



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

802.11a/b/g/n access point

Model: HiveAP 340

Trade Name: Aerohive

Issued to

Aerohive Networks, Inc.

3150-C Coronado Drive Santa Clara, California 95054

Prepared by

COMPLIANCE CERTIFICATION SERVICES (KUNSHAN) INC.

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1. TEST RESULT CERTIFICATION

Applicant: Aerohive Networks, Inc.
 3150-C Coronado Drive Santa Clara, California 95054

Equipment Under Test: 802.11a/b/g/n access point

Trade Name: Aerohive

Model: HiveAP 340

Date of Test: August 22 ~ September 5, 2008

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Miro Chueh
EMC Manager
Compliance Certification Service Inc.

Reviewed by:

Lin Zhang
EMC Section Manager
Compliance Certification Service Inc.



2. EUT DESCRIPTION

Product	802.11a/b/g/n access point
Trade Name	Aerohive
Model Number	HiveAP 340
Frequency Range	2412 ~ 2462 MHz
Transmit Power	IEEE 802.11b mode: 15.78dBm IEEE 802.11g mode: 16.52dBm draft 802.11gn Standard-20 MHz Channel mode: 20.64 dBm draft 802.11gn Wide-40 MHz Channel mode: 21.87 dBm IEEE 802.11a mode: 18.21dBm draft 802.11an Standard-20 MHz Channel mode: 24.70 dBm draft 802.11an Wide-40 MHz Channel mode: 23.85 dBm
Modulation Technique	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mbps) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) draft 802.11n Standard-20 MHz Channel mode: OFDM (MCS 0~15) draft 802.11n Wide-40 MHz Channel mode: OFDM (MCS 0~15)
Number of Channels	IEEE 802.11b/g mode: 11 Channels draft 802.11n Standard-20 MHz Channel mode: 11 Channels draft 802.11n Wide-40 MHz Channel mode: 7 Channels
Antenna Specification	Gain 3.2dBi(2.4GHz) /2dBi(5GHz)

Remark:

1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: WBV-HIVEAP340DFS filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.



FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown 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	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



DESCRIPTION OF TEST MODES

The 3x3 configuration was used for all testing in this report.

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

The worst-case data rates:

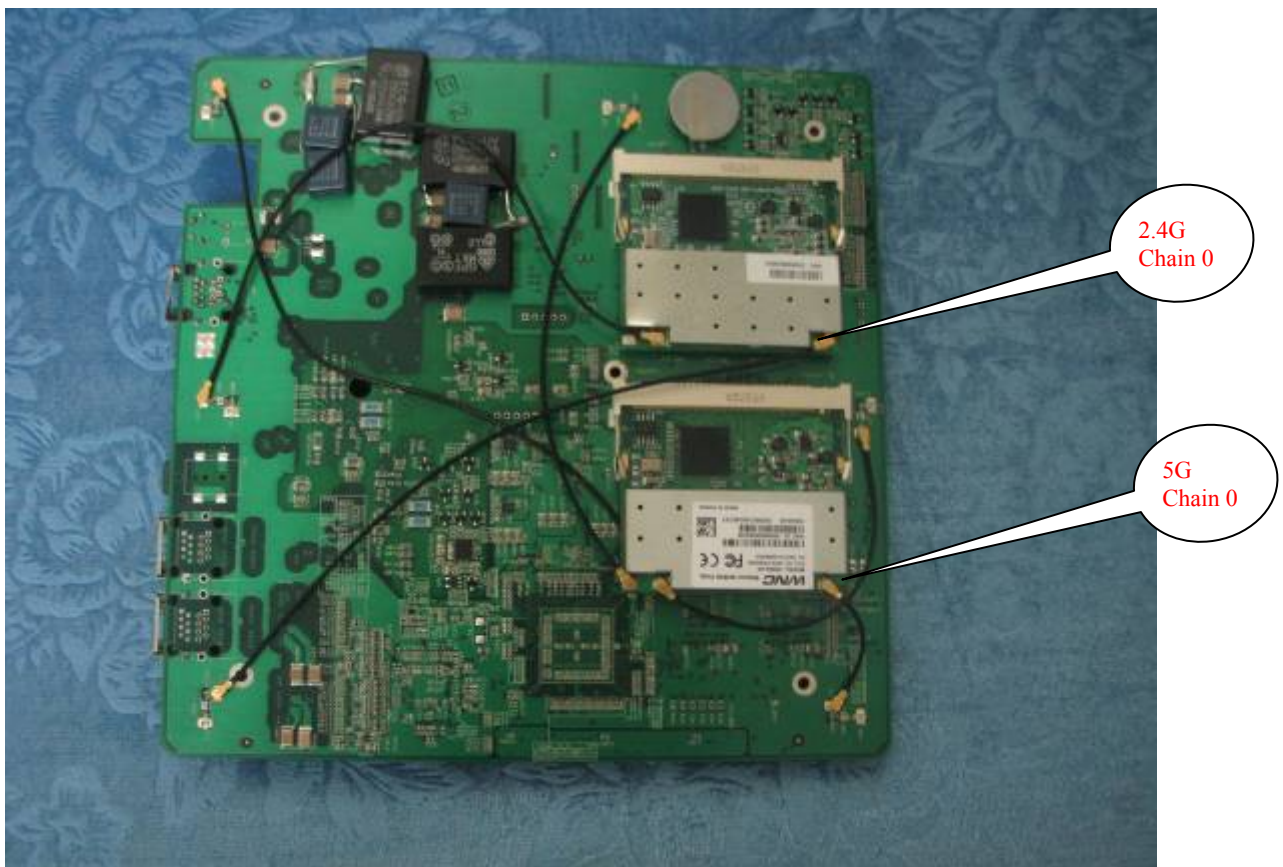
IEEE802.11b mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.

IEEE802.11g mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

draft 802.11n Standard-20 MHz Channel mode: Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with MCS8 data rate were chosen for full testing.

draft 802.11n Wide-40 MHz Channel mode: Channel Low (2422MHz), Channel Mid (2437MHz) and Channel High (2452MHz) with MCS8 data rate were chosen for full testing.

All emissions tests were made with the worst-case data rates.





4. INSTRUMENT CALIBRATION

MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

Equipment Used for Emissions Measurement

Remark: Each piece of equipment is scheduled for calibration once a year.

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	11/12/2008
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	09/11/2008
EPM-P Series Power Meter	Agilent	E4416A	QB41292714	09/11/2008

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	11/12/2008
Pre-Amplifier	Miteq	NSP4000-NF	870731	01/21/2009
Horn Antenna	Austriah	BBHA9120D	D267	05/09/2009
Turn Table	CT	CT123	4162	N.C.R
Antenna Tower	CT	CTERG23	3253	N.C.R
Controller	CT	CT100	95635	N.C.R
Coax Switch	Anitsu	MP 598	M 80094	N/A
Site NSA	CCS Lab.	N/A	N/A	12/11/2008
ESPI3 EMI RECEIVER	R&S	ESPI3	101026	05/06/2009
Pre-Amplifier	MINI	ZFL-1000VH2	d041703	02/28/2009
Bilog Antenna	Sunol Sciences	JB1	A110204-2	11/22/2008

Remark: The measurement uncertainty is less than +/-2.50dB (30MHz ~ 1GHz), +/-3.169dB (Above 1GHz)

Power Line Conducted Emission Test Site A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	SCHAFFNER	SCR3501	343	04/22/2009
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	04/11/2009
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	04/11/2009
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	04/06/2009

which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

Remark: The measurement uncertainty is less than +/- 2.15dB, which is evaluated as per the LAB34 and CISPR/A/291/CDV.



5. FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC5743 for 10m chamber 10m, IC5743 for 10m chamber 3m.



TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	47 CFR FCC Part 15/18 (using ANSI C63.4:2003); VCCI V3; CNS 13438; CNS 13439; CNS 13803; CISPR 11; EN 55011; CISPR 13; EN 55013; CISPR 22:2005; CISPR 22:1997 +A1 :2000+A2 :2002; EN 55022:2006; EN55022 :1998 +A1 :2001+A2 :2003; EN 61000-6-3 (excluding discontinuous interference); EN 61000-6-4; AS/NZS CISPR 22; CAN/CSA-CEI/IEC CISPR 22; EN 61000-3-2; EN 61000-3-3; EN550024; EN 61000-4-2; EN 61000-4-3; EN61000-4-4; EN 61000-4-5; EN 61000-4-6; IEC 61000-4-8; EN 61000-4-11; IEC61000-3-2; IEC61000-3-3; IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-8; IEC 61000-4-11; EN 300 220-3; EN 300 328; EN 300 330-2; EN 300 440-1; EN 300-440-2; EN 300 893; EN 301 489-01; EN 301 489-3; EN 301 489-07; EN 301 489-17; 47 CFR FCC Part 15, 22, 24	
USA	FCC	3/10 meter Sites to perform FCC Part 15/18 measurements	 93105, 90471
Japan	VCCI	3/10 meter Sites and conducted test sites to perform radiated/conducted measurements	 R-1600 C-1707

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.



6. SETUP OF EQUIPMENT UNDER TEST

SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

SUPPORT EQUIPMENT

No	Equipment	Model	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	NA	NA	NA	NA	NA	NA	NA

Remark:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*



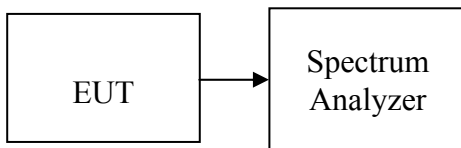
7. FCC PART 15.247 REQUIREMENTS

6DB BANDWIDTH

LIMIT

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the selected span. The VBW is set to 3 times the RBW. The sweep time is occupied.



TEST RESULTS

No non-compliance noted

Test Data

IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	11.734	>500	PASS
Mid	2437	11.384		PASS
High	2462	11.367		PASS

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	15.859	>500	PASS
Mid	2437	16.091		PASS
High	2462	16.383		PASS

TRANSMIT CHAIN 0

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.389	>500	PASS
Mid	2437	17.375		PASS
High	2462	16.807		PASS

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.419	>500	PASS
Mid	2437	36.420		PASS
High	2452	36.428		PASS

TRANSMIT CHAIN 1

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.874	>500	PASS
Mid	2437	17.310		PASS
High	2462	17.620		PASS

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.414	>500	PASS
Mid	2437	36.406		PASS
High	2452	36.401		PASS



TRANSMIT CHAIN 2

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.034	>500	PASS
Mid	2437	16.347		PASS
High	2462	17.275		PASS

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.408	>500	PASS
Mid	2437	36.415		PASS
High	2452	36.331		PASS

TRANSMIT CHAIN 0

IEEE 802.11a mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	15.596	>500	PASS
Mid	5785	15.336		PASS
High	5805	16.324		PASS

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.828	>500	PASS
Mid	5785	17.315		PASS
High	5805	17.189		PASS

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	39.463	>500	PASS
High	5795	40.545		PASS



TRANSMIT CHAIN 1

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.931	>500	PASS
Mid	5785	16.217		PASS
High	5805	17.311		PASS

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.787	>500	PASS
High	5795	35.868		PASS

TRANSMIT CHAIN 2

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.338	>500	PASS
Mid	5785	16.952		PASS
High	5805	17.587		PASS

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.809	>500	PASS
High	5795	36.373		PASS

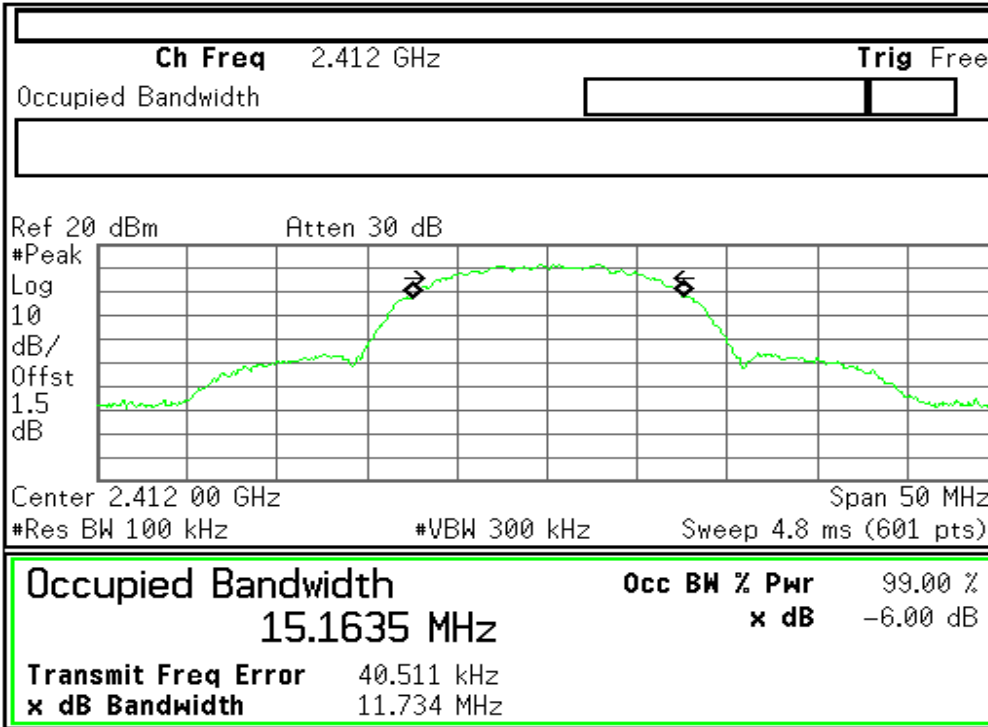


Test Plot

IEEE 802.11b MODE

6dB Bandwidth (CH Low)

Agilent

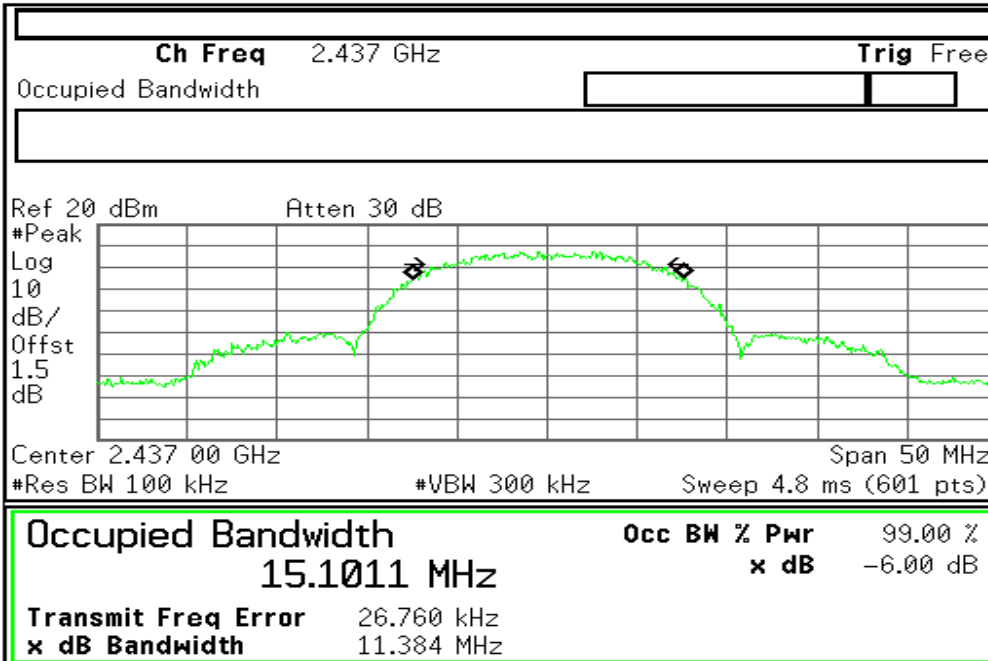


Freq/Channel	
Center Freq	2.41200000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.43700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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6dB Bandwidth (CH Mid)

Agilent

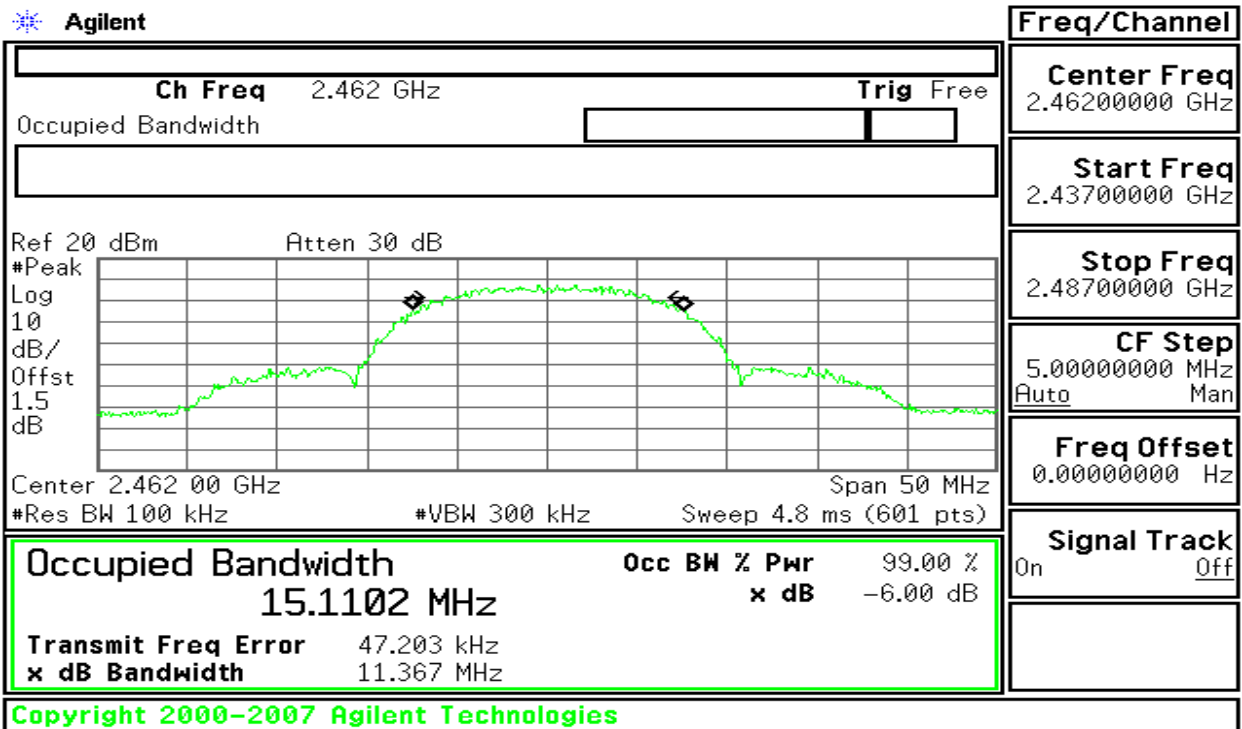


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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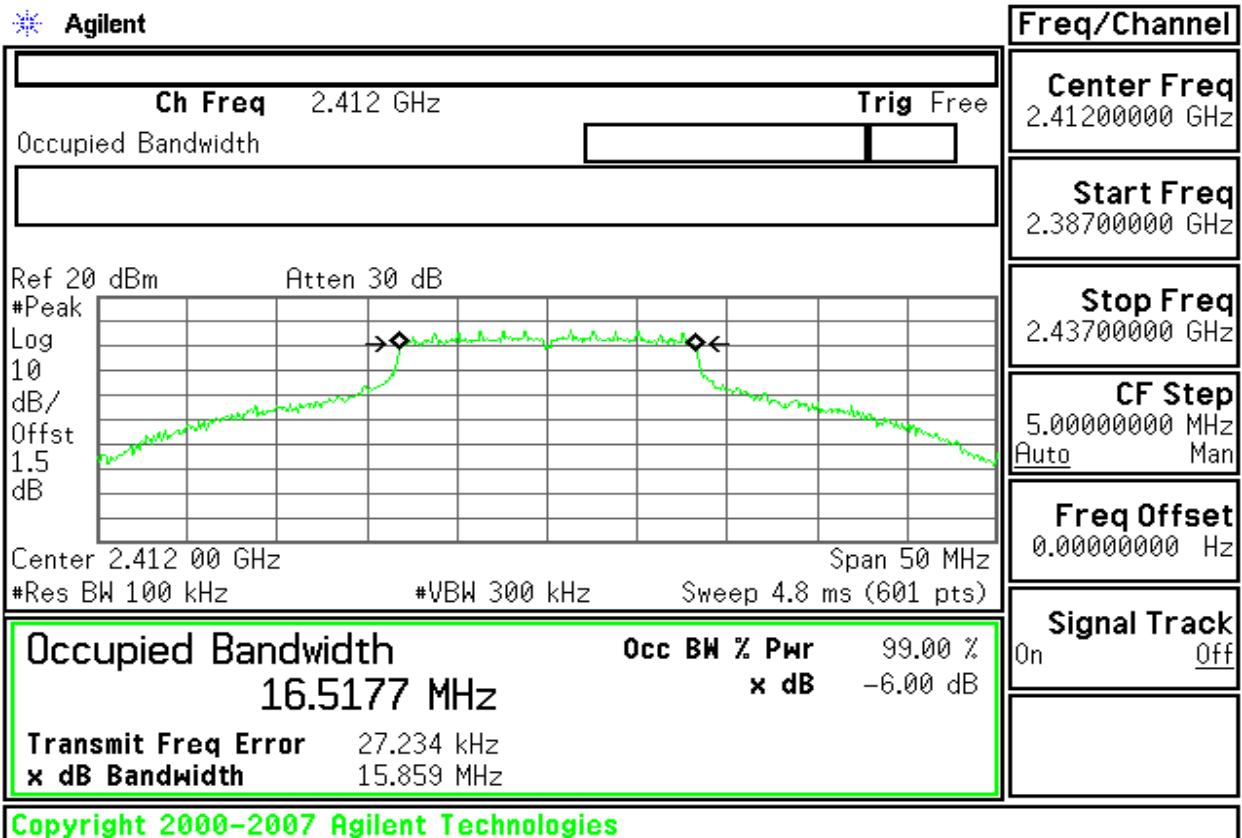


6dB Bandwidth (CH High)



IEEE 802.11g MODE

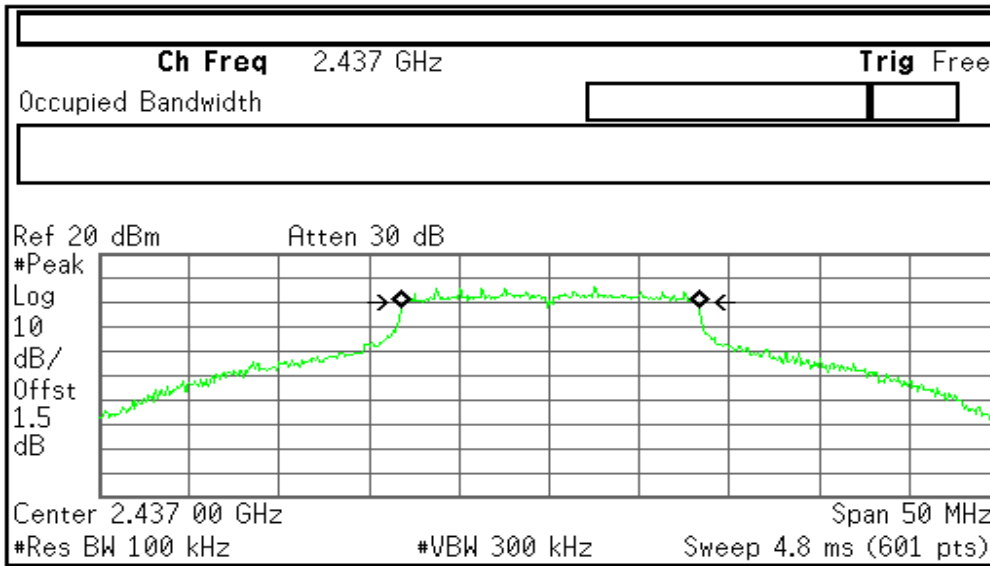
6dB Bandwidth (CH Low)





6dB Bandwidth (CH Mid)

Agilent



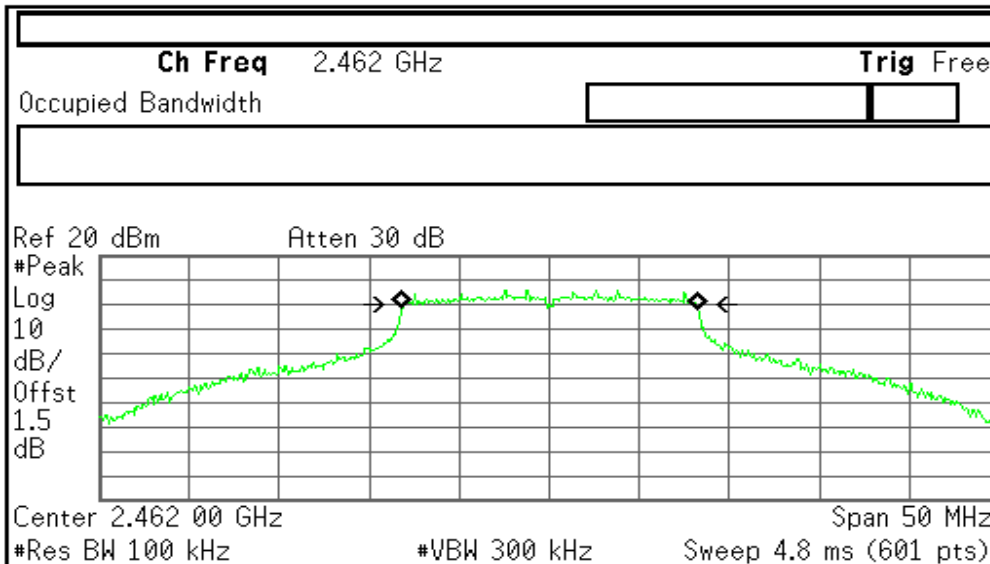
Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
16.5425 MHz	x dB	-6.00 dB
Transmit Freq Error	27.718 kHz	
x dB Bandwidth	16.091 MHz	

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6dB Bandwidth (CH High)

Agilent



Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.43700000 GHz
Stop Freq	2.48700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
16.4880 MHz	x dB	-6.00 dB
Transmit Freq Error	31.517 kHz	
x dB Bandwidth	16.383 MHz	

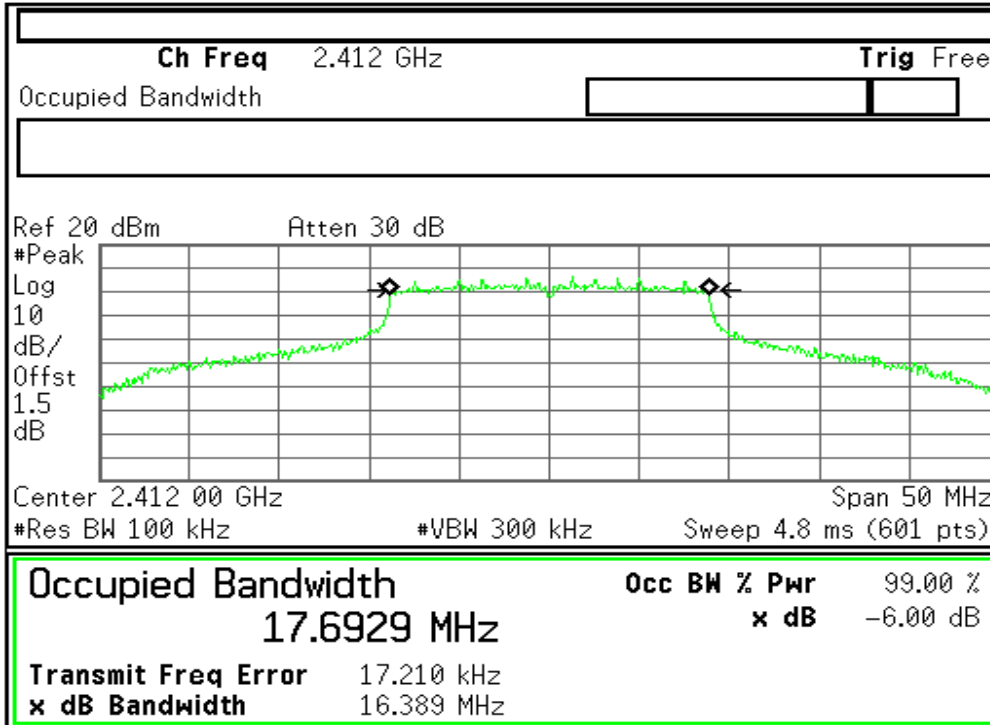
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draft 802.11n Standard-20 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent

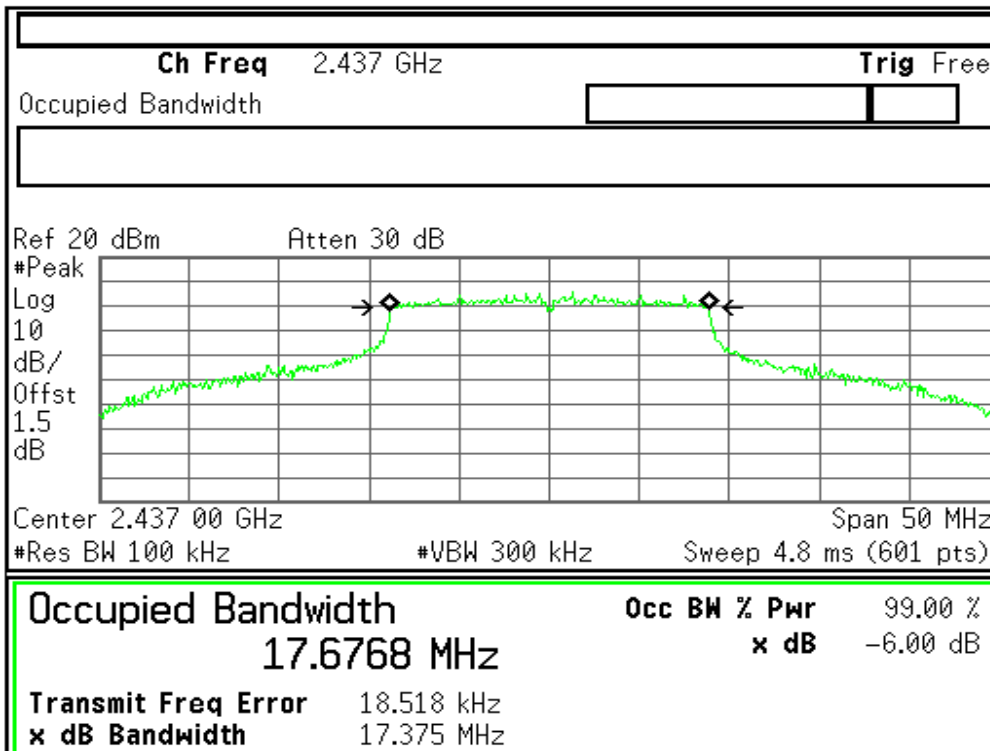


Trace		
1	Trace	3
Clear Write		
Max Hold		
Min Hold		
View		
Blank		
More 1 of 2		

File Operation Status, A:\SCREN124.GIF file saved

6dB Bandwidth (CH Mid)

Agilent

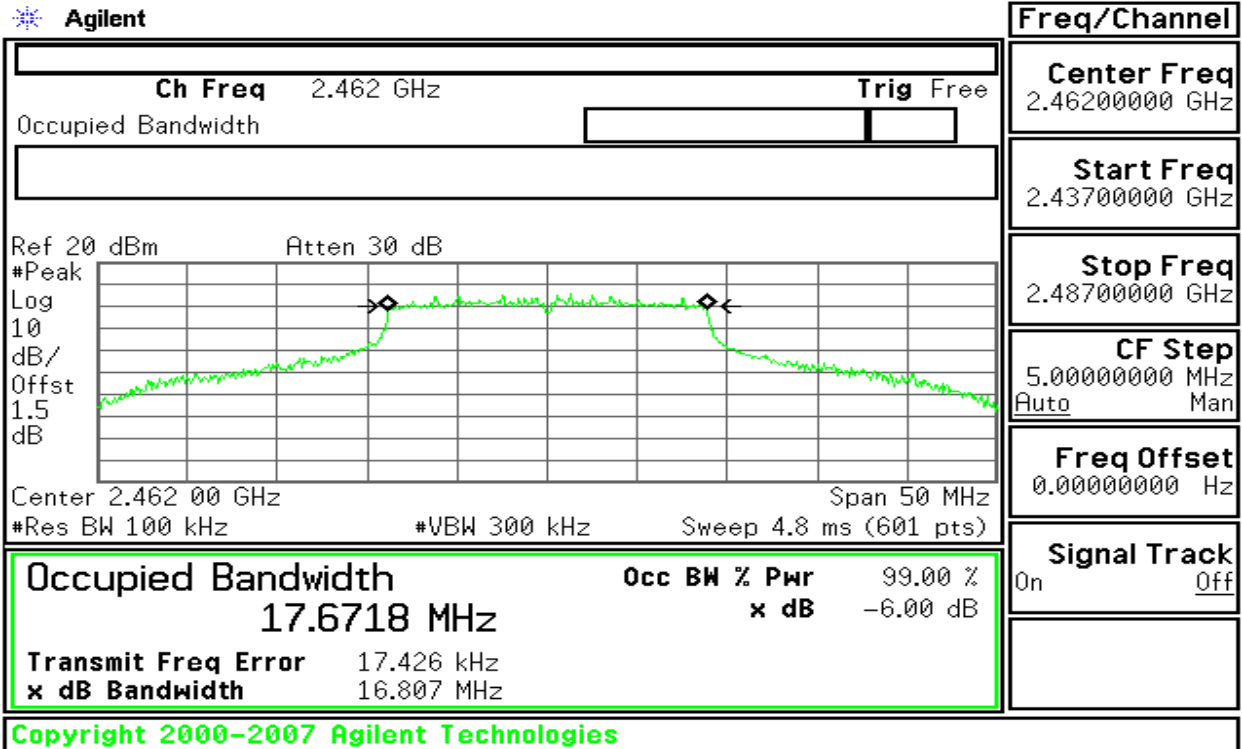


Freq/Channel	
Center Freq 2.43700000 GHz	
Start Freq 2.41200000 GHz	
Stop Freq 2.46200000 GHz	
CF Step 5.00000000 MHz Auto Man	
Freq Offset 0.00000000 Hz	
Signal Track On Off	

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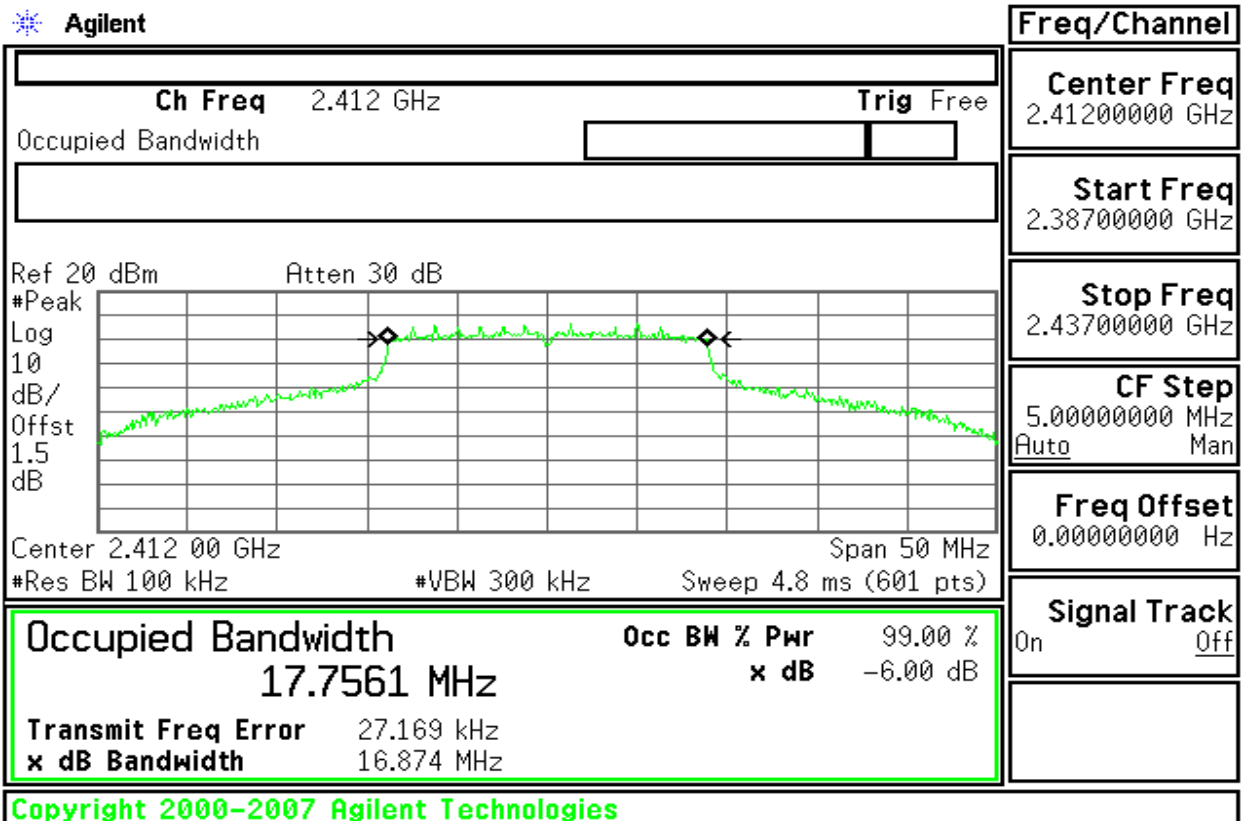


6dB Bandwidth (CH High)



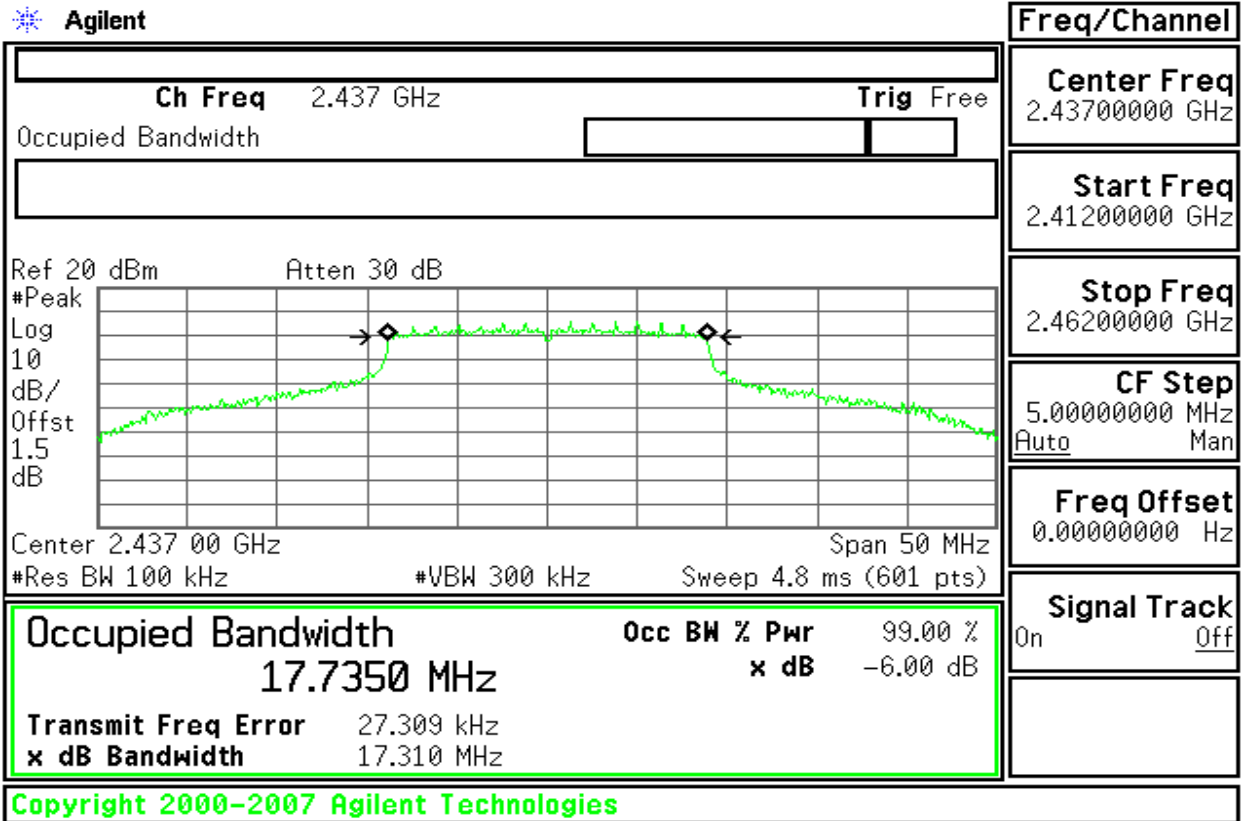
draft 802.11n Standard-20 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

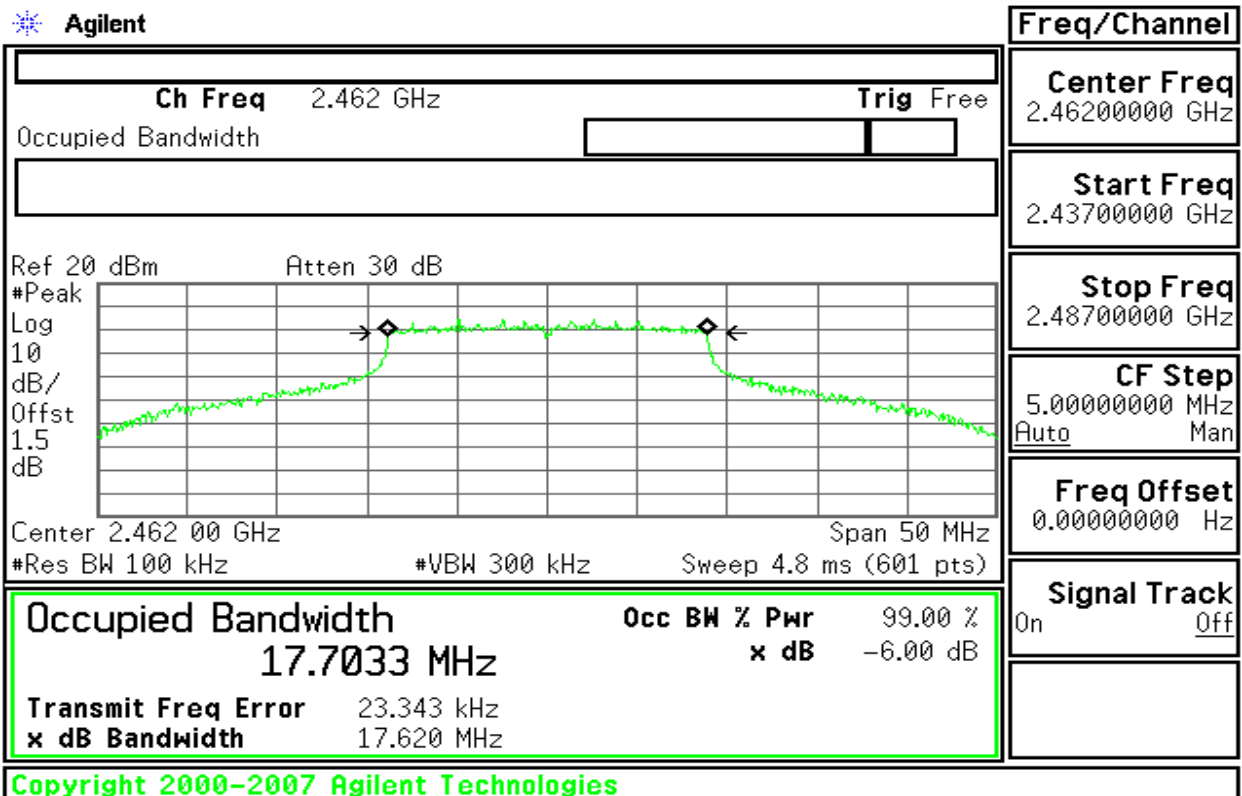




6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)

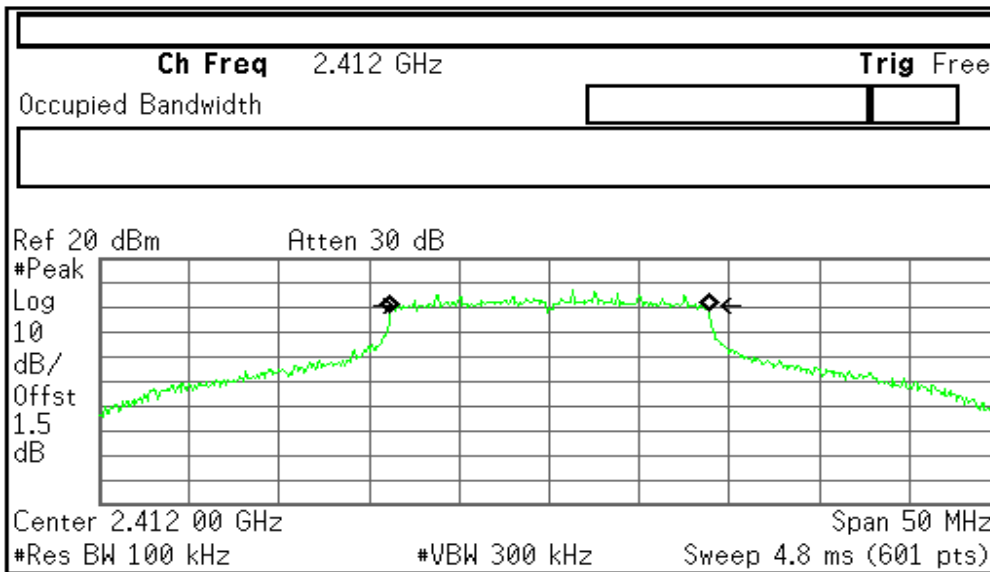




draft 802.11n Standard-20 MHz Channel mode / Chain 2

6dB Bandwidth (CH Low)

Agilent



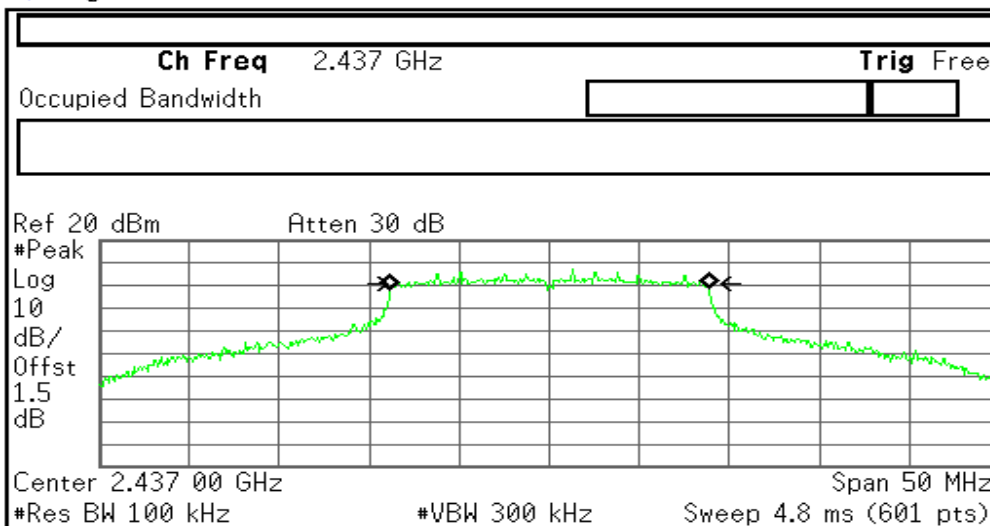
Freq/Channel
Center Freq 2.41200000 GHz
Start Freq 2.38700000 GHz
Stop Freq 2.43700000 GHz
CF Step Auto Man 5.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.6991 MHz	x dB	-6.00 dB
Transmit Freq Error	23.104 kHz	
x dB Bandwidth	16.034 MHz	

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6dB Bandwidth (CH Mid)

Agilent



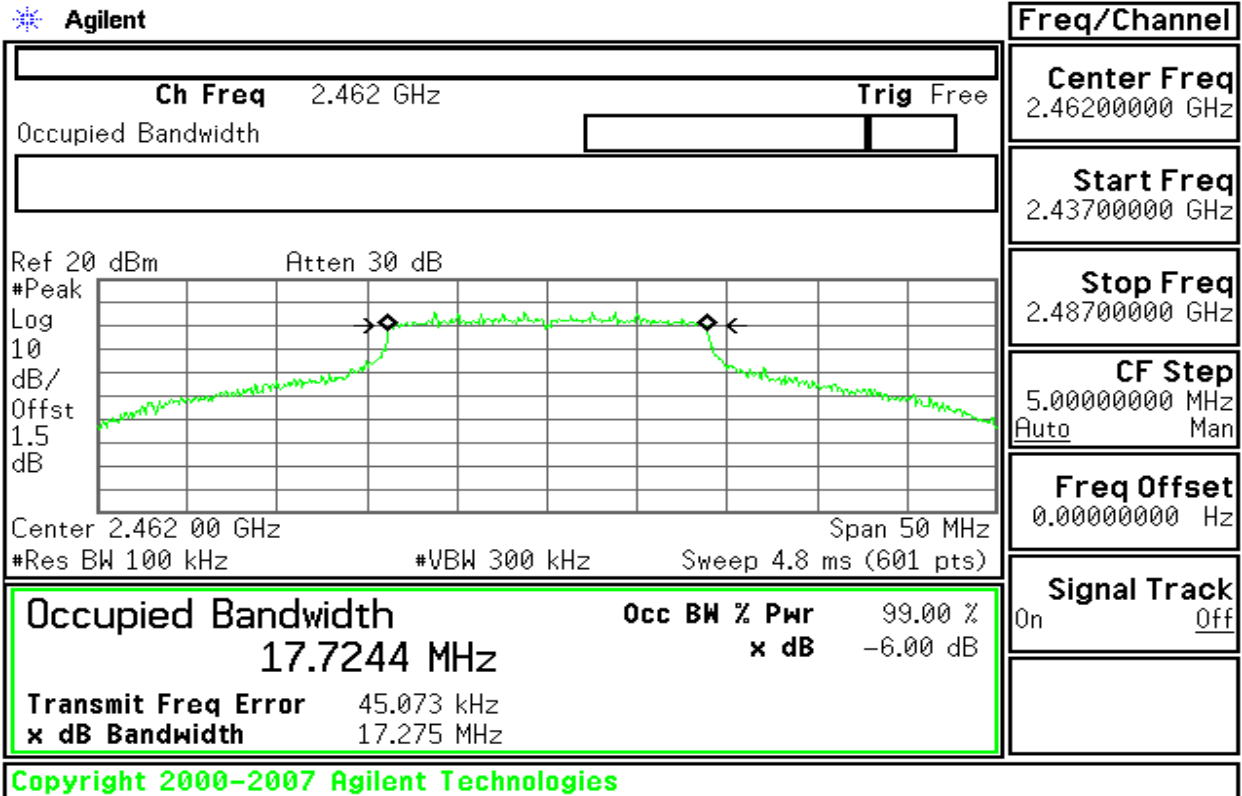
Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.41200000 GHz
Stop Freq 2.46200000 GHz
CF Step Auto Man 5.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.6944 MHz	x dB	-6.00 dB
Transmit Freq Error	19.882 kHz	
x dB Bandwidth	16.347 MHz	

