





FCC PART 15.407
IC RSS-210, ISSUE 8, DEC 2010
TEST AND MEASUREMENT REPORT

For

Ruckus Wireless, Inc.

350 West Java Drive,
Sunnyvale, CA 94089, USA

FCC ID: S9GR300
IC: 5912A-R300

Report Type: CIIPC	Product Type: 802.11 a/b/g/n Wireless Access Point
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* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*" (b)(3)

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1305151-407 W5356	Original Report	2013-09-25

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *Ruckus Wireless, Inc.*, and their product, FCC ID: S9GR300, IC: 5912A-R300, model number: R300 or the "EUT" as referred to in this report. The EUT is a 2x2 MIMO 802.11 a/b/g/n RLAN Access Point operates in 2.4 GHz and 5 GHz bands.

1.2 Mechanical Description of EUT

The EUT measures approximately 13 cm (L) x 13 cm (W) x 2.8 cm (H) and weighs 198 g.

The test data gathered are from typical production sample, serial number: 201302003637 assigned by Client.

1.3 Objective

This report is prepared on behalf of *Ruckus Wireless, Inc.*, in accordance with FCC CFR47 §15.407 and IC RSS-210 Issue 8, Dec 2010.

This project is a Permissive Change II submission for the purpose of adding DFS frequency bands (5250-5350 MHz; 5470-5725 MHz) to the certified device (FCC ID: S9GZF7372). The objective is to determine compliance with FCC/IC 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 for adding DFS bands 5250-5350 MHz and 5470-5725 MHz.

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 (UNII) 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: 2011, 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.

2.2 EUT Exercise Software

The test utility used was *R300 ART* with Cartversion: 2.18 was provided by Ruckus Wireless Inc., and was verified *Jeffery Wu* 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

Manufacturer	Description	Model	Serial Number
Ruckus	Motherboard	ASM 120-11255 REV 1	-
Ruckus	Antenna	ASM 120-11258 REV 2	-
Ruckus	Antenna	ASM 120-11259 REV 2	-

2.7 Interface Ports and Cables

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

2.8 Power Supply List and Details

Manufacturer	Description	Model	Part Number
Ruckus	Power Supply cord	HK-AD-120A100-CN	-
Ruckus	POE Power Adapter	PA1024-4HU	740-64125-010

3 Summary of Test Results

FCC & IC Rules	Description of Test	Result
FCC §15.407(f), §2.1091 IC RSS-102	RF Exposure	Compliant
FCC §15.203 IC RSS-Gen §7.1.2	Antenna Requirement	Compliant
FCC §15.207 IC RSS-Gen §7.2.4	AC Power Line Conducted Emissions	Compliant
FCC §15.209(a), 15.407(b) IC RSS-210 §A9.2	Spurious Radiated Emissions	Compliant
FCC §15.407(a) IC RSS-210 §A9.2	26 dB and 99% Emission Bandwidth	Compliant
FCC §407(a)(1) IC RSS-210 §A9.2	Peak Output Power Measurement	Compliant
FCC §2.1051, §15.407(b) IC RSS-210 §A9.2	Band Edges	Compliant
FCC §15.407(a)(1) IC RSS-210 §A9.2	Power Spectral Density	Compliant
FCC §15.407(a)(6)	Peak Excursion Ratio	Compliant
IC RSS-210 §2.3 IC RSS-Gen §6	Receiver Spurious Radiated Emissions	Compliant
FCC §2.1051, §15.407(b) IC RSS-210 §A9.2	Spurious Emissions at Antenna Terminals	Compliant
FCC §15.407(h) IC RSS-210 §A9.3	DFS	Note: 1

- **Note:** ¹ please refers to DFS report, Report number: R1305151-DFS.

4 FCC §15.407(f), §2.1091 & IC RSS-102 - 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

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

According to IC RSS-102 Issue 2 section 4.1, RF limits used for general public will be applied to the EUT.

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

Note: f is frequency in MHz

* = Power density limit is applicable at frequencies greater than 100 MHz

4.2 MPE Prediction

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

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

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

4.3 MPE Results

5250-5350 MHz

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>21.24</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>133.045</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5270</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>3.0</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>1.995</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.0528</u>
<u>Power density of prediction frequency at 20.0 cm (W/m²):</u>	<u>0.528</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (W/m²):</u>	<u>10</u>

5470-5725 MHz

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>21.15</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>130.317</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5550</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>3</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>1.9952</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.0517</u>
<u>Power density of prediction frequency at 20.0 cm (W/m²):</u>	<u>0.517</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (W/m²):</u>	<u>10</u>

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

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

5.1 Applicable Standard

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

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

As per IC RSS-Gen §7.1.2: Transmitter Antenna:

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

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

5.2 Antenna List

Manufacturers	Antenna Type/Pattern	Antenna Gain (dBi) @ 2.4 GHz
Ruckus	Omni	0

Manufacturers	Antenna Type/Pattern	Antenna Gain (dBi) @ 5 GHz
Ruckus	Omni	3

Note: The power setting was controlled by manufacture with different antenna configuration. The power setting of the different antenna will be set with the corresponded value and no more then the level reported.

The antenna consists of non standard (UFL) connectors with less 6 dBi gain; therefore, it complies with the antenna requirement.

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

6.1 Applicable Standards

As per FCC §15.207 and IC RSS-Gen §7.2.4 Conducted limits:

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 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 results

Please refer to BACL report R1305151-247 5.8 G

7 FCC §15.209, §15.407(b) & IC RSS-210 §A9.2 - Spurious Radiated Emissions

7.1 Applicable Standard

FCC §15.205, §15.209, §15.407 (b)

IC RSS-210, §2.2, §A9.2, RSS-Gen §7.2.2

7.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15C/15E 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 based 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 were 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 No.	Serial No.	Calibration Date	Calibration Interval
Sunol Science Corp	System Controller	SC99V	122303-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2013-06-18	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
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year
EMCO	Horn Antenna	3315	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:	23-24°C
Relative Humidity:	44-46%
ATM Pressure:	101-102kPa

The testing was performed by Bo Li from 2013-8-15 to 2013-8-19 at 5 meter 3.

7.7 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15, Subpart C, section 15.205, 15.209 and 15.407 & IC RSS-210, RSS-Gen standard's radiated emissions limits, and had the worst margin of:

5250-5350 MHz

Mode: Transmitting			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Channel, Range
-3.94	35.35875	Vertical	30 MHz -40 GHz

5470-5725 MHz

Mode: Transmitting			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Channel, Range
-2.76	500.00225	Vertical	30 MHz -40 GHz

7.8 Radiated Emissions Test Result Data

1) 30 MHz–1 GHz, Measured at 3 meters

5250-5350 MHz Band, Quasi-Peak Measurements

All 30 MHz–1 GHz spurious are digital, other emissions are on the noise floor level. Report only the worst case data as shown below:

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)
35.35875	36.06	109	V	294	40	-3.94
48.819	33.35	229	V	265	40	-6.65
374.984	39.26	99	H	249	46	-6.74
149.31575	31.84	110	V	298	43.5	-11.66
125.00525	26.84	136	V	8	43.5	-16.66
249.9505	27.31	110	H	28	46	-18.69
981.935	22.52	302	V	248	54	-31.48

802.11n-HT20 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)
43.095	30.47	153	V	107	40	-9.53
143.975	36.58	99	V	167	43.5	-6.92
249.705	32.57	254	H	263	46	-13.43
600.36	30.96	99	V	358	46	-15.04
1000	32.38	123	H	289	54	-21.62
113.905	28.75	99	V	143	43.5	-14.75

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)
49.99075	28.44	153	V	118	40	-11.56
143.98	36.12	99	V	197	43.5	-7.38
625.00425	38.83	99	V	81	46	-7.17
249.951	32.68	99	H	325	46	-13.32
101.71825	28.7	123	V	271	43.5	-14.8
336.001	28.94	99	H	249	46	-17.06
999.988	34.47	99	H	52	54	-19.53

5470-5725 MHz Band, Quasi-Peak Measurements

All 30MHz–1GHz spurious are digital, other emissions are on the noise floor level. Report only the worst case data as shown below:

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)
37.14375	35.32	100	V	329	40	-4.68
48.34125	35.19	122	V	245	40	-4.81
375.00175	40.47	100	H	229	46	-5.53
114.099	25.85	99	V	2	43.5	-17.65
240.009	34.47	107	H	224	46	-11.53
249.9545	27.08	105	H	329	46	-18.92

802.11n-HT20 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)
36.34825	35	138	V	277	40	-5
500.00225	43.24	99	V	360	46	-2.76
143.988	37.94	106	V	309	43.5	-5.56
625.00725	40.06	99	V	26	46	-5.94
165.99625	31.71	212	H	305	43.5	-11.79
239.99575	34.11	132	H	233	46	-11.89

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)
36.544	36.14	99	V	324	40	-3.86
47.00125	31.56	198	V	207	40	-8.44
235.0025	41.86	133	H	328	46	-4.14
144.023	37.79	103	V	300	43.5	-5.71
165.9955	31.07	184	H	264	43.5	-12.43
278.88675	28.28	102	H	193	46	-17.72

2) 1-40 GHz, Measured at 3 meters

5250-5350 MHz Band

802.11a mode

Frequency (MHz)	S.A. Reading (dBμV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBμV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	
Low Channel 5260 MHz, measured at 3 meters											
10520	43.55	113	100	V	38.343	7	27.93	60.963	74	-13.037	Peak
10520	43.91	157	100	H	38.343	7	27.93	61.323	74	-12.677	Peak
10520	24.82	113	100	V	38.343	7	27.93	42.233	54	-11.767	Ave
10520	26.5	157	100	H	38.343	7	27.93	43.913	54	-10.087	Ave
15780	34.77	0	100	V	37.928	8.35	25.51	55.538	74	-18.462	Peak
15780	34.95	0	100	H	37.928	8.35	25.51	55.718	74	-18.282	Peak
15780	20.14	0	100	V	37.928	8.35	25.51	40.908	54	-13.092	Ave
15780	20.29	0	100	H	37.928	8.35	25.51	41.058	54	-12.942	Ave
21040	33.55	0	100	V	34.097	9.79	29	48.437	74	-25.563	Peak
21040	33.87	0	100	H	34.097	9.79	29	48.757	74	-25.243	Peak
21040	19.04	0	100	V	34.097	9.79	29	33.927	54	-20.073	Ave
21040	19.07	0	100	H	34.097	9.79	29	33.957	54	-20.043	Ave
Middle Channel 5280 MHz, measured at 3 meters											
10560	42.18	138	168	V	38.418	7.07	27.93	59.738	74	-14.262	Peak
10560	42.47	155	100	H	38.418	7.07	27.93	60.028	74	-13.972	Peak
10560	26.65	138	168	V	38.418	7.07	27.93	44.208	54	-9.792	Ave
10560	24.35	155	100	H	38.418	7.07	27.93	41.908	54	-12.092	Ave
15840	35.24	0	100	V	37.914	8.38	25.5	56.034	74	-17.966	Peak
15840	34.15	0	100	H	37.914	8.38	25.5	54.944	74	-19.056	Peak
15840	19.8	0	100	V	37.914	8.38	25.5	40.594	54	-13.406	Ave
15840	19.79	0	100	H	37.914	8.38	25.5	40.584	54	-13.416	Ave
21120	33.94	0	100	V	34.097	9.8	29.1	48.737	74	-25.263	Peak
21120	34.19	0	100	H	34.097	9.8	29.1	48.987	74	-25.013	Peak
21120	19.06	0	100	V	34.097	9.8	29.1	33.857	54	-20.143	Ave
21120	19.04	0	100	H	34.097	9.8	29.1	33.837	54	-20.163	Ave

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/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	
High Channel 5320 MHz, measured at 3 meters											
10640	35.92	140	167	V	38.418	7.07	27.74	53.668	74	-20.332	Peak
10640	37.86	160	100	H	38.418	7.07	27.74	55.608	74	-18.392	Peak
10640	22.81	140	167	V	38.418	7.07	27.74	40.558	54	-13.442	Ave
10640	23.26	160	100	H	38.418	7.07	27.74	41.008	54	-12.992	Ave
15960	33.67	0	100	V	37.902	8.39	25.4	54.562	74	-19.438	Peak
15960	32.83	0	100	H	37.902	8.39	25.4	53.722	74	-20.278	Peak
15960	19.18	0	100	V	37.902	8.39	25.4	40.072	54	-13.928	Ave
15960	18.8	0	100	H	37.902	8.39	25.4	39.692	54	-14.308	Ave
21280	34.02	0	100	V	34.097	9.79	29	48.907	74	-25.093	Peak
21280	33.55	0	100	H	34.097	9.79	29	48.437	74	-25.563	Peak
21280	19.72	0	100	V	34.097	9.79	29	34.607	54	-19.393	Ave
21280	19.74	0	100	H	34.097	9.79	29	34.627	54	-19.373	Ave

802.11n-HT20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5260 MHz, measured at 3 meters											
10520	40.41	112	178	V	38.343	7	27.93	57.823	74	-16.177	Peak
10520	40.66	157	108	H	38.343	7	27.93	58.073	74	-15.927	Peak
10520	22.81	112	178	V	38.343	7	27.93	40.223	54	-13.777	Ave
10520	24.06	157	108	H	38.343	7	27.93	41.473	54	-12.527	Ave
15780	34.25	0	100	V	37.928	8.35	25.51	55.018	74	-18.982	Peak
15780	33.93	0	100	H	37.928	8.35	25.51	54.698	74	-19.302	Peak
15780	20.04	0	100	V	37.928	8.35	25.51	40.808	54	-13.192	Ave
15780	20.21	0	100	H	37.928	8.35	25.51	40.978	54	-13.022	Ave
21040	33.18	0	100	V	34.097	9.79	29	48.067	74	-25.933	Peak
21040	33.02	0	100	H	34.097	9.79	29	47.907	74	-26.093	Peak
21040	19.11	0	100	V	34.097	9.79	29	33.997	54	-20.003	Ave
21040	19.09	0	100	H	34.097	9.79	29	33.977	54	-20.023	Ave
Middle Channel 5280 MHz, measured at 3 meters											
10560	43.23	136	169	V	38.418	7.07	27.93	60.788	74	-13.212	Peak
10560	44.35	160	113	H	38.418	7.07	27.93	61.908	74	-12.092	Peak
10560	25.41	136	169	V	38.418	7.07	27.93	42.968	54	-11.032	Ave
10560	25.09	160	113	H	38.418	7.07	27.93	42.648	54	-11.352	Ave
15840	34.37	0	100	V	37.914	8.38	25.5	55.164	74	-18.836	Peak
15840	33.92	0	100	H	37.914	8.38	25.5	54.714	74	-19.286	Peak
15840	19.87	0	100	V	37.914	8.38	25.5	40.664	54	-13.336	Ave
15840	19.65	0	100	H	37.914	8.38	25.5	40.444	54	-13.556	Ave
21120	33.27	0	100	V	34.097	9.8	29.1	48.067	74	-25.933	Peak
21120	33.16	0	100	H	34.097	9.8	29.1	47.957	74	-26.043	Peak
21120	19.16	0	100	V	34.097	9.8	29.1	33.957	54	-20.043	Ave
21120	19.18	0	100	H	34.097	9.8	29.1	33.977	54	-20.023	Ave

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/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	
High Channel 5320 MHz, measured at 3 meters											
10640	36.07	143	163	V	38.418	7.07	27.74	53.818	74	-20.182	Peak
10640	36.66	158	114	H	38.418	7.07	27.74	54.408	74	-19.592	Peak
10640	21.33	143	163	V	38.418	7.07	27.74	39.078	54	-14.922	Ave
10640	22.54	158	114	H	38.418	7.07	27.74	40.288	54	-13.712	Ave
15960	32.87	0	100	V	37.902	8.39	25.4	53.762	74	-20.238	Peak
15960	33.06	0	100	H	37.902	8.39	25.4	53.952	74	-20.048	Peak
15960	18.75	0	100	V	37.902	8.39	25.4	39.642	54	-14.358	Ave
15960	18.69	0	100	H	37.902	8.39	25.4	39.582	54	-14.418	Ave
21280	33.95	0	100	V	34.097	9.79	29	48.837	74	-25.163	Peak
21280	33.42	0	100	H	34.097	9.79	29	48.307	74	-25.693	Peak
21280	19.76	0	100	V	34.097	9.79	29	34.647	54	-19.353	Ave
21280	19.74	0	100	H	34.097	9.79	29	34.627	54	-19.373	Ave

802.11n-HT40 mode

Frequency (MHz)	S.A. Reading (dBμV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBμV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	
Low Channel 5270 MHz, measured at 3 meters											
10540	36.57	112	100	V	38.343	7.05	27.93	54.033	74	-19.967	Peak
10540	38.08	160	100	H	38.343	7.05	27.93	55.543	74	-18.457	Peak
10540	21.12	112	100	V	38.343	7.05	27.93	38.583	54	-15.417	Ave
10540	21.22	160	100	H	38.343	7.05	27.93	38.683	54	-15.317	Ave
15810	34.43	0	100	V	37.928	8.35	25.44	55.268	74	-18.732	Peak
15810	34.21	0	100	H	37.928	8.35	25.44	55.048	74	-18.952	Peak
15810	20.022	0	100	V	37.928	8.35	25.44	40.86	54	-13.14	Ave
15810	20.04	0	100	H	37.928	8.35	25.44	40.878	54	-13.122	Ave
21080	33.21	0	100	V	34.097	9.84	29	48.147	74	-25.853	Peak
21080	33.18	0	100	H	34.097	9.84	29	48.117	74	-25.883	Peak
21080	19.1	0	100	V	34.097	9.84	29	34.037	54	-19.963	Ave
21080	19.11	0	100	H	34.097	9.84	29	34.047	54	-19.953	Ave
High Channel 5310 MHz, measured at 3 meters											
10620	32.99	0	100	V	38.418	7.07	27.93	50.548	74	-23.452	Peak
10620	32.86	0	100	H	38.418	7.07	27.93	50.418	74	-23.582	Peak
10620	18.7	0	100	V	38.418	7.07	27.93	36.258	54	-17.742	Ave
10620	19.29	0	100	H	38.418	7.07	27.93	36.848	54	-17.152	Ave
15930	32.75	0	100	V	37.914	8.38	25.56	53.484	74	-20.516	Peak
15930	32.94	0	100	H	37.914	8.38	25.56	53.674	74	-20.326	Peak
15930	18.64	0	100	V	37.914	8.38	25.56	39.374	54	-14.626	Ave
15930	18.67	0	100	H	37.914	8.38	25.56	39.404	54	-14.596	Ave
21240	33.67	0	100	V	34.097	9.79	29	48.557	74	-25.443	Peak
21240	33.38	0	100	H	34.097	9.79	29	48.267	74	-25.733	Peak
21240	19.44	0	100	V	34.097	9.79	29	34.327	54	-19.673	Ave
21240	19.38	0	100	H	34.097	9.79	29	34.267	54	-19.733	Ave

5470-5725 MHz Band

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5500 MHz, measured at 3 meters											
11000	41.78	105	100	V	38.382	7.36	26.92	60.602	74	-13.398	Peak
11000	45.65	161	100	H	38.382	7.36	26.92	64.472	74	-9.528	Peak
11000	23.31	105	100	V	38.382	7.36	26.92	42.132	54	-11.868	Ave
11000	26.09	161	100	H	38.382	7.36	26.92	44.912	54	-9.088	Ave
16500	34.77	0	100	V	38.768	8.5	26.1	55.938	74	-18.062	Peak
16500	33.83	0	100	H	38.768	8.5	26.1	54.998	74	-19.002	Peak
16500	20.25	0	100	V	38.768	8.5	26.1	41.418	54	-12.582	Ave
16500	20.2	0	100	H	38.768	8.5	26.1	41.368	54	-12.632	Ave
22000	34.6	0	100	V	35	9.94	29.1	50.44	74	-23.56	Peak
22000	35.27	0	100	H	35	9.94	29.1	51.11	74	-22.89	Peak
22000	20.57	0	100	V	35	9.94	29.1	36.41	54	-17.59	Ave
22000	20.6	0	100	H	35	9.94	29.1	36.44	54	-17.56	Ave
Middle Channel 5580 MHz, measured at 3 meters											
11160	40.45	107	100	V	38.511	7.52	26.94	59.541	74	-14.459	Peak
11160	43.74	152	100	H	38.511	7.52	26.94	62.831	74	-11.169	Peak
11160	22.33	107	100	V	38.511	7.52	26.94	41.421	54	-12.579	Ave
11160	24.85	152	100	H	38.511	7.52	26.94	43.941	54	-10.059	Ave
16740	33.49	0	100	V	39.94	8.63	26.12	55.94	74	-18.06	Peak
16740	33.75	0	100	H	39.94	8.63	26.12	56.2	74	-17.8	Peak
16740	19.62	0	100	V	39.94	8.63	26.12	42.07	54	-11.93	Ave
16740	19.87	0	100	H	39.94	8.63	26.12	42.32	54	-11.68	Ave
22320	34.29	0	100	V	35	9.92	29.1	50.11	74	-23.89	Peak
22320	34.55	0	100	H	35	9.92	29.1	50.37	74	-23.63	Peak
22320	20.48	0	100	V	35	9.92	29.1	36.3	54	-17.7	Ave
22320	20.47	0	100	H	35	9.92	29.1	36.29	54	-17.71	Ave

Frequency (MHz)	S.A. Reading (dBμV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBμV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	
High Channel 5700 MHz, measured at 3 meters											
11400	41.83	93	100	V	38.882	7.57	27	61.282	74	-12.718	Peak
11400	42.53	150	100	H	38.882	7.57	27	61.982	74	-12.018	Peak
11400	22.59	93	100	V	38.882	7.57	27	42.042	54	-11.958	Ave
11400	22.64	150	100	H	38.882	7.57	27	42.092	54	-11.908	Ave
17100	34.73	0	100	V	42.637	8.66	26.03	59.997	74	-14.003	Peak
17100	35.15	0	100	H	42.637	8.66	26.03	60.417	74	-13.583	Peak
17100	20.43	0	100	V	42.637	8.66	26.03	45.697	54	-8.303	Ave
17100	21.21	0	100	H	42.637	8.66	26.03	46.477	54	-7.523	Ave
22800	33.44	0	100	V	35	10.17	28.9	49.71	74	-24.29	Peak
22800	33.44	0	100	H	35	10.17	28.9	49.71	74	-24.29	Peak
22800	17.47	0	100	V	35	10.17	28.9	33.74	54	-20.26	Ave
22800	19.46	0	100	H	35	10.17	28.9	35.73	54	-18.27	Ave

802.11n-HT20 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5500 MHz, measured at 3 meters											
11000	41.18	128	100	V	38.382	7.36	26.92	60.002	74	-13.998	Peak
11000	44.59	154	100	H	38.382	7.36	26.92	63.412	74	-10.588	Peak
11000	22.16	128	100	V	38.382	7.36	26.92	40.982	54	-13.018	Ave
11000	25.1	154	100	H	38.382	7.36	26.92	43.922	54	-10.078	Ave
16500	34.76	0	100	V	38.768	8.5	26.1	55.928	74	-18.072	Peak
16500	34.99	0	100	H	38.768	8.5	26.1	56.158	74	-17.842	Peak
16500	20.37	0	100	V	38.768	8.5	26.1	41.538	54	-12.462	Ave
16500	20.51	0	100	H	38.768	8.5	26.1	41.678	54	-12.322	Ave
22000	34.35	0	100	V	35	9.94	29.1	50.19	74	-23.81	Peak
22000	34.68	0	100	H	35	9.94	29.1	50.52	74	-23.48	Peak
22000	20.7	0	100	V	35	9.94	29.1	36.54	54	-17.46	Ave
22000	20.71	0	100	H	35	9.94	29.1	36.55	54	-17.45	Ave
Middle Channel 5580 MHz, measured at 3 meters											
11160	41.48	89	105	V	38.511	7.52	26.94	60.571	74	-13.429	Peak
11160	43.84	155	100	H	38.511	7.52	26.94	62.931	74	-11.069	Peak
11160	22.83	89	105	V	38.511	7.52	26.94	41.921	54	-12.079	Ave
11160	25.38	155	100	H	38.511	7.52	26.94	44.471	54	-9.529	Ave
16740	33.6	0	100	V	39.94	8.63	26.12	56.05	74	-17.95	Peak
16740	33.55	0	100	H	39.94	8.63	26.12	56	74	-18	Peak
16740	19.65	0	100	V	39.94	8.63	26.12	42.1	54	-11.9	Ave
16740	19.58	0	100	H	39.94	8.63	26.12	42.03	54	-11.97	Ave
22320	34.26	0	100	V	35	9.92	29.1	50.08	74	-23.92	Peak
22320	34.6	0	100	H	35	9.92	29.1	50.42	74	-23.58	Peak
22320	20.52	0	100	V	35	9.92	29.1	36.34	54	-17.66	Ave
22320	20.49	0	100	H	35	9.92	29.1	36.31	54	-17.69	Ave

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/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	
High Channel 5700 MHz, measured at 3 meters											
11400	41.2	93	100	V	38.882	7.57	27	60.652	74	-13.348	Peak
11400	41.46	46	110	H	38.882	7.57	27	60.912	74	-13.088	Peak
11400	21.34	93	100	V	38.882	7.57	27	40.792	54	-13.208	Ave
11400	22	46	110	H	38.882	7.57	27	41.452	54	-12.548	Ave
17100	35.09	0	100	V	42.637	8.66	26.03	60.357	74	-13.643	Peak
17100	35.45	0	100	H	42.637	8.66	26.03	60.717	74	-13.283	Peak
17100	21.08	0	100	V	42.637	8.66	26.03	46.347	54	-7.653	Ave
17100	21.12	0	100	H	42.637	8.66	26.03	46.387	54	-7.613	Ave
22800	33.86	0	100	V	35	10.17	28.9	50.13	74	-23.87	Peak
22800	33.9	0	100	H	35	10.17	28.9	50.17	74	-23.83	Peak
22800	19.48	0	100	V	35	10.17	28.9	35.75	54	-18.25	Ave
22800	19.48	0	100	H	35	10.17	28.9	35.75	54	-18.25	Ave

802.11n-HT40 mode

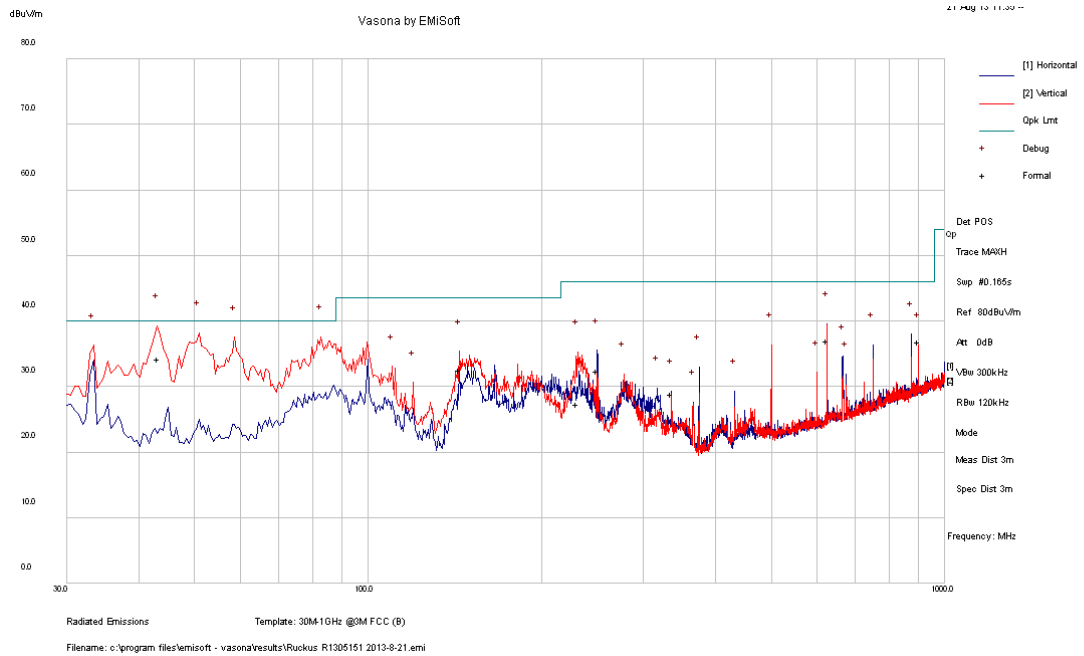
Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5510 MHz, measured at 3 meters											
11020	32.57	0	100	V	38.382	7.36	26.92	51.392	74	-22.608	Peak
11020	33.36	0	100	H	38.382	7.36	26.92	52.182	74	-21.818	Peak
11020	18.1	0	100	V	38.382	7.36	26.92	36.922	54	-17.078	Ave
11020	18.33	0	100	H	38.382	7.36	26.92	37.152	54	-16.848	Ave
16530	34.64	0	100	V	38.768	8.5	26.12	55.788	74	-18.212	Peak
16530	33.87	0	100	H	38.768	8.5	26.12	55.018	74	-18.982	Peak
16530	20.22	0	100	V	38.768	8.5	26.12	41.368	54	-12.632	Ave
16530	20.23	0	100	H	38.768	8.5	26.12	41.378	54	-12.622	Ave
22040	34.45	0	100	V	35	9.76	29.1	50.11	74	-23.89	Peak
22040	34.19	0	100	H	35	9.76	29.1	49.85	74	-24.15	Peak
22040	20.21	0	100	V	35	9.76	29.1	35.87	54	-18.13	Ave
22040	20.21	0	100	H	35	9.76	29.1	35.87	54	-18.13	Ave
Middle Channel 5550 MHz, measured at 3 meters											
11100	37.73	120	135	V	38.511	7.39	26.92	56.711	74	-17.289	Peak
11100	40.03	158	100	H	38.511	7.39	26.92	59.011	74	-14.989	Peak
11100	21.37	120	135	V	38.511	7.39	26.92	40.351	54	-13.649	Ave
11100	23.71	158	100	H	38.511	7.39	26.92	42.691	54	-11.309	Ave
16650	34.07	0	100	V	39.256	8.55	26.11	55.766	74	-18.234	Peak
16650	33.85	0	100	H	39.256	8.55	26.11	55.546	74	-18.454	Peak
16650	20.24	0	100	V	39.256	8.55	26.11	41.936	54	-12.064	Ave
16650	20.52	0	100	H	39.256	8.55	26.11	42.216	54	-11.784	Ave
22200	35.87	0	100	V	35	9.91	29.1	51.68	74	-22.32	Peak
22200	35.53	0	100	H	35	9.91	29.1	51.34	74	-22.66	Peak
22200	21.53	0	100	V	35	9.91	29.1	37.34	54	-16.66	Ave
22200	21.49	0	100	H	35	9.91	29.1	37.3	54	-16.7	Ave

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/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	
High Channel 5670 MHz, measured at 3 meters											
11340	36.04	113	100	V	38.844	7.52	26.97	55.434	74	-18.566	Peak
11340	37.69	48	100	H	38.844	7.52	26.97	57.084	74	-16.916	Peak
11340	19.95	113	100	V	38.844	7.52	26.97	39.344	54	-14.656	Ave
11340	21.28	48	100	H	38.844	7.52	26.97	40.674	54	-13.326	Ave
17010	34.17	0	100	V	41.889	8.61	25.99	58.679	74	-15.321	Peak
17010	33.55	0	100	H	41.889	8.61	25.99	58.059	74	-15.941	Peak
17010	19.89	0	100	V	41.889	8.61	25.99	44.399	54	-9.601	Ave
17010	19.98	0	100	H	41.889	8.61	25.99	44.489	54	-9.511	Ave
22680	33.65	0	100	V	35	10.07	29	49.72	74	-24.28	Peak
22680	34.01	0	100	H	35	10.07	29	50.08	74	-23.92	Peak
22680	19.87	0	100	V	35	10.07	29	35.94	54	-18.06	Ave
22680	19.89	0	100	H	35	10.07	29	35.96	54	-18.04	Ave

3) Co-Location with 2.4 GHz and 5 GHz

2.4 GHz: 802.11g mode 2412 MHz; 5.3 GHz: 802.11n-HT40 mode 5270 MHz

a) 30-1000 MHz Quasi-Peak Measurements



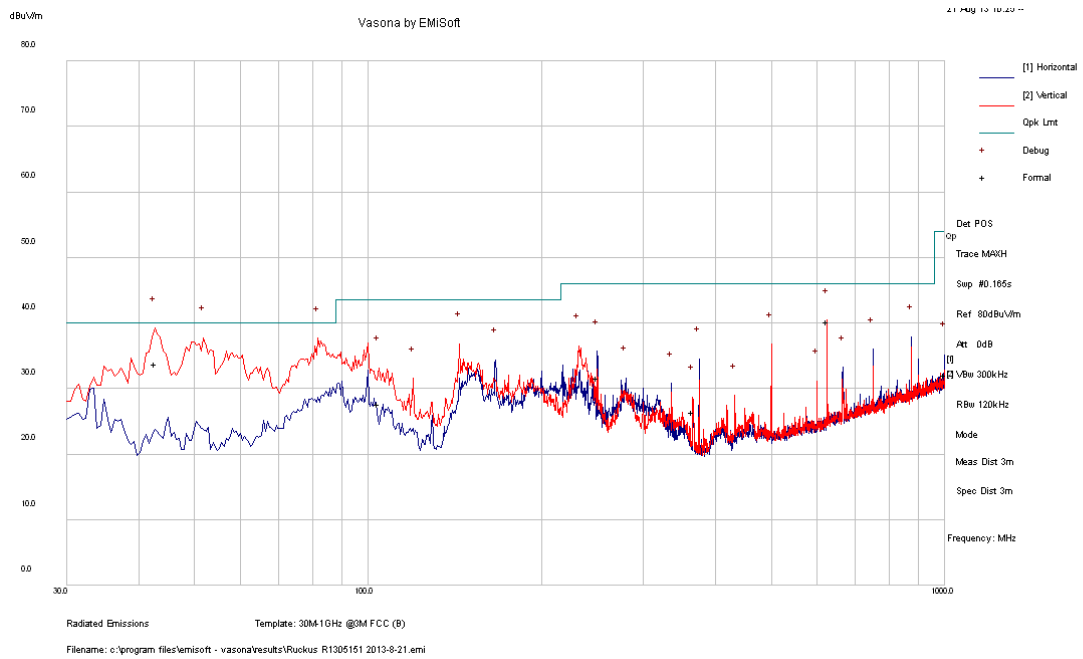
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Derector (PK/QP/Ave)
43.31725	34.2	99	V	299	40	-5.80	QP
0625.004	37.08	112	H	136	46	-8.92	QP
899.9905	36.86	100	V	250	46	-9.14	QP
144.028	32.57	120	V	264	43.5	-10.93	QP
249.9505	32.41	114	H	70	46	-13.59	QP
336.0055	28.9	113	H	243	46	-17.10	QP
230.63025	27.41	129	V	349	46	-18.59	QP

b) 1 to 40 GHz Peak and Average Measurements

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
4875.5	55.14	77	100	V	33.097	4.56	27.7	65.097	74	-8.903	Peak
4875.5	52.27	45	100	H	33.097	4.56	27.7	62.227	74	-11.773	Peak
4875.5	38.52	77	100	V	33.097	4.56	27.7	48.477	54	-5.523	Ave
4875.5	36.14	45	100	H	33.097	4.56	27.7	46.097	54	-7.903	Ave
7322.5	42.37	71	100	V	35.928	5.49	27.58	56.208	74	-17.792	Peak
7322.5	44.19	41	127	H	35.928	5.49	27.58	58.028	74	-15.972	Peak
7322.5	26.08	71	100	V	35.928	5.49	27.58	39.918	54	-14.082	Ave
7322.5	29.37	41	127	H	35.928	5.49	27.58	43.208	54	-10.792	Ave

2.4 GHz: g mode 2412 MHz; 5.6 GHz: 802.11n-HT40 mode 5550 MHz

c) 30-1000 MHz Quasi-Peak Measurements



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Director (PK/QP/Ave)
624.995	40.25	100	V	89	46	-5.75	QP
42.7755	33.74	99	V	312	40	-6.26	QP
249.95325	31.64	119	H	285	46	-14.36	QP
104.06675	27.68	102	V	265	43.5	-15.82	QP
365.16325	26.37	112	V	253	46	-19.63	QP
1000	32.04	100	H	56	54	-21.96	QP

d) 1 to 40 GHz Peak and Average Measurements

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
4875.5	57.2	77	100	V	33.097	4.56	27.7	67.157	74	-6.843	Peak
4875.5	54.91	45	100	H	33.097	4.56	27.7	64.867	74	-9.133	Peak
4875.5	40.25	77	100	V	33.097	4.56	27.7	50.207	54	-3.793	Ave
4875.5	38.24	45	100	H	33.097	4.56	27.7	48.197	54	-5.803	Ave
7322.5	41.87	71	100	V	35.928	5.49	27.58	55.708	74	-18.292	Peak
7322.5	45.21	41	127	H	35.928	5.49	27.58	59.048	74	-14.952	Peak
7322.5	25.82	71	100	V	35.928	5.49	27.58	39.658	54	-14.342	Ave
7322.5	30.26	41	127	H	35.928	5.49	27.58	44.098	54	-9.902	Ave

8 FCC §15.407(a) & IC RSS-210 §A9.2 – 26 dB & 99% Emission Bandwidth

8.1 Applicable Standard

FCC §15.407(a) and IC RSS-210 §A9.2.

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

The testing was performed by Bo Li from 2013-08-14 and 2013-08-15 at RF site.

8.5 Test Results**5250-5350 MHz Band**

802.11a mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
Chain J0			
Low	5260	21.555	16.5706
Middle	5280	22.460	16.5762
High	5320	21.376	16.5818
Chain J1			
Low	5260	22.633	16.5265
Middle	5280	23.872	16.5972
High	5320	24.090	16.5729

802.11n-HT20 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
Chain J0			
Low	5260	22.823	17.6739
Middle	5280	22.724	17.6778
High	5320	22.004	17.7027
Chain J1			
Low	5260	26.526	17.6984
Middle	5280	24.534	17.7444
High	5320	24.189	17.7139

802.11n-HT40 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
Chain J0			
Low	5270	47.539	36.5570
High	5310	46.907	36.4025
Chain J1			
Low	5270	51.375	36.3298
High	5310	49.319	36.3373

5470-5725 MHz Band:

802.11a mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
Chain J0			
Low	5500	22.031	16.5945
Middle	5580	22.498	16.5926
High	5700	21.666	16.5691
Chain J1			
Low	5500	22.108	16.5636
Middle	5580	24.433	16.5696
High	5700	22.541	16.5181

802.11n-HT20 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
Chain J0			
Low	5500	22.090	17.6724
Middle	5580	23.357	17.7306
High	5700	22.673	17.6859
Chain J1			
Low	5500	24.777	17.7092
Middle	5580	22.478	17.6607
High	5700	22.676	17.6661

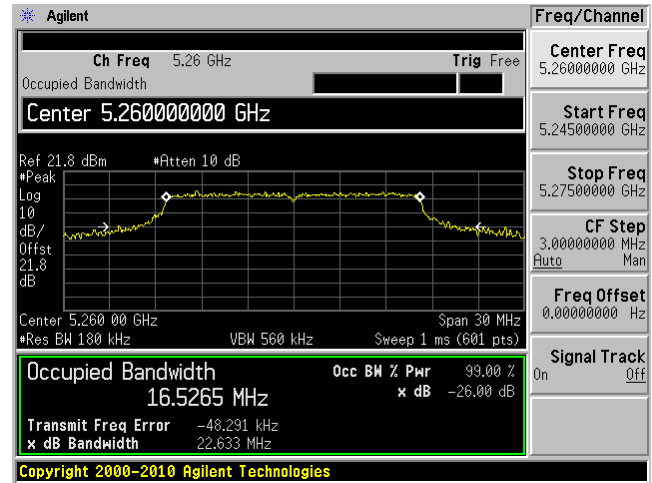
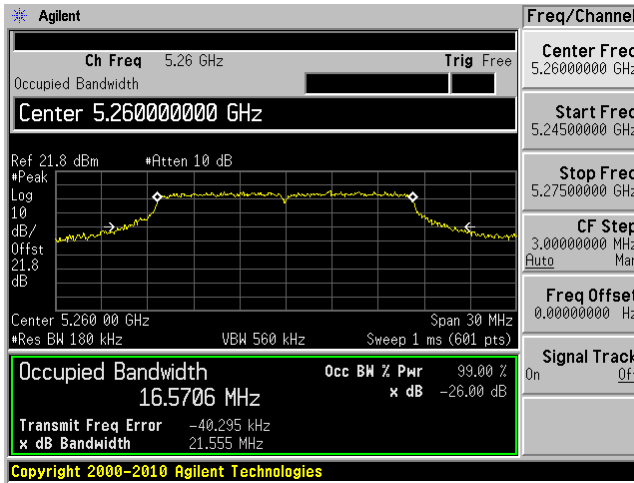
802.11n-HT40 mode

Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Emission Bandwidth (MHz)
Chain J0			
Low	5510	45.652	36.3939
Middle	5550	46.370	36.4439
High	5670	45.603	36.4066
Chain J1			
Low	5510	43.841	36.1986
Middle	5550	50.483	36.3100
High	5670	46.202	36.3220

5250-5350 MHz

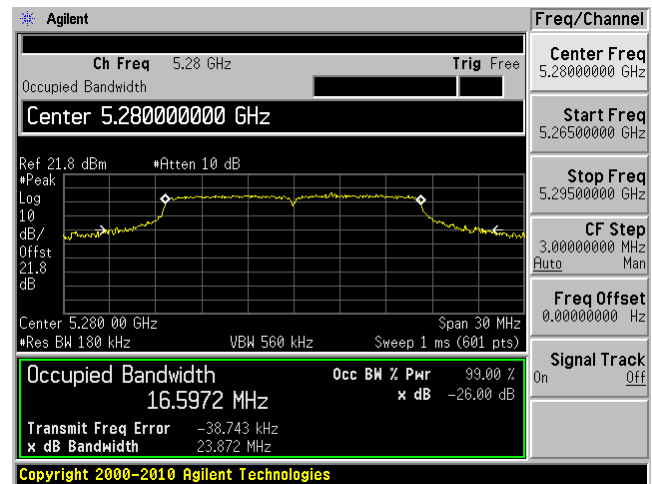
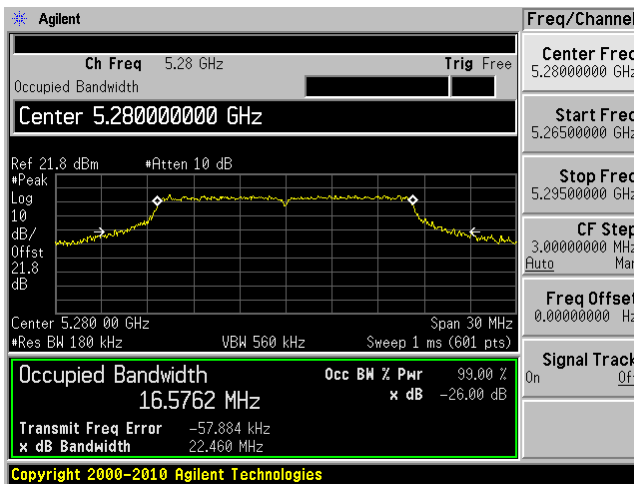
802.11a mode, 5260 MHz, Chain J0

802.11a mode, 5260 MHz, Chain J1

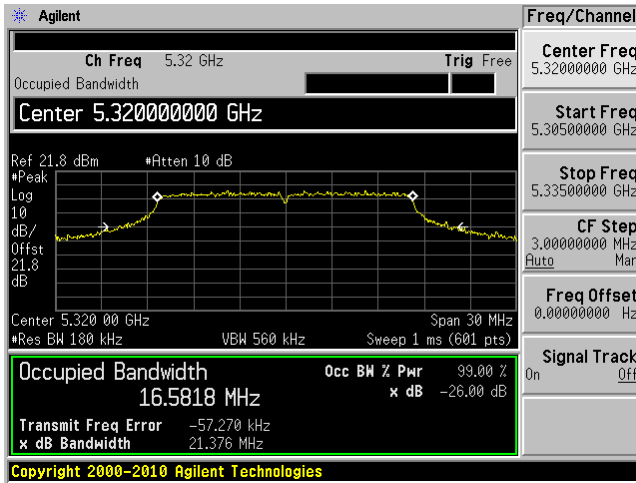


802.11a mode, 5280 MHz, Chain J0

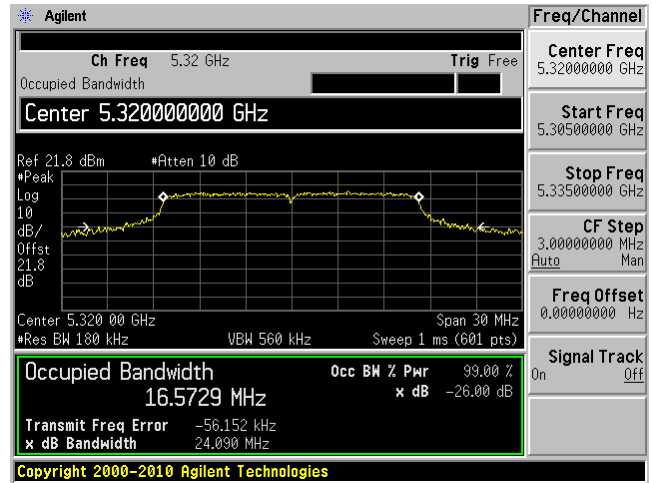
802.11a mode, 5280 MHz, Chain J1



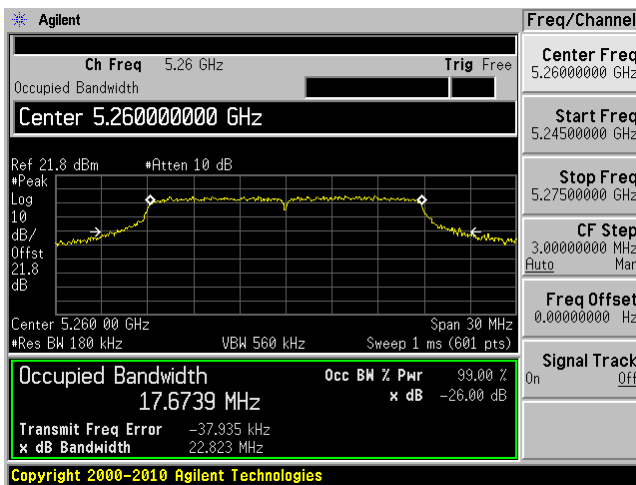
802.11a mode, 5320 MHz, Chain J0



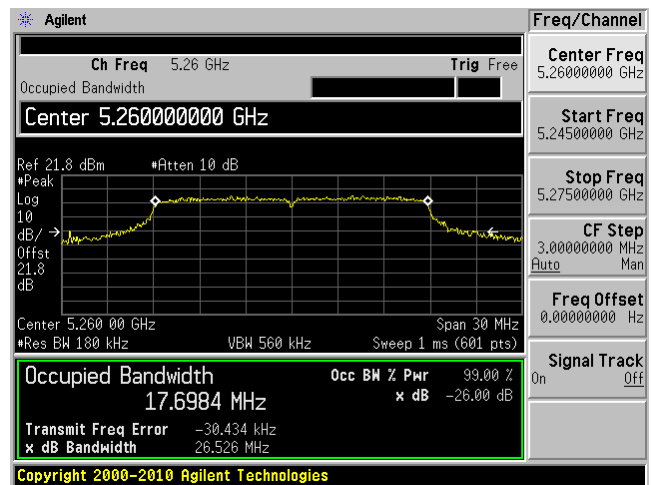
802.11a mode, 5320 MHz, Chain J1



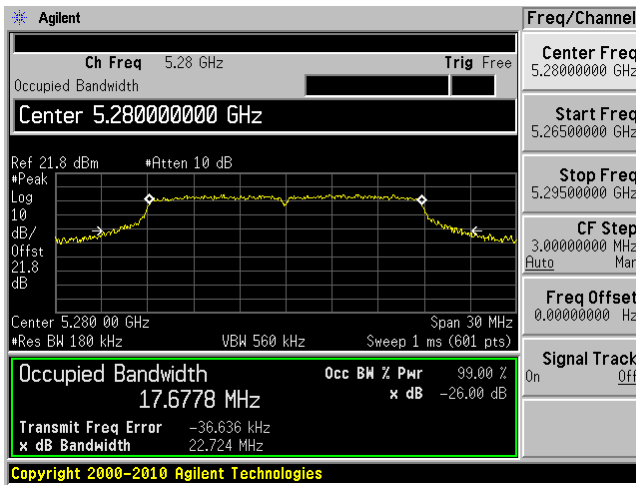
802.11n-HT20 mode, 5260 MHz, Chain J0



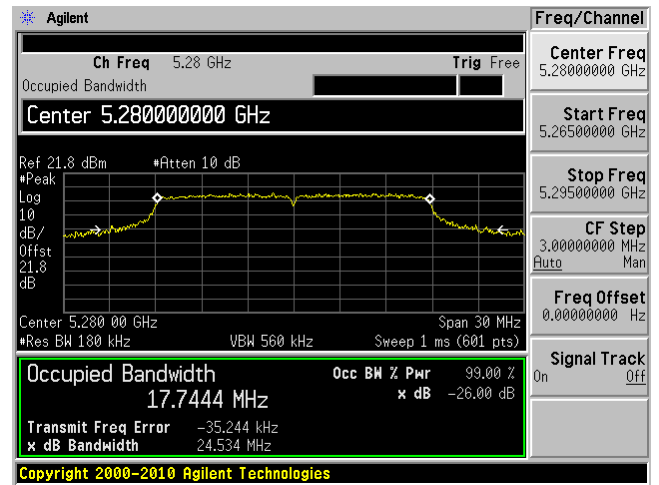
802.11n-HT20 mode, 5260 MHz, Chain J1



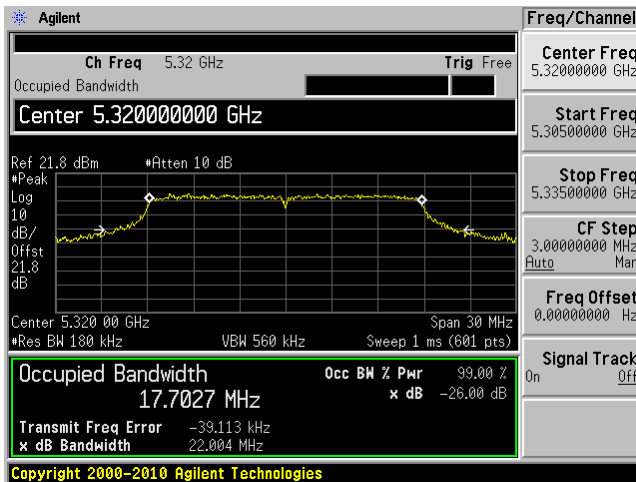
802.11n-HT20 mode, 5280 MHz, Chain J0



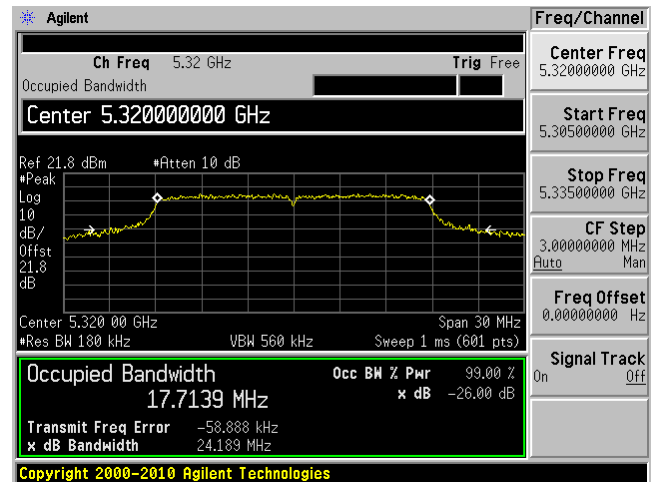
802.11n-HT20 mode, 5280 MHz, Chain J1



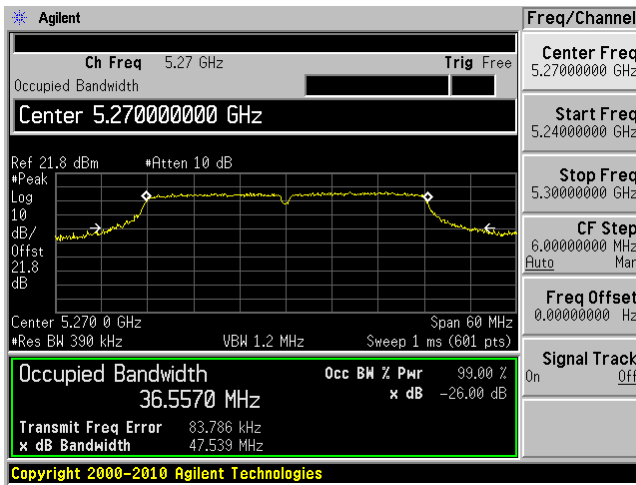
802.11n-HT20 mode, 5320 MHz, Chain J0



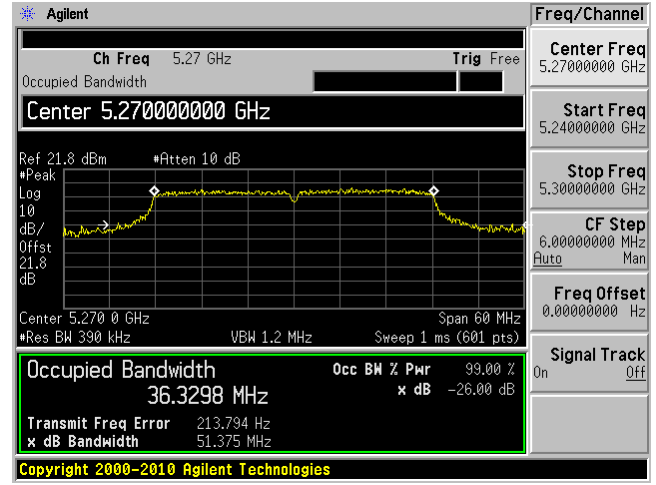
802.11n-HT20 mode, 5320 MHz, Chain J1



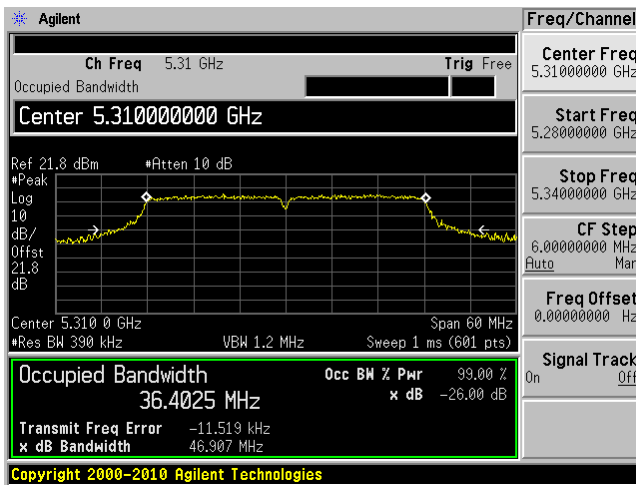
802.11n-HT40 mode, 5270 MHz, Chain J0



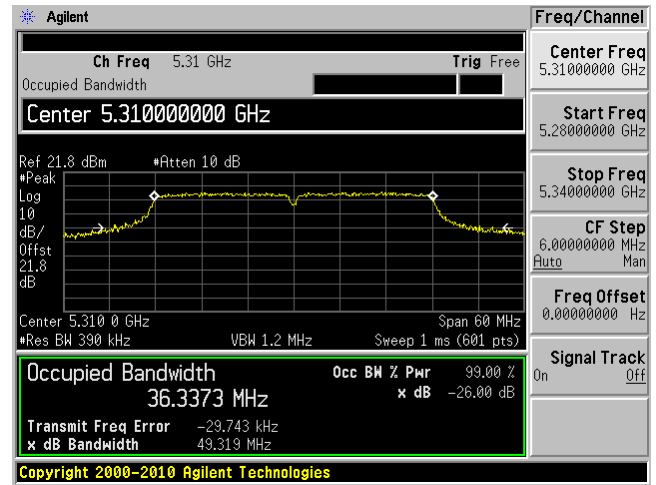
802.11n-HT40 mode, 5270 MHz, Chain J1



802.11n-HT40 mode, 5310 MHz, Chain J0



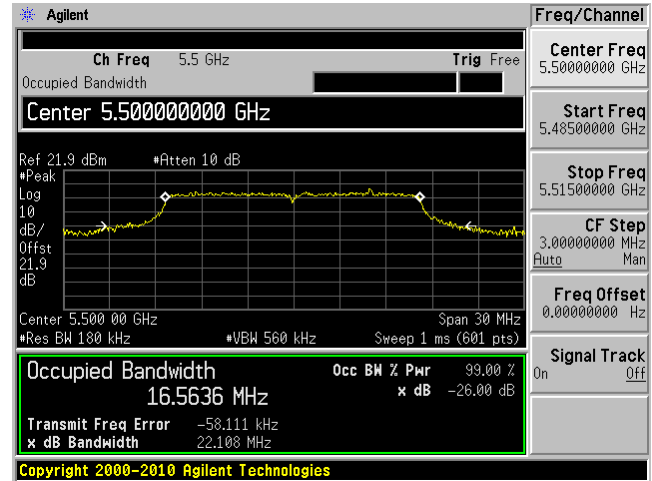
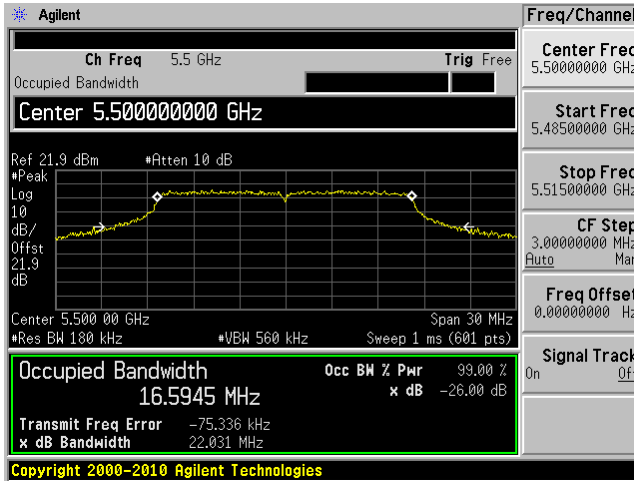
802.11n-HT40 mode, 5310 MHz, Chain J1



