



FCC PART 15.407 TEST AND MEASUREMENT REPORT

For

Ruckus Wireless, Inc.

350 West Java Drive,
Sunnyvale, CA 94089, USA

FCC ID: S9GZF7761CM

Report Type: Class II Permissive Change	Product Type: Dual-Band 802.11a/b/g/n Industrial Access Point
Prepared By: Jin Yang	
Report Number: R1504014-407 Rev A	
Report Date: 2015-12-30	
Reviewed By: Bo Li	
RF Supervisor	
Bay Area Compliance Laboratories Corp. 1274 Anvilwood Avenue, Sunnyvale, CA 94089, USA Tel: (408) 732-9162 Fax: (408) 732-9164	

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by A2LA*, NIST, or any agency of the Federal Government.

* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "*" ...

TABLE OF CONTENTS

1	GENERAL DESCRIPTION.....	5
1.1	PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	5
1.2	MECHANICAL DESCRIPTION OF EUT	5
1.3	OBJECTIVE.....	5
1.4	RELATED SUBMITTAL(S)/GRANT(S)	5
1.5	TEST METHODOLOGY	5
1.6	MEASUREMENT UNCERTAINTY	5
1.7	TEST FACILITY	6
2	EUT TEST CONFIGURATION.....	7
2.1	JUSTIFICATION	7
2.2	EUT EXERCISE SOFTWARE.....	7
2.3	SPECIAL EQUIPMENT	7
2.4	EQUIPMENT MODIFICATIONS	7
2.5	LOCAL SUPPORT EQUIPMENT	7
2.6	EUT INTERNAL CONFIGURATION DETAILS.....	7
2.7	INTERFACE PORTS AND CABLES	7
3	SUMMARY OF TEST RESULTS	8
4	FCC §2.1091 & §15.407(F) -RF EXPOSURE	9
4.1	APPLICABLE STANDARD	9
4.2	MPE PREDICTION	9
4.3	MPE RESULTS	9
5	FCC §15.203 – ANTENNA REQUIREMENTS.....	11
5.1	APPLICABLE STANDARD	11
5.2	ANTENNA DESCRIPTION	11
6	FCC §15.407(A) & §15.407(E) – EMISSION BANDWIDTH.....	12
6.1	APPLICABLE STANDARDS	12
6.2	MEASUREMENT PROCEDURE	12
6.3	TEST EQUIPMENT LIST AND DETAILS	12
6.4	TEST ENVIRONMENTAL CONDITIONS.....	12
6.5	TEST RESULTS	12
7	FCC §407(A) – MAXIMUM CONDUCTED OUTPUT POWER.....	31
7.1	APPLICABLE STANDARDS	31
7.2	MEASUREMENT PROCEDURE	31
7.3	TEST EQUIPMENT LIST AND DETAILS	31
7.4	TEST ENVIRONMENTAL CONDITIONS.....	31
7.5	TEST RESULTS	32
8	FCC §15.407(B) - SPURIOUS EMISSIONS AT ANTENNA PORTS.....	50
8.1	APPLICABLE STANDARDS	50
8.2	MEASUREMENT PROCEDURE	50
8.3	TEST EQUIPMENT LIST AND DETAILS	50
8.4	TEST ENVIRONMENTAL CONDITIONS.....	50
8.5	TEST RESULTS	50
9	FCC §15.407(A) - POWER SPECTRAL DENSITY	117
9.1	APPLICABLE STANDARDS	117

9.2 MEASUREMENT PROCEDURE 117

9.3 TEST EQUIPMENT LIST AND DETAILS 117

9.4 TEST ENVIRONMENTAL CONDITIONS..... 117

9.5 TEST RESULTS 117

10 EXHIBIT A – EUT PHOTOGRAPHS..... 136

10.1 EUT – TOP VIEW..... 136

10.2 EUT – BOTTOM VIEW 136

10.3 EUT – FRONT VIEW 137

10.4 EUT – REAR VIEW 137

10.5 EUT – LEFT VIEW 138

10.6 EUT – RIGHT VIEW 138

10.7 MAIN BOARD – TOP VIEW 139

10.8 MAIN BOARD – BOTTOM VIEW 139

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1504014-407	CIIPC Report	2015-11-18
1	R1504014-407 Rev A	Update Test Data	2015-12-30

1 General Description

1.1 Product Description for Equipment under Test (EUT)

This test and measurement report has been compiled on behalf of *Ruckus Wireless, Inc.* and their product, *FCC ID: S9GZF7761CM*, model number: *ZF7761CM*, which henceforth is referred to as the EUT (Equipment Under Test.) The EUT is a wireless AP.

1.2 Mechanical Description of EUT

The EUT measures approximately 20 cm (W) x 27 cm (L) 19 cm (H), weighs approximately 4.45 kg.

The data gathered are from a typical production sample provided by the manufacturer with serial number: R1504014-1, assigned by BACL.

1.3 Objective

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

The objective is to determine compliance with FCC Part 15.407 for Output Power, Antenna Requirements, AC Line Conducted Emissions, Bandwidth, and power spectral density, Band Edges Measurement, Spurious Emissions, Conducted and Radiated Spurious Emissions.

1.4 Related Submittal(s)/Grant(s)

DTS filing with FCC ID: S9GZF7761CM.

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.6 Measurement Uncertainty

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

Based on CISPR16-4-2:2011, 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 BACL Corp.

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

1.7 Test Facility

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:

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 C63.4-2014, ANSI C63.4-2014, 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 C63.10-2013 and KDB-789033 D02 General UNII Test Procedures New Rules v01

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

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

2.2 EUT Exercise Software

The test software used was 'ZF7762_GD10_ART', it was been used to perform commands to control the radio.

2.3 Special Equipment

N/A

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 Local Support Equipment

Manufacturer	Description	Model	Serial No.
DELL	Laptop	Latitude	-

2.6 EUT Internal Configuration Details

Manufacturer	Description	Model
Ruckues Wireless, Inc	Main Board	Giterdone 10

2.7 Interface Ports and Cables

Cable Description	Length (m)	To	From
RF Cable	<1M	PSA	EUT
Ethernet Cable	<1M	EUT	Laptop

3 Summary of Test Results

FCC Rules	Description of Test	Result
§15.407(f), §2.1091	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207	AC Power Line Conducted Emissions	Compliant ¹
§15.209(a), 15.407(b)	Spurious Radiated Emissions	Compliant ¹
§15.407(a)	Emission Bandwidth	Compliant
§15.407(a)	Output Power Measurement	Compliant
§15.407(a)	Power Spectral Density	Compliant
§2.1051, §15.407(b)	Spurious Emissions at Antenna Terminals	Compliant
§15.407(h)	Dynamic Frequency Selection (DFS).	Compliant ²

Note¹: Share data with original application report results. (FCC ID: S9GZF7761CM)

Note²: Please refer to report R1504014-DFS

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

4.1 Applicable Standard

According to FCC §15.407(f) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* (100)	30
1.34-30	824/f	2.19/f	* (180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

4.2 MPE Prediction

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

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

Where: S = power density

P = power input to antenna

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

R = distance to the center of radiation of the antenna

4.3 MPE Results

5.2 GHz band:

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>16.72</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>46.98941</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5190</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>5.5</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>3.55</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.03319</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.03319 mW/cm². Limit is 1.0 mW/cm².

5.8 GHz band:

<u>Maximum peak output power at antenna input terminal (dBm):</u>	<u>27.21</u>
<u>Maximum peak output power at antenna input terminal (mW):</u>	<u>526.0173</u>
<u>Prediction distance (cm):</u>	<u>20</u>
<u>Prediction frequency (MHz):</u>	<u>5825</u>
<u>Maximum Antenna Gain, typical (dBi):</u>	<u>5.5</u>
<u>Maximum Antenna Gain (numeric):</u>	<u>3.55</u>
<u>Power density of prediction frequency at 20.0 cm (mW/cm²):</u>	<u>0.3715</u>
<u>MPE limit for uncontrolled exposure at prediction frequency (mW/cm²):</u>	<u>1.0</u>

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.3715 mW/cm². Limit is 1.0 mW/cm².

5 FCC §15.203 – Antenna Requirements

5.1 Applicable Standard

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

5.2 Antenna Description

Antenna Type	Antenna Gain (dBi) @ 5 GHz
Omi antenna	5.5

Note: For the Antenna directional gain greater than 6dBi, the limit for Power and PSD will be reduced by certain amount.

6 FCC §15.407(a) & §15.407(e) – Emission Bandwidth

6.1 Applicable Standards

FCC §15.407(a)

26 dB emission bandwidth is measured as reference for power and PSD measurement.

FCC §15.407(e)

Within the 5.725-5.85 GHz band, the minimum 6 dB Bandwidth of U-NII devices shall be at least 500 kHz.

6.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section C: Emission bandwidth and section D: 99 Percent Occupied Bandwidth

6.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Spectrum Analyzer	E4440A	MY44303352	2014-10-16	1 year

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

6.4 Test Environmental Conditions

Temperature:	21 °C
Relative Humidity:	43 %
ATM Pressure:	105.2 kPa

The testing was performed by Jin Yang from 2015-08-11 at RF site.

6.5 Test Results

Please refer to the following tables and plots.

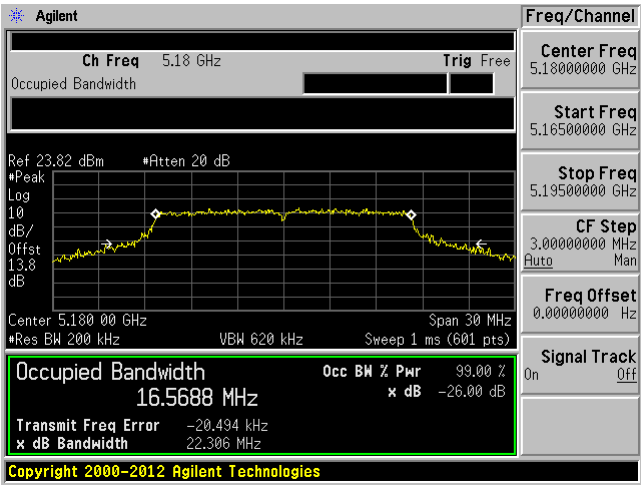
5.2 GHz Band

Channel	Frequency (MHz)	99% OBW (MHz)			26 dB OBW (MHz)		
		Antenna 0	Antenna 1	Antenna 2	Antenna 0	Antenna 1	Antenna 2
802.11a							
Low	5180	16.5688	16.5133	16.5377	22.306	20.897	20.806
Middle	5200	16.5454	16.5621	16.4756	22.720	22.761	21.374
High	5240	16.5802	16.5107	16.5163	22.090	21.510	20.804
802.11n20							
Low	5180	17.7796	17.7559	17.7235	23.433	22.543	22.556
Middle	5200	17.7493	17.7065	17.6933	24.326	21.542	22.414
High	5240	17.7723	17.7222	17.6962	22.793	22.704	23.170
802.11n40							
Low	5190	36.5086	36.4634	36.3397	46.506	45.039	43.634
High	5230	36.5972	36.3544	36.3590	47.033	45.190	43.351

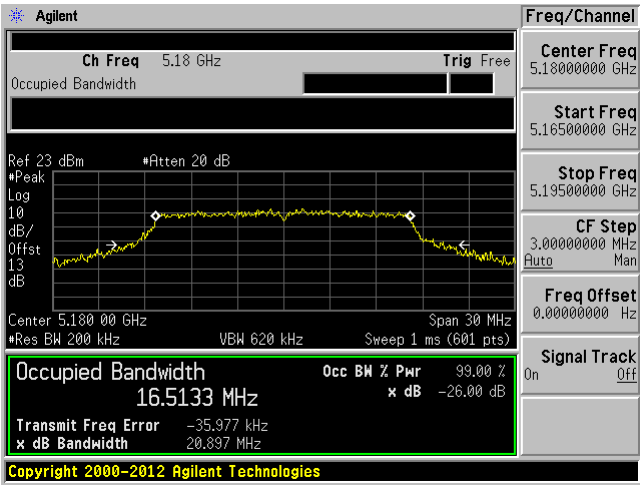
99% & 26 dB Emission Bandwidth

802.11a mode

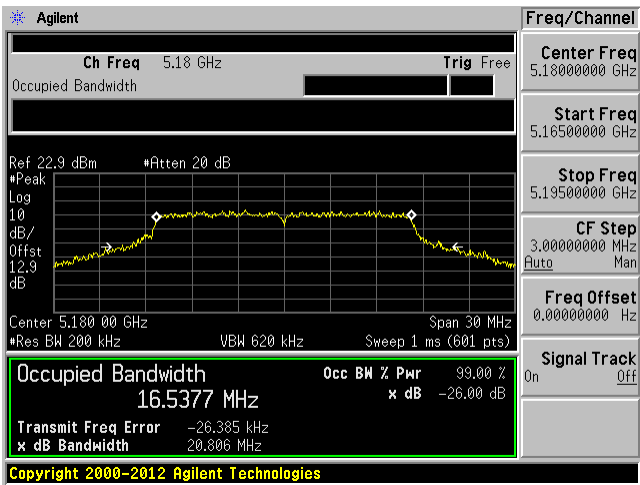
Low channel: Chain 0



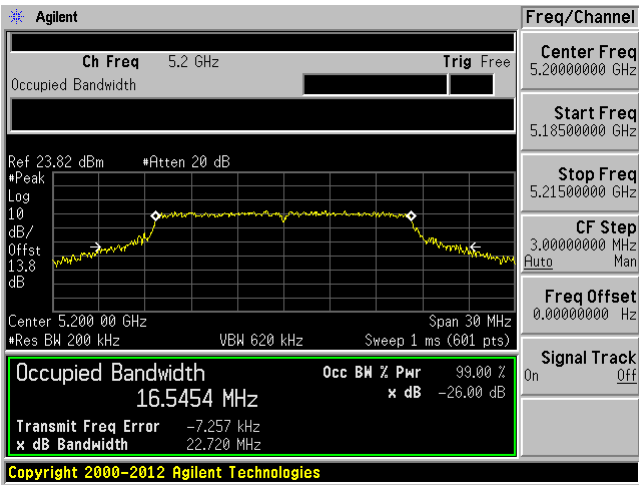
Low channel: Chain 1



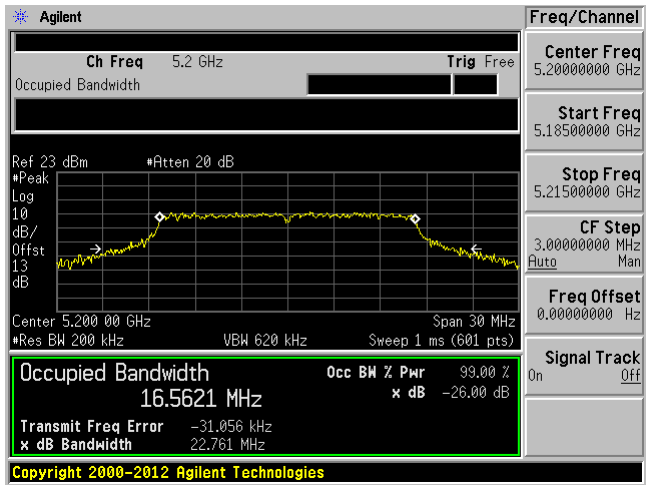
Low channel: Chain 2



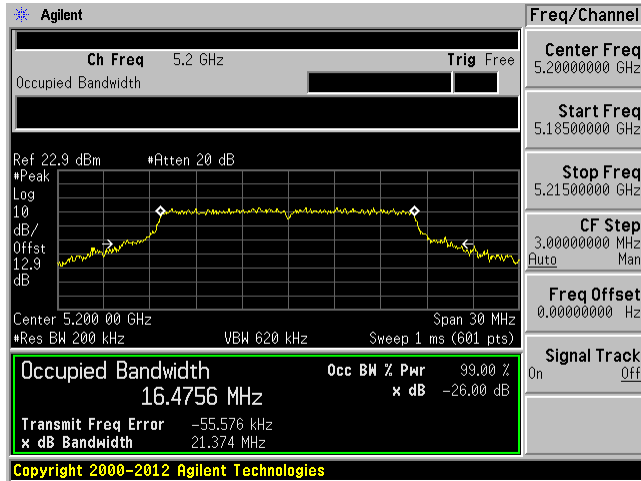
Middle channel: Chain 0



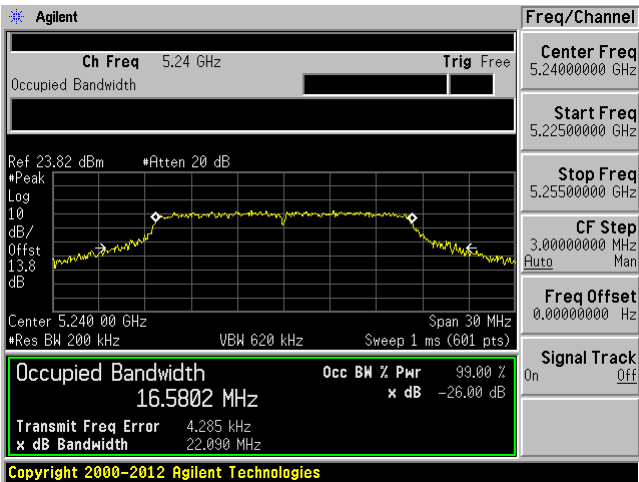
Middle channel: Chain 1



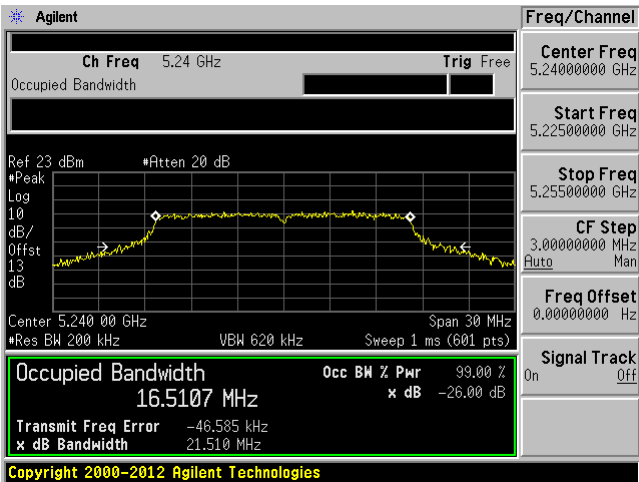
Middle channel: Chain 2



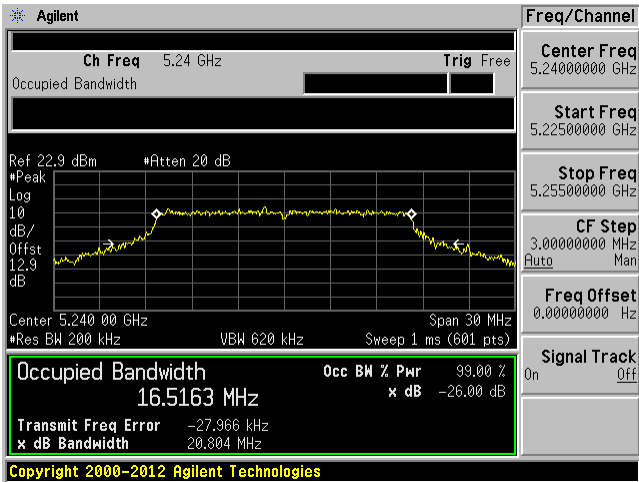
High channel: Chain 0



High channel: Chain 1

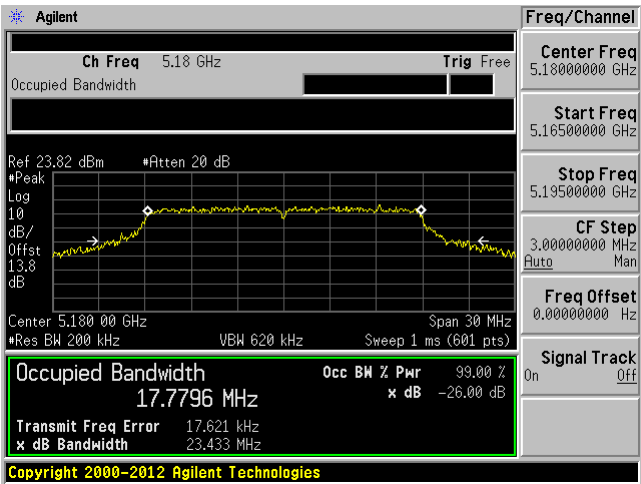


High channel: Chain 2

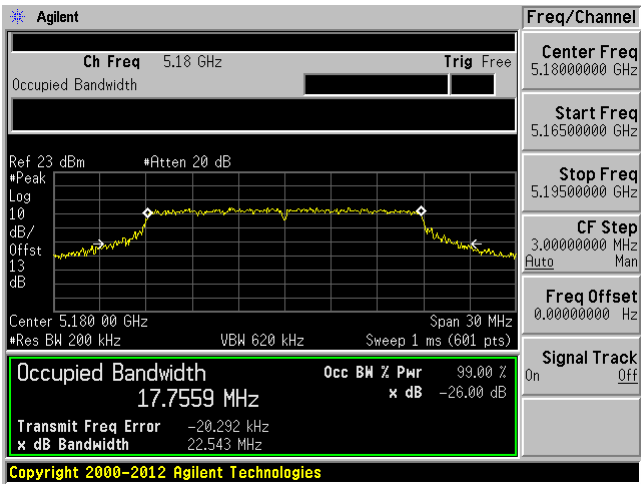


802.11n20 mode

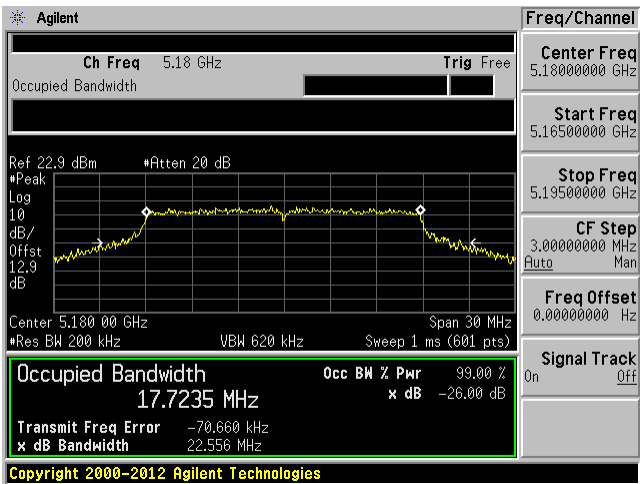
Low channel: Chain 0



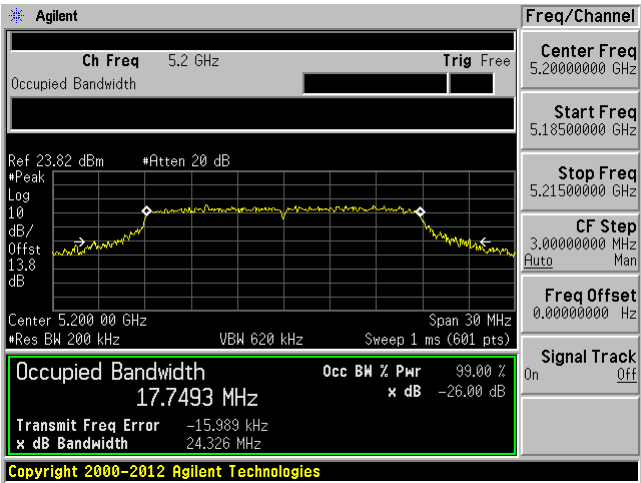
Low channel: Chain 1



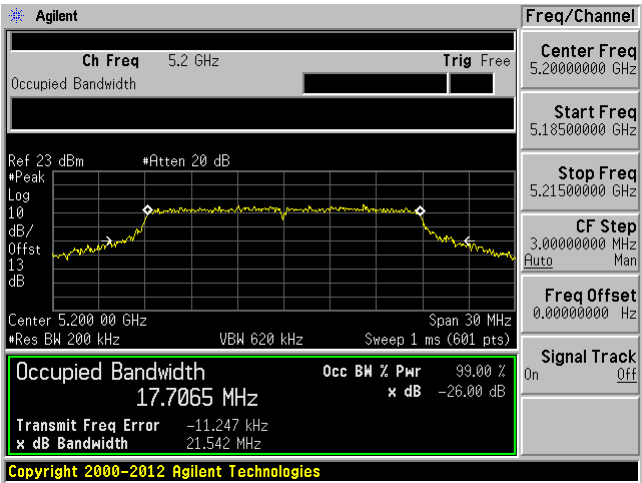
Low channel: Chain 2



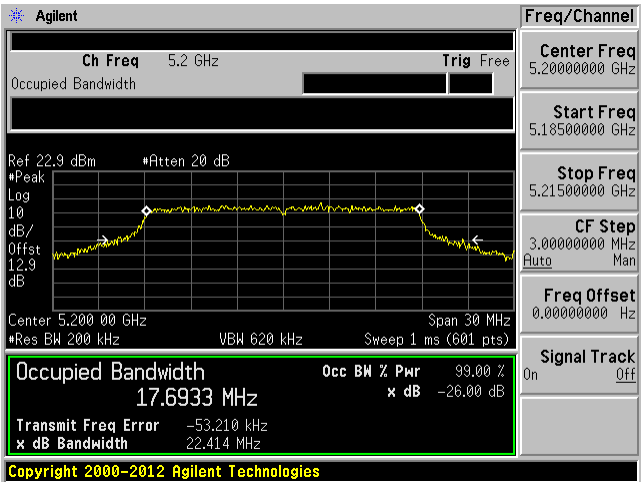
Middle channel: Chain 0



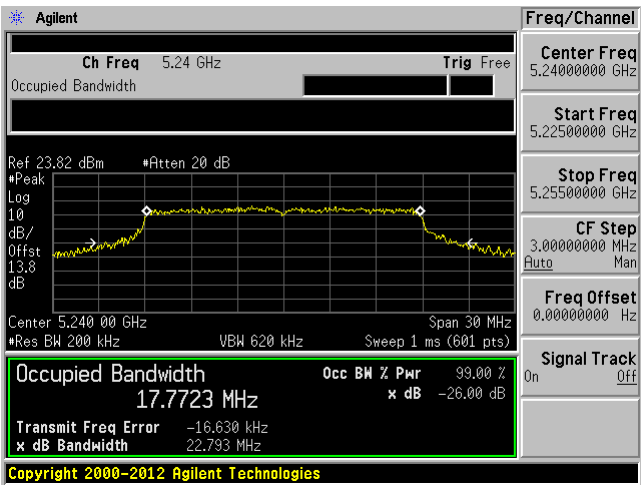
Middle channel: Chain 1



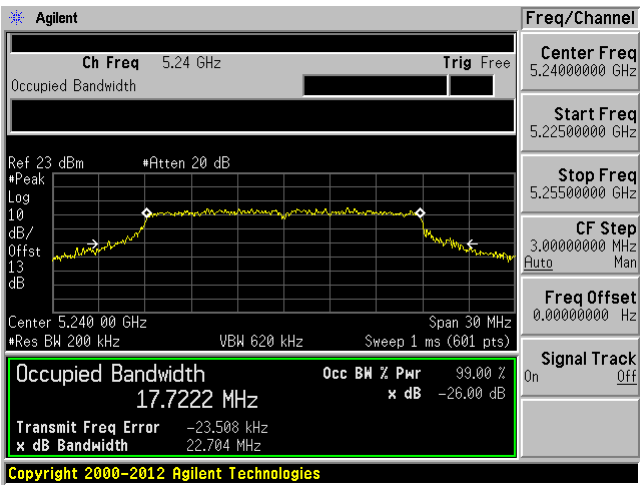
Middle channel: Chain 2



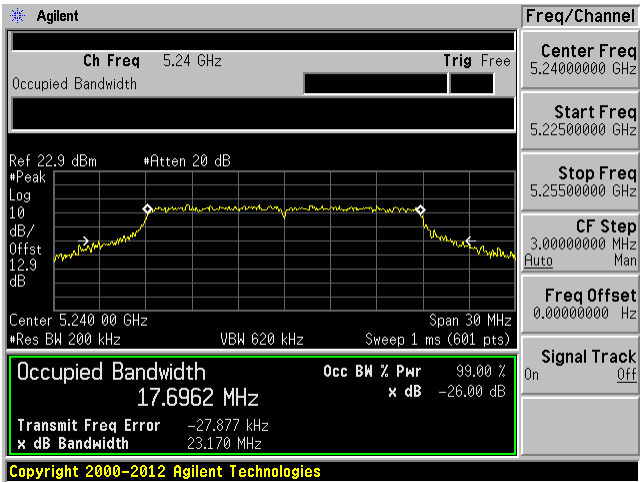
High channel: Chain 0



High channel: Chain 1

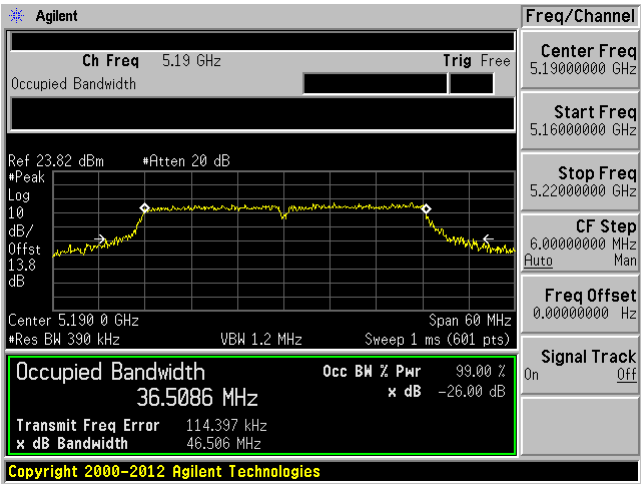


High channel: Chain 2

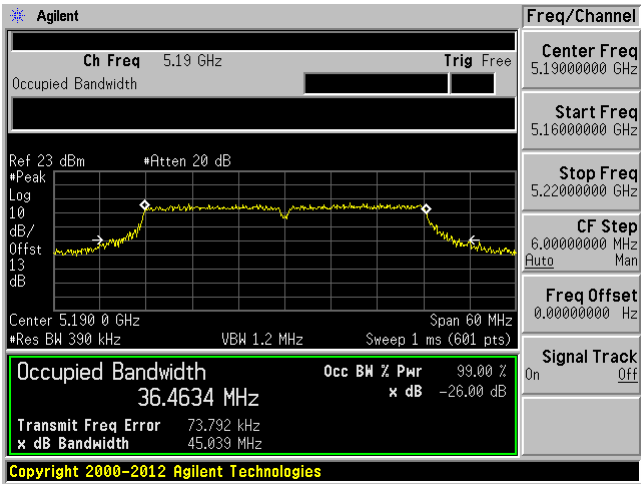


802.11n40 mode

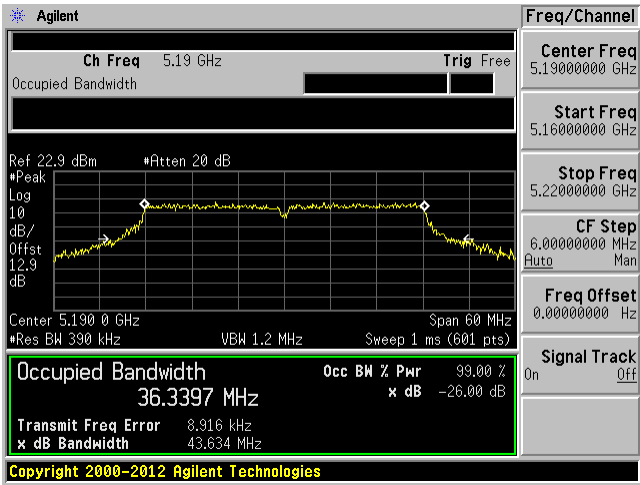
Low channel: Chain 0



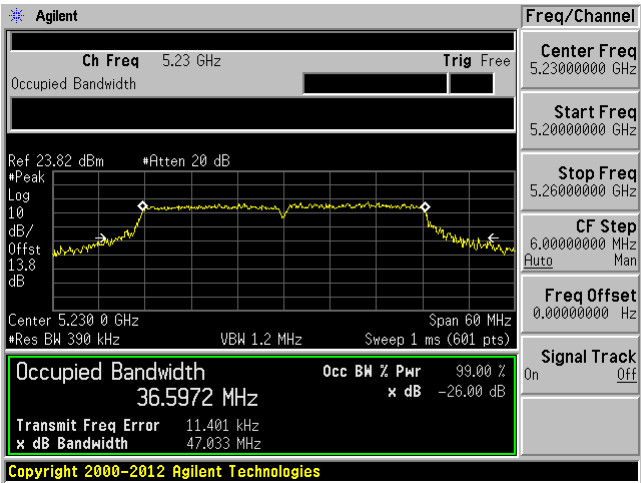
Low channel: Chain 1



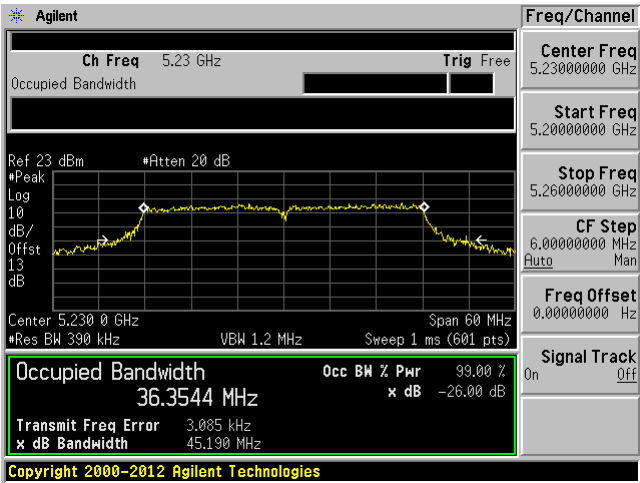
Low channel: Chain 2



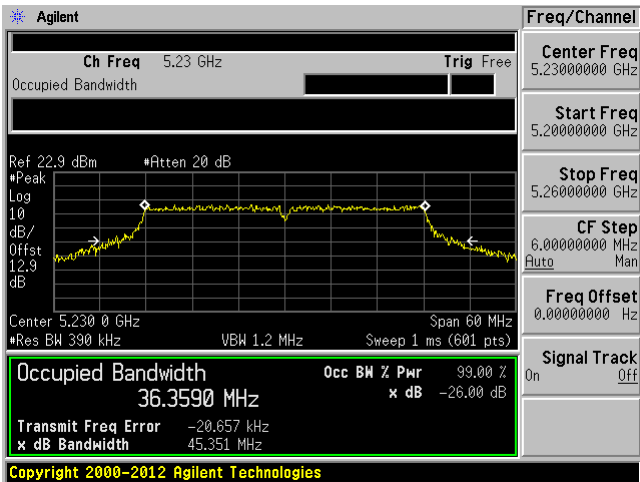
High channel: Chain 0



High channel: Chain 1



High channel: Chain 2



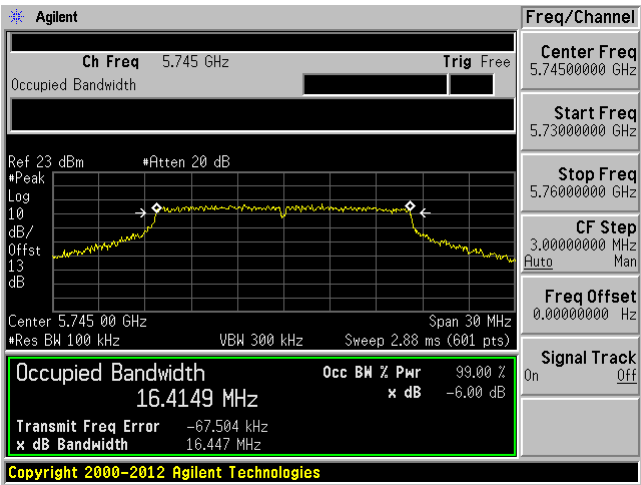
5.8 GHz Band

Channel	Frequency (MHz)	99% OBW (MHz)			6 dB OBW (MHz)		
		Antenna 0	Antenna 1	Antenna 2	Antenna 0	Antenna 1	Antenna 2
802.11a							
Low	5745	16.4149	16.4448	16.3996	16.447	16.535	15.832
Middle	5785	16.4447	16.4433	16.4240	15.190	16.218	16.436
High	5825	16.4495	16.4440	16.4254	16.049	16.478	16.387
802.11n20							
Low	5745	17.6472	17.6652	17.6323	16.717	17.669	17.681
Middle	5785	17.6446	17.6397	17.6543	16.893	17.687	17.633
High	5825	17.6143	17.6390	17.6366	16.769	17.318	17.104
802.11n40							
Low	5755	36.2379	36.2609	36.2234	33.897	36.363	36.352
High	5795	36.2733	36.2426	36.2766	35.904	36.370	36.525

