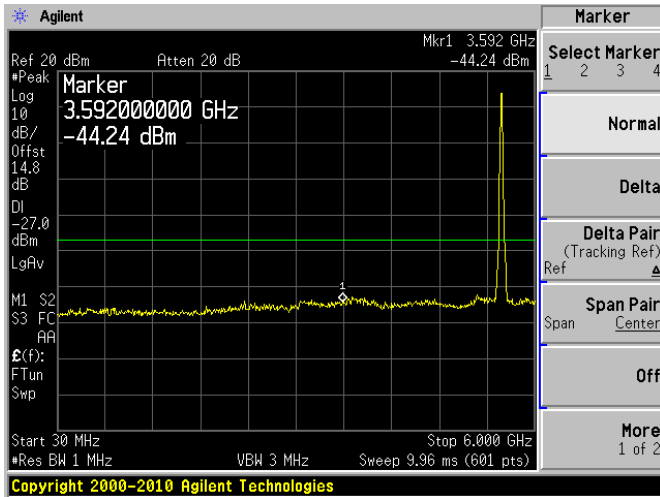
Restricted Band Edge Average



802.11n-HT20, Middle Channel, 5580 MHz

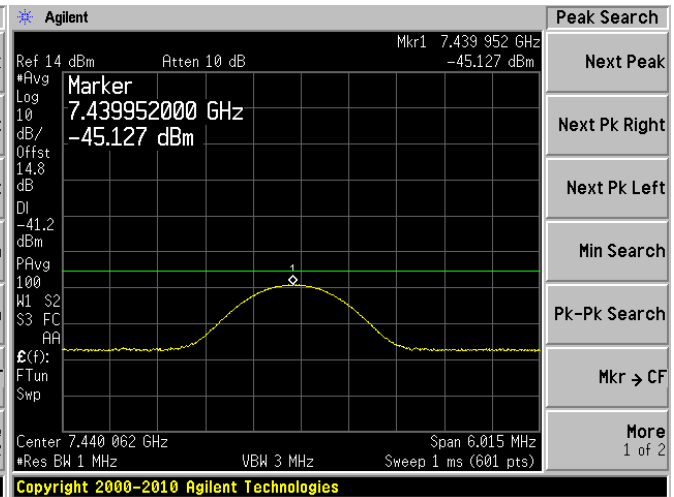
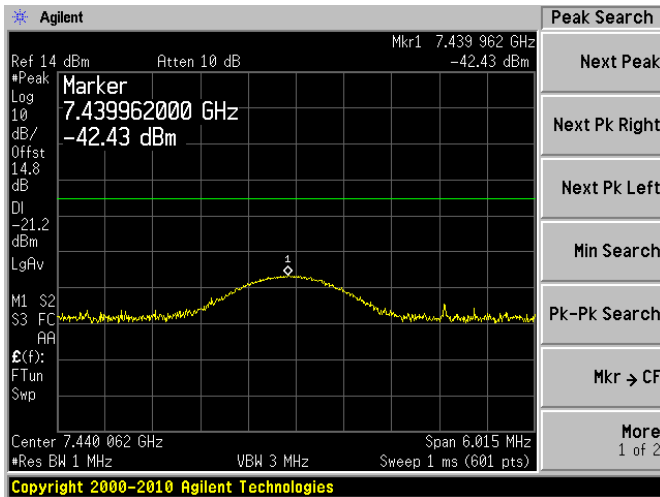
30 MHz – 6 GHz

6 GHz – 40 GHz



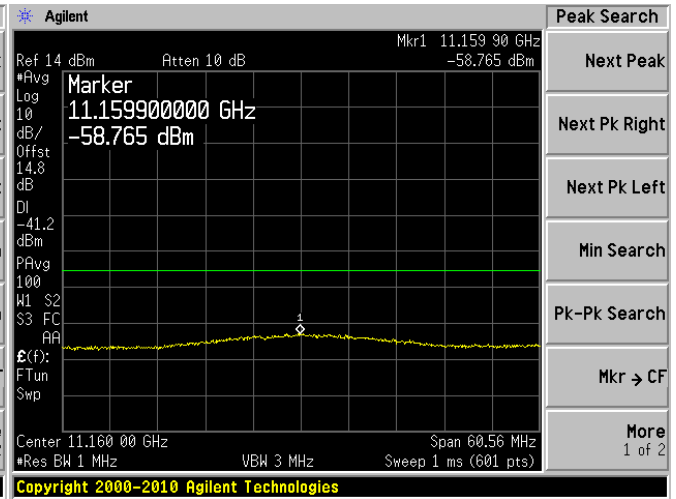
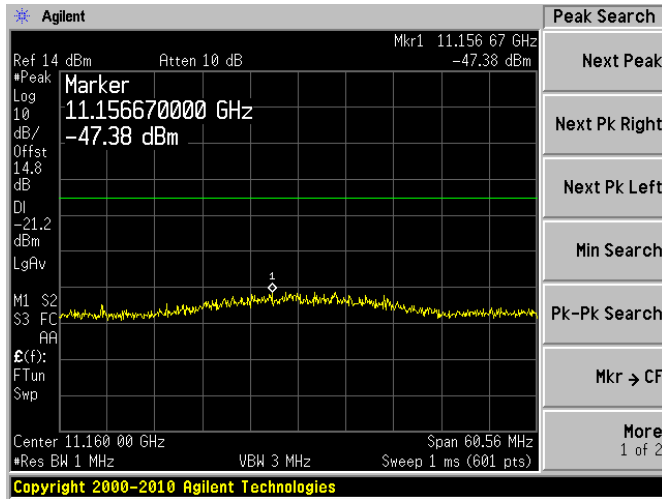
Spurious Emission 1 Peak

Spurious Emission 1 Average



2nd Harmonic Peak

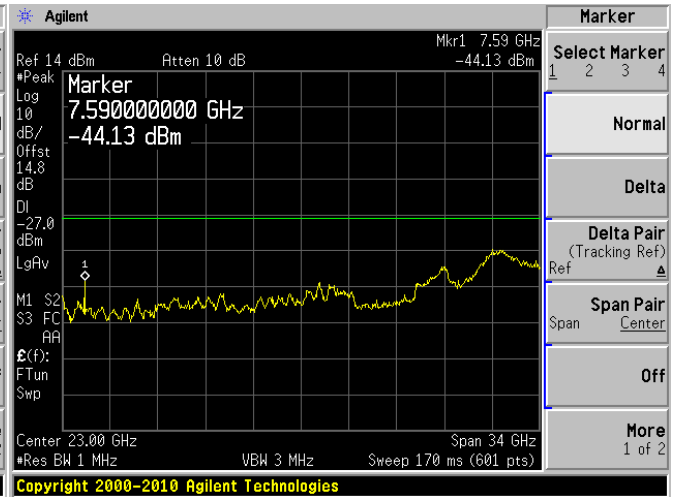
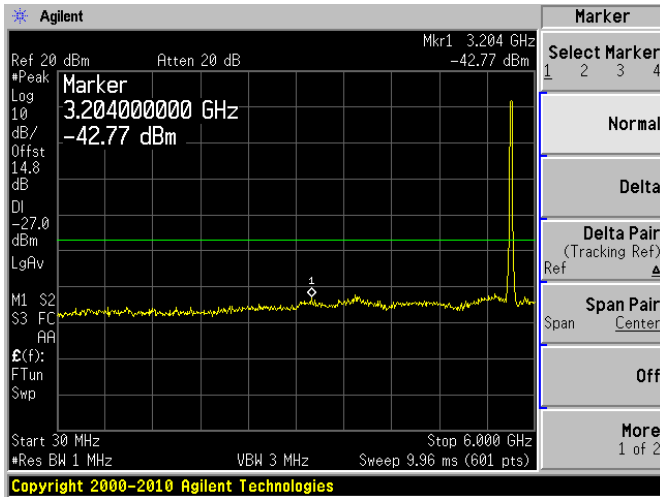
2nd Harmonic Average