5470-5725 MHz

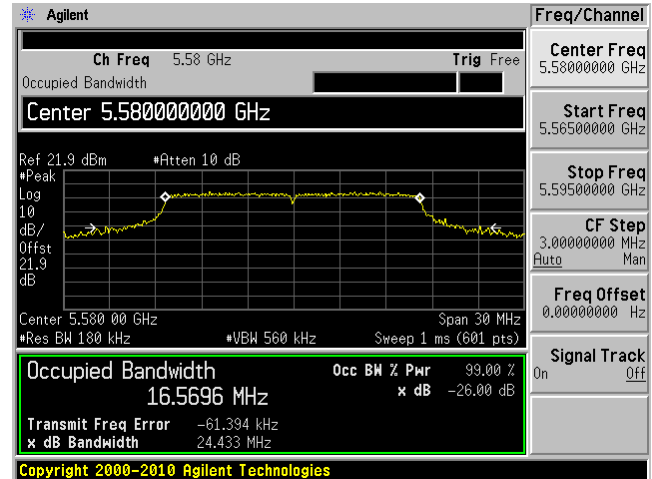
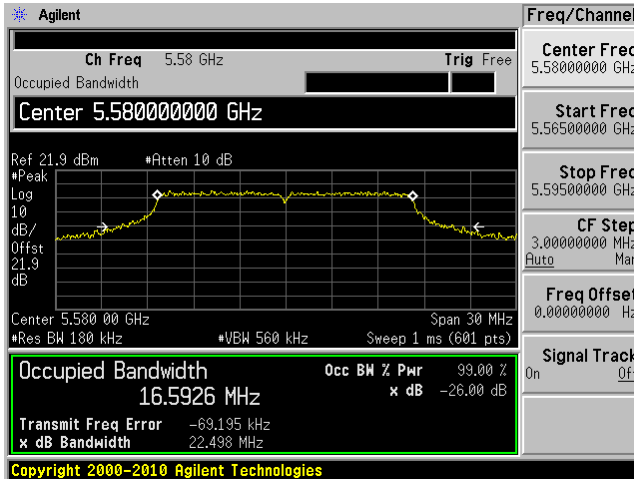
802.11a mode, 5550 MHz, Chain J0

802.11a mode, 5550 MHz, Chain J1

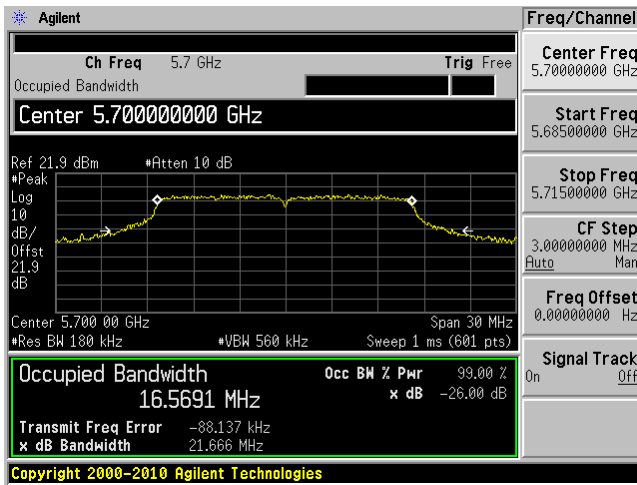


802.11a mode, 5580 MHz, Chain J0

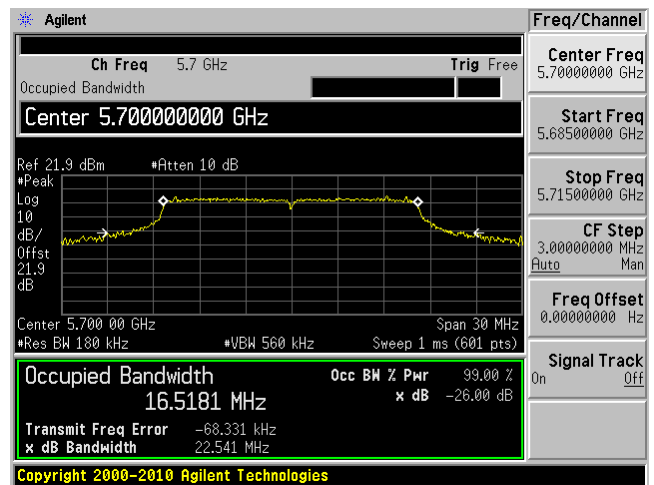
802.11a mode, 5580 MHz, Chain J1



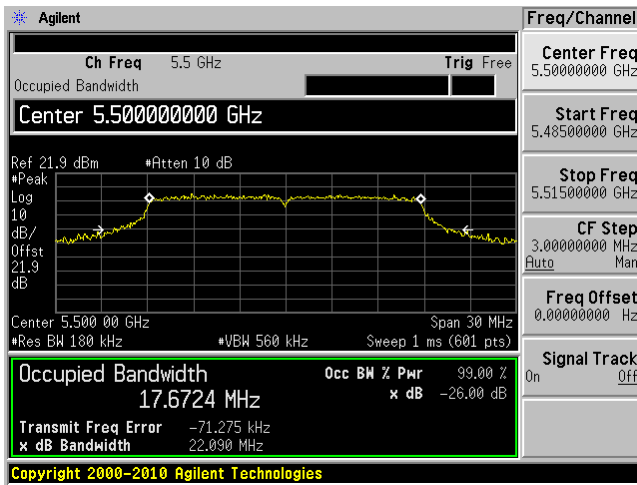
802.11a mode, 5700 MHz, Chain J0



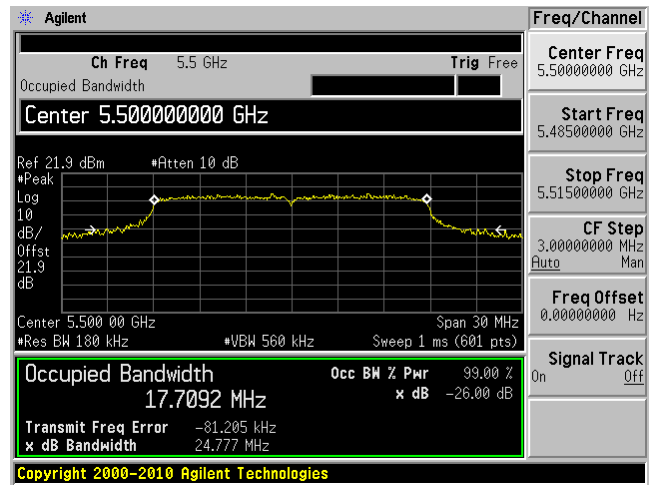
802.11a mode, 5700 MHz, Chain J1



802.11n-HT20 mode, 5500 MHz, Chain J0

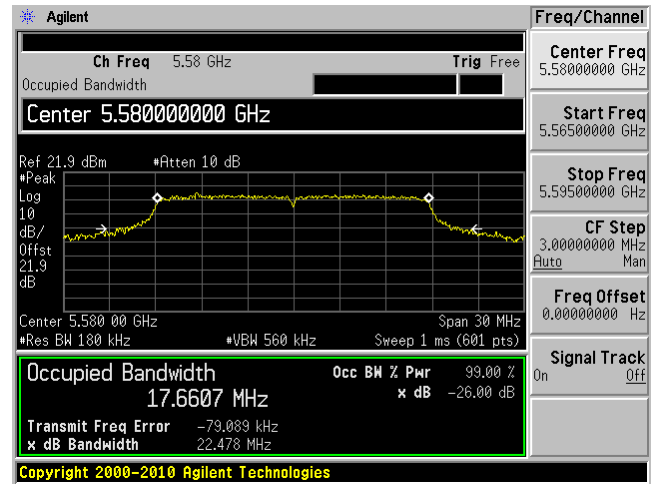
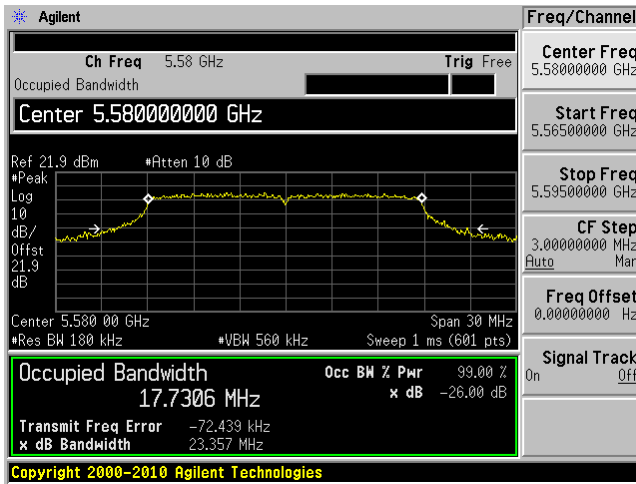


802.11n-HT20 mode, 5500 MHz, Chain J1



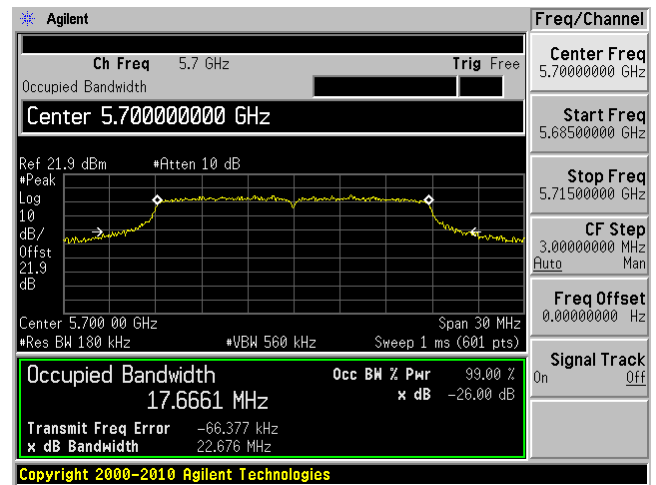
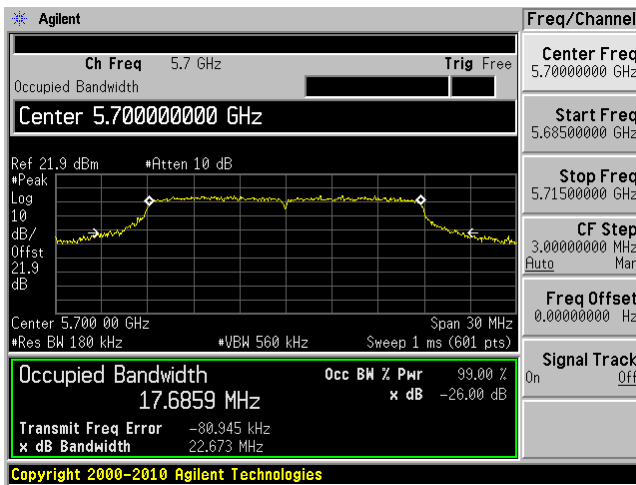
802.11n-HT20 mode, 5580 MHz, Chain J0

802.11n-HT20 mode, 5580 MHz, Chain J1

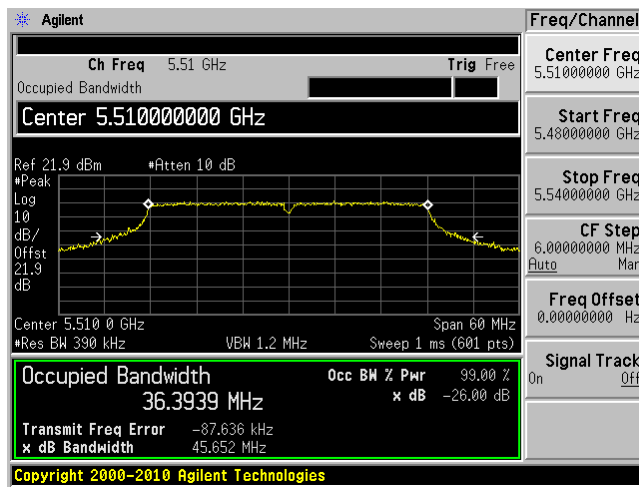


802.11n-HT20 mode, 5700 MHz, Chain J0

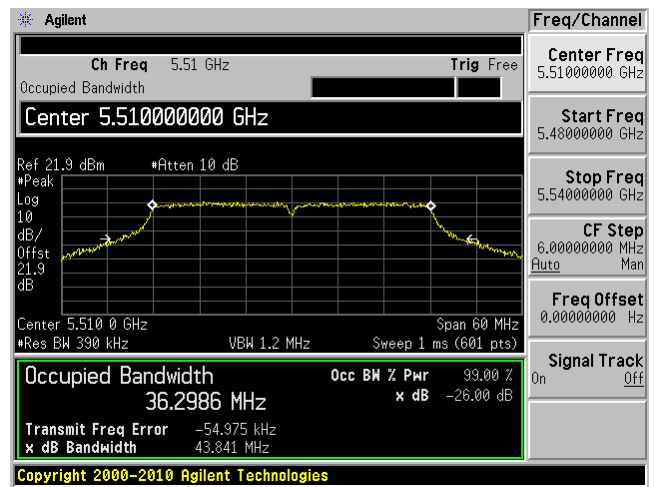
802.11n-HT20 mode, 5700 MHz, Chain J1



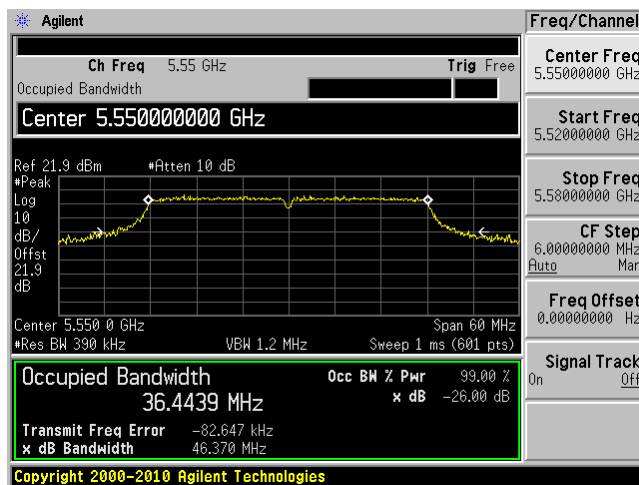
802.11n-HT40 mode, 5510 MHz, Chain J0



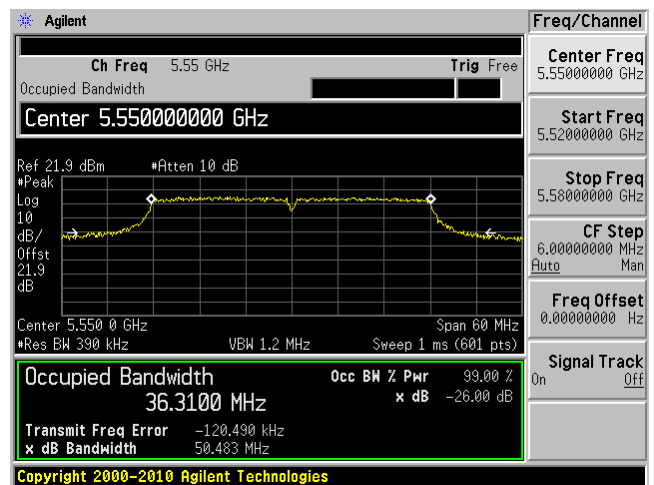
802.11n-HT40 mode, 5510 MHz, Chain J1



802.11n-HT40 mode, 5550 MHz, Chain J0

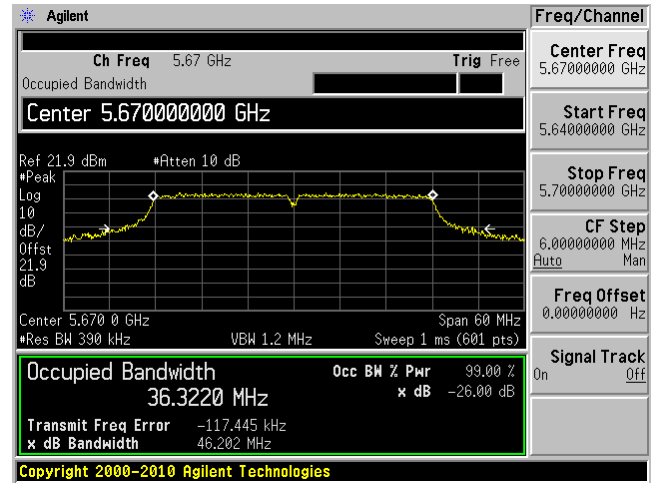
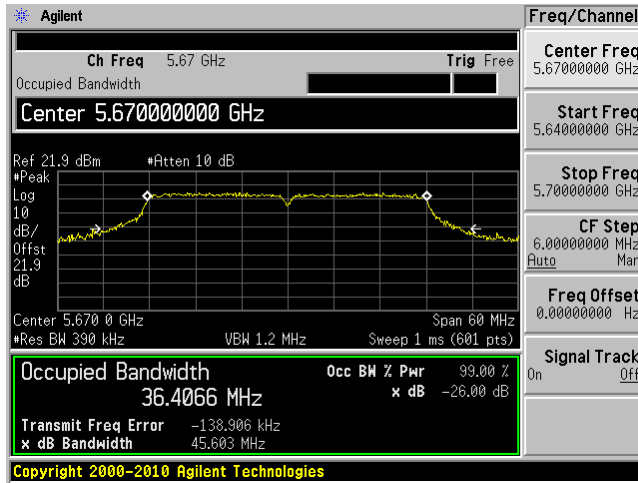


802.11n-HT40 mode, 5550 MHz, Chain J1



802.11n-HT40 mode, 5670 MHz, Chain J0

802.11n-HT40 mode, 5670 MHz, Chain J1



9 FCC §407(a)(1) & IC RSS-210 §A9.2 - Peak Output Power Measurement

9.1 Applicable Standard

According to FCC §15.407(a)(1)

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

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.

According to IC RSS-210 §A9.2:

For the 5.15–5.35 GHz, 5.47–5.6 GHz, and 5.650–5.725 GHz bands, the maximum conducted output power shall not exceed 250 mW or 11 dBm + 10 log B, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1 megahertz band. The maximum e.i.r.p shall not exceed 1.0W or 17 + 10 log B, dbm, whichever is less. B is the 99% emission bandwidth in MHz.

9.2 Measurement Procedure

The measurements are based 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:	22-24 °C
Relative Humidity:	42-45 %
ATM Pressure:	101-102kPa

The testing was performed by Bo Li from 2013-08-14 and 2013-08-15 at RF site.

9.5 Test Results

5250-5350 MHz Band:

802.11a mode

Channel	Frequency (MHz)	TX Chain J0 Power (dBm)	TX Chain J1 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5260	17.93	18.09	21.02	24	-2.98	21
Middle	5280	17.79	18.04	20.93	24	-3.07	21
High	5320	15	15.25	18.14	24	-5.86	18

802.11n-HT20 mode

Channel	Frequency (MHz)	TX Chain J0 Power (dBm)	TX Chain J1 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5260	17.55	17.72	20.65	24	-3.35	21
Middle	5280	17.54	17.78	20.67	24	-3.33	21
High	5320	14.97	15.26	18.13	24	-5.87	18

802.11n-HT40 mode

Channel	Frequency (MHz)	TX Chain J0 Power (dBm)	TX Chain J1 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5270	18.03	18.42	21.24	24	-2.76	21
High	5310	11.1	11.08	14.1	24	-9.90	14

5470-5725 MHz Band :

802.11a mode

Channel	Frequency (MHz)	TX Chain J0 Power (dBm)	TX Chain J1 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5500	17.82	17.7	20.77	24	-3.23	21
Middle	5580	17.75	17.4	20.59	24	-3.41	21
High	5700	17.44	17.15	20.31	24	-3.69	21

802.11n-HT20 mode

Channel	Frequency (MHz)	TX Chain J0 Power (dBm)	TX Chain J1 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5500	18.05	17.67	20.87	24	-3.13	21
Middle	5580	17.71	17.51	20.62	24	-3.38	21
High	5700	17.44	17.1	20.28	24	-3.72	21

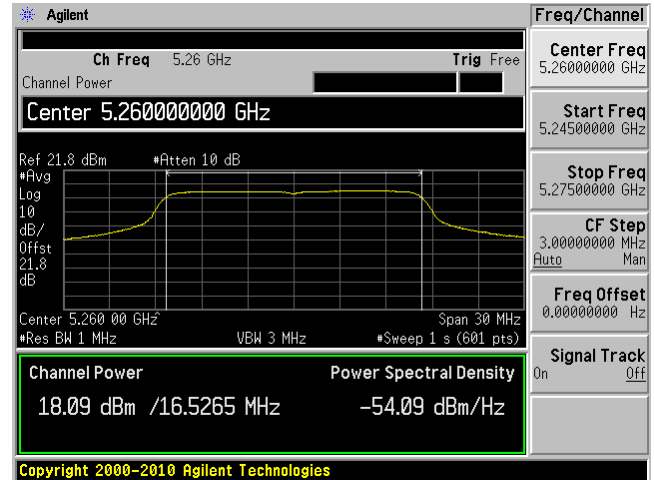
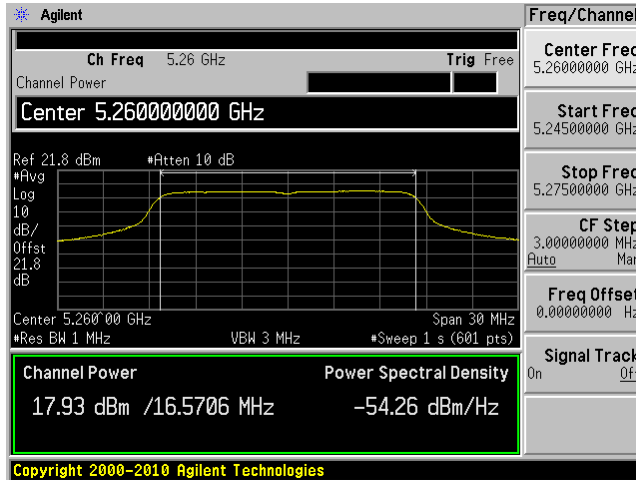
802.11n-HT40 mode

Channel	Frequency (MHz)	TX Chain J0 Power (dBm)	TX Chain J1 Power (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5510	13.95	13.08	16.55	24	-7.45	16
Middle	5550	18.49	17.75	21.15	24	-2.85	21
High	5670	16.69	16.75	19.73	24	-4.27	21

5250-5350 MHz

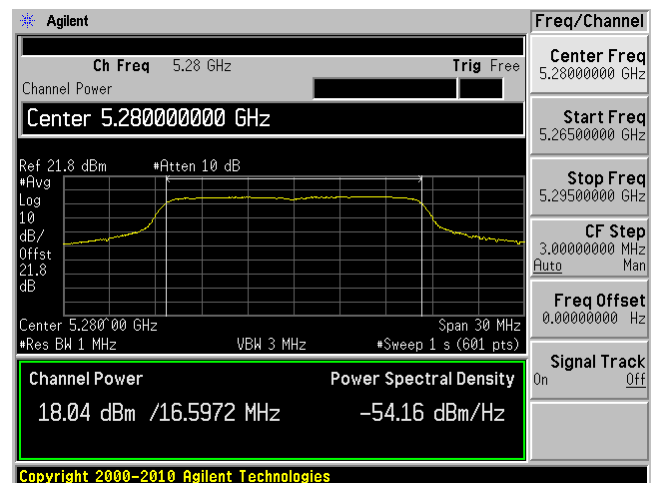
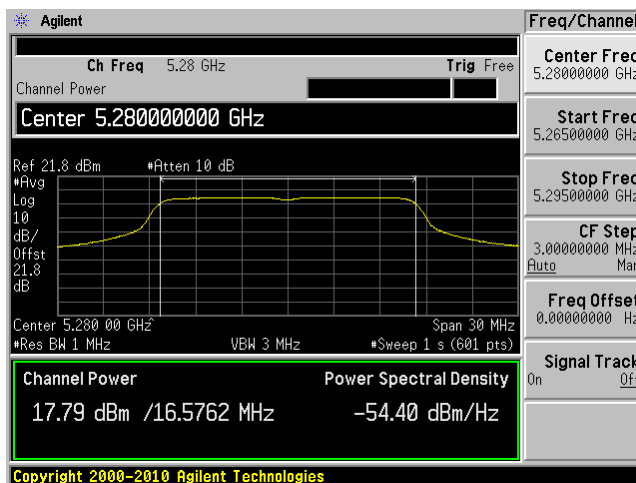
802.11a mode, 5260 MHz, Chain J0

802.11a mode, 5260 MHz, Chain J1

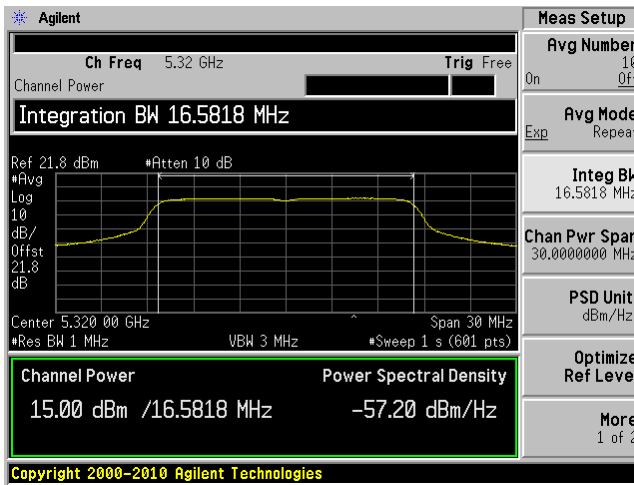


802.11a mode, 5280 MHz, Chain J0

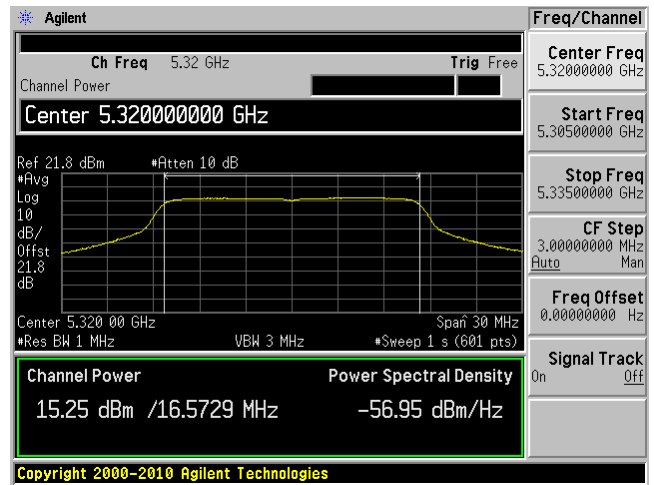
802.11a mode, 5280 MHz, Chain J1



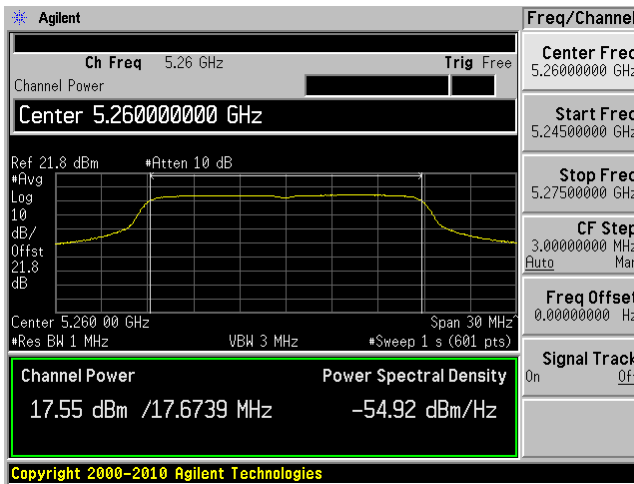
802.11a mode, 5320 MHz, Chain J0



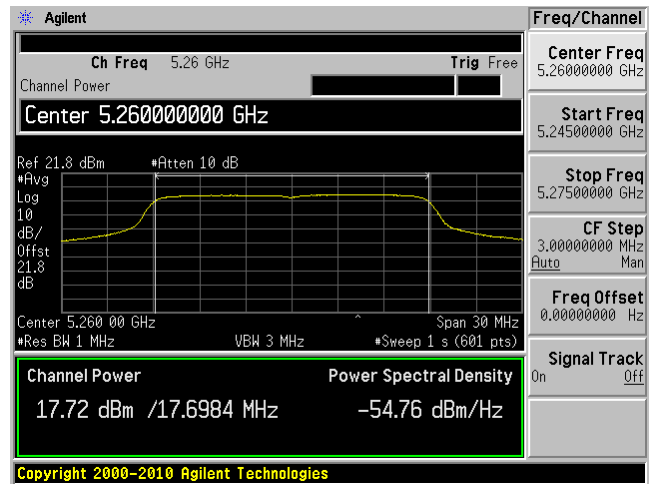
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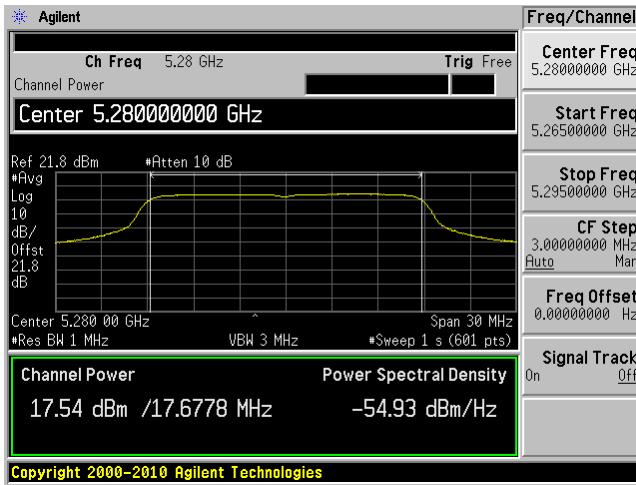
802.11n-HT20 mode, 5260 MHz, Chain J0



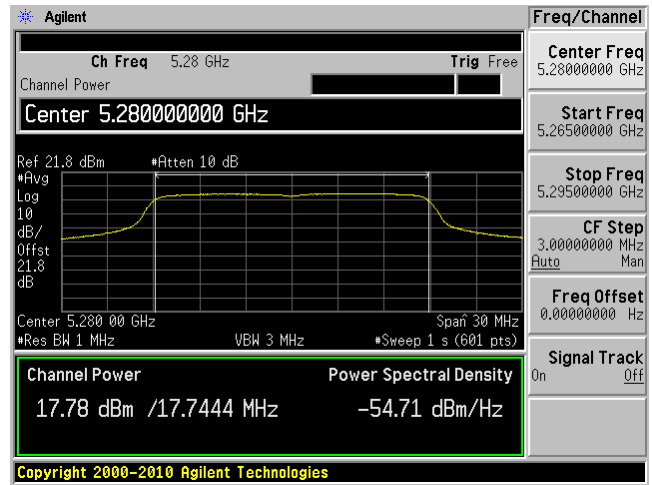
802.11n-HT20 mode, 5260 MHz, Chain J1



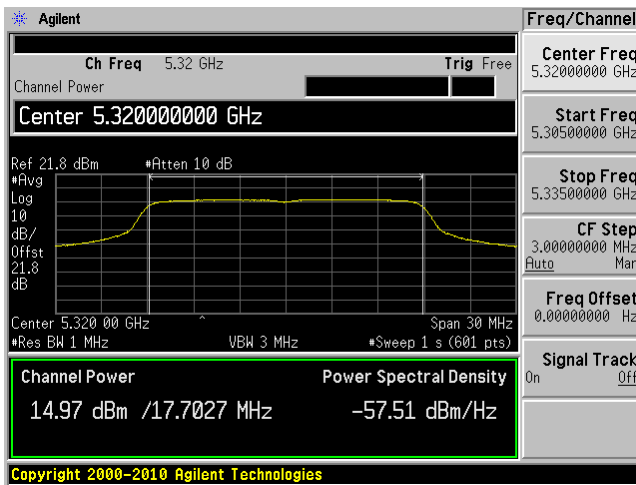
802.11n-HT20 mode, 5280 MHz, Chain J0



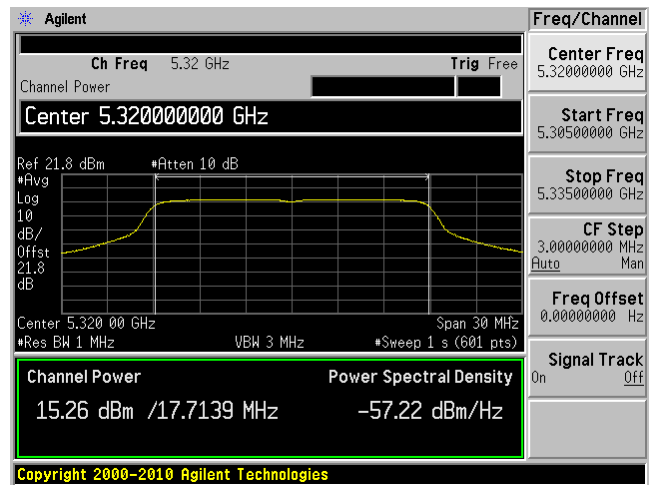
802.11n-HT20 mode, 5280 MHz, Chain J1



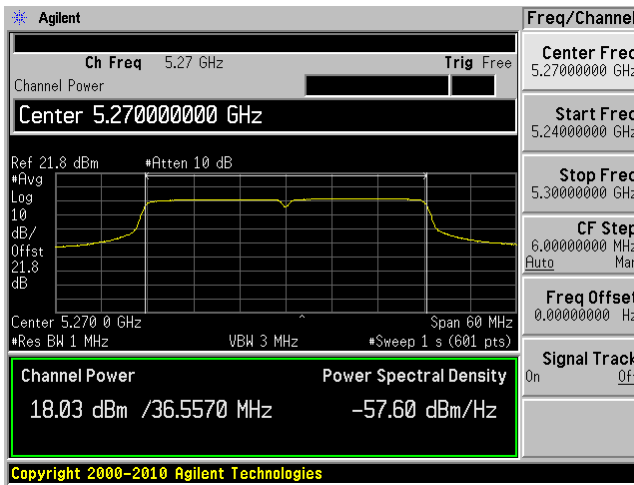
802.11n-HT20 mode, 5320 MHz, Chain J0



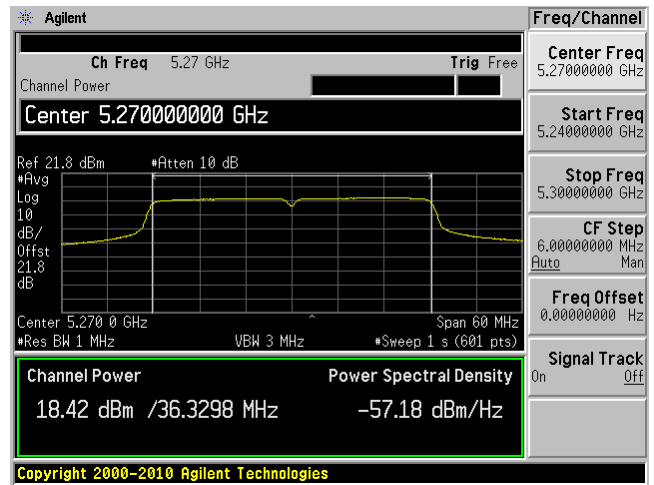
802.11n-HT20 mode, 5320 MHz, Chain J1



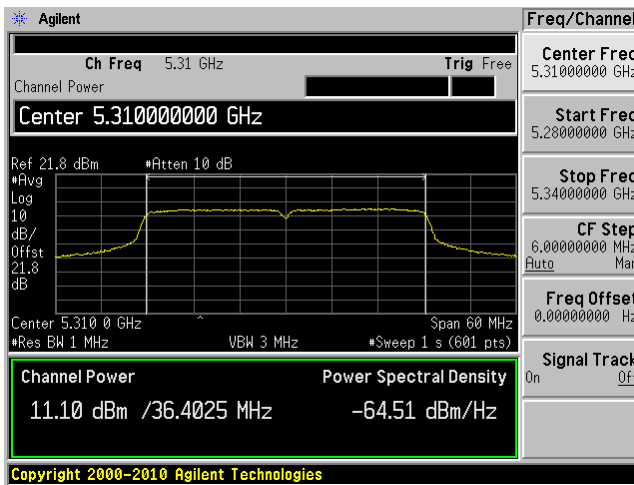
802.11n-HT40 mode, 5270 MHz, Chain J0



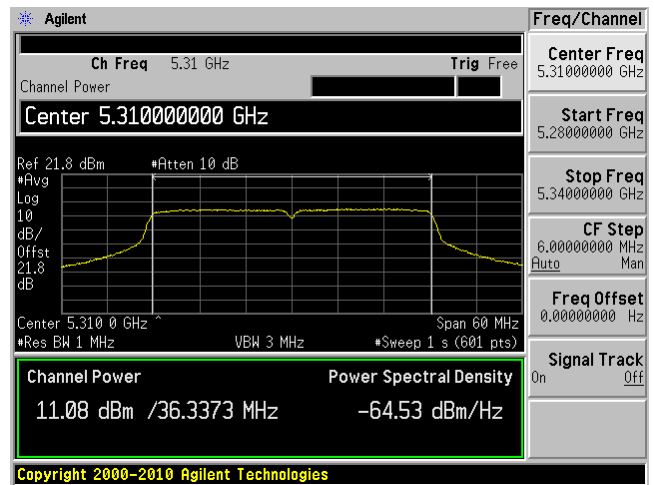
802.11n-HT40 mode, 5270 MHz, Chain J1



802.11n-HT40 mode, 5310 MHz, Chain J0

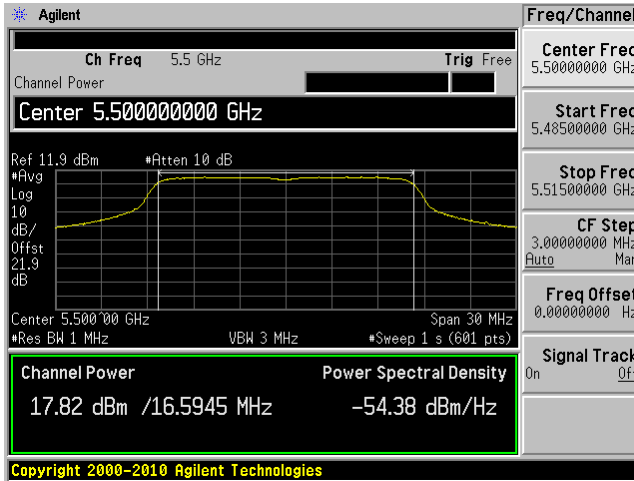


802.11n-HT40 mode, 5310 MHz, Chain J1

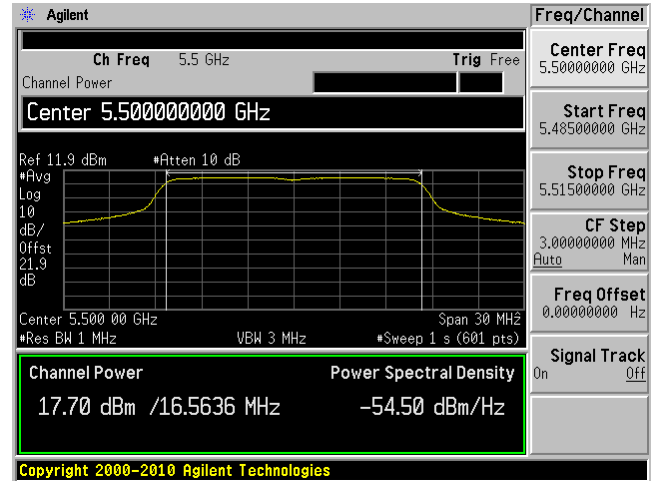


5470-5725 MHz

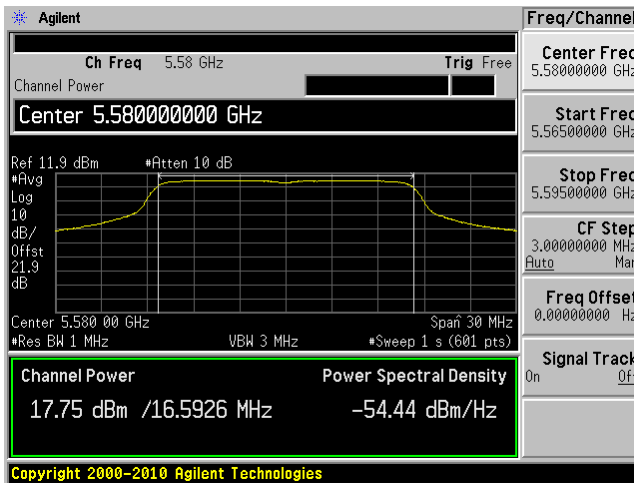
802.11a mode, 5550 MHz, Chain J0



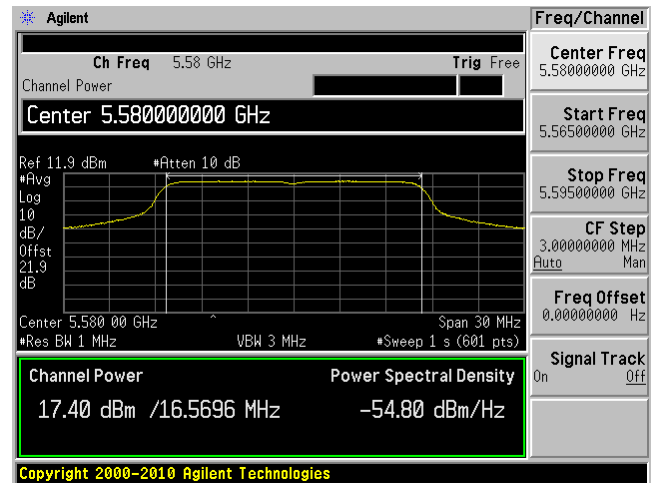
802.11a mode, 5550 MHz, Chain J1



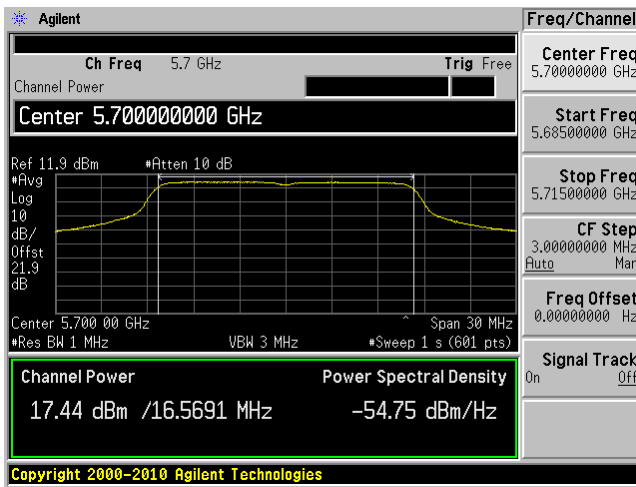
802.11a mode, 5580 MHz, Chain J0



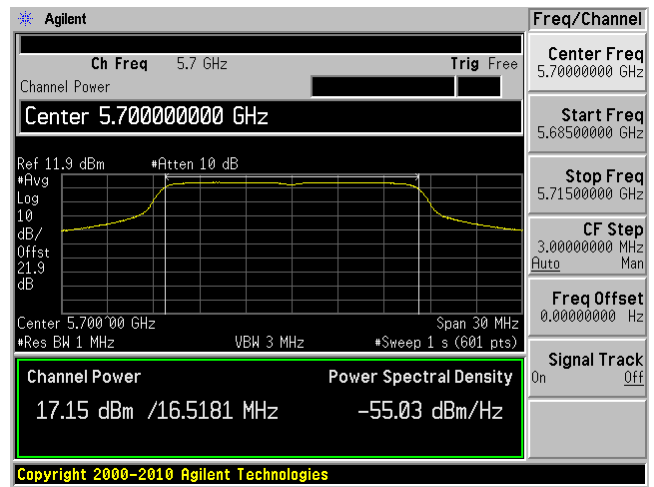
802.11a mode, 5580 MHz, Chain J1



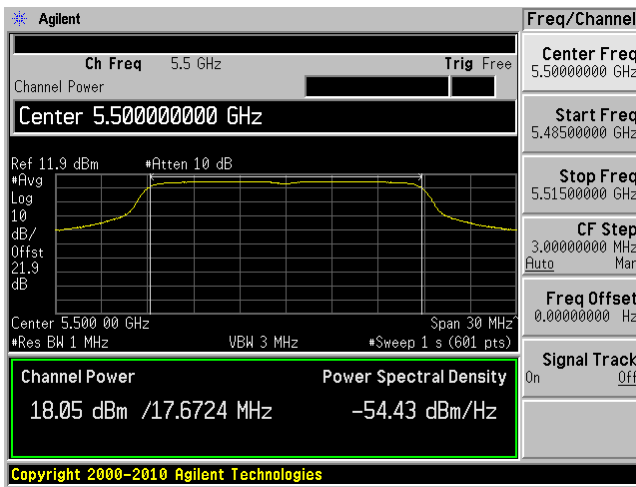
802.11a mode, 5700 MHz, Chain J0



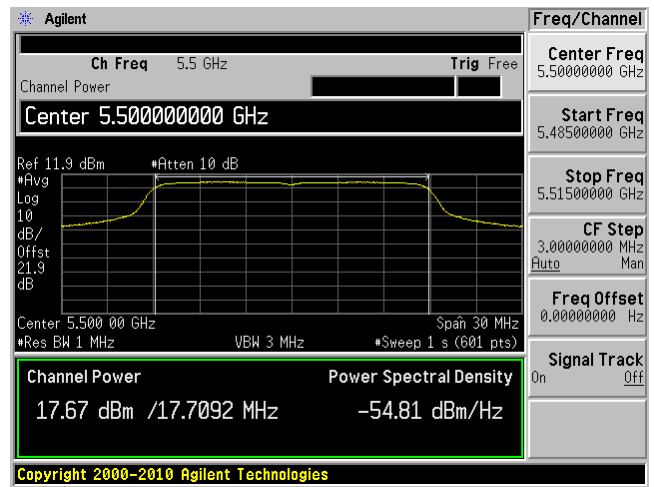
802.11a mode, 5700 MHz, Chain J1



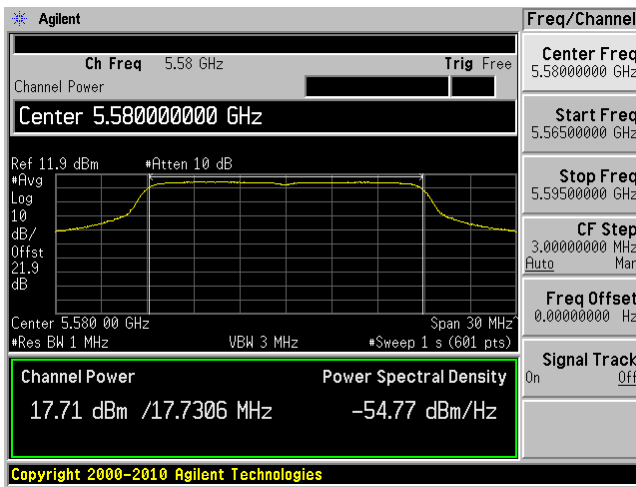
802.11n-HT20 mode, 5500 MHz, Chain J0



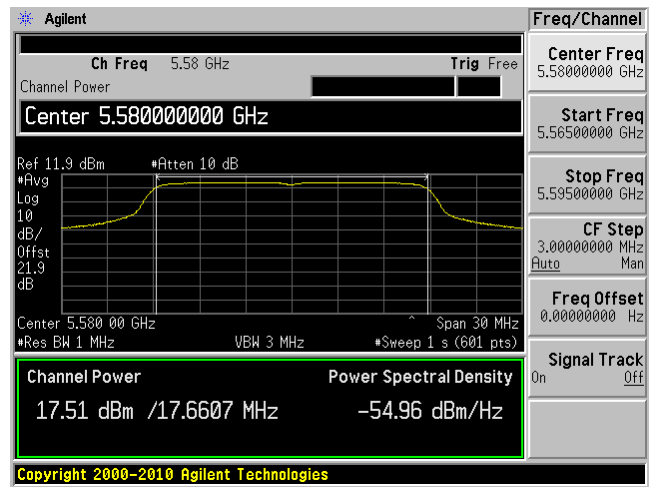
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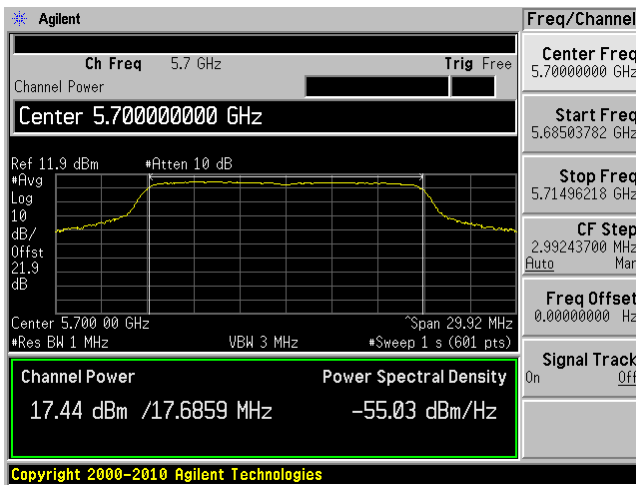
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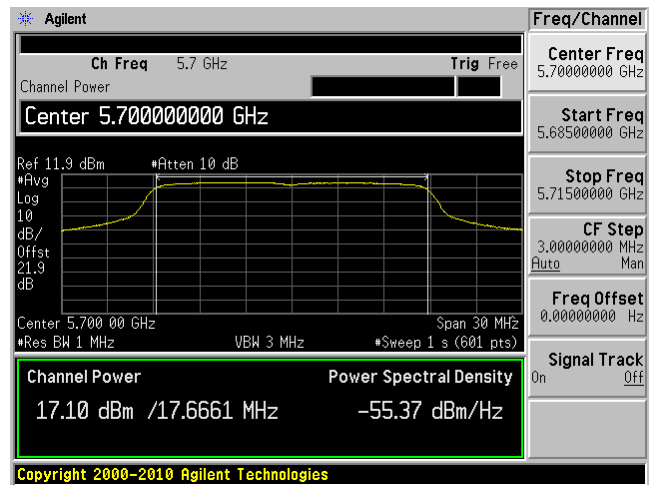
802.11n-HT20 mode, 5580 MHz, Chain J1



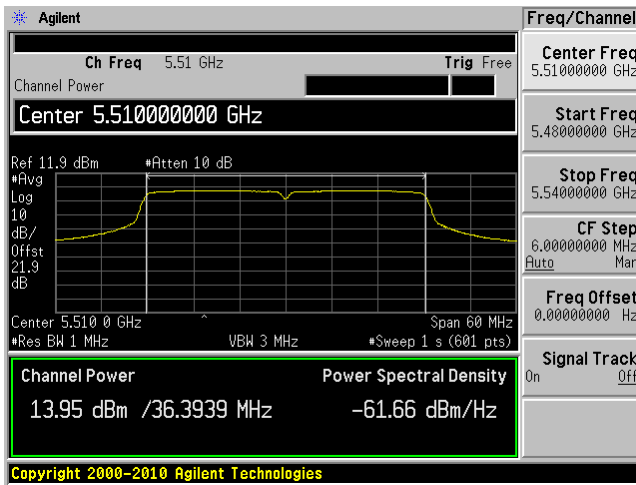
802.11n-HT20 mode, 5700 MHz, Chain J0



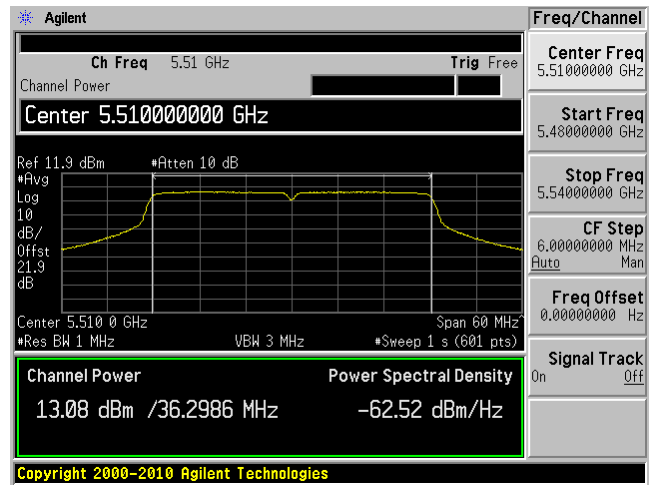
802.11n-HT20 mode, 5700 MHz, Chain J1



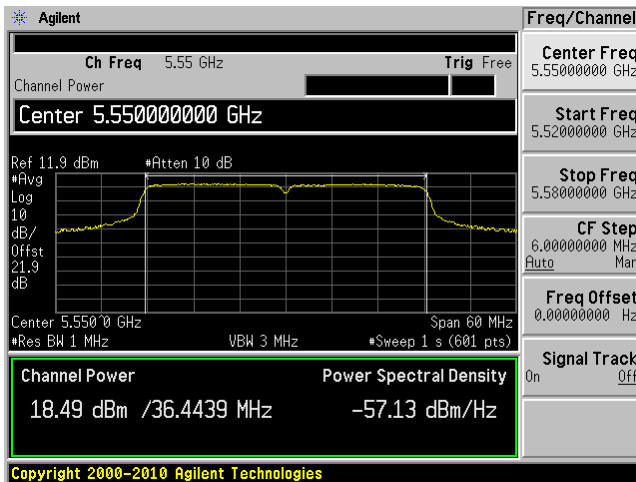
802.11n-HT40 mode, 5510 MHz, Chain J0



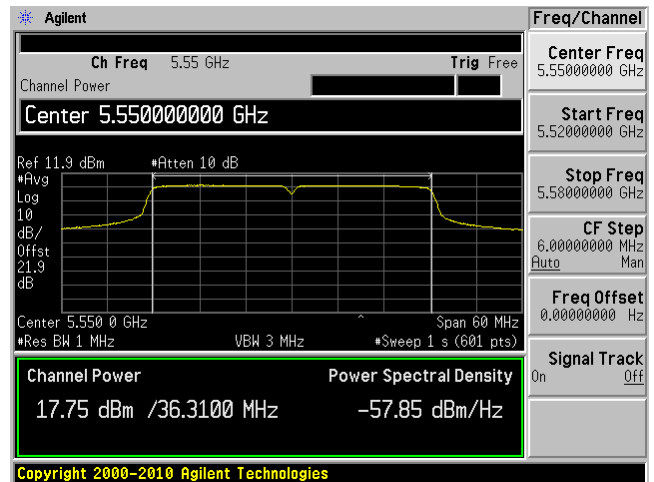
802.11n-HT40 mode, 5510 MHz, Chain J1



802.11n-HT40 mode, 5550 MHz, Chain J0

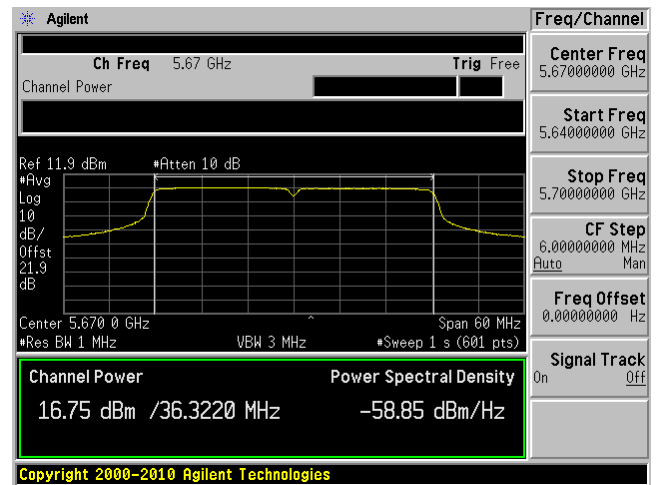
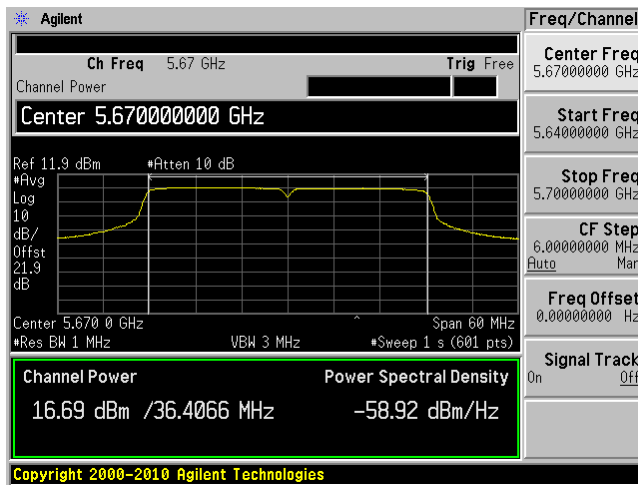


802.11n-HT40 mode, 5550 MHz, Chain J1



802.11n-HT40 mode, 5670 MHz, Chain J0

802.11n-HT40 mode, 5670 MHz, Chain J1



10 FCC §15.407(b) & IC RSS-210 §A9.2 - Out of Band Emissions

10.1 Applicable Standard

According to FCC §15.407(b)

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

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

According to RSS-210 §A8.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

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

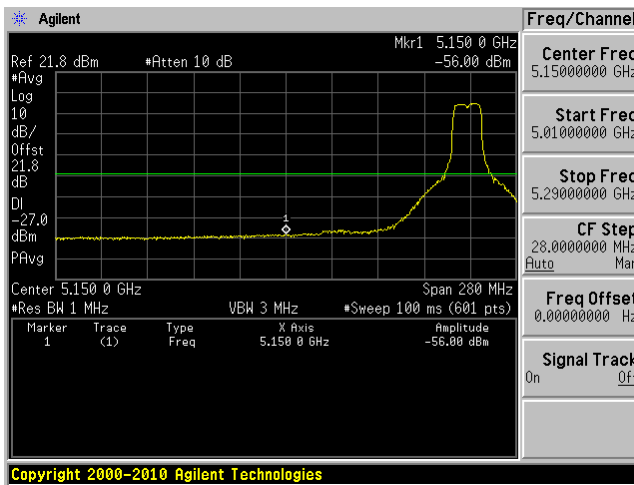
The testing was performed by Bo Li from 2013-08-14 and 2013-08-15 at RF site.