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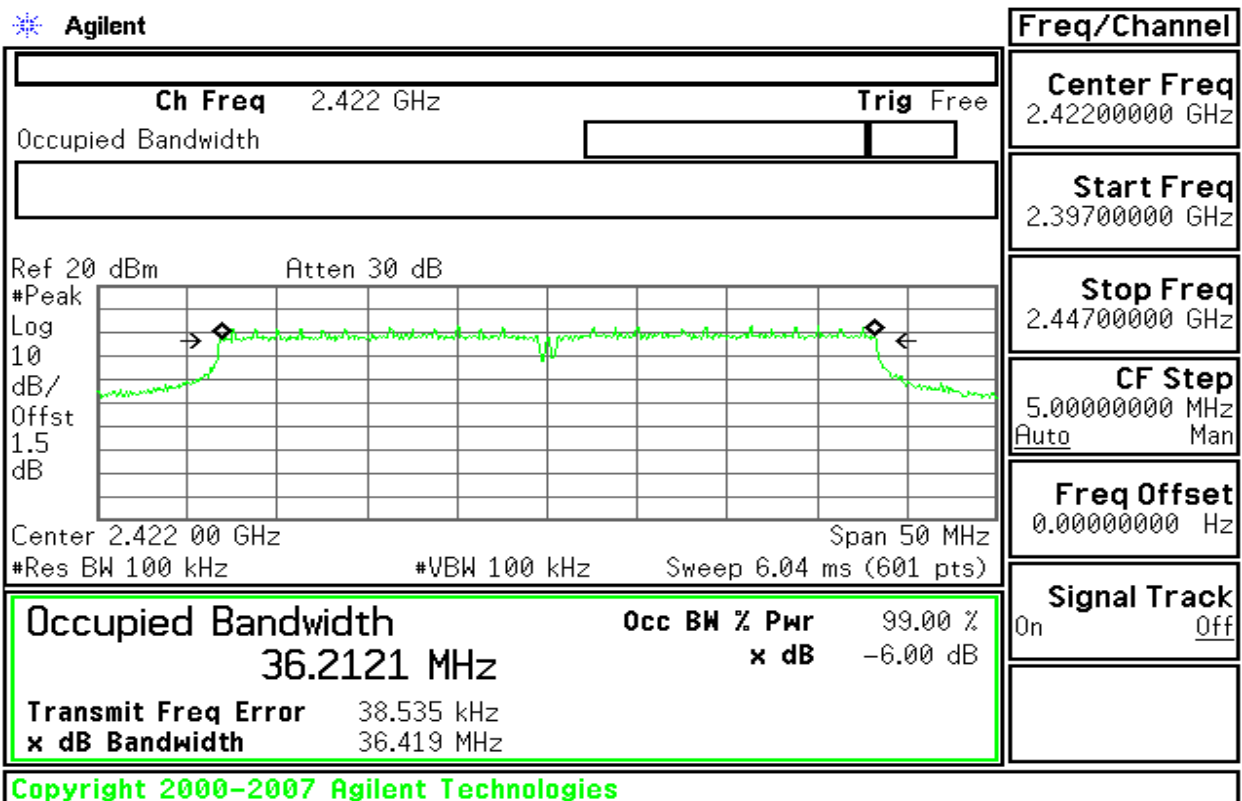


6dB Bandwidth (CH High)



draft 802.11n Wide-40 MHz Channel mode / Chain 0

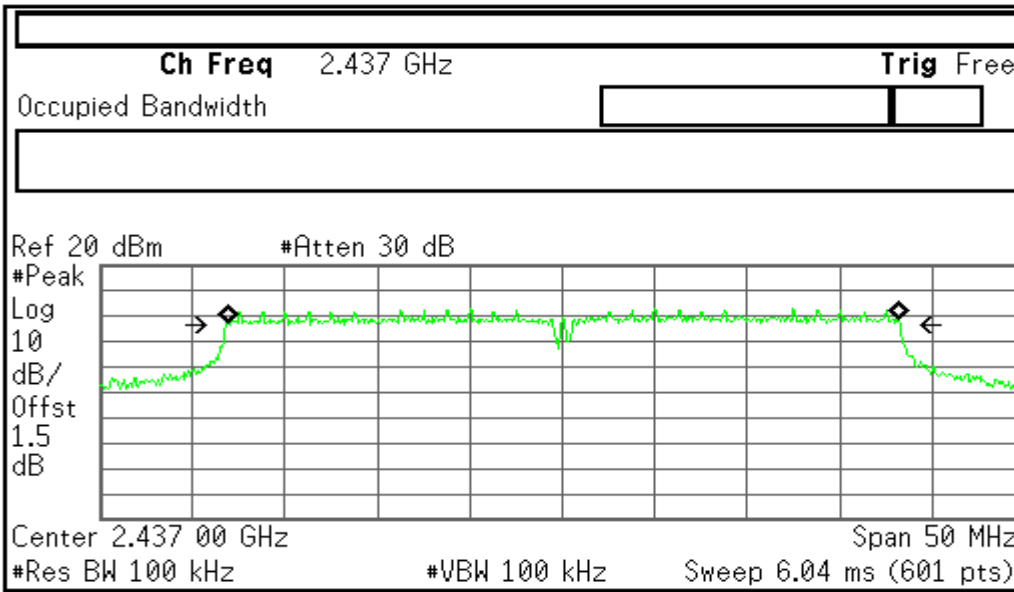
6dB Bandwidth (CH Low)





6dB Bandwidth (CH Mid)

Agilent



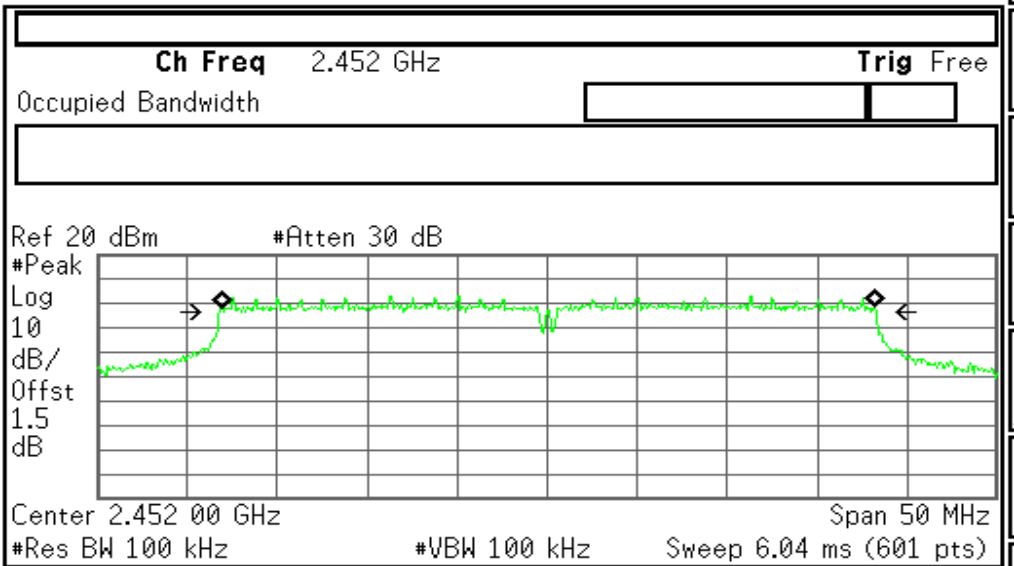
Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.41200000 GHz
Stop Freq 2.46200000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.2103 MHz	x dB	-6.00 dB
Transmit Freq Error	40.991 kHz	
x dB Bandwidth	36.420 MHz	

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6dB Bandwidth (CH High)

Agilent



Freq/Channel
Center Freq 2.45200000 GHz
Start Freq 2.42700000 GHz
Stop Freq 2.47700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

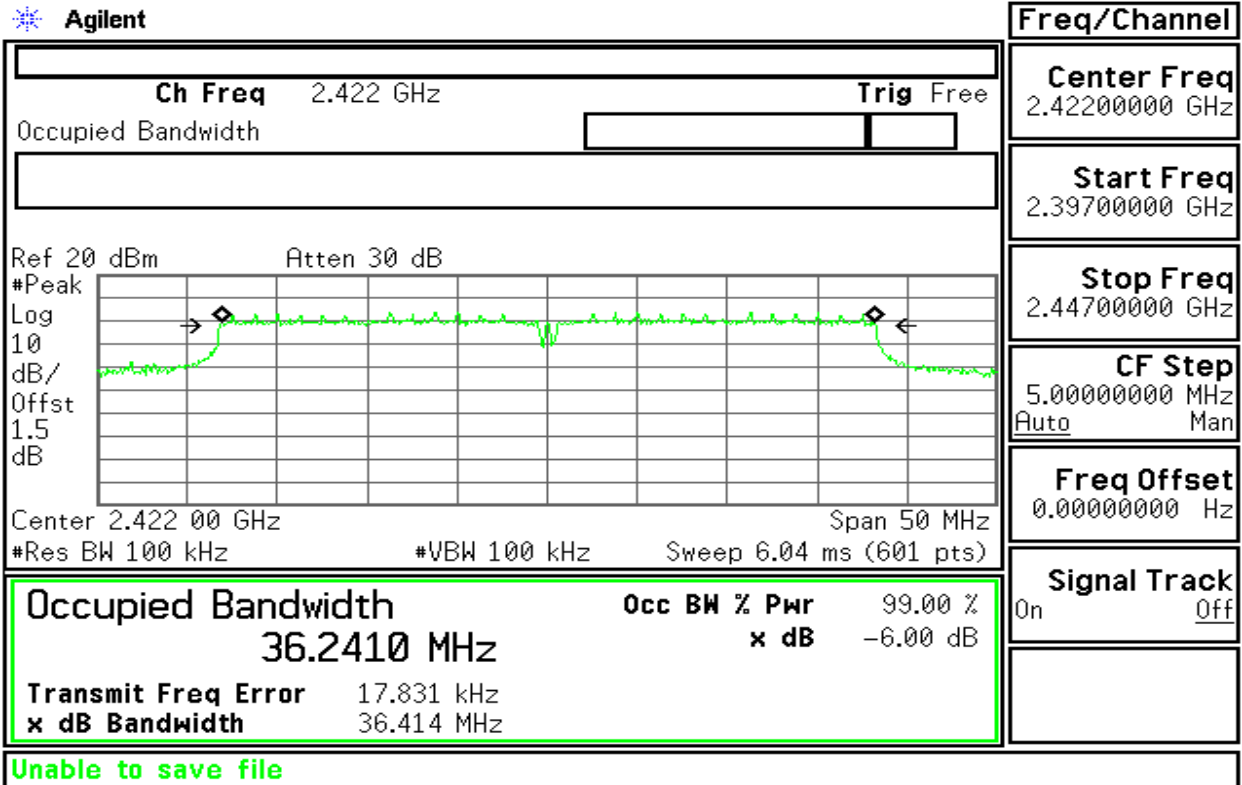
Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.2035 MHz	x dB	-6.00 dB
Transmit Freq Error	23.478 kHz	
x dB Bandwidth	36.428 MHz	

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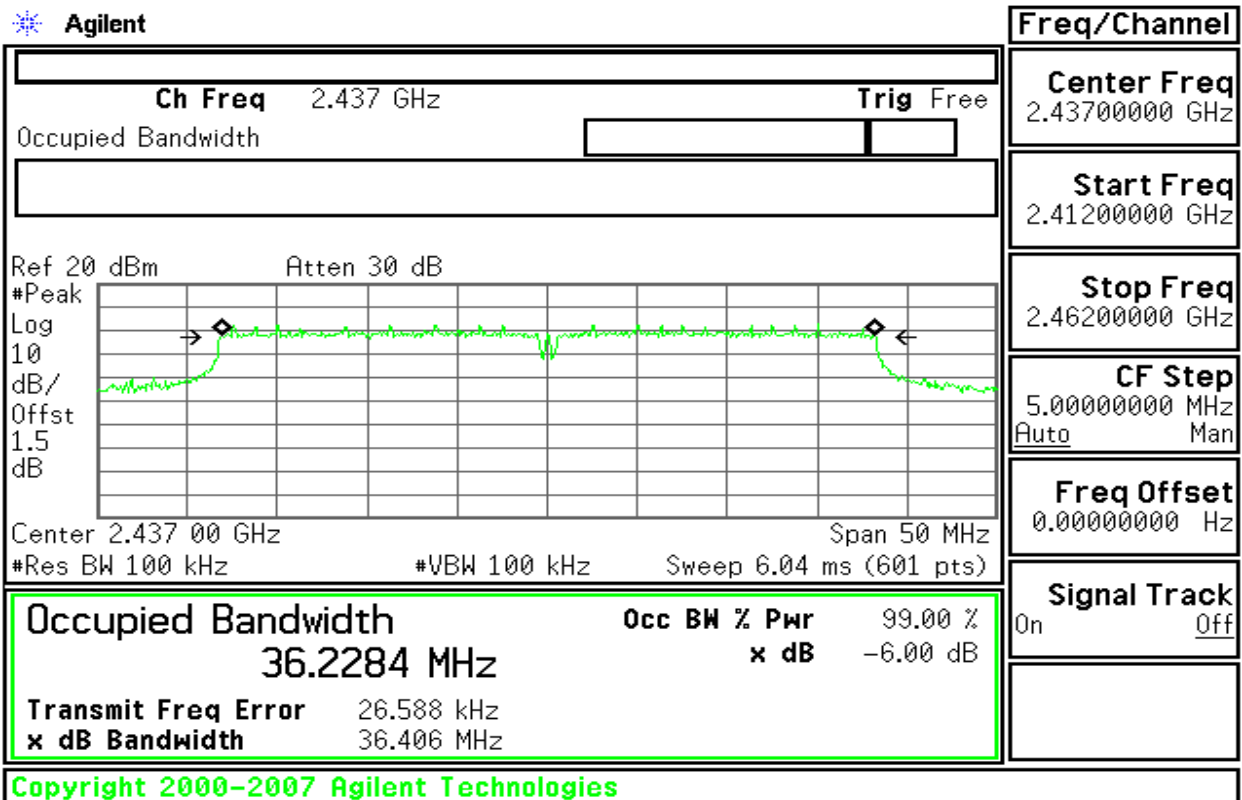


draft 802.11n Wide-40 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

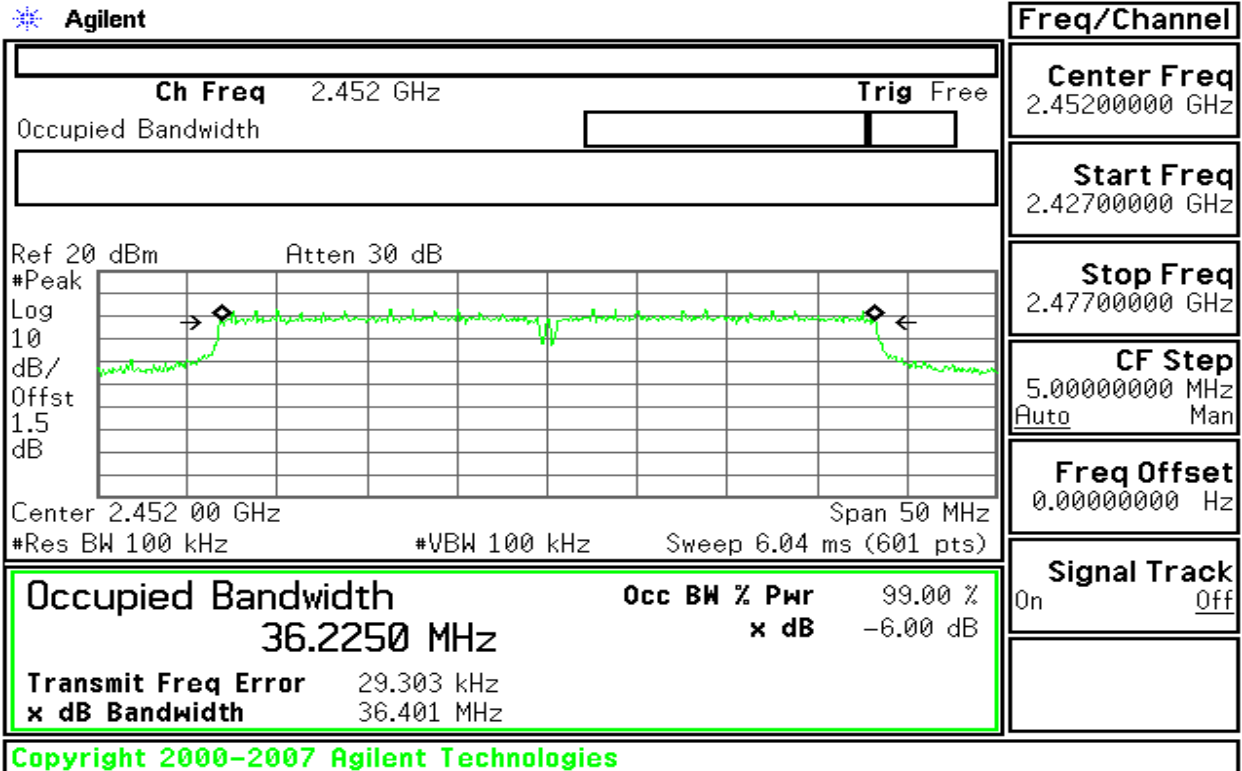


6dB Bandwidth (CH Mid)



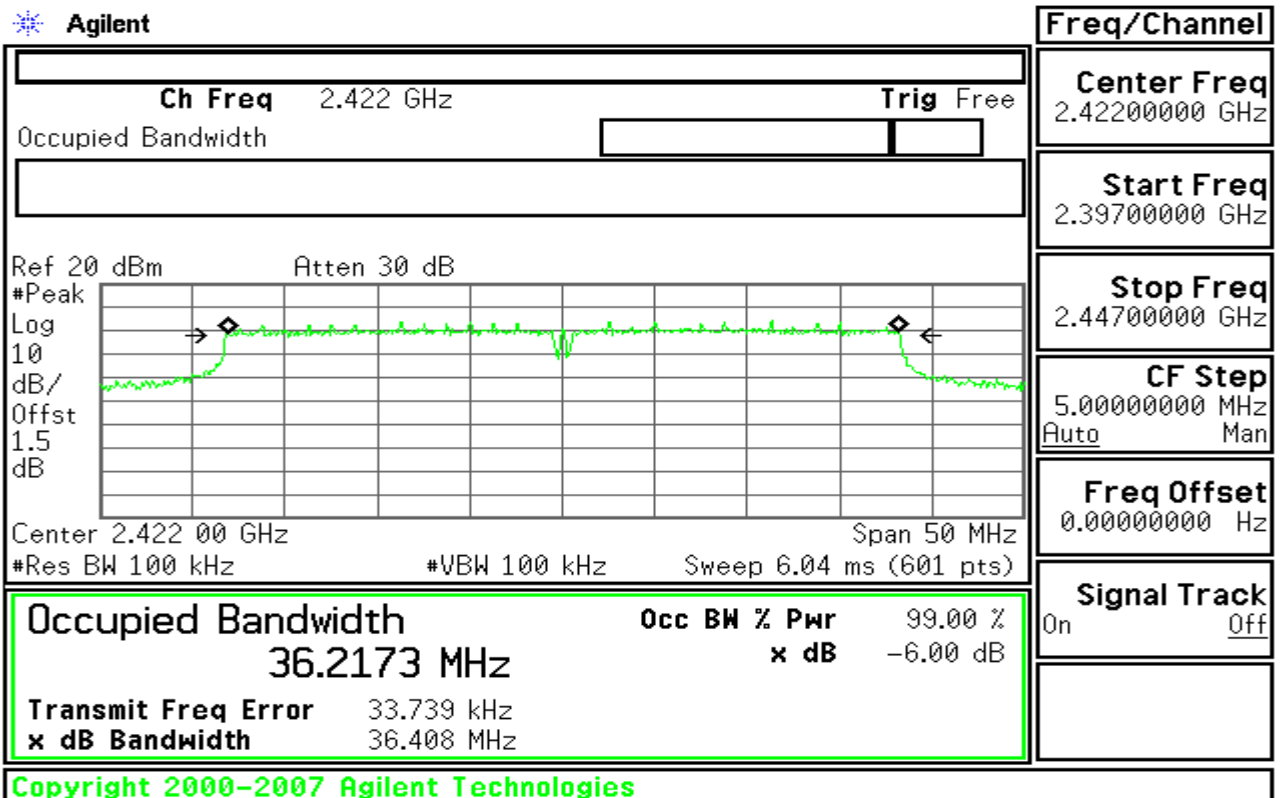


6dB Bandwidth (CH High)



draft 802.11n Wide-40 MHz Channel mode / Chain 2

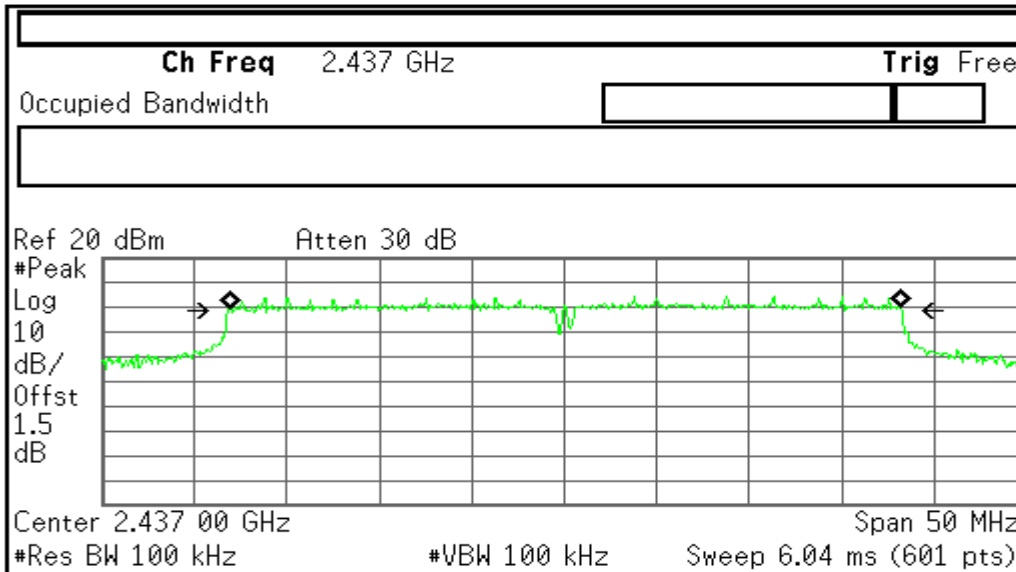
6dB Bandwidth (CH Low)





6dB Bandwidth (CH Mid)

Agilent



Freq/Channel

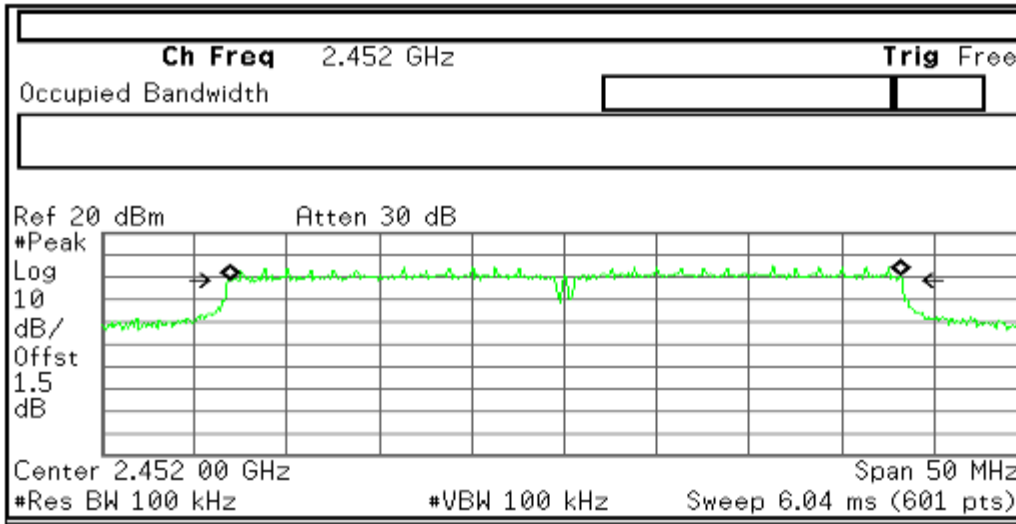
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.2488 MHz	x dB	-6.00 dB
Transmit Freq Error	32.610 kHz	
x dB Bandwidth	36.415 MHz	

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6dB Bandwidth (CH High)

Agilent



Freq/Channel

Center Freq	2.45200000 GHz
Start Freq	2.42700000 GHz
Stop Freq	2.47700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.2235 MHz	x dB	-6.00 dB
Transmit Freq Error	45.368 kHz	
x dB Bandwidth	36.331 MHz	

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5725MHz-5825MHz

IEEE 802.11a mode

6dB Bandwidth (CH Low)

Agilent

Ch Freq 5.745 GHz Trig Free Occupied Bandwidth		Freq/Channel Center Freq 5.74500000 GHz Start Freq 5.73500000 GHz Stop Freq 5.75500000 GHz CF Step 2.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
Ref 20 dBm Atten 30 dB #Peak Log 10 dB/ Offst 1.5 dB 		
Center 5.745 00 GHz Span 20 MHz #Res BW 100 kHz #VBW 100 kHz Sweep 2.44 ms (601 pts)		
Occupied Bandwidth 16.3528 MHz Transmit Freq Error 46.839 kHz x dB Bandwidth 15.596 MHz		Occ BW % Pwr 99.00 % x dB -6.00 dB
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6dB Bandwidth (CH Mid)

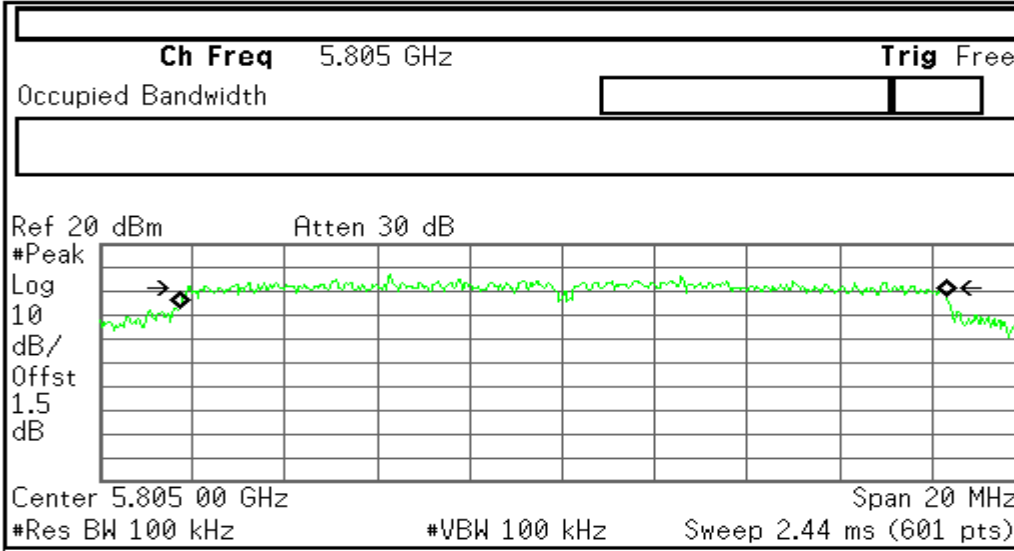
Agilent

Ch Freq 5.785 GHz Trig Free Occupied Bandwidth		Freq/Channel Center Freq 5.78500000 GHz Start Freq 5.77500000 GHz Stop Freq 5.79500000 GHz CF Step 2.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
Ref 20 dBm Atten 30 dB #Peak Log 10 dB/ Offst 1.5 dB 		
Center 5.785 00 GHz Span 20 MHz #Res BW 100 kHz #VBW 100 kHz Sweep 2.44 ms (601 pts)		
Occupied Bandwidth 16.3456 MHz Transmit Freq Error 44.334 kHz x dB Bandwidth 15.336 MHz		Occ BW % Pwr 99.00 % x dB -6.00 dB
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6dB Bandwidth (CH High)

Agilent



Freq/Channel

Center Freq	5.80500000 GHz
Start Freq	5.79500000 GHz
Stop Freq	5.81500000 GHz
CF Step	2.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

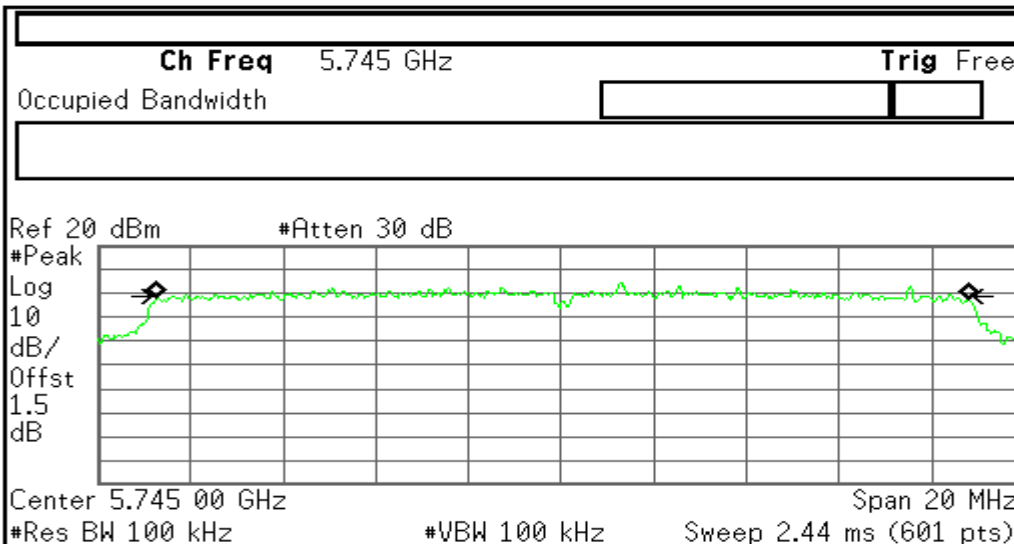
Occupied Bandwidth	16.5725 MHz	Occ BW % Pwr	99.00 %
		x dB	-6.00 dB
Transmit Freq Error	8.184 kHz		
x dB Bandwidth	16.324 MHz		

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draft 802.11n Standard-20 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent



Trace

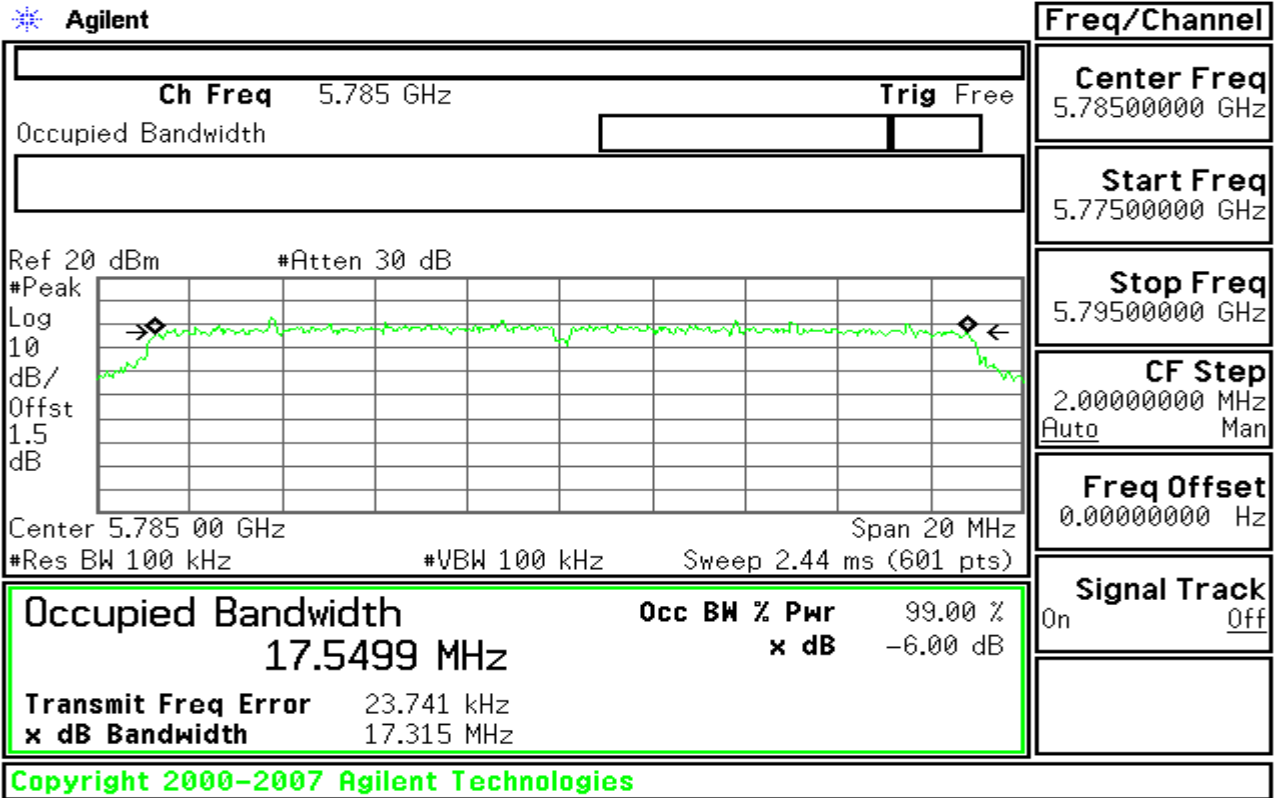
Trace	1	2	3
Clear Write			
Max Hold			
Min Hold			
View			
Blank			
More			1 of 2

Occupied Bandwidth	17.5612 MHz	Occ BW % Pwr	99.00 %
		x dB	-6.00 dB
Transmit Freq Error	17.729 kHz		
x dB Bandwidth	16.828 MHz		

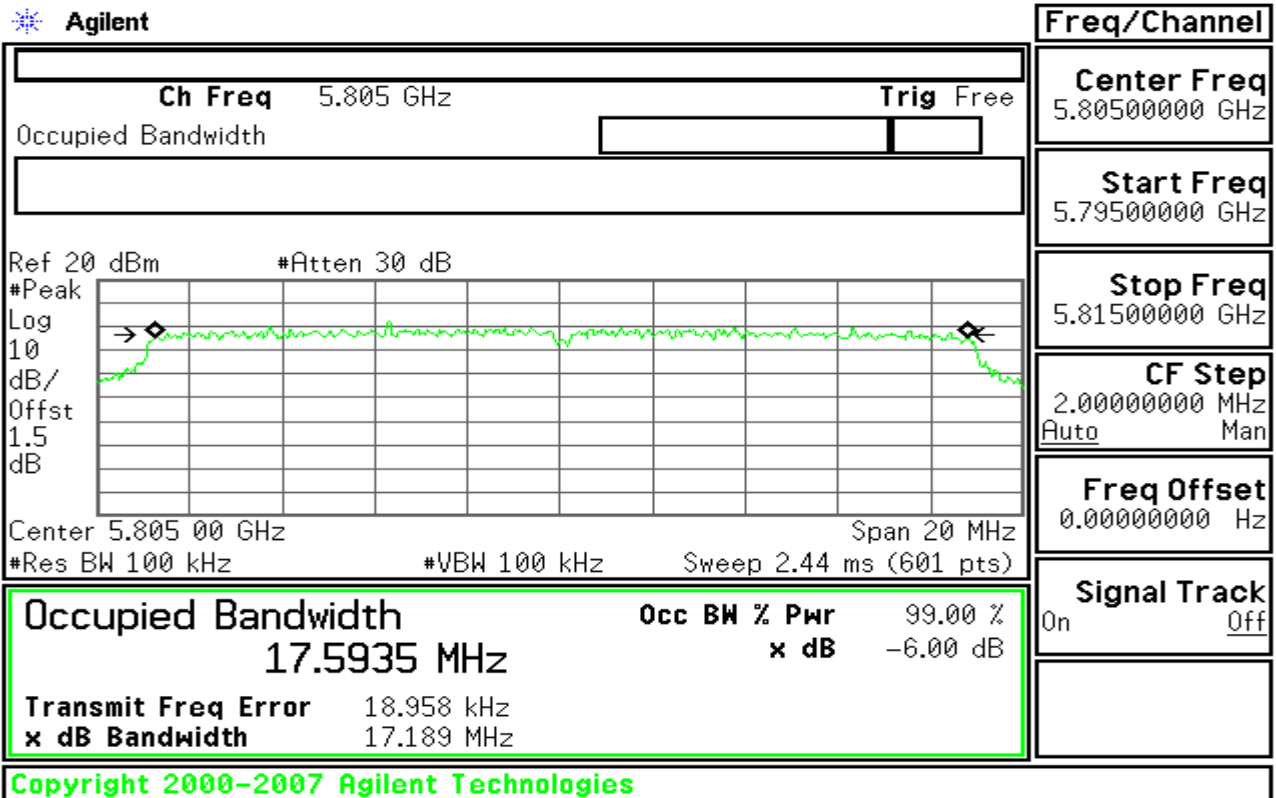
File Operation Status, A:\SCREEN183.GIF file saved



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)

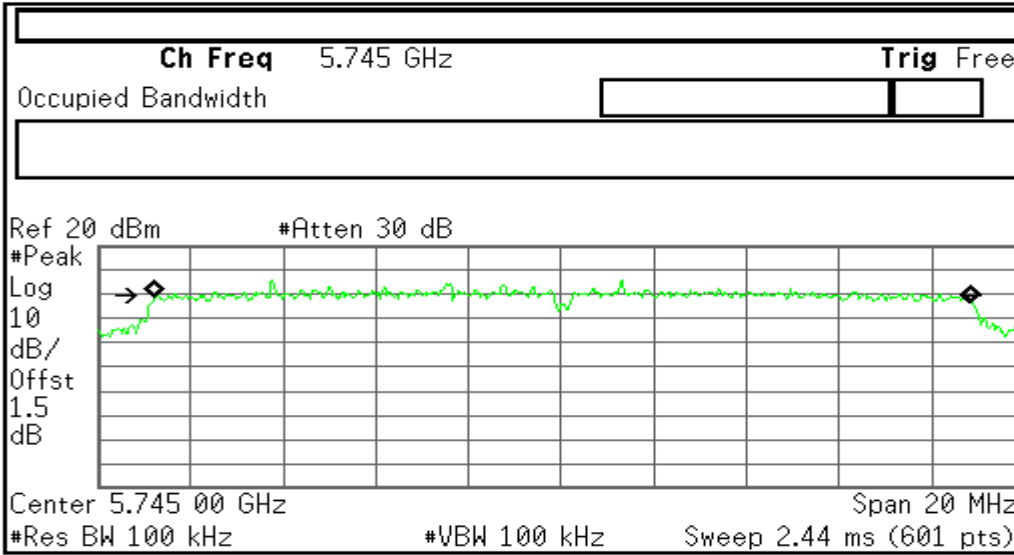




draft 802.11n Standard-20 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

Agilent



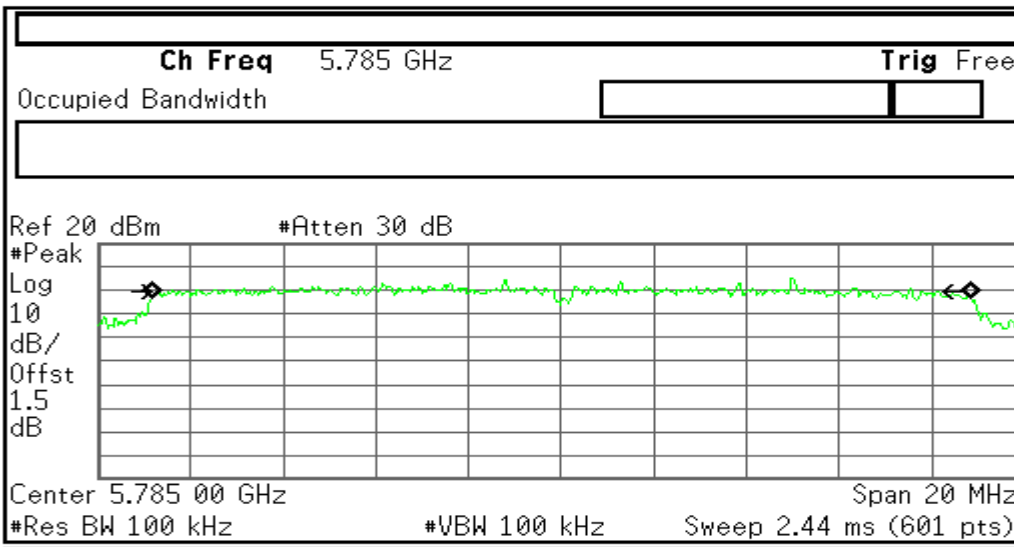
Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.6315 MHz	x dB	-6.00 dB
Transmit Freq Error	21.080 kHz	
x dB Bandwidth	16.931 MHz	

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Trace		
1	2	3
Trace		
Clear Write		
Max Hold		
Min Hold		
View		
Blank		
More 1 of 2		

6dB Bandwidth (CH Mid)

Agilent



Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.6684 MHz	x dB	-6.00 dB
Transmit Freq Error	13.078 kHz	
x dB Bandwidth	16.217 MHz	

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Freq/Channel	
Center Freq	5.78500000 GHz
Start Freq	5.77500000 GHz
Stop Freq	5.79500000 GHz
CF Step	2.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off



6dB Bandwidth (CH High)

Agilent

Ch Freq 5.805 GHz Trig Free

Occupied Bandwidth

Ref 20 dBm #Atten 30 dB

#Peak Log 10 dB/Offst 1.5 dB

Center 5.805 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 2.44 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
18.0175 MHz	x dB	-6.00 dB
Transmit Freq Error		-62.449 kHz
x dB Bandwidth		17.311 MHz

File Operation Status, A:\SCREEN180.GIF file saved

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More 1 of 2

draft 802.11n Standard-20 MHz Channel mode / Chain 2

6dB Bandwidth (CH Low)

Agilent

Ch Freq 5.745 GHz Trig Free

Occupied Bandwidth

Ref 20 dBm #Atten 30 dB

#Peak Log 10 dB/Offst 1.5 dB

Center 5.745 00 GHz Span 20 MHz
#Res BW 100 kHz #VBW 100 kHz Sweep 2.44 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
18.2398 MHz	x dB	-6.00 dB
Transmit Freq Error		16.951 kHz
x dB Bandwidth		17.338 MHz

Unable to save file

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

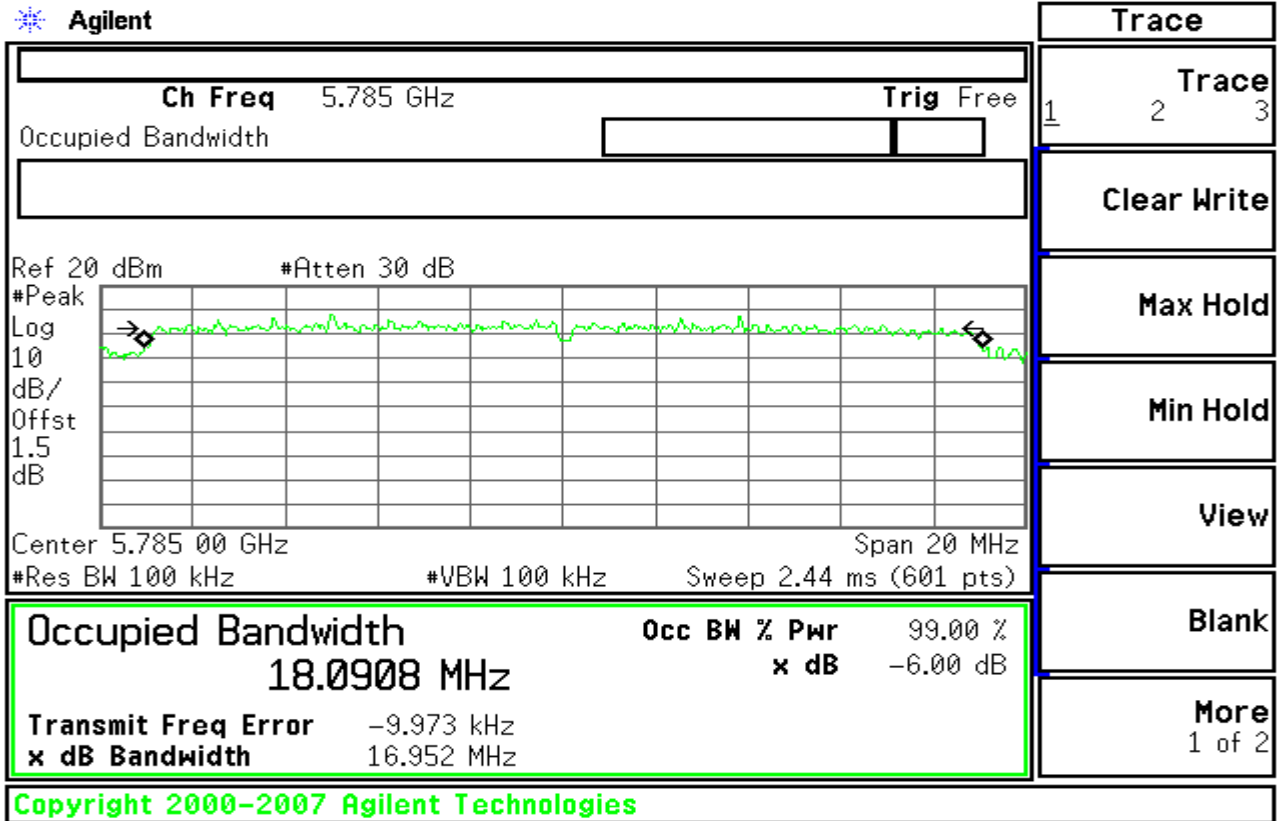
View

Blank

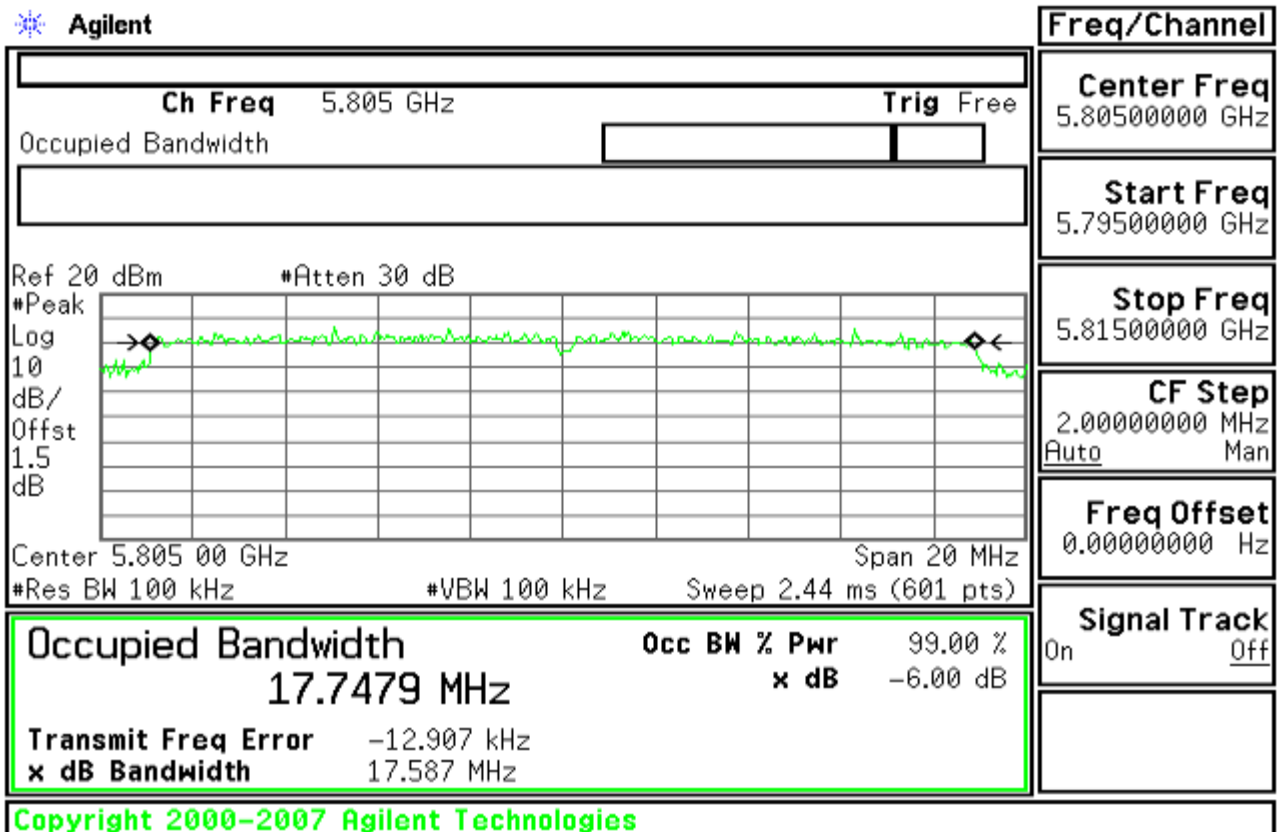
More 1 of 2



6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)