802.11n-HT20, High Channel, 5700 MHz

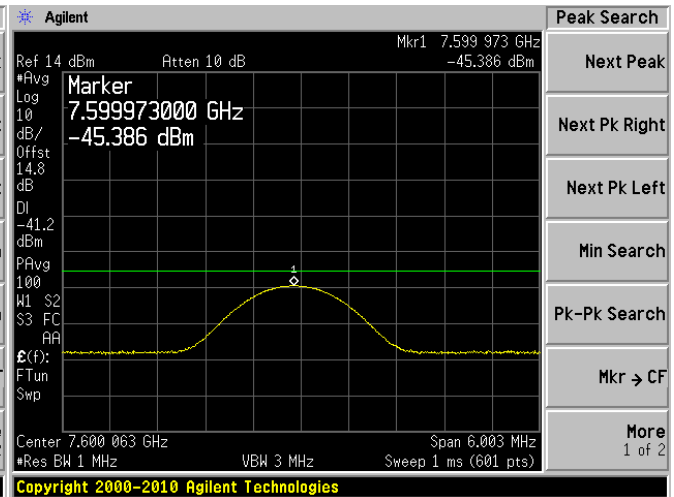
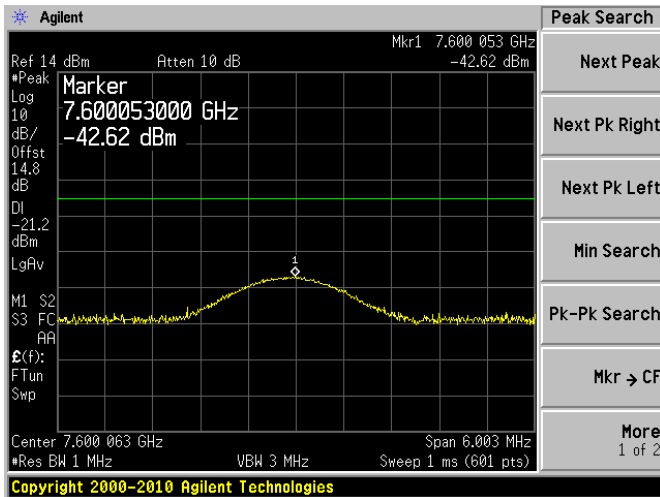
30 MHz – 6 GHz

6 GHz – 40 GHz



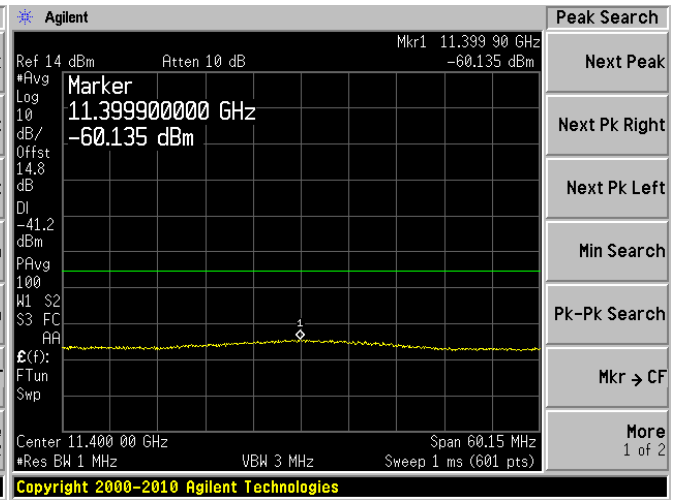
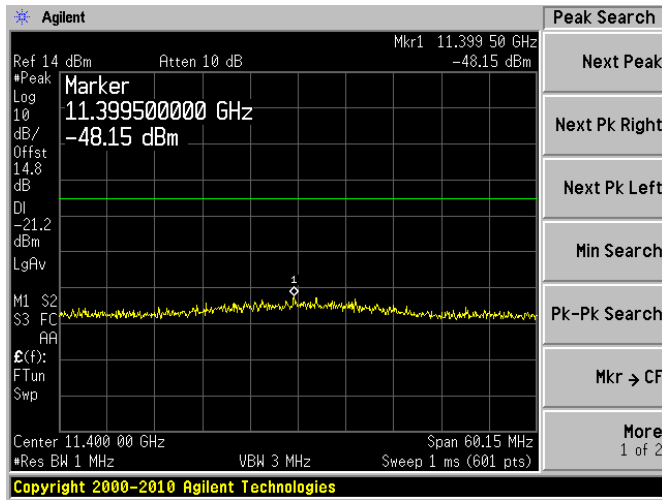
Spurious Emission 1 Peak

Spurious Emission 1 Average



2nd Harmonic Peak

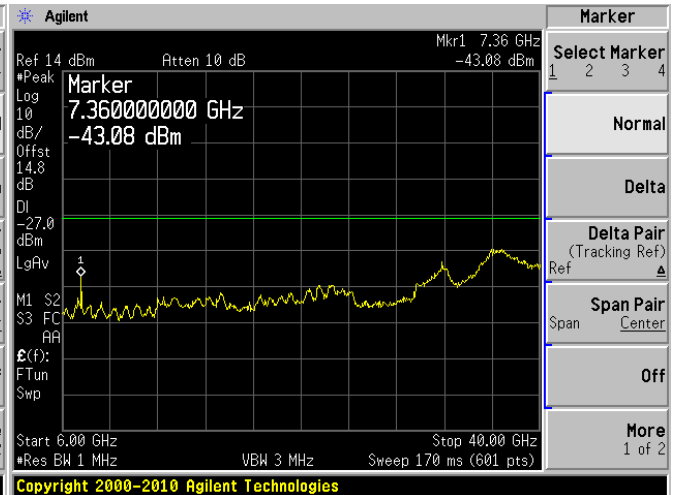
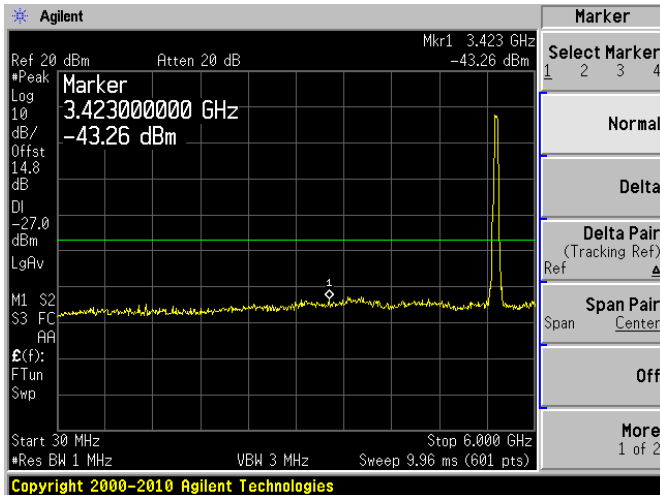
2nd Harmonic Average



802.11n-HT40, Low Channel, 5510 MHz

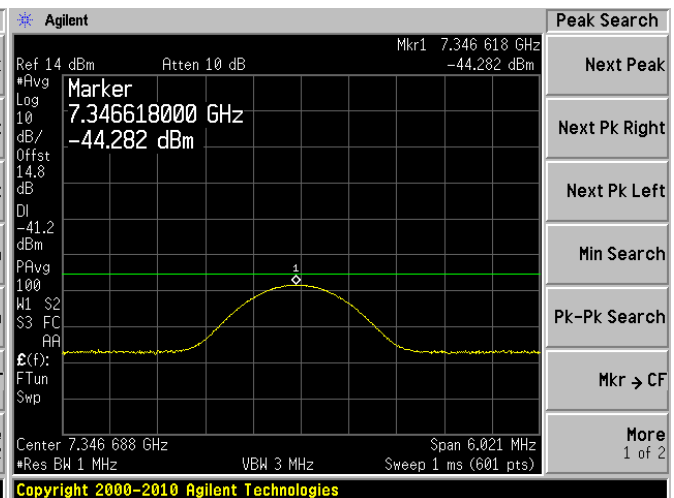
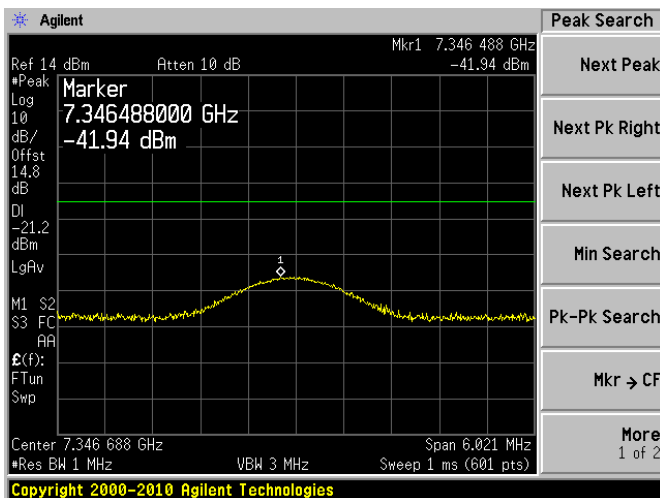
30 MHz – 6 GHz