10.5 Test Results

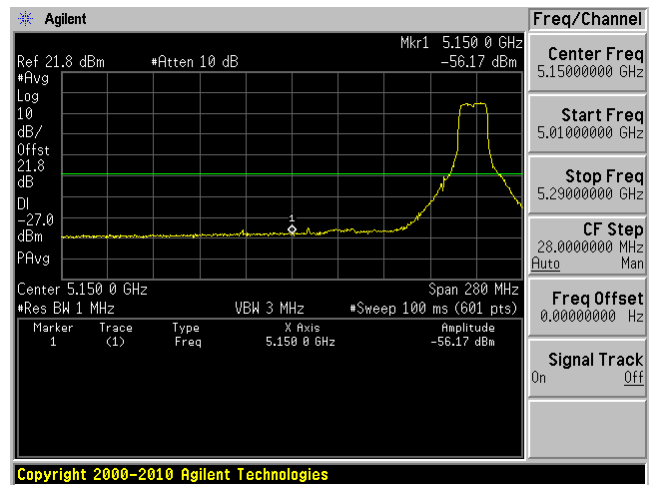
Please refer to following pages for plots of band edge.

5250-5350 MHz

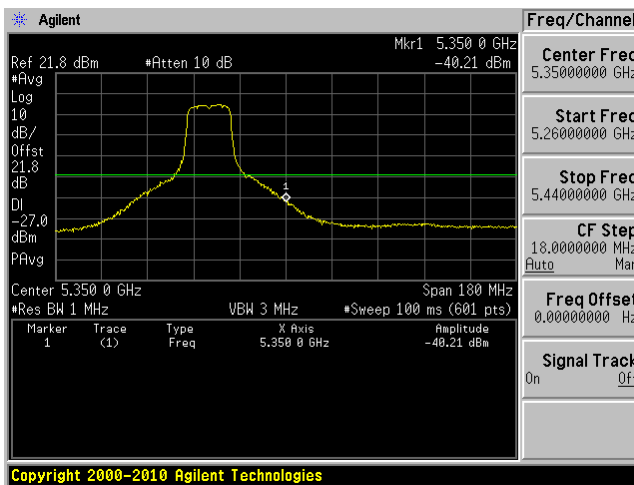
802.11a mode, 5260 MHz, Chain J0



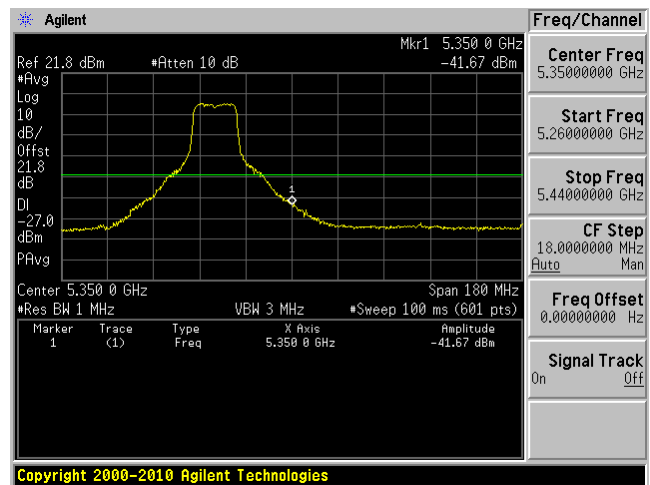
802.11a mode, 5260 MHz, Chain J1



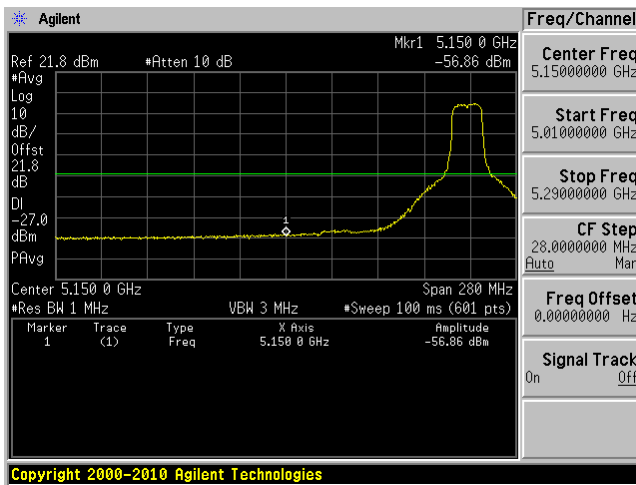
802.11a mode, 5320 MHz, Chain J0



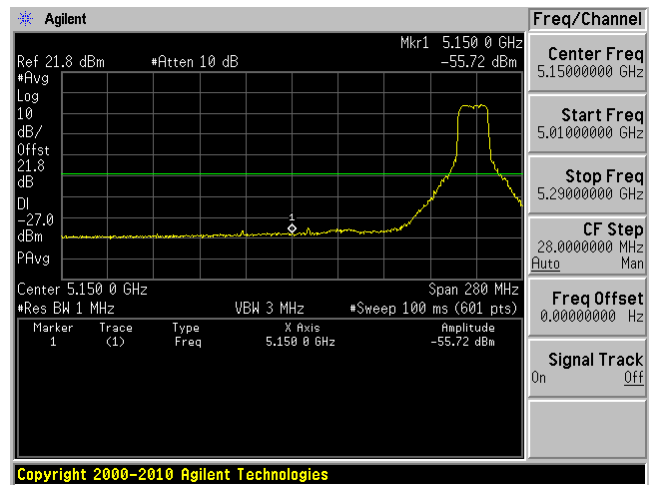
802.11a mode, 5320 MHz, Chain J1



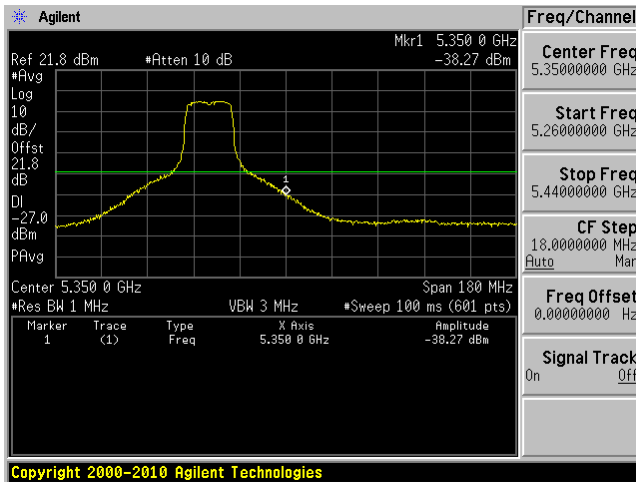
802.11n-HT20 mode, 5260 MHz, Chain J0



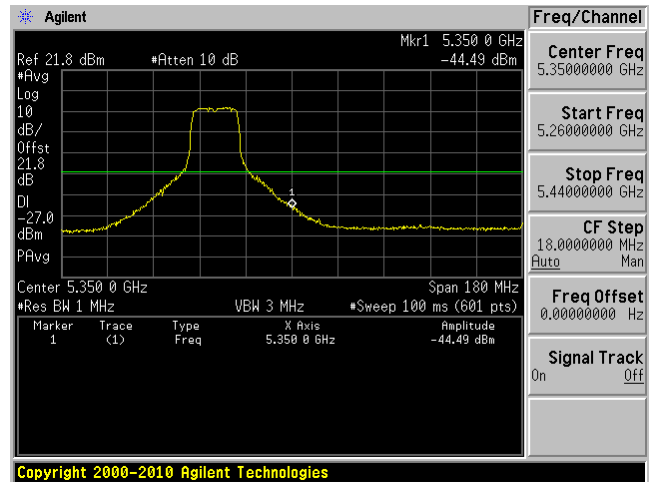
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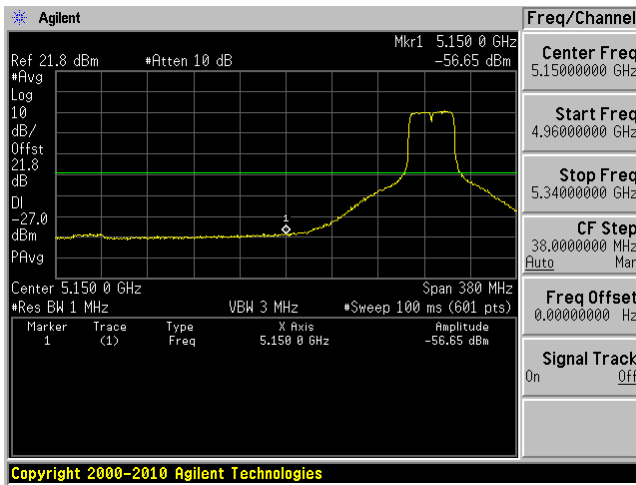
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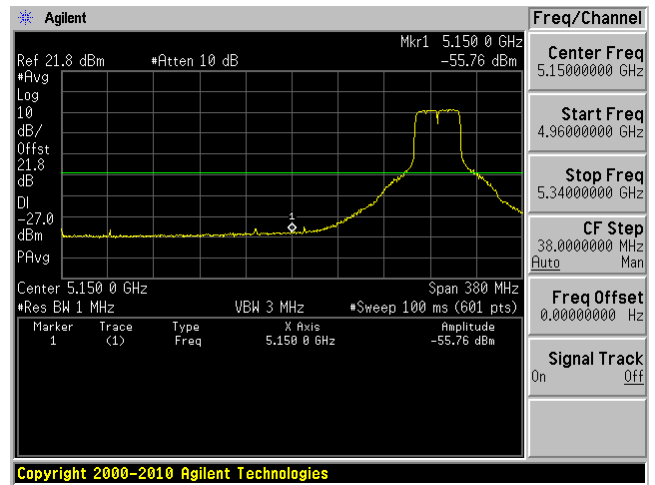
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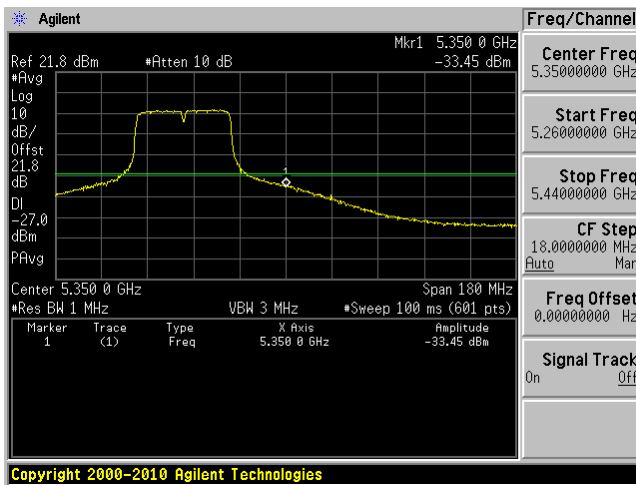
802.11n-HT40 mode, 5270 MHz, Chain J0



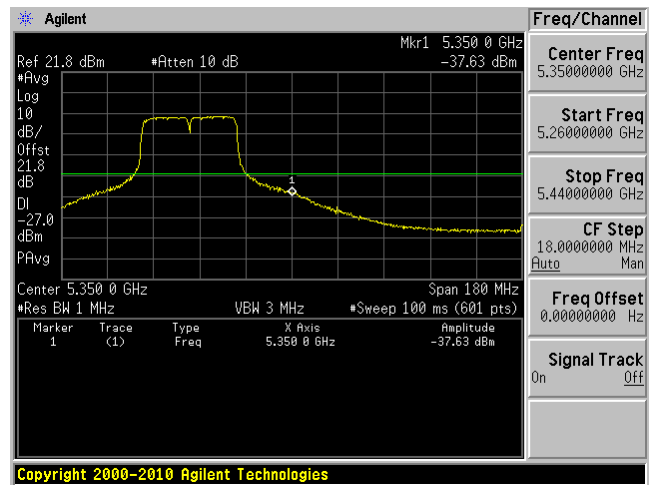
802.11n-HT40 mode, 5270 MHz, Chain J1



802.11n-HT40 mode, 5310 MHz, Chain J0

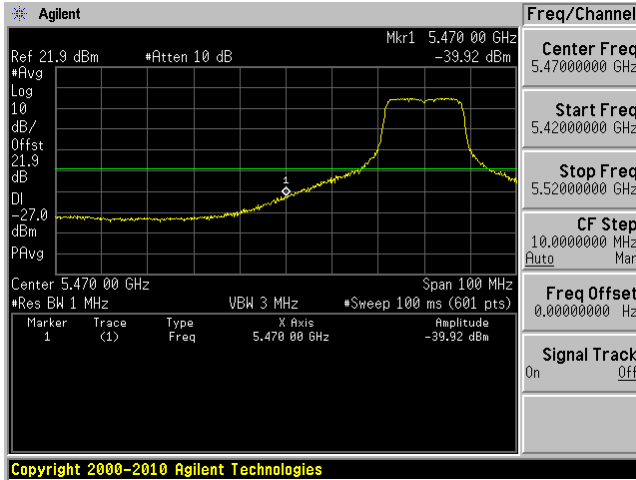


802.11n-HT40 mode, 5310 MHz, Chain J1

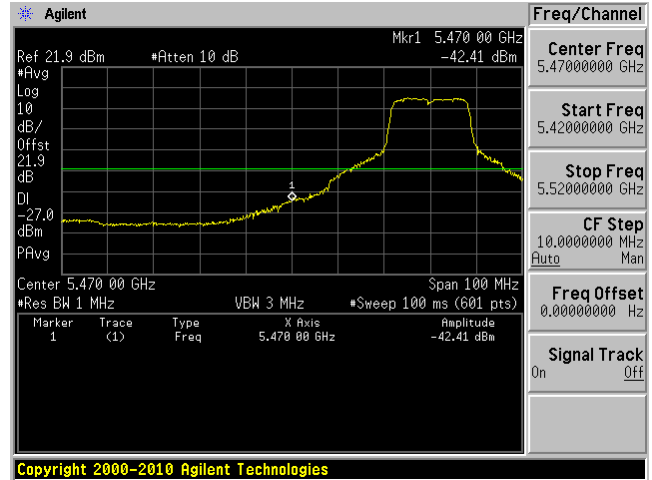


5470-5725 MHz

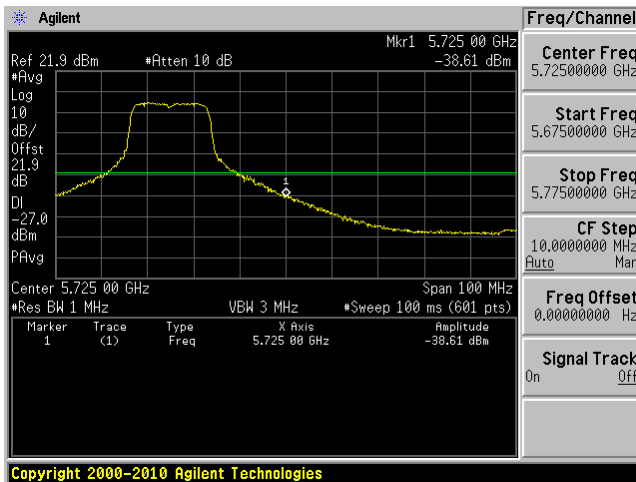
802.11a mode, 5550 MHz, Chain J0



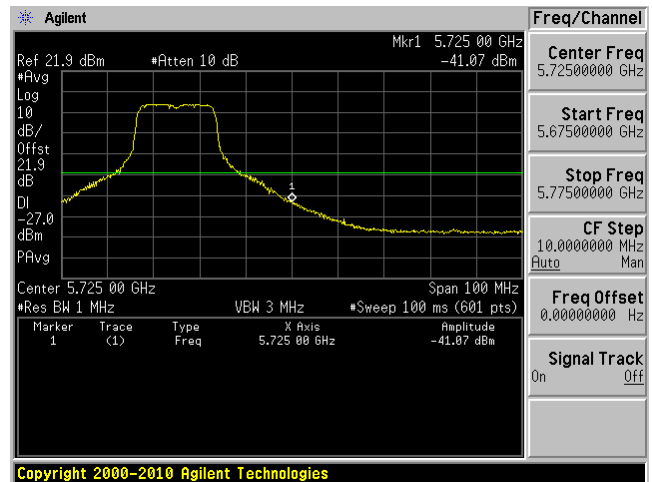
802.11a mode, 5550 MHz, Chain J1



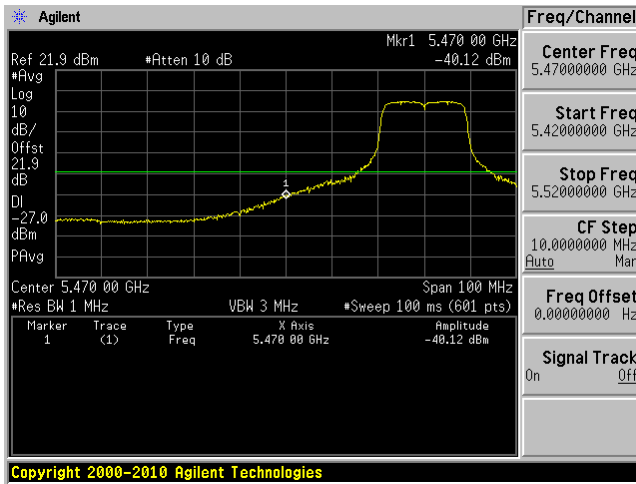
802.11a mode, 5700 MHz, Chain J0



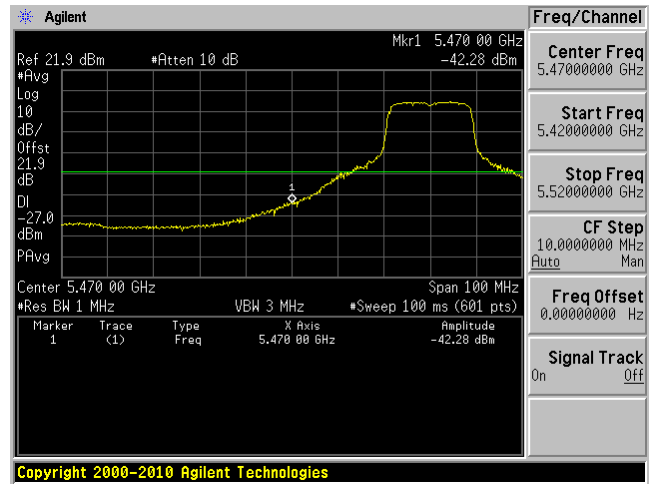
802.11a mode, 5700 MHz, Chain J1



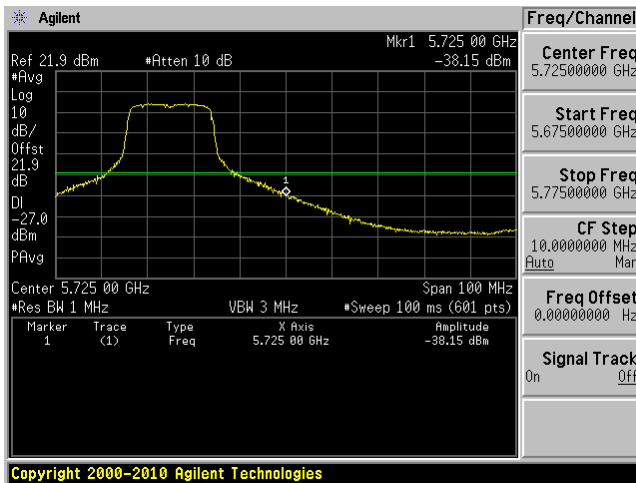
802.11n-HT20 mode, 5500 MHz, Chain J0



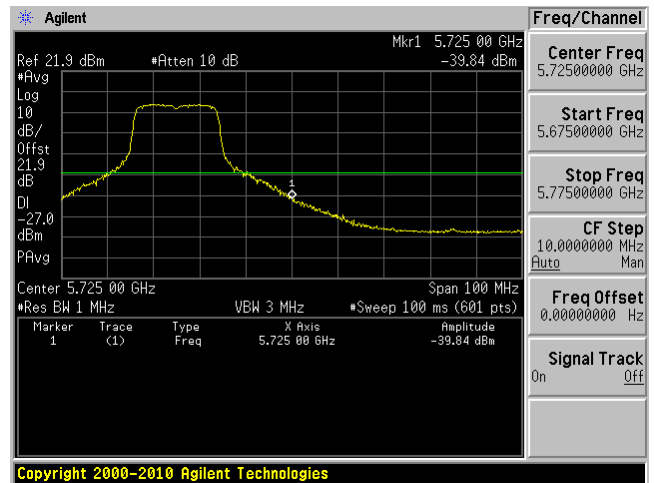
802.11n-HT20 mode, 5500 MHz, Chain J1



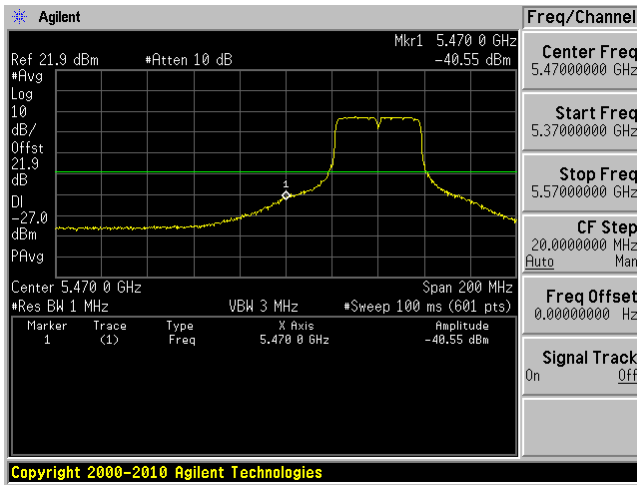
802.11n-HT20 mode, 5700 MHz, Chain J0



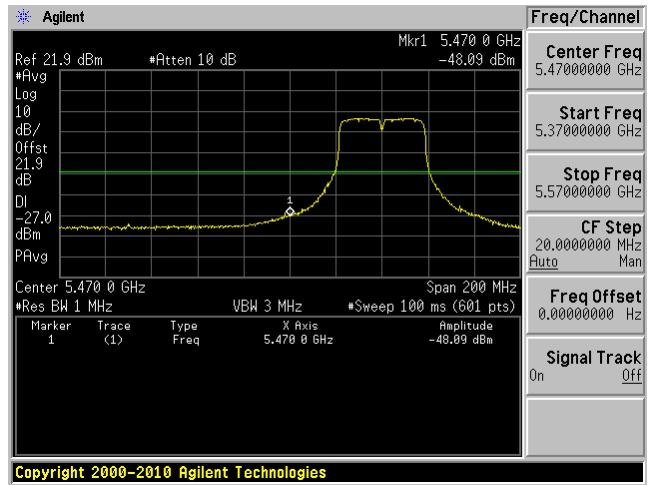
802.11n-HT20 mode, 5700 MHz, Chain J1



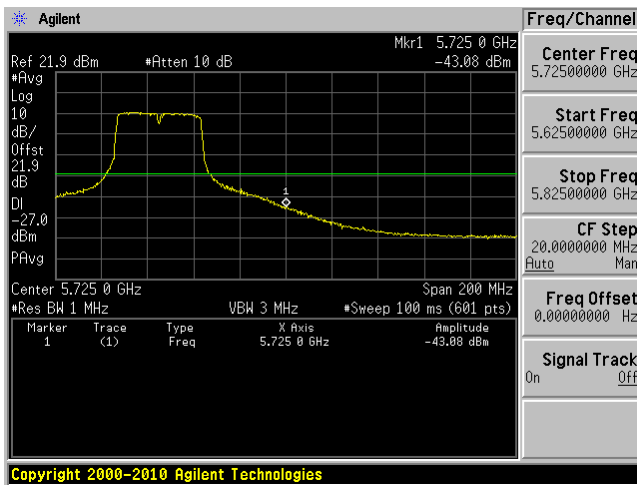
802.11n-HT40 mode, 5510 MHz, Chain J0



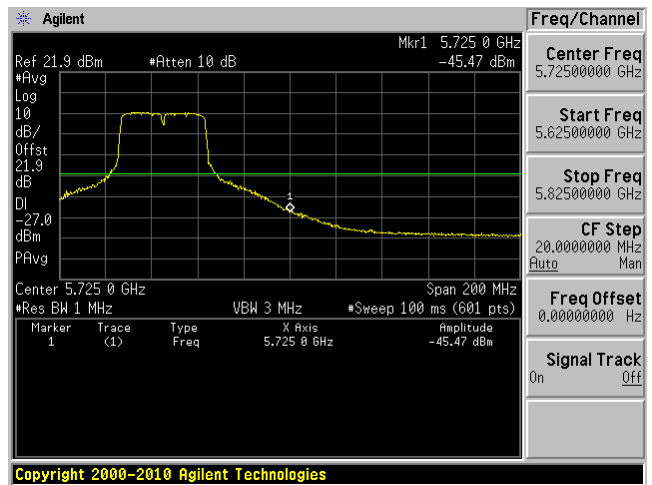
802.11n-HT40 mode, 5510 MHz, Chain J1



802.11n-HT40 mode, 5670 MHz, Chain J0



802.11n-HT40 mode, 5670 MHz, Chain J1



11 FCC §15.407(a)(1) & IC RSS-210 §A9.2 - Power Spectral Density

11.1 Applicable Standard

According to FCC §15.407(a)(1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, 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 $11 \text{ dBm} + 10 \log B$, 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.

According to IC RSS-210 §A9.2:

5150-5250 MHz the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the 5.25–5.35 GHz, 5.47-5.6 GHz, and 5.650–5.725 GHz bands, the maximum conducted output power shall not exceed 250 mW or $11 \text{ dBm} + 10 \log B$, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1 megahertz band. The maximum e.i.r.p shall not exceed 1.0W or $17 + 10 \log_{10} B$, dbm, whichever is less. B is the 99% emission bandwidth in MHz.

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: BA CL Corp. attests that all calibrations have been performed according to A2LA requirements, traceable to the NIST.

11.4 Test Environmental Conditions

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

The testing was performed by Bo Li from 2013-08-14 and 2013-08-15 at RF site.

11.5 Test Results

5250-5350 MHz

802.11a mode

Channel	Frequency (MHz)	TX Chain J0 PSD (dBm)	TX Chain J1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5260	6.708	7.099	9.92	11	-1.08	21
Middle	5280	6.857	7.07	9.98	11	-1.02	21
High	5320	3.852	3.86	6.87	11	-4.13	18

802.11n-HT20 mode

Channel	Frequency (MHz)	TX Chain J0 PSD (dBm)	TX Chain J1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5260	6.488	6.744	9.63	11	-1.37	21
Middle	5280	6.516	6.7	9.62	11	-1.38	21
High	5320	3.32	3.721	6.54	11	-4.46	18

802.11n-HT40 mode

Channel	Frequency (MHz)	TX Chain J0 PSD (dBm)	TX Chain J1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5270	4.602	4.137	7.39	11	-3.61	21
High	5310	-3.551	-3.251	-0.39	11	-11.39	14

5470-5725 MHz

802.11a mode

Channel	Frequency (MHz)	TX Chain J0 PSD (dBm)	TX Chain J1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5550	6.158	6.032	9.11	11	-1.89	21
Middle	5580	6.013	6.254	9.15	11	-1.85	21
High	5700	6.264	5.728	9.01	11	-1.99	21

802.11n-HT20 mode

Channel	Frequency (MHz)	TX Chain J0 PSD (dBm)	TX Chain J1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5500	6.139	5.61	8.89	11	-2.11	21
Middle	5580	5.697	5.257	8.49	11	-2.51	21
High	5700	6.143	5.651	8.91	11	-2.09	21

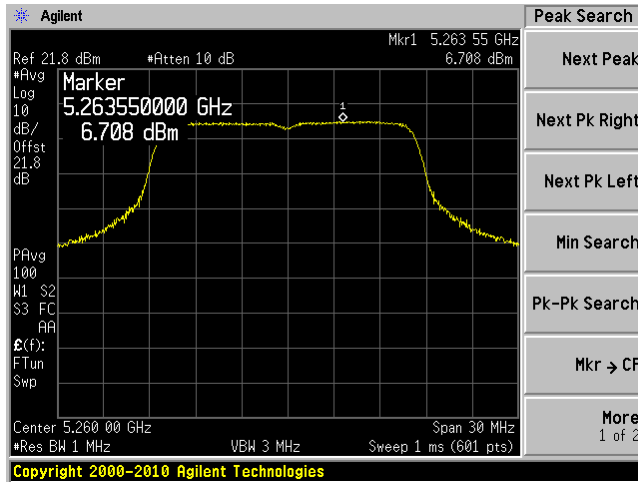
802.11n-HT40 mode

Channel	Frequency (MHz)	TX Chain J0 PSD (dBm)	TX Chain J1 PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)	Power Setting
Low	5510	2.682	2.481	5.59	11	-5.41	15
Middle	5550	3.581	2.923	6.27	11	-4.73	21
High	5670	3.09	2.288	5.72	11	-5.28	21

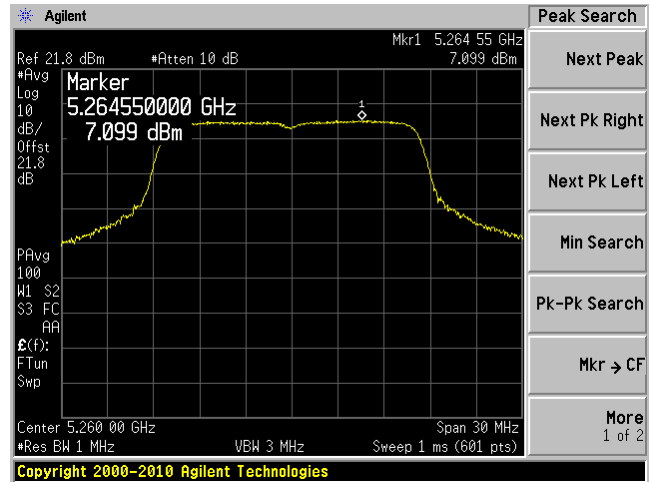
Please refer to the following plots.

5250-5350 MHz

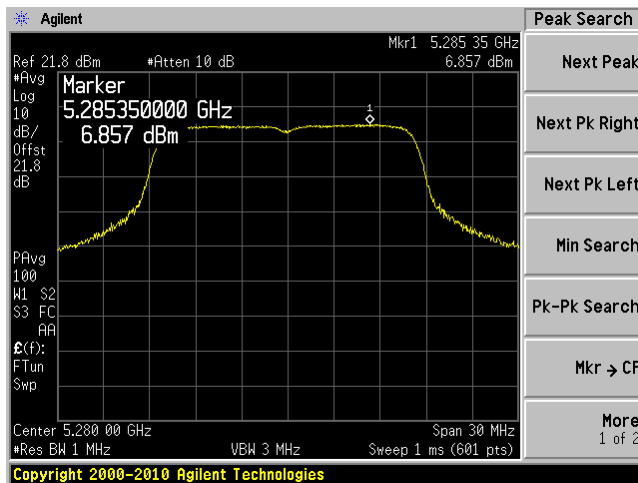
802.11a mode, 5260 MHz, Chain J0



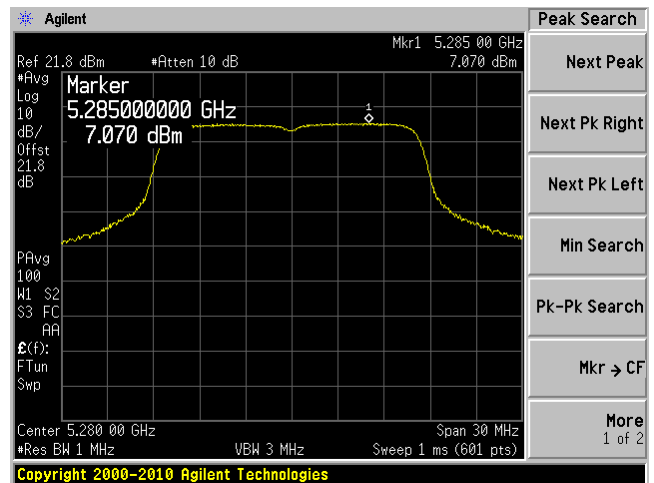
802.11a mode, 5260 MHz, Chain J1



802.11a mode, 5280 MHz, Chain J0

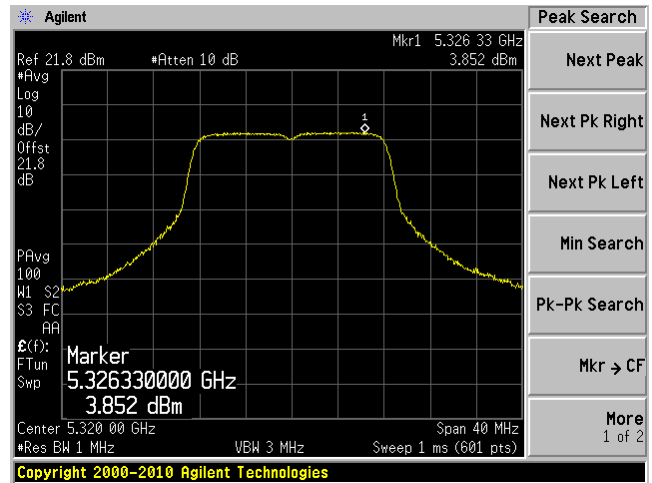
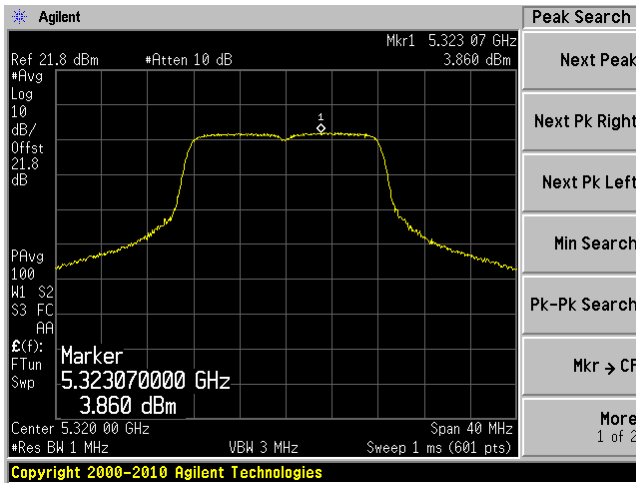


802.11a mode, 5280 MHz, Chain J1



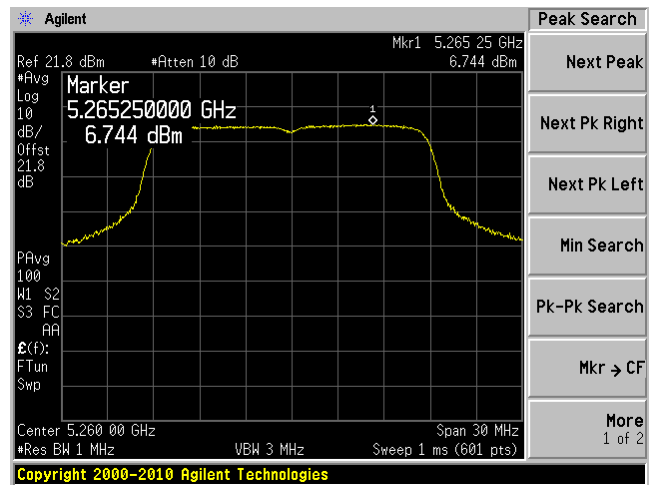
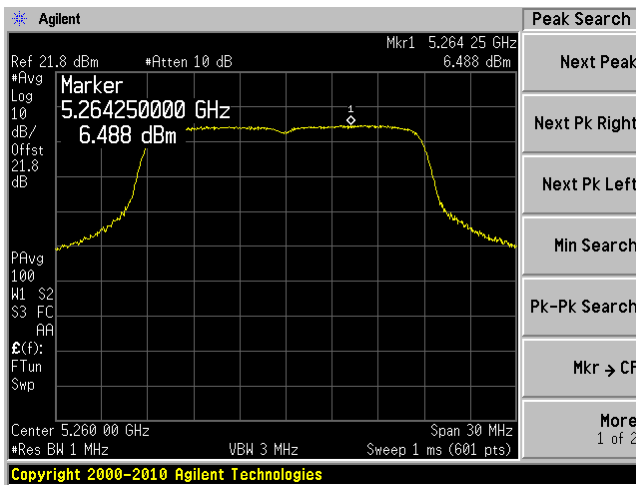
802.11a mode, 5320 MHz, Chain J0

