FCC PART 15.407
ISED RSS-247, ISSUE 1, MAY 2015

TEST AND MEASUREMENT REPORT

For

GoPro, Inc.

3000 Clearview Way,

San Mateo, CA 94402, USA

FCC ID: CNFASST1
IC: 10193A-ASST1

Report Type:	**Product Type:**
Original Report	Video Camera

Prepared By:	Todd Moy Test Engineer
Report Number:	R1605201-407
Report Date:	2016-08-05
Reviewed By:	Bo Li RF Supervisor

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1605201-407	Original Report	2016-08-05

1 General Description

1.1 General Statements

Bay area Compliance Laboratory Corp. [BACL] hereby makes the following Statements:

- The Unit(s) described in this Test Report were received at BACL's facilities on 6 June 2016 and was in working condition upon arrival. Testing was performed on the Unit(s) described in this Test Report during the period 28 June through 3 August 2016.
- The Test Results reported herein apply only to the Unit(s) actually tested, and to substantially identical Units.
- This Test Report must not be used to claim product endorsement by A2LA, or any agency of the U.S. Government, or by any other foreign government.
- This Test Report is the property of BACL, and shall not be reproduced, except in full, without prior written approval of BACL.

1.2 Agent for the Responsible Party

Company Name:	Go Global Compliance
Contact:	Mr. Peter S. Merguerian
Telephone:	+1-408-416-3772
E-mail:	peter@goglobalcompliance.com

1.3 Responsible Party

Company Name:	GoPro, Inc.
Contact:	Mr. Steven Kim
Street Address:	3000 Clearview Way,
City/State/Zip:	San Mateo, CA 94402
Country:	USA
Telephone:	+1-650 436-5020
E-mail:	skim@gopro.com
Web:	www.gopro.com

1.4 Product Description for Equipment under Test (EUT)

This test and measurement report was prepared on behalf of *GoPro, Inc.*, and their product model: *ASST1,* FCC ID: CNFASST1; IC: 10193A-ASST1 or the "EUT" as referred to in this report. It is a video camera with Wi-Fi, Bluetooth, and BLE functions. It operates in the 2.4 GHz and 5 GHz bands.

1.5 Mechanical Description of EUT

Dimensions: approximately 6cm (L) x 2.4cm (W) x 4.3cm (H)
Weight: 118 grams.
Serial Number: C31613 DVT13166 and C31613 DVT13161 assigned by GoPro, Inc.
EUT Photos: See Exhibit C of this Test Report.

1.6 Objective

This report is prepared on behalf of *GoPro, Inc* in accordance with FCC CFR47 §15.407 and IC RSS-247 Issue 1, May 2015.

The objective is to determine compliance with FCC Part 15.407 and IC RSS-247 rules for Output Power, Antenna Requirements, AC Line Conducted Emissions, Emission Bandwidth, Power spectral density, Conducted and Radiated Spurious Emissions.

1.7 Related Submittal(s)/Grant(s)

FCC Part 15, Subpart C, Equipment DSS with FCC ID: CNFASST1, IC: 10193A-ASST1
FCC Part 15, Subpart C, Equipment DTS with FCC ID: CNFASST1, IC: 10193A-ASST1

1.8 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.10-2013, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz, and FCC KDB 789033 D02 General UNII Test Procedure New Rules v01r02.

1.9 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.

Parameter	Measurement uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.57 dB
Power Spectral Density, conducted	±1.48 dB
Unwanted Emissions, conducted	±1.57 dB
All emissions, radiated	±4.0 dB
AC power line Conducted Emission	±2.0 dB
Temperature	±2 ºC
Humidity	±5 %
DC and low frequency voltages	±1 %
Time	±2 %
Duty Cycle	±3 %

1.10 Test Facility Registrations

BACLs test facilities that are used to perform Radiated and Conducted Emissions tests are currently recognized by the Federal Communications Commission as Accredited with NIST Designation Number US1129.

BACL's test facilities that are used to perform Radiated and Conducted Emissions tests are currently registered with Industry Canada under Registration Numbers: 3062A-1, 3062A-2, and 3062A-3.

BACL is a Chinese Taipei Bureau of Standards Metrology and Inspection (BSMI) validated Conformity Assessment Body (CAB), under Appendix B, Phase I Procedures of the APEC Mutual Recognition Arrangement (MRA). BACL's BSMI Lab Code Number is: SL2-IN-E-1002R

BACL's test facilities that are used to perform AC Line Conducted Emissions, Telecommunications Line Conducted Emissions, Radiated Emissions from 30 MHz to 1 GHz, and Radiated Emissions from 1 GHz to 6 GHz are currently recognized as Accredited in accordance with the Voluntary Control Council for Interference [VCCI] Article 15 procedures under Registration Number A-0027.

1.11 Test Facility Accreditations

Bay Area Compliance Laboratories Corp. (BACL) is:

A- ***An independent, 3rd-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:2005 by A2LA (Test Laboratory Accreditation Certificate Number 3279.02),*** in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2005 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2005 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio, RF Exposure, Safety and wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include Central Office Telecommunications Equipment [including NEBS - Network Equipment Building Systems], Unlicensed and Licensed Wireless and RF devices, Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment; Industrial and Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, and Energy Efficient Lighting.

B- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3279.03)*** to certify

- For the USA (Federal Communications Commission):
    1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
    2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
    3- All Telephone Terminal Equipment within FCC Scope C.
- For the Canada (Industry Canada):
    1- All Scope 1-Licence-Exempt Radio Frequency Devices;
    2- All Scope 2-Licensed Personal Mobile Radio Services;
    3- All Scope 3-Licensed General Mobile & Fixed Radio Services;
    4- All Scope 4-Licensed Maritime & Aviation Radio Services;
    5- All Scope 5-Licensed Fixed Microwave Radio Services
    6- All Broadcasting Technical Standards (BETS) in the Category I Equipment Standards List.
- For Singapore (Info-Communications Development Authority (IDA)):
    1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2
    2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2

- For the Hong Kong Special Administrative Region:
  1 All Radio Equipment, per KHCA 10XX-series Specifications;
  2 All GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications;
  3 All Fixed Network Equipment, per HKCA 20XX-series Specifications.
- For Japan:
  1 MIC Telecommunication Business Law (Terminal Equipment):
  - All Scope A1 - Terminal Equipment for the Purpose of Calls;
  - All Scope A2 - Other Terminal Equipment
  2 Radio Law (Radio Equipment):
  - All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
  - All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
  - All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

C- ***A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3279.01)*** to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

1 Electronics and Office Equipment:
- for Telephony (ver. 3.0)
- for Audio/Video (ver. 3.0)
- for Battery Charging Systems (ver. 1.1)
- for Set-top Boxes & Cable Boxes (ver. 4.1)
- for Televisions (ver. 6.1)
- for Computers (ver. 6.0)
- for Displays (ver. 6.0)
- for Imaging Equipment (ver. 2.0)
- for Computer Servers (ver. 2.0)

2 Commercial Food Service Equipment
- for Commercial Dishwashers (ver. 2.0)
- for Commercial Ice Machines (ver. 2.0)
- for Commercial Ovens (ver. 2.1)
- for Commercial Refrigerators and Freezers

3 Lighting Products
- For Decorative Light Strings (ver. 1.5)
- For Luminaires (including sub-components) and Lamps (ver. 1.2)
- For Compact Fluorescent Lamps (CFLs) (ver. 4.3)
- For Integral LED Lamps (ver. 1.4)

4 Heating, Ventilation, and AC Products
- for Residential Ceiling Fans (ver. 3.0)
- for Residential Ventilating Fans (ver. 3.2)

5 Other
- For Water Coolers (ver. 3.0)

D- ***A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:***

- Australia: ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I;
- Canada: (Industry Canada - IC) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II;
- Chinese Taipei (Republic of China – Taiwan):
  - BSMI (Bureau of Standards, Metrology and Inspection) APEC Tel MRA -Phase I;

  - NCC (National Communications Commission) APEC Tel MRA -Phase I;
- European Union:
  - Radio & Teleterminal Equipment (R&TTE) Directive 1995/5/EC
    US -EU EMC & Telecom MRA CAB
- Hong Kong Special Administrative Region: (Office of the Telecommunications Authority – OFTA)
  APEC Tel MRA -Phase I & Phase II
- Israel – US-Israel MRA Phase I
- Republic of Korea (Ministry of Communications - Radio Research Laboratory) APEC Tel MRA -Phase I
- Singapore: (Infocomm Development Authority - IDA) APEC Tel MRA -Phase I & Phase II;
- Japan: VCCI - Voluntary Control Council for Interference US-Japan Telecom Treaty VCCI Side Letter-
- USA:
  - ENERGY STAR Recognized Test Laboratory – US EPA
  - Telecommunications Certification Body (TCB) – US FCC;
- Vietnam: APEC Tel MRA -Phase I;

2 EUT Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.10-2013 and FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.

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 by measuring the average power, peak power and PPSD across all data rates bandwidths, and modulations.

2.2 EUT Exercise Software

The test utility QCA Radio Control Toolkit, provided by *GoPro, Inc,* was used to control the EUT while the software putty.exe was used to communicate with it.

Please refer to the following power setting table.

Radio Mode	Channel	Frequency (MHz)	Power Setting
802.11a	36	5180	13
	40	5200	13
	48	5240	13
	52	5260	13
	56	5280	13
	64	5320	13
	100	5500	13
	116	5580	13
	140	5700	13
	144	5720	13
	149	5745	13
	157	5785	13
	165	5825	13

Radio Mode	Channel	Frequency (MHz)	Power Setting
802.11n20	36	5180	13
	40	5200	13
	48	5240	13
	52	5260	13
	56	5280	13
	64	5320	13
	100	5500	13
	116	5580	13
	140	5700	13
	144	5720	13
	149	5745	13
	157	5785	13
	165	5825	13
802.11n40	38	5190	13
	46	5230	13
	54	5270	13
	62	5310	13
	102	5510	13
	110	5550	13
	134	5670	13
	142	5710	13
	151	5755	13
	159	5795	13
802.11ac20	36	5180	13
	40	5200	13
	48	5240	13
	52	5260	13
	56	5280	13
	64	5320	13
	100	5500	13
	116	5580	13
	140	5700	13
	144	5720	13
	149	5745	13
	157	5785	13
	165	5825	13

Radio Mode	Channel	Frequency (MHz)	Power Setting
802.11ac40	38	5190	13
	46	5230	13
	54	5270	13
	62	5310	13
	102	5510	13
	110	5550	13
	134	5670	13
	142	5710	13
	151	5755	13
	159	5795	13
802.11ac80	42	5210	13
	58	5290	13
	106	5530	13
	122*	5610	13
	138	5690	13
	155	5775	13

* Note: This channel is for FCC application only.

2.3 Duty Cycle Correction Factor

According to KDB 789033 D02 General UNII Test Procedures New Rules v01r02 section B:

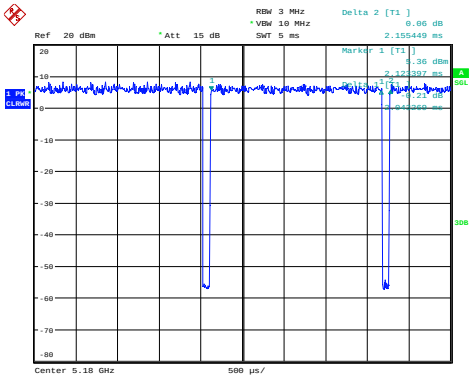
All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.

Radio Mode	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
802.11a	2.04	2.16	94.44	0.2482
802.11n20	1.93	2.02	95.54	0.1979
802.11n40	0.96	1.04	92.31	0.3476
802.11ac20	1.92	2.02	95.05	0.2205
802.11ac40	0.96	1.04	92.31	0.3476
802.11ac80	0.47	0.56	83.93	0.7609

Note: Duty Cycle Correction Factor = 10*log(1/duty cycle)

Please refer to the following plots.

802.11a mode



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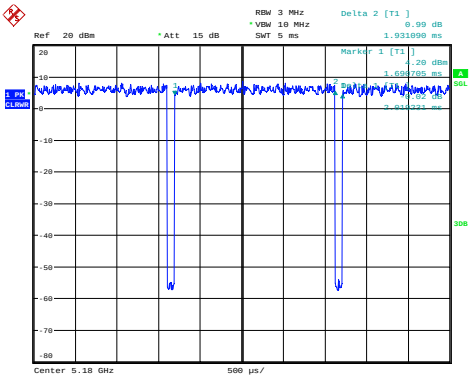
802.11n20 mode



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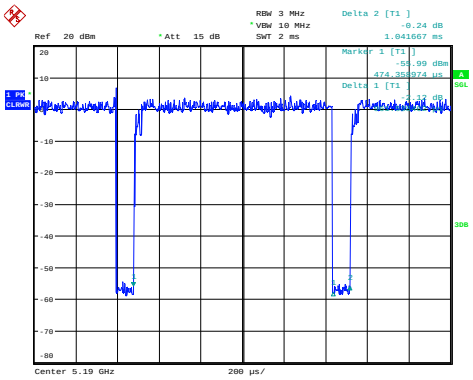
802.11n40 mode



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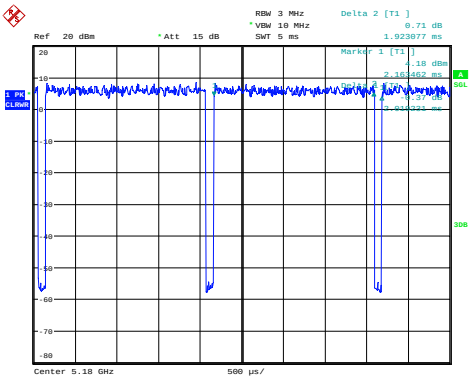
802.11ac20 mode



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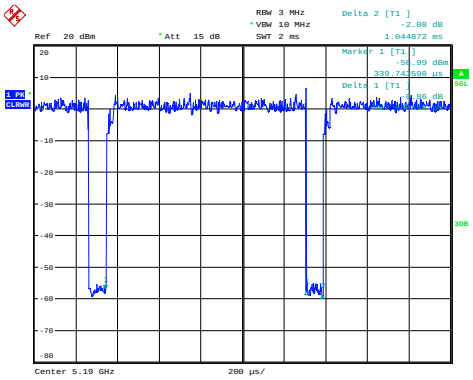
802.11ac40 mode



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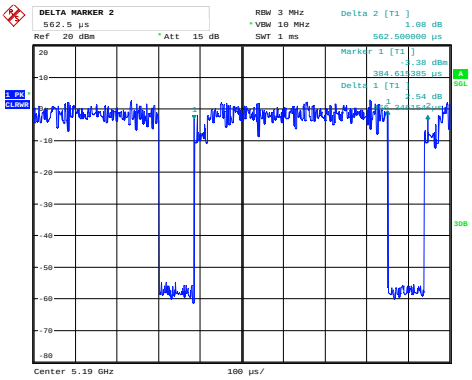
802.11ac80 mode



Date: 19.JUL.2016 21:47:01

2.4 Equipment Modifications

A hole was cut in the side of the EUT to access the antenna ports and a cable was attached that allowed the EUT to be connected to a debugging board.

2.5 Local Support Equipment

Manufacturer	Description	Model
Dell	Laptop	Latitude D630

2.6 EUT Internal Configuration Details

Manufacturer	Description	Serial Number
GoPro	FPC, Microphone + Button	656-10756-000
GoPro	PCB, Main	656-10705-000
GoPro	RFPC, I/O	656-10826-000
GoPro	RFPC, Sensor	656-10703-000
GoPro	PCB, GPS	656-12190-000
GoPro	FPC, Speaker + LED	656-12297-000

2.7 Support Equipment

Manufacturer	Description	Model
GoPro	Debug Board	898A

2.8 Interface Ports and Cabling

Cable Description	Length (m)	To	From
USB Cable	< 1 m	Laptop	EUT
SMA pigtail	< 1 m	EUT	PSA

3 Summary of Test Results

FCC & ISED Rules	Description of Test	Result
FCC §2.1093, §15.407(f), ISED RSS-102	RF Exposure	Compliant[1]
FCC §15.203 ISED RSS-Gen §8.3	Antenna Requirement	Compliant
FCC §15.207 ISED RSS-Gen §8.8	AC Power Line Conducted Emissions	Compliant
FCC §2.1053, §15.205, §15.209, 15.407(b) ISED RSS-247 §6.2	Spurious Radiated Emissions	Compliant
FCC §15.407(e) ISED RSS-Gen §6.2	Emission Bandwidth	Compliant
FCC §407(a) ISED RSS-247 §6.2	Output Power	Compliant
FCC §2.1051, §15.407(b) ISED RSS-247 §6.2	Band Edges	Compliant
FCC §15.407(a) ISED RSS-247 §6.2	Power Spectral Density	Compliant
FCC §2.1051, §15.407(b) ISED RSS-247 §6.2	Spurious Emissions at Antenna Terminals	Compliant
FCC §15.407(h) ISED RSS-247 §6.3	Dynamic Frequency Selection (DFS)	Compliant[2]

[1] RF exposure analysis is covered in a separate report. Please refer to R1605201-SAR.
[2] DFS measurement is recorded in a separate report. Please refer to R1605201-DFS.

4 FCC §2.1093, §15.407(f) & ISED RSS-102 - RF Exposure

4.1 Applicable Standard

FCC §2.1093, §15.407(f) & IC RSS-102

4.2 Test Results

Please refer to the SAR Report: R1605201- SAR.

5 FCC §15.203 & ISED RSS-Gen §8.3 - Antenna Requirements

5.1 Applicable Standards

According to FCC §15.203:

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

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

According to IC RSS-Gen §8.3: Transmitter Antenna

The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.

Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level. 9 When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi).

5.2 Antenna List

The antennas used by the EUT are permanent attached antennas.

Radio	Frequency Range (MHz)	Maximum Antenna Gain (dBi)
Wi-Fi/Bluetooth	2400-2483.5	-0.9
Wi-Fi	5150-5850	3.0
GPS (RX Only)	1575.42	-1.1

6 FCC §15.207 & IC RSS-Gen §8.8 - AC Power Line Conducted Emissions

6.1 Applicable Standards

As per FCC §15.207 & IC RSS GEN §8.8

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

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

Note 1 Decreases with the logarithm of the frequency.

6.2 Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.10-2013 measurement procedure. The specification used was FCC §15.207 limits & & IC RSS-Gen §8.8.

External I/O cables were draped along the edge of the test table and bundle when necessary.
The AC/DC power adapter of the EUT was connected with LISN-1 which provided 120 V / 60 Hz AC power.

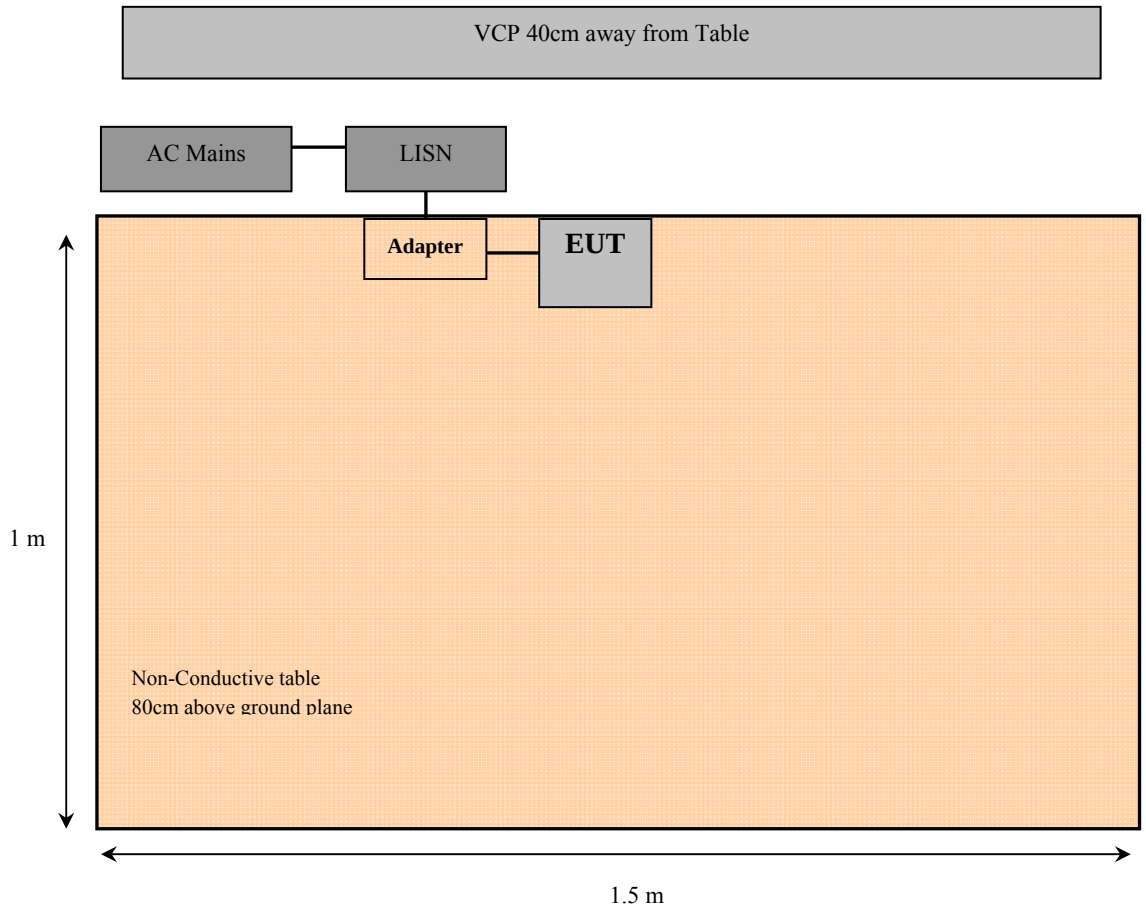
6.3 Test Procedure

During the conducted emissions test, the power cord of the EUT host system was connected to the mains outlet of the LISN-1 and the power cords of support equipment were connected to LISN-2.

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

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

6.4 Test Setup Block Diagram



6.5 Corrected Amplitude & Margin Calculation

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

CA = Ai + CL + Atten

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

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

Margin = Corrected Amplitude - Limit

6.6 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	Receiver, EMI Test	ESCI 1166.5950K03	100338	2016-02-04	2 year
Rohde & Schwarz	Impulse Limiter	ESH3-Z2	101964	2015-07-23	1year
Keysight Technologies	RF Limiter	11867A	MY42242932	2015-12-15	1year
Solar Electronics Company	High Pass Filter	Type 7930-100	7930150204	2016-03-09	1 Year
Suirong	30 ft conductive emission cable	LMR 400	-	2016-03-05	1 year
Vasona	Test software	V6.0 build 11	10400213	N/R	N/R

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

6.7 Test Environmental Conditions

Test Date:	2016-06-28
Test Site:	Ground Plane Test Site
Temperature:	22-24° C
Relative Humidity:	40-41 %
Barometric Pressure:	103.1-104.1 kPa
Test Personnel:	Jose Martinez

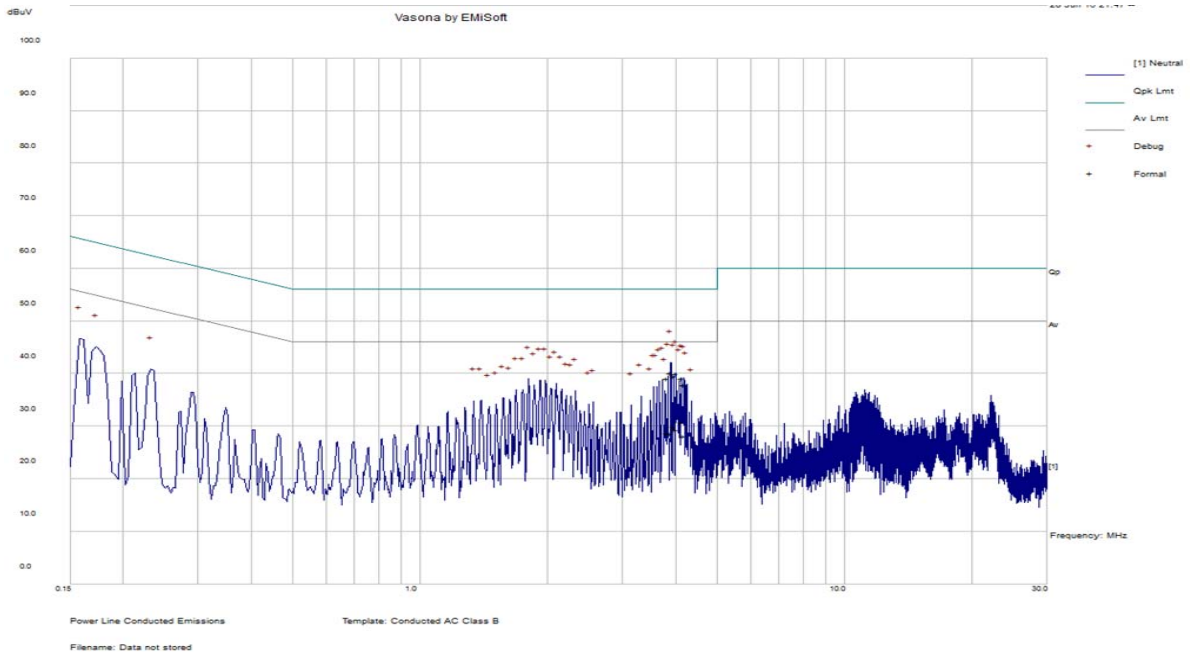
6.8 Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC Part 15 and RSS-Gen standards' conducted emissions limits, with the margin reading of:

Connection: AC/DC adapter connected to 120 V/60 Hz, AC			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Line/Neutral)**	**Range (MHz)**
-14.36	0.174621	Neutral	0.15-30

6.9 Conducted Emissions Test Plots and Data

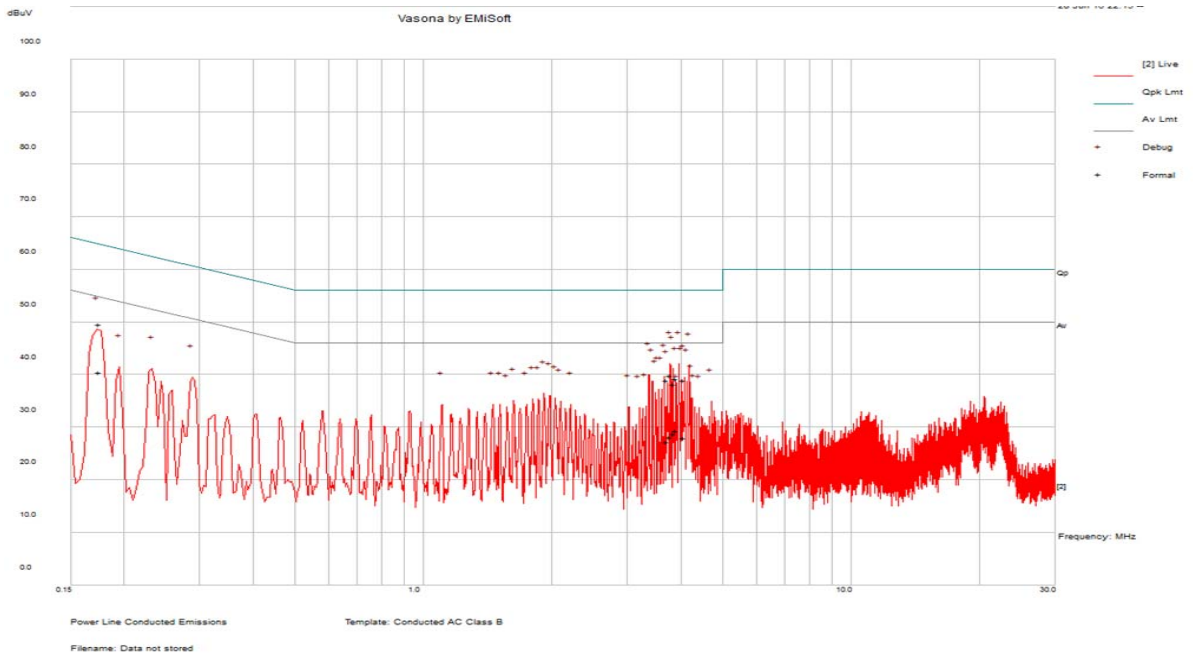
120 V, 60 Hz – Line



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
3.893366	40.15	Line	56	-15.85	QP
4.010153	40.01	Line	56	-15.99	QP
3.952206	39.58	Line	56	-16.42	QP
3.833068	39.08	Line	56	-16.92	QP
4.126465	39.01	Line	56	-16.99	QP
4.181579	37.85	Line	56	-18.15	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
4.126465	30.69	Line	46	-15.31	Ave.
3.952206	29.97	Line	46	-16.03	Ave.
4.010153	29.29	Line	46	-16.71	Ave.
3.833068	28.81	Line	46	-17.19	Ave.
3.893366	28.67	Line	46	-17.33	Ave.
4.181579	28.19	Line	46	-17.81	Ave.

120 V, 60 Hz – Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.174621	49.63	Neutral	64.74	-15.11	QP
3.776736	39.81	Neutral	56	-16.19	QP
3.894848	39.27	Neutral	56	-16.73	QP
4.069119	38.91	Neutral	56	-17.09	QP
3.718076	38.86	Neutral	56	-17.14	QP
3.836411	38.18	Neutral	56	-17.82	QP

Frequency (MHz)	Corrected Amplitude (dBµV)	Conductor (Line/Neutral)	Limit (dBµV)	Margin (dB)	Detector (QP/Ave.)
0.174621	40.38	Neutral	54.74	-14.36	Ave.
3.894848	29.36	Neutral	46	-16.64	Ave.
3.836411	28.72	Neutral	46	-17.28	Ave.
3.776736	28.18	Neutral	46	-17.82	Ave.
4.069119	28.02	Neutral	46	-17.98	Ave.
3.718076	27.18	Neutral	46	-18.82	Ave.

7 FCC §15.209, §15.407(b) & ISED RSS-247 §6.2 - Spurious Radiated Emissions

7.1 Applicable Standard

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

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5. 35 – 5. 46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 –167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3 3458 – 3 358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per FCC §15.209: The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 Note 1	3
88 - 216	150 Note 1	3
216 - 960	200 Note 1	3
Above 960	500	3

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

As per FCC Part 15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(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.

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

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

As per IC RSS-247 §6.2

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250- 5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz

For devices with both operating frequencies and channel bandwidths contained within the band 5250-5350 MHz, the device shall comply with the following:

1. All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. if the equipment is intended for outdoor use; or
2. All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and any emissions within the band 5150-5250 MHz shall meet the power spectral density limits of Section 6.2.1. The device shall be labelled “for indoor use only.”

For devices with operating frequencies in the band 5250-5350 MHz but having a channel bandwidth that overlaps the band 5150-5250 MHz, the devices’ unwanted emission shall not exceed -27 dBm/MHz e.i.r.p. outside the band 5150-5350 MHz and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device shall be labelled “for indoor use only.”

For transmitters operating in the band 5470-5725 MHz, emissions outside the band shall not exceed -27 dBm/MHz e.i.r.p.

For the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p. For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz.

7.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.10-2013. The specification used was the FCC 15.407 and IC RSS-247 limits.

The spacing between the peripherals was 10 centimeters.

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

7.3 Test Procedure

For the radiated emissions test, the EUT host, and all support equipment power cords were connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter or 1.5 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 3MHz / Sweep = 100ms
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

7.4 Corrected Amplitude & Margin Calculation

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

CA = Ai + AF + CL + Atten – Ga

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

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

Margin = Corrected Amplitude - Limit

7.5 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Rohde & Schwarz	Receiver, EMI Test	ESCI 1166.5950K03	100338	2016-02-04	2 year
Agilent	Analyzer, Spectrum	E4446A	US44300386	2015-10-22	1 year
Sunol Science Corp	System Controller	SC99V	011003-1	N/R	N/R
Sunol Sciences	Antenna, Biconi-Log	JB3	A020106-2	2015-07-11	2 Years
EMCO	Antenna, Horn	3115	9511-4627	2016-01-28	2 years
Agilent	Amplifier, Pre	8447D	2944A10187	2016-03-23	1 year
IW	AOBOR Hi frequency Co AX CabelCable	DC 1531	KPS-1501A3960KPS	2015-08-10	1 Year
-	SMA cable	-	C0002	Each time[1]	N/A
-	N-Type Cable	-	C00013	2016-04-28	1 year
-	N-Type Cable	-	C00014	2016-05-28	1 year
Agilent	Pre-Amplifier	8449B	3008A01978	2015-09-02	1year
Wisewave	Antenna, Horn	ARH-4223-02	10555-02	2013-09-20	3 year
Wisewave	Antenna, Horn	ARH-2823-02	10555-02	2013-09-20	3 year
Wisewave	Amplifier, Low Noise	ALN-33144030-01	11424-01	2016-04-28	1 year
Wisewave	Amplifier, Low Noise	ALN-22093530-01	12263-01	2016-05-16	1 year
Vasona	Test software	V6.0 build 11	10400213	N/R	N/R

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

Note[1]: cables and attenuators included in the test set-up will be checked each time before testing.

7.6 Test Environmental Conditions

Test Date:	2016-08-02
Test Site:	5M Chamber 3
Temperature:	22-24° C
Relative Humidity:	40-41 %
Barometric Pressure:	103.1-104.1 kPa
Test Personnel:	Xiao Lin

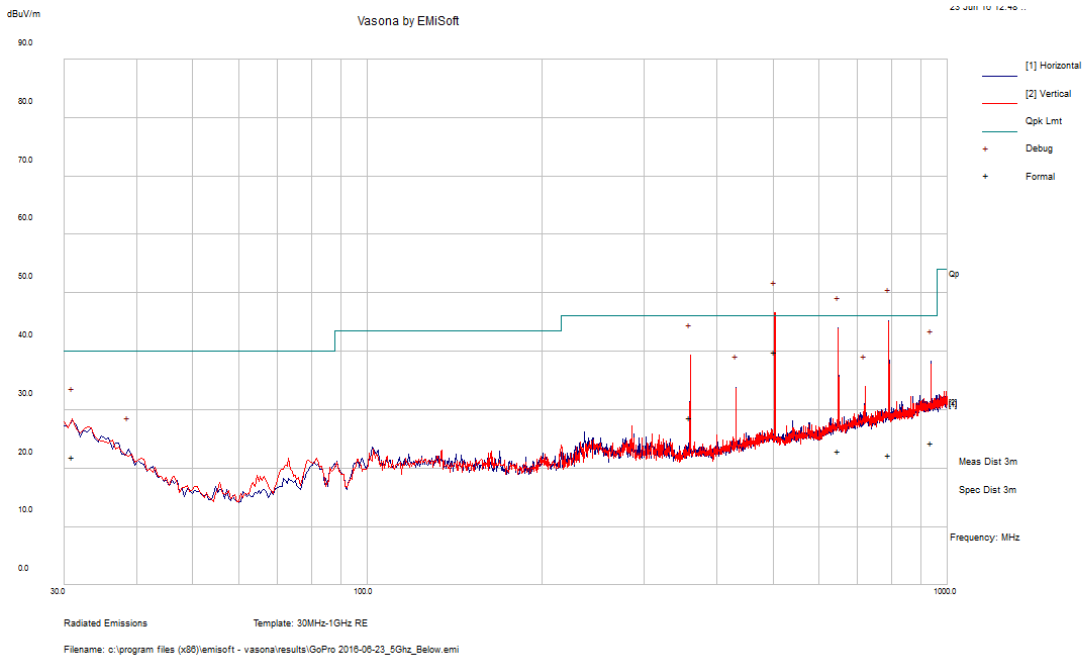
7.7 Summary of Test Results

According to the data hereinafter, the EUT complied with the FCC Part 15.407 and RSS-247 standards' radiated emissions limits, and had the worst margin of:

Mode: Transmitting			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Mode, Channel**
-0.13	17100	Vertical	802.11a mode, channel 140

7.8 Radiated Emissions Test Result Data

1) 30 MHz – 1 GHz



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Azimuth (degrees)	Limit (dBµV/m)	Margin (dB)	Comments (PK/QP/Ave.)
503.9915	39.89	183	V	58	46	-6.11	QP
792.185	22.29	264	H	82	46	-23.71	QP
648.1283	23.02	141	H	130	46	-22.98	QP
360.0318	28.74	100	V	41	46	-17.26	QP
936.668	24.39	129	H	114	46	-21.61	QP
31.03775	21.97	161	V	238	40	-18.03	QP

2) 1–40 GHz

Note: the testing was preformed at worst case based on the output power measurement for each bandwidth configuration. Therefore, only a mode, n40 mode and ac80 mode test data shows below.

5150 - 5250 MHz

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5180 MHz											
5180	60.77	356	162	H	33.55	8.11	0	102.43	-	-	PK
5180	51.41	356	162	H	33.55	8.11	0	93.07	-	-	Ave
5180	63.46	360	217	V	33.55	8.11	0	105.12	-	-	PK
5180	54.74	360	217	V	33.55	8.11	0	96.40	-	-	Ave
5150	60.93	136	100	H	33.46	8.78	38.51	64.66	74	-9.34	PK
5150	41.54	150	223	H	33.46	8.78	38.51	45.27	54	-8.73	Ave
5150	62.79	0	252	V	33.46	8.78	38.51	66.52	74	-7.48	PK
5150	41.70	32	228	V	33.46	8.78	38.51	45.43	54	-8.57	Ave
10360	46.24	0	100	V	38.20	12.7	38.26	58.88	68.26	-9.38	PK
10360	46.56	0	100	H	38.20	12.7	38.26	59.20	68.26	-9.06	PK
15540	47	0	100	V	39.30	15.63	36.98	64.95	74	-9.05	PK
15540	46.23	0	100	H	39.30	15.63	36.98	64.18	74	-9.82	PK
15540	35.00	0	100	V	39.30	15.63	36.98	52.95	54	-1.05	Ave
15540	34.93	0	100	H	39.30	15.63	36.98	52.88	54	-1.12	Ave
Middle Channel 5200 MHz											
5200	61.17	360	117	H	33.61	8.11	0	102.89	-	-	PK
5200	52.24	360	117	H	33.61	8.11	0	93.96	-	-	Ave
5200	63.87	348	205	V	33.61	8.11	0	105.59	-	-	PK
5200	54.46	348	205	V	33.61	8.11	0	96.18	-	-	Ave
10400	47.35	0	100	V	38.25	12.82	38.25	60.17	68.26	-8.09	PK
10400	47.02	0	100	H	38.25	12.82	38.25	59.84	68.26	-8.42	PK
15600	45.9	0	100	V	39.18	15.63	36.99	63.72	74	-10.3	PK
15600	46.14	0	100	H	39.18	15.63	36.99	63.96	74	-10.3	PK
15600	34.70	0	100	V	39.18	15.63	36.99	52.52	54	-1.48	Ave
15600	34.71	0	100	H	39.18	15.63	36.99	52.53	54	-1.47	Ave
High Channel 5240 MHz											
5240	60.32	360	139	H	33.52	8.11	0	101.95	-	-	PK
5240	51.43	360	139	H	33.52	8.11	0	93.06	-	-	Ave
5240	64.29	360	194	V	33.52	8.11	0	105.92	-	-	PK
5240	55.41	360	194	V	33.52	8.11	0	97.04	-	-	Ave
10480	47.21	0	100	V	38.30	12.81	38.24	60.08	68.26	-8.18	PK
10480	47.82	0	100	H	38.30	12.81	38.24	60.69	68.26	-7.57	PK
15720	46.56	0	100	V	38.88	15.69	37.04	64.09	74	-9.91	PK
15720	46.92	0	100	H	38.88	15.69	37.04	64.45	74	-9.55	PK
15720	35.39	0	100	V	38.88	15.69	37.04	52.92	54	-1.08	Ave
15720	35.42	0	100	H	38.88	15.69	37.04	52.95	54	-1.05	Ave

802.11 n40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5190 MHz											
5190	57.77	354	138	H	33.58	8.11	0.00	99.46	-	-	PK
5190	49.01	354	138	H	33.58	8.11	0.00	90.70	-	-	Ave
5190	60.14	0	236	V	33.58	8.11	0.00	101.83	-	-	PK
5190	51.38	0	236	V	33.58	8.11	0.00	93.07	-	-	Ave
5150	64.34	0	213	H	33.46	8.78	38.51	68.07	74	-5.93	PK
5150	44.50	6	127	H	33.46	8.78	38.51	48.23	54	-5.77	Ave
5150	68.01	46	175	V	33.46	8.78	38.51	71.74	74	-2.26	PK
5150	46.68	34	243	V	33.46	8.78	38.51	50.41	54	-3.59	Ave
10380	47.24	0	100	V	38.25	12.82	38.25	60.06	68.26	-8.20	PK
10380	47.03	0	100	H	38.25	12.82	38.25	59.85	68.26	-8.41	PK
15570	45.92	0	100	V	39.18	15.63	36.99	63.74	74	-10.3	PK
15570	45.71	0	100	H	39.18	15.63	36.99	63.53	74	-10.5	PK
15570	34.55	0	100	V	39.18	15.63	36.99	52.37	54	-1.63	Ave
15570	34.58	0	100	H	39.18	15.63	36.99	52.40	54	-1.60	Ave
High Channel 5230 MHz											
5230	63.44	37	100	H	33.50	8.11	0.00	105.05	-	-	PK
5230	53.09	37	100	H	33.50	8.11	0.00	94.70	-	-	Ave
5230	61.99	0	193	V	33.50	8.11	0.00	103.60	-	-	PK
5230	51.80	0	193	V	33.50	8.11	0.00	93.41	-	-	Ave
10480	46.91	0	100	V	38.30	12.81	38.24	59.78	68.26	-8.48	PK
10480	46.62	0	100	H	38.30	12.81	38.24	59.49	68.26	-8.77	PK
15720	46.88	0	100	V	38.88	15.69	37.04	64.41	74	-9.59	PK
15720	47.2	0	100	H	38.88	15.69	37.04	64.73	74	-9.27	PK
15720	35.33	0	100	V	38.88	15.69	37.04	52.86	54	-1.14	Ave
15720	35.31	0	100	H	38.88	15.69	37.04	52.84	54	-1.16	Ave

802.11ac80 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
5210 MHz											
5210	59.24	36	114	H	33.59	8.11	0.00	100.94	-	-	PK
5210	48.80	36	114	H	33.59	8.11	0.00	90.50	-	-	Ave
5210	61.49	33	248	V	33.59	8.11	0.00	103.19	-	-	PK
5210	49.60	33	248	V	33.59	8.11	0.00	91.30	-	-	Ave
5150	61.74	0	271	V	33.46	8.78	38.51	65.47	74	-8.53	PK
5150	49.29	32	253	V	33.46	8.78	38.51	53.02	54	-0.98	Ave
10420	47.16	0	100	V	38.25	12.82	38.25	59.98	68.26	-8.28	PK
10420	47.41	0	100	H	38.25	12.82	38.25	60.23	68.26	-8.03	PK
15630	46.73	0	100	V	39.1	15.63	36.99	64.47	74	-9.53	PK
15630	47.14	0	100	H	39.1	15.63	36.99	64.88	74	-9.12	PK
15630	35.57	0	100	V	39.1	15.63	36.99	53.31	54	-0.69	Ave
15630	35.48	0	100	H	39.1	15.63	36.99	53.22	54	-0.78	Ave

5250 - 5350 MHz

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5260 MHz											
5260	63.72	19	100	H	33.52	8.20	0.00	105.44	-	-	PK
5260	55.69	19	100	H	33.52	8.20	0.00	97.41	-	-	Ave
5260	64.33	25	158	V	33.52	8.20	0.00	106.05	-	-	PK
5260	56.50	25	158	V	33.52	8.20	0.00	98.22	-	-	Ave
10520	48.28	0	100	V	38.31	12.74	38.16	61.17	68.26	-7.09	PK
10520	47.47	0	100	H	38.31	12.74	38.16	60.36	68.26	-7.90	PK
15780	46.74	0	100	V	38.73	15.76	37.07	64.16	74	-9.84	PK
15780	47.12	0	100	H	38.73	15.76	37.07	64.54	74	-9.46	PK
15780	35.51	0	100	V	38.73	15.76	37.07	52.93	54	-1.07	Ave
15780	35.52	0	100	H	38.73	15.76	37.07	52.94	54	-1.06	Ave
Middle Channel 5280 MHz											
5280	65.57	36	100	H	33.50	8.20	0.00	107.27	-	-	PK
5280	57.08	36	100	H	33.50	8.20	0.00	98.78	-	-	Ave
5280	64.87	360	191	V	33.50	8.20	0.00	106.57	-	-	PK
5280	56.14	360	191	V	33.50	8.20	0.00	97.84	-	-	Ave
10560	48.51	0	100	V	38.30	12.68	38.15	61.34	74	-12.66	PK
10560	48.04	0	100	H	38.30	12.68	38.15	60.87	74	-13.13	PK
10560	35.94	0	100	V	38.30	12.68	38.15	48.77	54	-5.23	Ave
10560	35.93	0	100	H	38.30	12.68	38.15	48.76	54	-5.24	Ave
15840	47.83	0	100	V	38.60	15.86	37.11	65.18	74	-8.82	PK
15840	47.41	0	100	H	38.60	15.86	37.11	64.76	74	-9.24	PK
15840	35.40	0	100	V	38.60	15.86	37.11	52.75	54	-1.25	Ave
15840	35.38	0	100	H	38.60	15.86	37.11	52.73	54	-1.27	Ave
High Channel 5320 MHz											
5320	64.02	41	215	H	33.58	8.20	0.00	105.80	-	-	PK
5320	55.78	41	215	H	33.58	8.20	0.00	97.56	-	-	Ave
5320	64.31	360	212	V	33.58	8.20	0.00	106.09	-	-	PK
5320	55.92	360	212	V	33.58	8.20	0.00	97.70	-	-	Ave
5350	64.14	0	210	V	33.52	8.23	38.42	67.47	74	-6.53	PK
5350	41.86	0	211	V	33.52	8.23	38.42	45.19	54	-8.81	Ave
10640	47.73	0	100	V	38.22	12.49	38.14	60.30	74	-13.70	PK
10640	47.39	0	100	H	38.22	12.49	38.14	59.96	74	-14.04	PK
10640	36.13	0	100	V	38.22	12.49	38.14	48.70	54	-5.30	Ave
10640	36.14	0	100	H	38.22	12.49	38.14	48.71	54	-5.29	Ave
15960	47.8	0	100	V	38.47	16.04	37.2	65.11	74	-8.89	PK
15960	47.26	0	100	H	38.47	16.04	37.2	64.57	74	-9.43	PK
15960	36.10	0	100	V	38.47	16.04	37.2	53.41	54	-0.59	Ave
15960	36.08	0	100	H	38.47	16.04	37.2	53.39	54	-0.61	Ave

802.11n40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5270 MHz											
5510	59.46	44	100	H	33.85	8.46	0.00	101.77	-	-	PK
5510	49.34	44	100	H	33.85	8.46	0.00	91.65	-	-	Ave
5510	59.85	0	211	V	33.85	8.46	0.00	102.16	-	-	PK
5510	50.69	0	211	V	33.85	8.46	0.00	93.00	-	-	Ave
5470	68.25	0	199	V	33.85	8.29	37.98	72.40	74	-1.60	PK
5470	46.68	0	194	V	33.85	8.29	37.98	50.82	54	-3.18	Ave
11020	47.33	0	100	V	38.29	12.92	38.08	60.46	74	-13.54	PK
11020	47.1	0	100	H	38.29	12.92	38.08	60.23	74	-13.77	PK
11020	36.26	0	100	V	38.29	12.92	38.08	49.39	54	-4.61	Ave
11020	36.23	0	100	H	38.29	12.92	38.08	49.36	54	-4.64	Ave
16530	47.61	0	100	V	38.52	16.17	37.32	64.98	68.26	-3.28	PK
16530	47.82	0	100	H	38.52	16.17	37.32	65.19	68.26	-3.07	PK
High Channel 5310 MHz											
5310	61.06	42	198	H	33.58	8.20	0.00	102.84	-	-	PK
5310	50.82	42	198	H	33.58	8.20	0.00	92.60	-	-	Ave
5310	61.14	344	197	V	33.58	8.20	0.00	102.92	-	-	PK
5310	52.01	344	197	V	33.58	8.20	0.00	93.79	-	-	Ave
5350	68.26	0	212	V	33.52	8.23	38.42	71.59	74	-2.41	PK
5350	47.51	0	222	V	33.52	8.23	38.42	50.84	54	-3.16	Ave
10620	46.95	0	100	V	38.25	12.56	38.2	59.56	74	-14.44	PK
10620	47.15	0	100	H	38.25	12.56	38.2	59.76	74	-14.24	PK
10620	35.83	0	100	V	38.25	12.56	38.2	48.44	54	-5.56	Ave
10620	35.86	0	100	H	38.25	12.56	38.2	48.47	54	-5.53	Ave
15930	47.57	0	100	V	38.48	15.98	37.21	64.82	74	-9.18	PK
15930	47.42	0	100	H	38.48	15.98	37.21	64.67	74	-9.33	PK
15930	36.06	0	100	V	38.48	15.98	37.21	53.31	54	-0.69	Ave
15930	36.05	0	100	H	38.48	15.98	37.21	53.30	54	-0.70	Ave

802.11ac80 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
5290 MHz											
5290	59.58	39	232	H	33.5	8.20	0.00	101.28	-	-	PK
5290	49.12	39	232	H	33.5	8.20	0.00	90.82	-	-	Ave
5290	60.48	21	263	V	33.5	8.20	0.00	102.18	-	-	PK
5290	48.01	21	263	V	33.5	8.20	0.00	89.71	-	-	Ave
5350	62.81	0	212	V	33.52	8.23	38.42	66.14	74	-7.86	PK
5350	48.82	0	203	V	33.52	8.23	38.42	52.15	54	-1.85	Ave
10580	47.03	0	100	V	38.28	13.29	38.21	60.39	68.26	-7.87	PK
10580	46.88	0	100	H	38.28	13.29	38.21	60.24	68.26	-8.02	PK
15870	47.88	0	100	V	38.56	15.9	37.15	65.19	74	-8.81	PK
15870	48.06	0	100	H	38.56	15.9	37.15	65.37	74	-8.63	PK
15870	36.01	0	100	V	38.56	15.9	37.15	53.32	54	-0.68	Ave
15870	36.02	0	100	H	38.56	15.9	37.15	53.33	54	-0.67	Ave

5470 - 5725 MHz

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5500 MHz											
5500	62.09	39	100	H	33.85	8.46	0.00	104.40	-	-	PK
5500	54.68	39	100	H	33.85	8.46	0.00	96.99	-	-	Ave
5500	63.58	360	220	V	33.85	8.46	0.00	105.89	-	-	PK
5500	55.02	360	220	V	33.85	8.46	0.00	97.33	-	-	Ave
5470	58.80	0	270	V	33.85	8.29	37.98	62.95	74	-11.1	PK
5470	40.20	0	194	V	33.85	8.29	37.98	44.35	54	-9.65	Ave
11000	46.49	0	100	V	38.28	13.02	38.06	59.73	74	-14.3	PK
11000	46.86	0	100	H	38.28	13.02	38.06	60.10	74	-13.9	PK
11000	35.32	0	100	V	38.28	13.02	38.06	48.56	54	-5.44	Ave
11000	35.33	0	100	H	38.28	13.02	38.06	48.57	54	-5.43	Ave
16500	47.99	0	100	V	38.51	16.15	37.32	65.33	68.26	-2.93	PK
16500	48.11	0	100	H	38.51	16.15	37.32	65.45	68.26	-2.81	PK
Middle Channel 5580 MHz											
5580	62.97	37	100	H	33.88	8.41	0.00	105.26	-	-	PK
5580	54.35	37	100	H	33.88	8.41	0.00	96.64	-	-	Ave
5580	64.07	0	236	V	33.88	8.41	0.00	106.36	-	-	PK
5580	56.08	0	236	V	33.88	8.41	0.00	98.37	-	-	Ave
11160	47.46	0	100	V	38.45	13.46	38.04	61.33	74	-12.7	PK
11160	47.29	0	100	H	38.45	13.46	38.04	61.16	74	-12.8	PK
11160	35.85	0	100	V	38.45	13.46	38.04	49.72	54	-4.28	Ave
11160	35.87	0	100	H	38.45	13.46	38.04	49.74	54	-4.26	Ave
16740	47.05	0	100	V	38.81	16.38	37.28	64.96	68.26	-3.30	PK
16740	47.27	0	100	H	38.81	16.38	37.28	65.18	68.26	-3.08	PK
5700 MHz											
5700	62.01	40	100	H	33.87	8.62	0.00	104.50	-	-	PK
5700	53.76	40	100	H	33.87	8.62	0.00	96.25	-	-	Ave
5700	64.45	0	218	V	33.87	8.62	0.00	106.94	-	-	PK
5700	55.69	0	218	V	33.87	8.62	0.00	98.18	-	-	Ave
5725	65.80	0	219	V	33.87	8.62	37.90	70.39	74	-3.61	PK
5725	41.67	0	203	V	33.87	8.62	37.90	46.27	54	-7.73	Ave
11400	47.29	0	100	V	38.50	13.44	37.91	61.32	74	-12.7	PK
11400	47.18	0	100	H	38.50	13.44	37.91	61.21	74	-12.8	PK
11400	35.79	0	100	V	38.50	13.44	37.91	49.82	54	-4.18	Ave
11400	35.77	0	100	H	38.50	13.44	37.91	49.80	54	-4.20	Ave
17100	47.79	0	100	V	41.03	16.43	37.12	68.13	68.26	-0.13	PK
17100	47.66	0	100	H	41.03	16.43	37.12	68.00	68.26	-0.26	PK

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 5720 MHz											
5720	61.36	38	100	H	33.87	8.62	0.00	103.85	-	-	PK
5720	53.39	38	100	H	33.87	8.62	0.00	95.88	-	-	Ave
5720	63.47	0	224	V	33.87	8.62	0.00	105.96	-	-	PK
5720	55.72	0	224	V	33.87	8.62	0.00	98.21	-	-	Ave
11440	46.52	0	100	V	38.46	13.33	37.9	60.41	74	-13.6	PK
11440	46.29	0	100	H	38.46	13.33	37.9	60.18	74	-13.8	PK
11440	35.02	0	100	V	38.46	13.33	37.9	48.91	54	-5.09	Ave
11440	35.06	0	100	H	38.46	13.33	37.9	48.95	54	-5.05	Ave

802.11n40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5510 MHz											
5510	59.46	44	100	H	33.85	8.46	0.00	101.77	-	-	PK
5510	49.34	44	100	H	33.85	8.46	0.00	91.65	-	-	Ave
5510	59.85	0	211	V	33.85	8.46	0.00	102.16	-	-	PK
5510	50.69	0	211	V	33.85	8.46	0.00	93.00	-	-	Ave
5470	68.25	0	199	V	33.85	8.29	37.98	72.40	74	-1.60	PK
5470	46.68	0	194	V	33.85	8.29	37.98	50.82	54	-3.18	Ave
11020	47.33	0	100	V	38.29	12.92	38.08	60.46	74	-13.5	PK
11020	47.1	0	100	H	38.29	12.92	38.08	60.23	74	-13.8	PK
11020	36.26	0	100	V	38.29	12.92	38.08	49.39	54	-4.61	Ave
11020	36.23	0	100	H	38.29	12.92	38.08	49.36	54	-4.64	Ave
16530	47.61	0	100	V	38.52	16.17	37.32	64.98	68.26	-3.28	PK
16530	47.82	0	100	H	38.52	16.17	37.32	65.19	68.26	-3.07	PK
Middle Channel 5550 MHz											
5550	59.56	43	100	H	33.88	8.48	0.00	101.92	-	-	PK
5550	50.94	43	100	H	33.88	8.48	0.00	93.30	-	-	Ave
5550	62.80	360	243	V	33.88	8.48	0.00	105.16	-	-	PK
5550	52.92	360	243	V	33.88	8.48	0.00	95.28	-	-	Ave
11100	46.78	0	100	V	38.37	13.29	38.07	60.37	74	-13.6	PK
11100	47.03	0	100	H	38.37	13.29	38.07	60.62	74	-13.4	PK
11100	35.98	0	100	V	38.37	13.29	38.07	49.57	54	-4.43	Ave
11100	35.96	0	100	H	38.37	13.29	38.07	49.55	54	-4.45	Ave
16650	47.11	0	100	V	38.61	16.29	37.30	64.71	68.26	-3.55	PK
16650	47.52	0	100	H	38.61	16.29	37.30	65.12	68.26	-3.14	PK
5670 MHz											
5670	59.03	39	146	H	33.87	8.46	0.00	101.36	-	-	PK
5670	48.78	39	146	H	33.87	8.46	0.00	91.11	-	-	Ave
5670	60.57	0	201	V	33.87	8.46	0.00	102.90	-	-	PK
5670	51.12	0	201	V	33.87	8.46	0.00	93.45	-	-	Ave
5725	60.05	0	214	V	33.87	8.62	37.90	64.64	74	-9.36	PK
5725	39.07	0	199	V	33.87	8.62	37.90	43.66	54	-10.3	Ave
11340	45.41	0	100	V	38.55	13.53	37.93	59.56	74	-14.4	PK
11340	45.63	0	100	H	38.55	13.53	37.93	59.78	74	-14.2	PK
11340	35.69	0	100	V	38.55	13.53	37.93	49.84	54	-4.16	Ave
11340	35.74	0	100	H	38.55	13.53	37.93	49.89	54	-4.11	Ave

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
High Channel 5710 MHz											
5710	58.74	37	100	H	33.87	8.46	0.00	101.07	-	-	PK
5710	49.81	37	100	H	33.87	8.46	0.00	92.14	-	-	Ave
5710	60.56	0	255	V	33.87	8.46	0.00	102.89	-	-	PK
5710	51.53	0	255	V	33.87	8.46	0.00	93.86	-	-	Ave
11420	46.75	0	100	V	38.48	13.37	37.91	60.69	74	-13.3	PK
11420	46.89	0	100	H	38.48	13.37	37.91	60.83	74	-13.2	PK
11420	35.56	0	100	V	38.48	13.37	37.91	49.50	54	-4.50	Ave
11420	35.57	0	100	H	38.48	13.37	37.91	49.51	54	-4.49	Ave

802.11ac80 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel: 5530 MHz											
5530	58.61	49	112	H	33.85	8.46	0.00	100.92	-	-	PK
5530	47.20	49	112	H	33.85	8.46	0.00	89.51	-	-	Ave
5530	60.83	0	155	V	33.85	8.46	0.00	103.14	-	-	PK
5530	47.41	0	155	V	33.85	8.46	0.00	89.72	-	-	Ave
5470	63.58	0	208	V	33.85	8.29	37.98	67.73	74	-6.27	PK
5470	47.72	0	194	V	33.85	8.29	37.98	51.87	54	-2.13	Ave
11060	47.52	0	100	V	38.33	13.12	38.08	60.89	74	-13.1	PK
11060	47.75	0	100	H	38.33	13.12	38.08	61.12	74	-12.9	PK
11060	36.35	0	100	V	38.33	13.12	38.08	49.72	54	-4.28	Ave
11060	36.39	0	100	H	38.33	13.12	38.08	49.76	54	-4.24	Ave
16590	47.51	0	100	V	38.55	16.23	37.32	64.97	68.26	-3.29	PK
16590	47.66	0	100	H	38.55	16.23	37.32	65.12	68.26	-3.14	PK
Middle Channel: 5610 MHz											
5610	57.53	40	100	H	33.92	8.46	0.00	99.91	-	-	PK
5610	47.70	40	100	H	33.92	8.46	0.00	90.08	-	-	Ave
5610	58.85	2	230	V	33.92	8.46	0.00	101.23	-	-	PK
5610	48.49	2	230	V	33.92	8.46	0.00	90.87	-	-	Ave
5725	53.95	0	100	V	33.87	8.62	37.90	58.54	74	-15.5	PK
5725	40.15	0	143	V	33.87	8.62	37.90	44.74	54	-9.26	Ave
11220	48.23	0	100	V	38.53	13.61	38.01	62.36	74	-11.6	PK
11220	48.02	0	100	H	38.53	13.61	38.01	62.15	74	-11.9	PK
11220	36.09	0	100	V	38.53	13.61	38.01	50.22	54	-3.78	Ave
11220	36.12	0	100	H	38.53	13.61	38.01	50.25	54	-3.75	Ave
16830	46.85	0	100	V	39.08	16.46	37.23	65.16	68.26	-3.10	PK
16830	47.57	0	100	H	39.08	16.46	37.23	65.88	68.26	-2.38	PK
High Channel: 5690 MHz											
5690	58.87	36	100	H	33.92	8.46	0.00	101.25	-	-	PK
5690	47.56	36	100	H	33.92	8.46	0.00	89.94	-	-	Ave
5690	60.62	0	244	V	33.92	8.46	0.00	103.00	-	-	PK
5690	48.85	0	244	V	33.92	8.46	0.00	91.23	-	-	Ave
11380	46.84	0	100	V	38.51	13.49	37.96	60.88	74	-13.1	PK
11380	47.02	0	100	H	38.51	13.49	37.96	61.06	74	-12.9	PK
11380	35.61	0	100	V	38.51	13.49	37.96	49.65	54	-4.35	Ave
11380	35.64	0	100	H	38.51	13.49	37.96	49.68	54	-4.32	Ave
17070	46.99	0	100	V	40.7	16.43	37.12	67.00	68.26	-1.26	PK
17070	47.19	0	100	H	40.7	16.43	37.12	67.20	68.26	-1.06	PK

5725 - 5850 MHz

802.11a mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5745 MHz											
5745	61.13	52	100	H	33.55	8.11	0.00	102.79	-	-	PK
5745	52.41	52	100	H	33.55	8.11	0.00	94.07	-	-	Ave
5745	63.31	0	204	V	33.55	8.11	0.00	104.97	-	-	PK
5745	55.08	0	204	V	33.55	8.11	0.00	96.74	-	-	Ave
5725	67.57	0	231	V	33.89	9.25	38.29	72.42	78.26	-5.84	PK
5715	63.33	0	231	V	33.89	9.25	38.29	68.18	74	-5.82	PK
5715	42.97	0	231	V	33.89	9.25	38.29	47.82	54	-6.18	Ave
11490	47.24	0	100	V	38.42	13.19	37.77	61.08	74	-12.9	PK
11490	46.77	0	100	H	38.42	13.19	37.77	60.61	74	-13.4	PK
11490	35.39	0	100	V	38.42	13.19	37.77	49.23	54	-4.77	Ave
11490	35.37	0	100	H	38.42	13.19	37.77	49.21	54	-4.79	Ave
Middle Channel 5785 MHz											
5785	60.96	46	100	H	33.55	8.11	0.00	102.62	-	-	PK
5785	52.39	46	100	H	33.55	8.11	0.00	94.05	-	-	Ave
5785	63.43	5	213	V	33.55	8.11	0.00	105.09	-	-	PK
5785	54.55	5	213	V	33.55	8.11	0.00	96.21	-	-	Ave
11570	46.95	0	100	V	38.31	13	37.8	60.46	74	-13.5	PK
11570	47.15	0	100	H	38.31	13	37.8	60.66	74	-13.3	PK
11570	35.50	0	100	V	38.31	13	37.8	49.01	54	-4.99	Ave
11570	35.54	0	100	H	38.31	13	37.8	49.05	54	-4.95	Ave
High Channel 5825 MHz											
5825	60.94	51	100	H	33.55	8.11	0.00	102.60	-	-	PK
5825	52.43	51	100	H	33.55	8.11	0.00	94.09	-	-	Ave
5825	62.99	0	225	V	33.55	8.11	0.00	104.65	-	-	PK
5825	54.98	0	225	V	33.55	8.11	0.00	96.64	-	-	Ave
5850	64.37	0	252	V	34.08	9.28	38.28	69.45	78.26	-8.81	PK
5860	59.69	0	252	V	34.08	9.28	38.28	64.77	74	-9.23	PK
5860	41.58	0	252	V	34.08	9.28	38.28	46.66	54	-7.34	Ave
11650	46.21	0	100	V	38.31	12.94	37.71	59.75	74	-14.3	PK
11650	46.68	0	100	H	38.31	12.94	37.71	60.22	74	-13.8	PK
11650	35.31	0	100	V	38.31	12.94	37.71	48.85	54	-5.15	Ave

802.11n40 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
Low Channel 5755 MHz											
5755	57.66	46	100	H	33.55	8.11	0.00	99.32	-	-	PK
5755	48.49	46	100	H	33.55	8.11	0.00	90.15	-	-	Ave
5755	60.40	0	239	V	33.55	8.11	0.00	102.06	-	-	PK
5755	50.55	0	239	V	33.55	8.11	0.00	92.21	-	-	Ave
5725	69.83	0	100	V	33.89	9.25	38.29	74.68	78.26	-3.58	PK
5715	68.29	0	100	V	33.89	9.25	38.29	73.14	74	-0.86	PK
5715	44.33	0	100	V	33.89	9.25	38.29	49.18	54	-4.82	Ave
11510	46.6	0	100	V	38.4	13.21	37.83	60.38	74	-13.6	PK
11510	46.77	0	100	H	38.4	13.21	37.83	60.55	74	-13.5	PK
11510	35.79	0	100	V	38.4	13.21	37.83	49.57	54	-4.43	Ave
11510	35.84	0	100	H	38.4	13.21	37.83	49.62	54	-4.38	Ave
High Channel 5795 MHz											
5795	58.54	36	100	H	33.55	8.11	0.00	100.20	-	-	PK
5795	48.87	36	100	H	33.55	8.11	0.00	90.53	-	-	Ave
5795	60.53	0	197	V	33.55	8.11	0.00	102.19	-	-	PK
5795	51.31	0	197	V	33.55	8.11	0.00	92.97	-	-	Ave
5850	58.98	0	100	V	34.08	9.28	38.28	64.06	78.26	-14.2	PK
5860	59.28	0	100	V	34.08	9.28	38.28	64.36	74	-9.64	PK
5860	40.36	0	100	V	34.08	9.28	38.28	45.44	54	-8.56	Ave
11590	46.48	0	100	V	38.3	12.95	37.8	59.93	74	-14.1	PK
11590	47.04	0	100	H	38.3	12.95	37.8	60.49	74	-13.5	PK
11590	35.51	0	100	V	38.3	12.95	37.8	48.96	54	-5.04	Ave
11590	35.45	0	100	H	38.3	12.95	37.8	48.90	54	-5.10	Ave

802.11ac80 mode

Frequency (MHz)	S.A. Reading (dBµV)	Turntable Azimuth (degrees)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Reading (dBµV/m)	FCC/IC		Comments (PK/Ave.)
			Height (cm)	Polarity (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	
5775 MHz											
5775	57.23	43	106	H	33.55	8.11	0.00	98.89	-	-	PK
5775	45.22	43	106	H	33.55	8.11	0.00	86.88	-	-	Ave
5775	58.70	0	201	V	33.55	8.11	0.00	100.36	-	-	PK
5775	47.22	0	201	V	33.55	8.11	0.00	88.88	-	-	Ave
5725	64.91	0	100	V	33.89	9.25	38.29	69.76	78.26	-8.50	PK
5715	63.07	0	100	V	33.89	9.25	38.29	67.92	74	-6.08	PK
5715	44.45	0	100	V	33.89	9.25	38.29	49.30	54	-4.70	Ave
5850	60.26	0	100	V	34.08	9.28	38.28	65.34	78.26	-12.9	PK
5860	56.48	0	100	V	34.08	9.28	38.28	61.56	74	-12.4	PK
5860	45.84	0	100	V	34.08	9.28	38.28	50.92	54	-3.08	Ave
11550	47.66	0	100	V	38.35	13.04	37.82	61.23	74	-12.8	PK
11550	47.23	0	100	H	38.35	13.04	37.82	60.80	74	-13.2	PK
11550	35.95	0	100	V	38.35	13.04	37.82	49.52	54	-4.48	Ave

Note 1: Any emissions above 12 GHz are the noise floor.
Note 2: Duty Cycle Correction Factor has been added to the measurements.
Note 3: IC limits were applied for emissions outside of the restricted bands since it's lower than the FCC limtis.