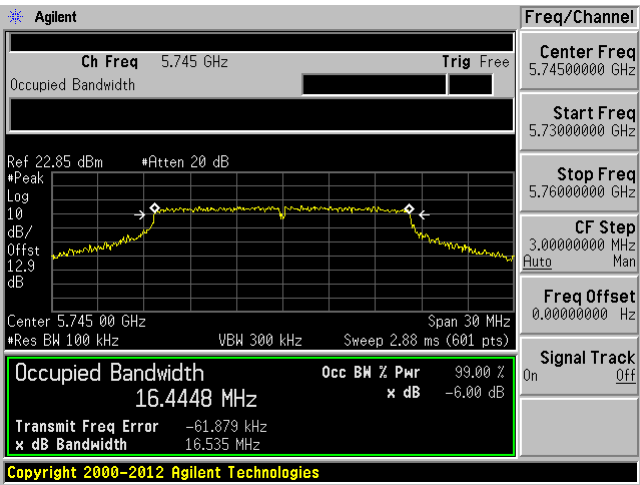
99% & 6 dB Emission Bandwidth

802.11a mode

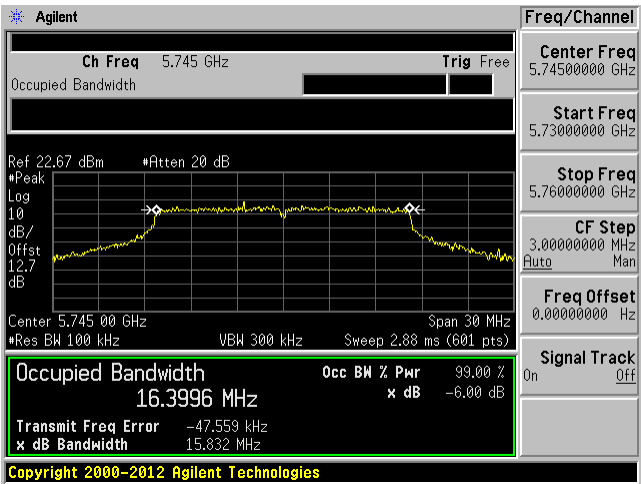
Low channel: Chain 0



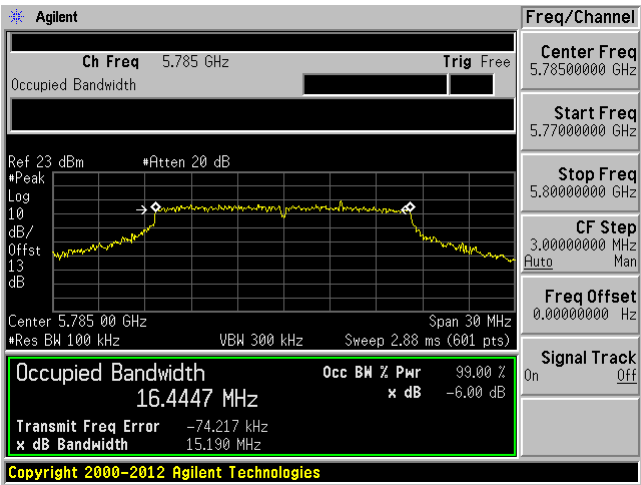
Low channel: Chain 1



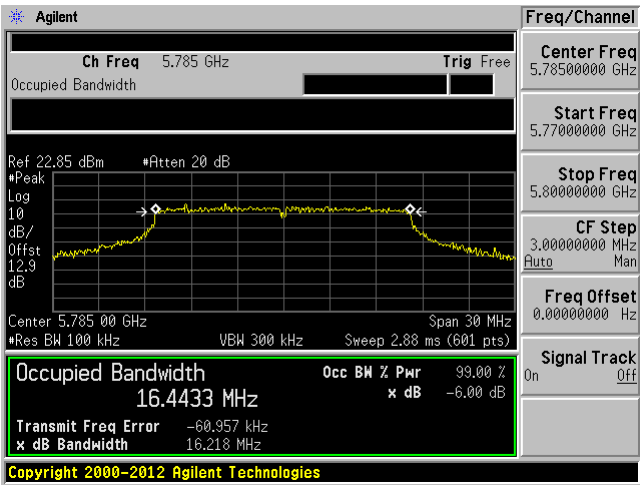
Low channel: Chain 2



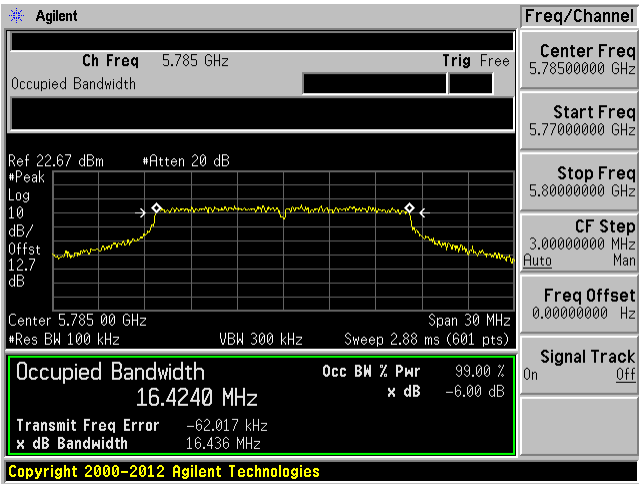
Middle channel: Chain 0



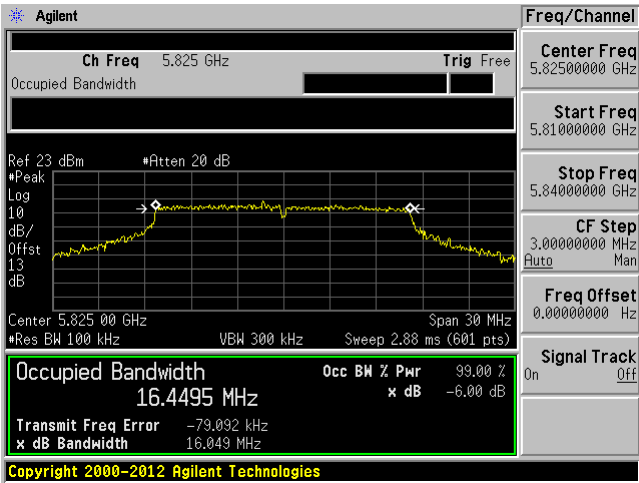
Middle channel: Chain 1



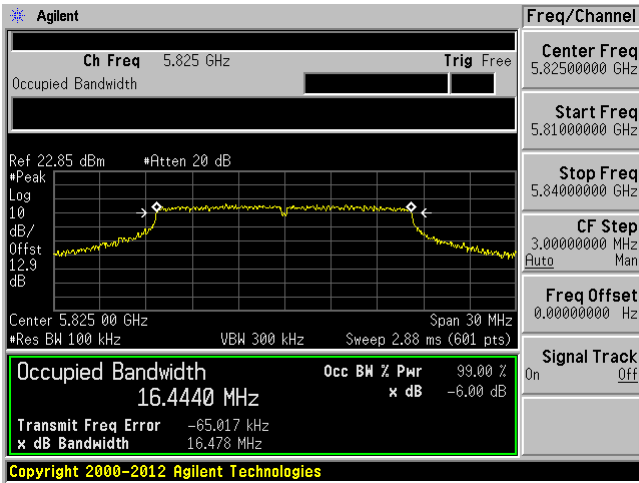
Middle channel: Chain 2



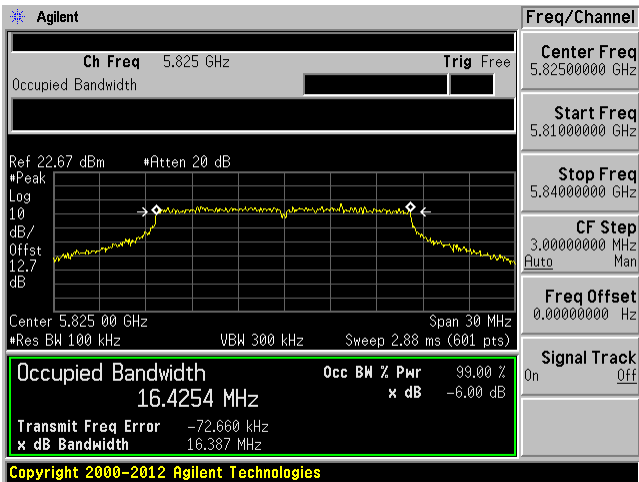
High channel: Chain 0



High channel: Chain 1

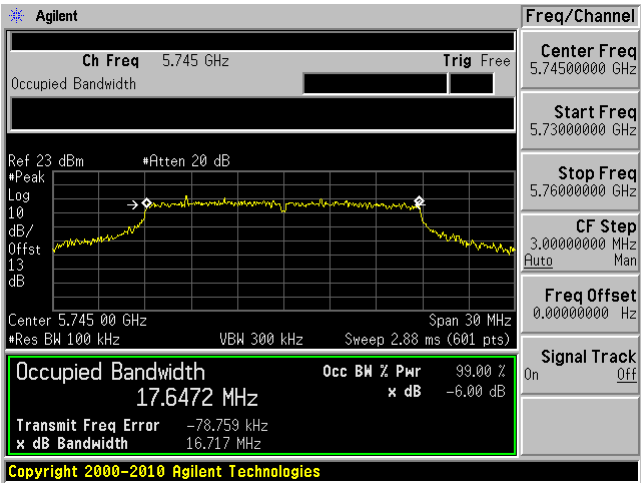


High channel: Chain 2

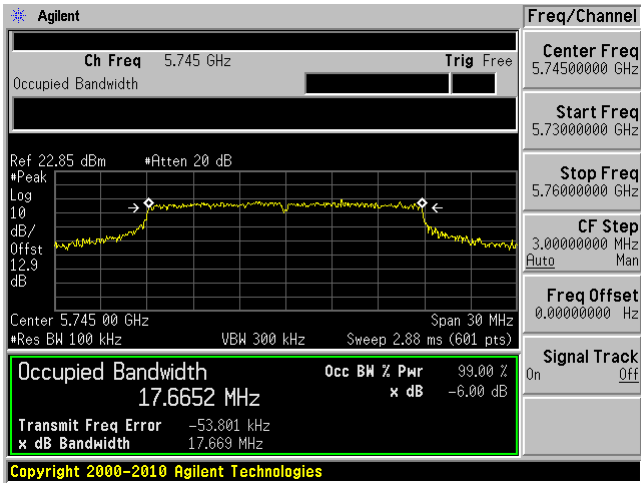


802.11n20 mode

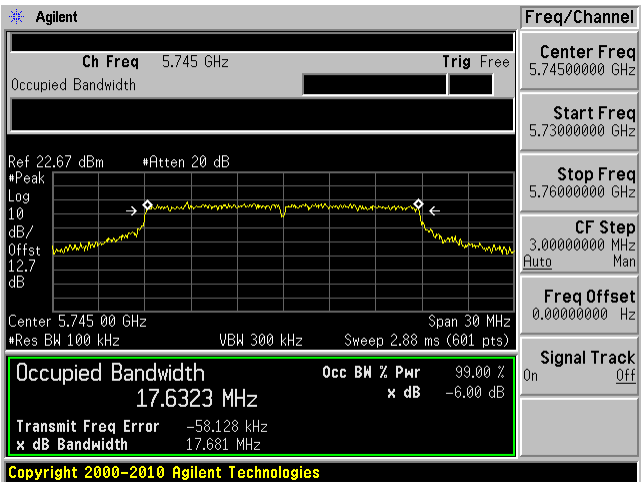
Low channel: Chain 0



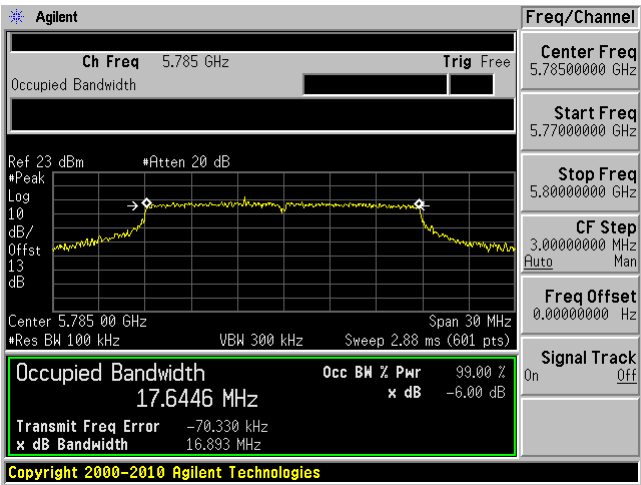
Low channel: Chain 1



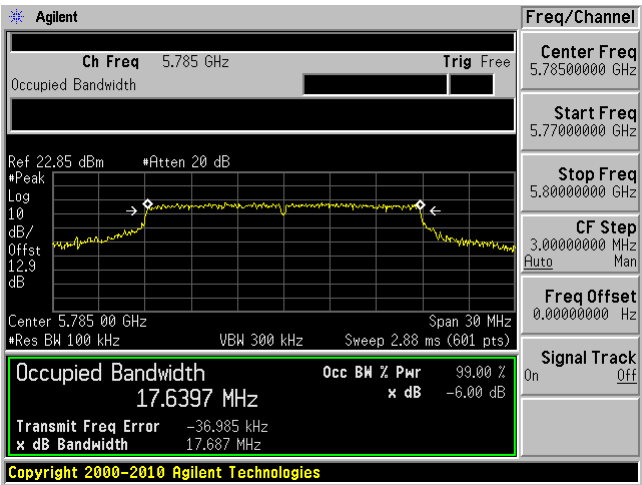
Low channel: Chain 2



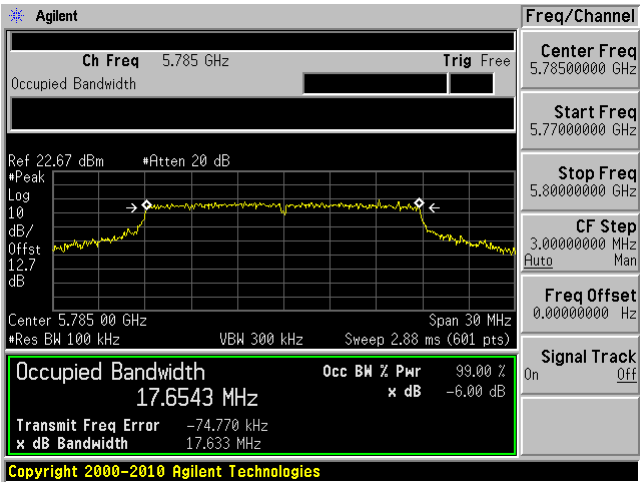
Middle channel: Chain 0



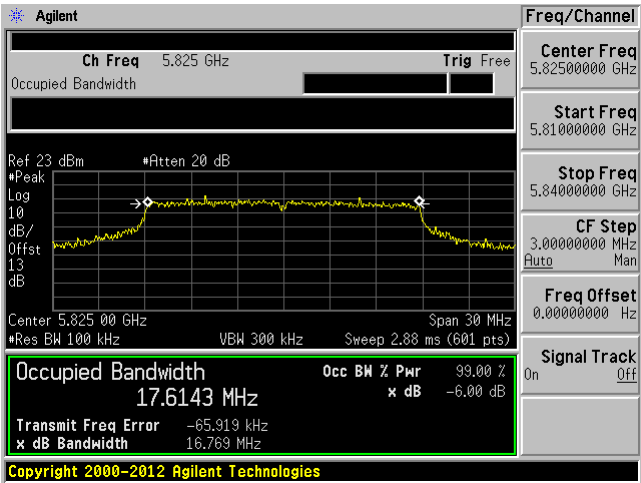
Middle channel: Chain 1



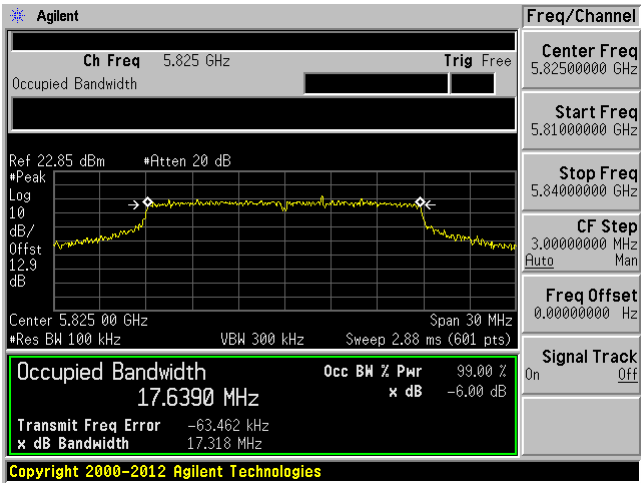
Middle channel: Chain 2



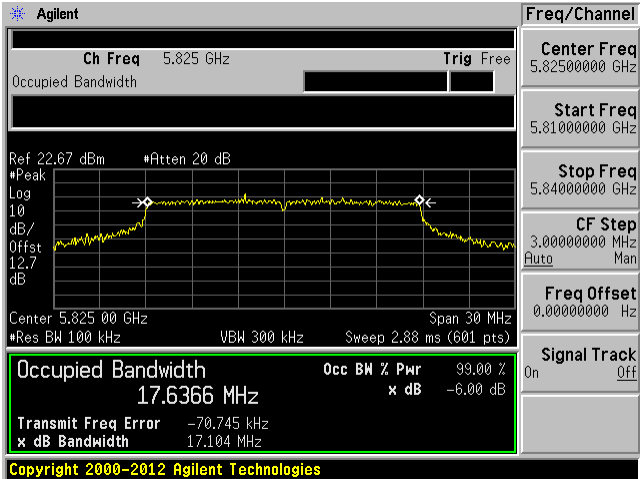
High channel: Chain 0



High channel: Chain 1

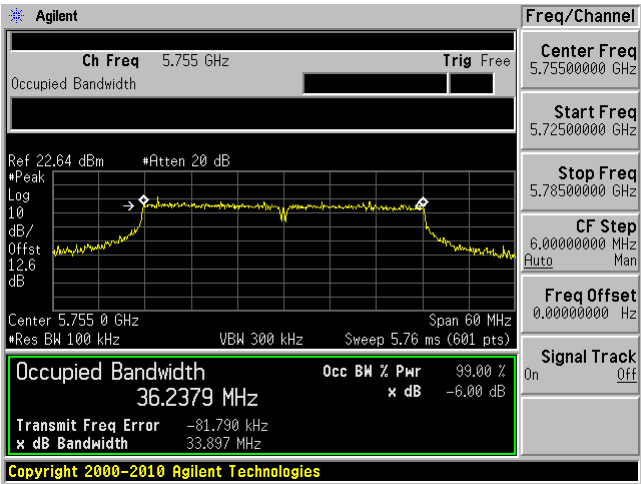


High channel: Chain 2

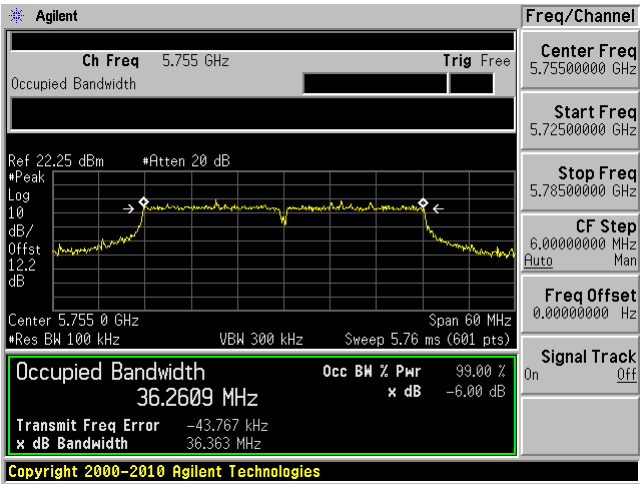


802.11n40 mode

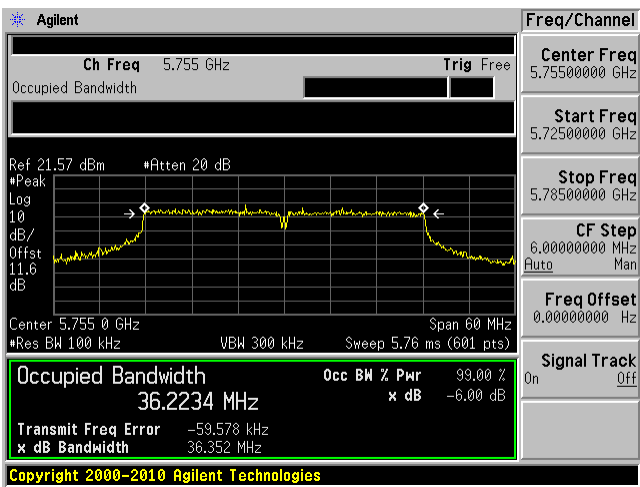
Low channel: Chain 0



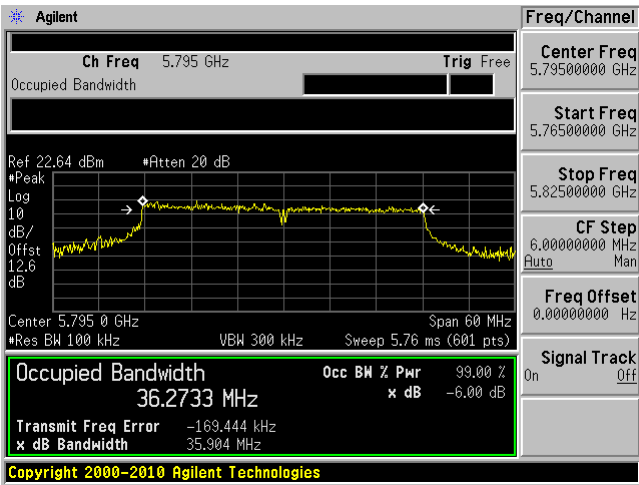
Low channel: Chain 1



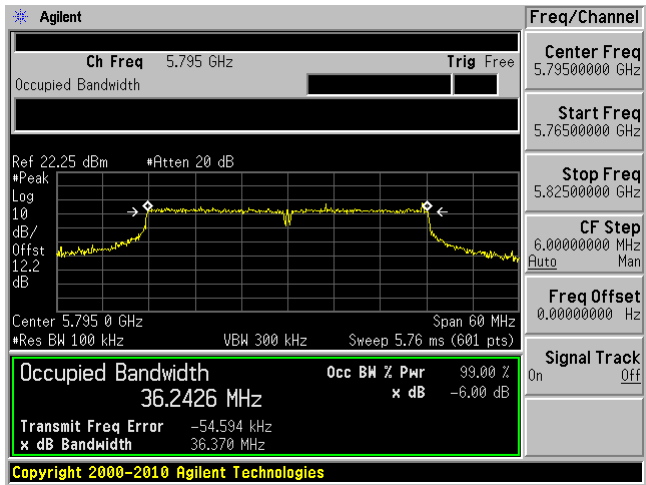
Low channel: Chain 2



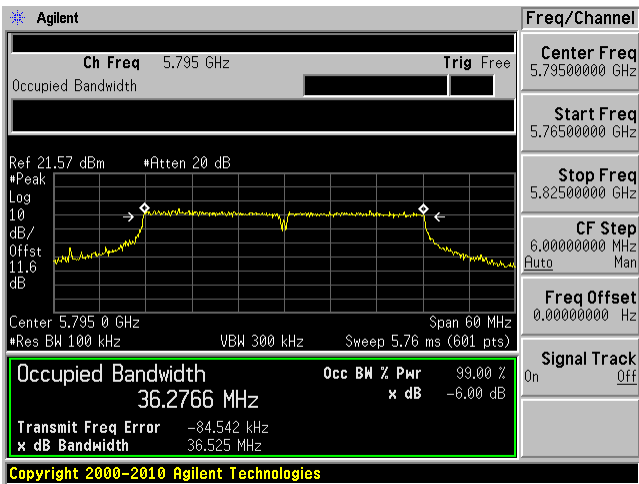
High channel: Chain 0



High channel: Chain 1



High channel: Chain 2



7 FCC §407(a) – Maximum Conducted Output Power

7.1 Applicable Standards

According to FCC §15.407(a)

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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 maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

7.2 Measurement Procedure

Test measurements are based on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01, GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

7.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Spectrum Analyzer	E4440A	MY44303352	2014-10-16	1 year

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

7.4 Test Environmental Conditions

Temperature:	22-25° C
Relative Humidity:	40-43 %
ATM Pressure:	102.1-104.4 KPa

The testing was performed by Jin Yang from 2015-07-09 to 2015-08-11 at RF site.

7.5 Test Results

5.2 GHz Band–Peak Output Power

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Total Power (dBm)	Limit (dBm)	Result
		Chain 0	Chain 1	Chain 2			
802.11a							
Low	5180	8.97	5.86	6.56	12.11	30	Pass
Middle	5200	7.83	6.22	7.37	11.96	30	Pass
High	5240	7.46	6.17	7.53	11.87	30	Pass
802.11n20							
Low	5180	11.52	9.58	10.33	15.32	30	Pass
Middle	5200	11.17	9.92	10.26	15.25	30	Pass
High	5240	11.98	8.89	10.35	15.36	30	Pass
802.11n40							
Low	5190	12.75	11.28	11.69	16.72	30	Pass
High	5230	12.81	11.23	11	16.53	30	Pass

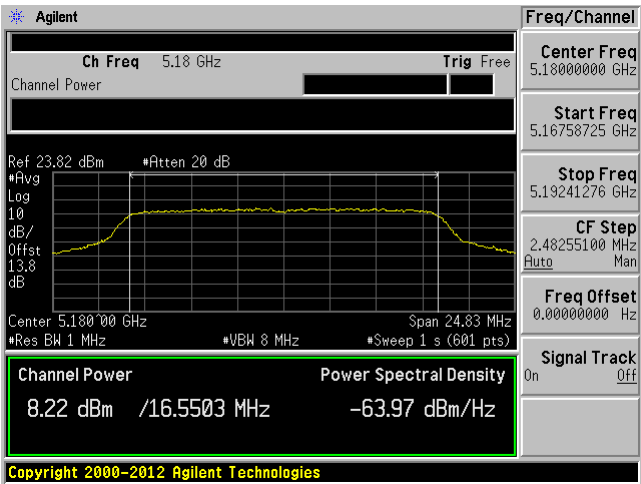
5.2 GHz Band–Average Output Power

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Total Power (dBm)	Limit (dBm)	Result
		Chain 0	Chain 1	Chain 2			
802.11a							
Low	5180	8.22	6.31	6.82	11.96	30	Pass
Middle	5200	7.72	5.75	6.98	11.66	30	Pass
High	5240	7.38	5.65	7.11	11.55	30	Pass
802.11n20							
Low	5180	11.14	9.18	9.91	14.92	30	Pass
Middle	5200	10.73	9.49	9.84	14.82	30	Pass
High	5240	11.33	9.04	10.23	15.07	30	Pass
802.11n40							
Low	5190	11.79	10.92	11.41	16.16	30	Pass
High	5230	12.3	10.69	10.86	16.12	30	Pass

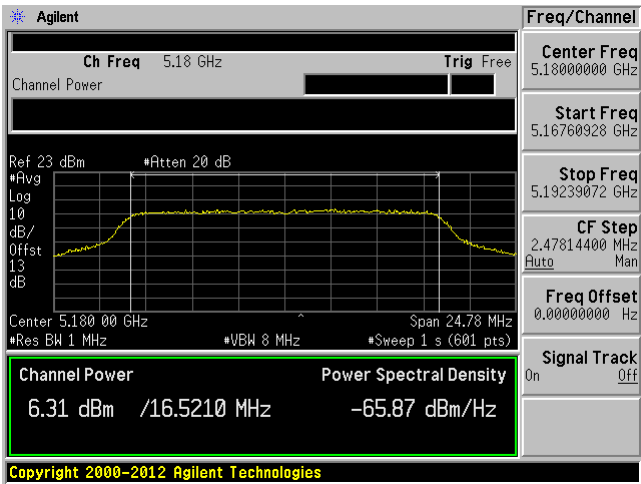
Please refer to the following plots for average output power.

802.11a mode

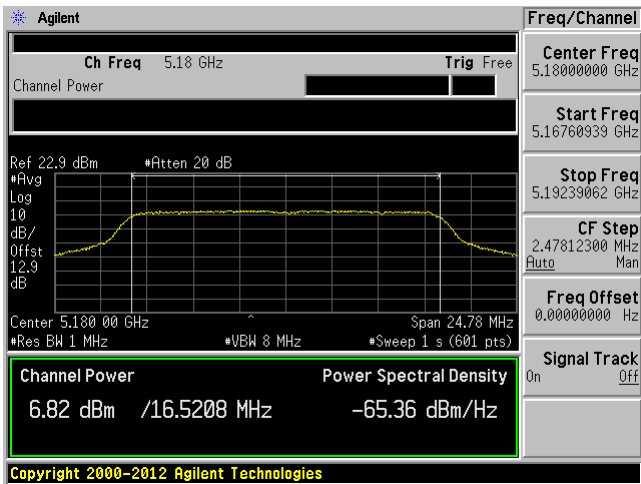
Low channel: Chain 0



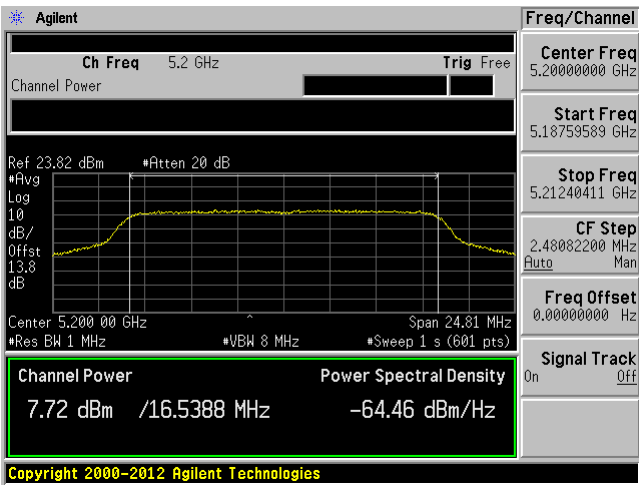
Low channel: Chain 1



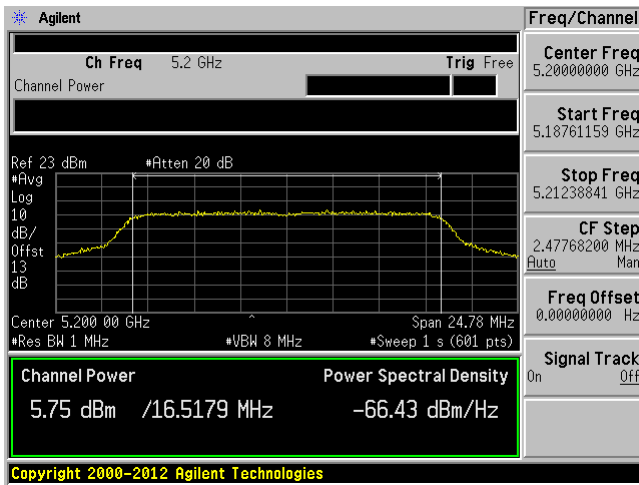
Low channel: Chain 2



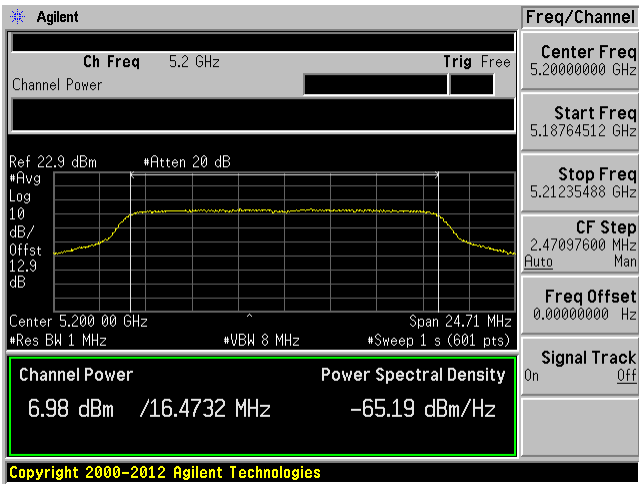
Middle channel: Chain 0



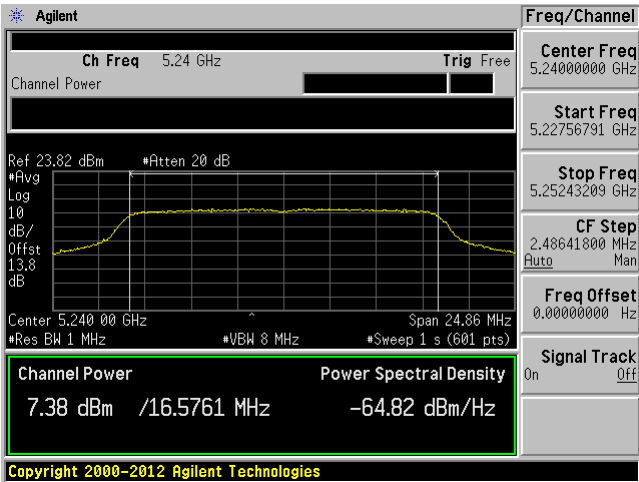
Middle channel: Chain 1



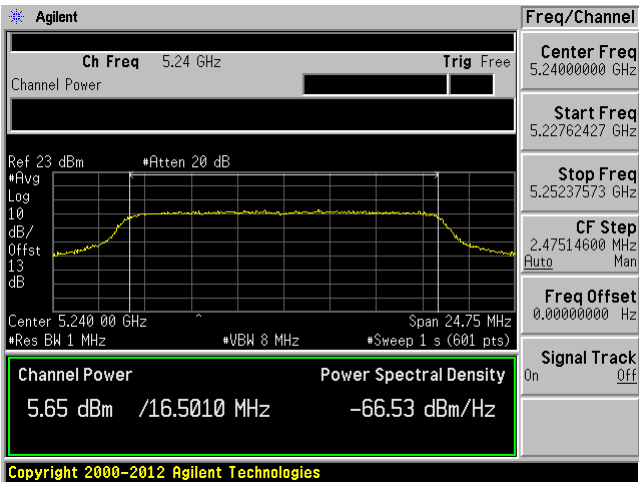
Middle channel: Chain 2



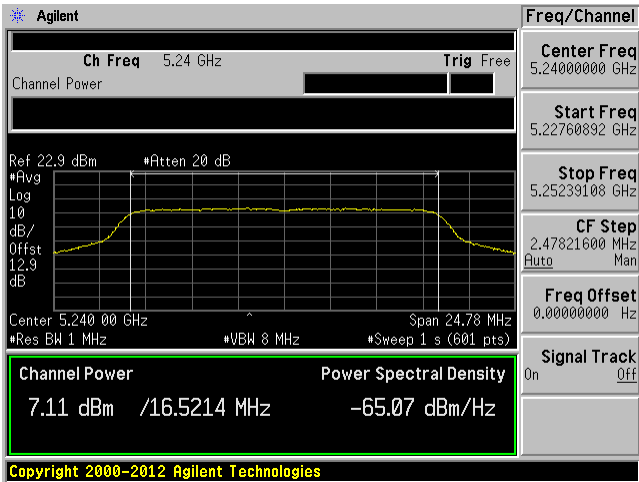
High channel: Chain 0



High channel: Chain 1

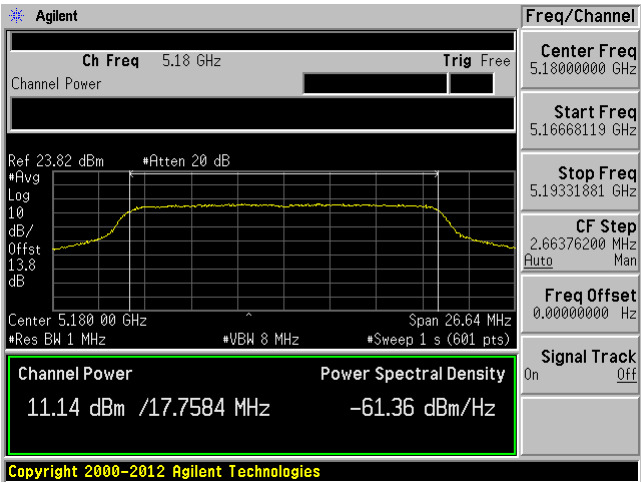


High channel: Chain 2

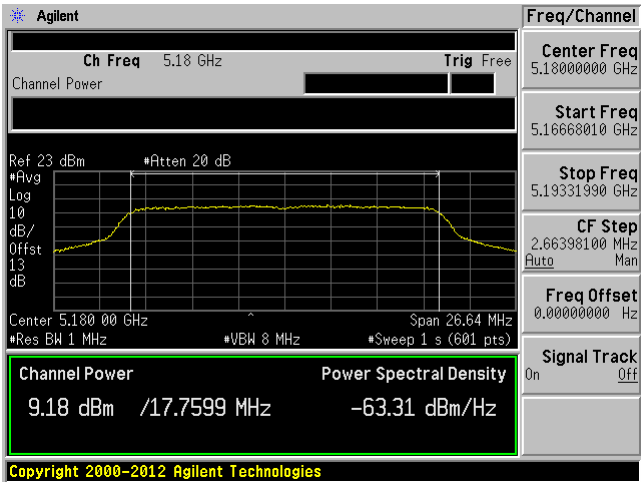


802.11n20 mode

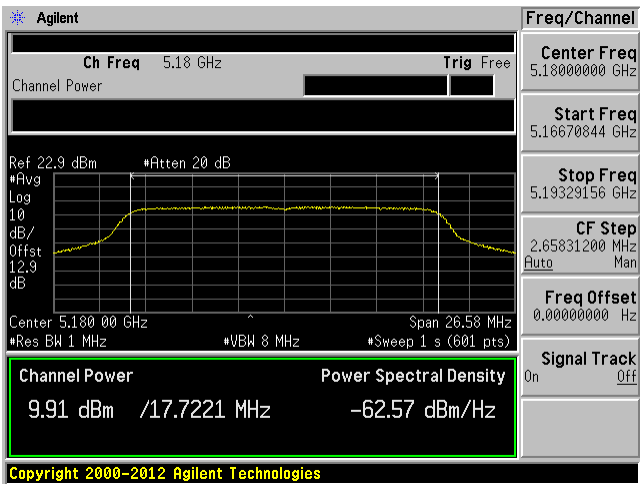
Low channel: Chain 0



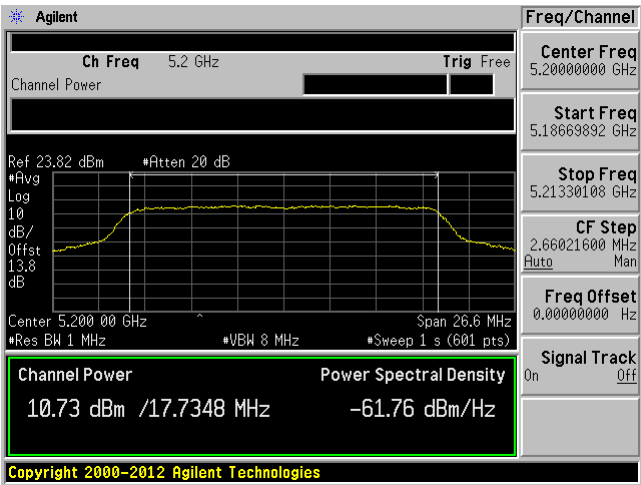
Low channel: Chain 1



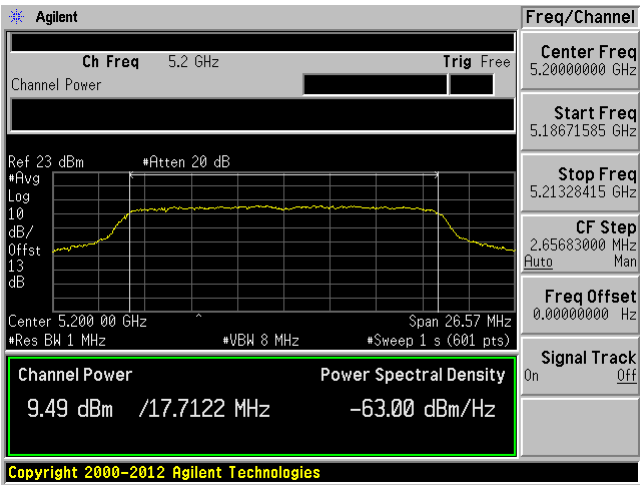
Low channel: Chain 2



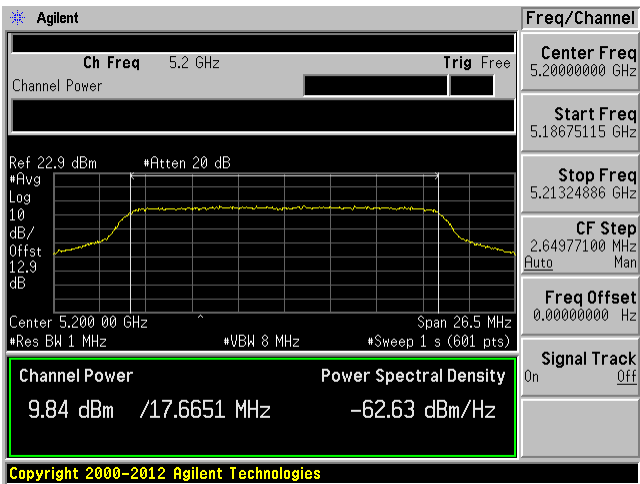
Middle channel: Chain 0



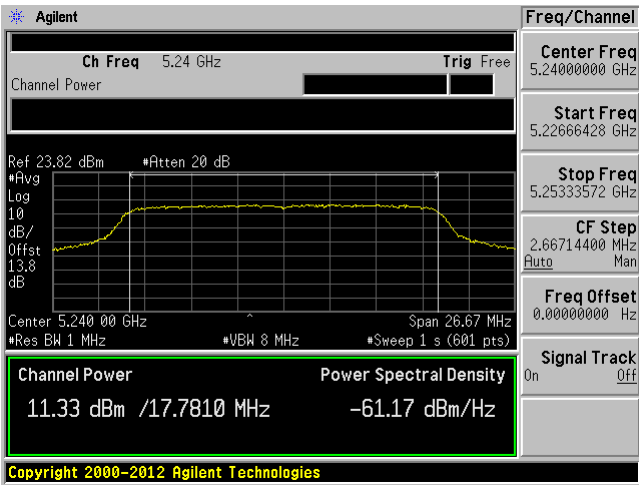
Middle channel: Chain 1



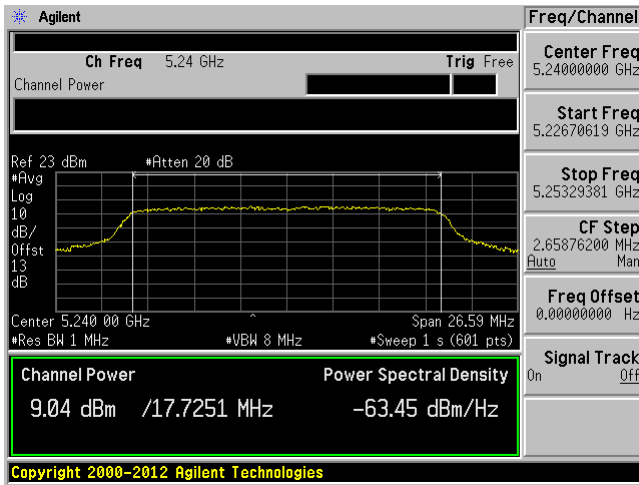
Middle channel: Chain 2



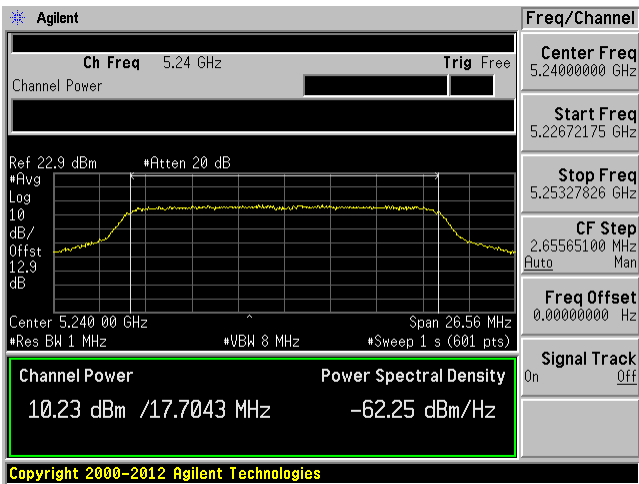
High channel: Chain 0



High channel: Chain 1

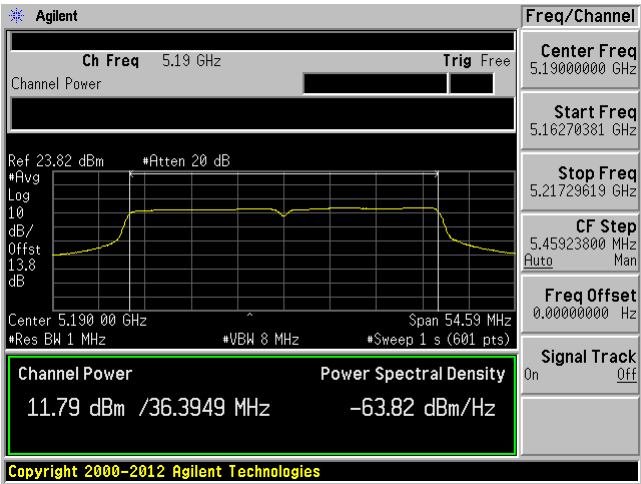


High channel: Chain 2

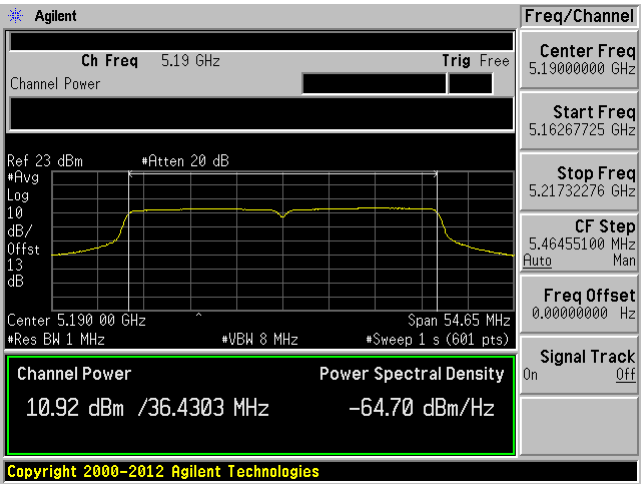


802.11n40 mode

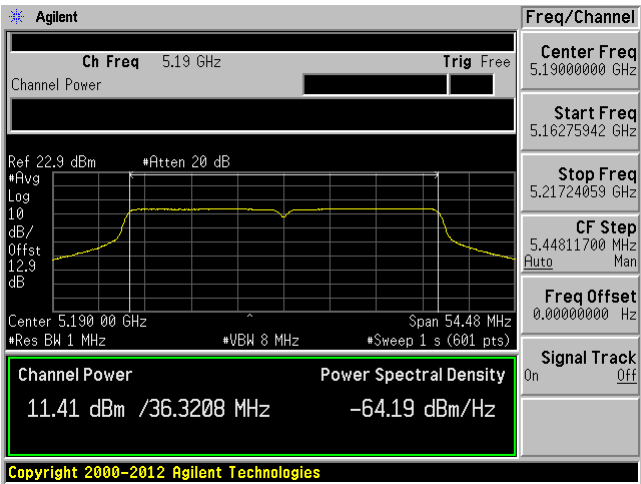
Low channel: Chain 0



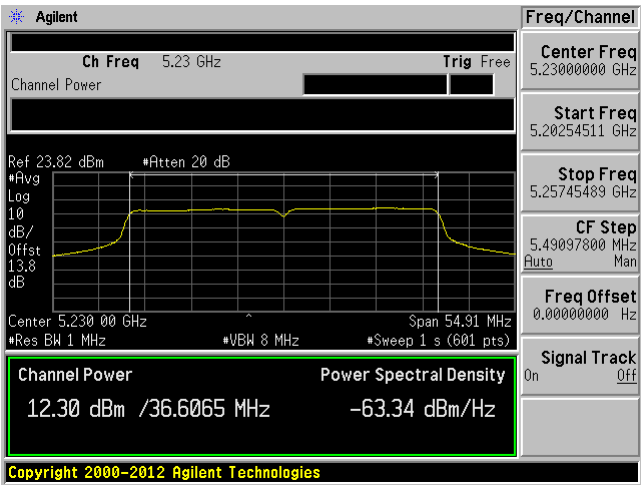
Low channel: Chain 1



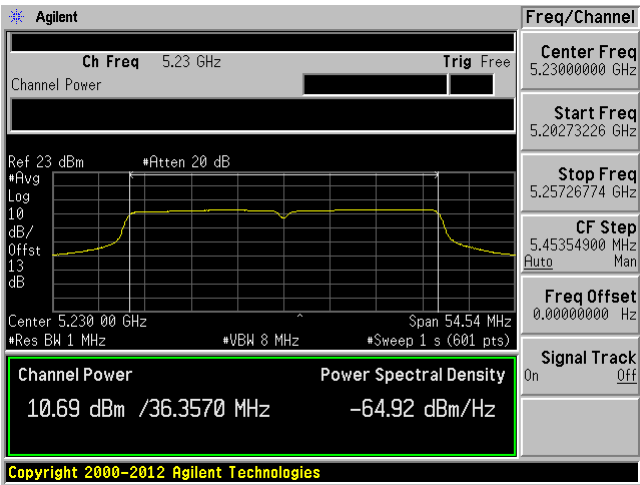
Low channel: Chain 2



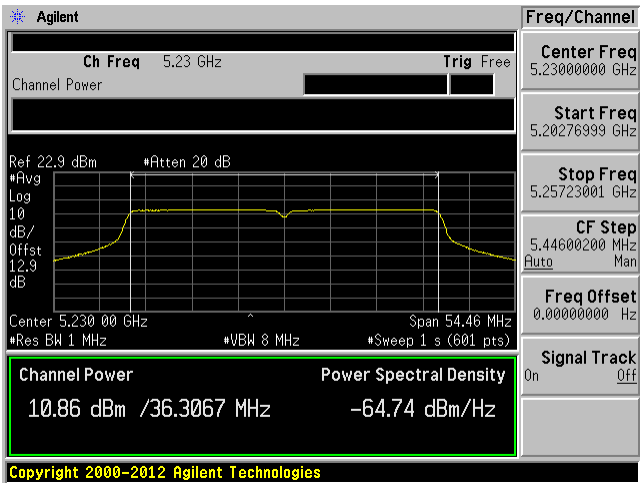
High channel: Chain 0



High channel: Chain 1



High channel: Chain 2



5.8 GHz Band–Peak Output Power

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Total Power (dBm)	Limit (dBm)	Result
		Chain 0	Chain 1	Chain 2			
802.11a							
Low	5745	21.14	20.35	20.13	25.33	30	Pass
Middle	5785	21.53	20.08	19.25	25.16	30	Pass
High	5825	20.56	20.12	19.57	24.87	30	Pass
802.11n20							
Low	5745	22.86	22.31	21.43	27.01	30	Pass
Middle	5785	22.97	22.04	21.5	26.98	30	Pass
High	5825	23.18	22.26	21.77	27.21	30	Pass
802.11n40							
Low	5735	23.15	22.43	20.98	27.05	30	Pass
High	5795	22.59	21.76	18.3	26.01	30	Pass

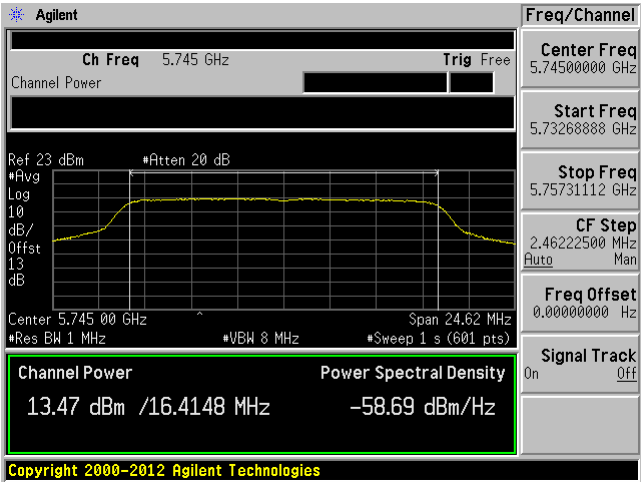
5.8 GHz Band–Average Output Power

Channel	Frequency (MHz)	Conducted Output Power (dBm)			Total Power (dBm)	Limit (dBm)	Result
		Chain 0	Chain 1	Chain 2			
802.11a							
Low	5745	13.47	12.81	12.19	17.63	30	Pass
Middle	5785	13.24	12.29	11.64	17.21	30	Pass
High	5825	13.33	12.82	11.84	17.48	30	Pass
802.11n20							
Low	5745	15.93	15.43	14.54	20.11	30	Pass
Middle	5785	16.11	15.52	14.74	20.26	30	Pass
High	5825	16.22	16.14	15.67	20.79	30	Pass
802.11n40							
Low	5735	16.49	15.42	14.02	20.20	30	Pass
High	5795	15.9	13.96	11.72	18.96	30	Pass

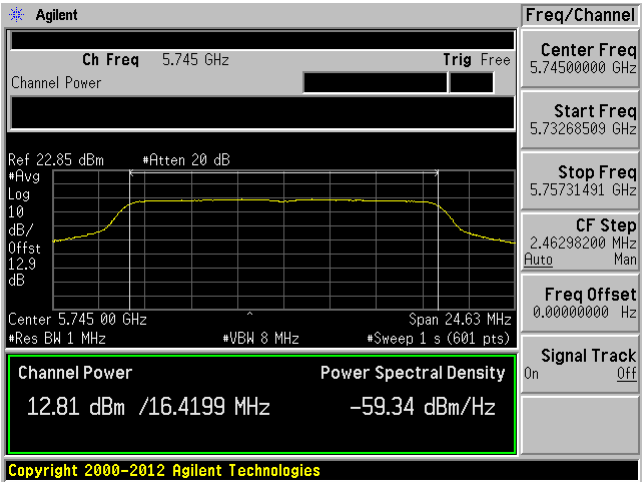
Please refer to the following plots for average output power.