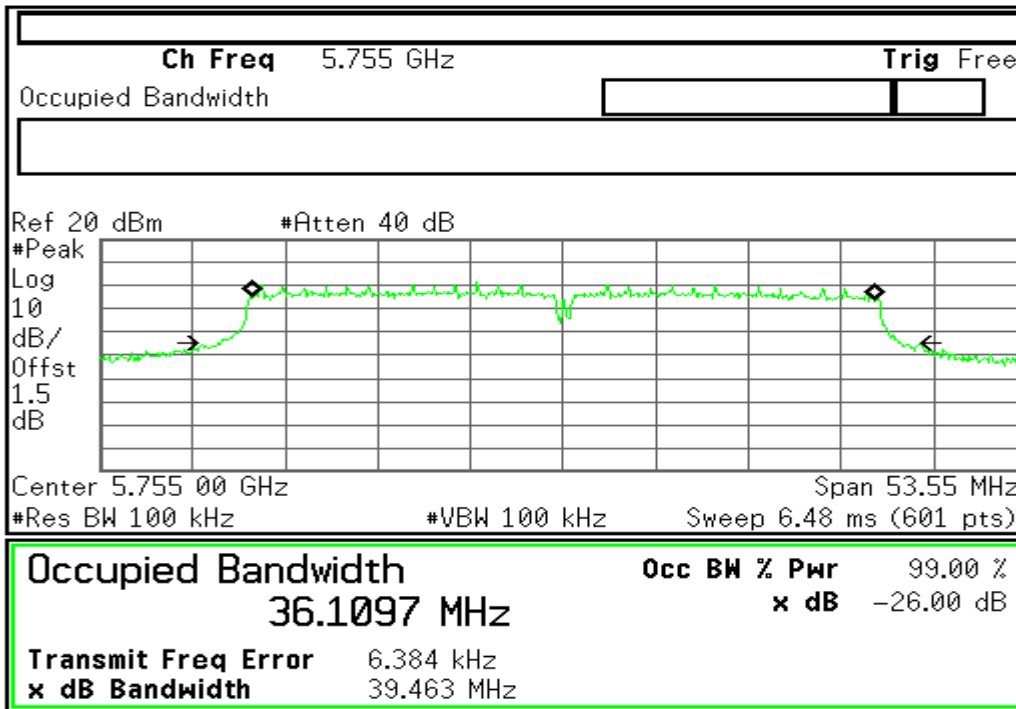




draft 802.11n Standard-40 MHz Channel mode / Chain 0

6dB Bandwidth (CH Low)

Agilent

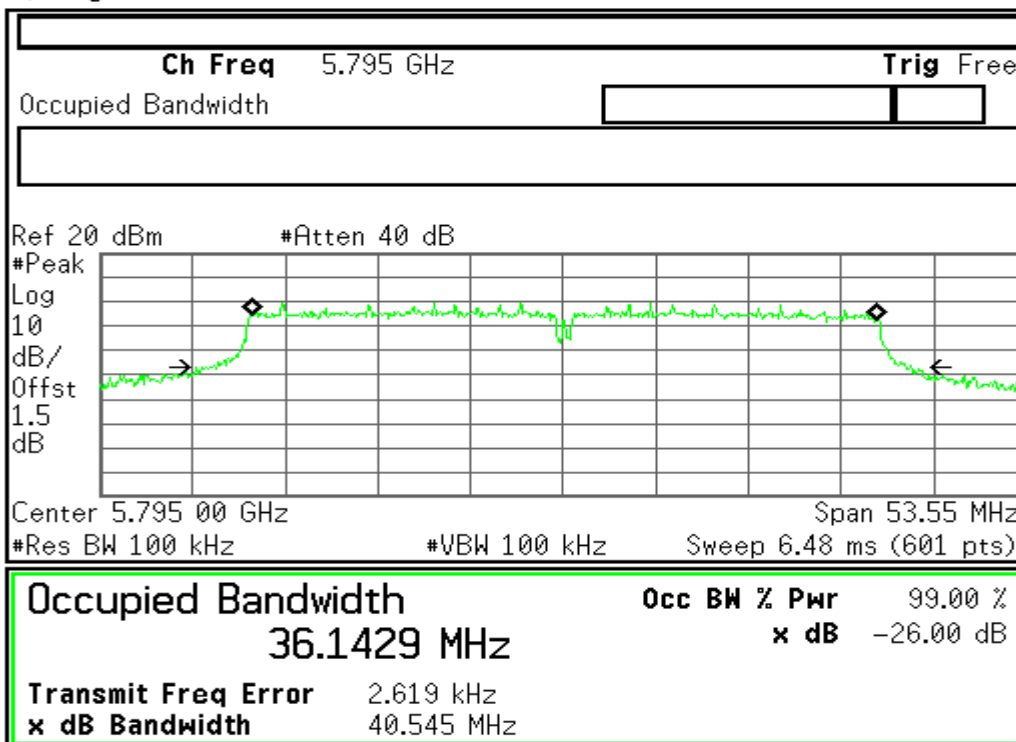


Freq/Channel	
Center Freq	5.75500000 GHz
Start Freq	5.72822500 GHz
Stop Freq	5.78177500 GHz
CF Step	5.35500000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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6dB Bandwidth (CH Mid)

Agilent



Freq/Channel	
Center Freq	5.79500000 GHz
Start Freq	5.76822500 GHz
Stop Freq	5.82177500 GHz
CF Step	5.35500000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

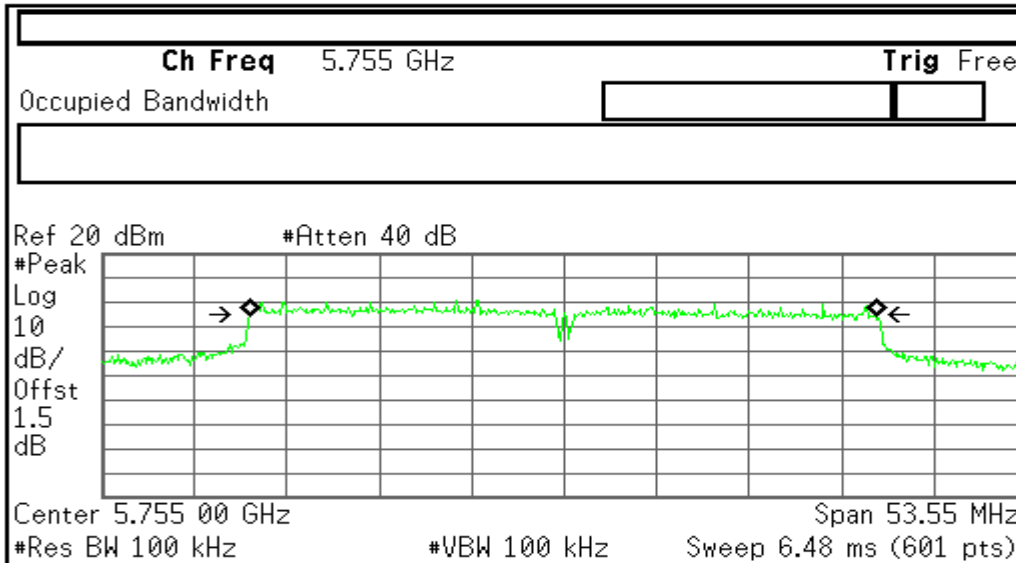
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draft 802.11n Standard-40 MHz Channel mode / Chain 1

6dB Bandwidth (CH Low)

Agilent



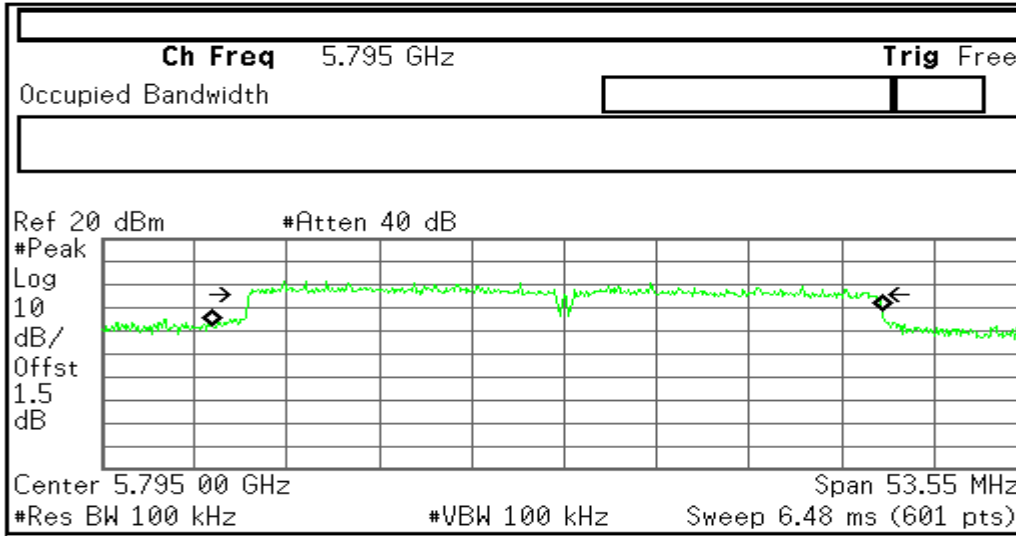
Freq/Channel	
Center Freq	5.75500000 GHz
Start Freq	5.72822500 GHz
Stop Freq	5.78177500 GHz
CF Step	5.35500000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	36.3699 MHz	Occ BW % Pwr	99.00 %
		x dB	-6.00 dB
Transmit Freq Error	-50.337 kHz		
x dB Bandwidth	35.787 MHz		

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6dB Bandwidth (CH Mid)

Agilent



Freq/Channel	
Center Freq	5.79500000 GHz
Start Freq	5.76822500 GHz
Stop Freq	5.82177500 GHz
CF Step	5.35500000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	38.8332 MHz	Occ BW % Pwr	99.00 %
		x dB	-6.00 dB
Transmit Freq Error	-1.059 MHz		
x dB Bandwidth	35.868 MHz		

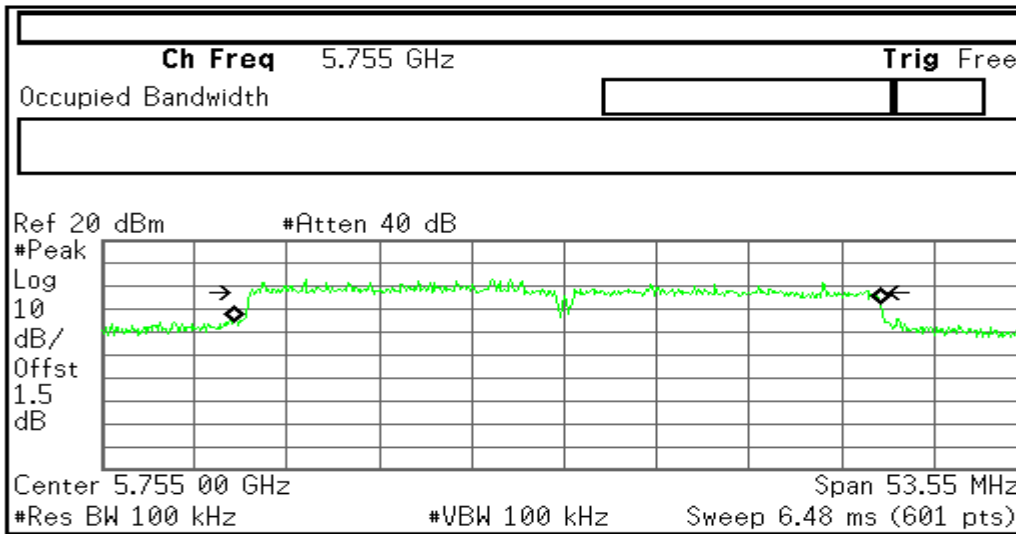
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draft 802.11n Standard-40 MHz Channel mode / Chain 2



6dB Bandwidth (CH Low)

Agilent



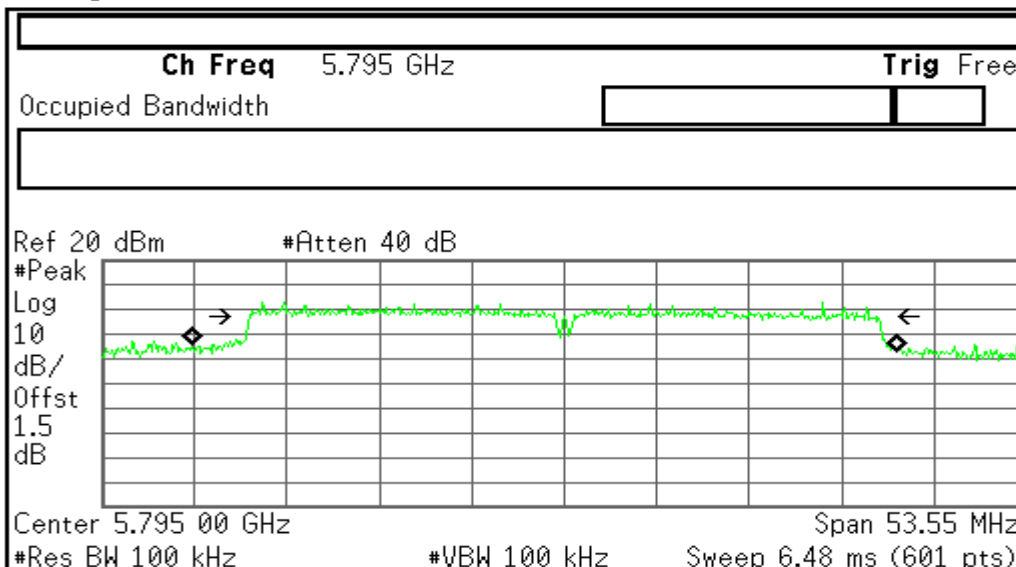
Freq/Channel
Center Freq 5.75500000 GHz
Start Freq 5.72822500 GHz
Stop Freq 5.78177500 GHz
CF Step Auto Man 5.35500000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Occupied Bandwidth 37.4110 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error -408.850 kHz	x dB -6.00 dB
x dB Bandwidth 35.809 MHz	

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6dB Bandwidth (CH Mid)

Agilent



Freq/Channel
Center Freq 5.79500000 GHz
Start Freq 5.76822500 GHz
Stop Freq 5.82177500 GHz
CF Step Auto Man 5.35500000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Occupied Bandwidth 40.7602 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error -1.140 MHz	x dB -6.00 dB
x dB Bandwidth 36.373 MHz	

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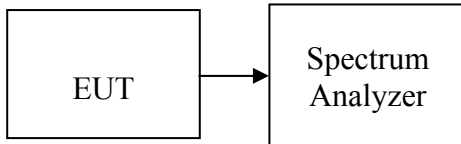


99% bandwidth

LIMIT

None; for reporting purposes only

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the selected span. The VBW is set to 3 times the RBW. The sweep time is occupied.



TEST RESULTS

No non-compliance noted

Test Data

IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	15.1474
Mid	2437	15.1472
High	2462	15.1472

IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	16.4612
Mid	2437	16.6102
High	2462	16.4741

TRANSMIT CHAIN 0

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	16.4612
Mid	2437	17.8020
High	2462	17.6899

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2422	36.4542
Mid	2437	36.4546
High	2452	36.4109

TRANSMIT CHAIN 1

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	18.2926
Mid	2437	17.8299
High	2462	17.6701

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2422	36.4117
Mid	2437	36.3962
High	2452	36.5032



TRANSMIT CHAIN 2

draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	18.1729
Mid	2437	17.7667
High	2462	17.6879

draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2422	36.4854
Mid	2437	36.5540
High	2452	36.5032



Test Plot

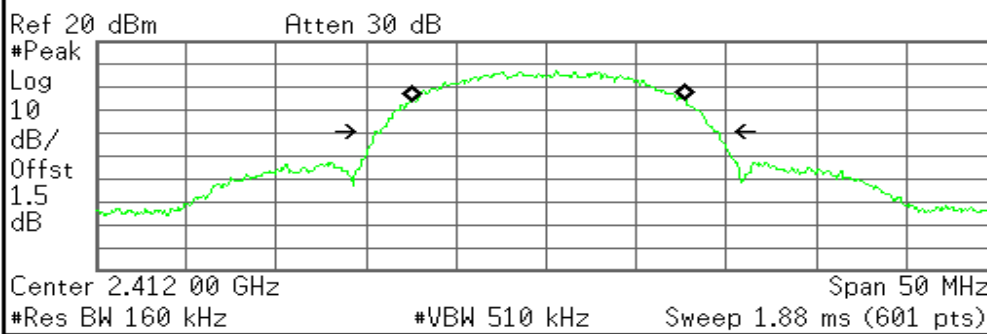
IEEE 802.11b MODE

99% Bandwidth (CH Low)

Agilent

Ch Freq 2.412 GHz Trig Free

Occupied Bandwidth



Center 2.412 00 GHz Span 50 MHz

#Res BW 160 kHz #VBW 510 kHz Sweep 1.88 ms (601 pts)

Occupied Bandwidth 15.1474 MHz

Occ BW % Pwr 99.00 %

x dB Bandwidth 18.906 MHz

x dB -26.00 dB

Transmit Freq Error 67.361 kHz

Freq/Channel
Center Freq 2.41200000 GHz
Start Freq 2.38700000 GHz
Stop Freq 2.43700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

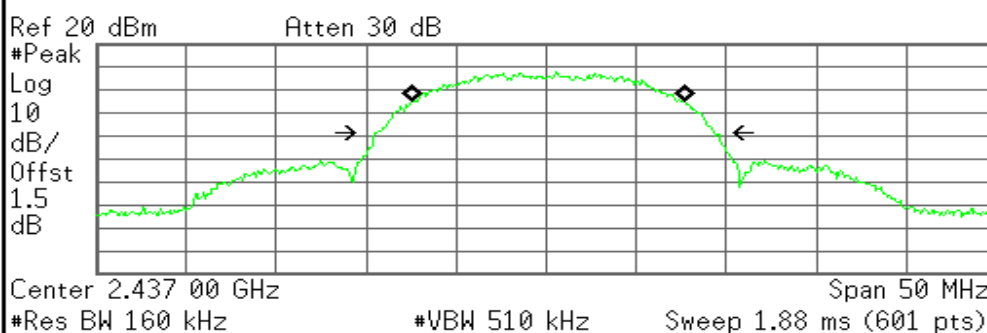
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99% Bandwidth (CH Mid)

Agilent

Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth



Center 2.437 00 GHz Span 50 MHz

#Res BW 160 kHz #VBW 510 kHz Sweep 1.88 ms (601 pts)

Occupied Bandwidth 15.1472 MHz

Occ BW % Pwr 99.00 %

x dB Bandwidth 18.853 MHz

x dB -26.00 dB

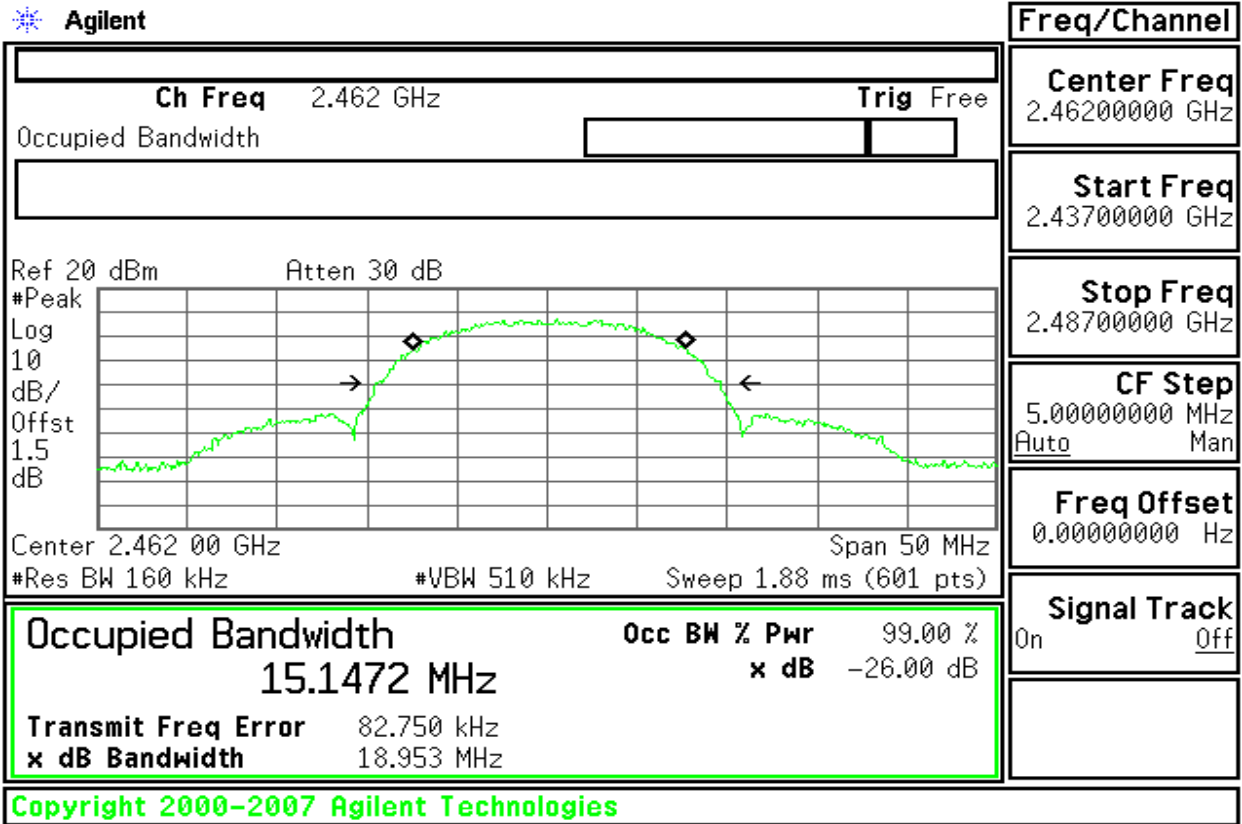
Transmit Freq Error 56.814 kHz

Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.41200000 GHz
Stop Freq 2.46200000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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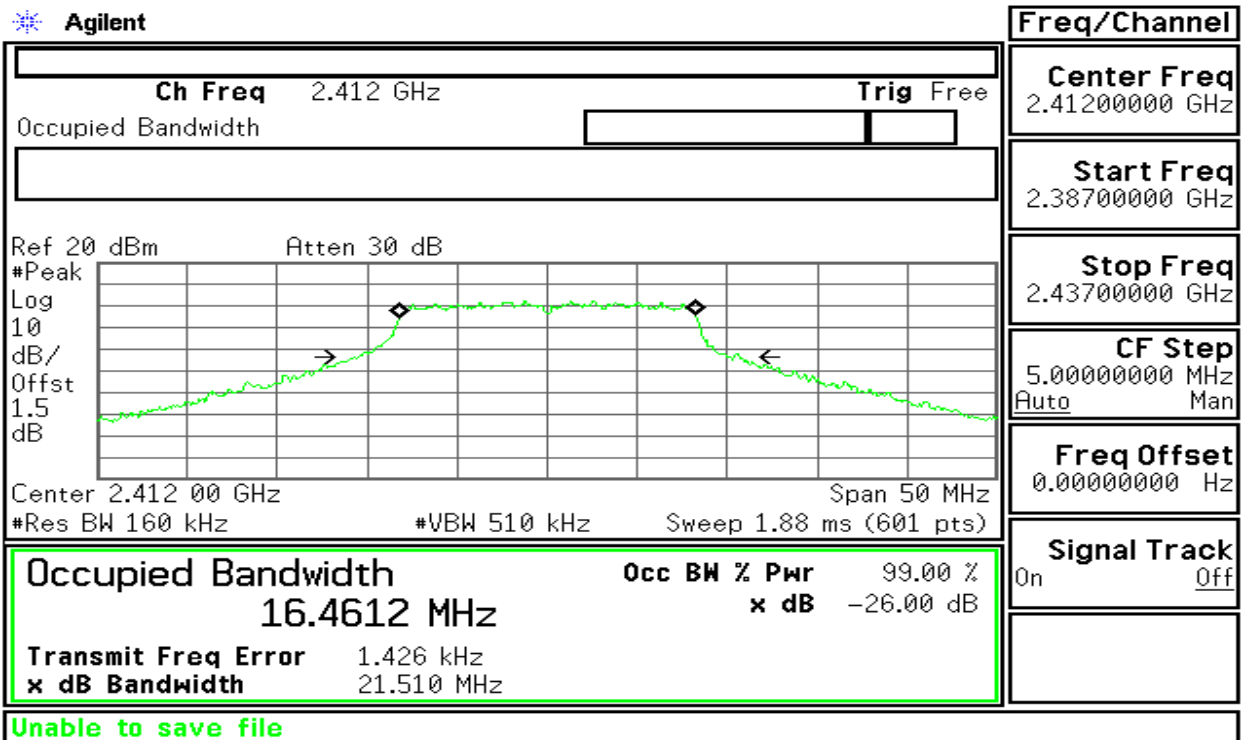


99% Bandwidth (CH High)



IEEE 802.11g MODE

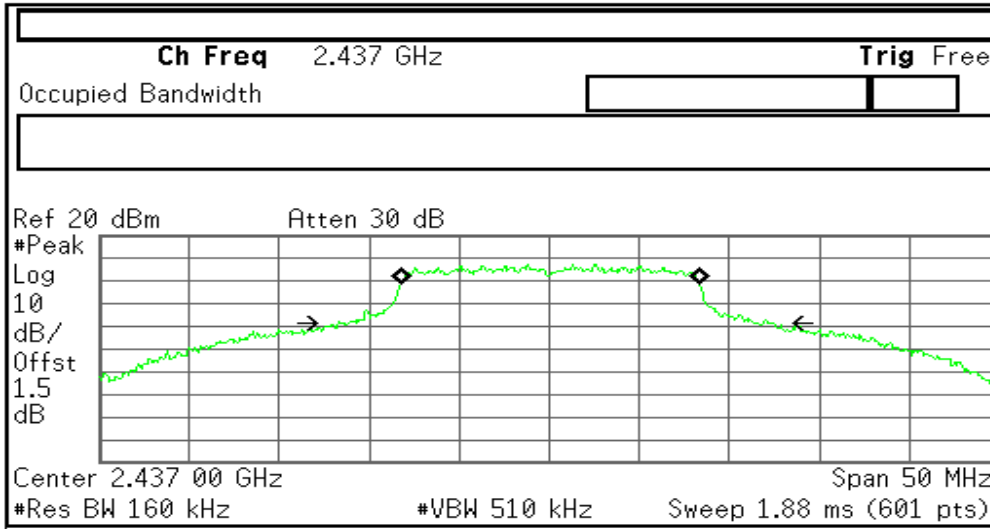
99% Bandwidth (CH Low)





99% Bandwidth (CH Mid)

Agilent



Freq/Channel

Center Freq 2.43700000 GHz

Start Freq 2.41200000 GHz

Stop Freq 2.46200000 GHz

CF Step 5.00000000 MHz
Auto Man

Freq Offset 0.00000000 Hz

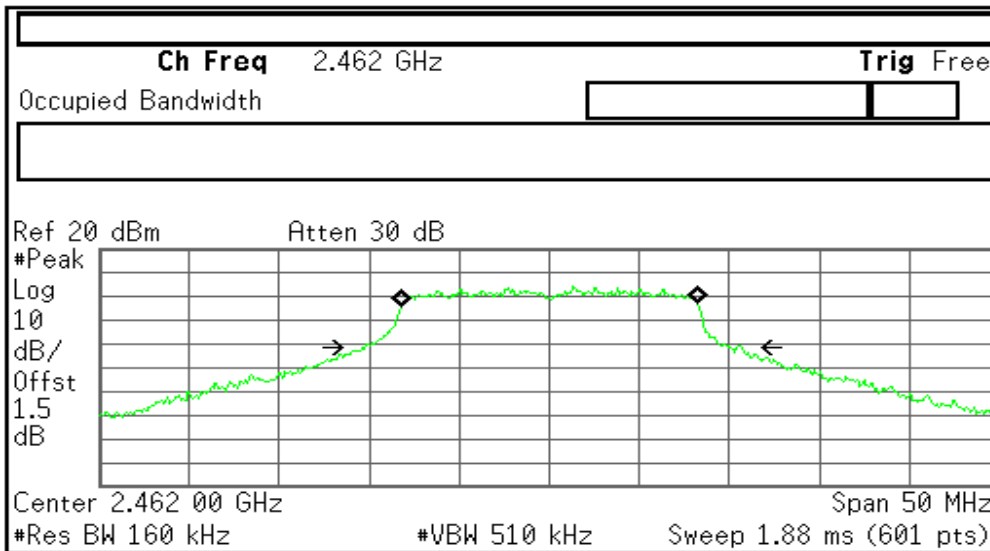
Signal Track On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
16.6102 MHz	x dB	-26.00 dB
Transmit Freq Error		28.428 kHz
x dB Bandwidth		24.217 MHz

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99% Bandwidth (CH High)

Agilent



Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.43700000 GHz

Stop Freq 2.48700000 GHz

CF Step 5.00000000 MHz
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
16.4741 MHz	x dB	-26.00 dB
Transmit Freq Error		3.264 kHz
x dB Bandwidth		21.051 MHz

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draft 802.11n Standard-20 MHz Channel mode / Chain 0

99% Bandwidth (CH Low)

Agilent

Ch Freq 2.412 GHz		Trig Free	
Occupied Bandwidth			
Ref 20 dBm Atten 30 dB #Peak Log 10 dB/ Offst 1.5 dB			
Center 2.412 00 GHz		Span 50 MHz	
#Res BW 160 kHz		#VBW 510 kHz Sweep 1.88 ms (601 pts)	
Occupied Bandwidth		Occ BW % Pwr 99.00 %	
18.2926 MHz		x dB -26.00 dB	
Transmit Freq Error -4.081 kHz			
x dB Bandwidth 25.057 MHz			
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Freq/Channel	
Center Freq	2.41200000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.43700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

99% Bandwidth (CH Mid)

Agilent

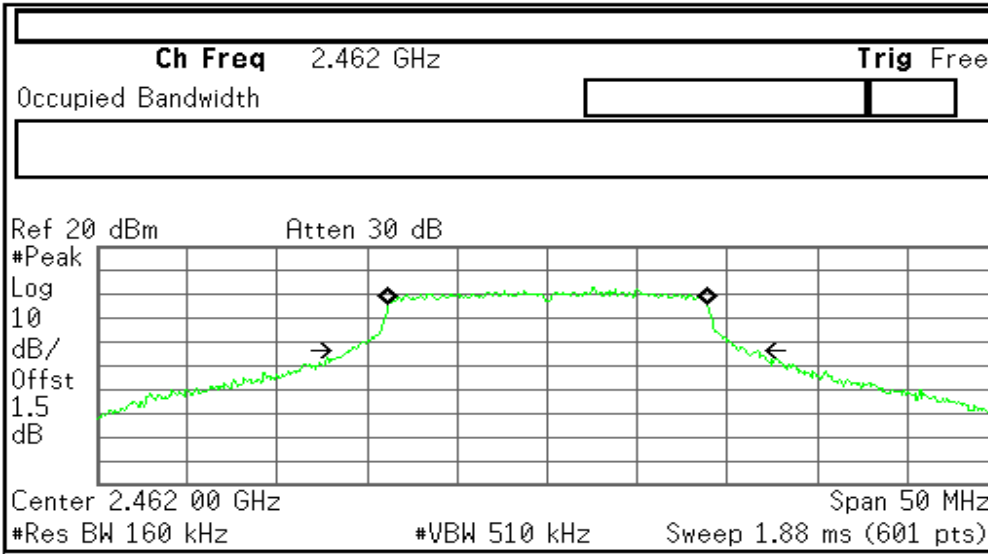
Ch Freq 2.437 GHz		Trig Free	
Occupied Bandwidth			
Center 2.437000000 GHz			
Ref 20 dBm Atten 30 dB #Peak Log 10 dB/ Offst 1.5 dB			
Center 2.437 00 GHz		Span 50 MHz	
#Res BW 160 kHz		#VBW 510 kHz Sweep 1.88 ms (601 pts)	
Occupied Bandwidth		Occ BW % Pwr 99.00 %	
17.8020 MHz		x dB -26.00 dB	
Transmit Freq Error 14.714 kHz			
x dB Bandwidth 24.954 MHz			
File Operation Status, A:\SCREN088.GIF file saved			

Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off



99% Bandwidth (CH High)

Agilent



Freq/Channel
Center Freq 2.46200000 GHz
Start Freq 2.43700000 GHz
Stop Freq 2.48700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

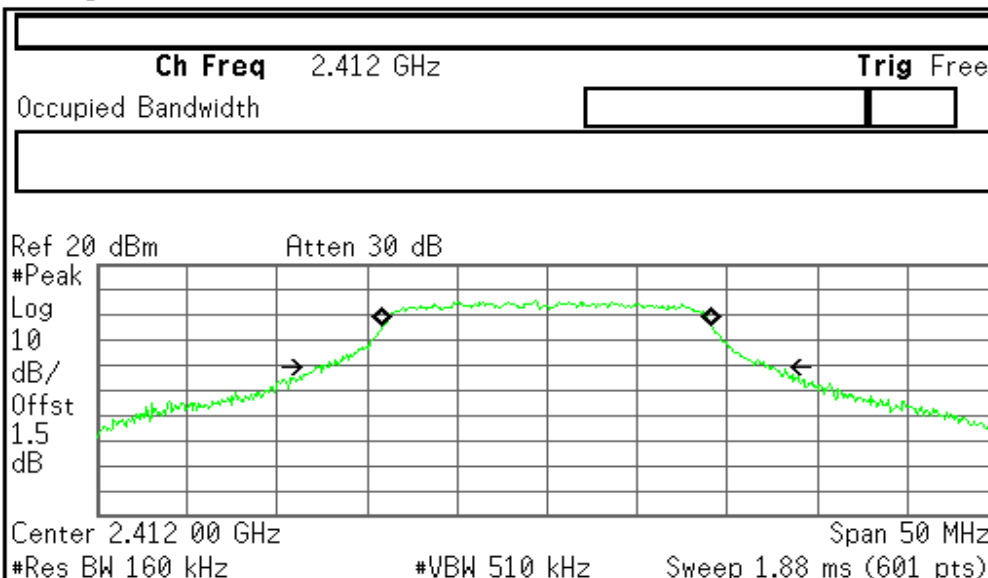
Occupied Bandwidth 17.6899 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error 26.937 kHz	x dB -26.00 dB
x dB Bandwidth 21.933 MHz	

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draft 802.11n Standard-20 MHz Channel mode / Chain 1

99% Bandwidth (CH Low)

Agilent



Freq/Channel
Center Freq 2.41200000 GHz
Start Freq 2.38700000 GHz
Stop Freq 2.43700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

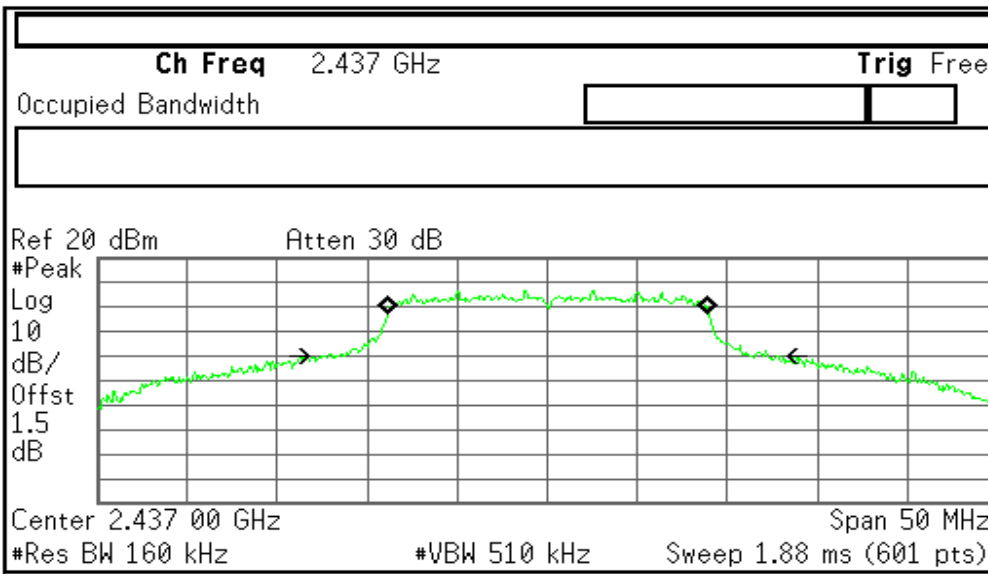
Occupied Bandwidth 18.2755 MHz	Occ BW % Pwr 99.00 %
Transmit Freq Error -12.845 kHz	x dB -26.00 dB
x dB Bandwidth 25.127 MHz	

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99%Bandwidth (CH Mid)

Agilent



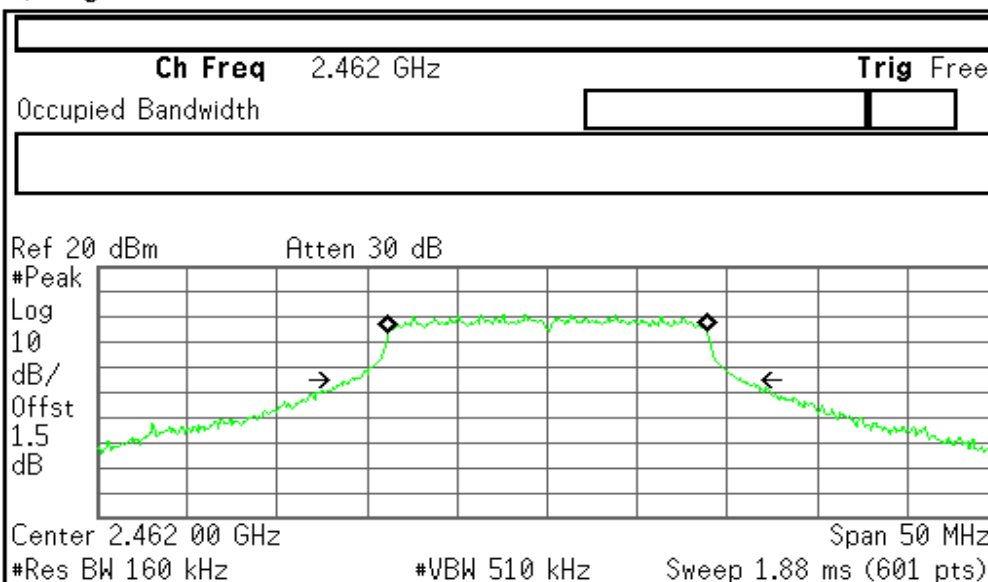
Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.8299 MHz	x dB	-26.00 dB
Transmit Freq Error		19.457 kHz
x dB Bandwidth		24.402 MHz

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99% Bandwidth (CH High)

Agilent



Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.43700000 GHz
Stop Freq	2.48700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

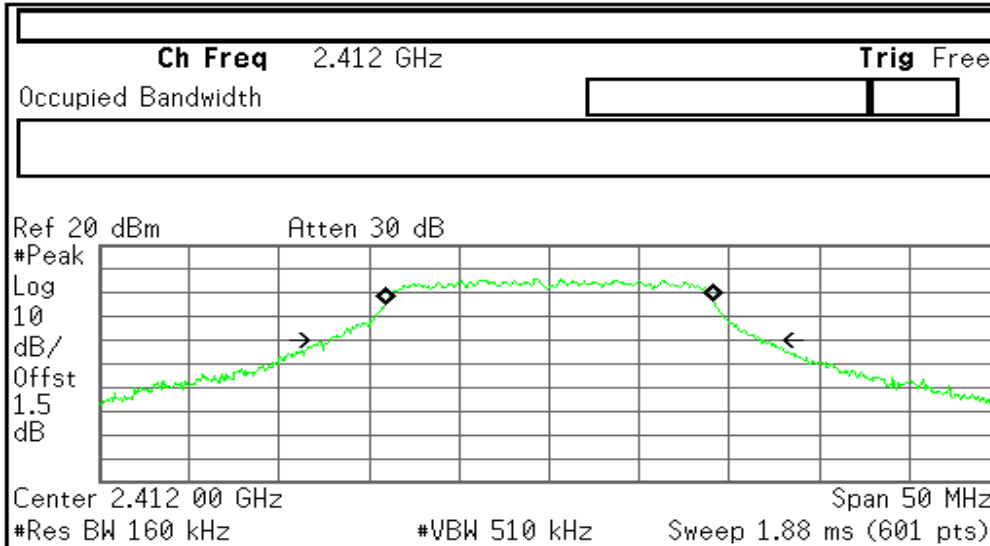
Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.6701 MHz	x dB	-26.00 dB
Transmit Freq Error		22.324 kHz
x dB Bandwidth		21.757 MHz

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draft 802.11n Standard-20 MHz Channel mode / Chain 2
99% Bandwidth (CH Low)

Agilent



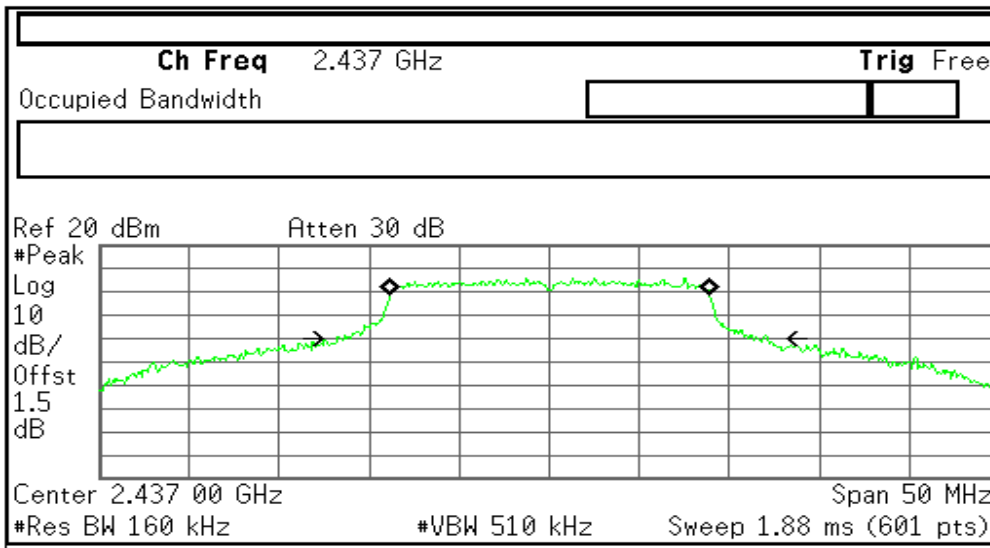
Freq/Channel	
Center Freq	2.41200000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.43700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
18.1729 MHz	x dB	-26.00 dB
Transmit Freq Error		-17.341 kHz
x dB Bandwidth		24.138 MHz

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99%Bandwidth (CH Mid)

Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

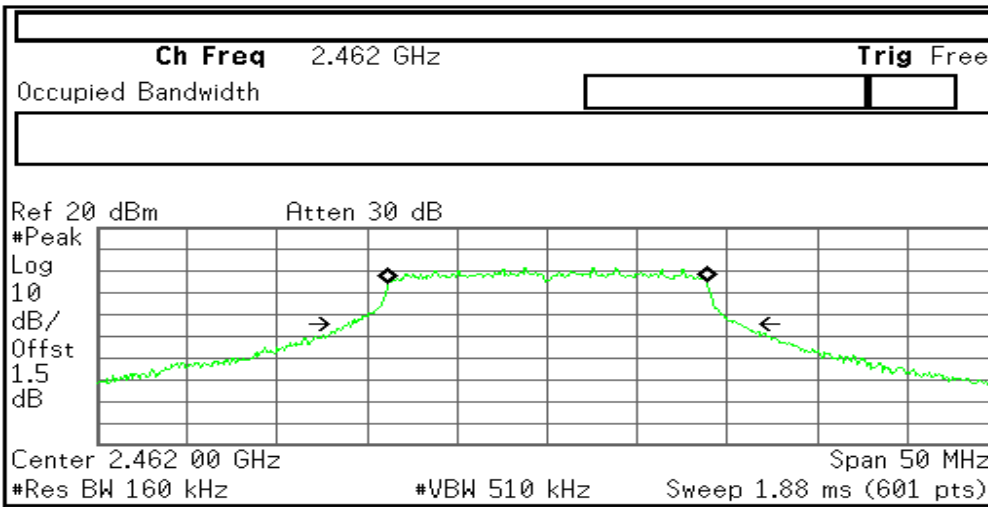
Occupied Bandwidth	Occ BW % Pwr	99.00 %
17.7667 MHz	x dB	-26.00 dB
Transmit Freq Error		4.592 kHz
x dB Bandwidth		23.578 MHz

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99% Bandwidth (CH High)

Agilent



Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.43700000 GHz
Stop Freq	2.48700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

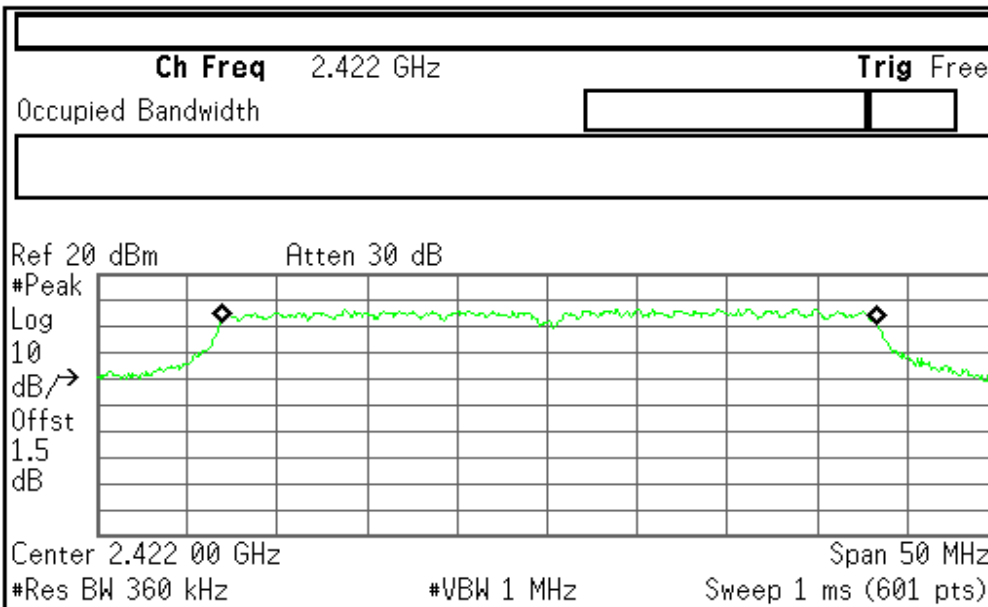
Occupied Bandwidth	17.6879 MHz	Occ BW % Pwr	99.00 %
		x dB	-26.00 dB
Transmit Freq Error	10.093 kHz		
x dB Bandwidth	21.847 MHz		

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draft 802.11n Wide-40 MHz Channel mode / Chain 0

99% Bandwidth (CH Low)

Agilent



Meas Setup	
Avg Number	10 On Off
Avg Mode	Exp Repeat
Max Hold	On Off
Occ BW % Pwr	99.00 %
OBW Span	50.00000000 MHz
x dB	-26.00 dB
Optimize Ref Level	

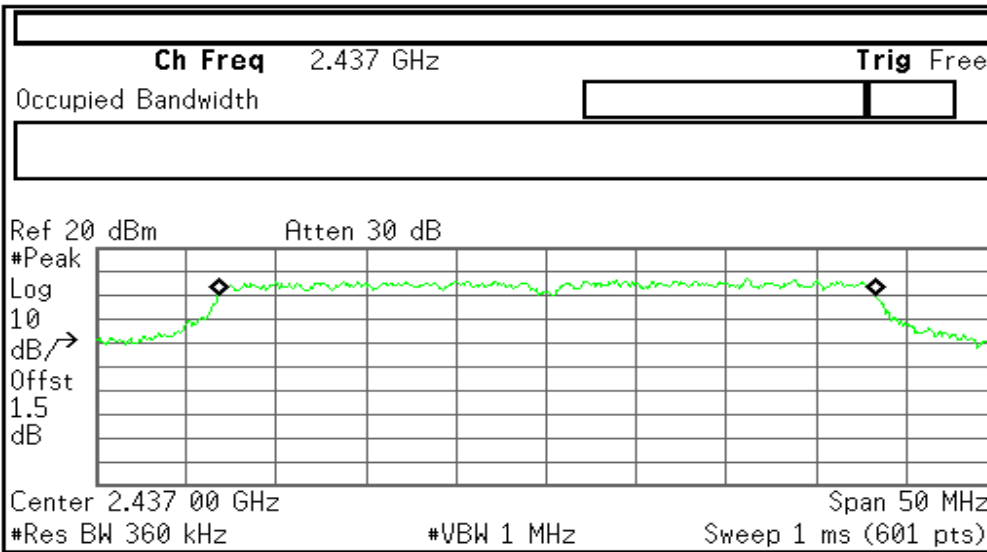
Occupied Bandwidth	36.4542 MHz	Occ BW % Pwr	99.00 %
		x dB	-26.00 dB
Transmit Freq Error	106.593 kHz		
x dB Bandwidth	49.753 MHz		

File Operation Status, A:\SCREN068.GIF file saved



99% Bandwidth (CH Mid)

Agilent



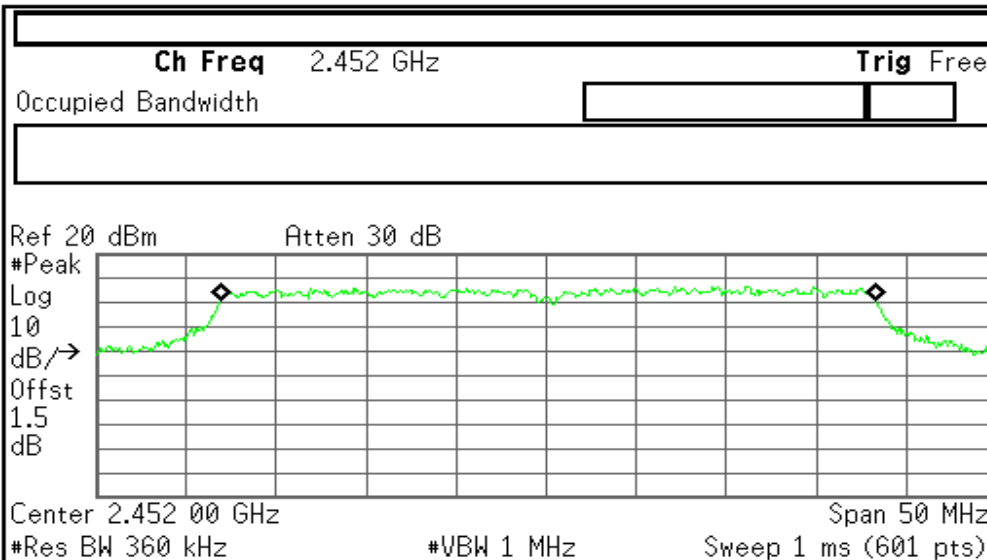
Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.4546 MHz	x dB	-26.00 dB
Transmit Freq Error		74.674 kHz
x dB Bandwidth		49.763 MHz