8 FCC §15.407(e) & ISED RSS-247 §6.2 - Emission Bandwidth

8.1 Applicable Standards

As per FCC §15.407(e) and IC RSS-247 6.2.4(1): for equipment operating in the band 5725 – 5850 MHz, the minimum 6 dB bandwidth of U-NII devices shall be 500 kHz.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 or 26 dB from the reference level. Record the frequency difference as the minimum emission or emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

8.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Analyzer, Spectrum	E4446A	US44300386	2015-10-22	1 year
-	10dB attenuator	-	-	Each time[1]	N/A

Note[1]: cable and attenuator included in the test set-up will be checked each time before testing.
Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

8.4 Test Environmental Conditions

Test Date:	2016-07-31
Test Site:	RF Test Site
Temperature:	22-24° C
Relative Humidity:	40-41 %
Barometric Pressure:	103.1-104.1 kPa
Test Personnel:	Frank Wang

8.5 Test Results

Please refer to the following tables and plots.

5150 - 5250 MHz

Channel	Frequency (MHz)	99% OBW (kHz)	26 dB OBW (kHz)
802.11 a mode			
36	5180	16220.22	18716
40	5200	16271.6	18790
48	5240	16282.7	19022
802.11n20 mode			
36	5180	17409.7	19139
40	5200	17376.5	19963
48	5240	17362.2	19371
802.11n40 mode			
38	5190	35734.5	39475
46	5230	35778.4	38854
802.11ac20 mode			
36	5180	17448.2	19351
40	5200	17399.6	19641
48	5240	17413.4	19632
802.11ac40 mode			
38	5190	35785.5	39298
46	5230	35703.7	39234
802.11ac80 mode			
42	5210	74773	81341

5250 - 5350 MHz

Channel	Frequency (MHz)	99% OBW (kHz)	26 dB OBW (kHz)
802.11 a mode			
52	5260	16270.6	19107
56	5280	16266.5	18638
64	5320	16251.4	18936
802.11n20 mode			
52	5260	17394.2	19442
56	5280	17420.3	19356
64	5320	17427.6	19885
802.11n40 mode			
54	5270	35724.3	40371
62	5310	35726.2	39860
802.11ac20 mode			
52	5260	17389.2	19743
56	5280	17415.2	19199
64	5320	17374.1	19120
802.11ac40 mode			
54	5270	35783.2	39728
62	5310	35770.6	39393
802.11ac80 mode			
58	5290	74809	81721

5470 - 5725 MHz

Channel	Frequency (MHz)	99% OBW (kHz)	26 dB OBW (kHz)
802.11 a mode			
100	5500	17430.9	19322
116	5580	17454.9	19128
140	5700	17394.1	19444
144	5720	17459.7	19711
802.11n20 mode			
100	5500	17388.8	19085
116	5580	17436.1	19780
140	5700	17413.9	19355
144	5720	17402.1	19389
802.11n40 mode			
102	5510	35724.3	39014
110	5550	35866.6	40269
134	5670	35737	38735
142	5710	35756.8	39607
802.11ac20 mode			
100	5500	17430.9	19322
116	5580	17454.9	19128
140	5700	17394.1	19444
144	5720	17459.7	19771
802.11ac40 mode			
102	5510	35704.6	39733
110	5550	35716.1	39307
134	5670	35758.6	40319
142	5710	35753.2	40414
802.11ac80 mode			
106	5530	74707.4	80390
122	5610	74675.2	82128
138	5690	74886.8	81373

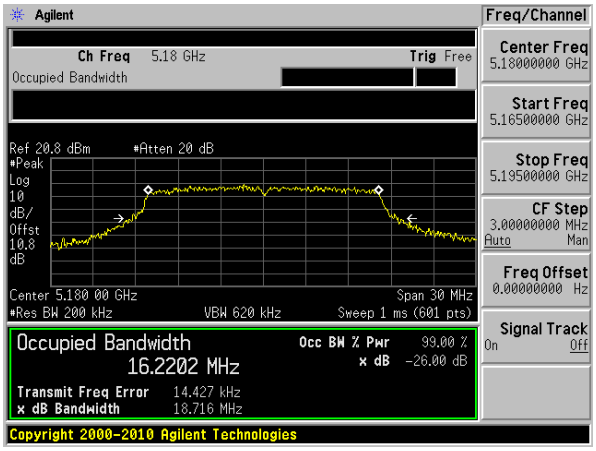
5725 - 5850 MHz

Channel	Frequency (MHz)	99% OBW (kHz)	6 dB OBW (kHz)
802.11 a mode			
149	5745	16273	16364
157	5785	16257.5	14418
165	5825	16264.5	16319
802.11n20 mode			
149	5745	17448.3	14796
157	5785	17373.8	15570
165	5825	17433.4	15316
802.11n40 mode			
151	5755	35684.2	30909
159	5795	35739.4	30327
802.11ac20 mode			
149	5745	17455.7	13763
157	5785	17390.5	15166
165	5825	17446.9	17580
802.11ac40 mode			
151	5755	35724.5	29296
159	5795	35699.2	29733
802.11ac80 mode			
155	5775	74925.8	66683

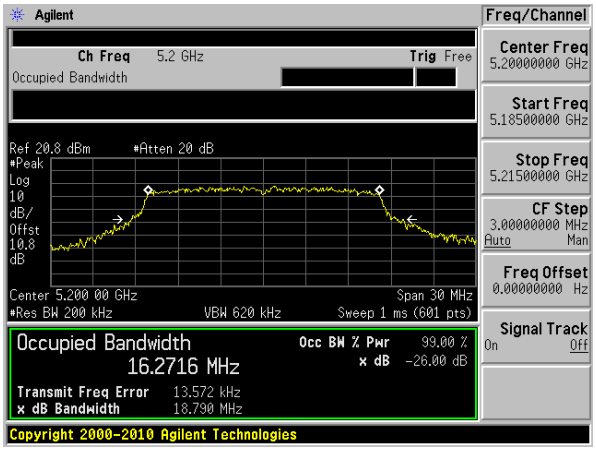
5150 – 5250 MHz

802.11a mode

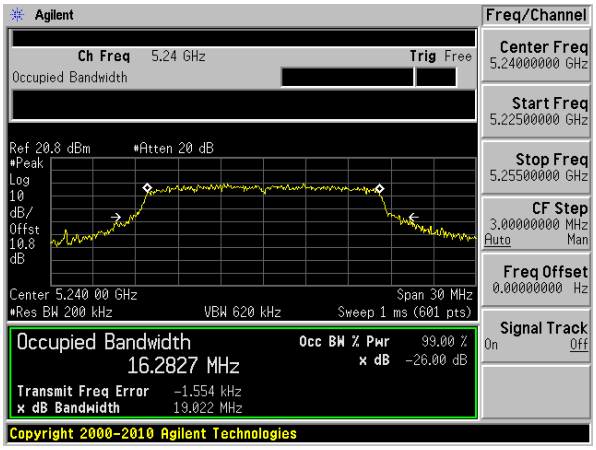
5180 MHz



5200 MHz

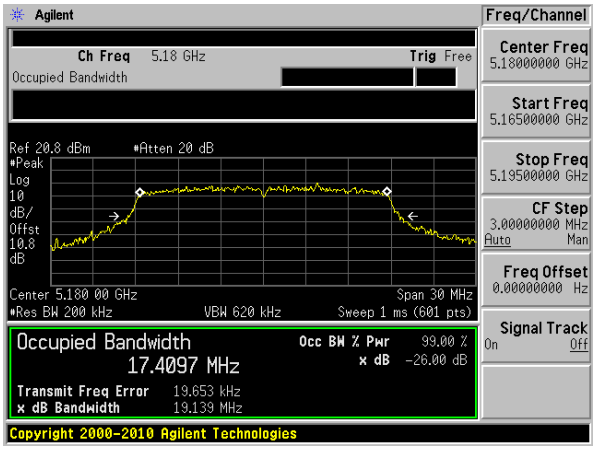


5240 MHz

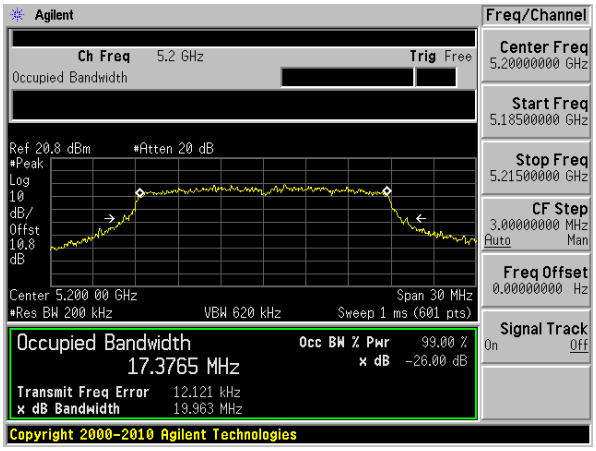


802.11n20

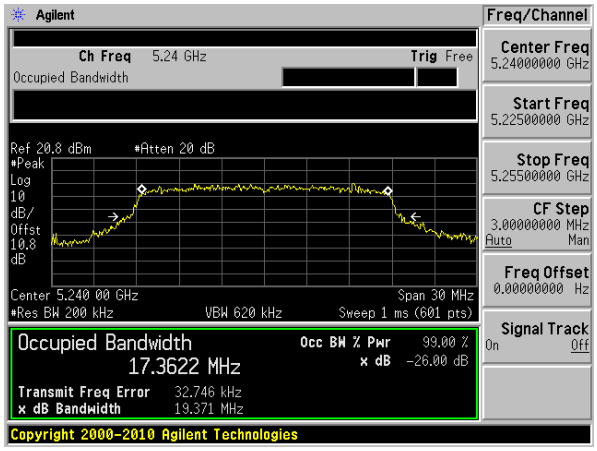
5180 MHz



5200 MHz

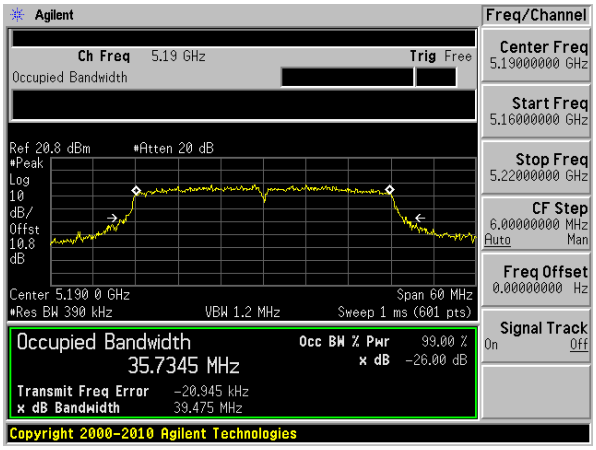


5240 MHz

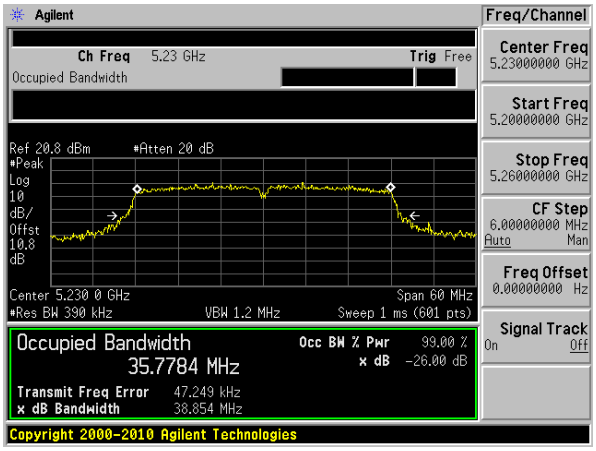


802.11n40 mode

5190 MHz

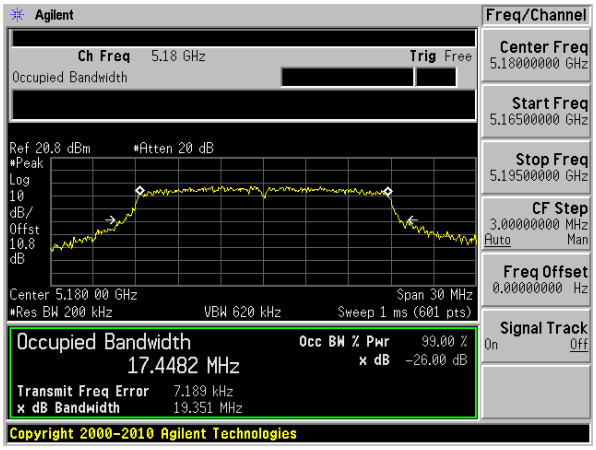


5230 MHz

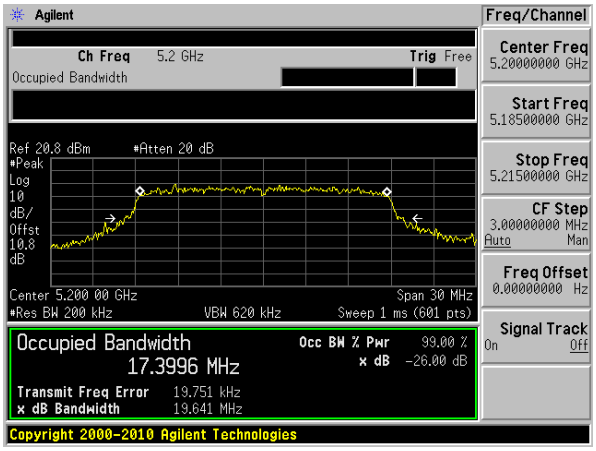


802.11ac20 mode

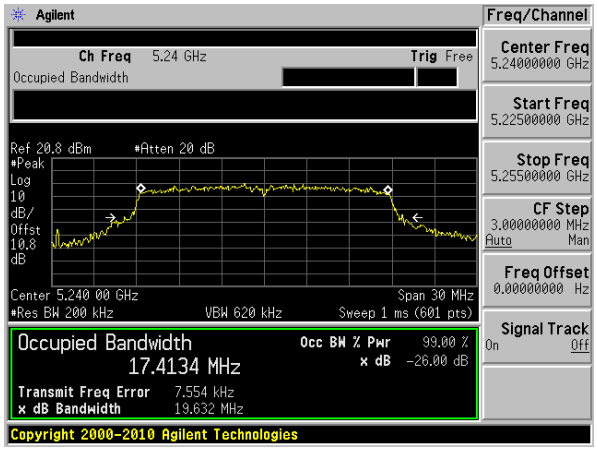
5180 MHz



5200 MHz

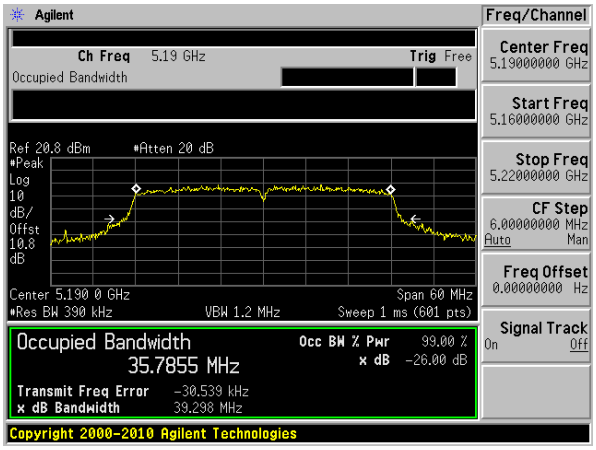


5240 MHz

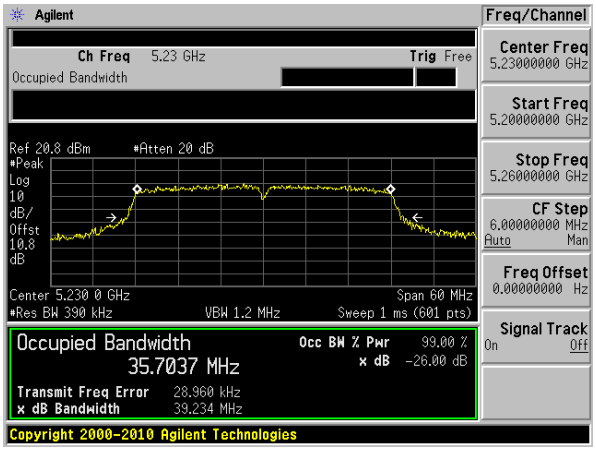


802.11ac40 mode

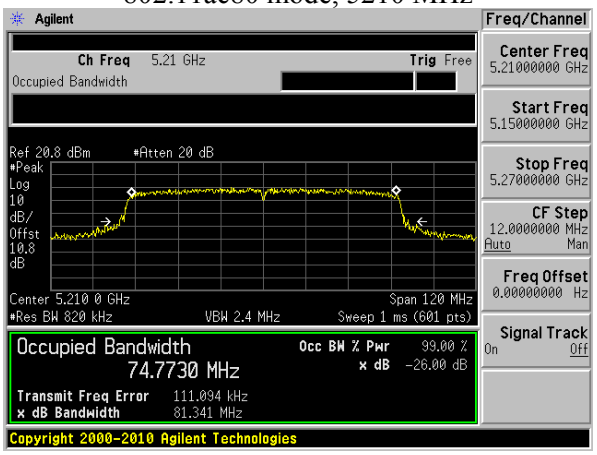
5190 MHz



5230 MHz



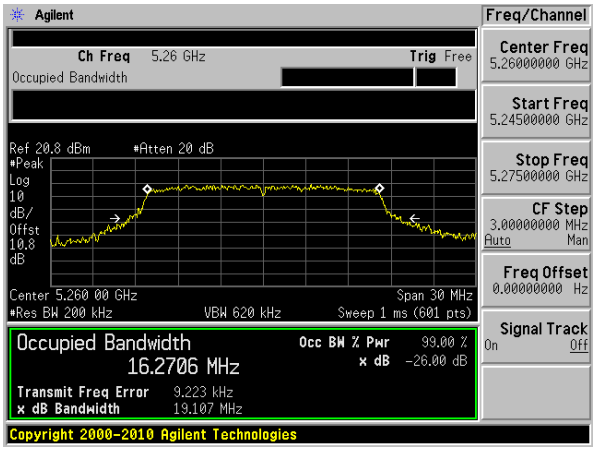
802.11ac80 mode, 5210 MHz



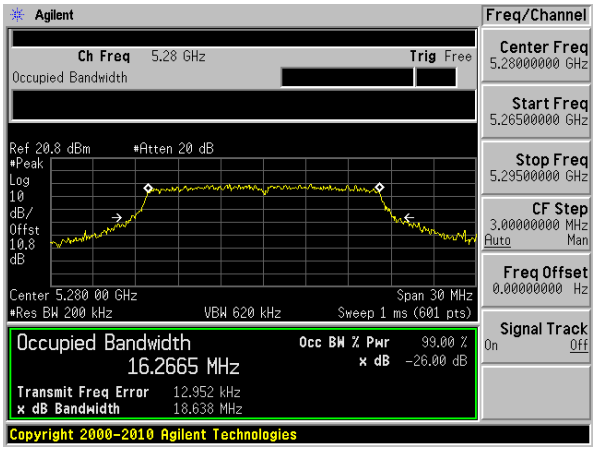
5250 – 5350 MHz

802.11a mode

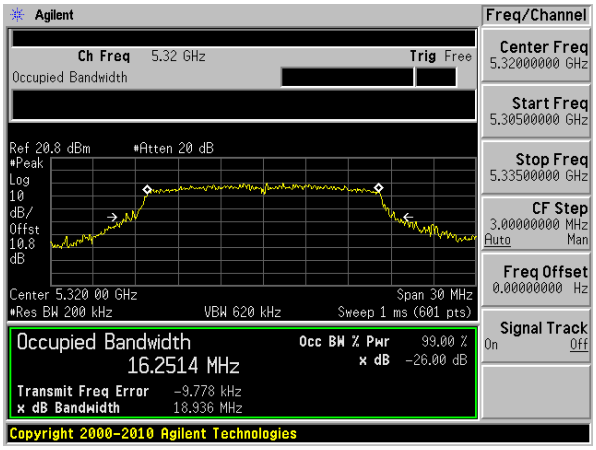
5260 MHz



5280 MHz

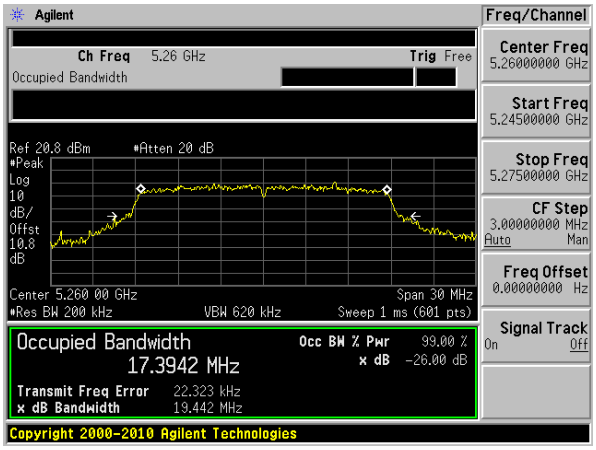


5320 MHz

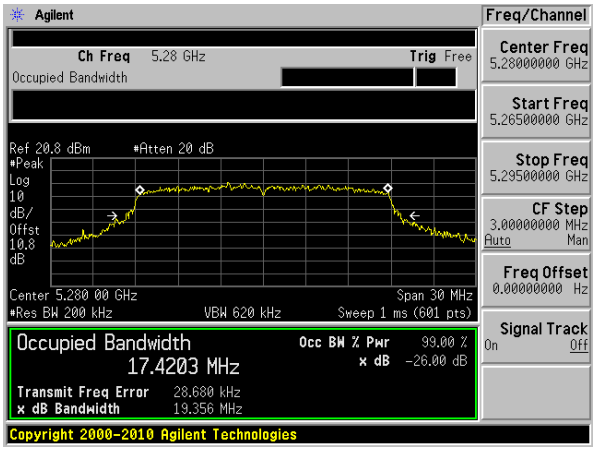


802.11n20 mode

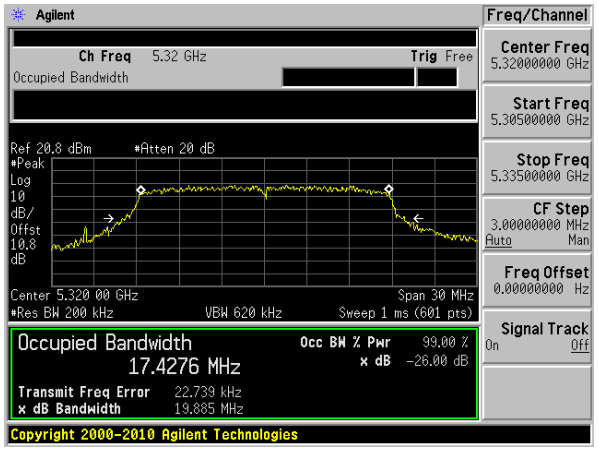
5260 MHz



5280 MHz

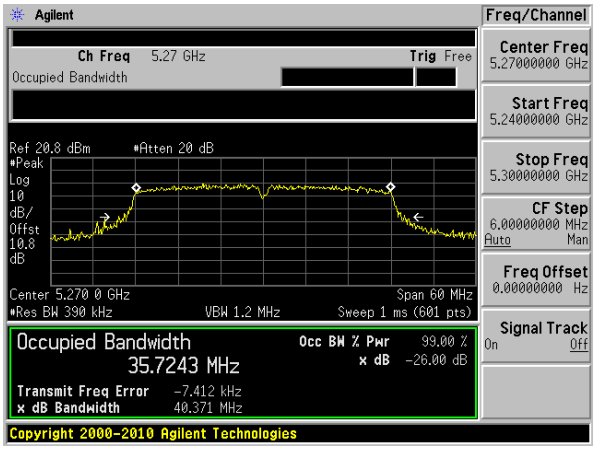


5320 MHz

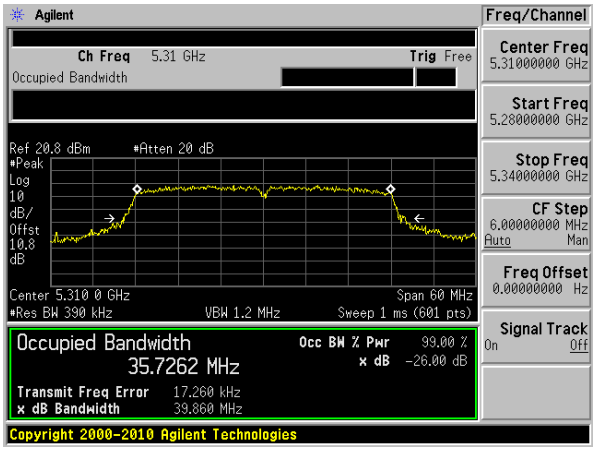


802.11n40 mode

5270 MHz

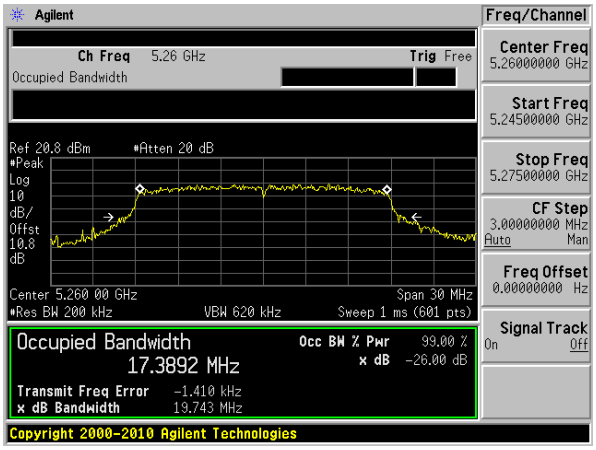


5310 MHz

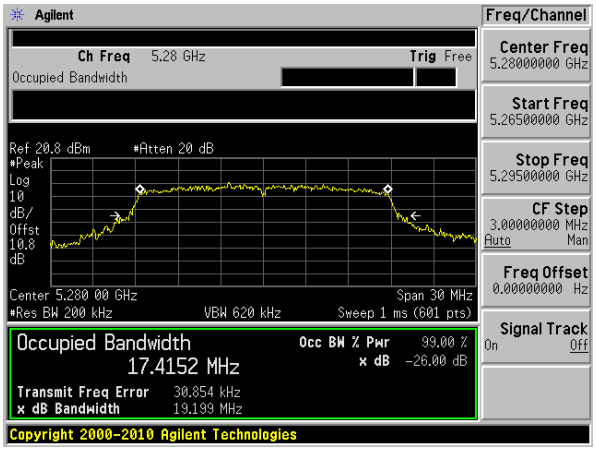


802.11ac20 mode

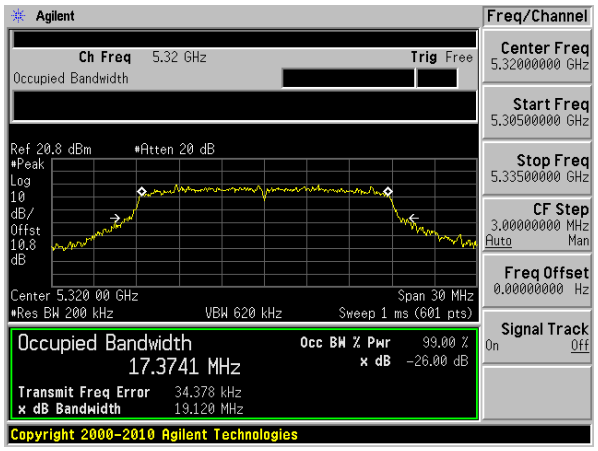
5260 MHz



5280 MHz

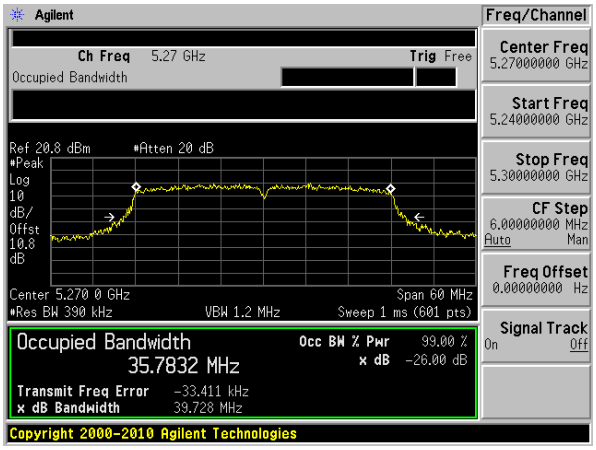


5320 MHz

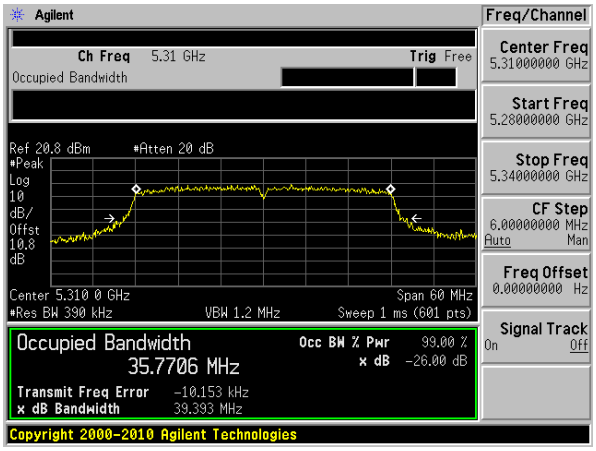


802.11ac40 mode

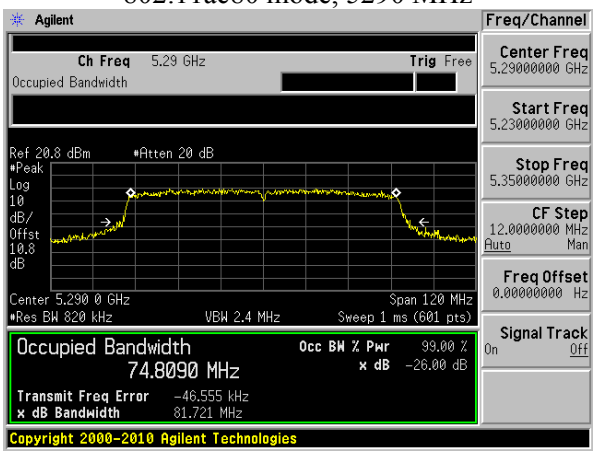
5270 MHz



5310 MHz



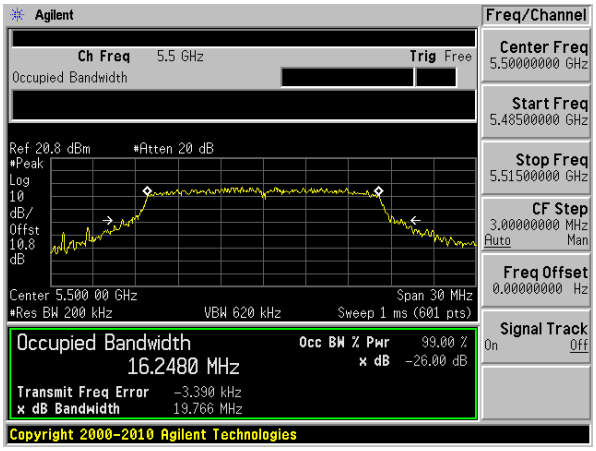
802.11ac80 mode, 5290 MHz



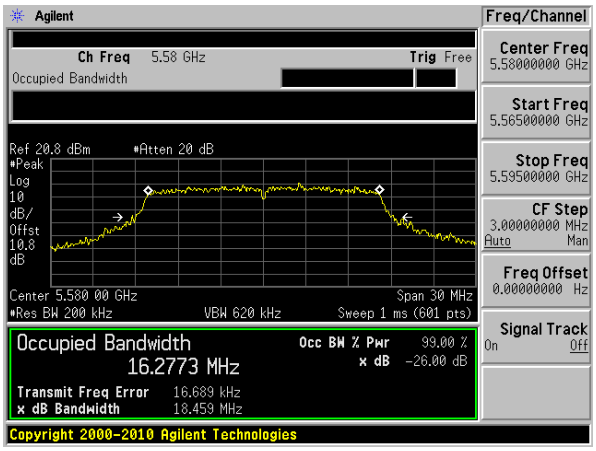
5470 – 5725 MHz

802.11a mode

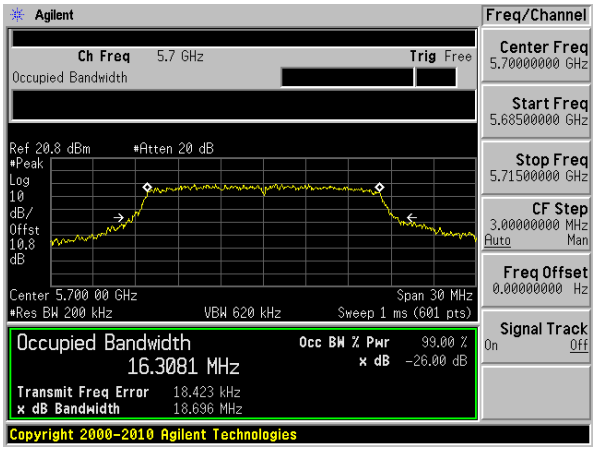
5500 MHz



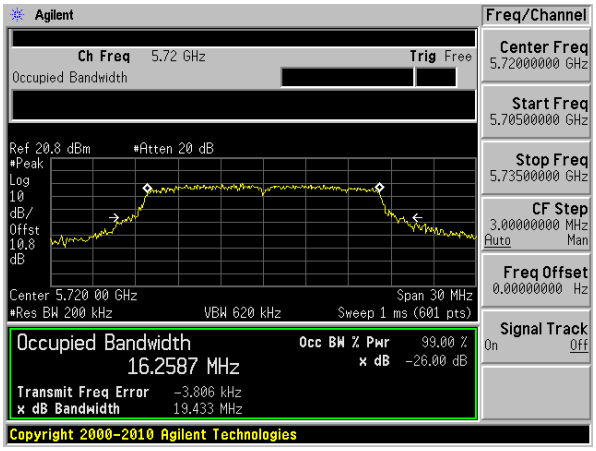
5580 MHz



5700 MHz

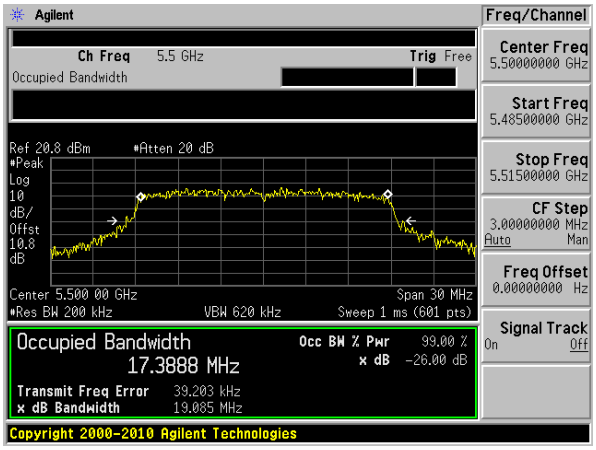


5720 MHz

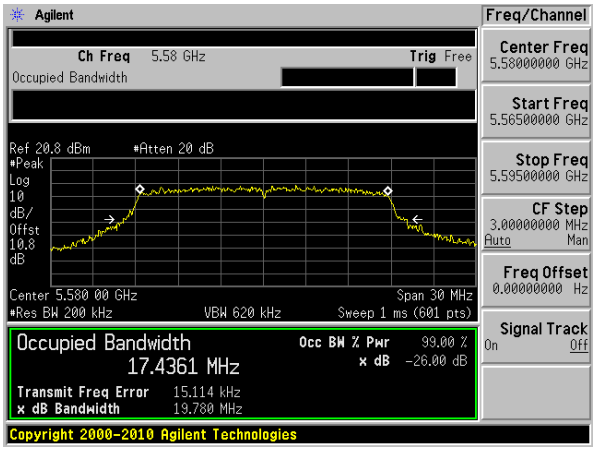


802.11n20 mode

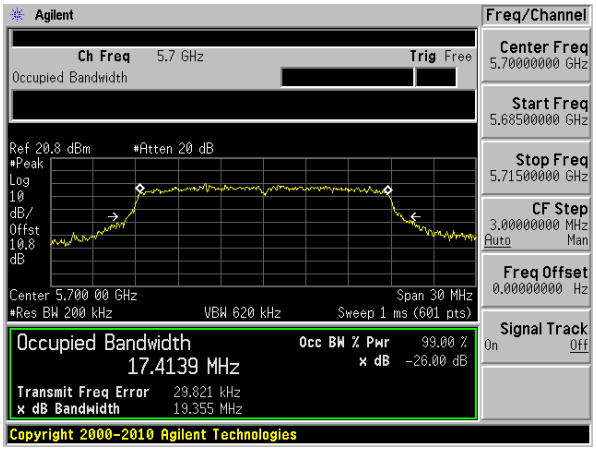
5500 MHz



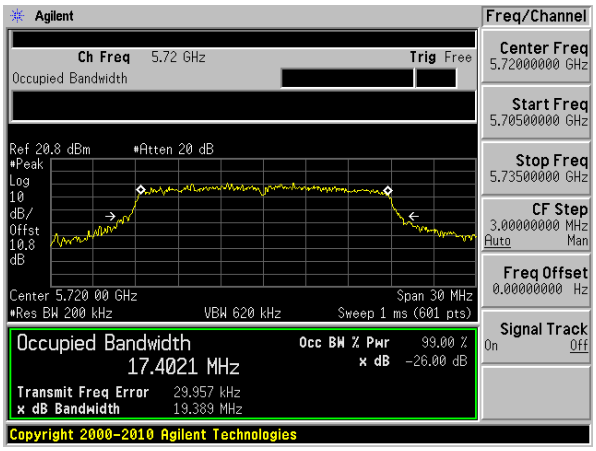
5580 MHz



5700 MHz

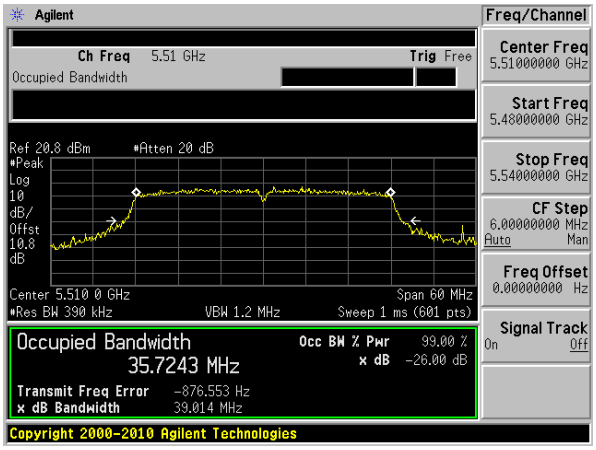


5720 MHz

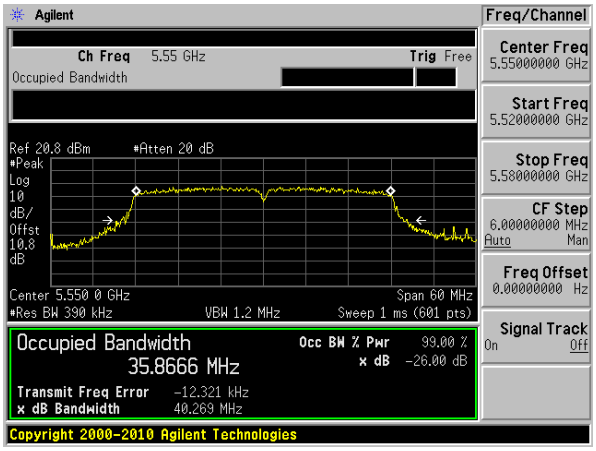


802.11n40 mode

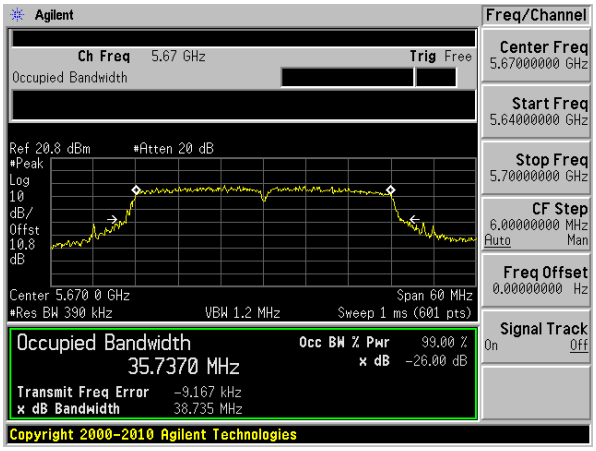
5510 MHz



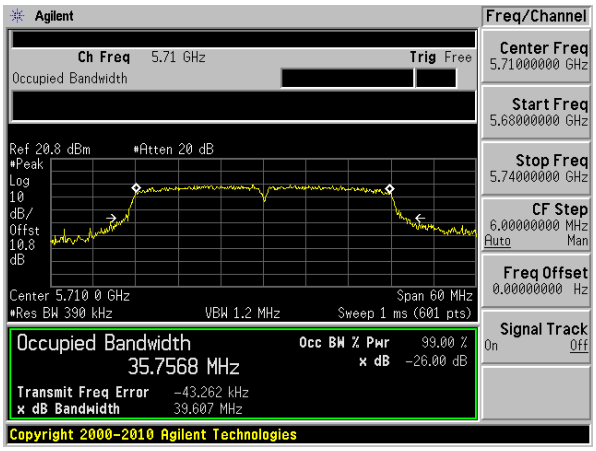
5550 MHz



5670 MHz

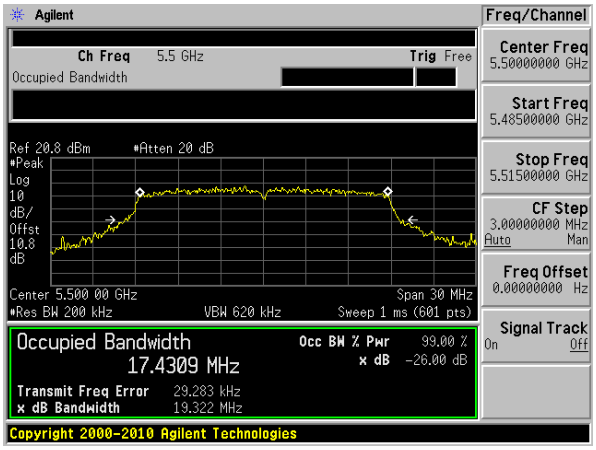


5710 MHz

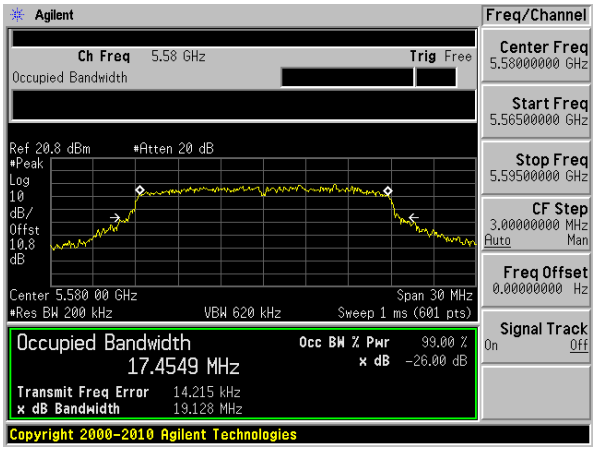


802.11ac20 mode

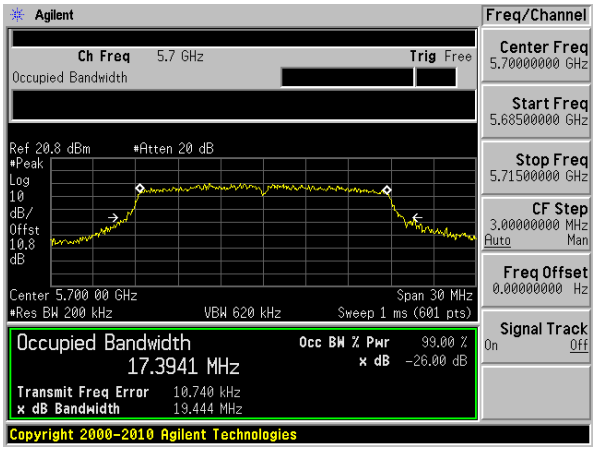
5500 MHz



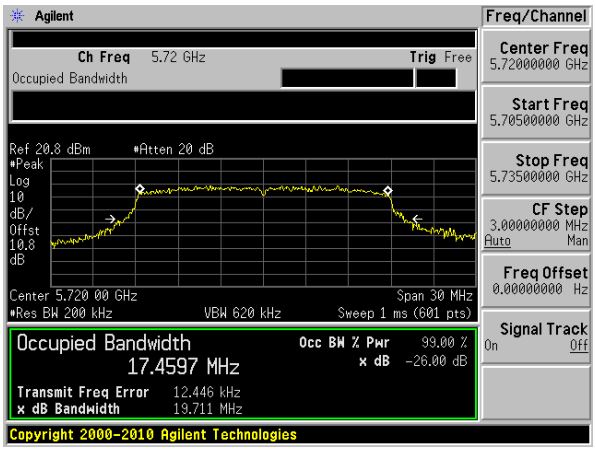
5580 MHz



5700 MHz

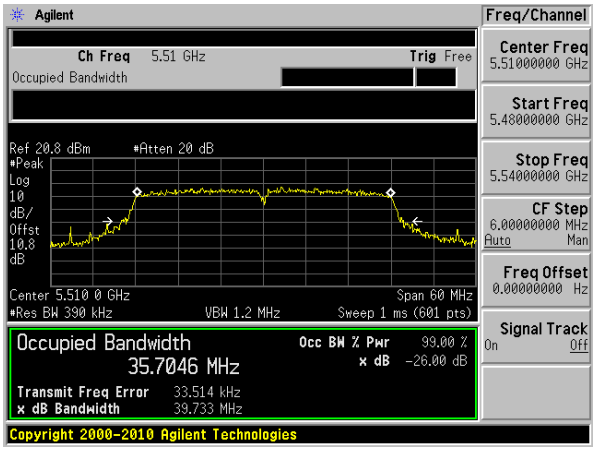


5720 MHz

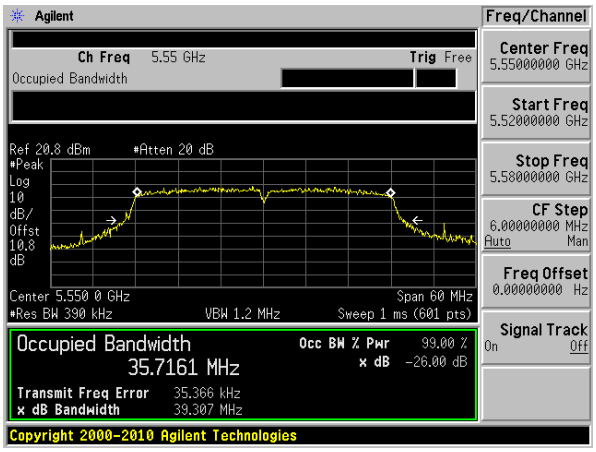


802.11ac40 mode

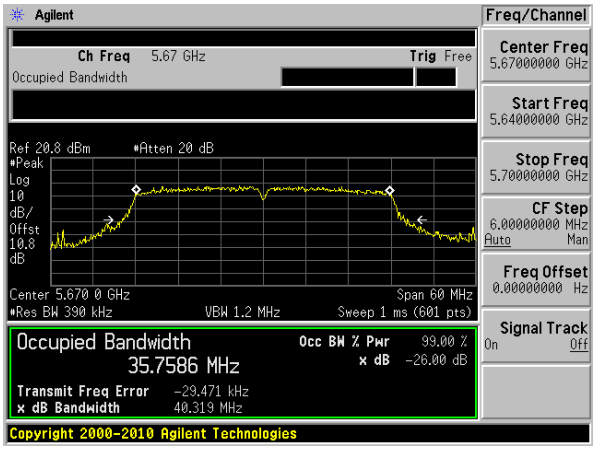
5510 MHz



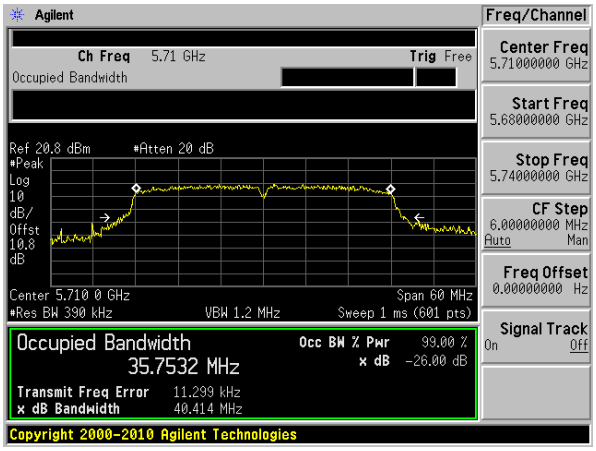
5550 MHz



5670 MHz

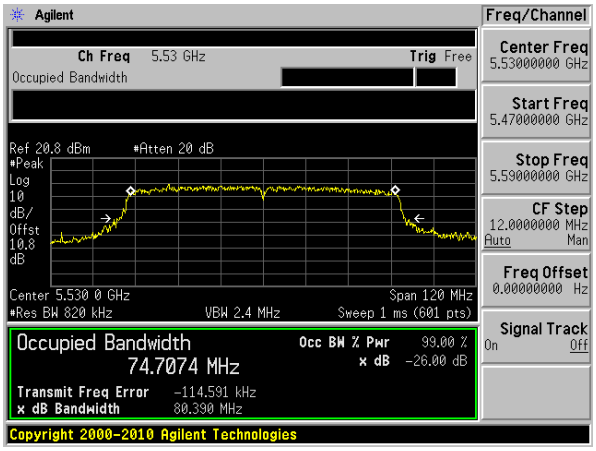


5710 MHz

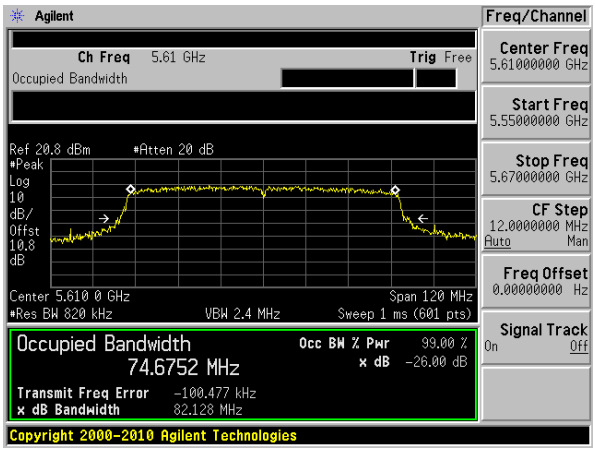


802.11ac80 mode

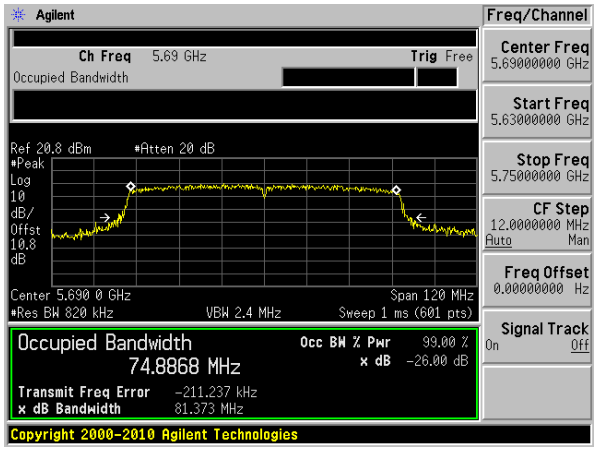
5530 MHz



5610 MHz



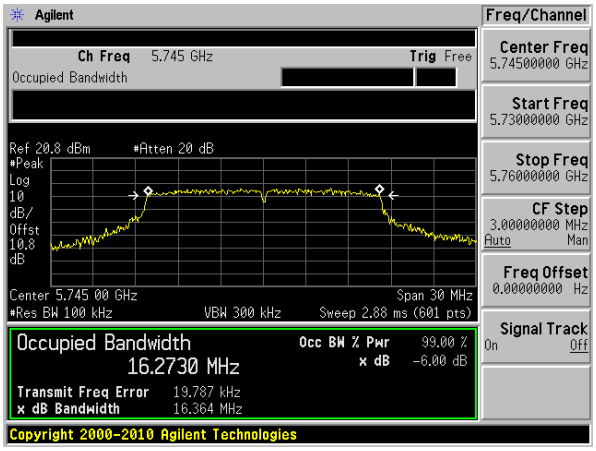
5690 MHz



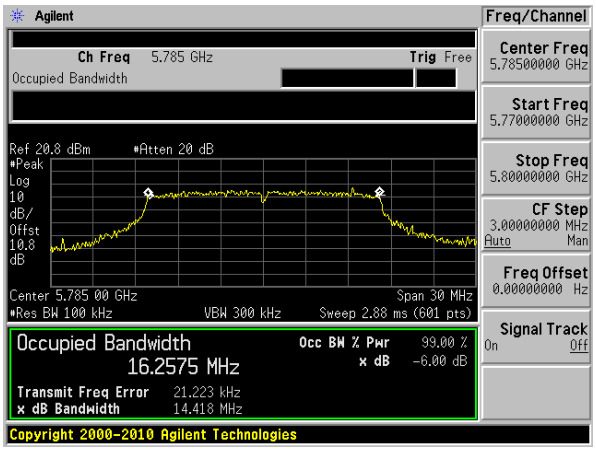
5725 – 5850 MHz

802.11a mode

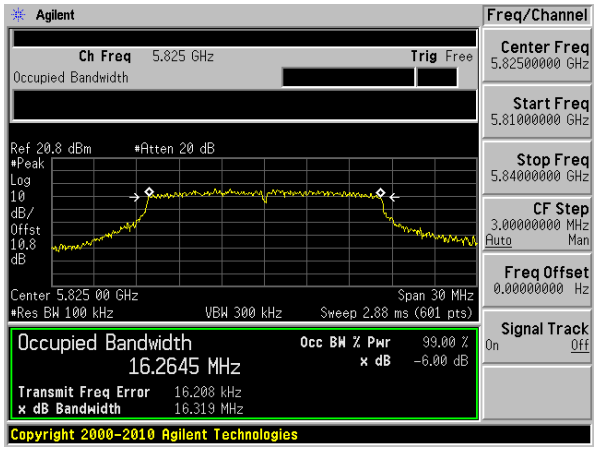
5745 MHz



5785 MHz

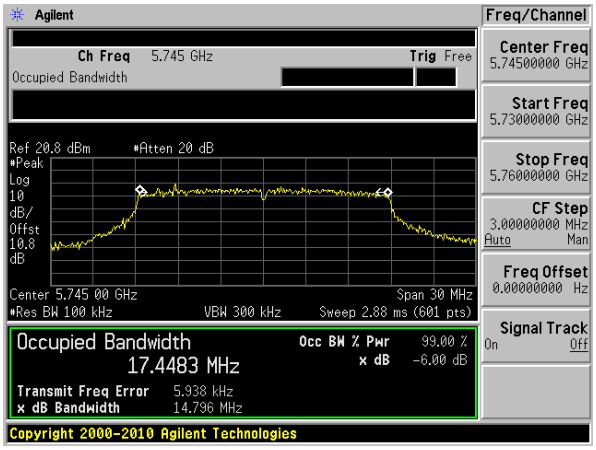


5825 MHz

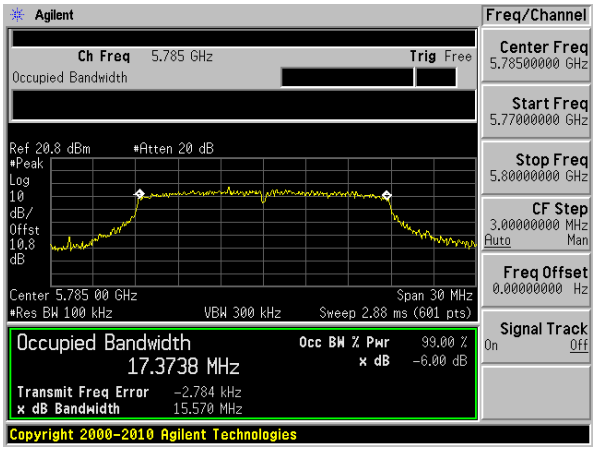


802.11n20 mode

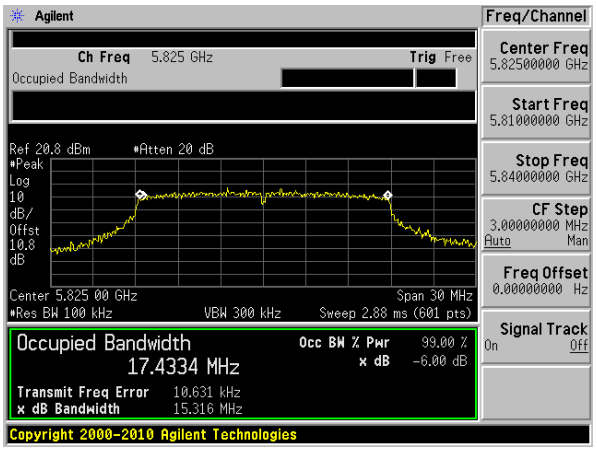
5745 MHz



5785 MHz

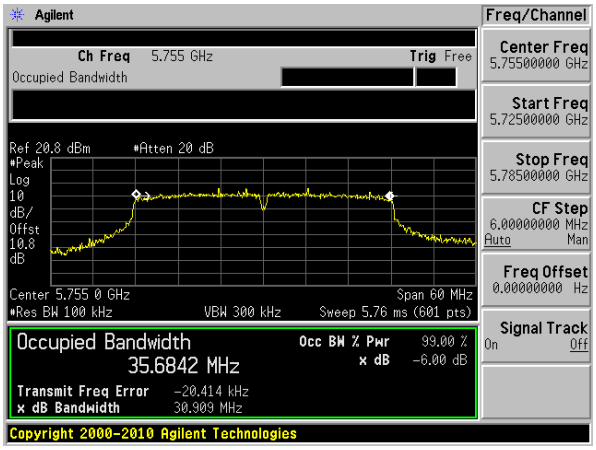


5825 MHz

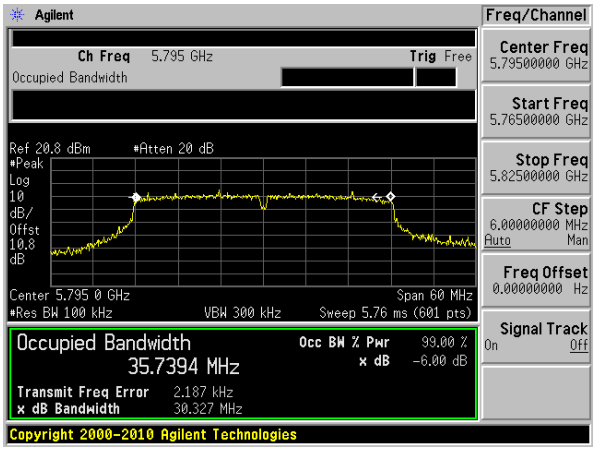


802.11n40 mode

5755 MHz

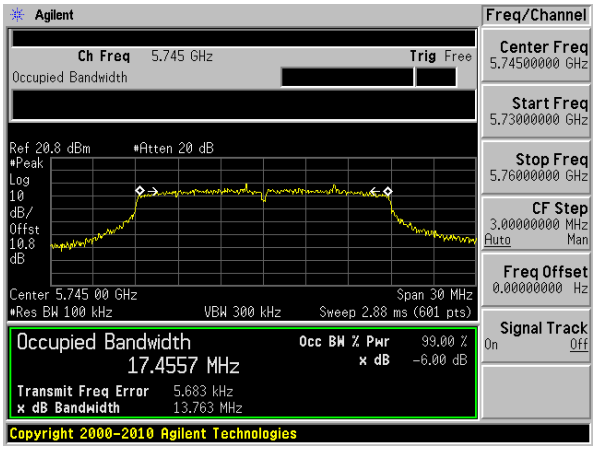


5795 MHz

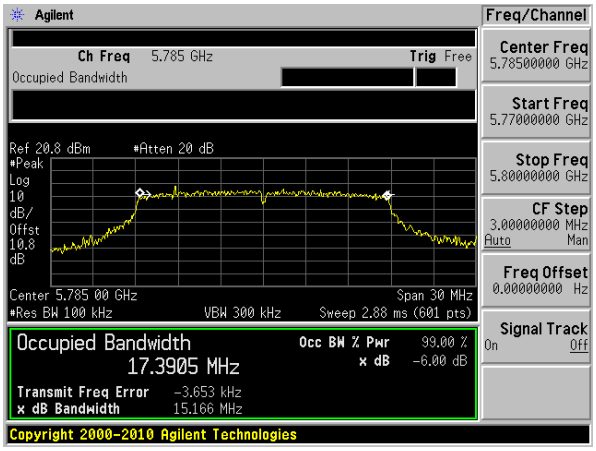


802.11ac20 mode

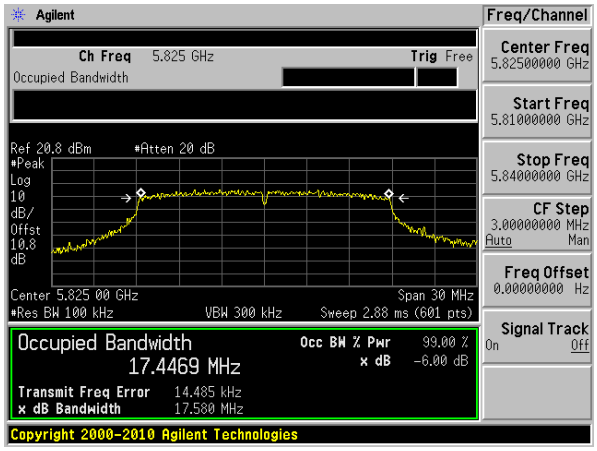
5745 MHz



5785 MHz

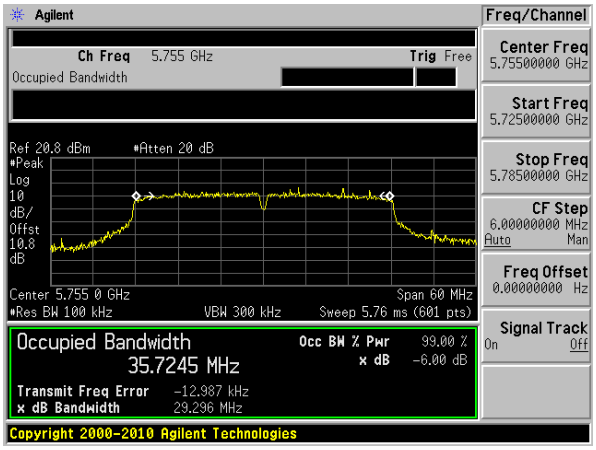


5825 MHz

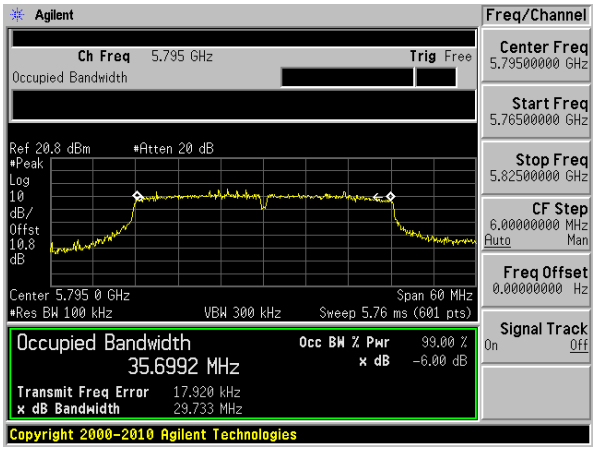


802.11ac40 mode

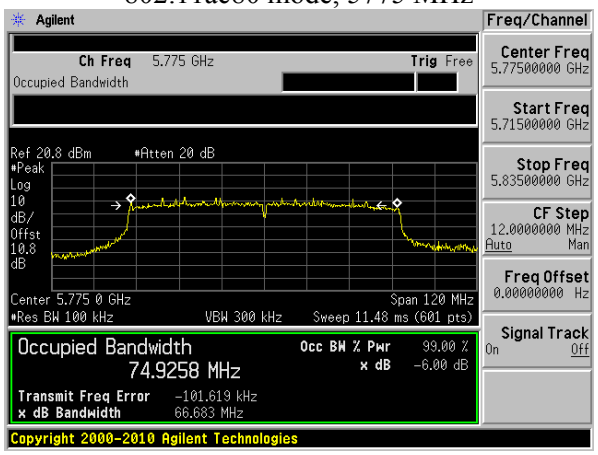
5755 MHz



5795 MHz



802.11ac80 mode, 5775 MHz



9 FCC §407(a) & ISED RSS-247 §6.2 - Output Power

9.1 Applicable Standards

According to FCC §15.407(a):

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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.

According to IC RSS-247 §6.2.1 for frequency band 5150-5250 MHz:

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

According to IC RSS-247 §6.2.2 for frequency band 5250-5350 MHz:

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

According to IC RSS-247 §6.2.3 for frequency band 5470-5600 MHz and 5650-5725 MHz:

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

According to IC RSS-247 §6.2.4 for frequency band 5725-5850 MHz:

The maximum conducted output power shall not exceed 1 W. The 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 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 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.

9.2 Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a power meter.