802.11a mode

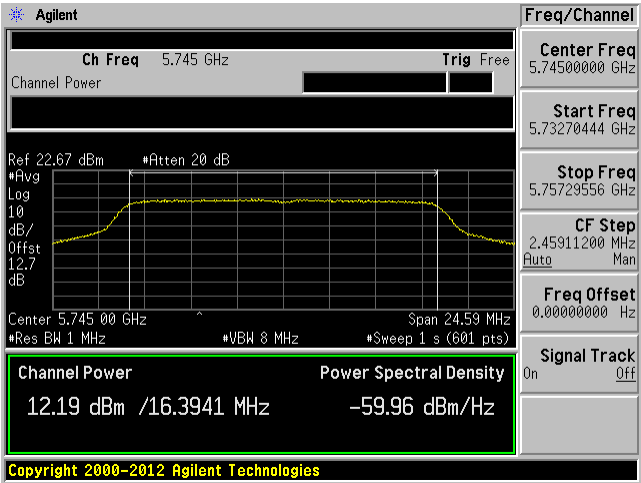
Low channel: Chain 0



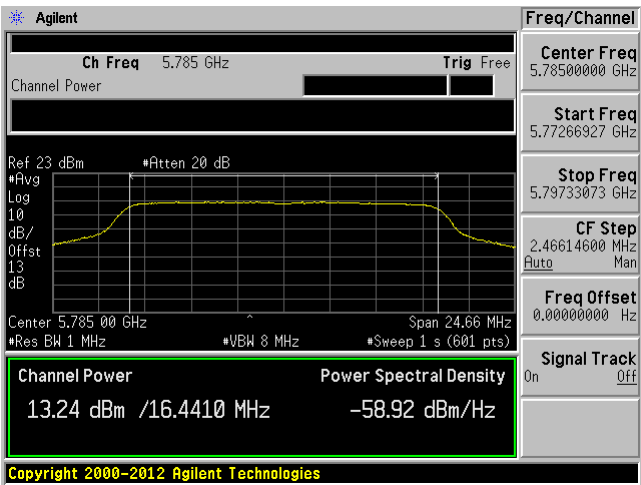
Low channel: Chain 1



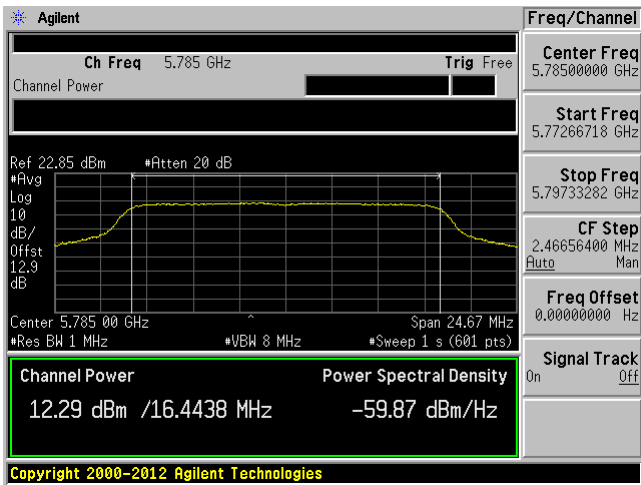
Low channel: Chain 2



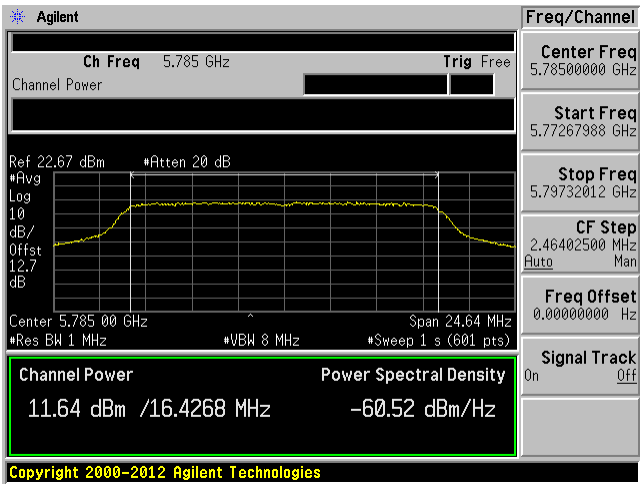
Middle channel: Chain 0



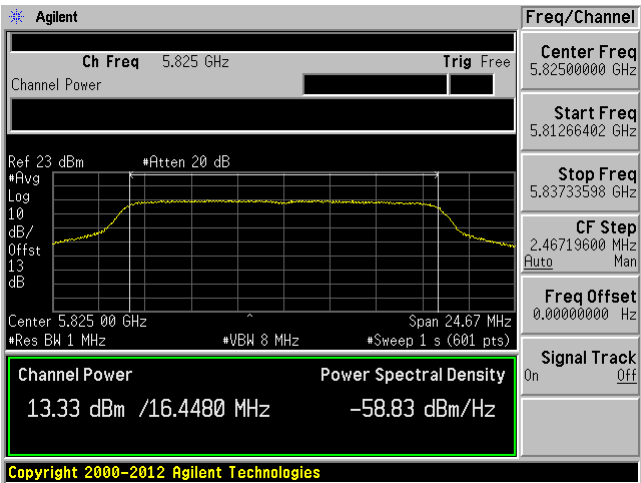
Middle channel: Chain 1



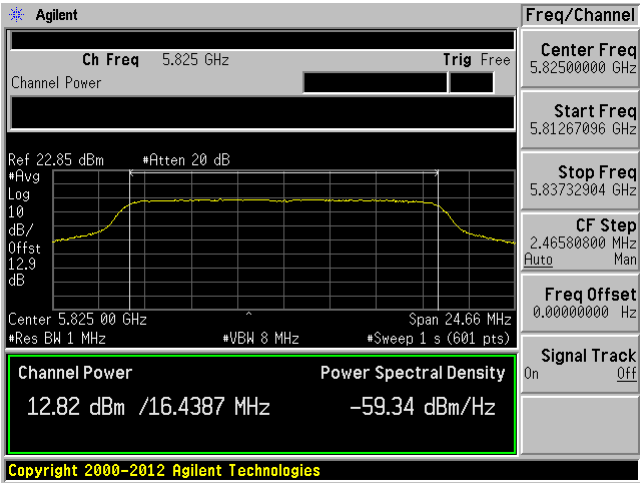
Middle channel: Chain 2



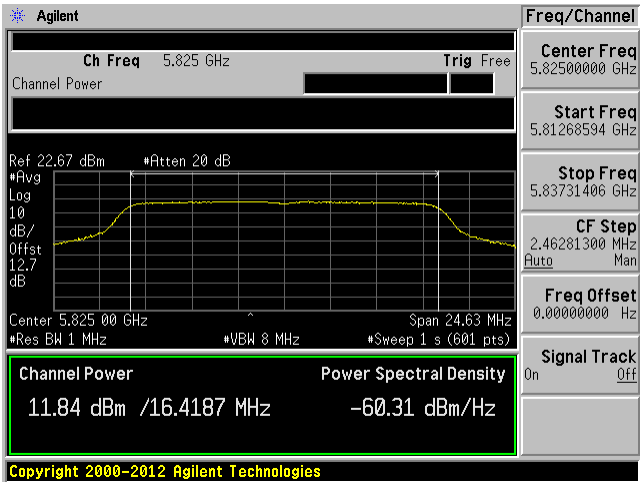
High channel: Chain 0



High channel: Chain 1

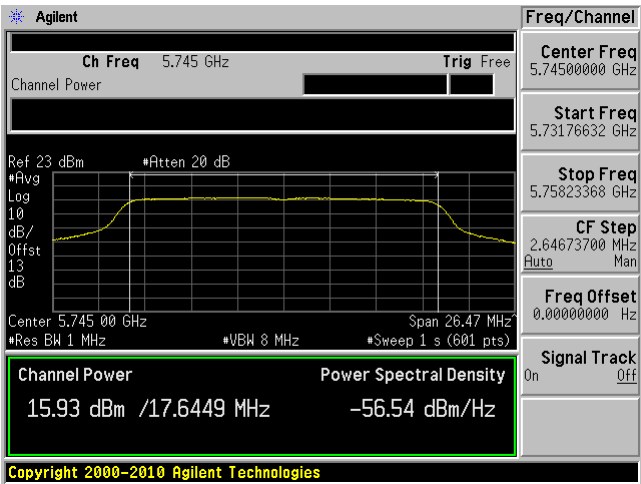


High channel: Chain 2

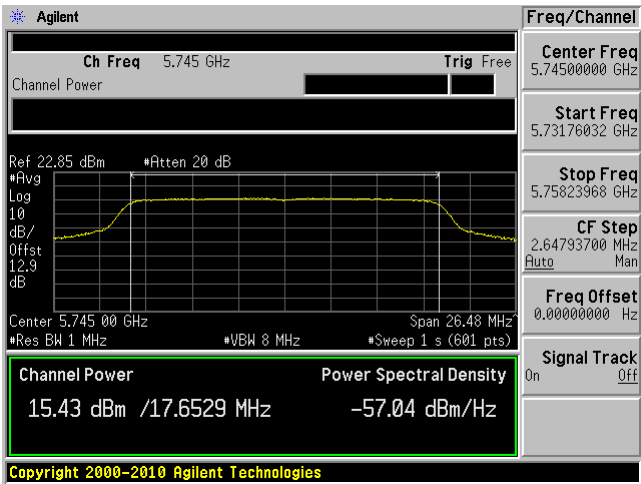


802.11n20 mode

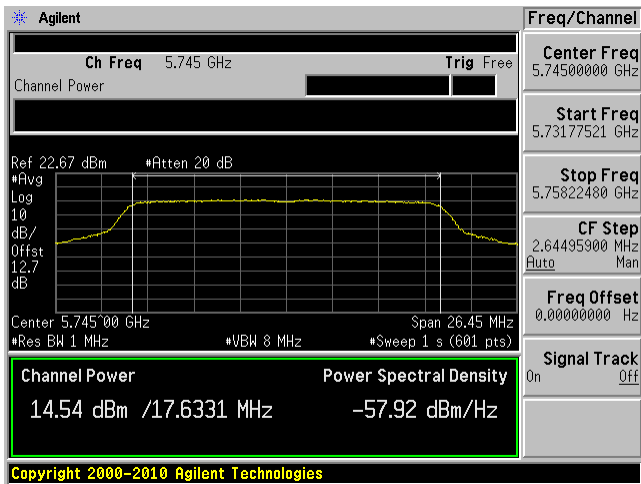
Low channel: Chain 0



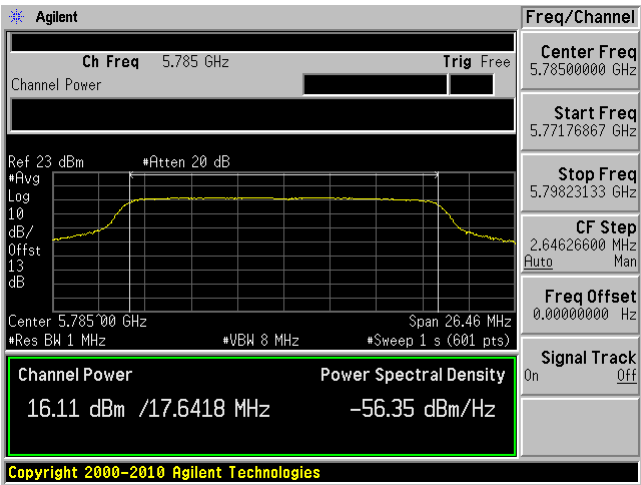
Low channel: Chain 1



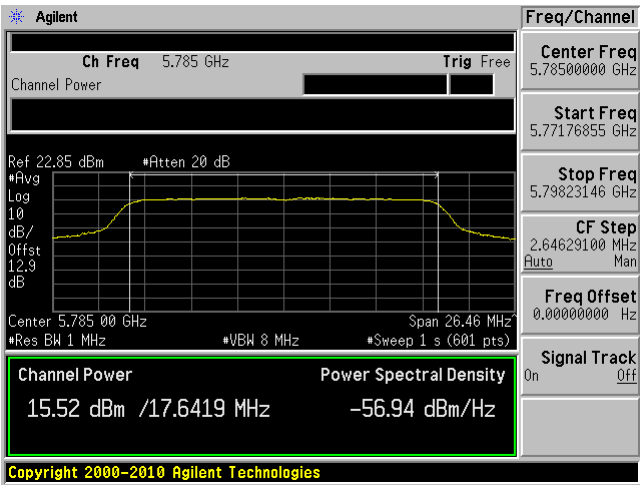
Low channel: Chain 2



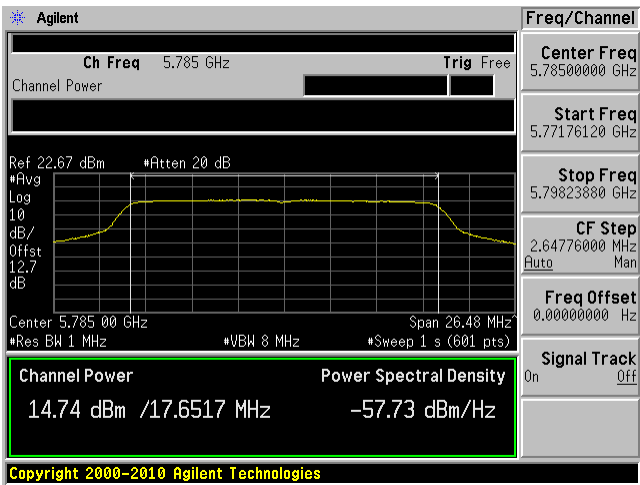
Middle channel: Chain 0



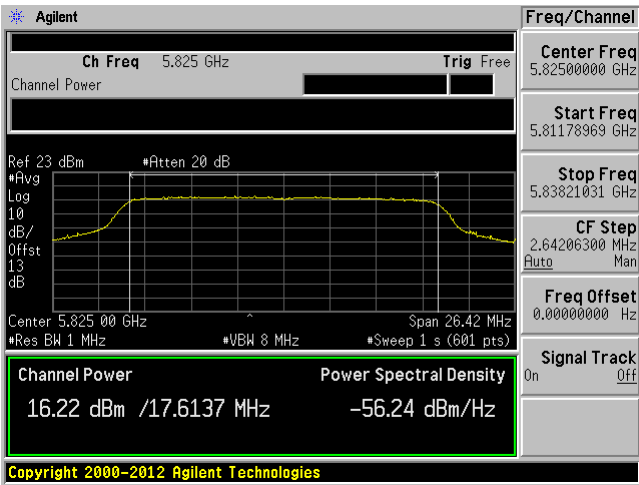
Middle channel: Chain 1



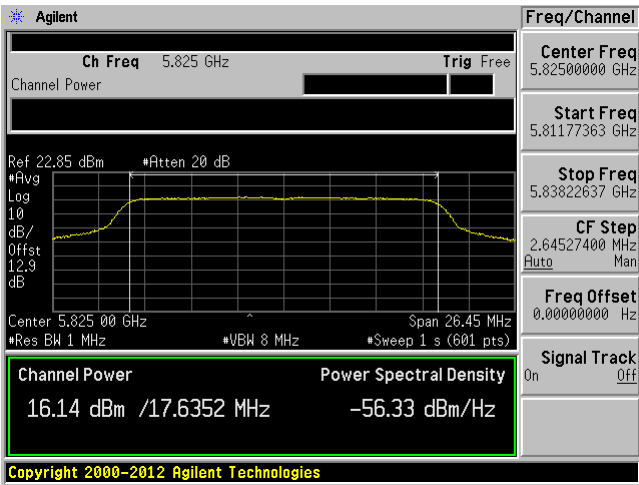
Middle channel: Chain 2



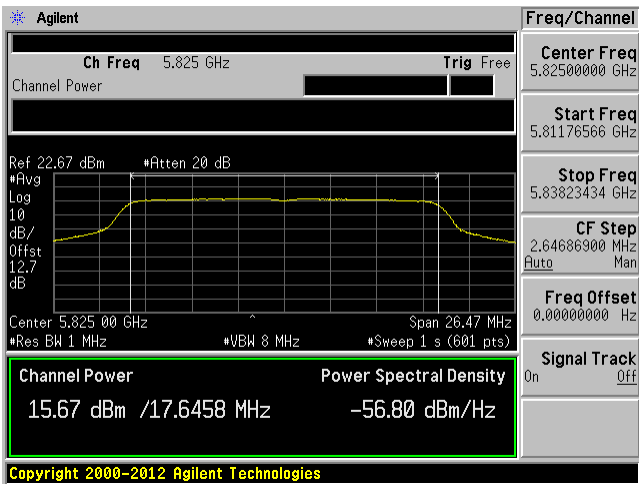
High channel: Chain 0



High channel: Chain 1

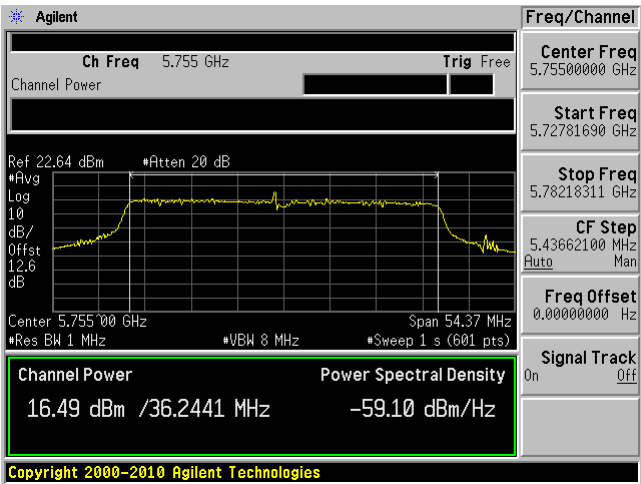


High channel: Chain 2

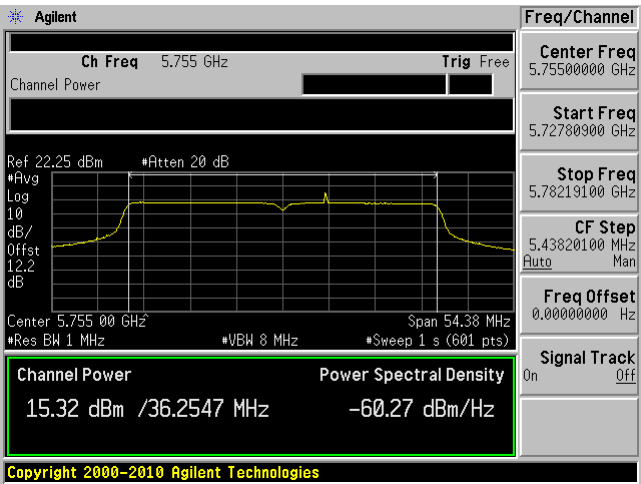


802.11n40 mode

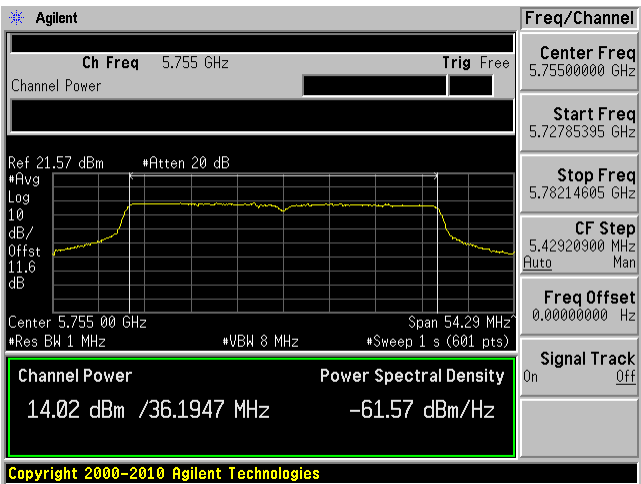
Low channel: Chain 0



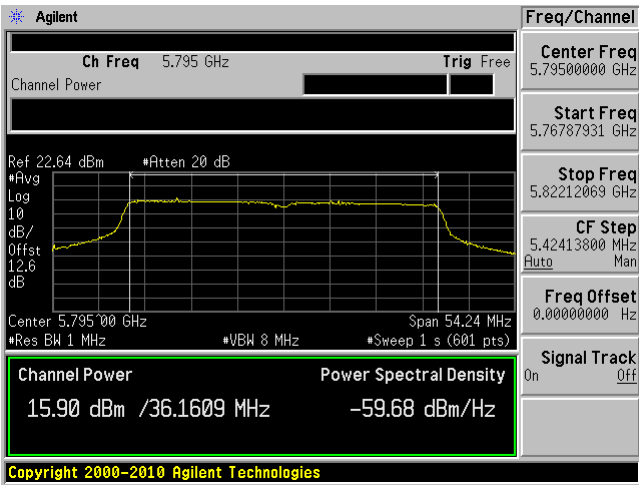
Low channel: Chain 1



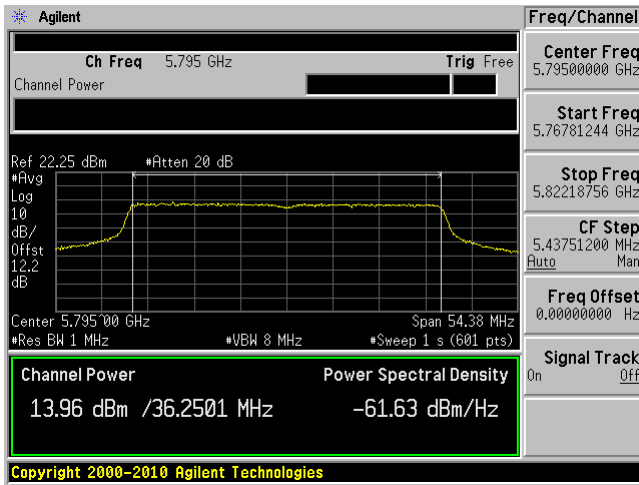
Low channel: Chain 2



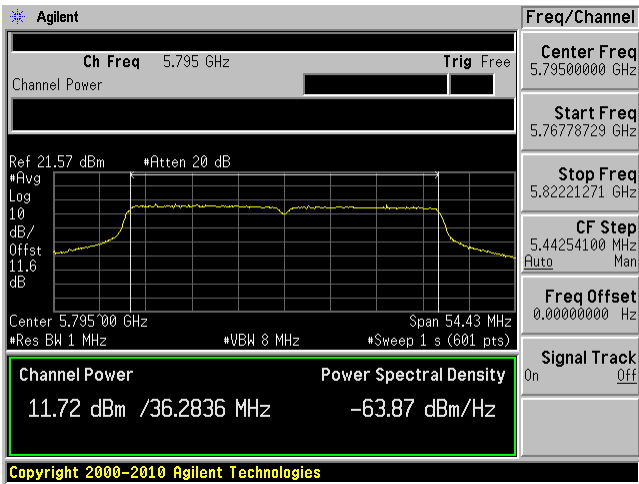
High channel: Chain 0



High channel: Chain 1



High channel: Chain 2



8 FCC §15.407(b) - Spurious Emissions at Antenna Ports

8.1 Applicable Standards

According to FCC §15.407(b)

(b) (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(b) (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz

8.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section H: Unwanted emissions measurement

8.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Spectrum Analyzer	E4440A	MY44303352	2014-10-16	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° C
Relative Humidity:	40 %
ATM Pressure:	103.8 KPa

The testing was performed by Jin Yang from 2015-08-11 at RF site.

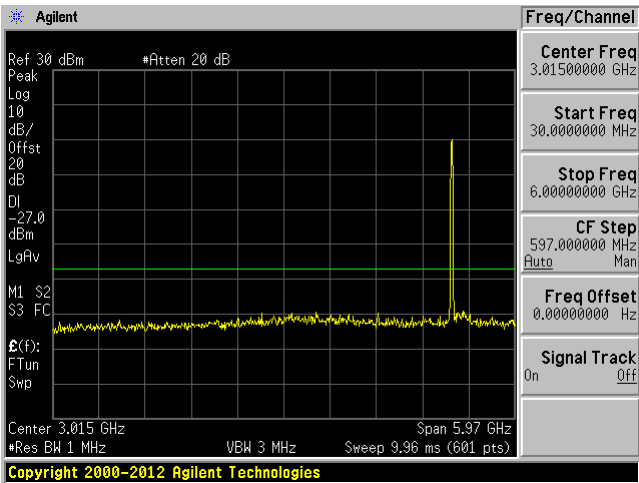
8.5 Test Results

Please refer to the following plots.