6 GHz – 40 GHz



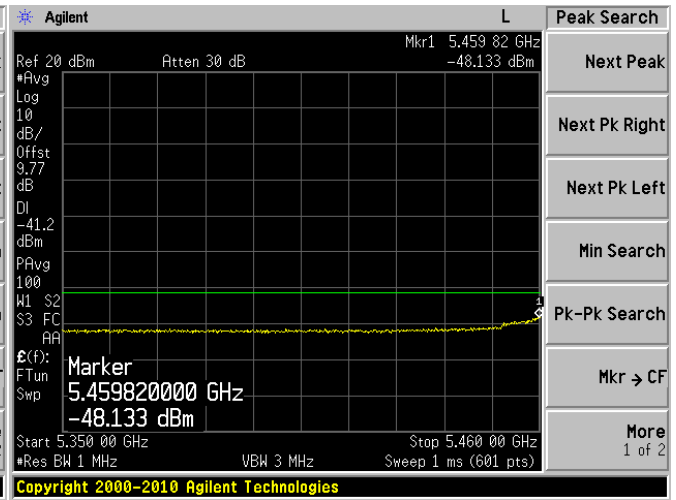
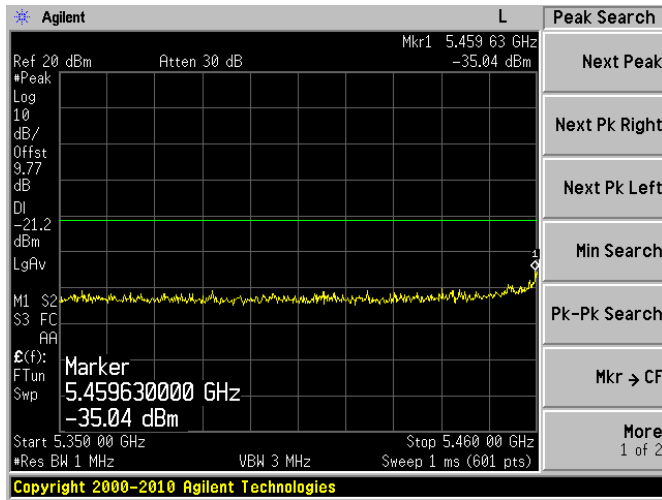
Spurious Emission 1 Peak

Spurious Emission 1 Average



Restricted Band Edge Peak

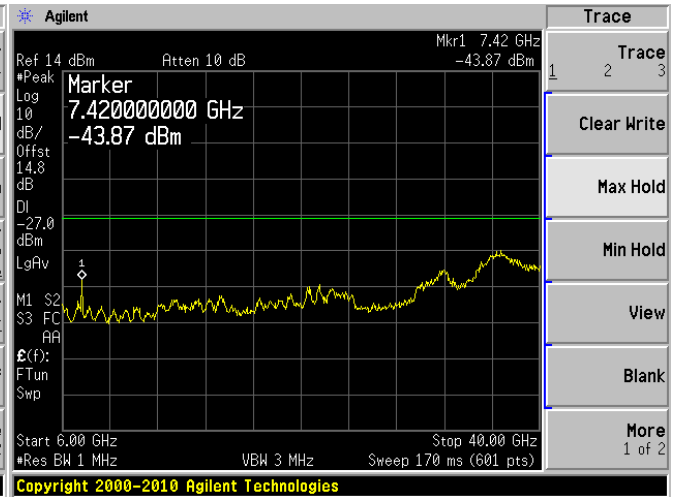
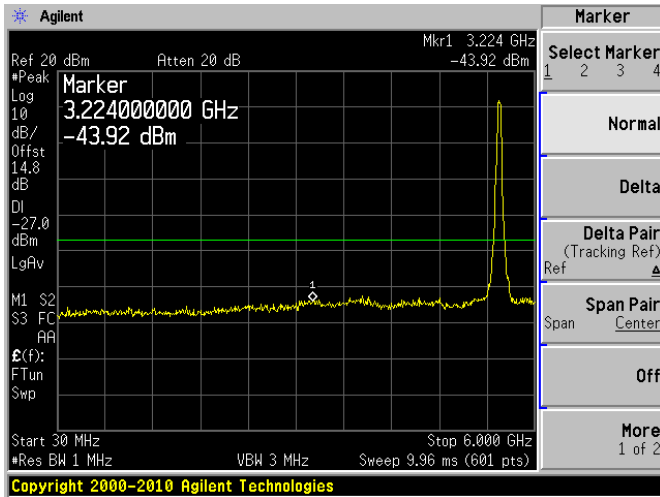
Restricted Band Edge Average



802.11n-HT40, Middle Channel, 5550 MHz

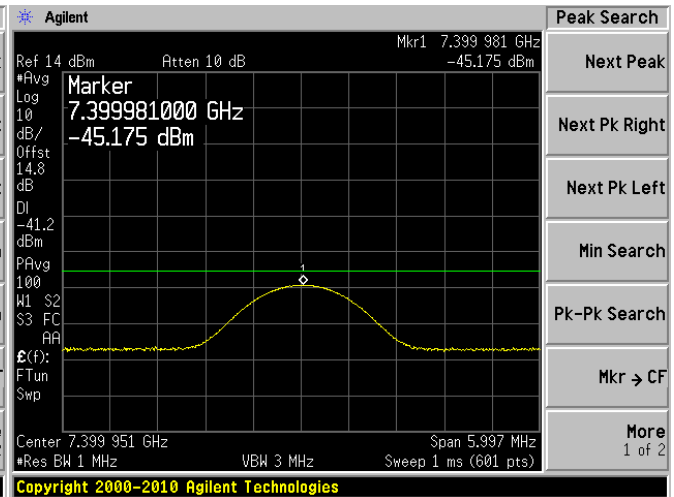
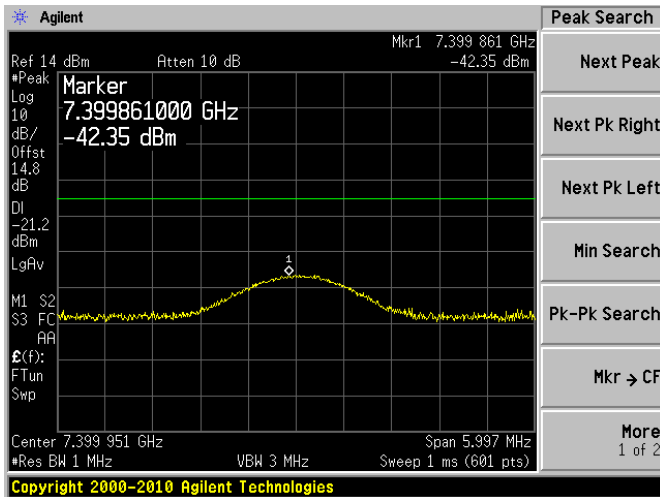
30 MHz – 6 GHz