9.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
ETS- Lingerin	Power Sensor	7002-006	160097	2014-10-21	2 years
-	10dB attenuator	-	-	Each time[1]	N/A

Note[1]: cable and attenuator included in the test set-up will be checked each time before testing.
Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

9.4 Test Environmental Conditions

Test Date:	2016-07-31
Test Site:	RF Test Site
Temperature:	22° C
Relative Humidity:	42 %
Barometric Pressure:	102.7 kPa
Test Personnel:	Todd Moy

9.5 Test Results

5150 - 5250 MHz

FCC Results

Frequency (MHz)	Conducted Average Power (dBm)	FCC Limit (dBm)
802.11a mode		
5180	11.31	24
5200	11.36	24
5240	12.18	24
802.11n20 mode		
5180	11.18	24
5200	11.09	24
5240	11.99	24
802.11n40 mode		
5190	10.98	24
5230	11.82	24
802.11ac20 mode		
5180	11	24
5200	10.92	24
5240	11.94	24
802.11ac40 mode		
5190	10.92	24
5230	11.94	24
802.11ac80 mode		
5210	11.85	24

IC Results

Radio Mode	Frequency (MHz)	Conducted Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	IC Limit (dBm)
a	5180	11.31	3	14.31	23
	5200	11.36	3	14.36	23
	5240	12.18	3	15.18	23
n20	5180	11.18	3	14.18	23
	5200	11.09	3	14.09	23
	5240	11.99	3	14.99	23
n40	5190	10.98	3	13.98	23
	5230	11.82	3	14.82	23
ac20	5180	11.00	3	14.00	23
	5200	10.92	3	13.92	23
	5240	11.94	3	14.94	23
ac40	5190	10.92	3	13.92	23
	5230	11.94	3	14.94	23
ac80	5210	11.85	3	14.85	23

5250 - 5350 MHz

Frequency (MHz)	Conducted Average Power (dBm)	FCC Limit (dBm)	IC Limit (dBm)
802.11a mode			
5260	12.21	24	23
5280	12.41	24	23
5320	11.94	24	23
802.11n20 mode			
5260	11.94	24	23
5280	12.20	24	23
5320	11.77	24	23
802.11n40 mode			
5270	11.83	24	23
5310	11.57	24	23
802.11ac20 mode			
5260	11.91	24	23
5280	12.09	24	23
5320	11.51	24	23
802.11ac40 mode			
5270	11.70	24	23
5310	11.50	24	23
802.11ac80 mode			
5290	11.65	24	23

5470 - 5725 MHz

Frequency (MHz)	Conducted Average Power (dBm)	FCC Limit (dBm)	IC Limit (dBm)
802.11a mode			
5500	11.27	24	24
5580	11.99	24	24
5700	12.76	24	24
5720	12.46	24	24
802.11n20 mode			
5500	11.00	24	24
5580	11.69	24	24
5700	12.63	24	24
5720	12.23	24	24
802.11n40 mode			
5510	10.91	24	24
5550	11.38	24	24
5670	11.72	24	24
5710	12.69	24	24
802.11ac20 mode			
5500	10.82	24	24
5580	11.62	24	24
5700	12.72	24	24
5720	12.33	24	24
802.11ac40 mode			
5510	10.68	24	24
5550	11.39	24	24
5670	11.71	24	24
5710	12.67	24	24
802.11ac80 mode			
5530	10.93	24	24
5610	12.05	24	24
5690	12.59	24	24

5725 - 5850 MHz

Frequency (MHz)	Conducted Average Power (dBm)	FCC Limit (dBm)	IC Limit (dBm)
802.11a mode			
5745	12.49	30	30
5785	11.98	30	30
5825	12.02	30	30
802.11n20 mode			
5745	12.33	30	30
5785	11.70	30	30
5825	11.69	30	30
802.11n40 mode			
5755	12.02	30	30
5795	11.89	30	30
802.11ac20 mode			
5745	12.26	30	30
5785	11.71	30	30
5825	11.69	30	30
802.11ac40 mode			
5755	12.04	30	30
5795	11.86	30	30
802.11ac80 mode			
5775	11.60	30	30

Note: Duty cycle correction factor has already been added to the measurements.

10 FCC §15.407(a) & ISED RSS-247 §6.2 - Power Spectral Density

10.1 Applicable Standards

According to FCC §15.407(a):

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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.

According to IC RSS-247 §6.2.1 for frequency band 5150-5250 MHz:

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

According to IC RSS-247 §6.2.2 for frequency band 5250-5350 MHz:

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

According to IC RSS-247 §6.2.3 for frequency band 5470-5600 MHz and 5650-5725 MHz:

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

According to IC RSS-247 §6.2.4 for frequency band 5725-5850 MHz:

The maximum conducted output power shall not exceed 1 W. The 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 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 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.

10.2 Measurement Procedure

(i) Set span to encompass the entire emission bandwidth (EBW) of the signal.
(ii) Set RBW = 1 MHz.
(iii) Set VBW ≥ 3 MHz.
(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
(v) Sweep time = auto.
(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
(ix) Compute power by integrating the spectrum across the 26 dB EBW of the signal using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges. If the spectrum analyzer does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW of the spectrum.

10.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Analyzer, Spectrum	E4446A	US44300386	2015-10-22	1 year
Rohde & Schwarz	Signal Analyzer	FSQ26	200749	2016-03-24	1year
-	10dB attenuator	-	-	Each time[1]	N/A

Note[1]: cable and attenuator included in the test set-up will be checked each time before testing.
Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

10.4 Test Environmental Conditions

Test Date:	2016-07-31
Test Site:	RF Test Site
Temperature:	22-24° C
Relative Humidity:	40-41 %
Barometric Pressure:	103.1-104.1 kPa
Test Personnel:	Frank Wang

10.5 Test Results

5150 – 5250 MHz

FCC Results:

Frequency (MHz)	Measured PSD (dBm/MHz)	Corrected PSD (dBm/MHz)	FCC Limit (dBm/MHz)
802.11a mode			
5180	-0.655	-0.407	11
5200	-0.679	-0.431	11
5240	-2.182	-1.934	11
802.11n20 mode			
5180	-1.025	-0.827	11
5200	-1.077	-0.879	11
5240	-0.172	0.026	11
802.11n40 mode			
5190	-6.381	-6.033	11
5230	-3.188	-2.840	11
802.11ac20 mode			
5180	-3.050	-2.829	11
5200	-3.091	-2.871	11
5240	-2.274	-2.054	11
802.11ac40 mode			
5190	-6.193	-5.845	11
5230	-2.939	-2.591	11
802.11ac80 mode			
5210	-7.074	-6.313	11

IC Results:

Frequency (MHz)	PSD (dBm/MHz)	Corrected PSD (dBm/MHz)	EIRP PSD (dBm/MHz)	IC Limit (dBm/MHz)
802.11a mode				
5180	-0.655	-0.407	2.593	10
5200	-0.679	-0.431	2.569	10
5240	-2.182	-1.934	1.066	10
802.11n20 mode				
5180	-1.025	-0.827	2.173	10
5200	-1.077	-0.879	2.121	10
5240	-0.172	0.026	3.026	10
802.11n40 mode				
5190	-6.381	-6.033	-3.033	10
5230	-3.188	-2.840	0.16	10
802.11ac20 mode				
5180	-3.050	-2.829	0.171	10
5200	-3.091	-2.871	0.129	10
5240	-2.274	-2.054	3.36	10
802.11ac40 mode				
5190	-6.193	-6.193	-3.193	10
5230	-2.939	-2.939	0.061	10
802.11ac80 mode				
5210	-7.074	-6.313	-3.313	10

5250 – 5350 MHz

Frequency (MHz)	Measured PSD (dBm/MHz)	Corrected PSD (dBm/MHz)	FCC/IC Limit (dBm/MHz)
802.11a mode			
5260	-2.2	-1.952	11
5280	0.354	0.602	11
5320	-2.14	-1.892	11
802.11n20 mode			
5260	-2.350	-2.152	11
5280	-2.236	-2.038	11
5320	-0.204	-0.006	11
802.11n40 mode			
5270	-5.719	-5.371	11
5310	-5.939	-5.591	11
802.11ac20 mode			
5260	-0.060	0.161	11
5280	0.208	0.429	11
5320	-2.655	-2.435	11
802.11ac40 mode			
5270	-5.966	-5.618	11
5310	-3.849	-3.501	11
802.11ac80 mode			
5290	-9.428	-8.667	11

5470 – 5725 MHz

Frequency (MHz)	Measured PSD (dBm/MHz)	Corrected PSD (dBm/MHz)	FCC/IC Limit (dBm/MHz)
802.11a mode			
5500	-0.741	-0.493	11
5580	-0.179	0.069	11
5700	0.428	0.676	11
5720	0.776	1.024	11
802.11n20 mode			
5500	-2.658	-2.460	11
5580	-0.873	-0.675	11
5700	-0.100	0.098	11
5720	0.28	0.478	11
802.11n40 mode			
5510	-6.171	-5.823	11
5550	-4.073	-3.725	11
5670	-4.866	-4.518	11
5710	-3.078	-2.730	11
802.11ac20 mode			
5500	-1.293	-1.073	11
5580	-0.487	-0.267	11
5700	0.475	0.696	11
5720	0.396	0.617	11
802.11ac40 mode			
5510	-6.059	-5.711	11
5550	-5.284	-4.936	11
5670	-4.370	-4.022	11
5710	-3.677	-3.329	11
802.11ac80 mode			
5530	-7.728	-6.967	11
5610*	-7.088	-6.327	11
5690	-7.469	-6.708	11

5725 - 5850 MHz

Frequency (MHz)	Measured PSD (dBm/500 kHz)	Correct PSD (dBm/500 kHz)	FCC/IC Limit (dBm/500 kHz)
802.11a mode			
5745	-8.777	-1.539	30
5785	-10.001	-2.763	30
5825	-10.243	-3.005	30
802.11n20 mode			
5745	-9.240	-2.052	30
5785	-10.373	-3.185	30
5825	-10.426	-3.238	30
802.11n40 mode			
5755	-13.026	-5.689	30
5795	-13.519	-6.182	30
802.11ac20 mode			
5745	-9.365	-2.155	30
5785	-10.290	-3.080	30
5825	-10.675	-3.465	30
802.11ac40 mode			
5755	-13.018	-5.681	30
5795	-13.570	-6.233	30
802.11ac80 mode			
5775	-16.568	-8.817	30

Corrected PSD (dBm/MHz) = PSD (dBm/MHz) + Duty Cycle Correction (dB)

Note: For the 5725-5850 MHz band, the Corrected PSD (dBm/500 kHz) is equal to:

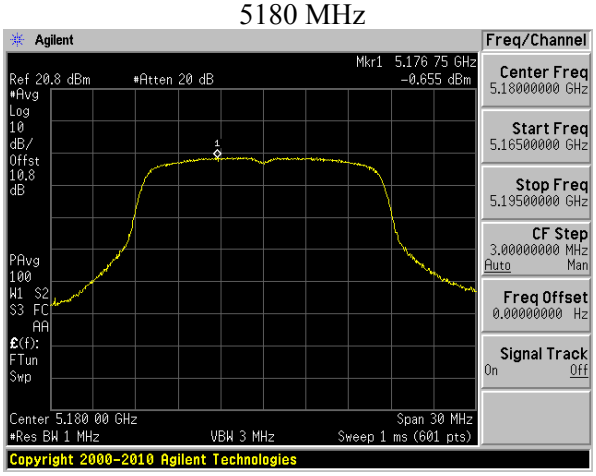
Correct PSD (dBm/500 kHz) = PSD (dBm/100 kHz) + Duty Cycle Correction (dB) + 10*log(500 kHz/100 kHz)

Please refer to the following plots.

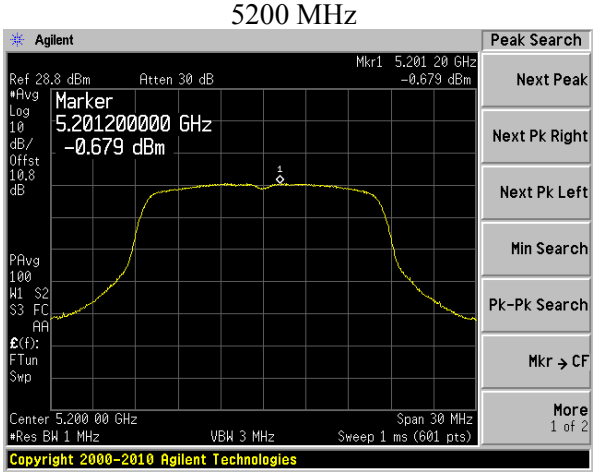
5150 – 5250 MHz

802.11a mode

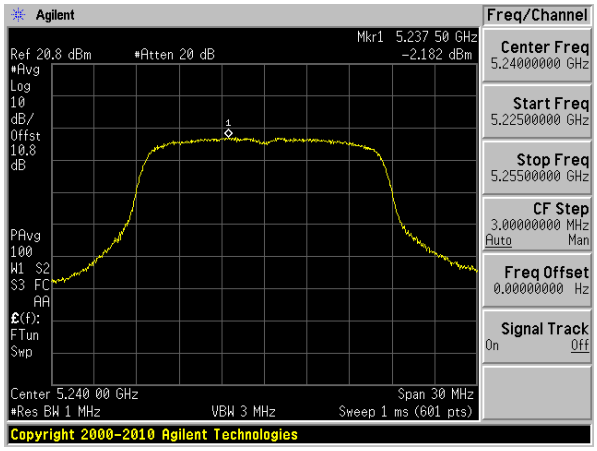
5180 MHz



5200 MHz

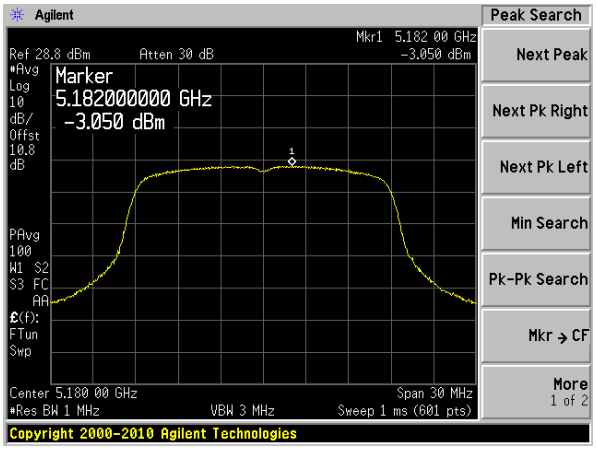


5240 MHz

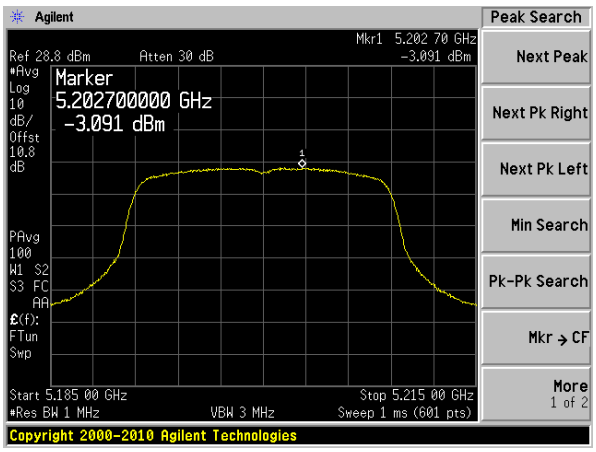


802.11n20 mode

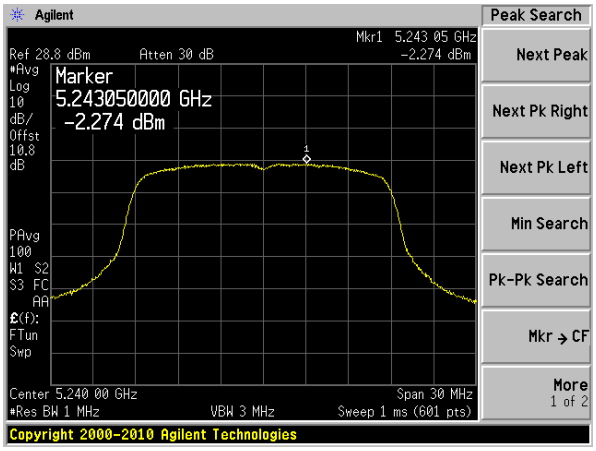
5180 MHz



5200 MHz

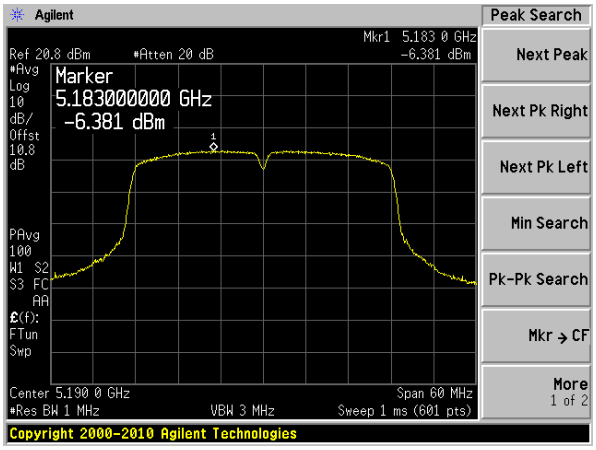


5240 MHz

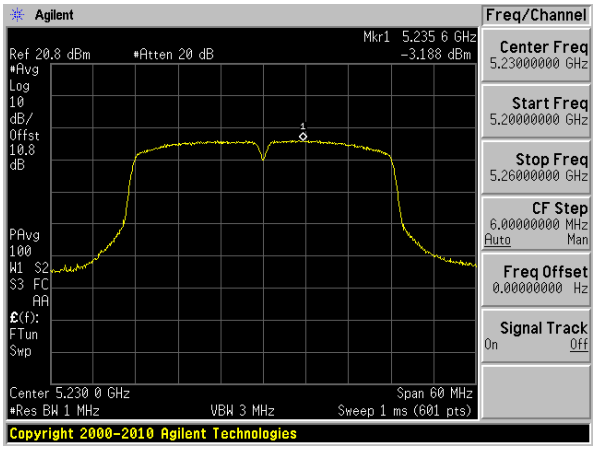


802.11n40 mode

5190 MHz

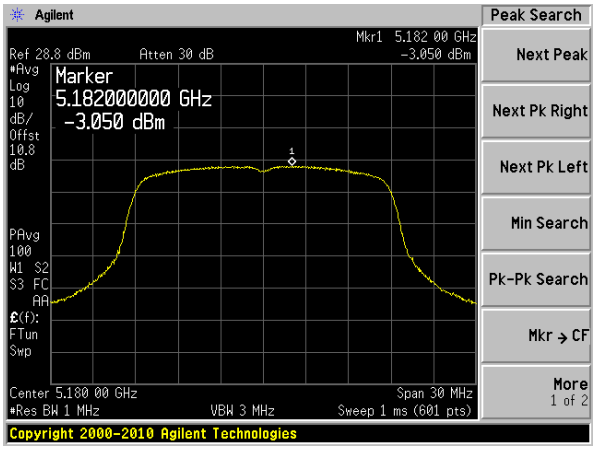


5230 MHz

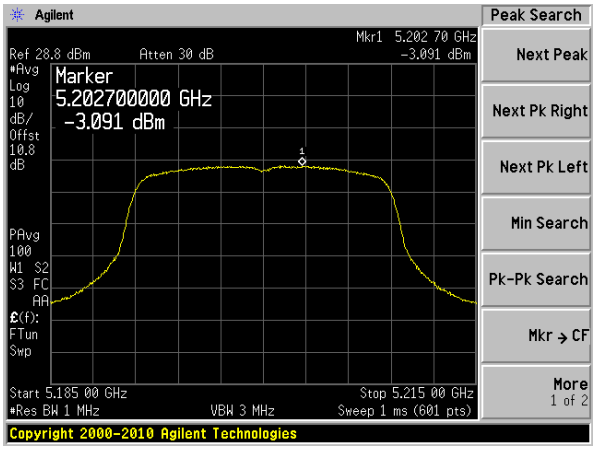


802.11ac20 mode

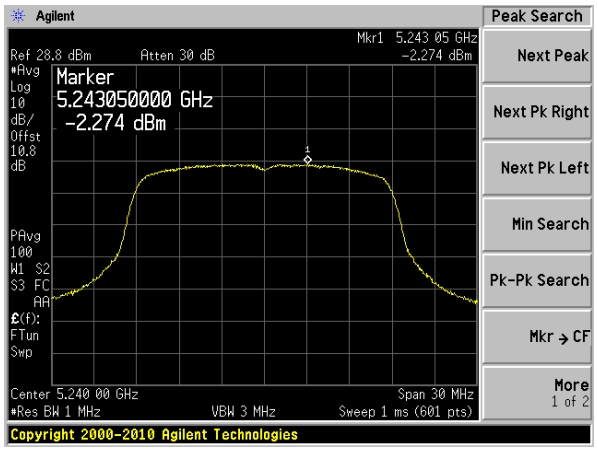
5180 MHz



5200 MHz

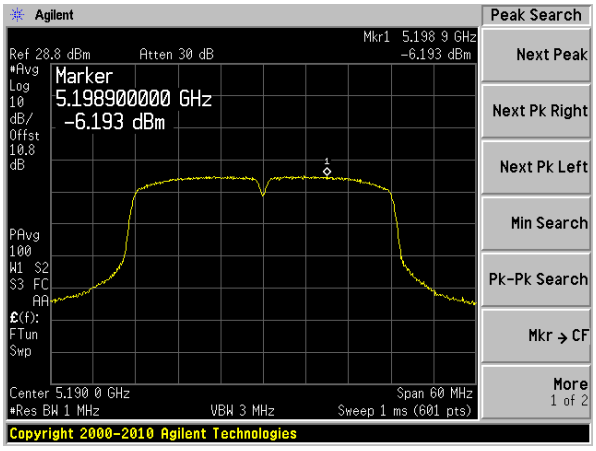


5240 MHz

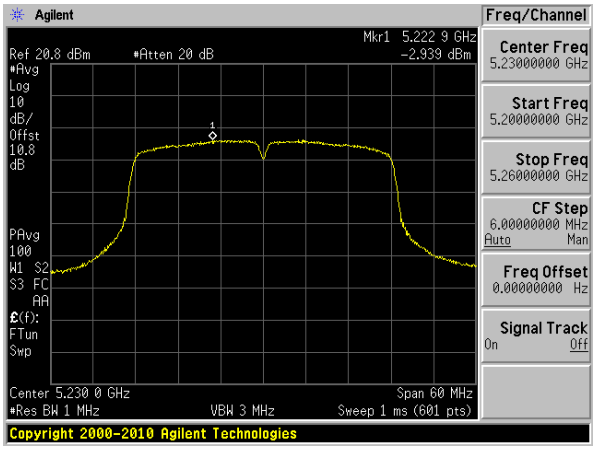


802.11ac40 mode

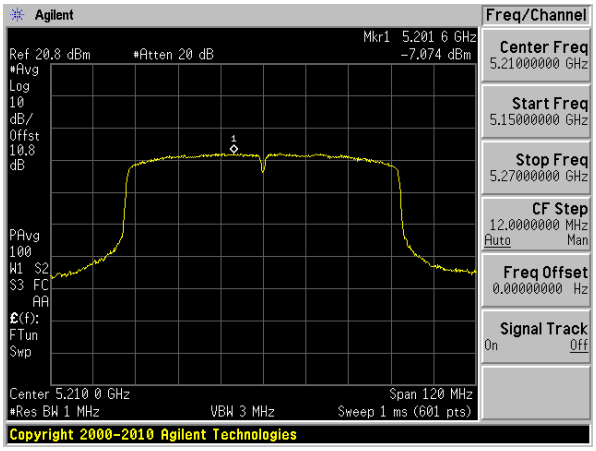
5190 MHz



5230 MHz



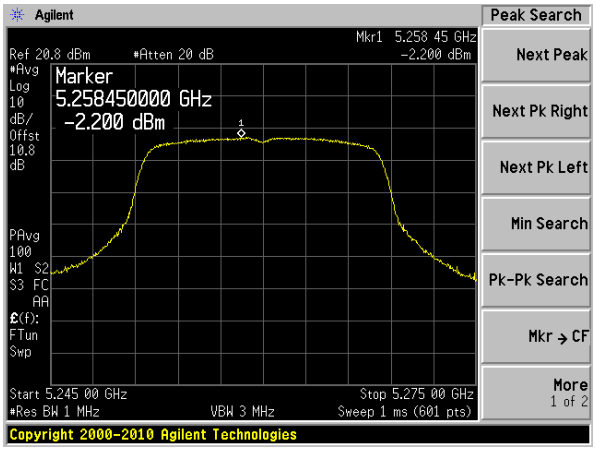
802.11ac80 mode, 5210 MHz



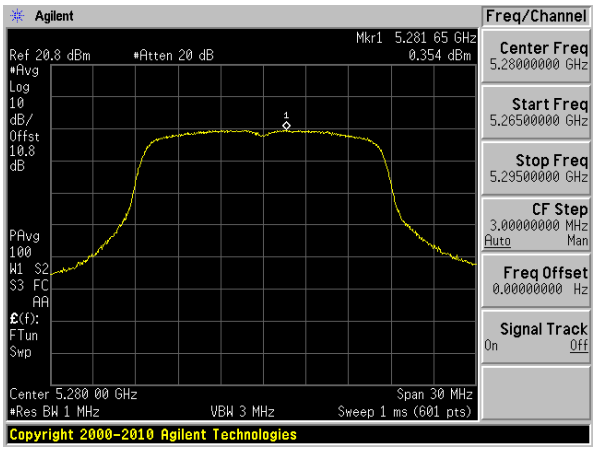
5250 – 5350 MHz

802.11a mode

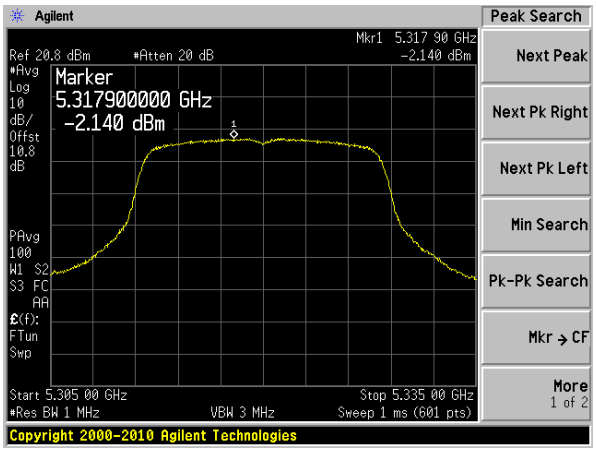
5260 MHz



5280 MHz

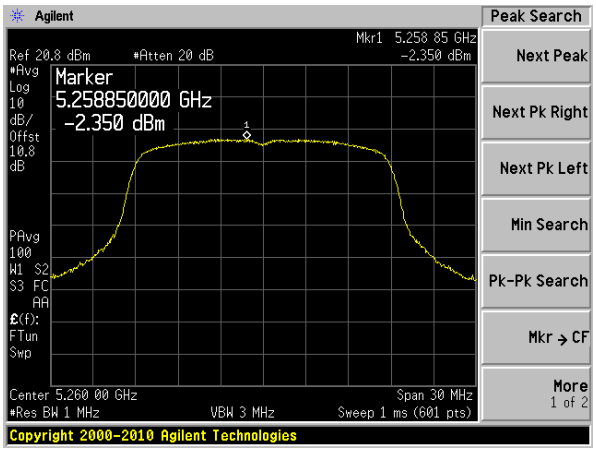


5320 MHz

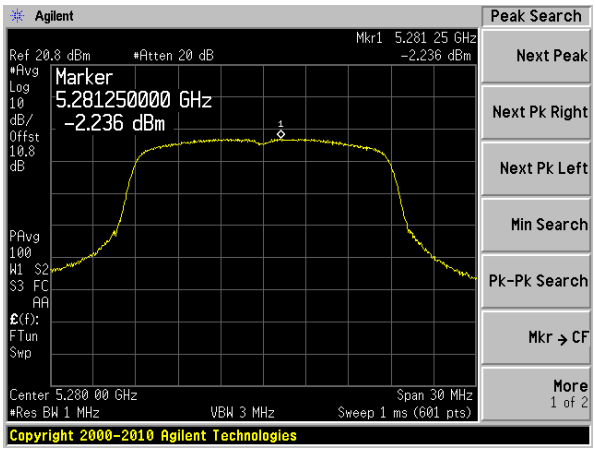


802.11n20 mode

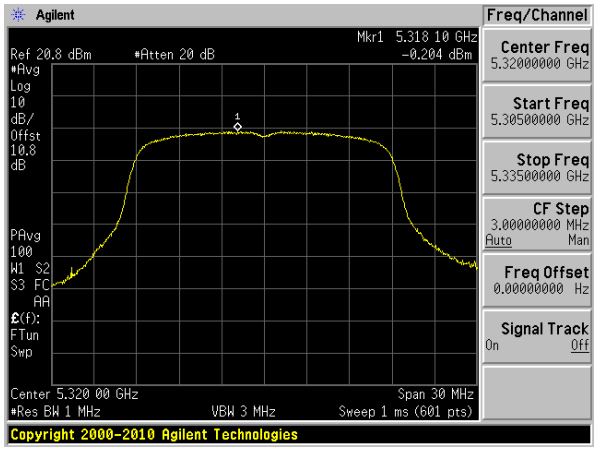
5260 MHz



5280 MHz

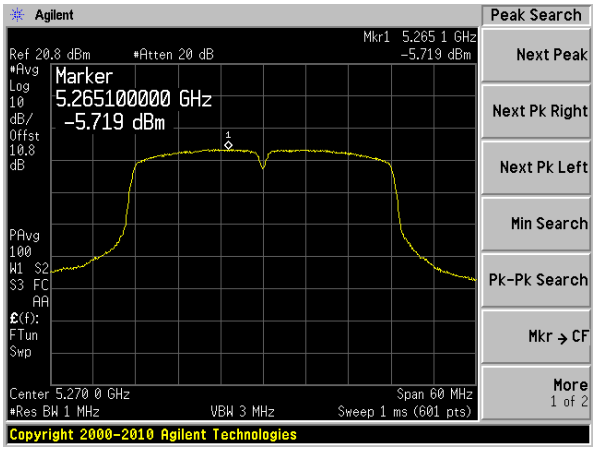


5320 MHz

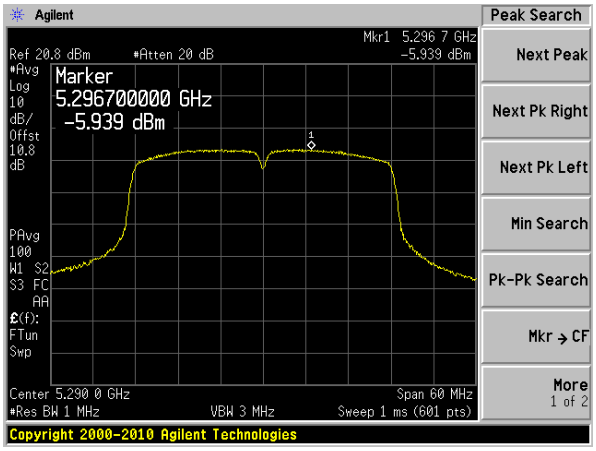


802.11n40 mode

5270 MHz

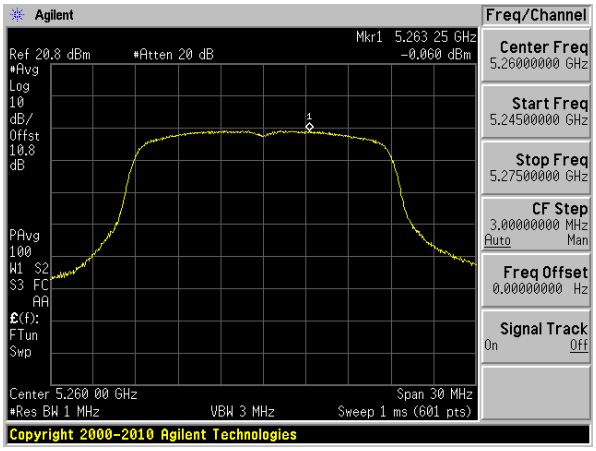


5310 MHz

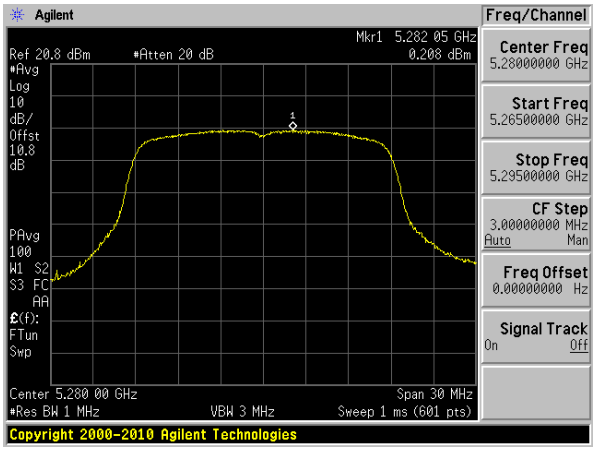


802.11ac20 mode

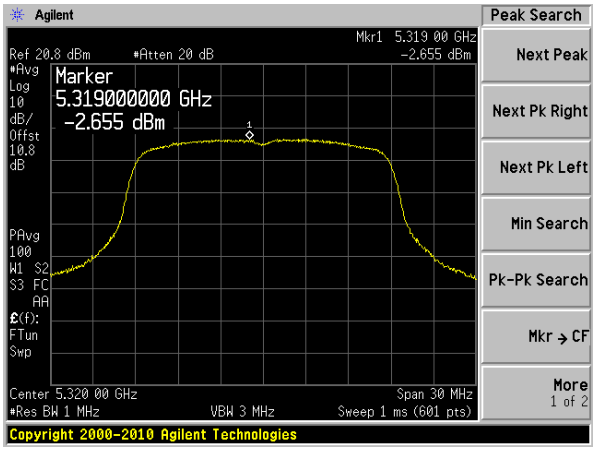
5260 MHz



5280 MHz

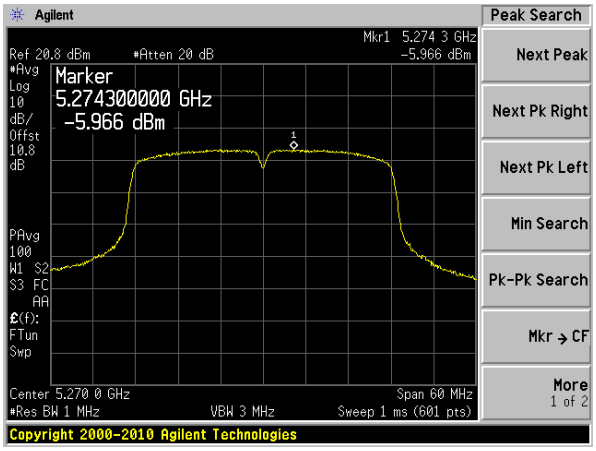


5320 MHz

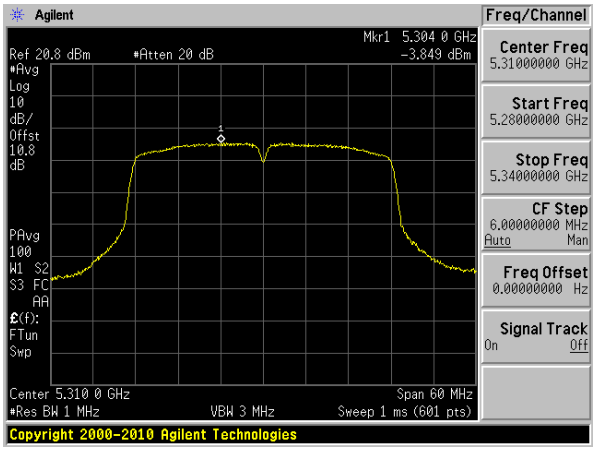


802.11ac40 mode

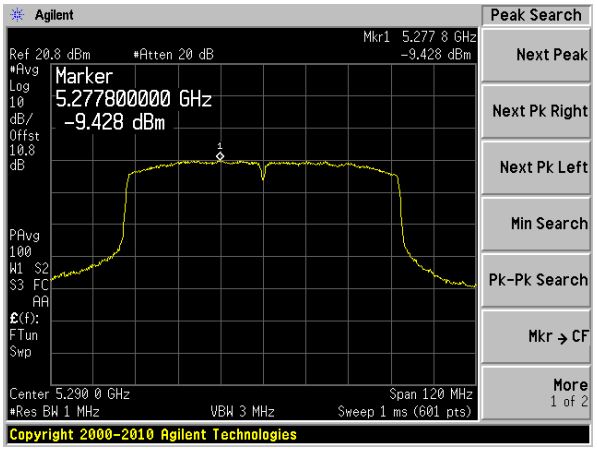
5270 MHz



5310 MHz



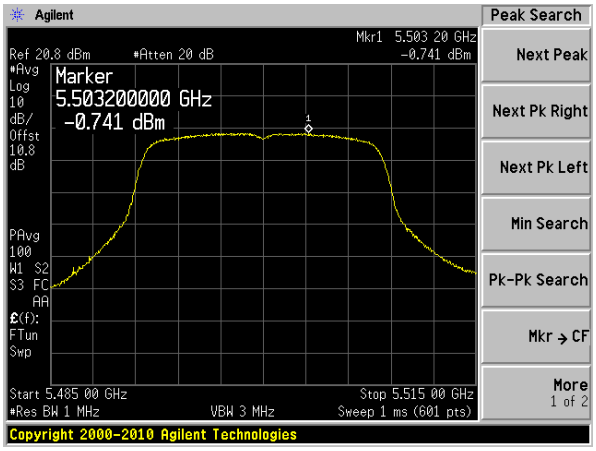
802.11ac80 mode, 5290 MHz



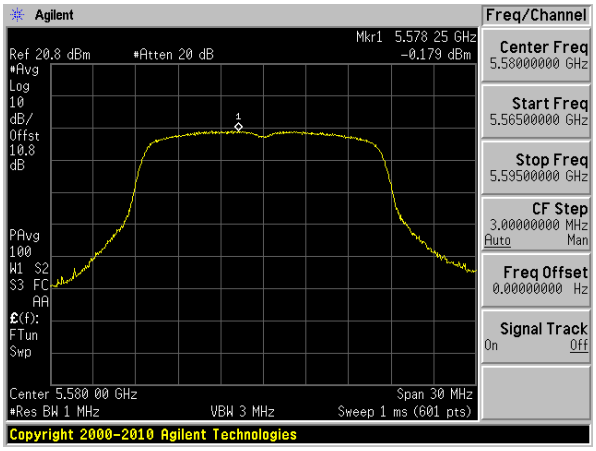
5470 – 5725 MHz

802.11a mode

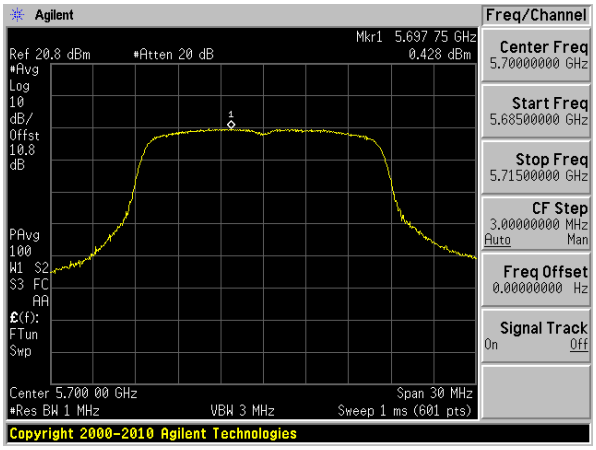
5500 MHz



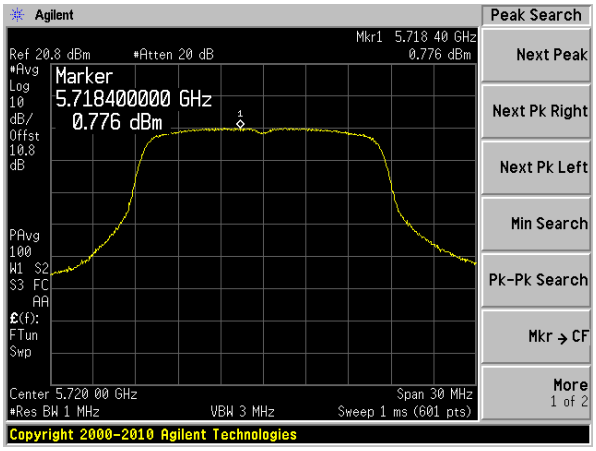
5580 MHz



5700 MHz

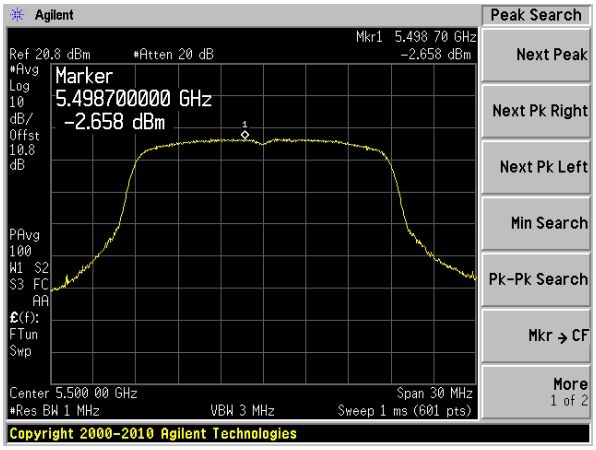


5720 MHz

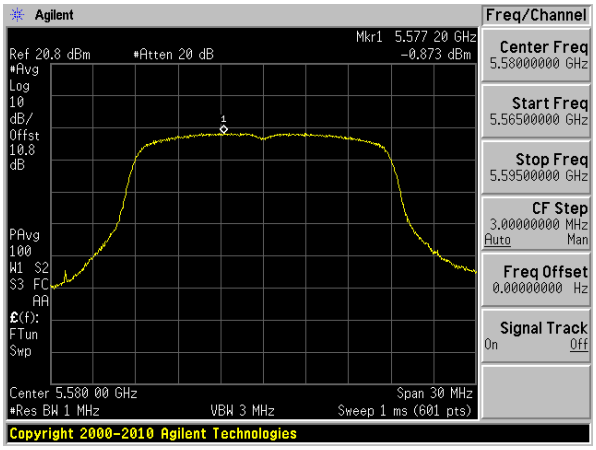


802.11n20 mode

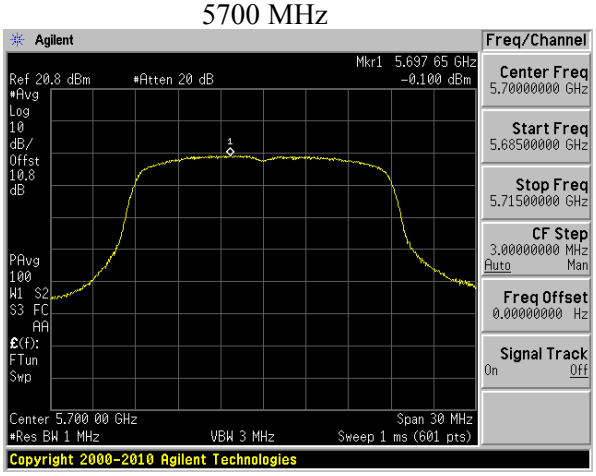
5500 MHz



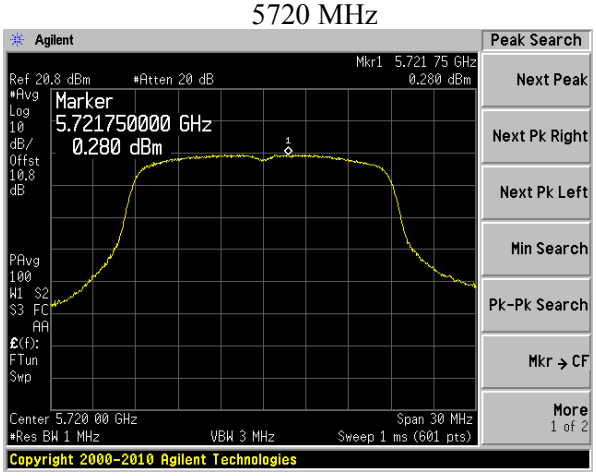
5580 MHz



5700 MHz

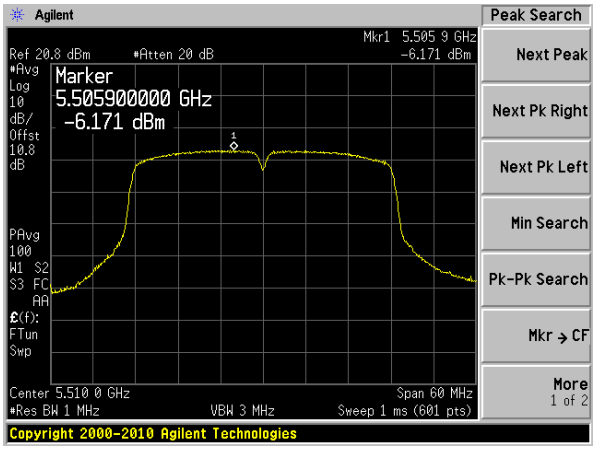


5720 MHz

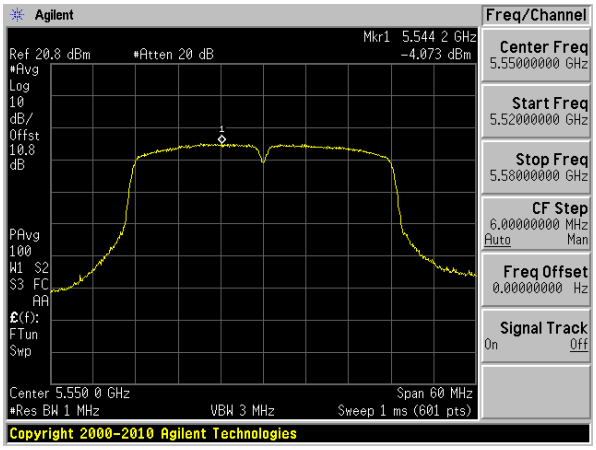


802.11n40 mode

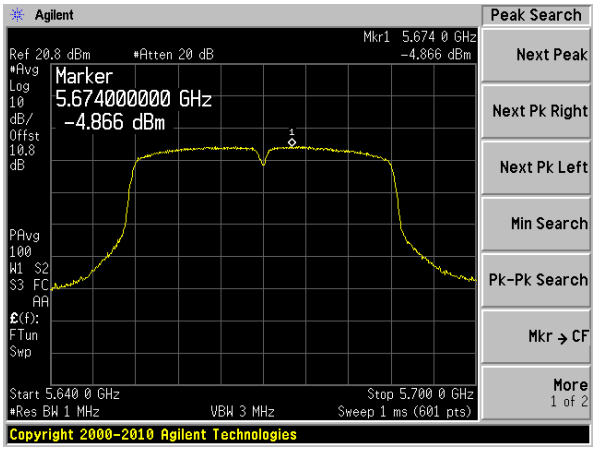
5510 MHz



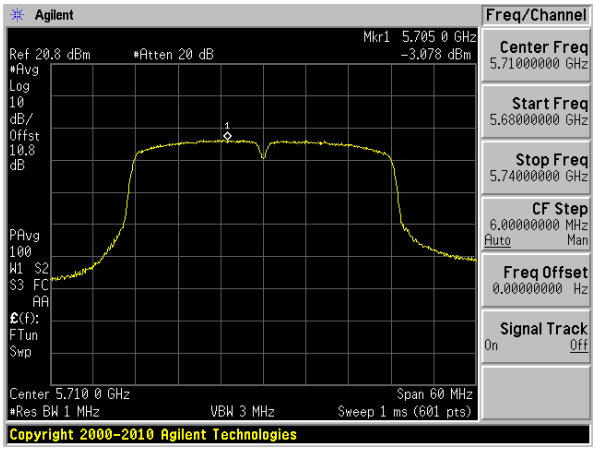
5550 MHz



5670 MHz

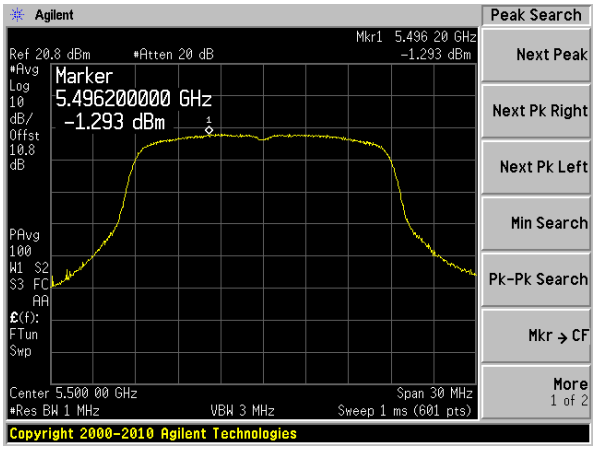


5710 MHz

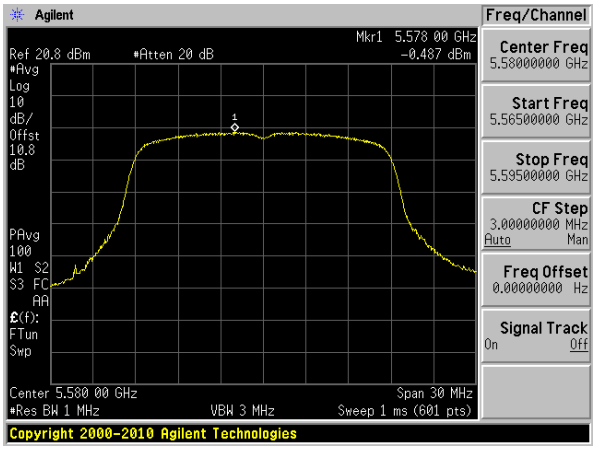


802.11ac20 mode

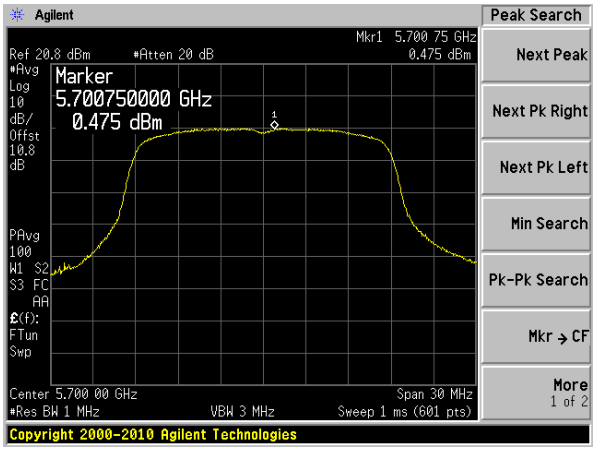
5500 MHz



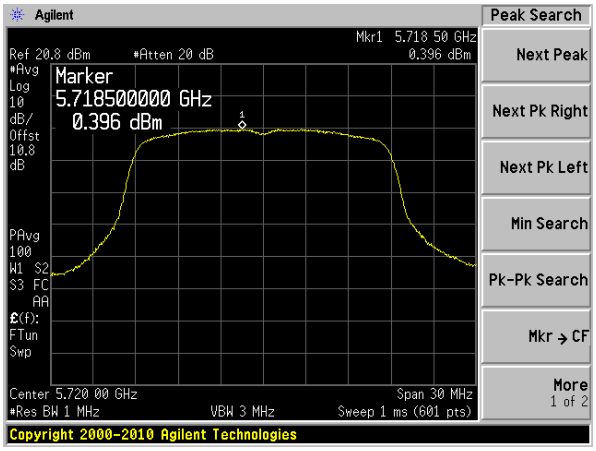
5580 MHz



5700 MHz

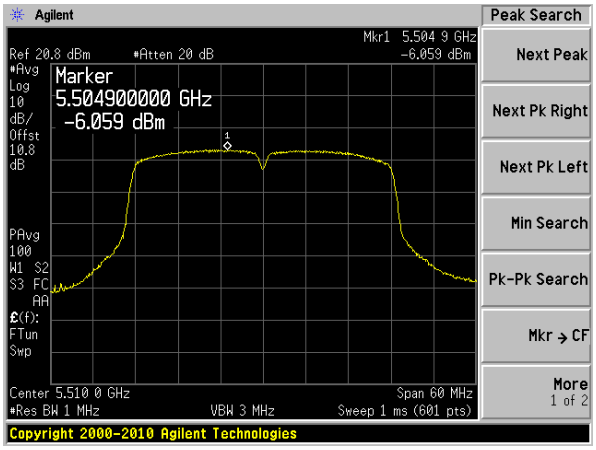


5720 MHz

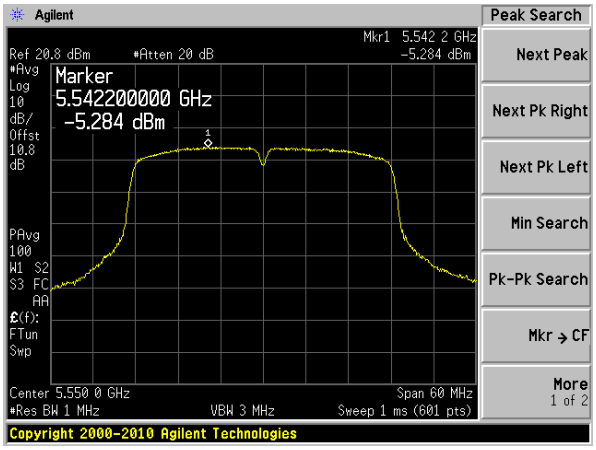


802.11ac40 mode

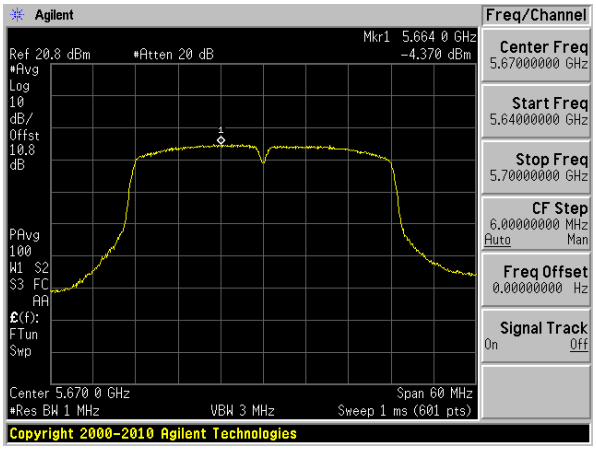
5510 MHz



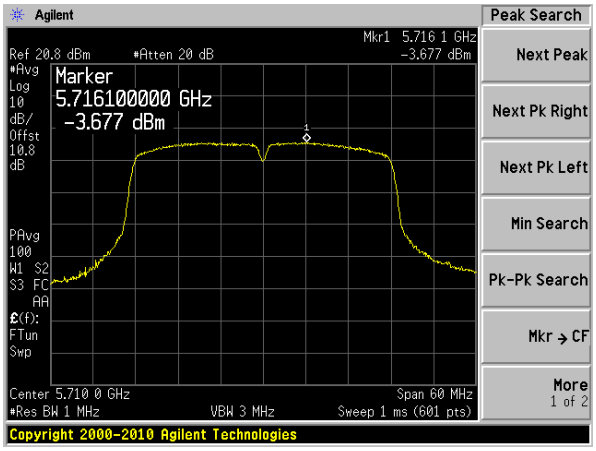
5550 MHz



5670 MHz

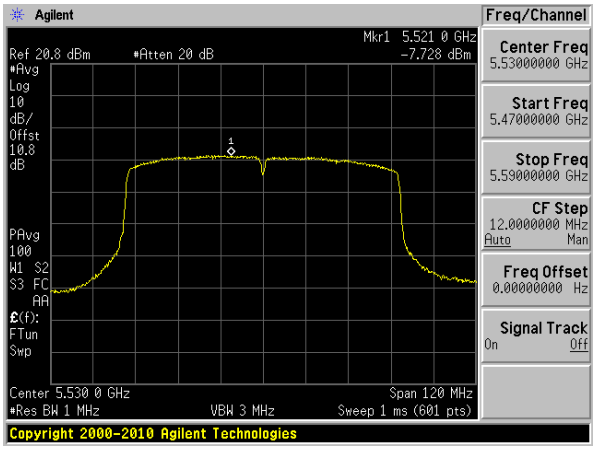


5710 MHz

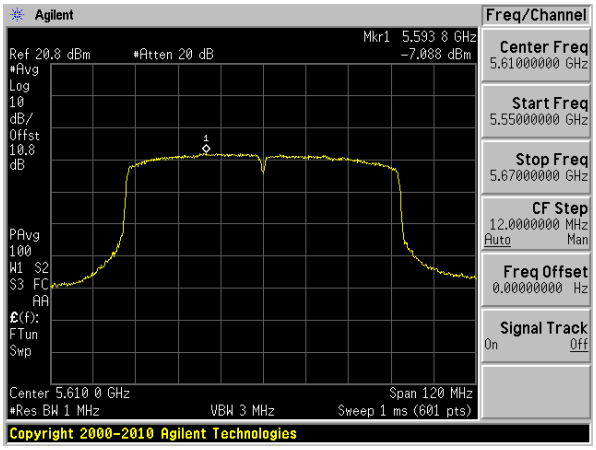


802.11ac80 mode

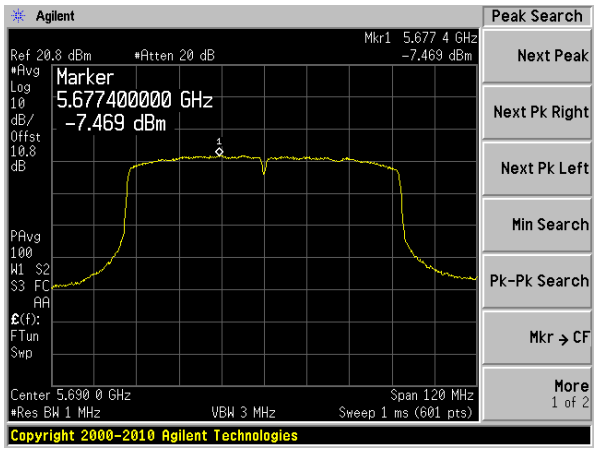
5530 MHz



5610 MHz



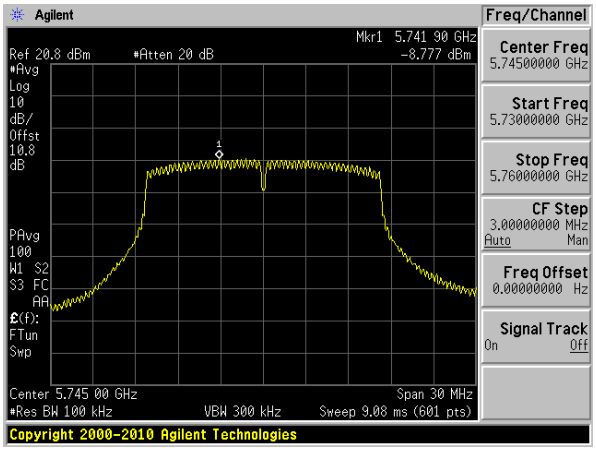
5690 MHz



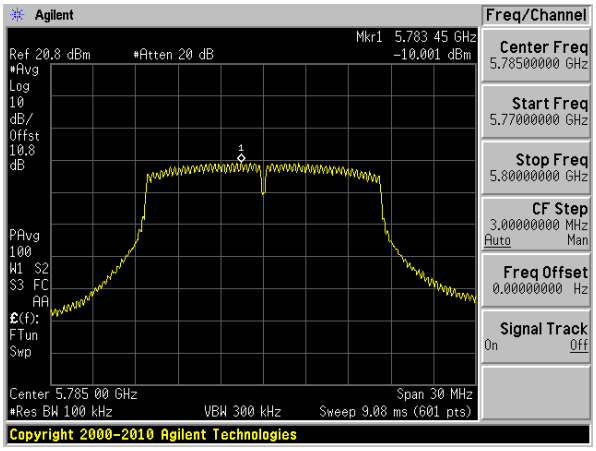
5725 – 5850 MHz

802.11a mode

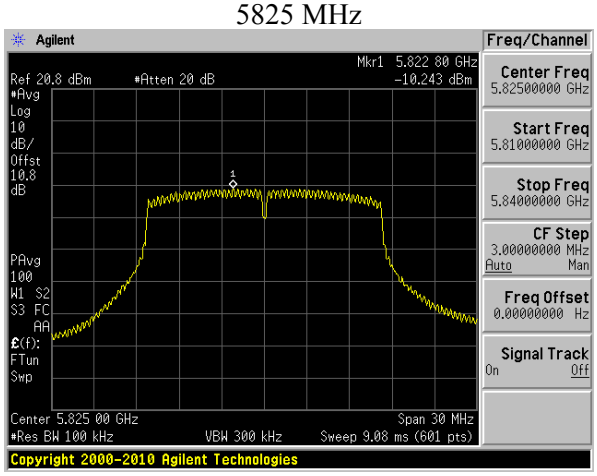
5745 MHz



5785 MHz

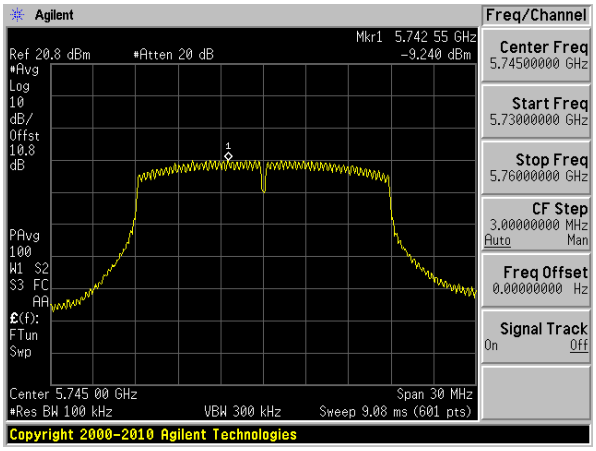


5825 MHz

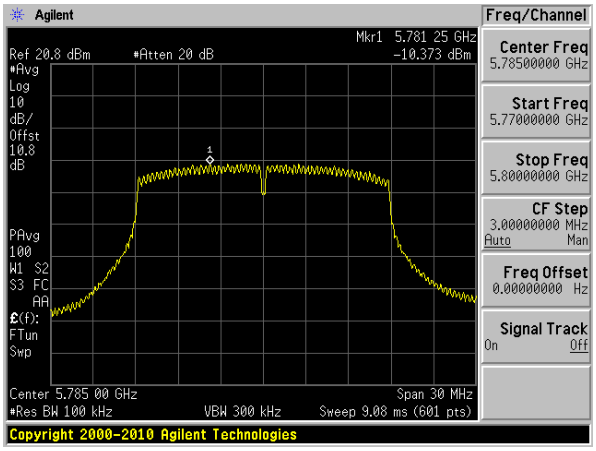


802.11n20 mode

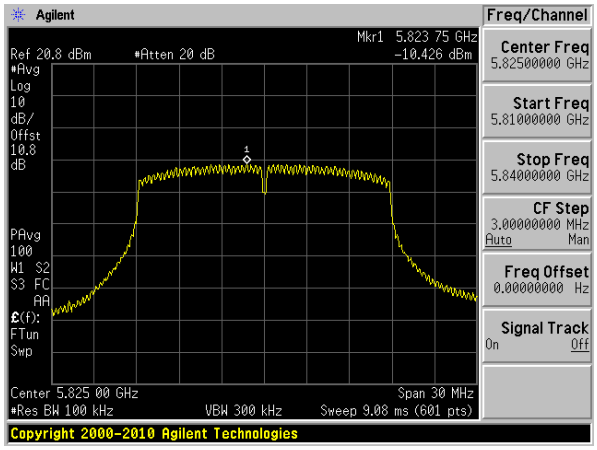
5745 MHz



5785 MHz

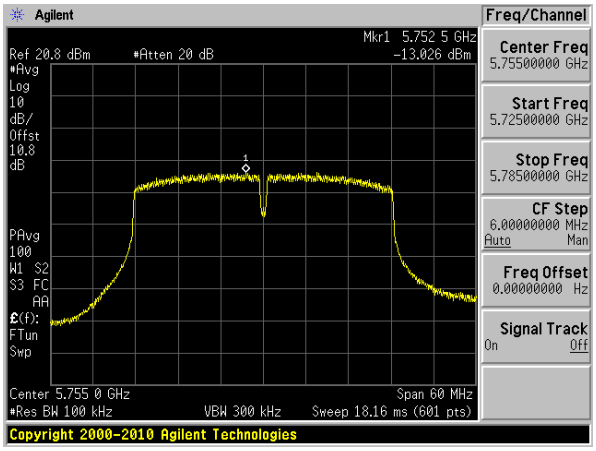


5825 MHz

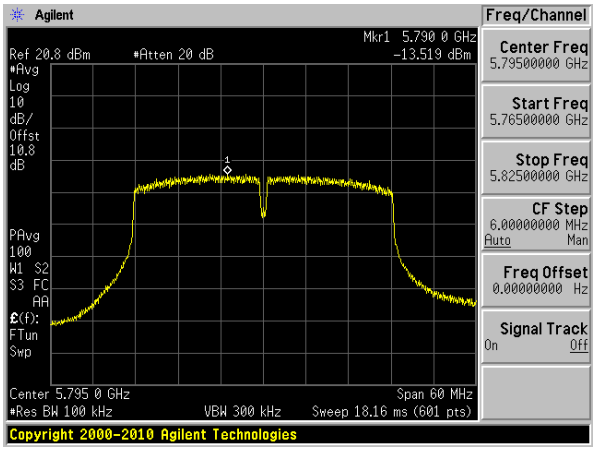


802.11n40 mode

5755 MHz

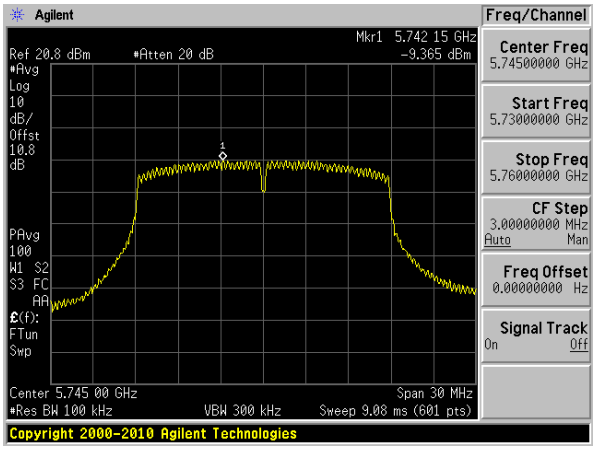


5795 MHz

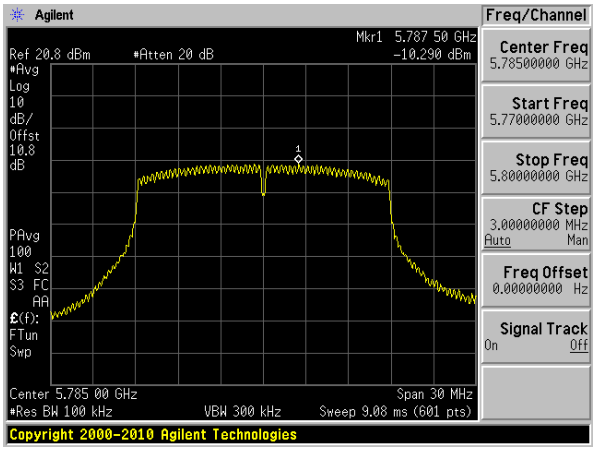


802.11ac20 mode

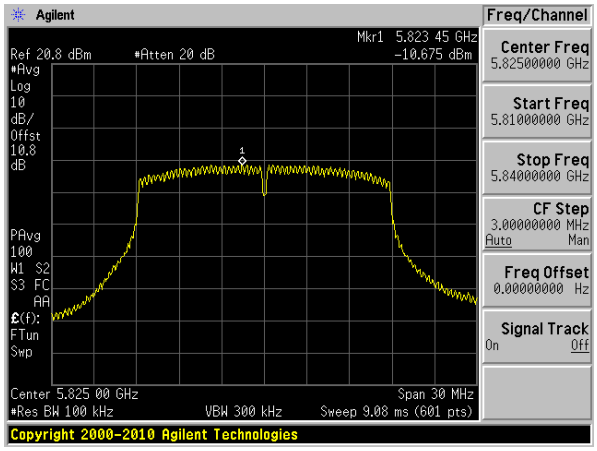
5745 MHz



5785 MHz

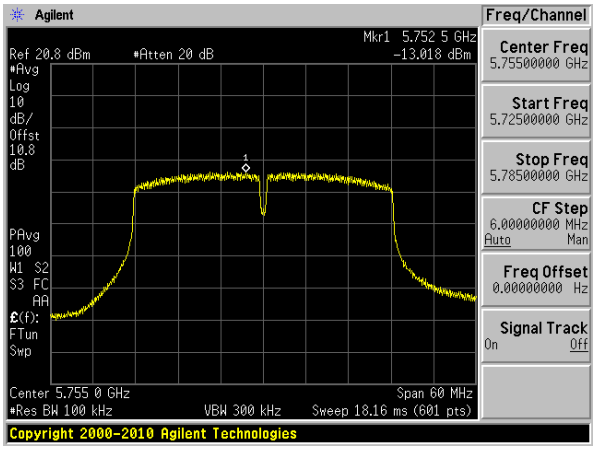


5825 MHz

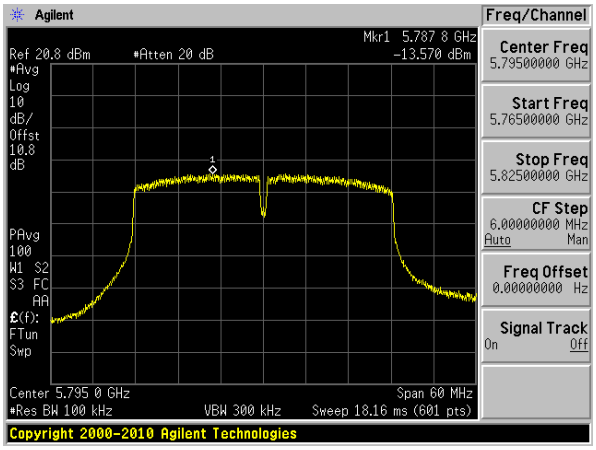


802.11ac40 mode

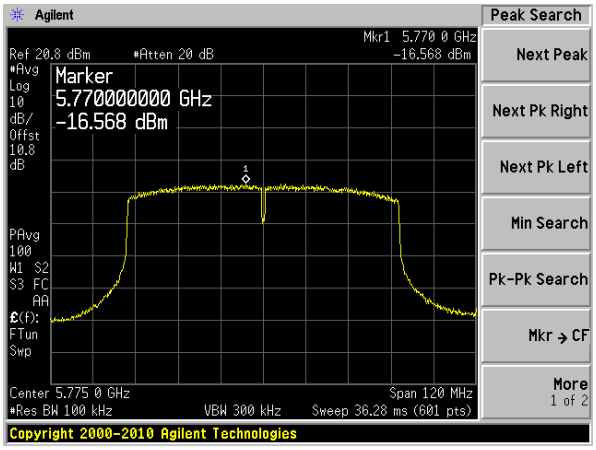
5755 MHz



5795 MHz



802.11ac80 mode, 5775 MHz



11 §15.407(b) & ISED RSS-247 §6.2 - Out of Band Emissions

11.1 Applicable Standards

As per FCC Part 15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(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.