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99% Bandwidth (CH High)

Agilent



Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.42700000 GHz
Stop Freq	2.47700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

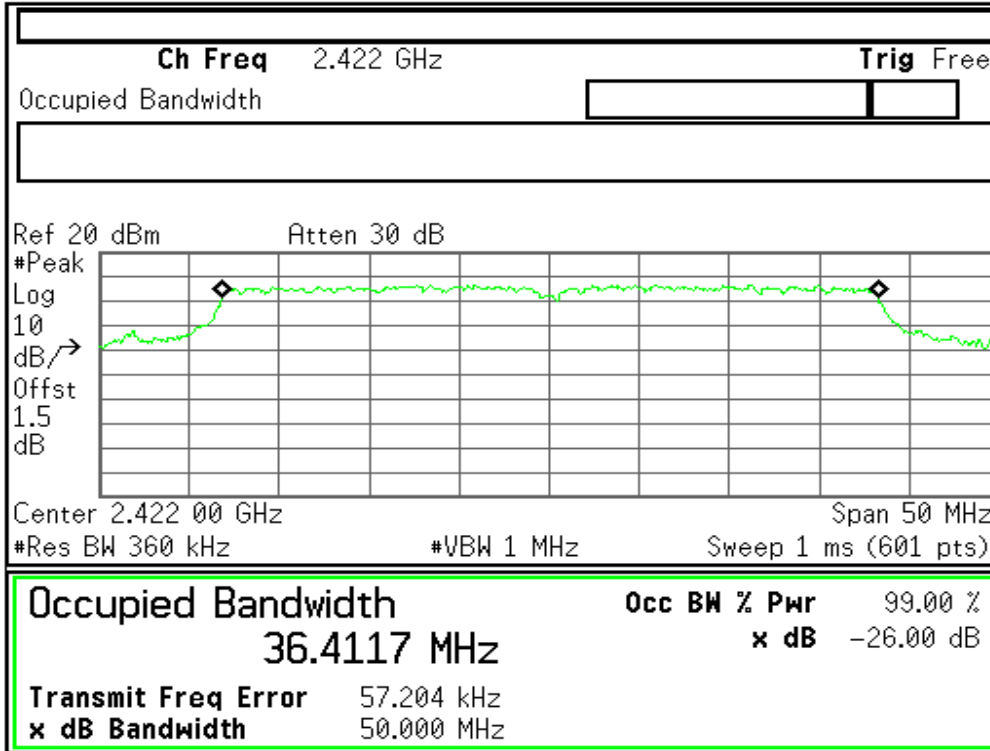
Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.4109 MHz	x dB	-26.00 dB
Transmit Freq Error		99.161 kHz
x dB Bandwidth		49.503 MHz

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draft 802.11n Wide-40 MHz Channel mode / Chain 1
99% Bandwidth (CH Low)

Agilent

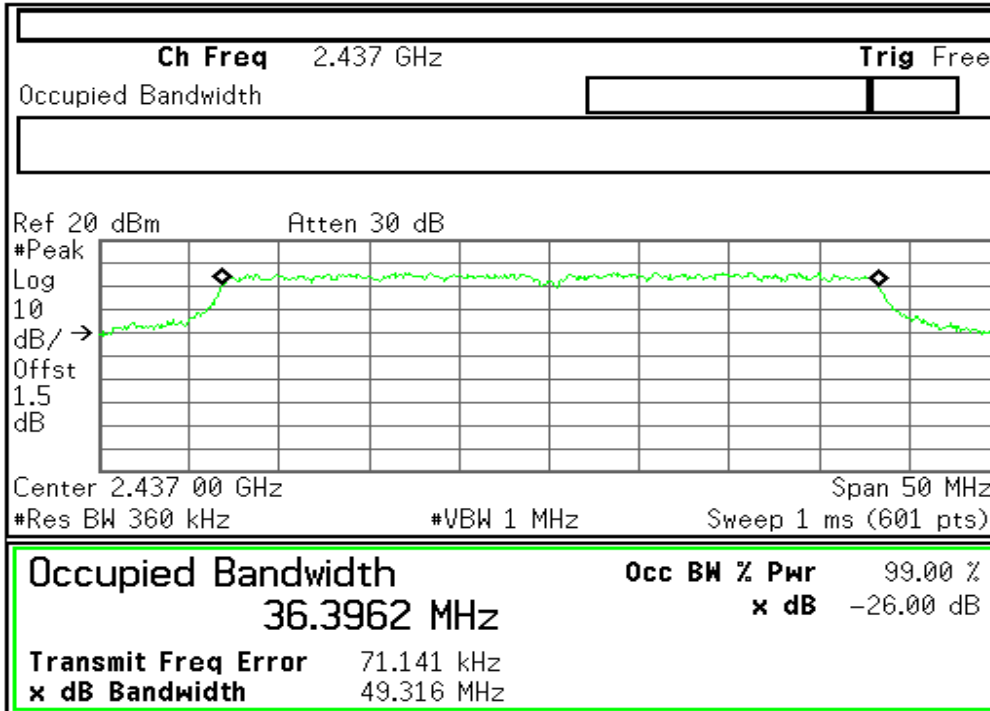


Freq/Channel
Center Freq 2.42200000 GHz
Start Freq 2.39700000 GHz
Stop Freq 2.44700000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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99% Bandwidth (CH Mid)

Agilent



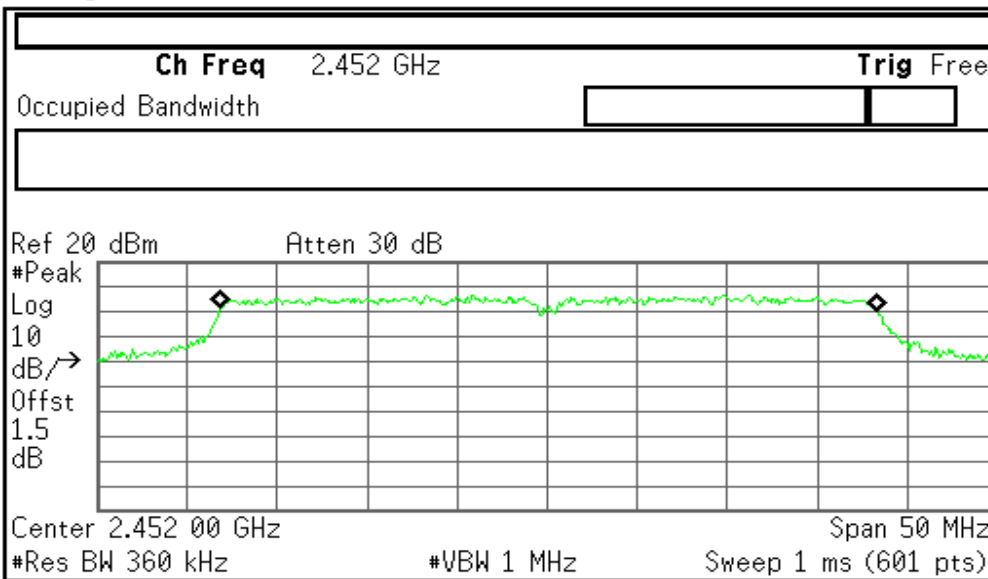
Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.41200000 GHz
Stop Freq 2.46200000 GHz
CF Step 5.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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99% Bandwidth (CH High)

Agilent



Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.42700000 GHz
Stop Freq	2.47700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

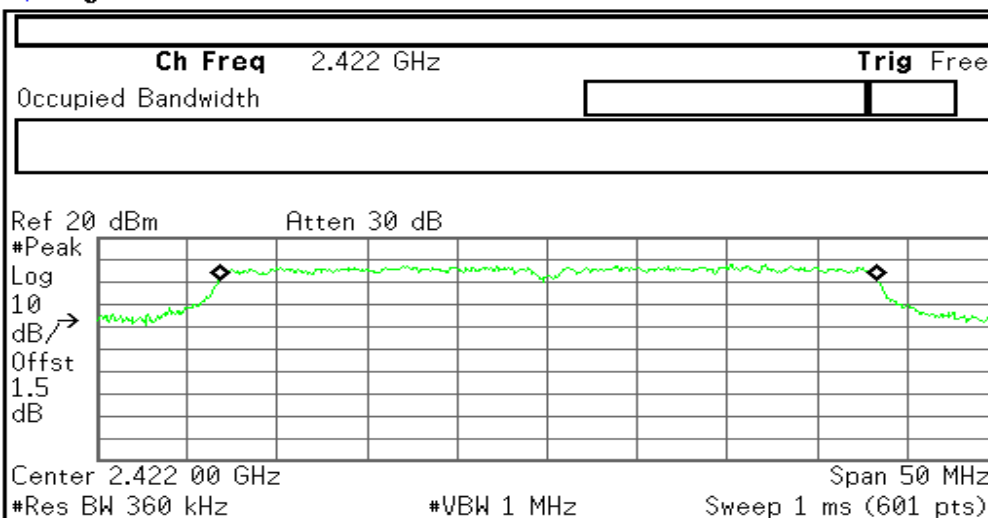
Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.4647 MHz	x dB	-26.00 dB
Transmit Freq Error	96.540 kHz	
x dB Bandwidth	49.919 MHz	

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draft 802.11n Wide-40 MHz Channel mode / Chain 2

99% Bandwidth (CH Low)

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Freq/Channel	
Center Freq	2.42200000 GHz
Start Freq	2.39700000 GHz
Stop Freq	2.44700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

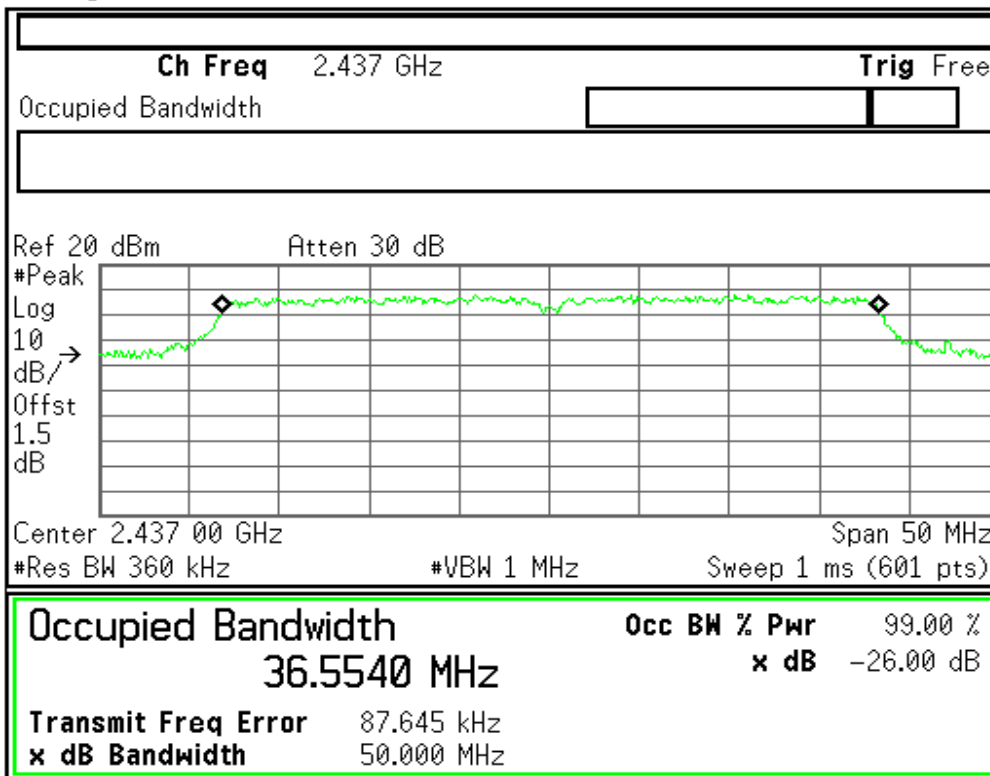
Occupied Bandwidth	Occ BW % Pwr	99.00 %
36.4854 MHz	x dB	-26.00 dB
Transmit Freq Error	54.009 kHz	
x dB Bandwidth	50.000 MHz	

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99% Bandwidth (CH Mid)

Agilent

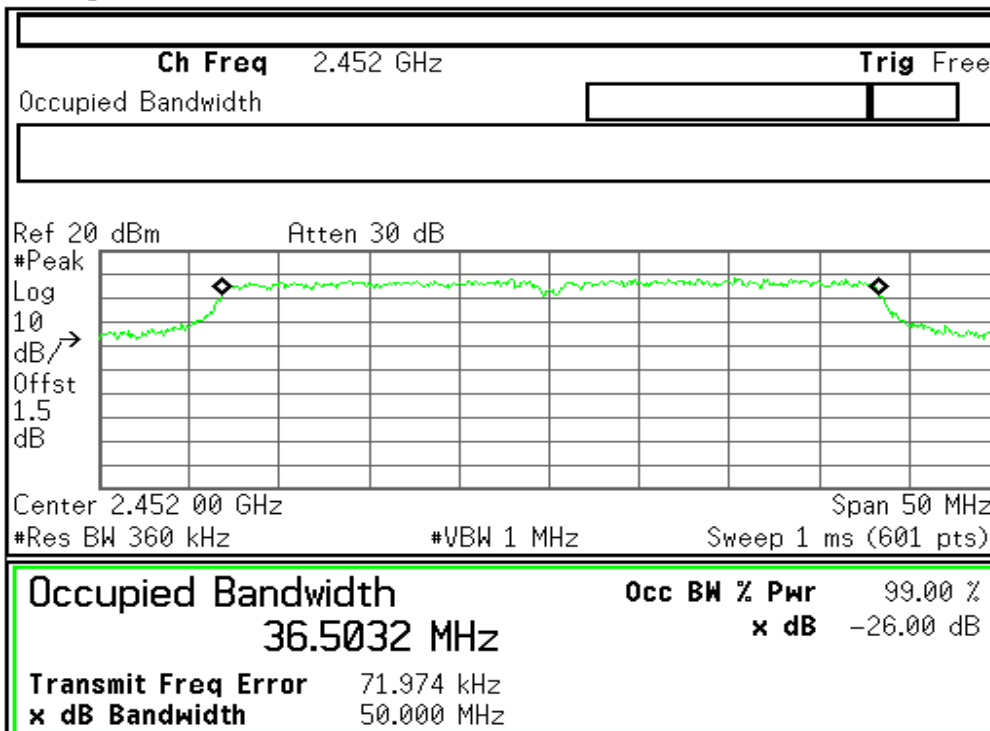


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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99% Bandwidth (CH High)

Agilent



Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.42700000 GHz
Stop Freq	2.47700000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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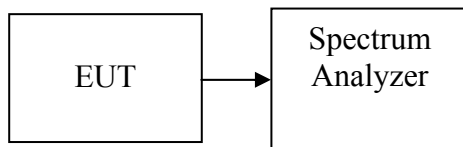
PEAK POWER

LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Configuration



TEST PROCEDURE

- 1 Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2 Set RBW = 1 MHz.
- 3 Set VBW ≥ 3 MHz.
- 4 Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.
- 5 Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to ðhichfree runöhich.
- 6 Trace average 100 traces in power averaging mode.
- 7 Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

$$\text{Output Power} = 10 \log (10^{(\text{Chain 0 Output Power} / 10)} + 10^{(\text{Chain 1 Output Power} / 10)} + 10^{(\text{Chain 2 Output Power} / 10)})$$



TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.42	0.0348	1.00	PASS
Mid	2437	*15.78	0.0361		PASS
High	2462	15.35	0.0343		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.42	0.0348	1.00	PASS
Mid	2437	*16.52	0.0449		PASS
High	2462	13.18	0.0208		PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	10.67	10.98	10.78	15.58	0.0361	1.00	PASS
Mid	2437	16.15	15.54	15.91	*20.64	0.1159		PASS
High	2462	12.50	10.50	10.89	16.16	0.0413		PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	16.88	17.13	17.10	21.81	0.1517	1.00	PASS
Mid	2437	16.86	16.63	17.27	21.55	0.1429		PASS
High	2452	16.70	17.28	17.28	*21.87	0.1538		PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	*18.21	0.0662	1.00	PASS
Mid	5785	17.93	0.0621		PASS
High	5805	17.59	0.0574		PASS



Test mode: draft 802.11an Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	18.94	19.57	21.00	*24.70	0.2951	1.00	PASS
Mid	5785	17.80	19.97	20.91	24.52	0.2831		PASS
High	5805	16.98	20.13	21.28	24.58	0.2871		PASS

Test mode: draft 802.11an Wide-40 MHz Channel mode

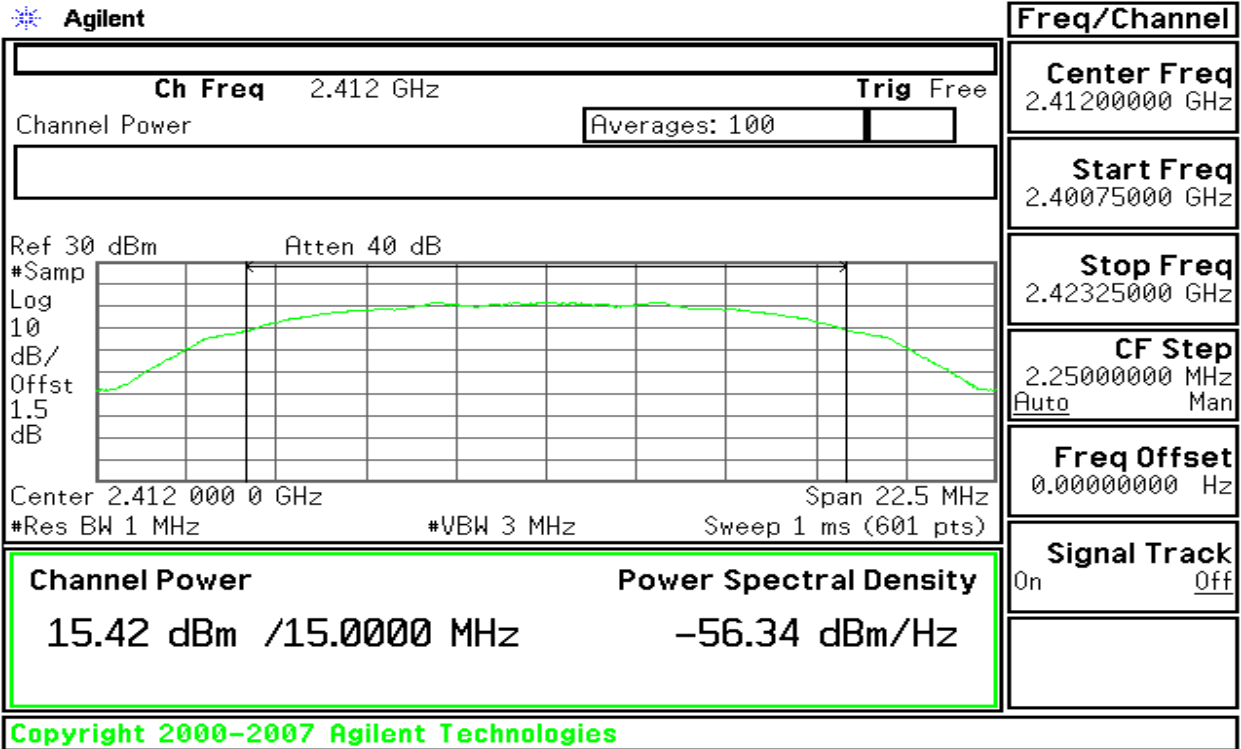
Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5755	17.85	19.75	18.99	23.70	0.2344	1.00	PASS
Mid	5795	17.35	20.09	19.37	*23.85	0.2427		PASS



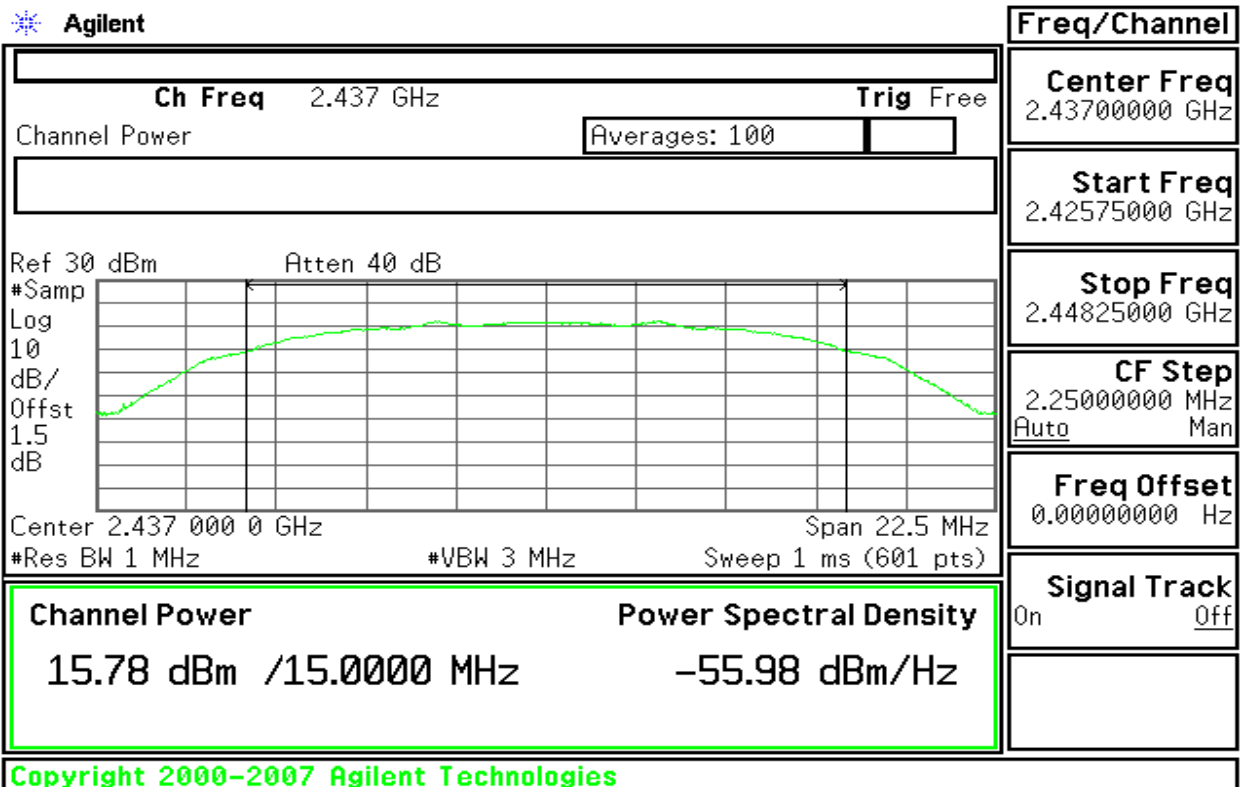
Test Plot

IEEE 802.11b mode

Peak Power (CH Low)



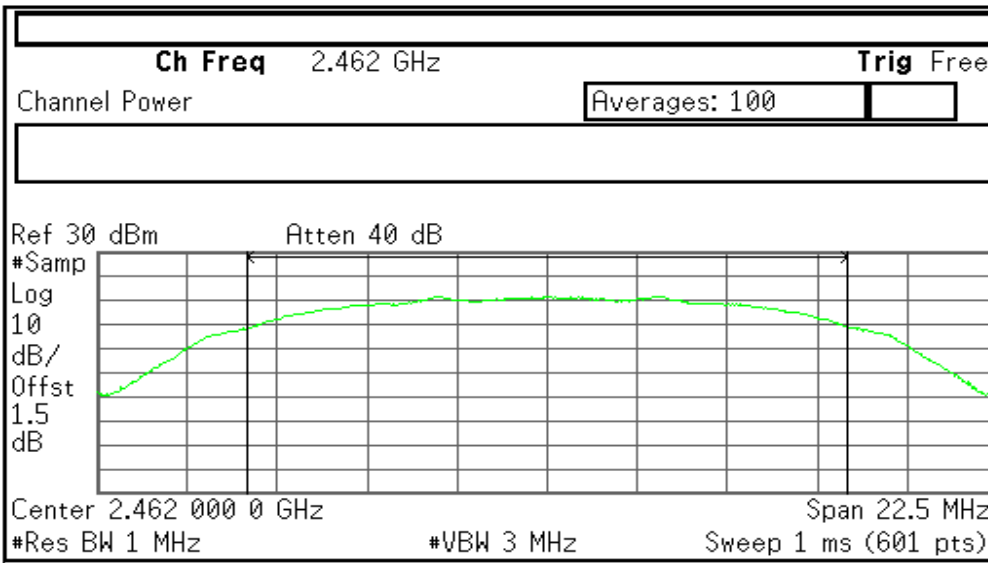
Peak Power (CH Mid)





Peak Power (CH High)

Agilent



Freq/Channel
Center Freq 2.46200000 GHz
Start Freq 2.45075000 GHz
Stop Freq 2.47325000 GHz
CF Step 2.25000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

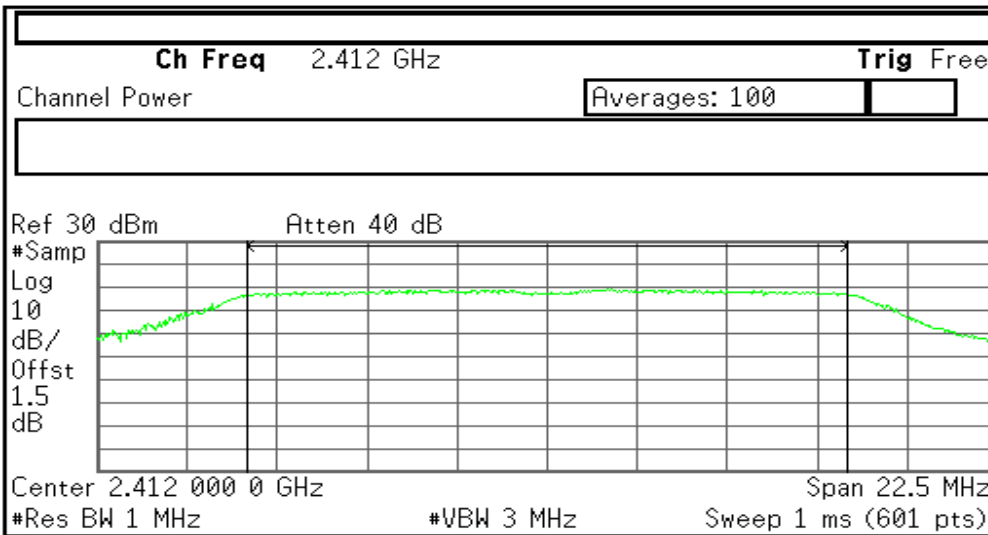
Channel Power 15.35 dBm /15.0000 MHz	Power Spectral Density -56.41 dBm/Hz
--	--

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IEEE 802.11g mode

Peak Power (CH Low)

Agilent



Freq/Channel
Center Freq 2.41200000 GHz
Start Freq 2.40075000 GHz
Stop Freq 2.42325000 GHz
CF Step 2.25000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

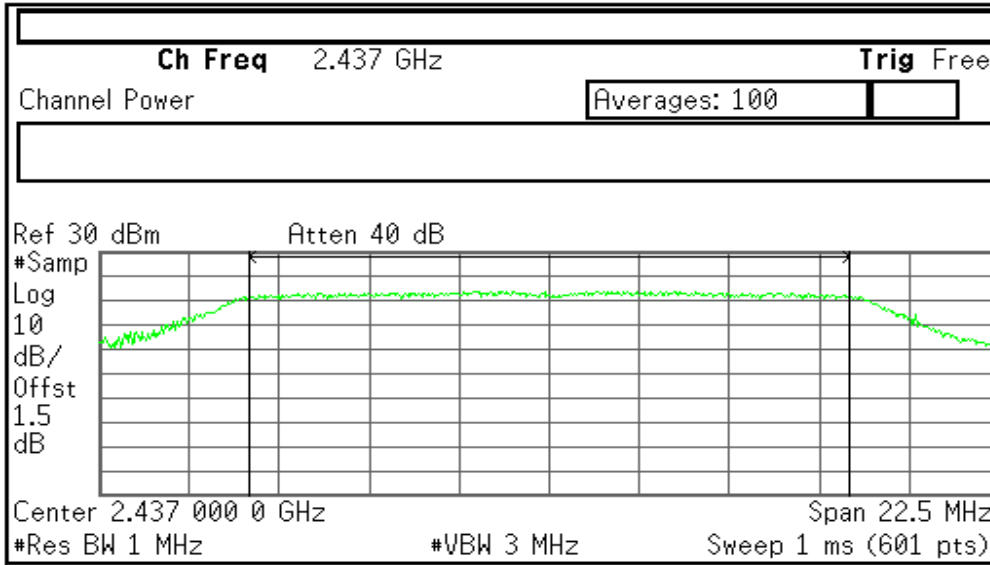
Channel Power 11.59 dBm /15.0000 MHz	Power Spectral Density -60.18 dBm/Hz
--	--

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Peak Power (CH Mid)

Agilent



Freq/Channel

Center Freq
2.43700000 GHz

Start Freq
2.42575000 GHz

Stop Freq
2.44825000 GHz

CF Step
2.25000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

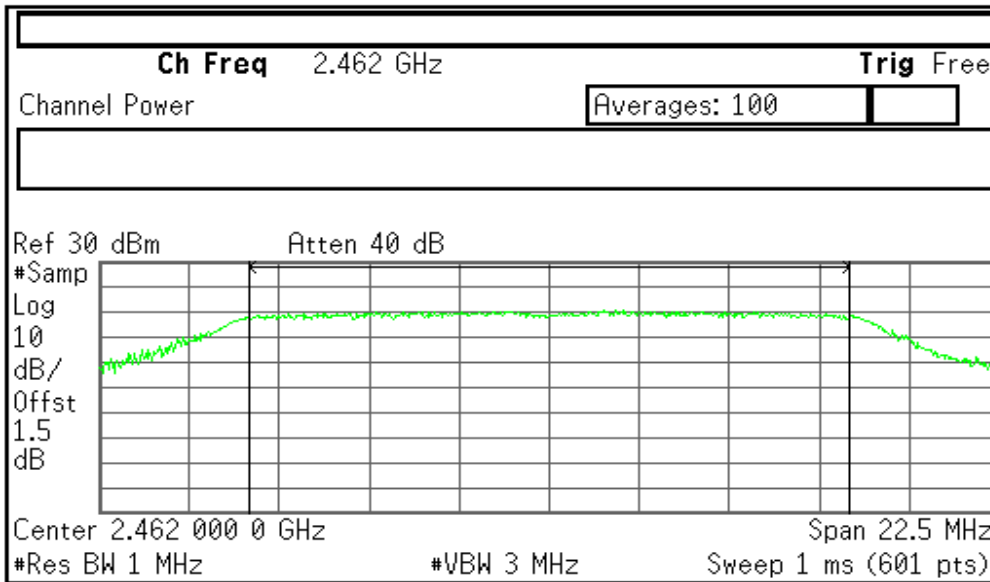
Signal Track
On Off

Channel Power	Power Spectral Density
16.52 dBm /15.0000 MHz	-55.25 dBm/Hz

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Peak Power (CH High)

Agilent



Freq/Channel

Center Freq
2.46200000 GHz

Start Freq
2.45075000 GHz

Stop Freq
2.47325000 GHz

CF Step
2.25000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Channel Power	Power Spectral Density
13.18 dBm /15.0000 MHz	-58.58 dBm/Hz

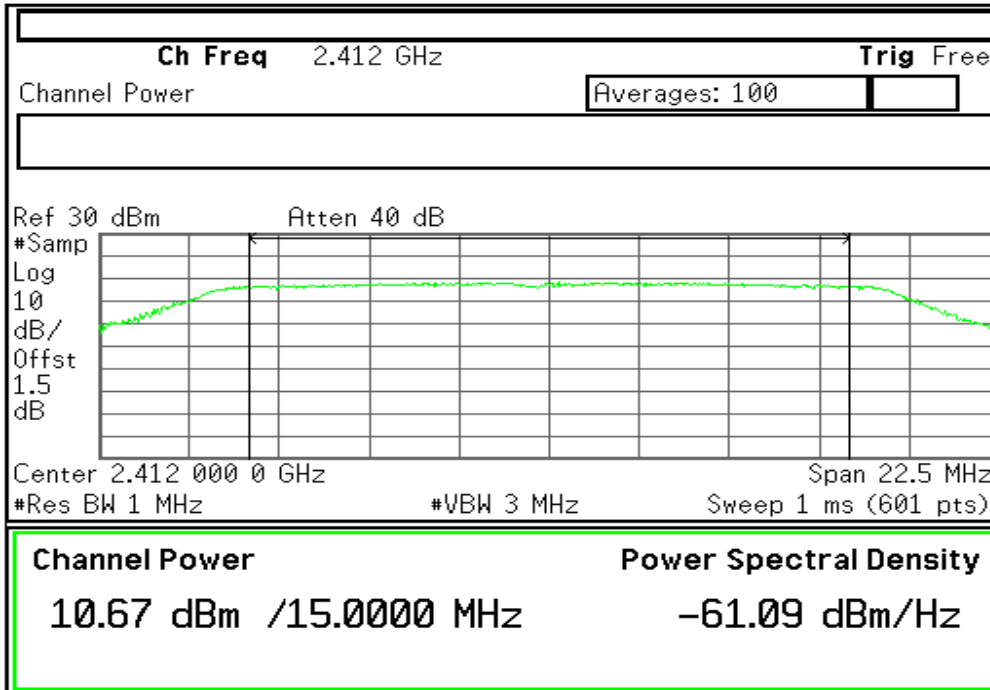
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draft 802.11n Standard-20 MHz Channel mode / Chain 0

Peak Power (CH Low)

Agilent

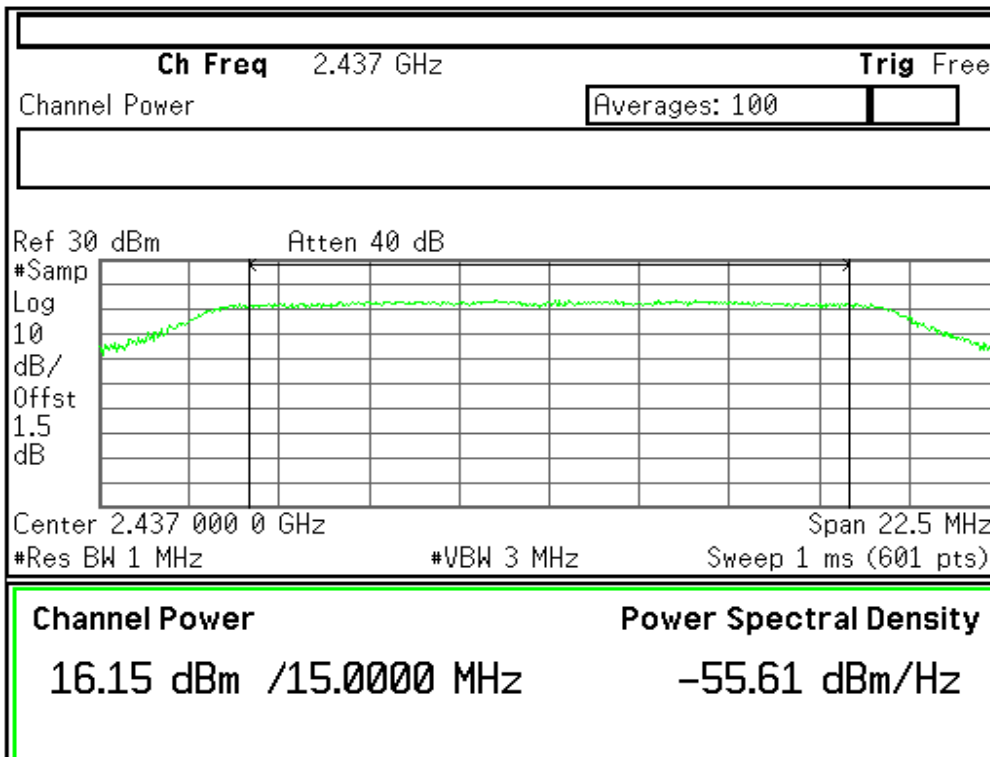


Freq/Channel	
Center Freq	2.41200000 GHz
Start Freq	2.40075000 GHz
Stop Freq	2.42325000 GHz
CF Step	2.25000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Unable to save file

Peak Power (CH Mid)

Agilent

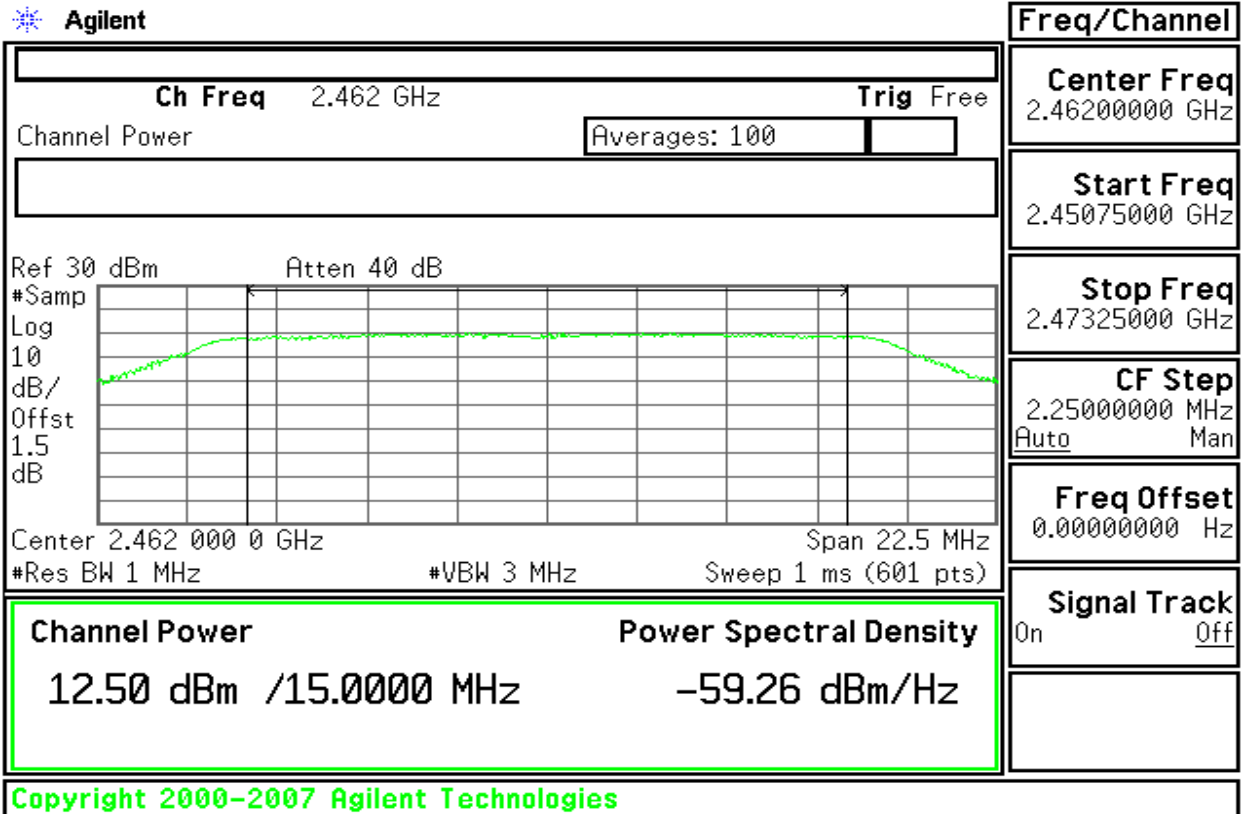


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.42575000 GHz
Stop Freq	2.44825000 GHz
CF Step	2.25000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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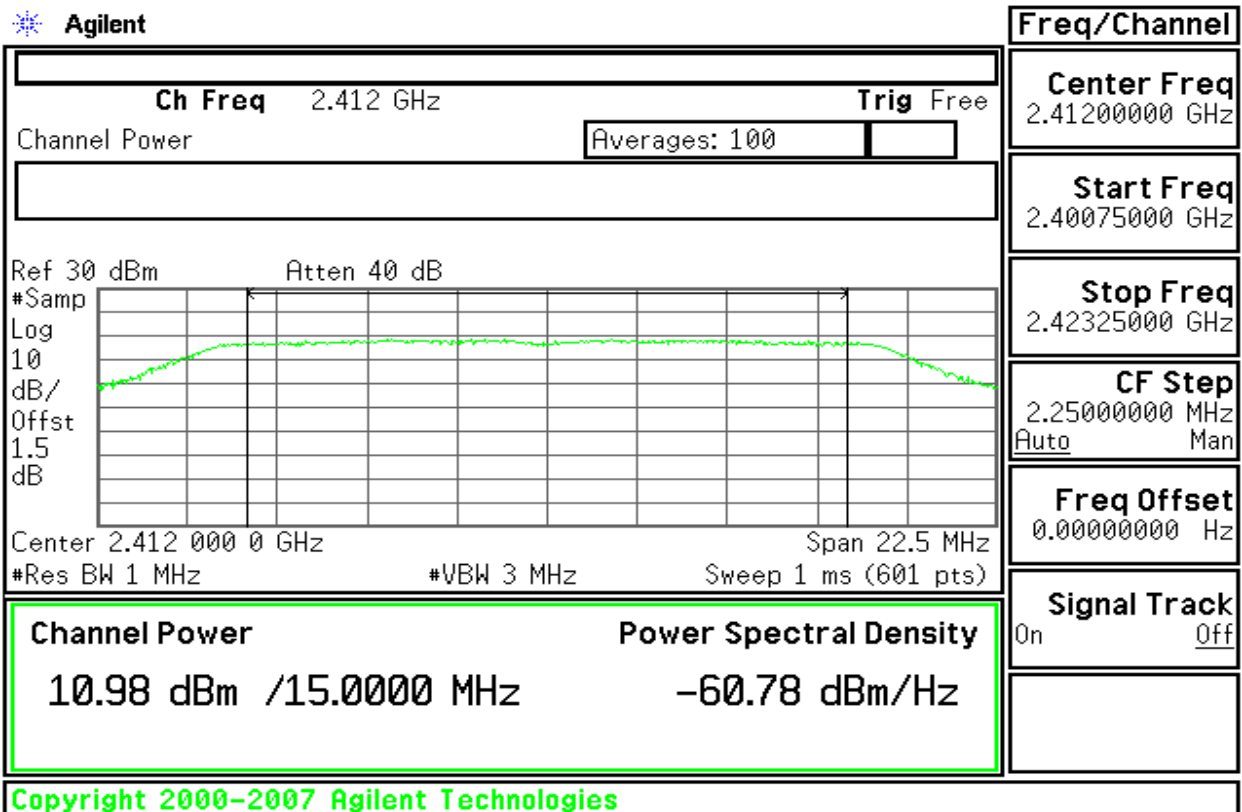


Peak Power (CH High)



draft 802.11n Standard-20 MHz Channel mode / Chain 1

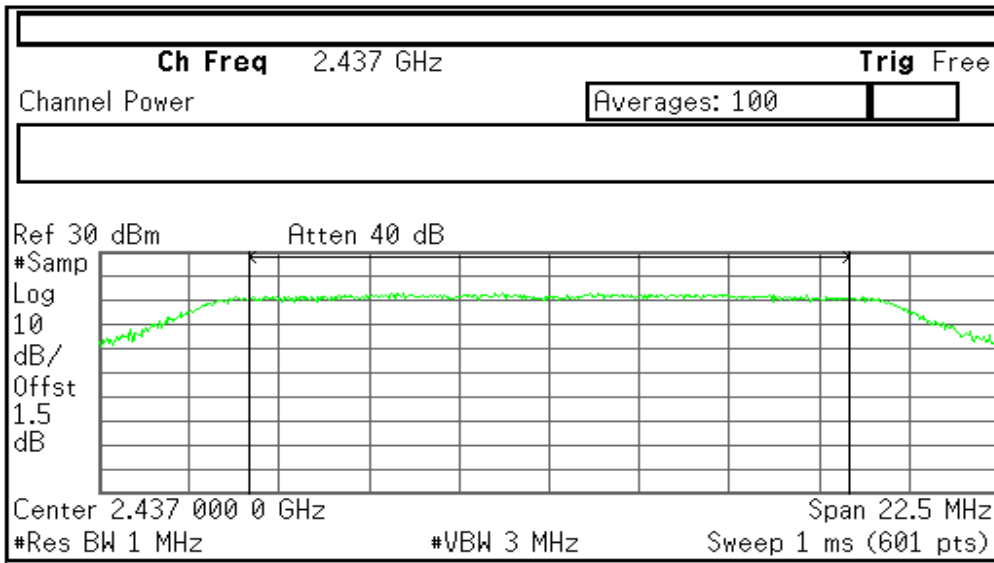
Peak Power (CH Low)





Peak Power (CH Mid)

Agilent



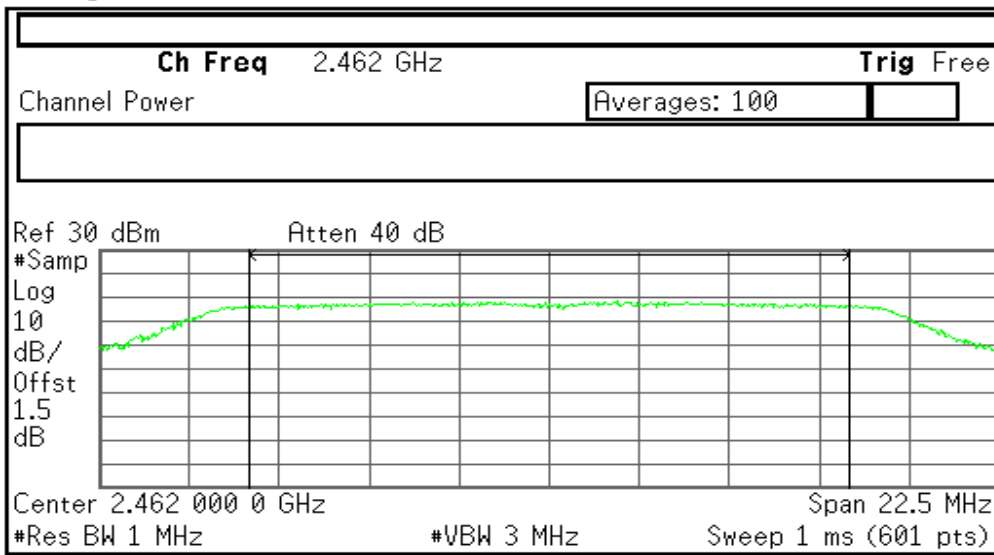
Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.42575000 GHz
Stop Freq	2.44825000 GHz
CF Step	2.25000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Channel Power	Power Spectral Density
15.54 dBm /15.0000 MHz	-56.22 dBm/Hz

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Peak Power (CH High)

Agilent



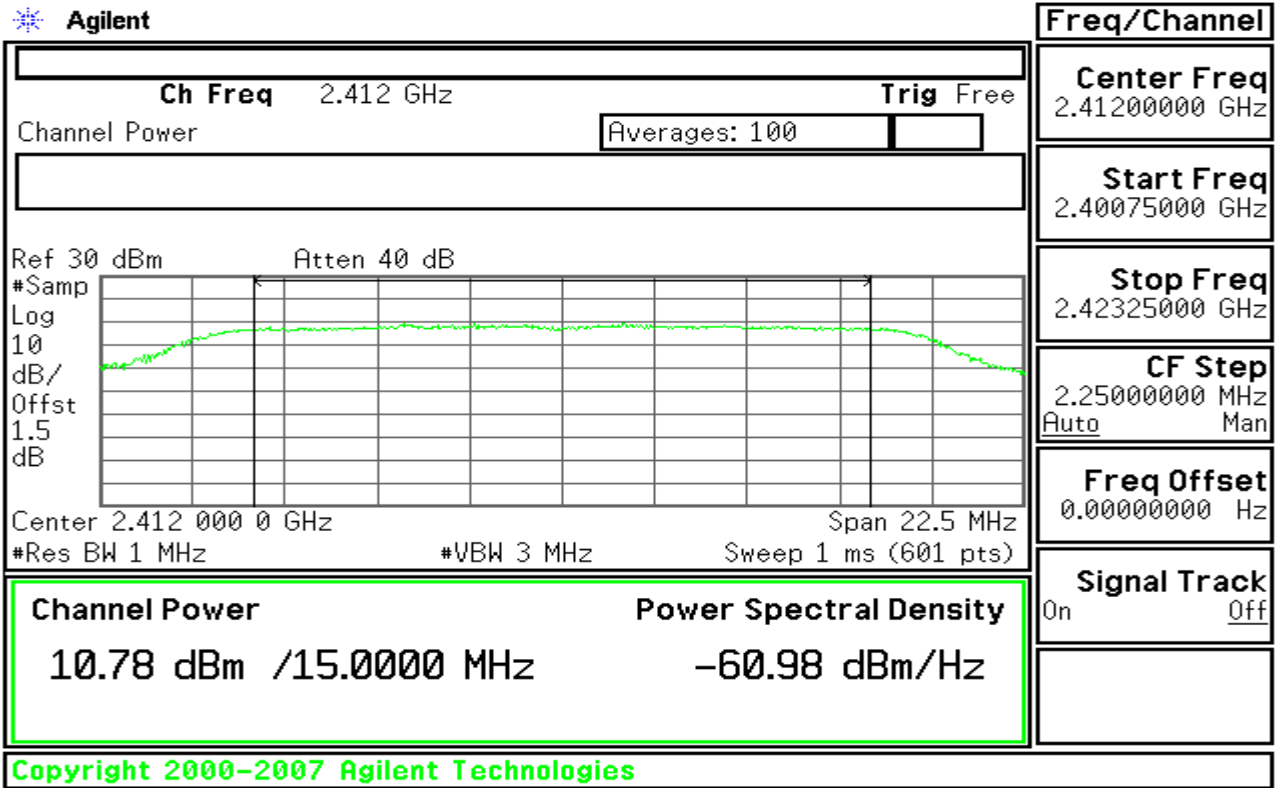
Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.45075000 GHz
Stop Freq	2.47325000 GHz
CF Step	2.25000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