6 GHz – 40 GHz



Spurious Emission 1 Peak

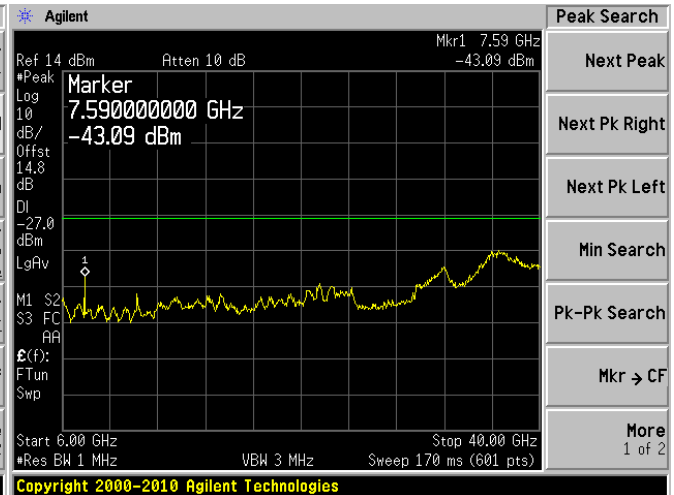
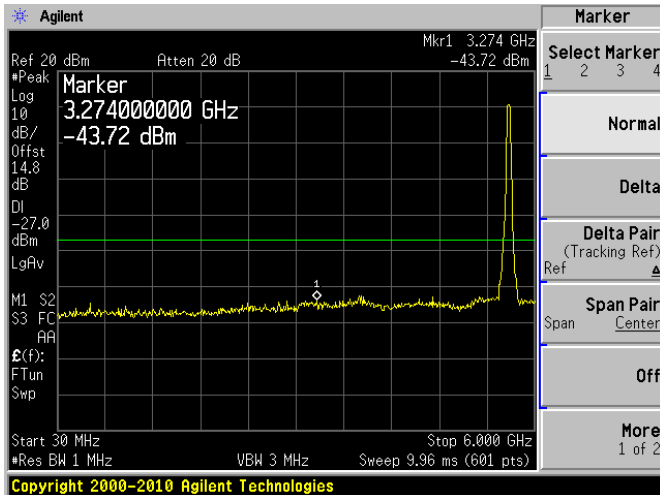
Spurious Emission 1 Average



802.11n-HT40, High Channel, 5670 MHz

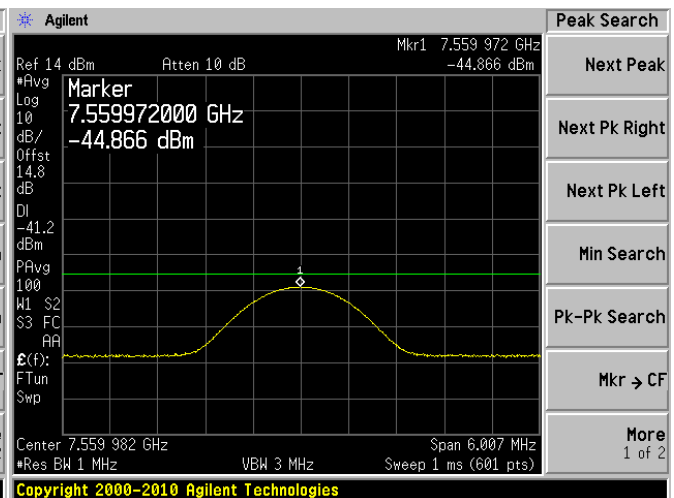
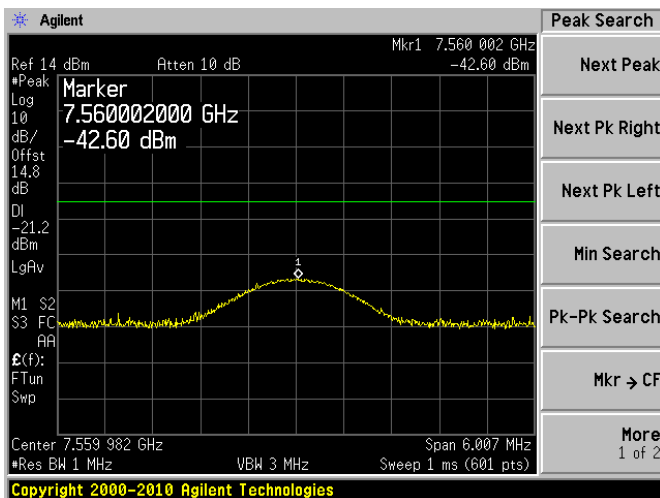
30 MHz – 6 GHz

6 GHz – 40 GHz



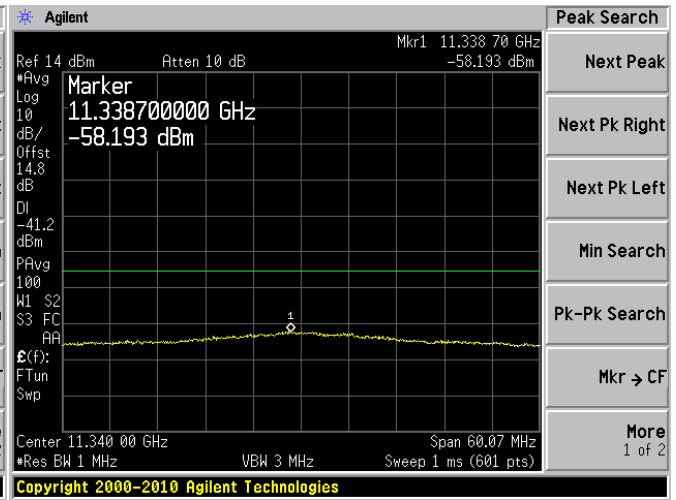
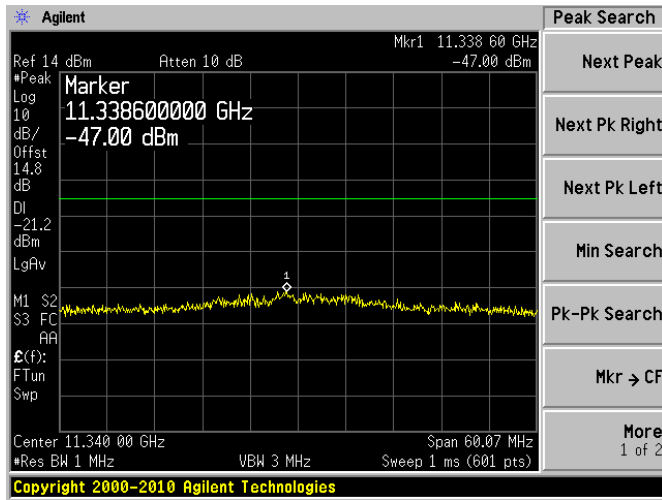
Spurious Emission 1 Peak

Spurious Emission 1 Average



2nd Harmonic Peak

2nd Harmonic Average



Chip Antenna:

Note 1: The antenna gain was included in the offset of these plots.

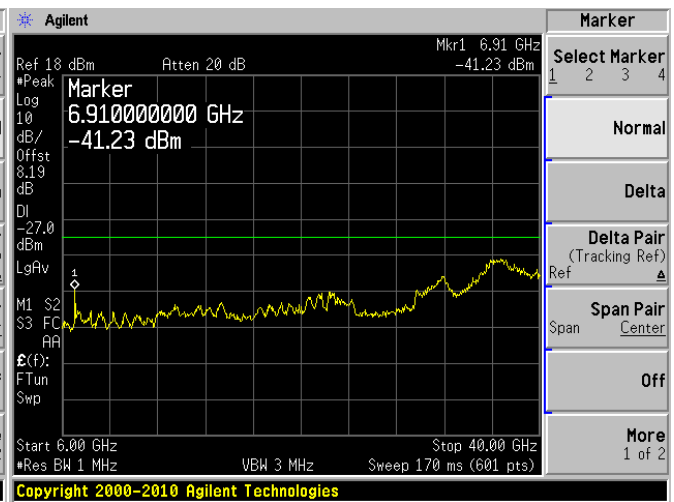
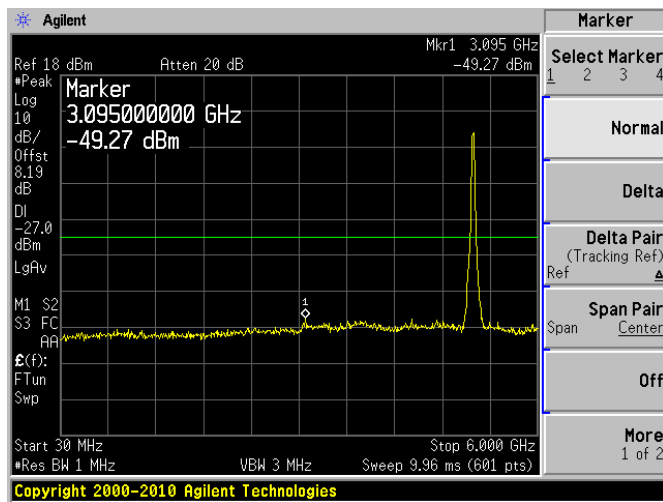
Note 2: The chip antenna has a lower gain than the dipole antenna (-3.7dBi vs. 2.9dBi); therefore only the channels with different power settings were remeasured; all other plots share with the dipole antenna.