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

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

According to IC RSS-247 §6.2.1 for devices operatinging in the frequency band 5150-5250 MHz:

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz.

According to IC RSS-247 §6.2.2 for devices operatinging in the frequency band 5250-5350 MHz:

For devices with both operating frequencies and channel bandwidths contained within the band 5250-5350 MHz, the device shall comply with the following:

1. All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. if the equipment is intended for outdoor use; or
2. All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and any emissions within the band 5150-5250 MHz shall meet the power spectral density limits of Section 6.2.1. The device shall be labelled "for indoor use only."

For devices with operating frequencies in the band 5250-5350 MHz but having a channel bandwidth that overlaps the band 5150-5250 MHz, the devices' unwanted emission shall not exceed -27 dBm/MHz e.i.r.p. outside the band 5150-5350 MHz and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device shall be labelled "for indoor use only."

According to IC RSS-247 §6.2.3 for devices operatinging in the frequency band 5470-5600 MHz and 5650-5725 MHz. Emissions outside the band 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

According to IC RSS-247 §6.2.4 for devices operatinging in the frequency band 5725-5850 MHz:
For the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p.
For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz.

11.2 Measurement Procedure

Add a correction factor (antenna gain+ Attenuator loss+cable loss) to the offset of the spectrum analyzer.
Integration Method

1. For peak emissions measurements, follow the procedures described in section H)5), "Procedures for Peak Unwanted Emissions Measurements above 1000 MHz", except for the following changes:

- Set RBW = 100 kHz
- Set VBW = 3RBW
- Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured. CAUTION: You must ensure that the spectrum analyzer or EMI receiver is set for peak-detection and max-hold for this measurement.

2. For average emissions measurements, follow the procedures described in section H)6), "Procedures for Average Unwanted Emissions Measurements above 1000 MHz", except for the following changes:

- Set RBW = 100 kHz
- Set VBW = 3RBW
- Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured.

11.3 Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Interval
Agilent	Analyzer, Spectrum	E4446A	US44300386	2015-10-22	1 year
Rohde & Schwarz	Signal Analyzer	FSQ26	200749	2016-03-24	1year
-	10dB attenuator	-	-	Each time[1]	N/A

Note[1]: cable and attenuator included in the test set-up will be checked each time before testing.
Statement of Traceability: BACL Corp. *attests that all calibrations have been performed per the A2LA requirements, traceable to the NIST.*

11.4 Test Environmental Conditions

Test Date:	2016-07-31
Test Site:	RF Test Site
Temperature:	22-24° C
Relative Humidity:	40-41 %
Barometric Pressure:	103.1-104.1 kPa
Test Personnel:	Frank Wang

11.5 Test Results

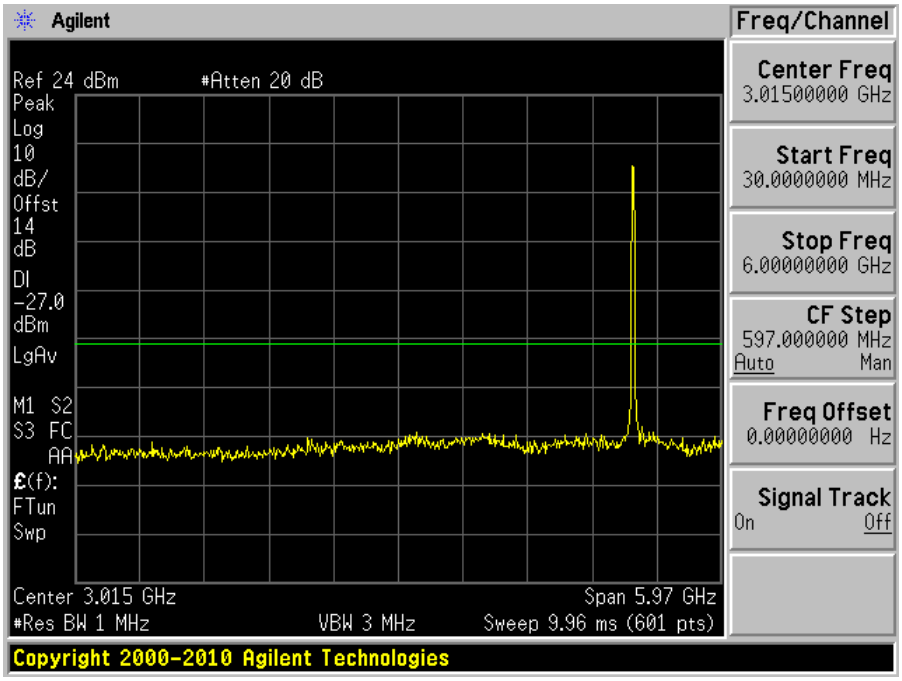
Please refer to the following plots

(1) Out-of-band spurious emission

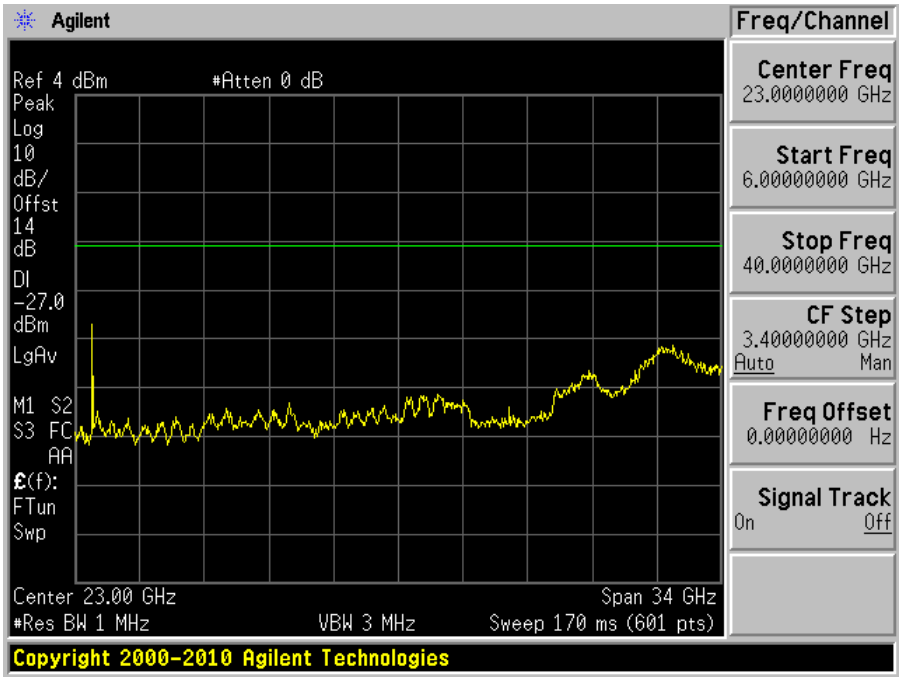
5150 - 5250 MHz

802.11a mode

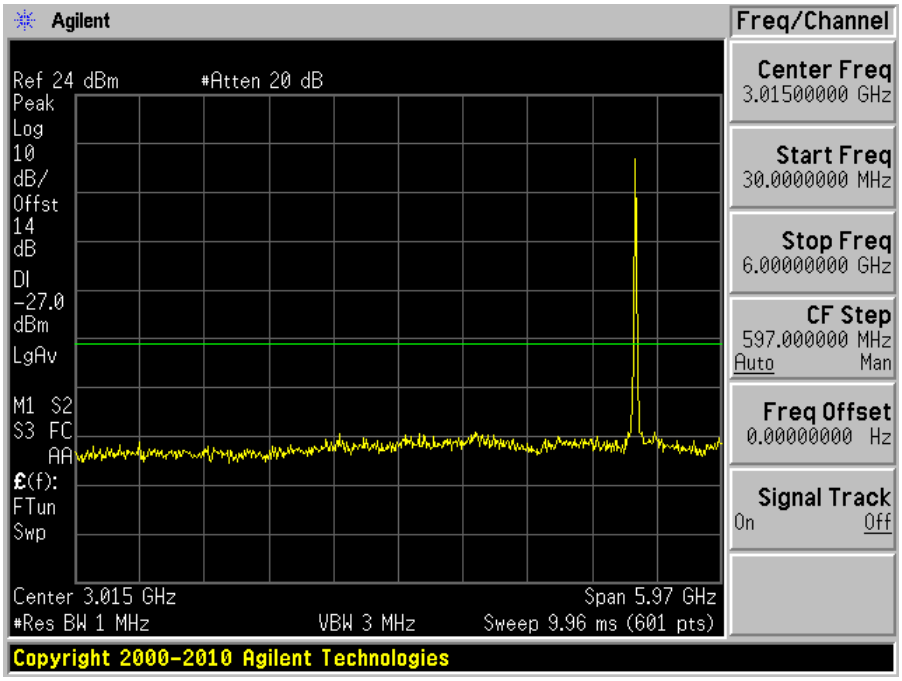
Low Channel 5180 MHz (30MHz-6GHz)



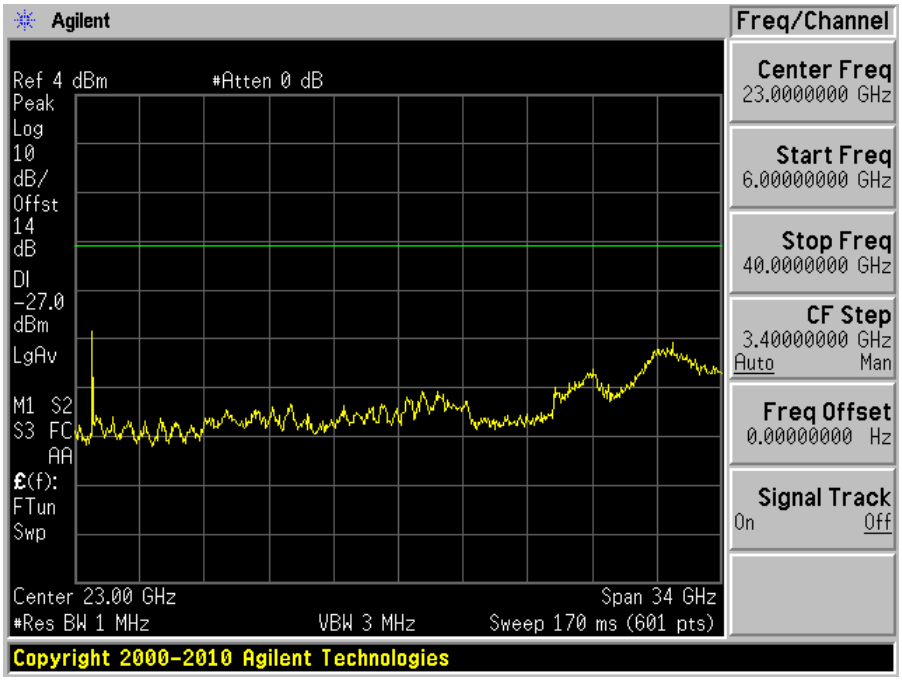
Low Channel 5180 MHz (6-40GHz)



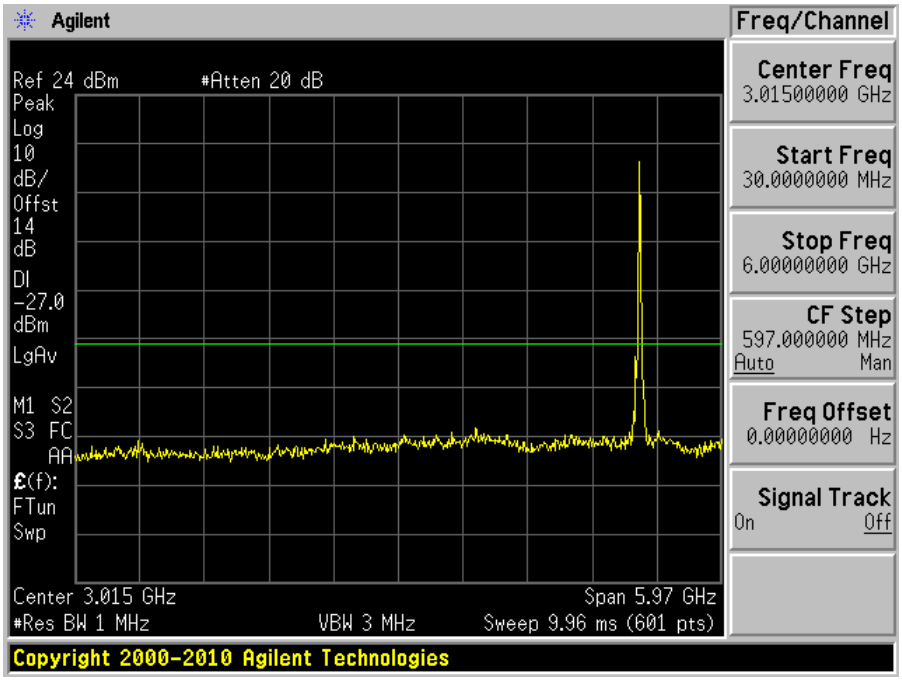
Middle Channel 5200 MHz (30MHz-6GHz)



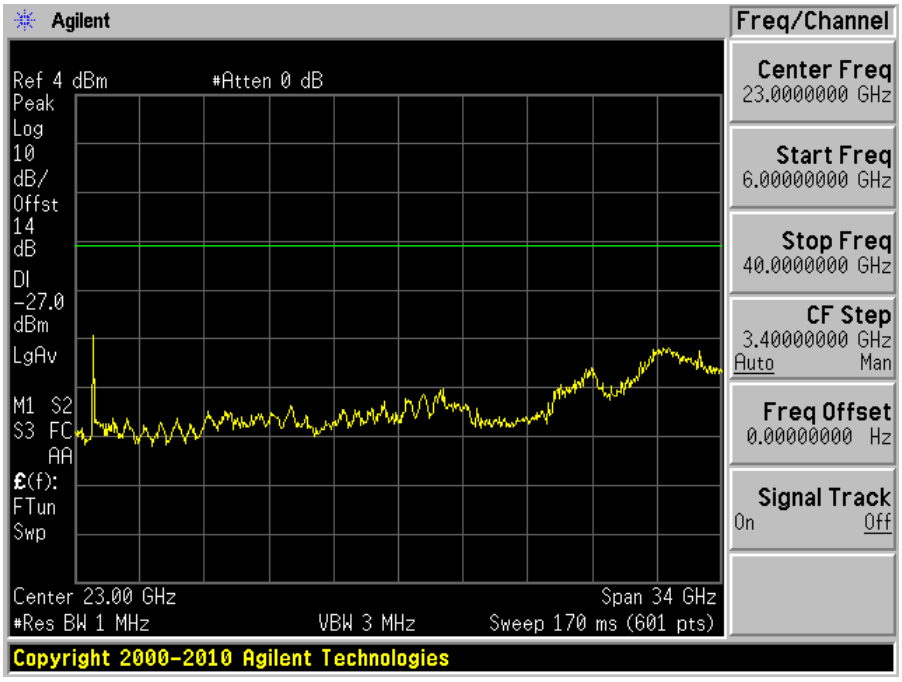
Middle Channel 5200 MHz (6-40GHz)



High Channel 5240 MHz (30MHz-6GHz)

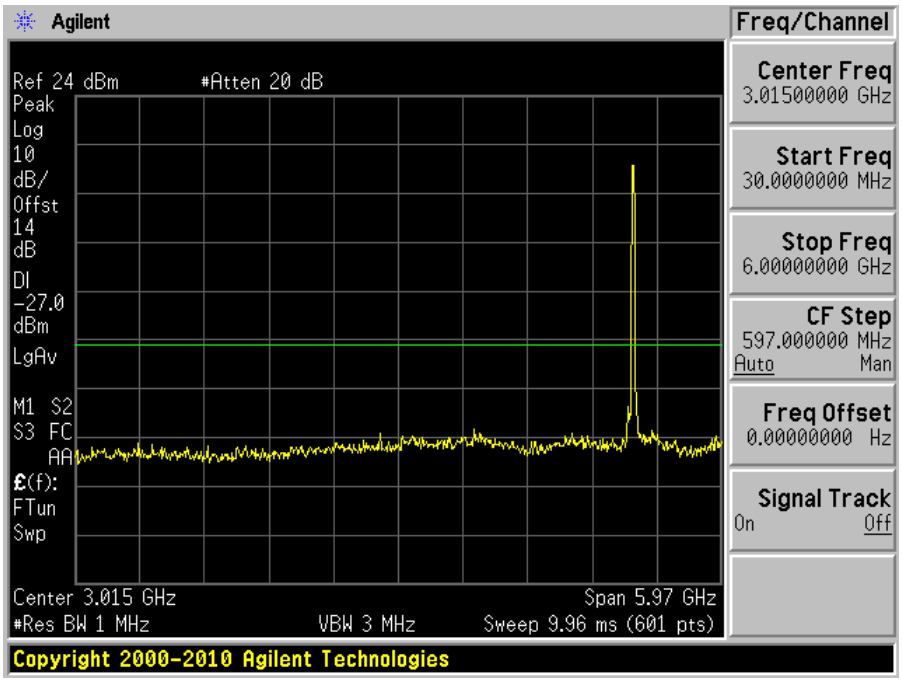


High Channel 5240 MHz (6-40GHz)

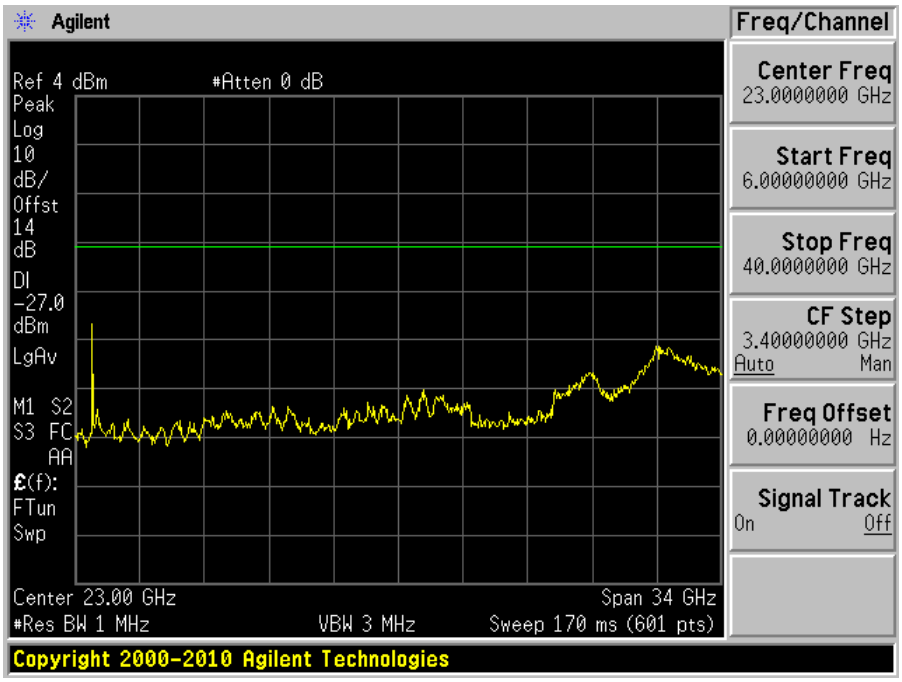


802.11n20 mode

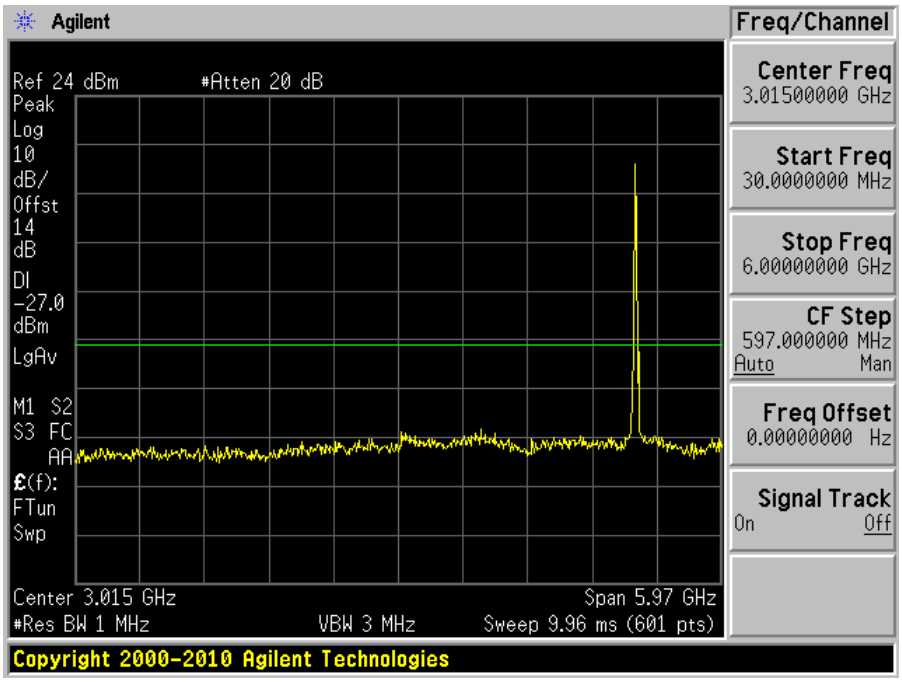
Low Channel 5180 MHz (30MHz-6GHz)



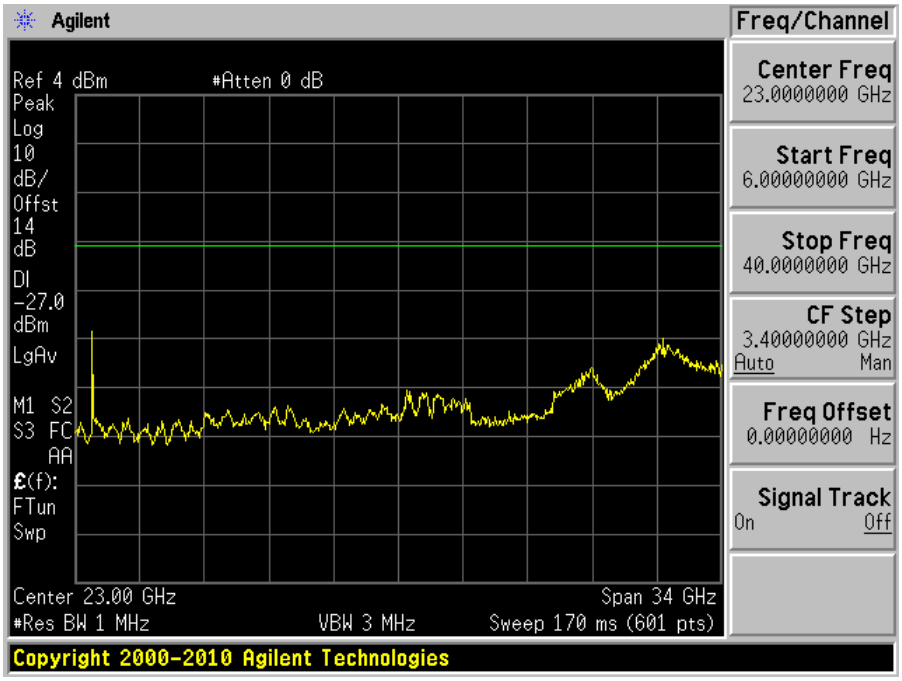
Low Channel 5180 MHz (6-40GHz)



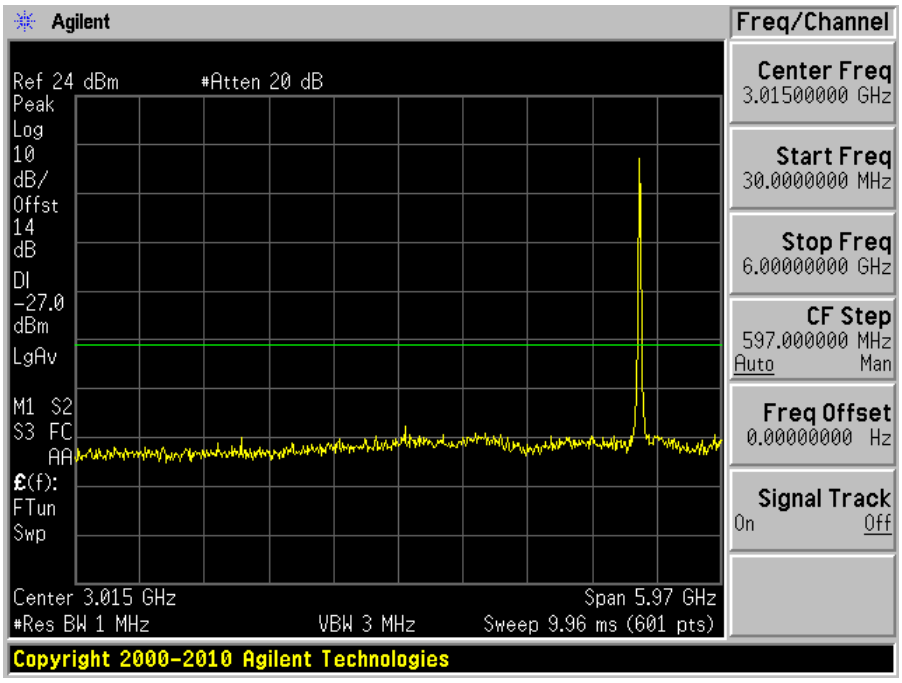
Middle Channel 5200 MHz (30MHz-6GHz)



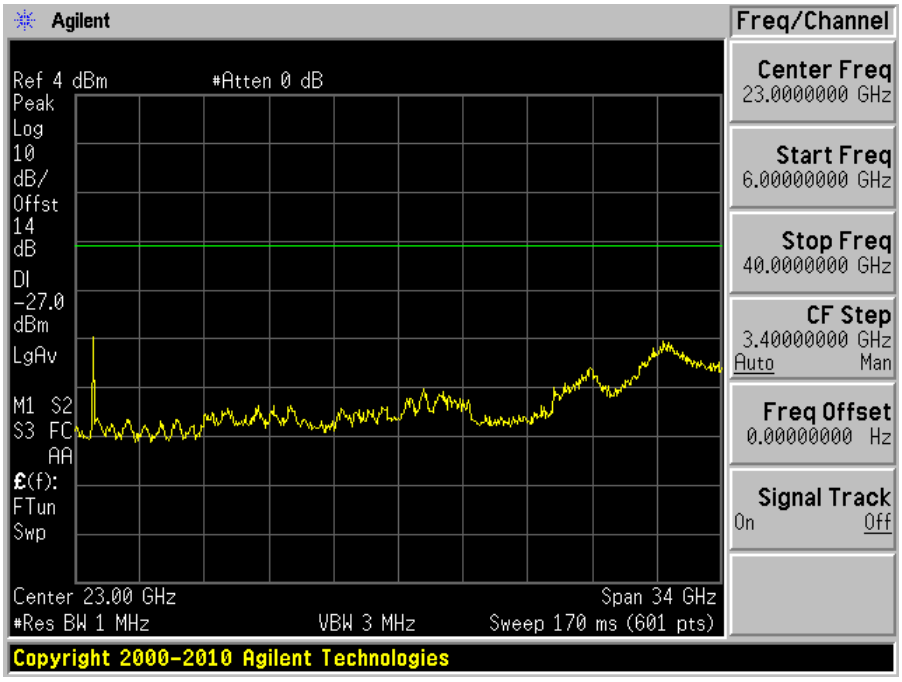
Middle Channel 5200 MHz (6-40GHz)



High Channel 5240 MHz (30MHz-6GHz)

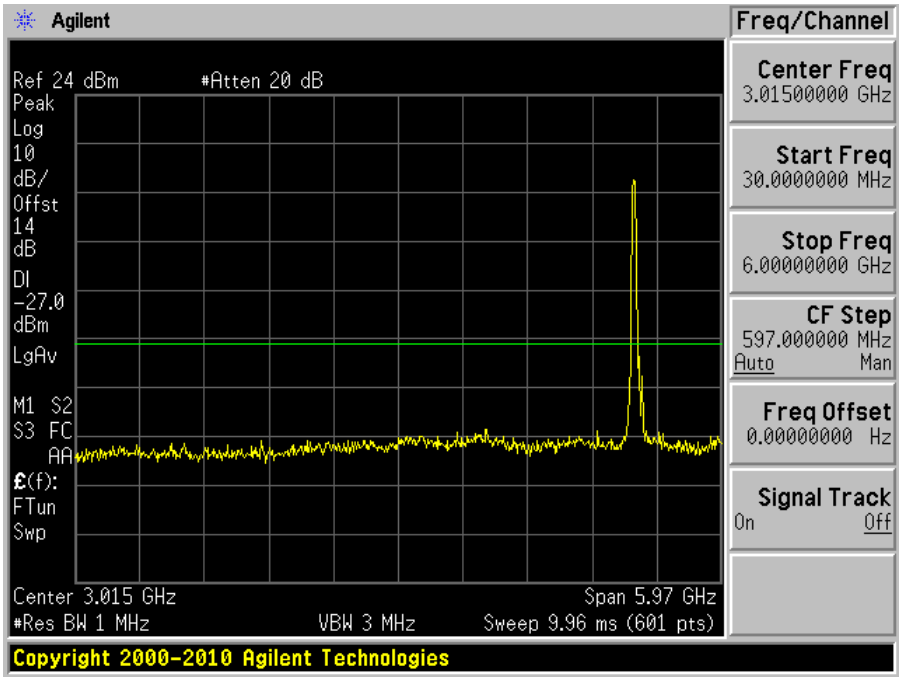


High Channel 5240 MHz (6-40GHz)

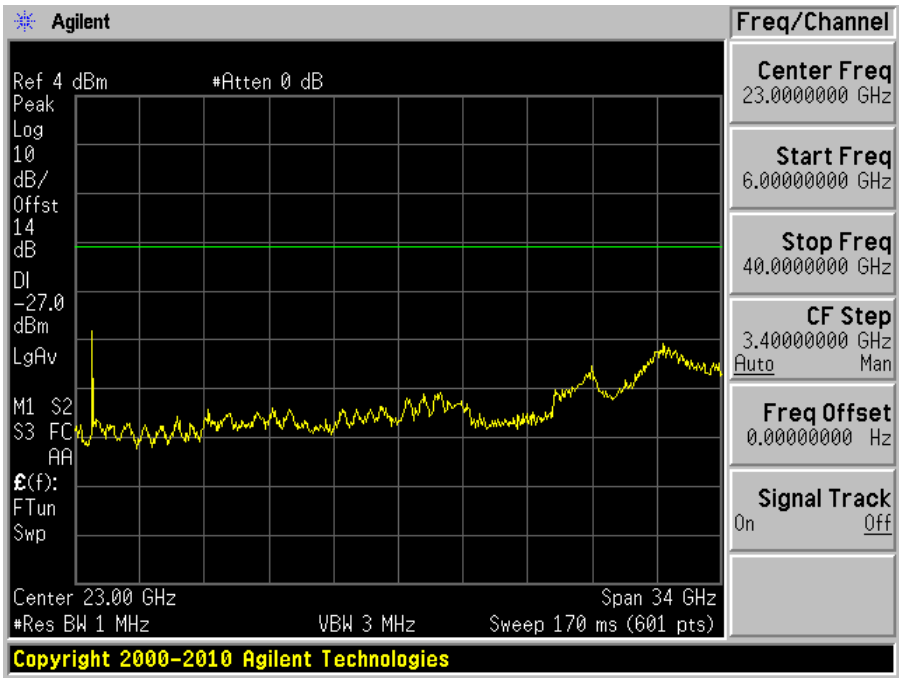


802.11n40 mode

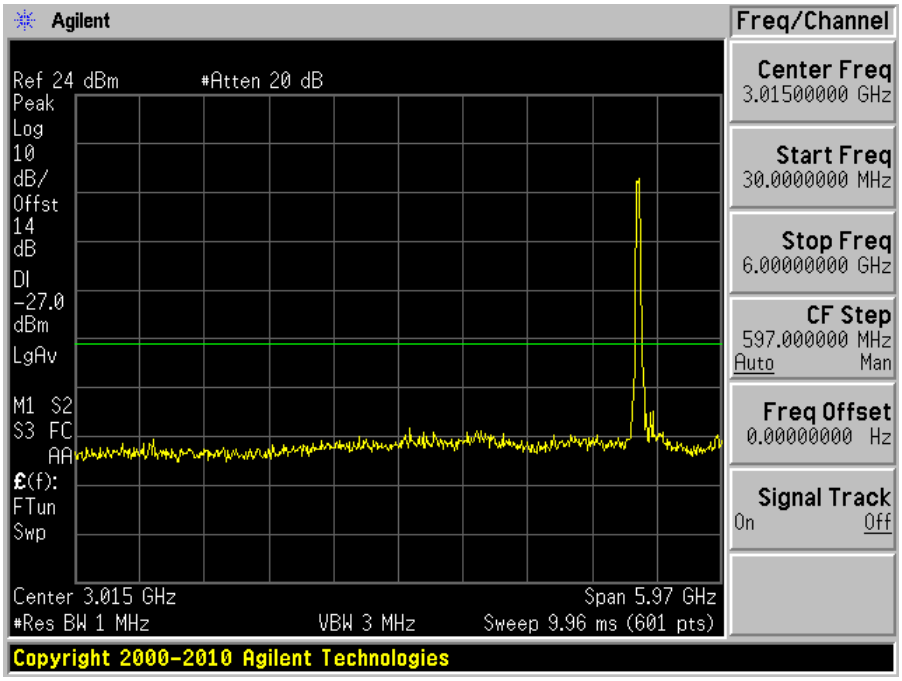
Low Channel 5190 MHz (30MHz-6GHz)



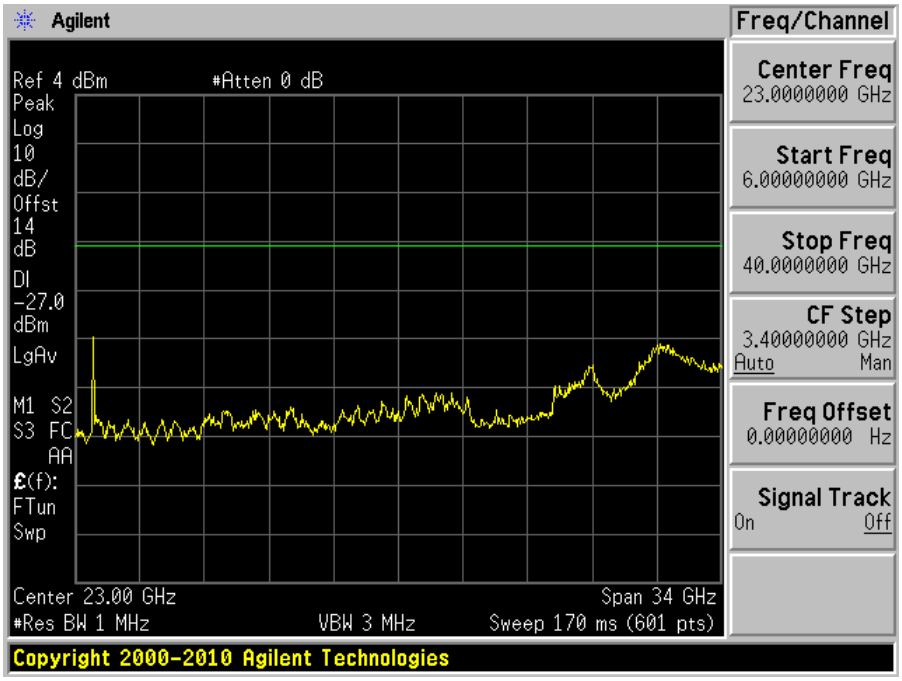
Low Channel 5190 MHz (6-40GHz)



High Channel 5230 MHz (30MHz-6GHz)

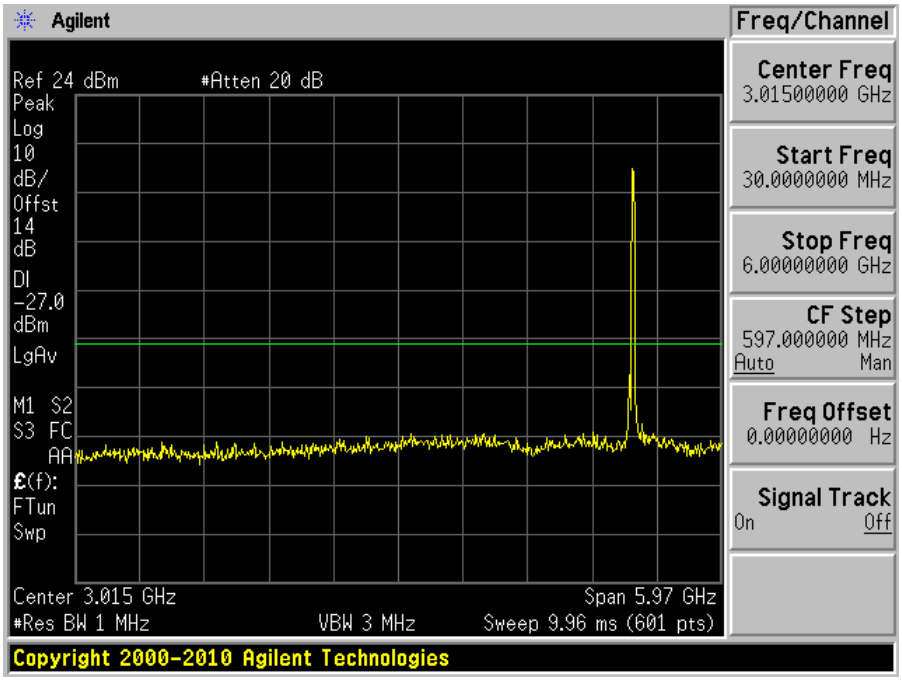


High Channel 5230 MHz (6-40GHz)

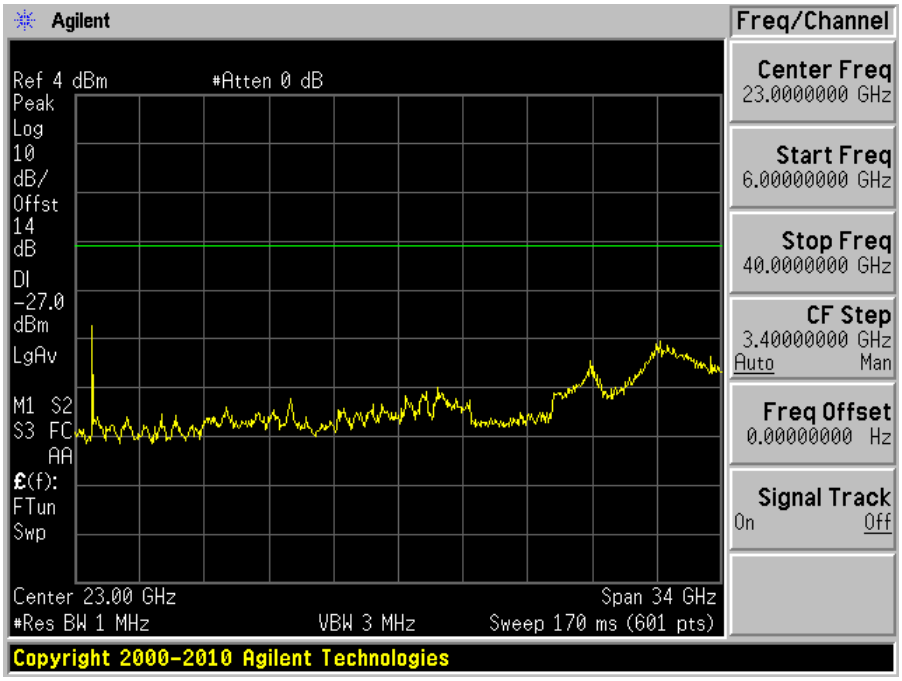


802.11ac20 mode

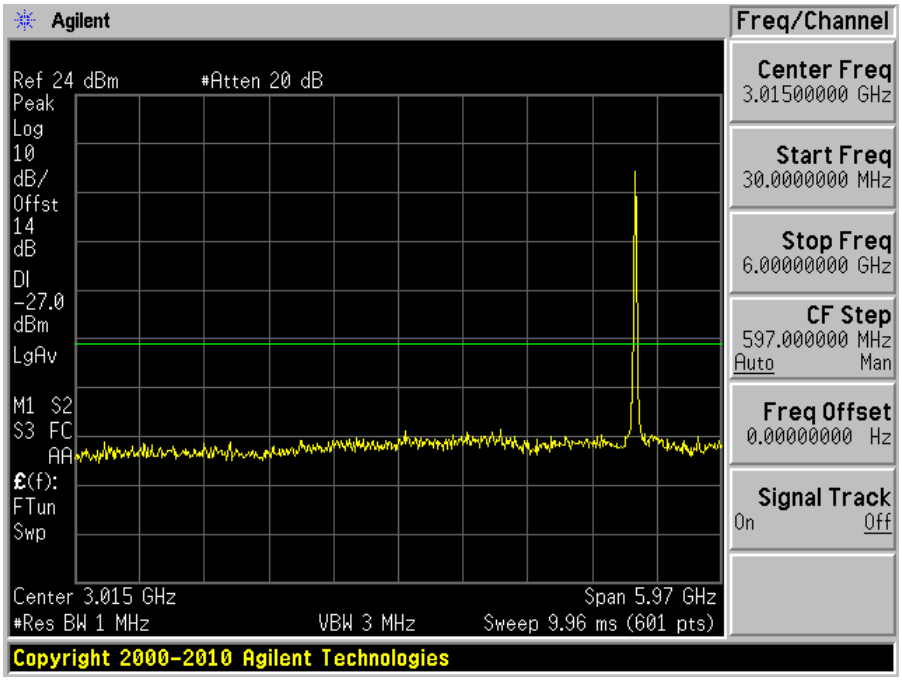
Low Channel 5180 MHz (30MHz-6GHz)



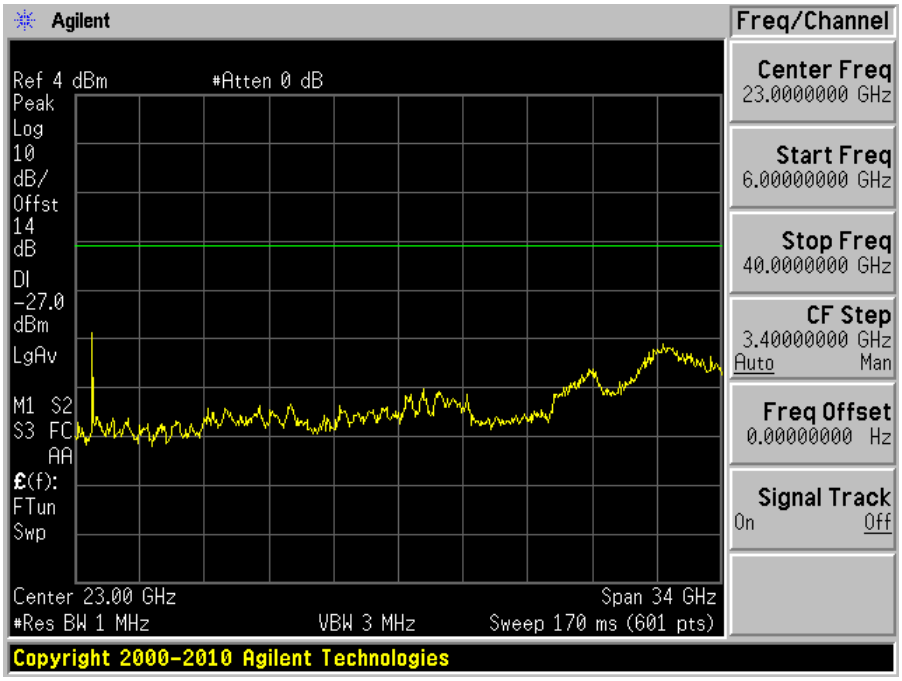
Low Channel 5180 MHz (6-40GHz)



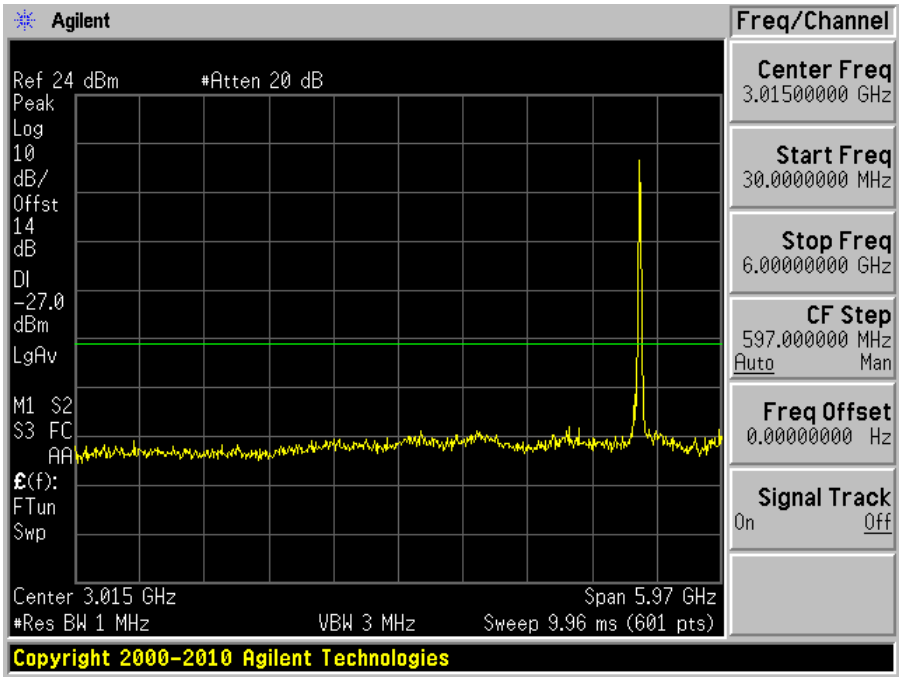
Middle Channel 5200 MHz (30MHz-6GHz)



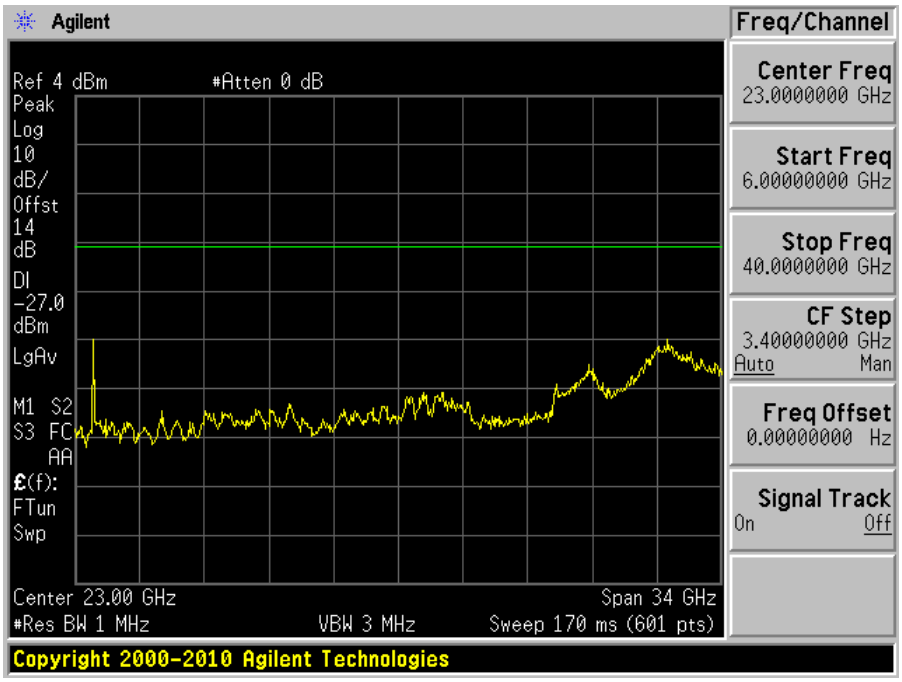
Middle Channel 5200 MHz (6GHz – 40GHz)



High Channel 5240 MHz (30MHz-6GHz)

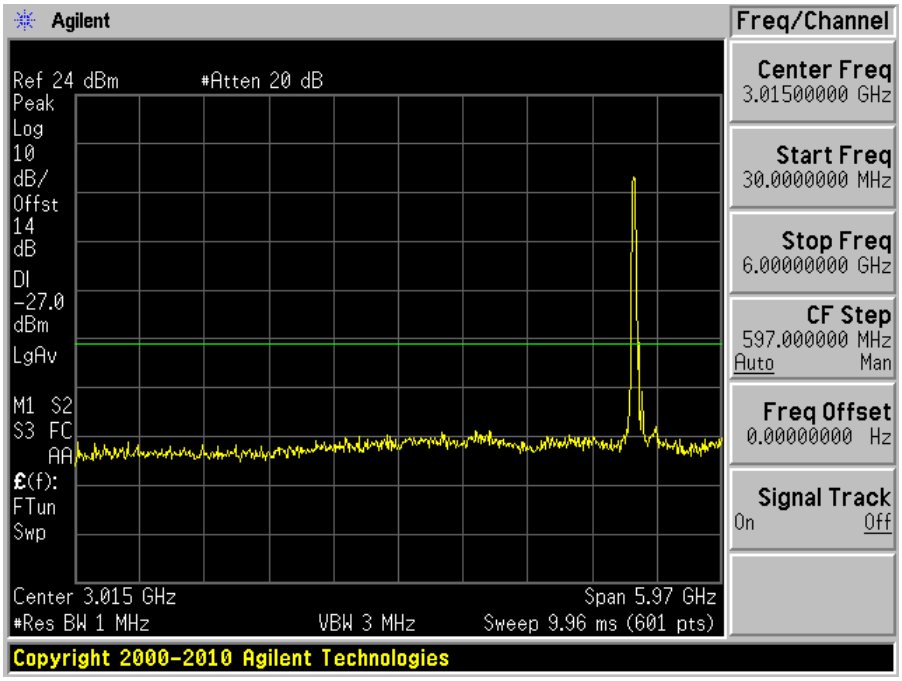


High Channel 5240 MHz (6GHz – 40GHz)

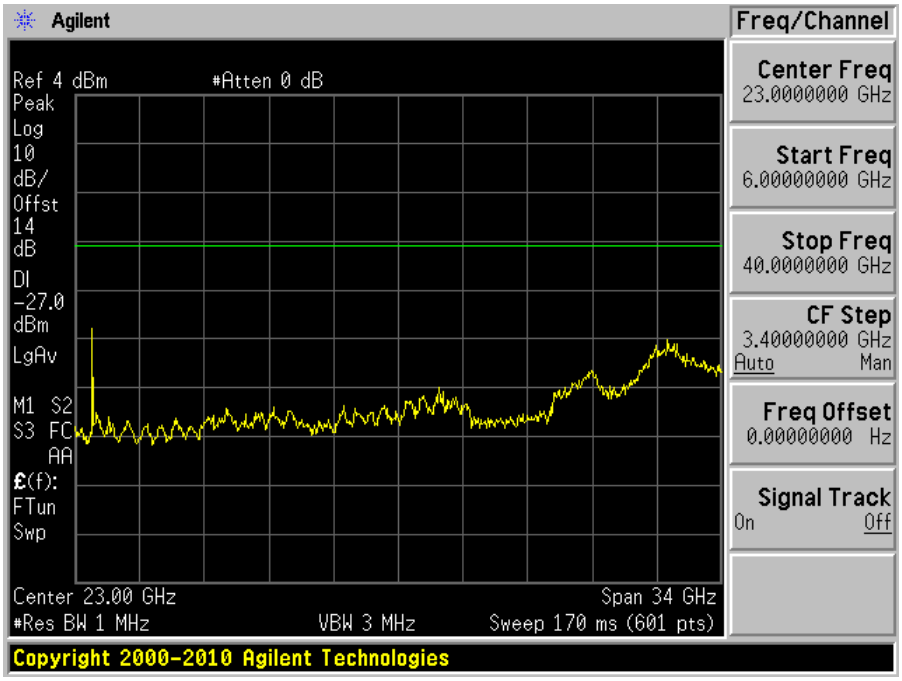


802.11ac40 mode

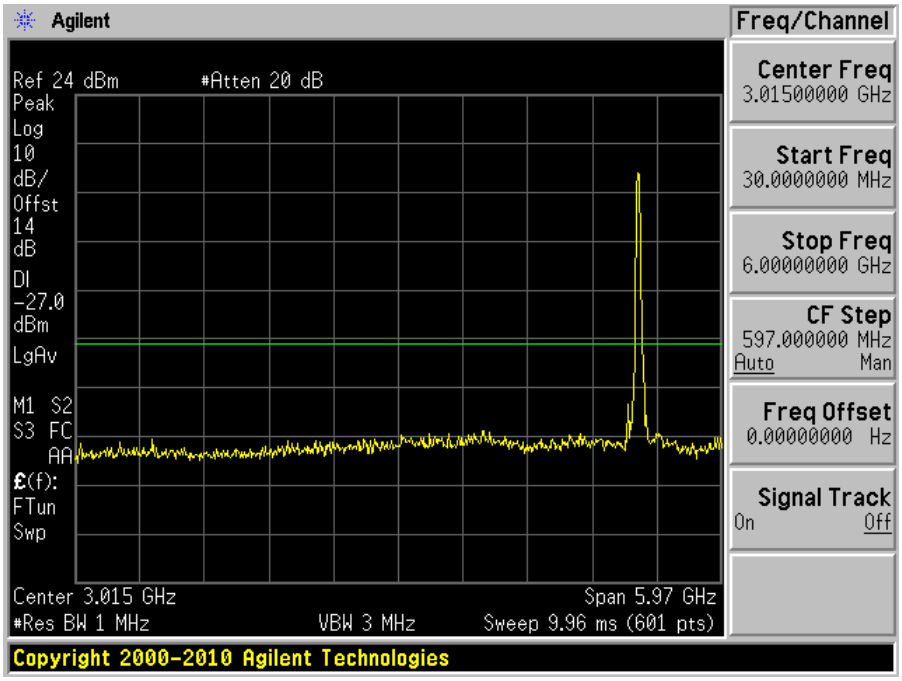
Low Channel 5190 MHz (30MHz-6GHz)



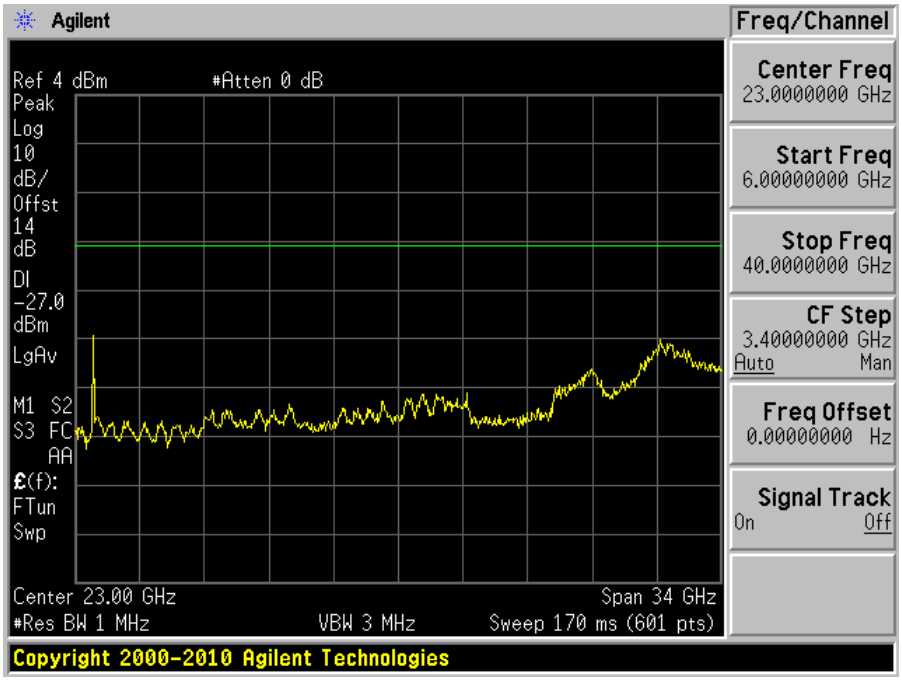
Low Channel 5190 MHz (6-40GHz)



High Channel 5230 MHz (30MHz-6GHz)

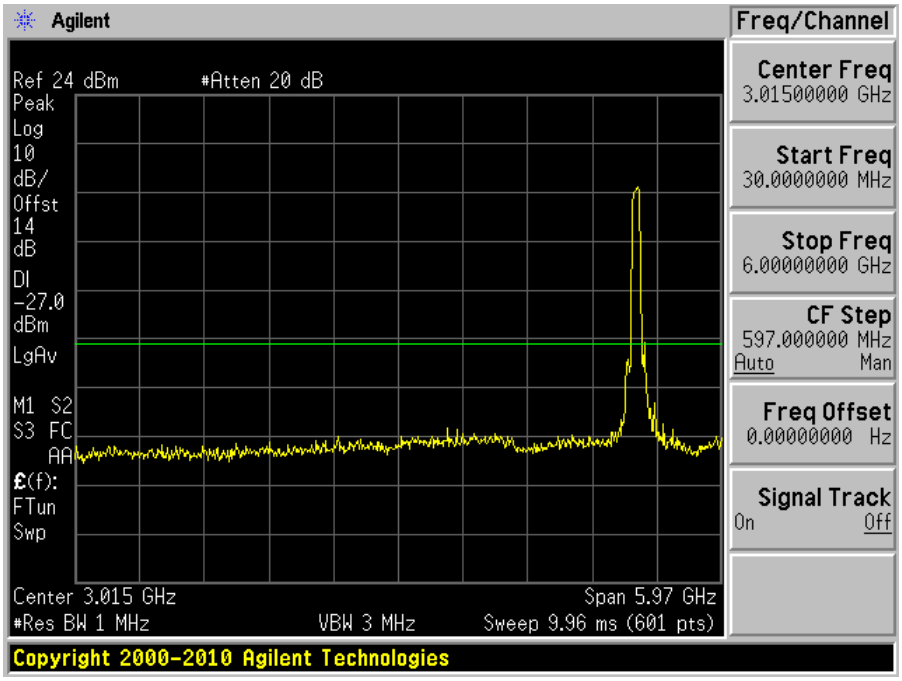


High Channel 5230 MHz (6GHz – 40GHz)

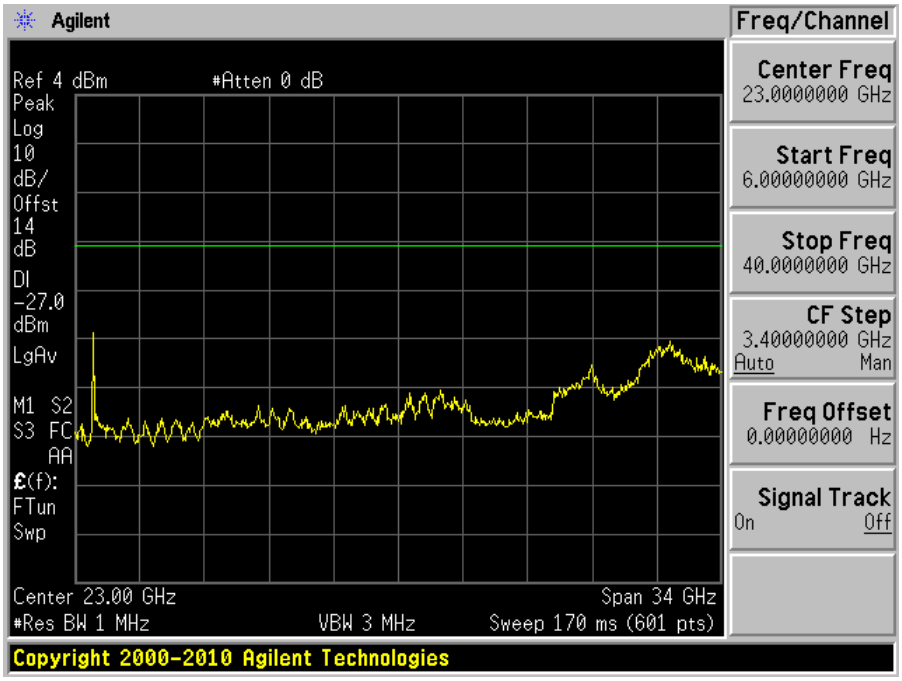


802.11ac80 mode

5210 MHz (30MHz-6GHz)



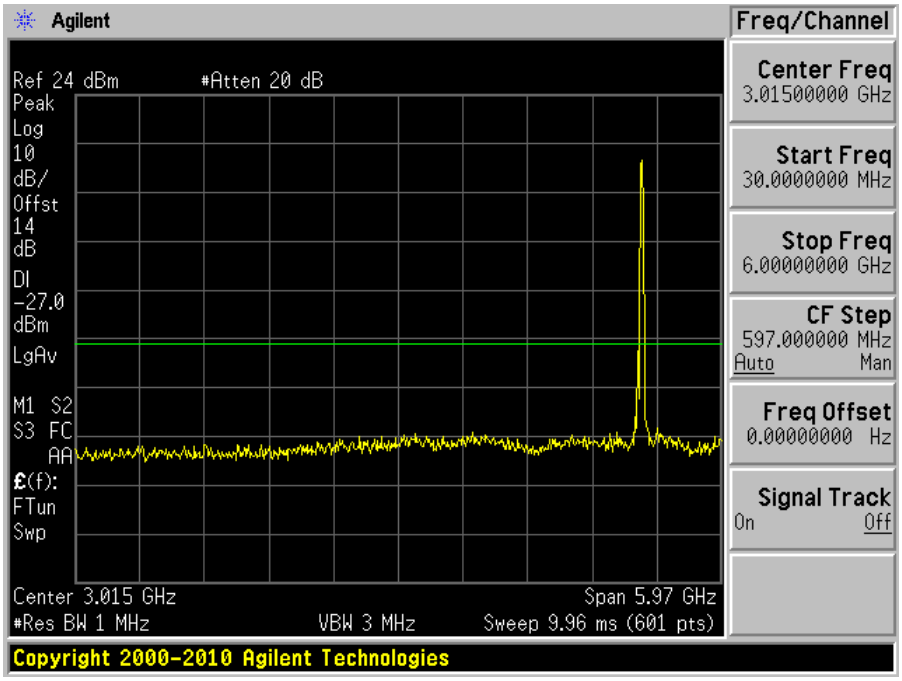
5210 MHz (6GHz – 40GHz)



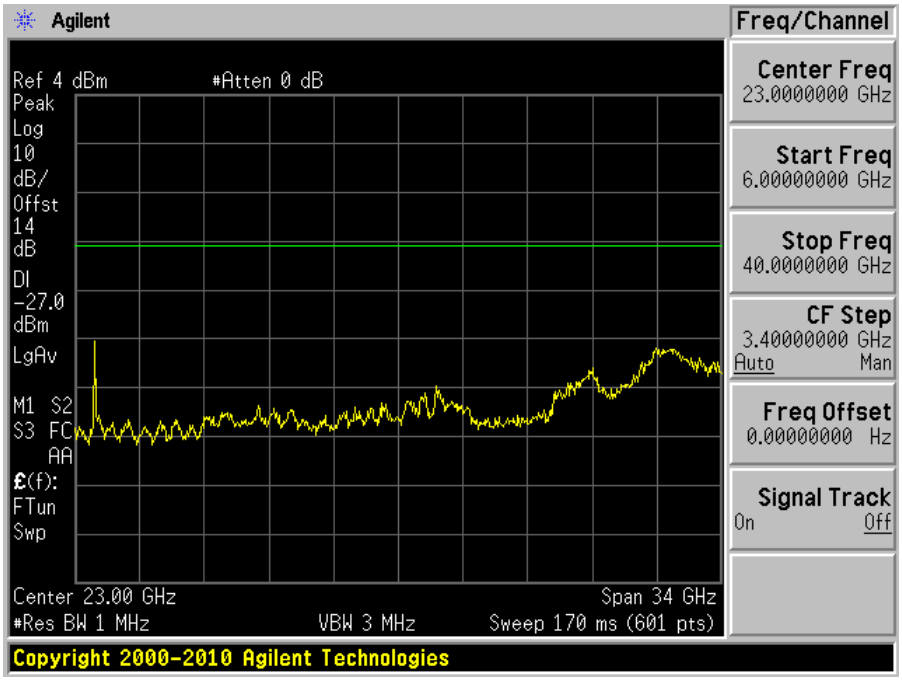
5250 – 5350 MHz

802.11a mode

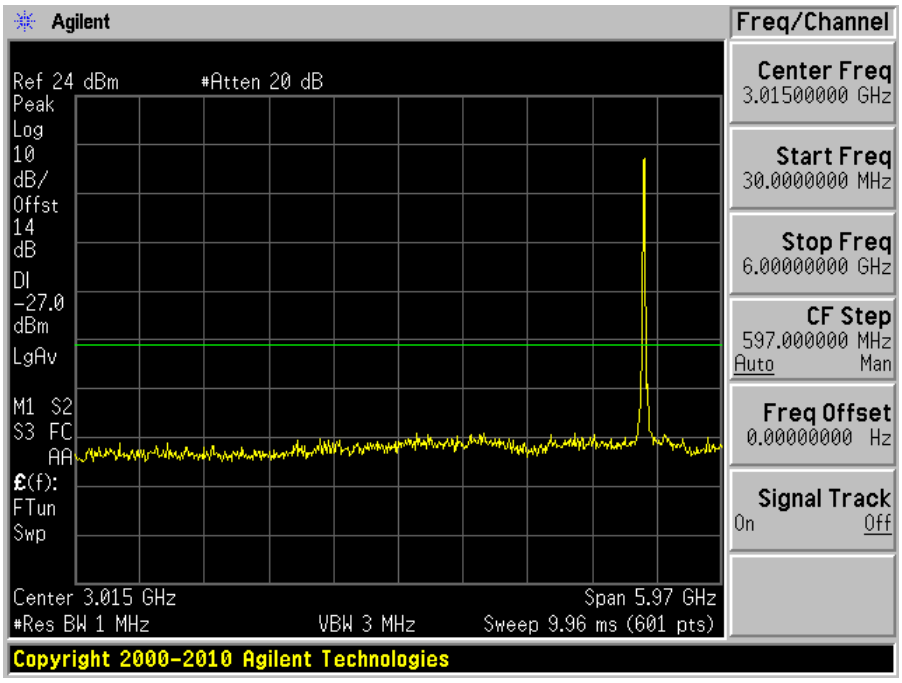
Low Channel 5260 MHz (30MHz-6GHz)