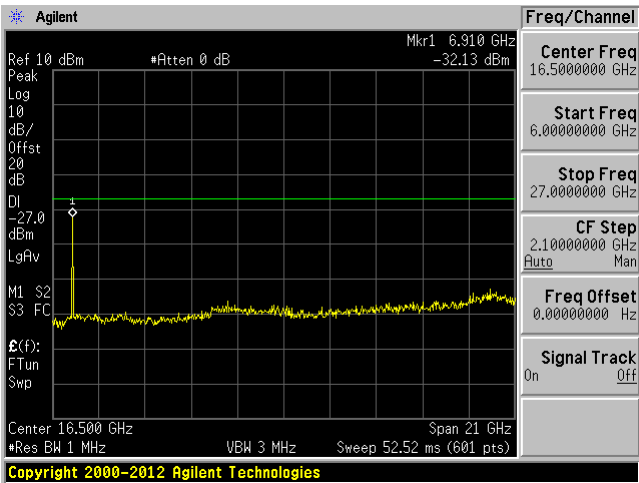
5.2 GHz Band, Suprious Emissions

802.11a mode

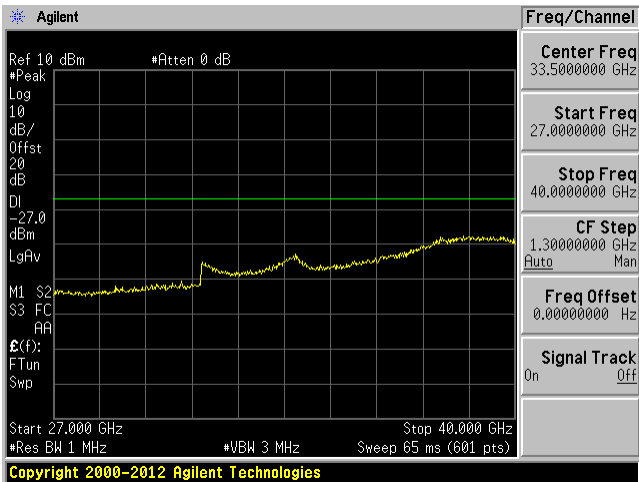
Low Channel Chain 0: 30 MHz – 6 GHz



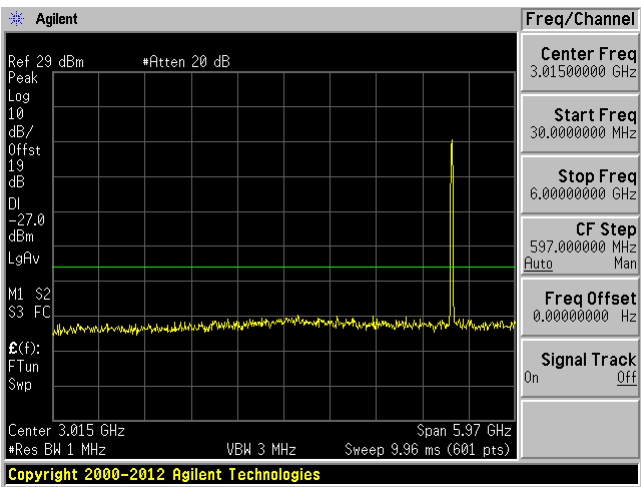
Low Channel Chain 0: 6 GHz - 27 GHz



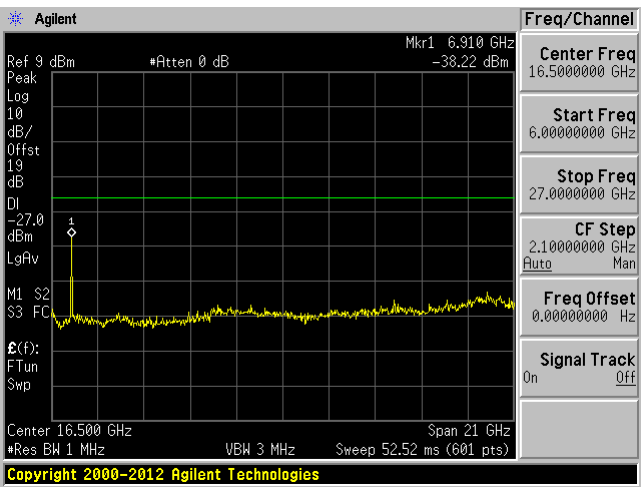
Low Channel Chain 0: 27 GHz – 40 GHz



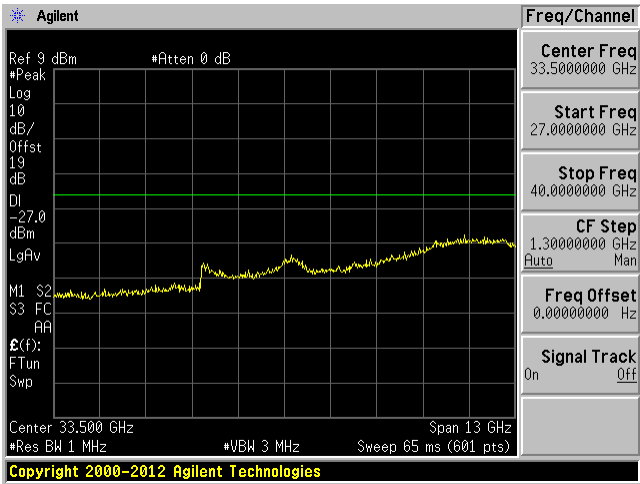
Low Channel Chain 1: 30 MHz – 6 GHz



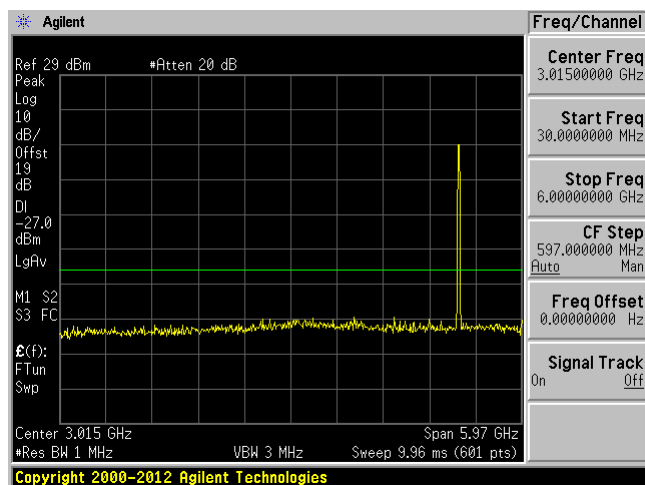
Low Channel Chain 1: 6 GHz - 27 GHz



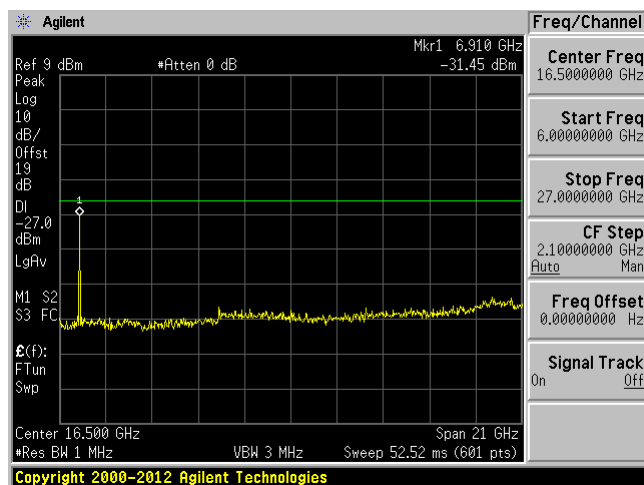
Low Channel Chain 1: 27 GHz – 40 GHz



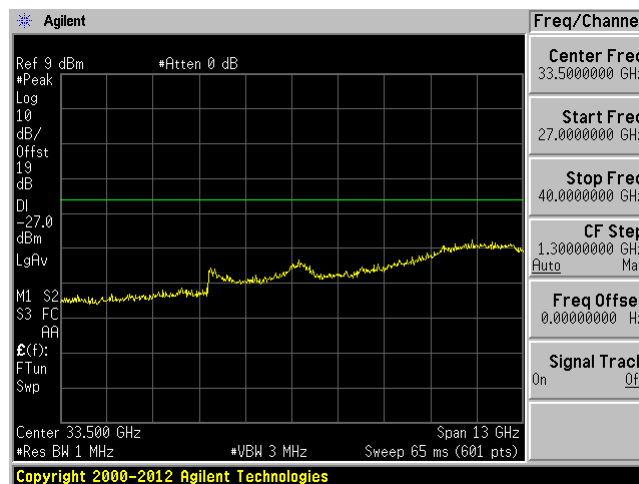
Low Channel Chain 2: 30 MHz – 6 GHz



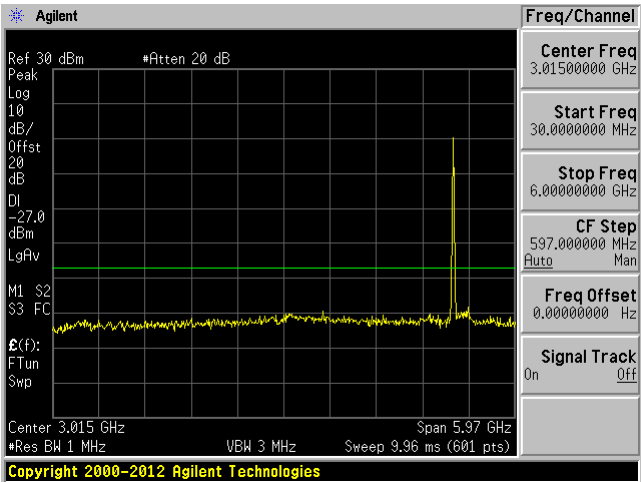
Low Channel Chain 2: 6 GHz - 27 GHz



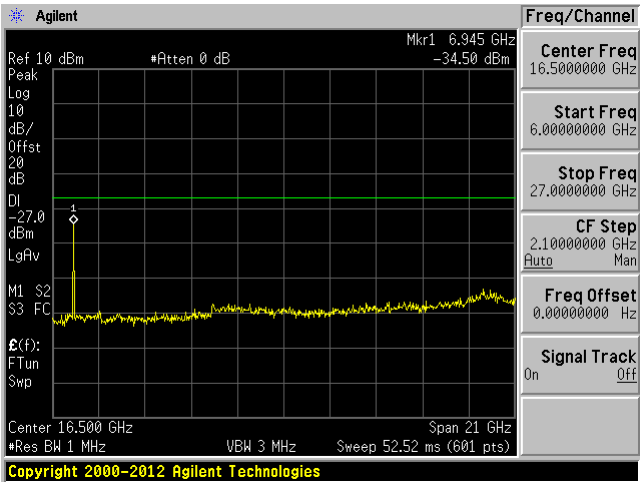
Low Channel Chain 2: 27 GHz – 40 GHz



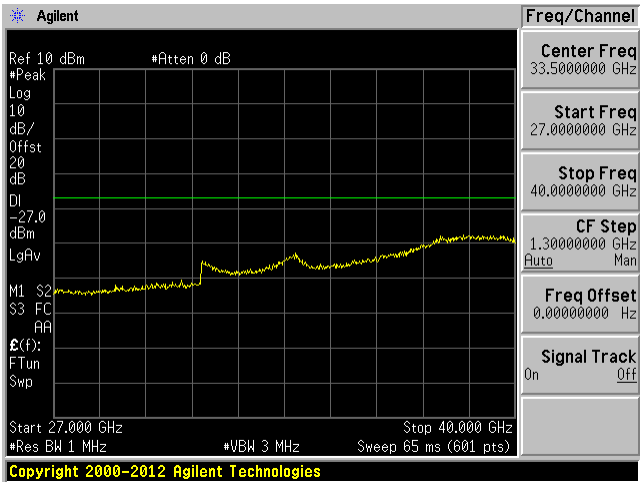
Middle Channel Chain 0: 30 MHz – 6 GHz



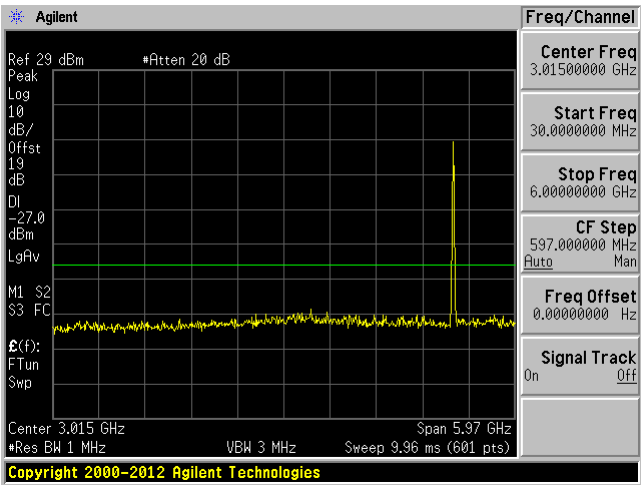
Middle Channel Chain 1: 6 GHz - 27 GHz



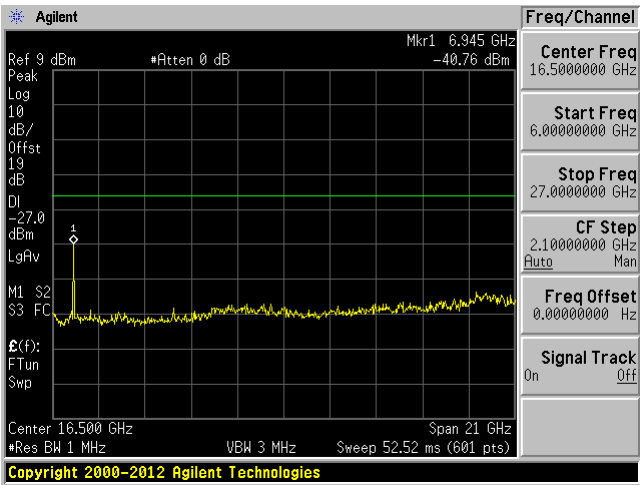
Middle Channel Chain 0: 27 GHz – 40 GHz



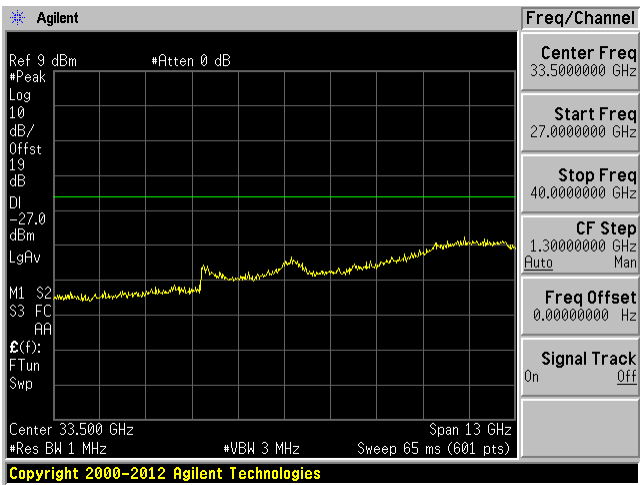
Middle Channel Chain 1: 30 MHz – 6 GHz



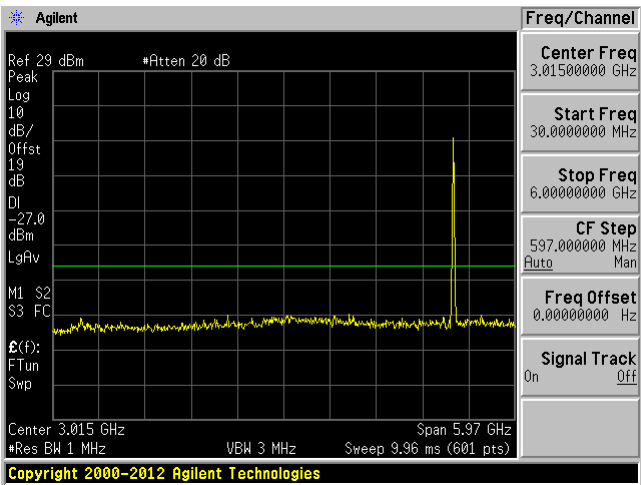
Middle Channel Chain 1: 6 GHz - 27 GHz



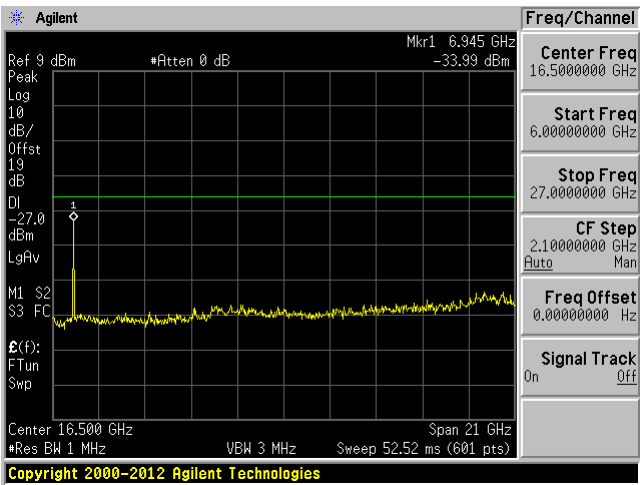
Middle Channel Chain 1: 27 GHz – 40 GHz



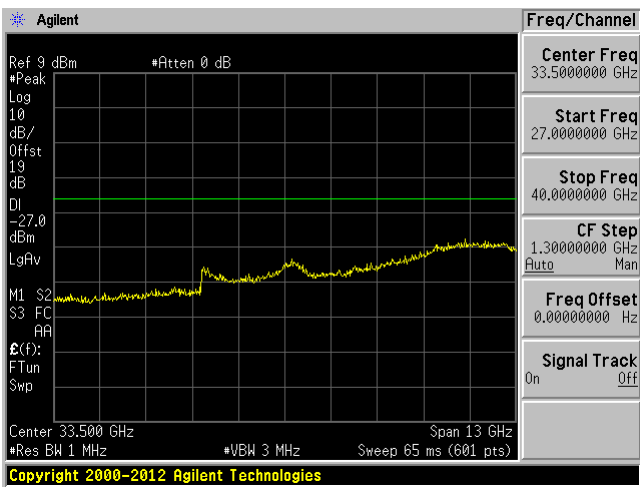
Middle Channel Chain 2: 30 MHz – 6 GHz



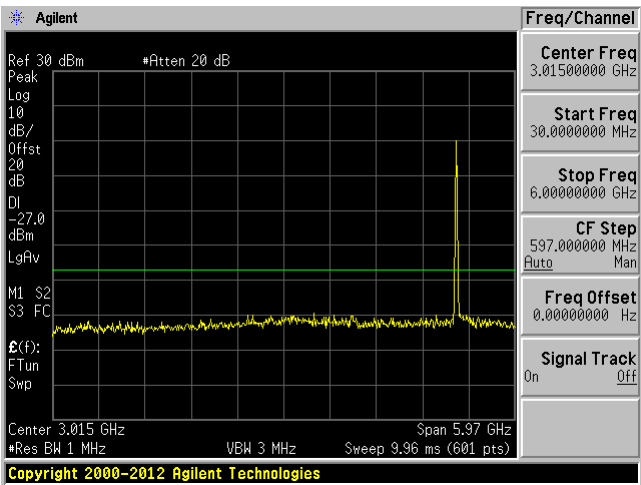
Middle Channel Chain 2: 6 GHz - 27 GHz



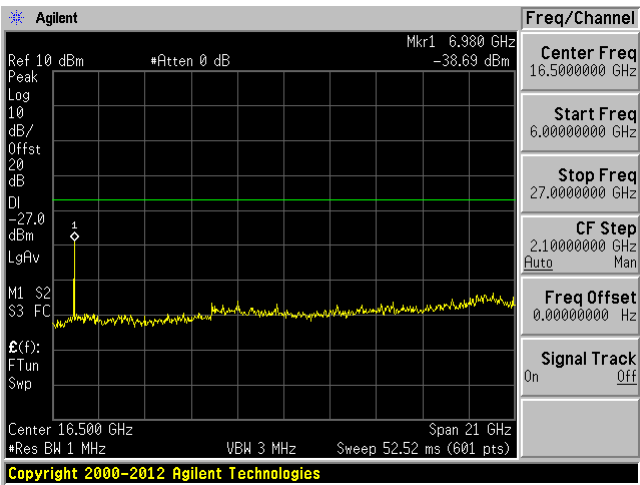
Middle Channel Chain 2: 27 GHz – 40 GHz



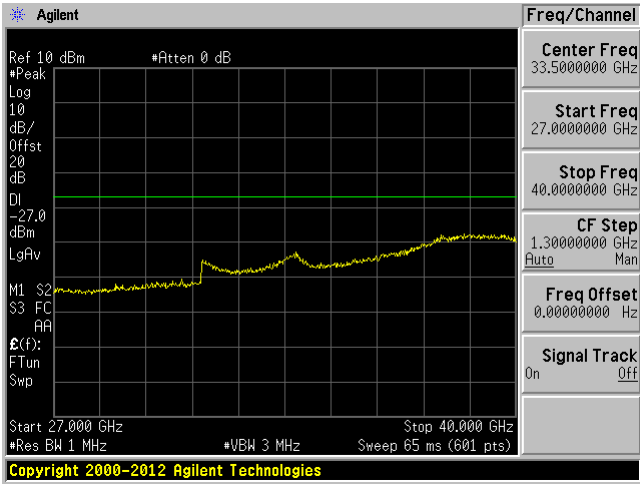
High Channel Chain 0: 30 MHz – 6 GHz



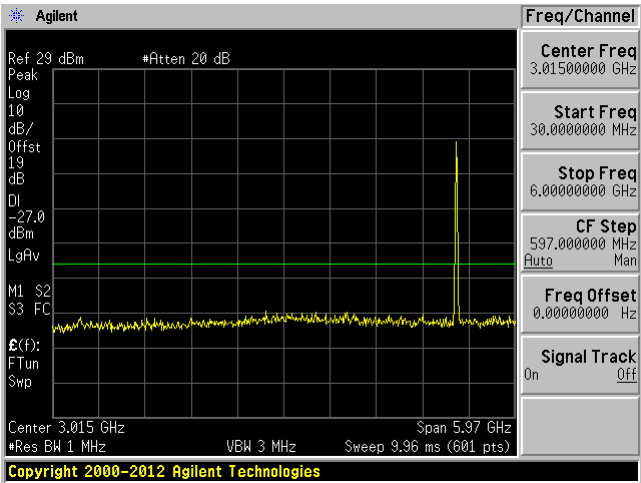
High Channel Chain 0: 6 GHz - 27 GHz



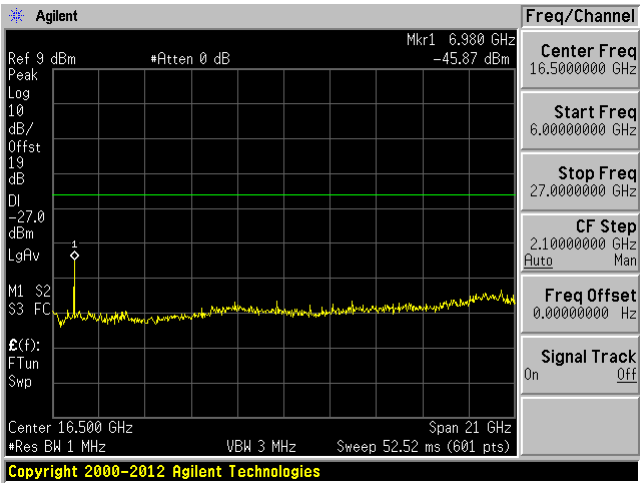
High Channel Chain 0: 27 GHz – 40 GHz



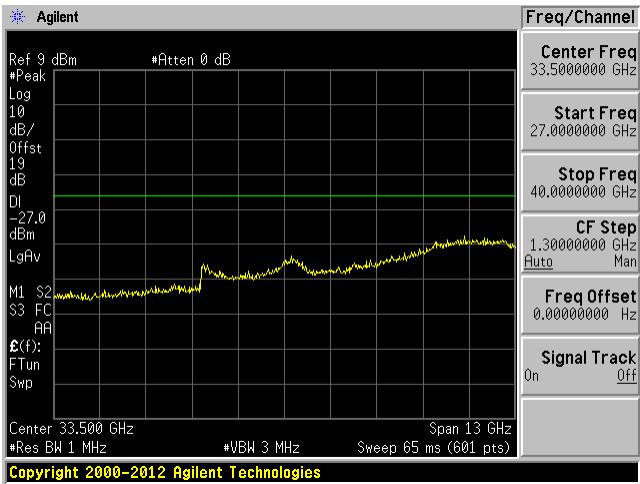
High Channel Chain 1: 30 MHz – 6 GHz



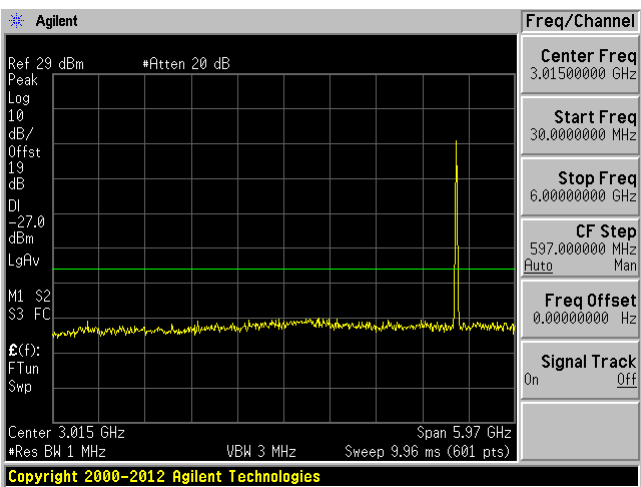
High Channel Chain 1: 6 GHz - 27 GHz



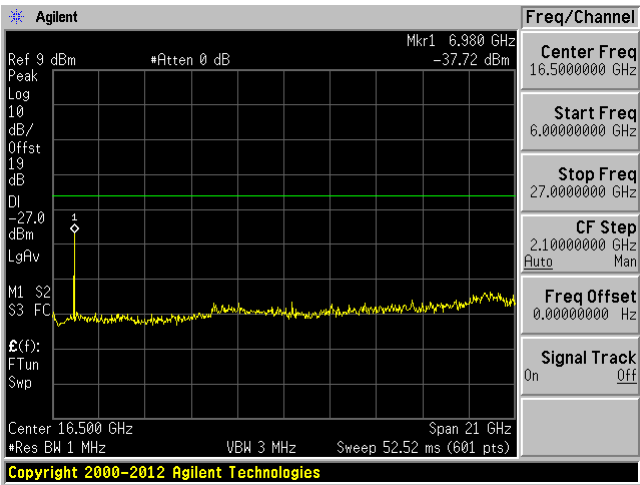
High Channel Chain 1: 27 GHz – 40 GHz



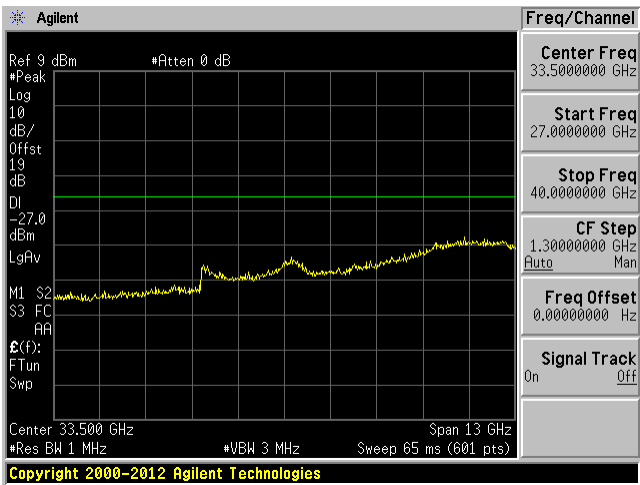
High Channel Chain 2: 30 MHz – 6 GHz



High Channel Chain 2: 6 GHz- 27 GHz

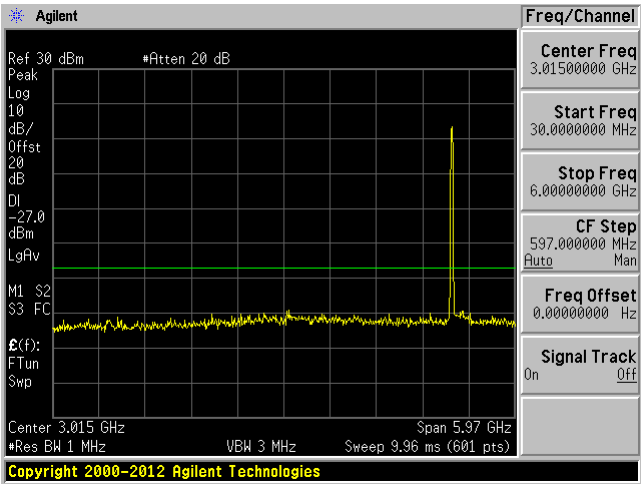


High Channel Chain 2: 27 GHz – 40 GHz

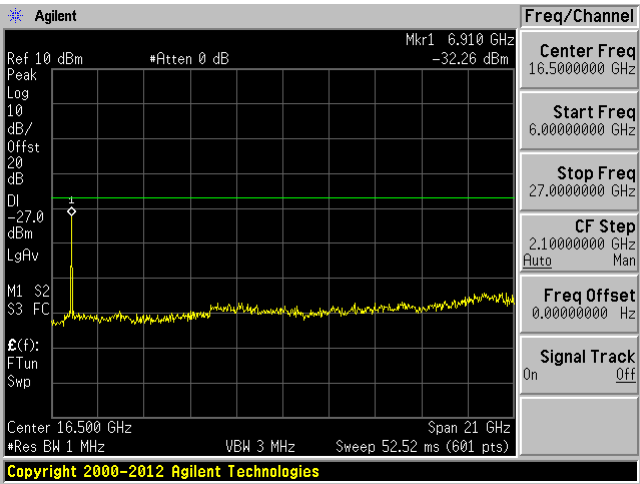


802.11n20 mode

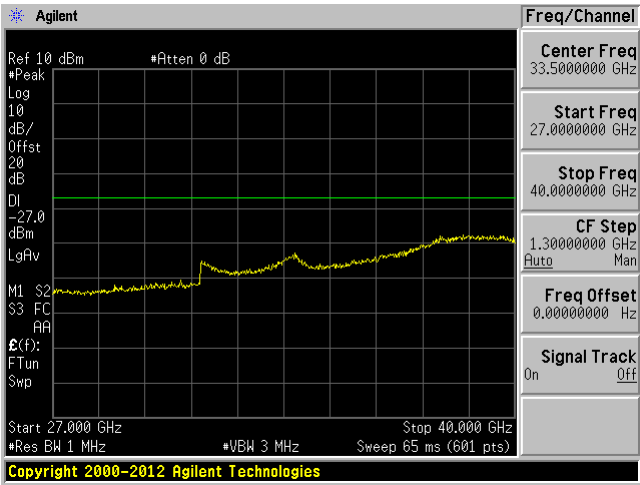
Low Channel Chain 0: 30 MHz – 6 GHz



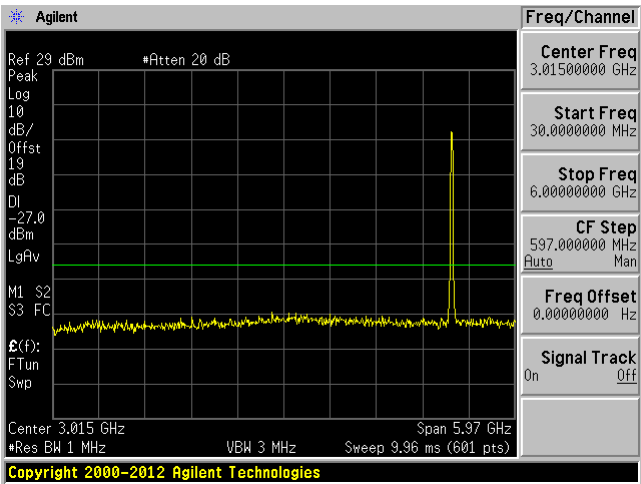
Low Channel Chain 0: 6 GHz- 27 GHz



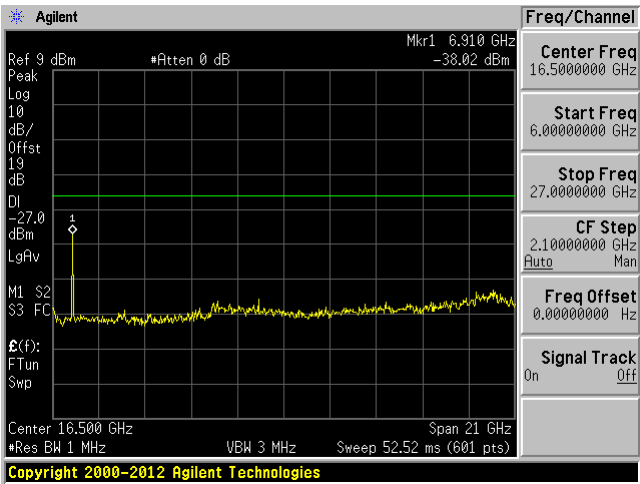
Low Channel Chain 0: 27 GHz – 40 GHz



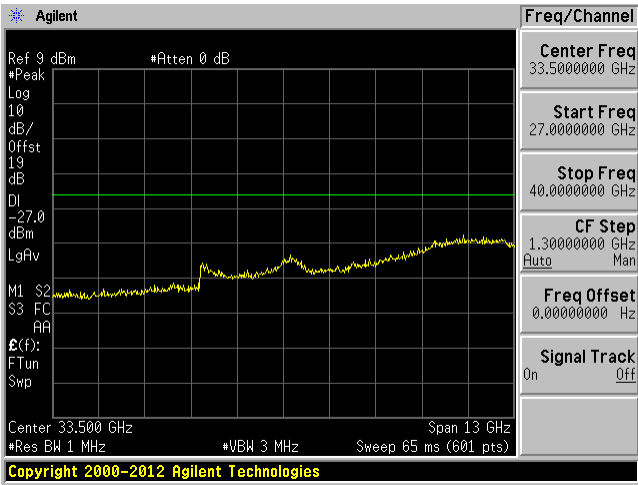
Low Channel Chain 1: 30 MHz – 6 GHz



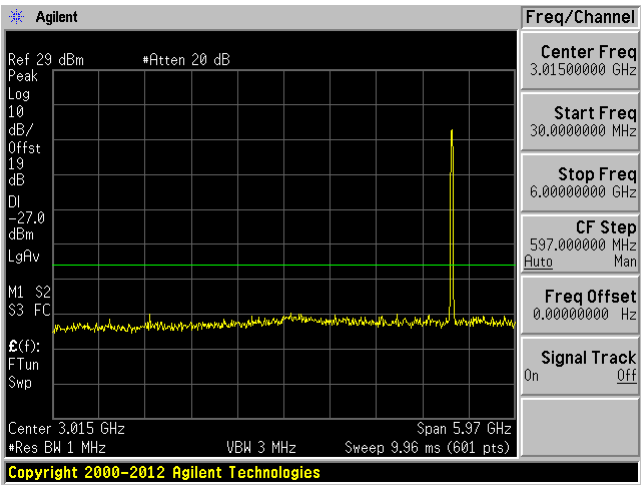
Low Channel Chain 1: 6 GHz- 27 GHz



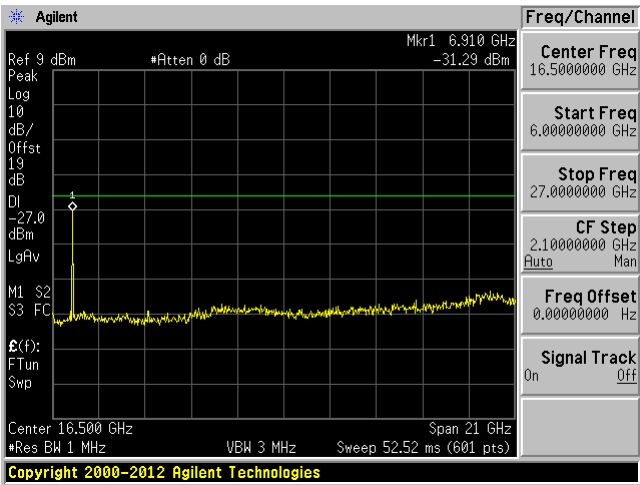
Low Channel Chain 1: 27 GHz – 40 GHz



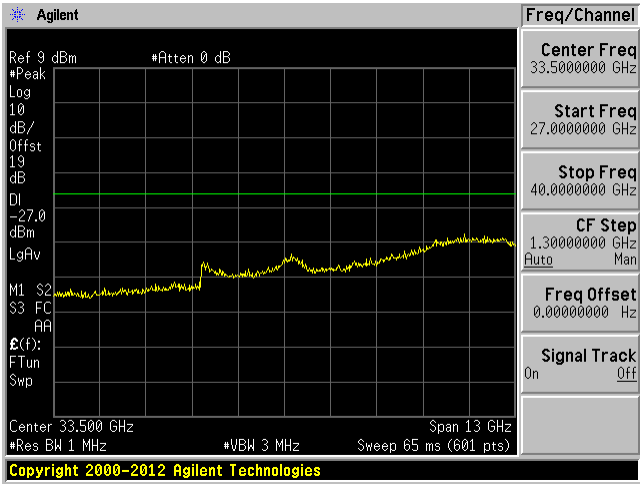
Low Channel Chain 2: 30 MHz – 6 GHz



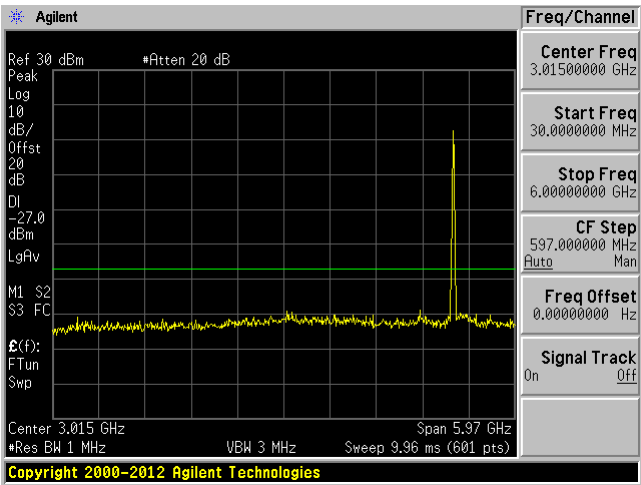
Low Channel Chain 2: 6 GHz- 27 GHz



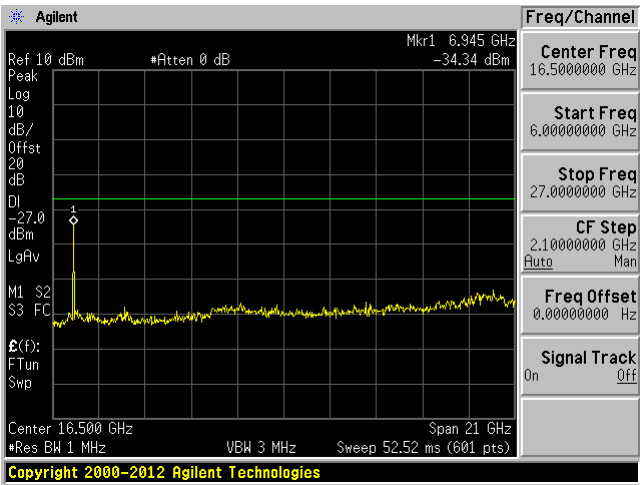
Low Channel Chain 2: 27 GHz – 40 GHz



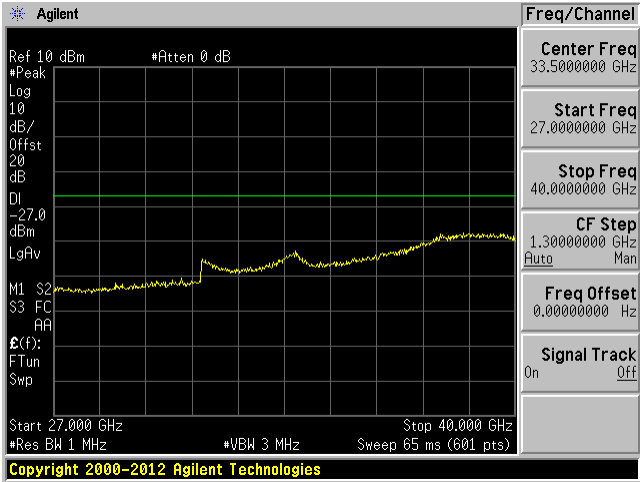
Middle Channel Chain 0: 30 MHz – 6 GHz



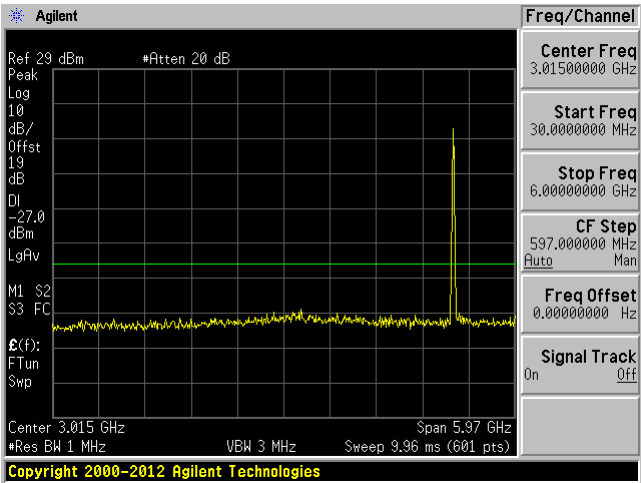
Middle Channel Chain 1: 6 GHz- 27 GHz



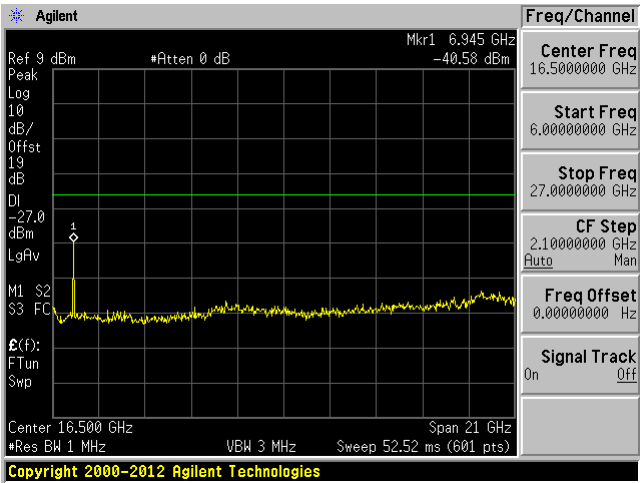
Middle Channel Chain 0: 27 GHz – 40 GHz



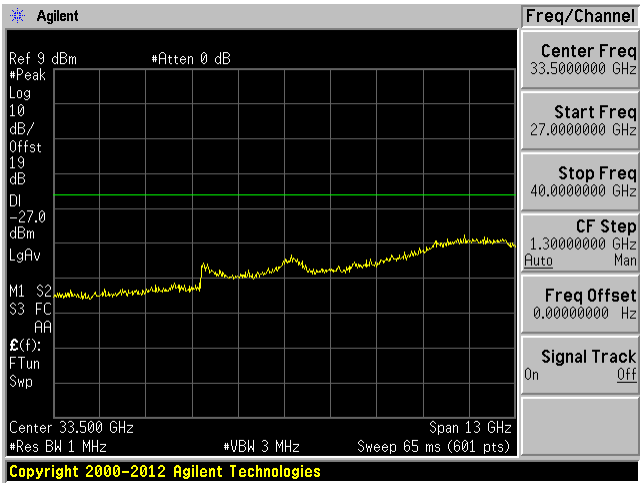
Middle Channel Chain 1: 30 MHz – 6 GHz



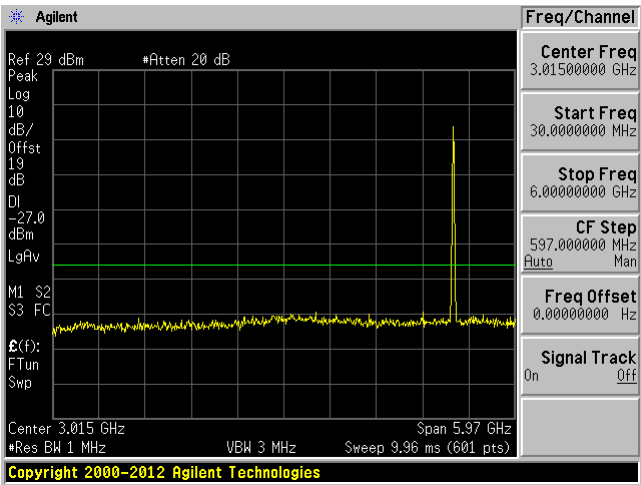
Middle Channel Chain 1: 6 GHz- 27 GHz



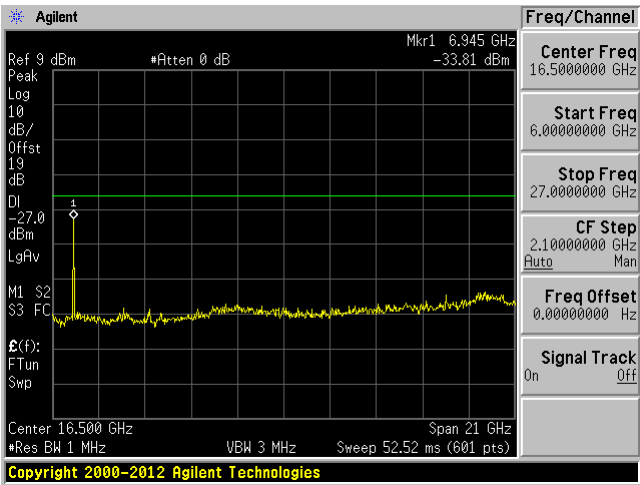
Middle Channel Chain 1: 27 GHz – 40 GHz



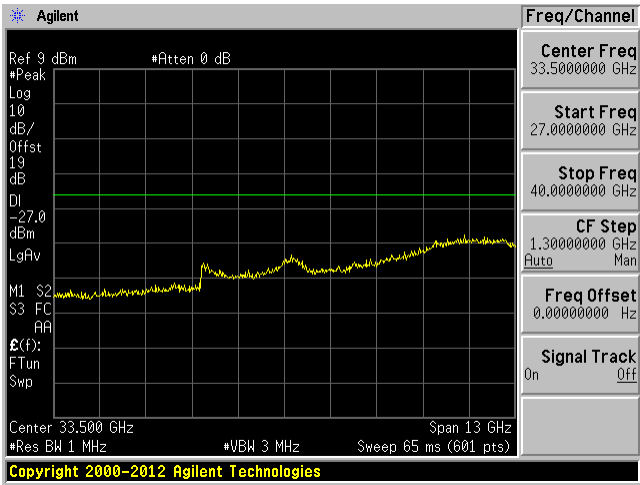
Middle Channel Chain 2: 30 MHz – 6 GHz



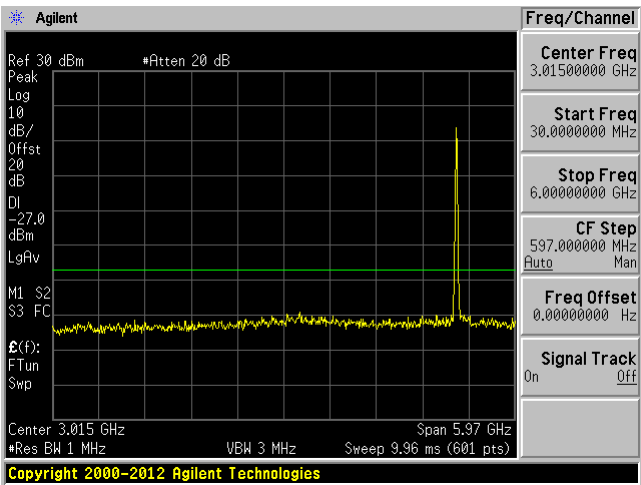
Middle Channel Chain 2: 6 GHz- 27 GHz



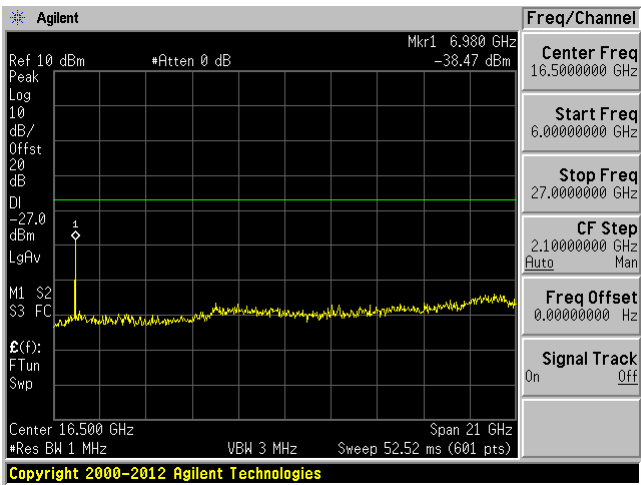
Middle Channel Chain 2: 27 GHz – 40 GHz



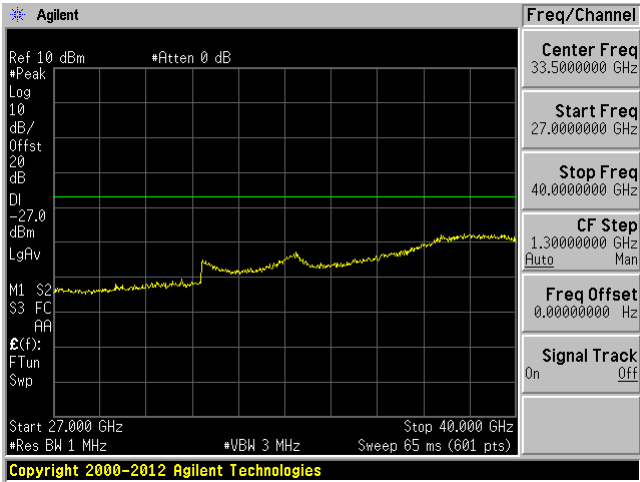
High Channel Chain 0: 30 MHz – 6 GHz



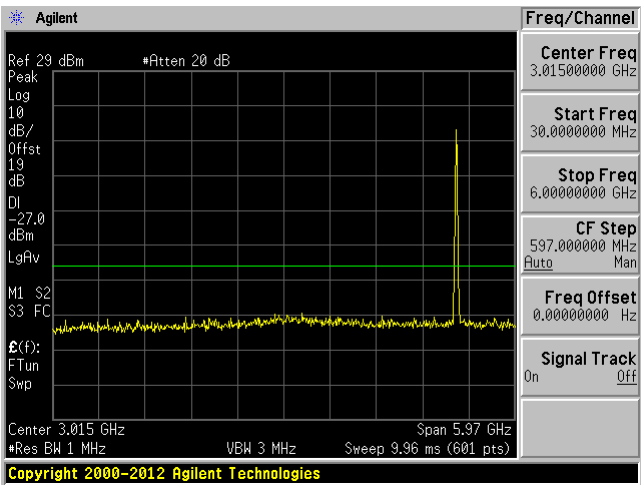
High Channel Chain 0: 6 GHz- 27 GHz



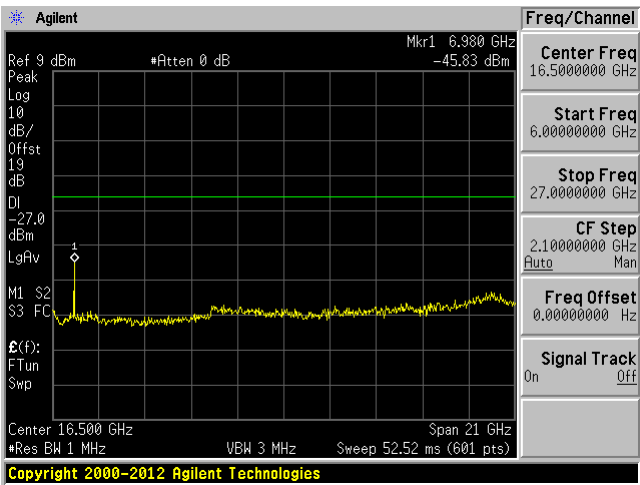
High Channel Chain 0: 27 GHz – 40 GHz



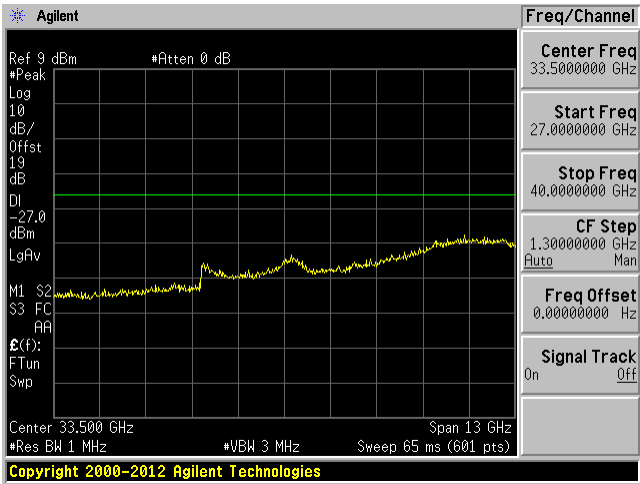
High Channel Chain 1: 30 MHz – 6 GHz



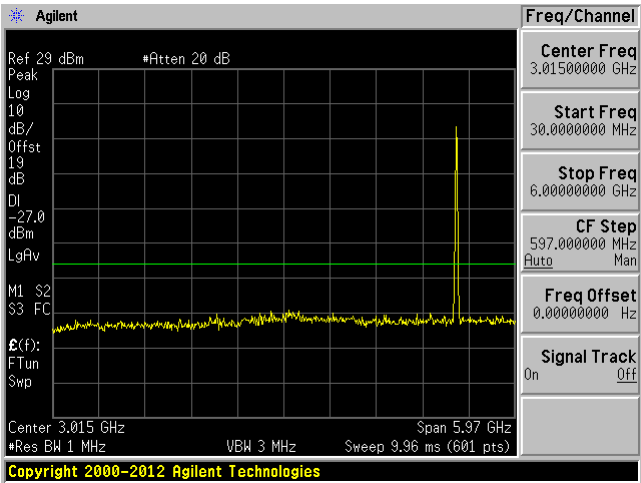
High Channel Chain 1: 6 GHz- 27 GHz



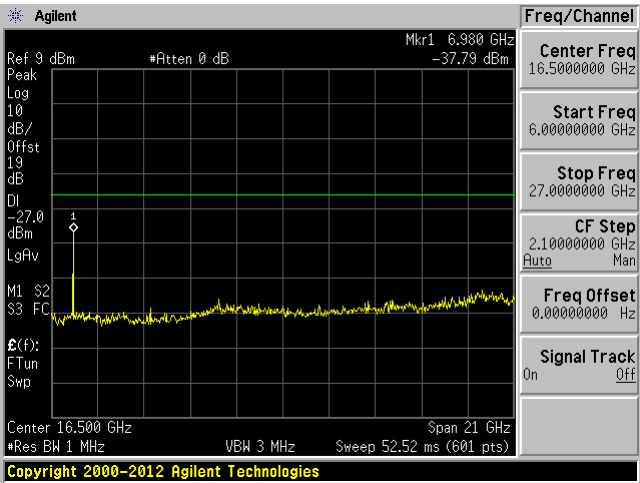
High Channel Chain 1: 27 GHz – 40 GHz