5150-5250 MHz Band

802.11n-HT40, Low Channel, 5190 MHz

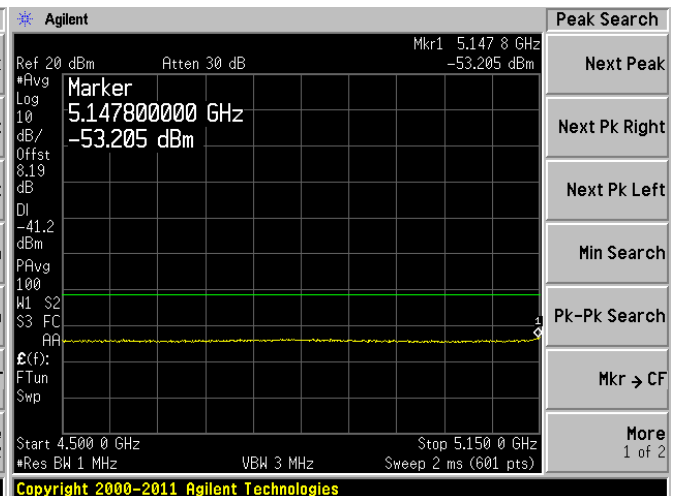
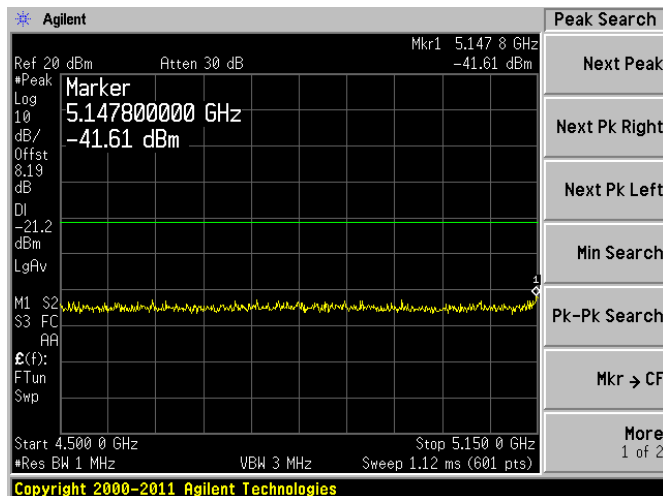
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

Restricted Band Edge Average

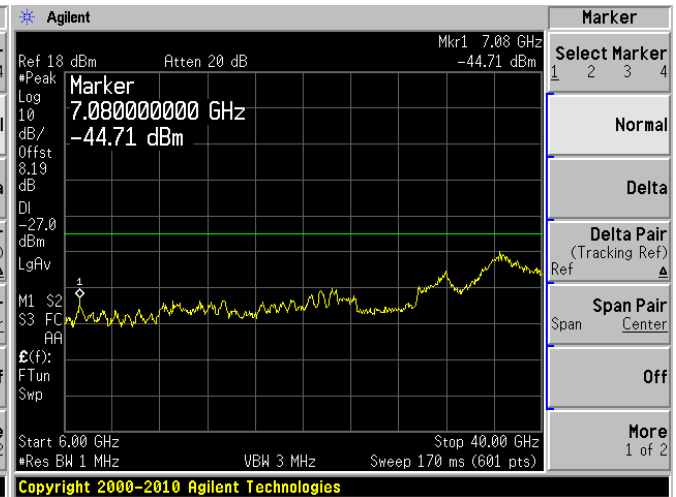
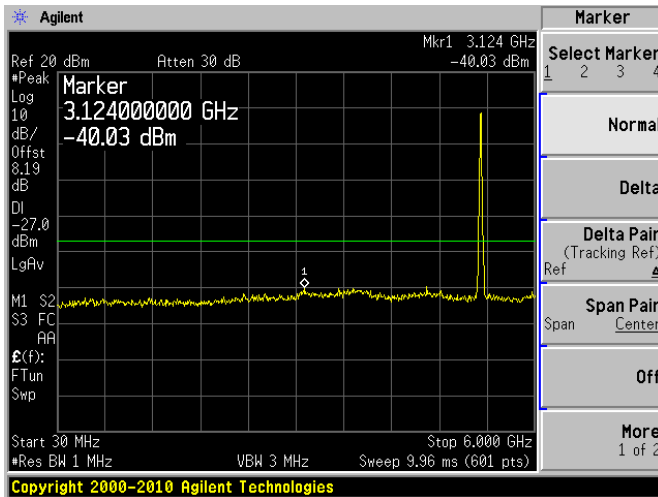


5250-5350 MHz Band

802.11a, High Channel, 5320 MHz

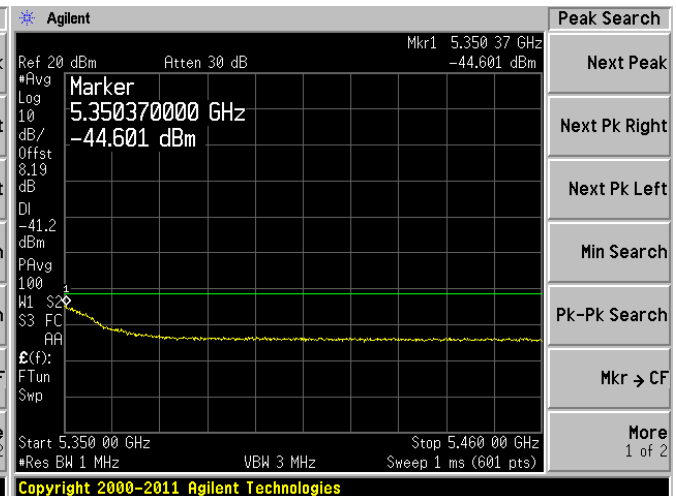
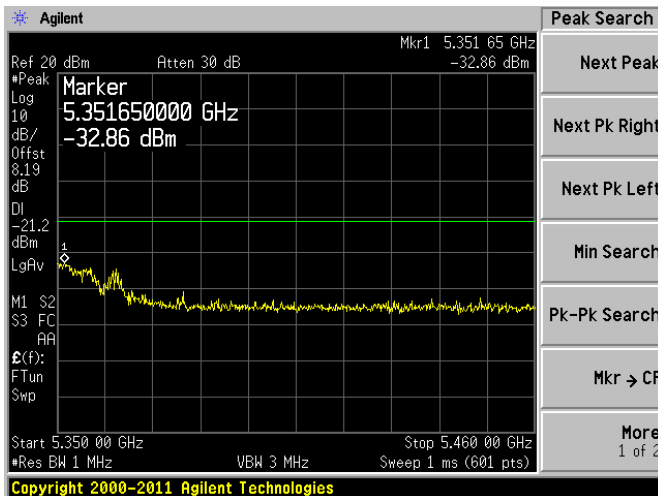
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