Channel Power	Power Spectral Density
10.50 dBm /15.0000 MHz	-61.26 dBm/Hz

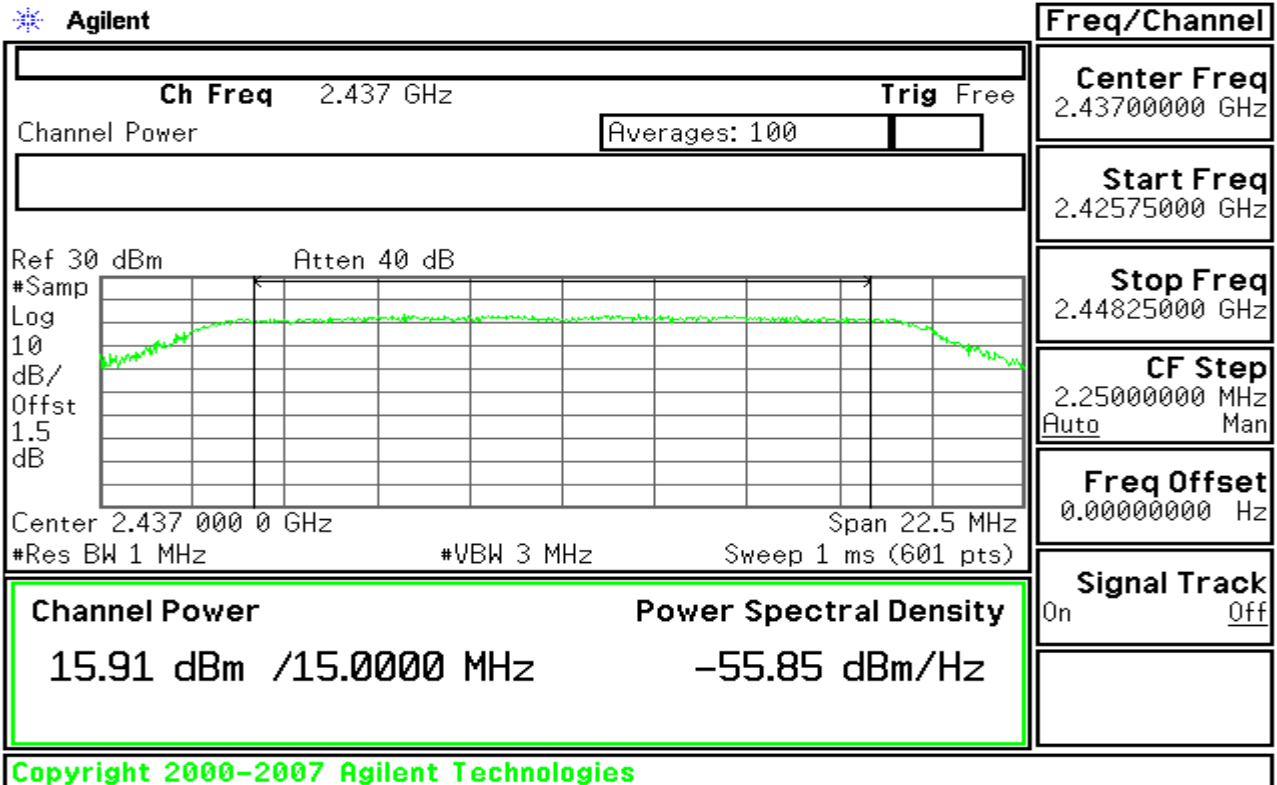
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draft 802.11n Standard-20 MHz Channel mode / Chain 2
Peak Power (CH Low)



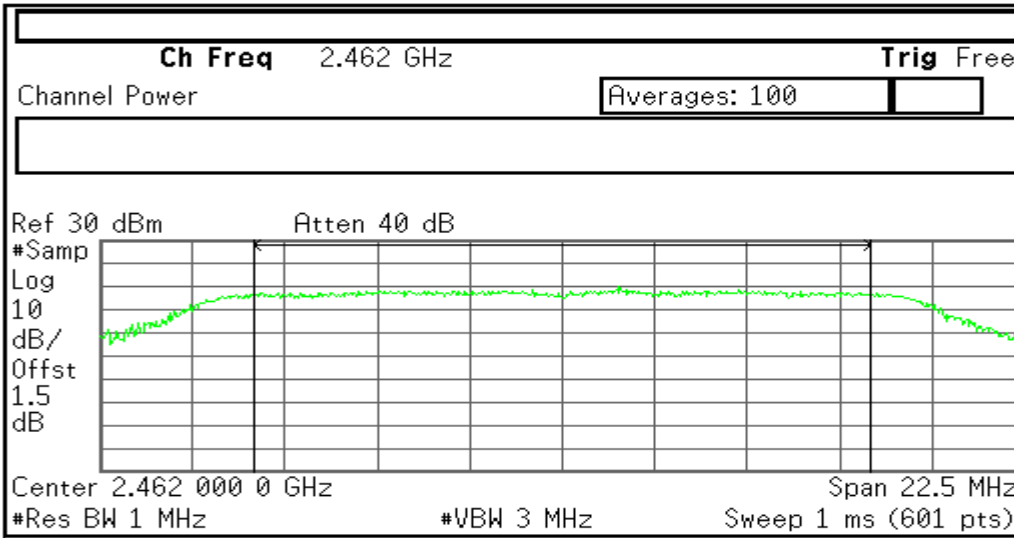
Peak Power (CH Mid)





Peak Power (CH High)

Agilent



Freq/Channel
Center Freq 2.46200000 GHz
Start Freq 2.45075000 GHz
Stop Freq 2.47325000 GHz
CF Step 2.25000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

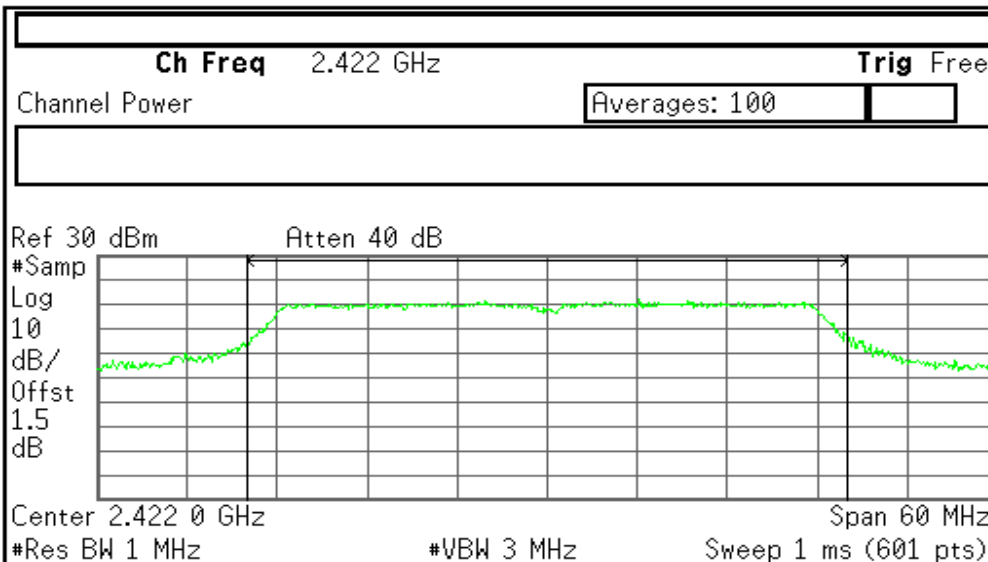
Channel Power 10.89 dBm /15.0000 MHz	Power Spectral Density -60.87 dBm/Hz
--	--

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draft 802.11n Wide-40 MHz Channel mode / Chain 0

Peak Power (CH Low)

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Freq/Channel
Center Freq 2.42200000 GHz
Start Freq 2.39200000 GHz
Stop Freq 2.45200000 GHz
CF Step 6.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

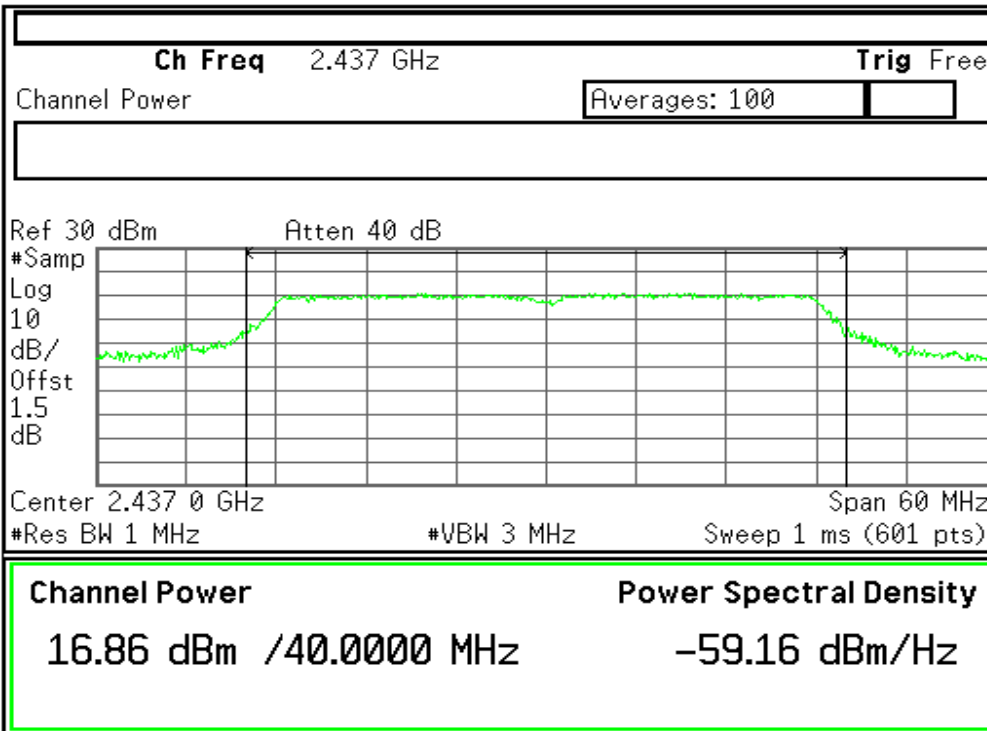
Channel Power 16.88 dBm /40.0000 MHz	Power Spectral Density -59.14 dBm/Hz
--	--

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Peak Power (CH Mid)

Agilent

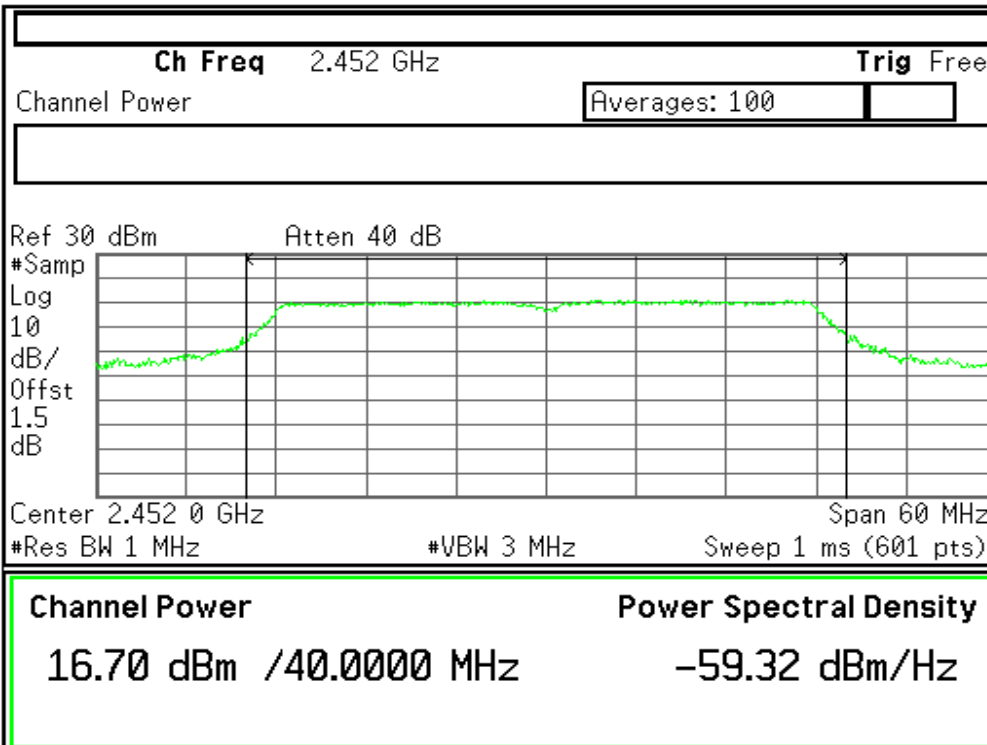


Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.40700000 GHz
Stop Freq 2.46700000 GHz
CF Step 6.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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Peak Power (CH High)

Agilent



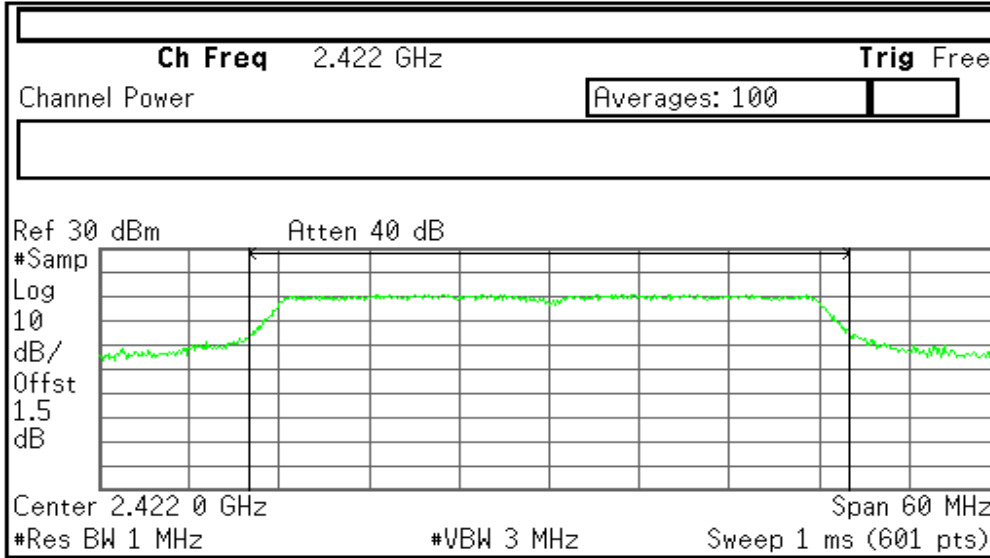
Freq/Channel
Center Freq 2.45200000 GHz
Start Freq 2.42200000 GHz
Stop Freq 2.48200000 GHz
CF Step 6.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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draft 802.11n Wide-40 MHz Channel mode / Chain 1
Peak Power (CH Low)

Agilent



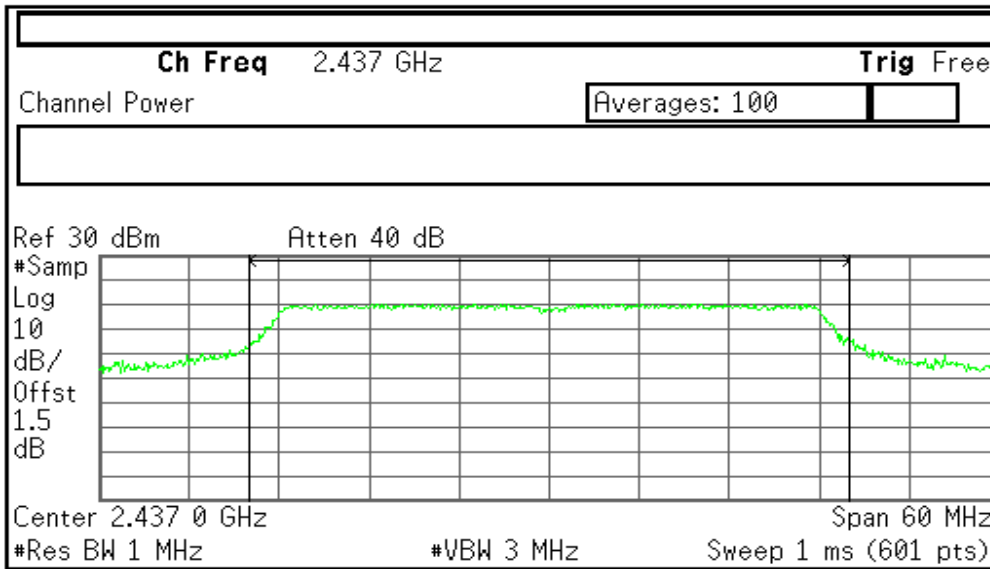
Freq/Channel
Center Freq 2.42200000 GHz
Start Freq 2.39200000 GHz
Stop Freq 2.45200000 GHz
CF Step Auto Man 6.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
17.13 dBm /40.0000 MHz	-58.89 dBm/Hz

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Peak Power (CH Mid)

Agilent



Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.40700000 GHz
Stop Freq 2.46700000 GHz
CF Step Auto Man 6.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
16.63 dBm /40.0000 MHz	-59.39 dBm/Hz

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Peak Power (CH High)

Agilent

Ch Freq 2.452 GHz		Trig Free	
Channel Power		Averages: 100	
<p>Ref 30 dBm Atten 40 dB</p>			
Center 2.452 0 GHz		Span 60 MHz	
#Res BW 1 MHz		#VBW 3 MHz Sweep 1 ms (601 pts)	
Channel Power		Power Spectral Density	
16.32 dBm /40.0000 MHz		-59.70 dBm/Hz	
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Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.42200000 GHz
Stop Freq	2.48200000 GHz
CF Step	6.00000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

draft 802.11n Wide-40 MHz Channel mode / Chain 2

Peak Power (CH Low)

Agilent

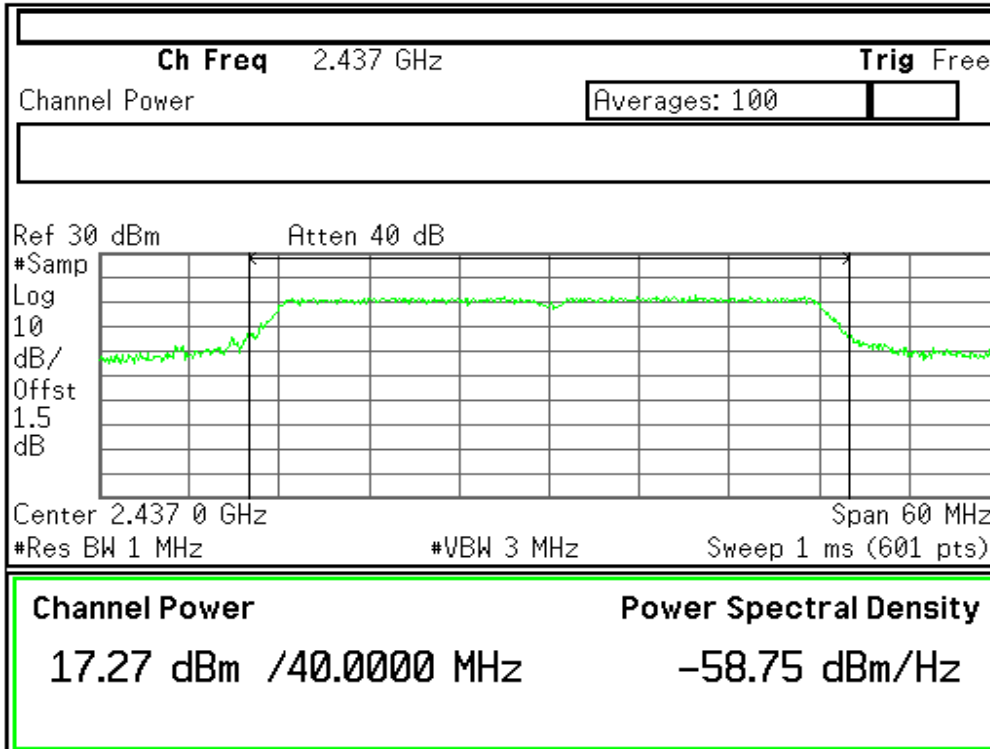
Ch Freq 2.422 GHz		Trig Free	
Channel Power		Averages: 100	
<p>Ref 30 dBm Atten 40 dB</p>			
Center 2.422 0 GHz		Span 60 MHz	
#Res BW 1 MHz		#VBW 3 MHz Sweep 1 ms (601 pts)	
Channel Power		Power Spectral Density	
17.10 dBm /40.0000 MHz		-58.92 dBm/Hz	
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Freq/Channel	
Center Freq	2.42200000 GHz
Start Freq	2.39200000 GHz
Stop Freq	2.45200000 GHz
CF Step	6.00000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On Off



Peak Power (CH Mid)

Agilent

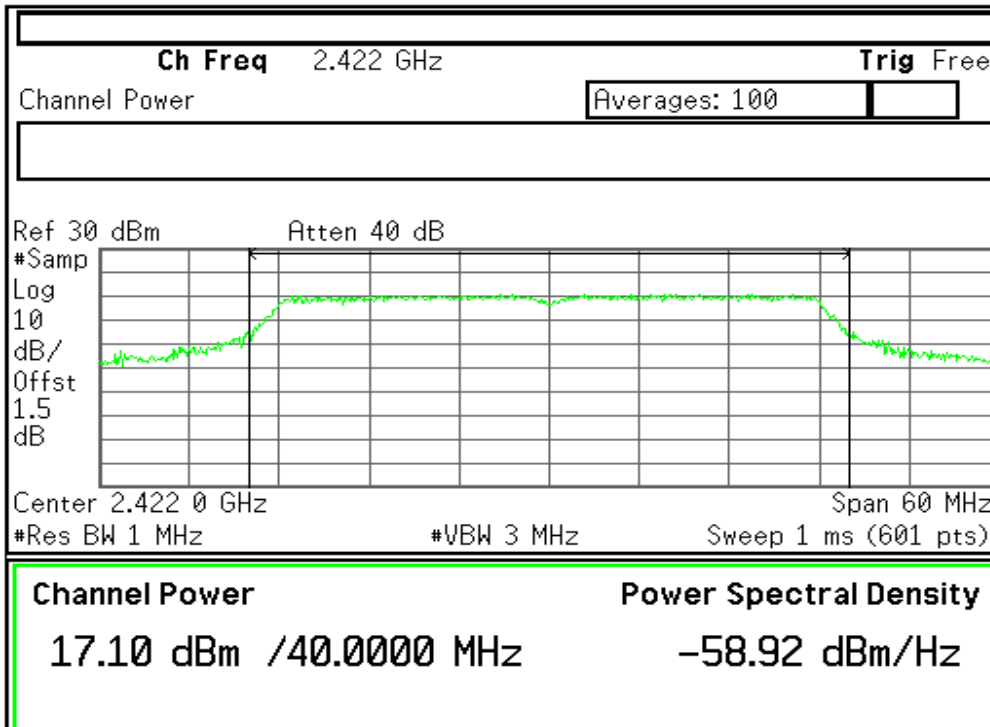


Freq/Channel
Center Freq 2.43700000 GHz
Start Freq 2.40700000 GHz
Stop Freq 2.46700000 GHz
CF Step 6.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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Peak Power (CH High)

Agilent



Freq/Channel
Center Freq 2.42200000 GHz
Start Freq 2.39200000 GHz
Stop Freq 2.45200000 GHz
CF Step 6.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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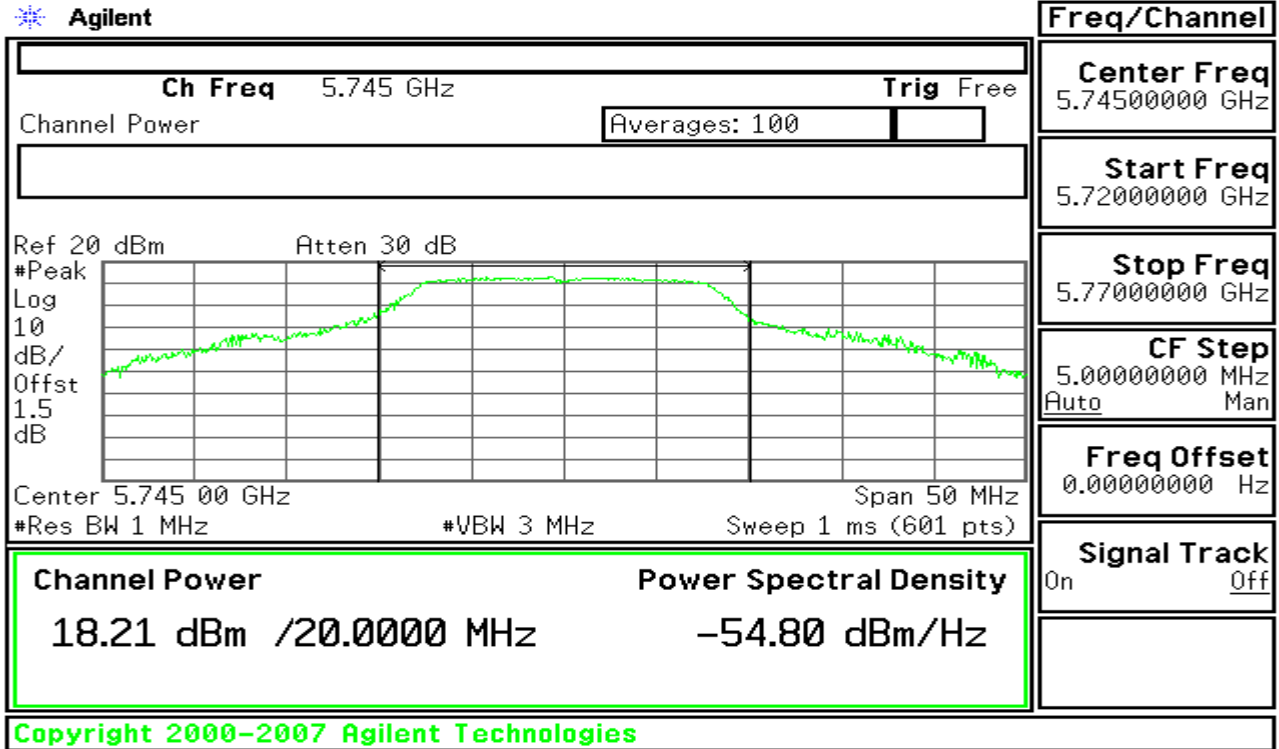


5725-5825

IEEE 802.11a mode

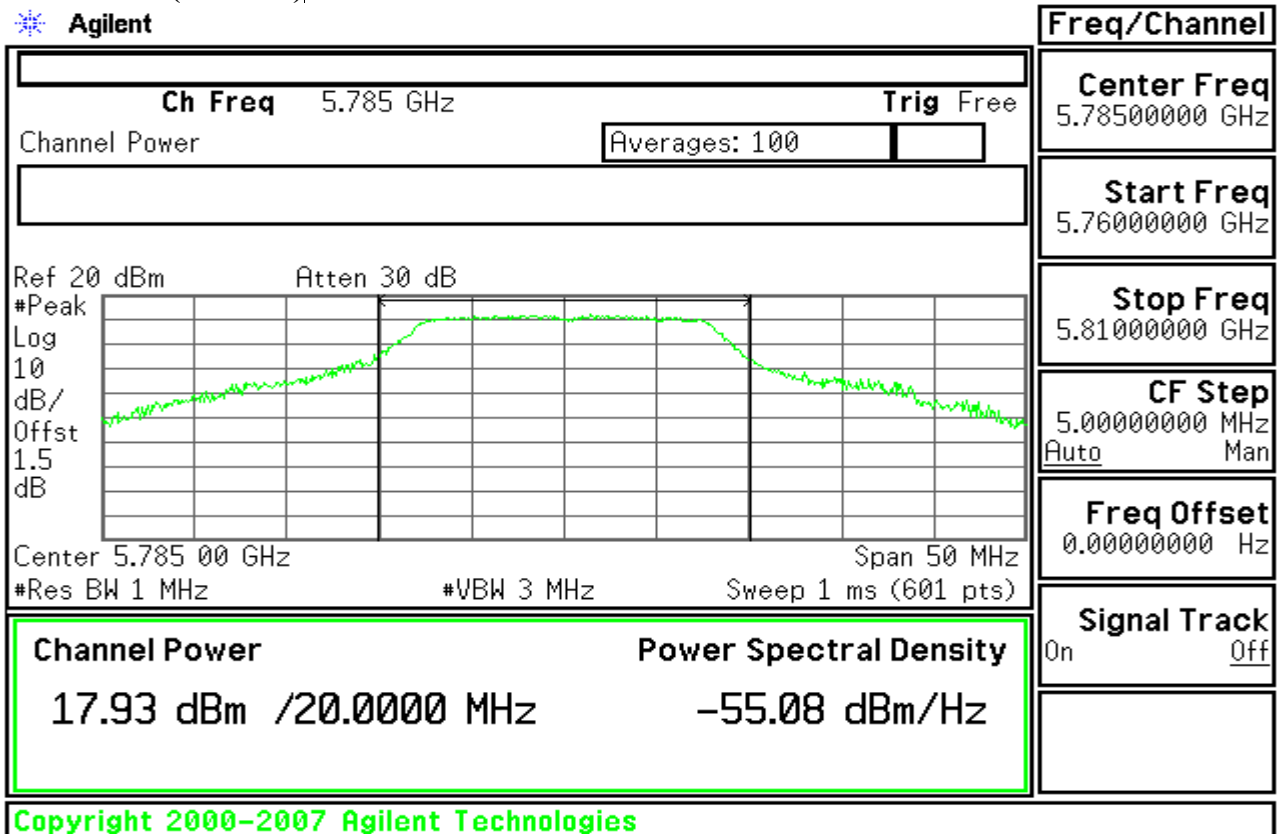
Peak Power (CH Low)

Agilent



Peak Power (CH Mid)

Agilent





Peak Power (CH Hgih)

Agilent

Ch Freq 5.805 GHz Trig Free Channel Power <input type="text" value="Averages: 100"/>		Freq/Channel Center Freq 5.80500000 GHz
Ref 20 dBm Atten 30 dB #Peak Log 10 dB/ Offst 1.5 dB		Start Freq 5.78000000 GHz
		Stop Freq 5.83000000 GHz
Center 5.805 00 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)		CF Step 5.00000000 MHz Auto Man
Channel Power Power Spectral Density 17.59 dBm /20.0000 MHz -55.42 dBm/Hz		Freq Offset 0.00000000 Hz
		Signal Track On Off
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draft 802.11n Standard-20 MHz Channel mode / Chain 0

Peak Power (CH Low)

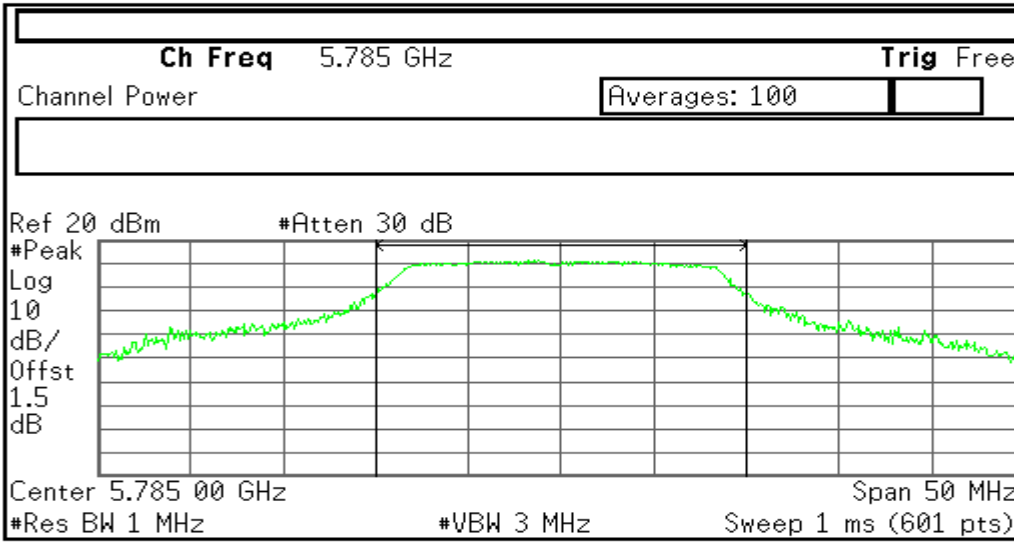
Agilent

Ch Freq 5.745 GHz Trig Free Channel Power <input type="text" value="Averages: 100"/>		BW/Avg Res BW 1.0 MHz Auto Man
Ref 20 dBm #Atten 30 dB #Peak Log 10 dB/ Offst 1.5 dB		Video BW 3.0 MHz Auto Man
		VBW/RBW 1.00000 Auto Man
Center 5.745 00 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)		Average 100 On Off
Channel Power Power Spectral Density 18.94 dBm /20.0000 MHz -54.07 dBm/Hz		Avg/VBW Type Log-Pwr (Video) Auto Man
		Span/RBW 106 Auto Man
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Peak Power (CH Mid)

Agilent



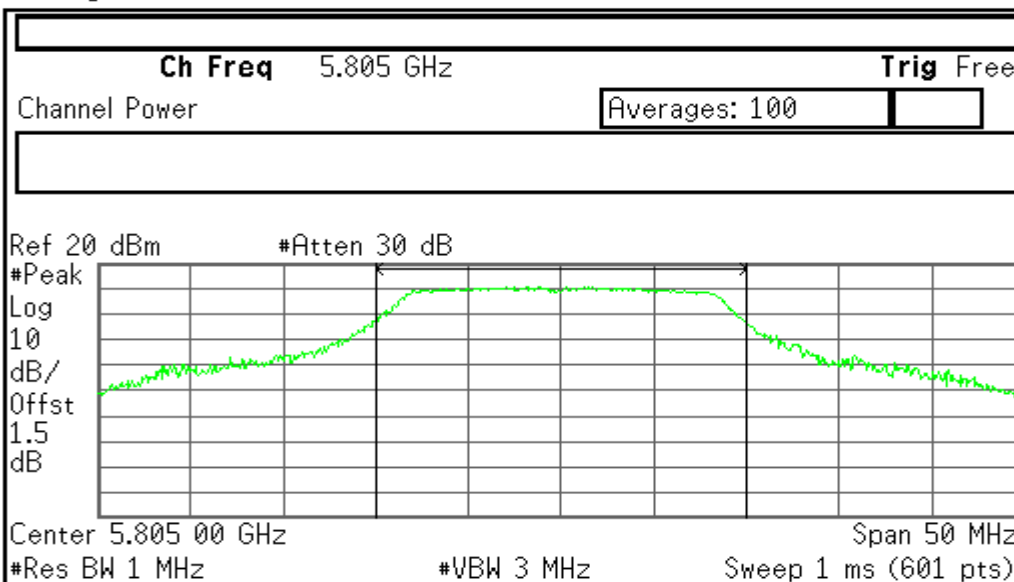
Channel Power	Power Spectral Density
17.80 dBm /20.0000 MHz	-55.21 dBm/Hz

BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man

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Peak Power (CH High)

Agilent



Channel Power	Power Spectral Density
16.98 dBm /20.0000 MHz	-56.03 dBm/Hz

BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man

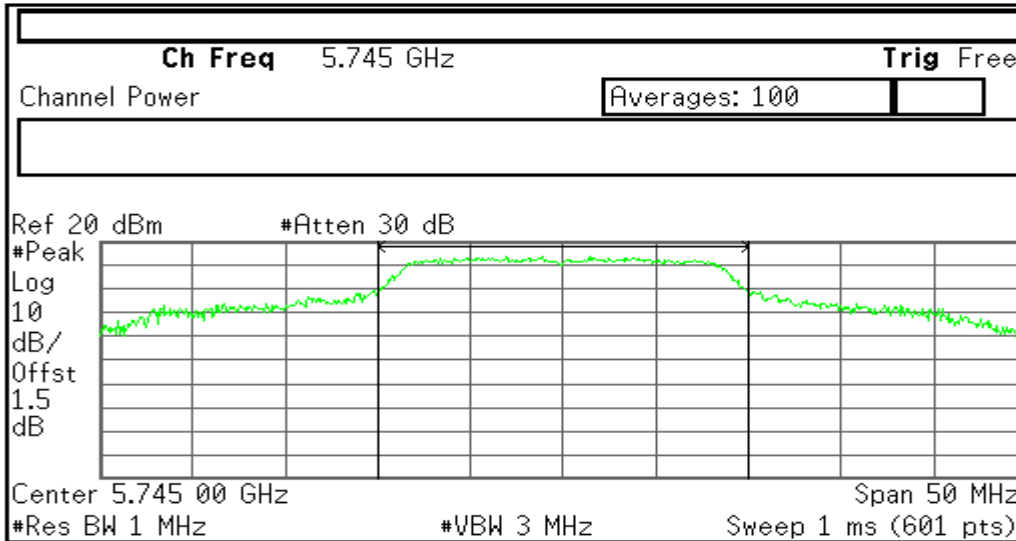
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draft 802.11n Standard-20 MHz Channel mode / Chain 1

Peak Power (CH Low)

Agilent



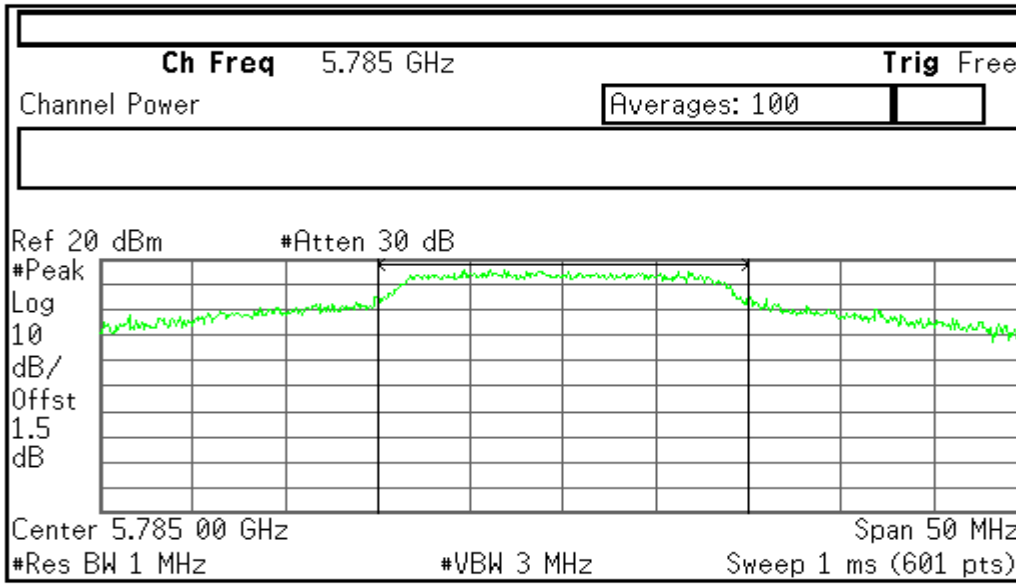
Channel Power	Power Spectral Density
19.57 dBm /20.0000 MHz	-53.44 dBm/Hz

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BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man

Peak Power (CH Mid)

Agilent



Channel Power	Power Spectral Density
19.97 dBm /20.0000 MHz	-53.04 dBm/Hz

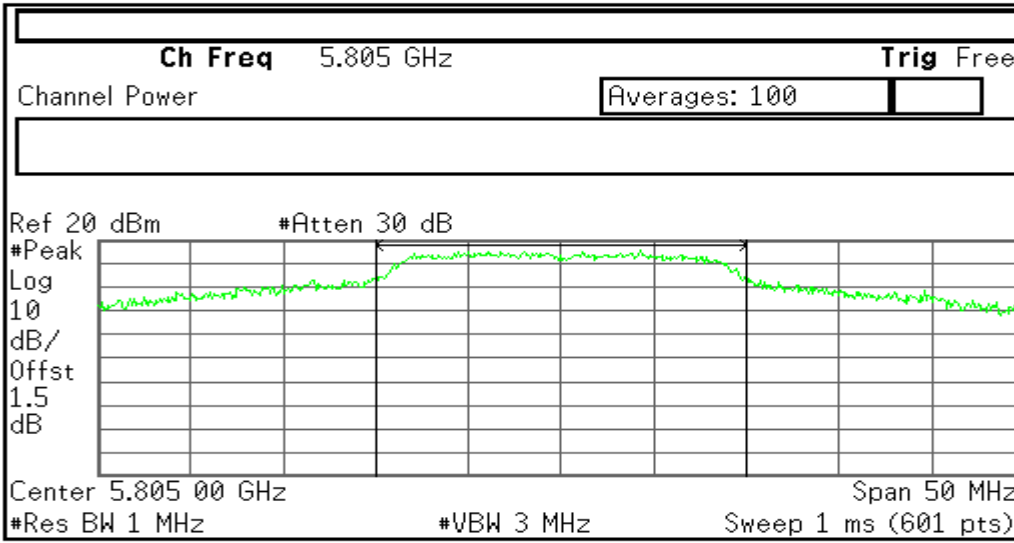
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BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man



Peak Power (CH High)

Agilent



BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man

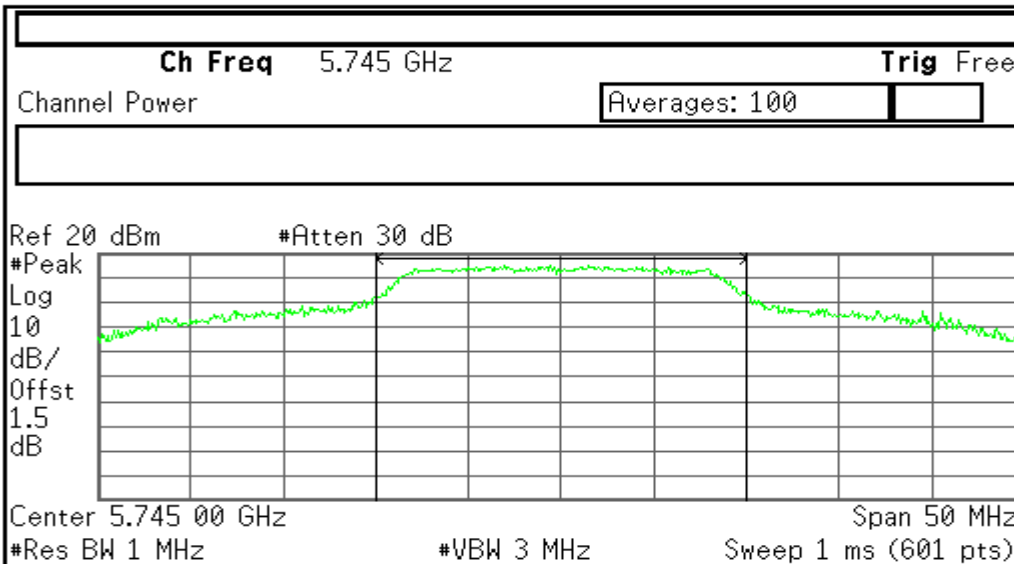
Channel Power	Power Spectral Density
20.13 dBm /20.0000 MHz	-52.88 dBm/Hz

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draft 802.11n Standard-20 MHz Channel mode / Chain 2

Peak Power (CH Low)

Agilent



BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man

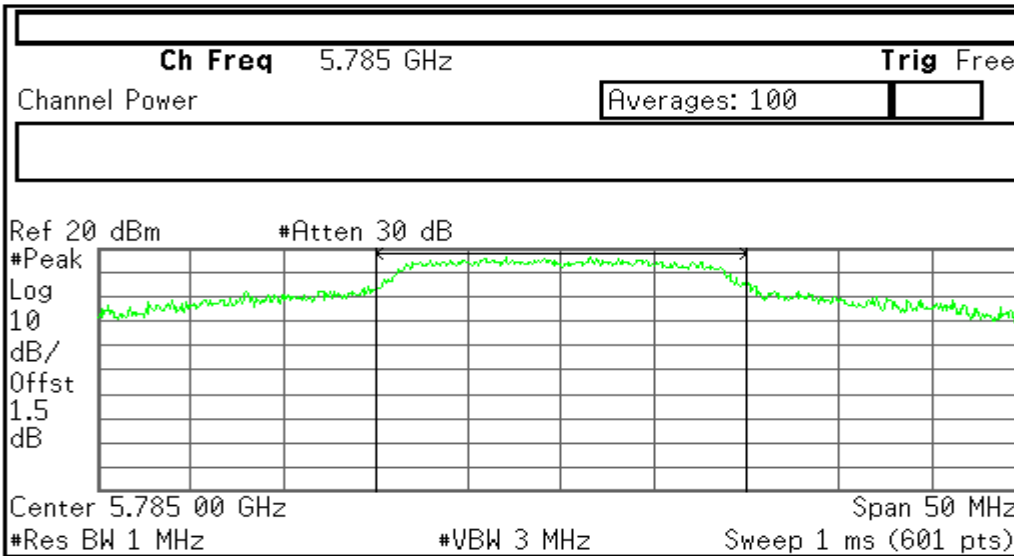
Channel Power	Power Spectral Density
21.00 dBm /20.0000 MHz	-52.01 dBm/Hz

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Peak Power (CH Low)

Agilent



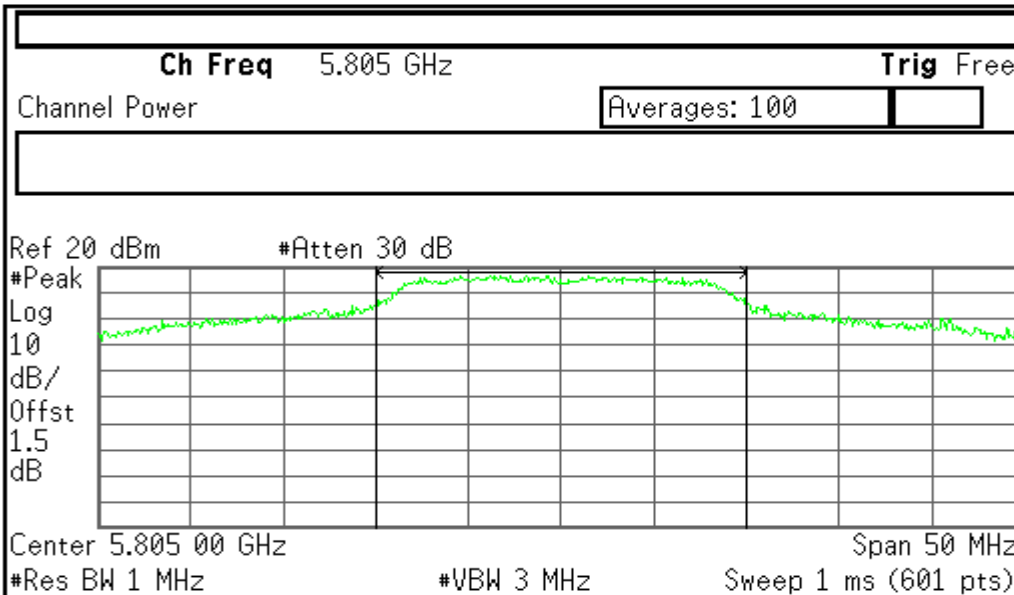
Channel Power	Power Spectral Density
20.91 dBm /20.0000 MHz	-52.10 dBm/Hz

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BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man

Peak Power (CH Low)

Agilent



Channel Power	Power Spectral Density
21.28 dBm /20.0000 MHz	-51.73 dBm/Hz

File Operation Status, A:\SCREEN193.GIF file saved

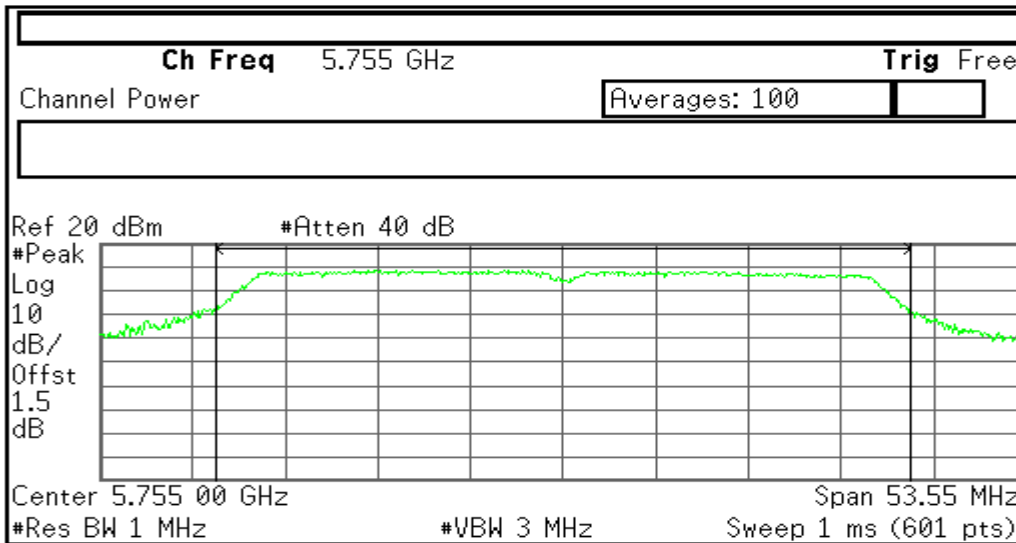
BW/Avg	
Res BW	1.0 MHz
Auto	Man
Video BW	3.0 MHz
Auto	Man
VBW/RBW	1.00000
Auto	Man
Average	100
On	Off
Avg/VBW Type	Log-Pwr (Video)
Auto	Man
Span/RBW	106
Auto	Man



draft 802.11n Standard-40 MHz Channel mode / Chain 0

Peak Power (CH Low)

Agilent



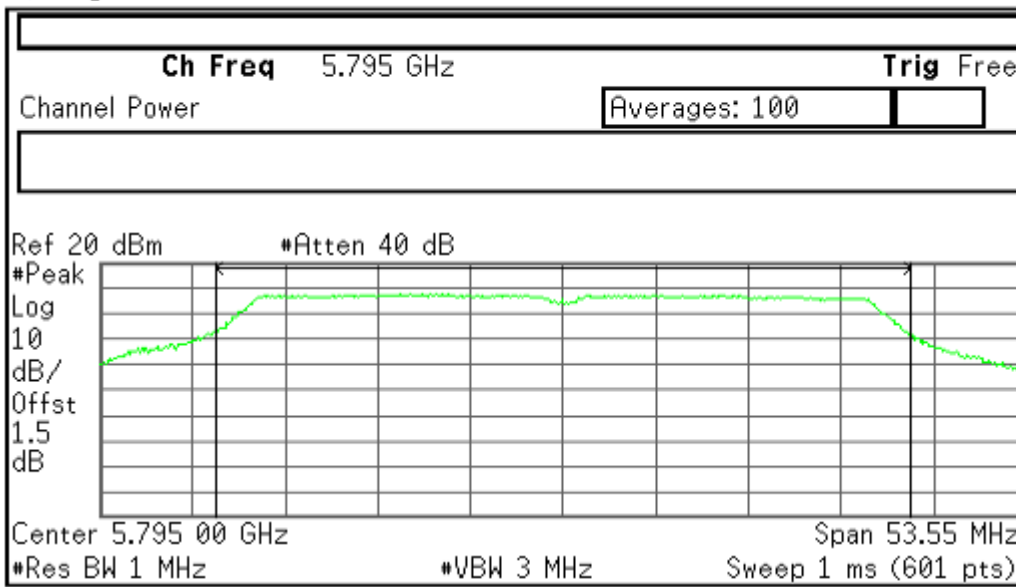
Freq/Channel
Center Freq 5.75500000 GHz
Start Freq 5.72822500 GHz
Stop Freq 5.78177500 GHz
CF Step 5.35500000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
17.85 dBm /40.0000 MHz	-58.17 dBm/Hz