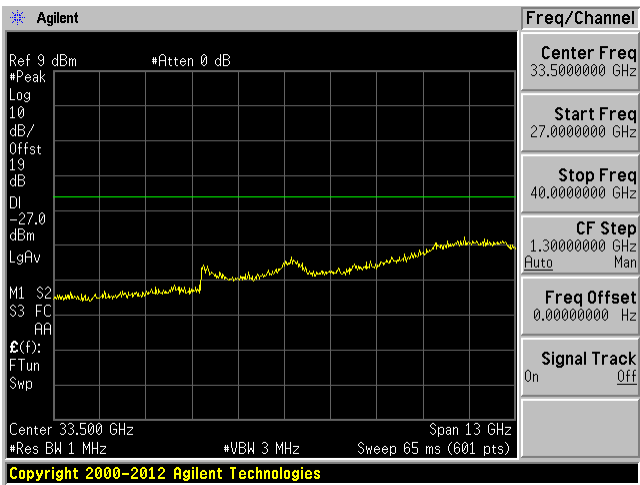
High Channel Chain 2: 30 MHz – 6 GHz



High Channel Chain 2: 6 GHz- 27 GHz

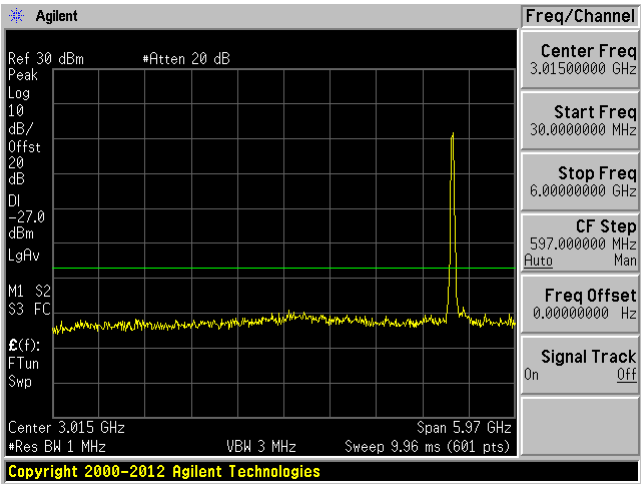


High Channel Chain 2: 27 GHz – 40 GHz

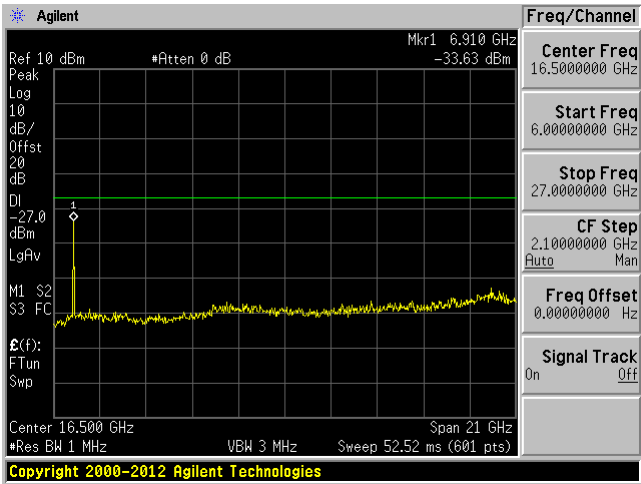


802.11n40 mode

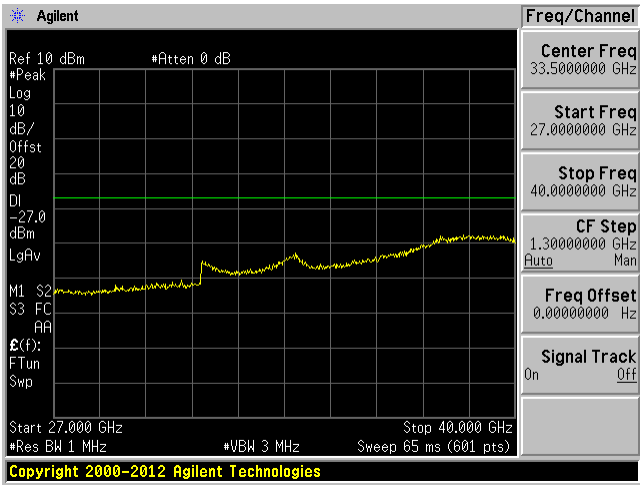
Low Channel Chain 0: 30 MHz – 6 GHz



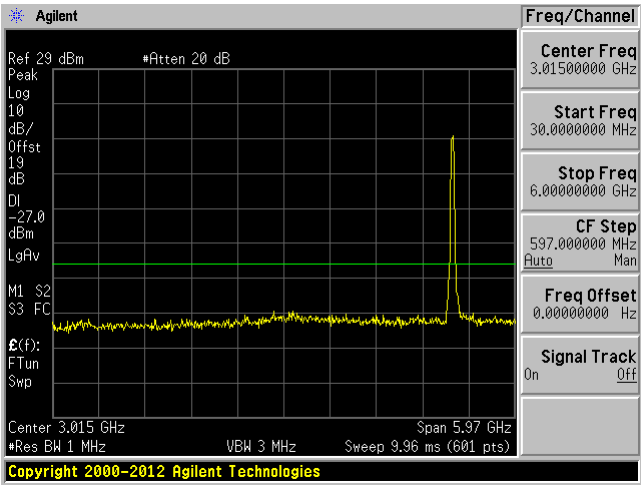
Low Channel Chain 0: 6 GHz- 27 GHz



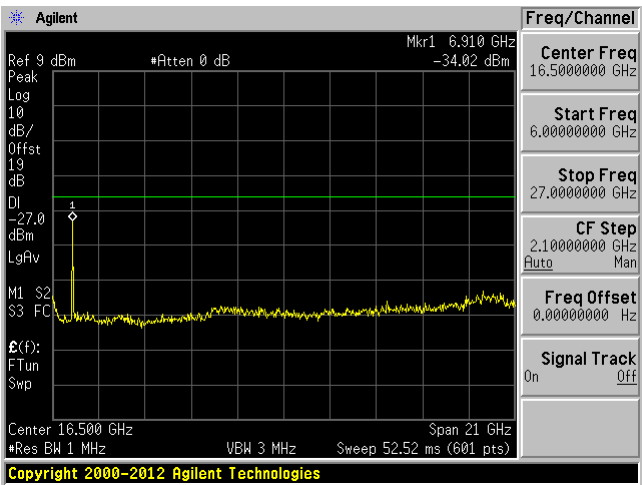
Low Channel Chain 0: 27 GHz – 40 GHz



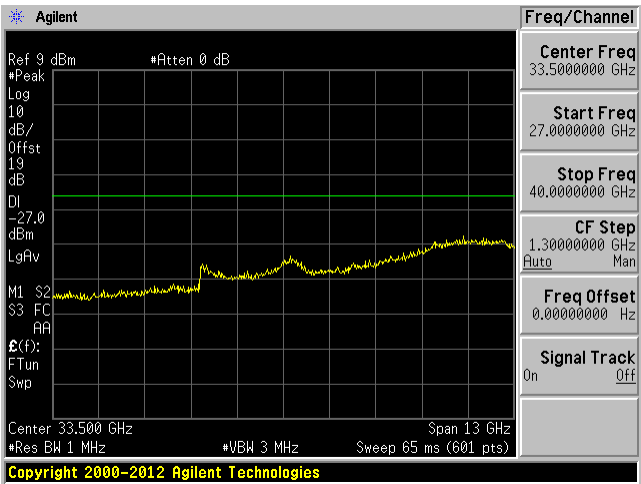
Low Channel Chain 1: 30 MHz – 6 GHz



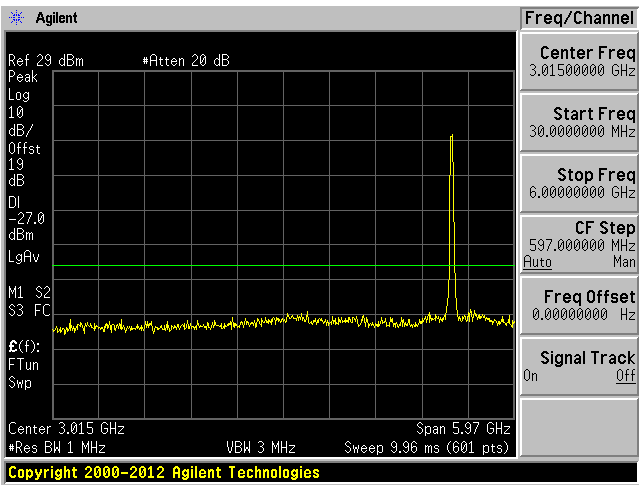
Low Channel Chain 1: 6 GHz- 27 GHz



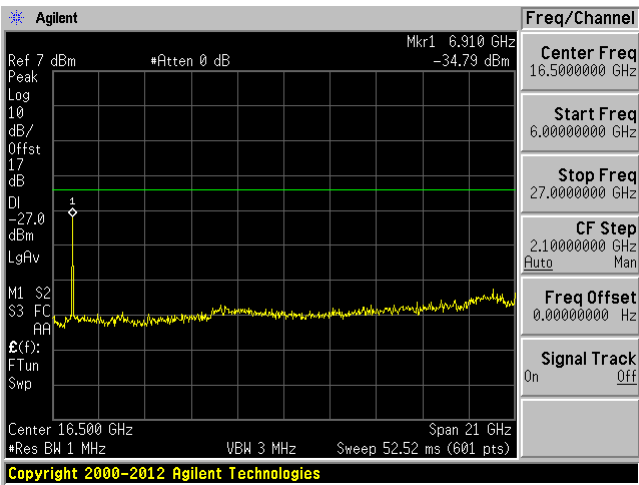
Low Channel Chain 1: 27 GHz – 40 GHz



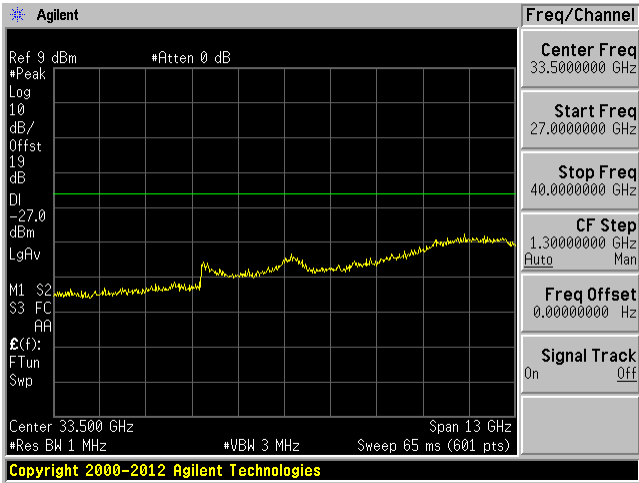
Low Channel Chain 2: 30 MHz – 6 GHz



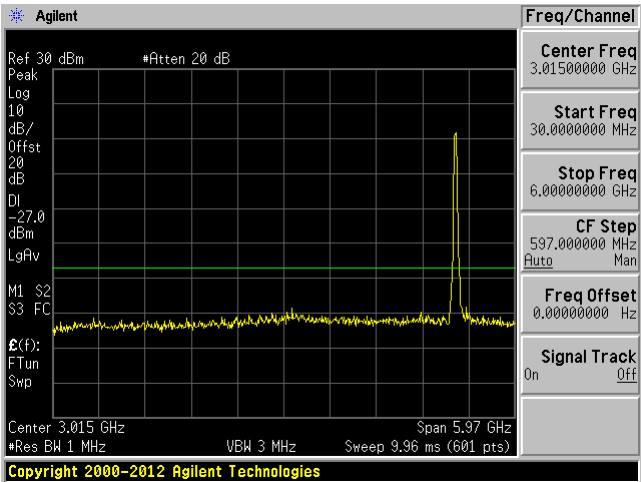
Low Channel Chain 2: 6 GHz- 27 GHz



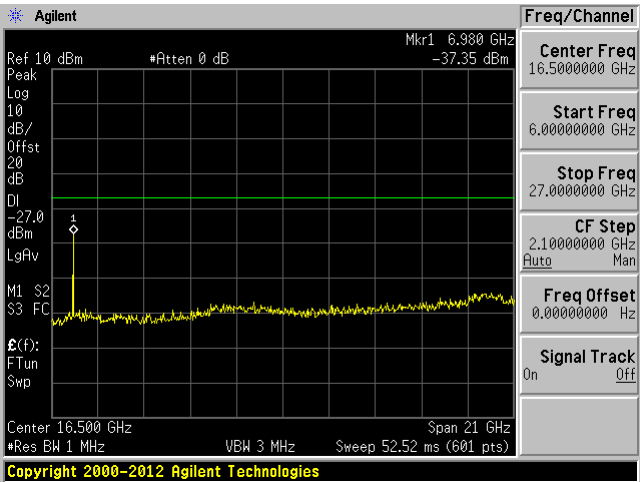
Low Channel Chain 2: 27 GHz – 40 GHz



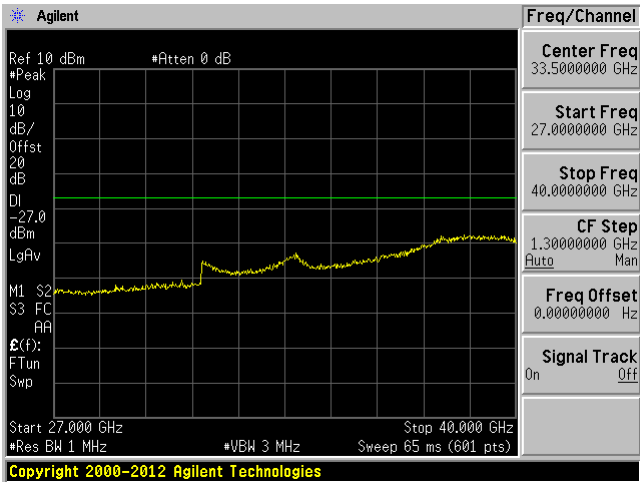
High Channel Chain 0: 30 MHz – 6 GHz



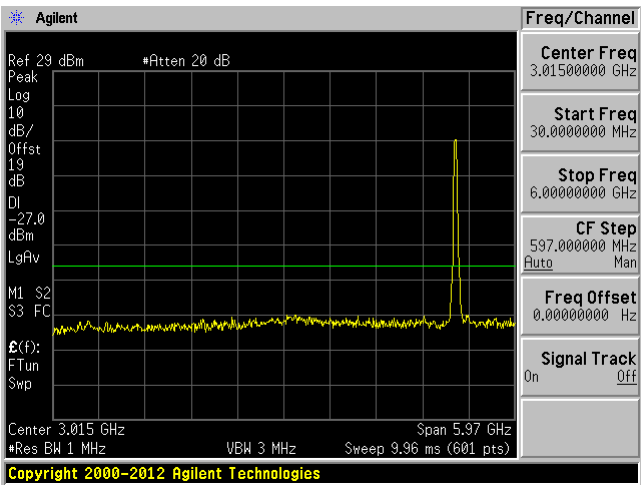
High Channel Chain 0: 6 GHz- 27 GHz



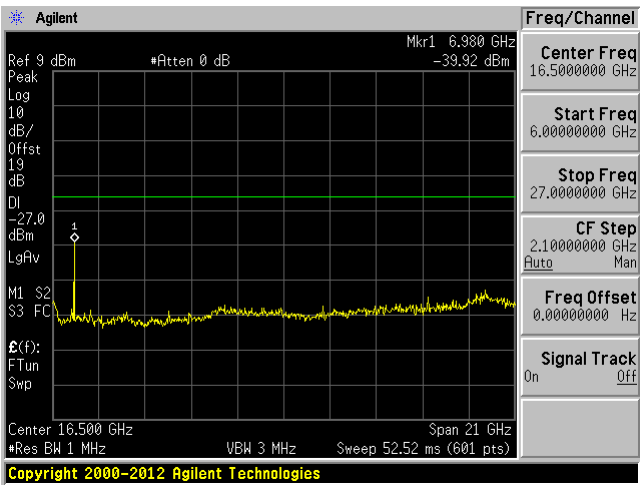
High Channel Chain 0: 27 GHz – 40 GHz



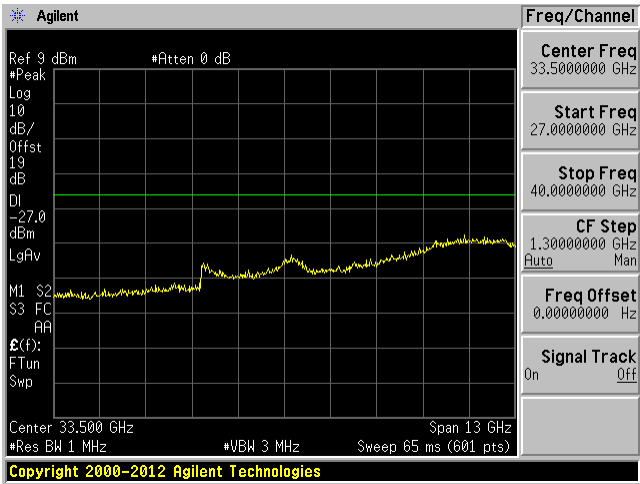
High Channel Chain 1: 30 MHz – 6 GHz



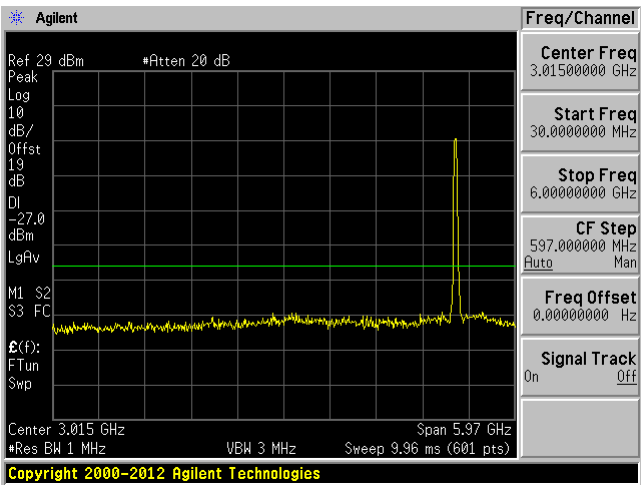
High Channel Chain 1: 6 GHz- 27 GHz



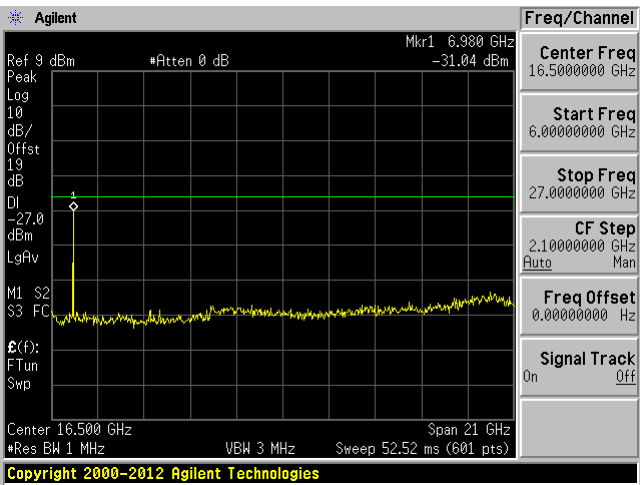
High Channel Chain 1: 27 GHz – 40 GHz



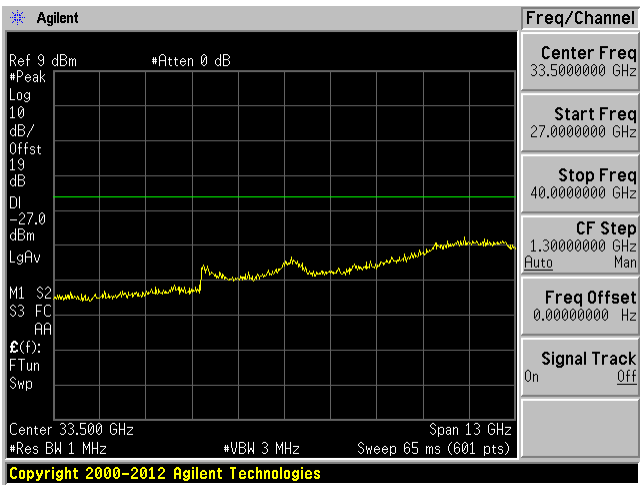
High Channel Chain 2: 30 MHz – 6 GHz



High Channel Chain 2: 6 GHz- 27 GHz



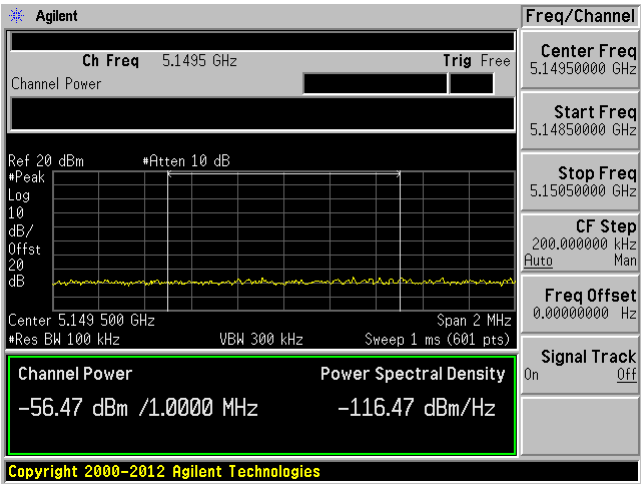
High Channel Chain 2: 27 GHz – 40 GHz



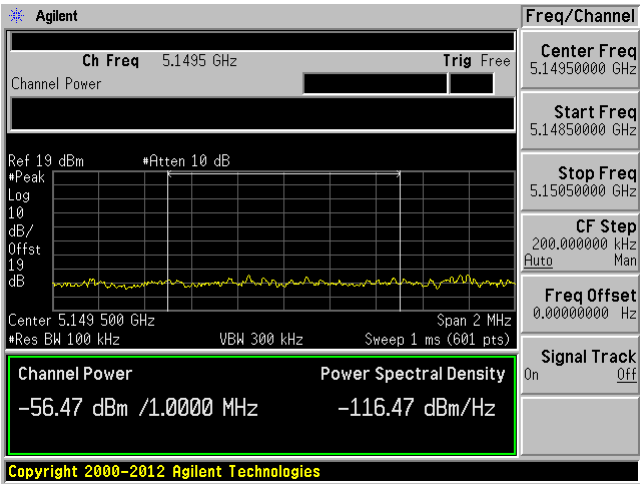
Band Edge

802.11a mode

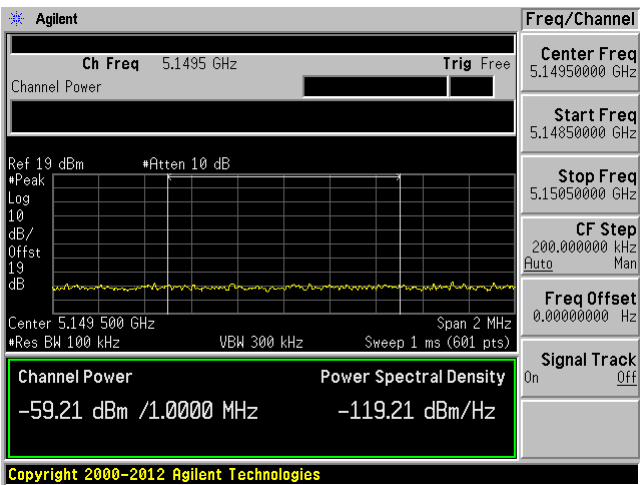
Low Channel Chain 0



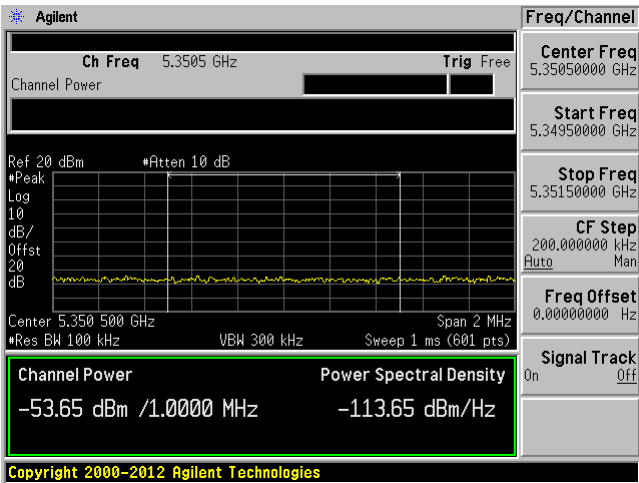
Low Channel Chain 1



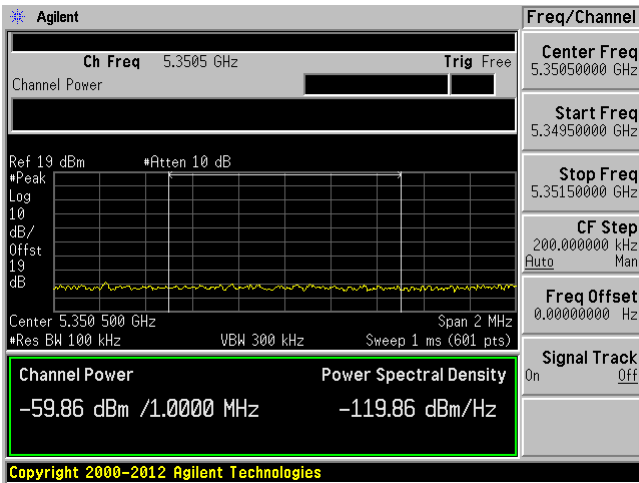
Low Channel Chain 2



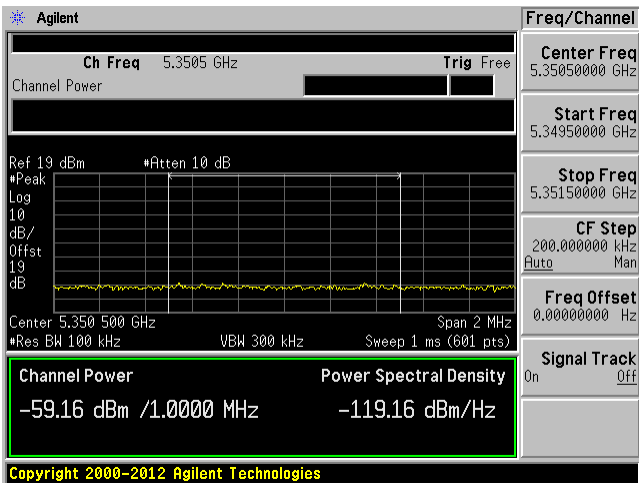
High Channel Chain 0



High Channel Chain 1

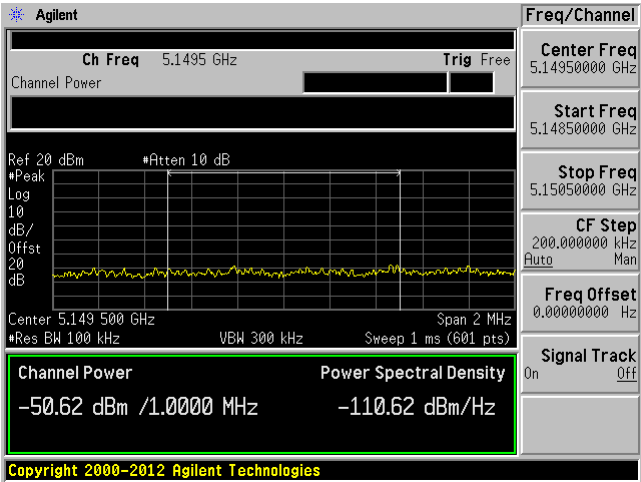


High Channel Chain 2

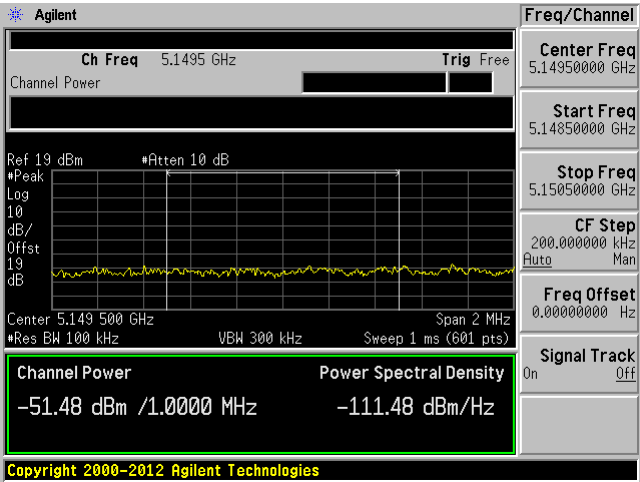


802.11n20 mode

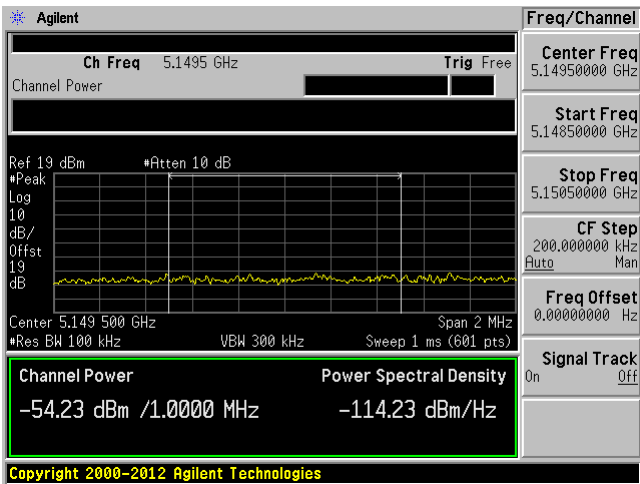
Low Channel Chain 0



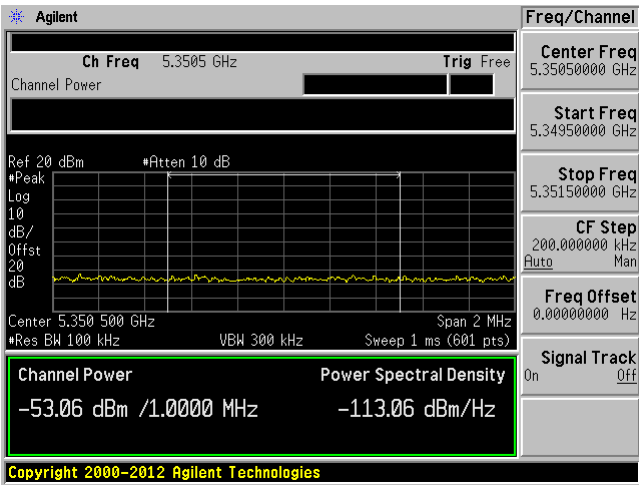
Low Channel Chain 1



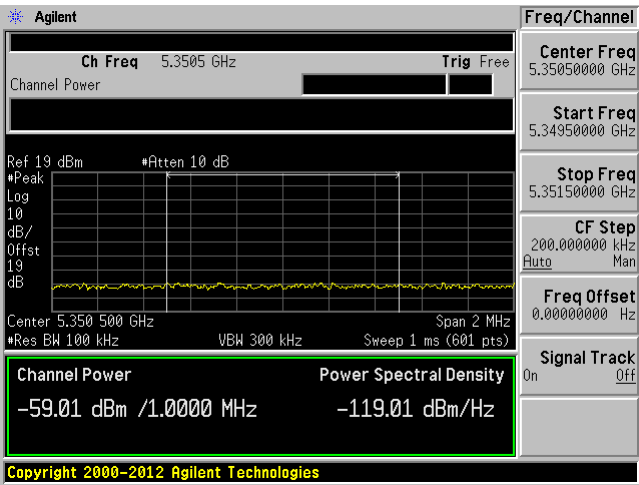
Low Channel Chain 2



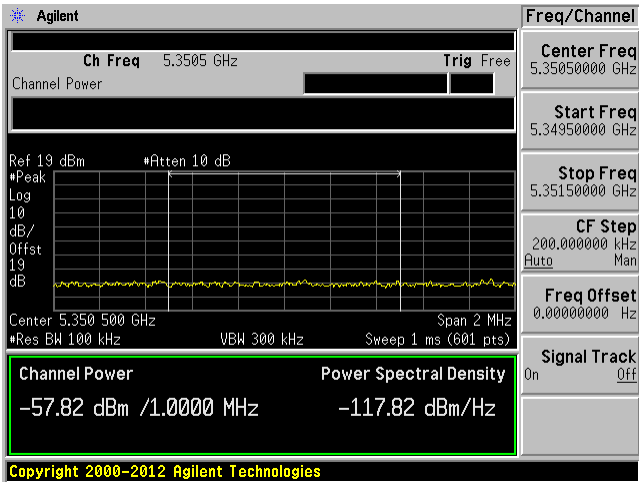
High Channel Chain 0



High Channel Chain 1

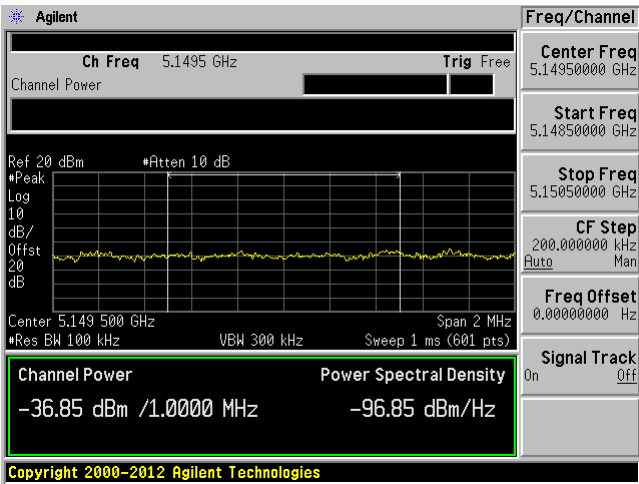


High Channel Chain 2

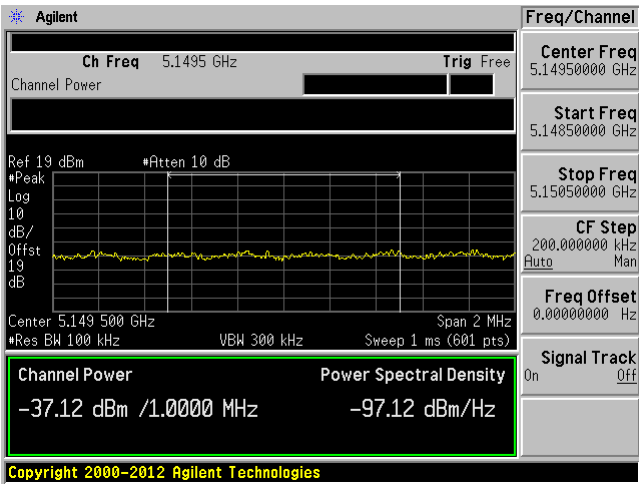


802.11n40 mode

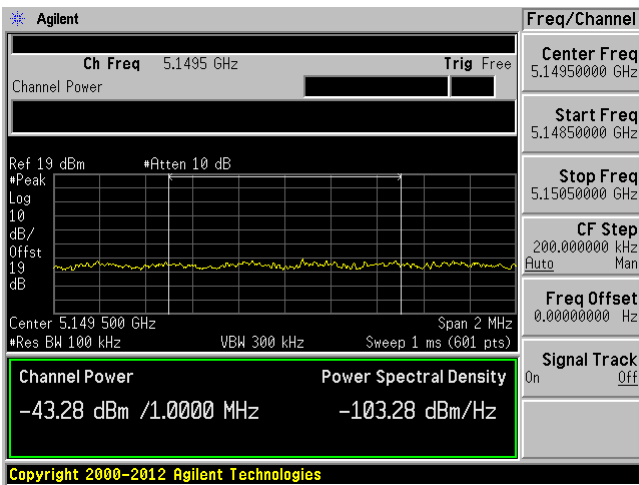
Low Channel Chain 0



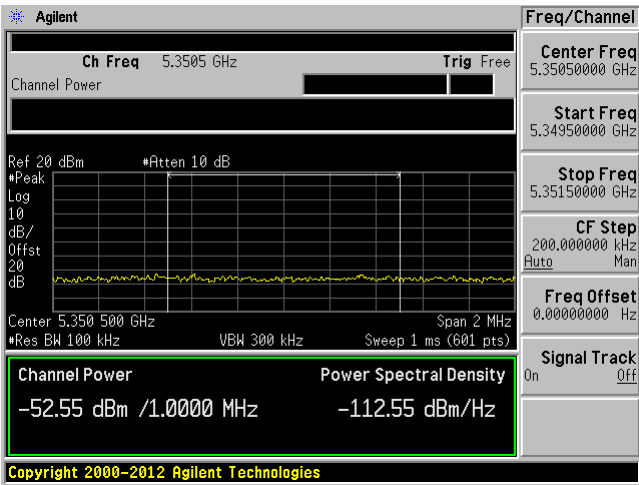
Low Channel Chain 1



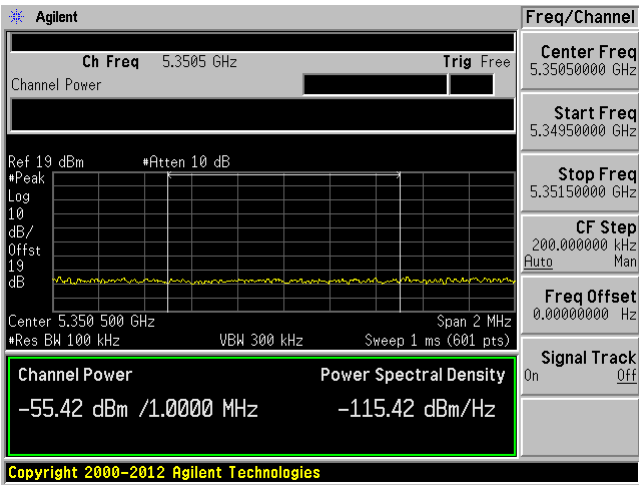
Low Channel Chain 2



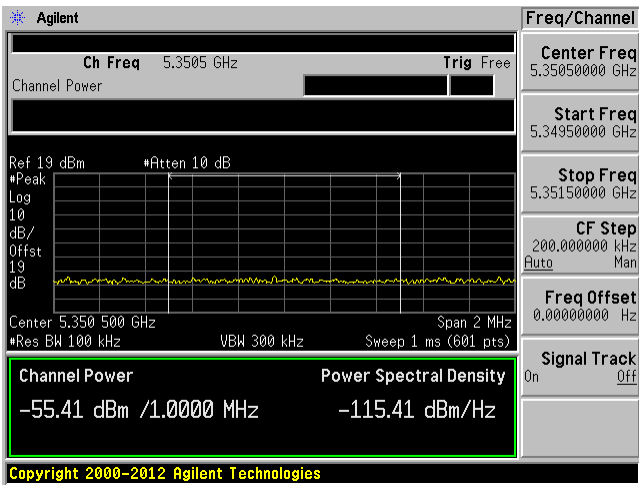
High Channel Chain 0



High Channel Chain 1



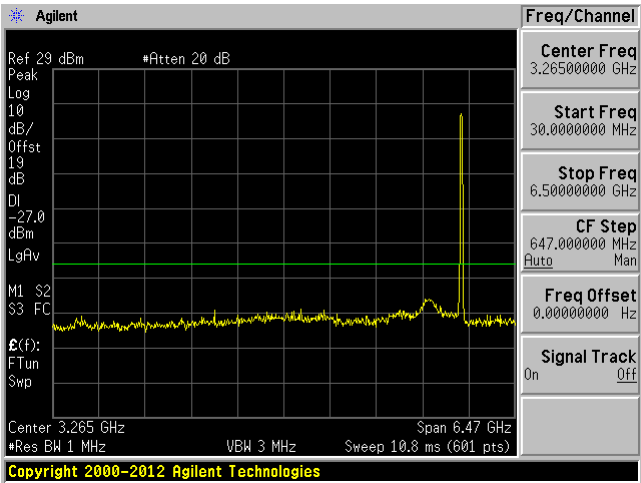
High Channel Chain 2



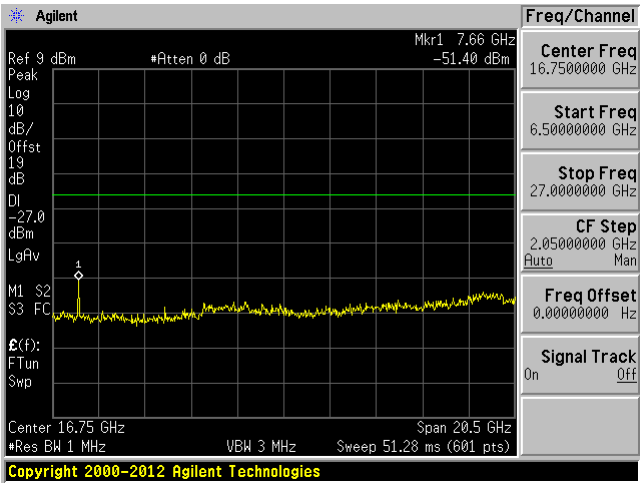
5.8 GHz Suprious Emissions

802.11a mode

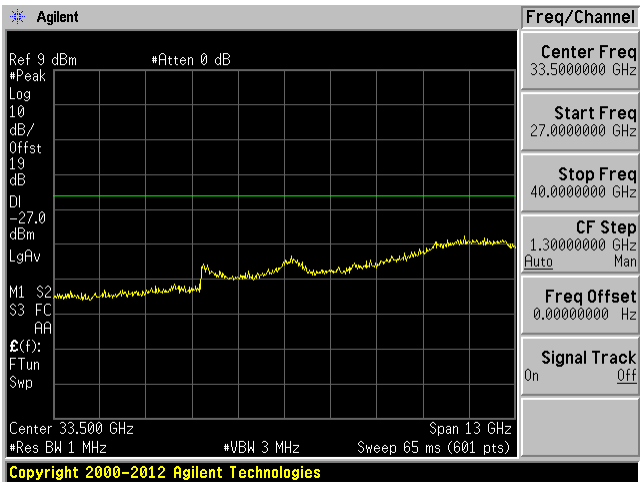
Low Channel Chain 0: 30 MHz – 6.5 GHz



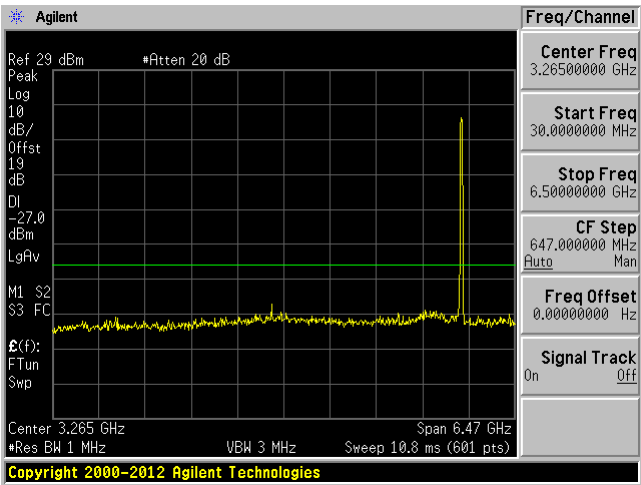
Low Channel Chain 0: 6.5 GHz- 27 GHz



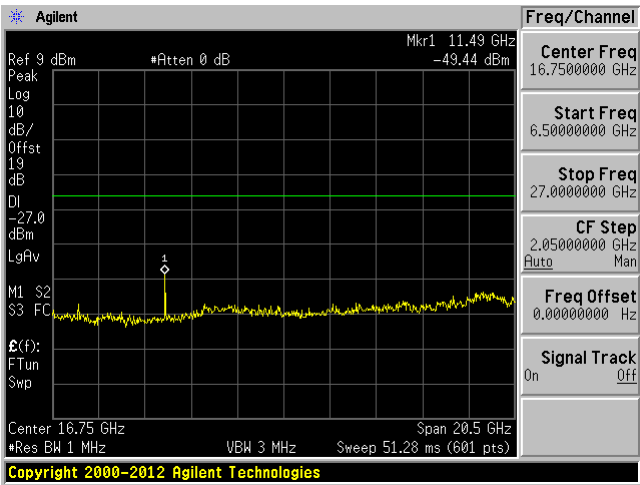
Low Channel Chain 0: 27 GHz – 40 GHz



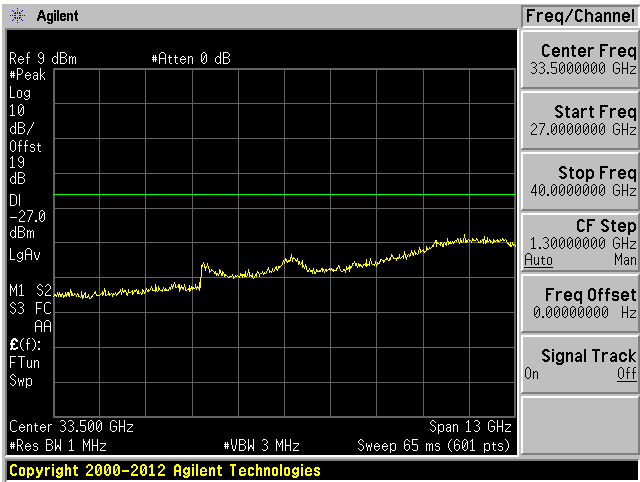
Low Channel Chain 1: 30 MHz – 6.5 GHz



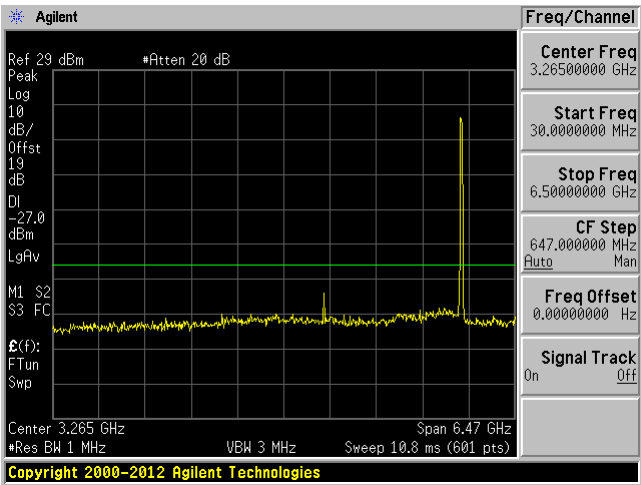
Low Channel Chain 1: 6.5 GHz- 27 GHz



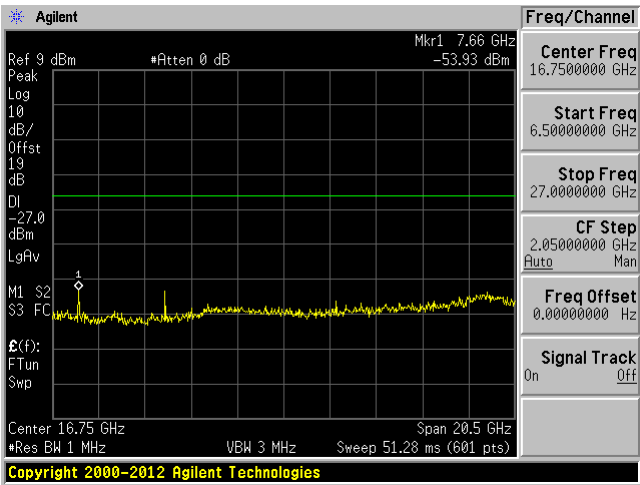
Low Channel Chain 1: 27 GHz – 40 GHz



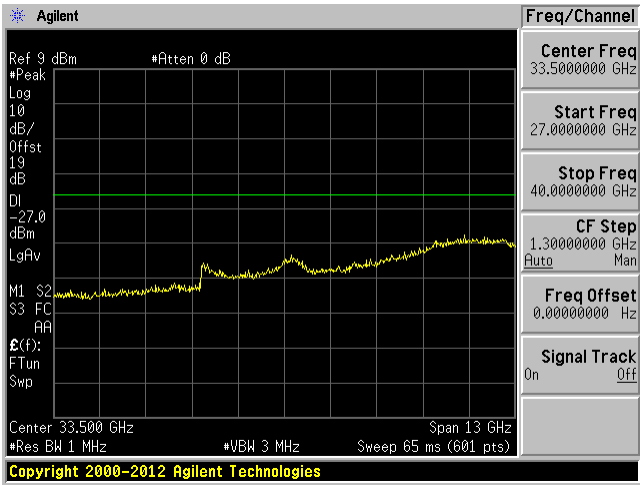
Low Channel Chain 2: 30 MHz – 6.5 GHz



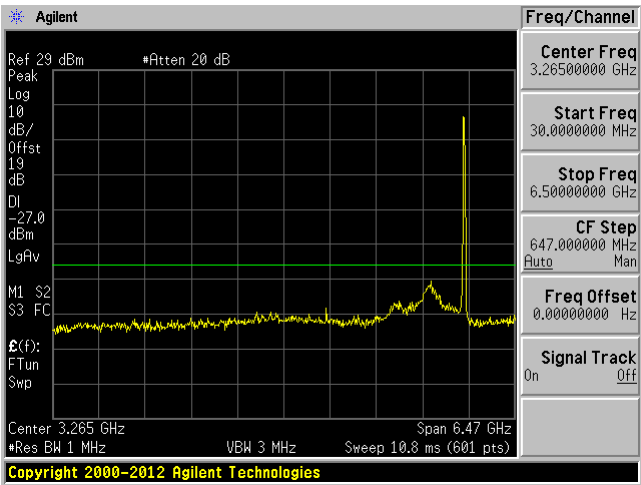
Low Channel Chain 2: 6.5 GHz- 27 GHz



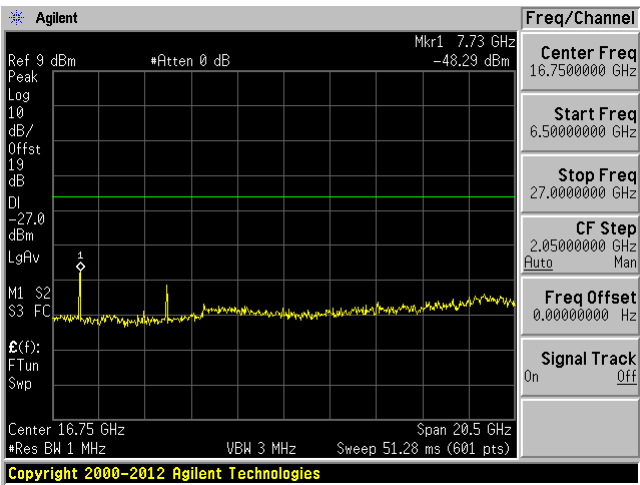
Low Channel Chain 2: 27 GHz – 40 GHz



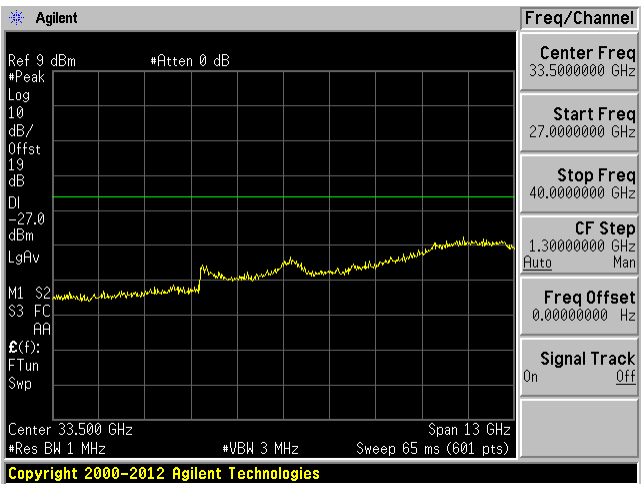
Middle Channel Chain 0: 30 MHz – 6.5 GHz



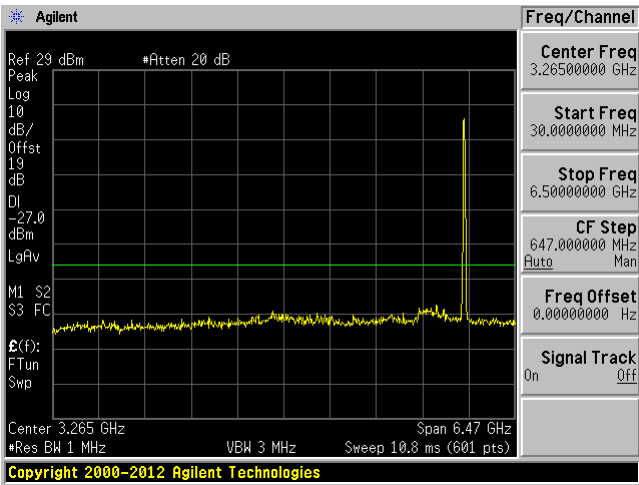
Middle Channel Chain 1: 6.5 GHz- 27 GHz



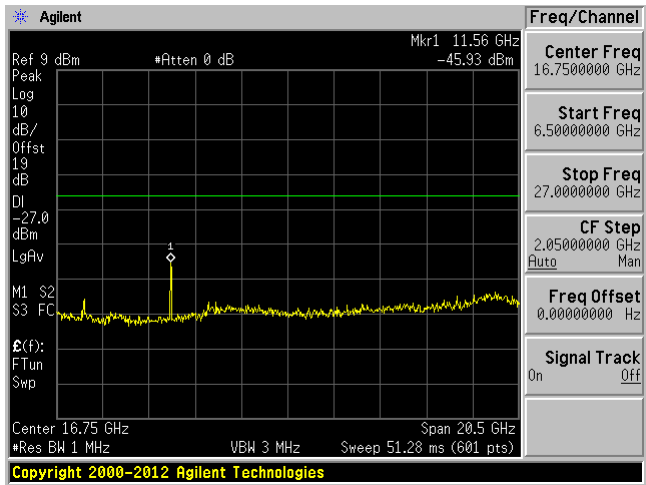
Middle Channel Chain 0: 27 GHz – 40 GHz



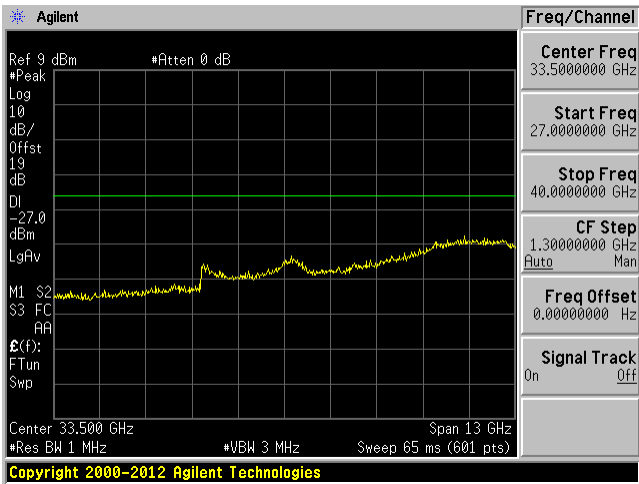
Middle Channel Chain 1: 30 MHz – 6.5 GHz



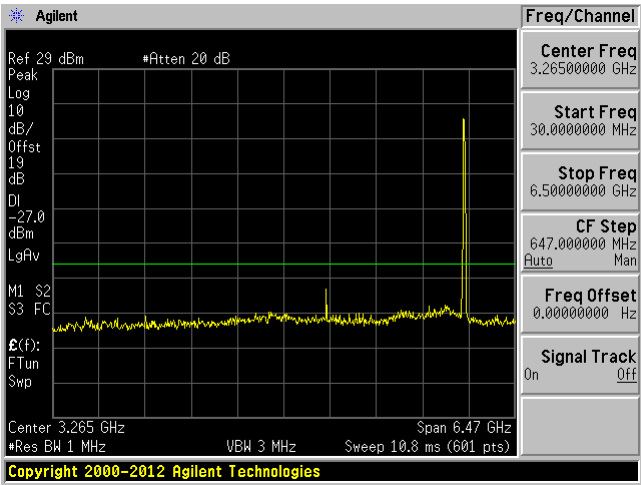
Middle Channel Chain 1: 6.5 GHz- 27 GHz



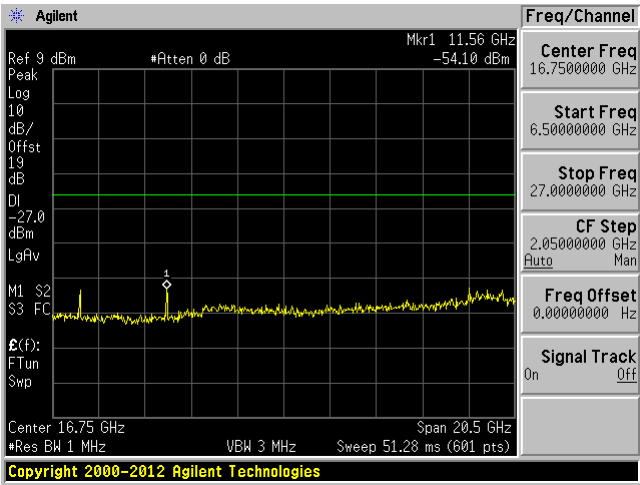
Middle Channel Chain 1: 27 GHz – 40 GHz



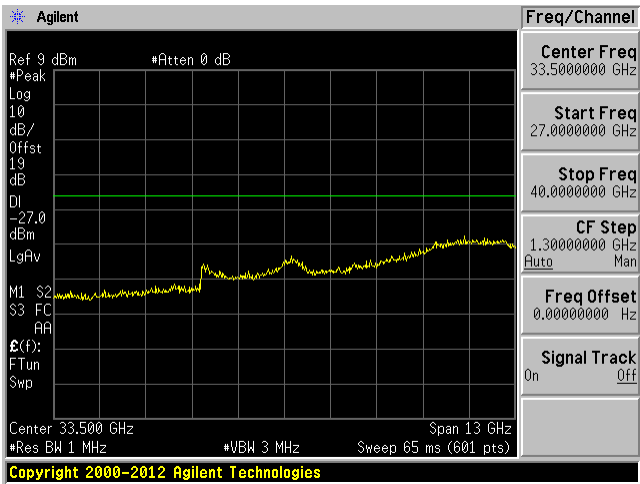
Middle Channel Chain 2: 30 MHz – 6.5 GHz