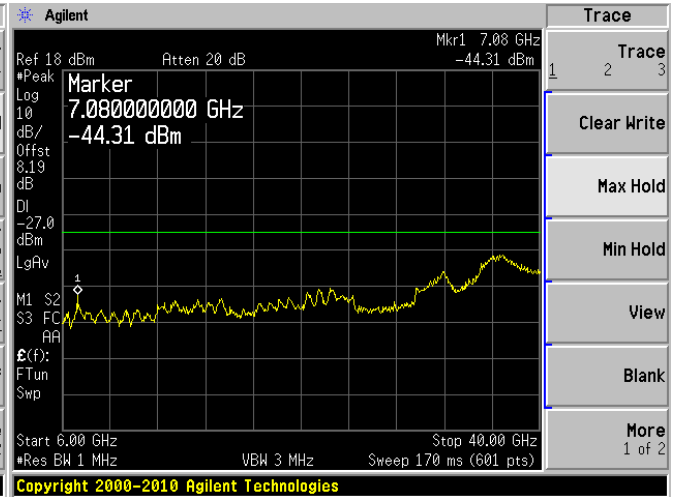
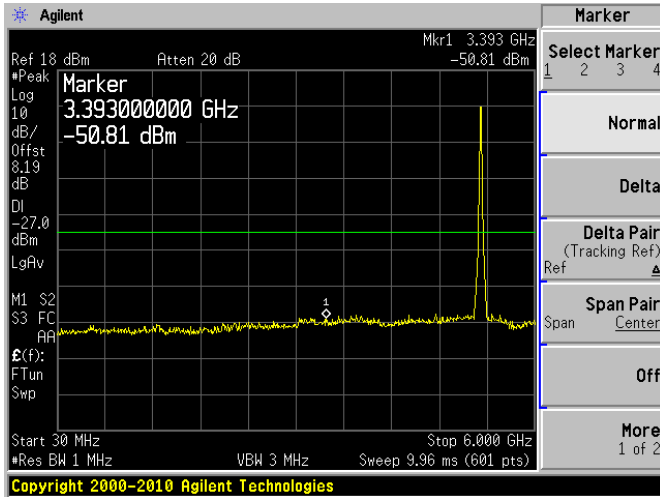
Restricted Band Edge Average



802.11n-HT20, High Channel, 5320 MHz

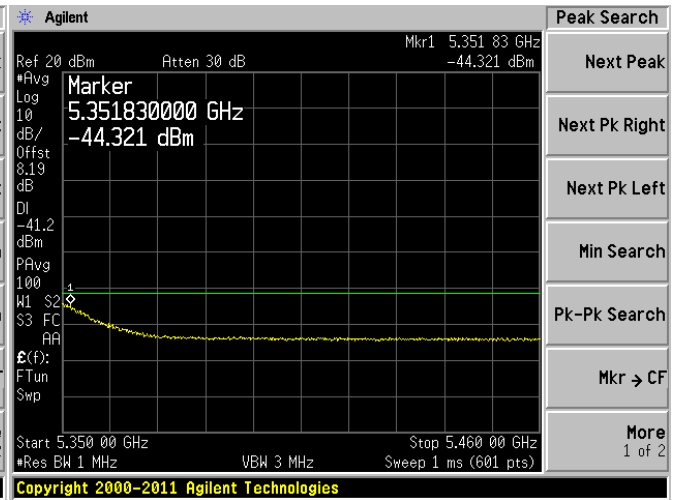
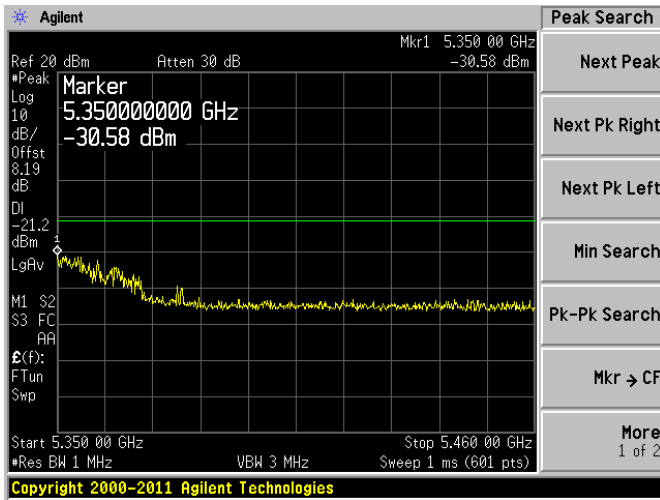
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

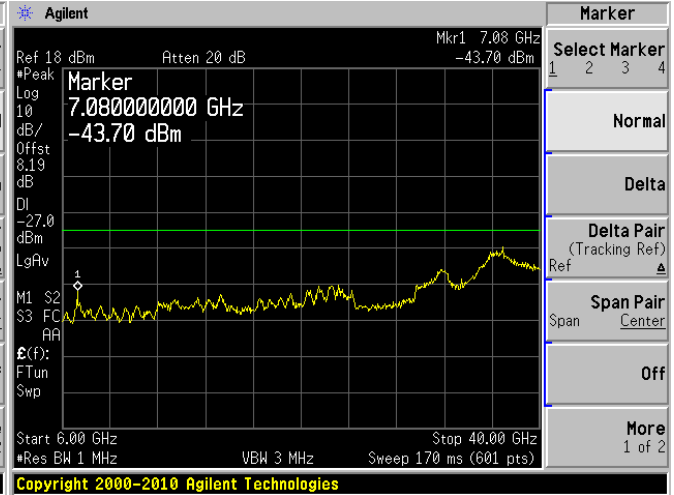
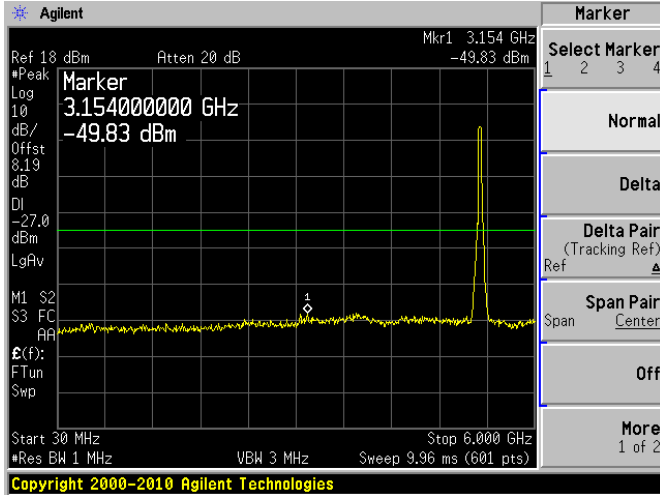
Restricted Band Edge Average



802.11n-HT40, High Channel, 5310 MHz

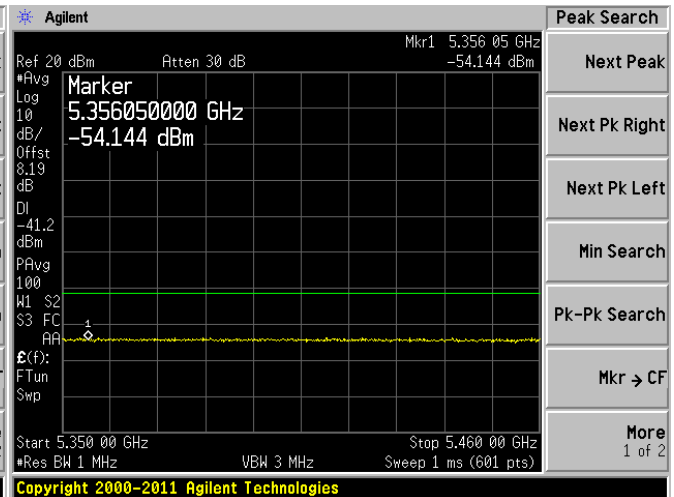
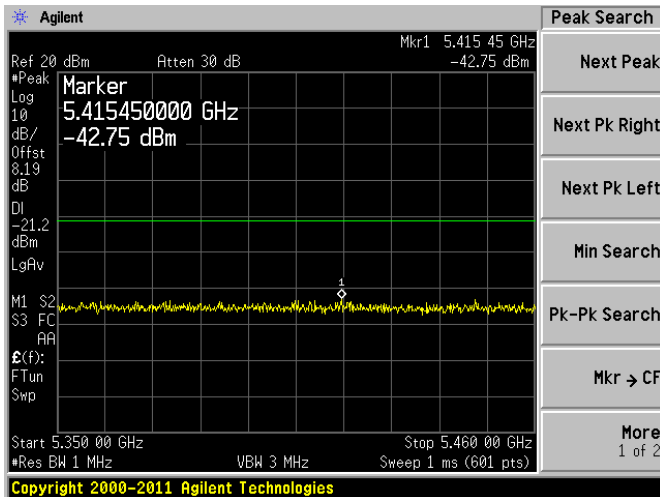
30 MHz – 6 GHz