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Peak Power (CH Mid)

Agilent



Freq/Channel
Center Freq 5.79500000 GHz
Start Freq 5.76822500 GHz
Stop Freq 5.82177500 GHz
CF Step 5.35500000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
17.35 dBm /40.0000 MHz	-58.67 dBm/Hz

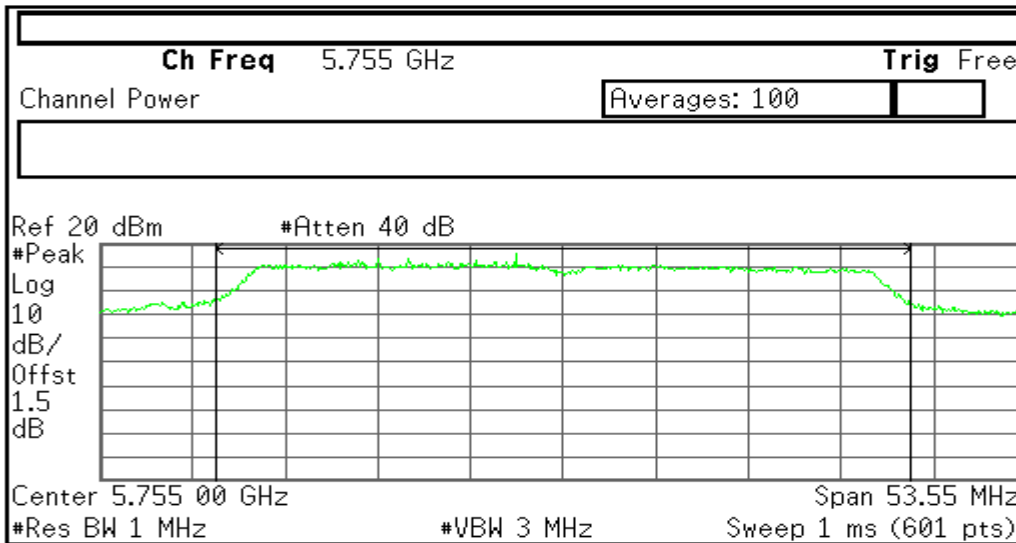
File Operation Status, A:\SCREEN150.GIF file saved



draft 802.11n Standard-40 MHz Channel mode / Chain 1

Peak Power (CH Low)

Agilent



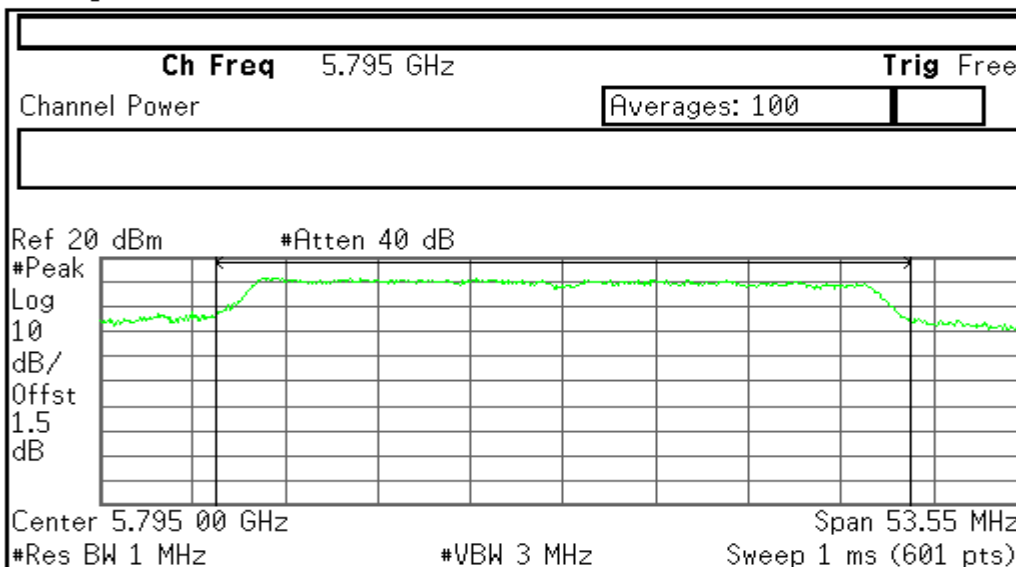
Freq/Channel
Center Freq 5.75500000 GHz
Start Freq 5.72822500 GHz
Stop Freq 5.78177500 GHz
CF Step 5.35500000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
19.75 dBm /40.0000 MHz	-56.27 dBm/Hz

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Peak Power (CH Mid)

Agilent



Freq/Channel
Center Freq 5.79500000 GHz
Start Freq 5.76822500 GHz
Stop Freq 5.82177500 GHz
CF Step 5.35500000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
20.09 dBm /40.0000 MHz	-55.93 dBm/Hz

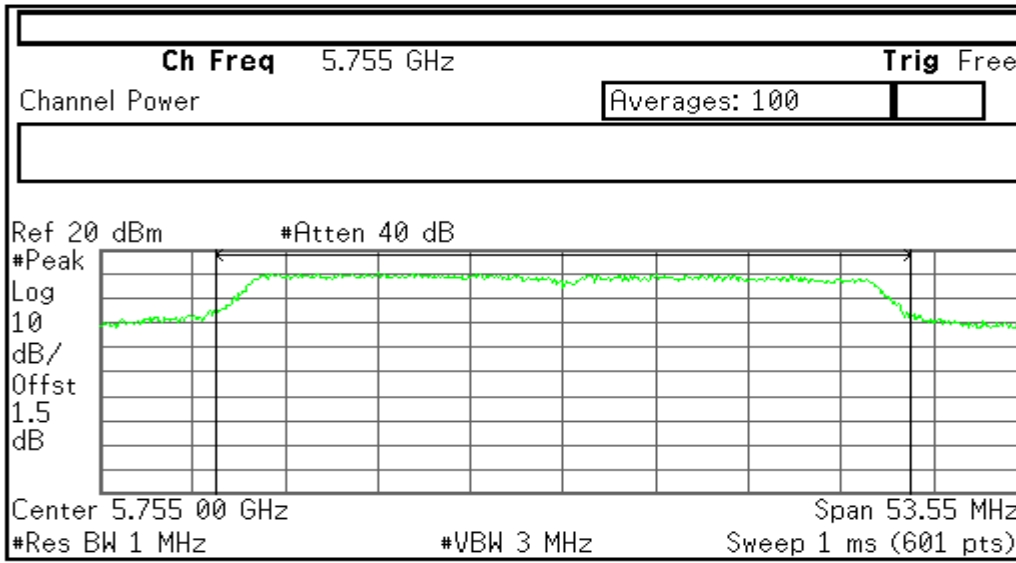
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draft 802.11n Standard-40 MHz Channel mode / Chain 2

Peak Power (CH Low)

Agilent



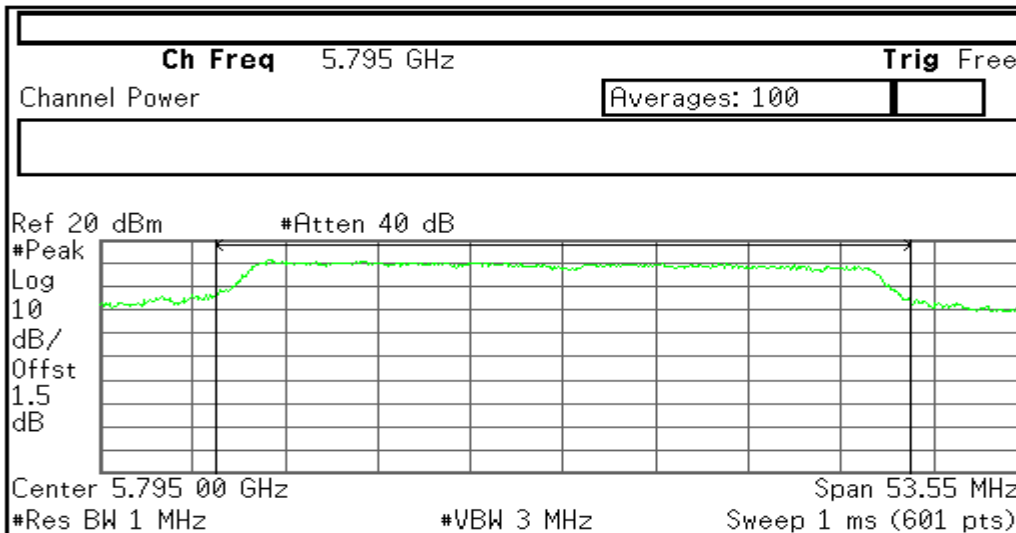
Freq/Channel
Center Freq 5.75500000 GHz
Start Freq 5.72822500 GHz
Stop Freq 5.78177500 GHz
CF Step 5.35500000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
18.99 dBm /40.0000 MHz	-57.03 dBm/Hz

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Peak Power (CH Mid)

Agilent



Freq/Channel
Center Freq 5.79500000 GHz
Start Freq 5.76822500 GHz
Stop Freq 5.82177500 GHz
CF Step 5.35500000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Channel Power	Power Spectral Density
19.37 dBm /40.0000 MHz	-56.65 dBm/Hz

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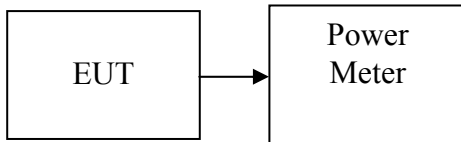


AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power meter.

$$\text{Output Power} = 10 \log (10^{(\text{Chain 0 Output Power} / 10)} + 10^{(\text{Chain 1 Output Power} / 10)} + 10^{(\text{Chain 2 Output Power} / 10)})$$



TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	13.22
Mid	2437	*14.84
High	2462	13.32

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	2412	15.62
Mid	2437	*16.81
High	2462	14.1

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)
Low	2412	10.37	11.23	11.07	15.68
Mid	2437	15.07	15.71	16.11	*20.42
High	2462	12.95	10.78	11.30	16.55

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)
Low	2422	17.02	16.87	16.25	21.50
Mid	2437	16.84	16.34	16.87	21.46
High	2452	16.94	17.00	16.95	*21.73

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)
Low	5745	*17.98
Mid	5785	17.64
High	5805	17.54



Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)
Low	5745	18.75	19.32	20.45	24.34
Mid	5785	17.41	20.02	20.47	24.26
High	5805	17.45	19.83	21.12	*24.49

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Chain 2 Output Power (dBm)	Output Power (dBm)
Low	5755	17.70	19.35	18.45	23.32
Mid	5795	17.21	19.57	18.68	*23.36

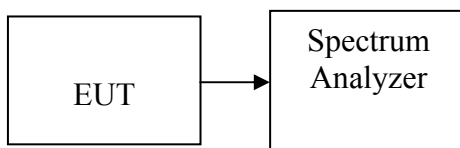


PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 300 kHz, Sweep = 100 s
3. Record the max reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.
5. $PPSD\ Total = 10 \log (10^{(PPSD\ Chain\ 0 / 10)} + 10^{(PPSD\ Chain\ 1 / 10)} + 10^{(PPSD\ Chain\ 2 / 10)})$



TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	PPSD Total (dBm)	Limit (dBm)	Result
Low	2412	-10.03	8.00	PASS
Mid	2437	-9.55	8.00	PASS
High	2462	-9.82	8.00	PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD Total (dBm)	Limit (dBm)	Result
Low	2412	-10.03	8.00	PASS
Mid	2437	-5.02	8.00	PASS
High	2462	-9.06	8.00	PASS

Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	2412	-10.85	-10.58	-9.32	-5.38	8.00	PASS
Mid	2437	-4.72	-7.04	-6.12	-1.08	8.00	PASS
High	2462	-9.27	-12.23	-13.19	-6.38	8.00	PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	2422	-3.01	-2.22	-2.45	1.70	8.00	PASS
Mid	2437	-2.93	-2.54	-2.09	2.28	8.00	PASS
High	2452	-5.41	-2.89	-2.04	1.55	8.00	PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	PPSD Total (dBm)	Limit (dBm)	Result
Low	5745	-8.74	8.00	PASS
Mid	5785	-10.27	8.00	PASS
High	5805	-10.72	8.00	PASS



Test mode: draft 802.11n Standard-20 MHz Channel mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	5745	-8.74	-9.44	-11.05	-4.95	8.00	PASS
Mid	5785	-10.27	-9.09	-9.71	-4.95	8.00	PASS
High	5805	-10.72	-7.44	-9.68	-4.32	8.00	PASS

Test mode: draft 802.11n Wide-40 MHz Channel mode

Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Result
Low	5755	-6.67	-5.95	-5.95	-1.43	8.00	PASS
Mid	5795	-8.20	-6.35	-5.51	-1.80	8.00	PASS

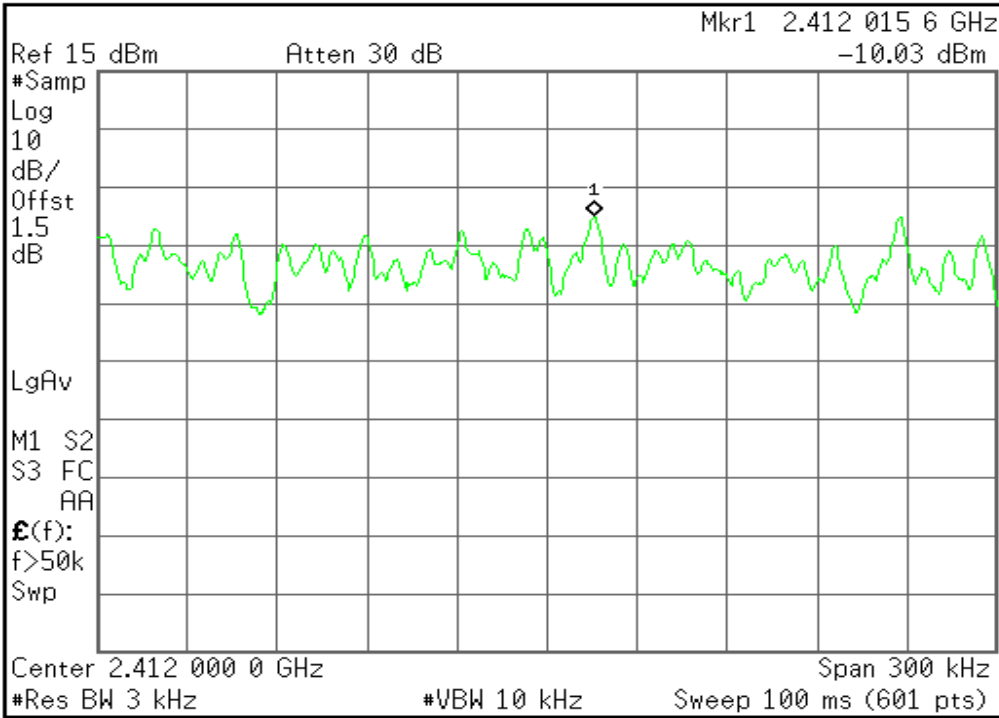


Test Plot

IEEE 802.11b mode

PPSD (CH Low)

Agilent

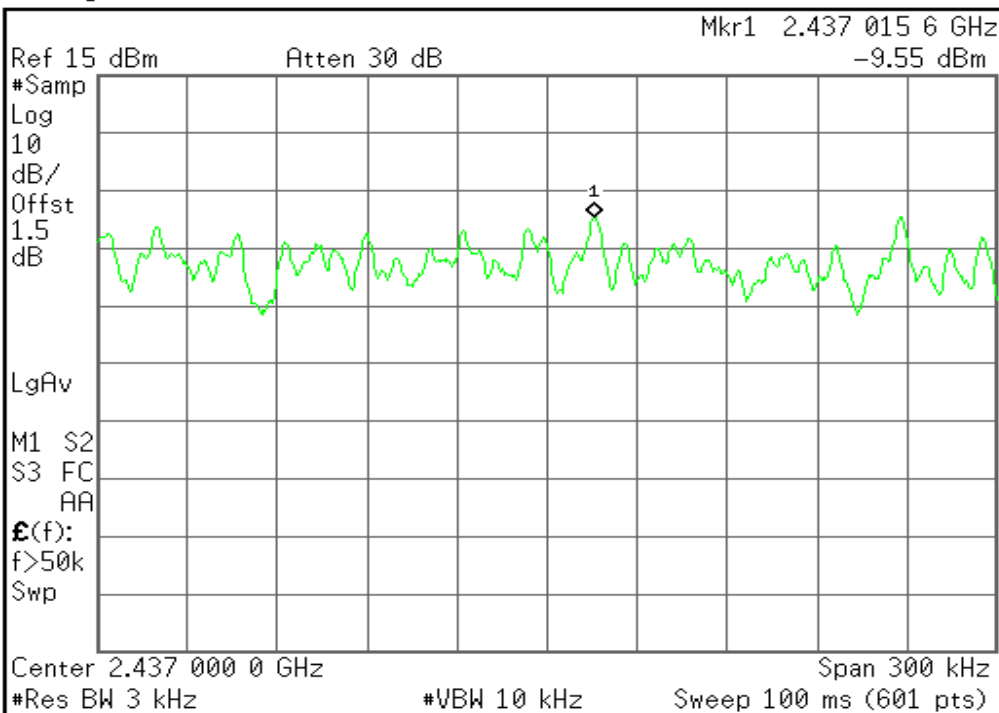


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH Mid)

Agilent



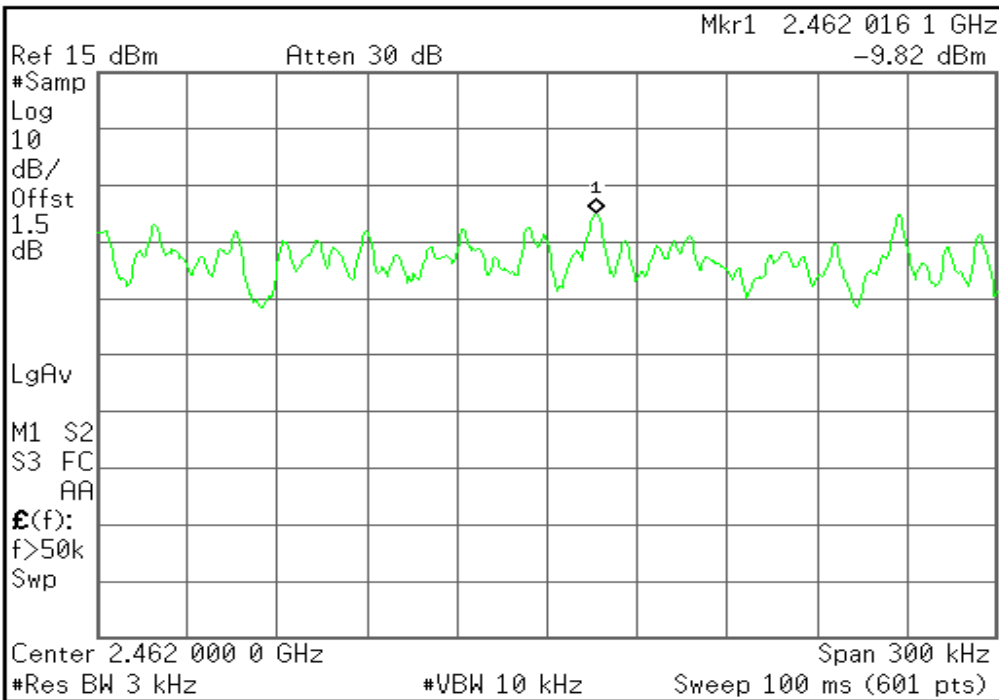
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH High)

Agilent



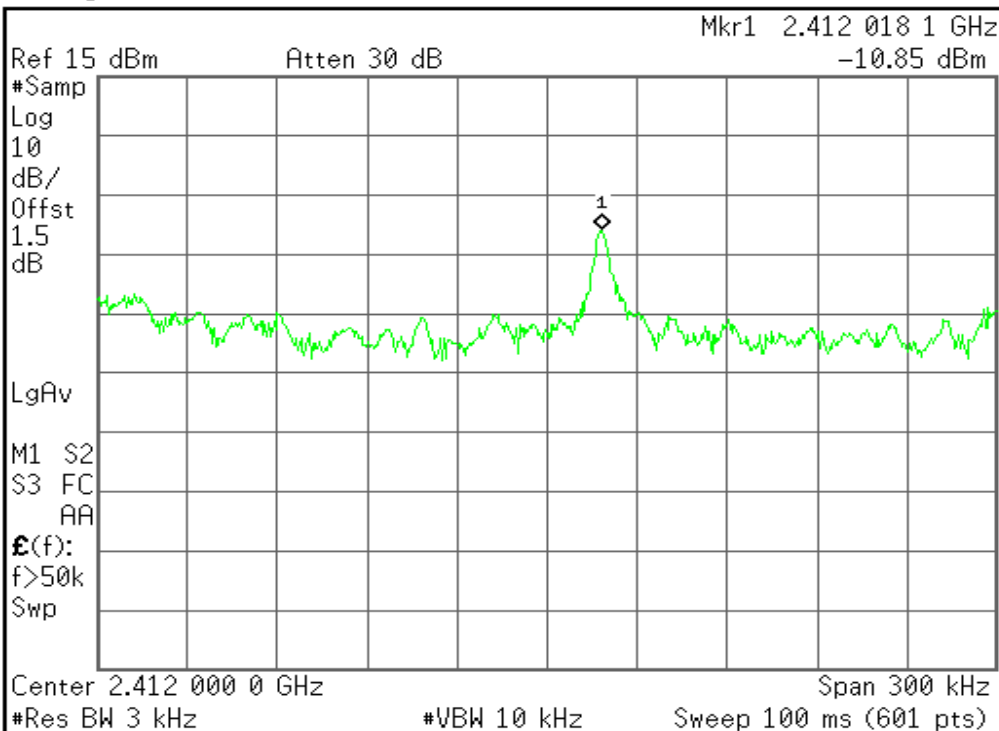
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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IEEE 802.11g mode

PPSD (CH Low)

Agilent



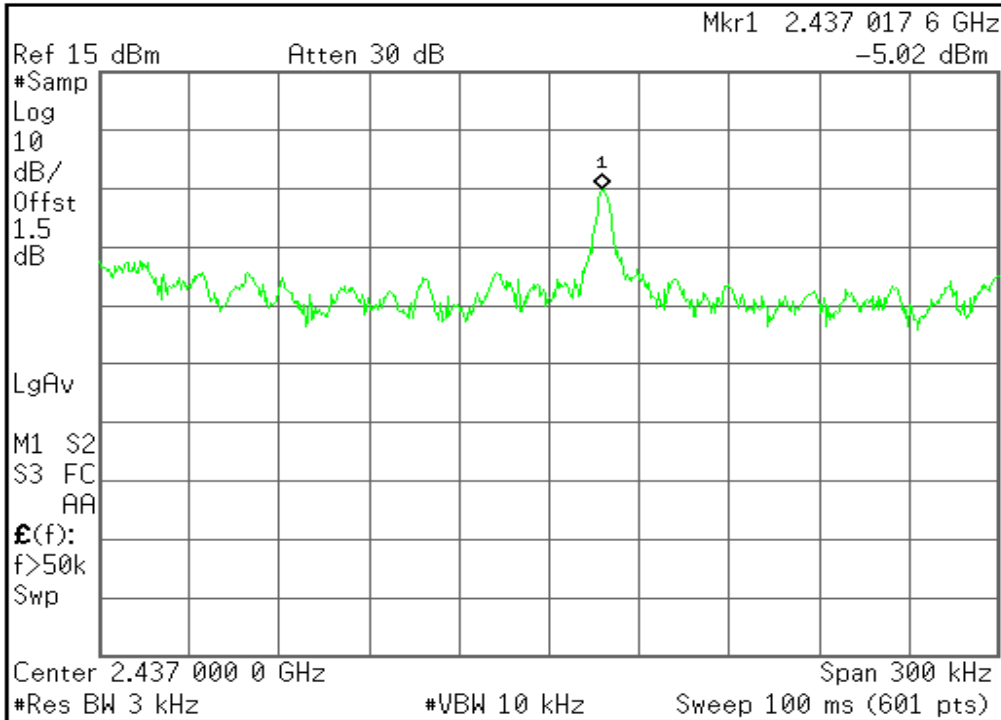
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH Mid)

Agilent

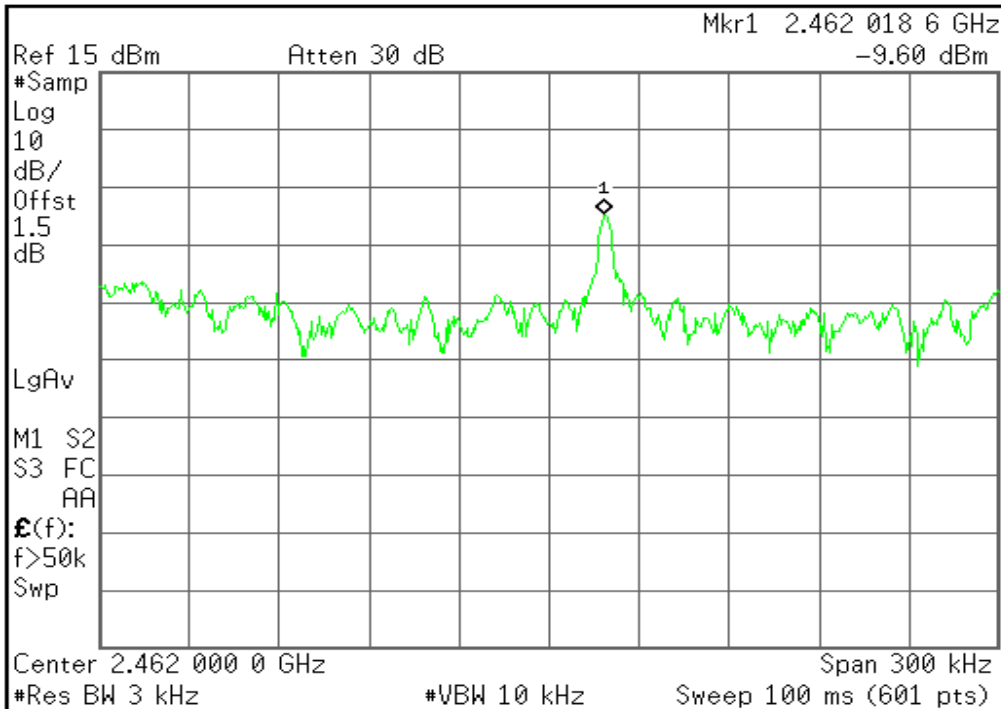


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH High)

Agilent



Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

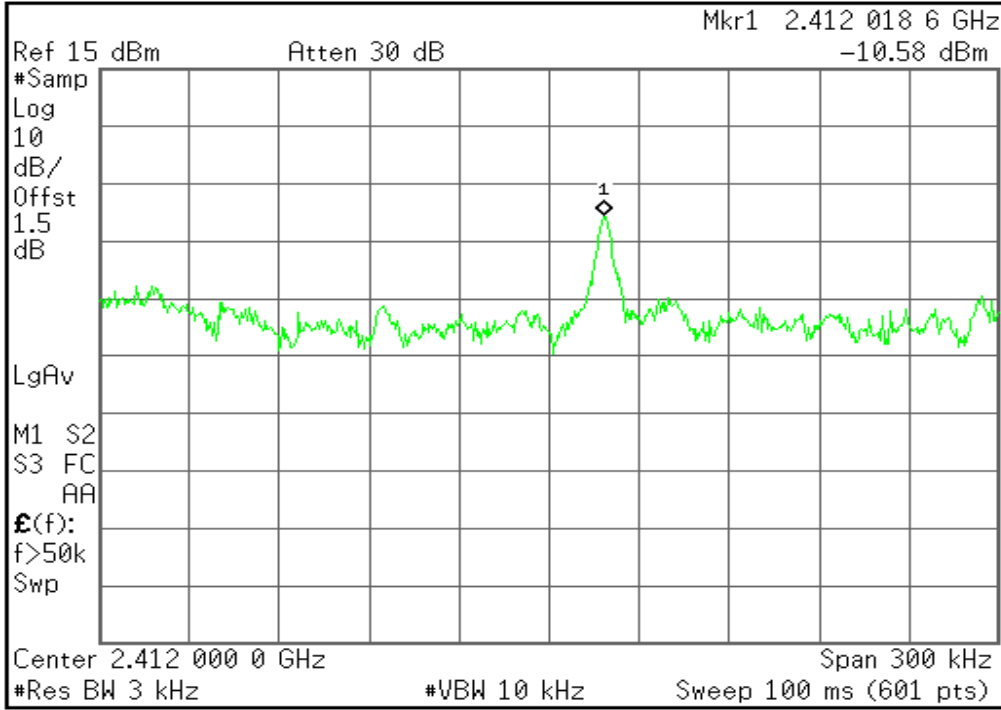
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draft 802.11n Standard-20 MHz Channel mode / Chain 0

PPSD (CH Low)

Agilent

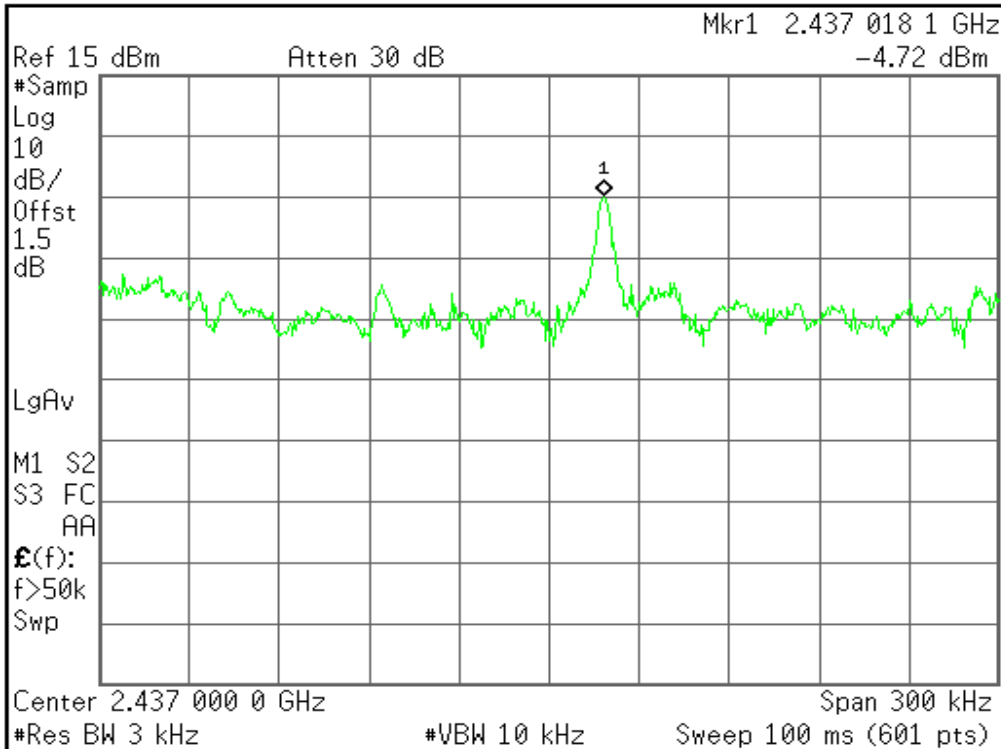


Freq/Channel	
Center Freq	2.41200000 GHz
Start Freq	2.41185000 GHz
Stop Freq	2.41215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH Mid)

Agilent



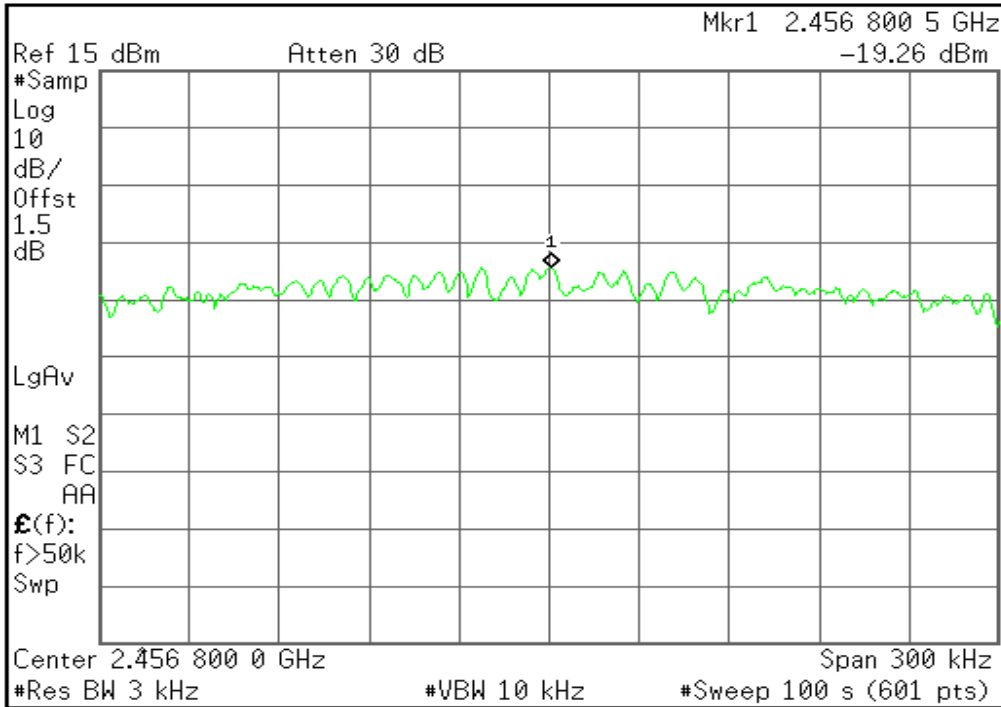
Peak Search	
Next Peak	
Next Pk Right	
Next Pk Left	
Min Search	
Pk-Pk Search	
Mkr → CF	
More	1 of 2

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PPSD (CH High)

Agilent 07:51:01 Jul 18, 2008



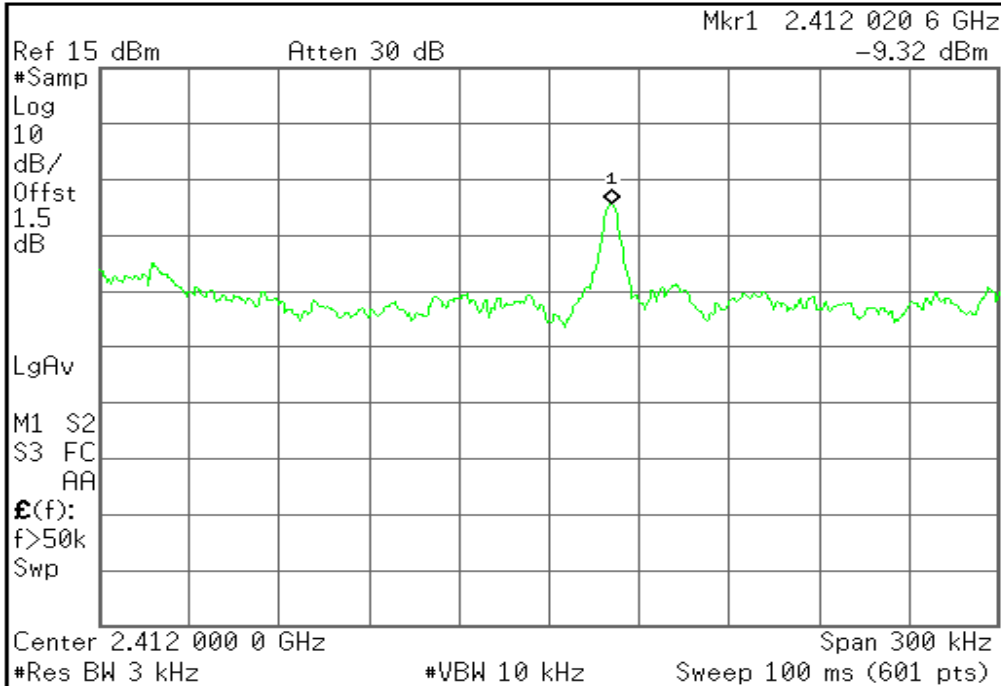
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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draft 802.11n Standard-20 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent



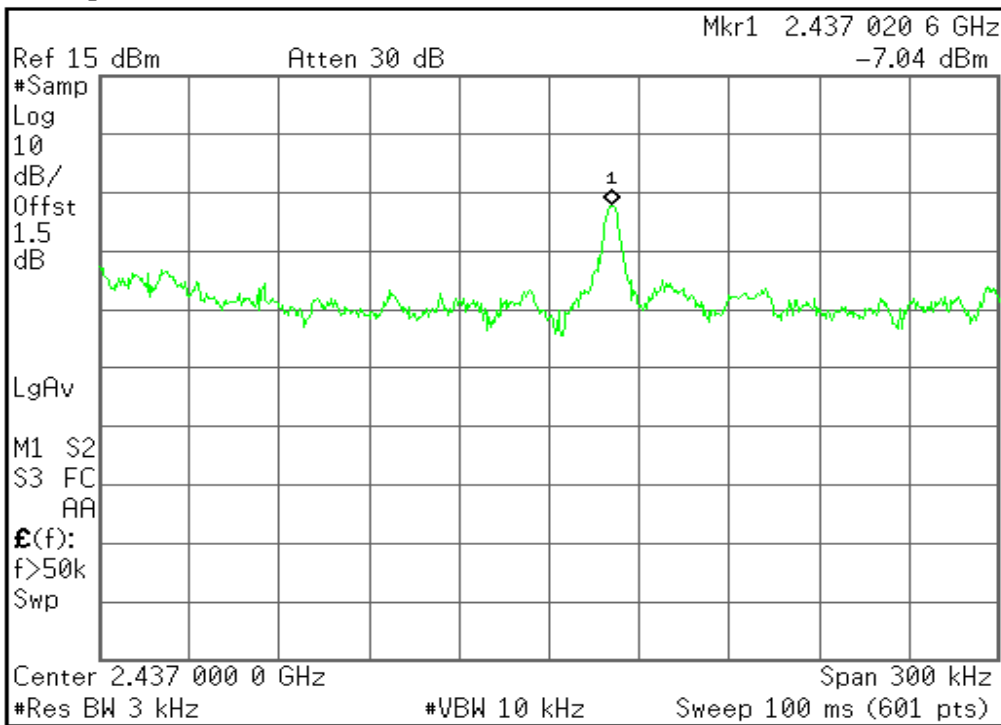
Freq/Channel
Center Freq 2.41200000 GHz
Start Freq 2.41185000 GHz
Stop Freq 2.41215000 GHz
CF Step 30.0000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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PPSD (CH Mid)

Agilent

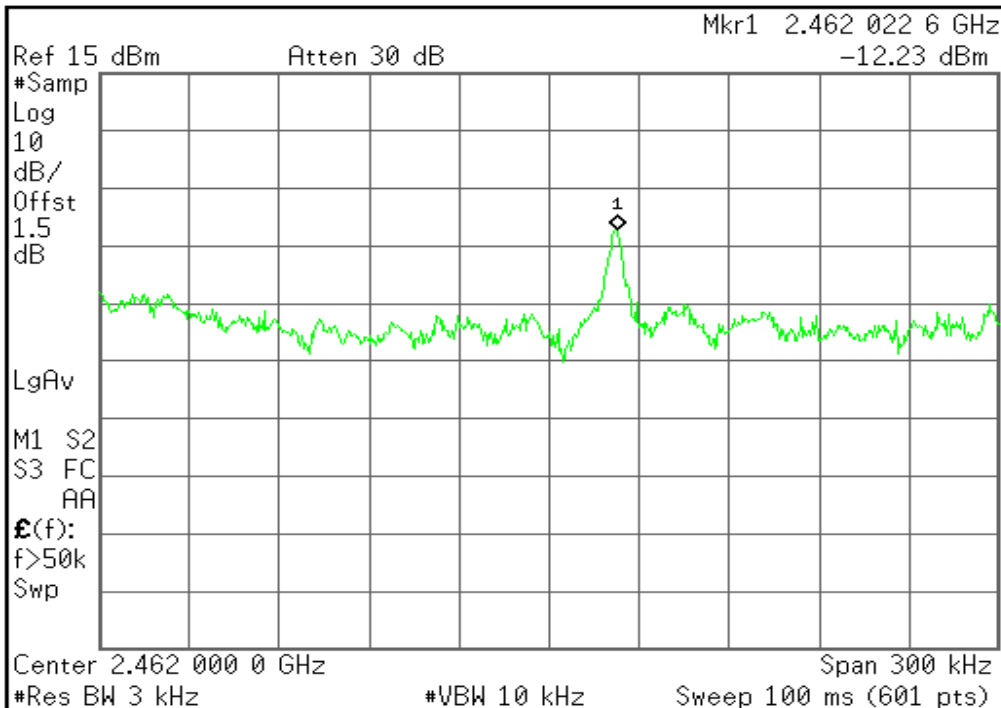


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.43685000 GHz
Stop Freq	2.43715000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.0000000 Hz
Signal Track	On Off

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PPSD (CH High)

Agilent



Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.46185000 GHz
Stop Freq	2.46215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.0000000 Hz
Signal Track	On Off

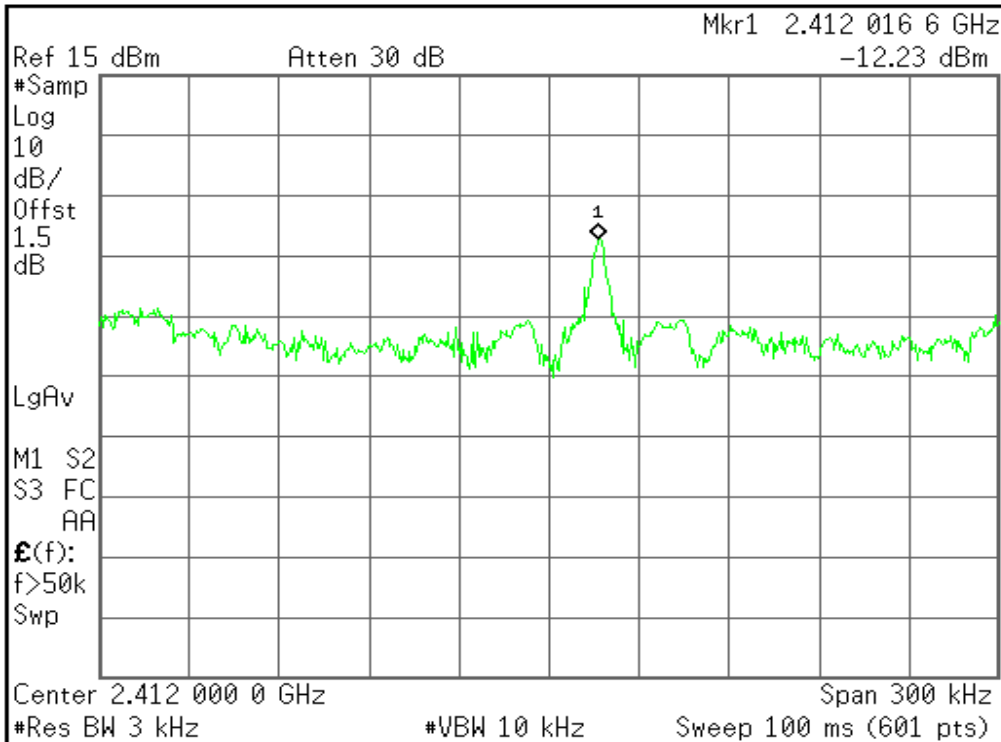
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draft 802.11n Standard-20 MHz Channel mode / Chain 2

PPSD (CH Low)

Agilent

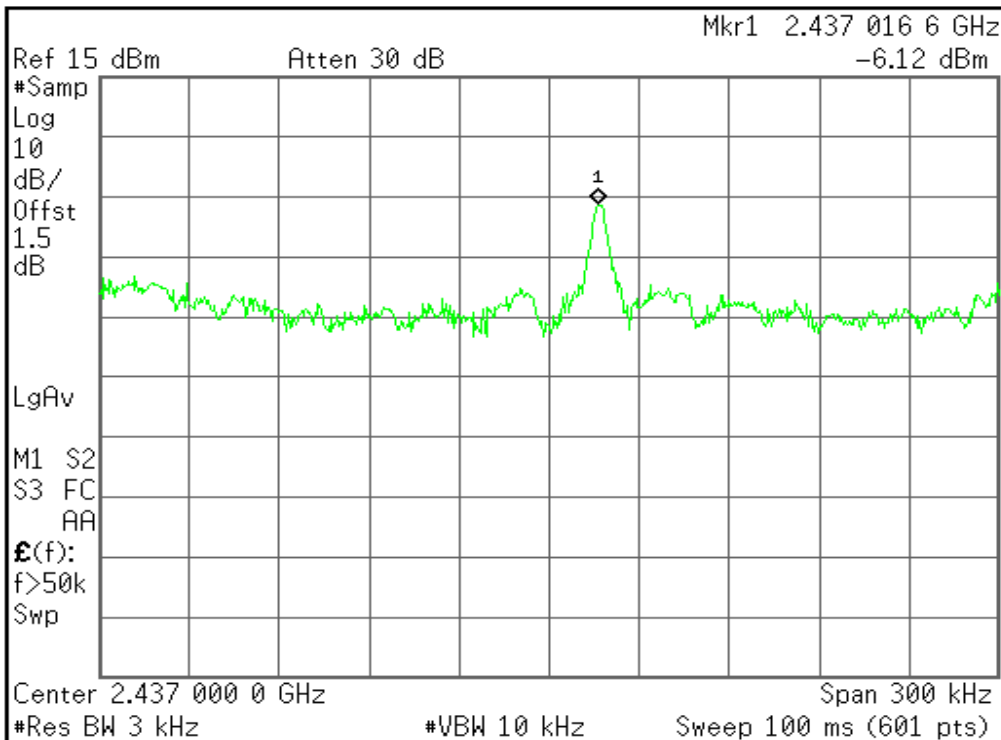


Freq/Channel	
Center Freq	2.41200000 GHz
Start Freq	2.41185000 GHz
Stop Freq	2.41215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH Mid)

Agilent



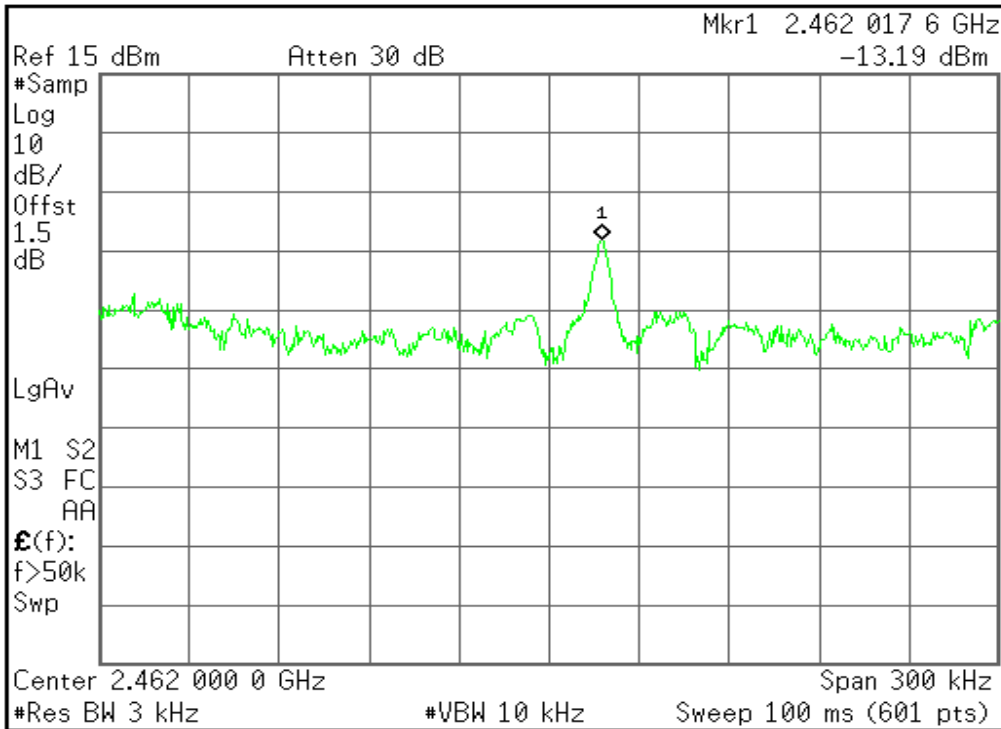
Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.43685000 GHz
Stop Freq	2.43715000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH High)

Agilent



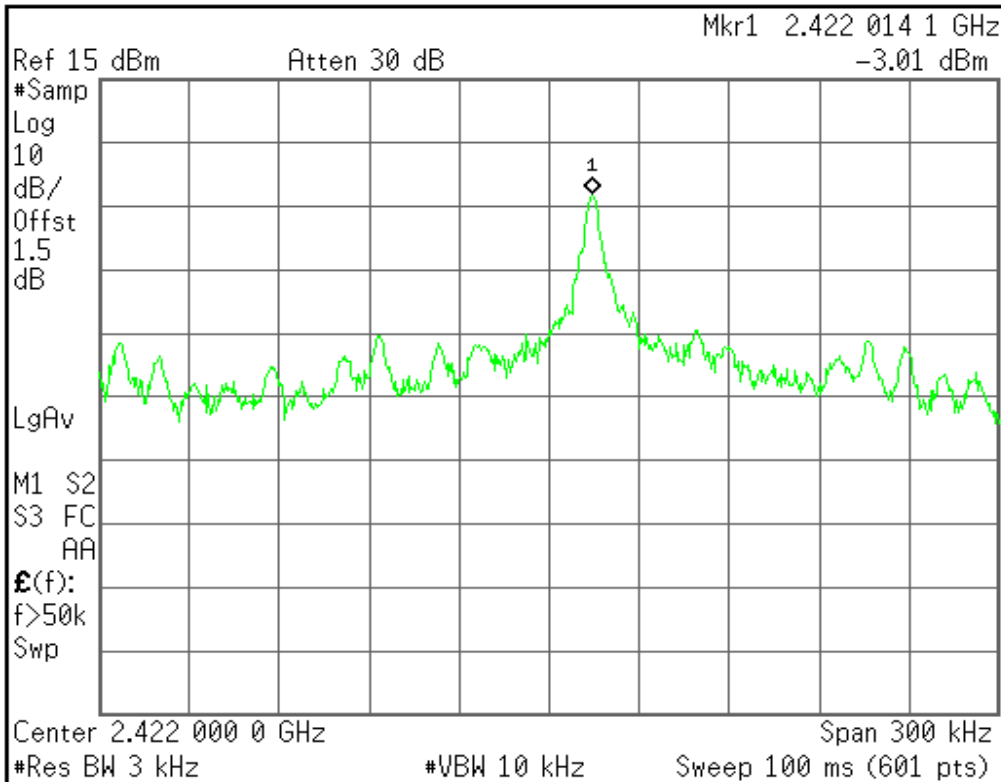
Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.46185000 GHz
Stop Freq	2.46215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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draft 802.11n Wide-40 MHz Channel mode / Chain 0