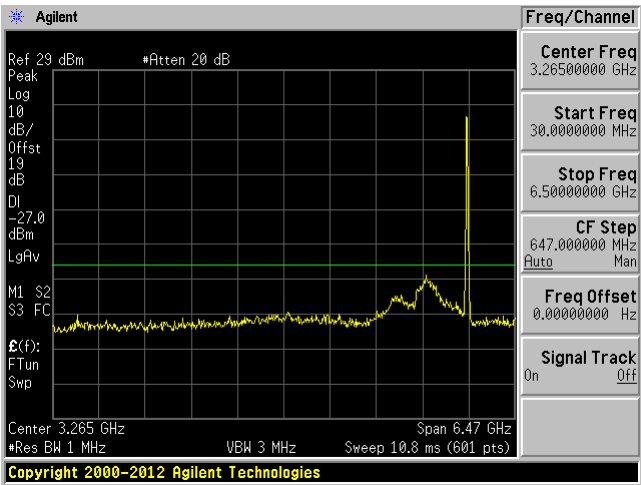
Middle Channel Chain 2: 6.5 GHz- 27 GHz



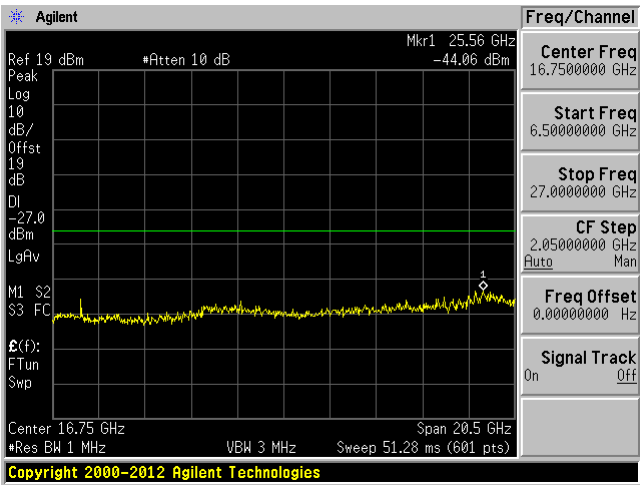
Middle Channel Chain 2: 27 GHz – 40 GHz



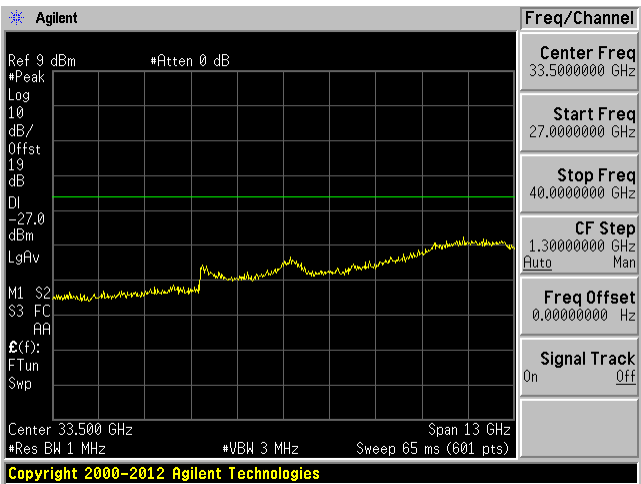
High Channel Chain 0: 30 MHz – 6.5 GHz



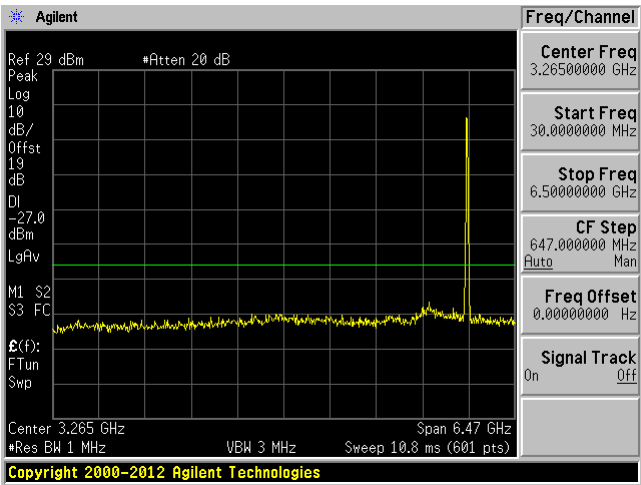
High Channel Chain 0: 6.5 GHz- 27 GHz



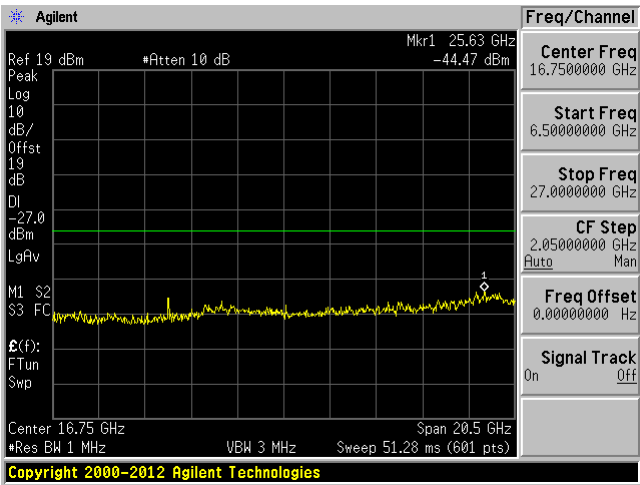
High Channel Chain 0: 27 GHz – 40 GHz



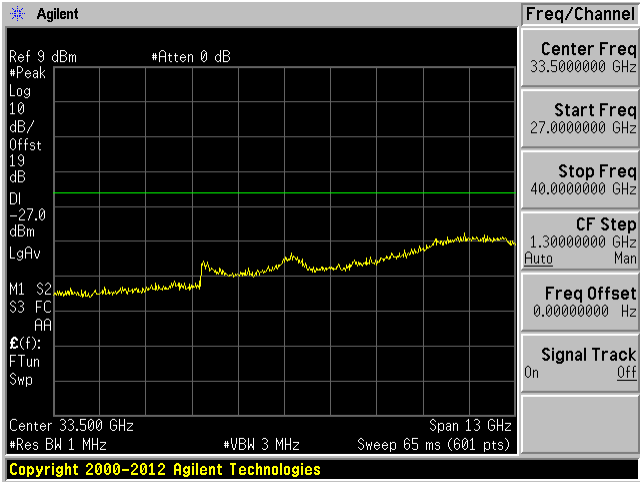
High Channel Chain 1: 30 MHz – 6.5 GHz



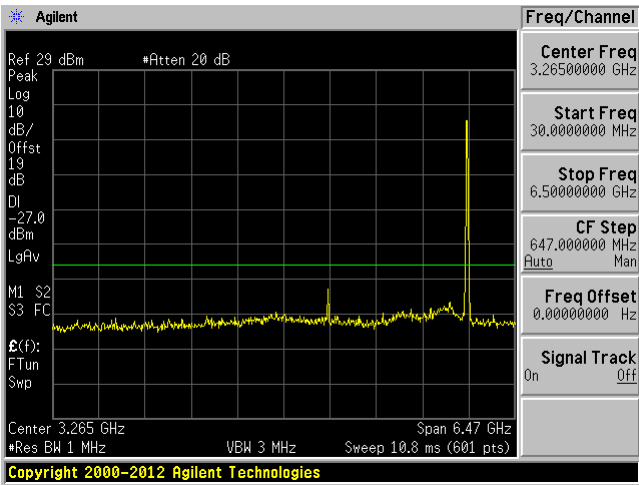
High Channel Chain 1: 6.5 GHz- 27 GHz



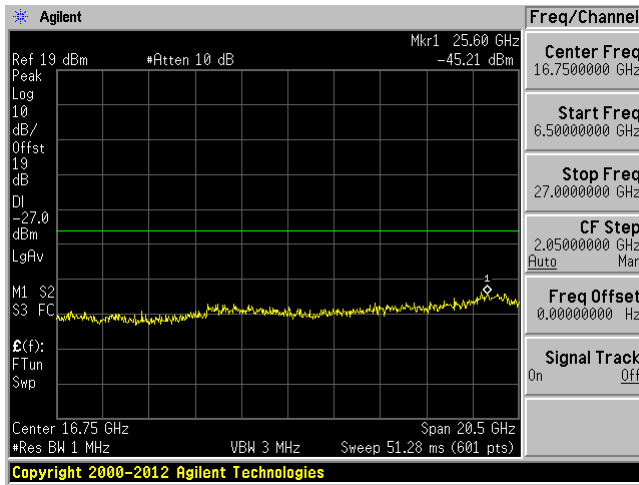
High Channel Chain 1: 27 GHz – 40 GHz



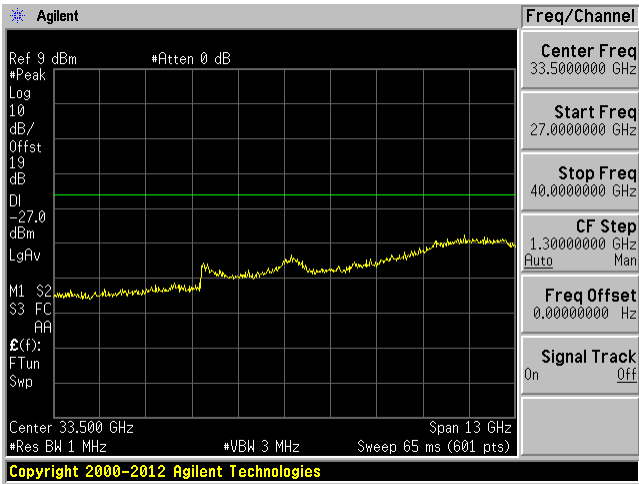
High Channel Chain 2: 30 MHz – 6.5 GHz



High Channel Chain 2: 6.5 GHz- 27 GHz

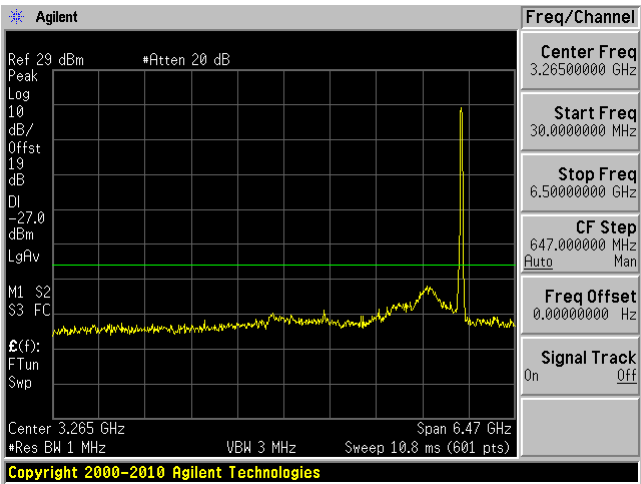


High Channel Chain 2: 27 GHz – 40 GHz

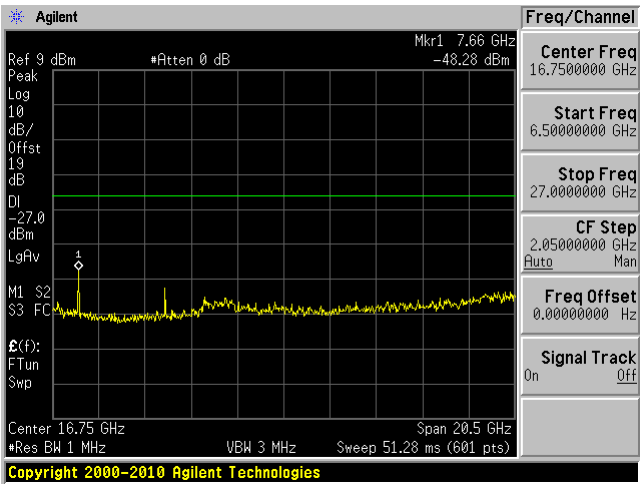


802.11n20 mode

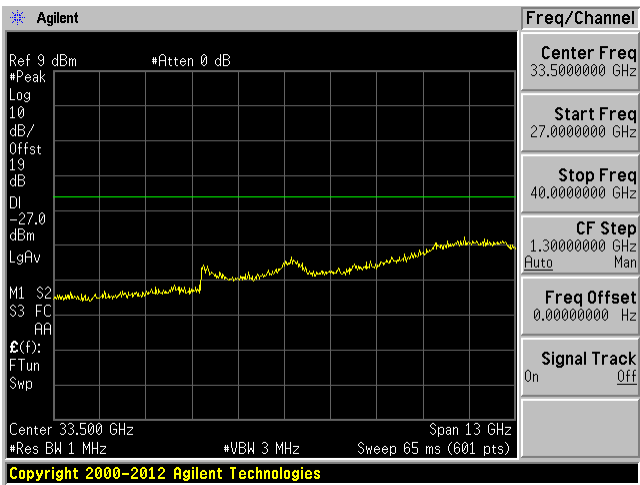
Low Channel Chain 0: 30 MHz – 6.5 GHz



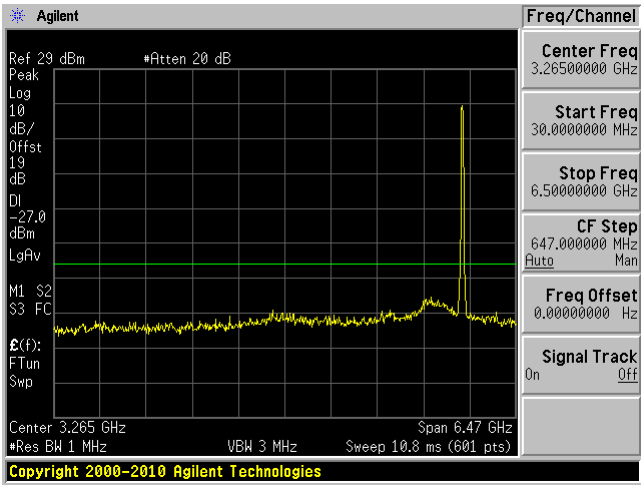
Low Channel Chain 0: 6.5 GHz- 27 GHz



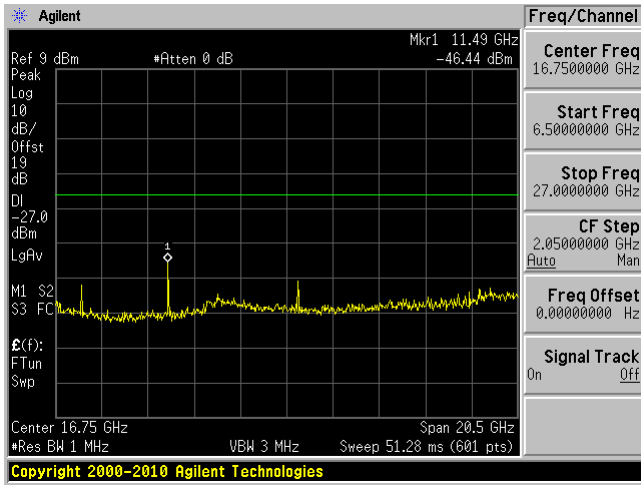
Low Channel Chain 0: 27 GHz – 40 GHz



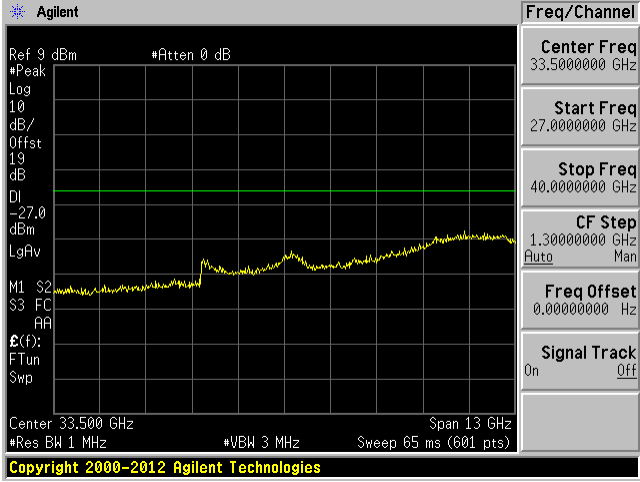
Low Channel Chain 1: 30 MHz – 6.5 GHz



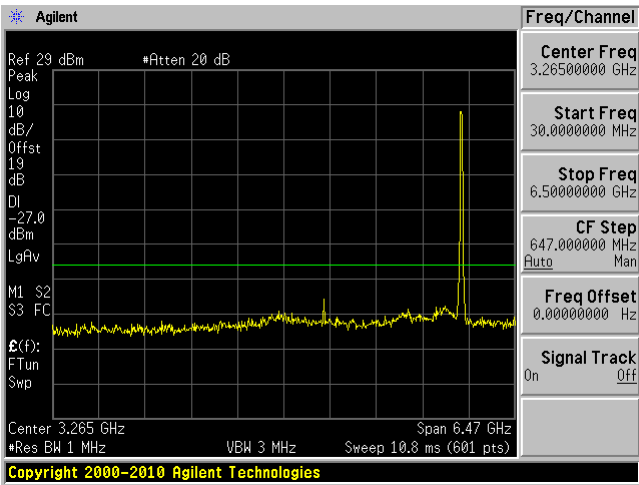
Low Channel Chain 1: 6.5 GHz- 27 GHz



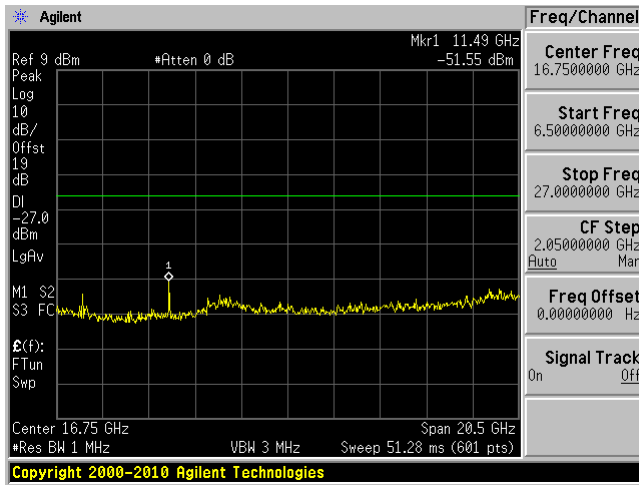
Low Channel Chain 1: 27 GHz – 40 GHz



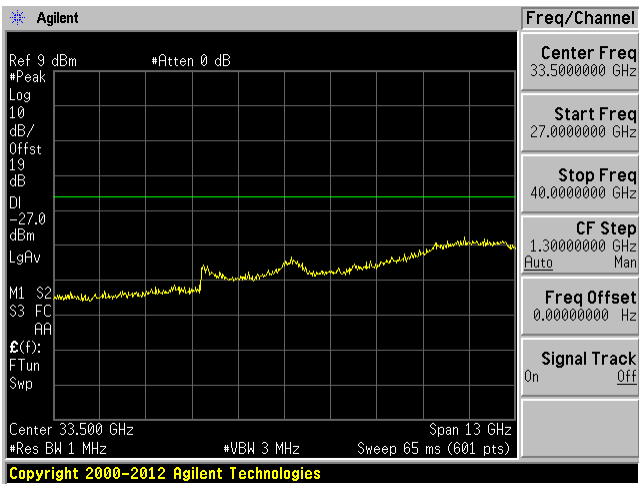
Low Channel Chain 2: 30 MHz – 6.5 GHz



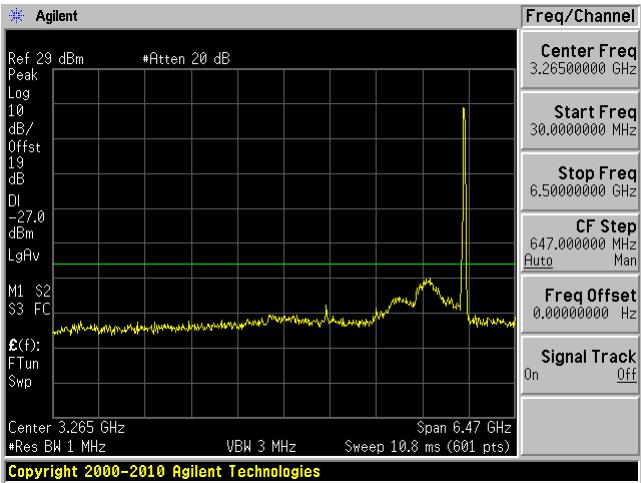
Low Channel Chain 2: 6.5 GHz- 27 GHz



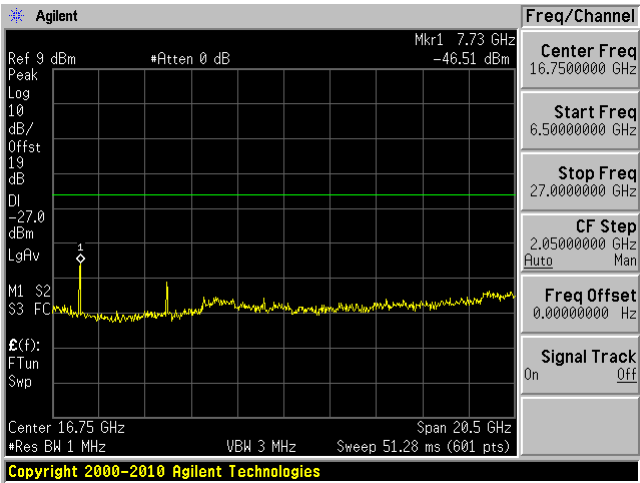
Low Channel Chain 2: 27 GHz – 40 GHz



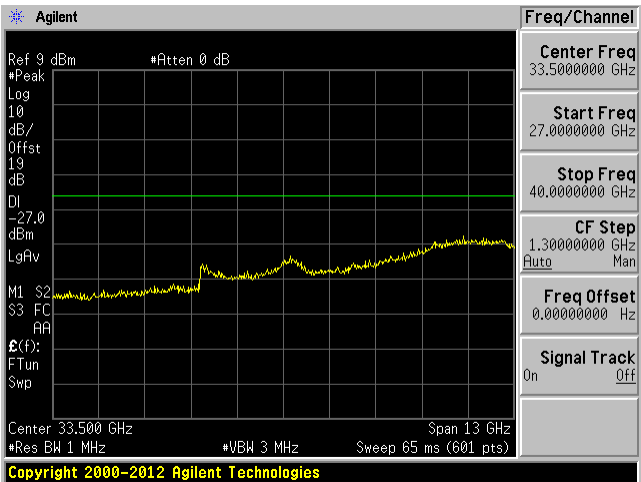
Middle Channel Chain 0: 30 MHz – 6.5 GHz



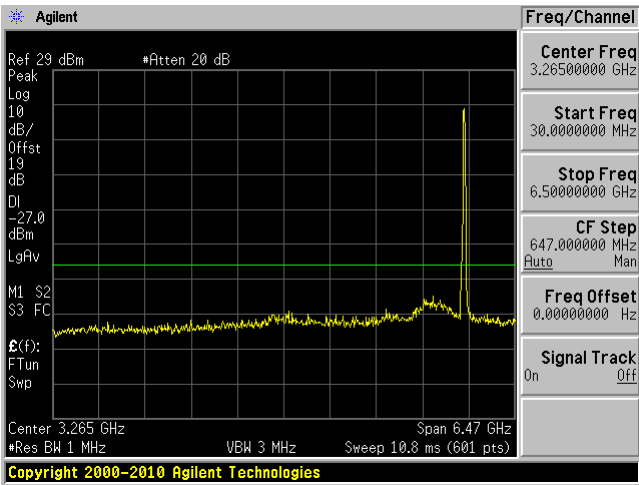
Middle Channel Chain 1: 6.5 GHz- 27 GHz



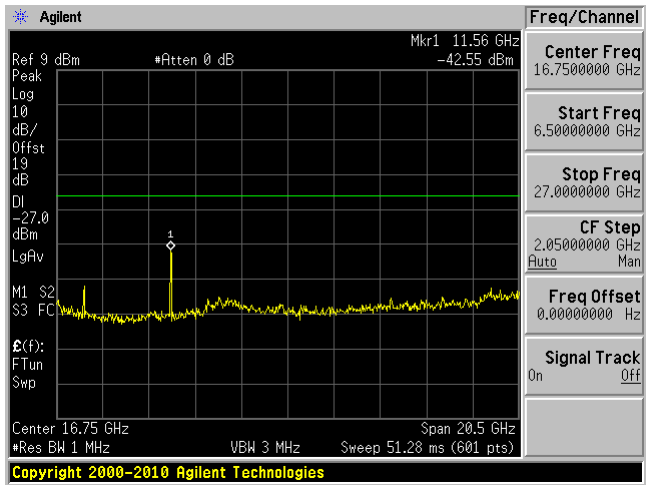
Middle Channel Chain 0: 27 GHz – 40 GHz



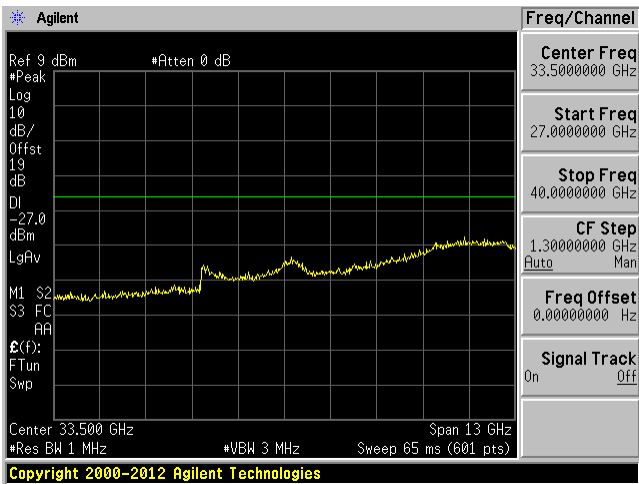
Middle Channel Chain 1: 30 MHz – 6.5 GHz



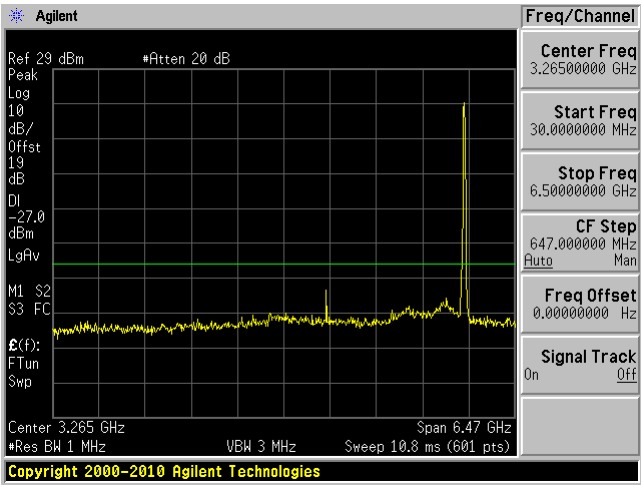
Middle Channel Chain 1: 6.5 GHz- 27 GHz



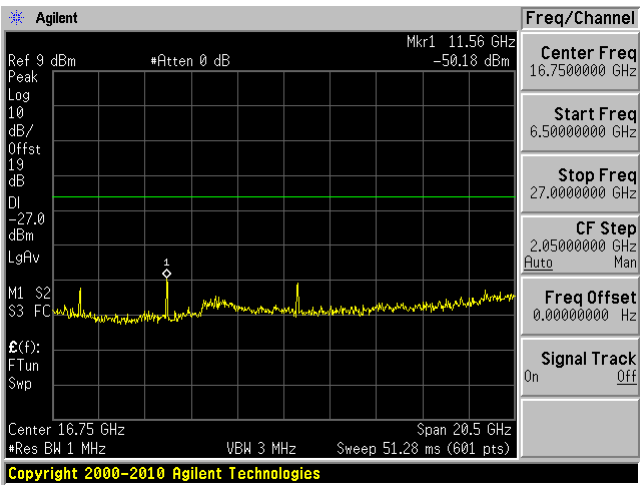
Middle Channel Chain 1: 27 GHz – 40 GHz



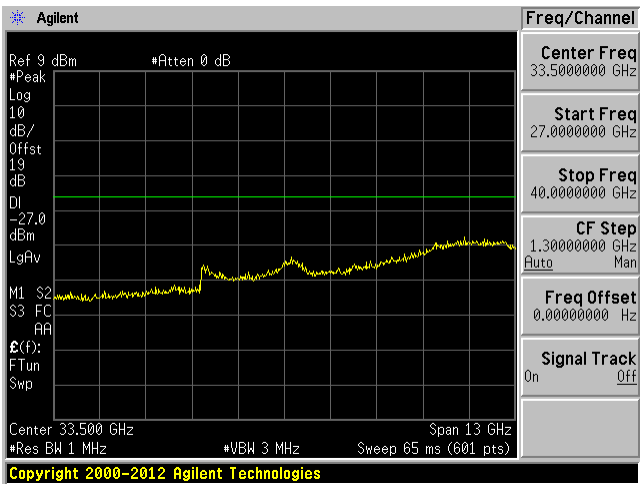
Middle Channel Chain 2: 30 MHz – 6.5 GHz



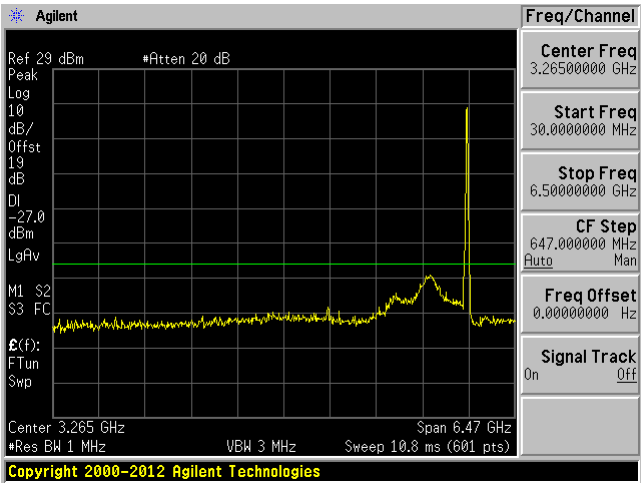
Middle Channel Chain 2: 6.5 GHz- 27 GHz



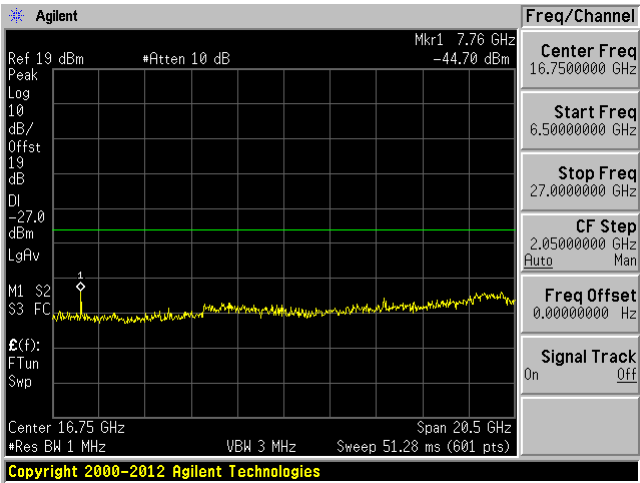
Middle Channel Chain 2: 27 GHz – 40 GHz



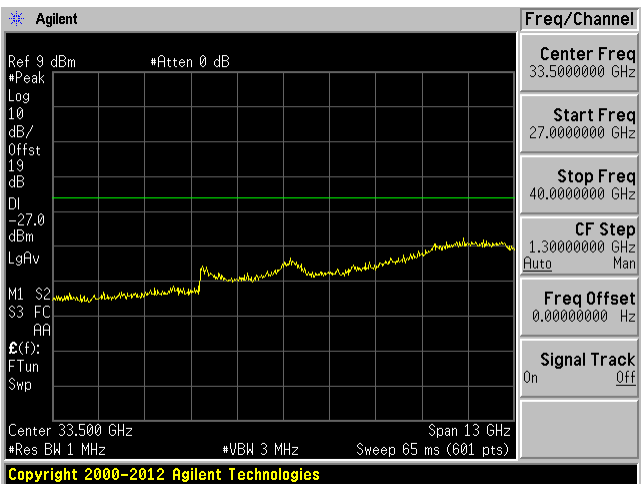
High Channel Chain 0: 30 MHz – 6.5 GHz



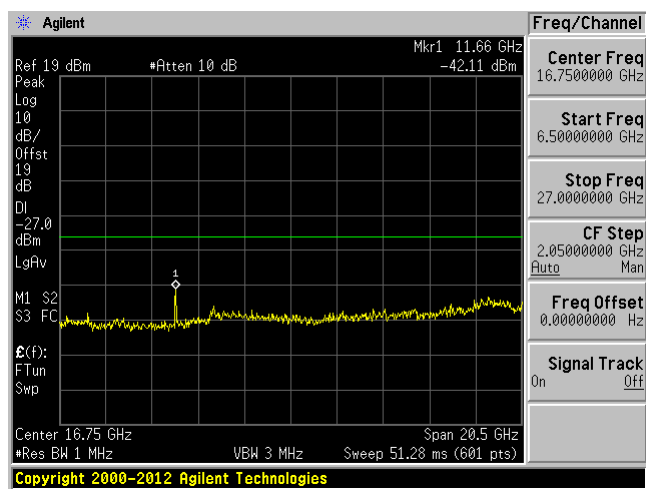
High Channel Chain 0: 6.5 GHz- 27 GHz



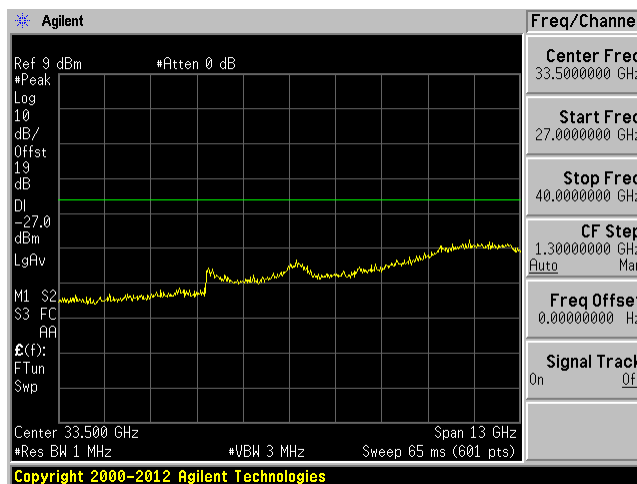
High Channel Chain 0: 27 GHz – 40 GHz



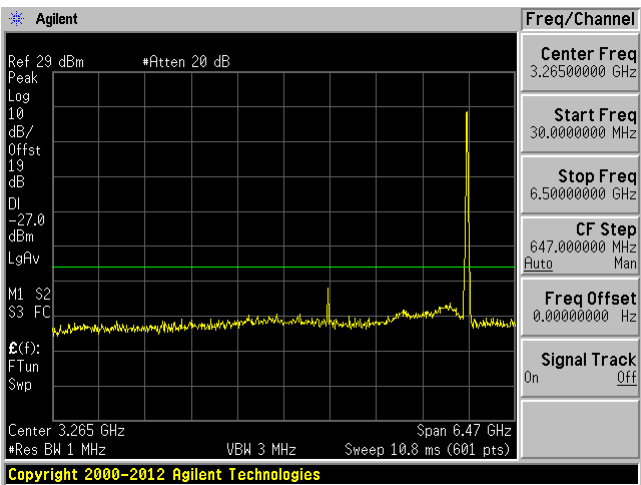
High Channel Chain 1: 6.5 GHz- 27 GHz



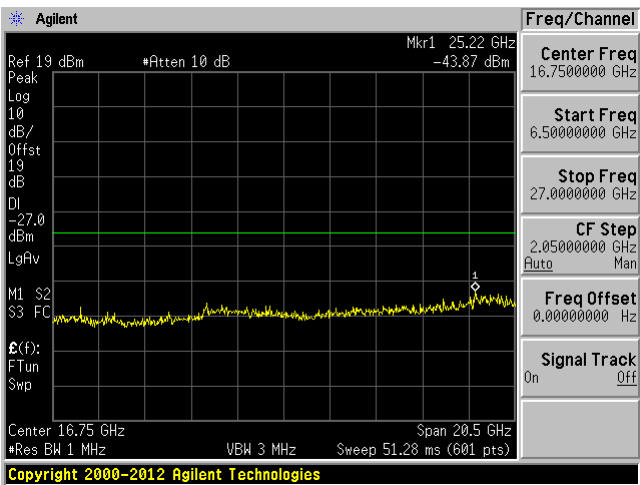
High Channel Chain 1: 27 GHz – 40 GHz



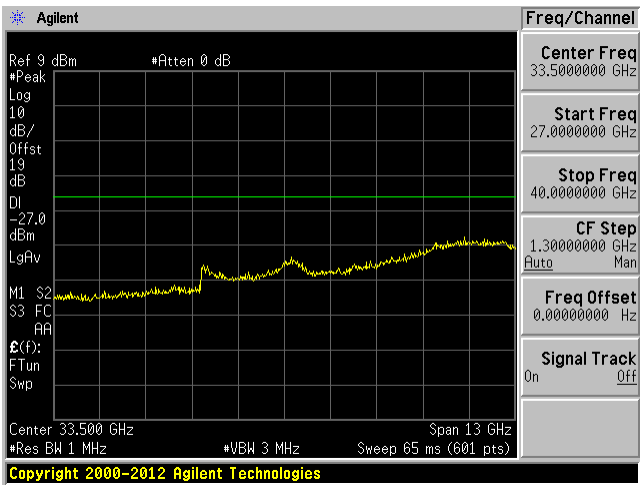
High Channel Chain 2: 30 MHz – 6.5 GHz



High Channel Chain 2: 6.5 GHz- 27 GHz

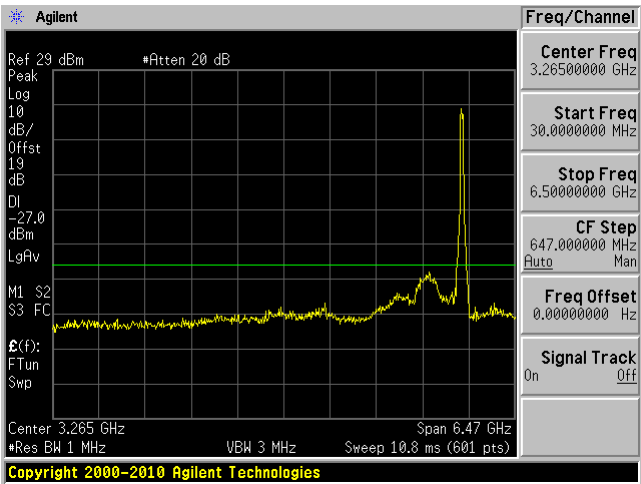


High Channel Chain 2: 27 GHz – 40 GHz

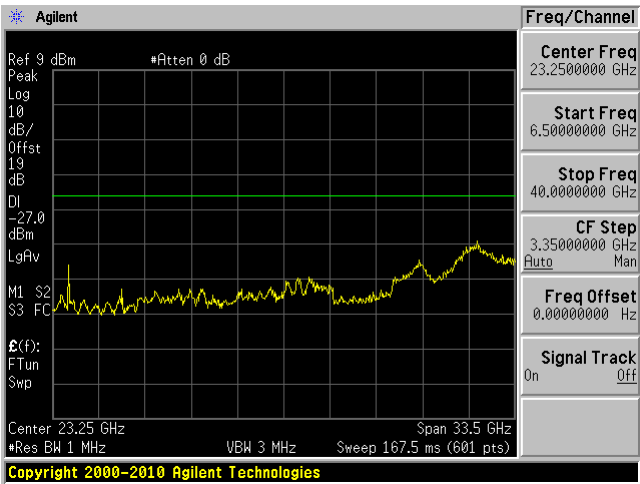


802.11n40 mode

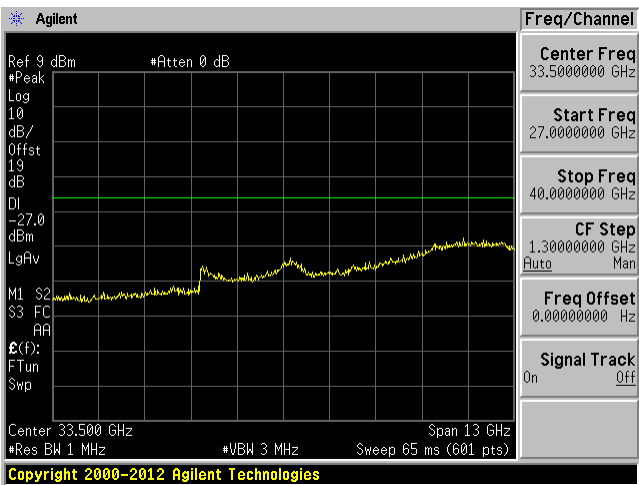
Low Channel Chain 0: 30 MHz – 6.5 GHz



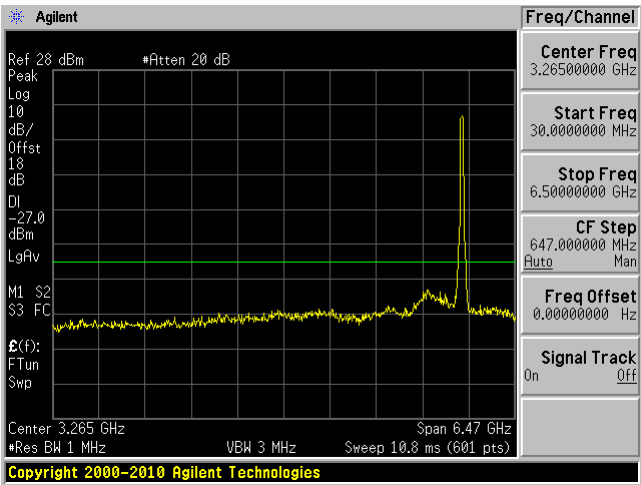
Low Channel Chain 0: 6.5 GHz- 40 GHz



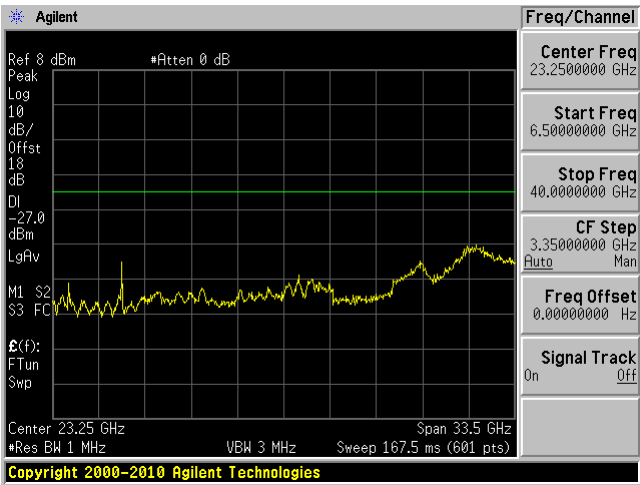
Low Channel Chain 0: 27 GHz – 40 GHz



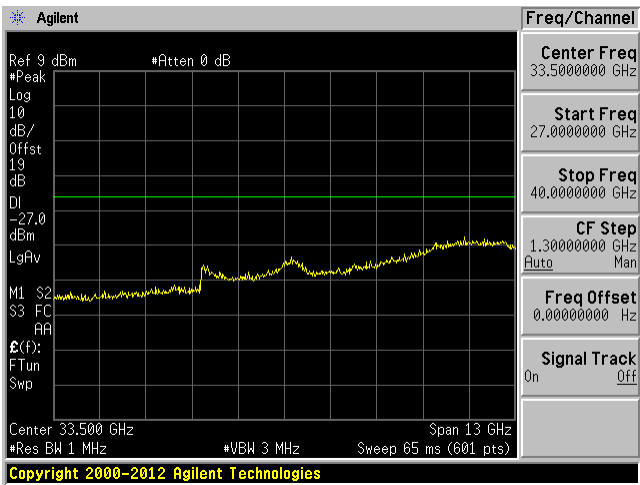
Low Channel Chain 1: 30 MHz – 6.5 GHz



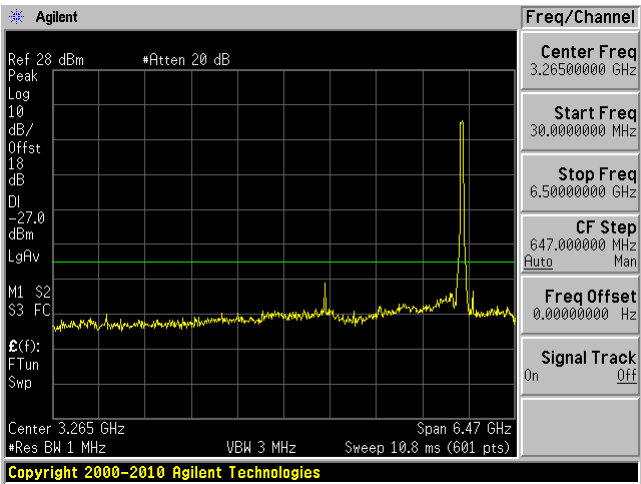
Low Channel Chain 1: 6.5 GHz- 40 GHz



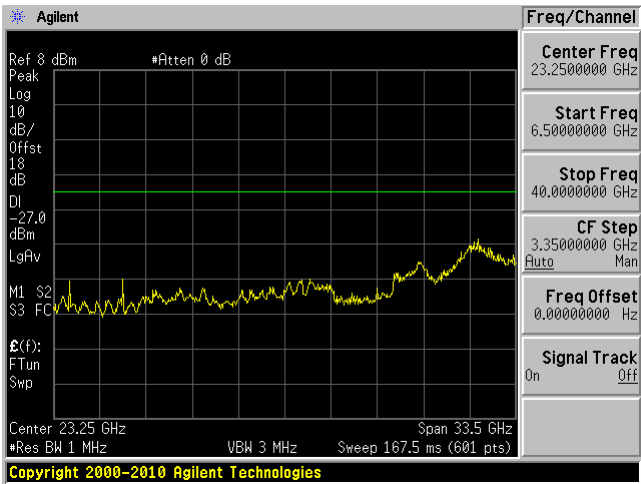
Low Channel Chain 1: 27 GHz – 40 GHz



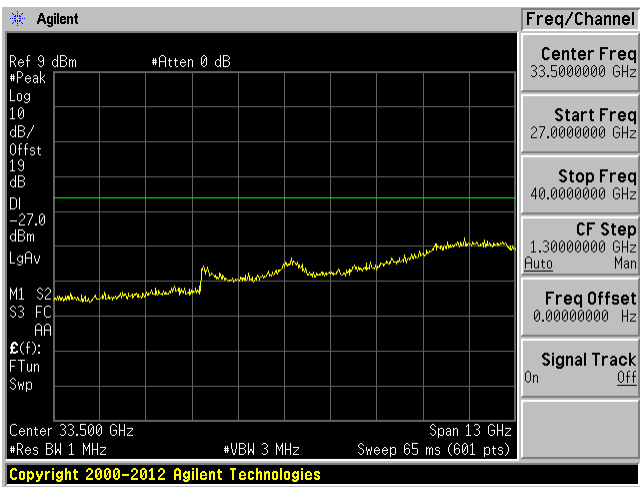
Low Channel Chain 2: 30 MHz – 6.5 GHz



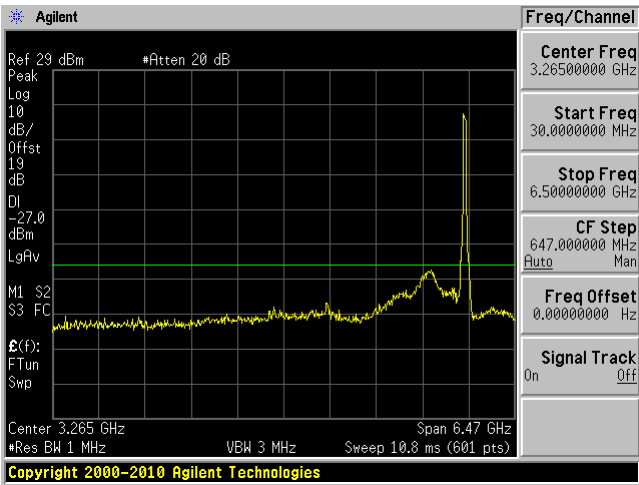
Low Channel Chain 2: 6.5 GHz- 40 GHz



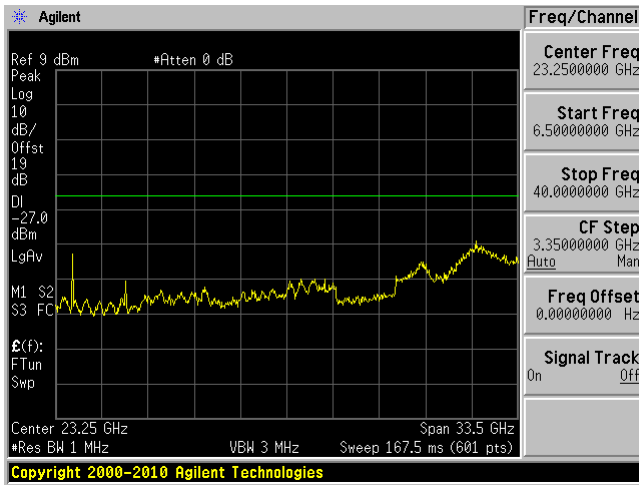
Low Channel Chain 2: 27 GHz – 40 GHz



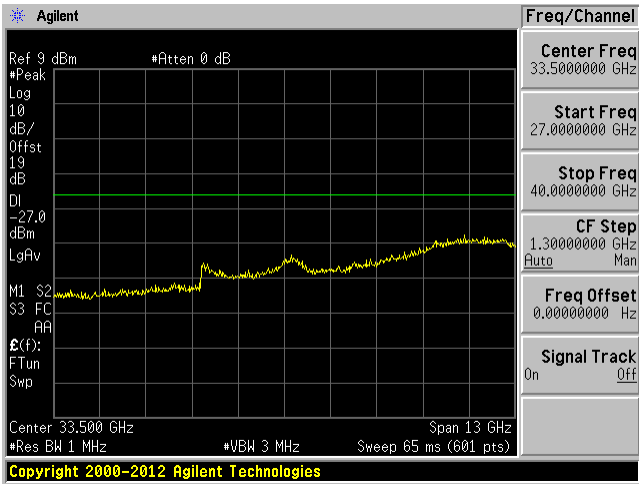
High Channel Chain 0: 30 MHz – 6.5 GHz



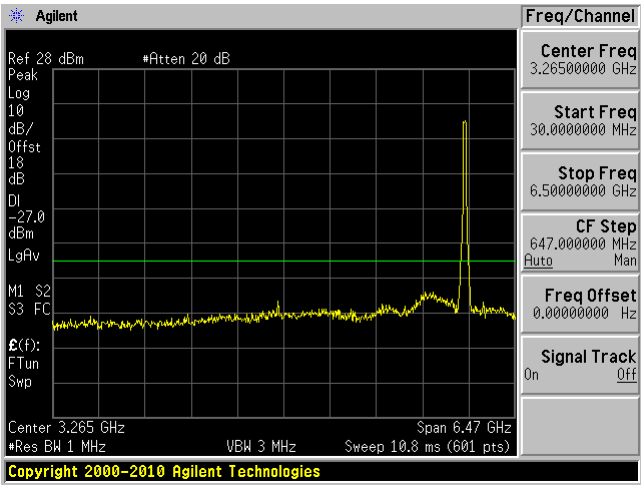
High Channel Chain 0: 6.5 GHz- 40 GHz



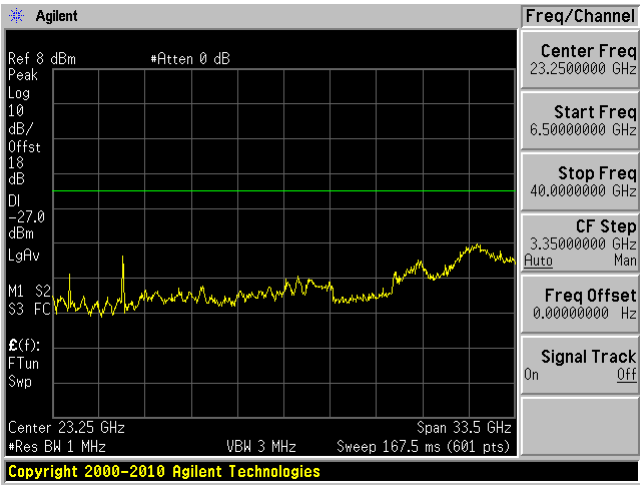
High Channel Chain 0: 27 GHz – 40 GHz



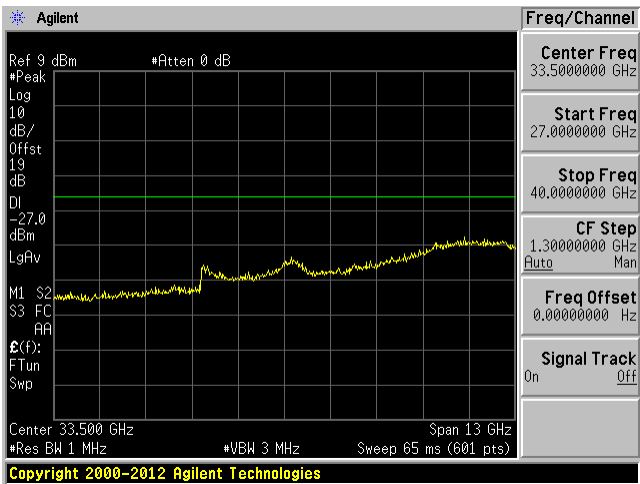
High Channel Chain 1: 30 MHz – 6.5 GHz



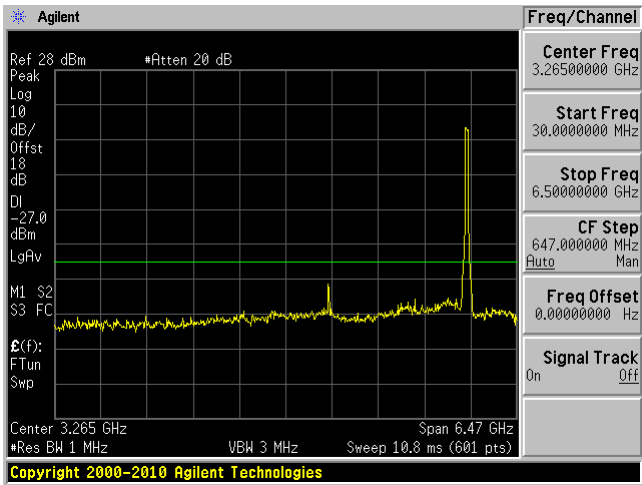
High Channel Chain 1: 6.5 GHz- 40 GHz



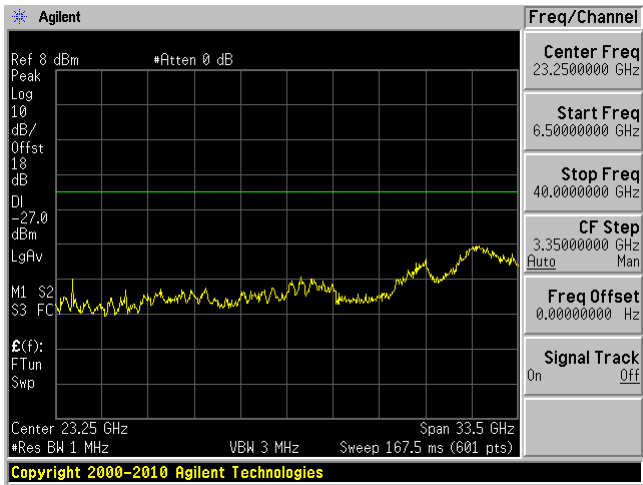
High Channel Chain 1: 27 GHz – 40 GHz



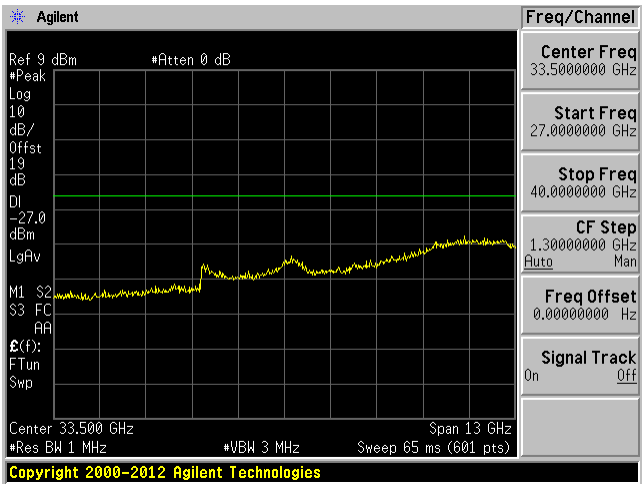
High Channel Chain 2: 30 MHz – 6.5 GHz



High Channel Chain 2: 6.5 GHz- 40 GHz



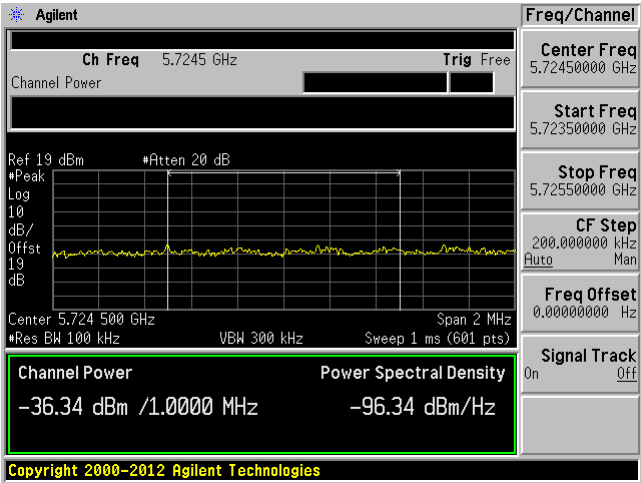
High Channel Chain 2: 27 GHz – 40 GHz



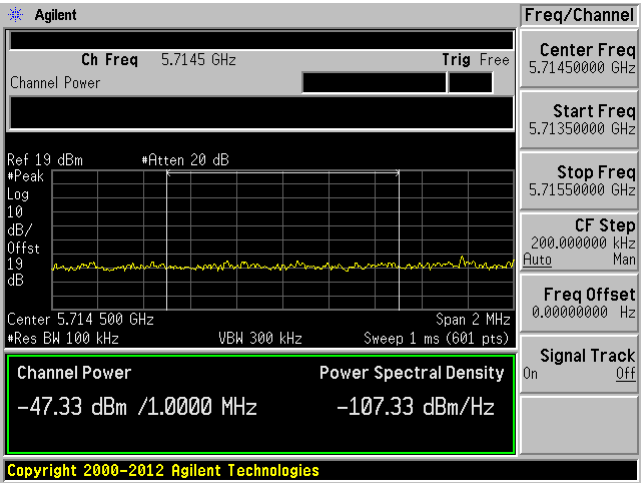
Band Edge

802.11a mode

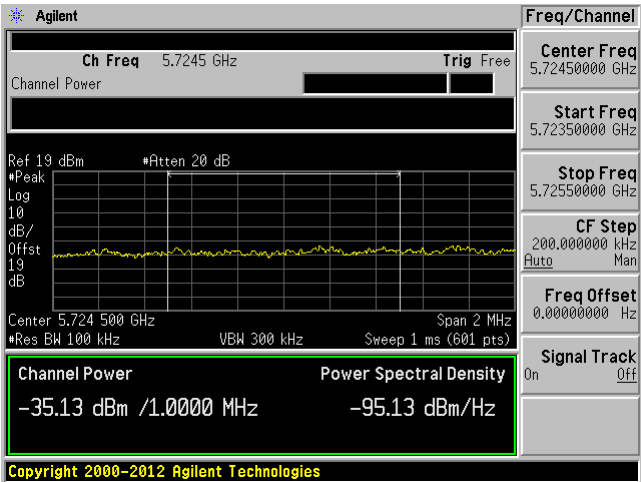
Low Channel Chain 0 (-17 dBm limit)



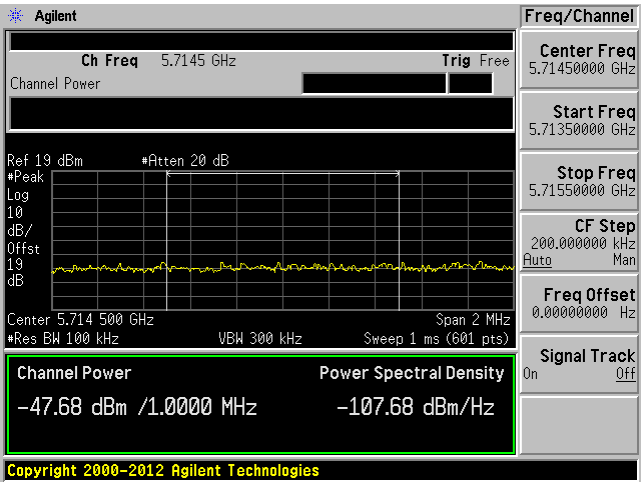
Low Channel Chain 0 (-27 dBm limit)