802.11a mode, 5320 MHz, Chain J1

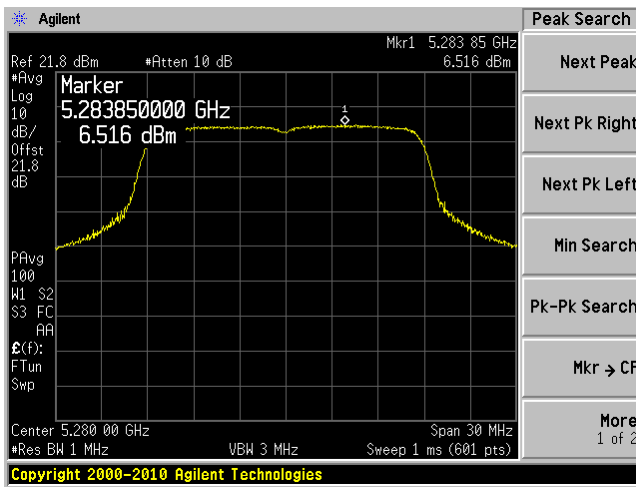


802.11n-HT20 mode, 5260 MHz, Chain J0

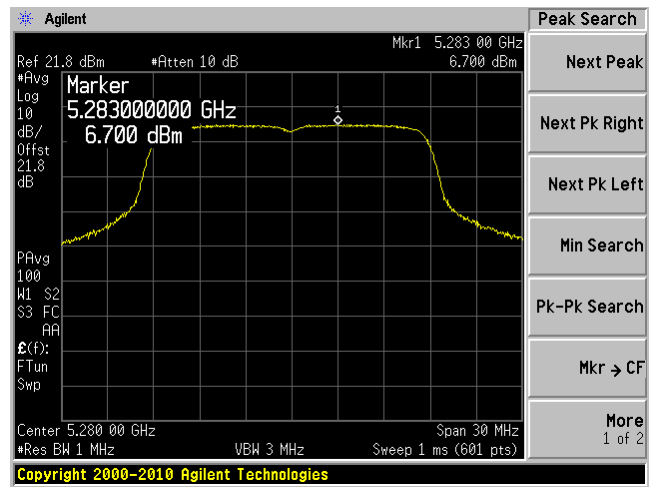
802.11n-HT20 mode, 5260 MHz, Chain J1



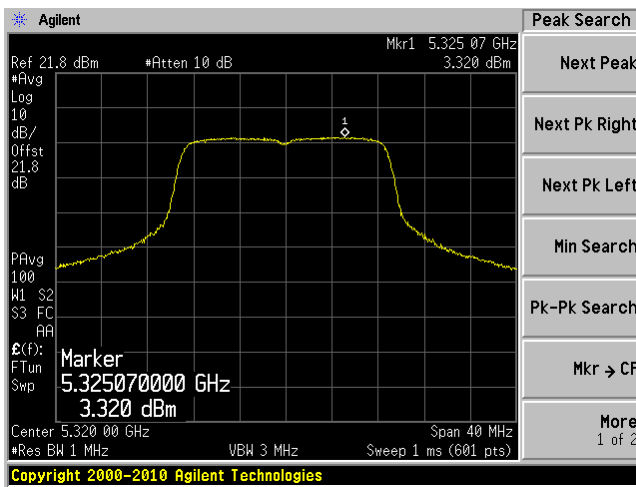
802.11n-HT20 mode, 5280 MHz, Chain J0



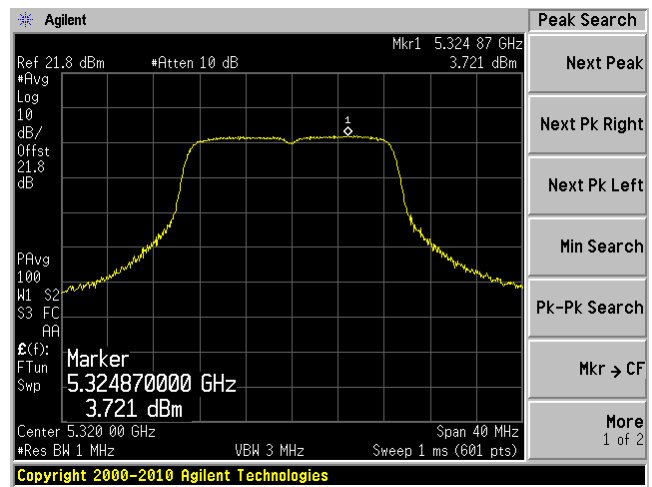
802.11n-HT20 mode, 5280 MHz, Chain J1



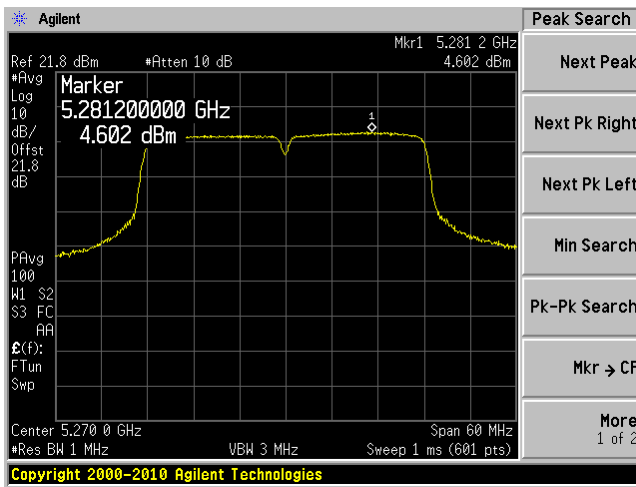
802.11n-HT20 mode, 5320 MHz, Chain J0



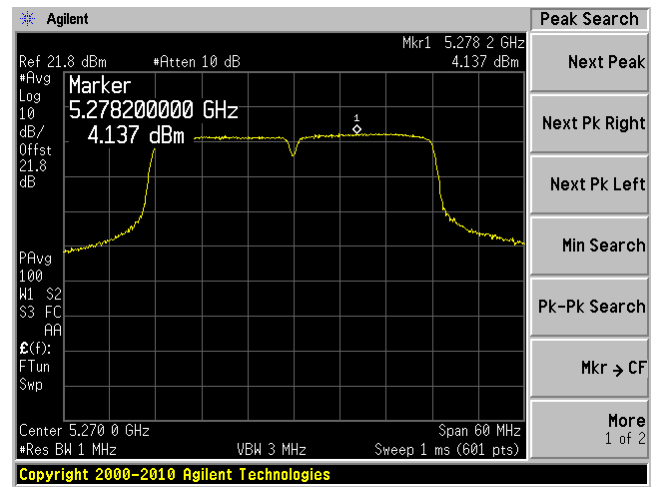
802.11n-HT20 mode, 5320 MHz, Chain J1



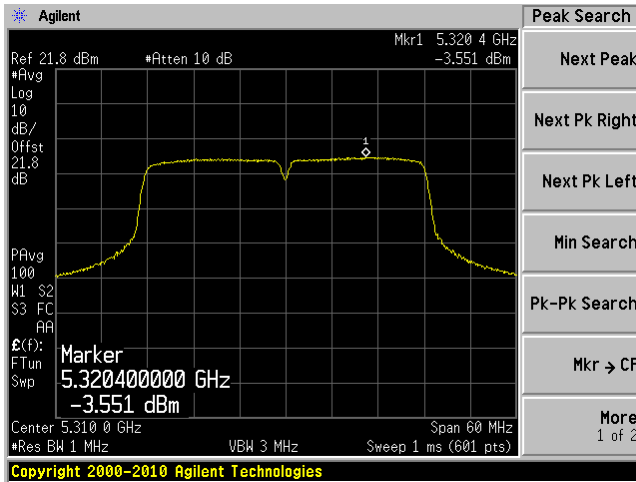
802.11n-HT40 mode, 5270 MHz, Chain J0



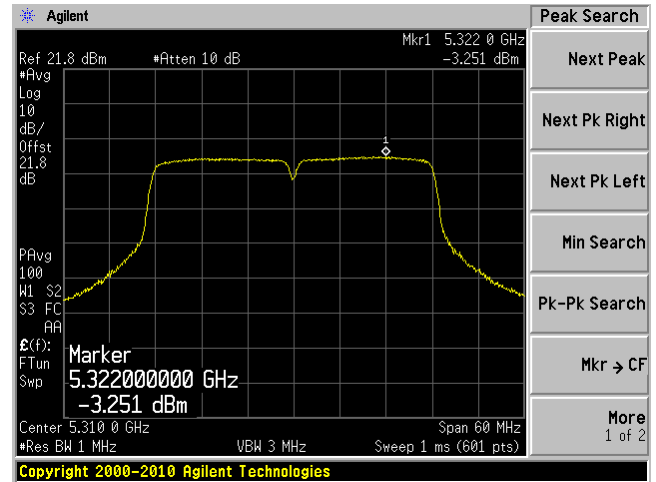
802.11n-HT40 mode, 5270 MHz, Chain J1



802.11n-HT40 mode, 5310 MHz, Chain J0

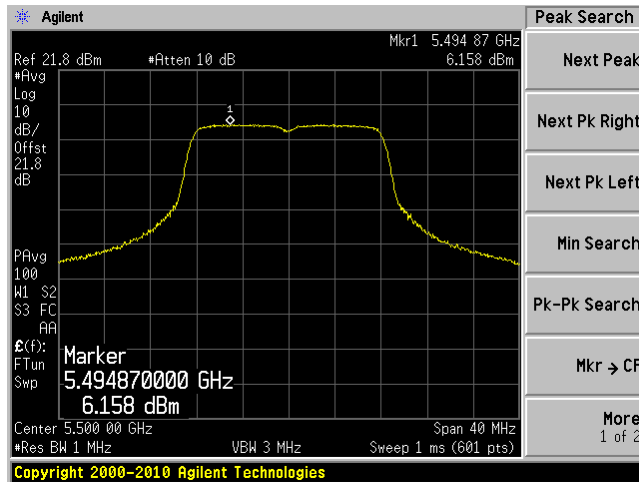


802.11n-HT40 mode, 5310 MHz, Chain J1

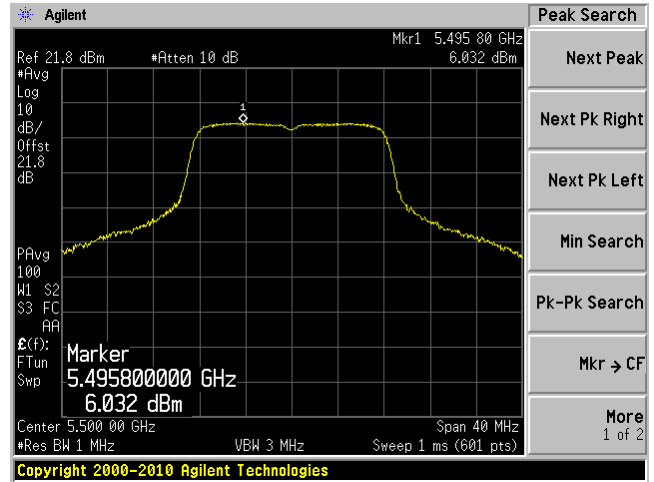


5470-5725 MHz

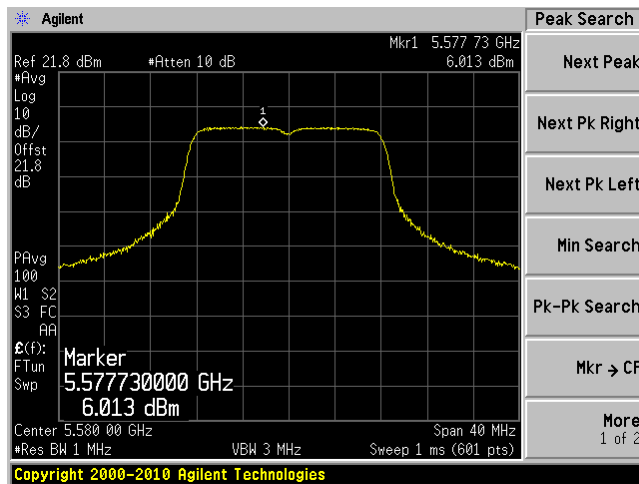
802.11a mode, 5550 MHz, Chain J0



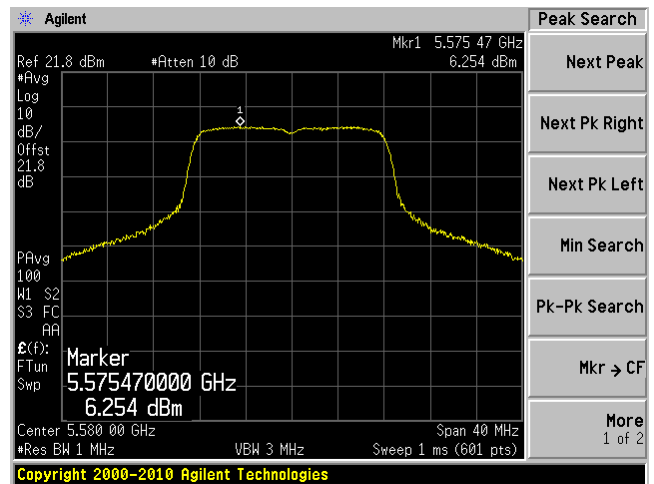
802.11a mode, 5550 MHz, Chain J1



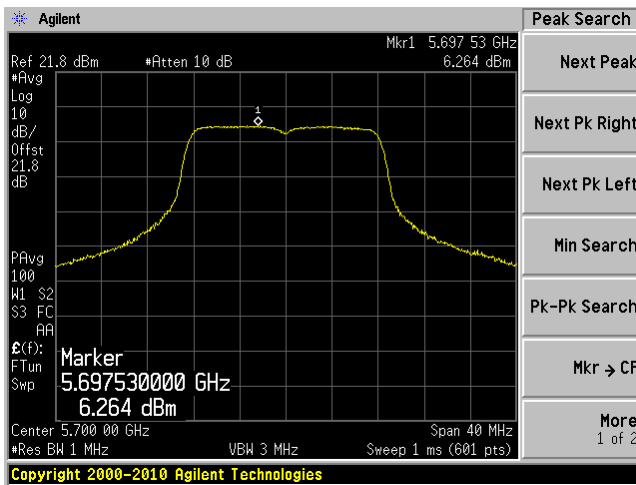
802.11a mode, 5580 MHz, Chain J0



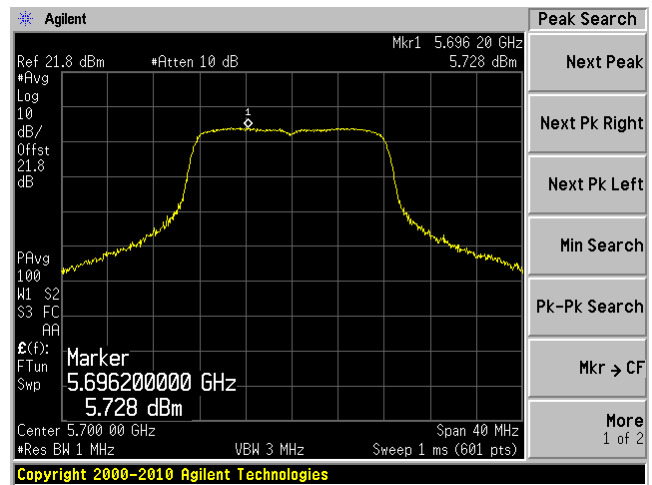
802.11a mode, 5580 MHz, Chain J1



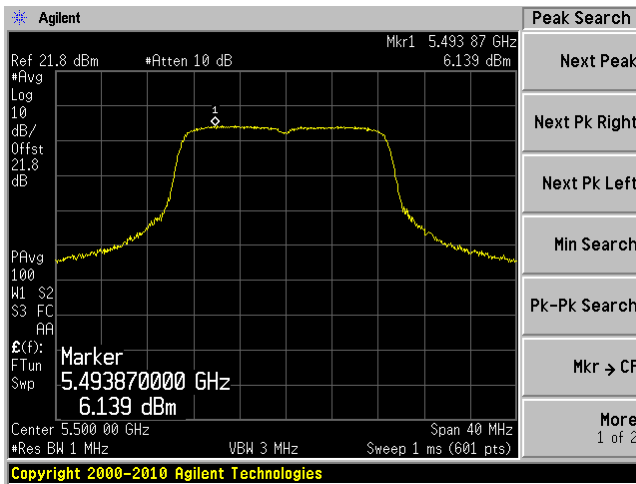
802.11a mode, 5700 MHz, Chain J0



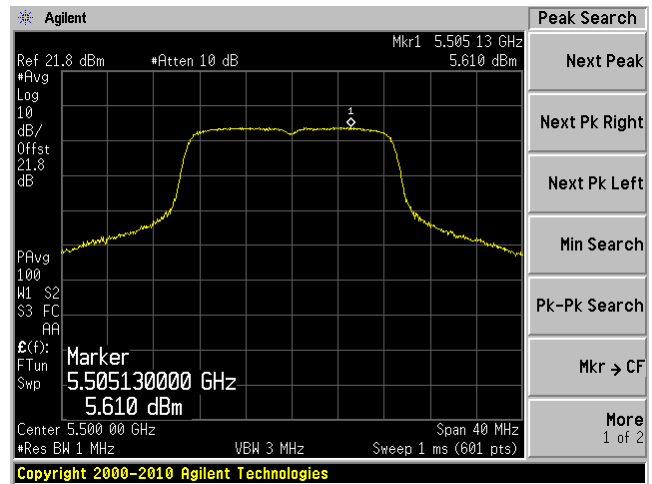
802.11a mode, 5700 MHz, Chain J1



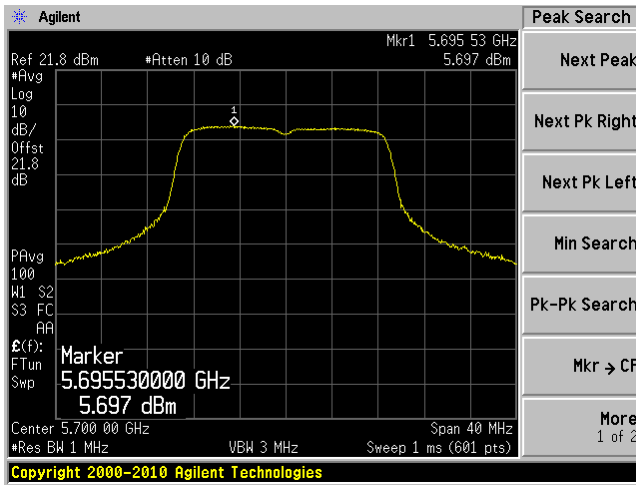
802.11n-HT20 mode, 5500 MHz, Chain J0



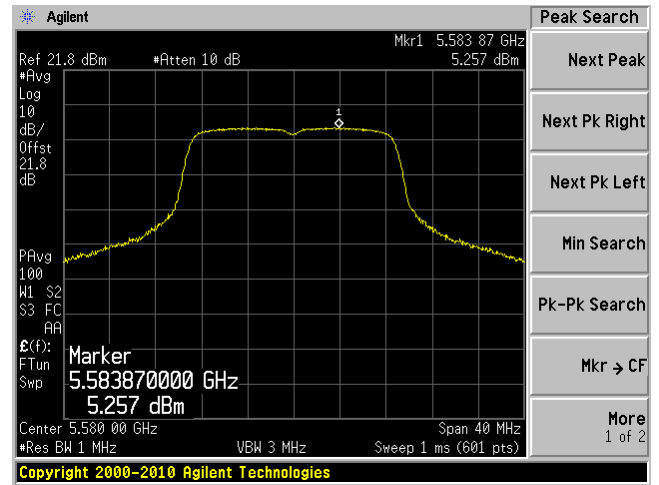
802.11n-HT20 mode, 5500 MHz, Chain J1



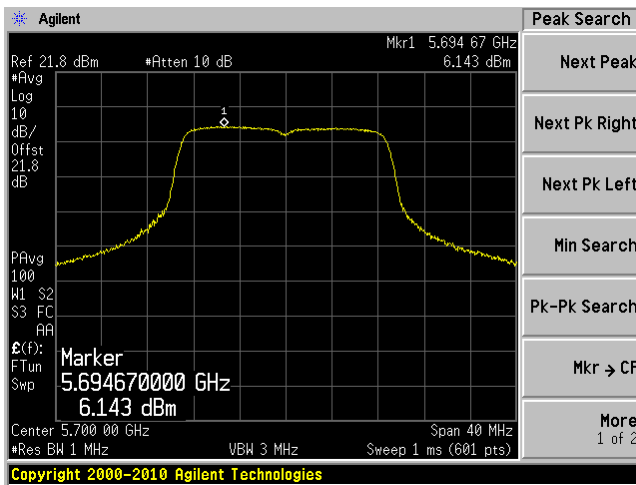
802.11n-HT20 mode, 5580 MHz, Chain J0



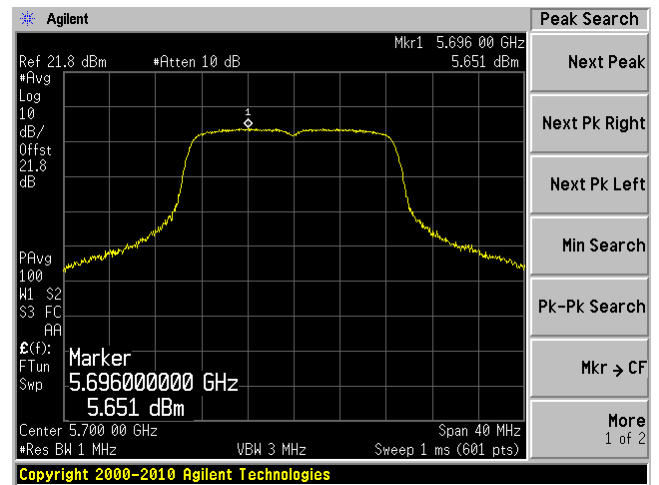
802.11n-HT20 mode, 5580 MHz, Chain J1



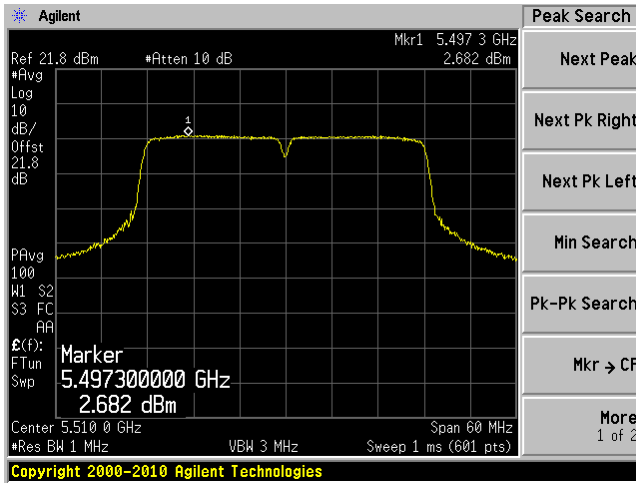
802.11n-HT20 mode, 5700 MHz, Chain J0



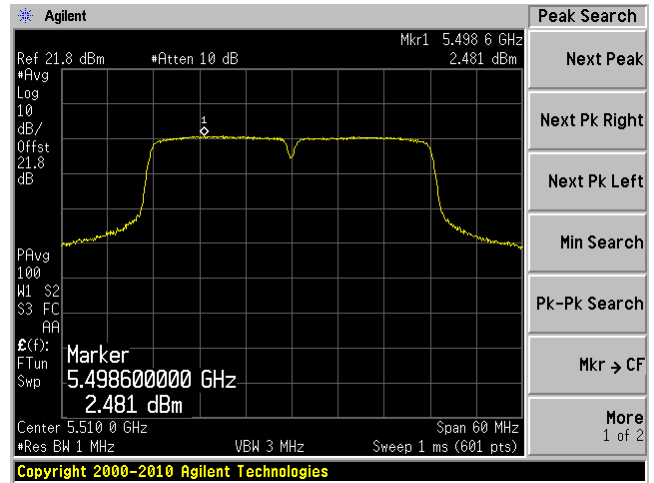
802.11n-HT20 mode, 5700 MHz, Chain J1



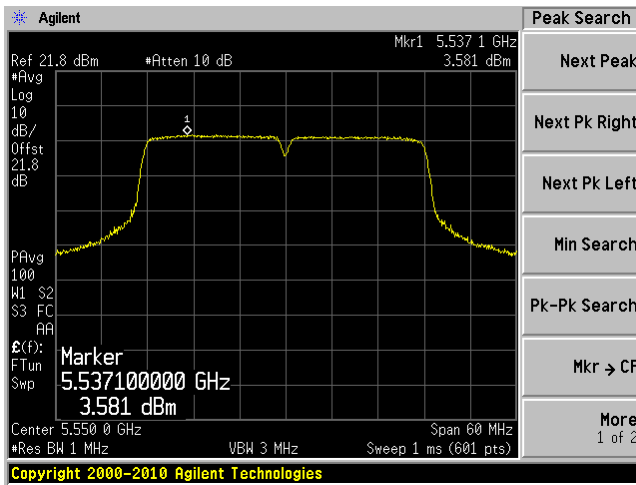
802.11n-HT40 mode, 5510 MHz, Chain J0



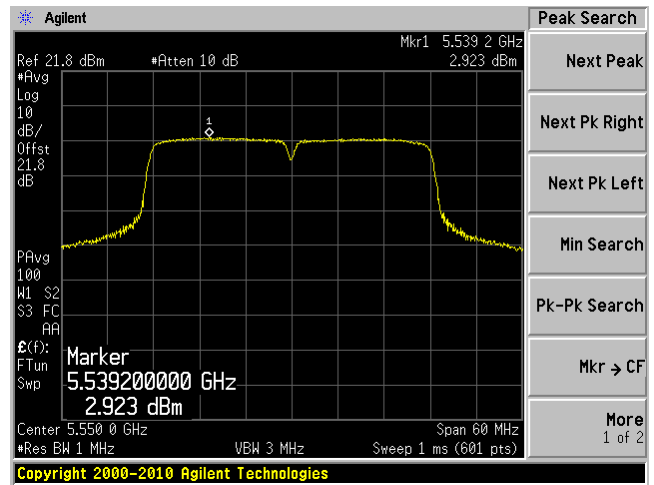
802.11n-HT40 mode, 5510 MHz, Chain J1



802.11n-HT40 mode, 5550 MHz, Chain J0

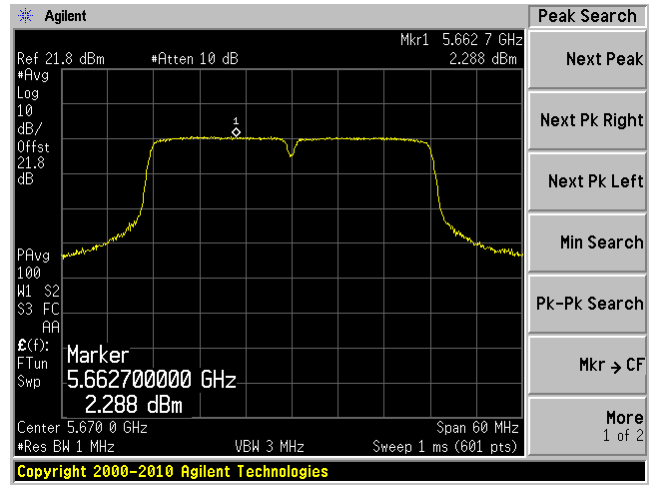
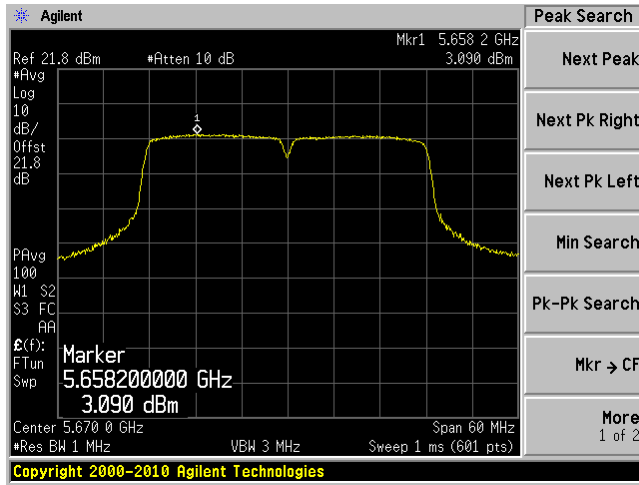


802.11n-HT40 mode, 5550 MHz, Chain J1



802.11n-HT40 mode, 5670 MHz, Chain J0

802.11n-HT40 mode, 5670 MHz, Chain J1



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

The testing was performed by Bo Li from 2013-08-14 and 2013-08-15 at RF site.

12.5 Test Results

5250-5350 MHz Band

Channel	Frequency (MHz)	TX Chain J0 PER (dB)	TX Chain J1 PER (dB)	Limit (dB)
802.11a mode				
Low	5260	7.758	8.940	13
Middle	5280	7.785	9.464	
High	5320	8.289	8.165	
802.11n-HT20 mode				
Low	5260	8.362	7.939	13
Middle	5280	8.167	7.471	
High	5320	8.328	8.053	
802.11n-HT40 mode				
Low	5270	8.590	8.126	13
High	5310	8.015	8.175	

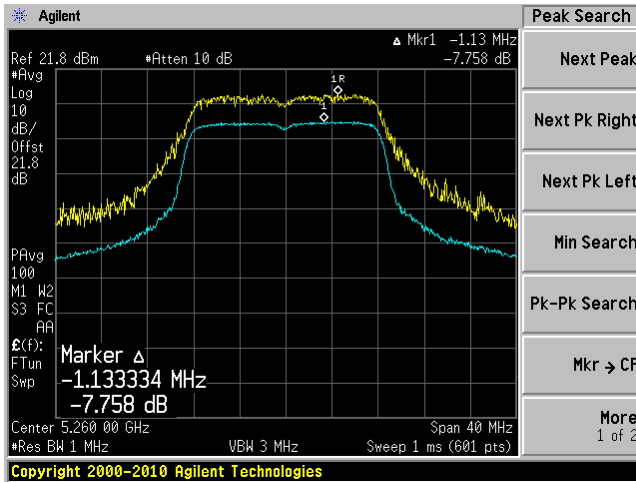
5470-5725 MHz Band

Channel	Frequency (MHz)	TX Chain J10 PER (dB)	TX Chain J8 PER (dB)	Limit (dB)
802.11a mode				
Low	5500	8.355	8.544	13
Middle	5580	7.815	8.574	
High	5700	7.851	8.58	
802.11n-HT20 mode				
Low	5500	8.521	8.132	13
Middle	5580	8.286	8.114	
High	5700	7.683	7.876	
802.11n-HT40 mode				
Low	5510	8.563	8.323	13
Middle	5550	8.932	8.594	
High	5670	7.756	8.576	

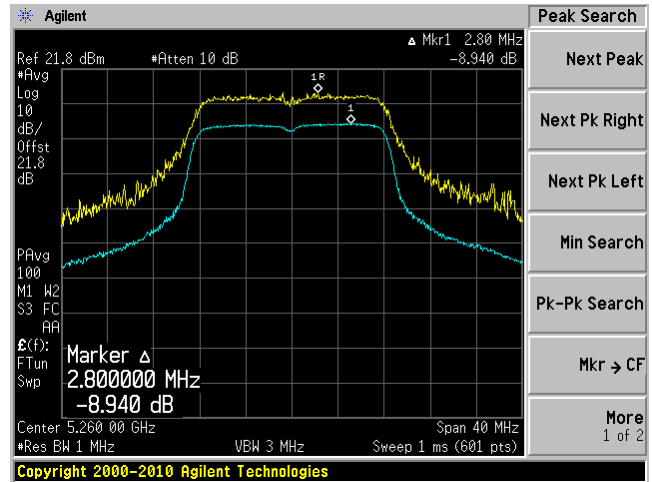
Please refer to the following plots for detailed test results:

5250-5350 MHz Band

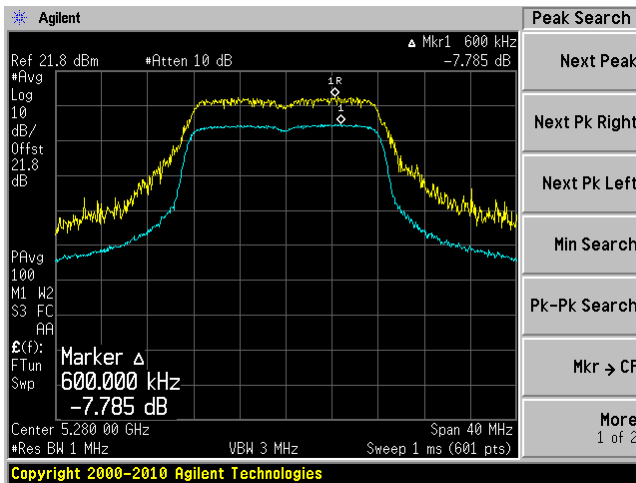
802.11a mode, 5260 MHz, Chain J0



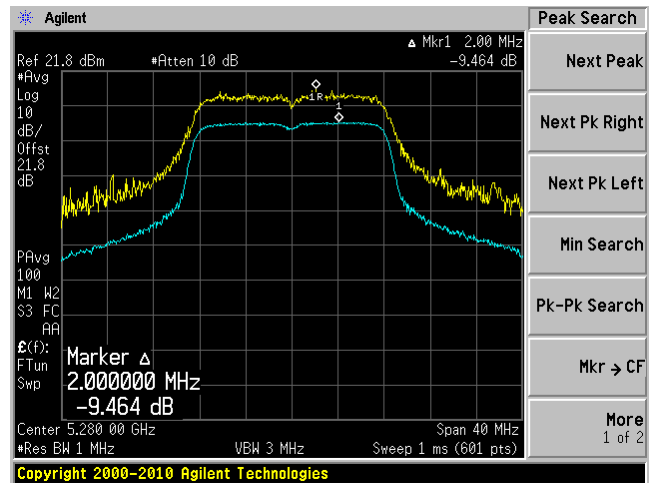
802.11a mode, 5260 MHz, Chain J1



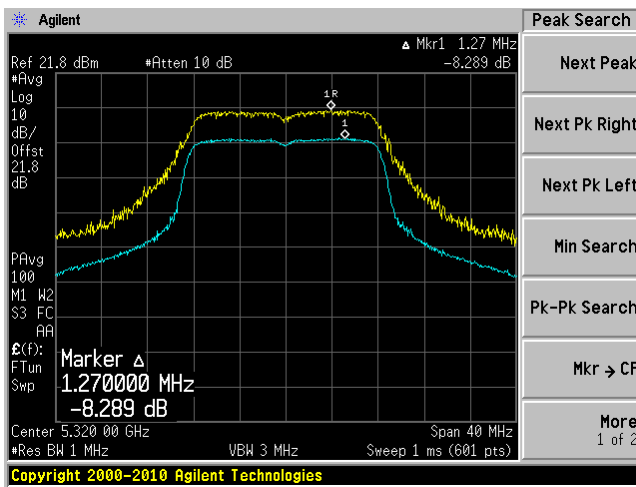
802.11a mode, 5280 MHz, Chain J0



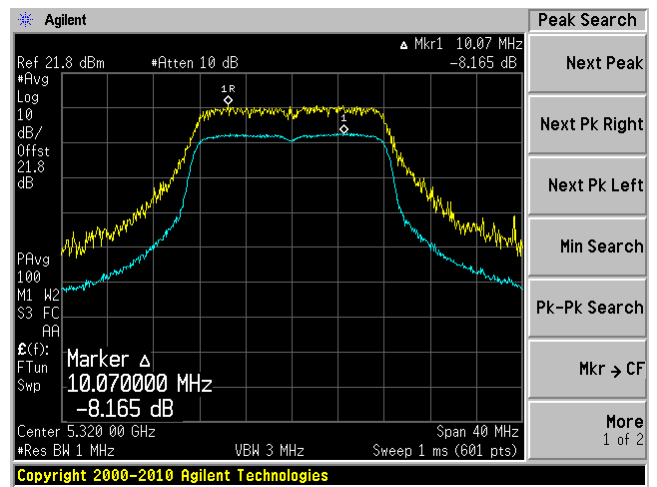
802.11a mode, 5280 MHz, Chain J1



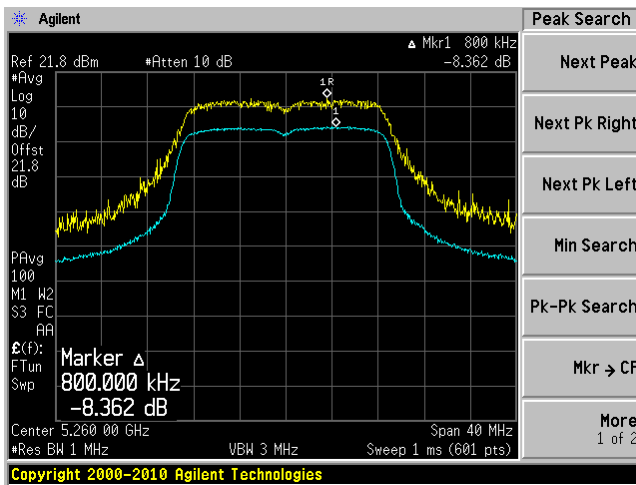
802.11a mode, 5320 MHz, Chain J0



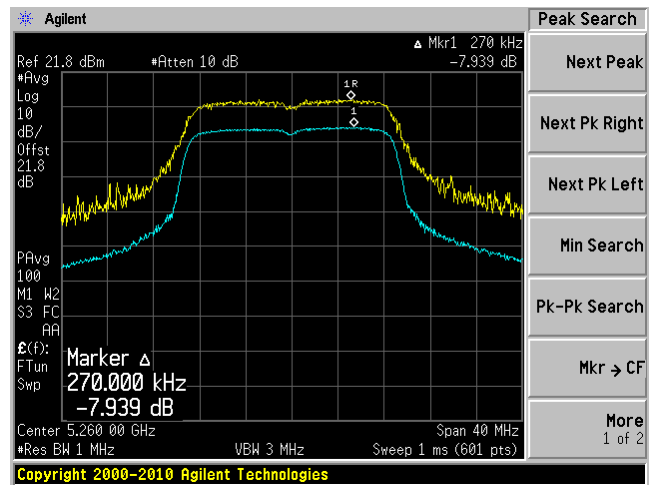
802.11a mode, 5320 MHz, Chain J1



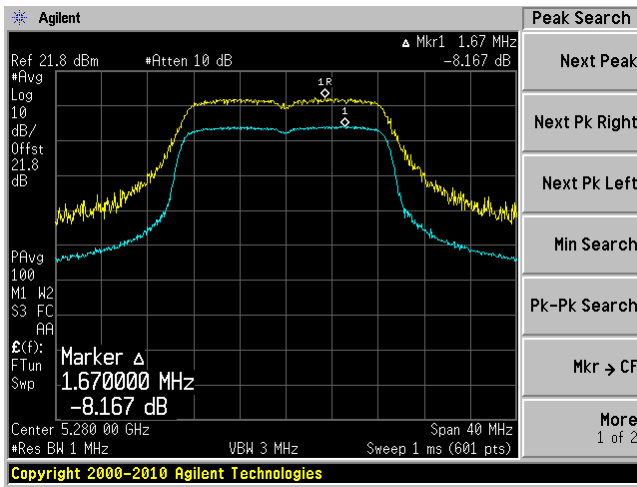
802.11n-HT20 mode, 5260 MHz, Chain J0



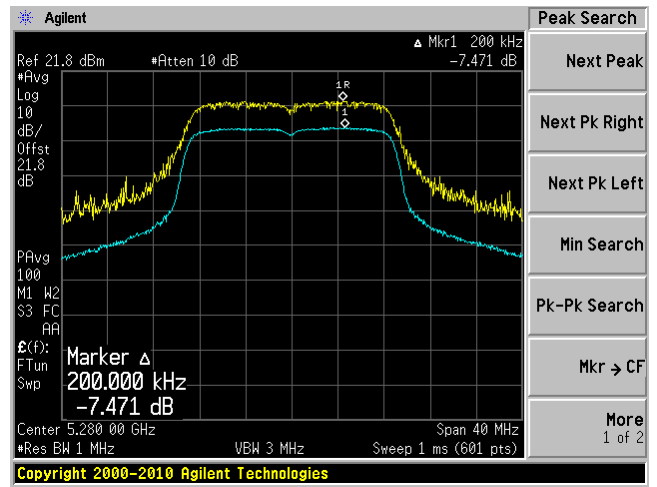
802.11n-HT20 mode, 5260 MHz, Chain J1



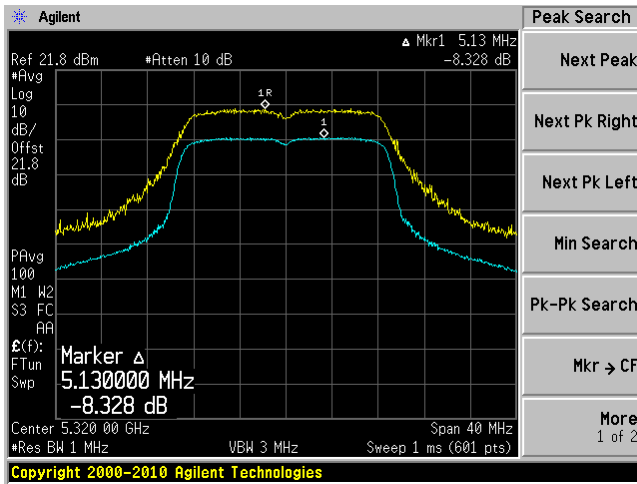
802.11n-HT20 mode, 5280 MHz, Chain J0



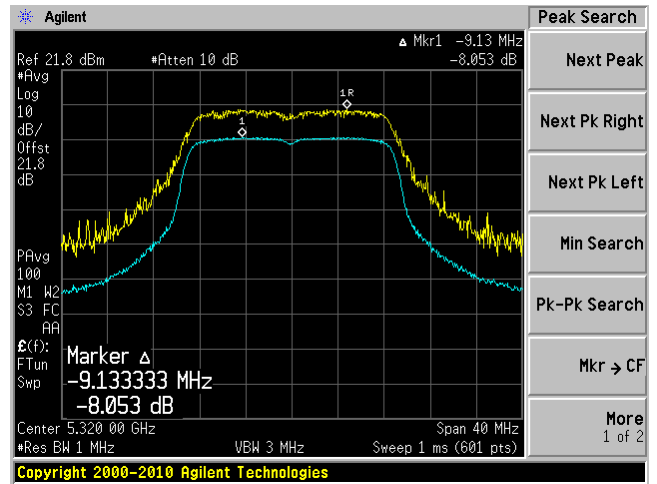
802.11n-HT20 mode, 5280 MHz, Chain J1



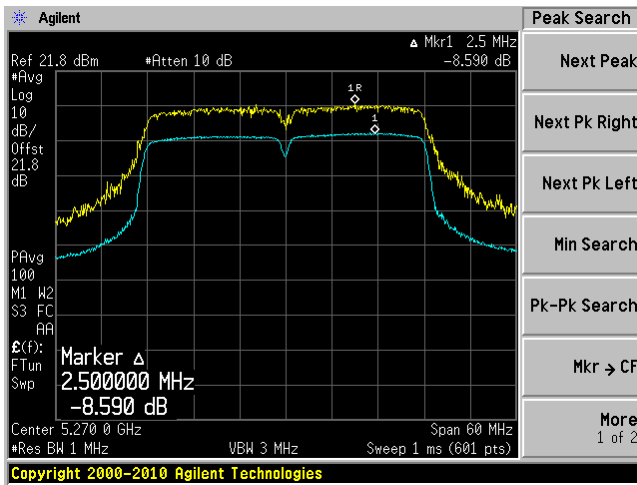
802.11n-HT20 mode, 5320 MHz, Chain J0



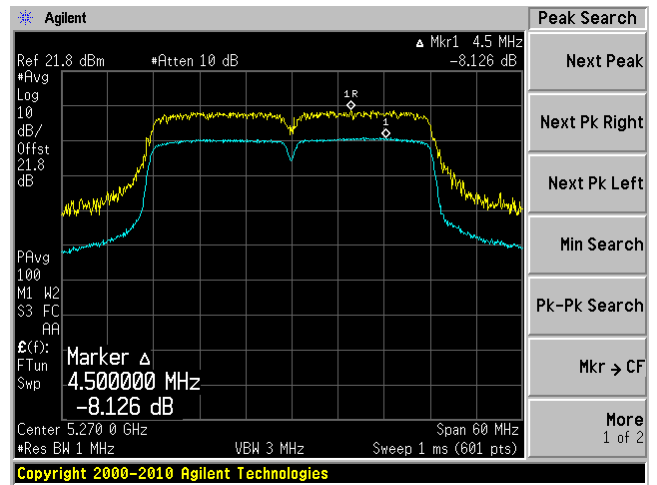
802.11n-HT20 mode, 5320 MHz, Chain J1



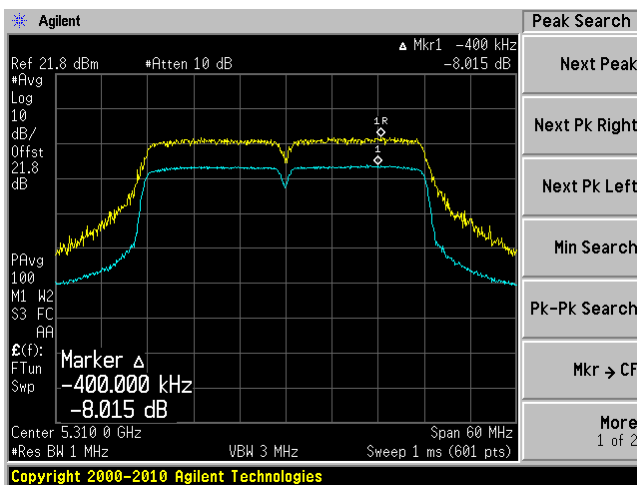
802.11n-HT40 mode, 5270 MHz, Chain J0



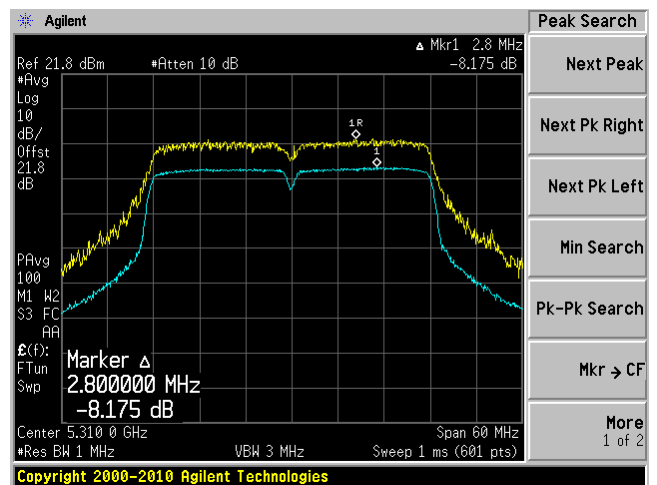
802.11n-HT40 mode, 5270 MHz, Chain J1



802.11n-HT40 mode, 5310 MHz, Chain J0

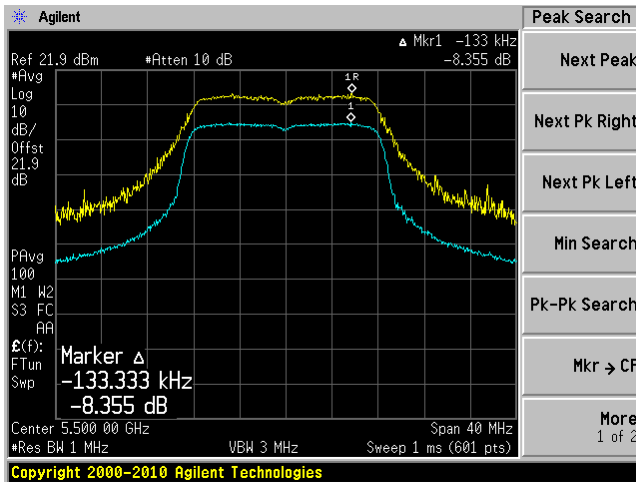


802.11n-HT40 mode, 5310 MHz, Chain J1

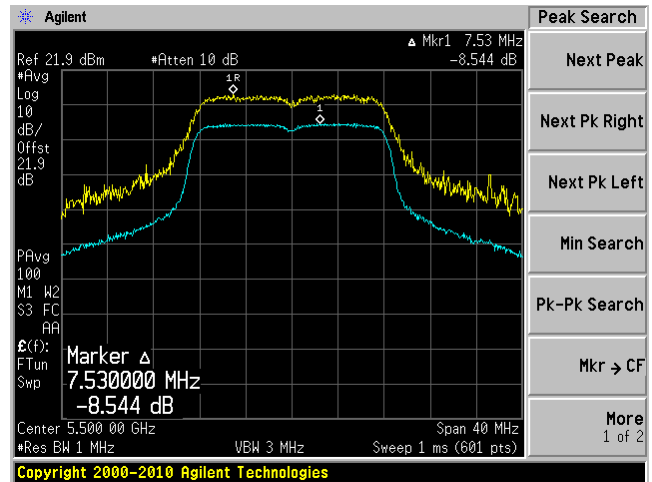


5470-5725 MHz Band

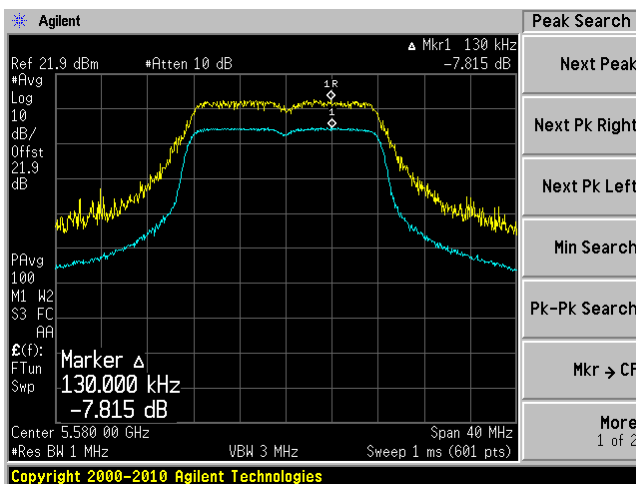
802.11a mode, 5500 MHz, Chain J0



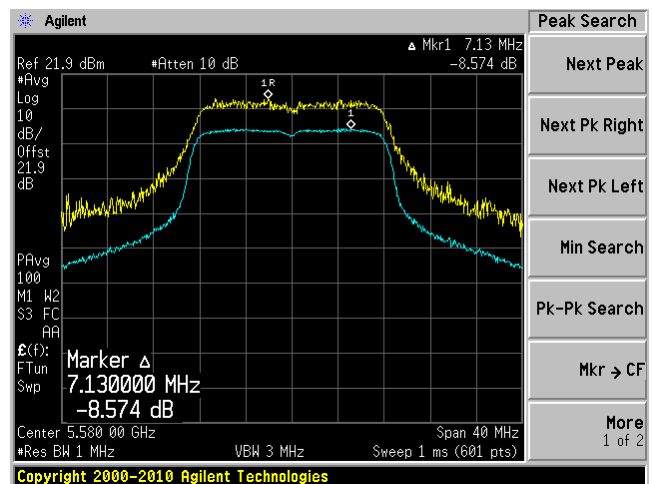
802.11a mode, 5500 MHz, Chain J1



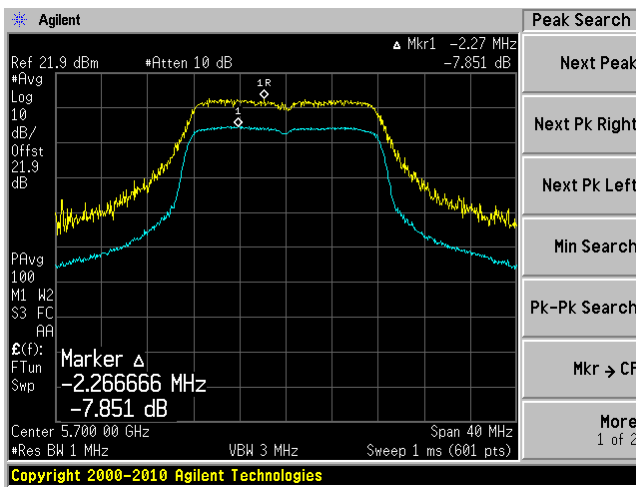
802.11a mode, 5580 MHz, Chain J0



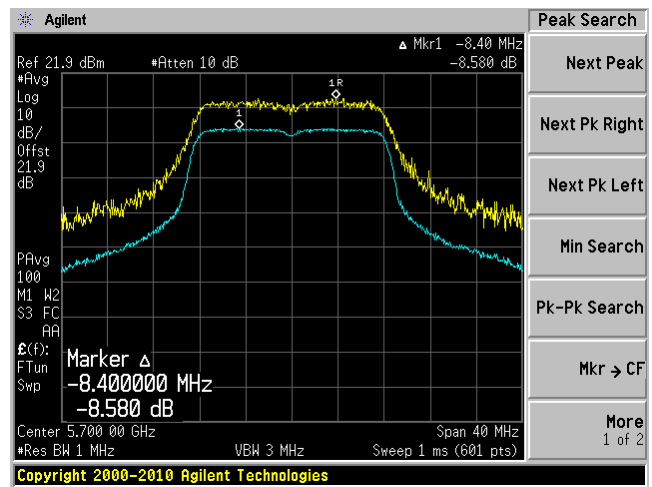
802.11a mode, 5580 MHz, Chain J1



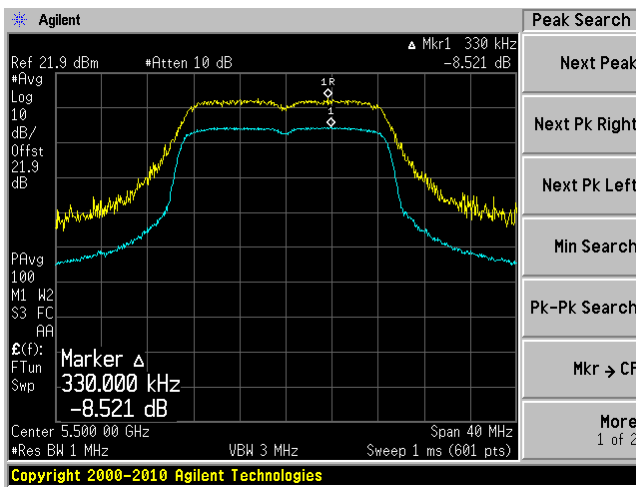
802.11a mode, 5700 MHz, Chain J0



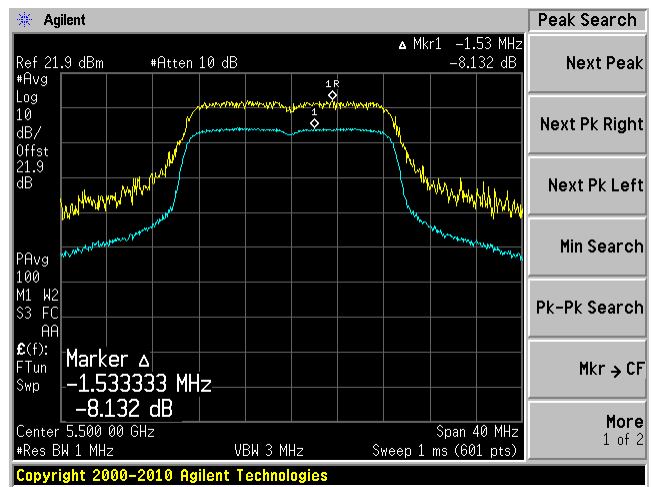
802.11a mode, 5700 MHz, Chain J1



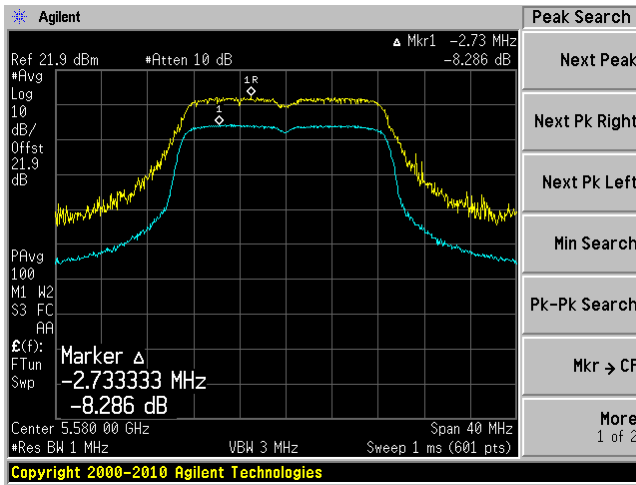
802.11n-HT20 mode, 5500 MHz, Chain J0



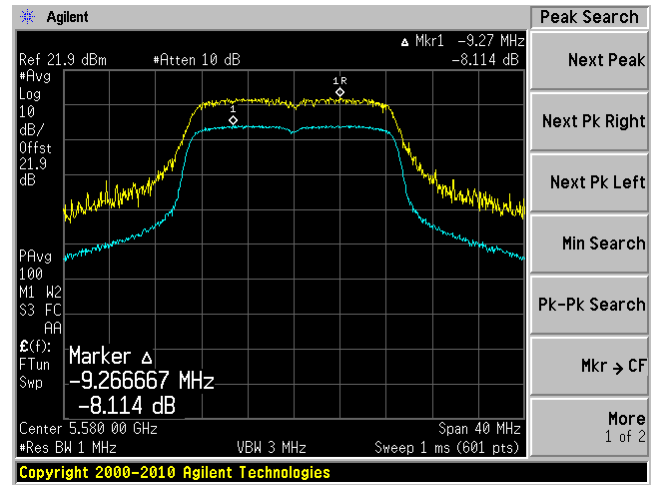
802.11n-HT20 mode, 5500 MHz, Chain J1



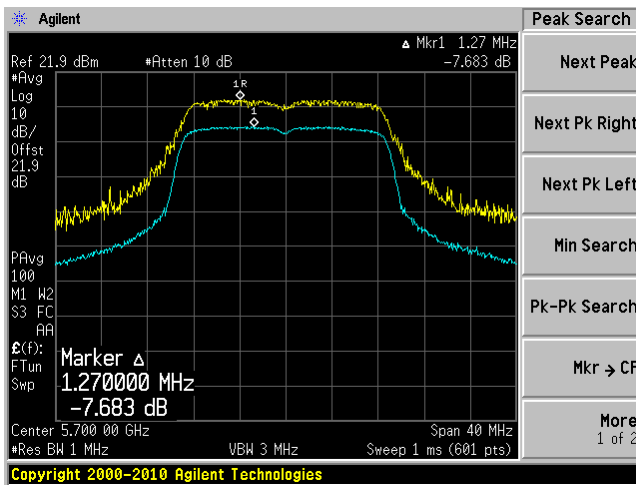
802.11n-HT20 mode, 5580 MHz, Chain J0



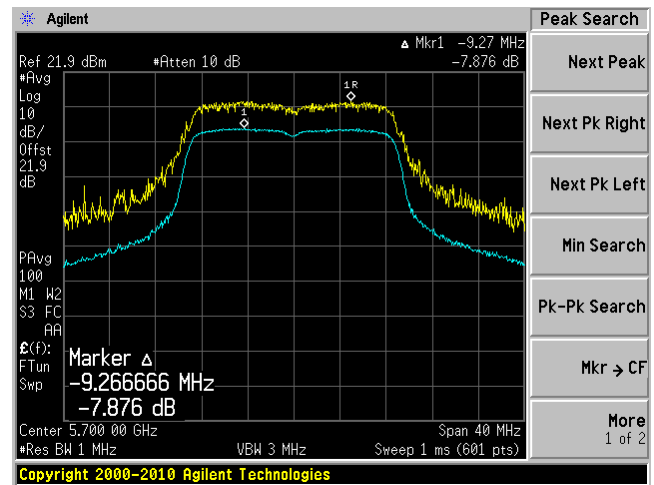
802.11n-HT20 mode, 5580 MHz, Chain J1



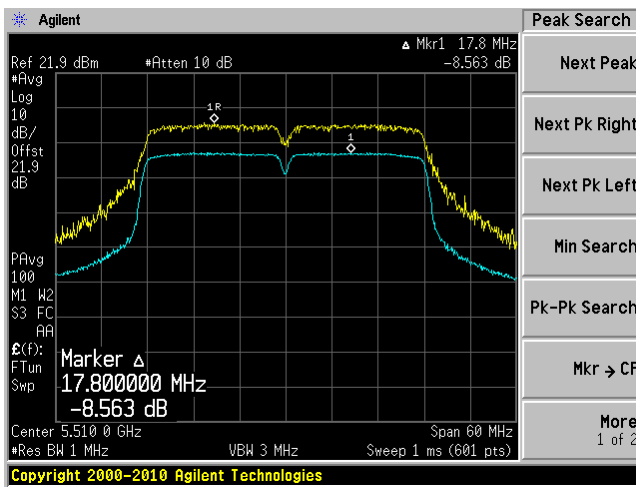
802.11n-HT20 mode, 5700 MHz, Chain J0



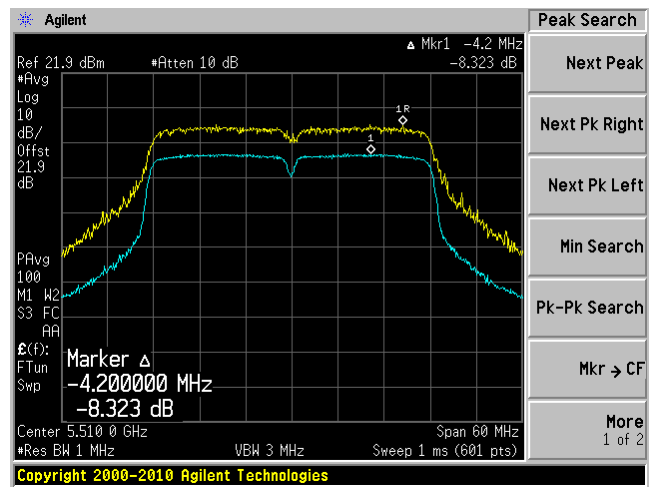
802.11n-HT20 mode, 5700 MHz, Chain J1



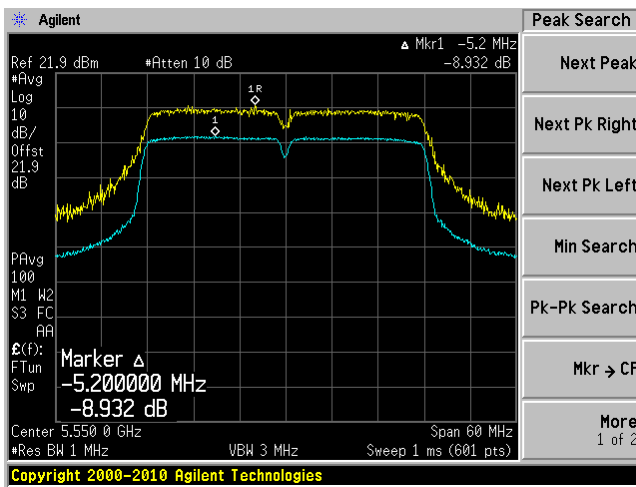
802.11n-HT40 mode, 5510 MHz, Chain J0



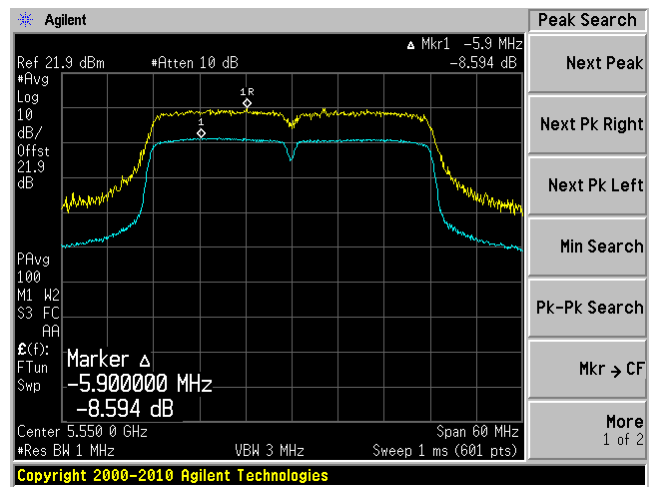
802.11n-HT40 mode, 5510 MHz, Chain J1



802.11n-HT40 mode, 5550 MHz, Chain J0

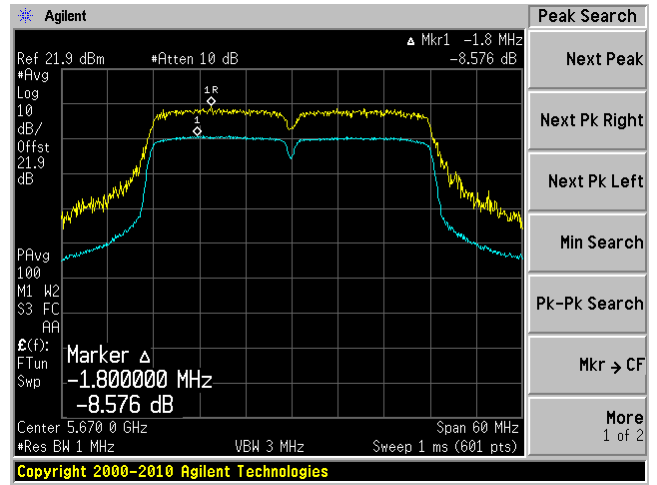
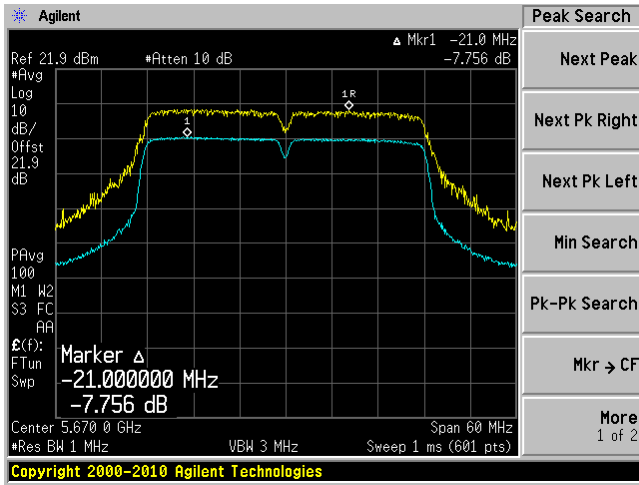


802.11n-HT40 mode, 5550 MHz, Chain J1



802.11n-HT40 mode, 5670 MHz, Chain J0

802.11n-HT40 mode, 5670 MHz, Chain J1



13 IC RSS-210 §2.3 & RSS-Gen §6 - Receiver Spurious Radiated Emissions

13.1 Applicable Standard

According to IC RSS-Gen §4.10, the receiver shall be operated in the normal receive mode near the mid-point of the band over which the receiver is designed to operate.

Unless otherwise specified in the applicable RSS, the radiated emission measurement is the standard measurement method (with the device's antenna in place) to measure receiver spurious emissions.

Radiated emission measurements are to be performed using a calibrated open-area test site.

For either method, the search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is the higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is the higher, without exceeding 40 GHz.

For emissions below 1 GHz, measurements shall be performed using a CISPR quasi-peak detector and the related measurement bandwidth. As an alternative to CISPR quasi-peak measurement, compliance with the emission limit can be demonstrated using measuring equipment employing a peak detector with the same measurement bandwidth as that for CISPR quasi-peak measurements. Above 1 GHz, measurements shall be performed using an average detector and a resolution bandwidth of 300 kHz to 1 MHz.

According to RSS-Gen §6.1, Table 2, the radiated limit of receiver spurious emissions

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

13.2 EUT Setup

The radiated emissions tests were performed in the 3 meter chamber, using the setup in accordance with ANSI C63.4-2003.

13.3 Test Procedure

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

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

13.4 Corrected Amplitude & Margin Calculation

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

$$CA = Ai + AF + CL + Atten - Ga$$

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

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

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

13.5 Test Equipment Lists and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Sunol Science Corp	System Controller	SC99V	122303-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2013-06-18	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
Agilent	Spectrum Analyzer	E4446A	US44300386	2012-09-29	1 year
EMCO	Horn Antenna	3315	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 attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.

13.6 Test Environmental Conditions

Temperature:	22 °C
Relative Humidity:	47 %
ATM Pressure:	102.1kPa

The testing was performed by Bo Li from 2013-6-11 at 5 meter 3.