PPSD (CH Low)

Agilent



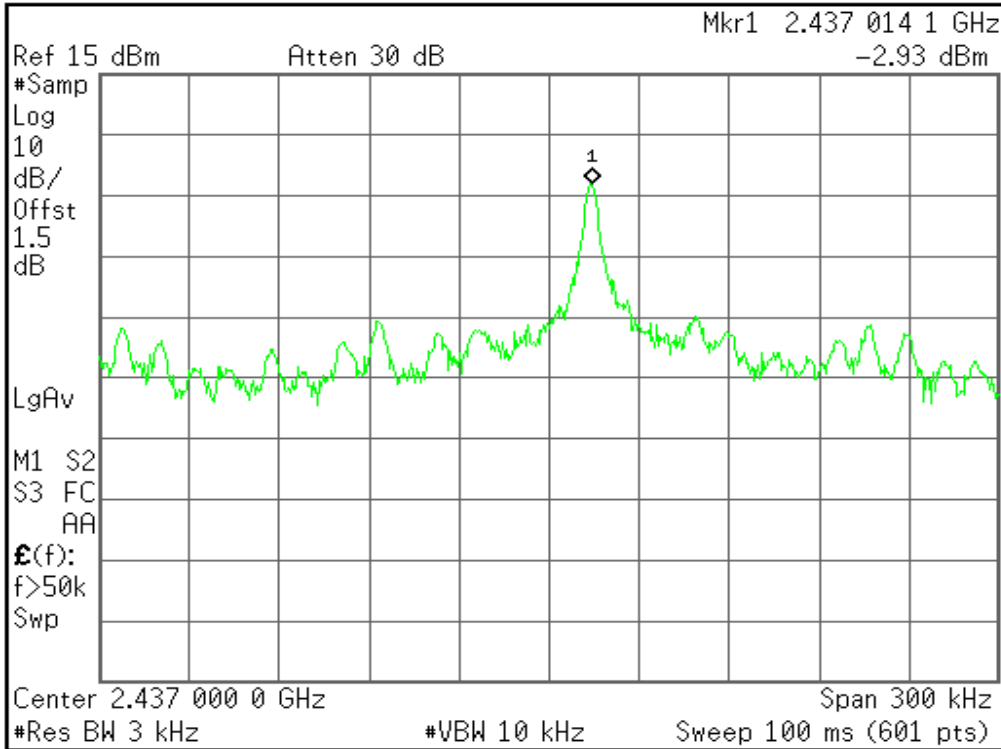
Freq/Channel	
Center Freq	2.42200000 GHz
Start Freq	2.42185000 GHz
Stop Freq	2.42215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH Mid)

Agilent

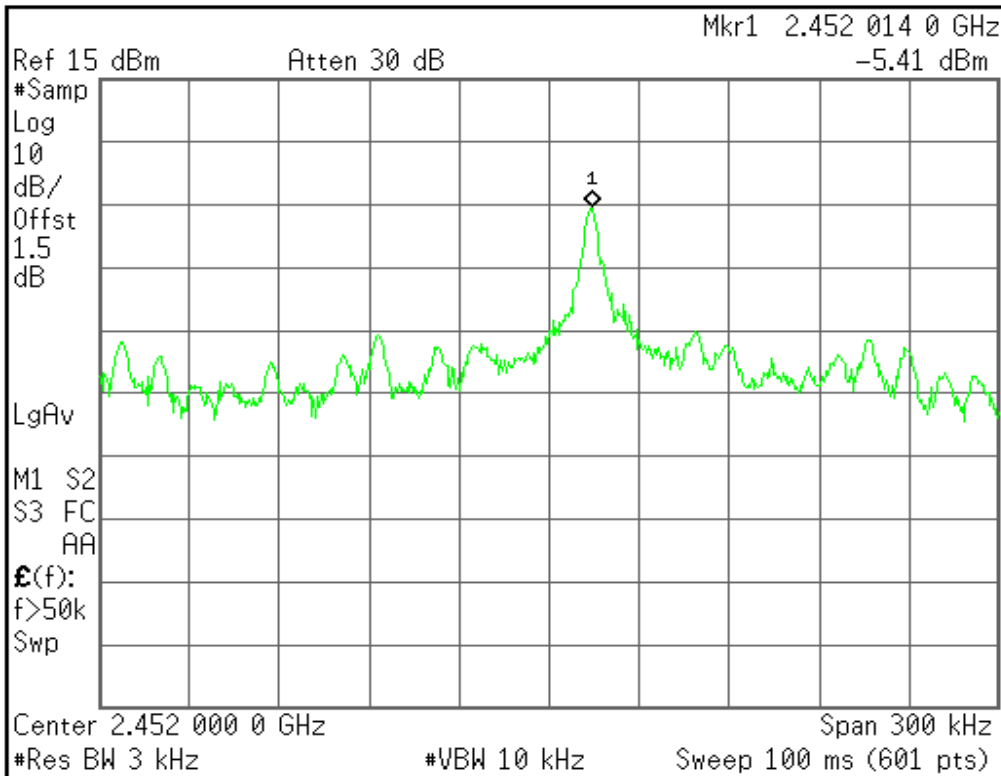


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.43685000 GHz
Stop Freq	2.43715000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH High)

Agilent



Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.45185000 GHz
Stop Freq	2.45215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

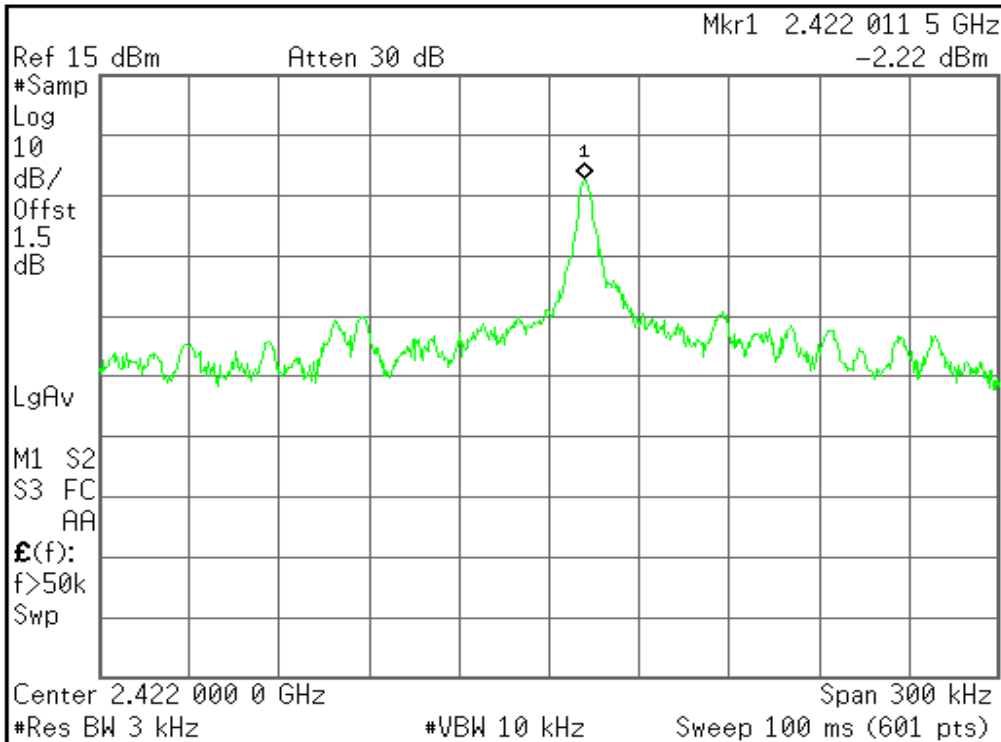
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draft 802.11n Wide-40 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent

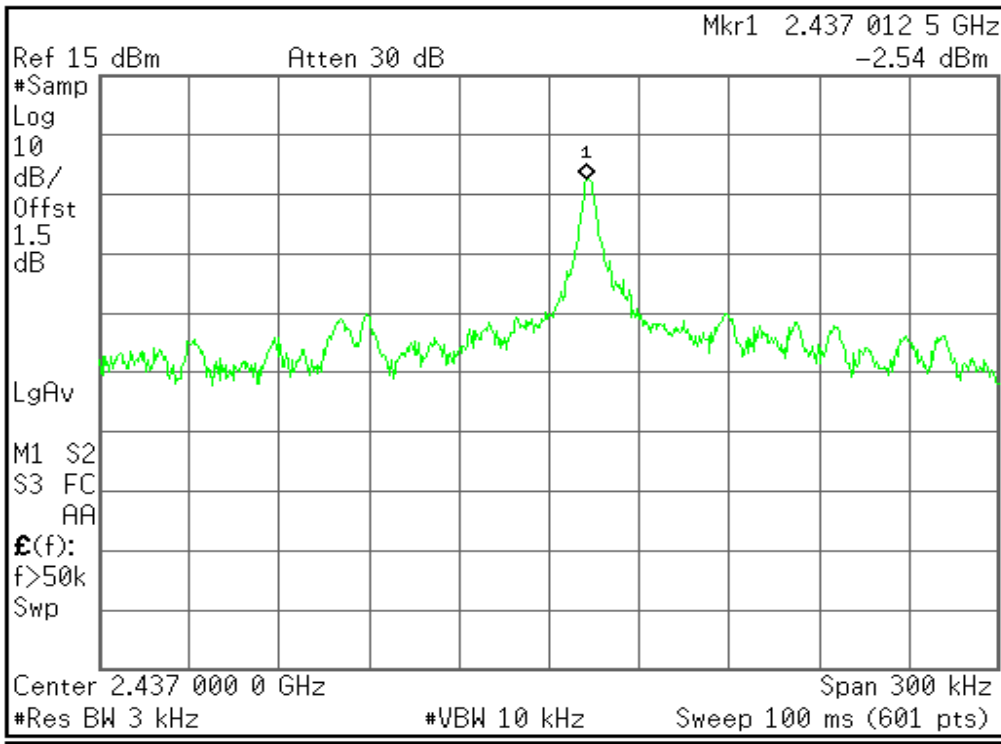


Freq/Channel	
Center Freq	2.42200000 GHz
Start Freq	2.42185000 GHz
Stop Freq	2.42215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH Mid)

Agilent



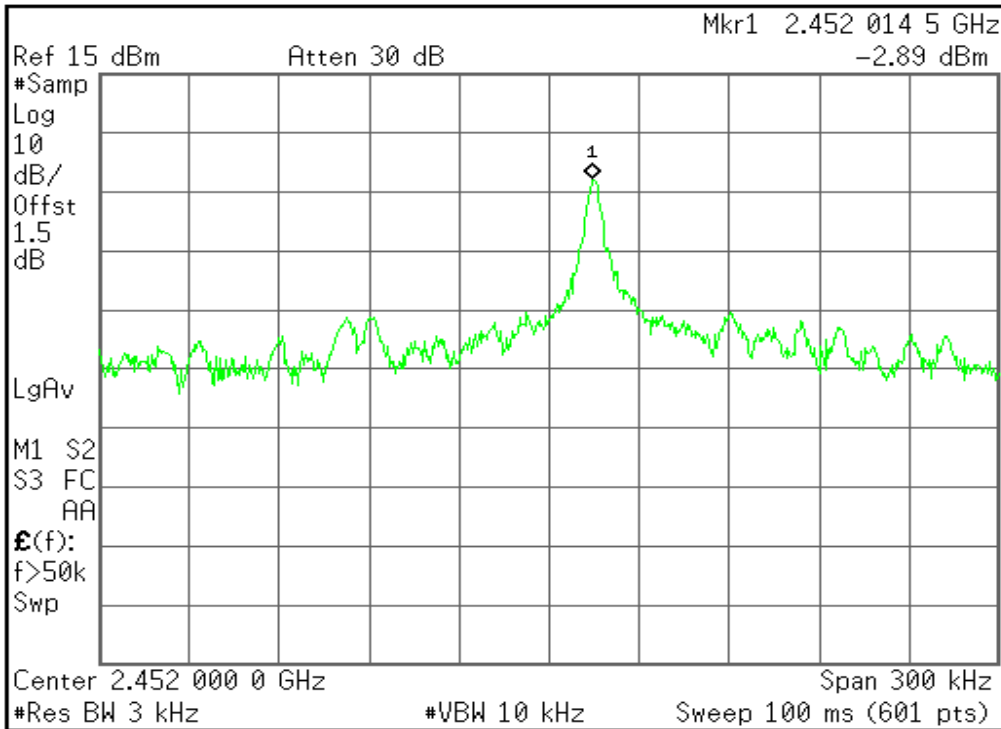
Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.43685000 GHz
Stop Freq	2.43715000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH High)

Agilent



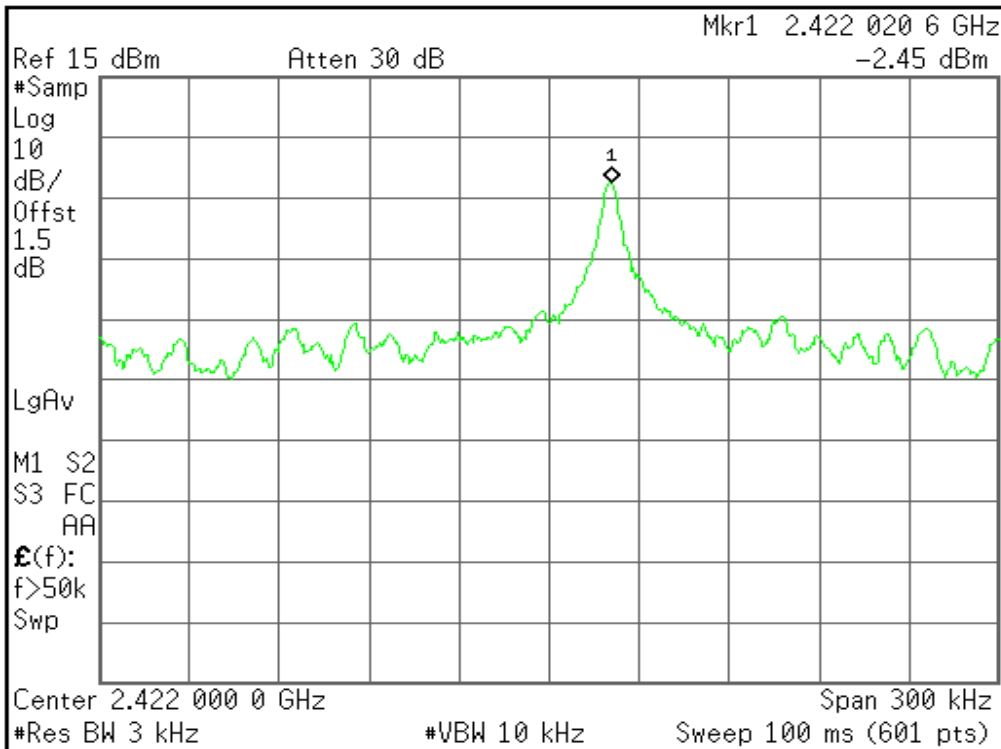
Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.45185000 GHz
Stop Freq	2.45215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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draft 802.11n Wide-40 MHz Channel mode / Chain 2

PPSD (CH Low)

Agilent



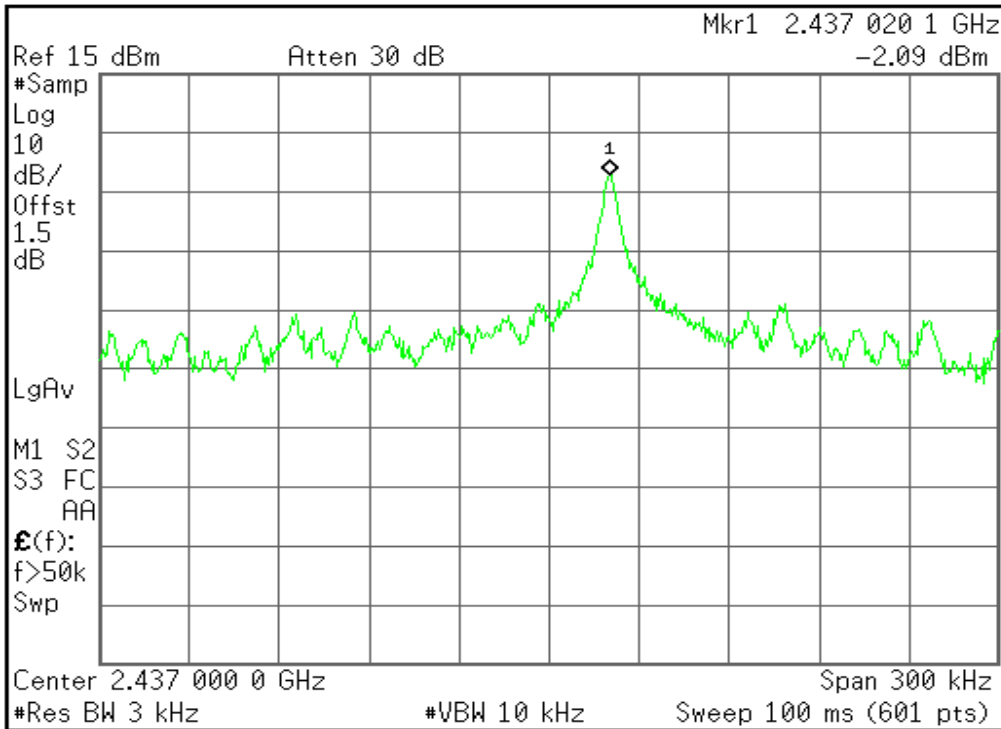
Freq/Channel	
Center Freq	2.42200000 GHz
Start Freq	2.42185000 GHz
Stop Freq	2.42215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH Mid)

Agilent

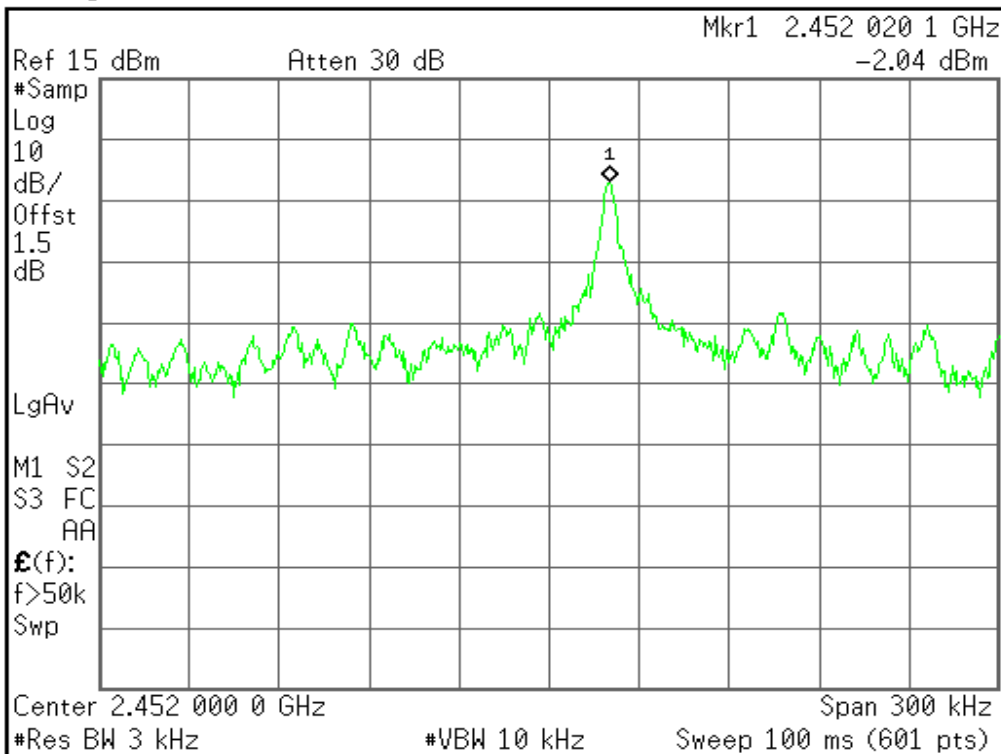


Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.43685000 GHz
Stop Freq	2.43715000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH High)

Agilent



Freq/Channel	
Center Freq	2.45200000 GHz
Start Freq	2.45185000 GHz
Stop Freq	2.45215000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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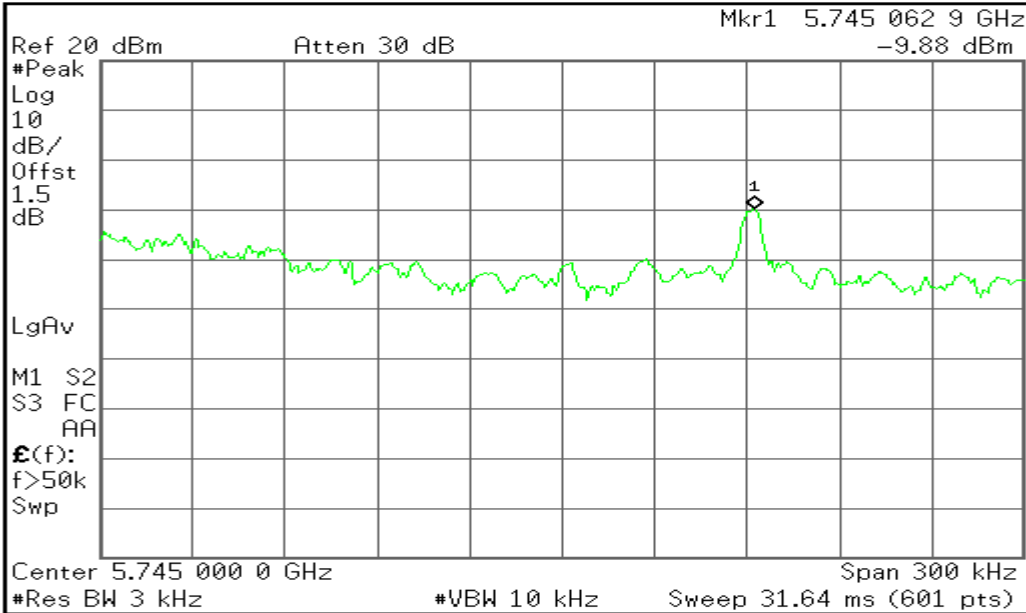


5725-5825

IEEE 802.11a mode

PPSD (CH Low)

Agilent

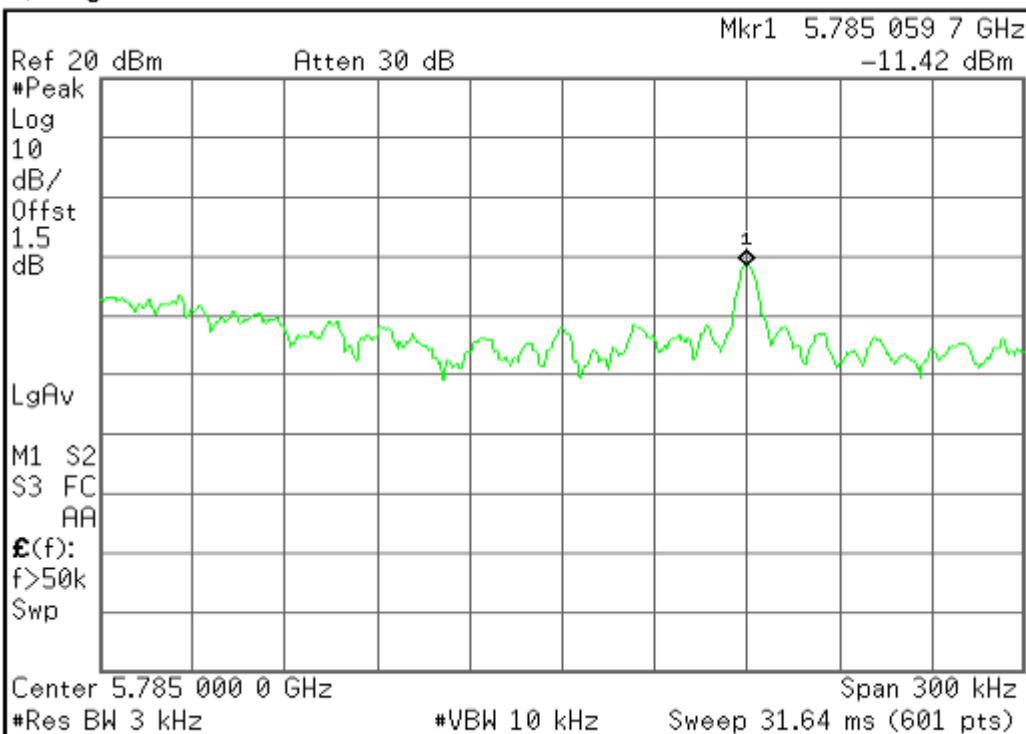


Freq/Channel	
Center Freq	5.74500000 GHz
Start Freq	5.74485000 GHz
Stop Freq	5.74515000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH Mid)

Agilent



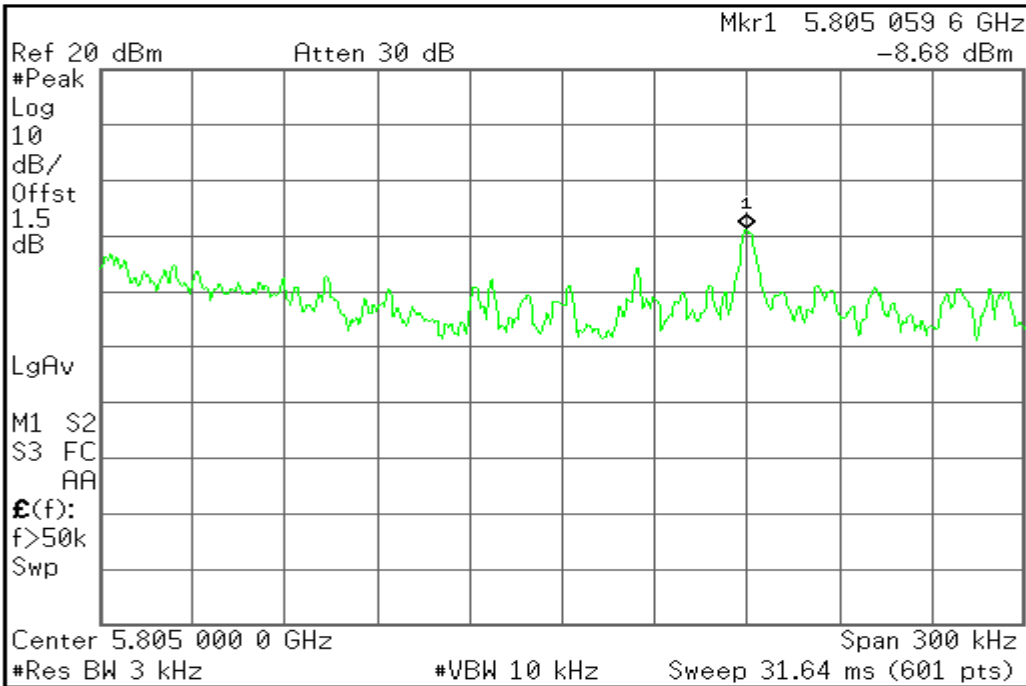
Freq/Channel	
Center Freq	5.78500000 GHz
Start Freq	5.78485000 GHz
Stop Freq	5.78515000 GHz
CF Step	30.0000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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PPSD (CH High)

Agilent



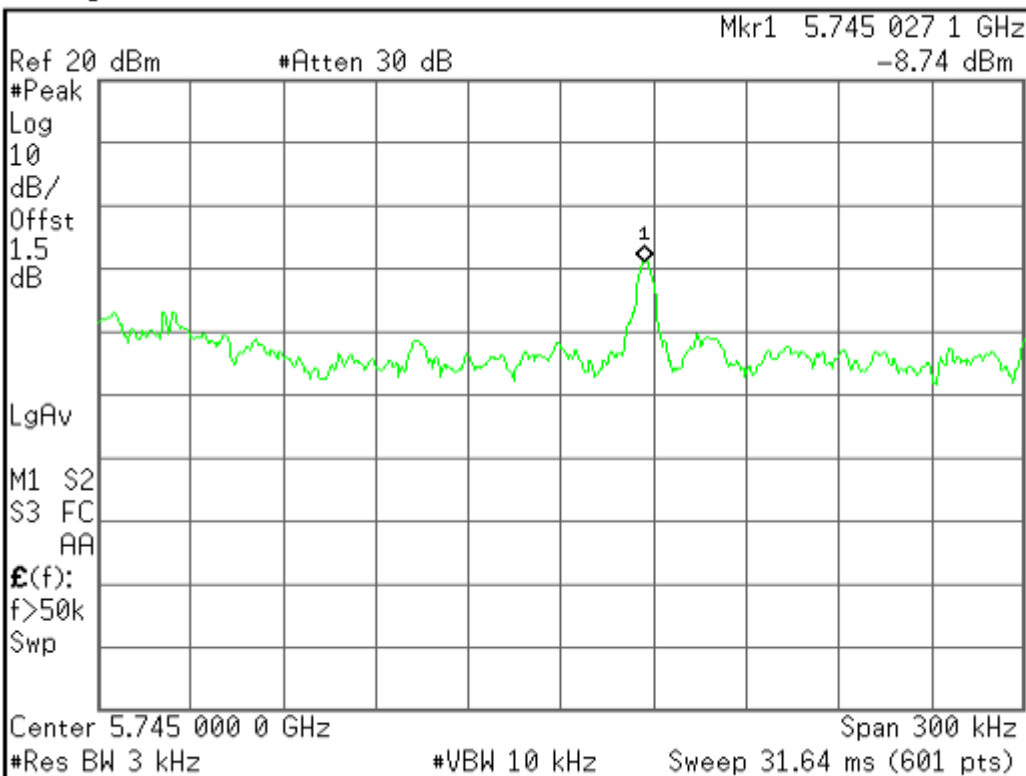
Freq/Channel	
Center Freq	5.80500000 GHz
Start Freq	5.80485000 GHz
Stop Freq	5.80515000 GHz
CF Step	30.00000000 kHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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draft 802.11n Standard-20 MHz Channel mode / Chain 0

PPSD (CH Low)

Agilent



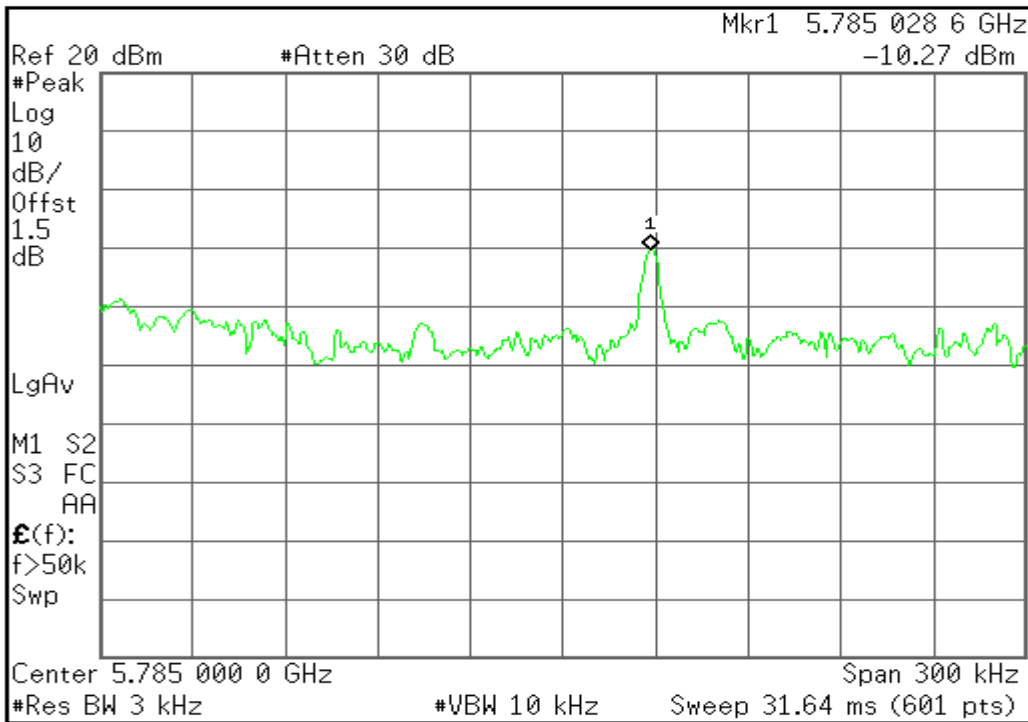
Peak Search	
Next Peak	
Next Pk Right	
Next Pk Left	
Min Search	
Pk-Pk Search	
Mkr → CF	
More	1 of 2

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PPSD (CH Mid)

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

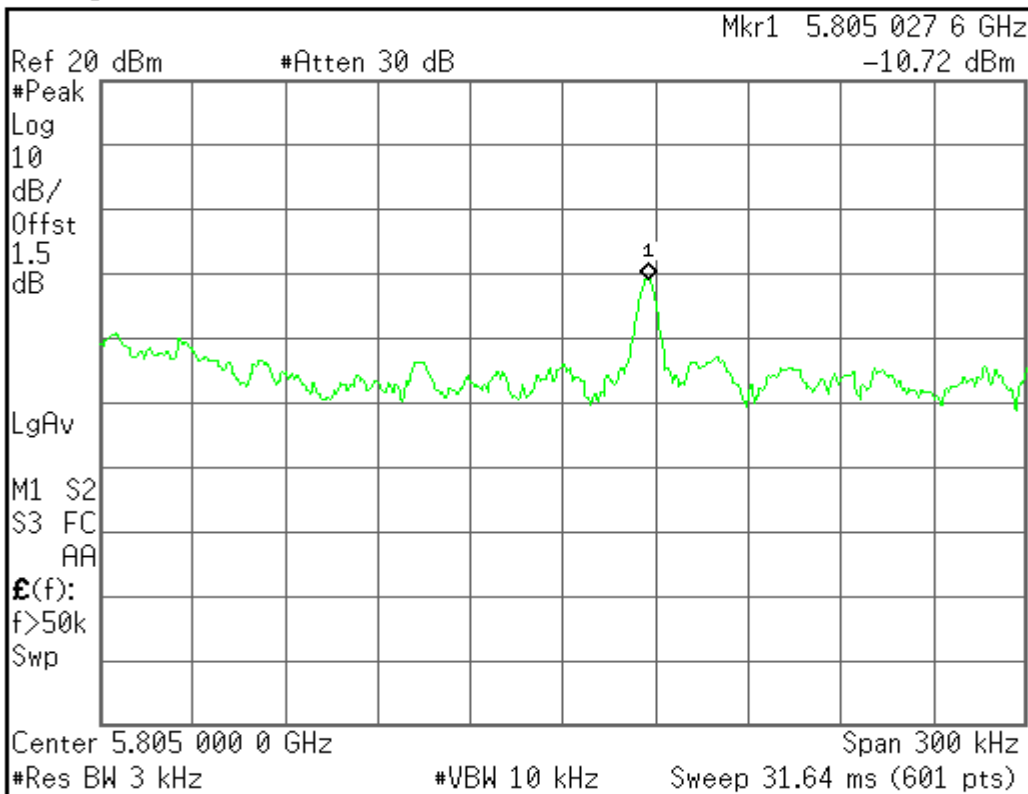
Mkr → CF

More 1 of 2

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PPSD (CH High)

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr → CF

More 1 of 2

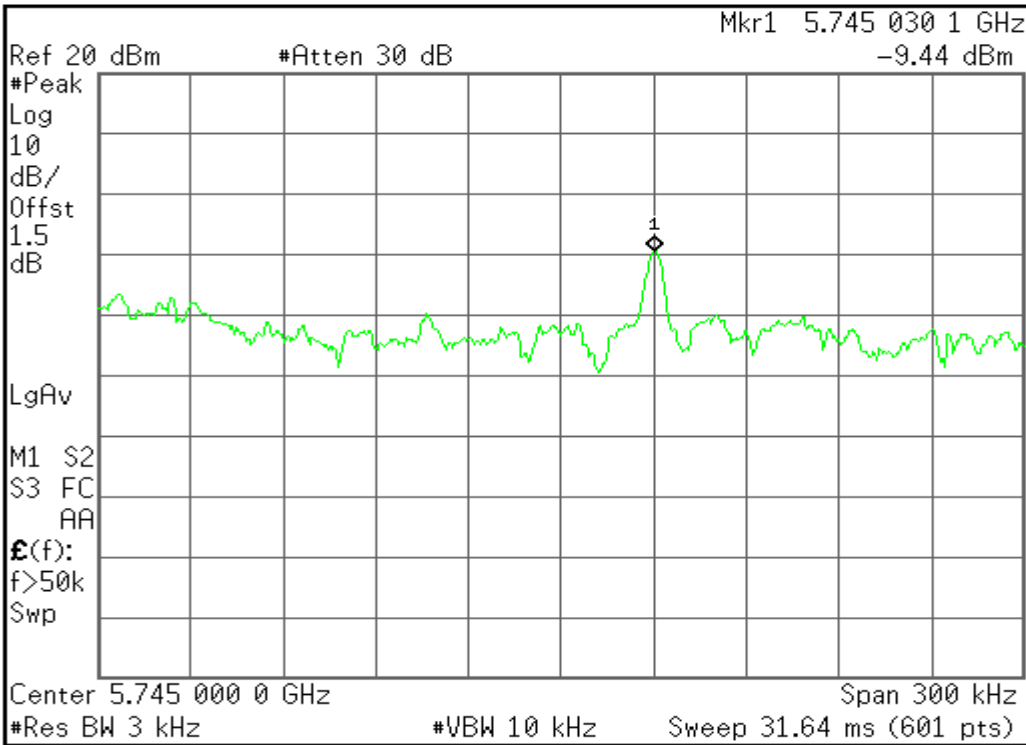
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draft 802.11n Standard-20 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent

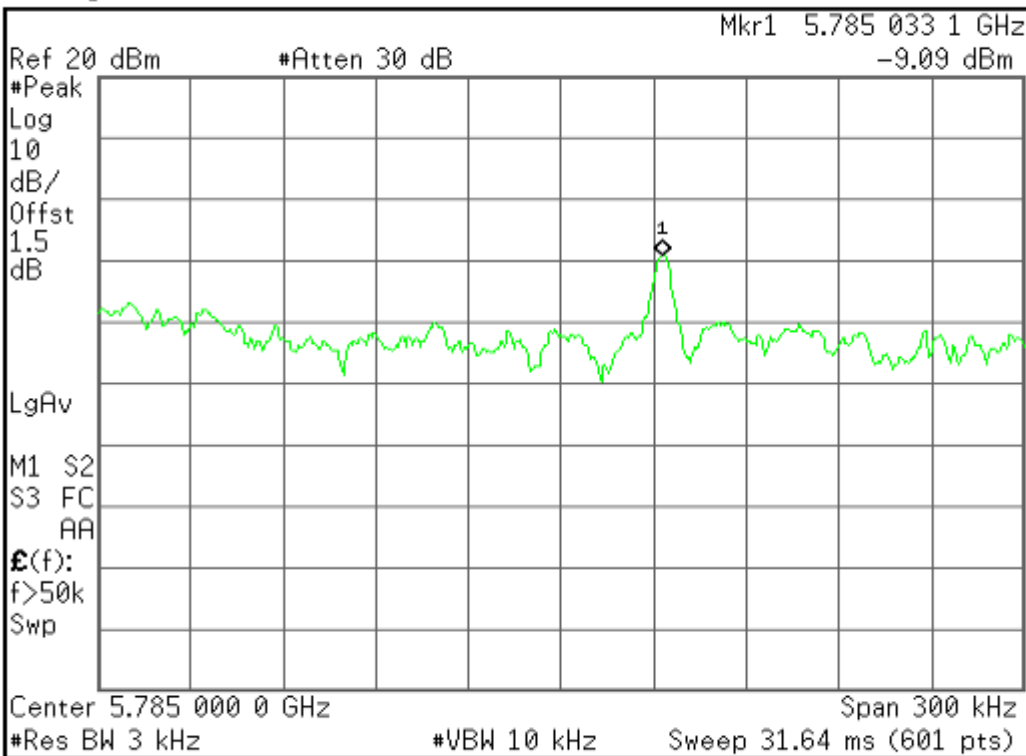


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH Mid)

Agilent



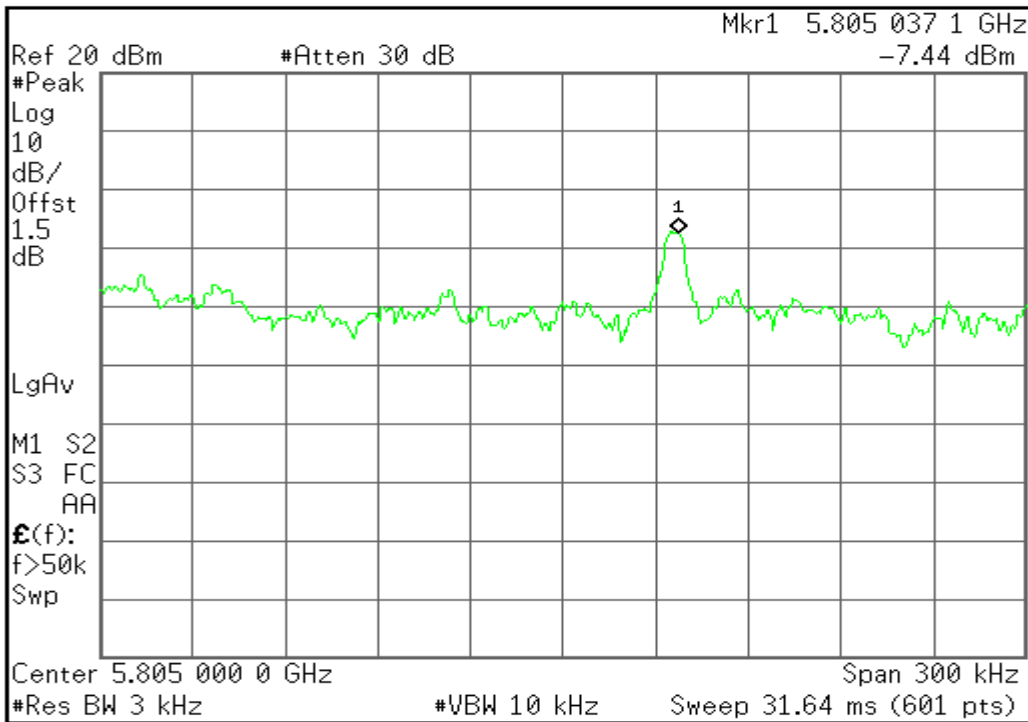
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH High)

Agilent



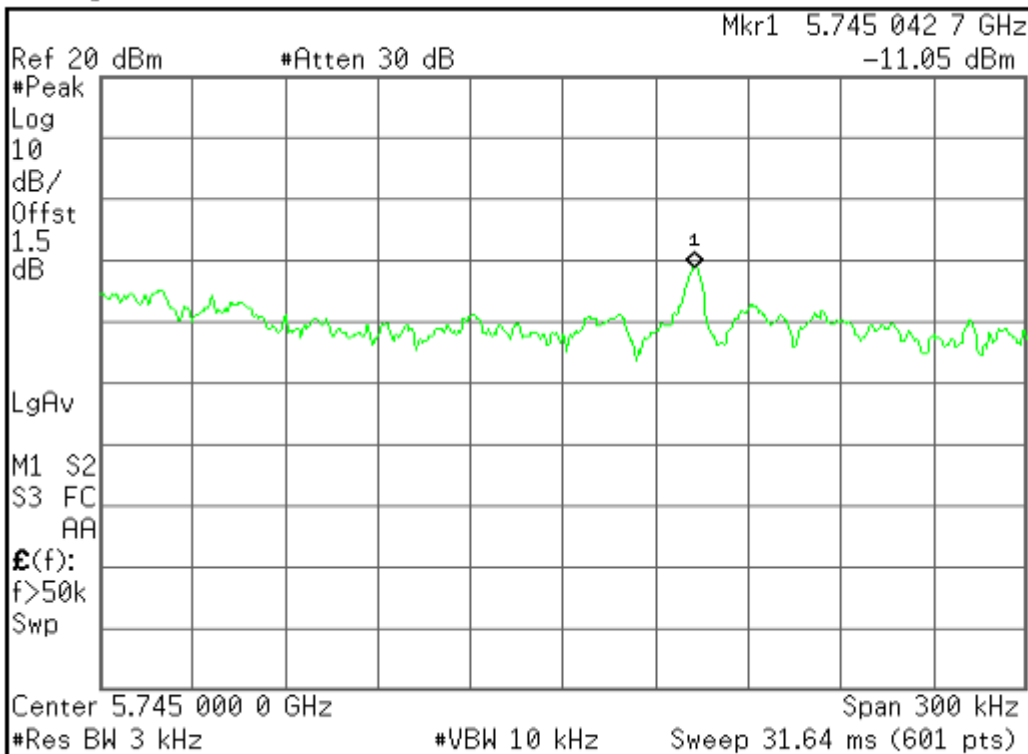
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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draft 802.11n Standard-20 MHz Channel mode / Chain 2

PPSD (CH Low)

Agilent



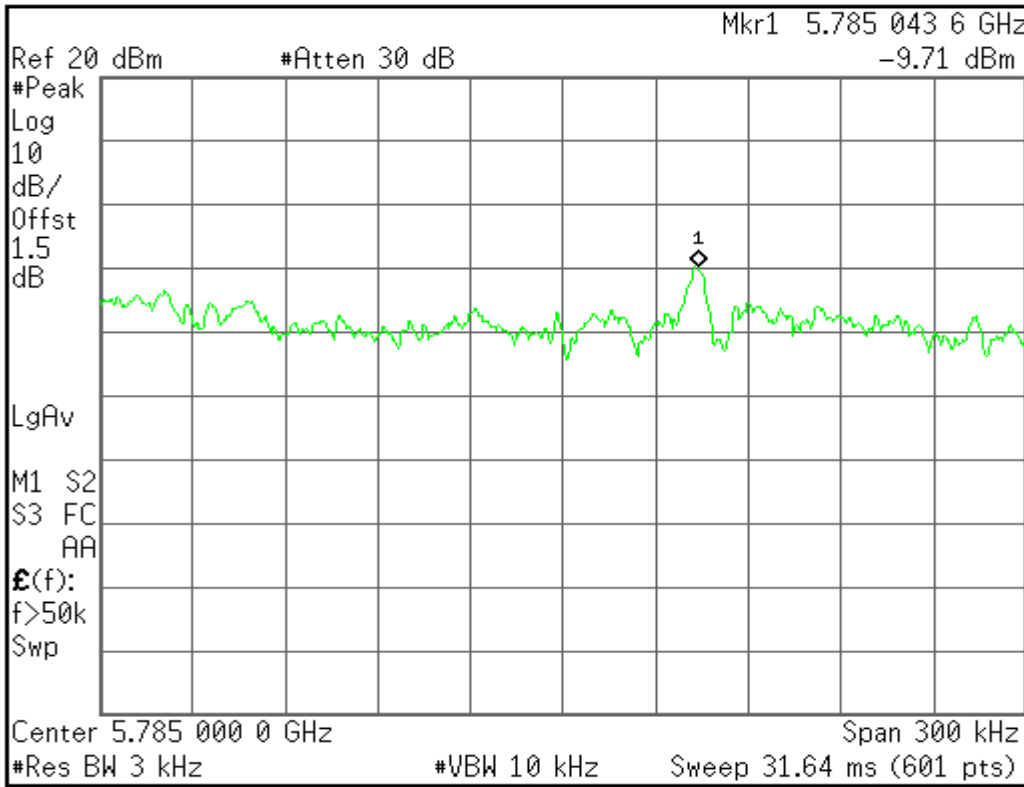
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH Mid)

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

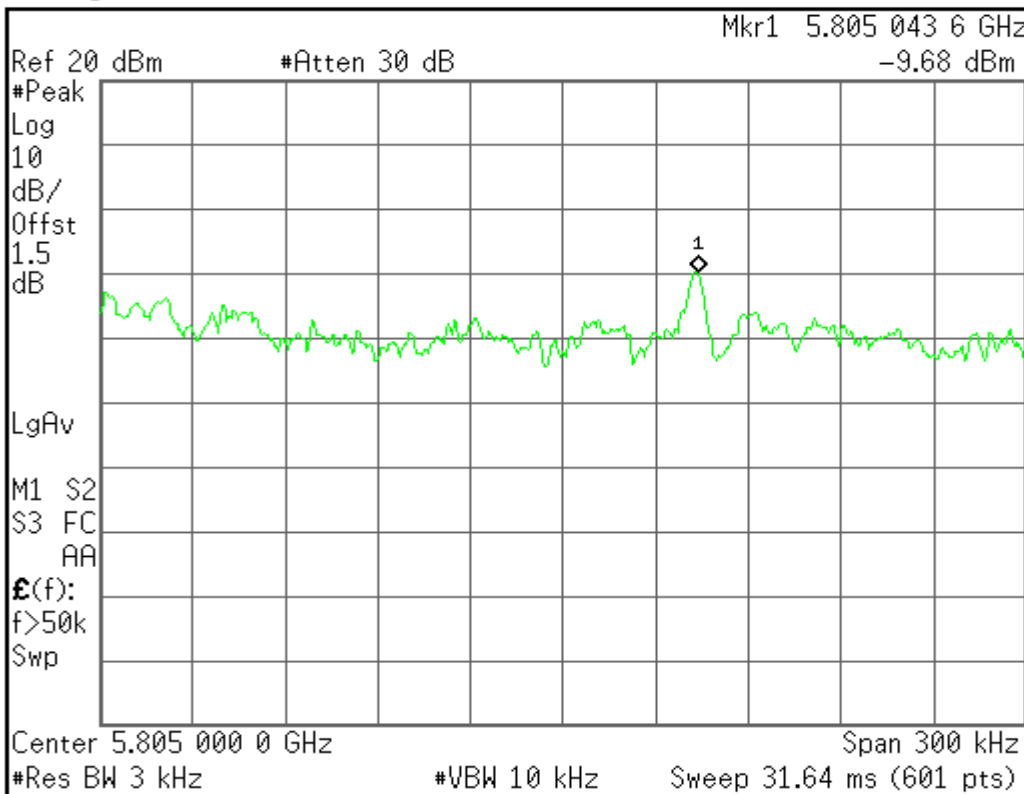
Mkr → CF

More 1 of 2

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PPSD (CH High)