6 GHz – 40 GHz



Restricted Band Edge Peak

Restricted Band Edge Average

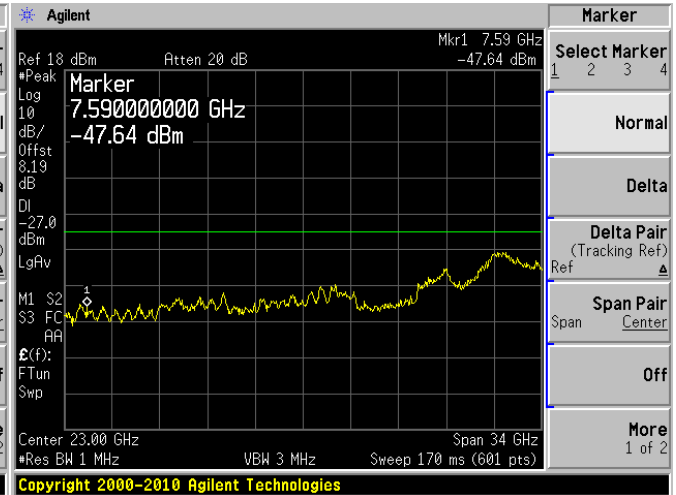
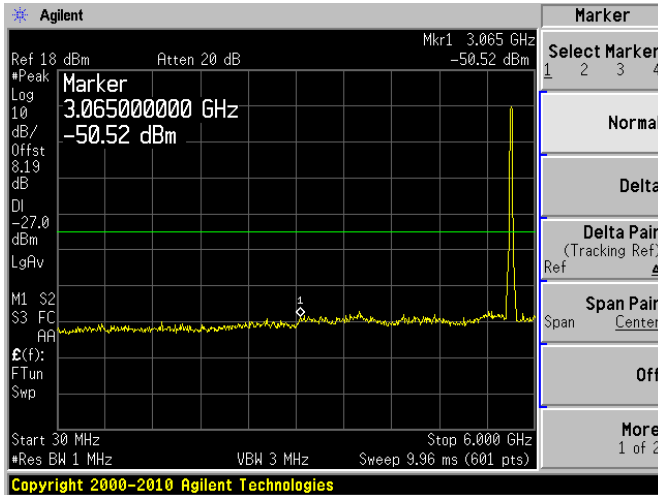


5470-5725 MHz Band

802.11a, High Channel, 5700 MHz

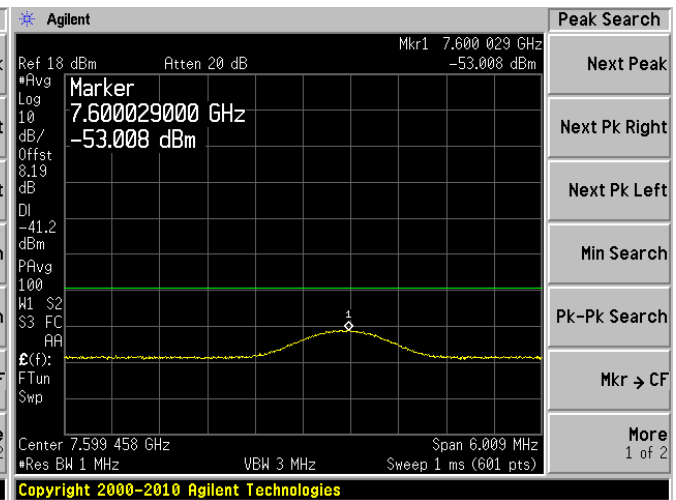
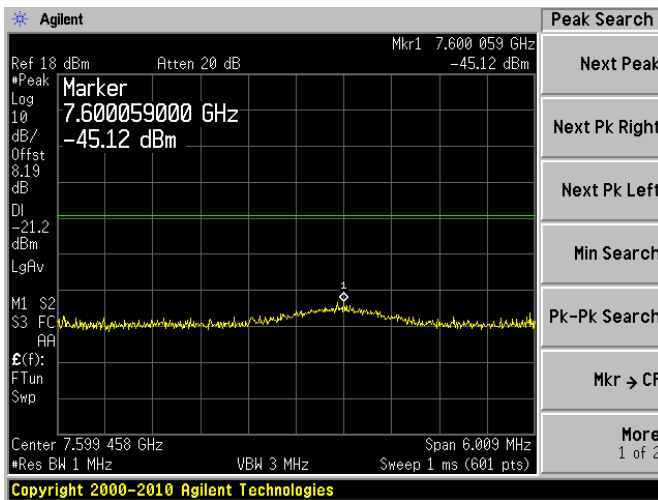
30 MHz – 6 GHz

6 GHz – 40 GHz



Spurious Emission 1 Peak

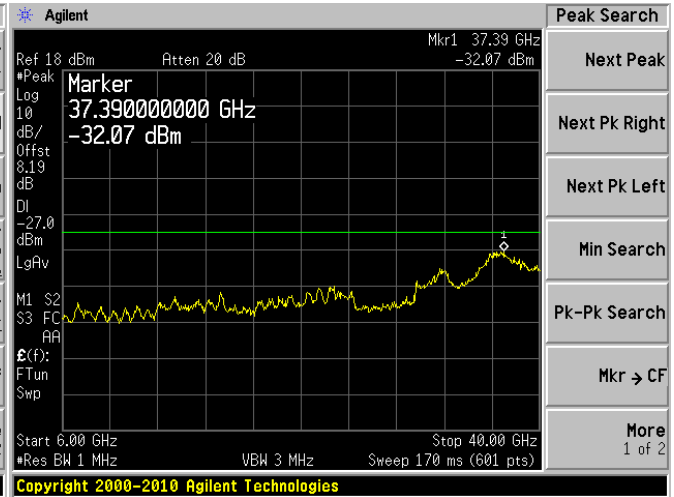
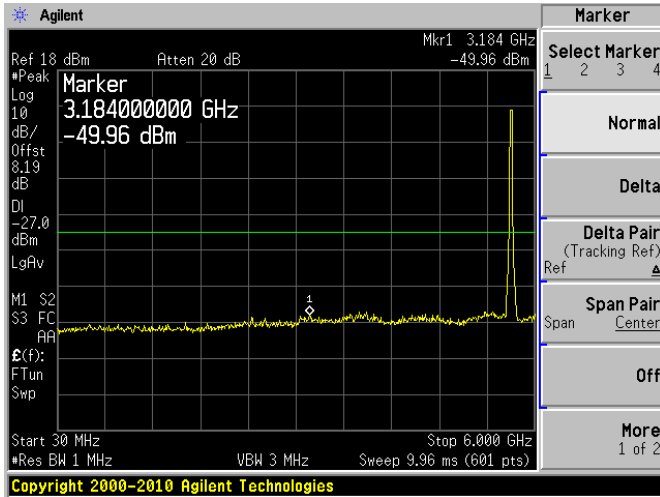
Spurious Emission 1 Average



802.11n-HT20, High Channel, 5700 MHz

30 MHz – 6 GHz

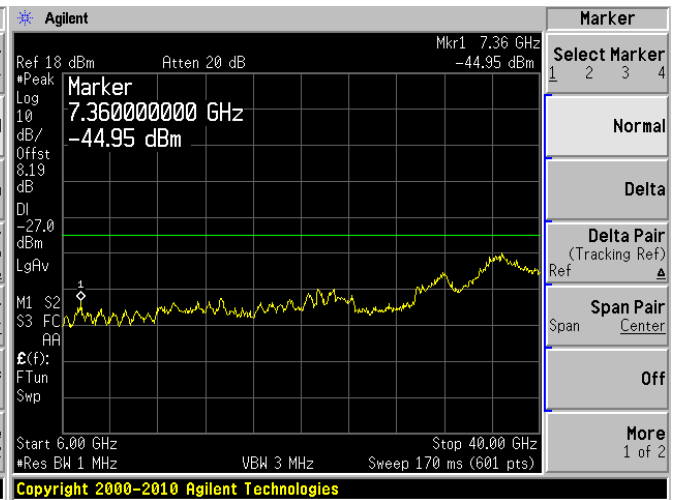
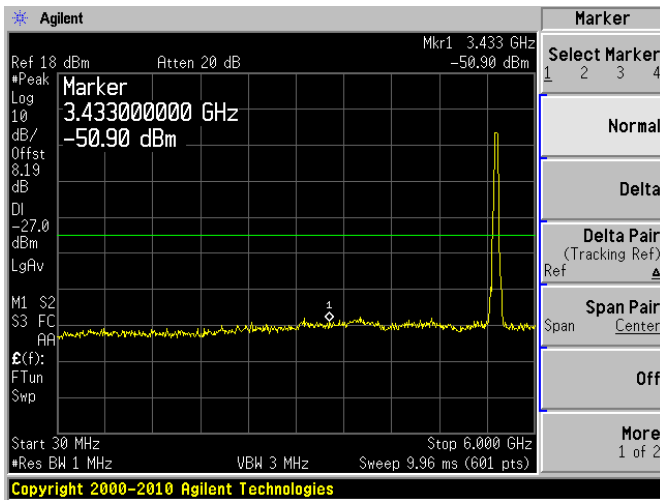
6 GHz – 40 GHz