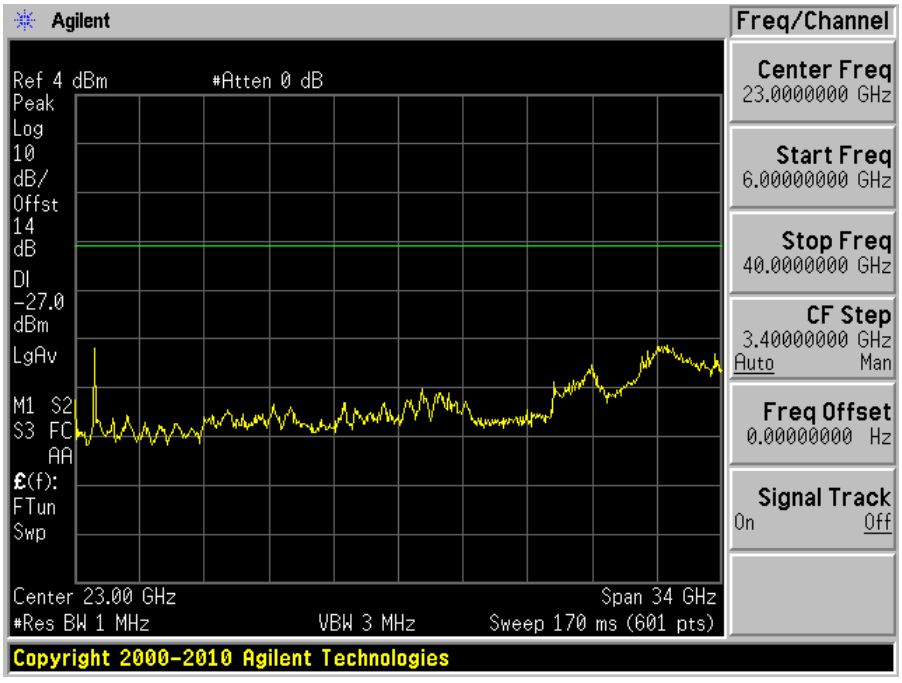
Low Channel 5260 MHz (6-40GHz)



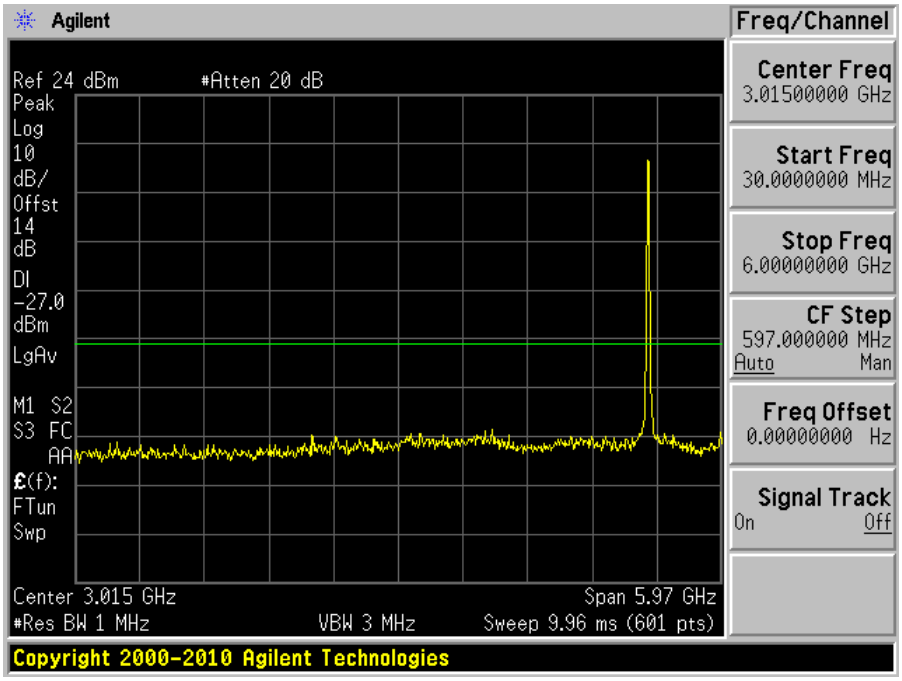
Middle Channel 5280 MHz (30MHz-6GHz)



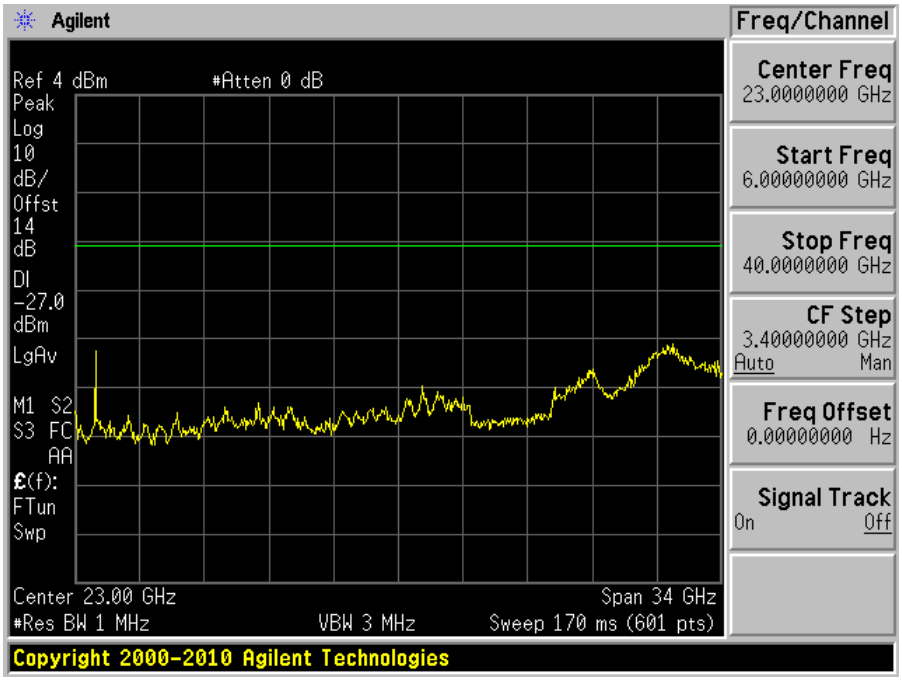
Middle Channel 5280 MHz (6-40GHz)



High Channel 5320 MHz (30MHz-6GHz)

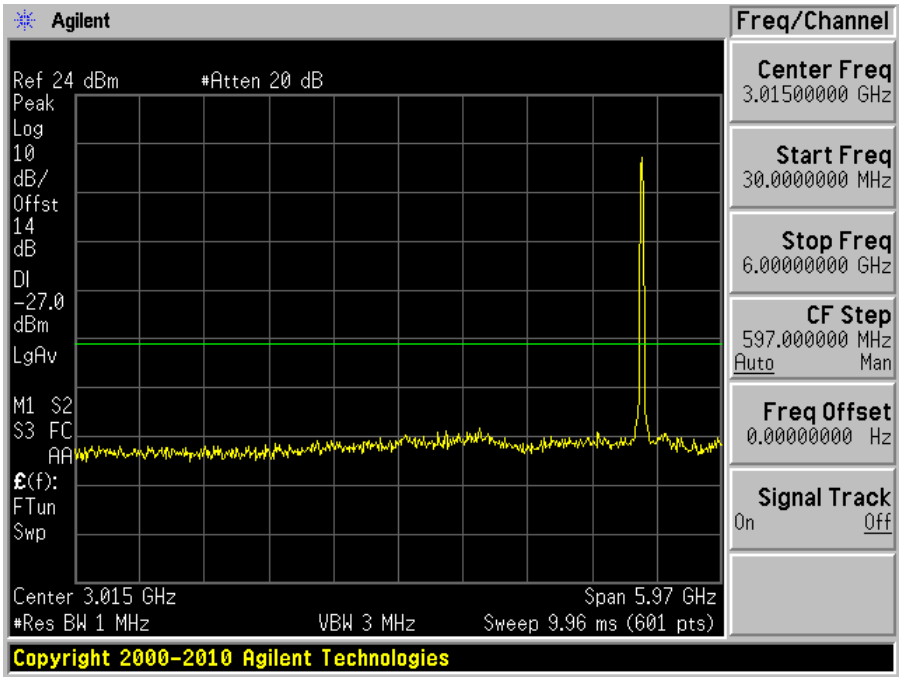


High Channel 5320 MHz (6-40GHz)

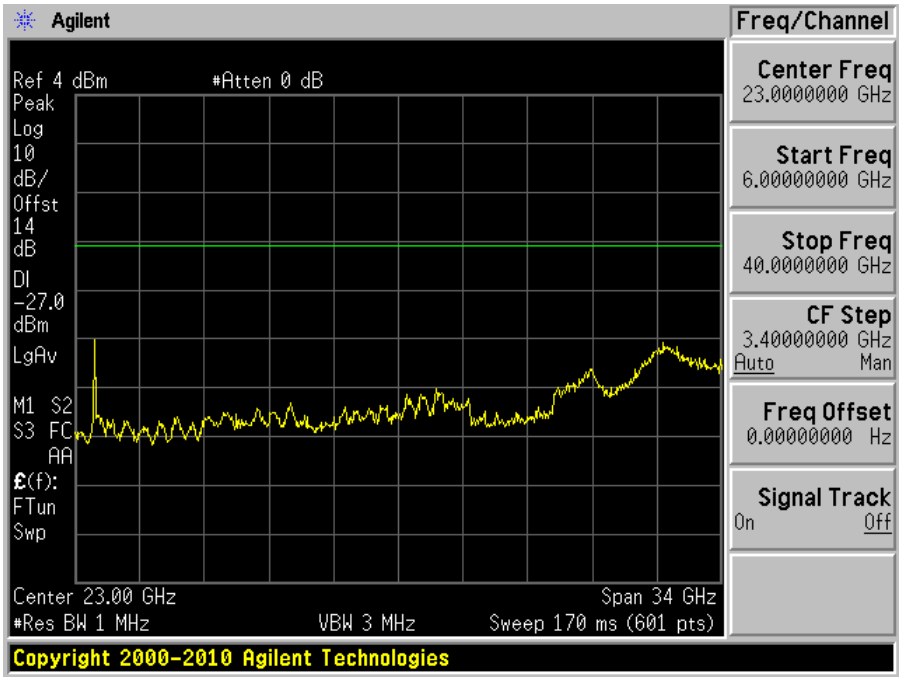


802.11n20 mode

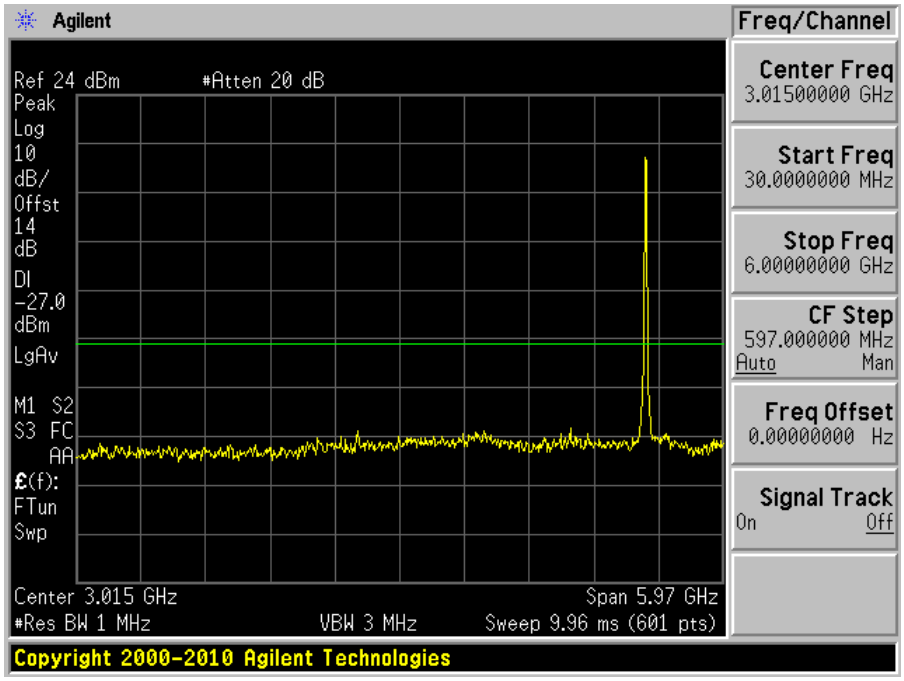
Low Channel 5260 MHz (30MHz-6GHz)



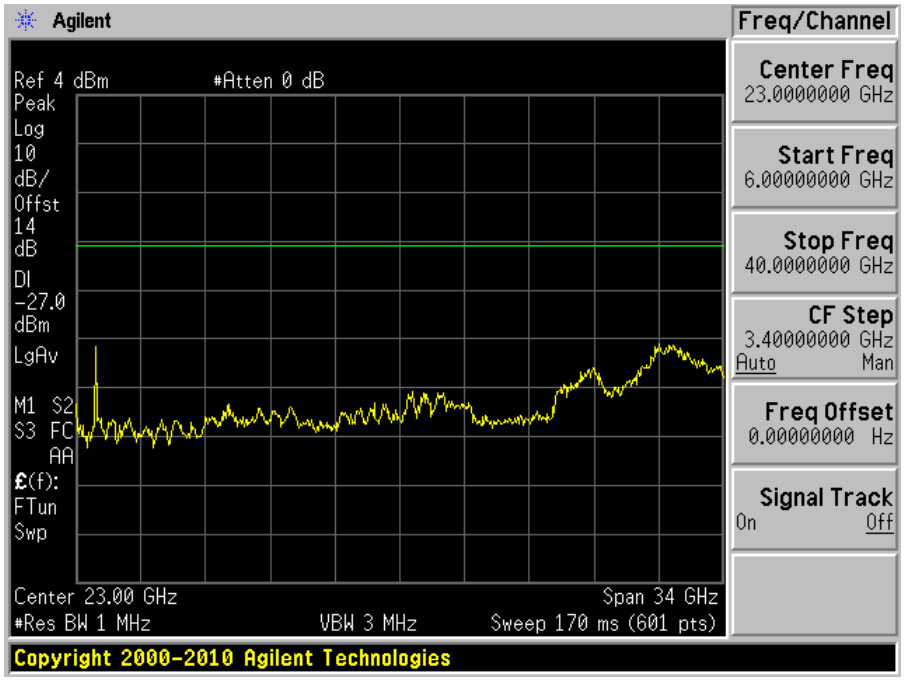
Low Channel 5260 MHz (6-40GHz)



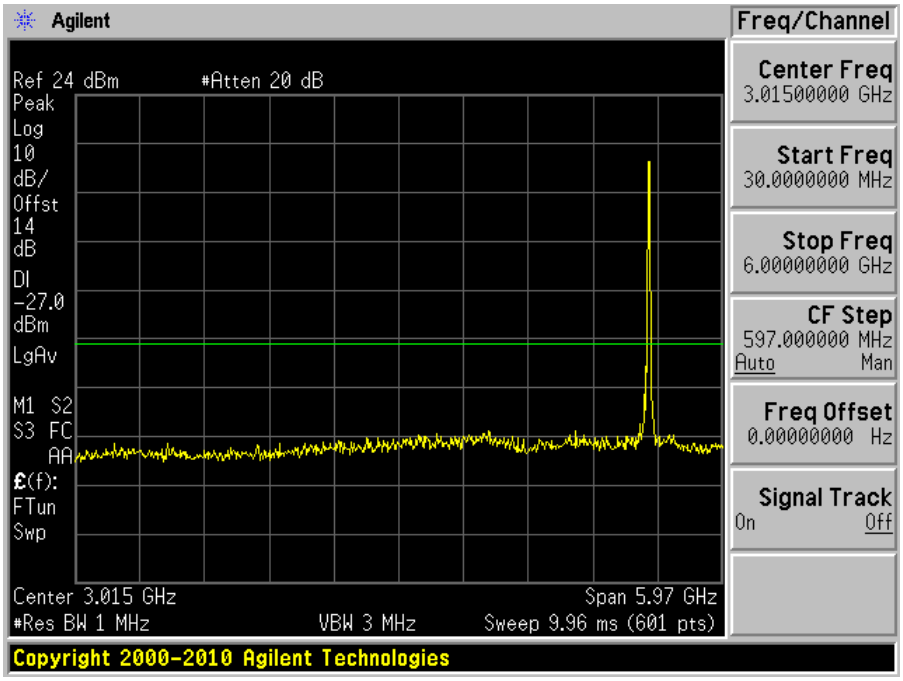
Middle Channel 5280 MHz (30MHz-6GHz)



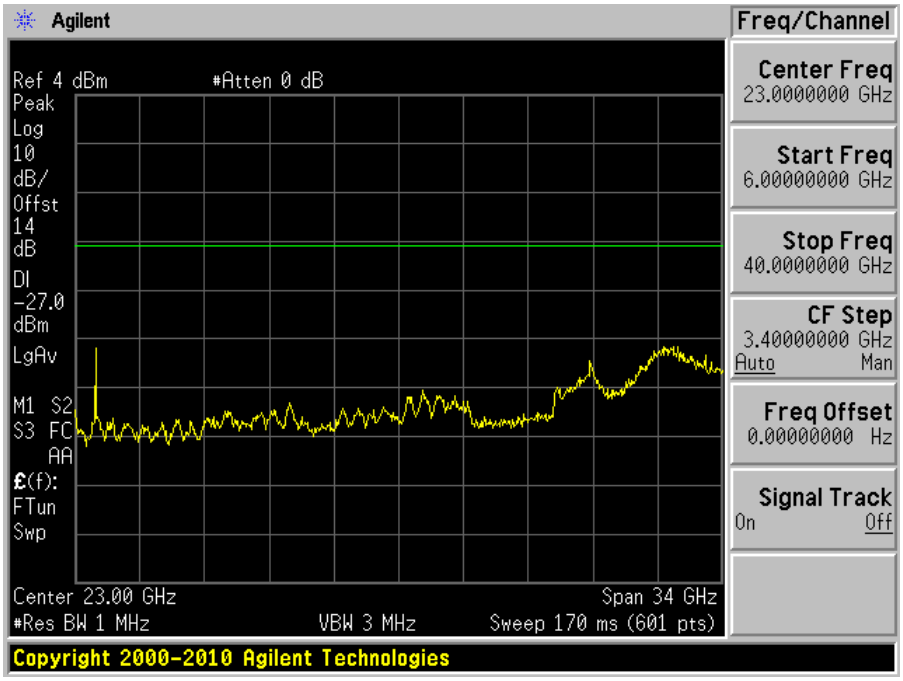
Middle Channel 5280 MHz (6-40GHz)



High Channel 5320 MHz (30MHz-6GHz)

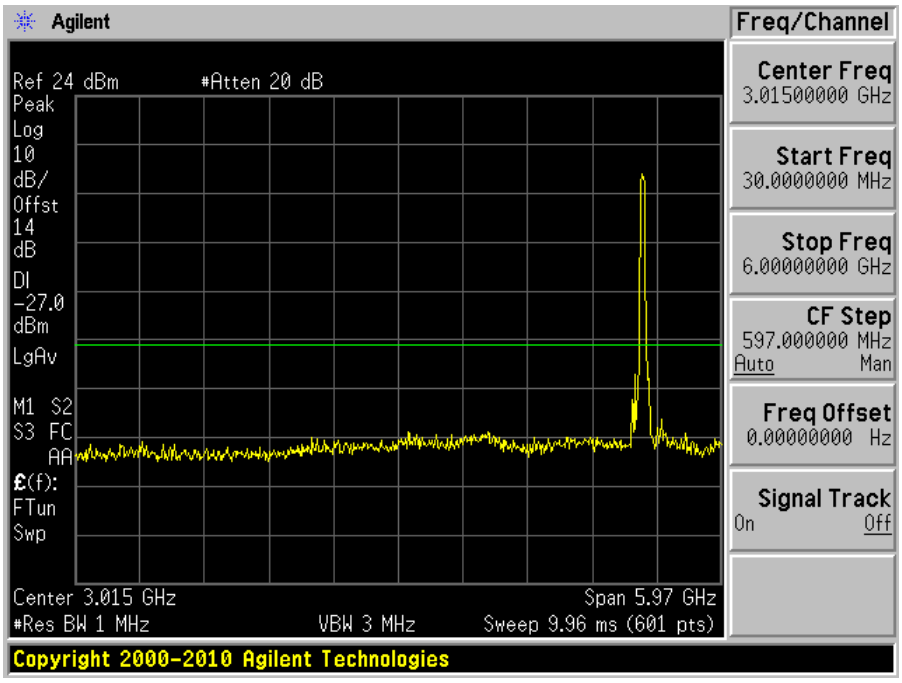


High Channel 5320 MHz (6-40GHz)

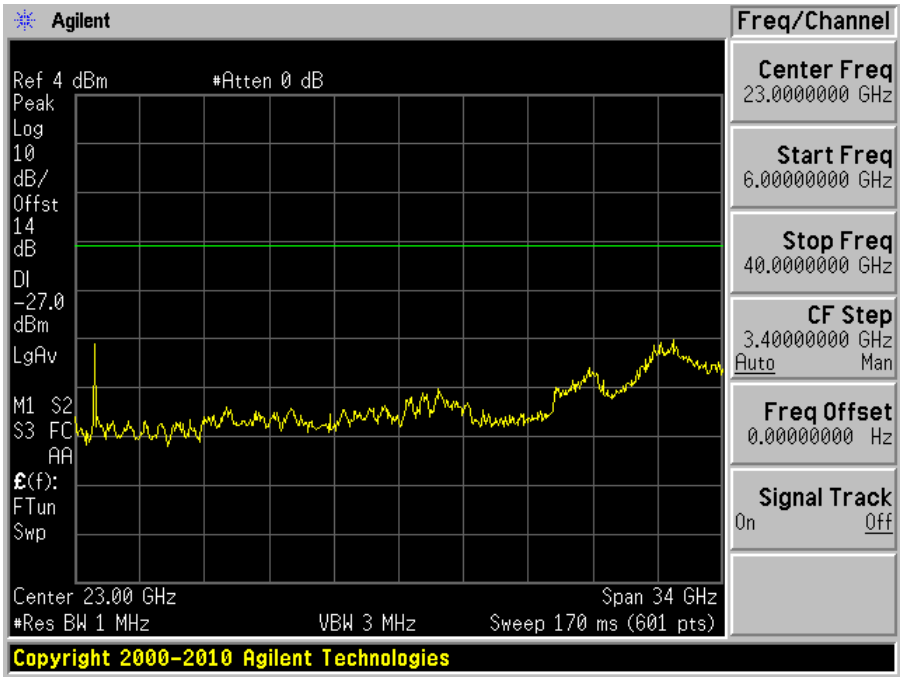


802.11n40 mode

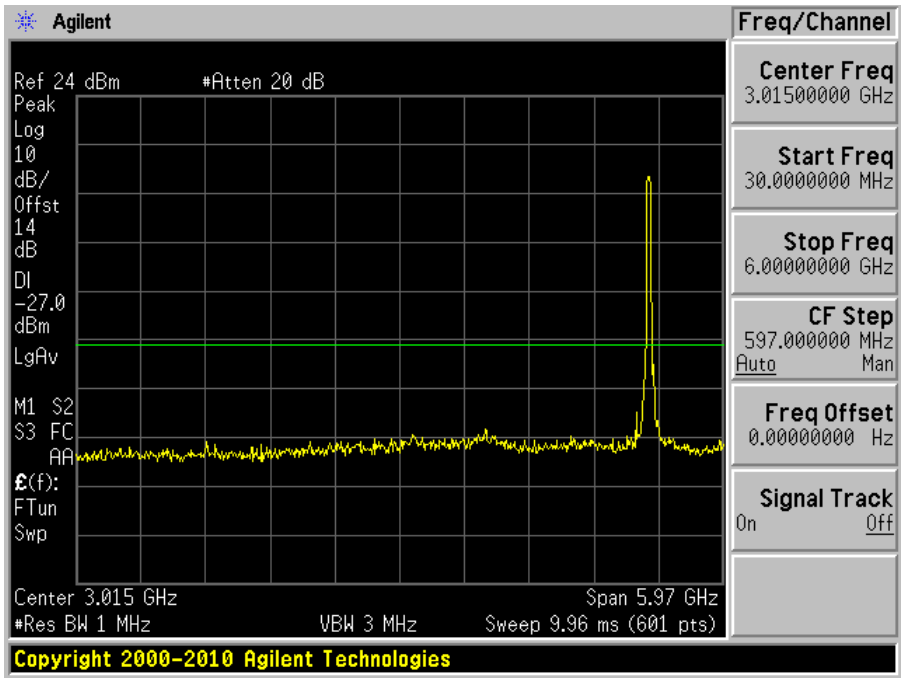
Low Channel 5270 MHz (30MHz-6GHz)



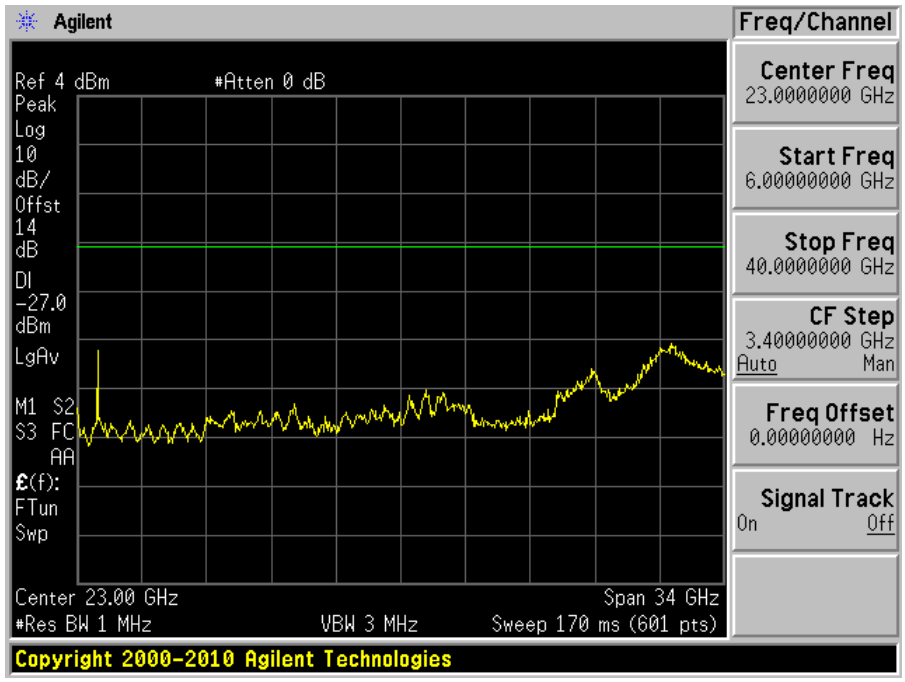
Low Channel 5270 MHz (6-40GHz)



High Channel 5310 MHz (30MHz-6GHz)

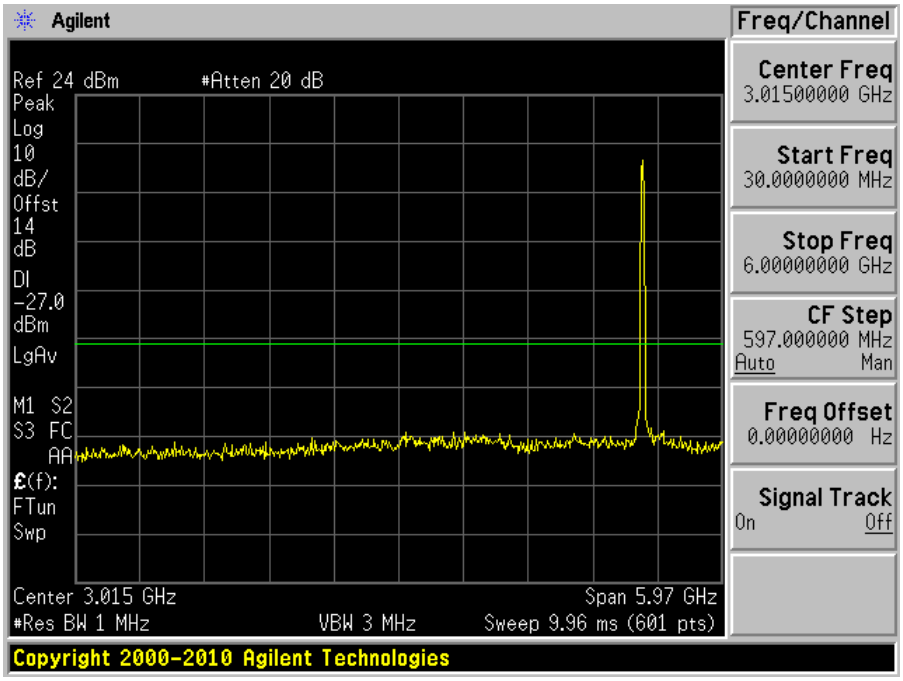


High Channel 5310 MHz (6-40GHz)

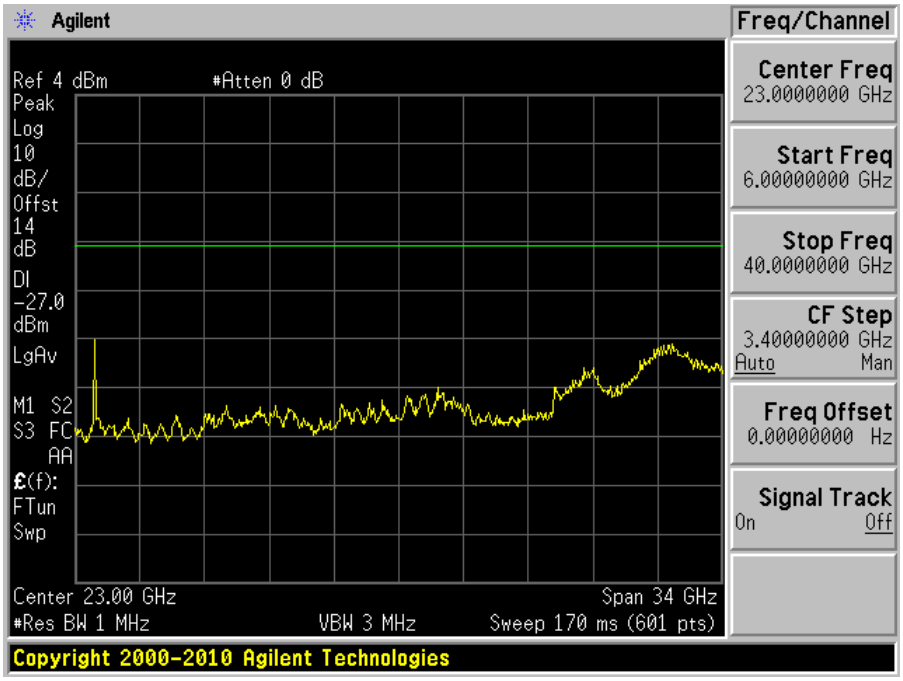


802.11ac20 mode

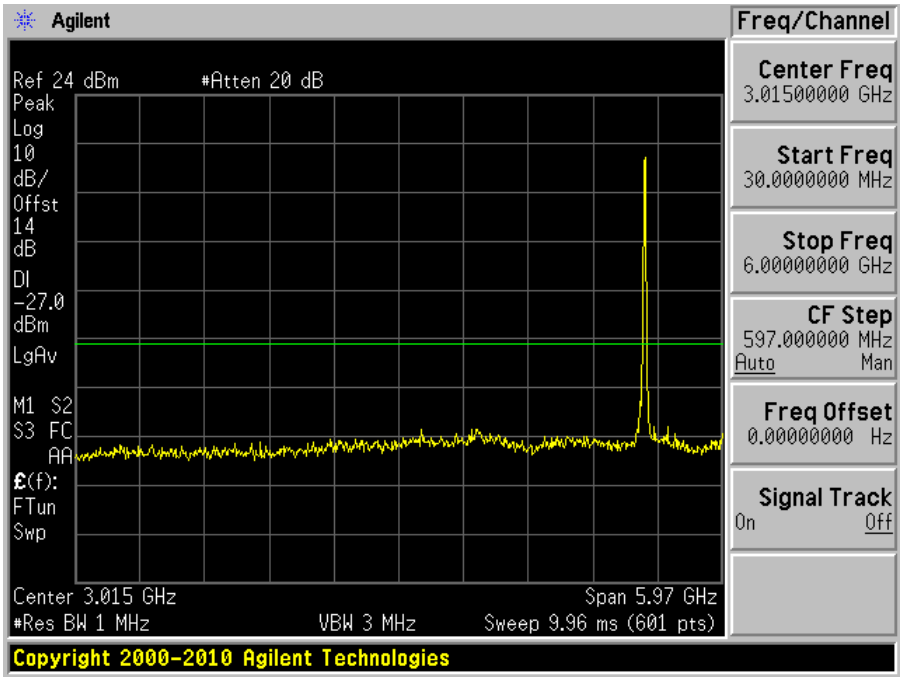
Low Channel 5260 MHz (30MHz-6GHz)



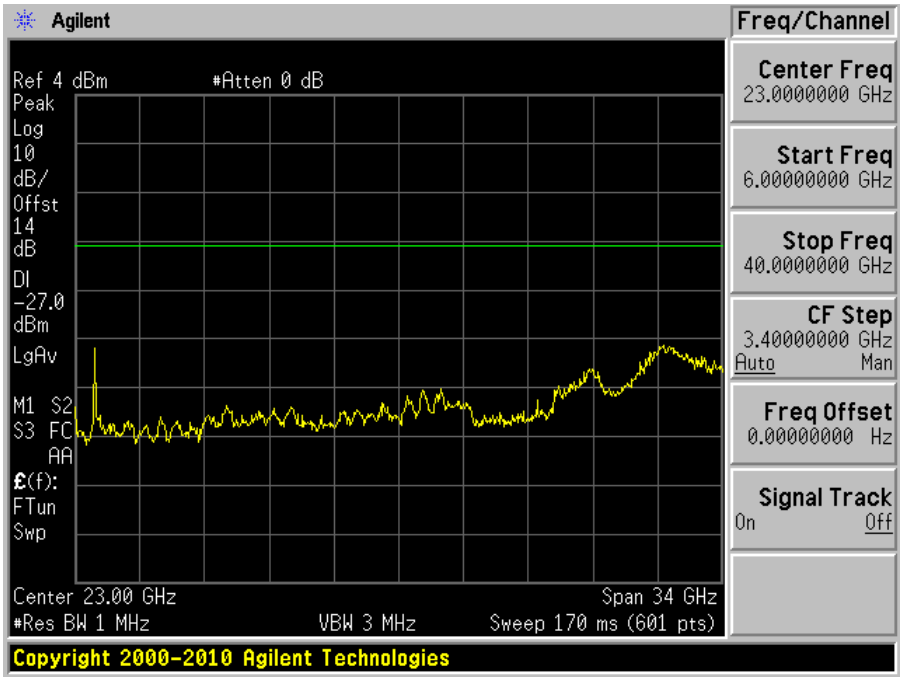
Low Channel 5260 MHz (6-40GHz)



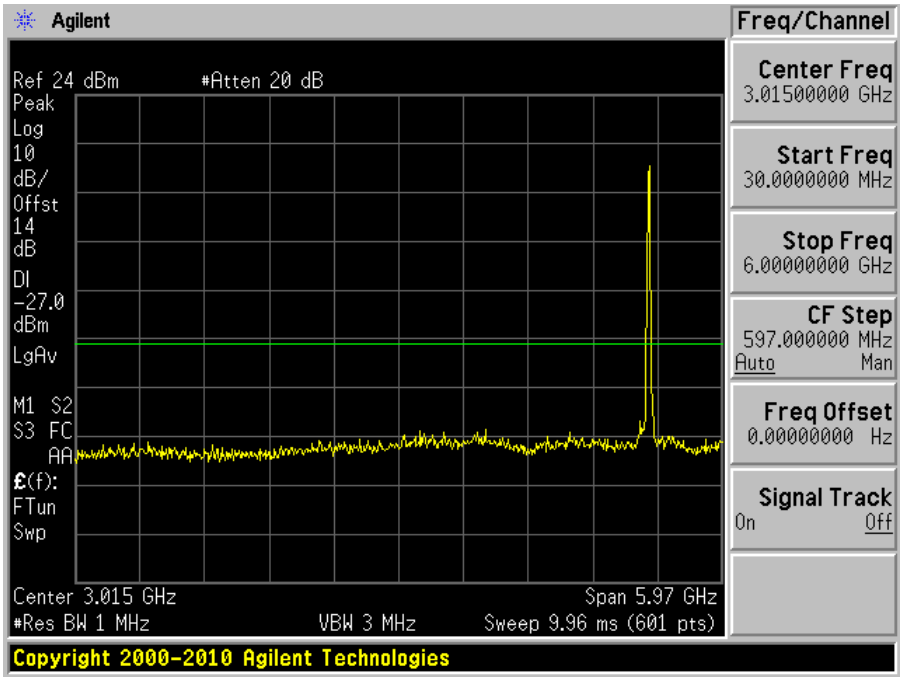
Middle Channel 5280 MHz (30MHz-6GHz)



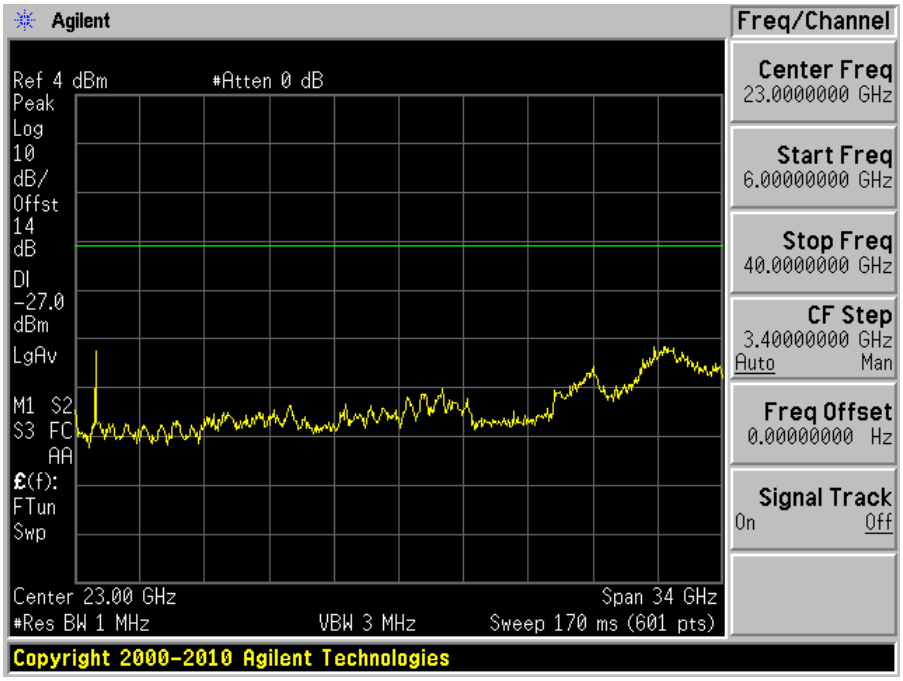
Middle Channel 5280 MHz (6GHz – 40GHz)



High Channel 5320 MHz (30MHz-6GHz)

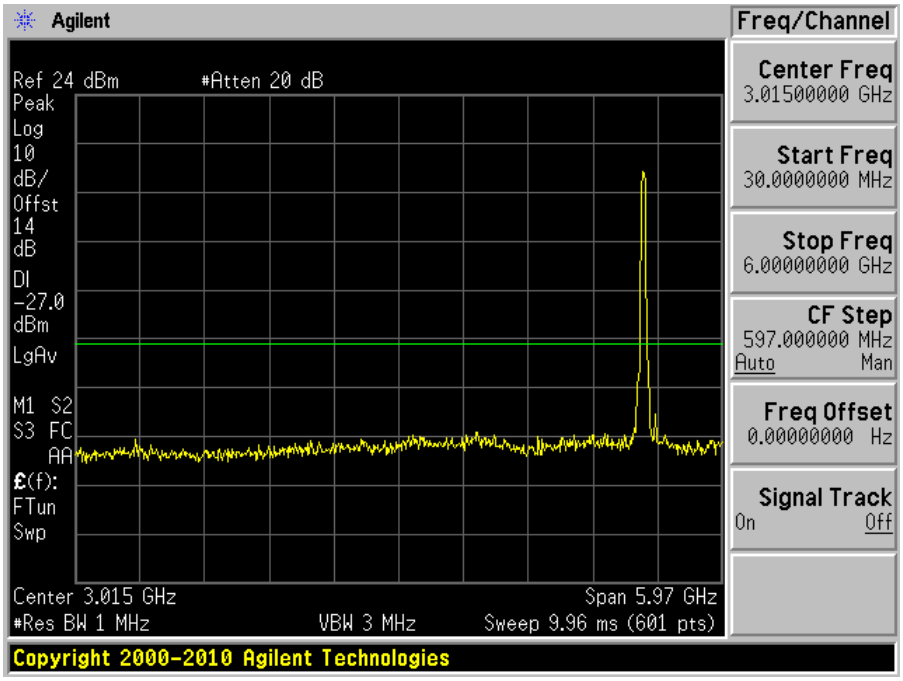


High Channel 5320 MHz (6GHz – 40GHz)

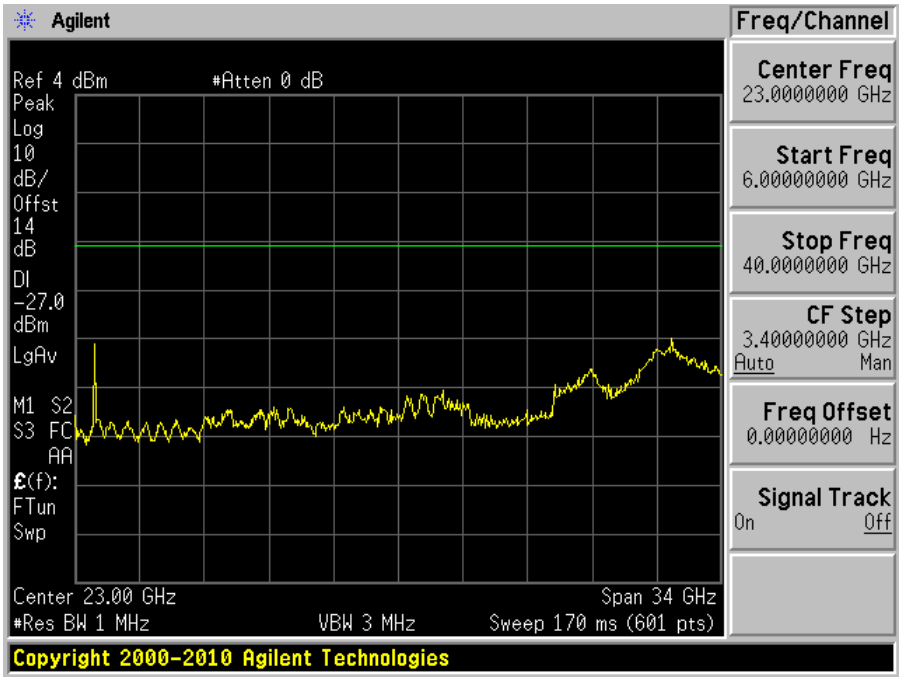


802.11ac40 mode

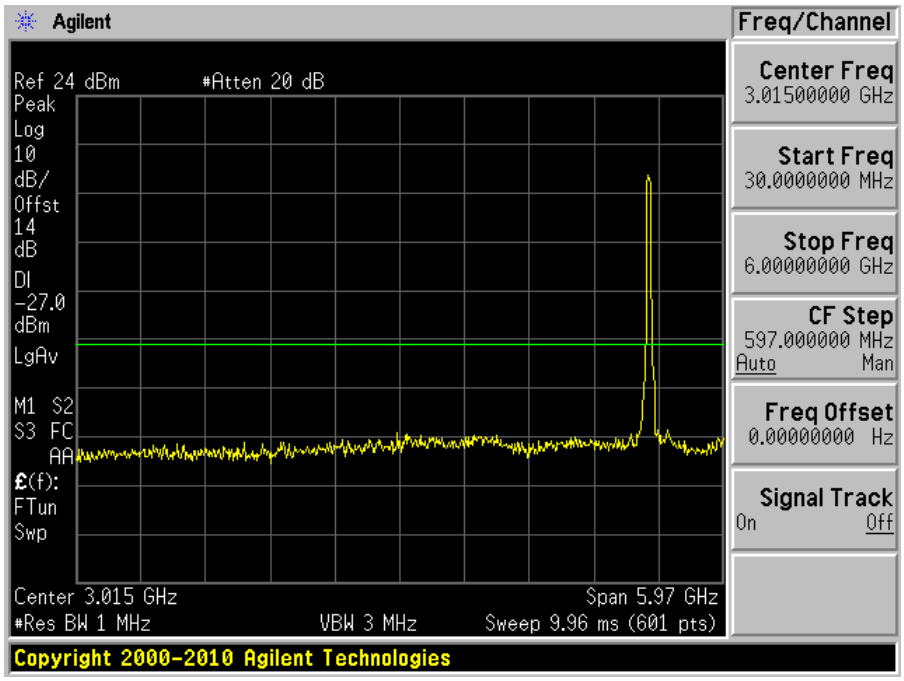
Low Channel 5270 MHz (30MHz-6GHz)



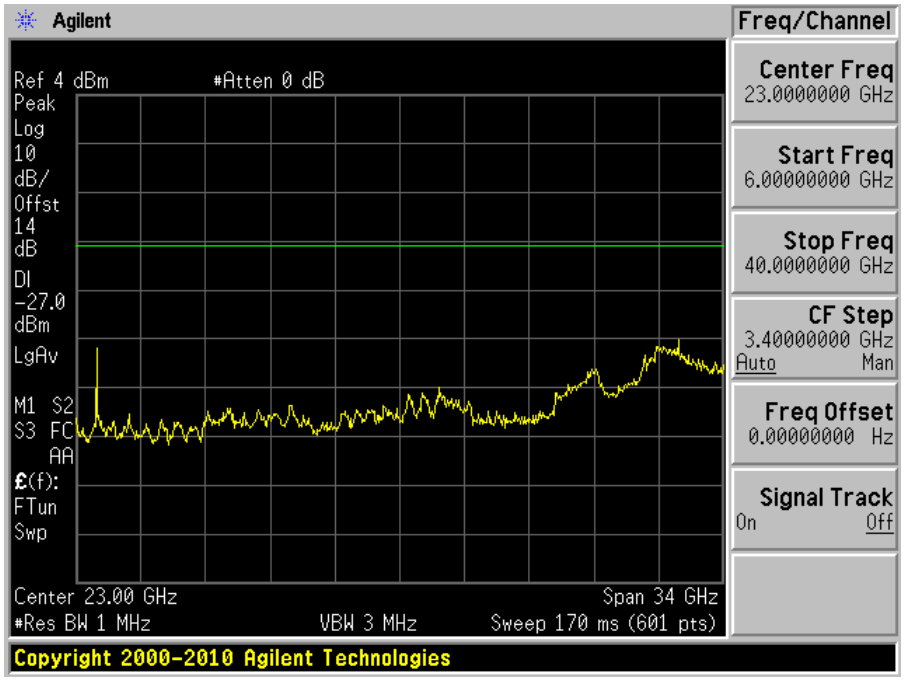
Low Channel 5270 MHz (6-40GHz)



High Channel 5310 MHz (30MHz-6GHz)

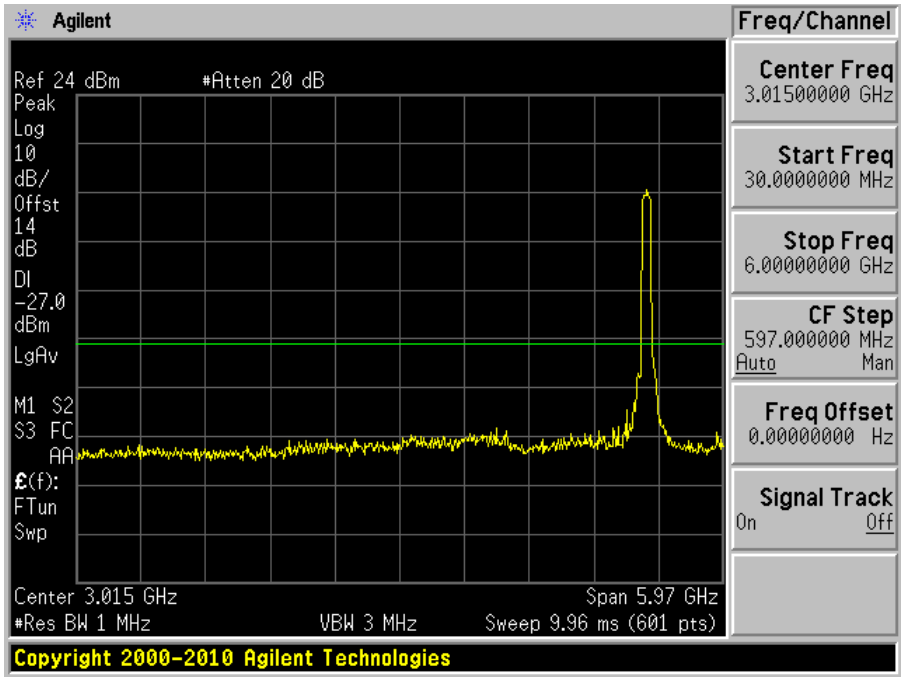


High Channel 5310 MHz (6GHz – 40GHz)

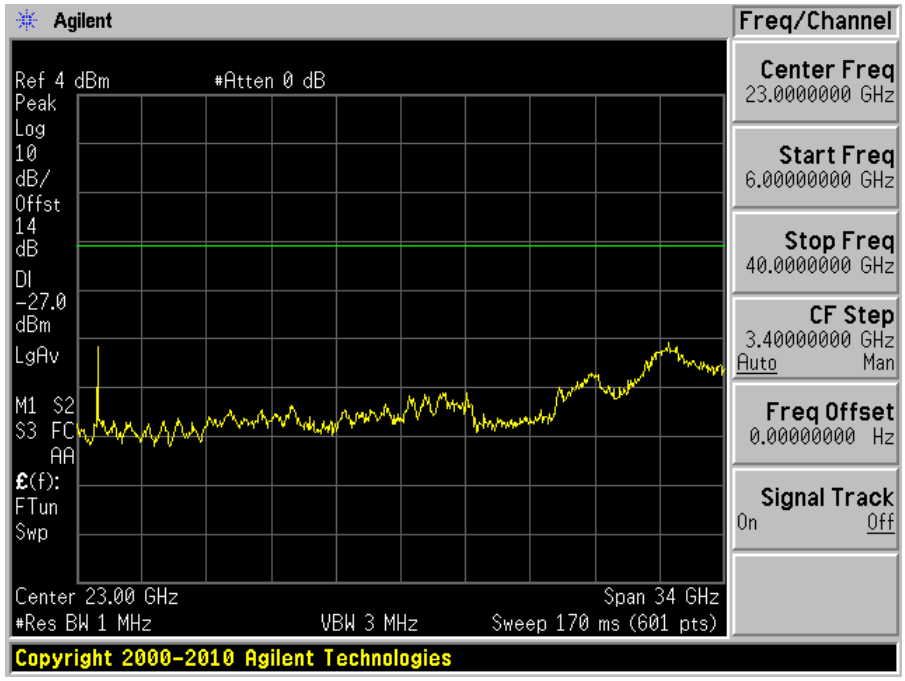


802.11ac80 mode

5290 MHz (30MHz-6GHz)



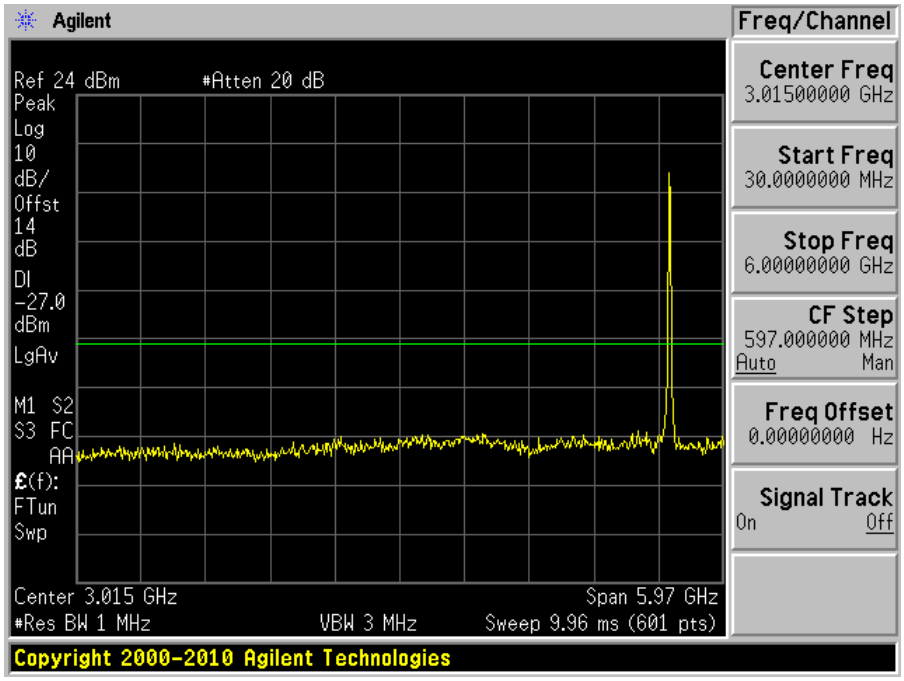
5290 MHz (6GHz – 40GHz)



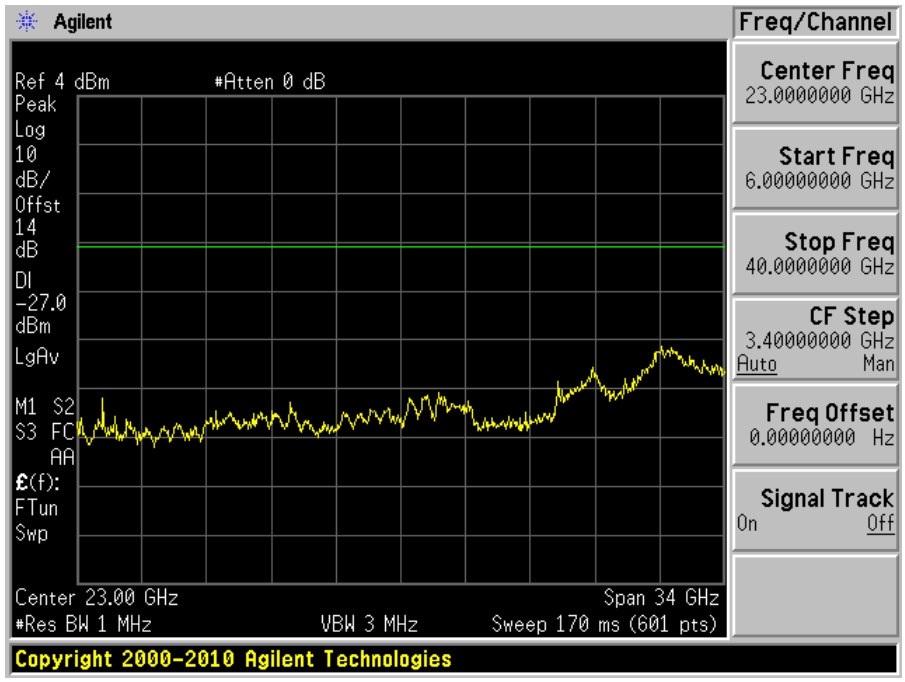
5470 – 5725 MHz

802.11a mode

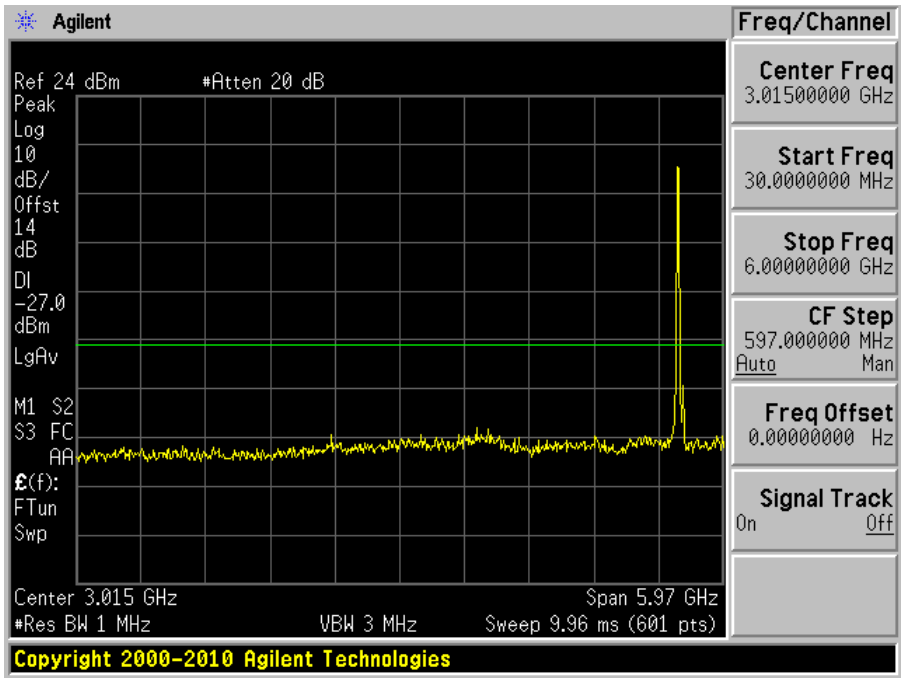
Low Channel 5500 MHz (30MHz-6GHz)



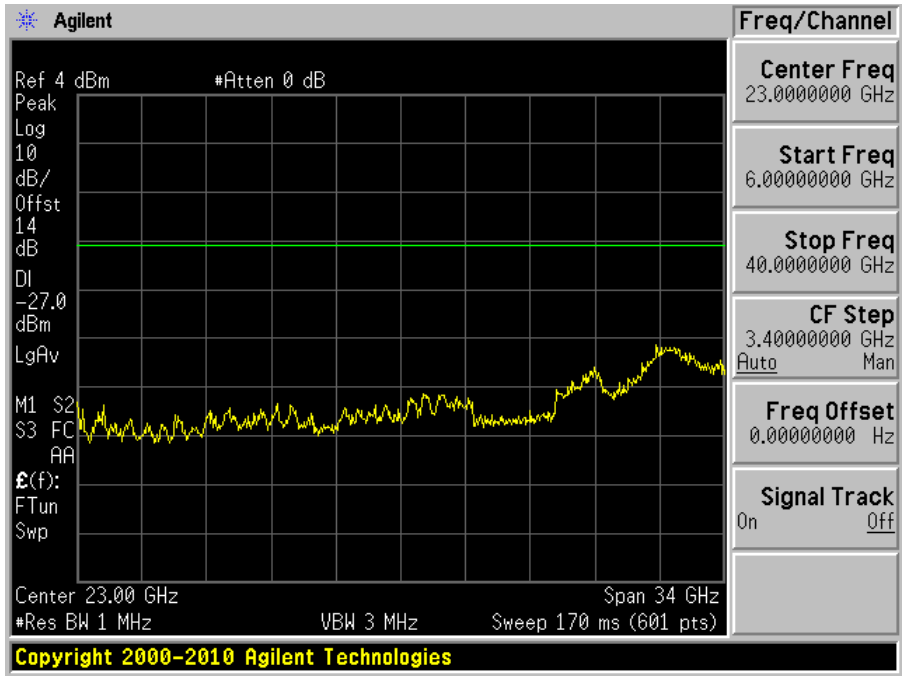
Low Channel 5500 MHz (6-40GHz)



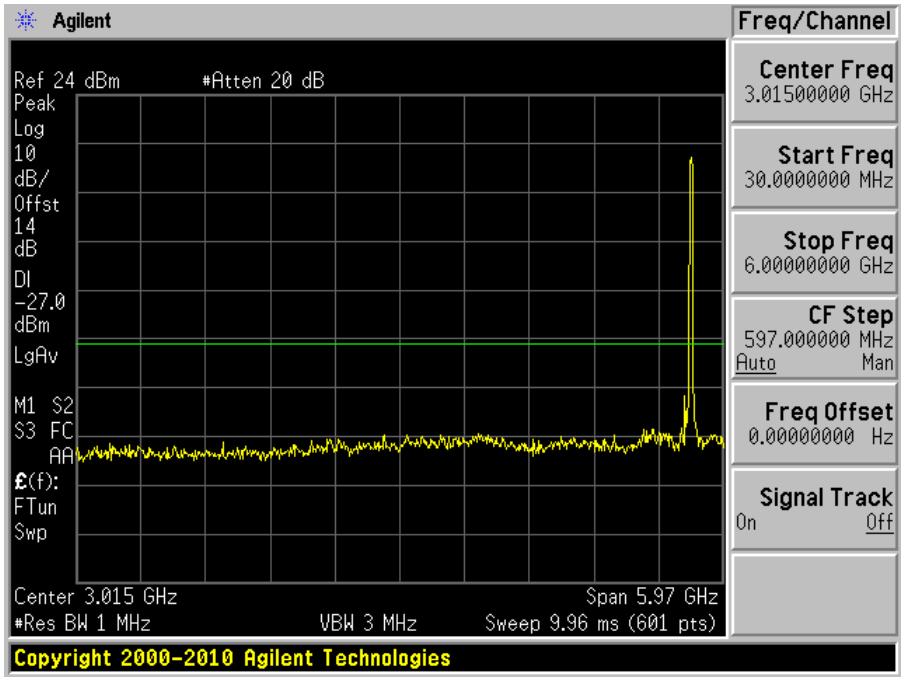
Middle Channel 5580 MHz (30MHz-6GHz)



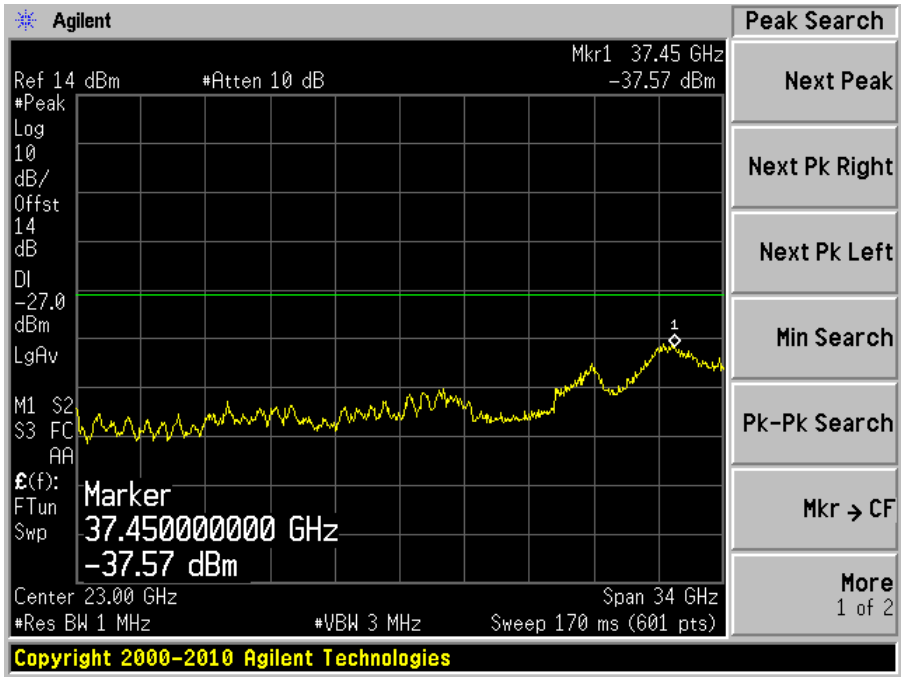
Middle Channel 5580 MHz (6-40GHz)



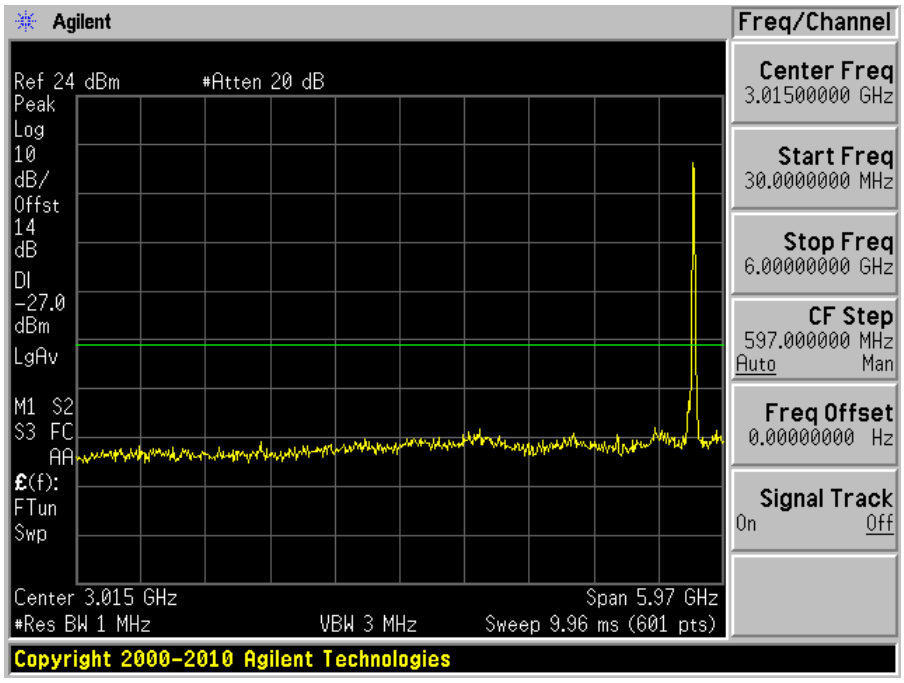
Middle Channel 5700 MHz (30MHz-6GHz)



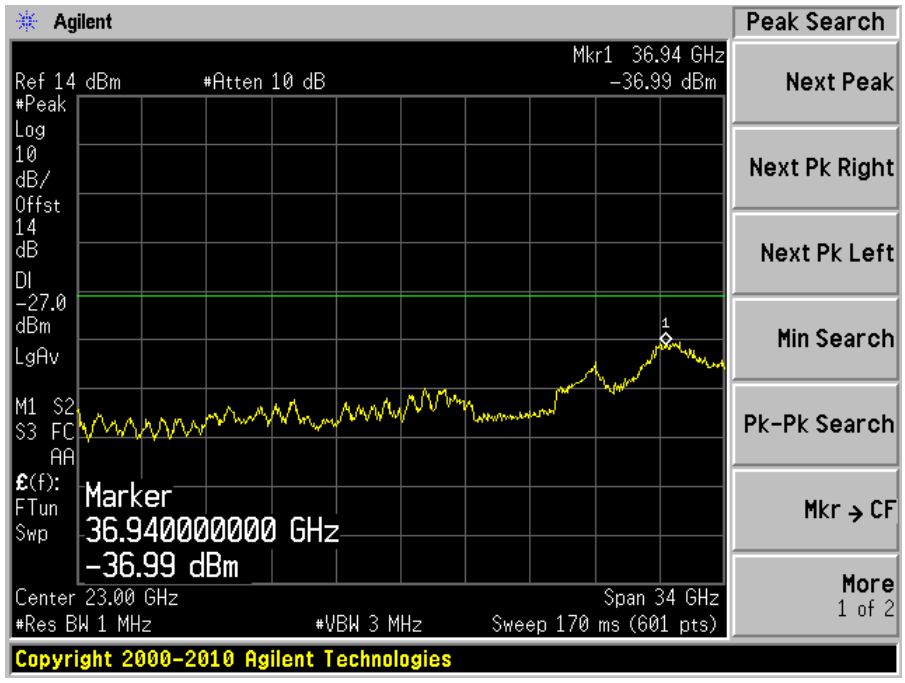
Middle Channel 5700 MHz (6-40GHz)