13.7 Summary of Test Results

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

30 MHz – 1 GHz

Mode: Receiving			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range (MHz)
-11.2	45.223	Vertical	30-1000

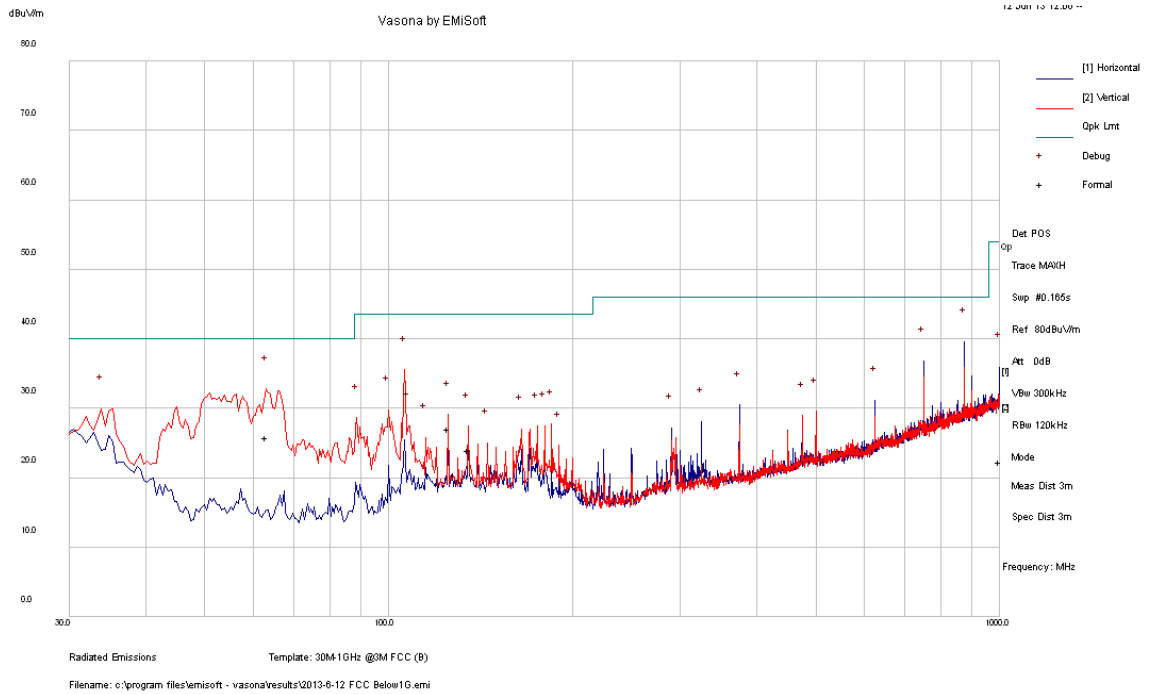
1 GHz – 12.75 GHz

Mode: Receiving			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range (MHz)
-11.582	14226.3	Horizontal	1000-12750

13.8 Test Results and Plots

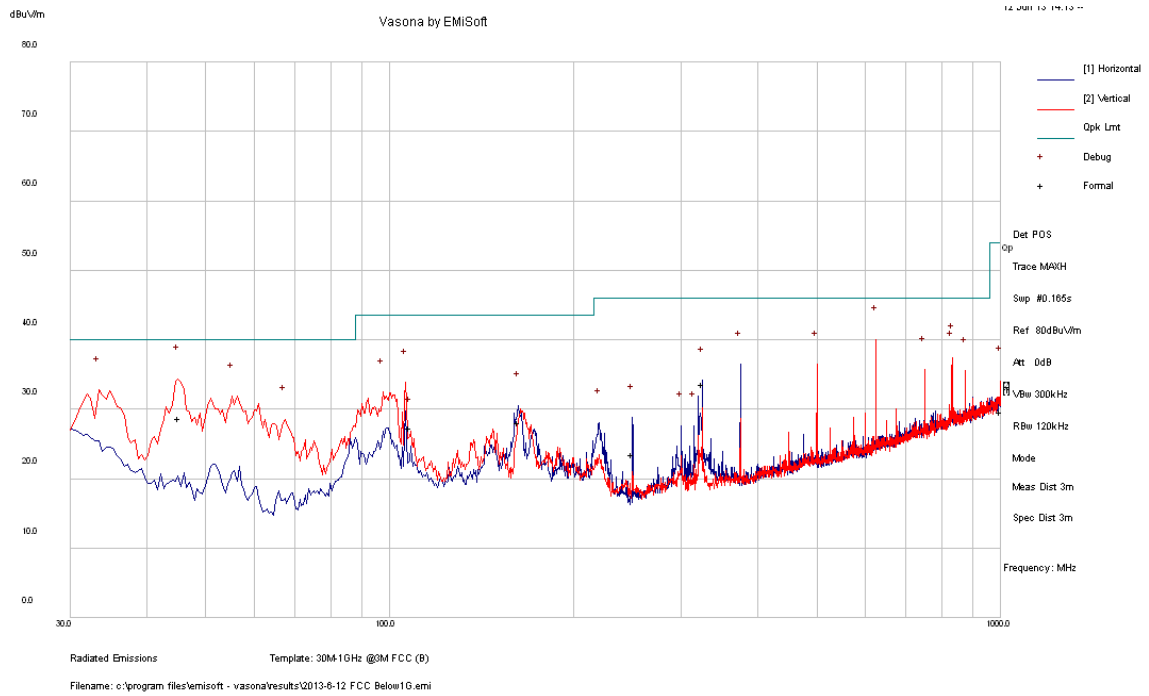
1) 30-1000 MHz, Measured at 3 meters

With AC/DC Adaptor



Frequency (MHz)	Corrected Amplitude (dBuV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBuV/m)	Margin (dB)	Detector (QP/Ave.)
63.01425	25.76	156	V	306	40	-14.24	QP
125.0055	27.03	156	V	0	43.5	-16.47	QP
135.006	23.96	125	V	1	43.5	-19.54	QP
999.364	22.33	99	H	255	54	-31.67	QP

With POE



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)	Detector (QP/Ave.)
45.223	28.8	113	V	76	40	-11.2	QP
325.0035	33.69	110	H	41	46	-12.31	QP
162.52275	28.09	168	H	106	43.5	-15.41	QP
108.01225	27.38	99	V	260	43.5	-16.12	QP
249.95175	23.58	102	H	305	46	-22.42	QP
999.954	29.72	104	V	0	54	-24.28	QP

2) 1 GHz to 12.75 GHz measured at 3 meters**With AC/DC Adaptor**

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
14226.3	57.608	100	V	0	74	-16.392	Peak
14226.3	57.108	100	H	0	74	-16.892	Peak
14226.3	42.388	100	V	0	54	-11.612	Ave
14226.3	42.418	100	H	0	54	-11.582	Ave
1184.83	37.378	100	V	0	74	-36.622	Peak
1184.83	38.028	100	H	0	74	-35.972	Peak
1184.83	23.078	100	V	0	54	-30.922	Ave
1184.83	23.018	100	H	0	54	-30.982	Ave

With POE

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
1350	43.794	100	V	141	74	-30.206	Peak
1350	41.384	100	H	206	74	-32.616	Peak
1350	33.224	100	V	141	54	-20.776	Ave
1350	34.544	100	H	206	54	-19.456	Ave
1996	58.766	100	V	141	74	-15.234	Peak
1996	51.936	100	H	251	74	-22.064	Peak
1996	26.166	100	V	141	54	-27.834	Ave
1996	25.196	100	H	251	54	-28.804	Ave

14 FCC §15.407(b) & IC RSS-210 §A9.2 - Spurious Emissions at Antenna Terminals

14.1 Applicable Standard

According to FCC §15.407(b)

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

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

According to RSS-210 §A8.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

14.2 Measurement Procedure

Procedure for Unwanted Emissions Measurements below 1000 MHz.

- a) Follow the requirements in section G)3), “General Requirements for Unwanted Emissions Measurements”.
- b) Compliance shall be demonstrated using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

Procedures for Average Unwanted Emissions Measurements above 1000 MHz.

- a) Follow the requirements in section G)3), “General Requirements for Unwanted Emissions Measurements”.
- b) Average emission levels shall be measured using one of the following two methods.
- c) Method AD (Average Detection): Primary method
 - (i) RBW = 1 MHz.
 - (ii) VBW \geq 3 MHz.
 - (iii) Detector = RMS, if span/(# of points in sweep) \leq RBW/2. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, the detector mode shall be set to peak.
 - (iv) Averaging type = power (i.e., RMS)
 - As an alternative, the detector and averaging type may be set for linear voltage averaging. Some analyzers require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
 - (v) Sweep time = auto.
 - (vi) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, the number of traces shall be increased by a factor of 1/x, where x is the duty cycle. For example, with 50 percent duty cycle, at least 200 traces should be averaged.
 - (vii) If tests are performed with the EUT transmitting at a duty cycle less than 98 percent, a correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the

emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

- If power averaging (RMS) mode was used in step (iv) above, the correction factor is $10 \log(1/x)$, where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 3 dB must be added to the measured emission levels.
- If linear voltage averaging mode was used in step (iv) above, the correction factor is $20 \log(1/x)$, where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 6 dB must be added to the measured emission levels.

14.3 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.

14.4 Test Environmental Conditions

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

The testing was performed by Bo Li from 2013-08-14 and 2013-08-15 at RF site.

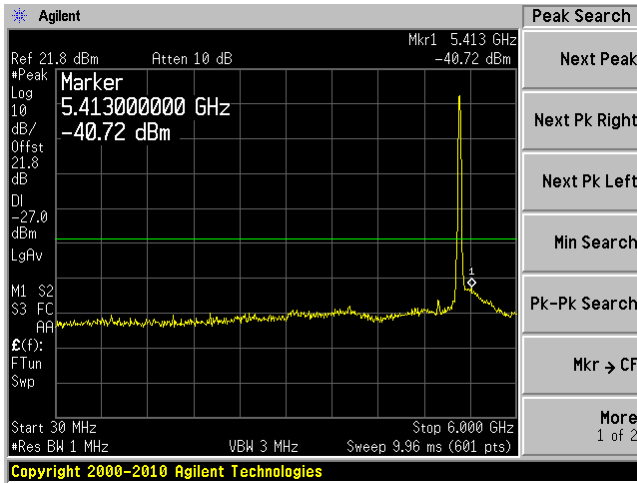
14.5 Test Results

Please refer to following plots of spurious emissions.

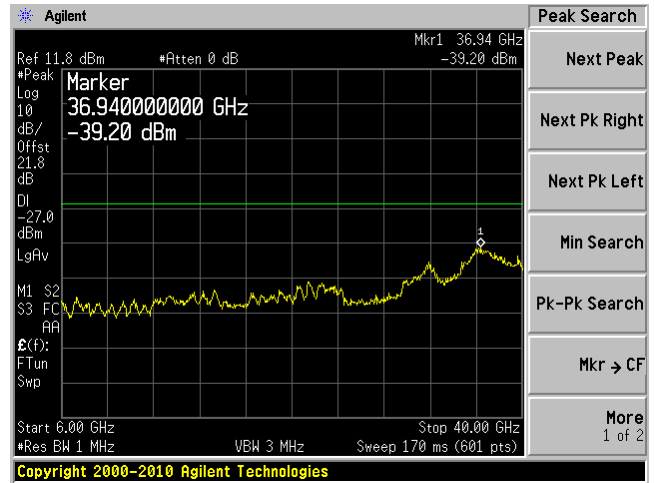
5250-5350 MHz Band

802.11a, Low Channel, 5260 MHz

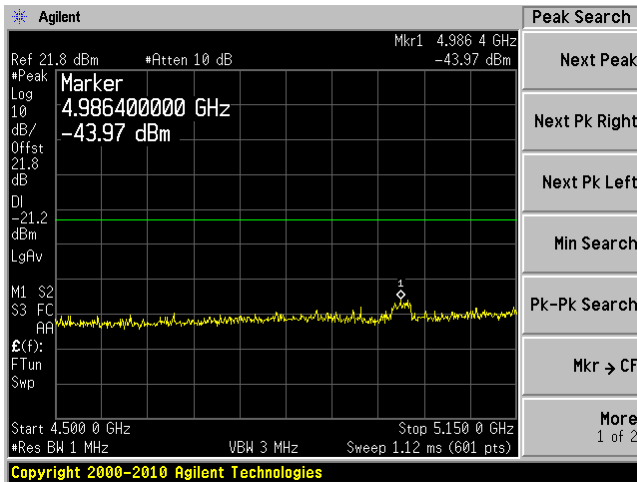
Chain J0, Plot: 30 MHz – 6 GHz



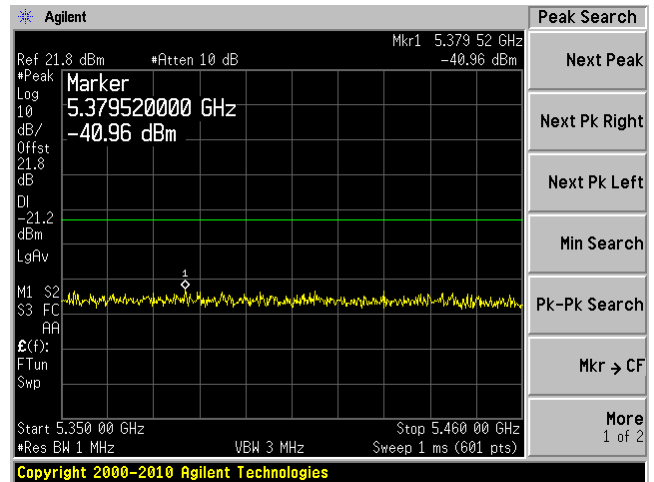
Chain J0, Plot: 6 GHz – 40 GHz



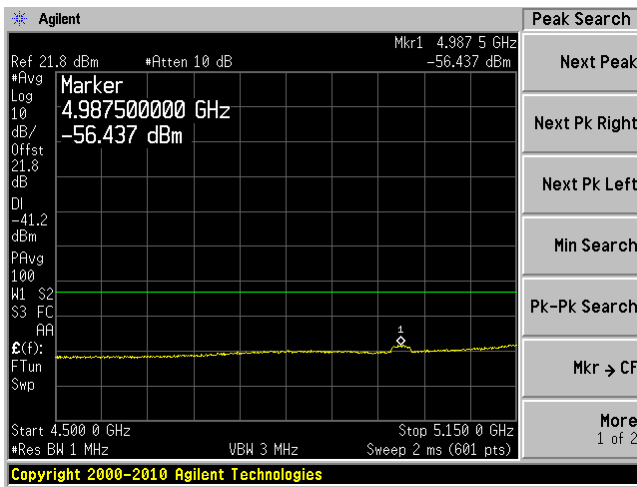
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



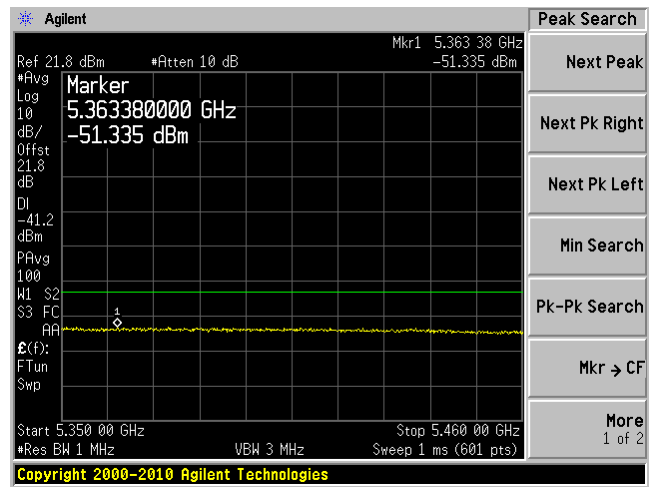
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



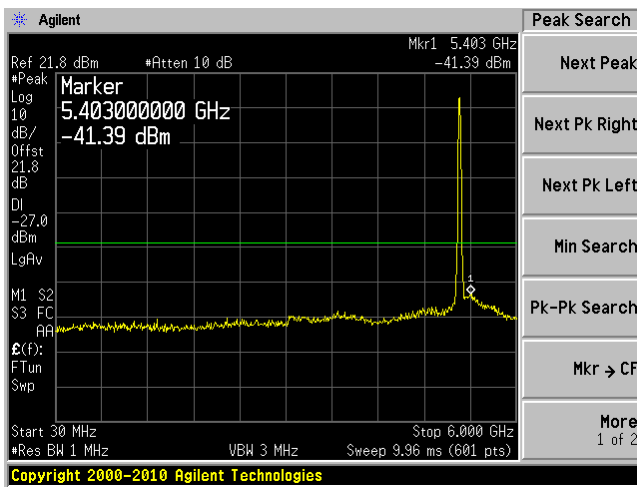
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



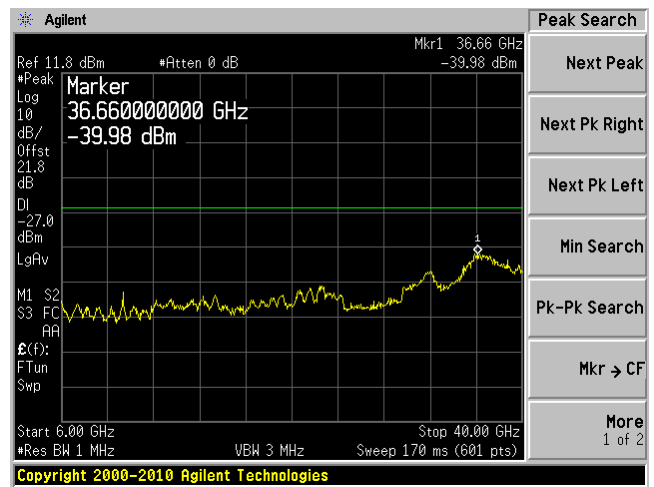
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



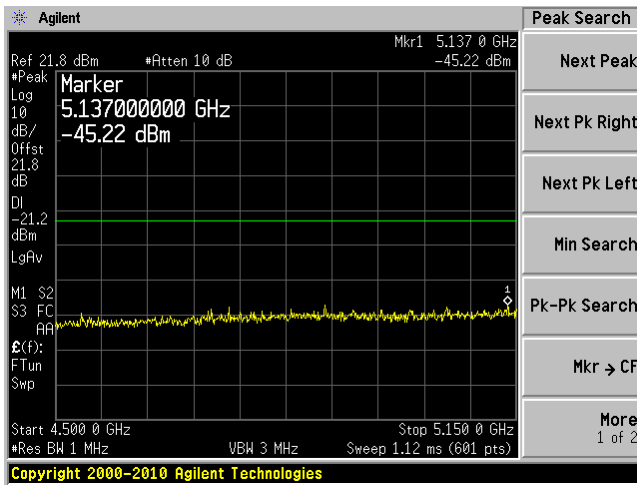
Chain J1, Plot: 30 MHz – 6 GHz



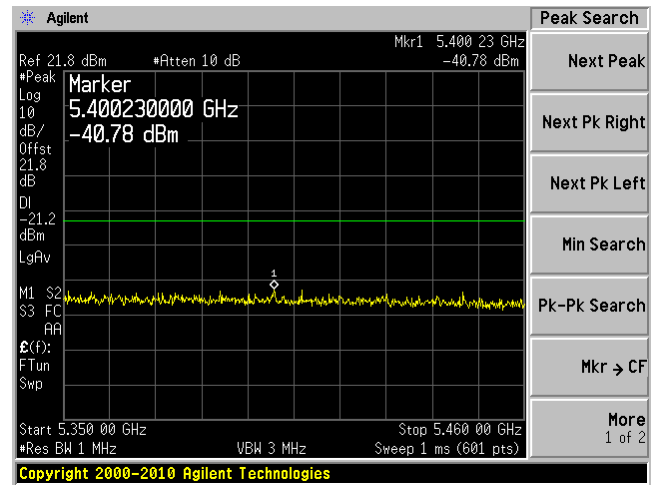
Chain J1, Plot: 6 GHz – 40 GHz



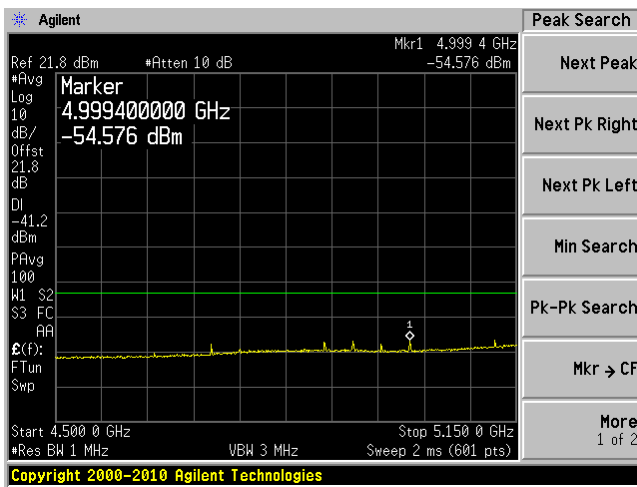
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



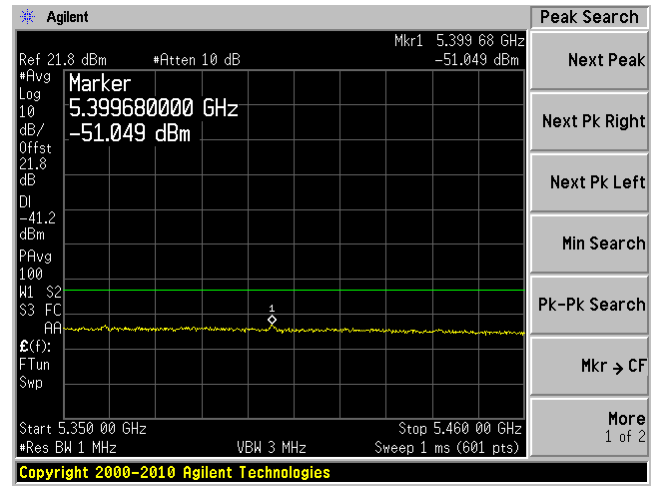
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

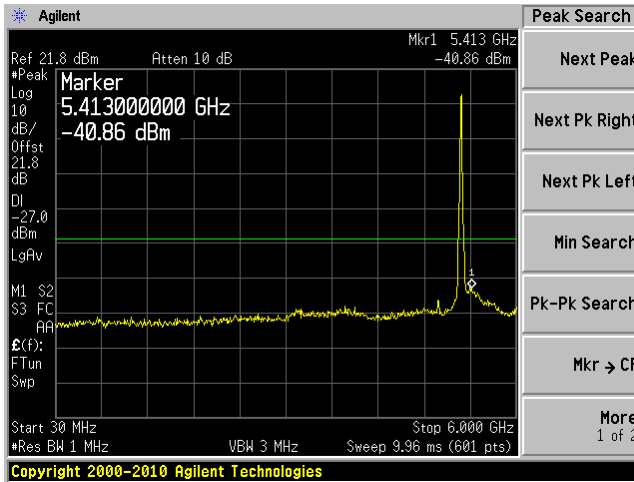


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

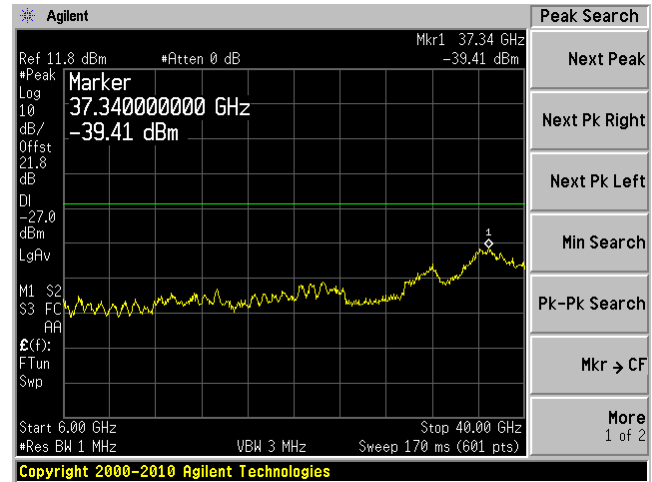


802.11a, Middle Channel, 5280 MHz

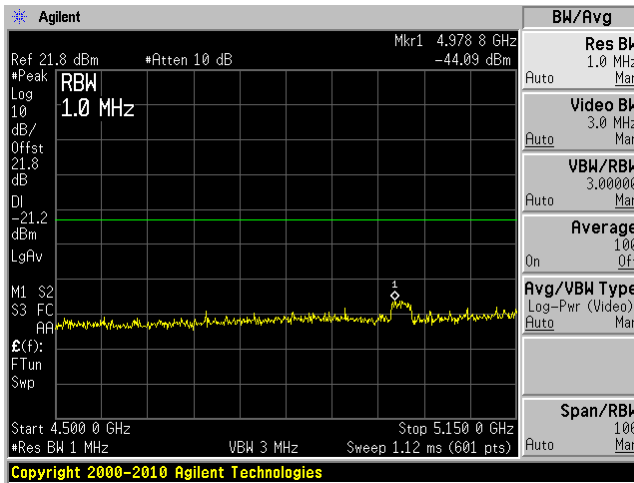
Chain J0, Plot: 30 MHz – 6 GHz



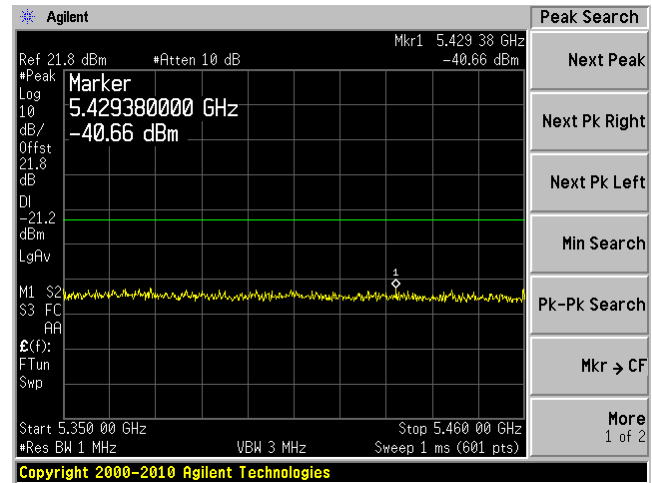
Chain J0, Plot: 6 GHz – 40 GHz



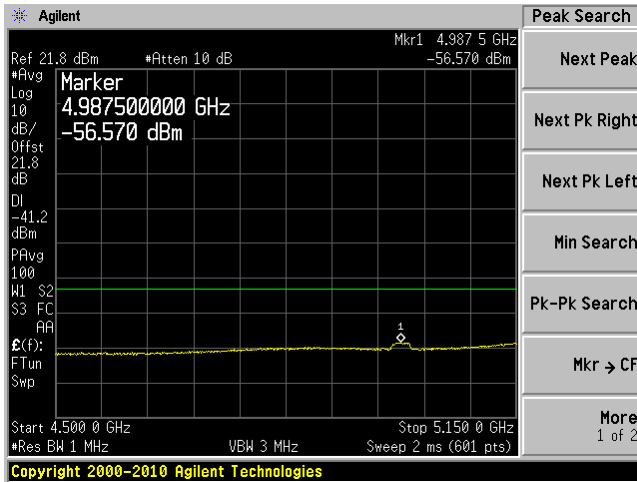
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



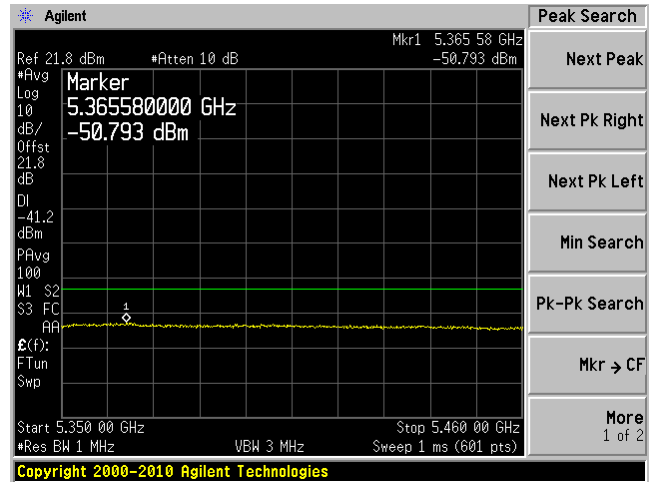
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



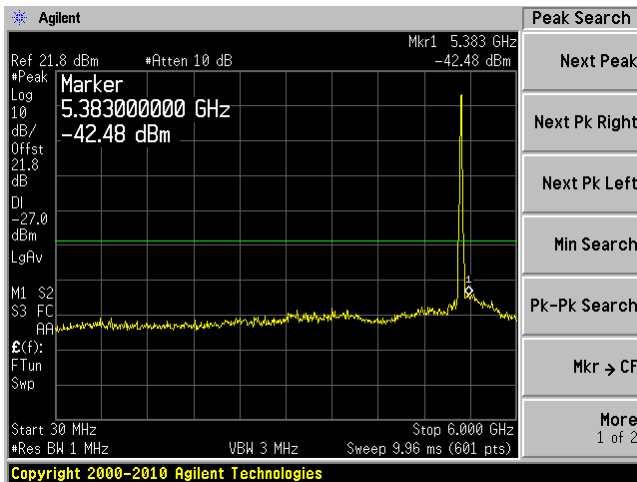
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



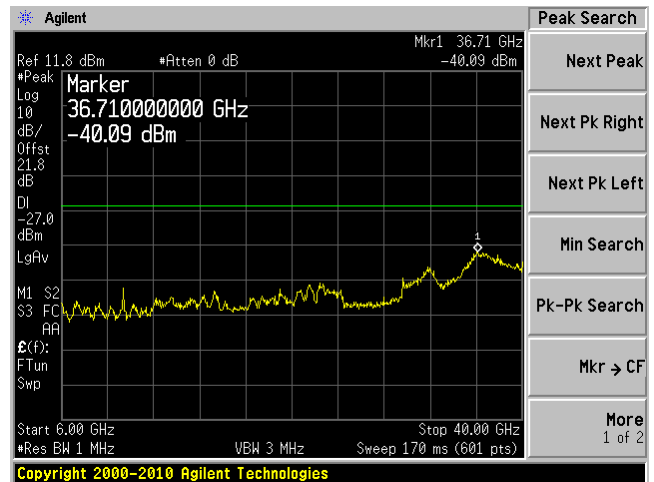
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



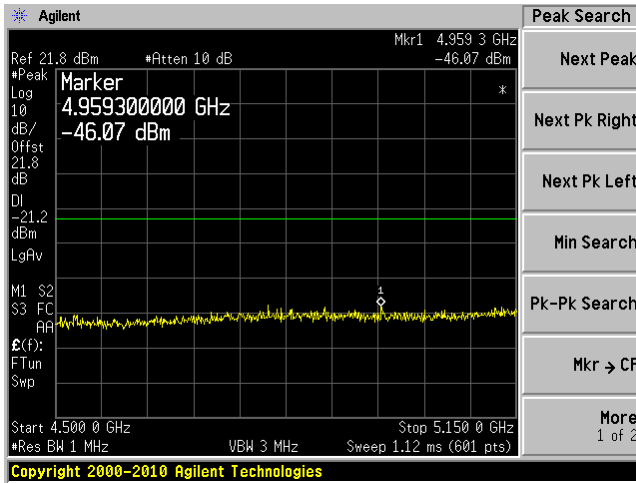
Chain J1, Plot: 30 MHz – 6 GHz



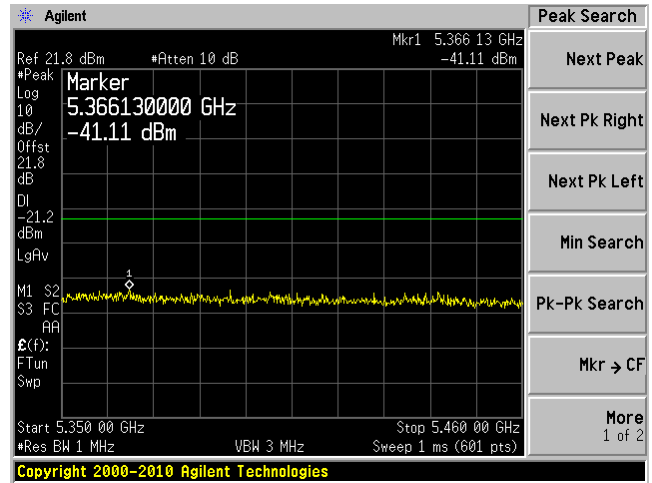
Chain J1, Plot: 6 GHz – 40 GHz



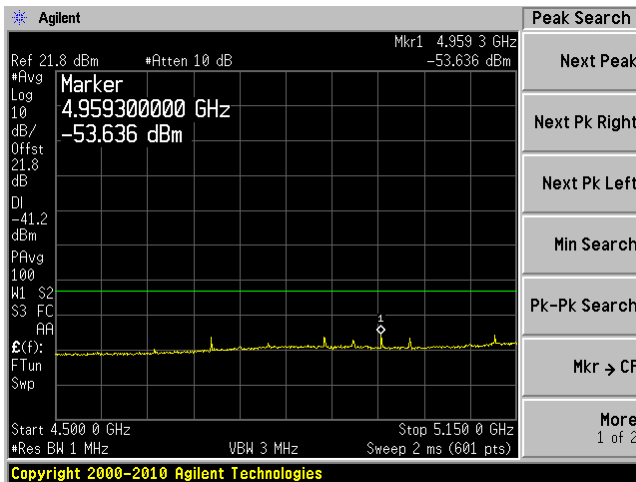
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



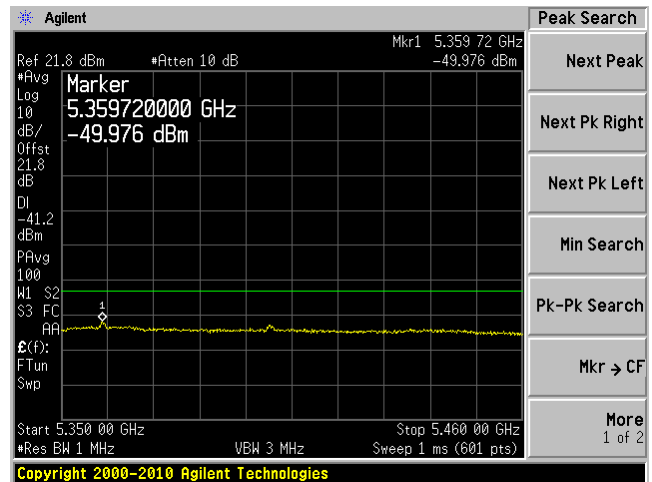
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

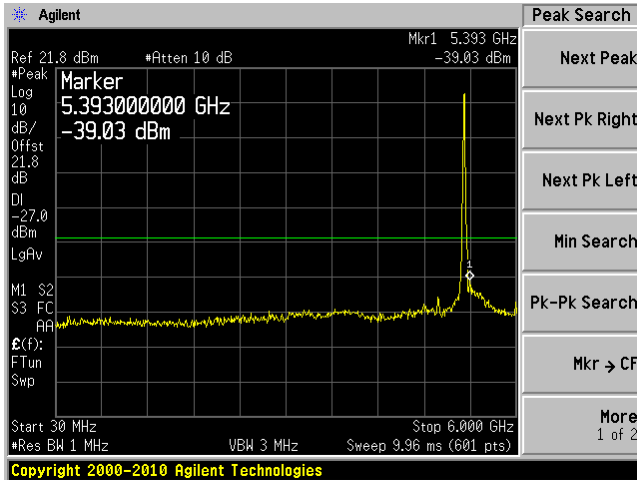


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

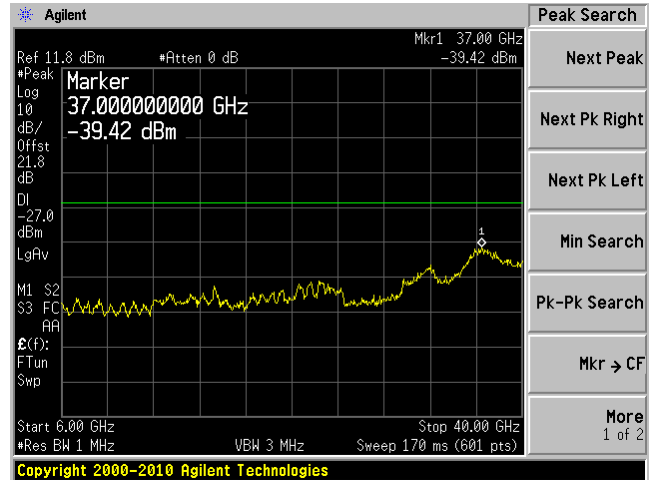


802.11a, High Channel, 5320 MHz

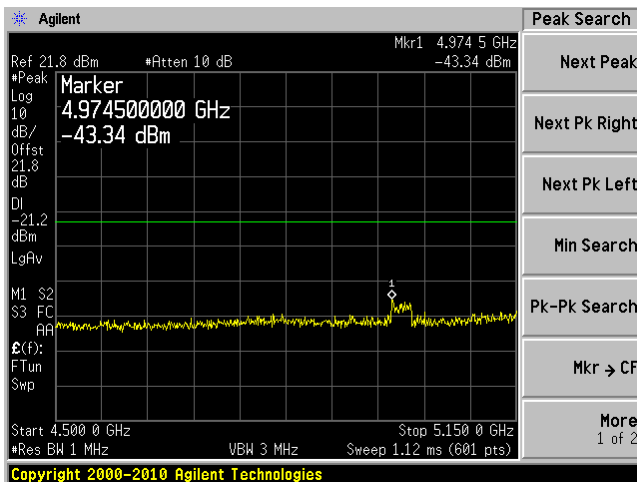
Chain J0, Plot: 30 MHz – 6 GHz



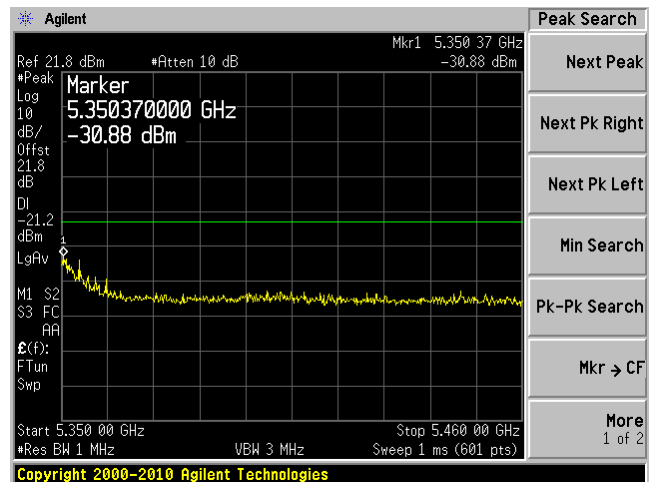
Chain J0, Plot: 6 GHz – 40 GHz



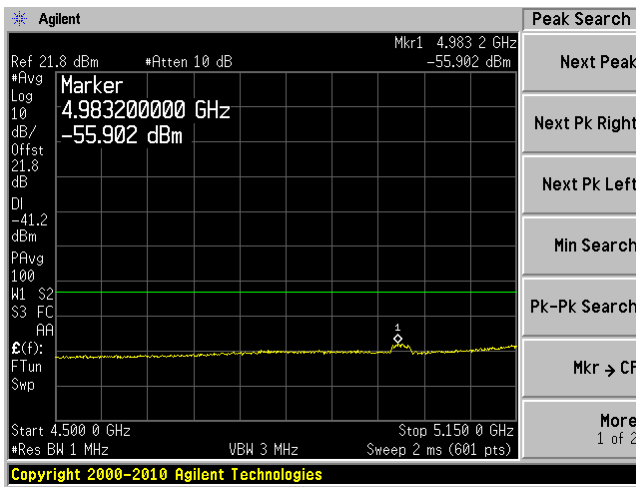
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



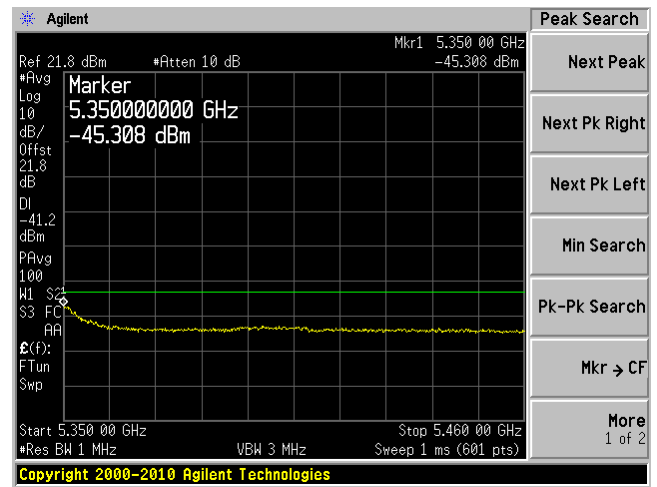
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



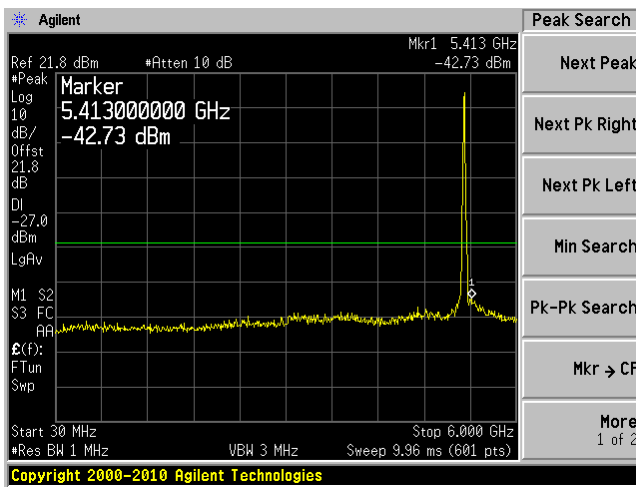
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



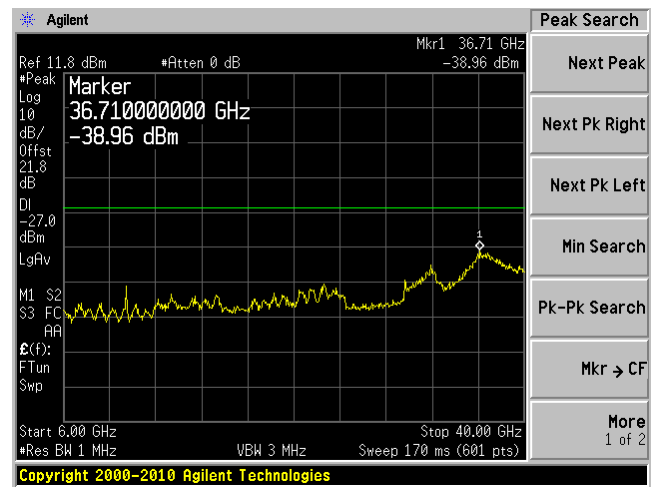
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



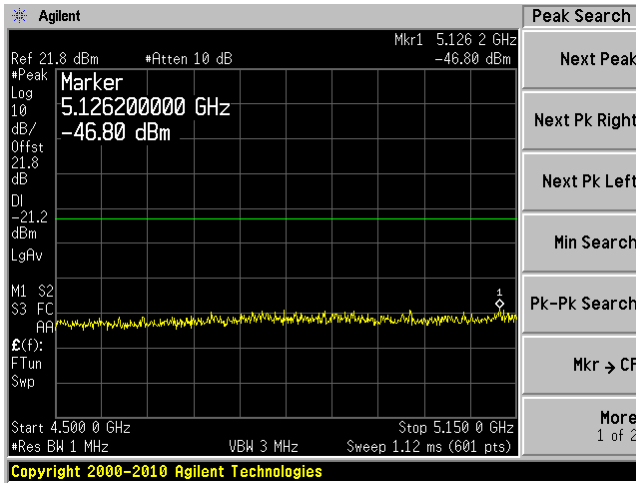
Chain J1, Plot: 30 MHz – 6 GHz



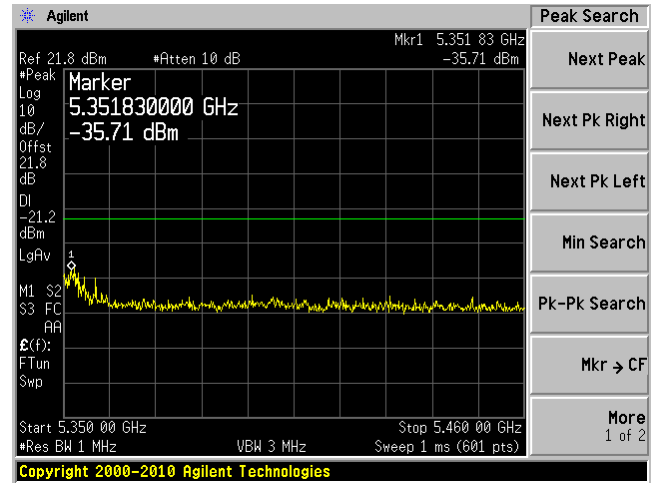
Chain J1, Plot: 6 GHz – 40 GHz



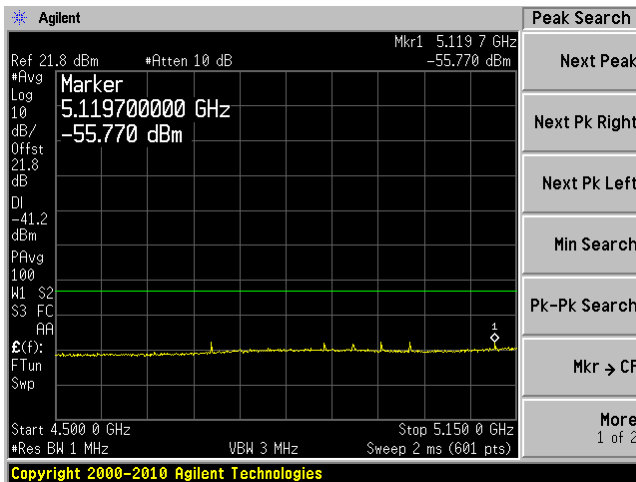
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



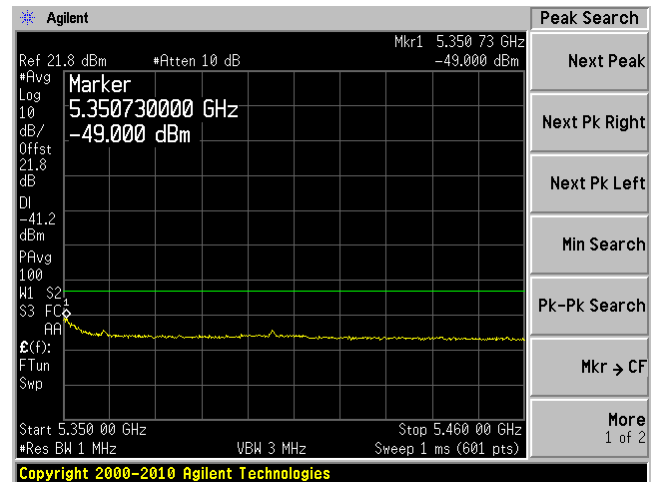
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

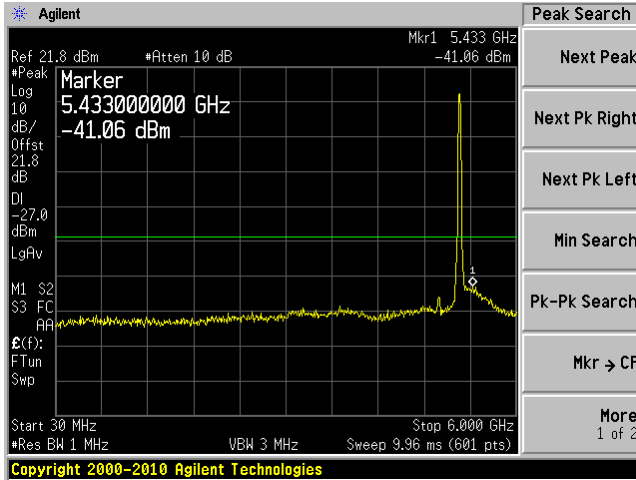


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

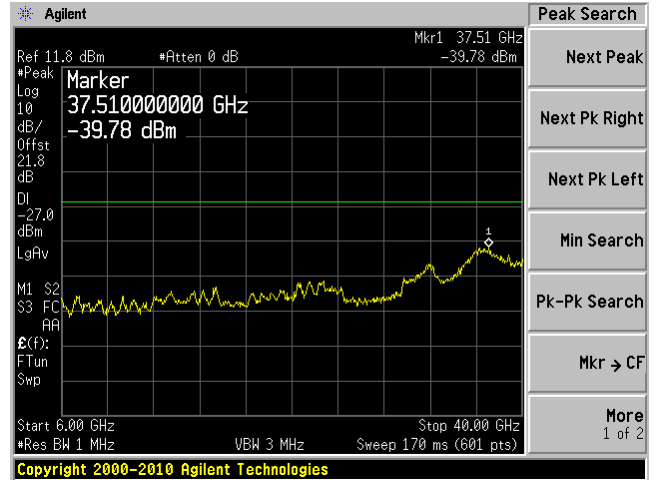


802.11n-HT 20, Low Channel 5260 MHz

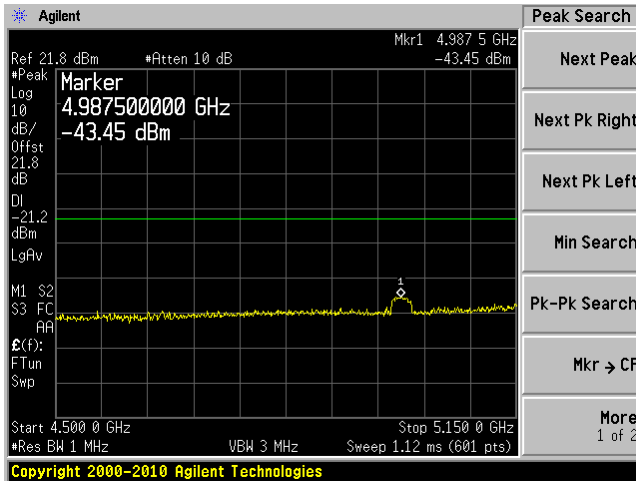
Chain J0, Plot: 30 MHz – 6 GHz



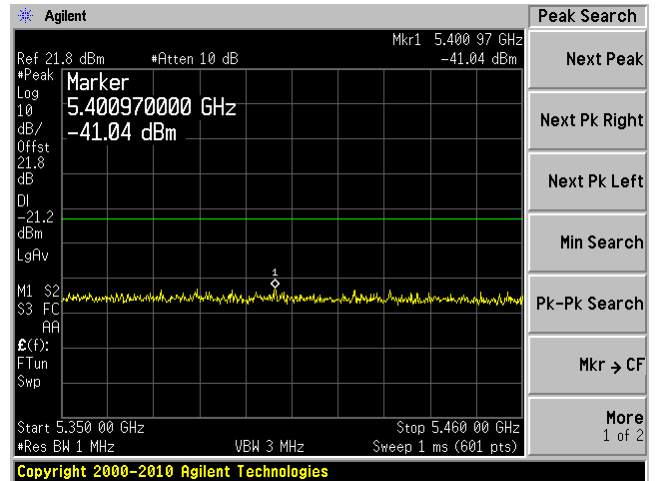
Chain J0, Plot: 6 GHz – 40 GHz



Chain J0, Plot: 4500 MHz – 5150 MHz-Peak

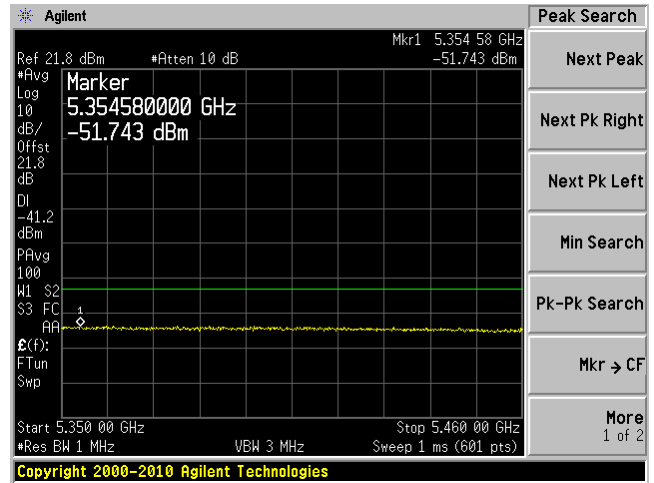
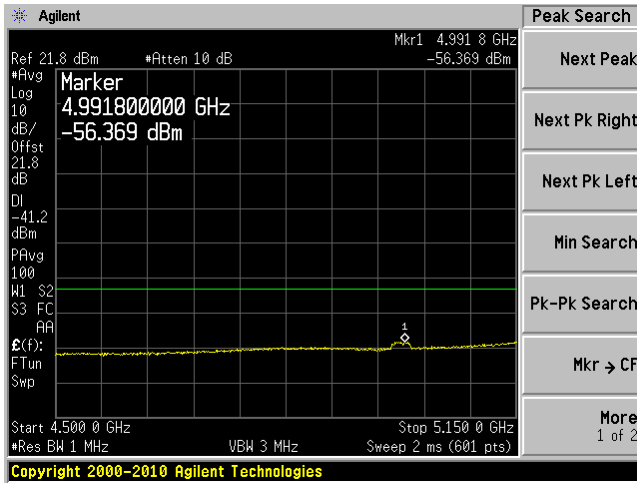


Chain J0, Plot: 5350MHz – 5460 MHz-Peak



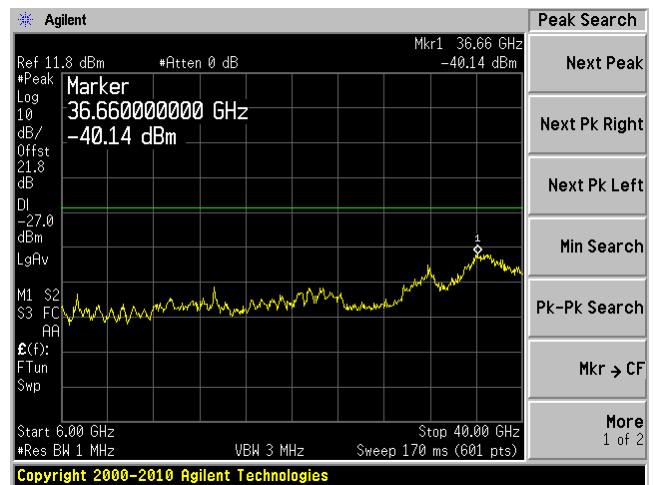
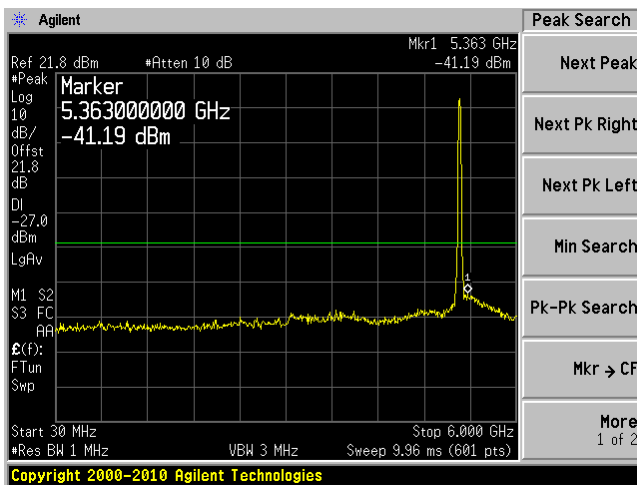
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave