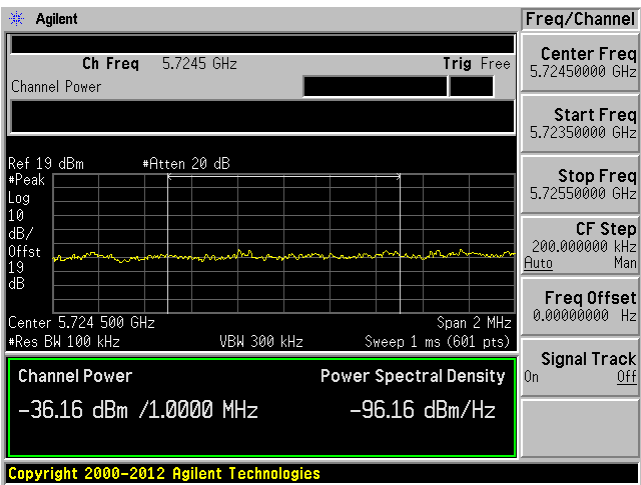
Low Channel Chain 1 (-17 dBm limit)



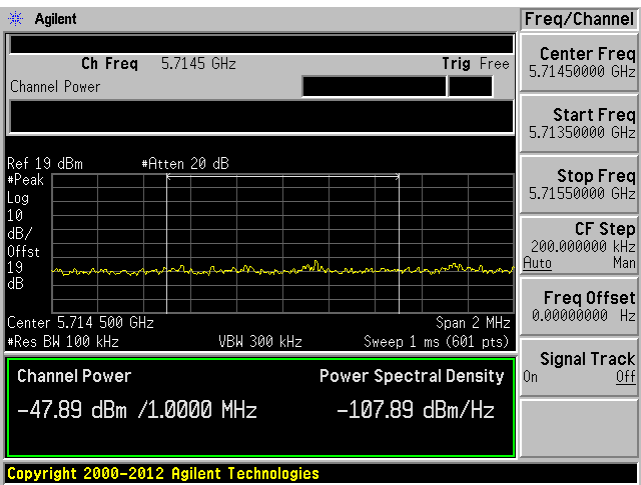
Low Channel Chain 1 (-27 dBm limit)



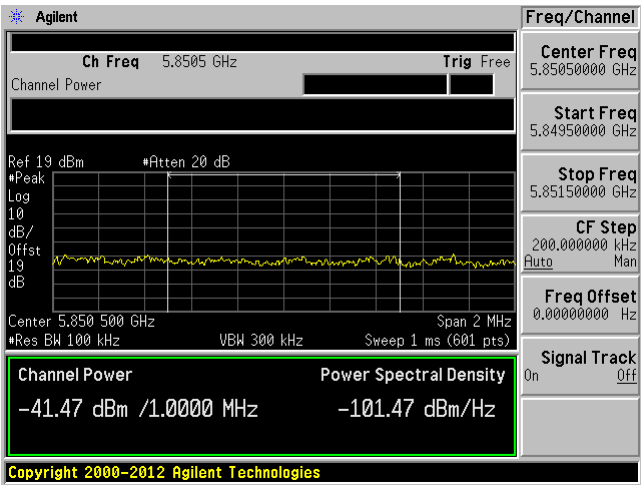
Low Channel Chain 2 (-17 dBm limit)



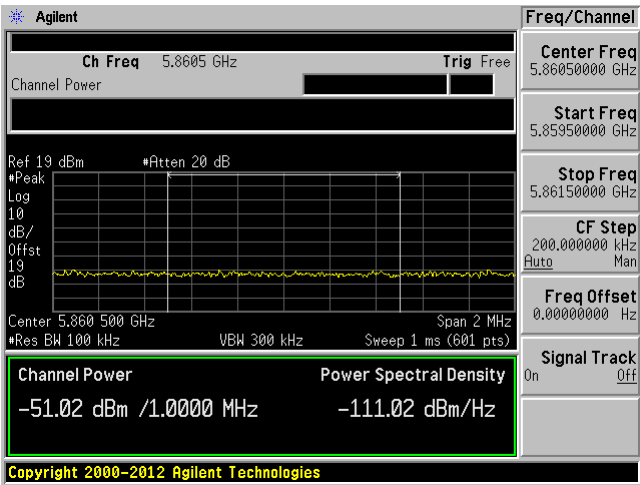
Low Channel Chain 2 (-27 dBm limit)



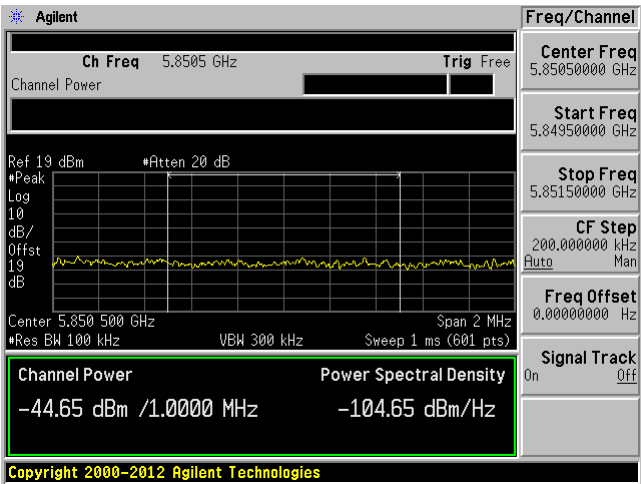
High Channel Chain 0 (-17 dBm limit)



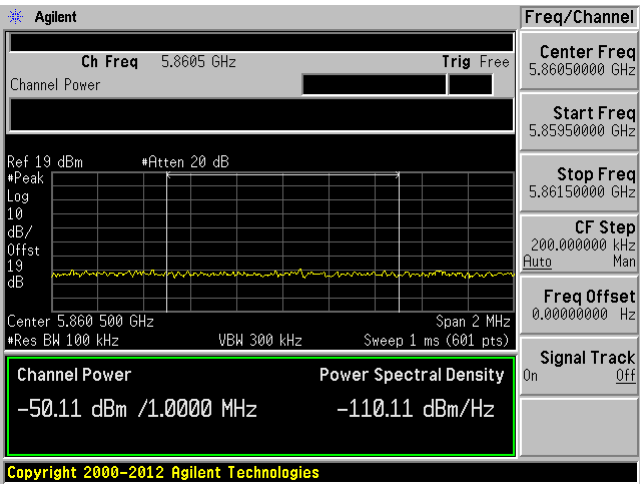
High Channel Chain 0 (-27 dBm limit)



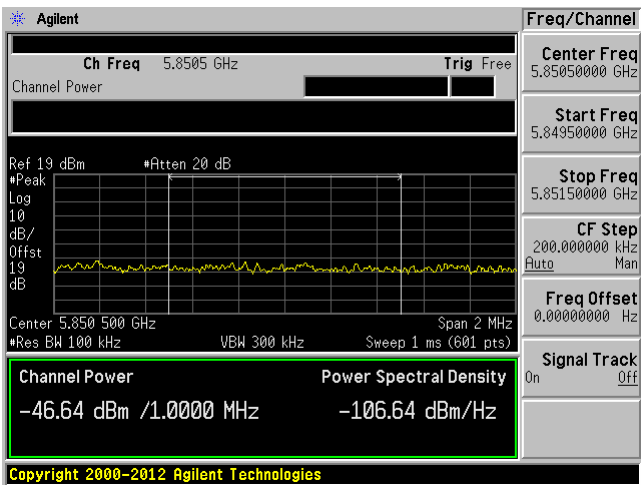
High Channel Chain 1 (-17 dBm limit)



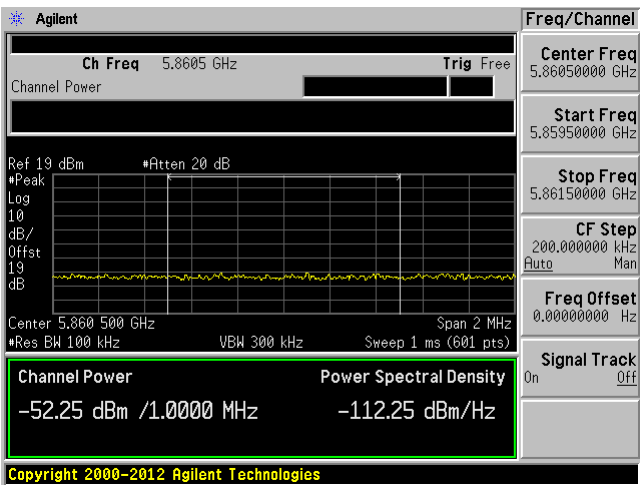
High Channel Chain 1 (-27 dBm limit)



High Channel Chain 2 (-17 dBm limit)

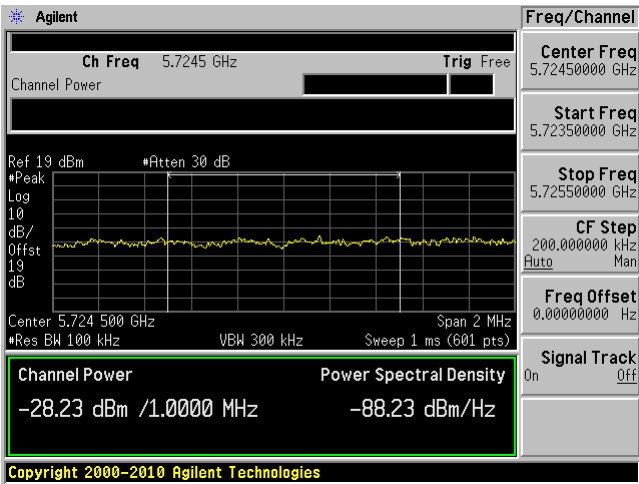


High Channel Chain 2 (-27 dBm limit)

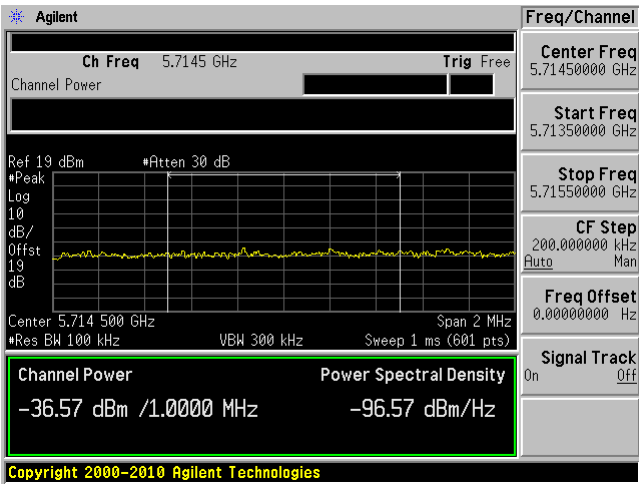


802.11n20 mode

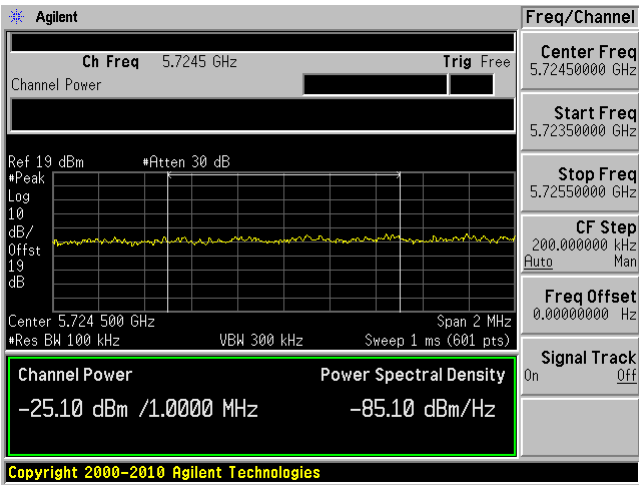
Low Channel Chain 0 (-17 dBm limit)



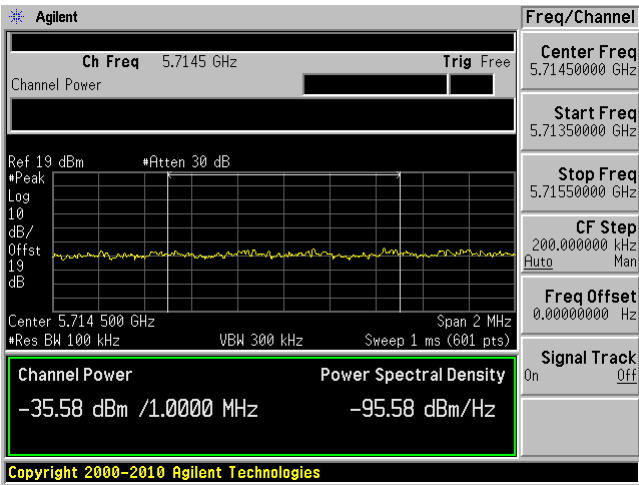
Low Channel Chain 0 (-27 dBm limit)



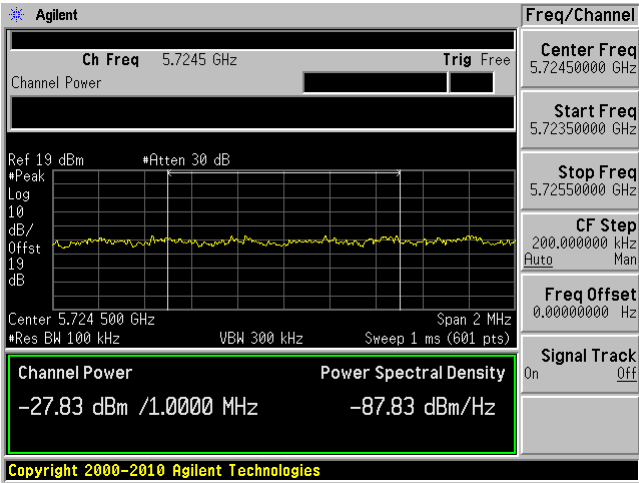
Low Channel Chain 1 (-17 dBm limit)



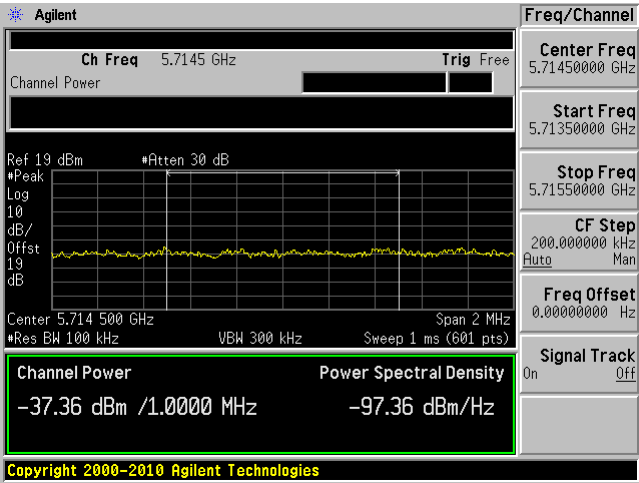
Low Channel Chain 1 (-27 dBm limit)



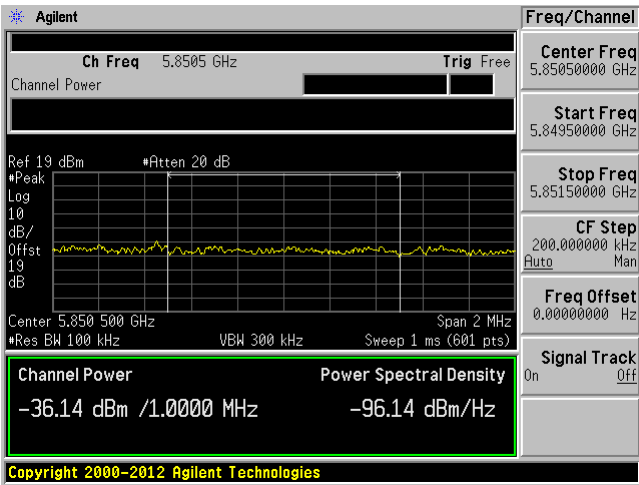
Low Channel Chain 2 (-17 dBm limit)



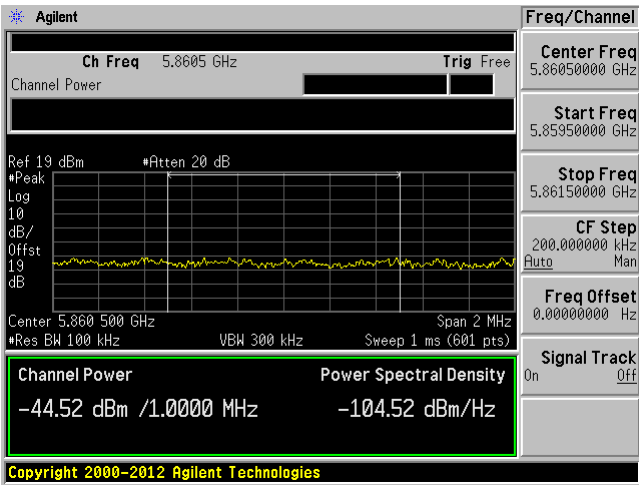
Low Channel Chain 2 (-27 dBm limit)



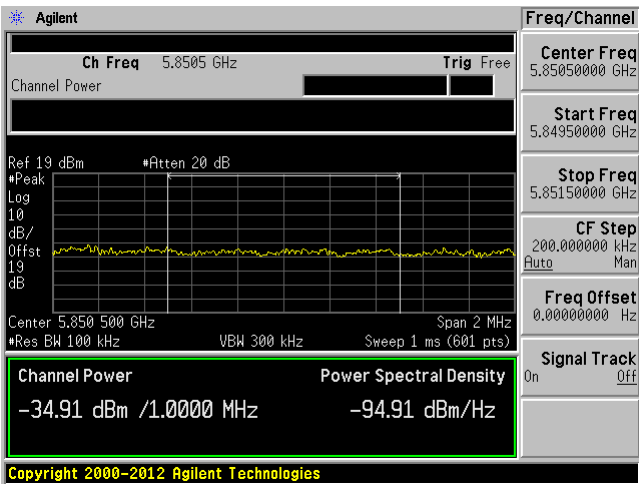
High Channel Chain 0 (-17 dBm limit)



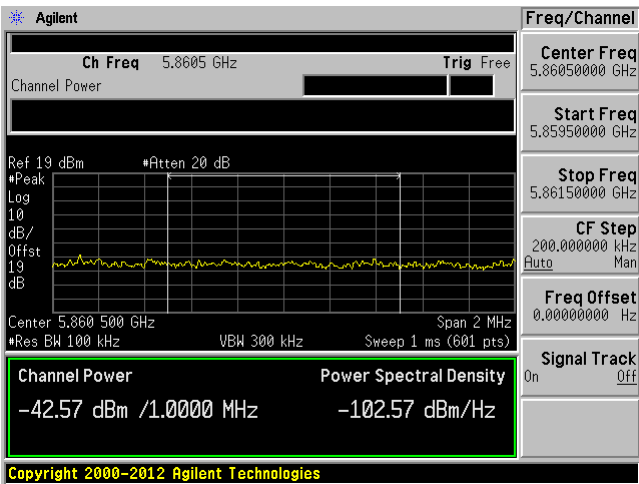
High Channel Chain 0 (-27 dBm limit)



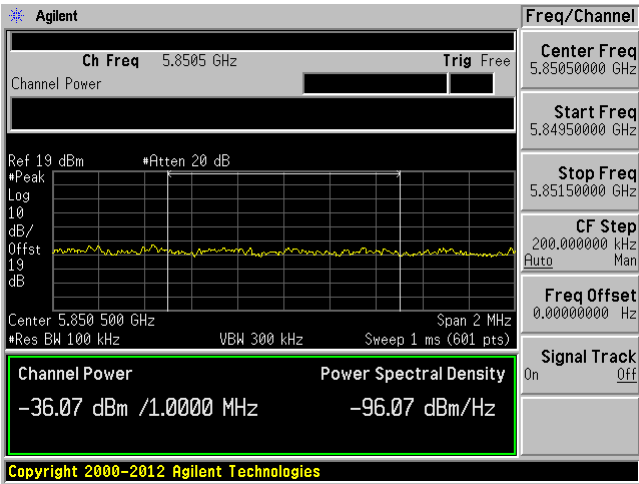
High Channel Chain 1 (-17 dBm limit)



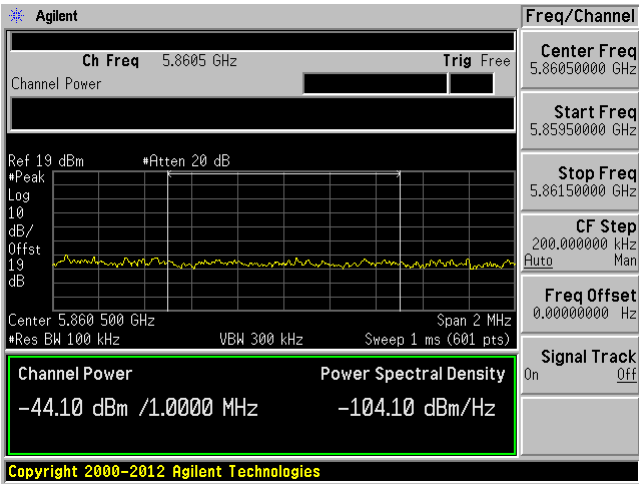
High Channel Chain 1 (-27 dBm limit)



High Channel Chain 2 (-17 dBm limit)

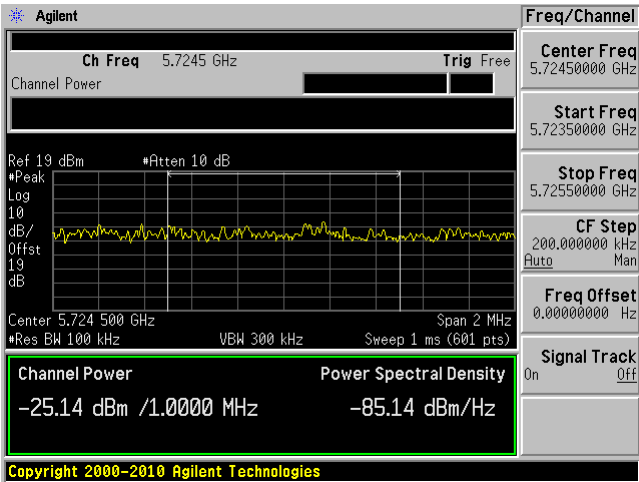


High Channel Chain 2 (-27 dBm limit)

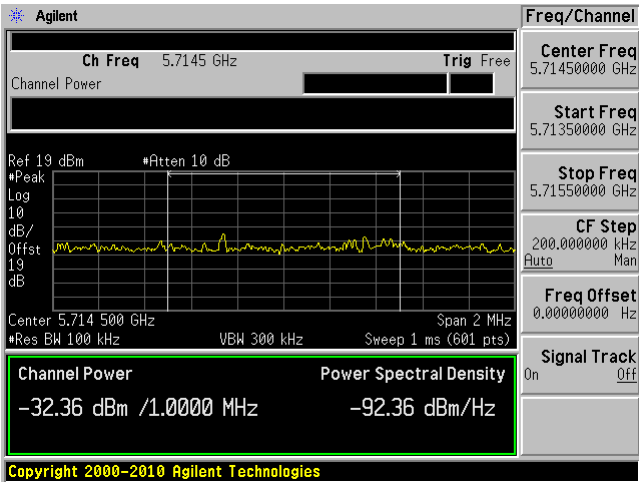


802.11n40 mode

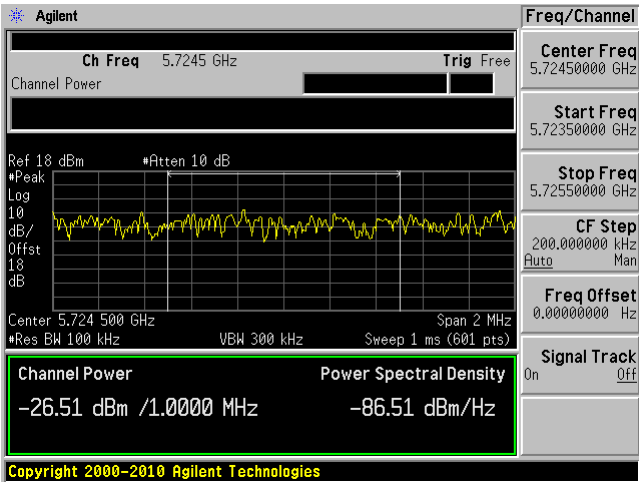
Low Channel Chain 0 (-17 dBm limit)



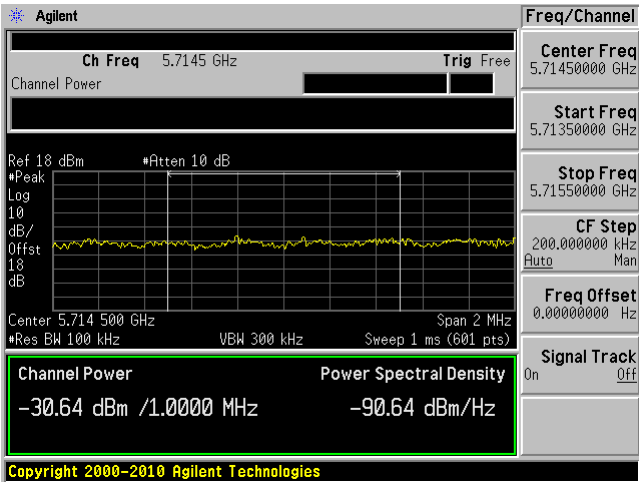
Low Channel Chain 0 (-27 dBm limit)



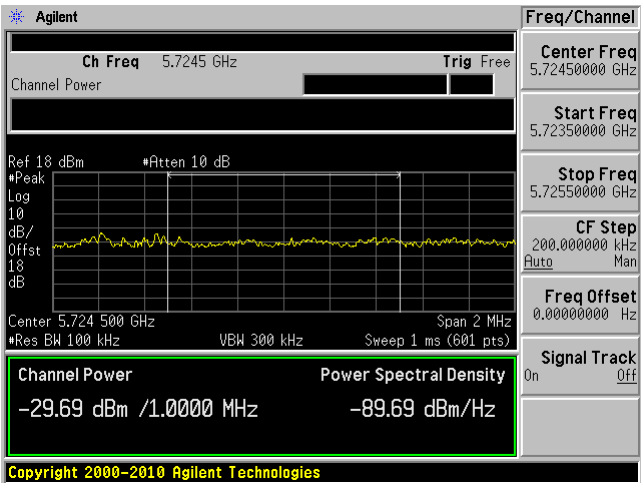
Low Channel Chain 1 (-17 dBm limit)



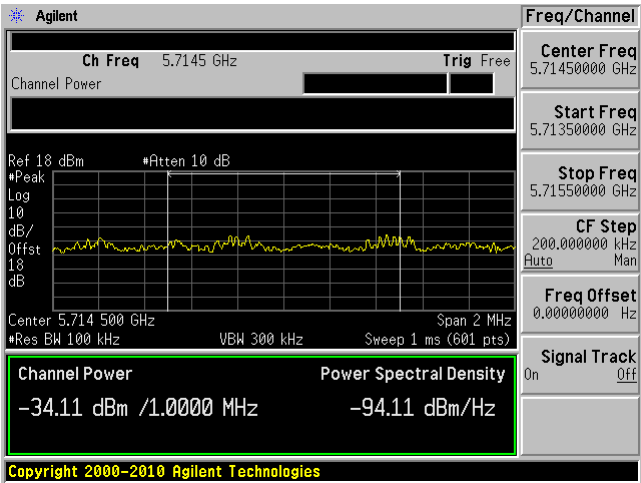
Low Channel Chain 1 (-27 dBm limit)



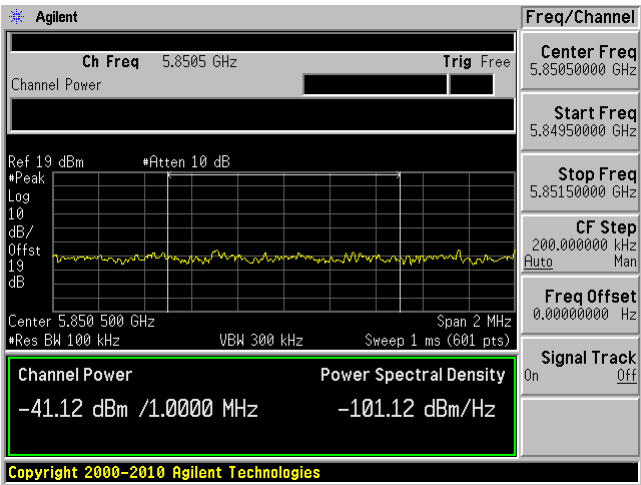
Low Channel Chain 2 (-17 dBm limit)



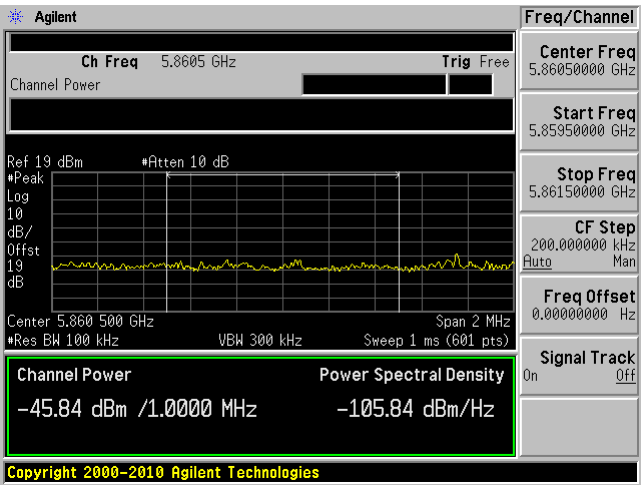
Low Channel Chain 2 (-27 dBm limit)



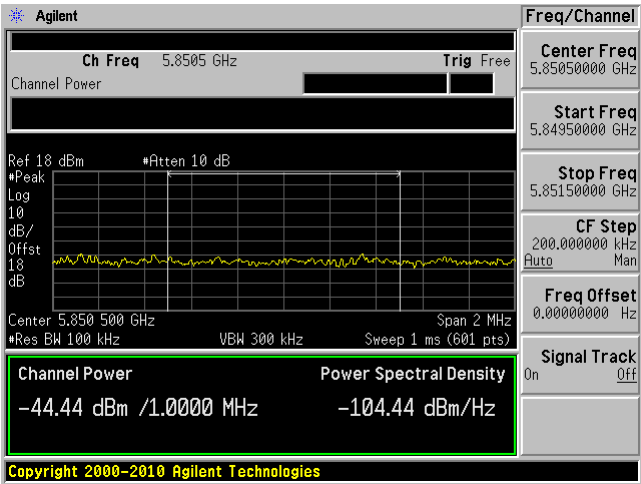
High Channel Chain 0 (-17 dBm limit)



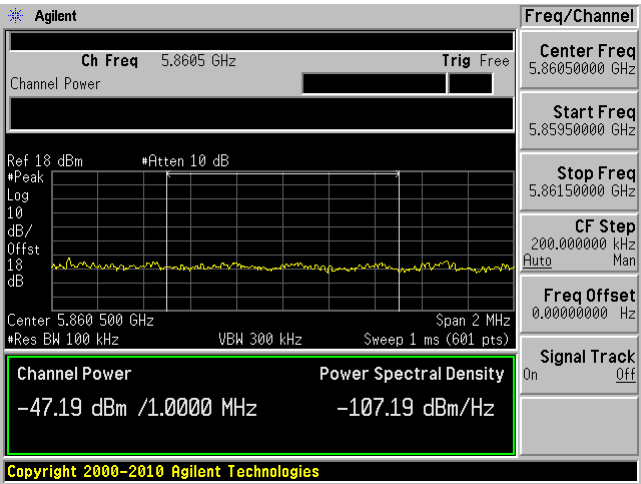
High Channel Chain 0 (-27 dBm limit)



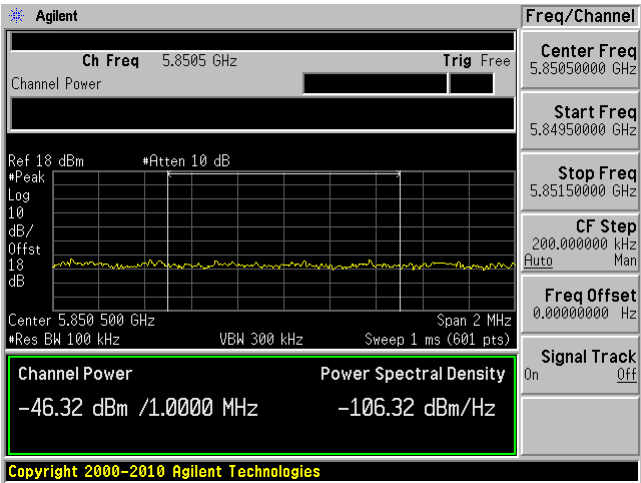
High Channel Chain 1 (-17 dBm limit)



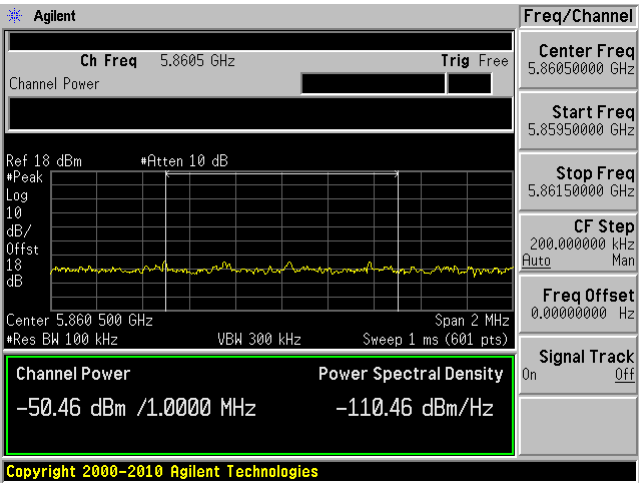
High Channel Chain 1 (-27 dBm limit)



High Channel Chain 2 (-17 dBm limit)



High Channel Chain 2 (-27 dBm limit)



9 FCC §15.407(a) - Power Spectral Density

9.1 Applicable Standards

According to FCC §15.407(a)

(1) For the band 5.15-5.25 GHz.

For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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 maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

9.2 Measurement Procedure

The measurements are base on FCC KDB 789033 D02 General UNII Test Procedures New Rules v01: Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices section F: Peak power spectral density (PPSD)

9.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Spectrum Analyzer	E4440A	MY44303352	2014-10-16	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:	23° C
Relative Humidity:	42 %
ATM Pressure:	102.5 KPa

The testing was performed by Jin Yang from 2015-08-11 at RF site.

9.5 Test Results

Please refer to the following tables and plots.

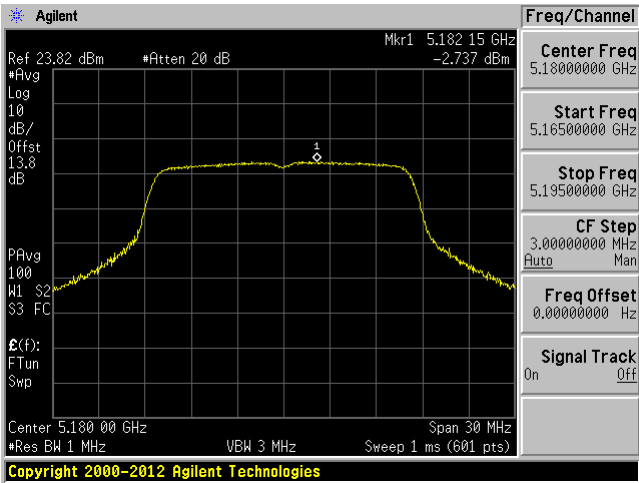
5.2 GHz Band

Channel	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 0	Chain 1	Chain 2			
802.11a							
Low	5180	-2.737	-4.694	-4.199	0.98	17	Pass
Middle	5200	-3.084	-5.142	-4.09	0.75	17	Pass
High	5240	-3.607	-5.295	-3.959	0.54	17	Pass
802.11n20							
Low	5180	0.006	-2.023	-1.198	3.78	17	Pass
Middle	5200	-0.536	-1.959	-1.658	3.43	17	Pass
High	5240	0.097	-2.231	-1.159	3.78	17	Pass
802.11n40							
Low	5190	-2.383	-3.362	-3.232	1.80	17	Pass
High	5230	-1.768	-3.489	-3.816	1.84	17	Pass