High Channel 5720 MHz (30MHz-6GHz)

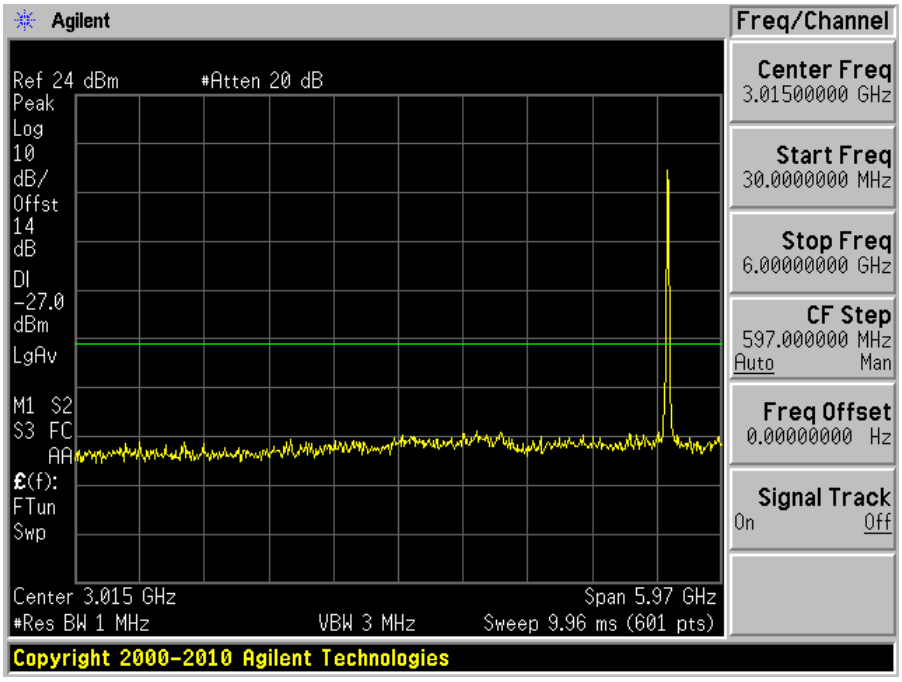


High Channel 5720 MHz (6-40GHz)

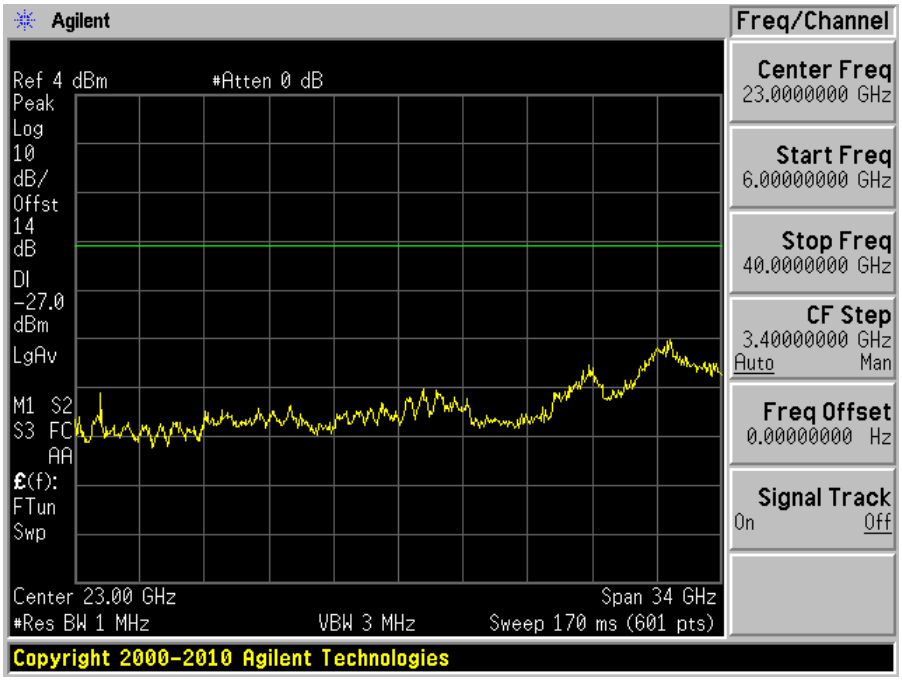


802.11n20 mode

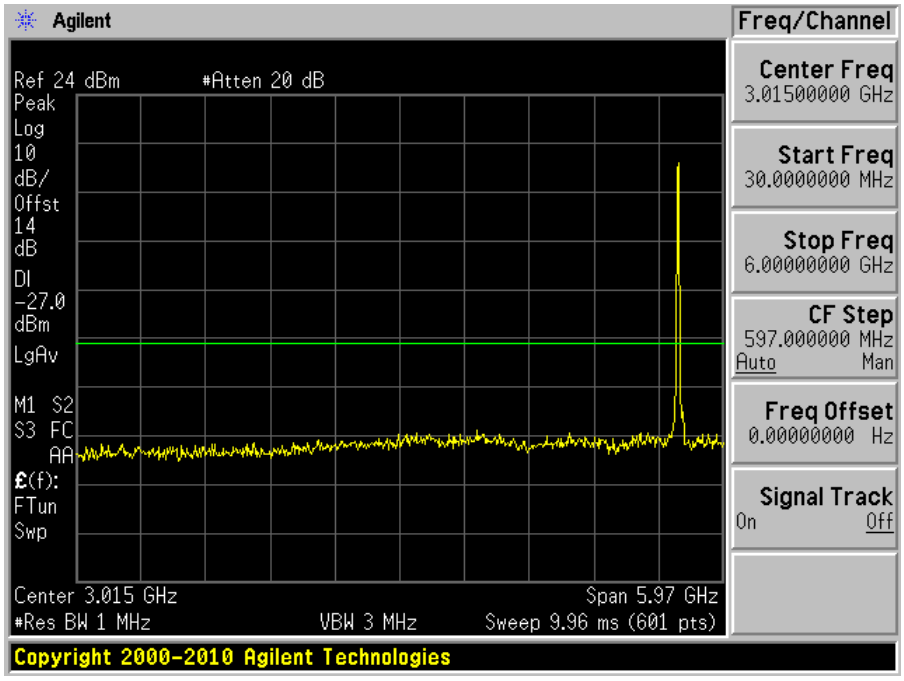
Low Channel 5500 MHz (30MHz-6GHz)



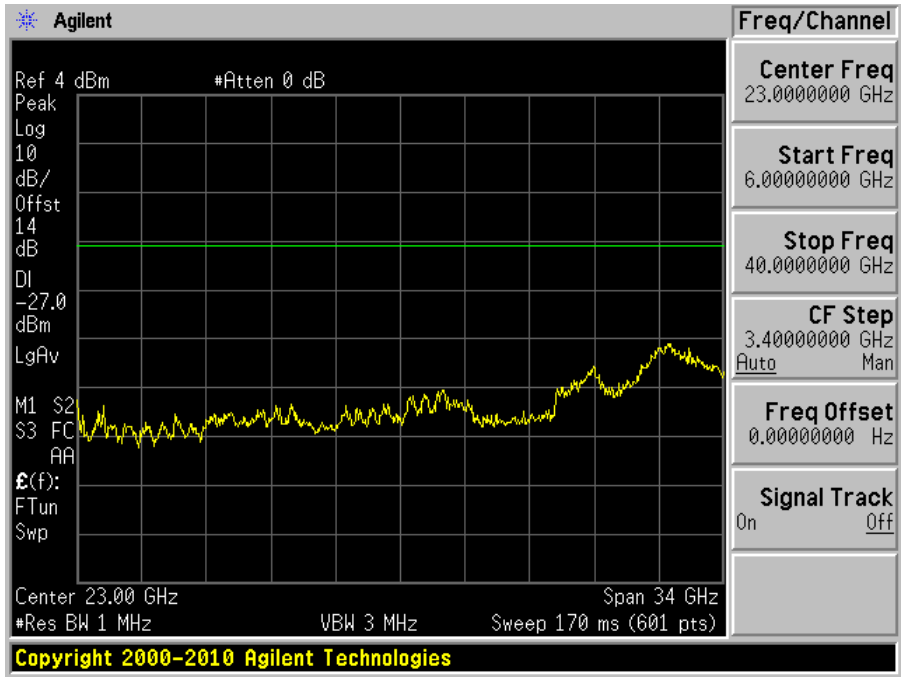
Low Channel 5500 MHz (6-40GHz)



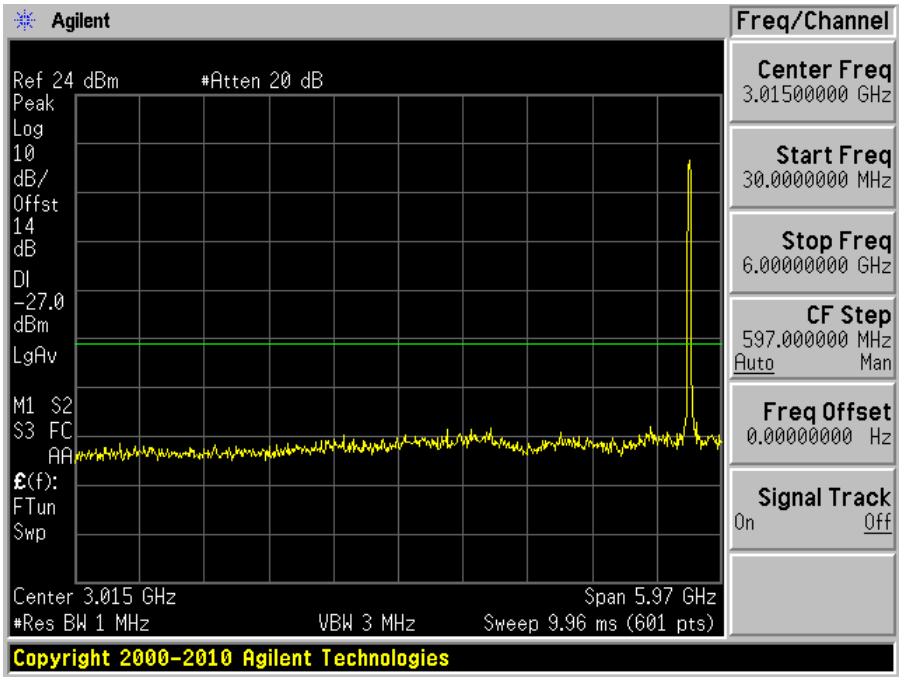
Middle Channel 5580 MHz (30MHz-6GHz)



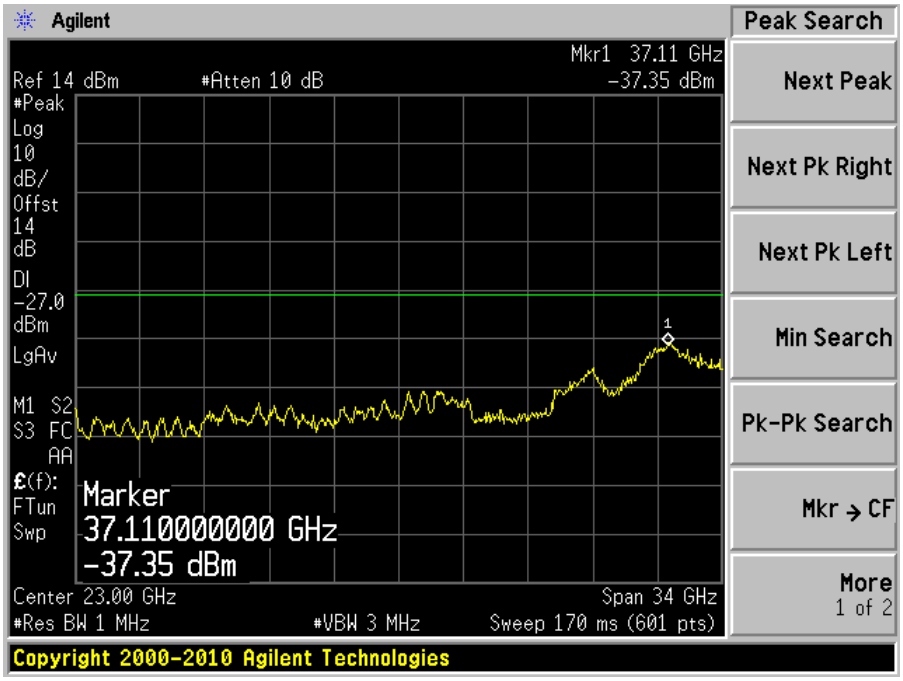
Middle Channel 5580 MHz (6-40GHz)



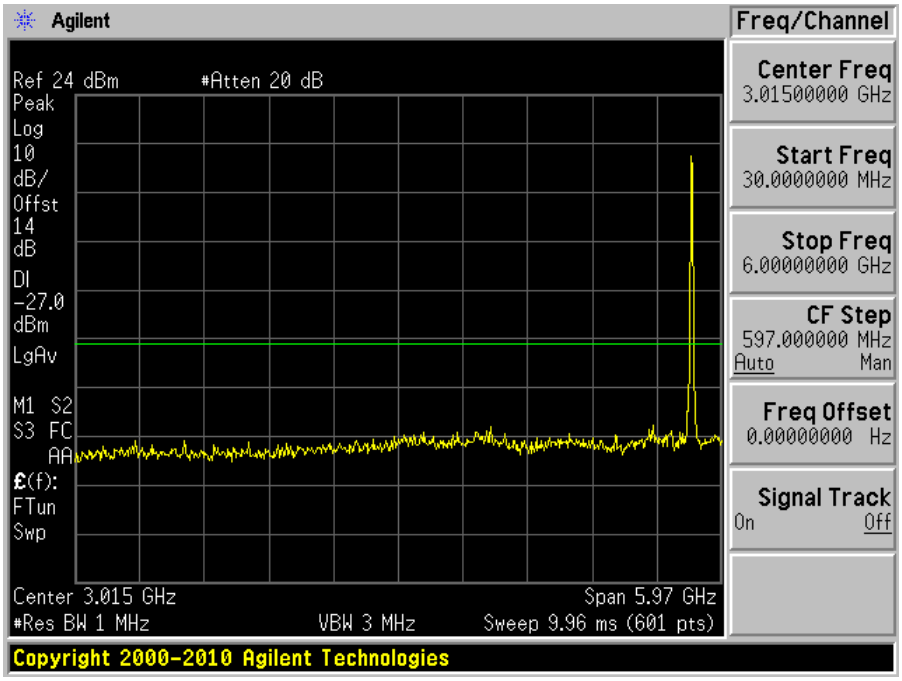
Middle Channel 5700 MHz (30MHz-6GHz)



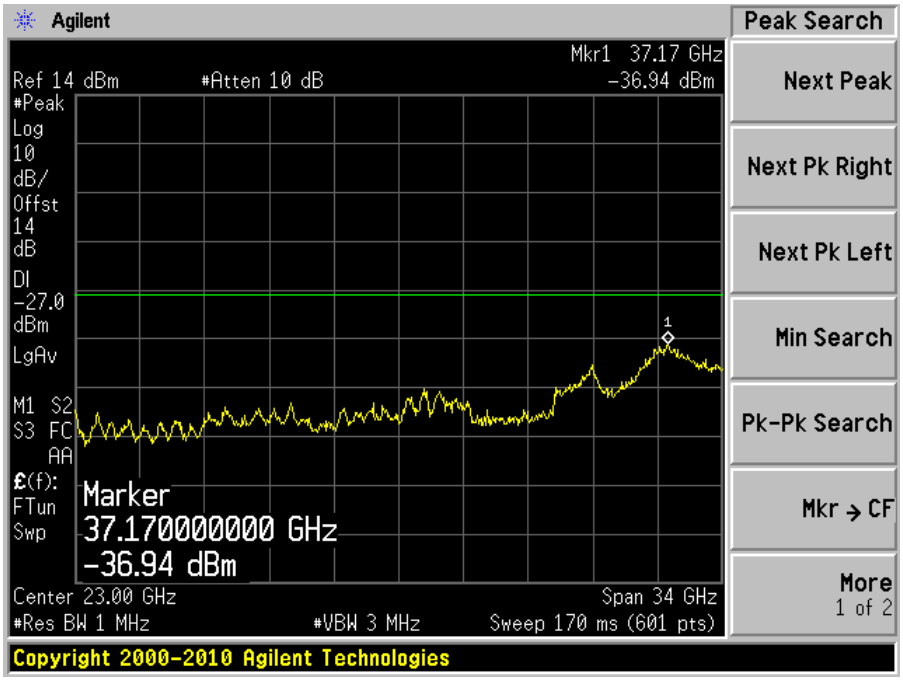
Middle Channel 5700 MHz (6-40GHz)



High Channel 5720 MHz (30MHz-6GHz)

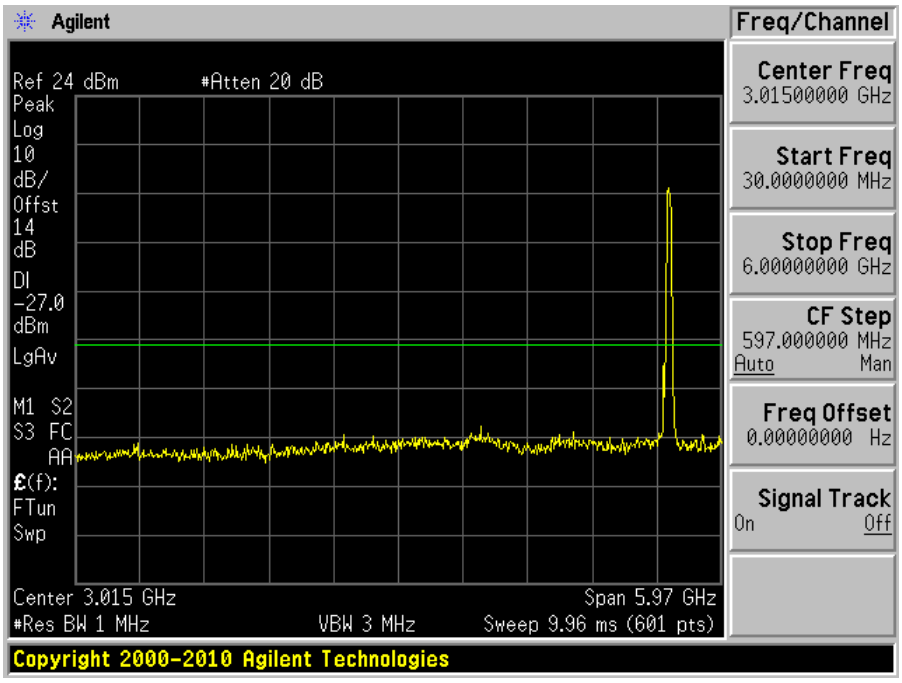


High Channel 5720 MHz (6-40GHz)

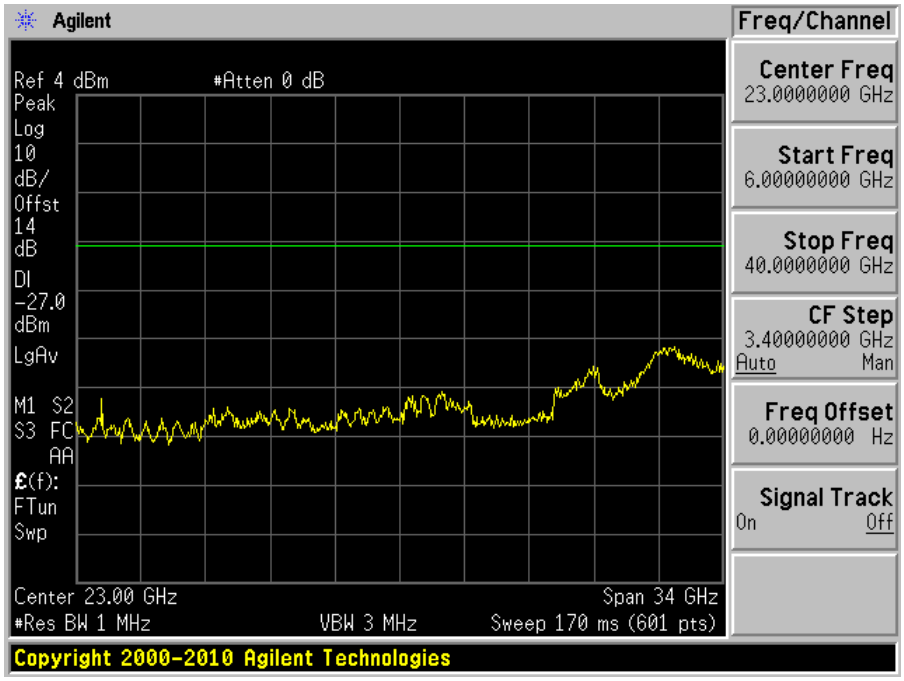


802.11n40 mode

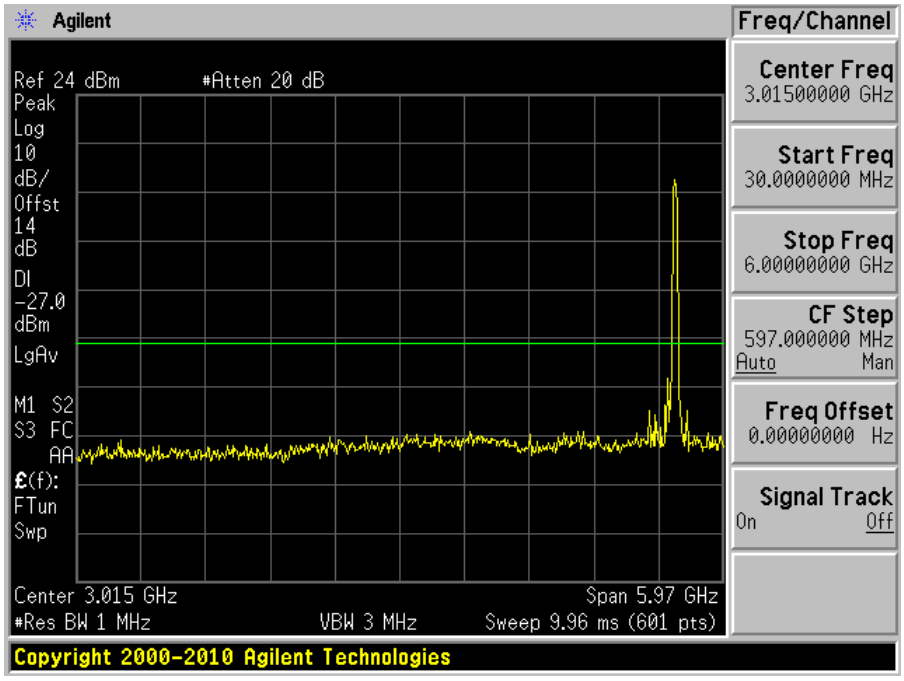
Low Channel 5510 MHz (30MHz-6GHz)



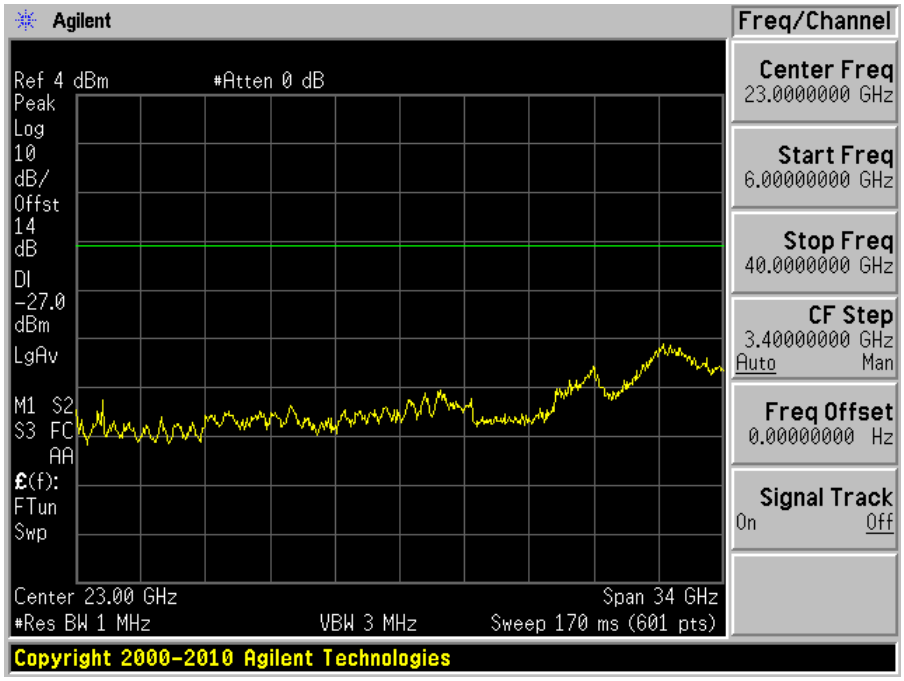
Low Channel 5510 MHz (6-40GHz)



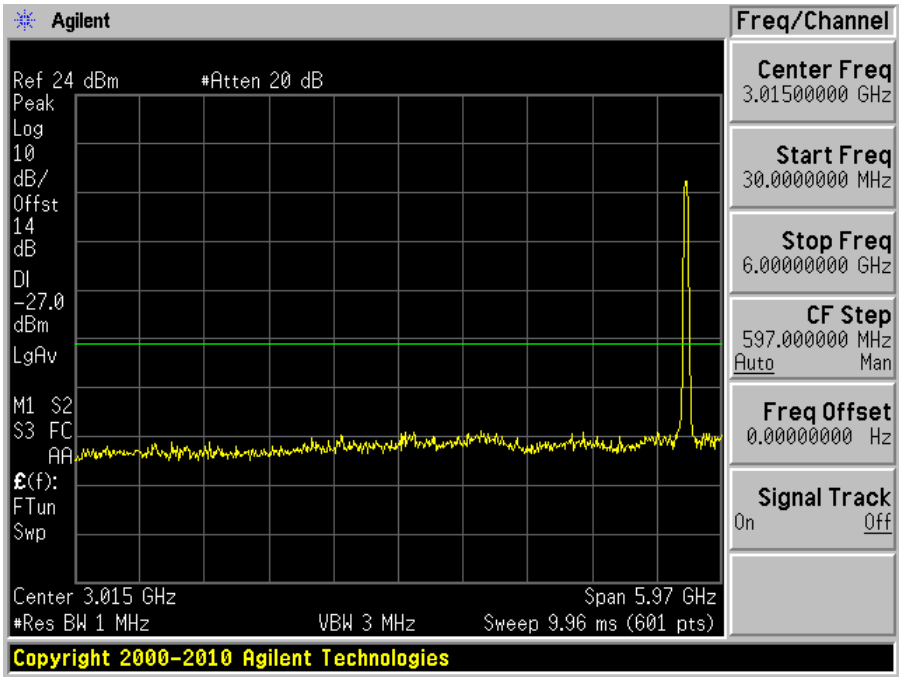
Middle Channel 5500 MHz (30MHz-6GHz)



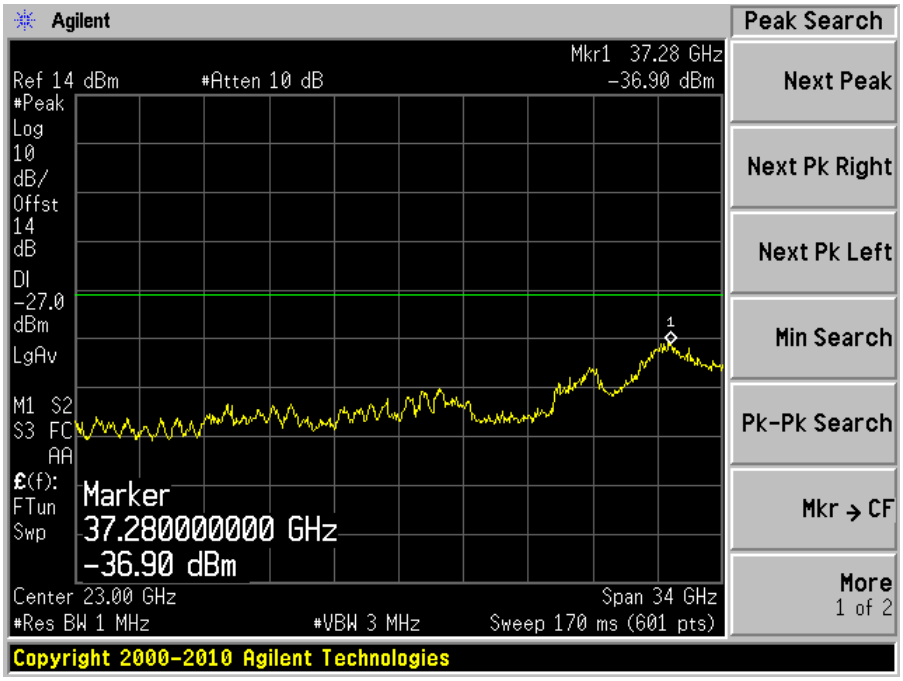
Middle Channel 5500 MHz (6-40GHz)



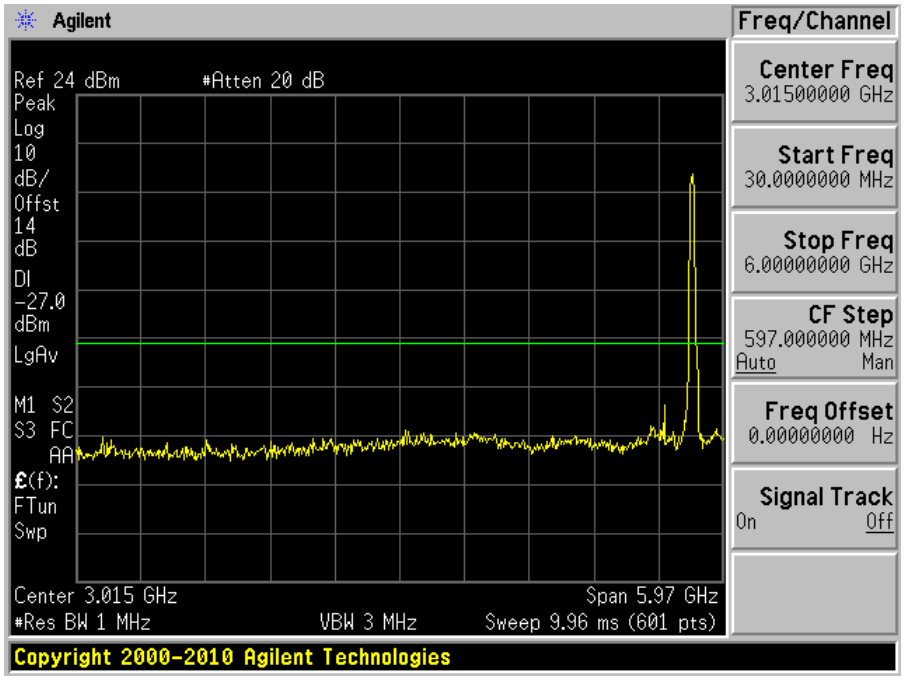
Middle Channel 5670 MHz (30MHz-6GHz)



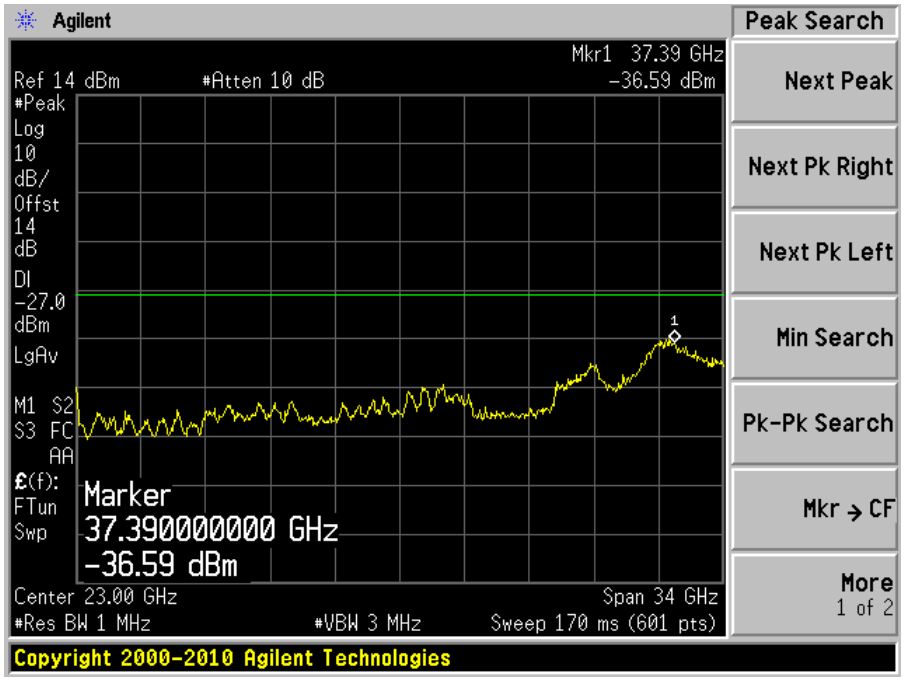
Middle Channel 5670 MHz (6-40GHz)



High Channel 5710 MHz (30MHz-6GHz)

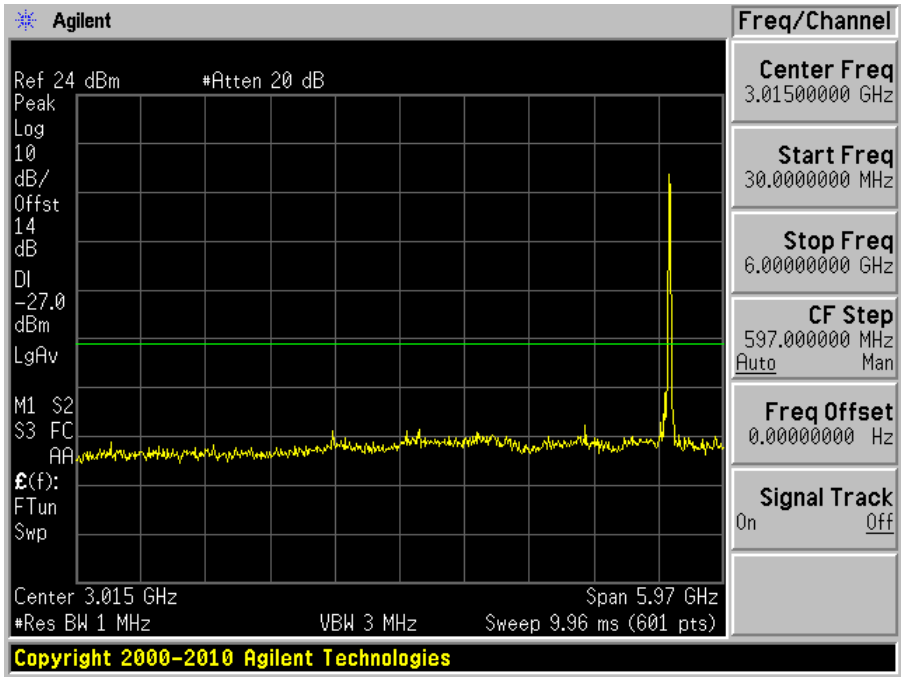


High Channel 5710 MHz (6-40GHz)

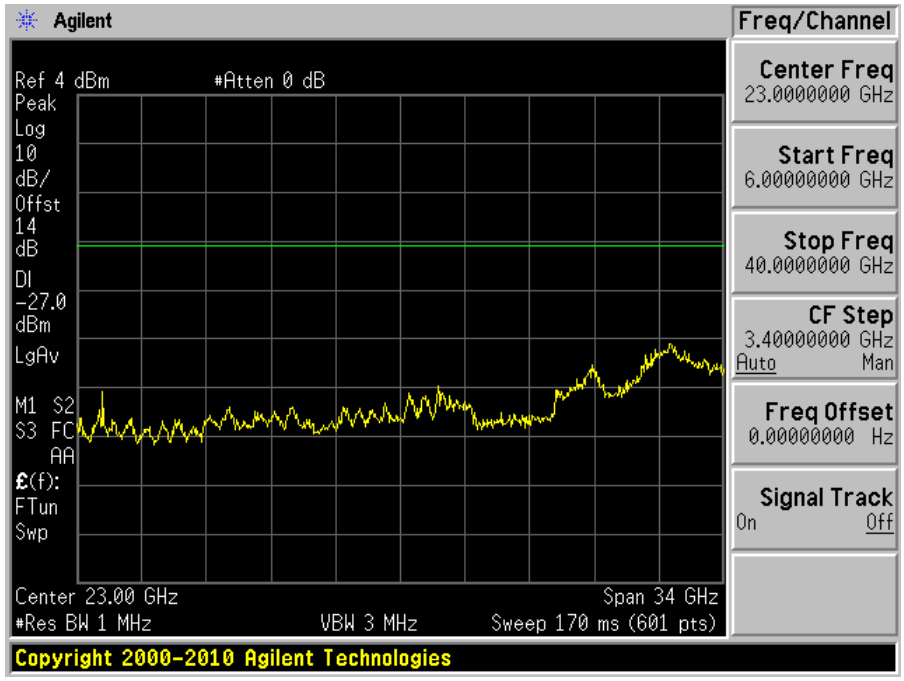


802.11ac20 mode

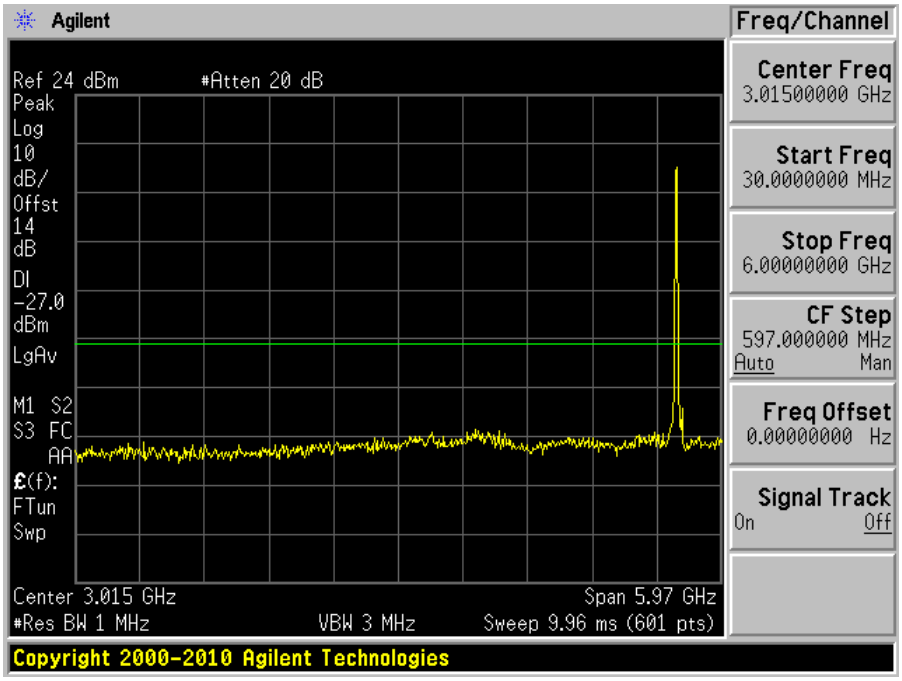
Low Channel 5500 MHz (30MHz-6GHz)



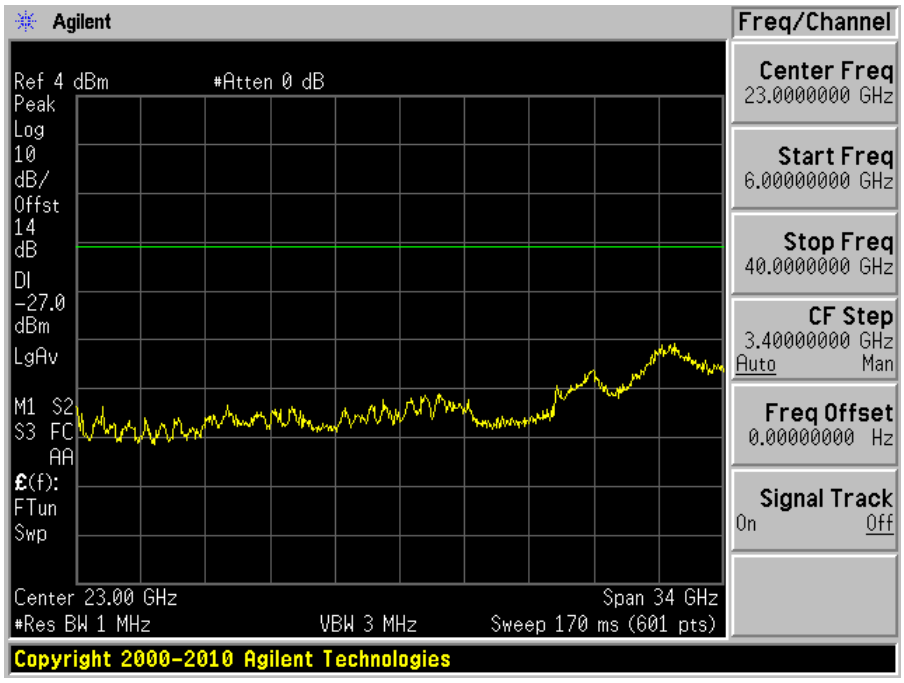
Low Channel 5500 MHz (6-40GHz)



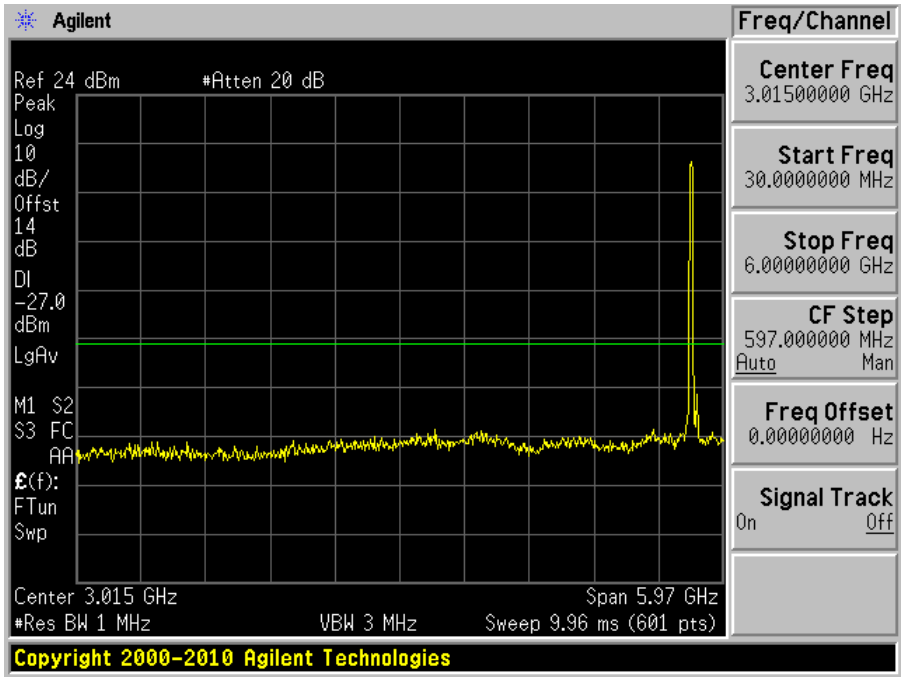
Middle Channel 5580 MHz (30MHz-6GHz)



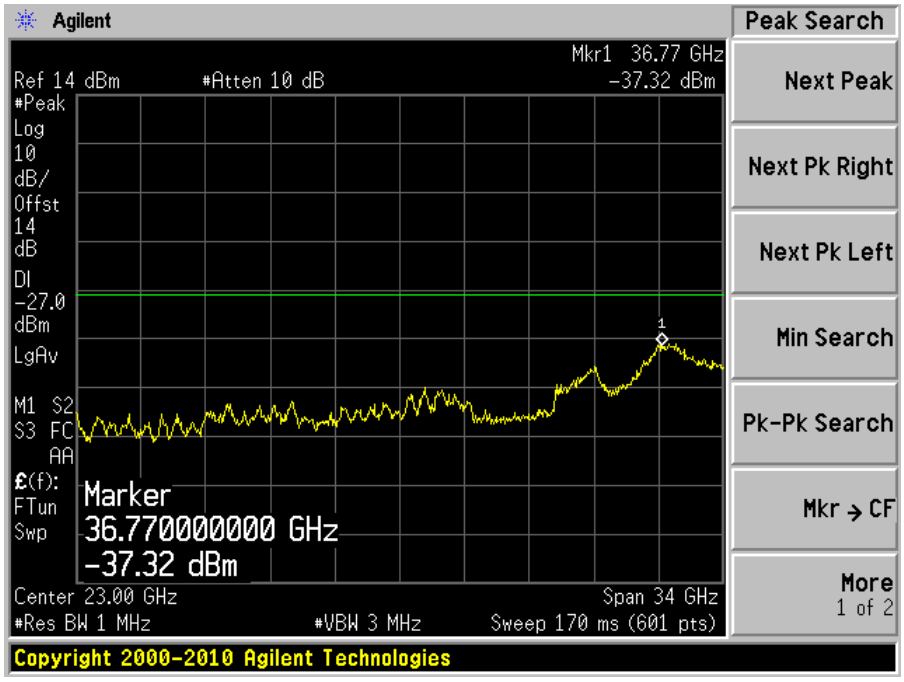
Middle Channel 5580 MHz (6GHz – 40GHz)



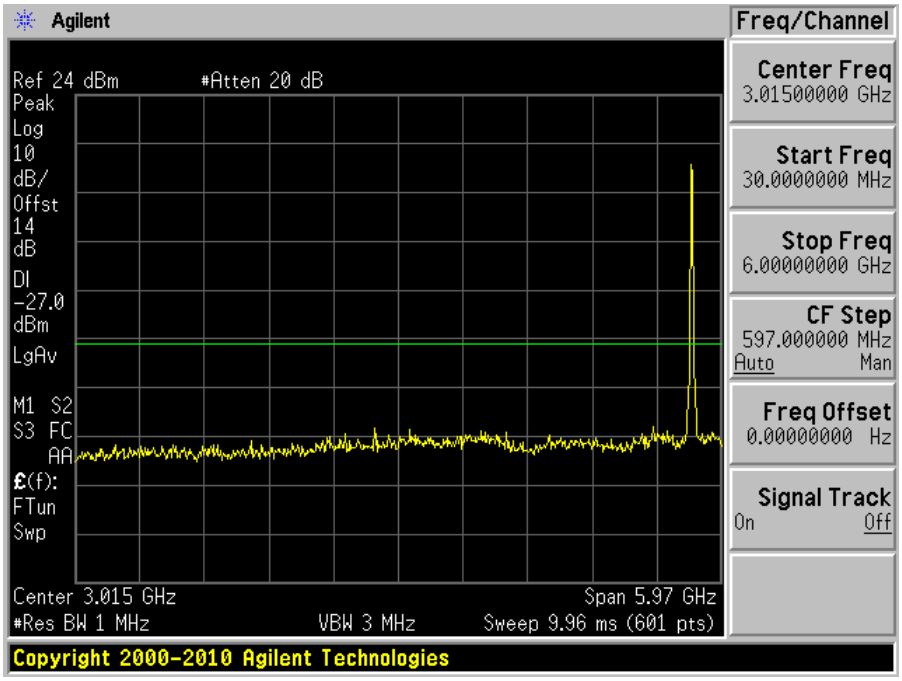
Middle Channel 5700 MHz (30MHz-6GHz)



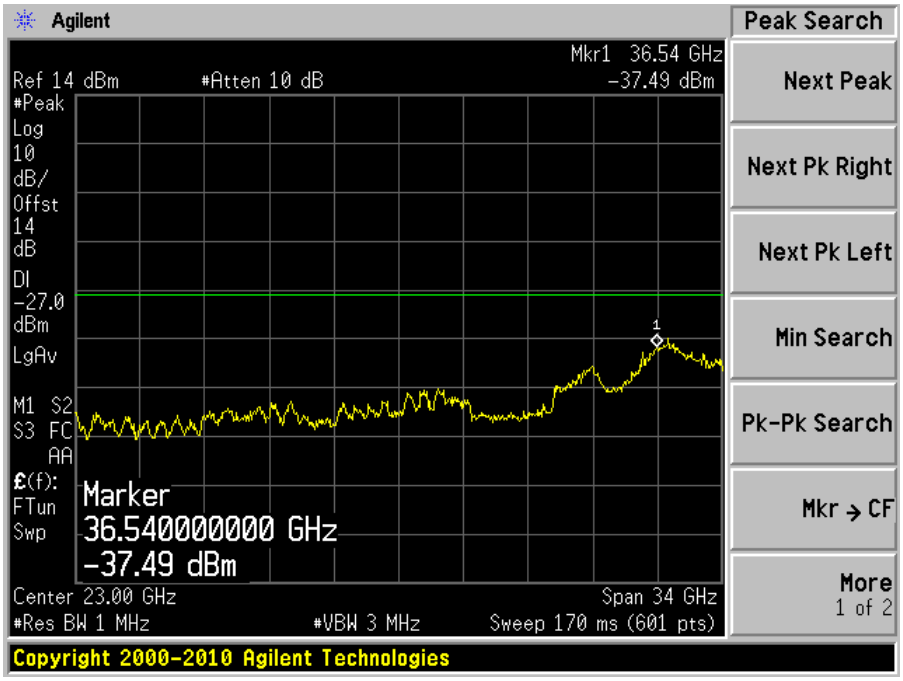
Middle Channel 5700 MHz (6GHz – 40GHz)



High Channel 5720 MHz (30MHz-6GHz)

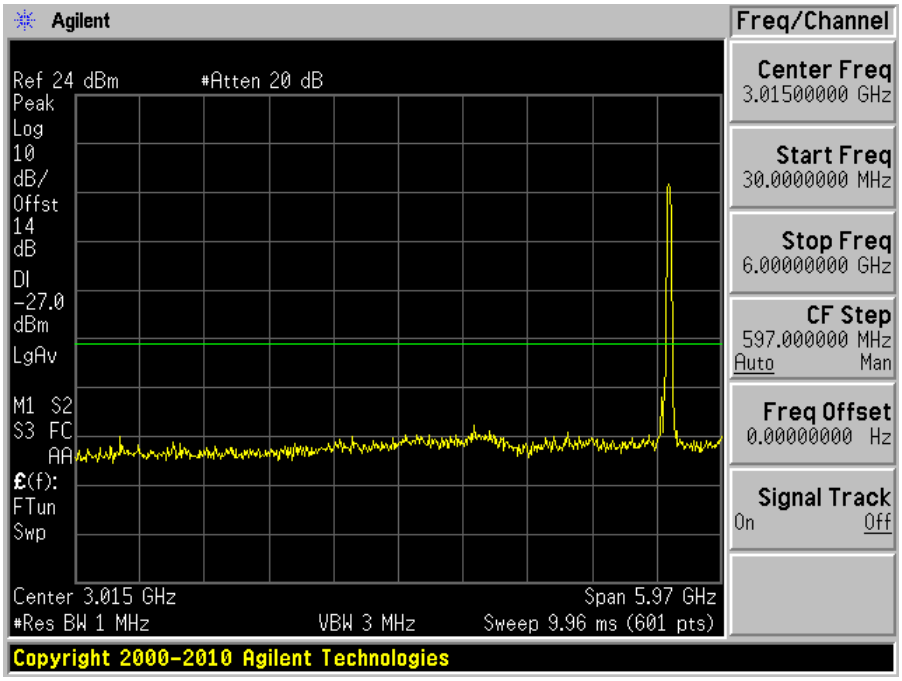


High Channel 5720 MHz (6-40GHz)

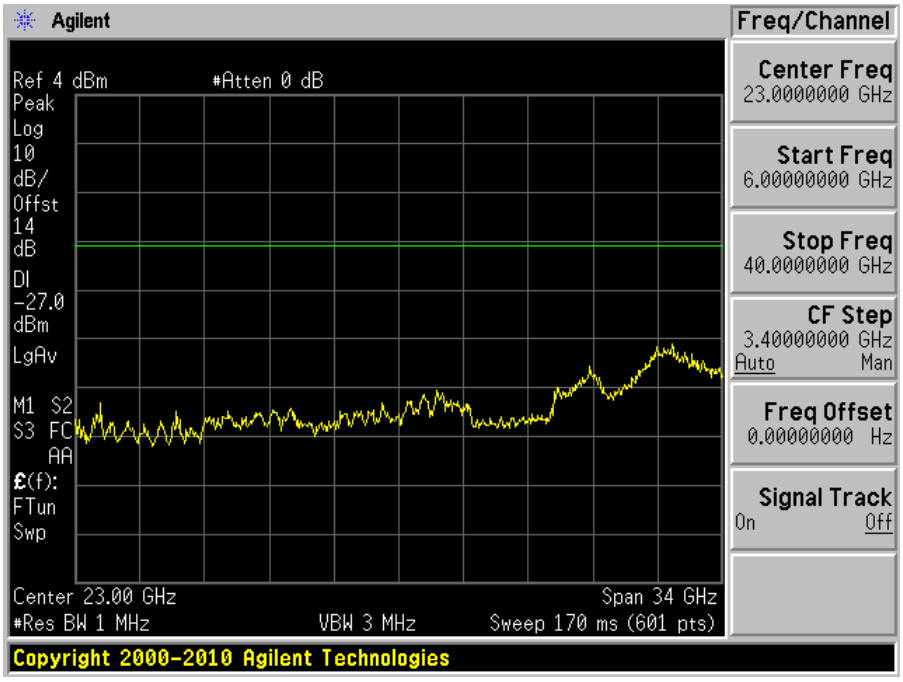


802.11ac40 mode

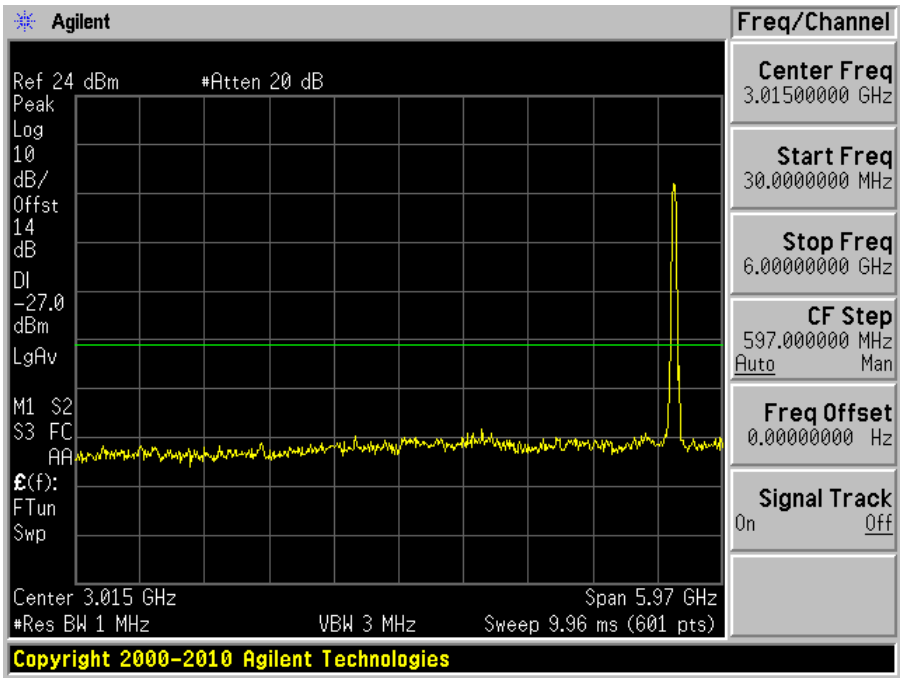
Low Channel 5510 MHz (30MHz-6GHz)



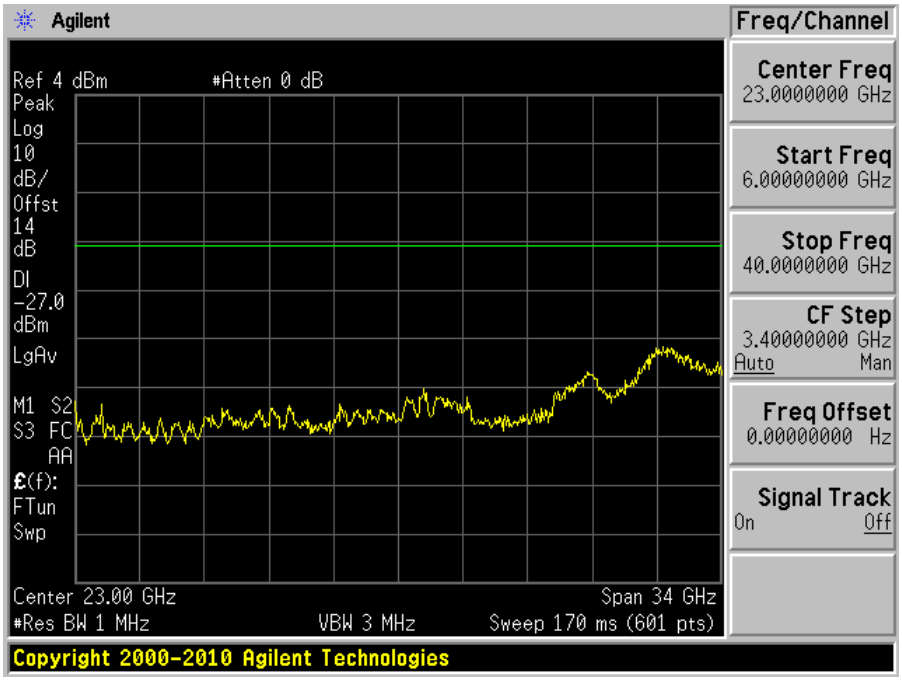
Low Channel 5510 MHz (6-40GHz)



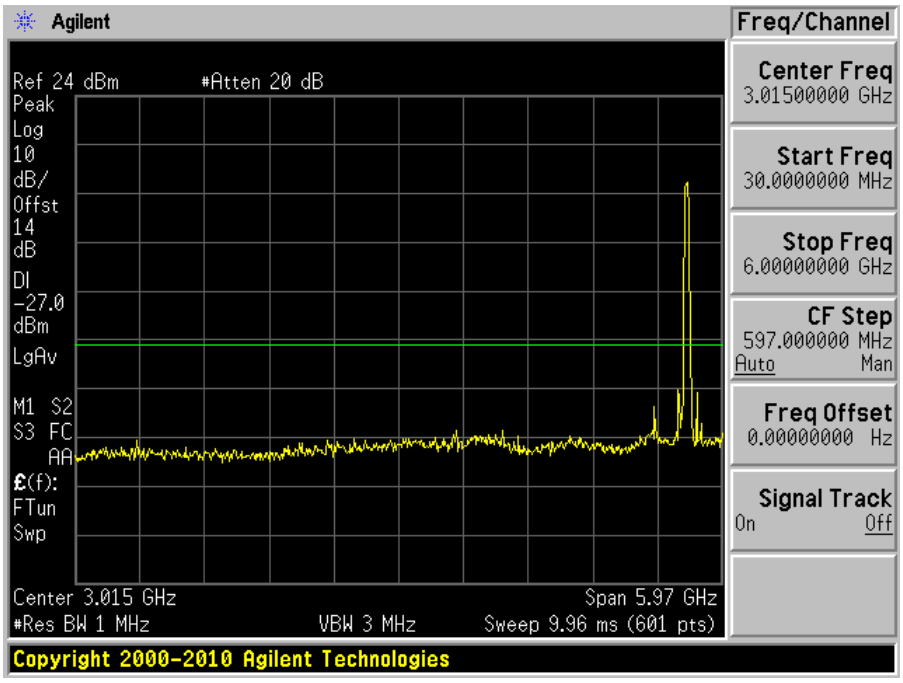
Middle Channel 5550 MHz (30MHz-6GHz)



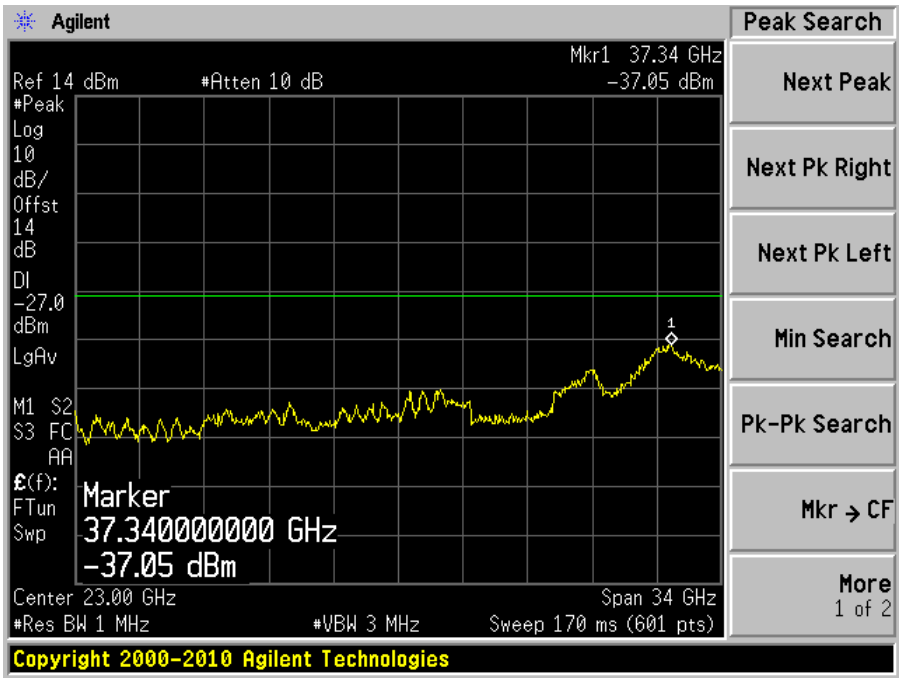
Middle Channel 5550 MHz (6-40GHz)



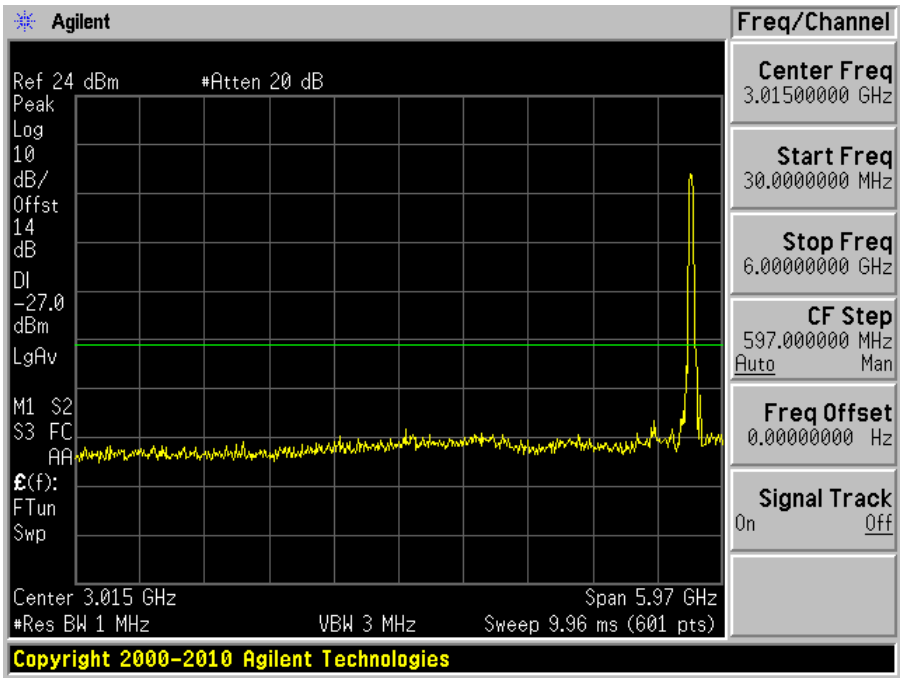
Middle Channel 5670 MHz (30MHz-6GHz)



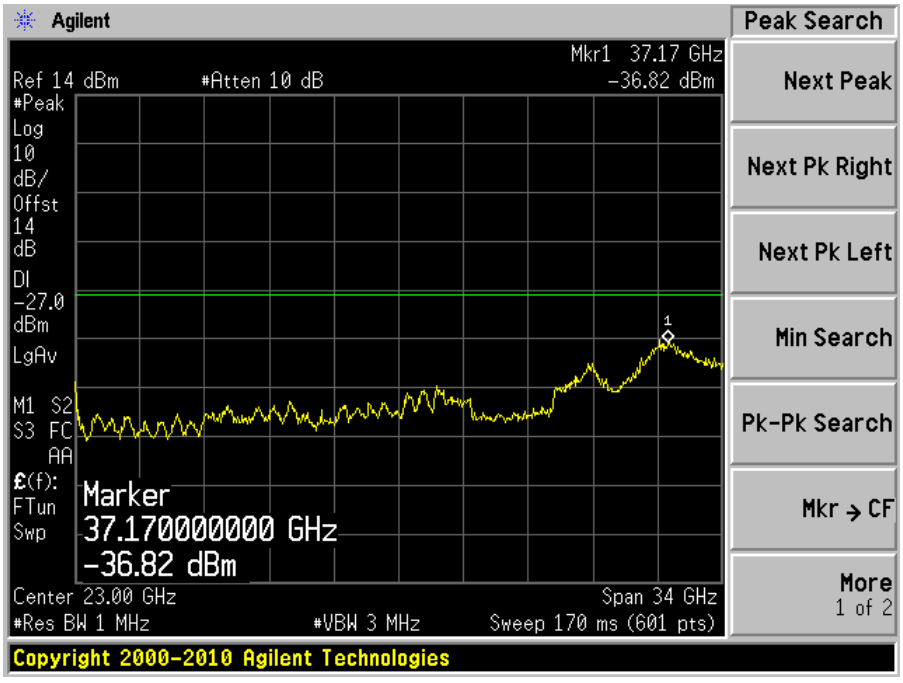
Middle Channel 5670 MHz (6-40GHz)



High Channel 5710 MHz (30MHz-6GHz)

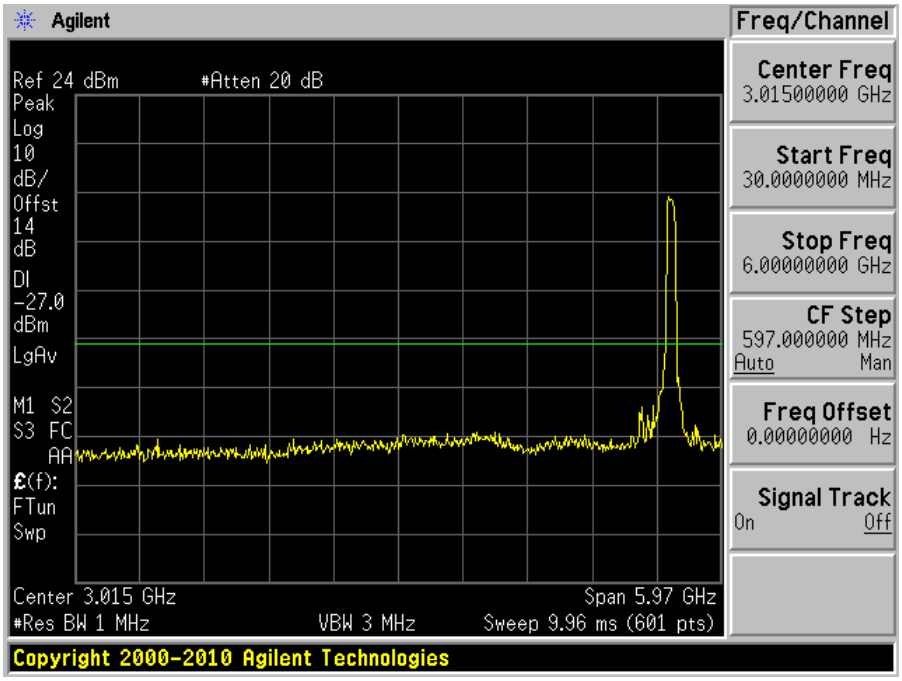


High Channel 5710 MHz (6-40GHz)