Chain J0, Plot: 5350MHz – 5460 MHz-Ave

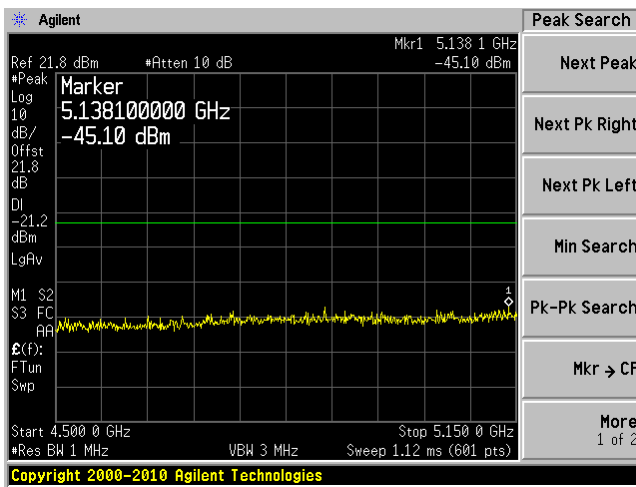


Chain J1, Plot: 30 MHz – 6 GHz

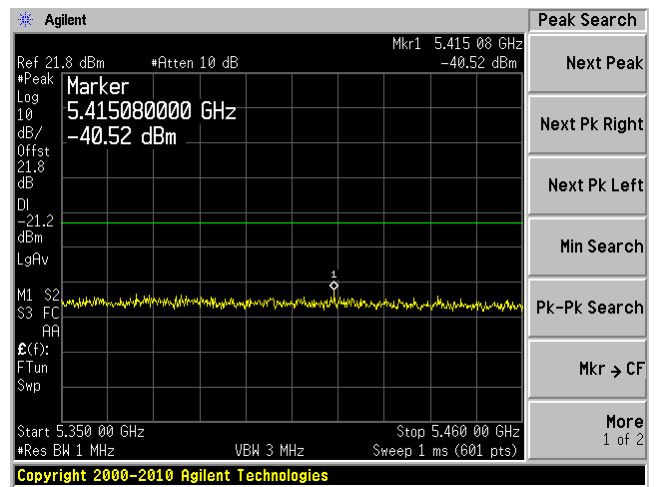
Chain J1, Plot: 6 GHz – 40 GHz



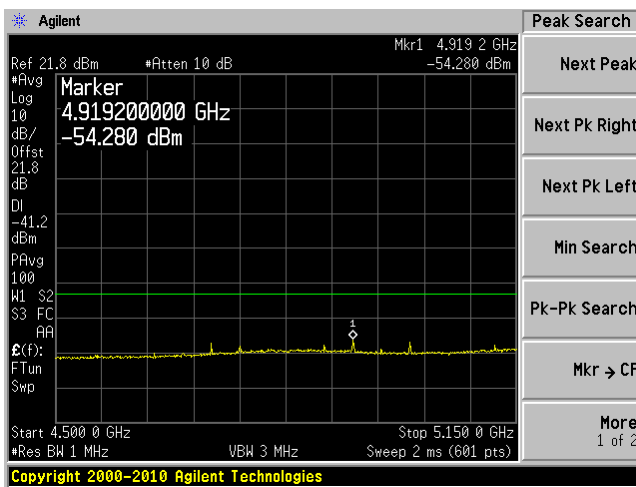
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



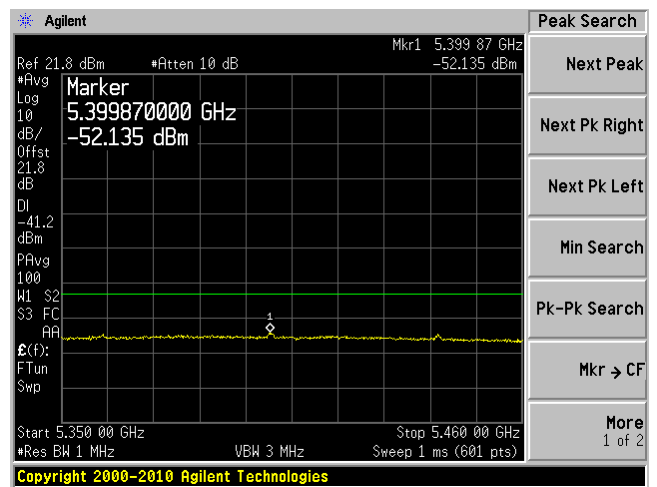
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

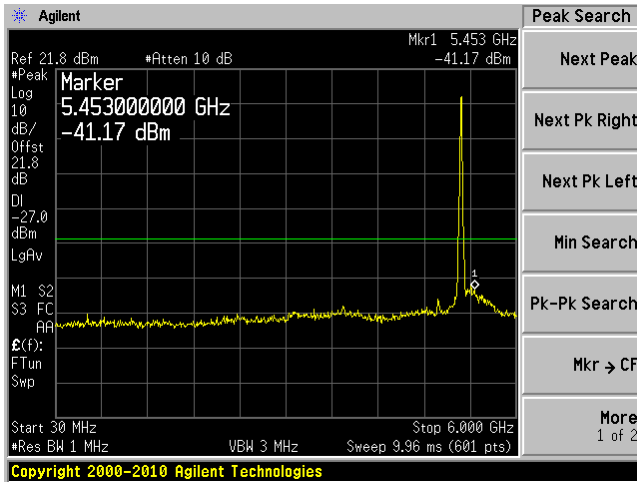


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

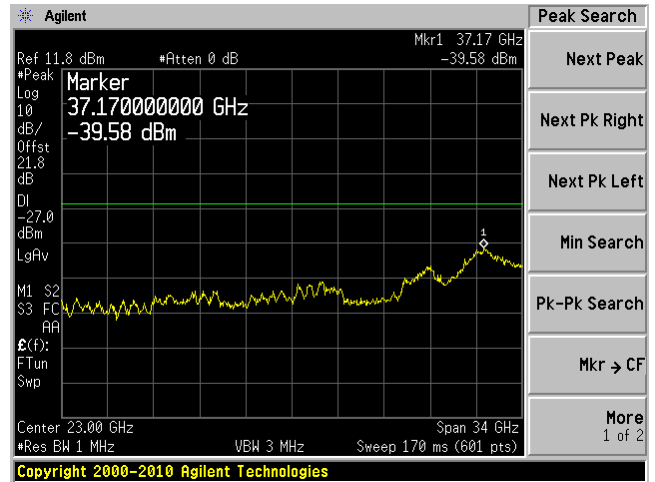


802.11n-HT20, Middle Channel 5280 MHz

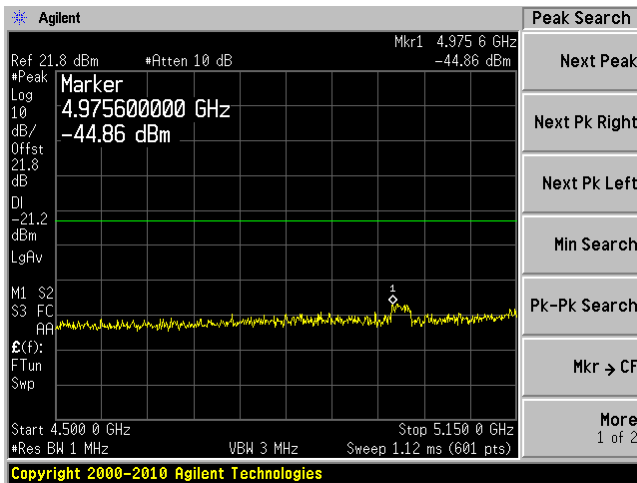
Chain J0, Plot: 30 MHz – 6 GHz



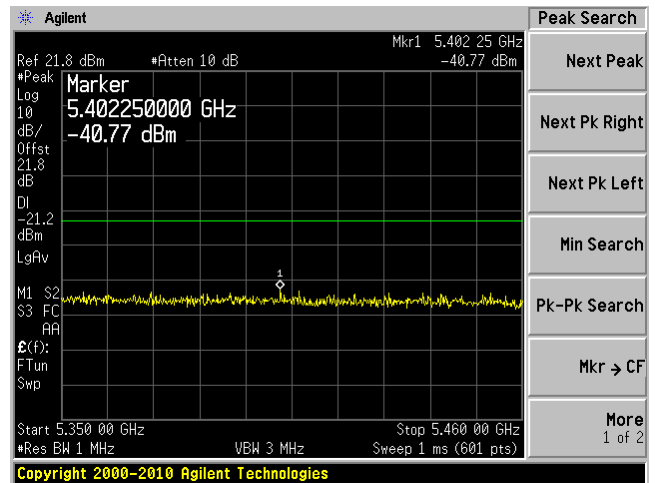
Chain J0, Plot: 6 GHz – 40 GHz



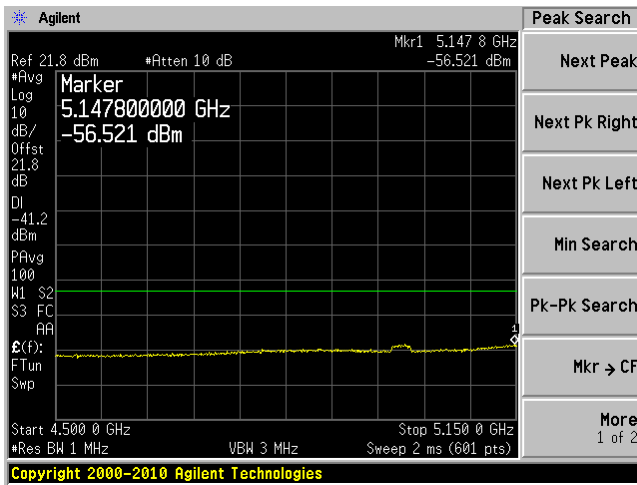
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



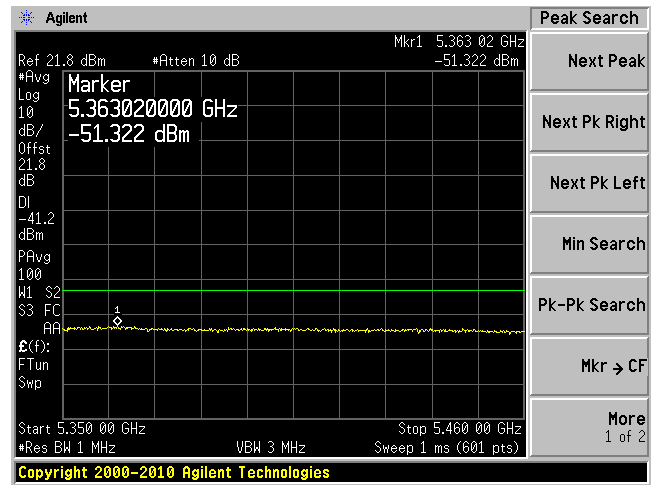
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



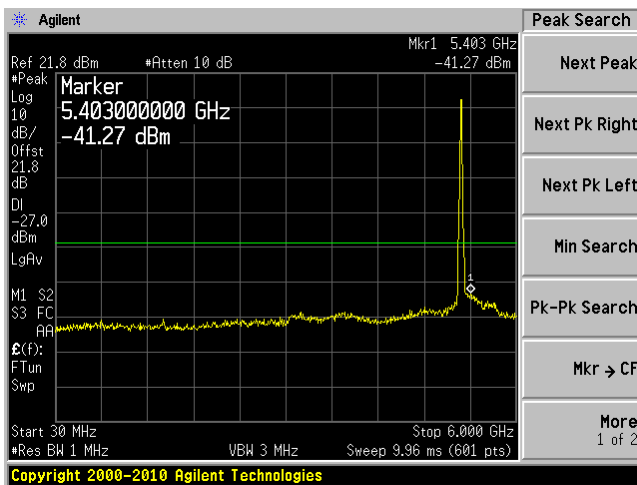
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



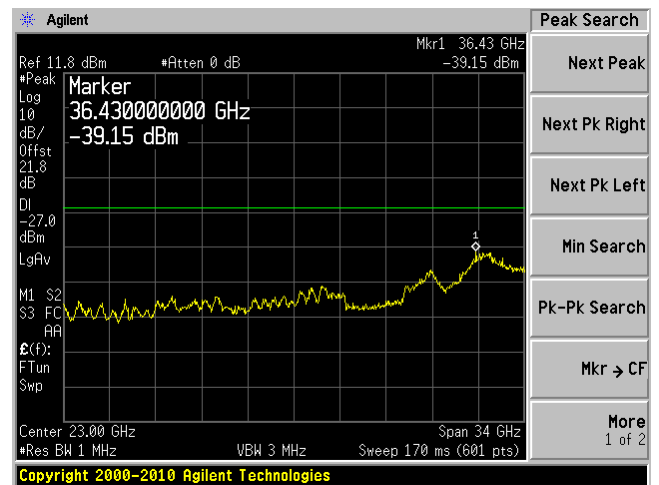
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



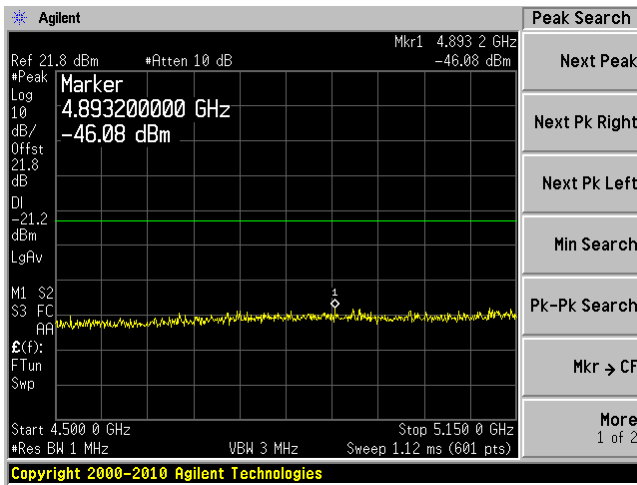
Chain J1, Plot: 30 MHz – 6 GHz



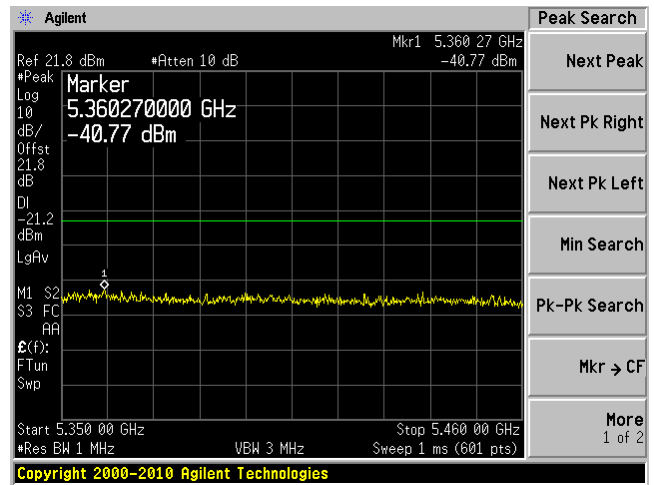
Chain J1, Plot: 6 GHz – 40 GHz



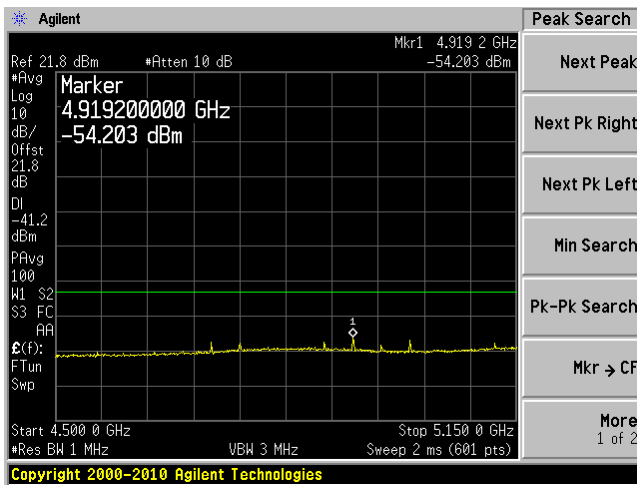
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



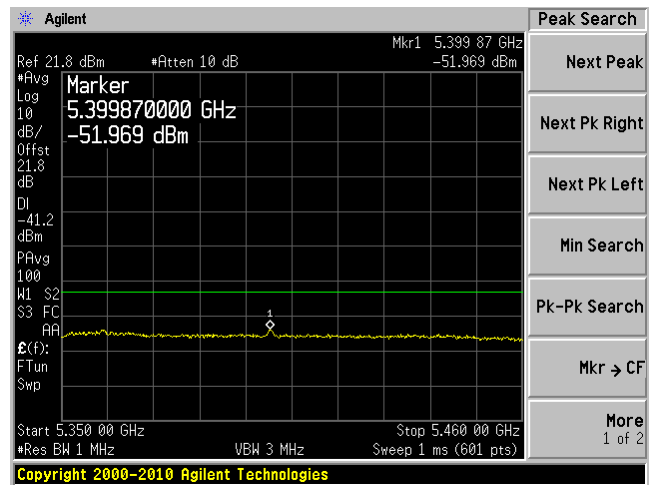
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

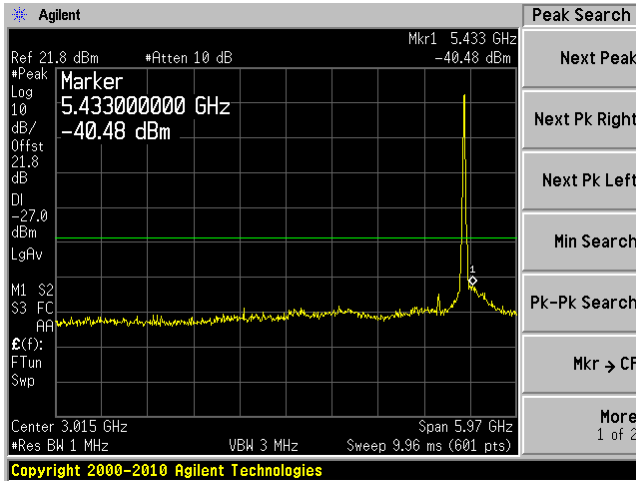


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

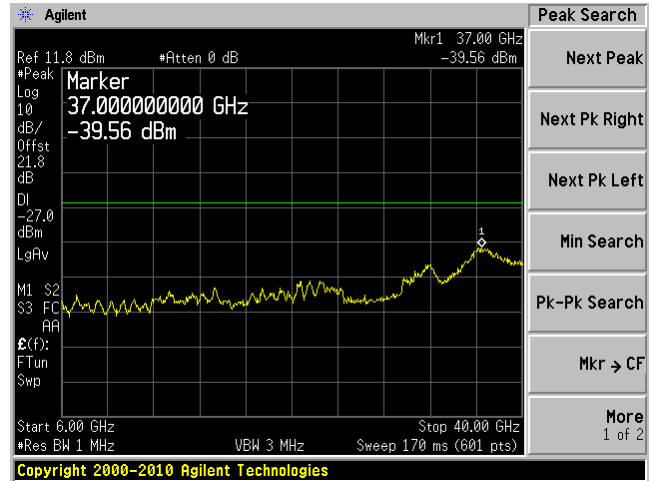


802.11n-HT20, High Channel, 5320 MHz

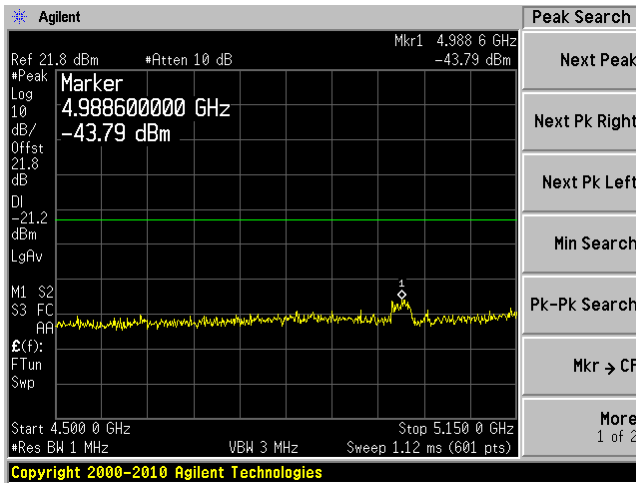
Chain J0, Plot: 30 MHz – 6 GHz



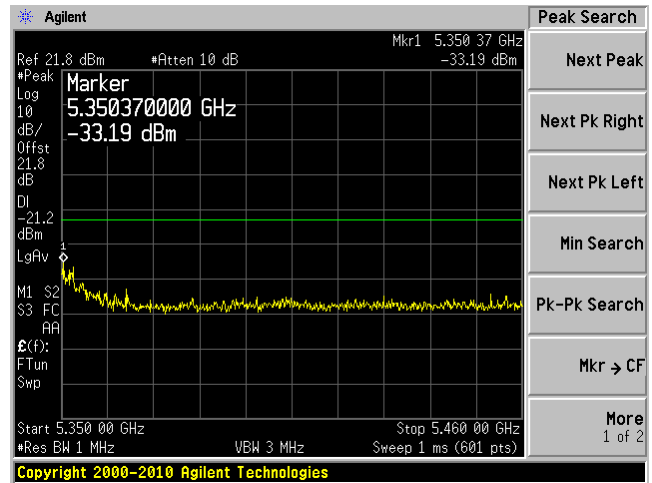
Chain J0, Plot: 6 GHz – 40 GHz



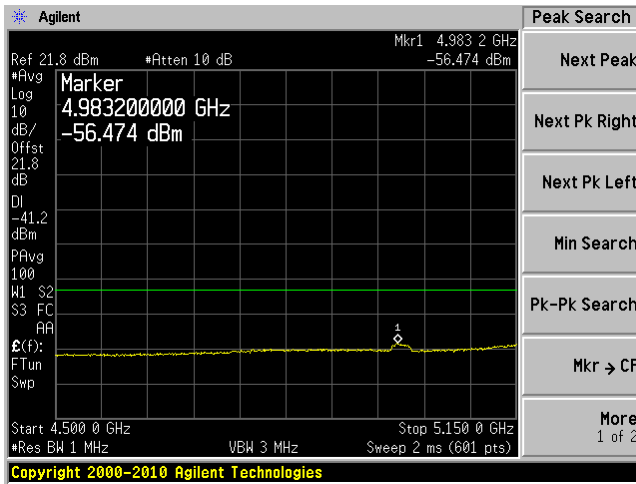
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



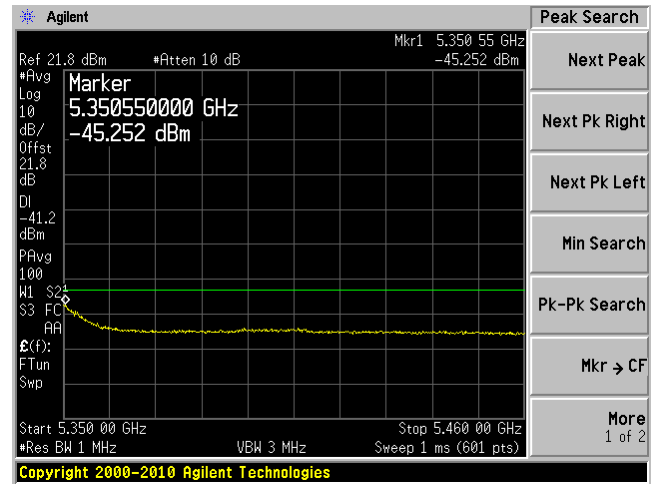
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



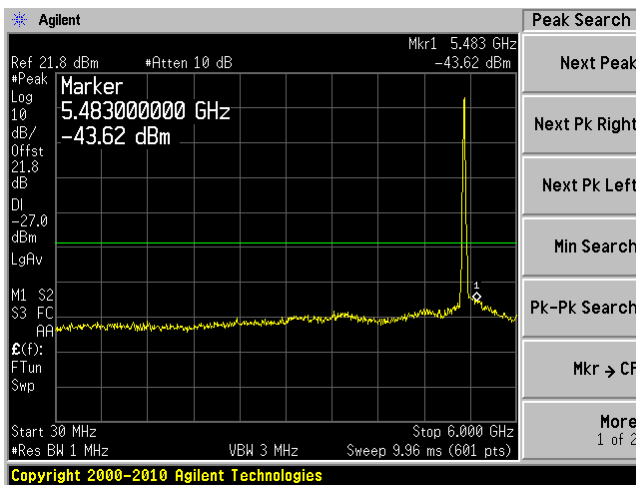
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



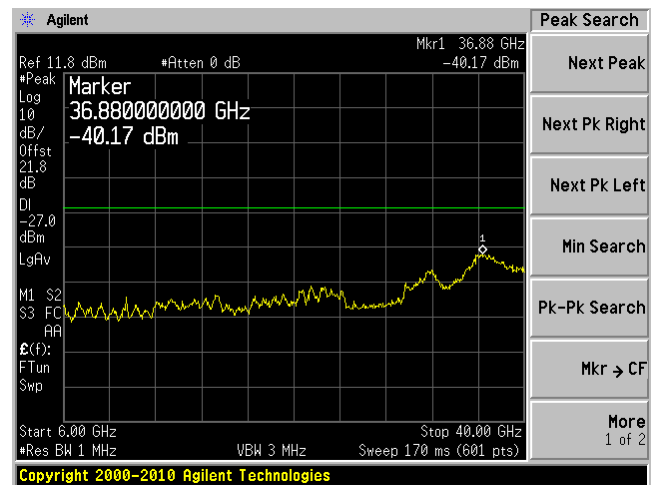
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



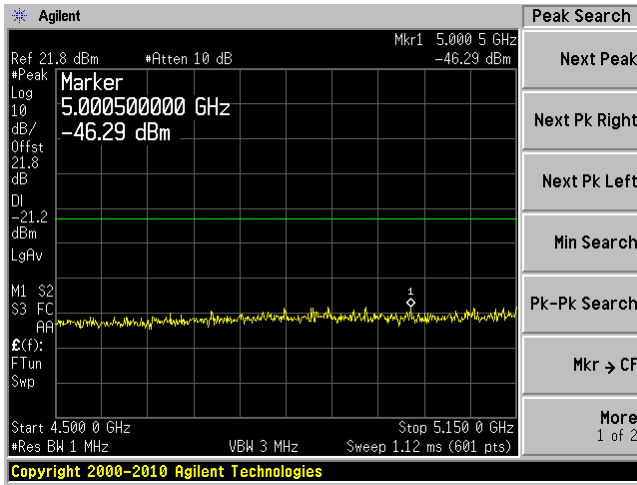
Chain J1, Plot: 30 MHz – 6 GHz



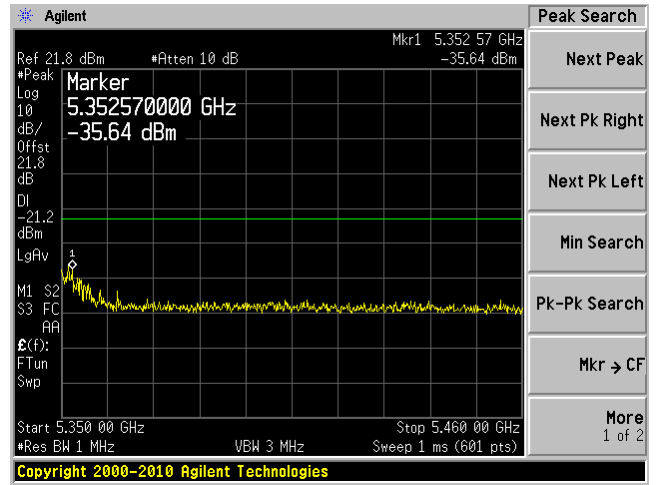
Chain J1, Plot: 6 GHz – 40 GHz



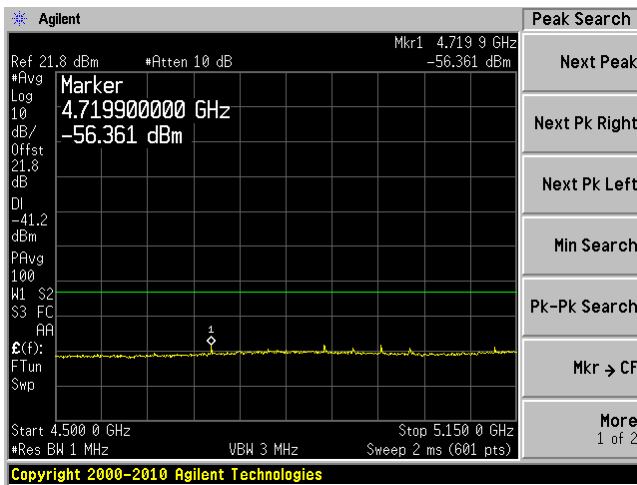
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



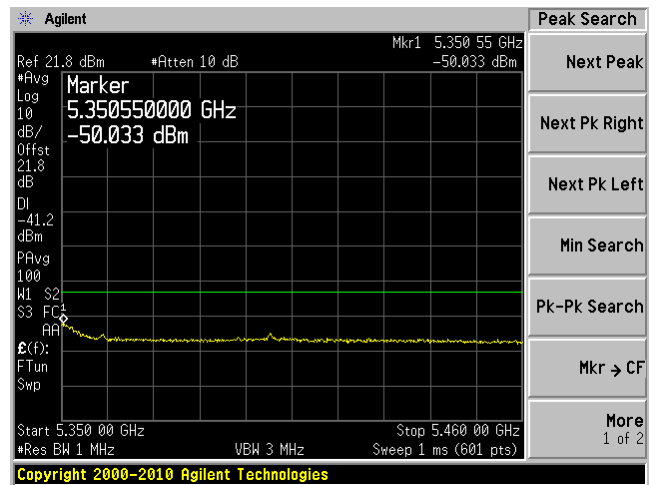
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

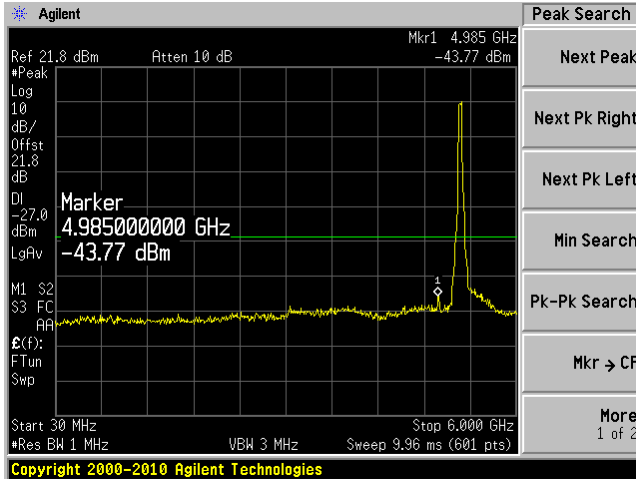


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

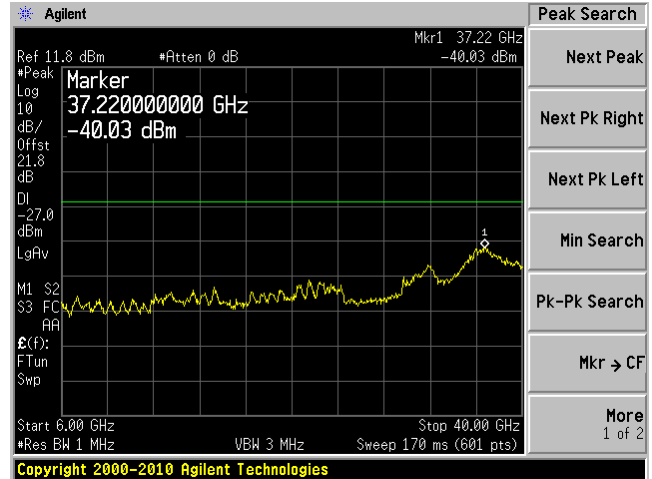


802.11n-HT40, Low Channel 5270 MHz

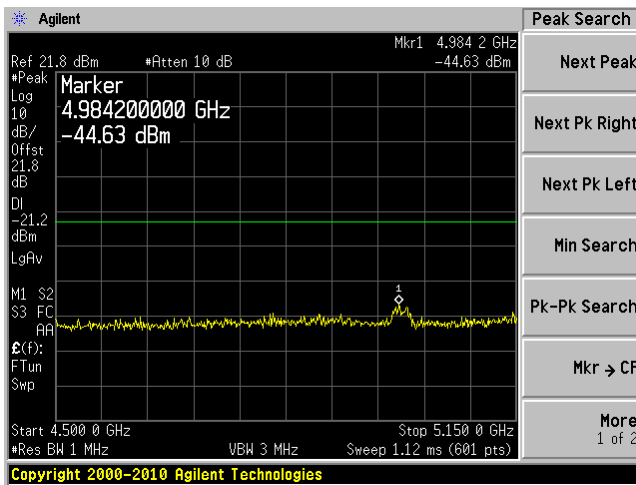
Chain J0, Plot: 30 MHz – 6 GHz



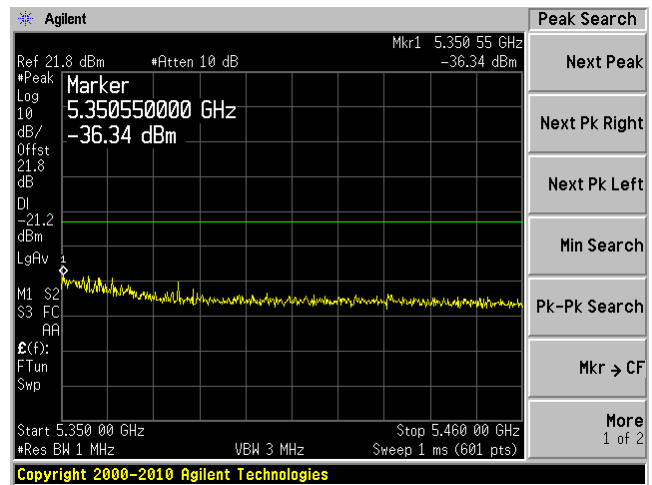
Chain J0, Plot: 6 GHz – 40 GHz



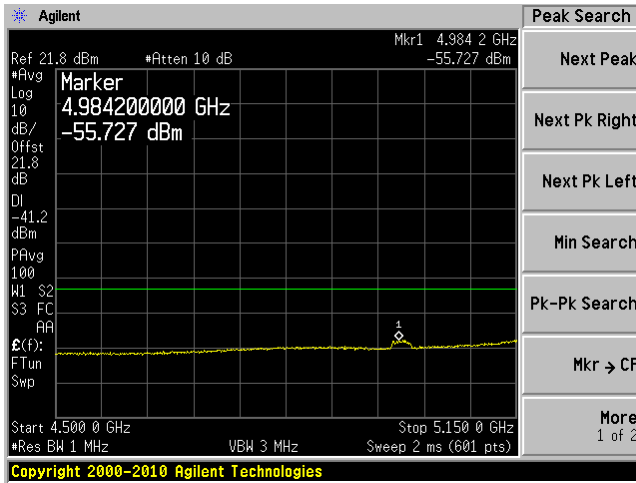
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



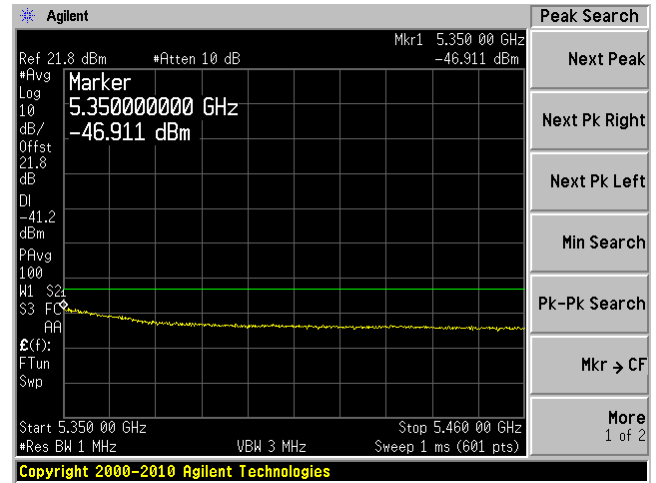
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



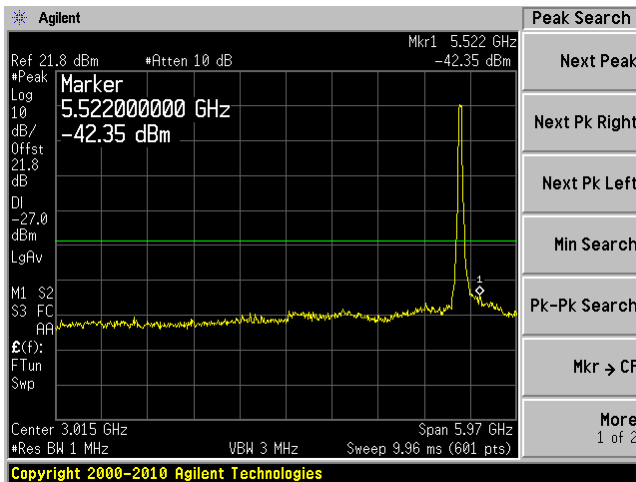
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



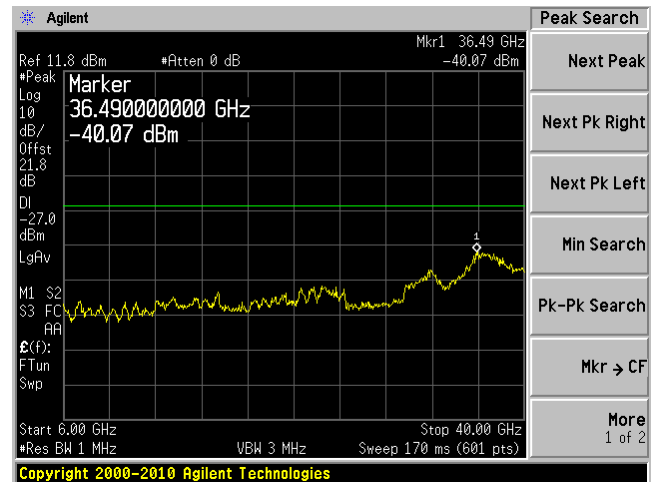
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



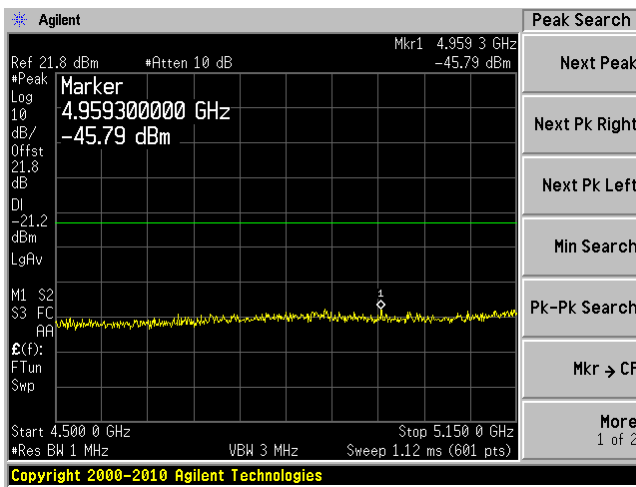
Chain J1, Plot: 30 MHz – 6 GHz



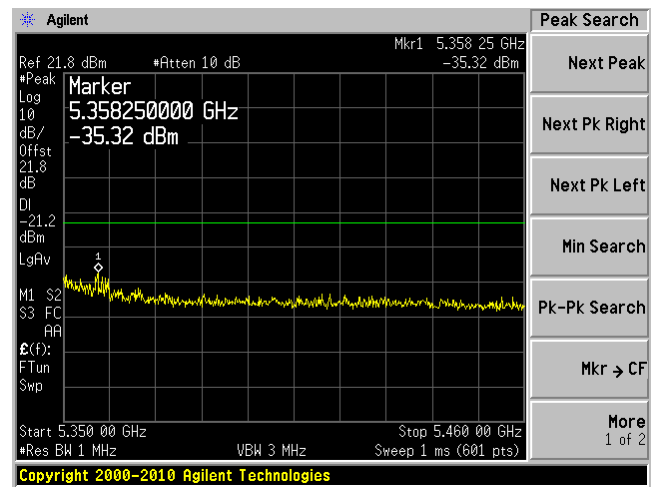
Chain J1, Plot: 6 GHz – 40 GHz



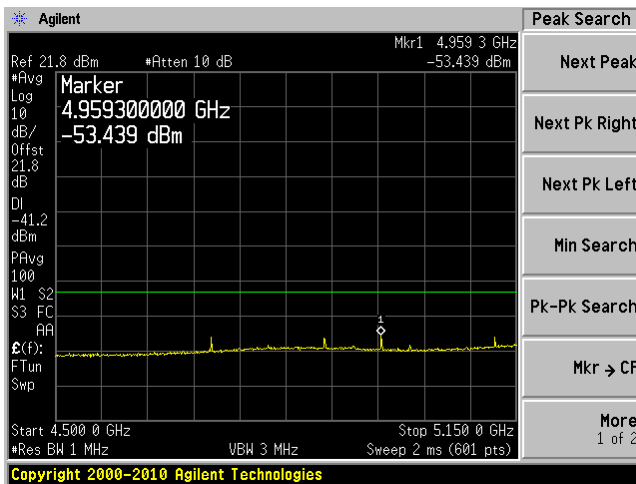
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



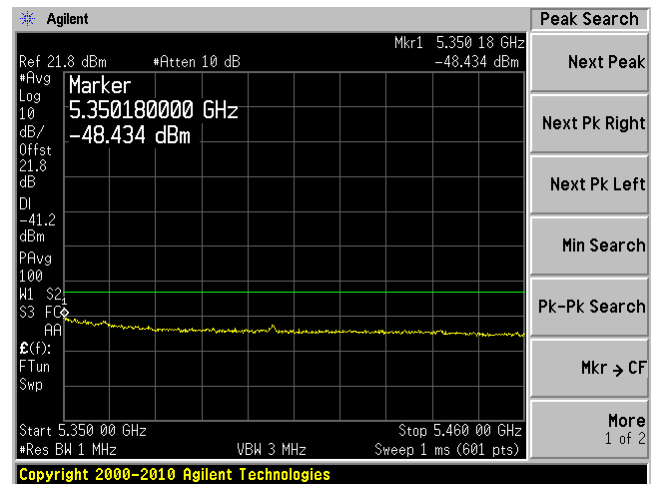
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

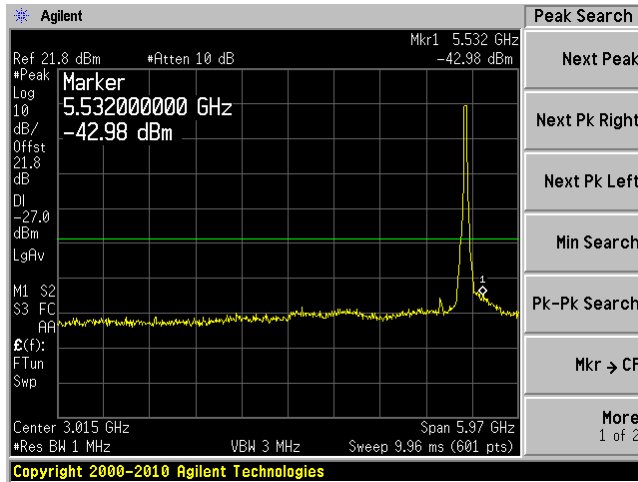


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

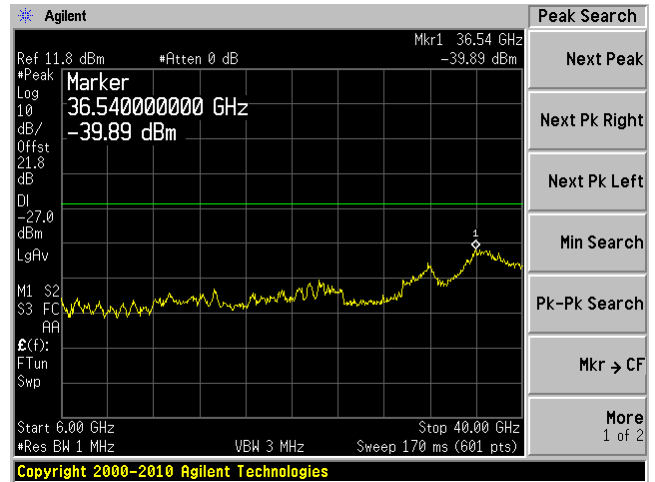


802.11n-HT40, High Channel 5310 MHz

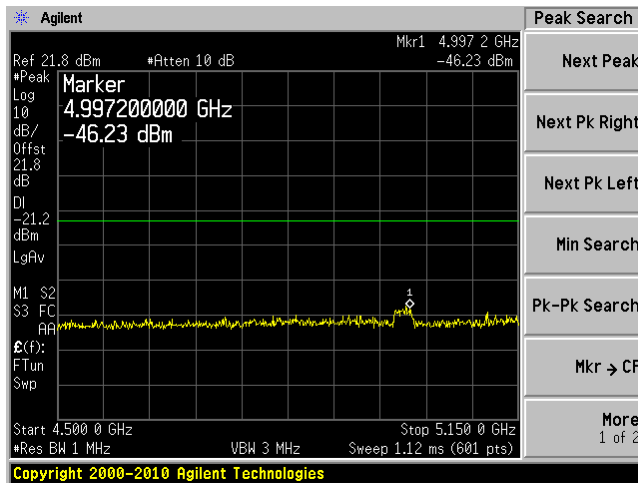
Chain J0, Plot: 30 MHz – 6 GHz



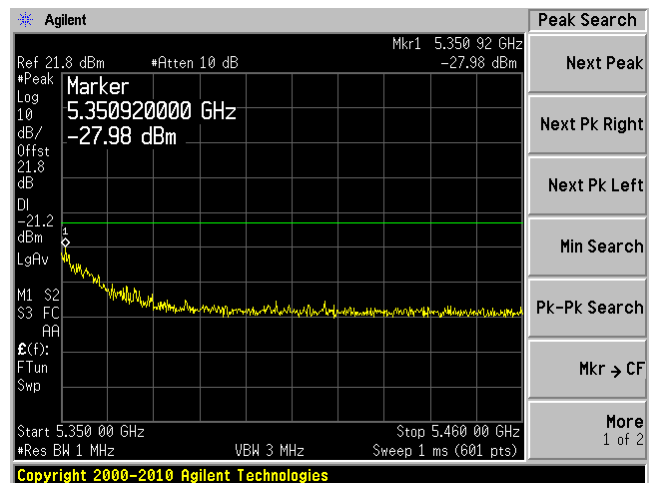
Chain J0, Plot: 6 GHz – 40 GHz



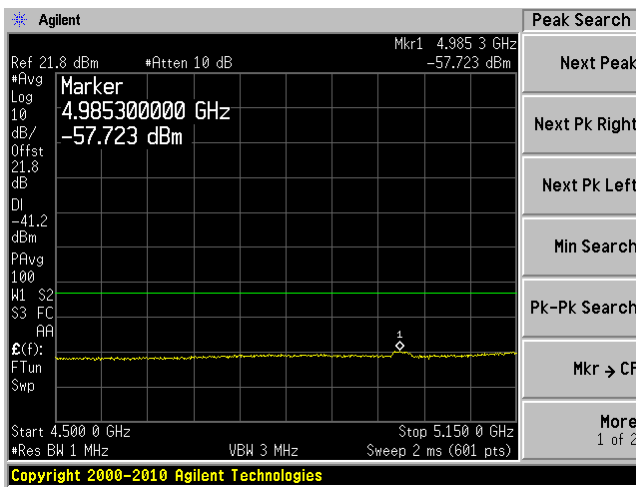
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



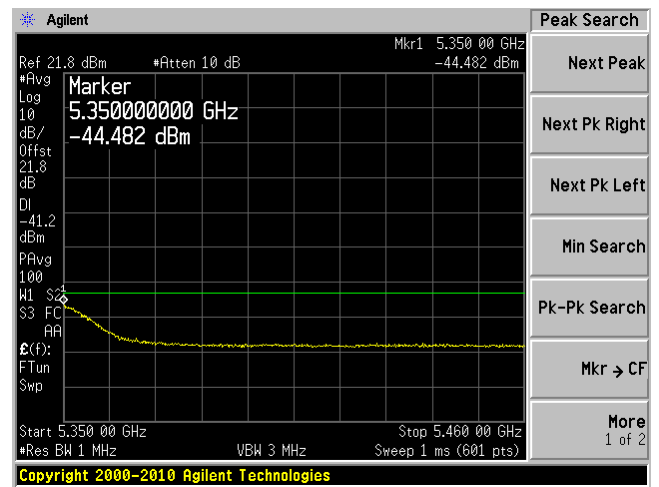
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



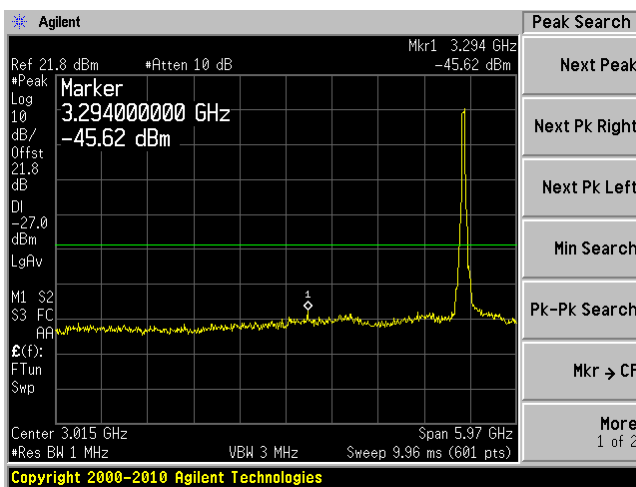
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



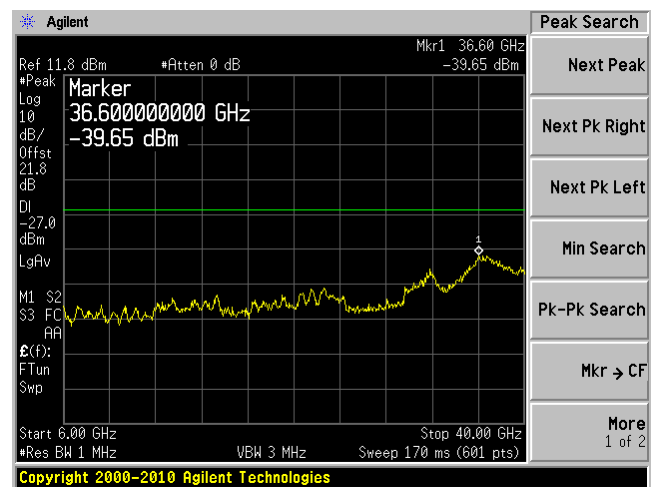
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



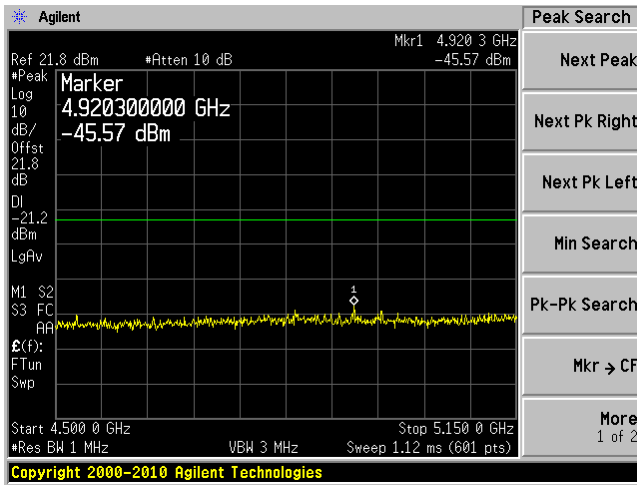
Chain J1, Plot: 30 MHz – 6 GHz



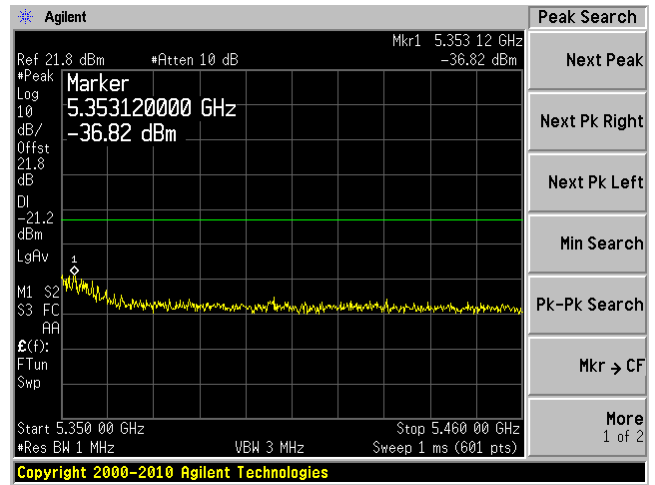
Chain J1, Plot: 6 GHz – 40 GHz



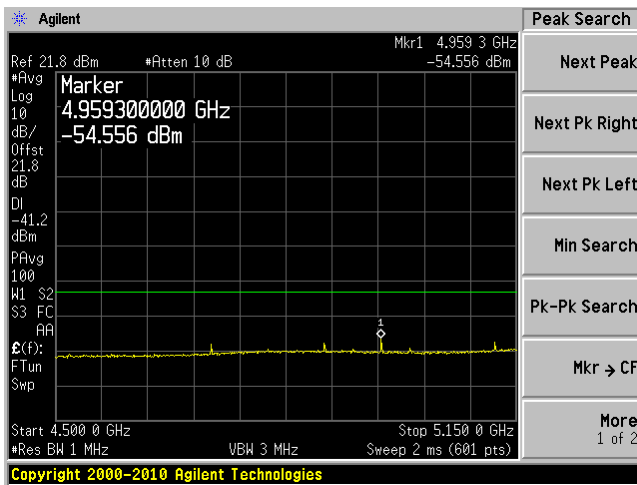
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



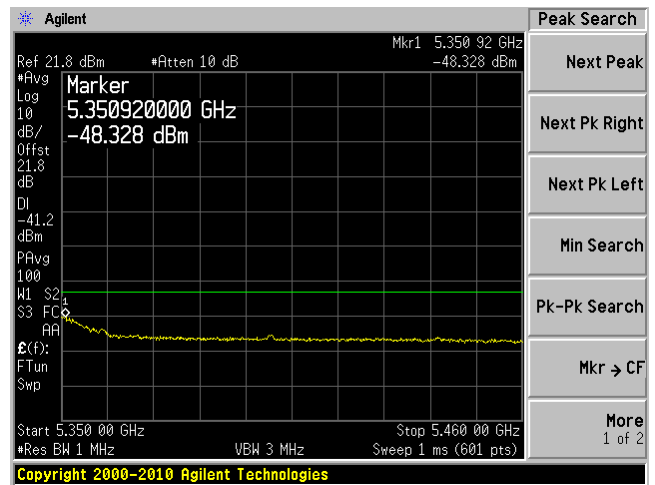
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave