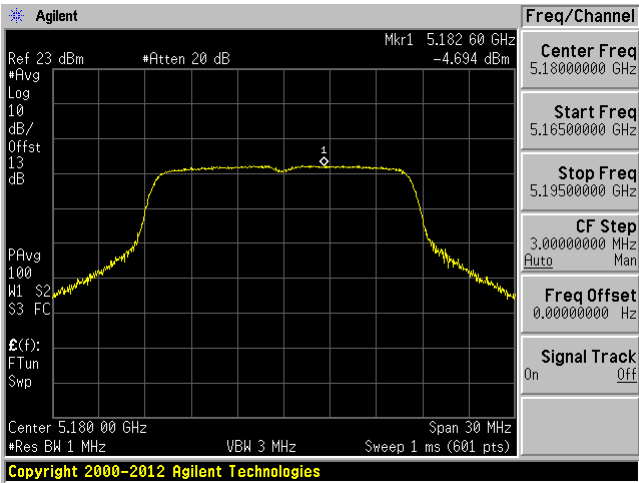
5.2 GHz Band

802.11a mode

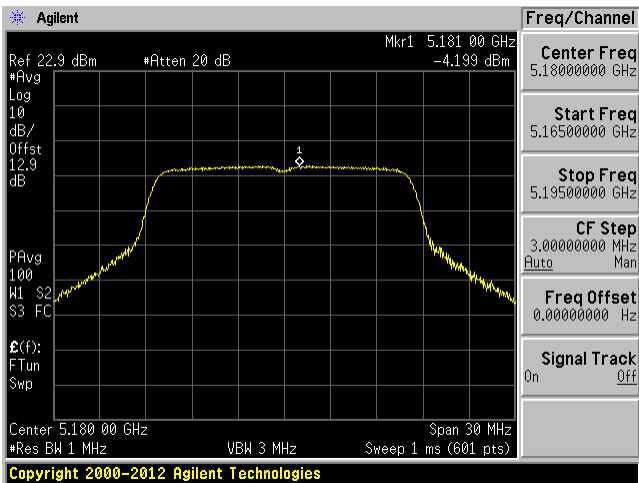
Low channel: Chain 0



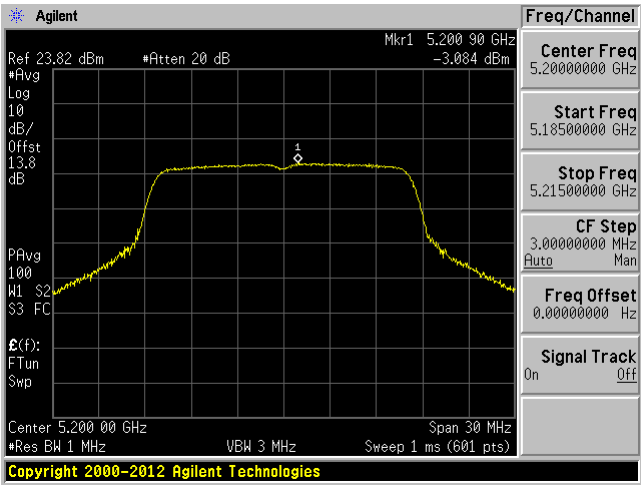
Low channel: Chain 1



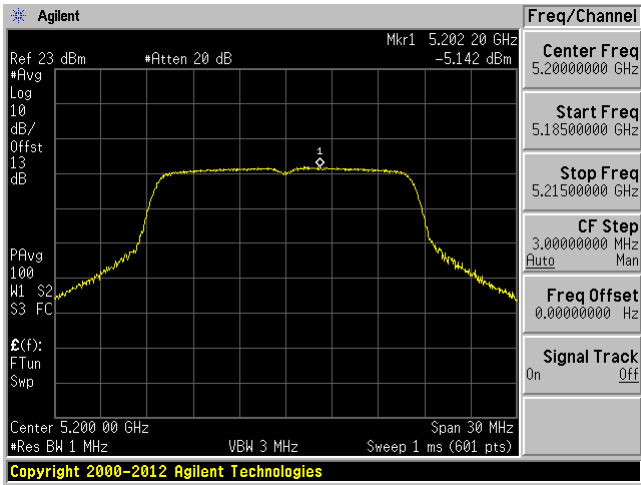
Low channel: Chain 2



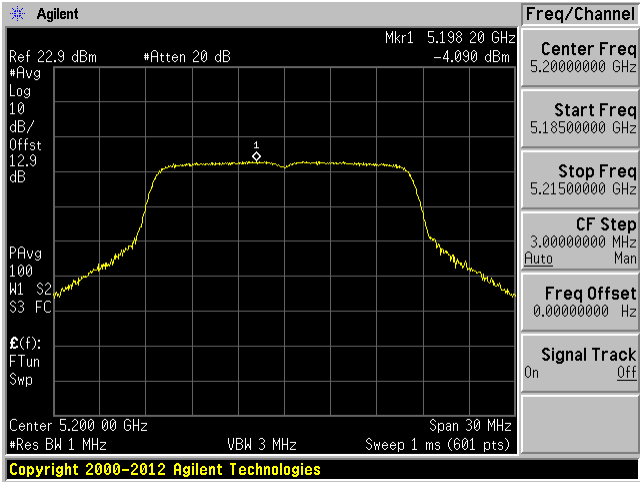
Middle channel: Chain 0



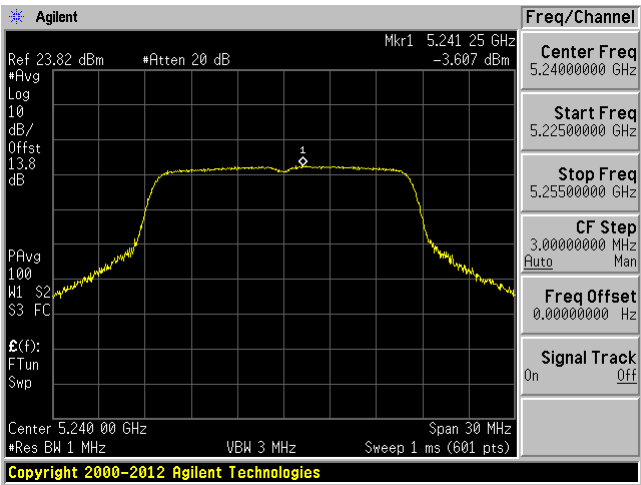
Middle channel: Chain 1



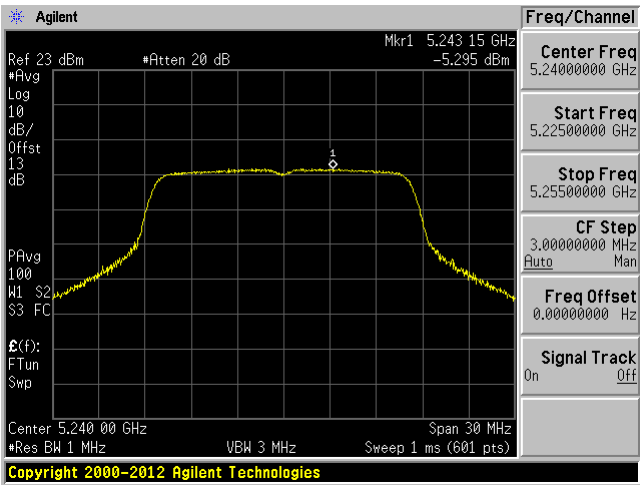
Middle channel: Chain 2



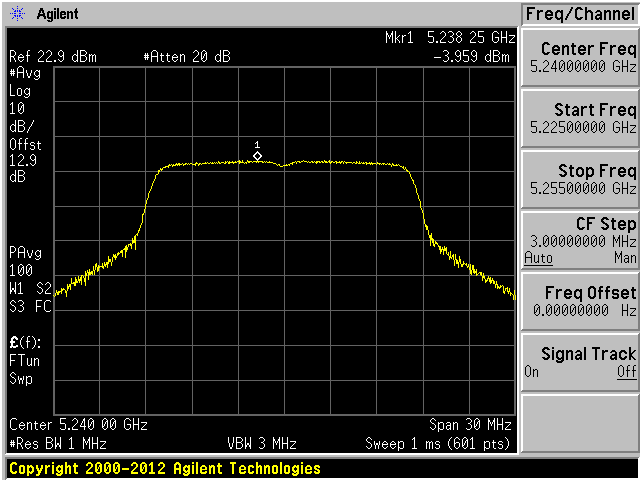
High channel: Chain 0



High channel: Chain 1

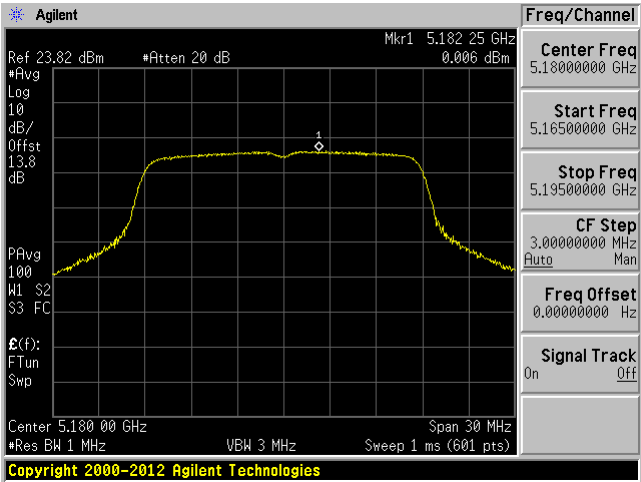


High channel: Chain 2

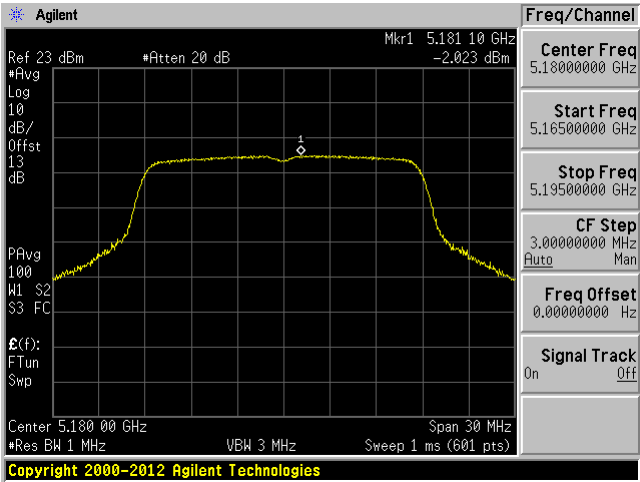


802.11n20 mode

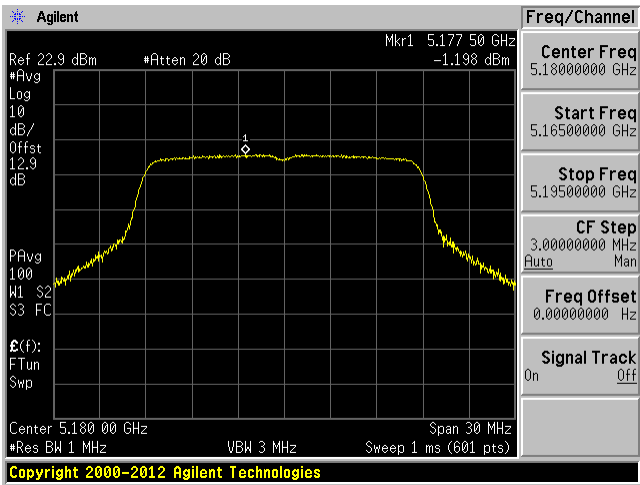
Low channel: Chain 0



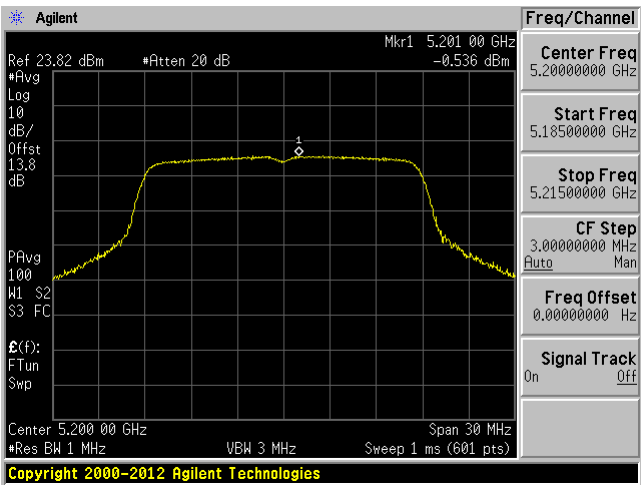
Low channel: Chain 1



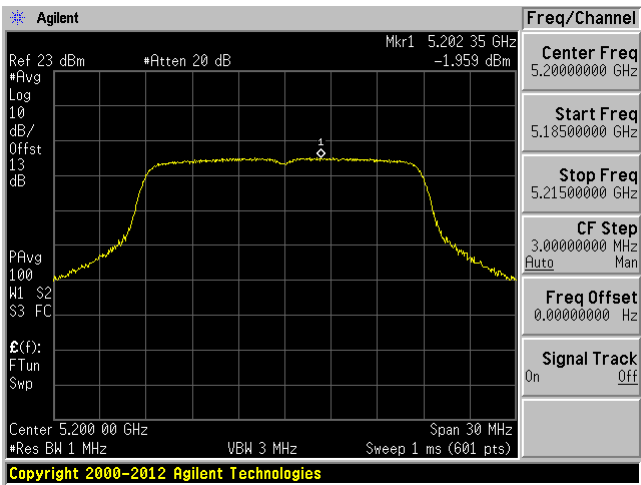
Low channel: Chain 2



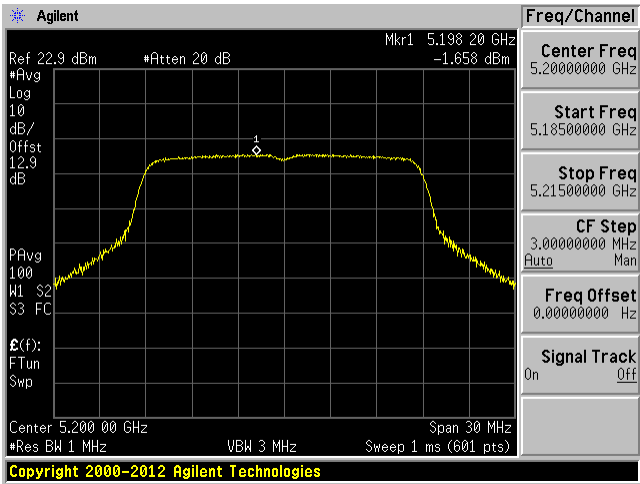
Middle channel: Chain 0



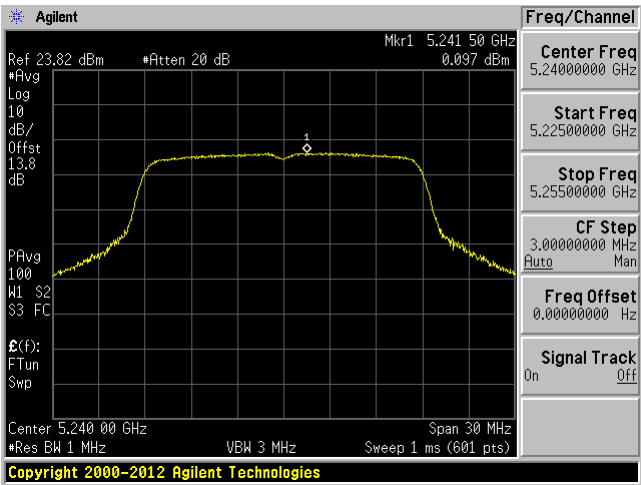
Middle channel: Chain 1



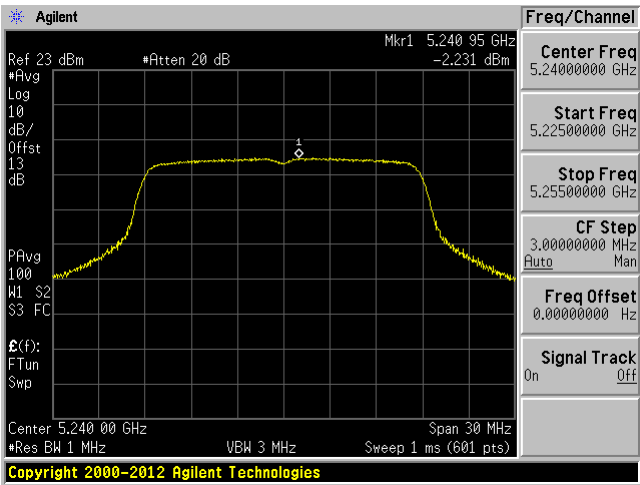
Middle channel: Chain 2



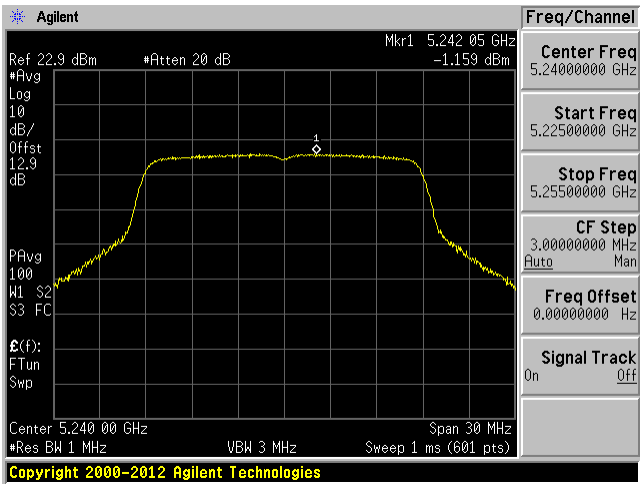
High channel: Chain 0



High channel: Chain 1

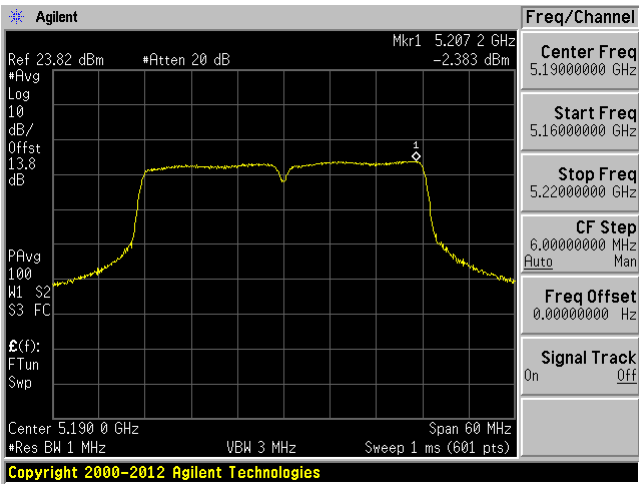


High channel: Chain 2

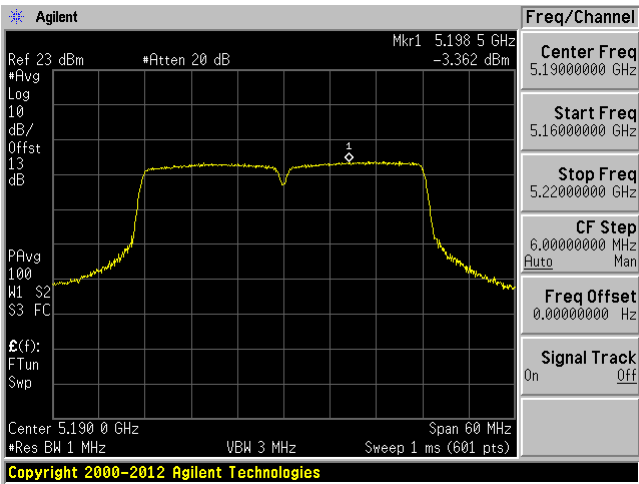


802.11n40 mode

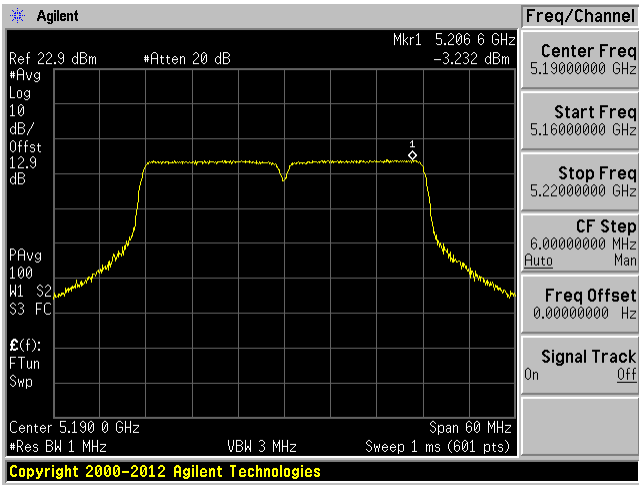
Low channel: Chain 0



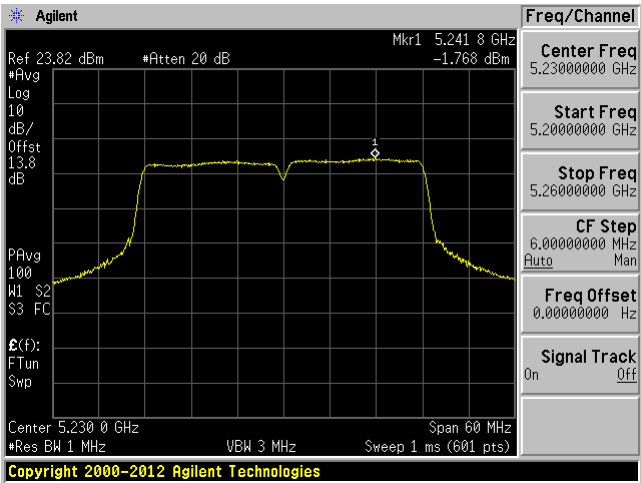
Low channel: Chain 1



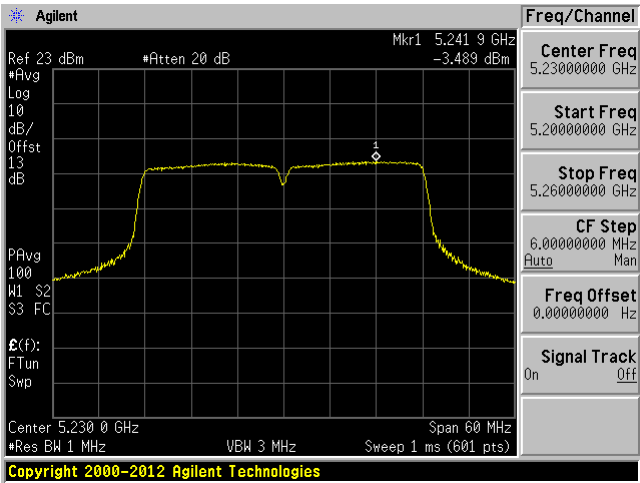
Low channel: Chain 2



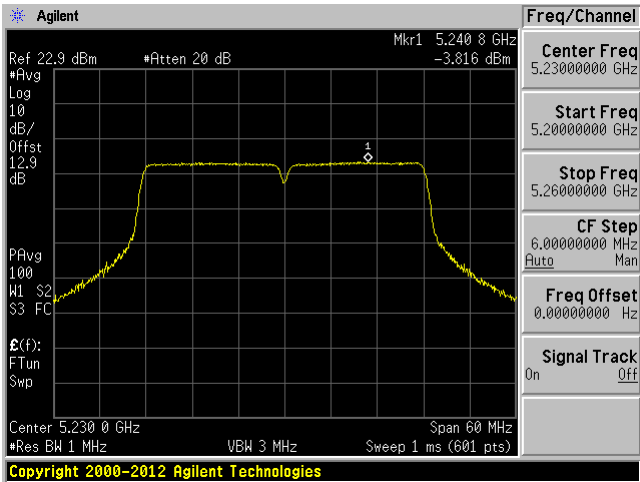
High channel: Chain 0



High channel: Chain 1



High channel: Chain 2



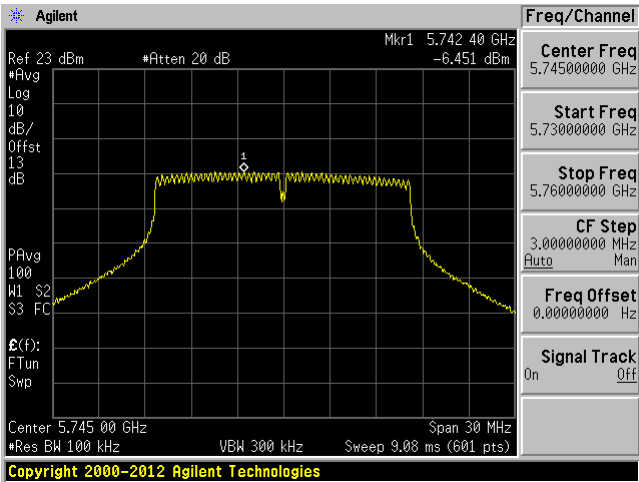
5.8 GHz Band

Channel	Frequency (MHz)	Power Spectral Density (dBm/100kHz)			Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Result
		Chain 0	Chain 1	Chain 2			
802.11a							
Low	5745	-6.451	-7.084	-7.908	4.65	30	Pass
Middle	5785	-6.73	-7.622	-8.437	4.22	30	Pass
High	5825	-6.56	-7.246	-8.052	4.52	30	Pass
802.11n20							
Low	5745	-4.46	-4.953	-5.895	6.70	30	Pass
Middle	5785	-4.116	-4.905	-5.537	6.95	30	Pass
High	5825	-4.096	-4.123	-4.696	7.46	30	Pass
802.11n40							
Low	5755	-6.869	-8.334	-9.464	3.67	30	Pass
High	5795	-7.288	-7.069	-8.4	4.21	30	Pass

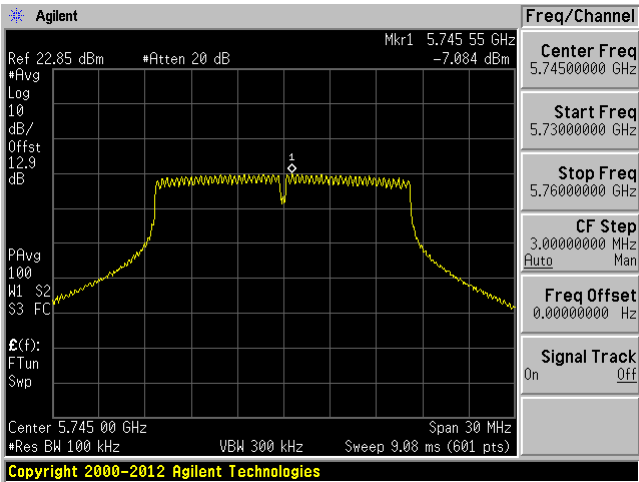
5.8 GHz Band

802.11a mode

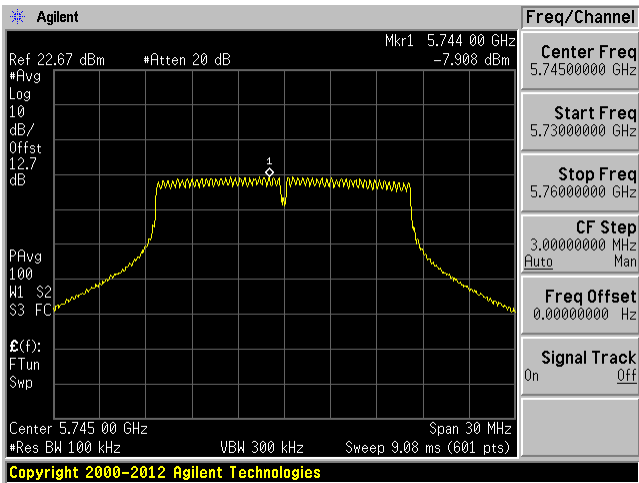
Low channel: Chain 0



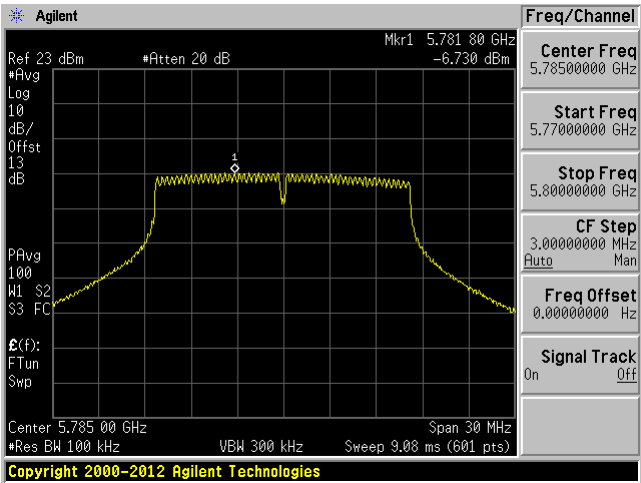
Low channel: Chain 1



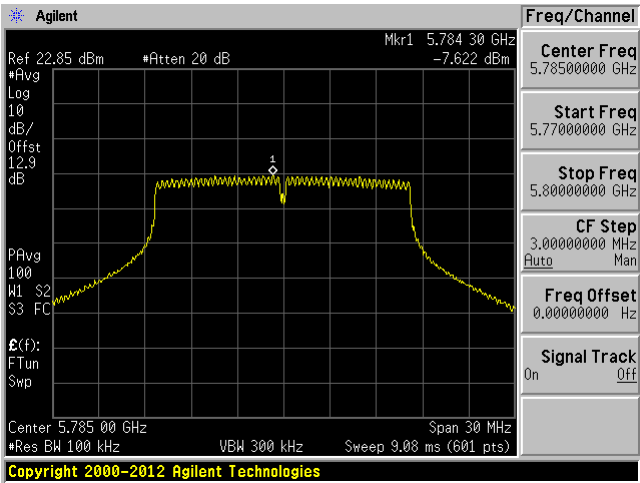
Low channel: Chain 2



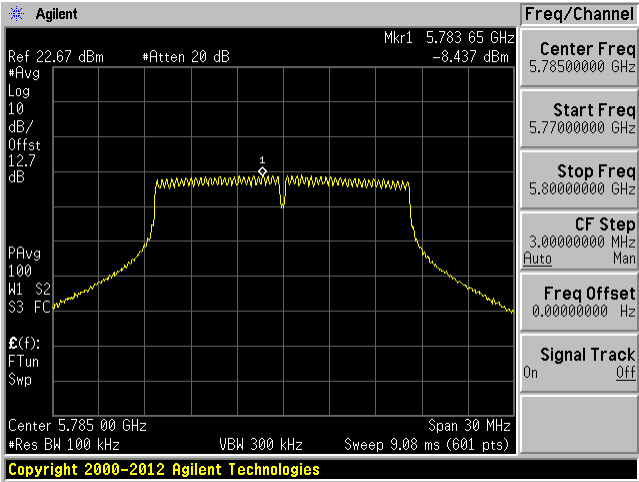
Middle channel: Chain 0



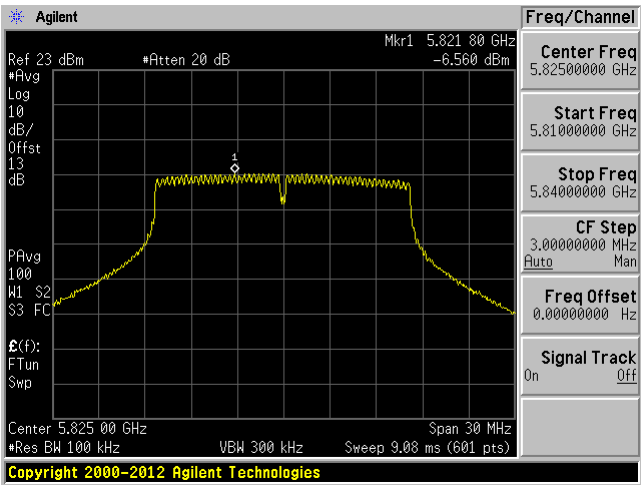
Middle channel: Chain 1



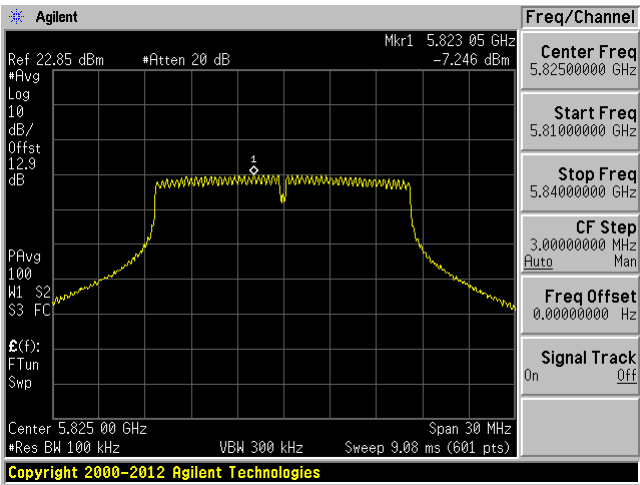
Middle channel: Chain 2



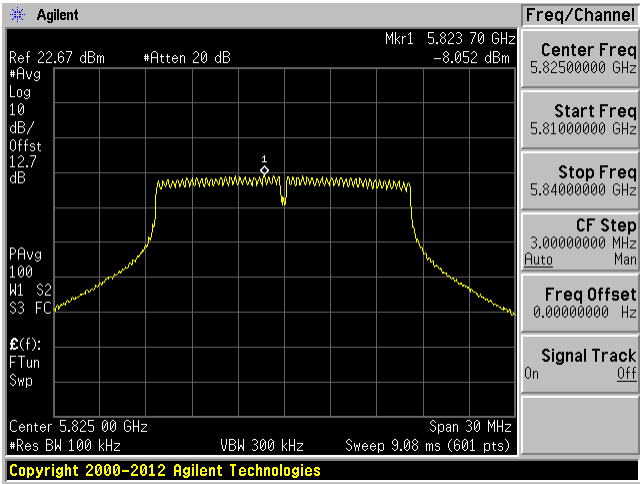
High channel: Chain 0



High channel: Chain 1

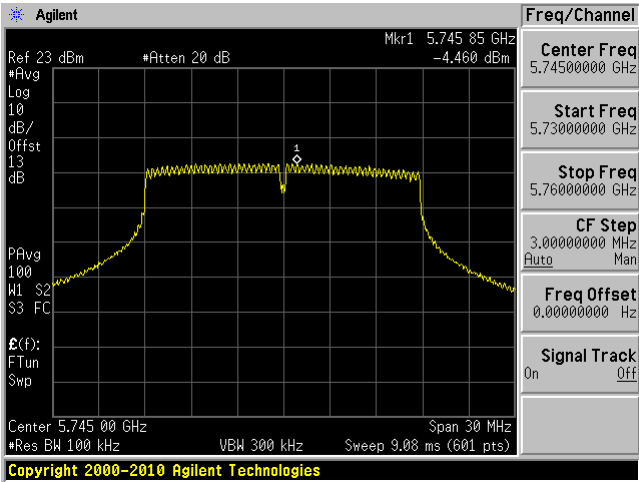


High channel: Chain 2

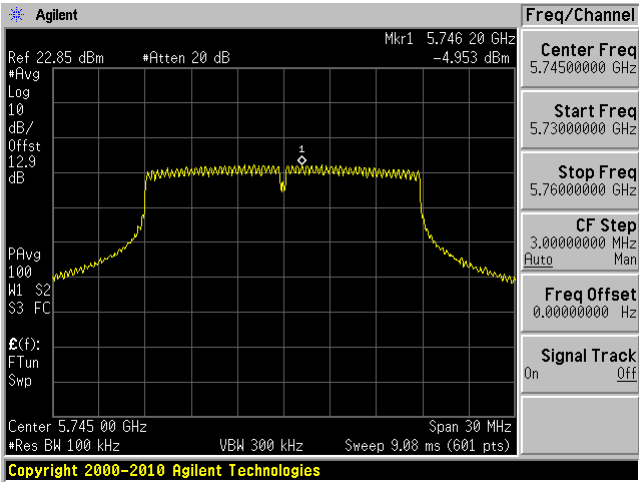


802.11n20 mode

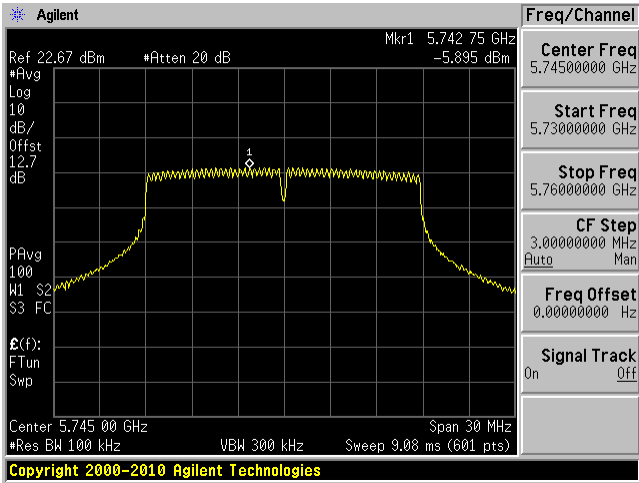
Low channel: Chain 0



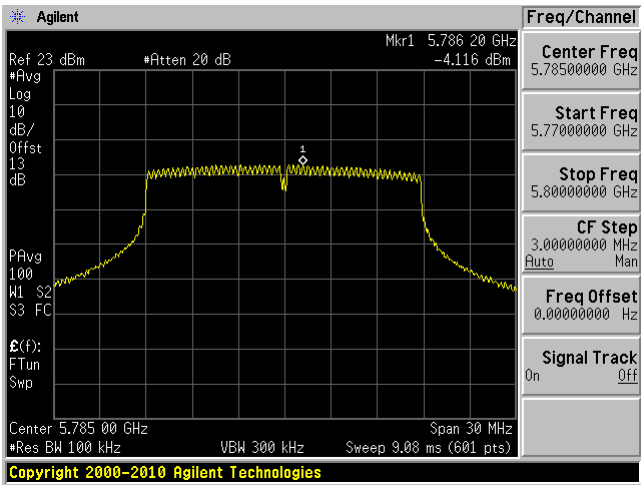
Low channel: Chain 1



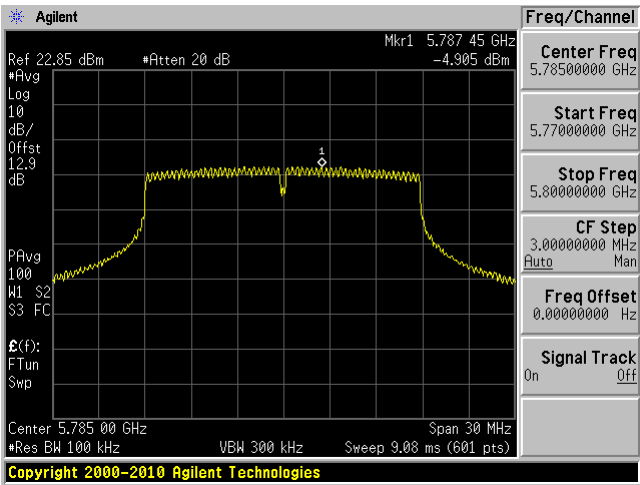
Low channel: Chain 2



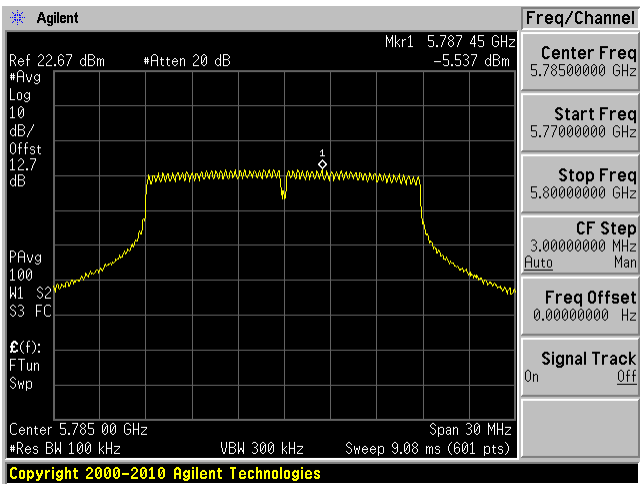
Middle channel: Chain 0



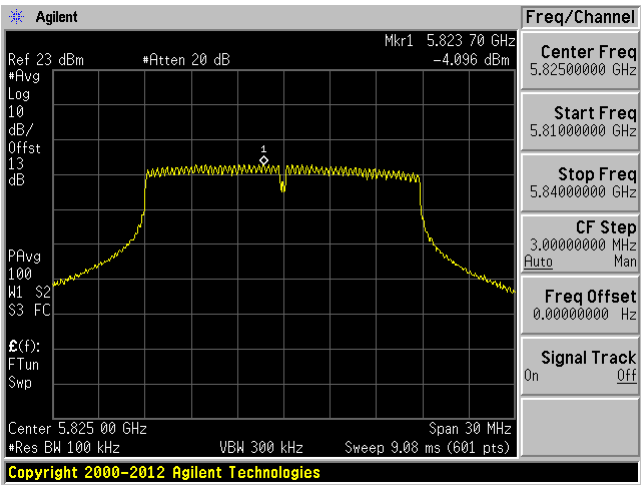
Middle channel: Chain 1



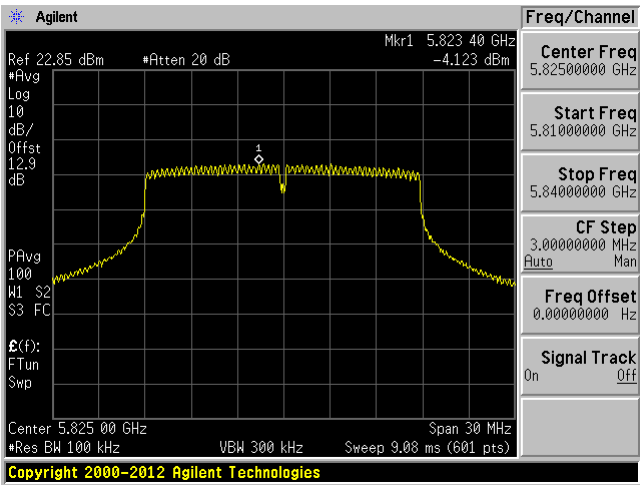
Middle channel: Chain 2



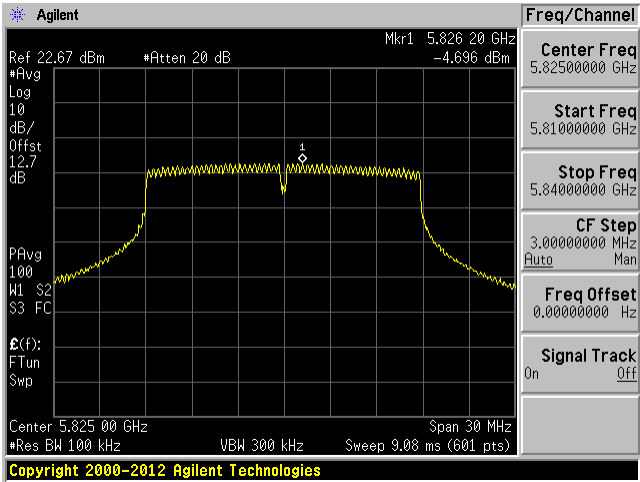
High channel: Chain 0



High channel: Chain 1

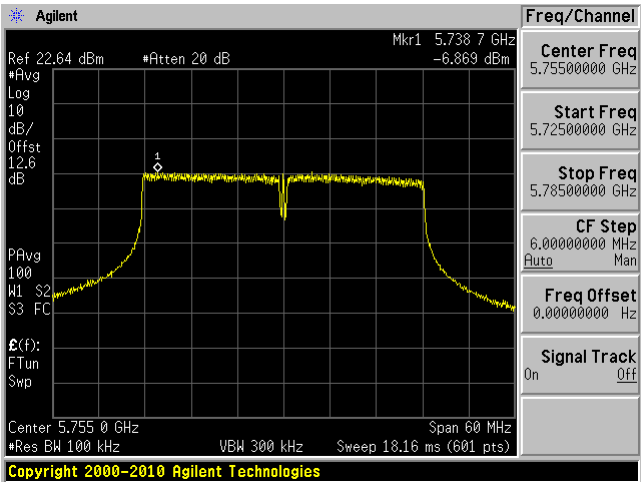


High channel: Chain 2

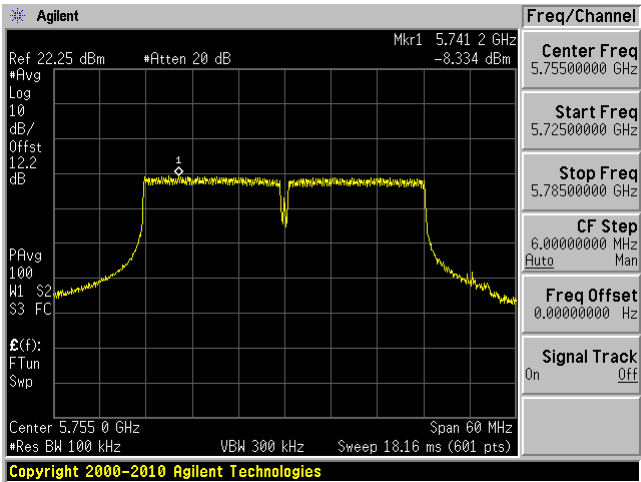


802.11n40 mode

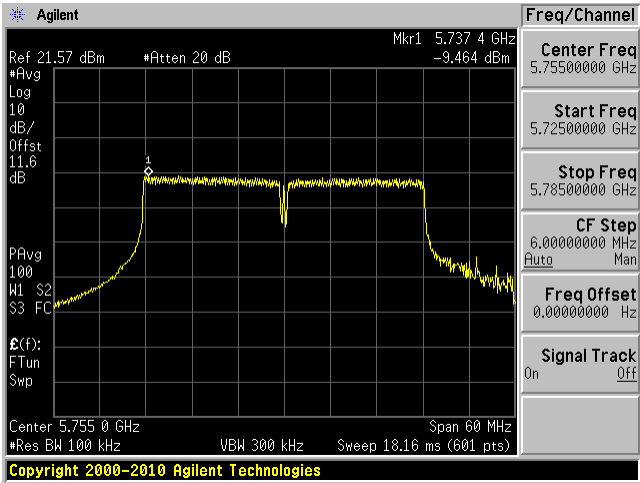
Low channel: Chain 0



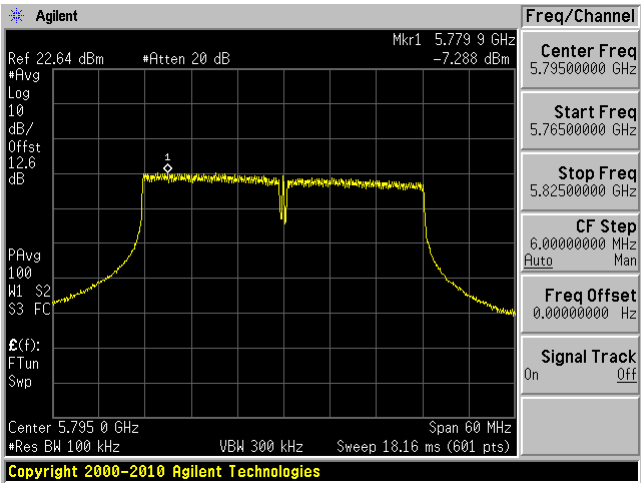
Low channel: Chain 1



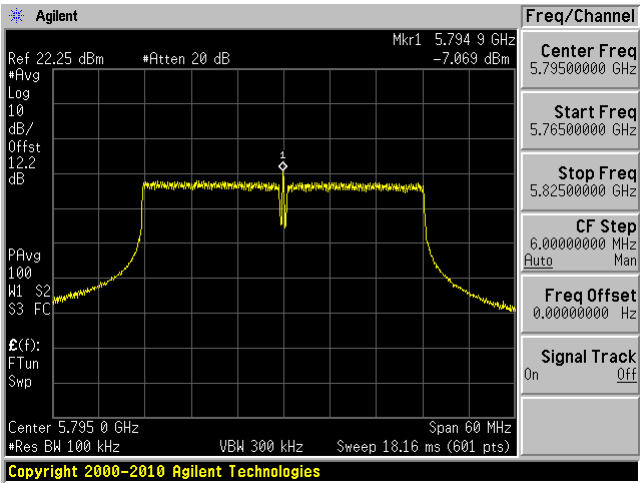
Low channel: Chain 2



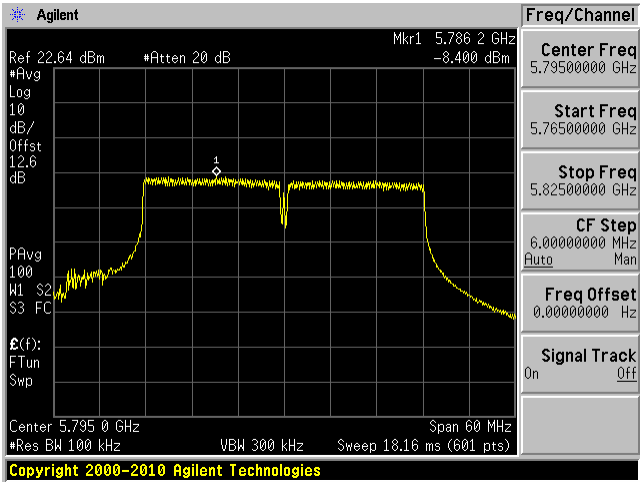
High channel: Chain 0



High channel: Chain 1

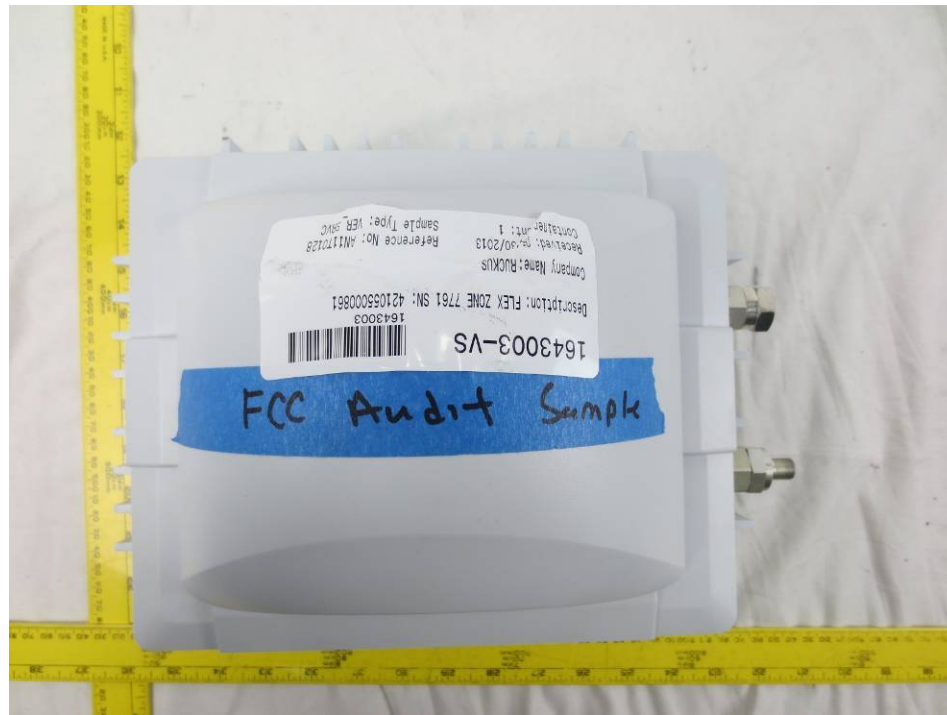


High channel: Chain 2



10 Exhibit A – EUT Photographs

10.1 EUT – Top View



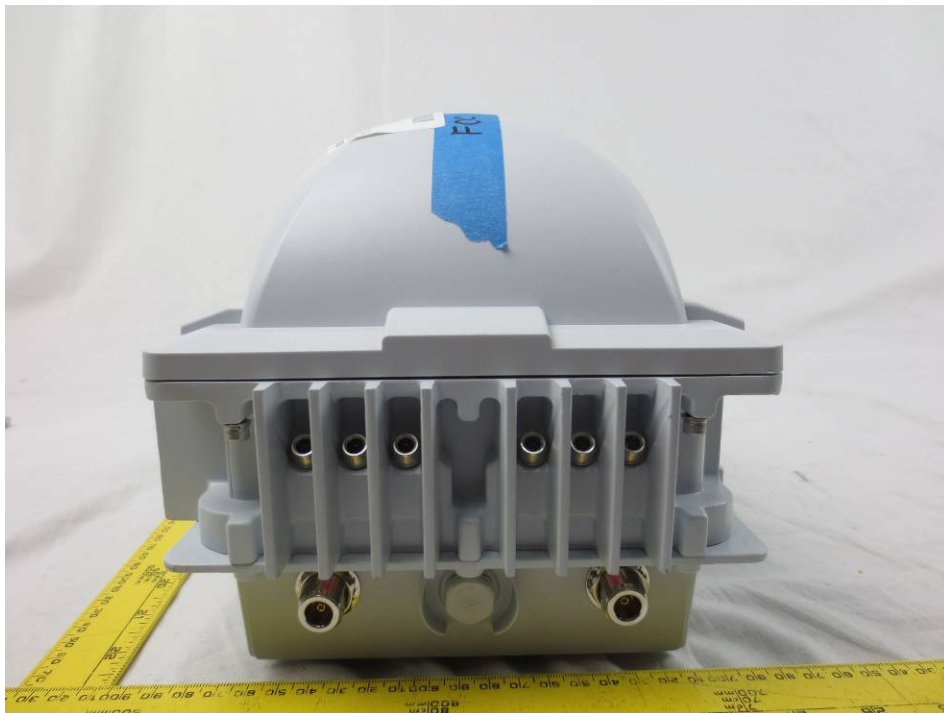
10.2 EUT – Bottom View



10.3 EUT – Front View



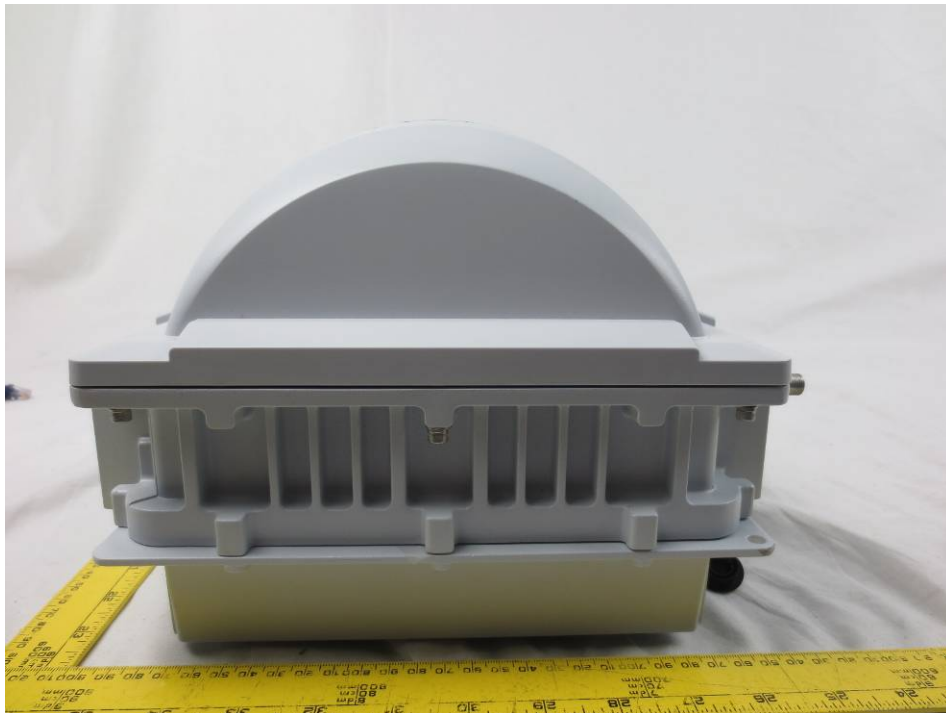
10.4 EUT – Rear View



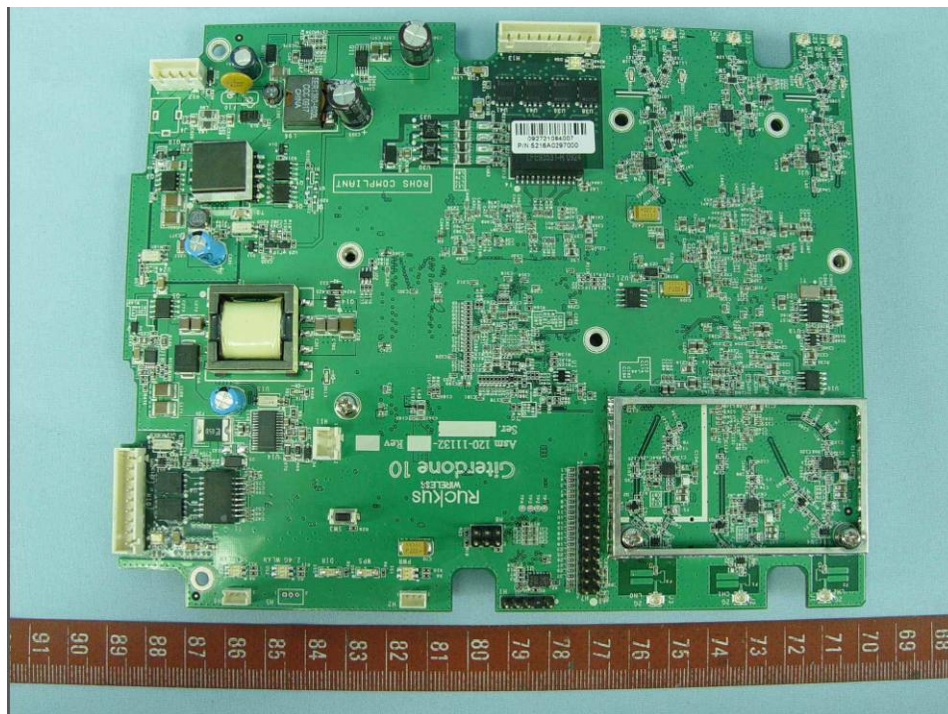
10.5 EUT – Left View



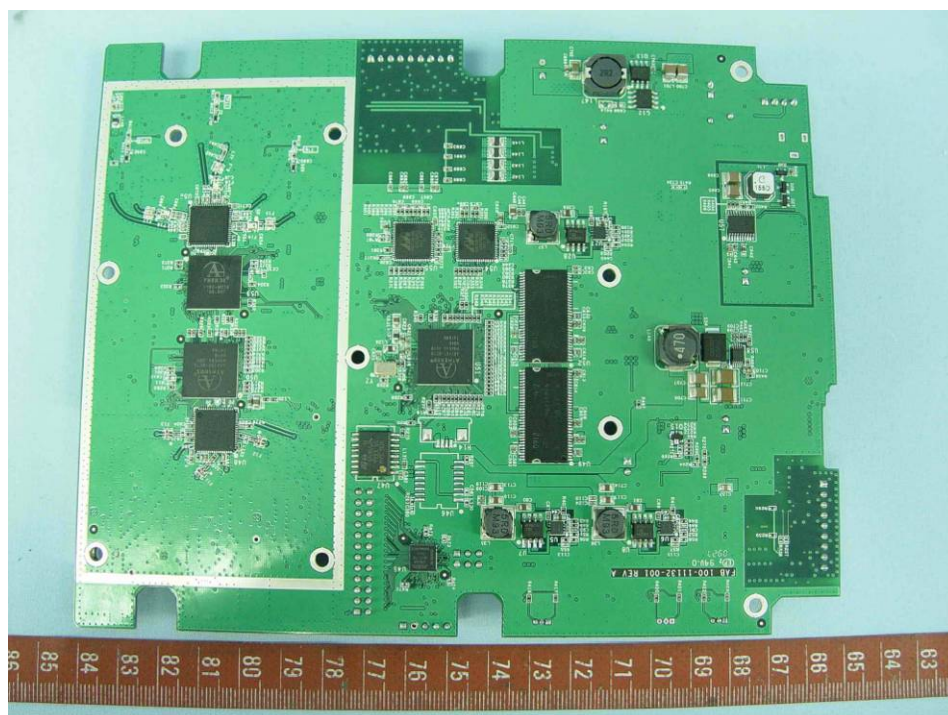
10.6 EUT – Right View



10.7 Main Board – Top View



10.8 Main Board – Bottom View



--- END OF REPORT ---