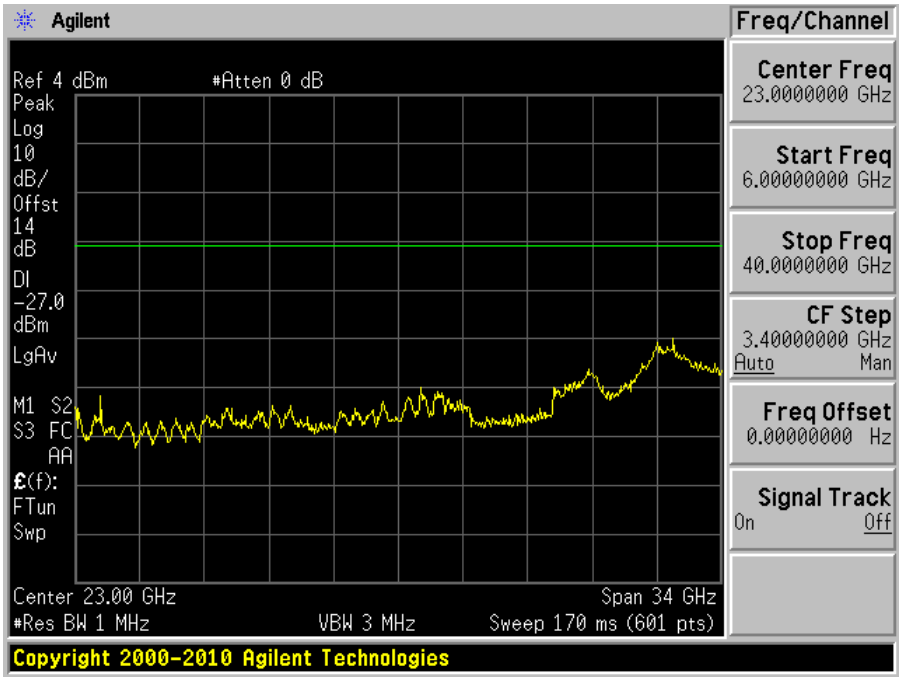


802.11ac80 mode

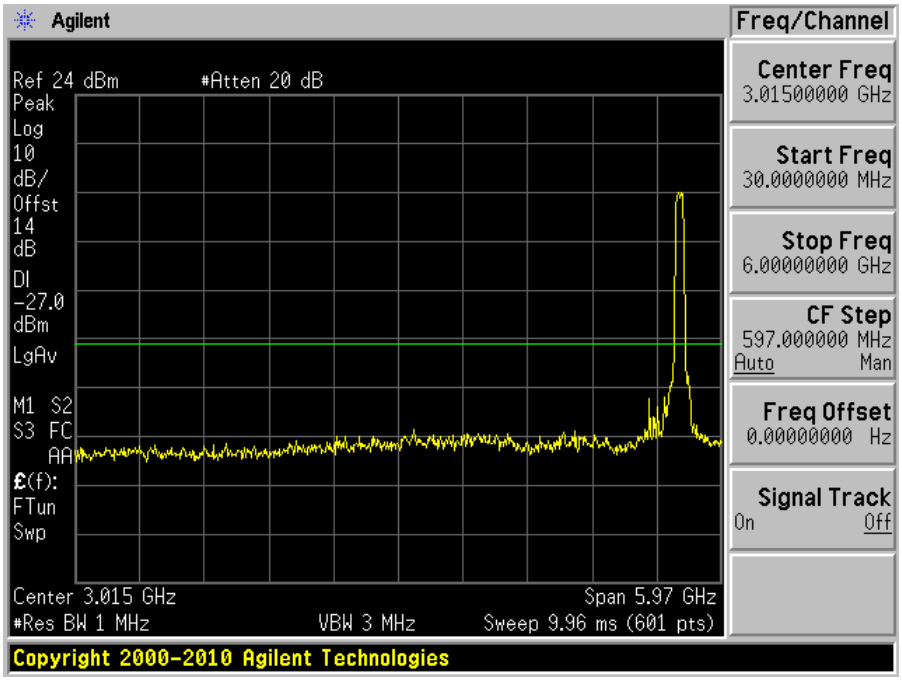
Low Channel 5530 MHz (30MHz-6GHz)



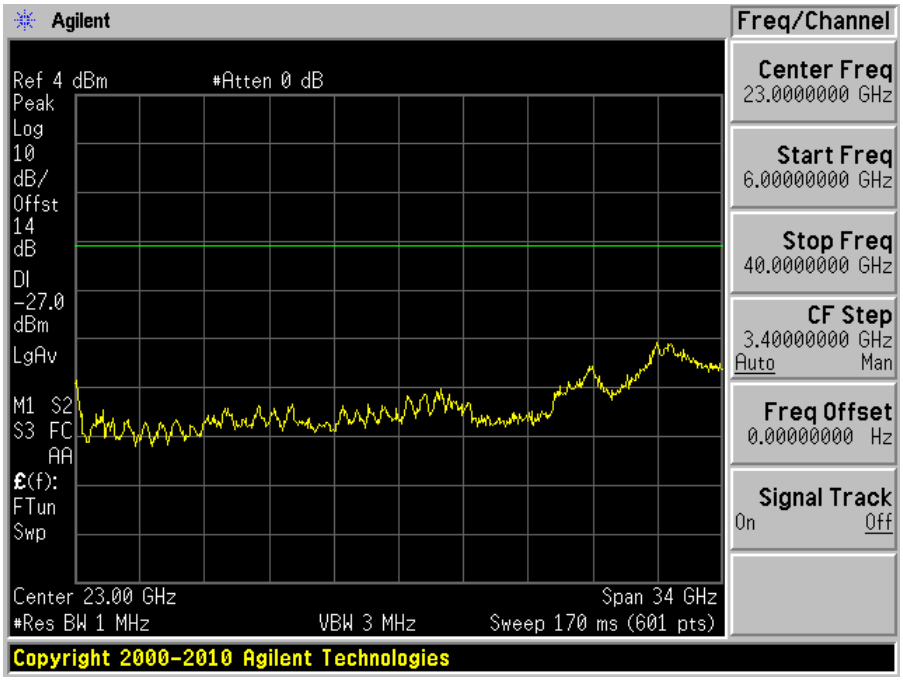
Low Channel 5530 MHz (6GHz – 40GHz)



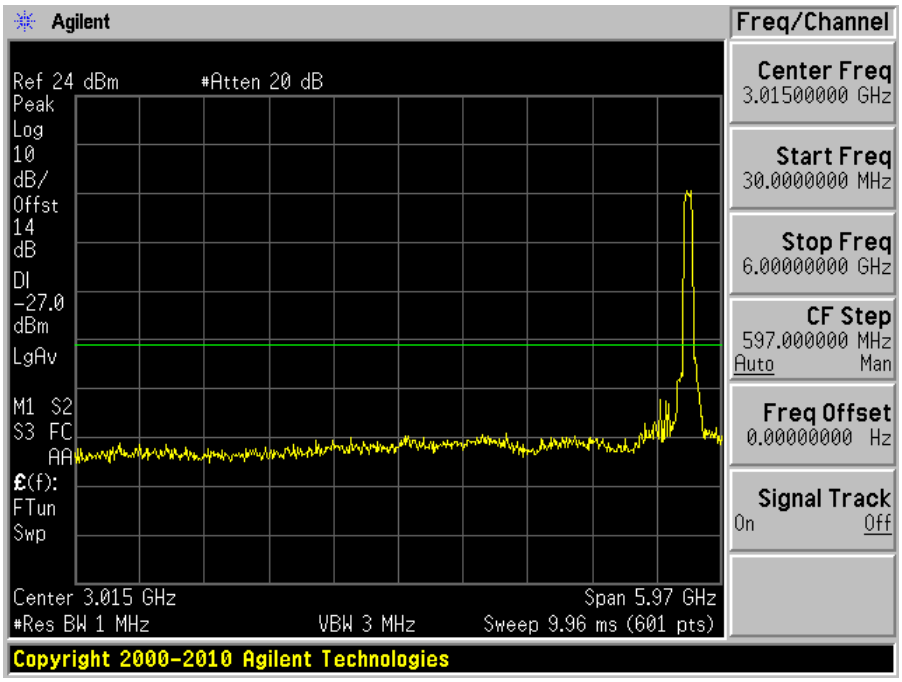
Middle Channel 5610 MHz (30MHz-6GHz)



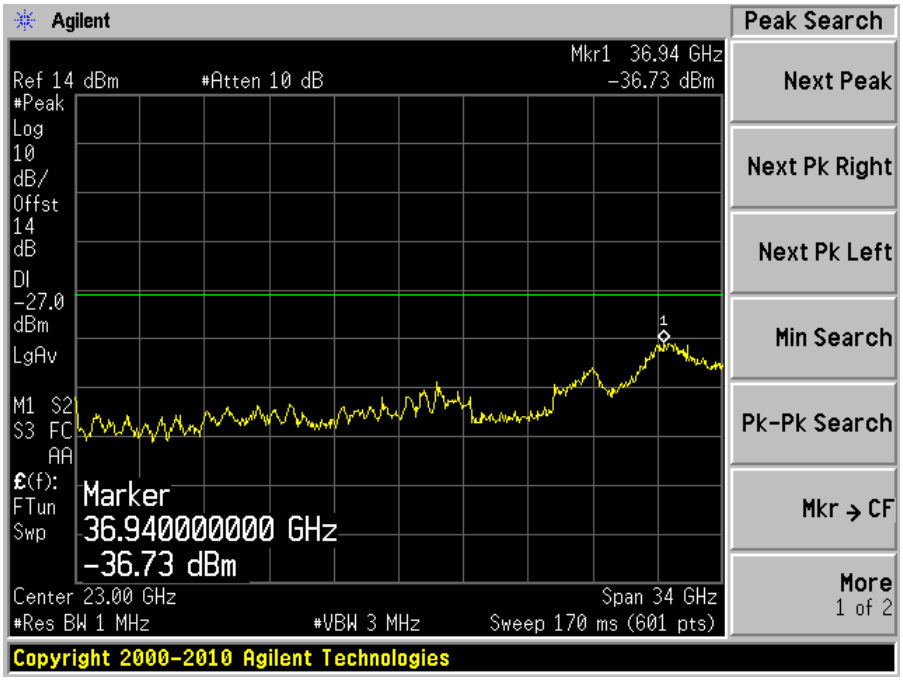
Middle Channel 5610 MHz (6GHz – 40GHz)



High Channel 5690 MHz (30MHz-6GHz)



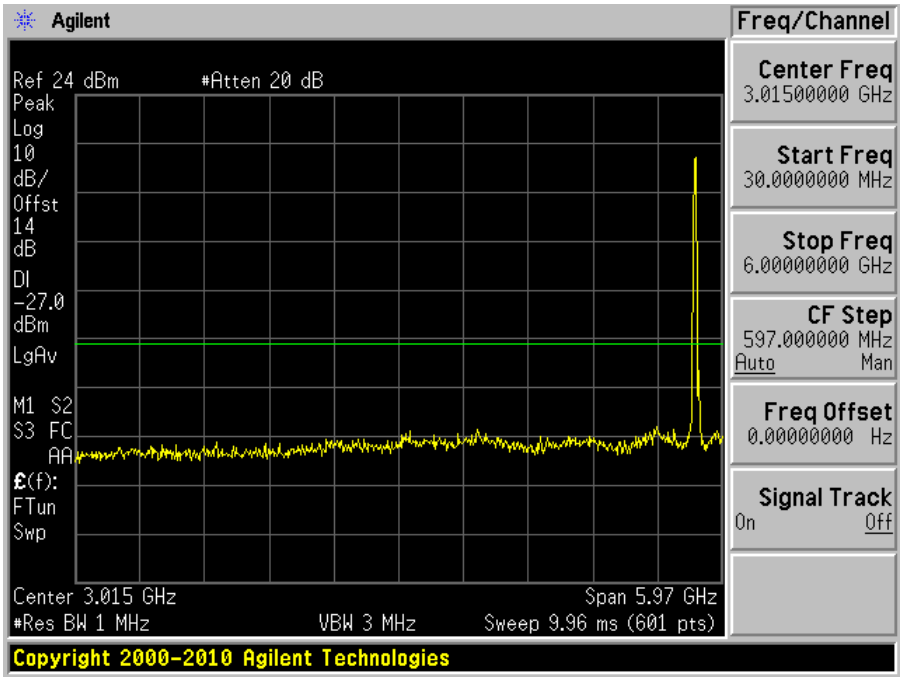
High Channel 5690 MHz (6GHz – 40GHz)



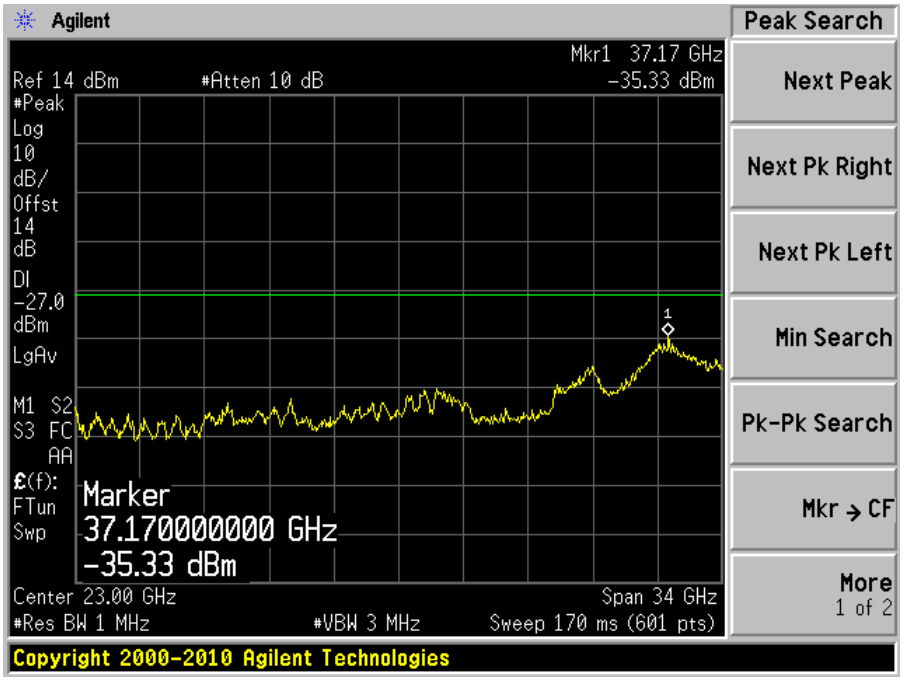
5725 – 5850 MHz

802.11a

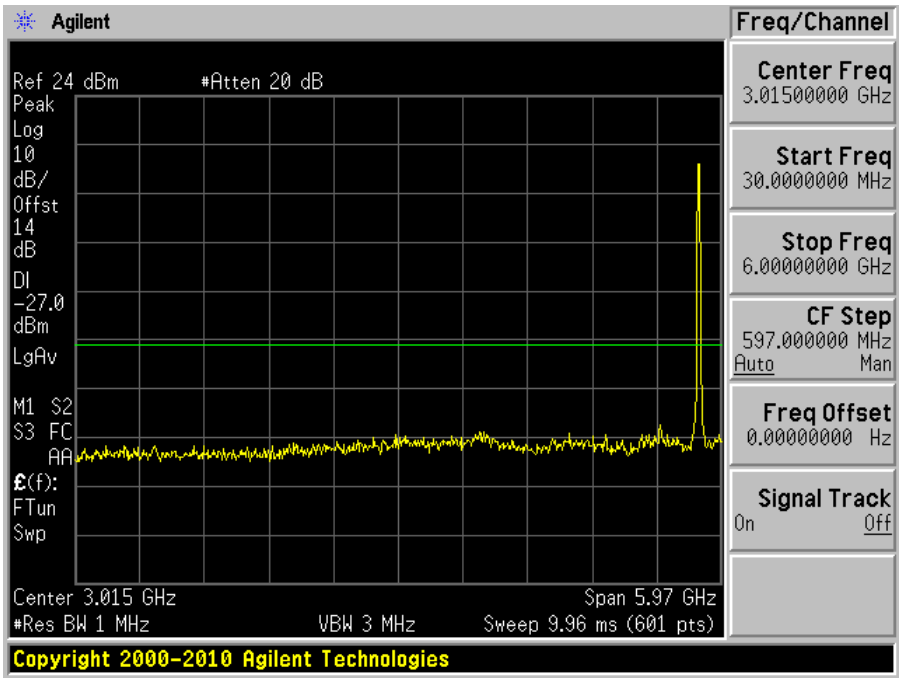
Low Channel 5745 MHz (30MHz-6GHz)



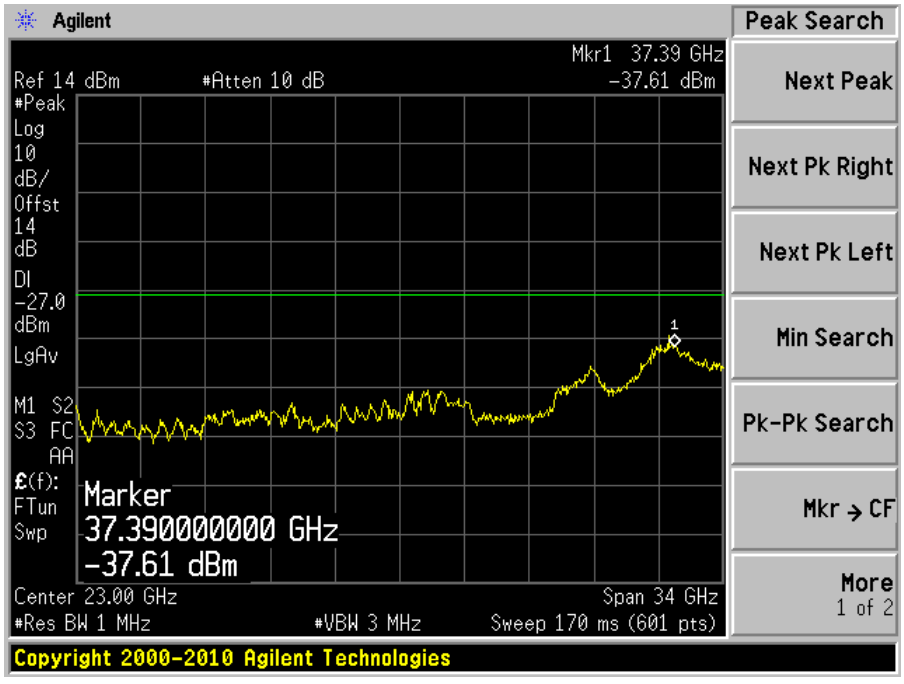
Low Channel 5745 MHz (6-40GHz)



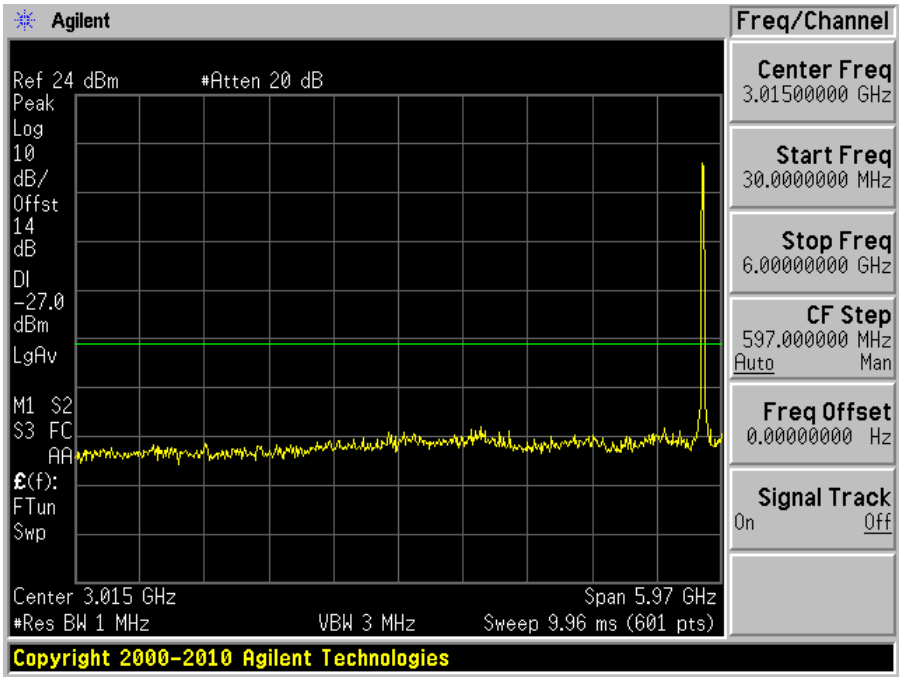
Middle Channel 5785 MHz (30MHz-6GHz)



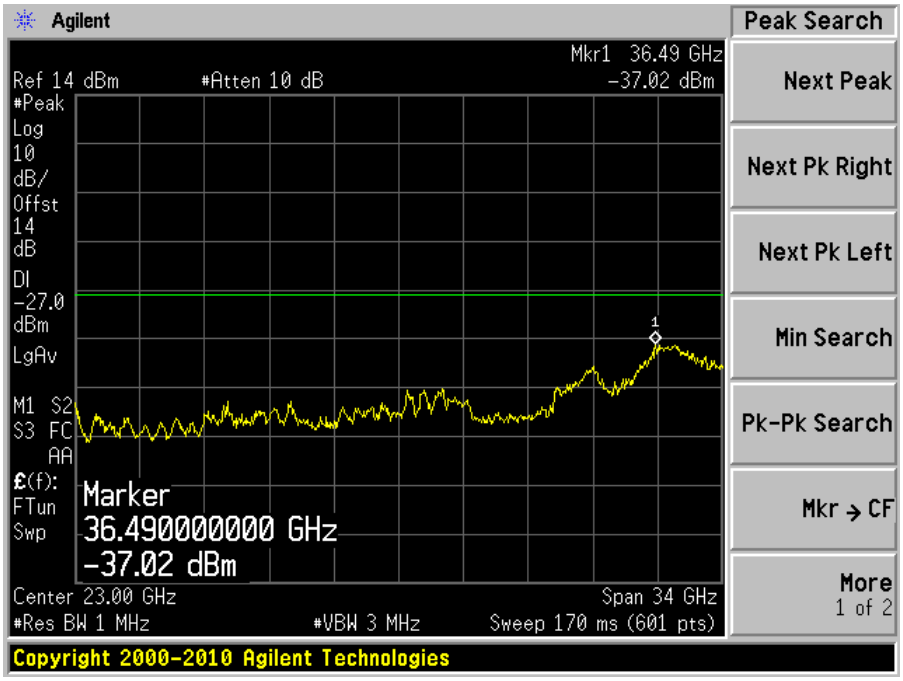
Middle Channel 5785 MHz (6-40GHz)



High Channel 5825 MHz (30MHz-6GHz)

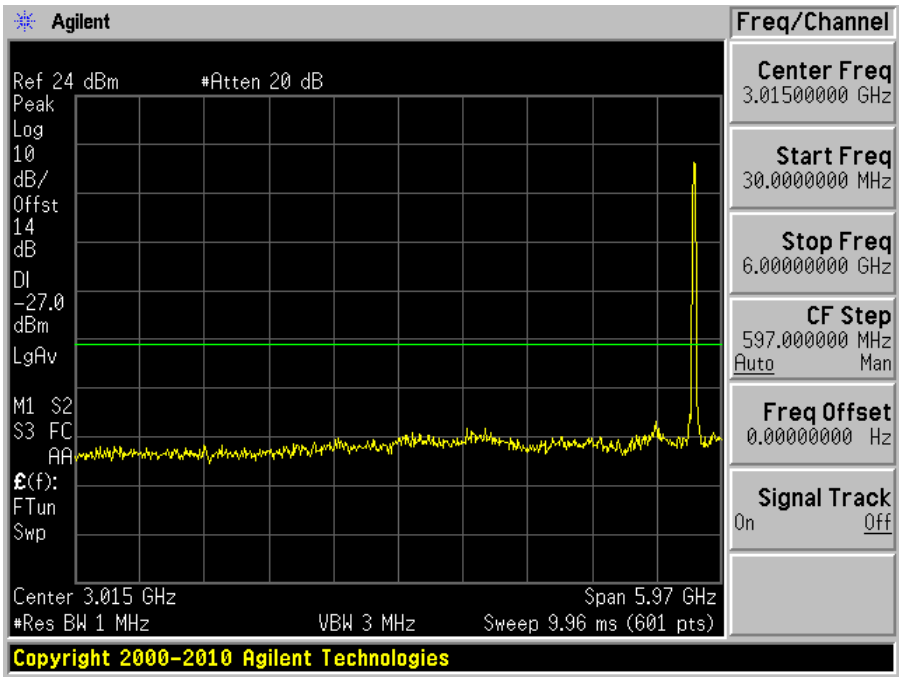


High Channel 5825 MHz (6-40GHz)

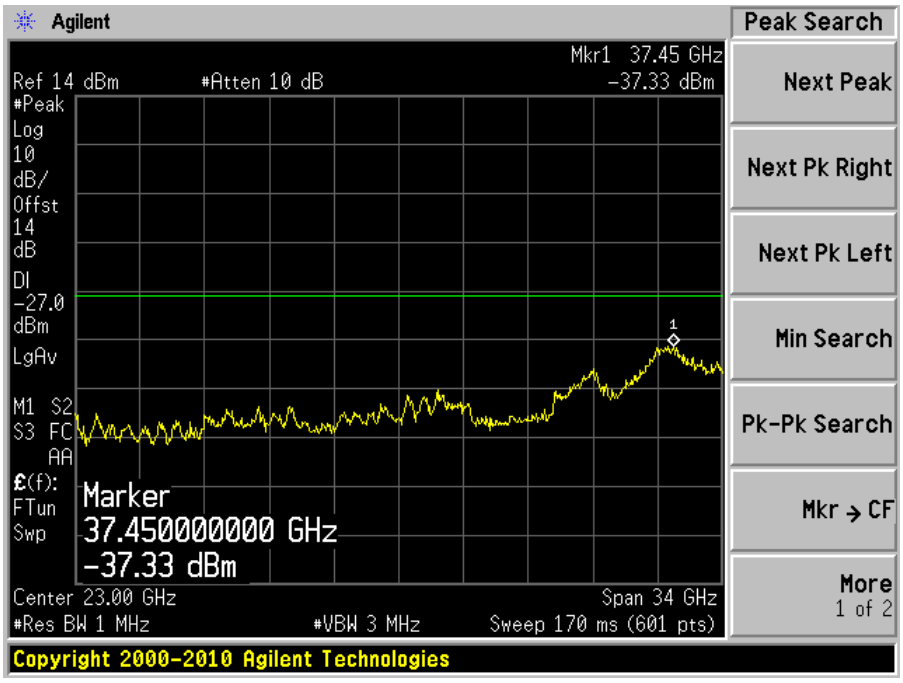


802.11n20 mode

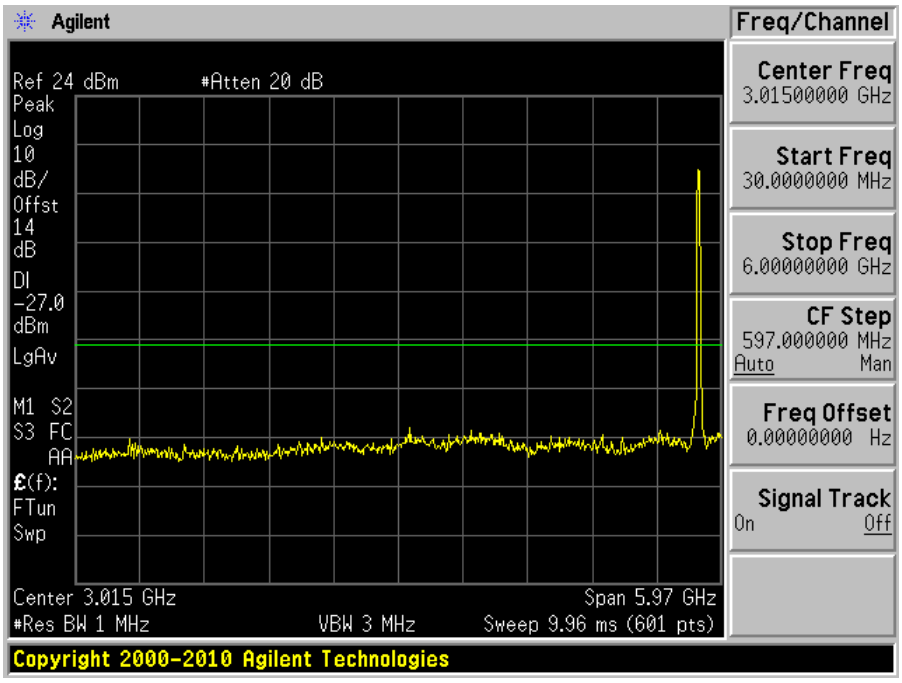
Low Channel 5745 MHz (30MHz-6GHz)



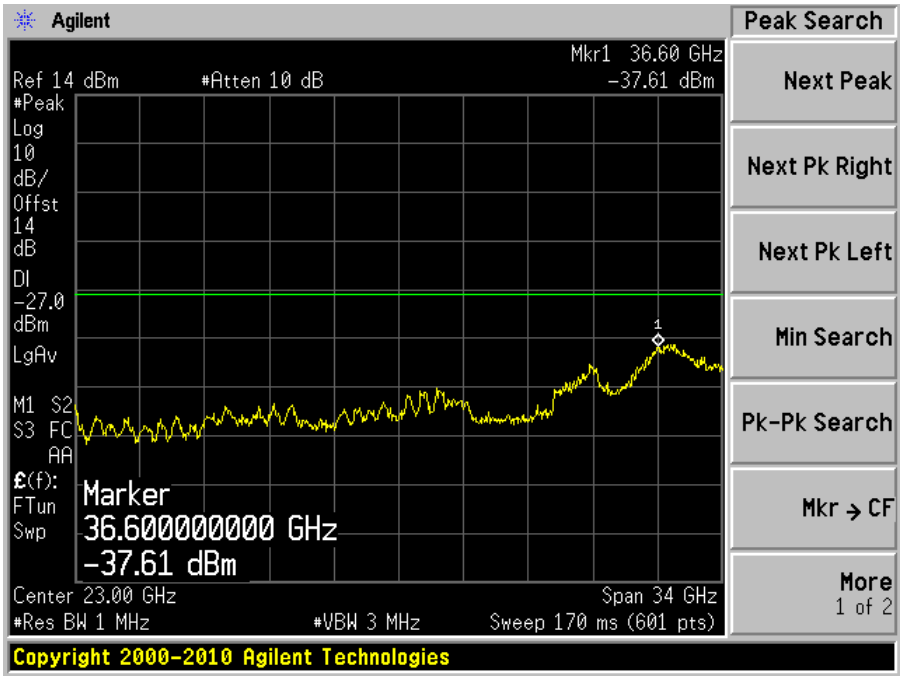
Low Channel 5745 MHz (6-40GHz)



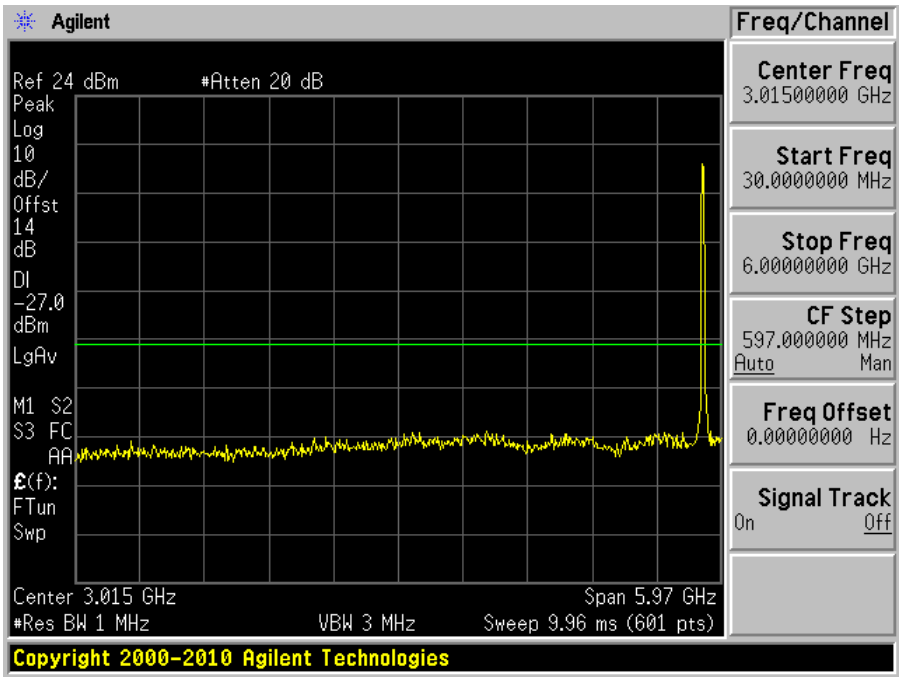
Middle Channel 5785 MHz (30MHz-6GHz)



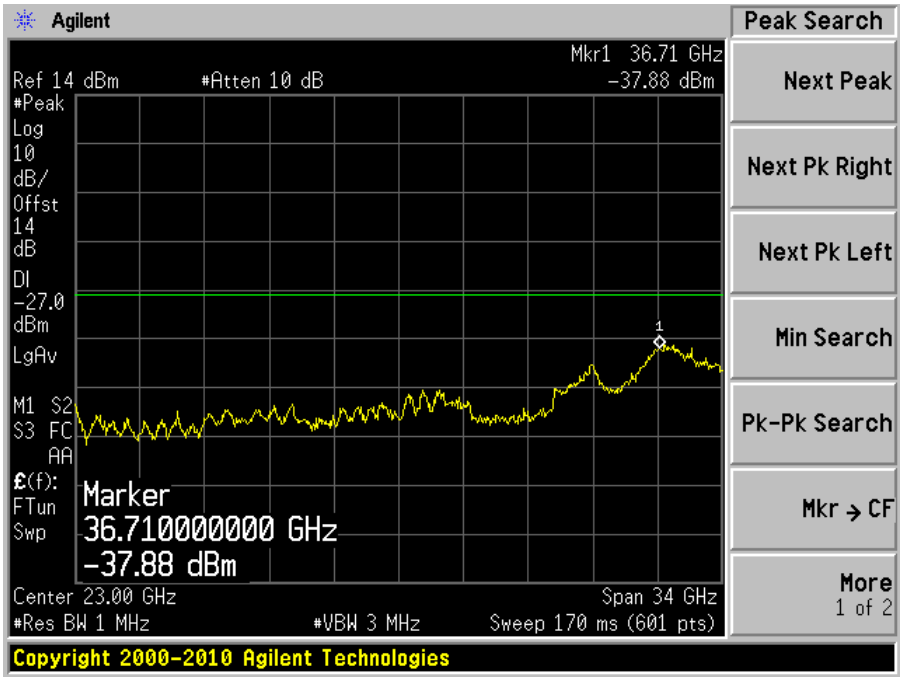
Middle Channel 5785 MHz (6-40GHz)



High Channel 5825 MHz (30MHz-6GHz)

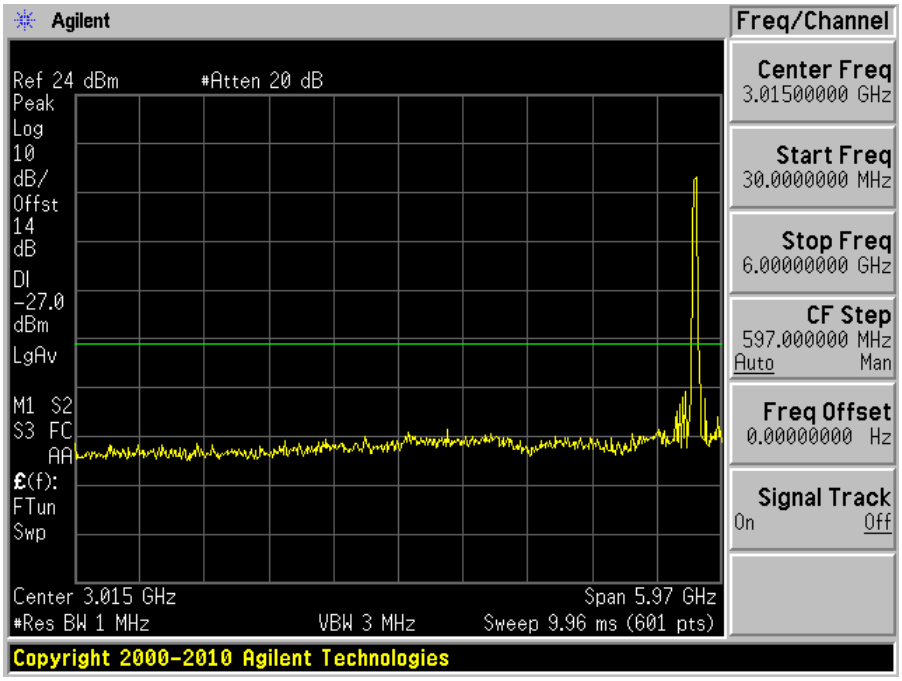


High Channel 5825 MHz (6-40GHz)

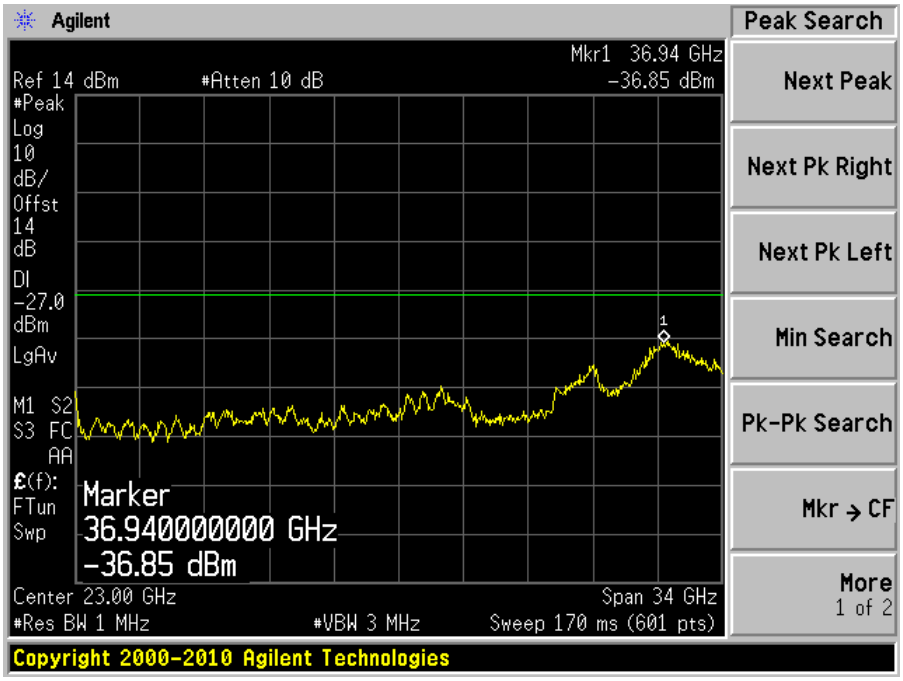


802.11n40 mode

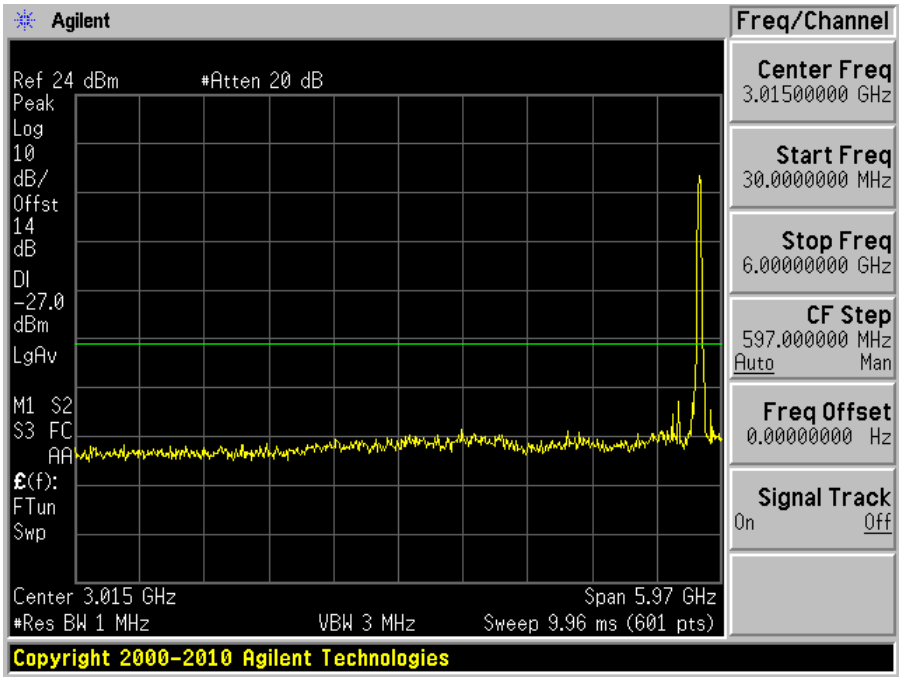
Low Channel 5755 MHz (30MHz-6GHz)



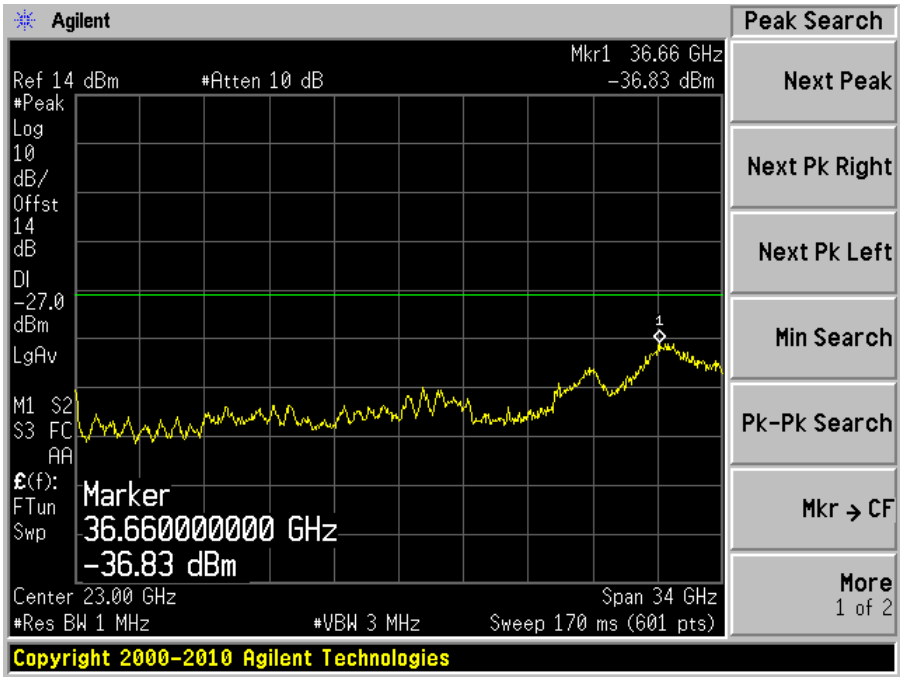
Low Channel 5755 MHz (6-40GHz)



High Channel 5795 MHz (30MHz-6GHz)

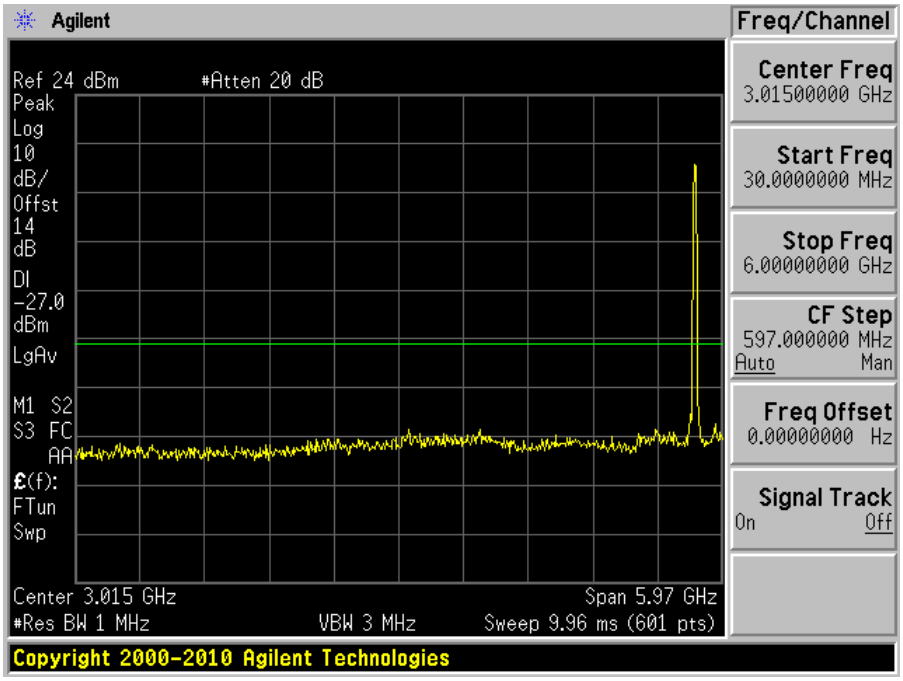


High Channel 5795 MHz (6-40GHz)

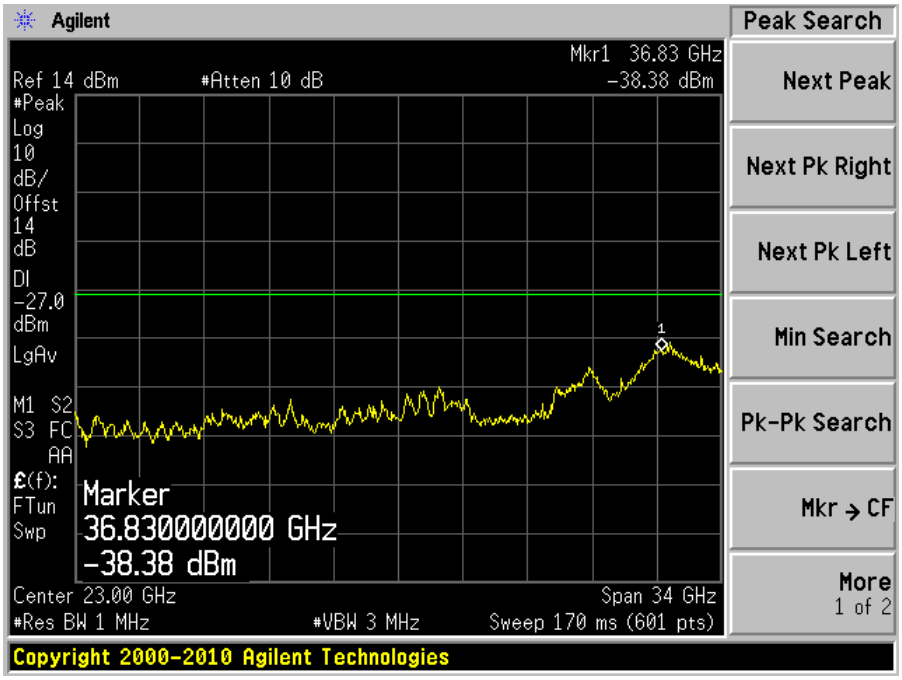


802.11ac20 mode

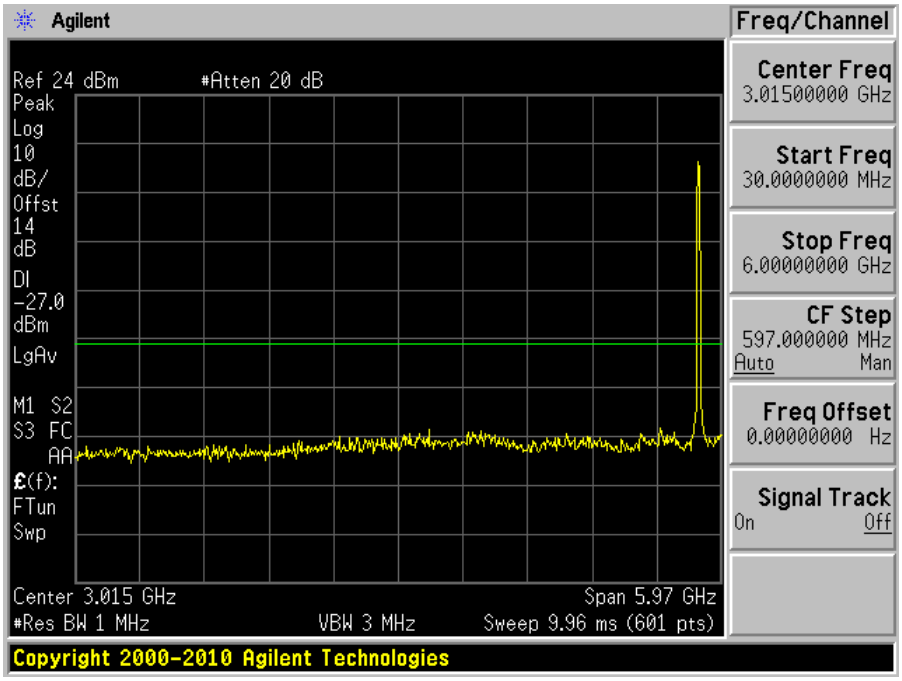
Low Channel 5745 MHz (30MHz-6GHz)



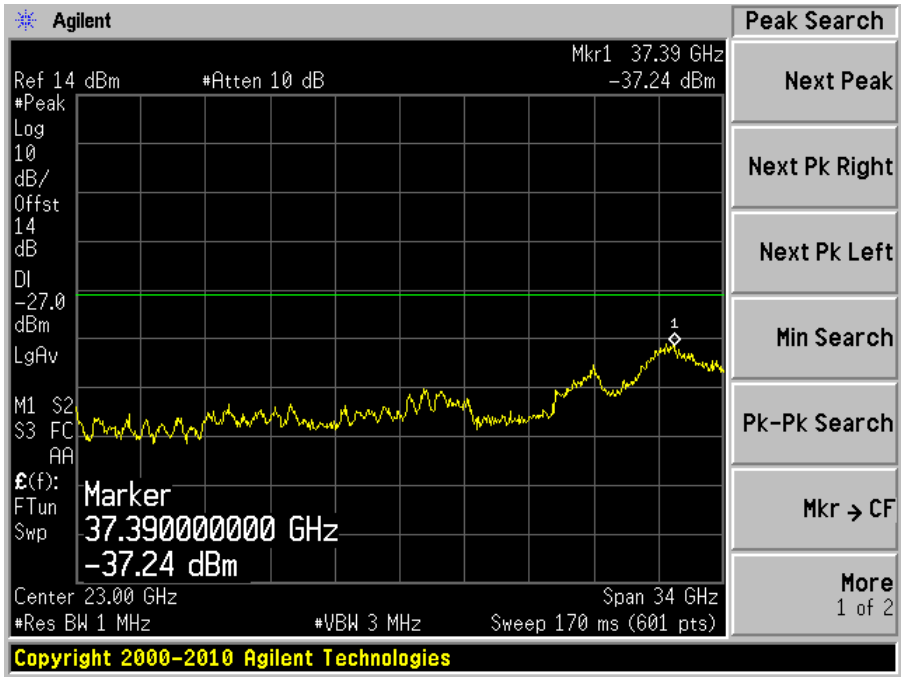
Low Channel 5745 MHz (6-40GHz)



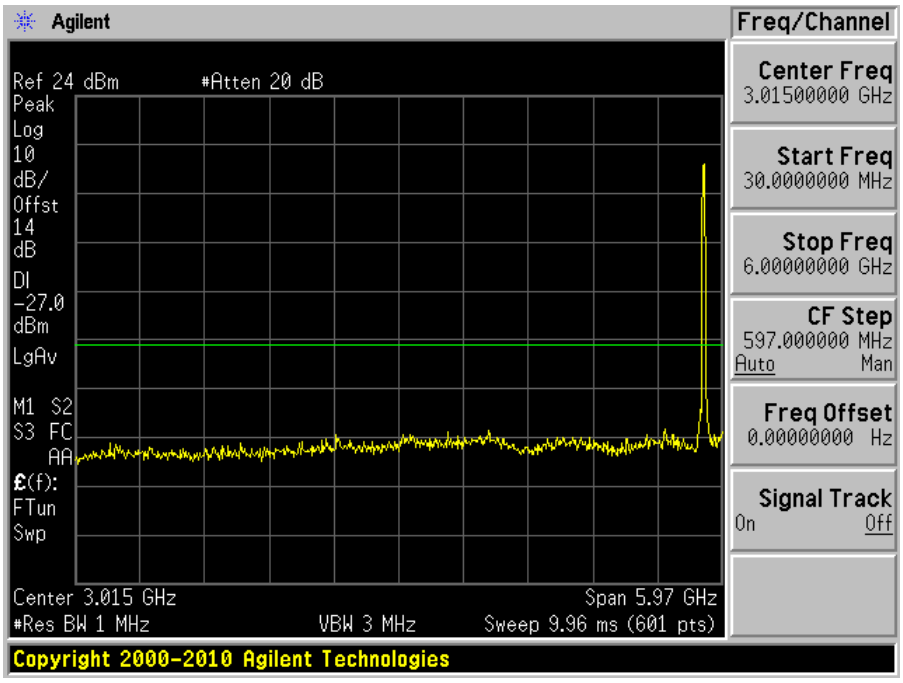
Middle Channel 5785 MHz (30MHz-6GHz)



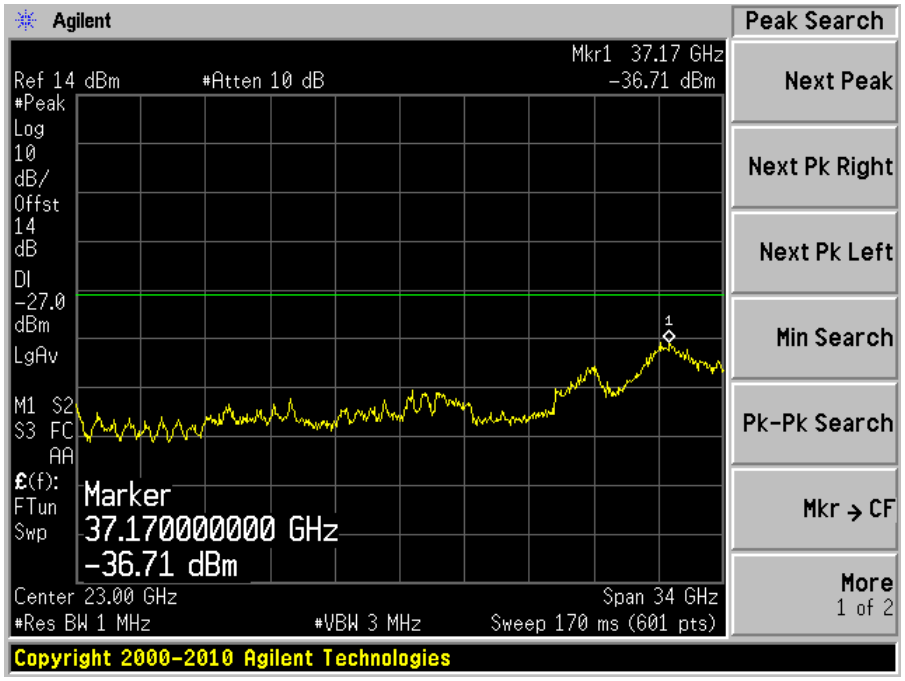
Middle Channel 5785 MHz (6-40GHz)



High Channel 5825 MHz (30MHz-6GHz)

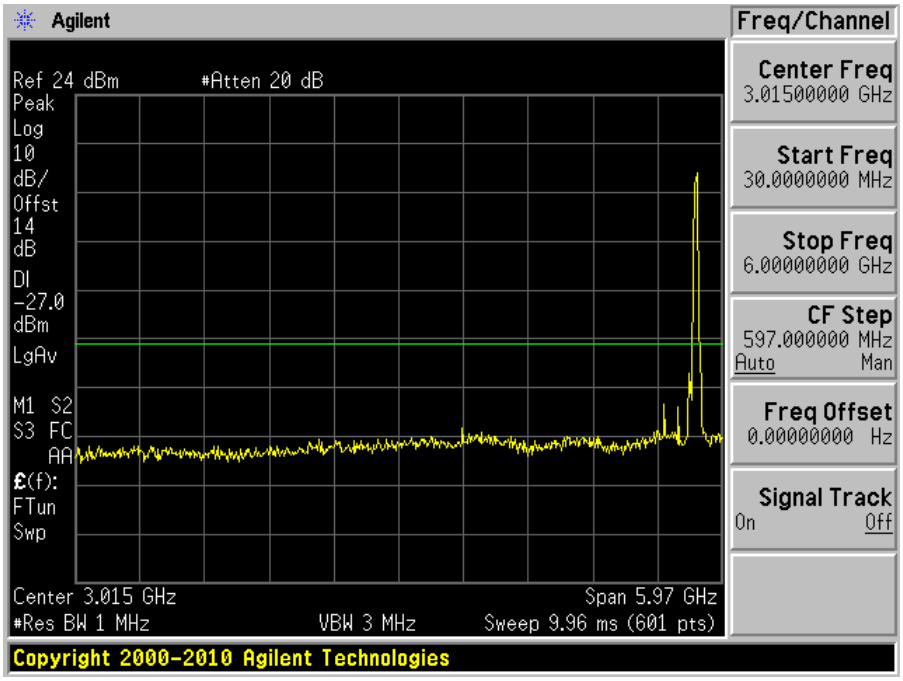


High Channel 5825 MHz (6-40GHz)

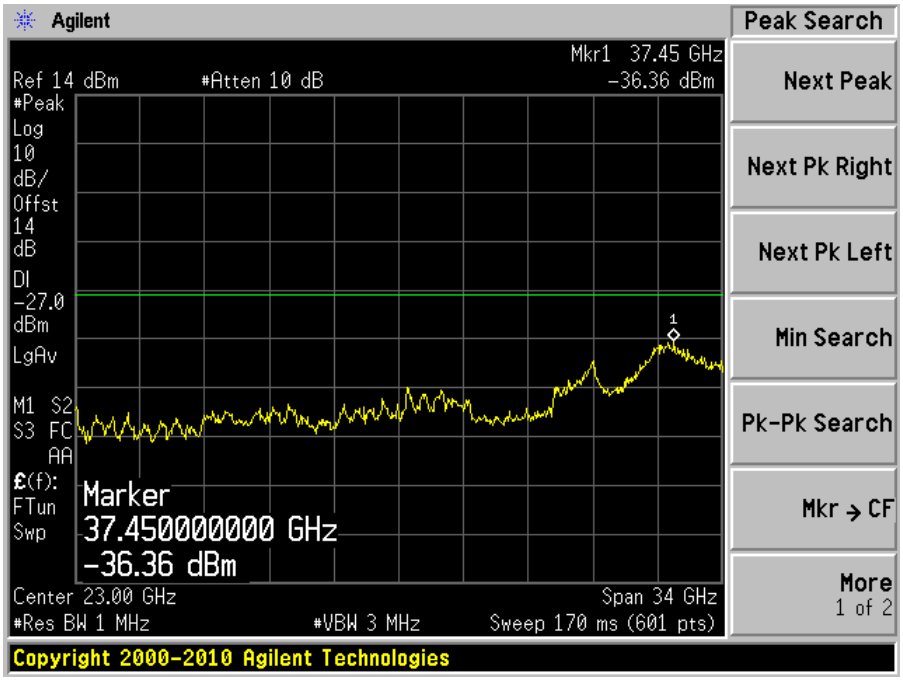


802.11ac40 mode

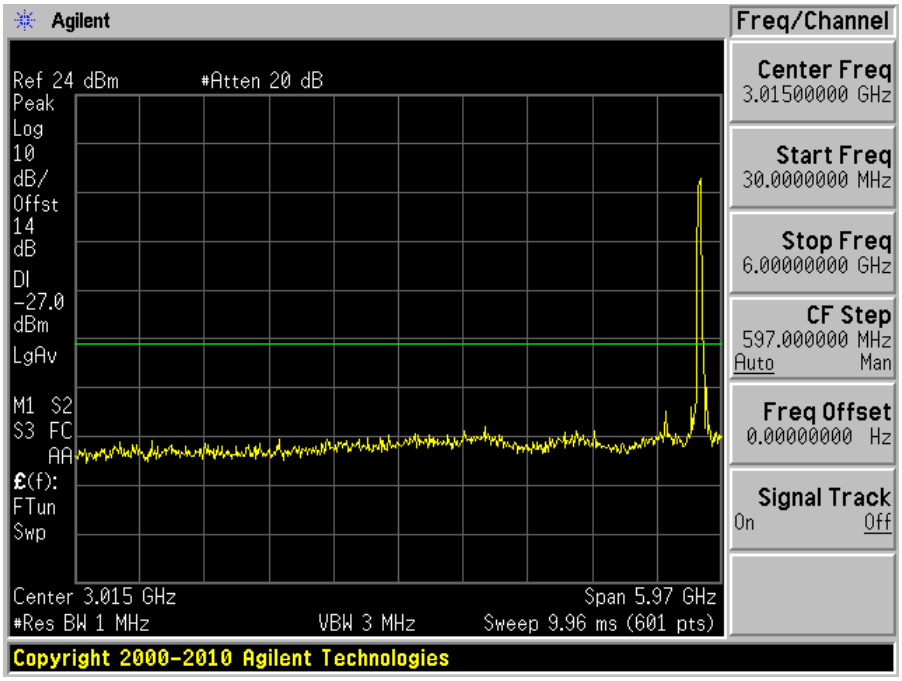
Low Channel 5755 MHz (30MHz-6GHz)



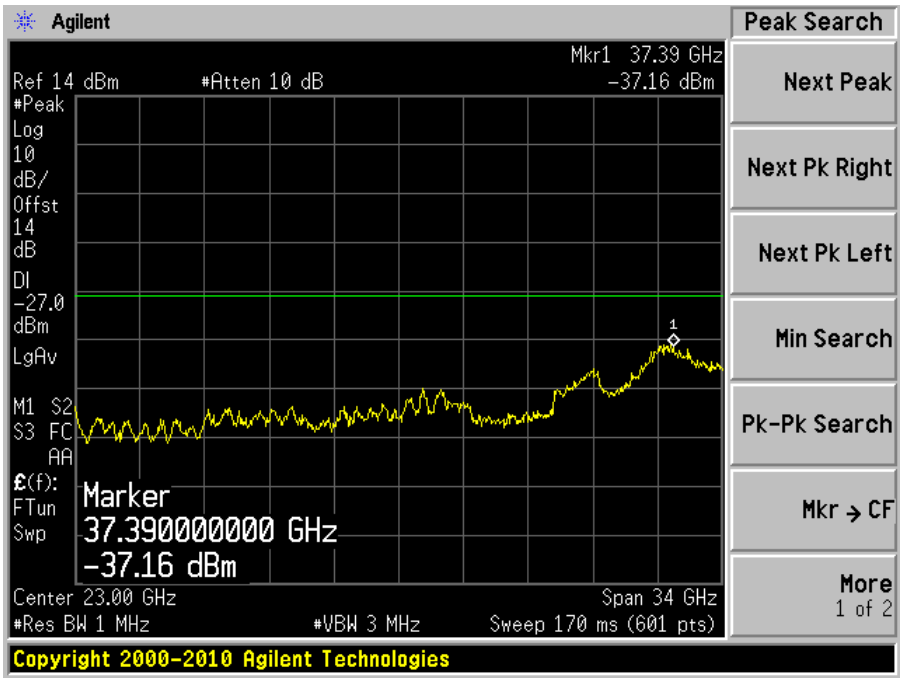
Low Channel 5755 MHz (6-40GHz)



High Channel 5795 MHz (30MHz-6GHz)

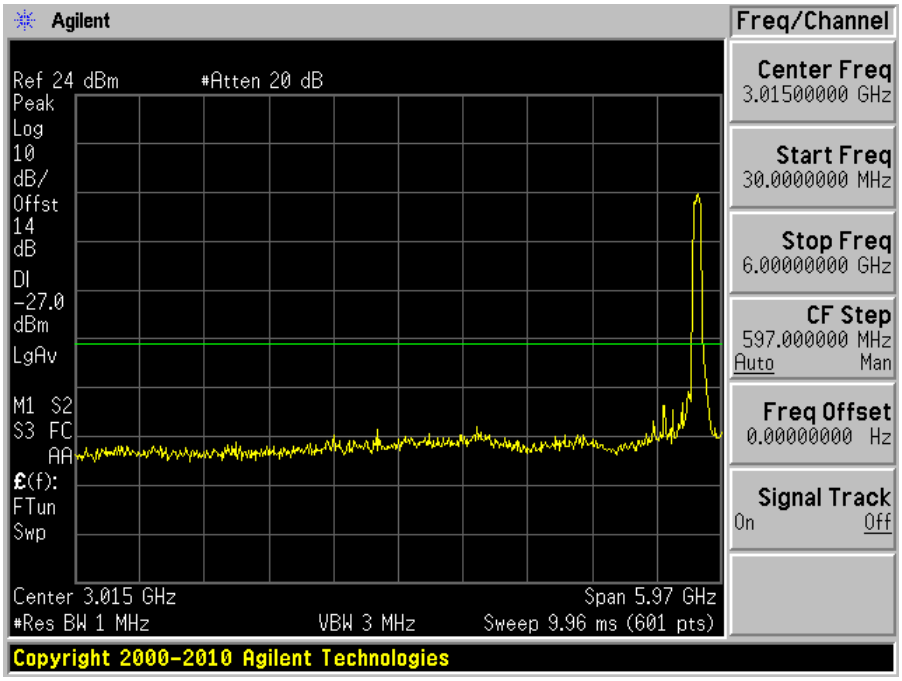


High Channel 5795 MHz (6-40GHz)