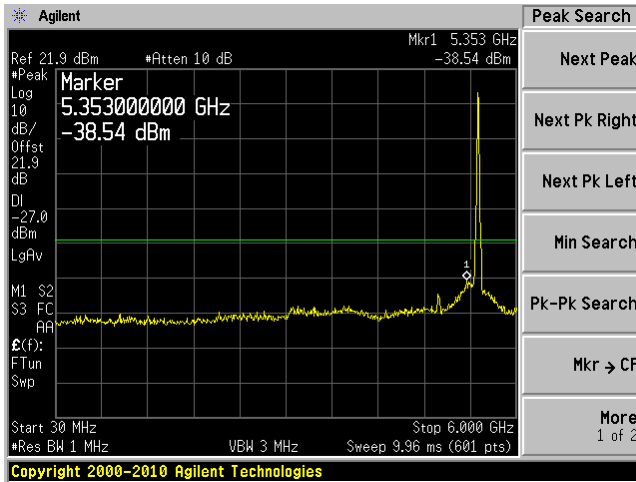
Chain J1, Plot: 5350MHz – 5460 MHz-Ave



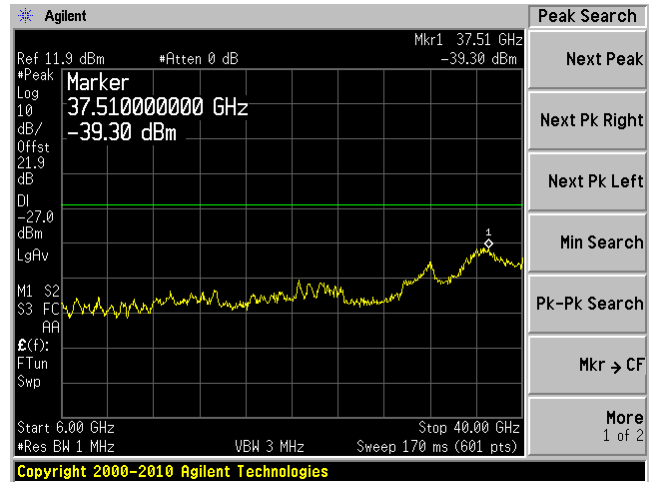
5470-5725 MHz Band

802.11a, Low Channel, 5500 MHz

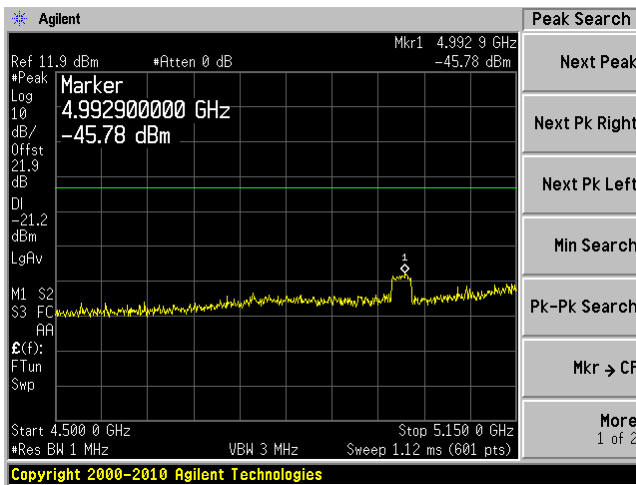
Chain J0, Plot: 30 MHz – 6 GHz



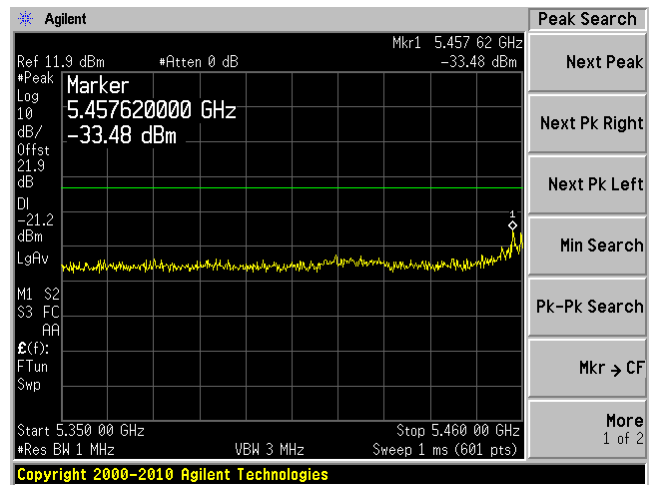
Chain J0, Plot: 6 GHz – 40 GHz



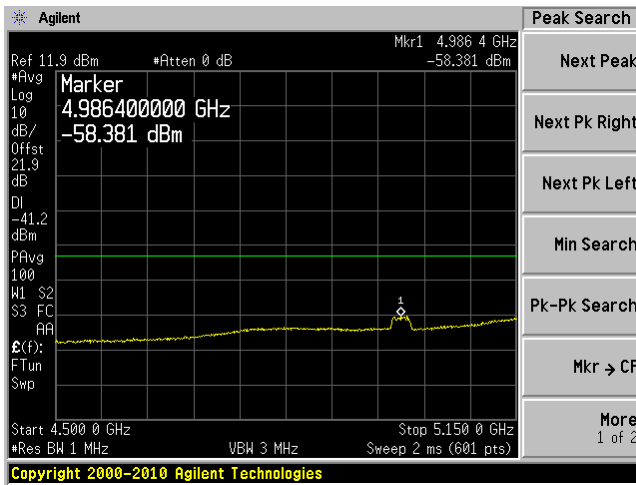
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



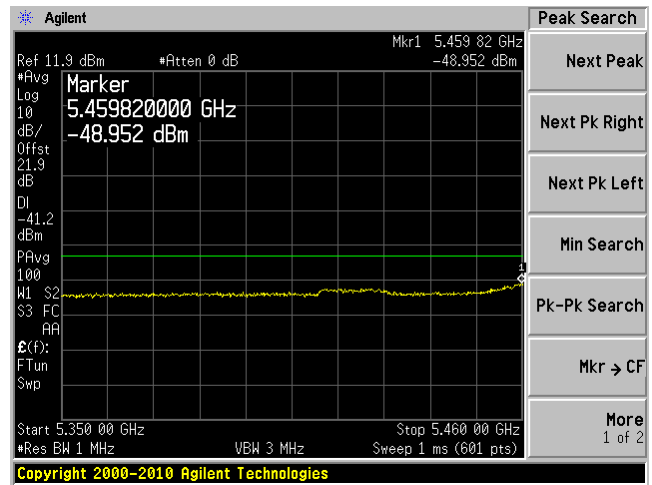
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



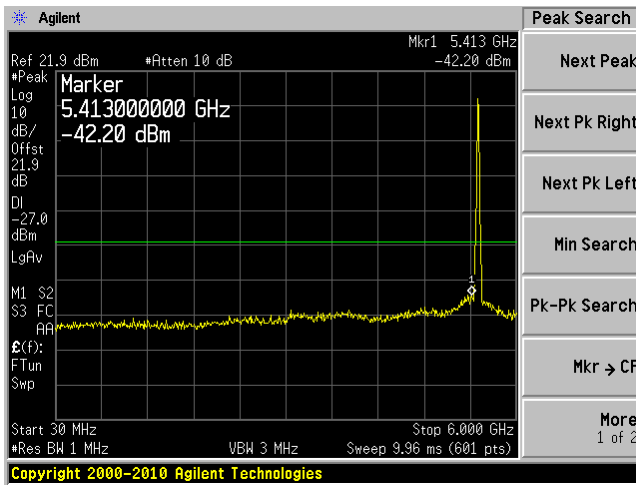
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



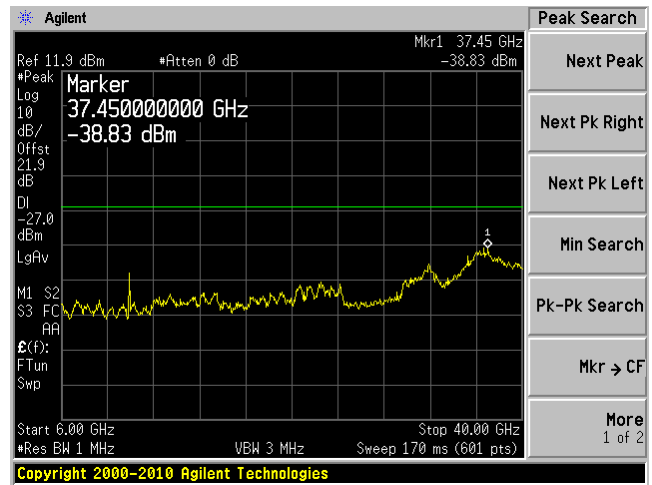
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



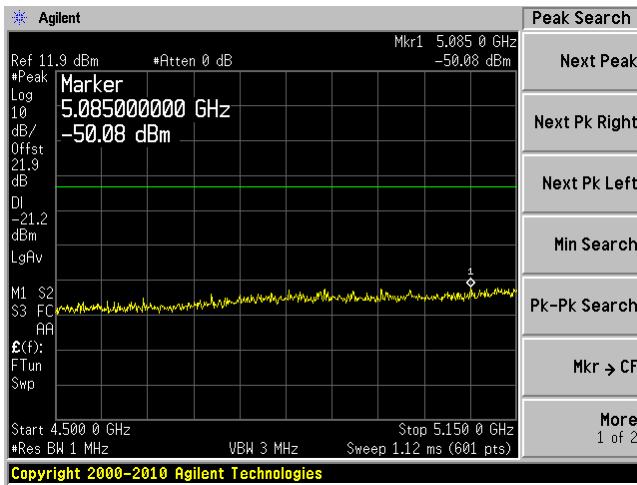
Chain J1, Plot: 30 MHz – 6 GHz



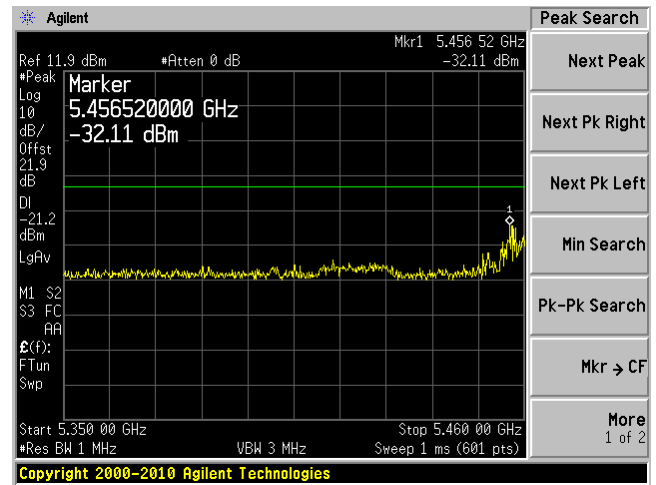
Chain J1, Plot: 6 GHz – 40 GHz



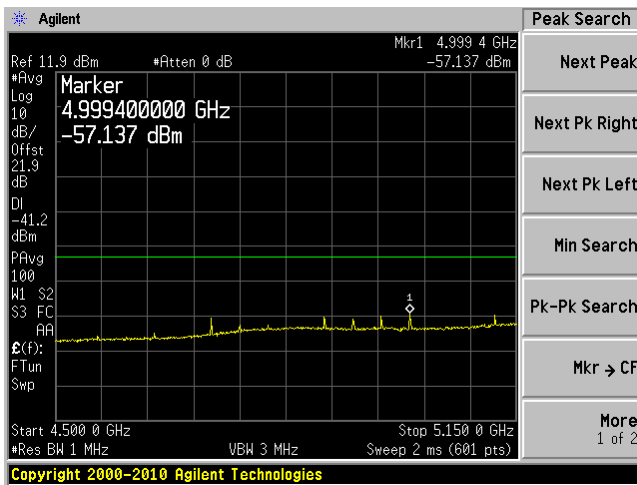
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



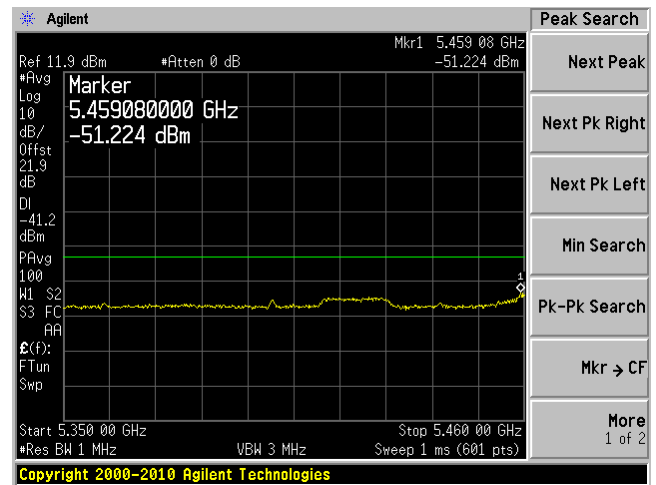
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

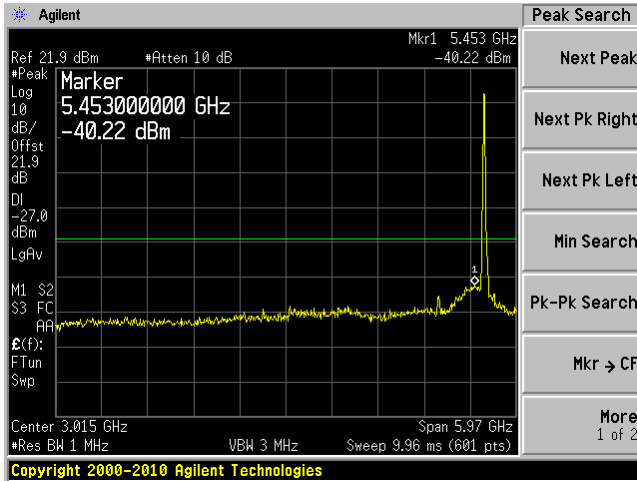


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

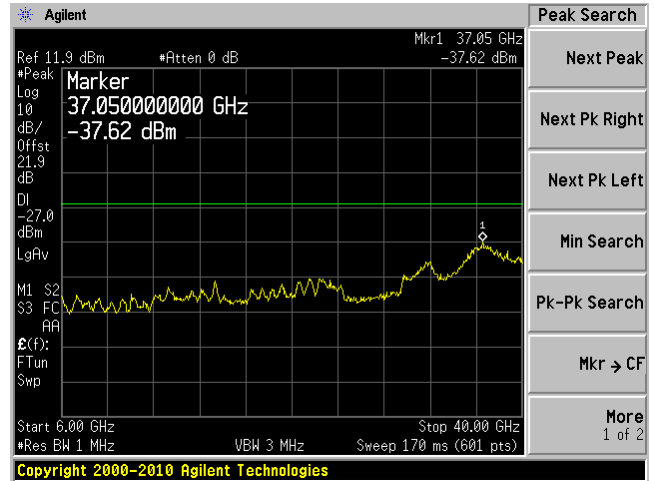


802.11a, Middle Channel, 5580 MHz

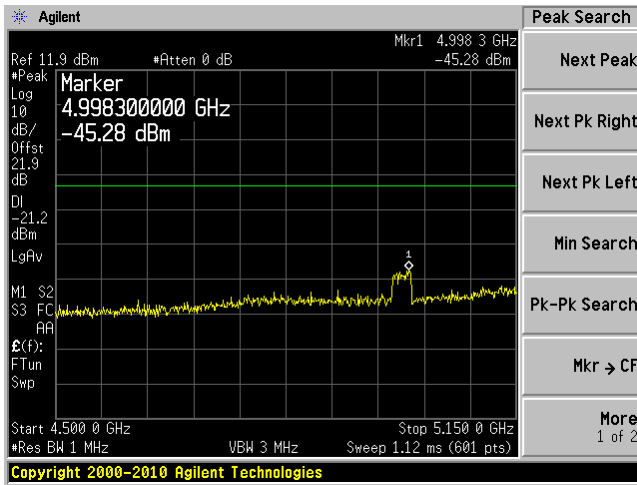
Chain J0, Plot: 30 MHz – 6 GHz



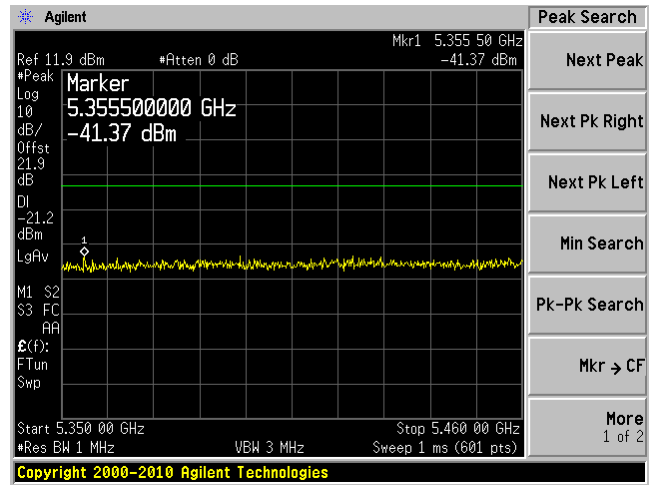
Chain J0, Plot: 6 GHz – 40 GHz



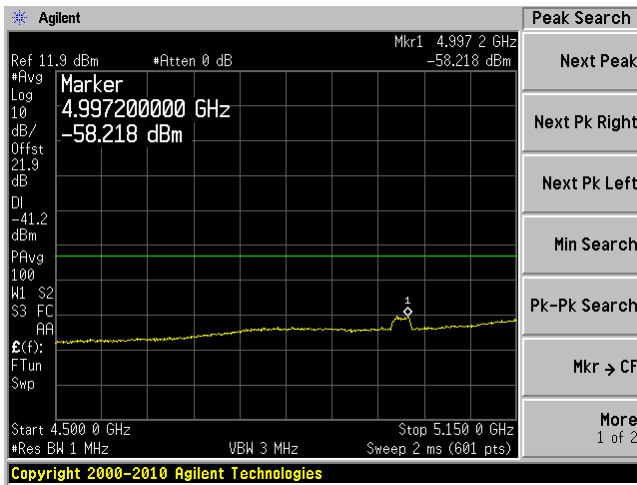
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



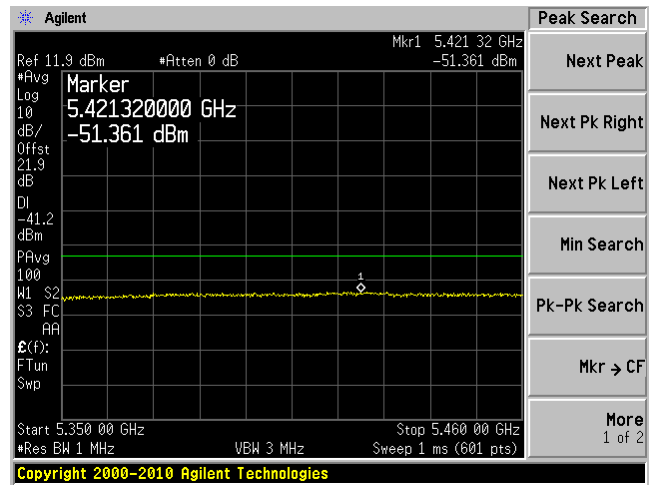
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



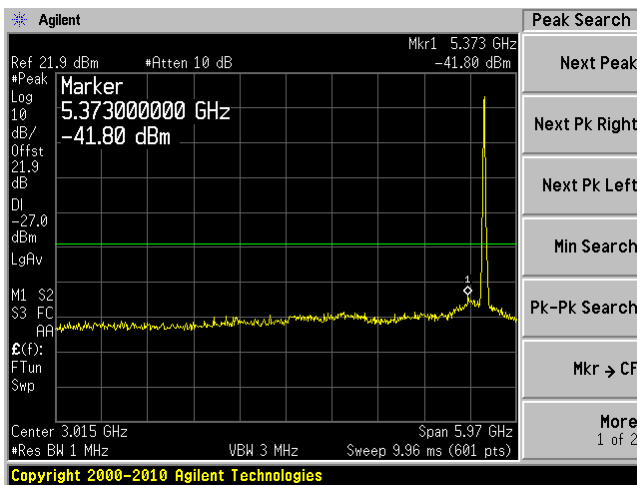
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



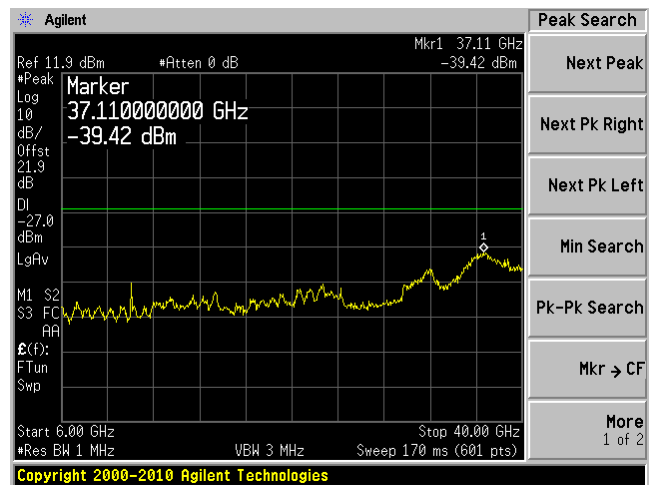
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



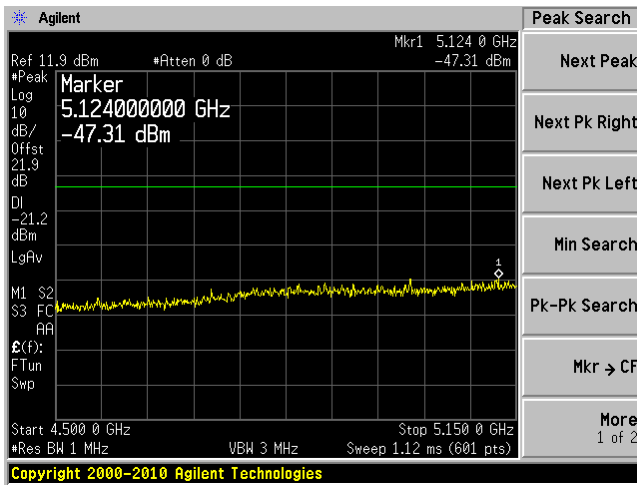
Chain J1, Plot: 30 MHz – 6 GHz



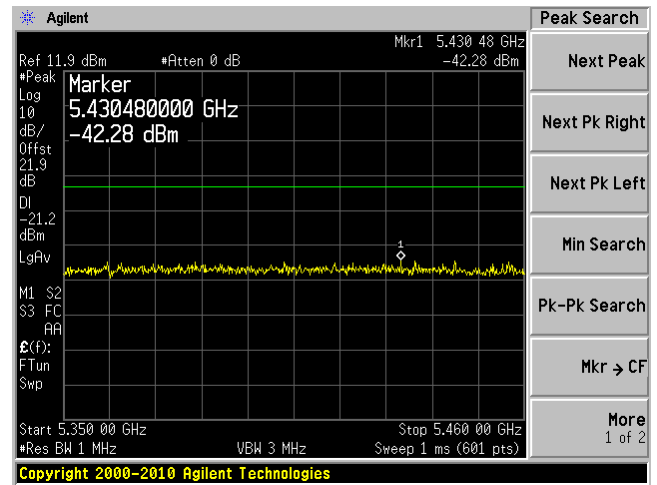
Chain J1, Plot: 6 GHz – 40 GHz



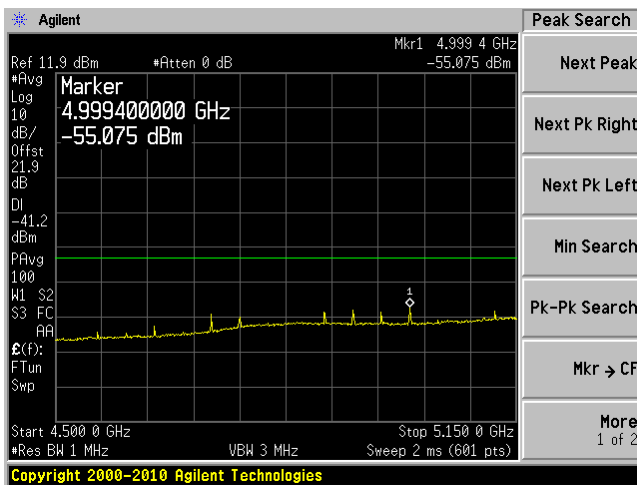
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



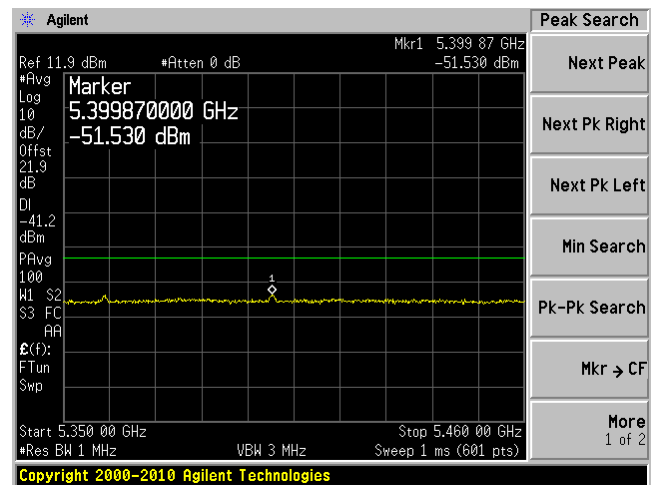
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

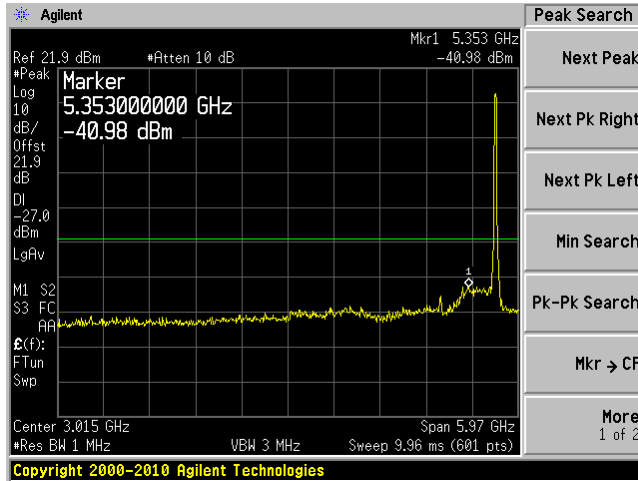


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

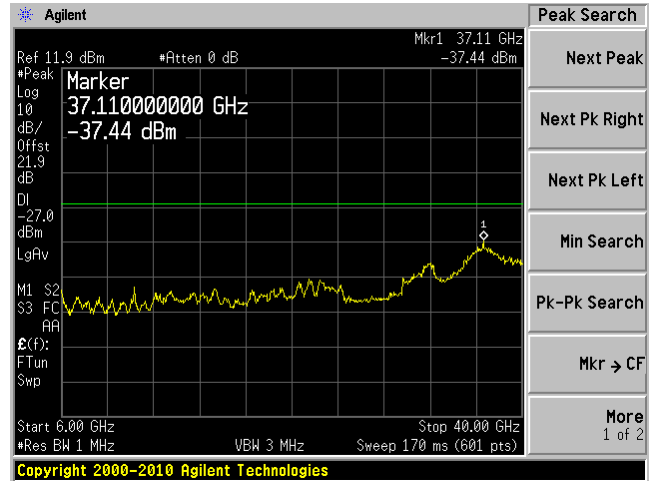


802.11a, High Channel, 5700 MHz

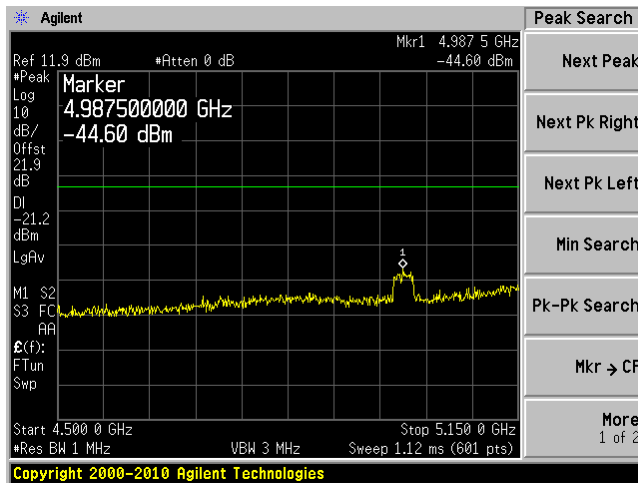
Chain J0, Plot: 30 MHz – 6 GHz



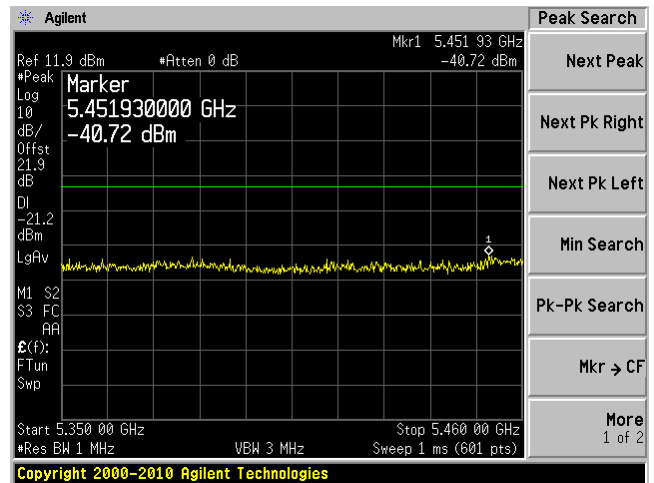
Chain J0, Plot: 6 GHz – 40 GHz



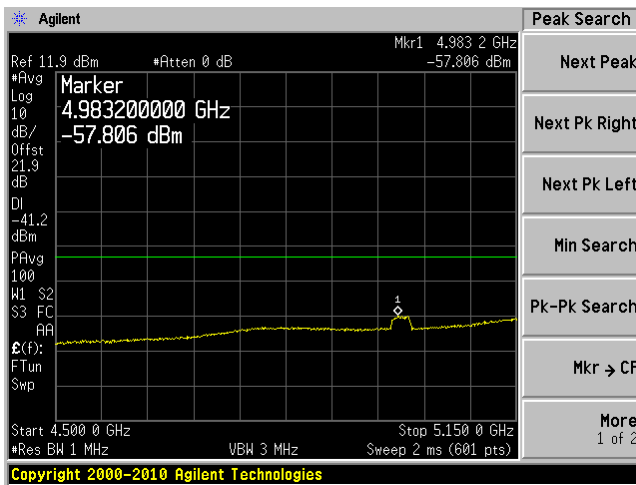
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



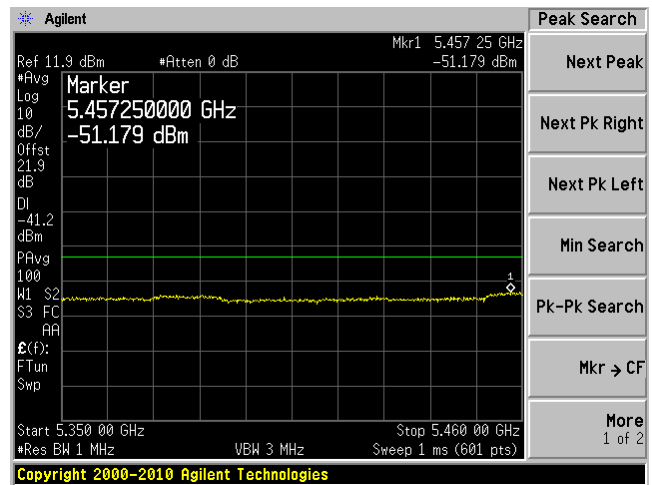
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



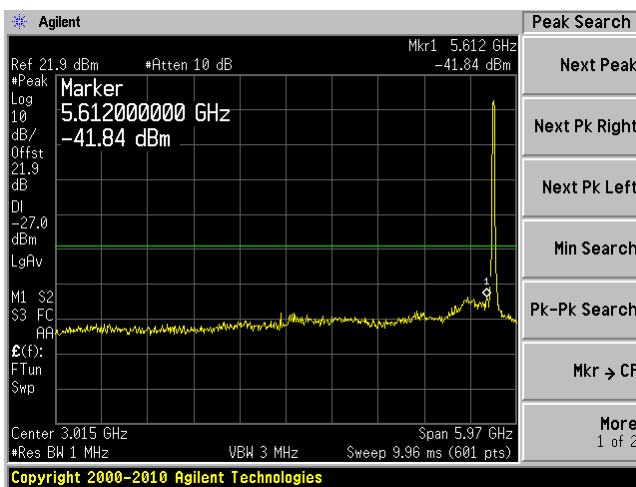
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



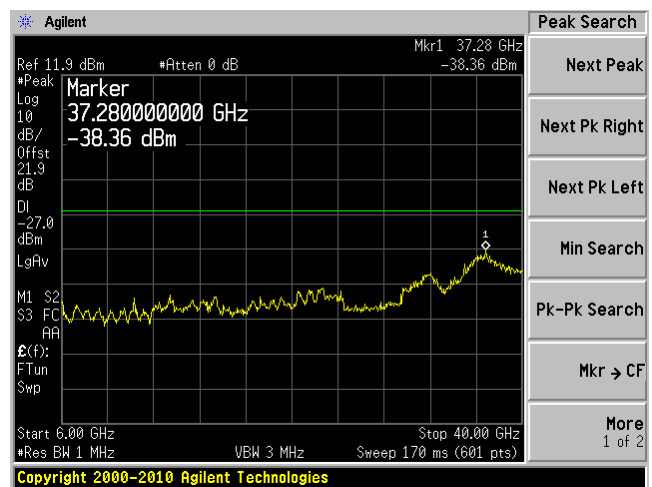
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



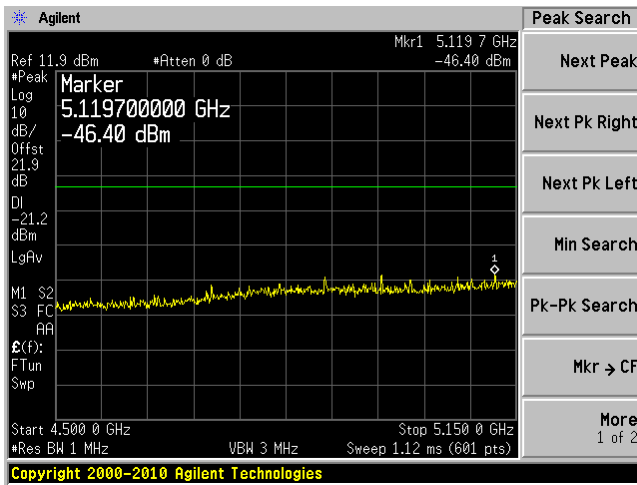
Chain J1, Plot: 30 MHz – 6 GHz



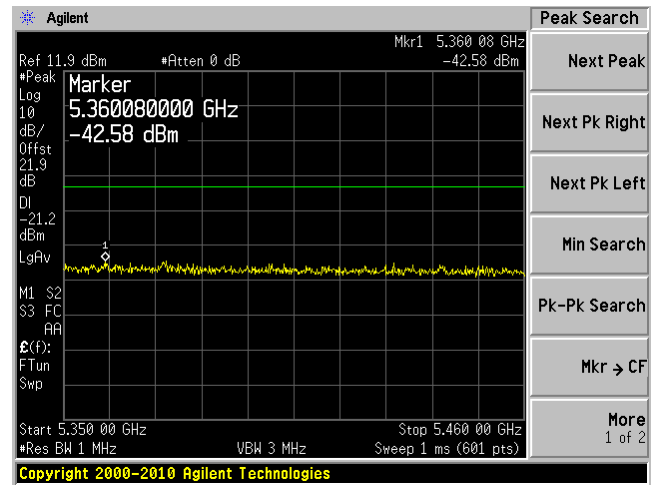
Chain J1, Plot: 6 GHz – 40 GHz



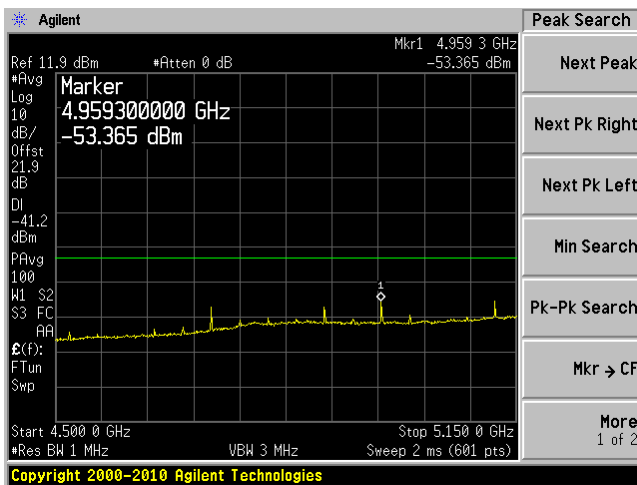
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



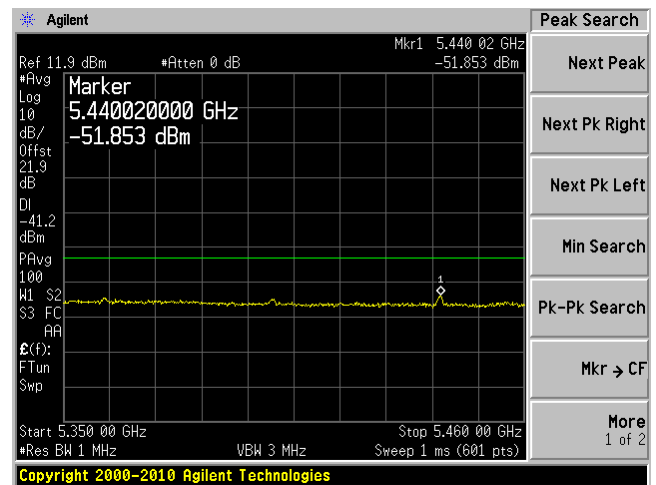
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

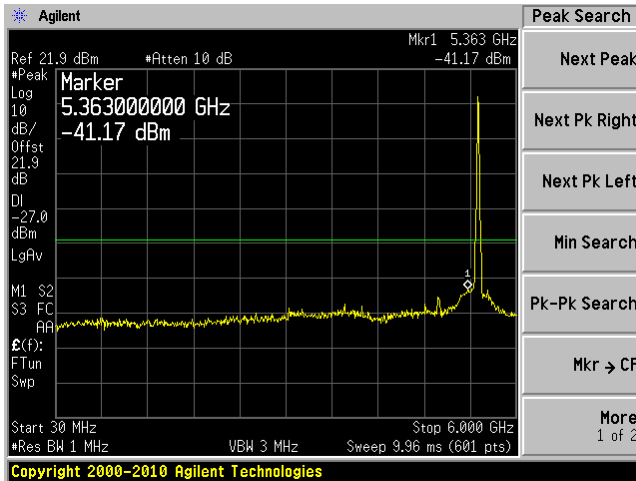


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

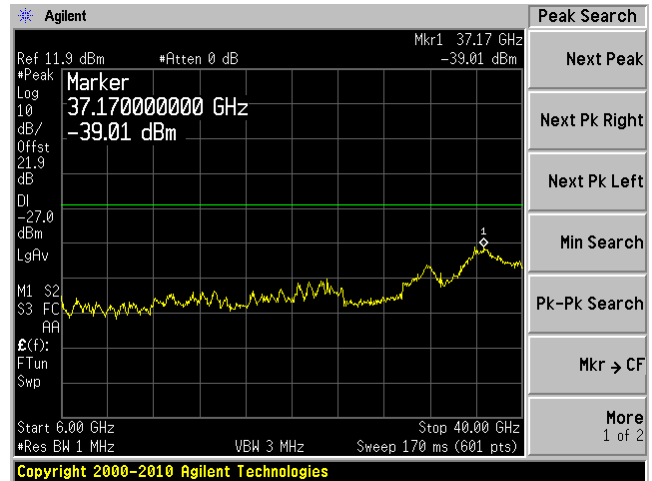


802.11n-HT 20, Low Channel 5500 MHz

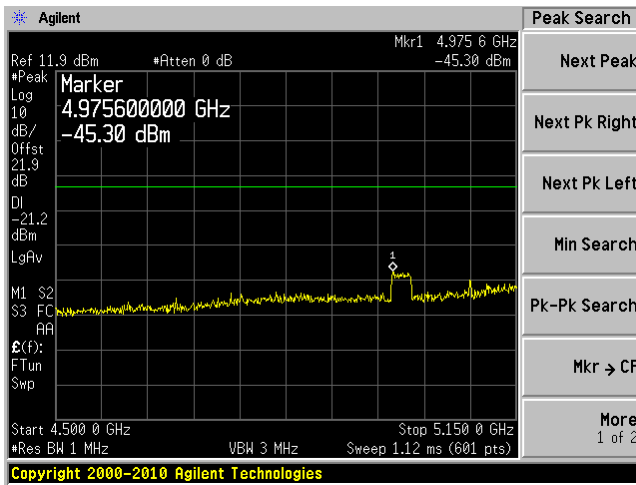
Chain J0, Plot: 30 MHz – 6 GHz



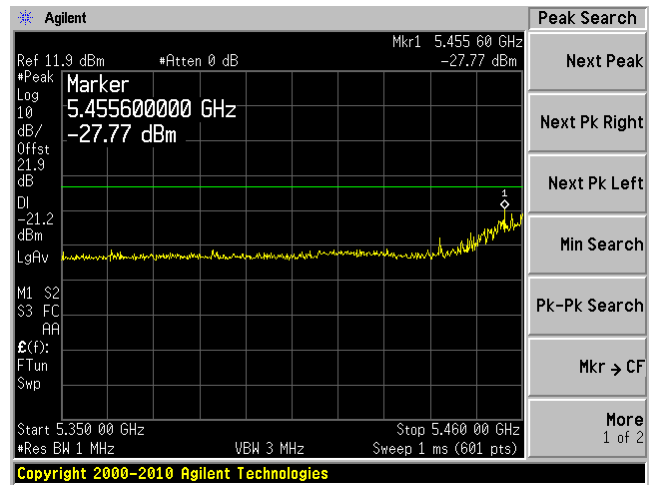
Chain J0, Plot: 6 GHz – 40 GHz



Chain J0, Plot: 4500 MHz – 5150 MHz-Peak

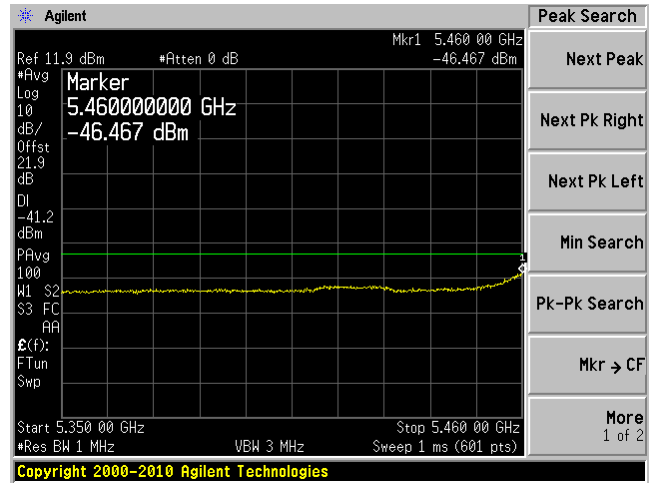
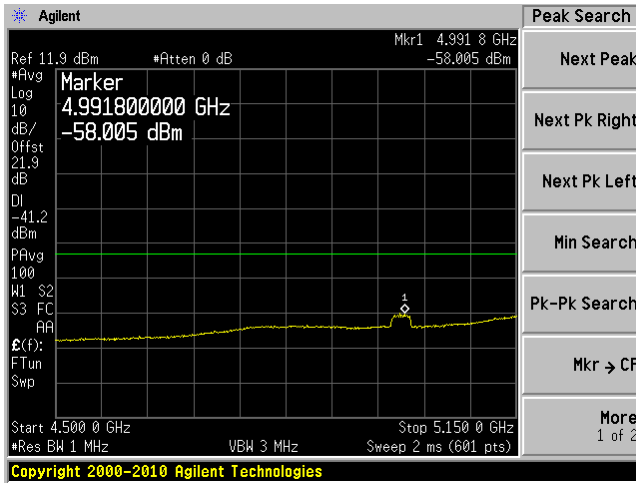


Chain J0, Plot: 5350MHz – 5460 MHz-Peak



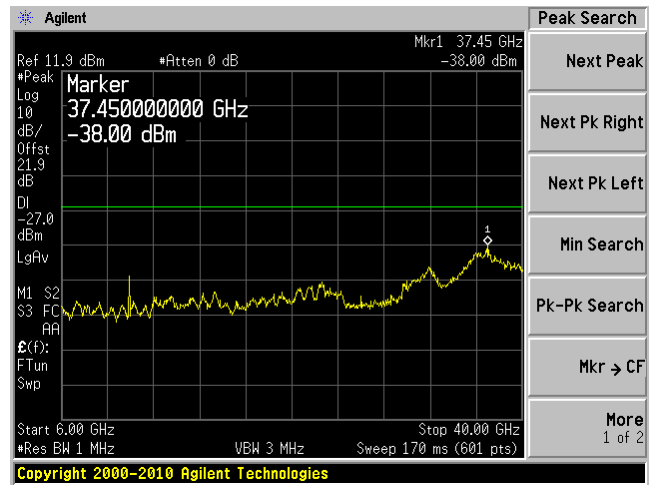
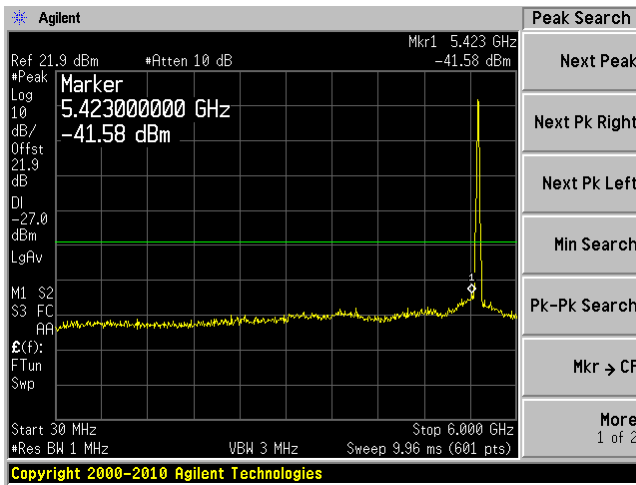
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave

Chain J0, Plot: 5350MHz – 5460 MHz-Ave

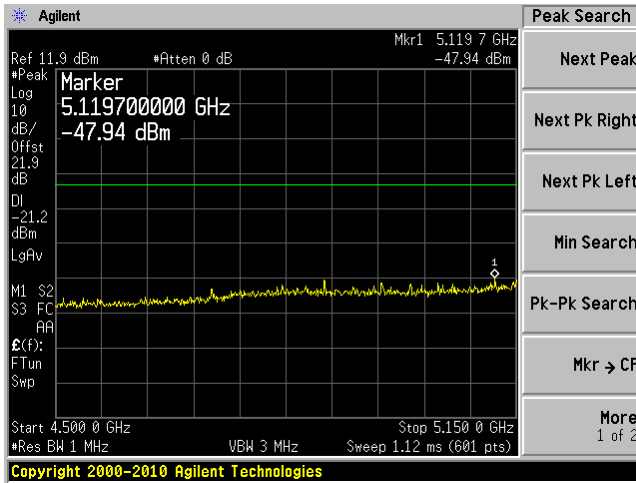


Chain J1, Plot: 30 MHz – 6 GHz

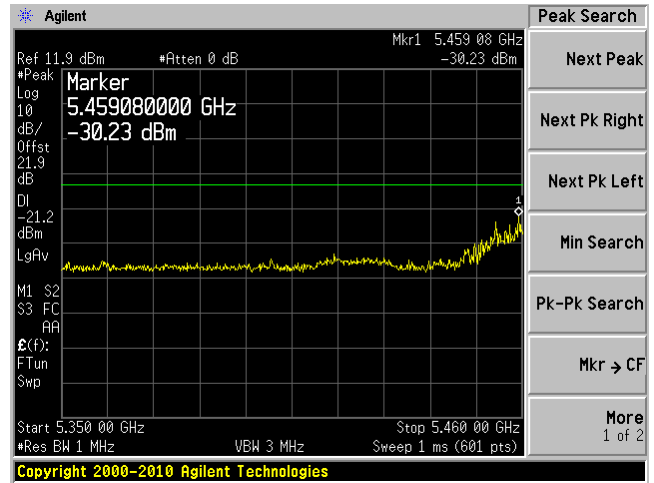
Chain J1, Plot: 6 GHz – 40 GHz



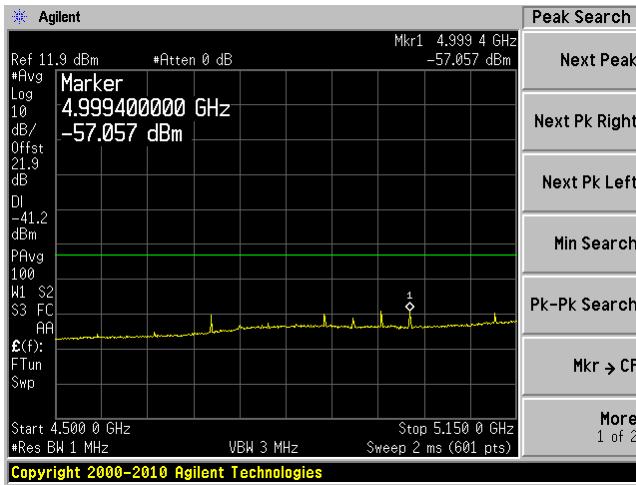
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



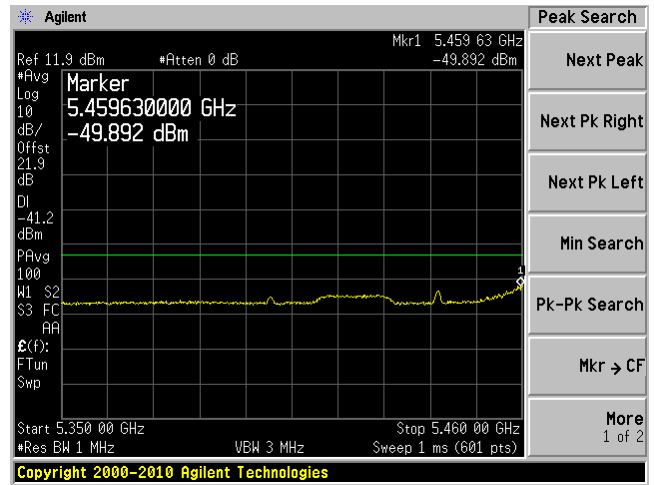
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

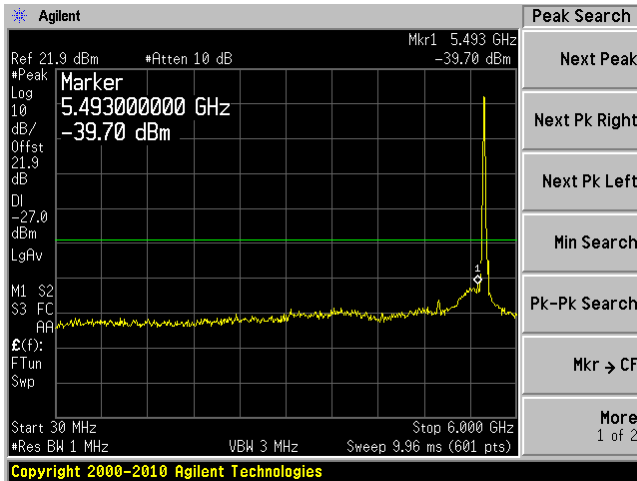


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

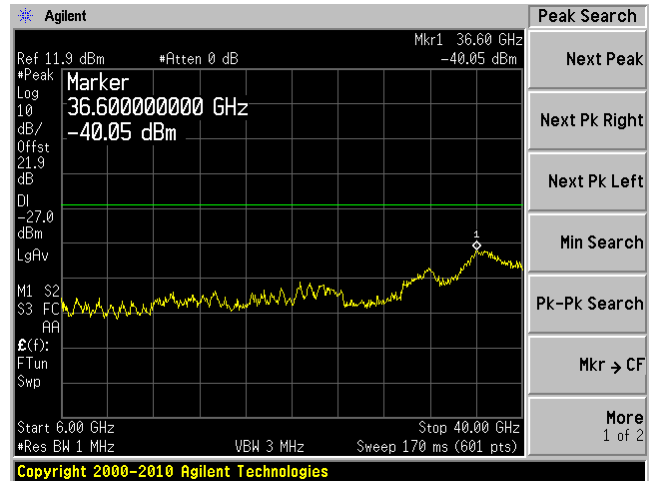


802.11n-HT20, Middle Channel 5580 MHz

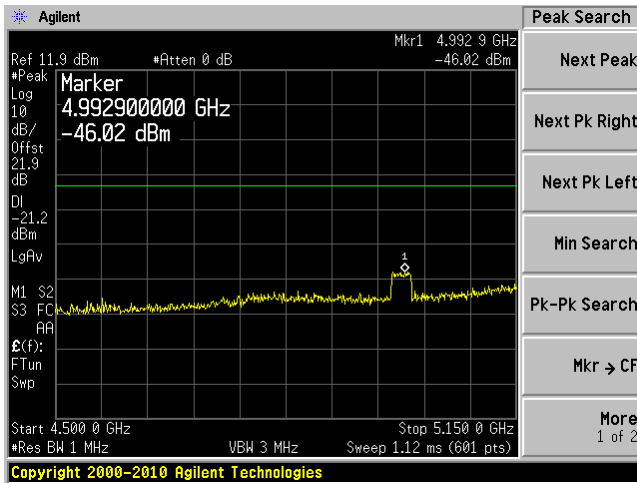
Chain J0, Plot: 30 MHz – 6 GHz



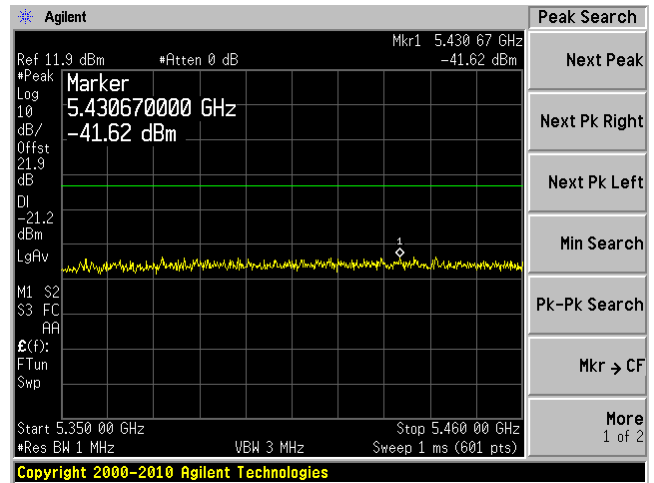
Chain J0, Plot: 6 GHz – 40 GHz



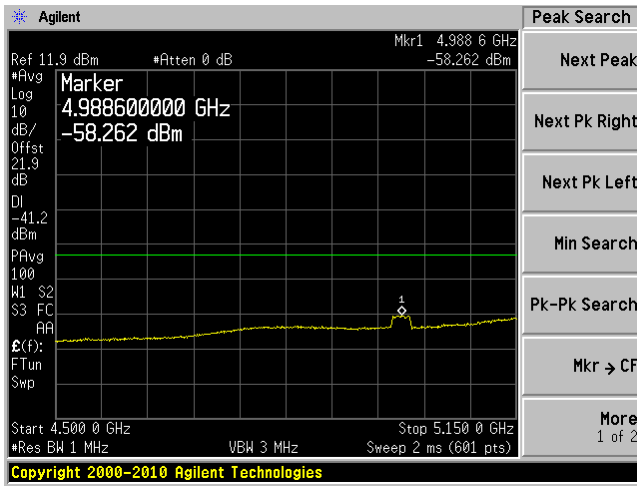
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



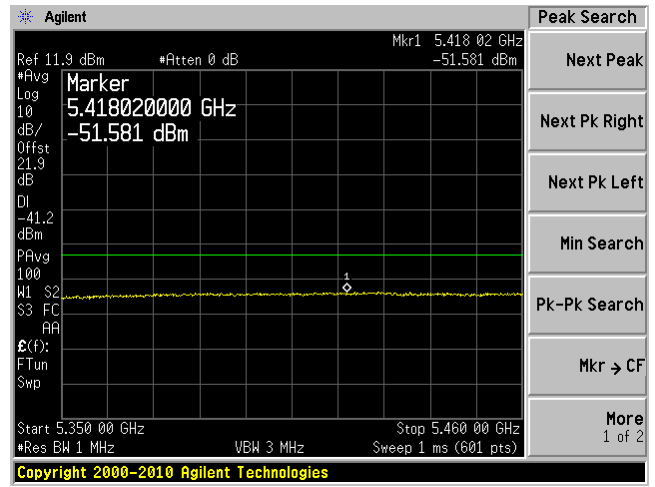
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



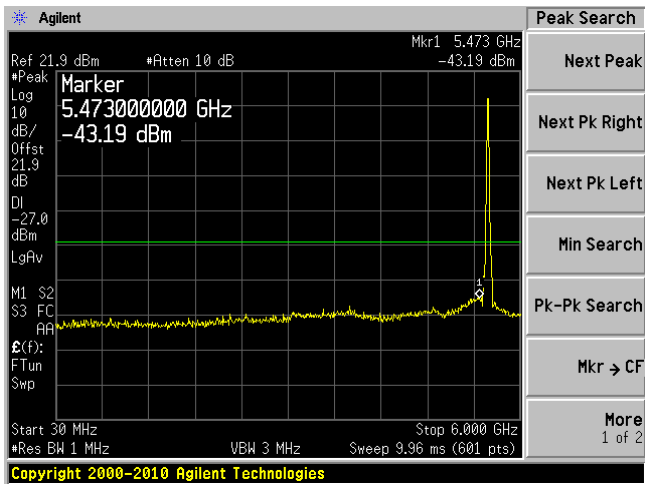
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