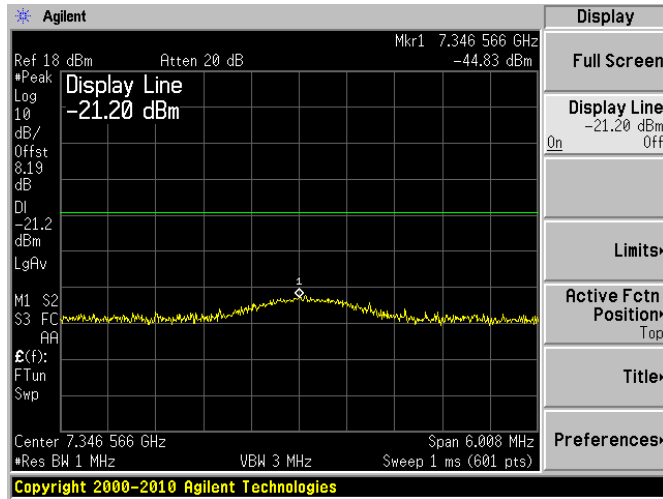
802.11n-HT40, Low Channel, 5510 MHz

30 MHz – 6 GHz

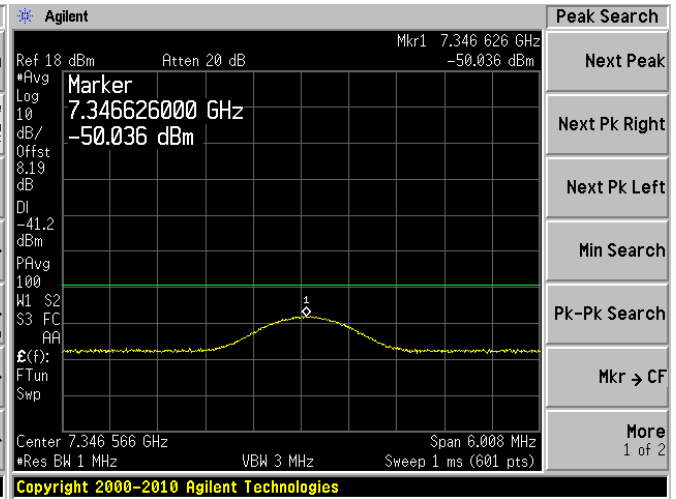
6 GHz – 40 GHz



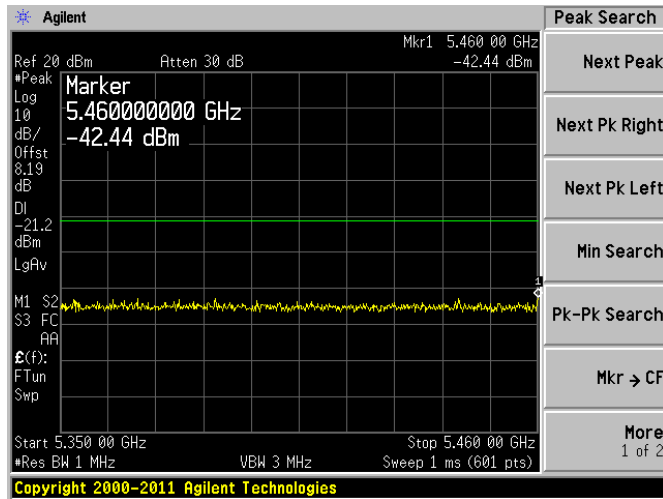
Spurious Emission 1 Peak



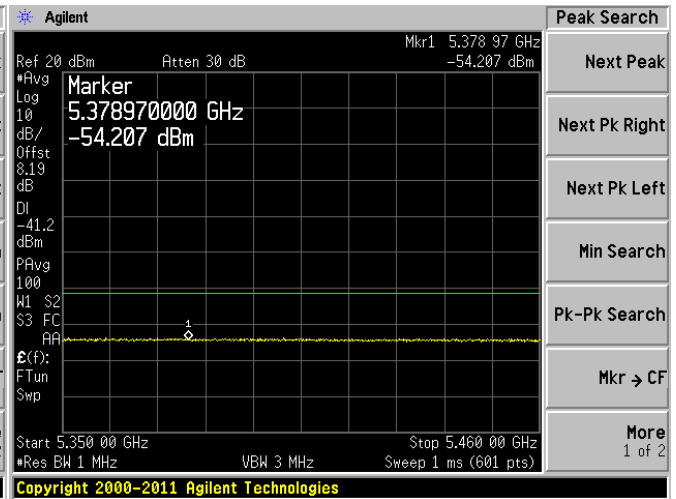
Spurious Emission 1 Average



Restricted Band Edge Peak



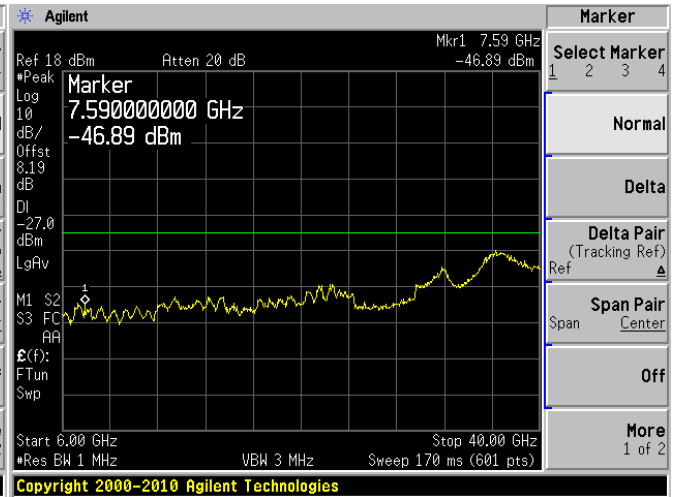
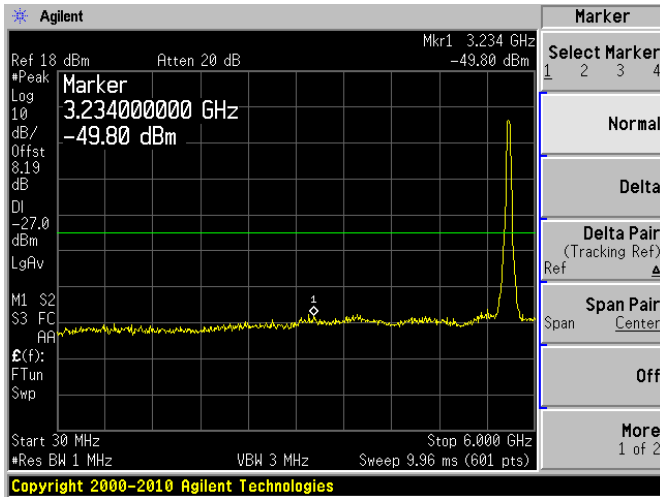
Restricted Band Edge Average



802.11n-HT40, High Channel, 5670 MHz

30 MHz – 6 GHz

6 GHz – 40 GHz



Spurious Emission 1 Peak

Spurious Emission 1 Average