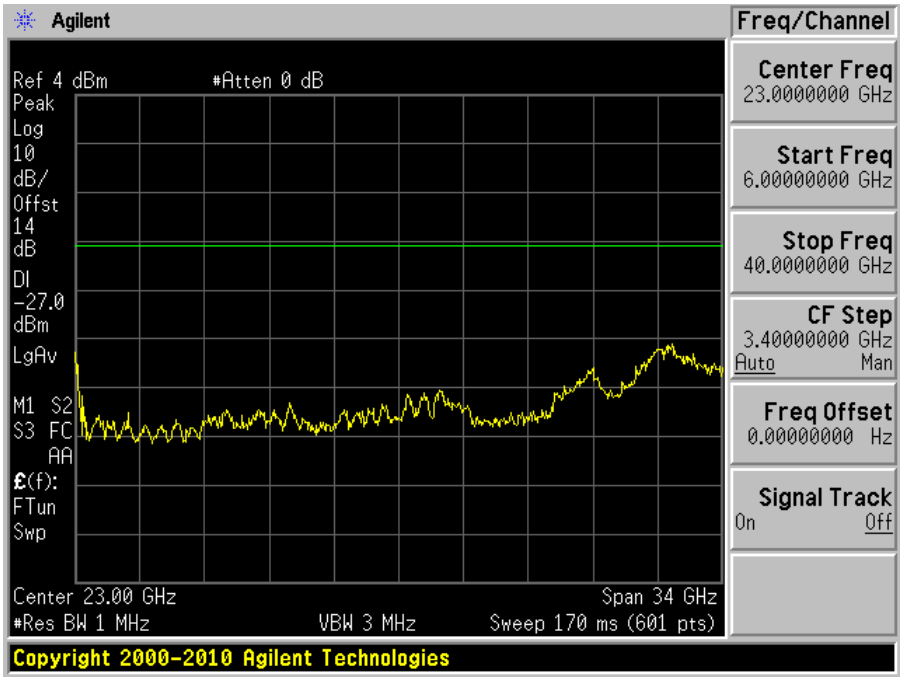


802.11ac80 mode

5755 MHz (30MHz-6GHz)



5755 MHz (6GHz – 40GHz)

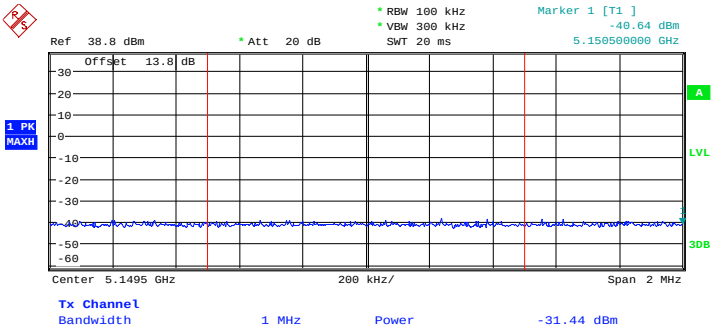


2) Band Edge Emissions

5150 - 5250 MHz

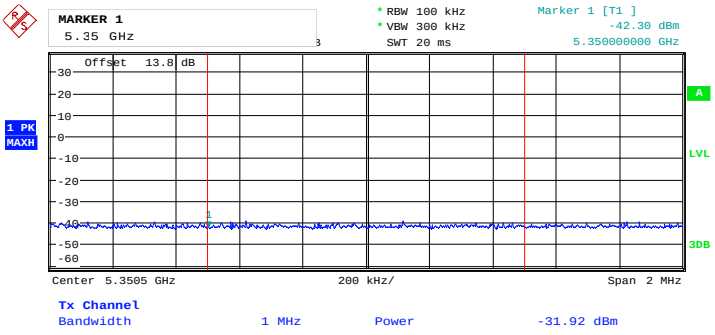
802.11a mode

Low Channel: 5180 MHz



Date: 4.AUG.2016 02:23:04

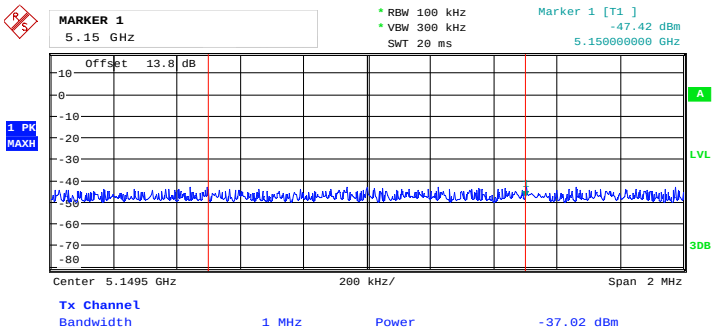
High channel: 5240 MHz



Date: 4.AUG.2016 02:24:04

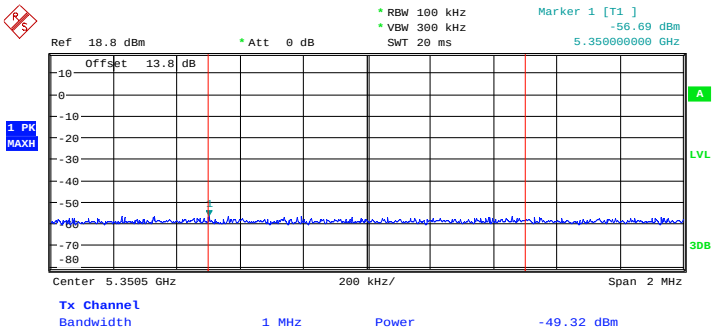
802.11n20 mode

Low Channel: 5180 MHz



Date: 4.AUG.2016 03:26:00

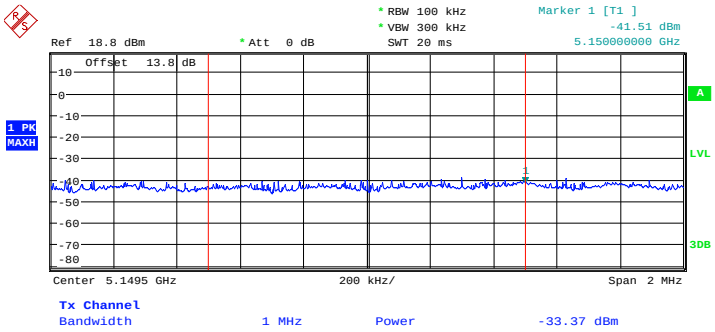
High channel: 5240 MHz



Date: 4.AUG.2016 03:26:48

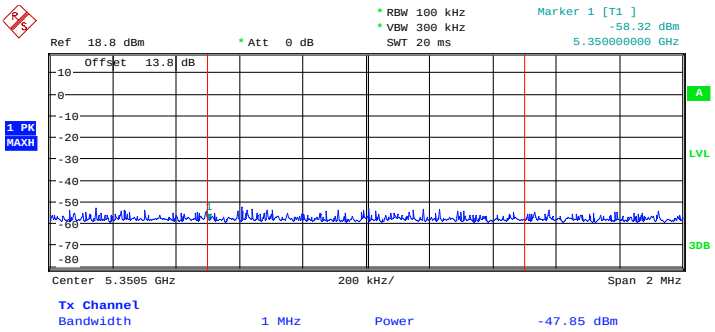
802.11n40 mode

Low Channel: 5190 MHz



Date: 4.AUG.2016 03:38:45

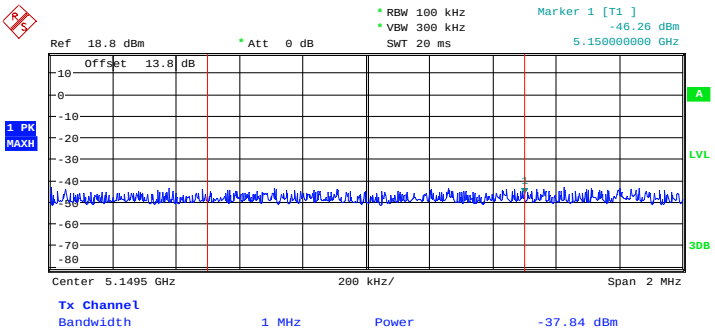
High channel: 5230 MHz



Date: 4.AUG.2016 03:39:46

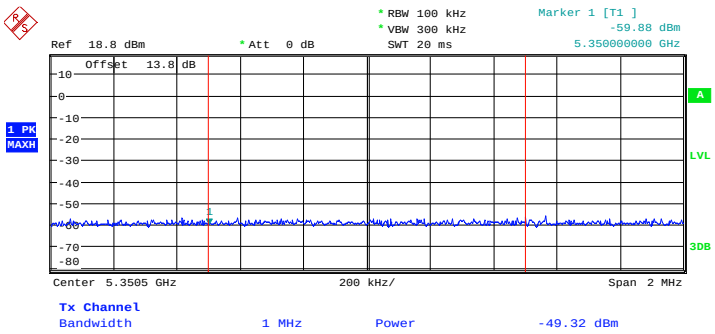
802.11ac20 mode

Low Channel: 5180 MHz



Date: 4.AUG.2016 03:32:07

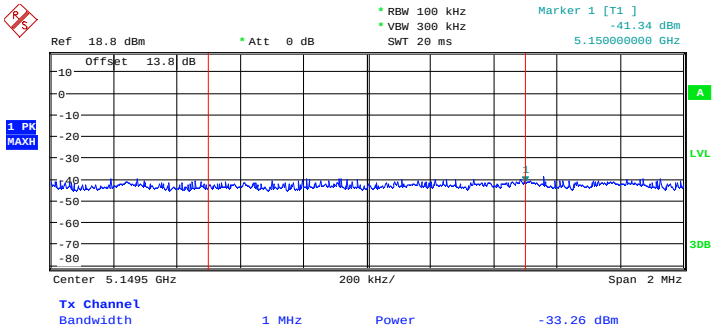
High channel: 5240 MHz



Date: 4.AUG.2016 03:32:46

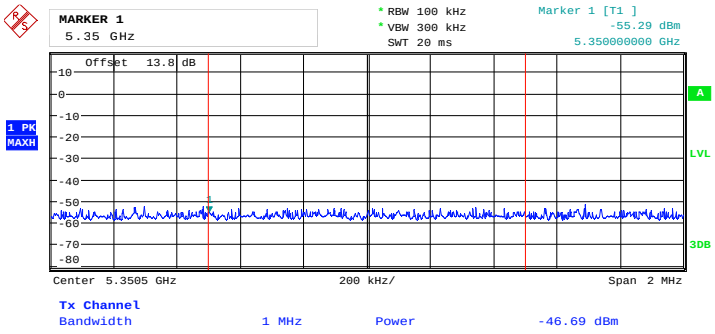
802.11ac40 mode

Low Channel: 5190 MHz



Date: 4.AUG.2016 03:47:53

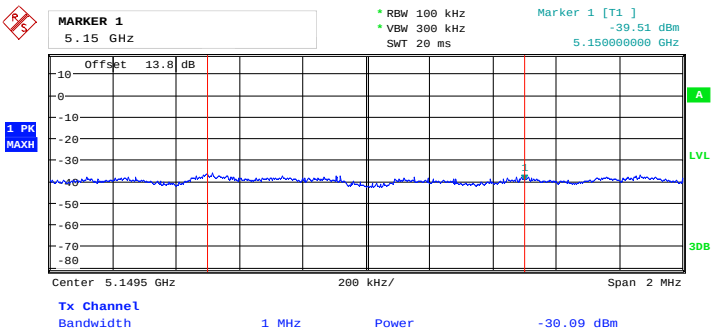
High channel: 5230 MHz



Date: 4.AUG.2016 03:48:45

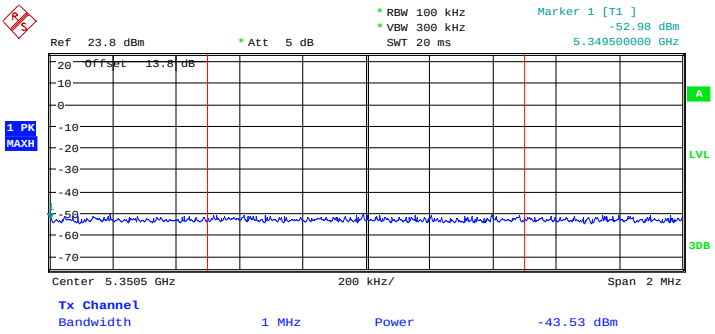
802.11ac80 mode 5210 MHz

Lower band edge



Date: 4.AUG.2016 03:56:22

Upper band edge

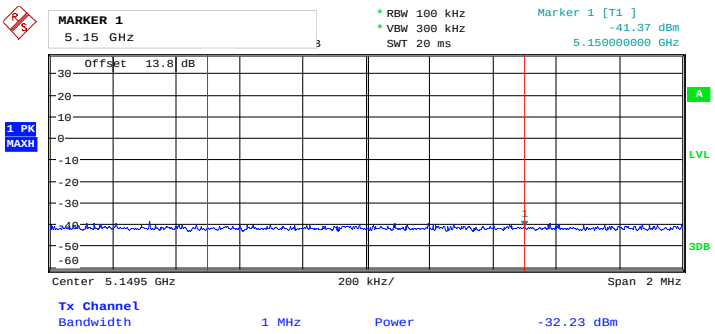


Date: 1.AUG.2016 03:00:46

5250 – 5350 MHz

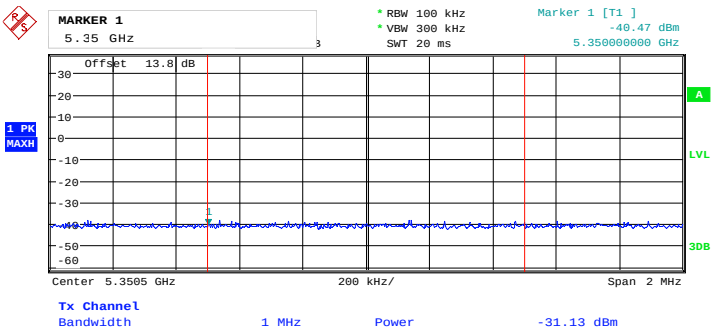
802.11a mode

Low Channel: 5260 MHz



Date: 4.AUG.2016 02:24:38

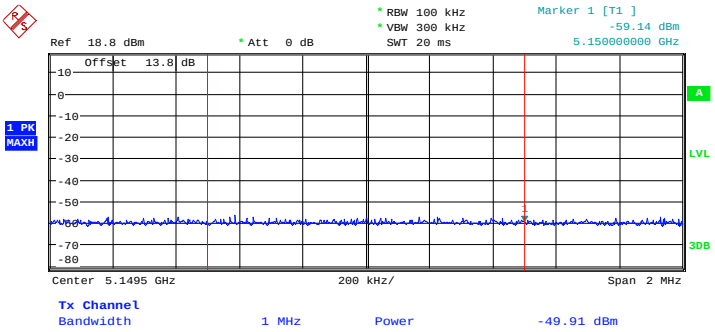
High channel: 5320 MHz



Date: 4.AUG.2016 02:25:17

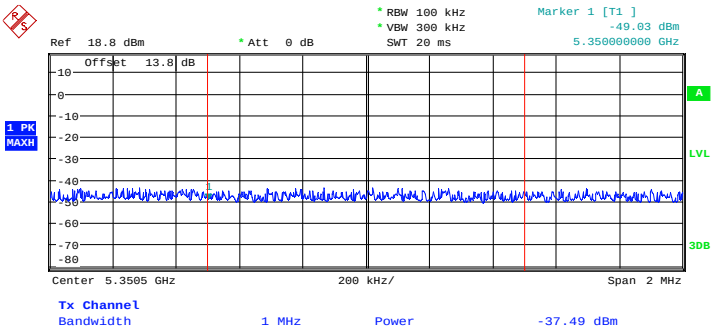
802.11n20 mode

Low Channel: 5260 MHz



Date: 4.AUG.2016 03:27:21

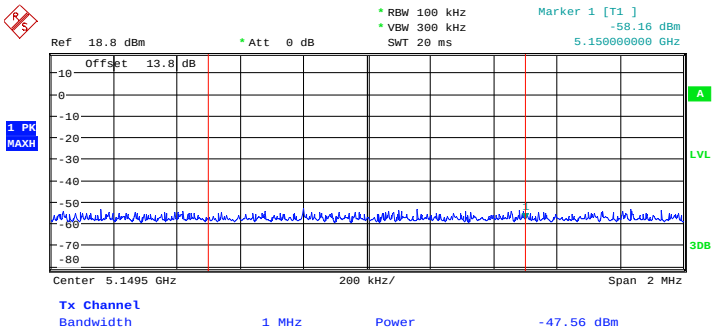
High channel: 5320 MHz



Date: 4.AUG.2016 03:27:55

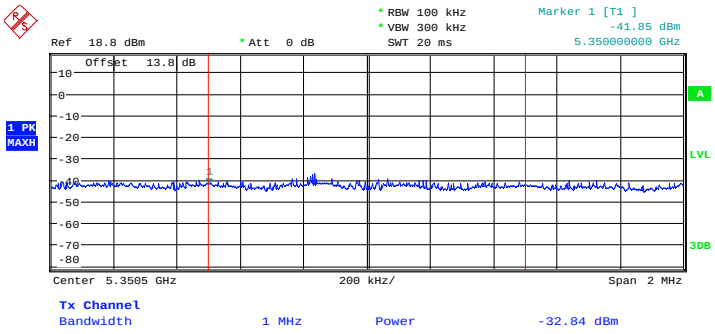
802.11n40 mode

Low Channel: 5270 MHz



Date: 4.AUG.2016 03:40:23

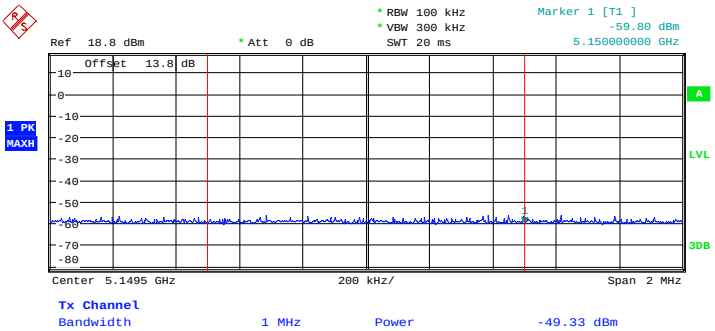
High channel: 5310 MHz



Date: 4.AUG.2016 03:41:53

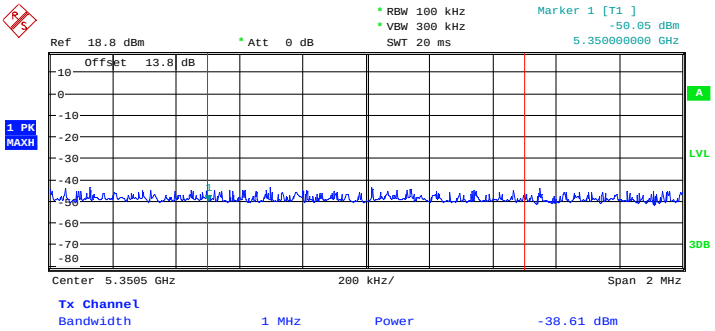
802.11ac20 mode

Low Channel: 5260 MHz



Date: 4.AUG.2016 03:33:21

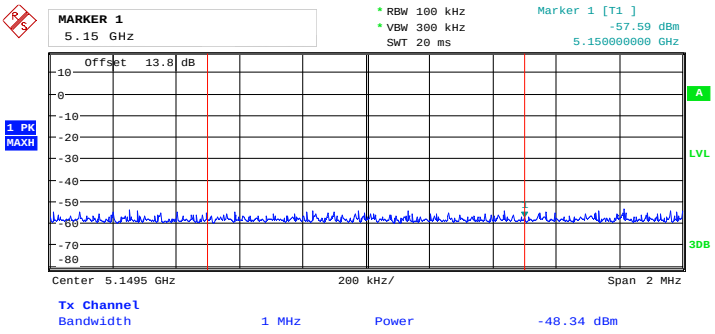
High channel: 5320 MHz



Date: 4.AUG.2016 03:33:49

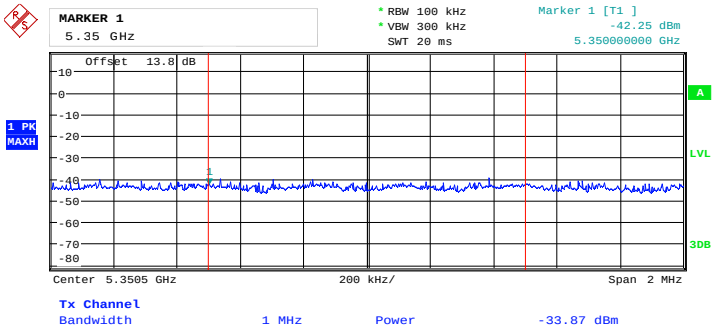
802.11ac40 mode

Low Channel: 5270 MHz



Date: 4.AUG.2016 03:49:18

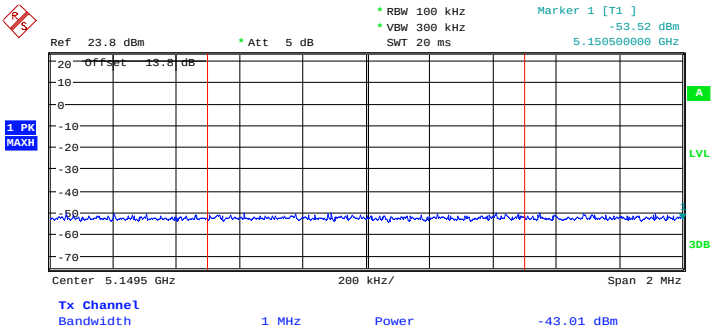
High channel: 5310 MHz



Date: 4.AUG.2016 03:49:56

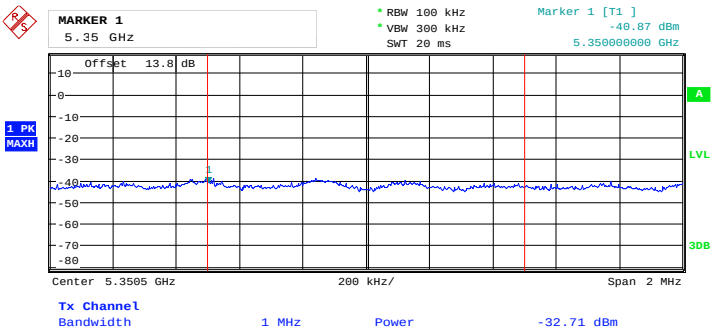
802.11ac80 mode 5290 MHz

Lower Band Edge



Date: 1.AUG.2016 03:06:12

Upper Band Edge

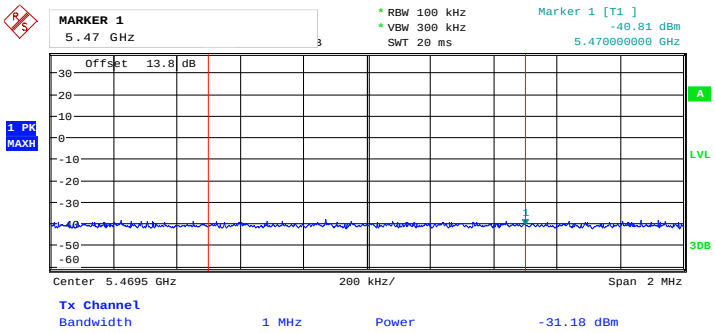


Date: 4.AUG.2016 03:58:22

5470 - 5725 MHz

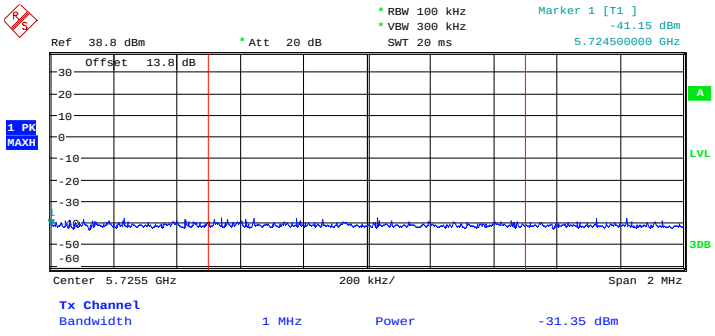
802.11a mode

Low Channel: 5500 MHz



Date: 4.AUG.2016 02:25:58

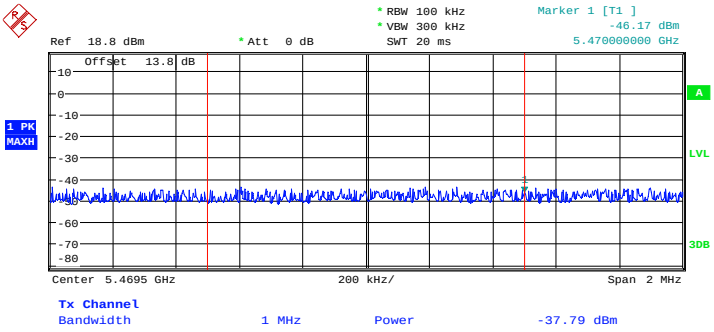
High channel: 5700 MHz



Date: 4.AUG.2016 02:26:31

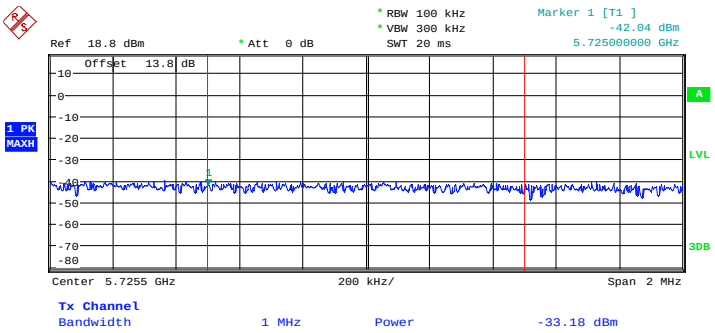
802.11n20 mode

Low Channel: 5500 MHz



Date: 4.AUG.2016 03:28:36

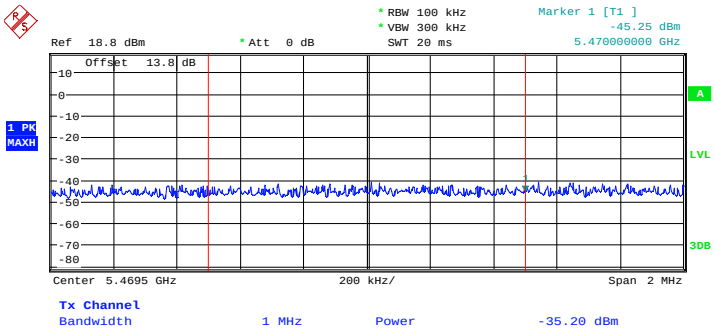
High channel: 5700 MHz



Date: 4.AUG.2016 03:29:25

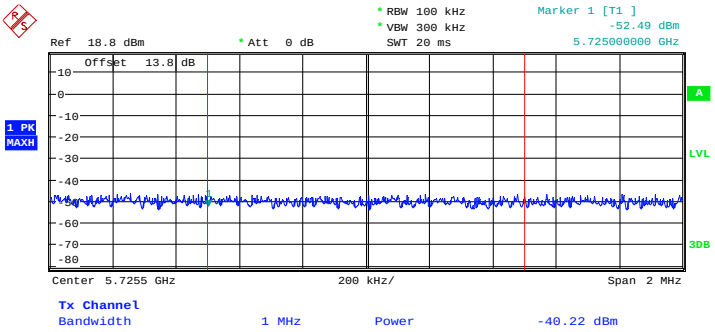
802.11n40 mode

Low Channel: 5510 MHz



Date: 4.AUG.2016 03:42:41

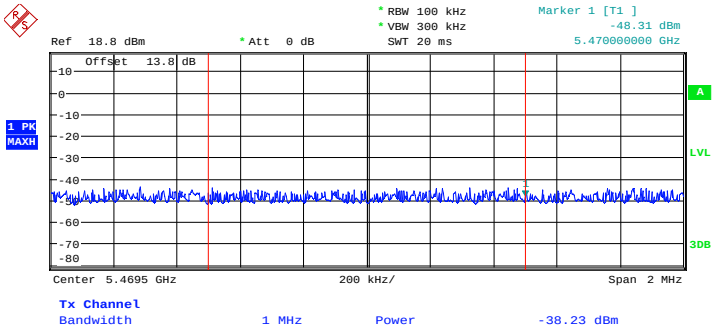
High channel: 5670 MHz



Date: 4.AUG.2016 03:43:37

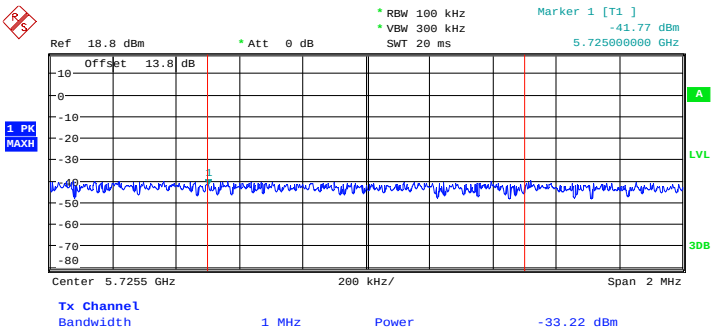
802.11ac20 mode

Low Channel: 5500 MHz



Date: 4.AUG.2016 03:34:22

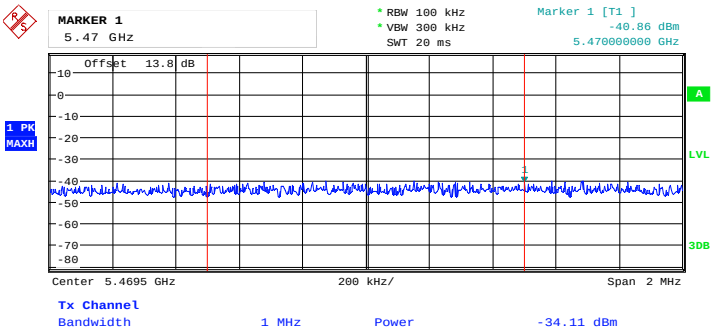
High channel: 5700 MHz



Date: 4.AUG.2016 03:35:13

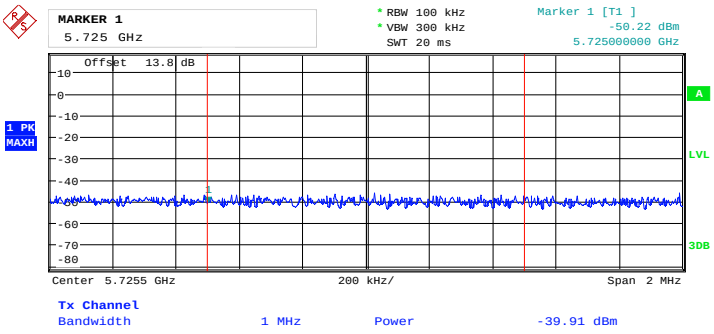
802.11ac40 mode

Low Channel: 5510 MHz



Date: 4.AUG.2016 03:50:37

High channel: 5670 MHz

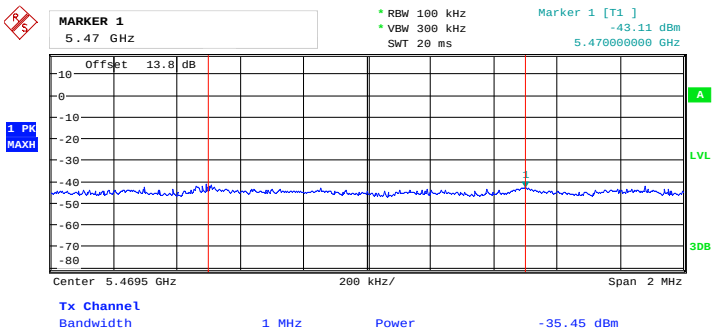


Date: 4.AUG.2016 03:52:17

802.11ac80 mode

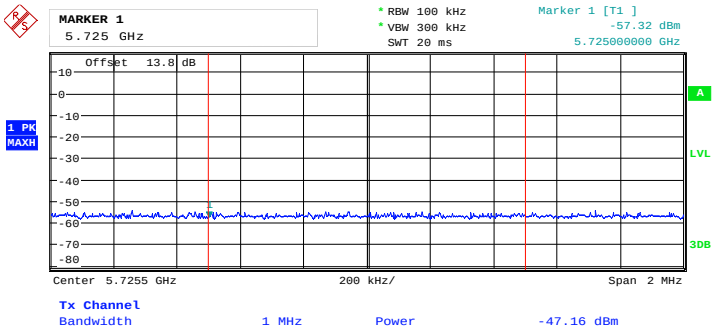
5530 MHz

Lower Band Edge



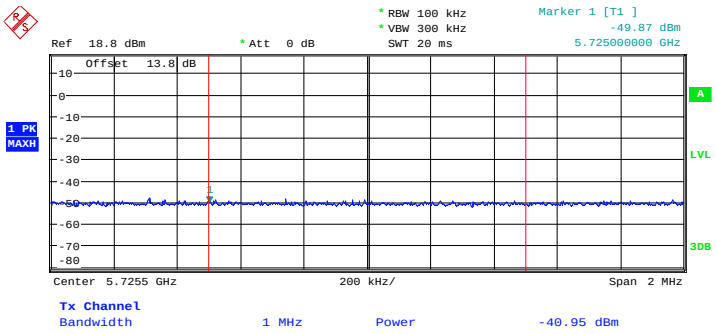
Date: 4.AUG.2016 03:59:01

Upper Band Edge



Date: 4.AUG.2016 03:59:32

5610 MHz

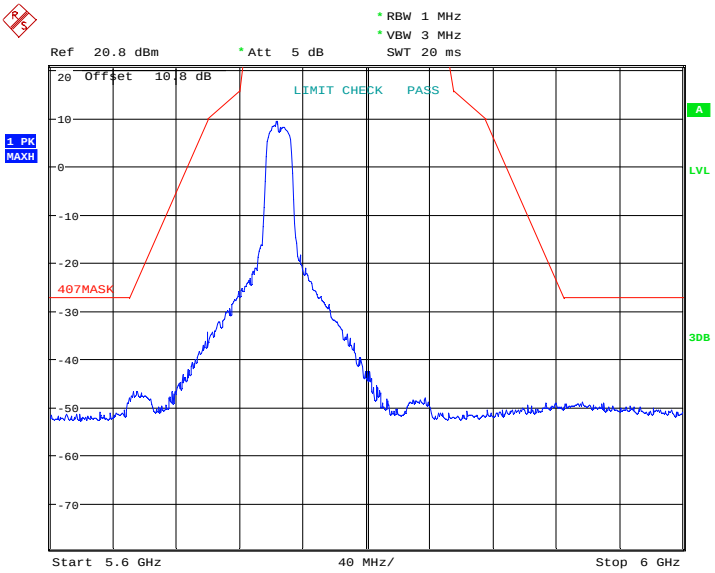


Date: 4.AUG.2016 04:00:19

5725 – 5850 MHz

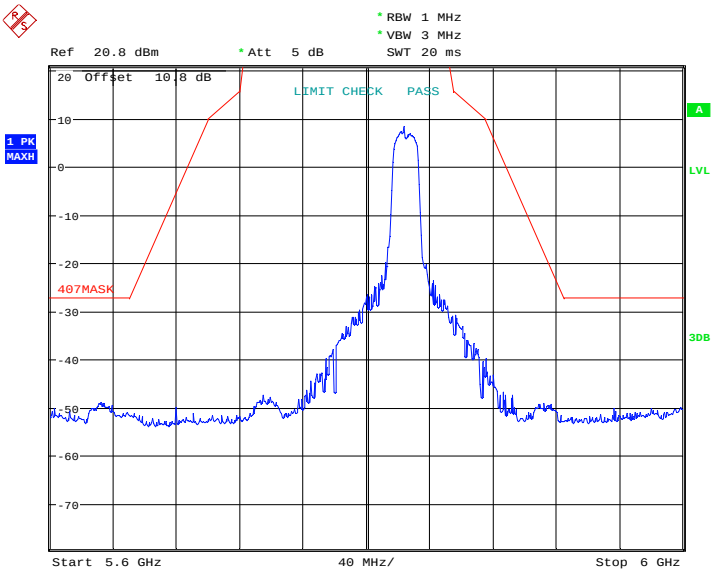
FCC Emission Mask

802.11a mode
5745 MHz



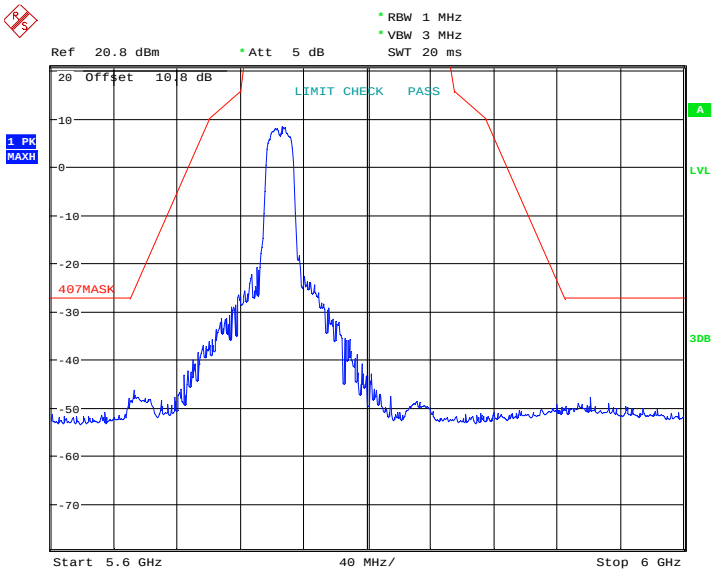
Date: 31.JUL.2016 03:54:20

5825 MHz



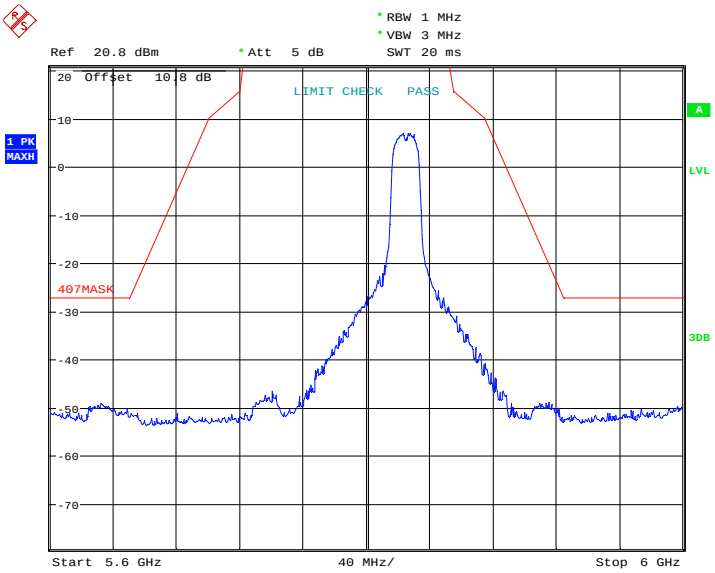
Date: 31.JUL.2016 03:56:08

802.11n20 mode
5745 MHz



Date: 31.JUL.2016 03:57:25

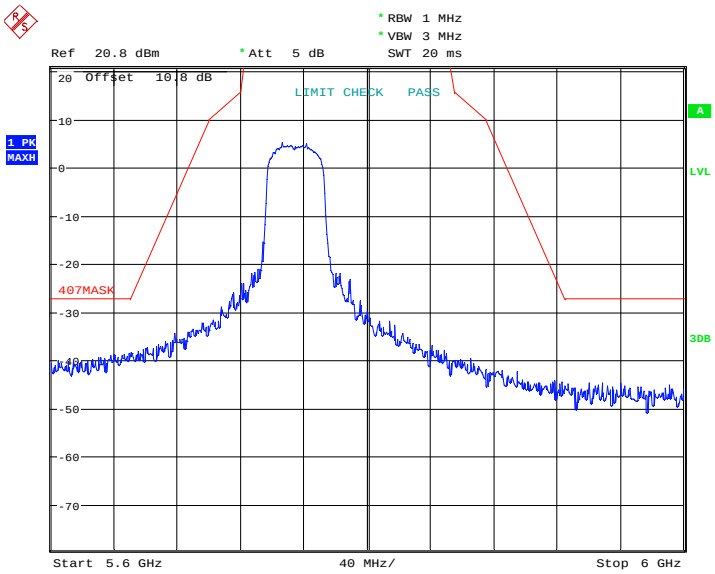
5825 MHz



Date: 31.JUL.2016 03:59:02

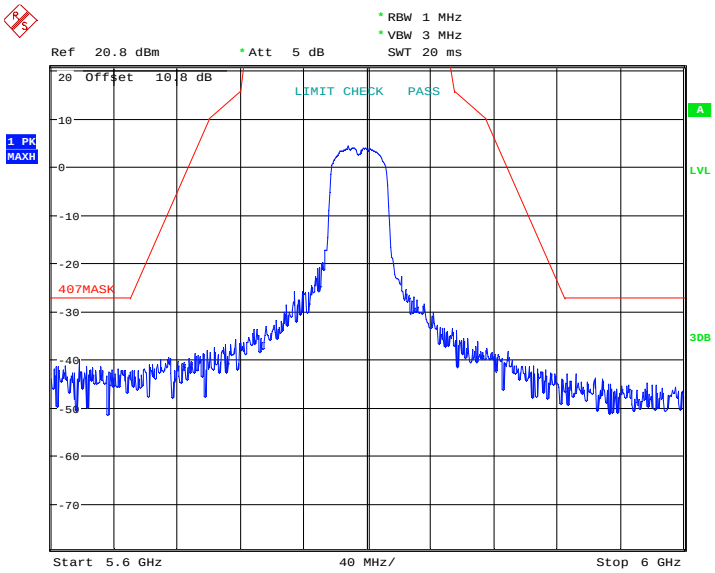
802.11n40 mode

5755 MHz



Date: 31.JUL.2016 04:01:02

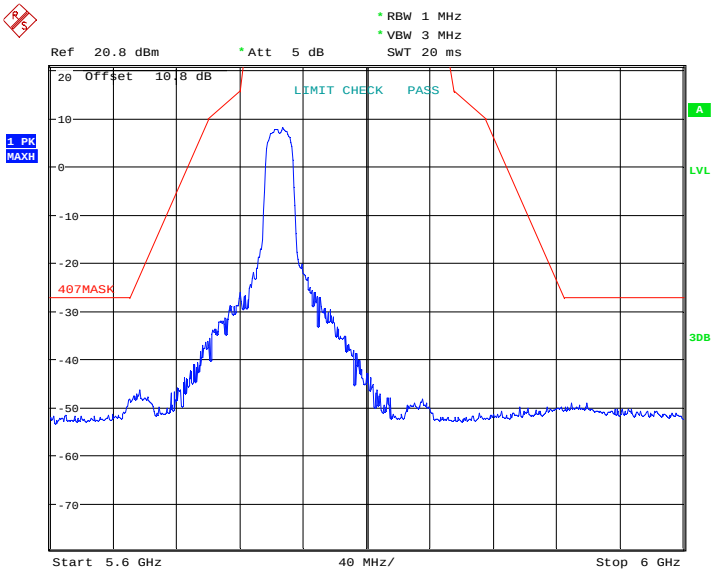
5795 MHz



Date: 31.JUL.2016 04:02:00

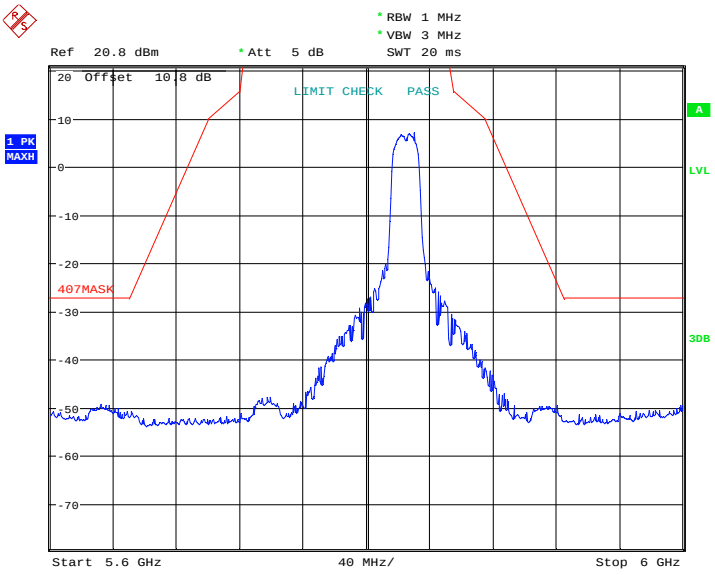
802.11ac20 mode

5745 MHz



Date: 31.JUL.2016 04:03:17

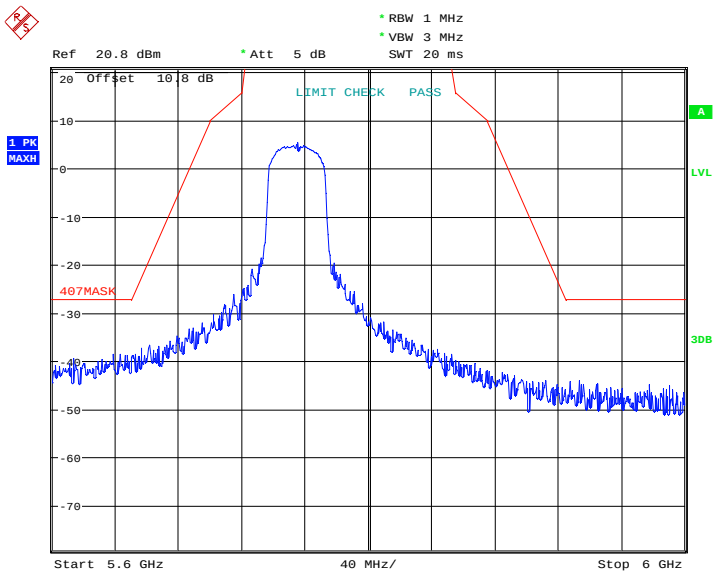
5825 MHz



Date: 31.JUL.2016 04:04:33

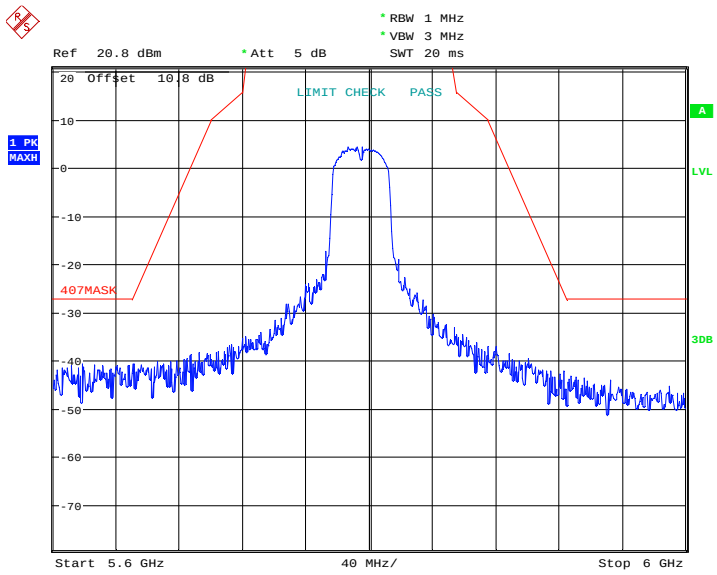
802.11ac40 mode

5755 MHz



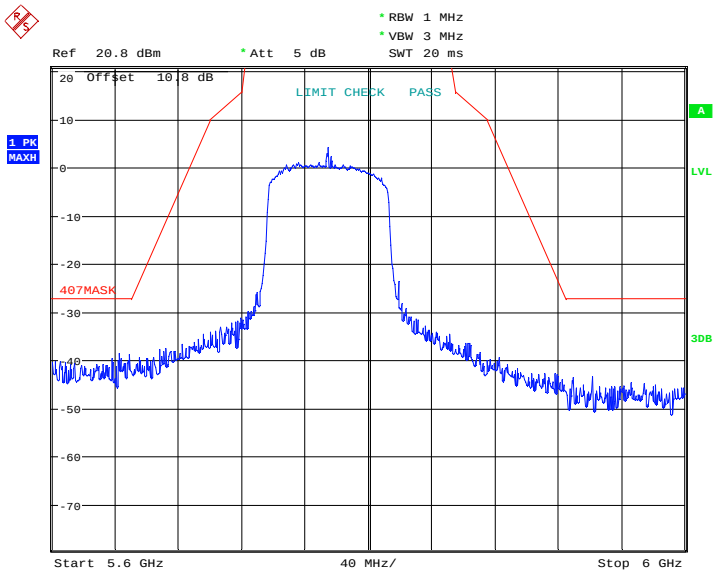
Date: 31.JUL.2016 04:05:50

5795 MHz



Date: 31.JUL.2016 04:07:09

802.11ac80 mode, 5775 MHz

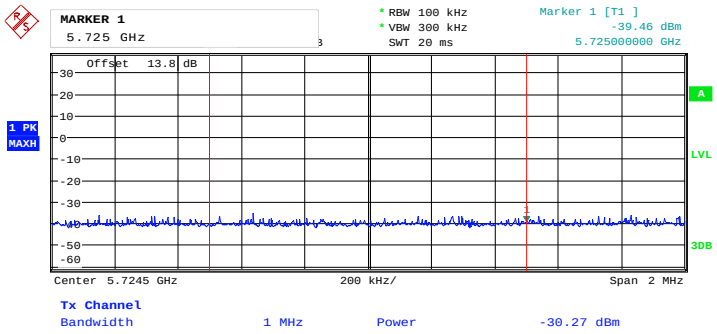


Date: 31.JUL.2016 04:08:01

IC

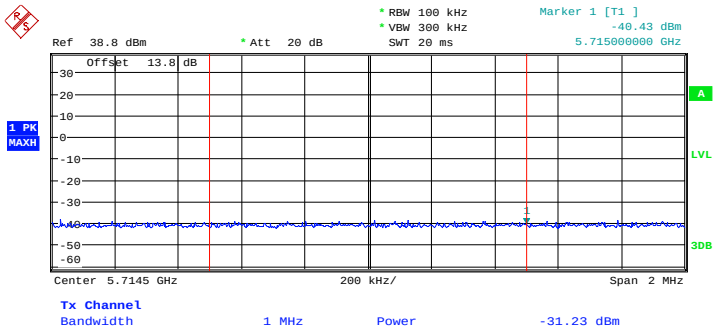
802.11a mode

Low Channel: 5745 MHz (-17 dBm/MHz limit)



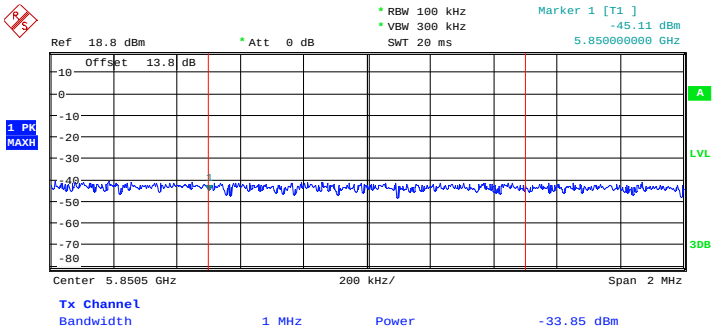
Date: 4.AUG.2016 02:27:58

Low Channel: 5745 MHz (-27 dBm/MHz limit)



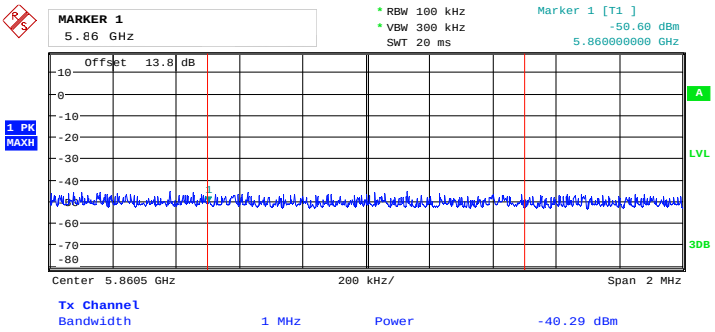
Date: 4.AUG.2016 02:27:28

High Channel: 5825 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 03:19:52

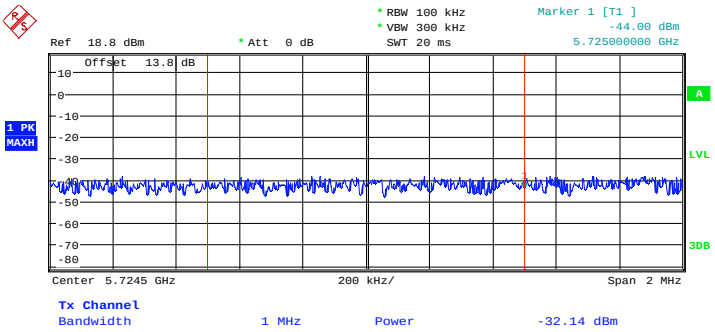
High Channel: 5825 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 03:20:26

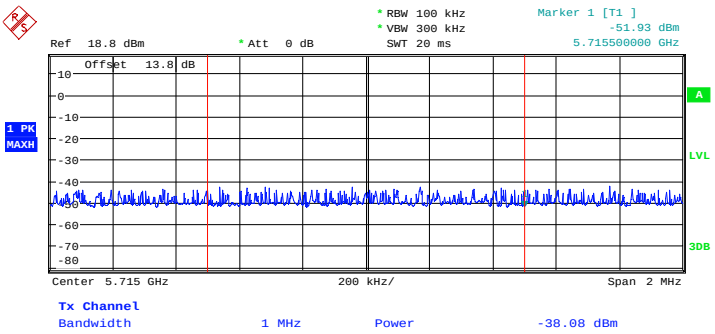
802.11n20 mode

Low Channel: 5745 MHz (-17 dBm/MHz limit)



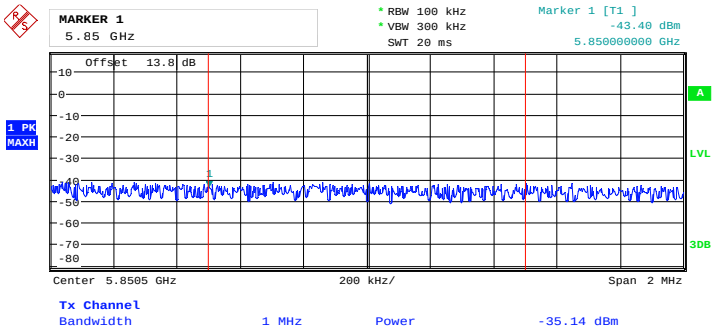
Date: 4.AUG.2016 03:30:25

Low Channel: 5745 MHz (-27 dBm/MHz limit)



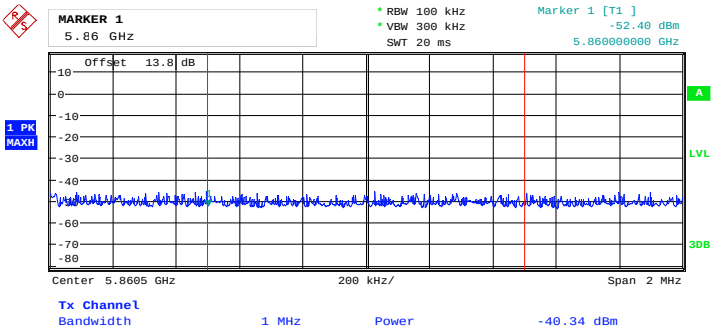
Date: 4.AUG.2016 04:39:11

High Channel: 5825 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 03:31:01

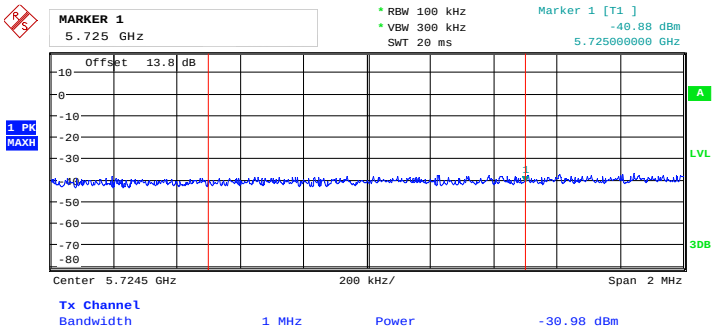
High Channel: 5825 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 03:31:28

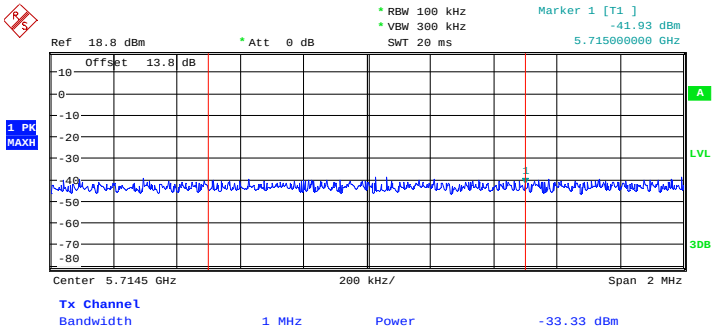
802.11n40 mode

Low Channel: 5755 MHz (-17 dBm/MHz limit)



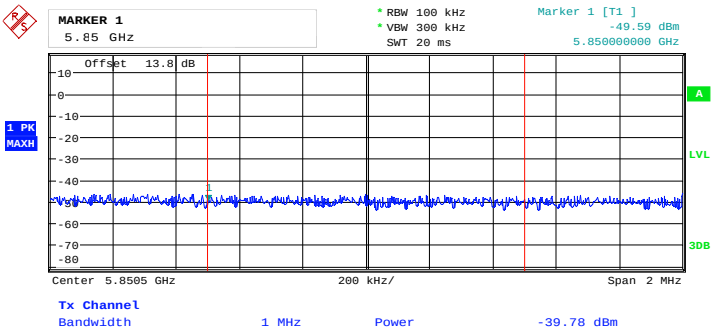
Date: 4.AUG.2016 03:45:32

Low Channel: 5755 MHz (-27 dBm/MHz limit)



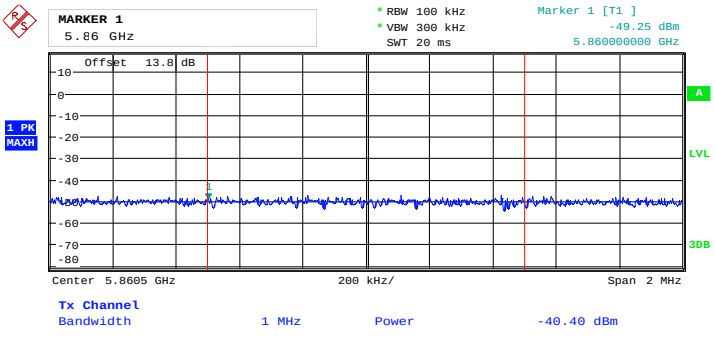
Date: 4.AUG.2016 03:44:52

High Channel: 5795 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 03:46:21

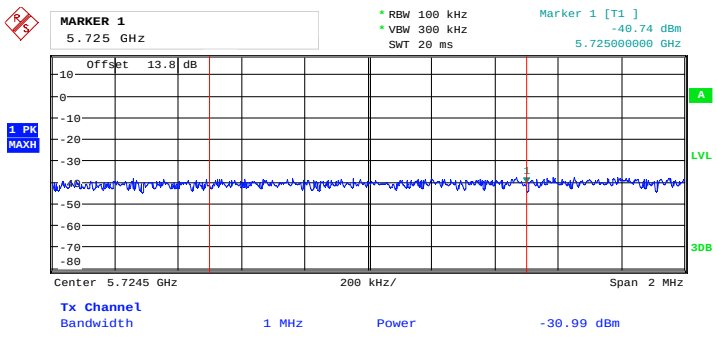
High Channel: 5795 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 03:47:04

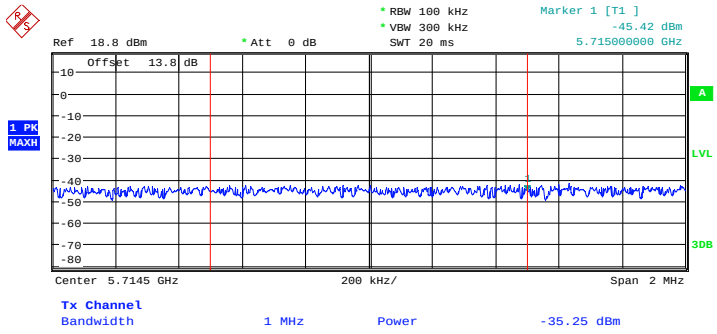
802.11ac20 mode

Low Channel: 5745 MHz (-17 dBm/MHz limit)



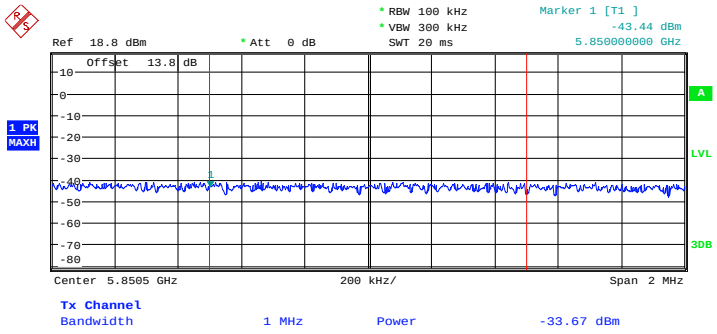
Date: 4.AUG.2016 03:36:35

Low Channel: 5745 MHz (-27 dBm/MHz limit)



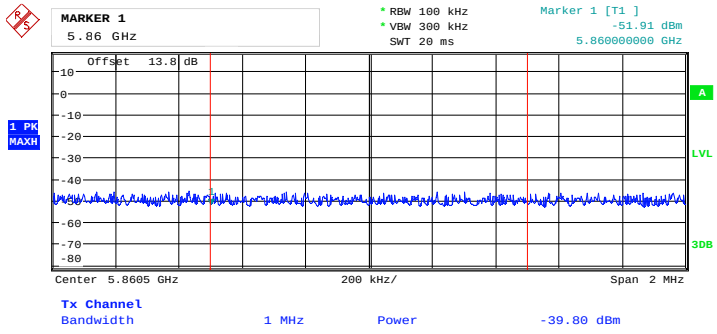
Date: 4.AUG.2016 03:35:58

High Channel: 5825 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 03:37:24

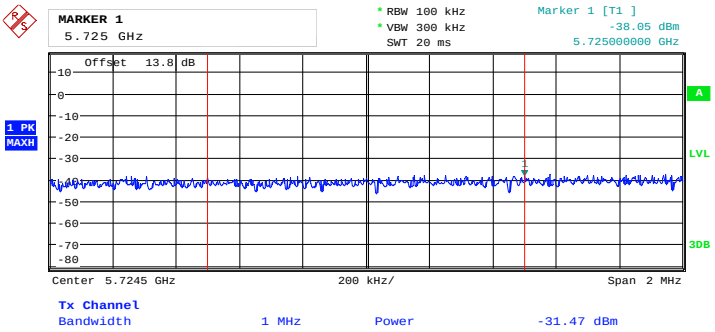
High Channel: 5825 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 03:37:48

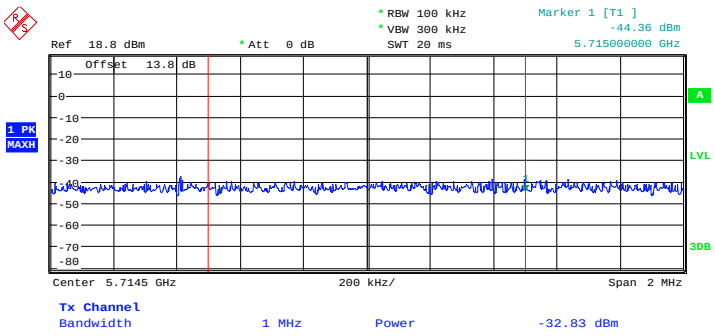
802.11ac40 mode

Low Channel: 5755 MHz (-17 dBm/MHz limit)



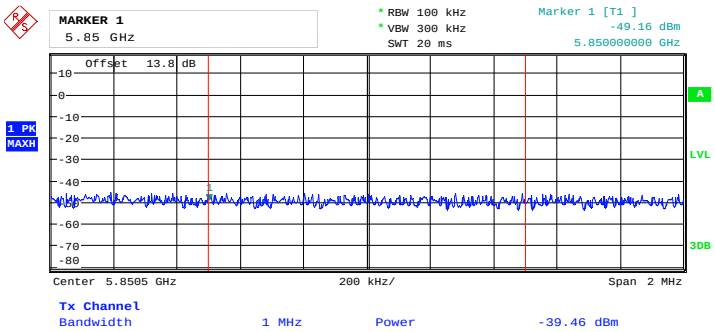
Date: 4.AUG.2016 03:53:43

Low Channel: 5755 MHz (-27 dBm/MHz limit)



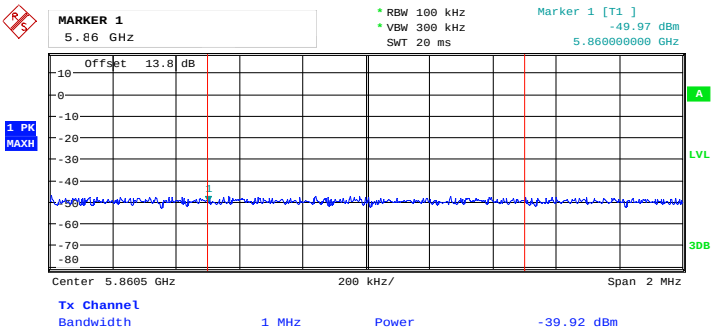
Date: 4.AUG.2016 03:53:08

High Channel: 5795 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 03:54:36

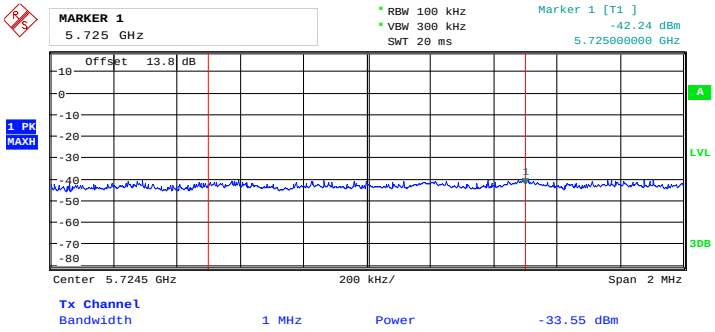
High Channel: 5795 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 03:55:36

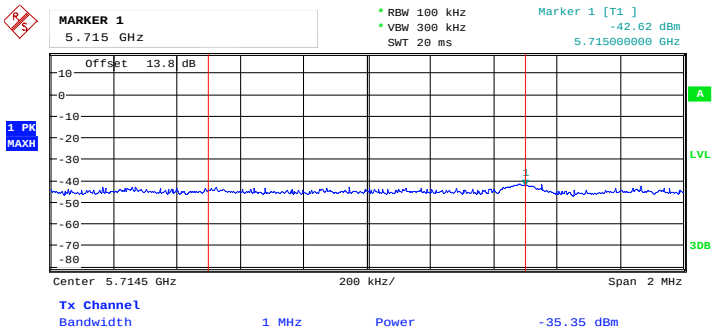
802.11ac80 mode Lower Band Edge

5775 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 04:01:54

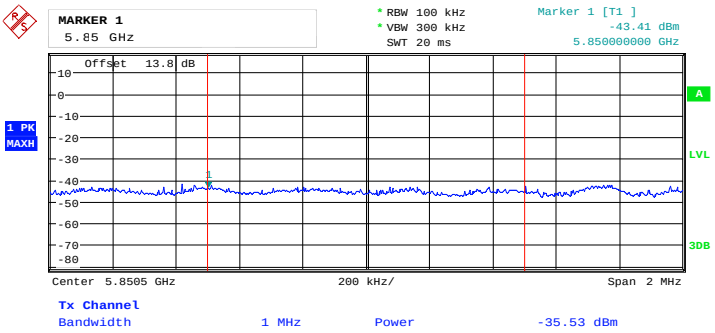
5775 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 04:01:24

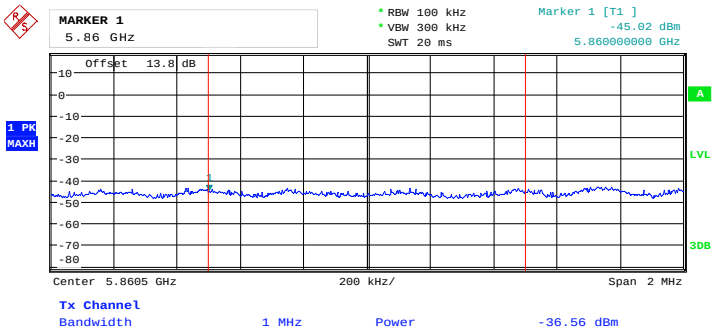
802.11ac80 mode Upper Band Edge

5775 MHz (-17 dBm/MHz limit)



Date: 4.AUG.2016 04:02:09

5775 MHz (-27 dBm/MHz limit)



Date: 4.AUG.2016 04:02:27