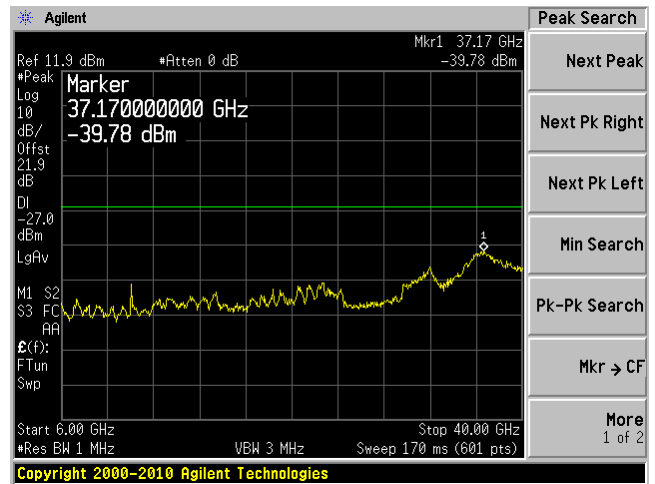
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



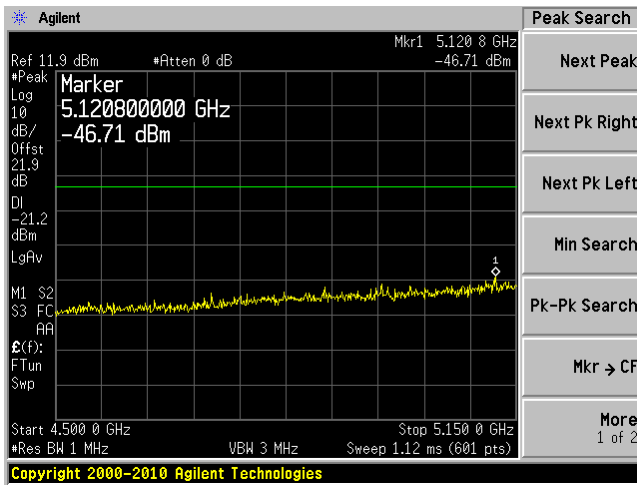
Chain J1, Plot: 30 MHz – 6 GHz



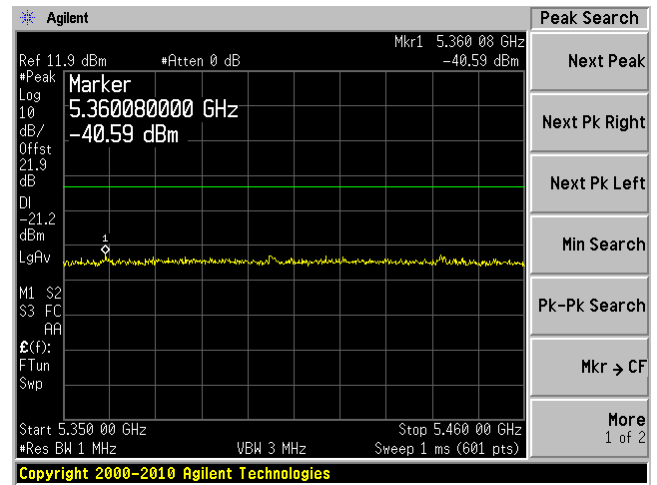
Chain J1, Plot: 6 GHz – 40 GHz



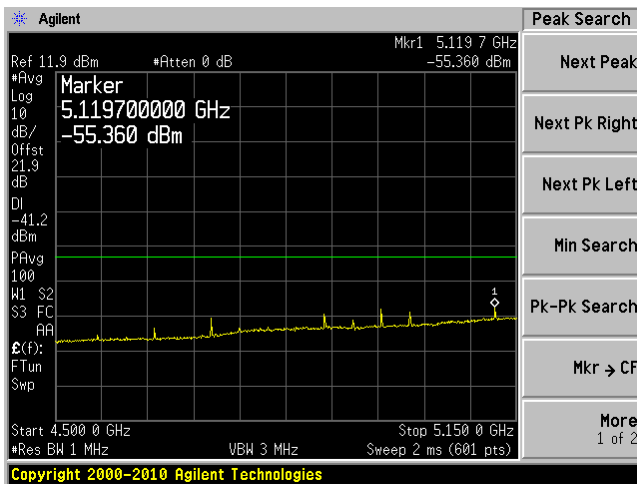
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



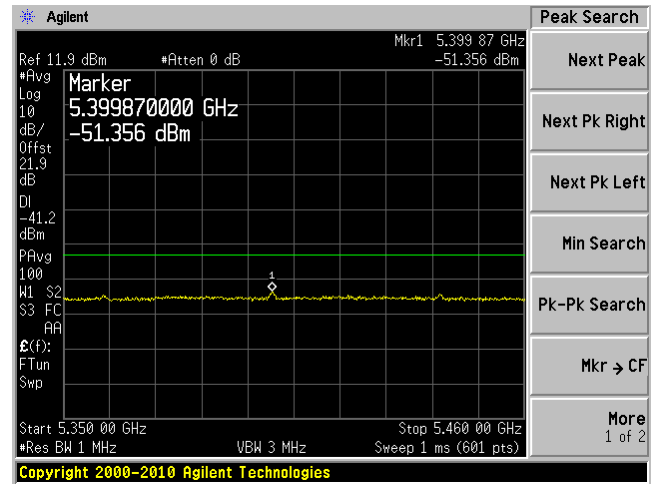
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

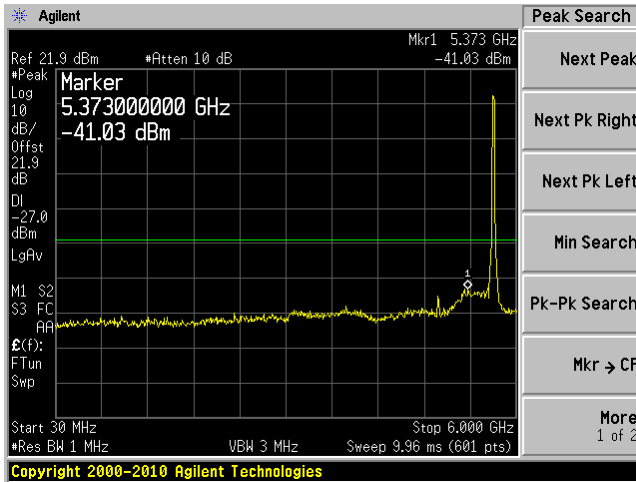


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

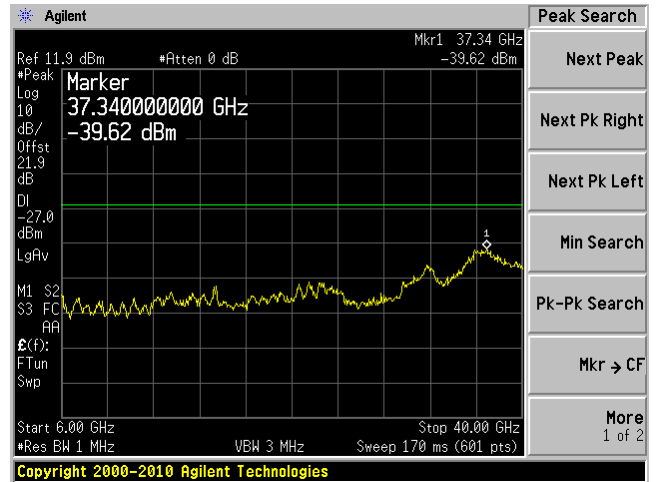


802.11n-HT20, High Channel 5700 MHz

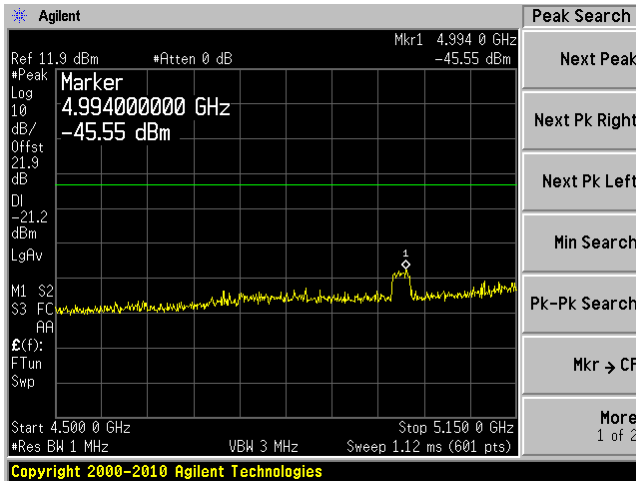
Chain J0, Plot: 30 MHz – 6 GHz



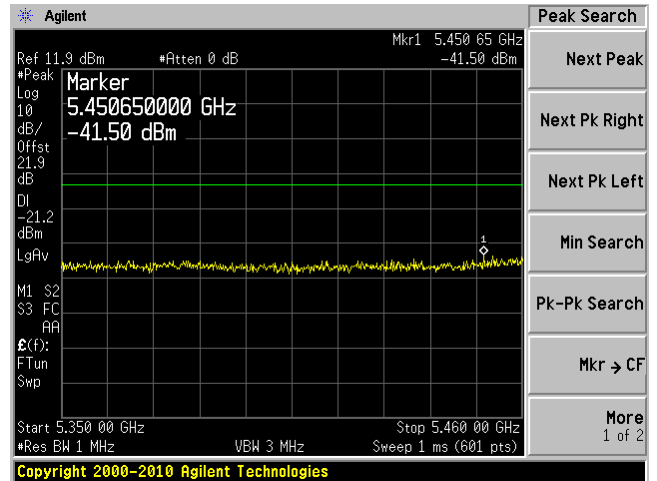
Chain J0, Plot: 6 GHz – 40 GHz



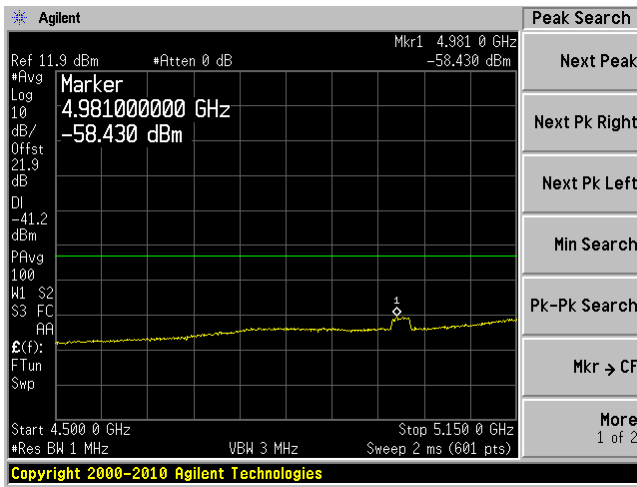
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



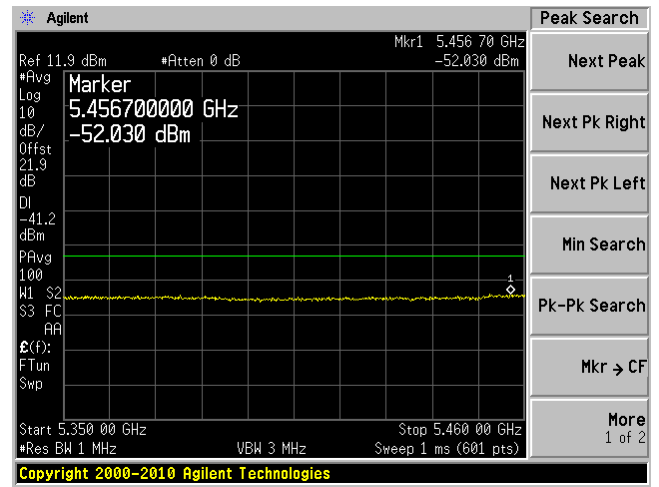
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



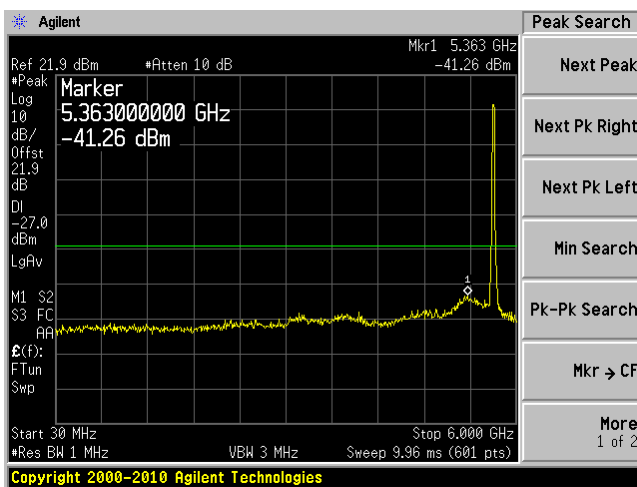
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



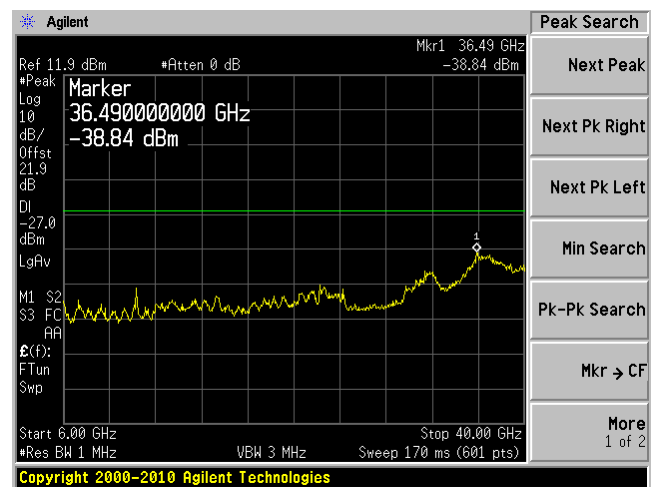
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



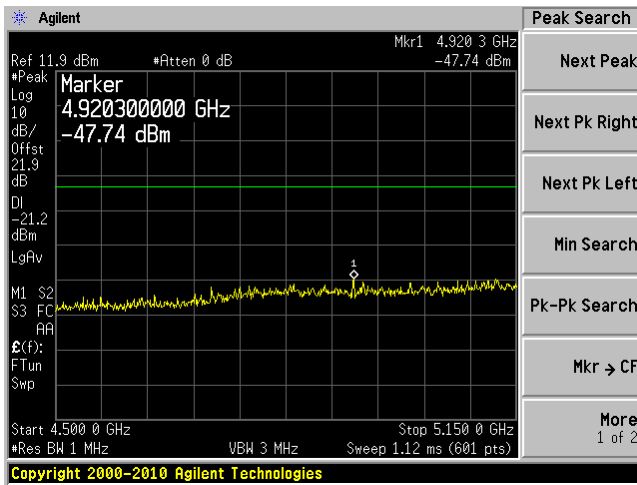
Chain J1, Plot: 30 MHz – 6 GHz



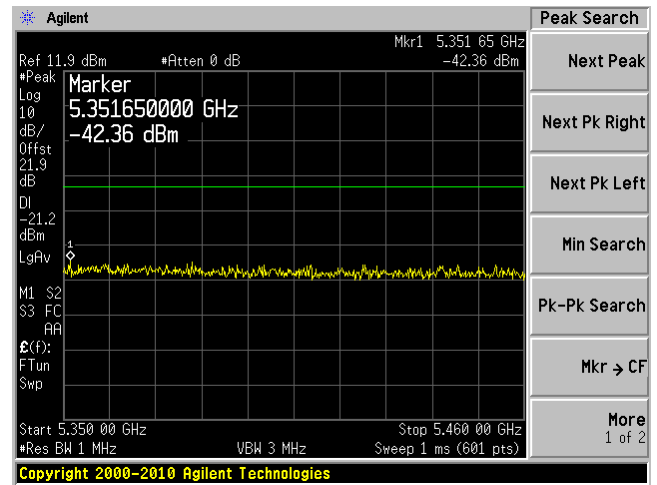
Chain J1, Plot: 6 GHz – 40 GHz



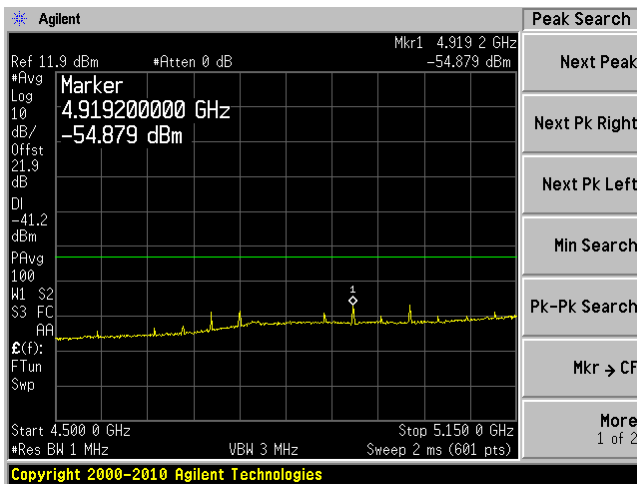
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



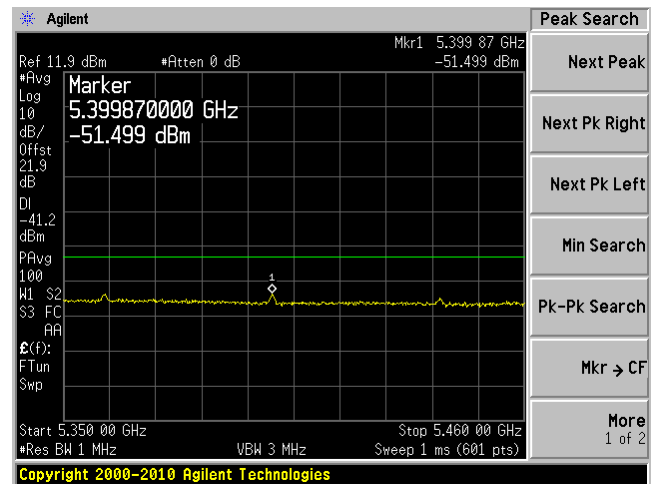
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

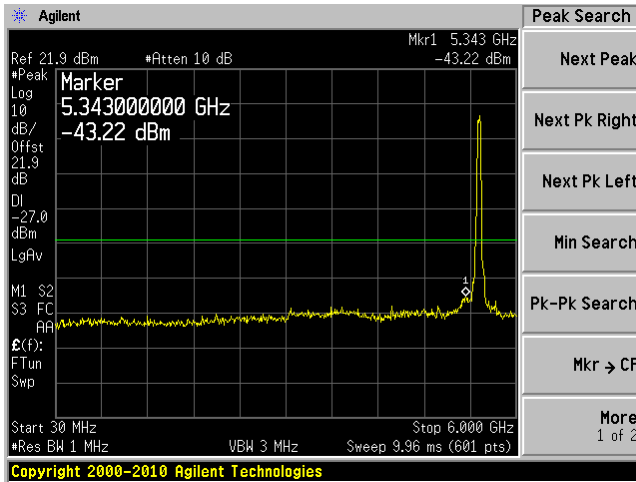


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

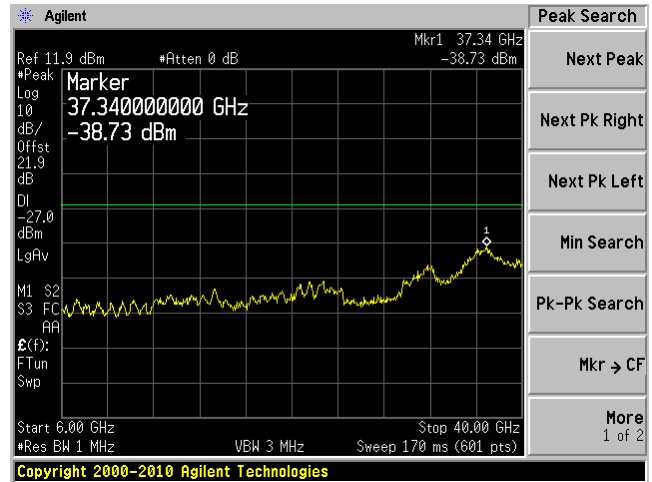


802.11n-HT40, Low Channel 5510 MHz

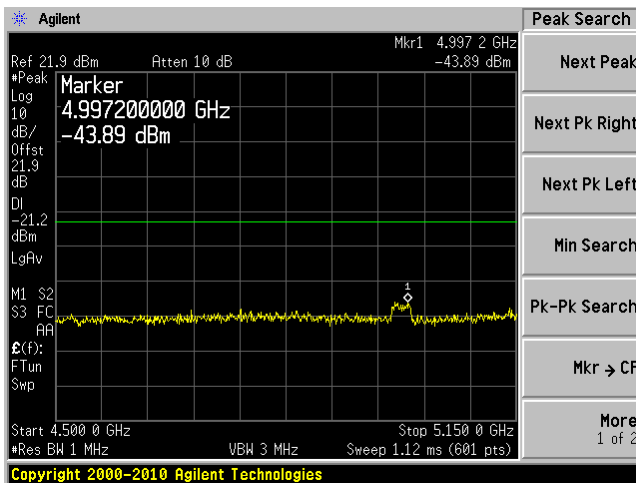
Chain J0, Plot: 30 MHz – 6 GHz



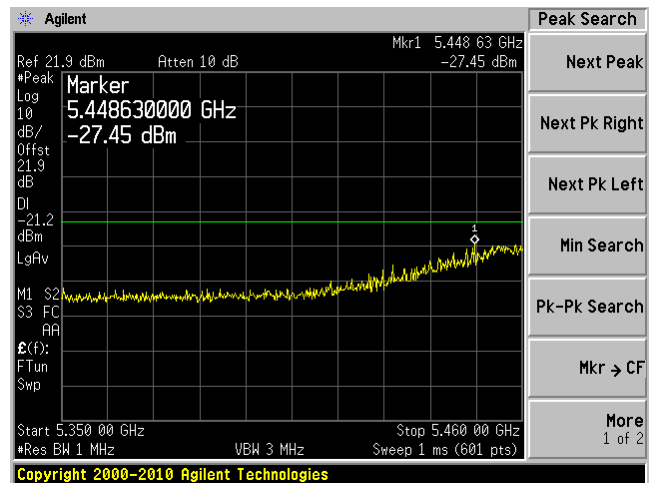
Chain J0, Plot: 6 GHz – 40 GHz



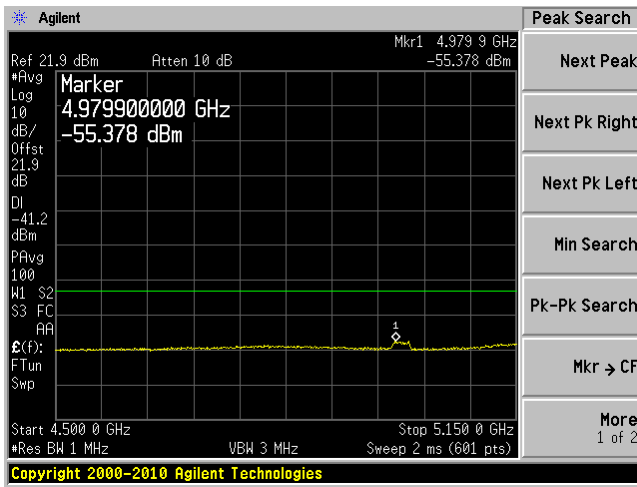
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



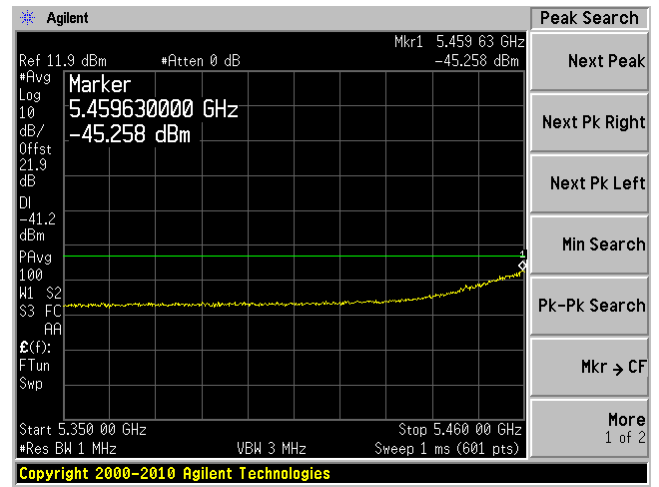
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



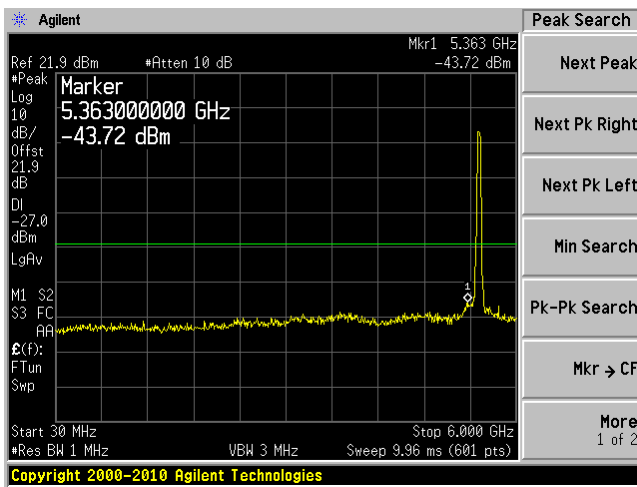
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



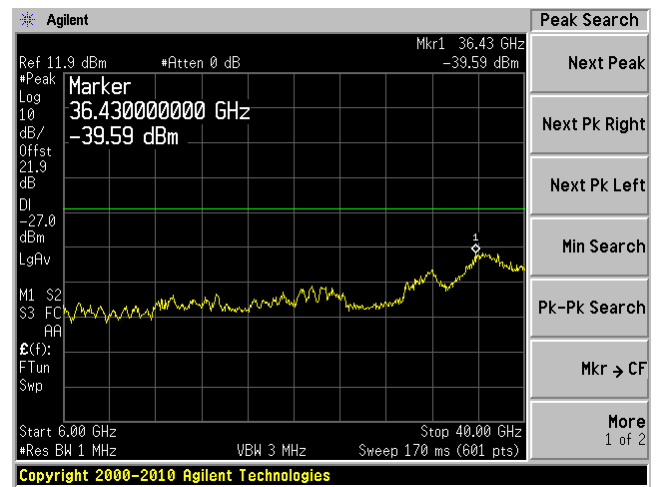
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



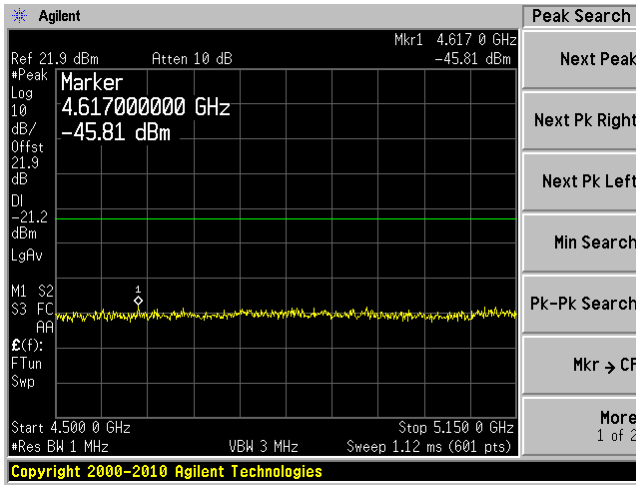
Chain J1, Plot: 30 MHz – 6 GHz



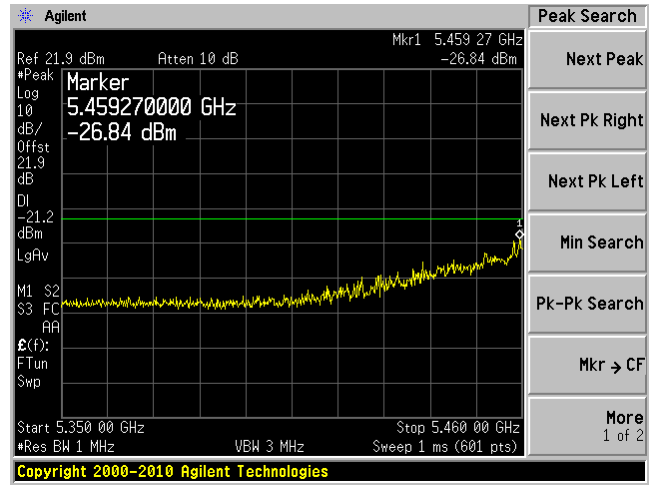
Chain J1, Plot: 6 GHz – 40 GHz



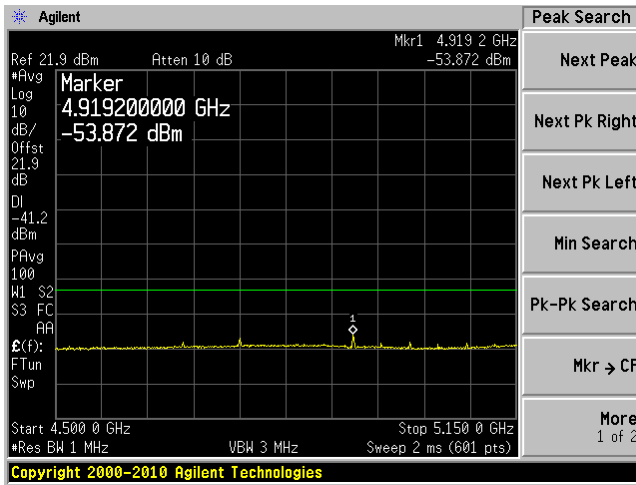
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



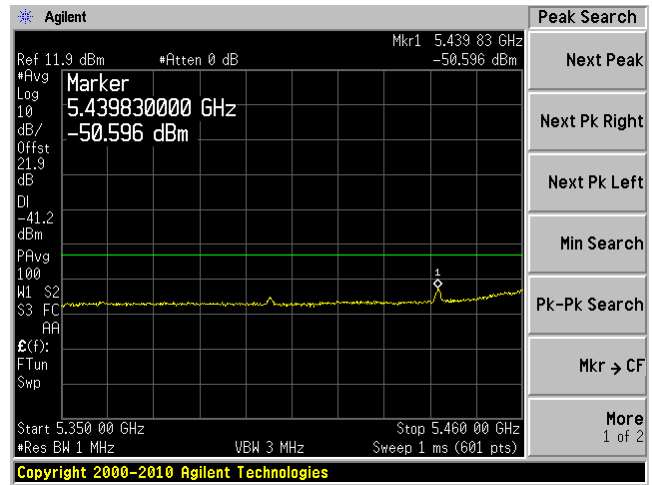
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

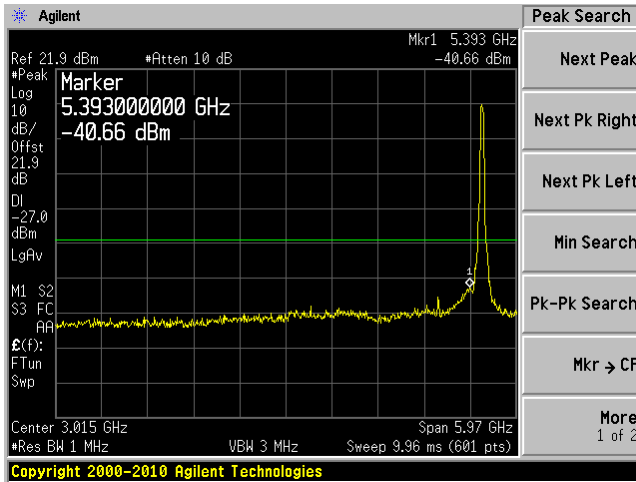


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

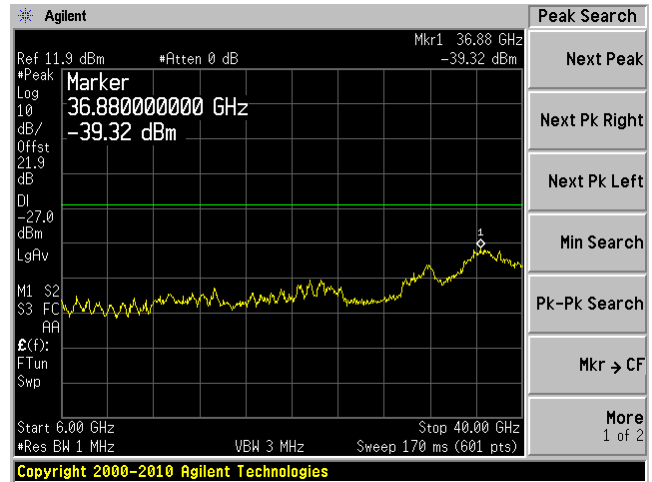


802.11n-HT40, Middle Channel 5550 MHz

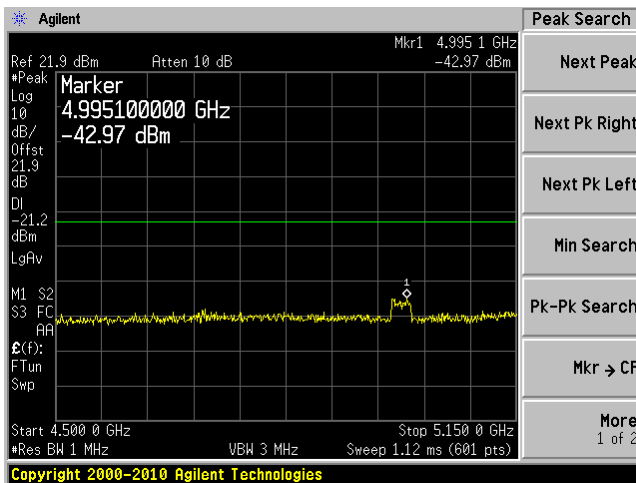
Chain J0, Plot: 30 MHz – 6 GHz



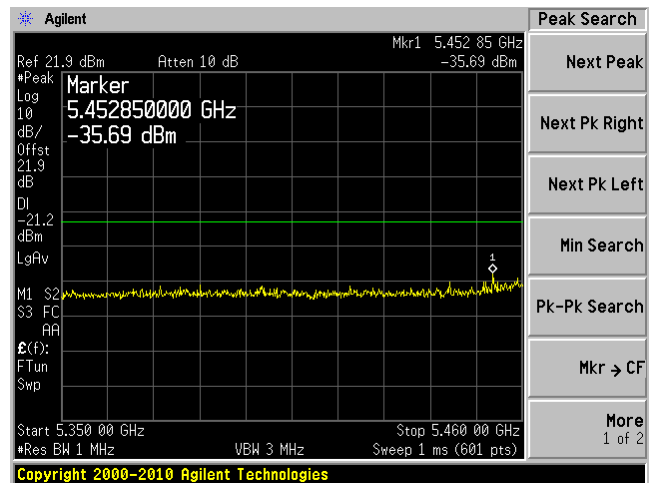
Chain J0, Plot: 6 GHz – 40 GHz



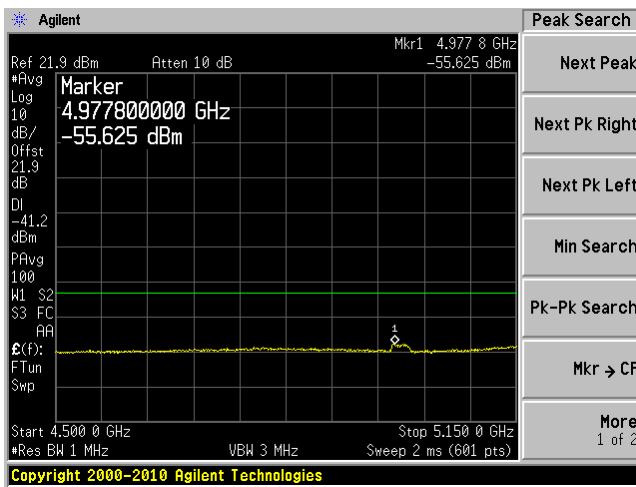
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



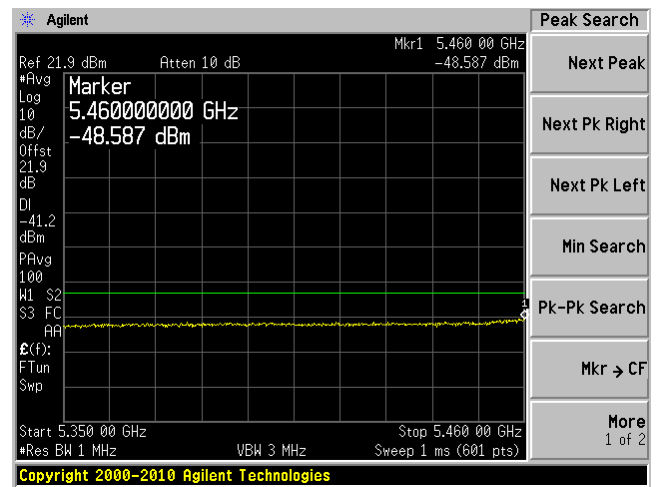
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



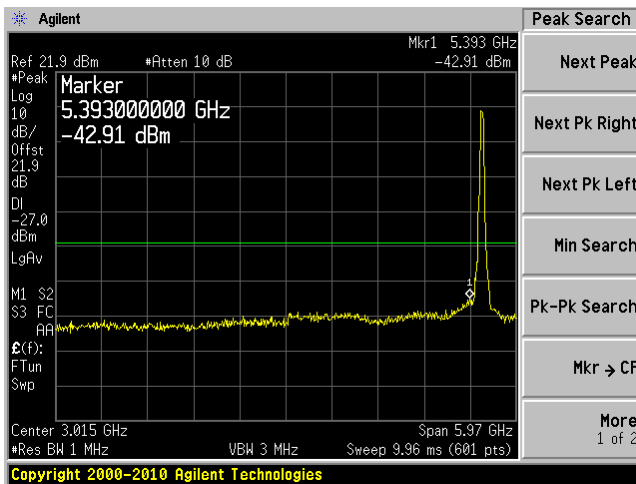
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



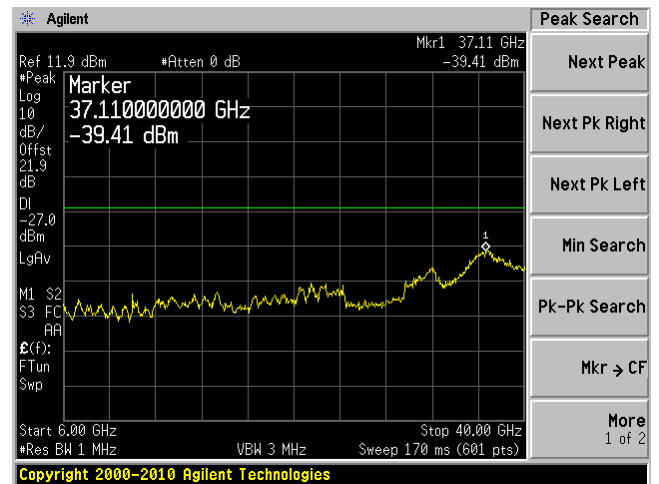
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



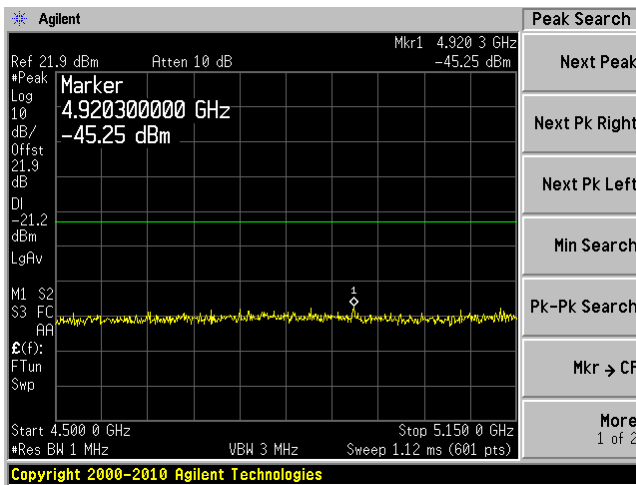
Chain J1, Plot: 30 MHz – 6 GHz



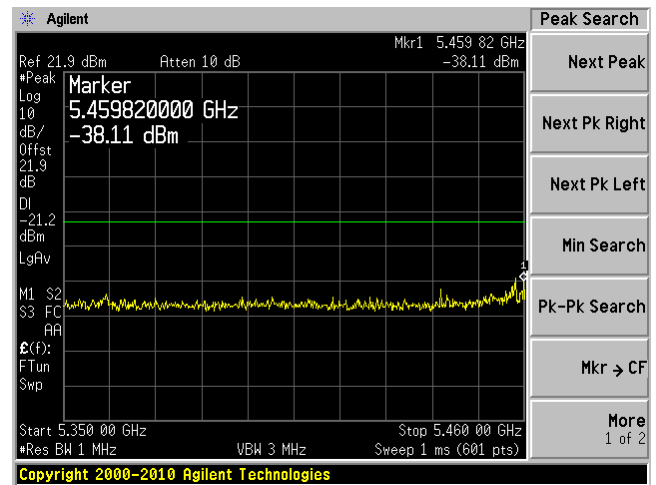
Chain J1, Plot: 6 GHz – 40 GHz



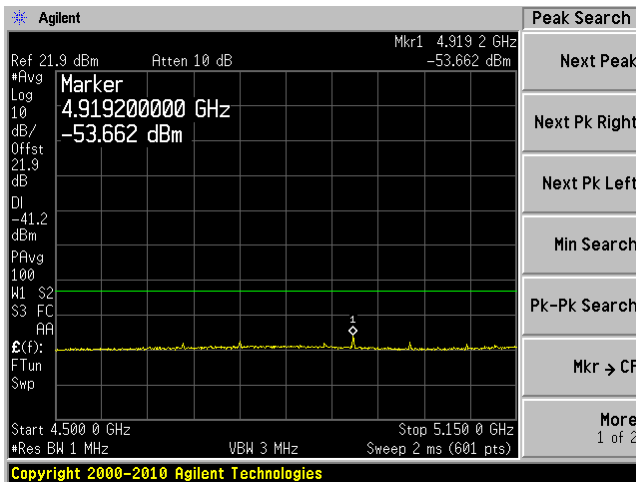
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



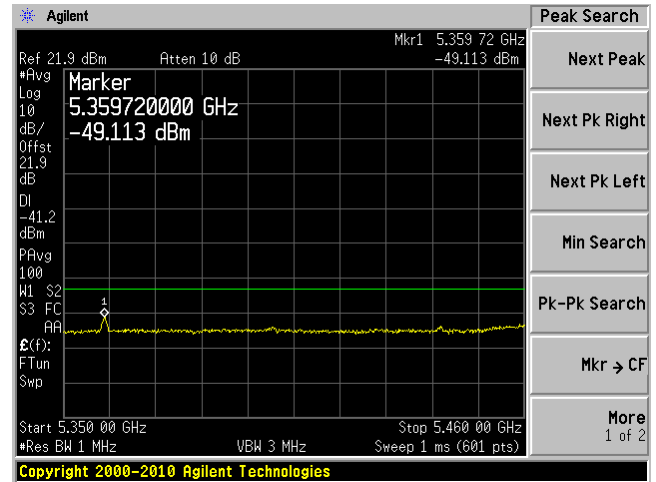
Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave

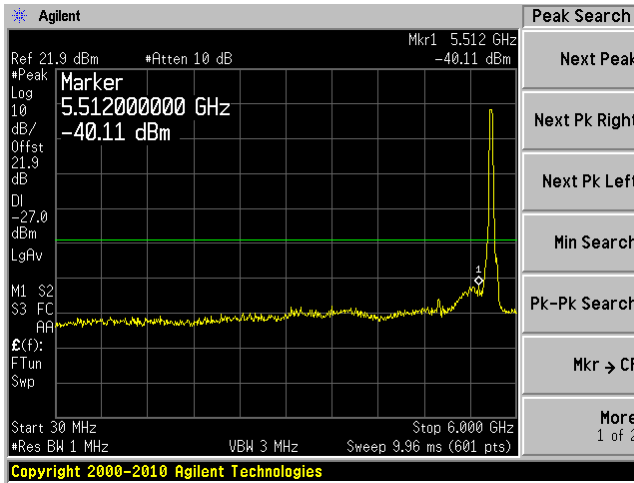


Chain J1, Plot: 5350MHz – 5460 MHz-Ave

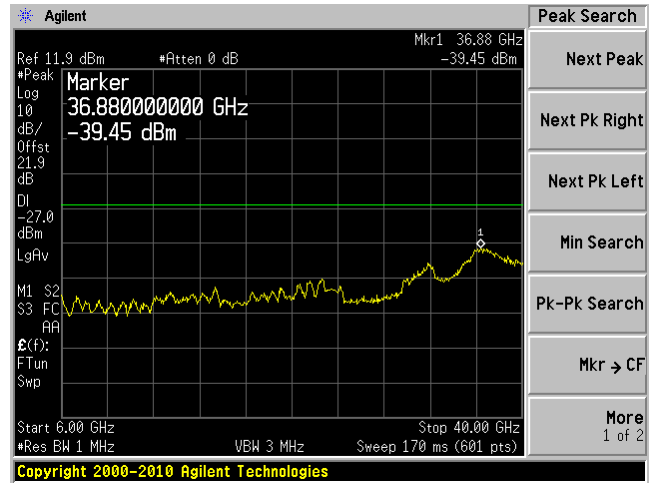


802.11n-HT40, High Channel 5670 MHz

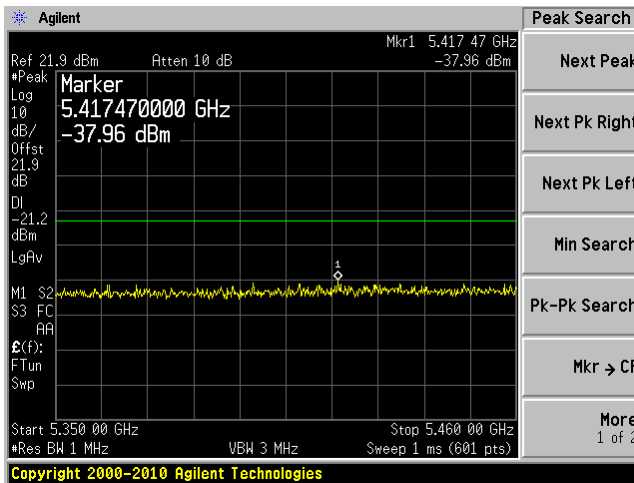
Chain J0, Plot: 30 MHz – 6 GHz



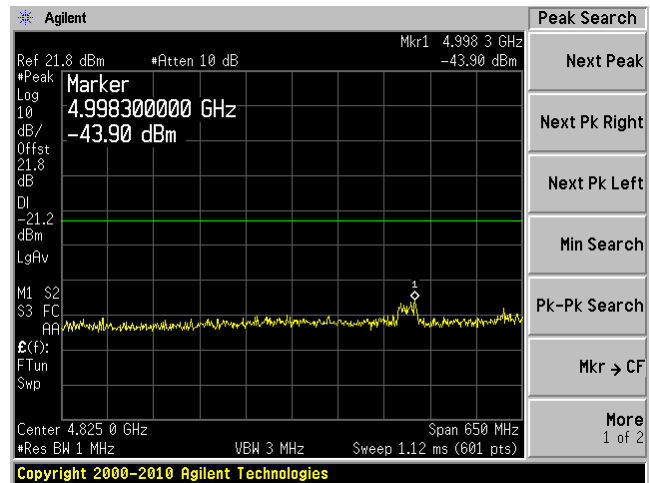
Chain J0, Plot: 6 GHz – 40 GHz



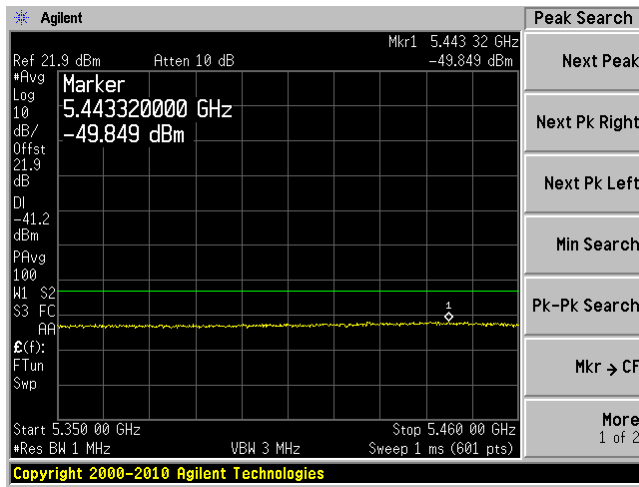
Chain J0, Plot: 4500 MHz – 5150 MHz-Peak



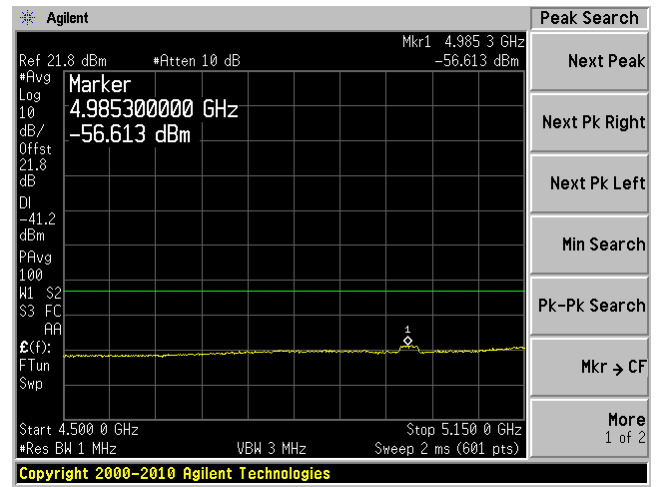
Chain J0, Plot: 5350MHz – 5460 MHz-Peak



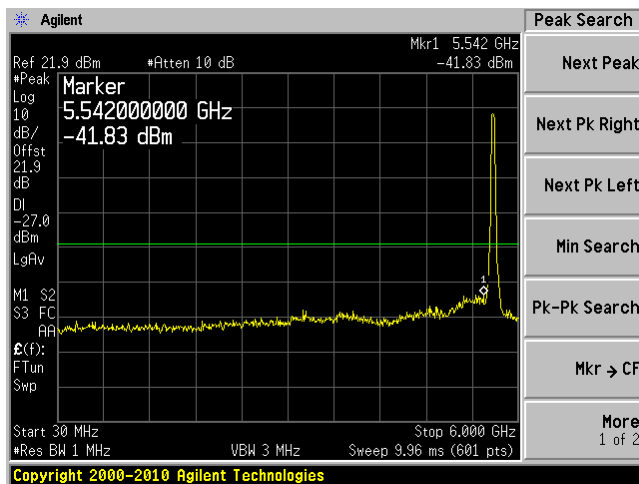
Chain J0, Plot: 4500 MHz – 5150 MHz-Ave



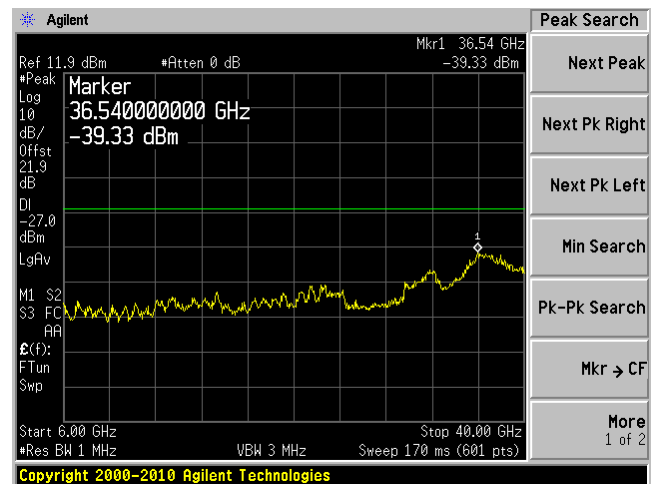
Chain J0, Plot: 5350MHz – 5460 MHz-Ave



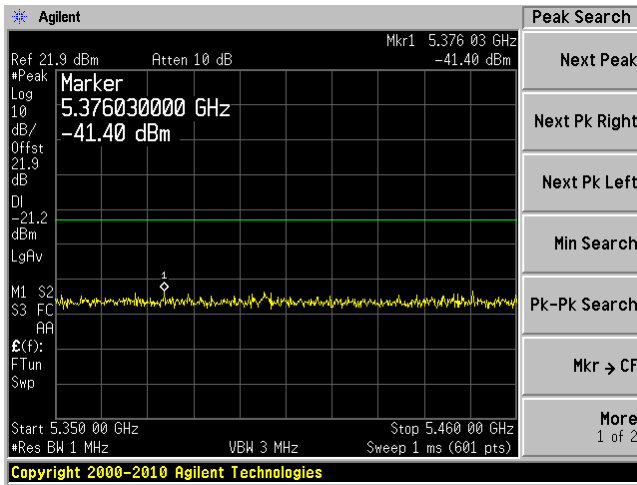
Chain J1, Plot: 30 MHz – 6 GHz



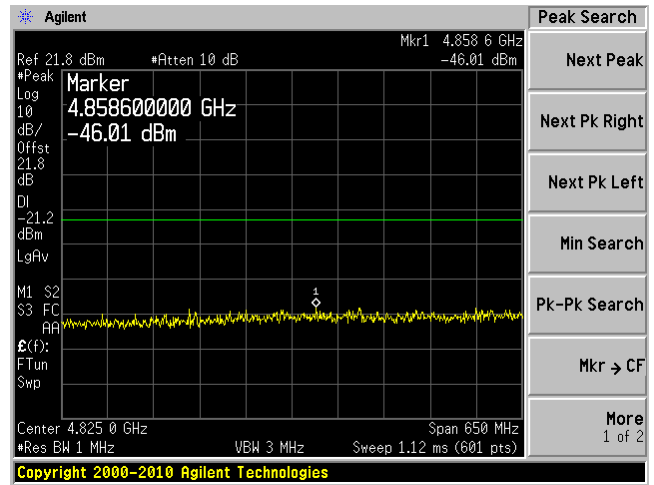
Chain J1, Plot: 6 GHz – 40 GHz



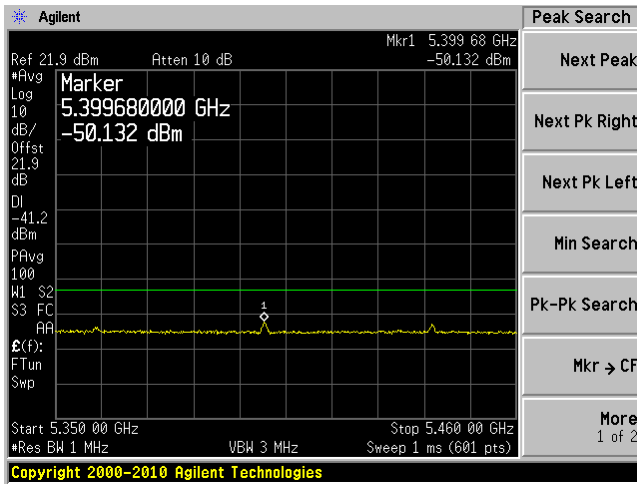
Chain J1, Plot: 4500 MHz – 5150 MHz-Peak



Chain J1, Plot: 5350MHz – 5460 MHz-Peak



Chain J1, Plot: 4500 MHz – 5150 MHz-Ave



Chain J1, Plot: 5350MHz – 5460 MHz-Ave