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr → CF

More 1 of 2

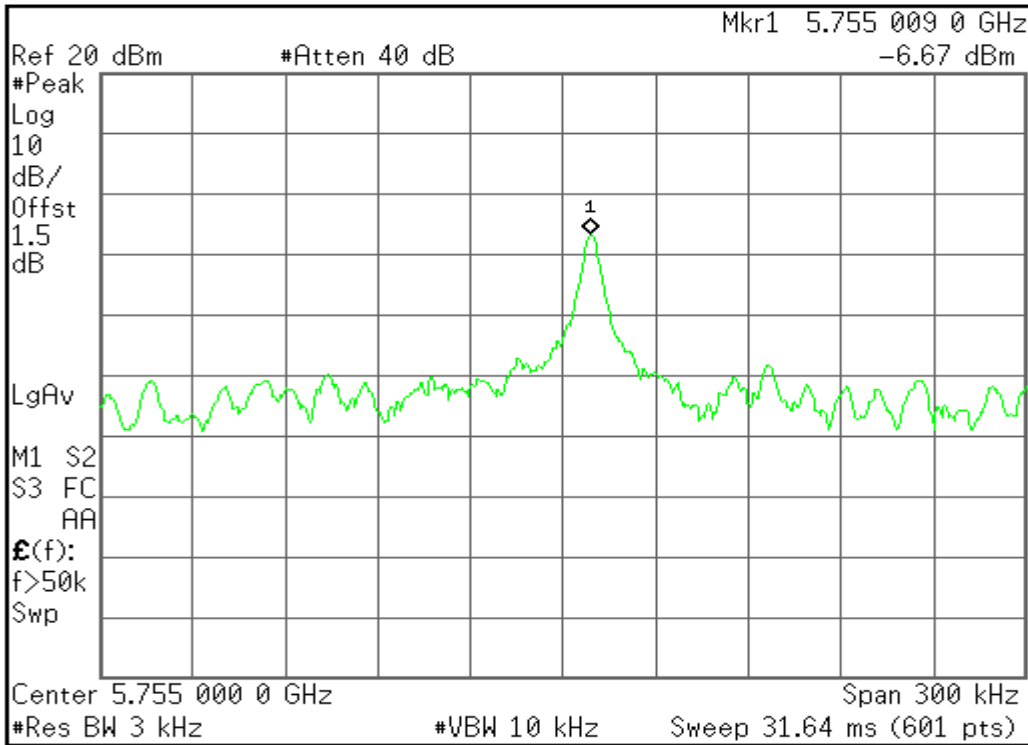
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draft 802.11n Standard-40 MHz Channel mode / Chain 0

PPSD (CH Low)

Agilent

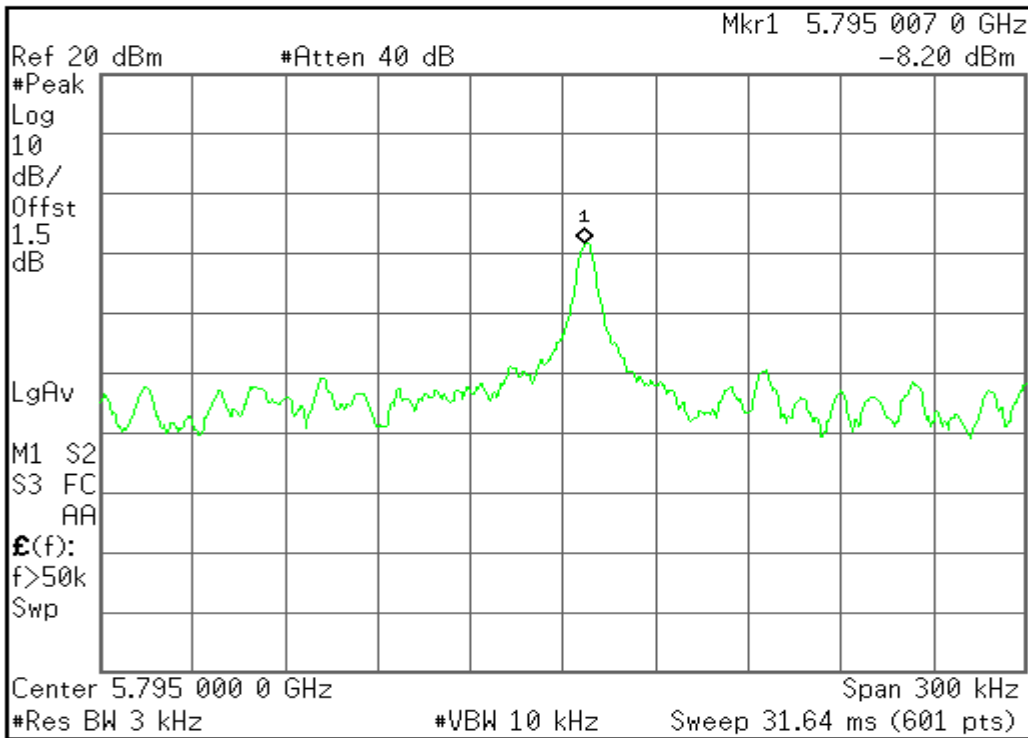


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH Mid)

Agilent



Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

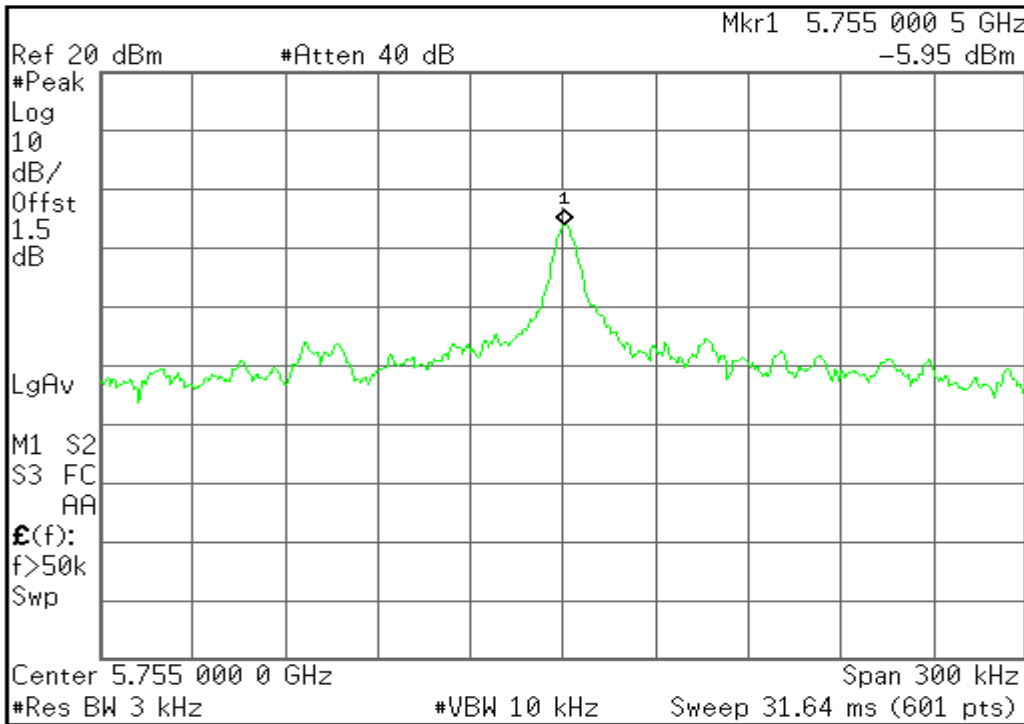
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draft 802.11n Standard-40 MHz Channel mode / Chain 1

PPSD (CH Low)

Agilent



Freq/Channel

Center Freq 5.75500000 GHz

Start Freq 5.75485000 GHz

Stop Freq 5.75515000 GHz

CF Step 30.0000000 kHz Auto Man

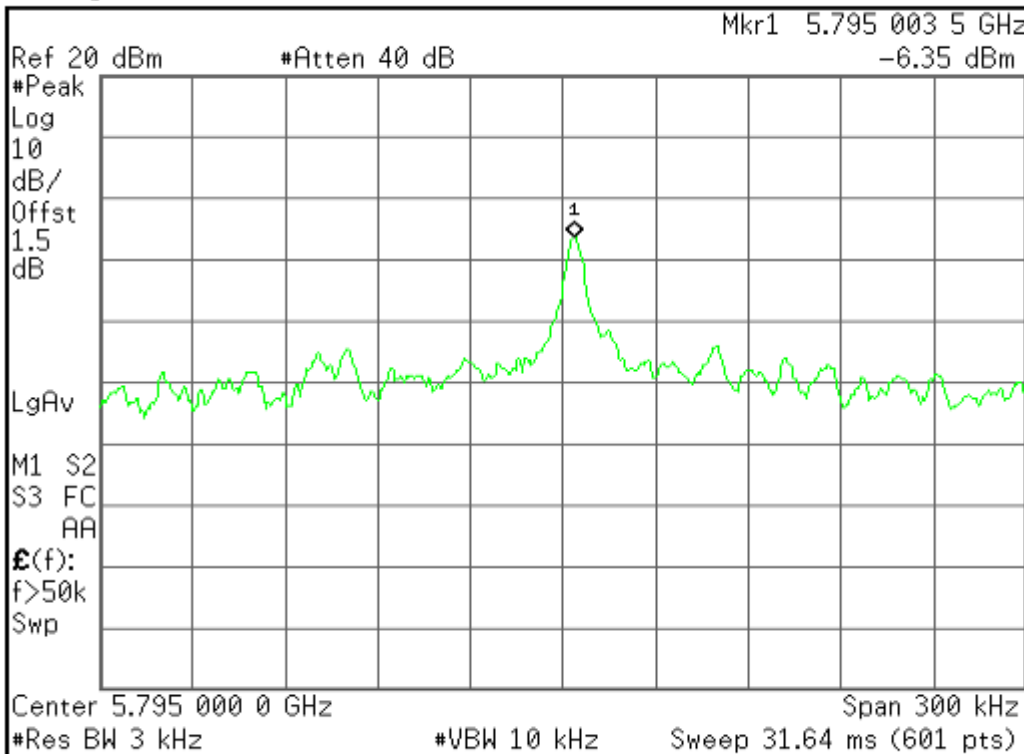
Freq Offset 0.00000000 Hz

Signal Track On Off

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PPSD (CH Mid)

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr → CF

More 1 of 2

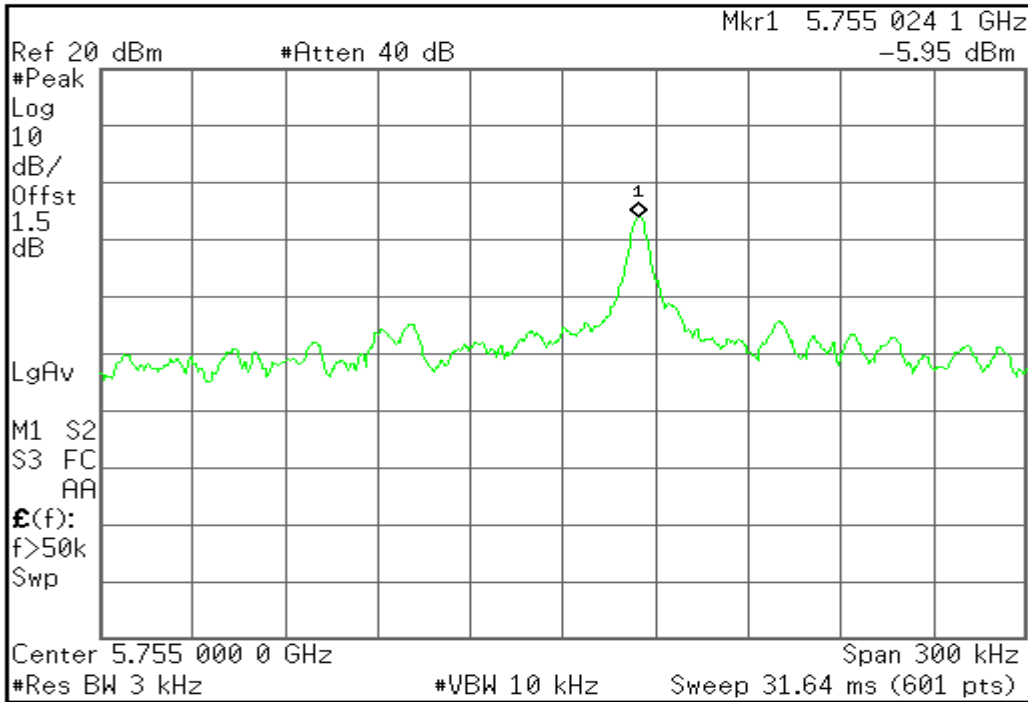
Copyright 2000-2007 Agilent Technologies



draft 802.11n Standard-40 MHz Channel mode / Chain 2

PPSD (CH Low)

Agilent

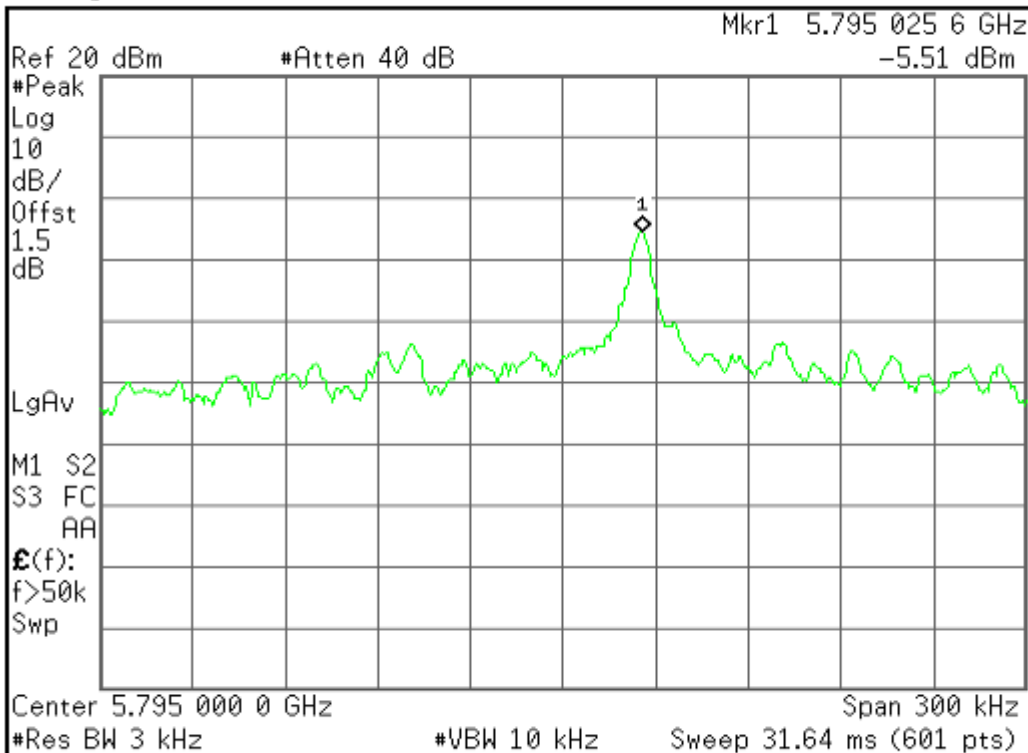


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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PPSD (CH Mid)

Agilent



Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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SPURIOUS EMISSIONS

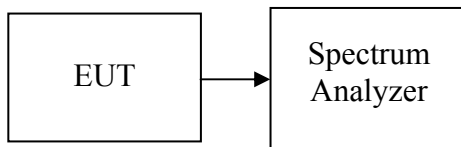
Conducted Measurement

LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Conducted power was measured based on the use of RMS averaging over a time interval, therefore the required attenuation is 30 dB.

Test Configuration



TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

TEST RESULTS

No non-compliance noted

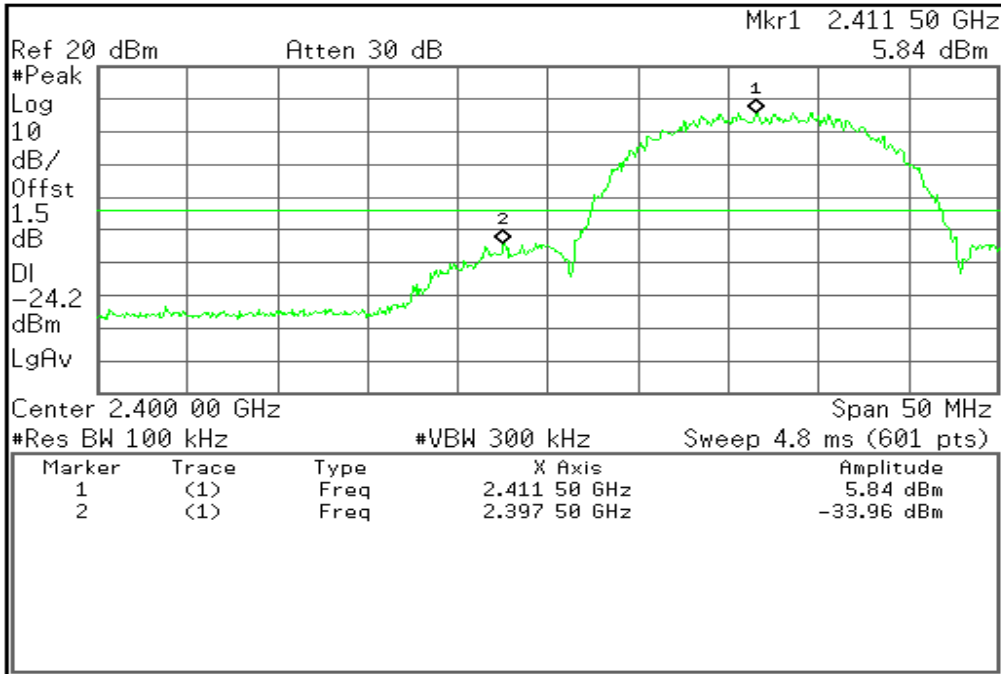


Test Plot

IEEE 802.11b mode

CH Low

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

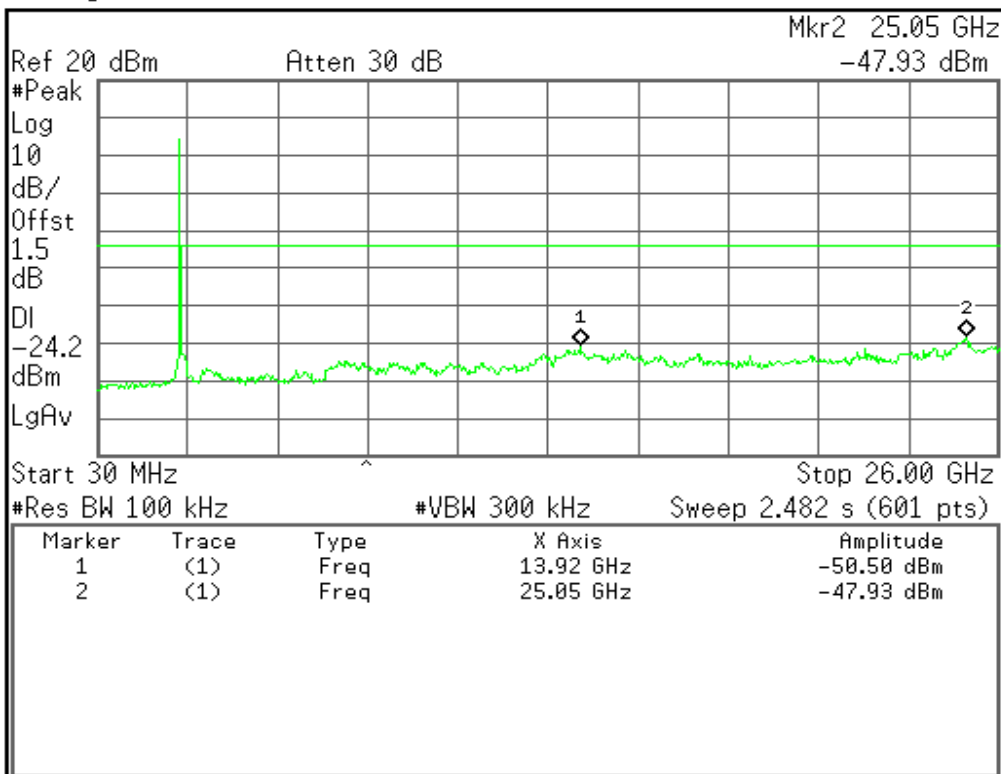
Pk-Pk Search

Mkr → CF

More
1 of 2

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Agilent



Freq/Channel

Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

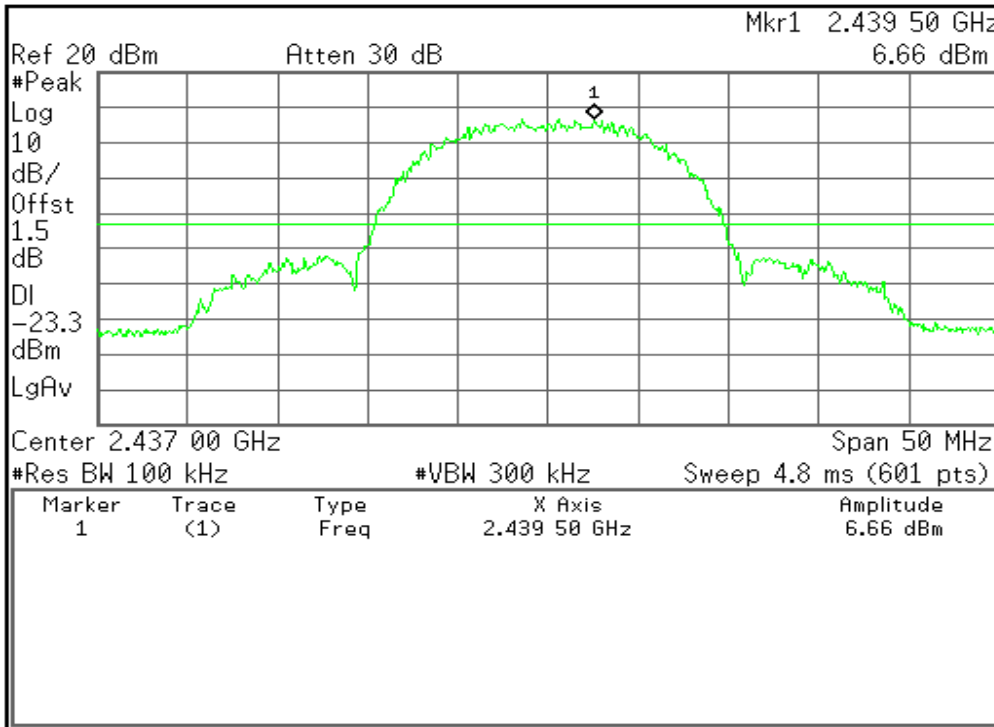
Signal Track
On Off

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CH Mid

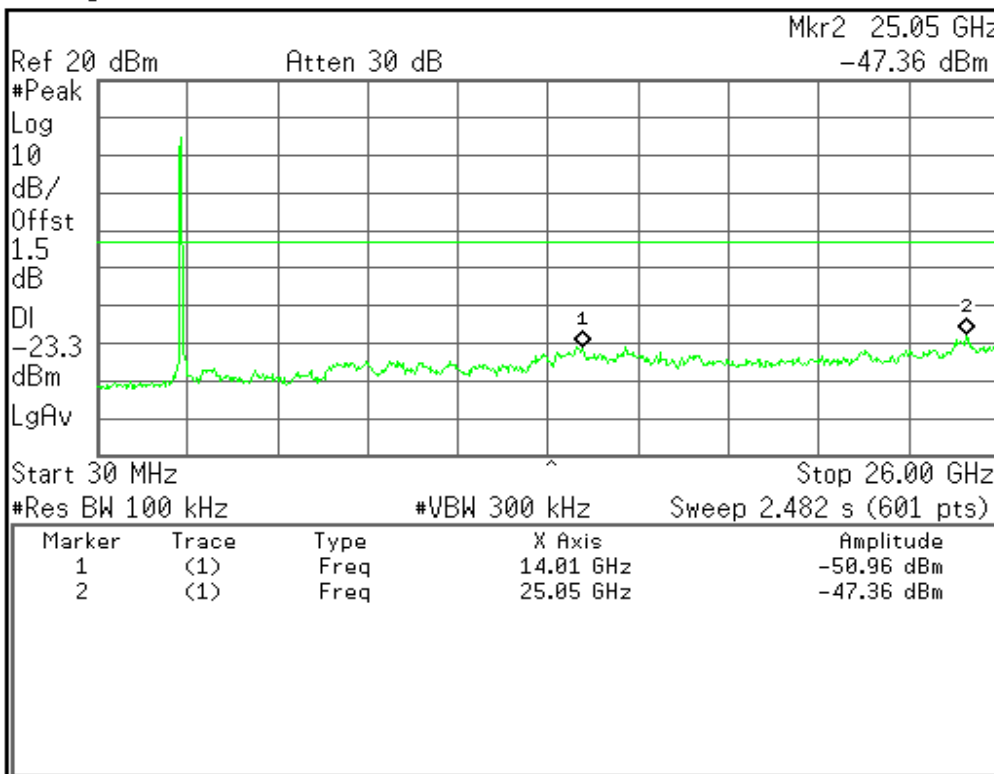
Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



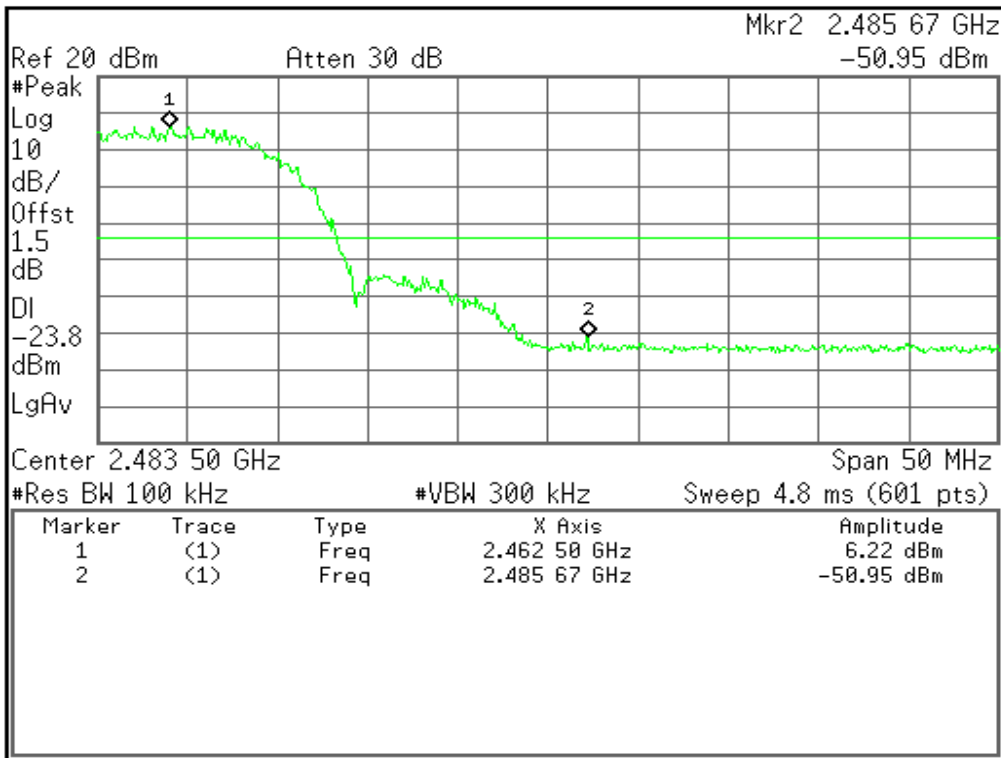
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH High

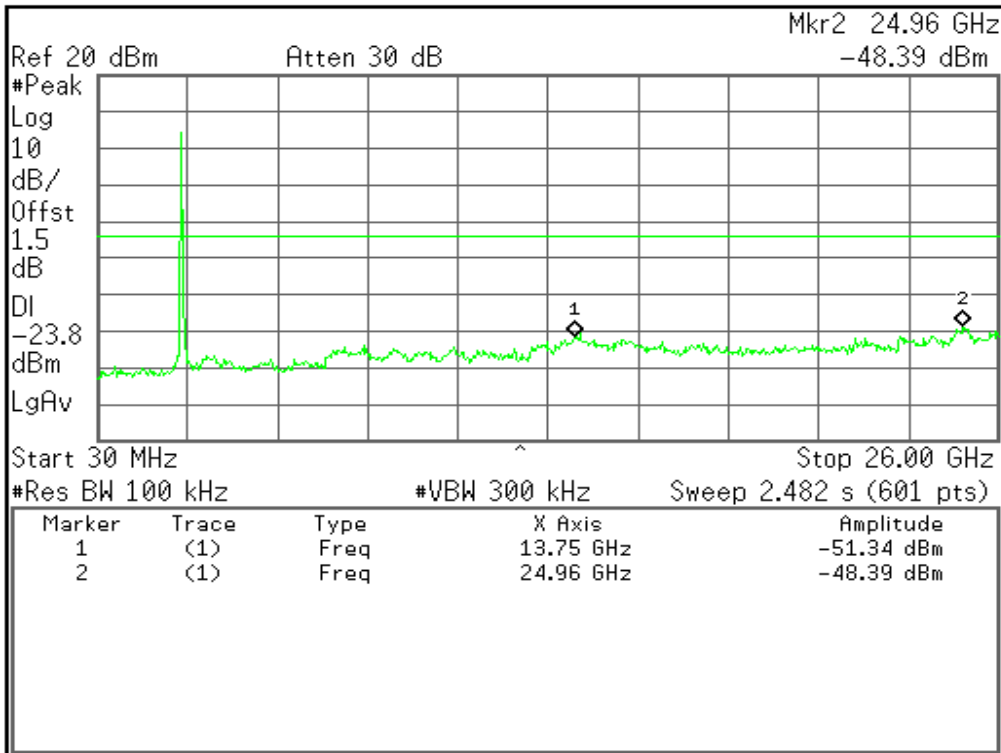
Agilent



Freq/Channel
Center Freq 2.48350000 GHz
Start Freq 2.45850000 GHz
Stop Freq 2.50850000 GHz
CF Step Auto Man 5.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

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Agilent



Freq/Channel
Center Freq 13.01500000 GHz
Start Freq 30.00000000 MHz
Stop Freq 26.00000000 GHz
CF Step Auto Man 2.59700000 GHz
Freq Offset 0.00000000 Hz
Signal Track On Off

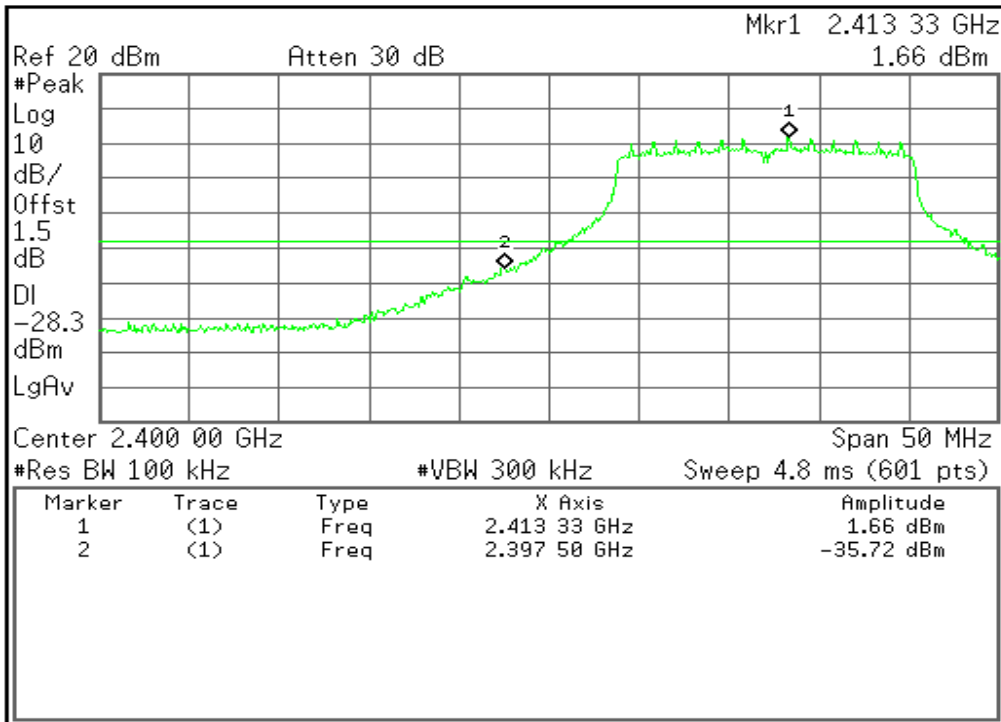
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IEEE 802.11g mode

CH Low

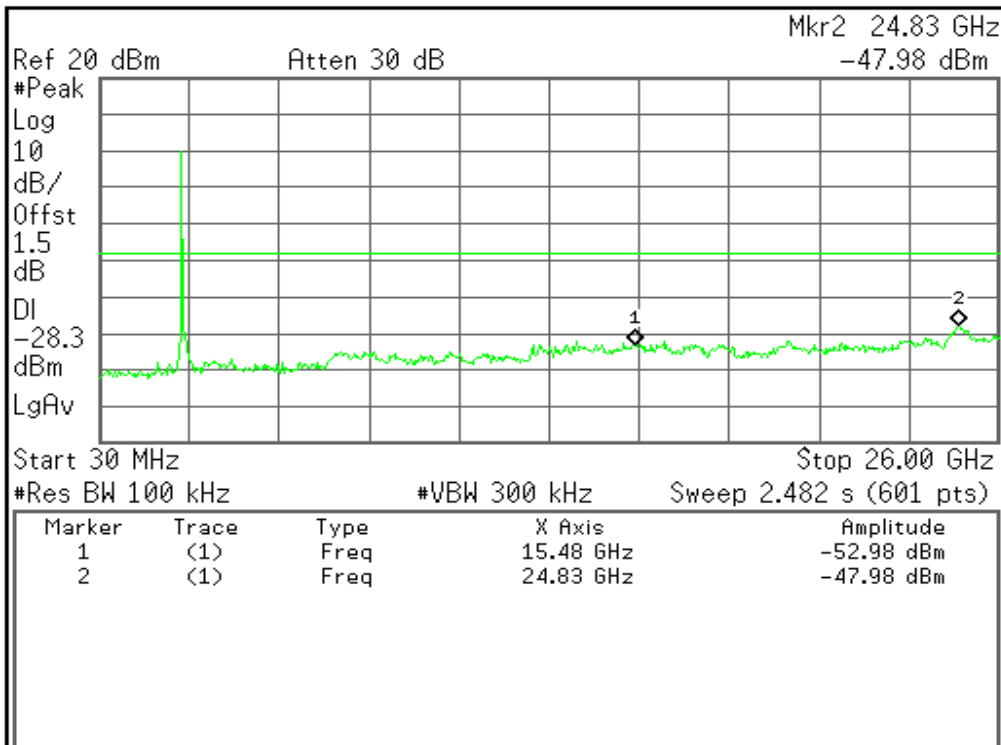
Agilent



Freq/Channel	
Center Freq	2.40000000 GHz
Start Freq	2.37500000 GHz
Stop Freq	2.42500000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



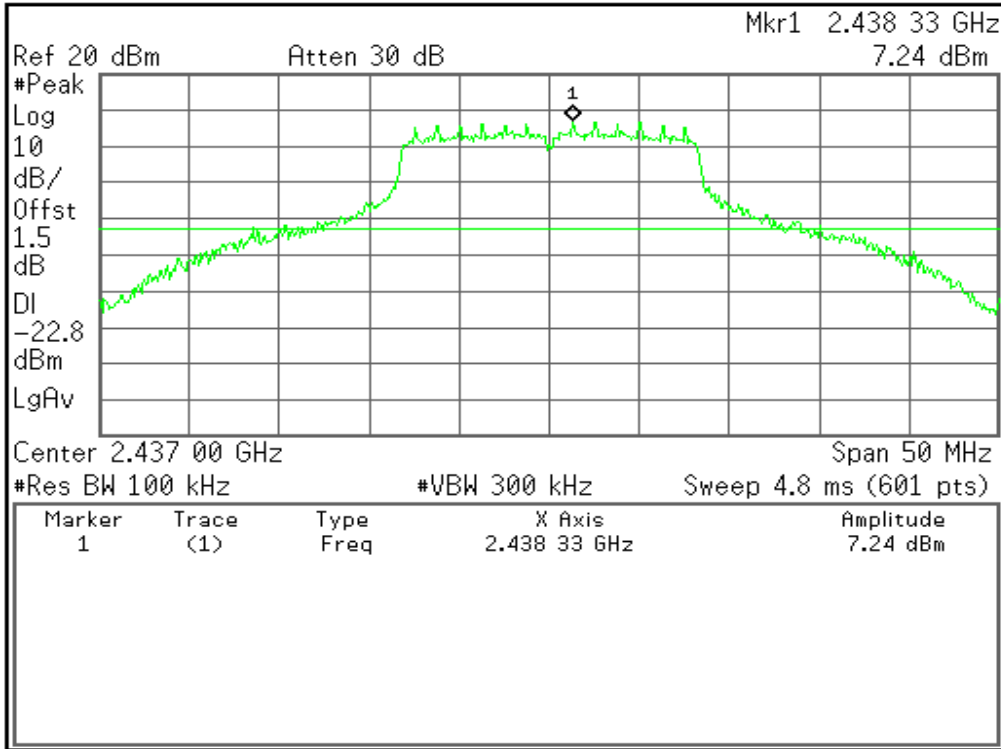
Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

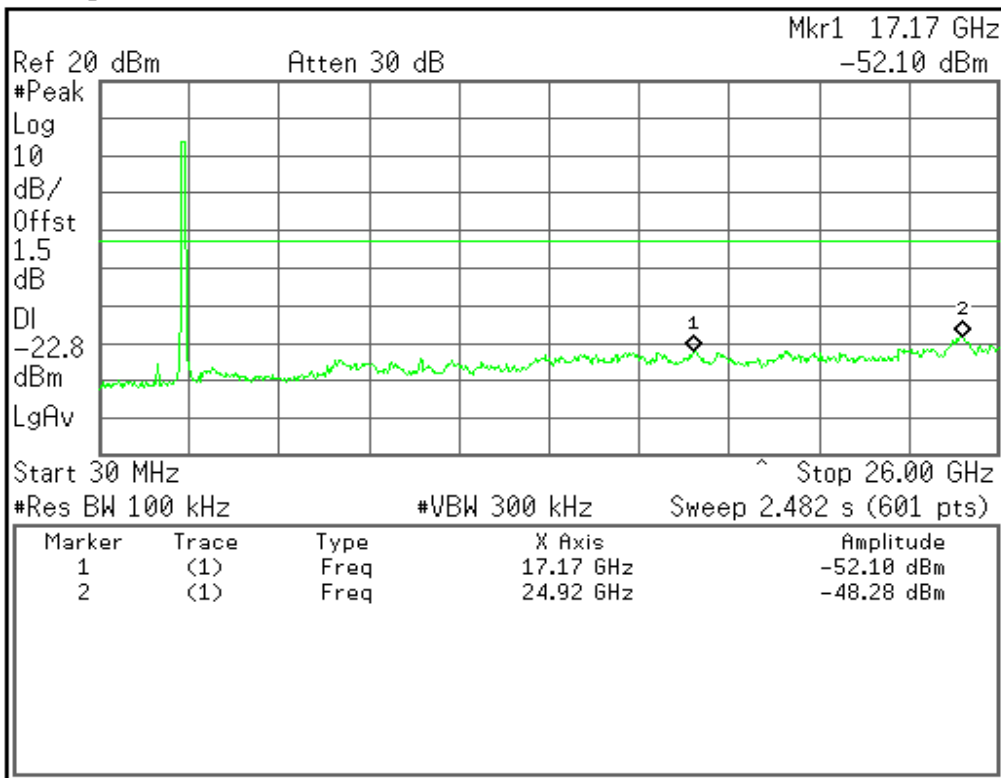
PK-Pk Search

Mkr → CF

More
1 of 2

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Agilent



Freq/Channel

Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

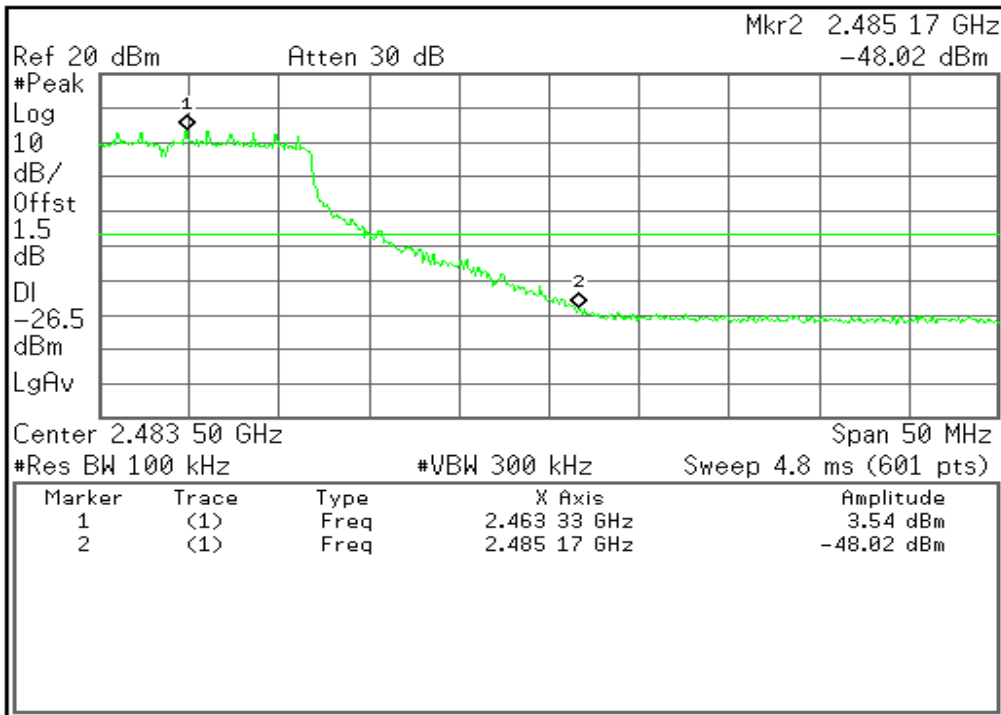
Signal Track
On Off

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CH High

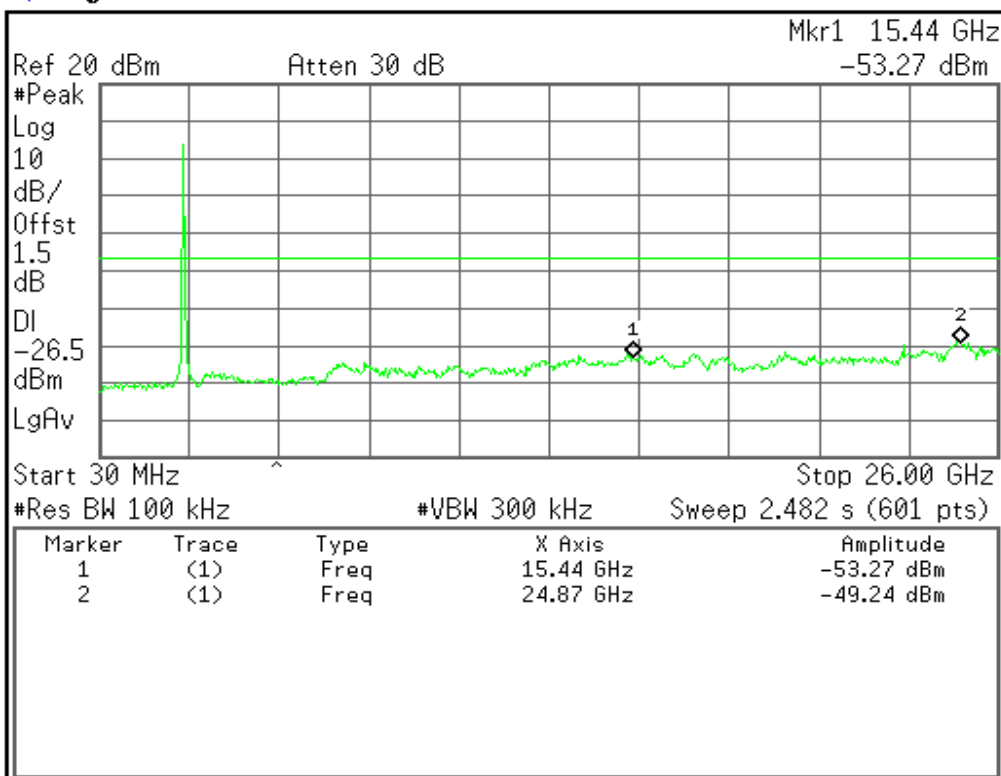
Agilent



Freq/Channel	
Center Freq	2.48350000 GHz
Start Freq	2.45850000 GHz
Stop Freq	2.50850000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

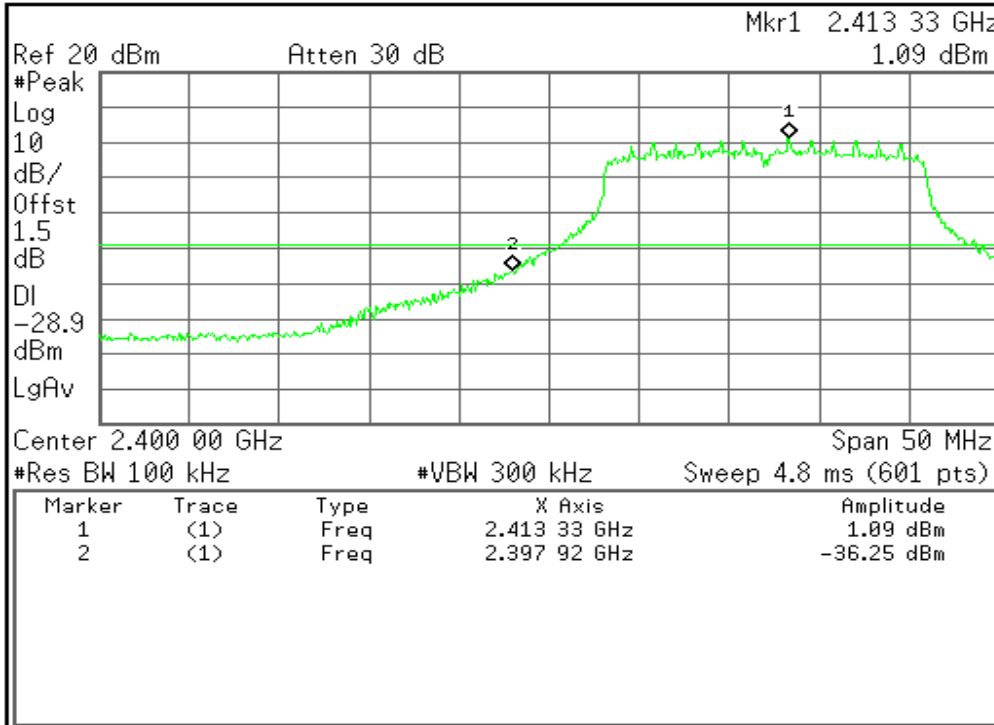
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draft 802.11n Standard-20 MHz Channel mode / Chain 0

CH Low

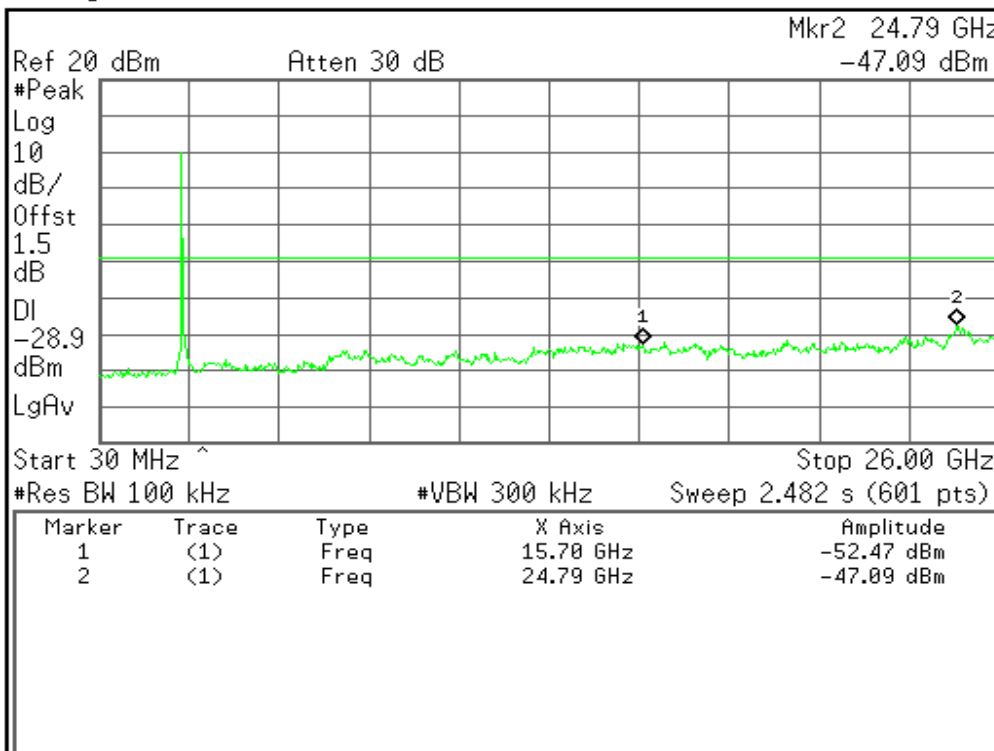
Agilent



Freq/Channel
Center Freq 2.40000000 GHz
Start Freq 2.37500000 GHz
Stop Freq 2.42500000 GHz
CF Step Auto Man 5.00000000 MHz
Freq Offset 0.00000000 Hz
Signal Track On Off

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Agilent



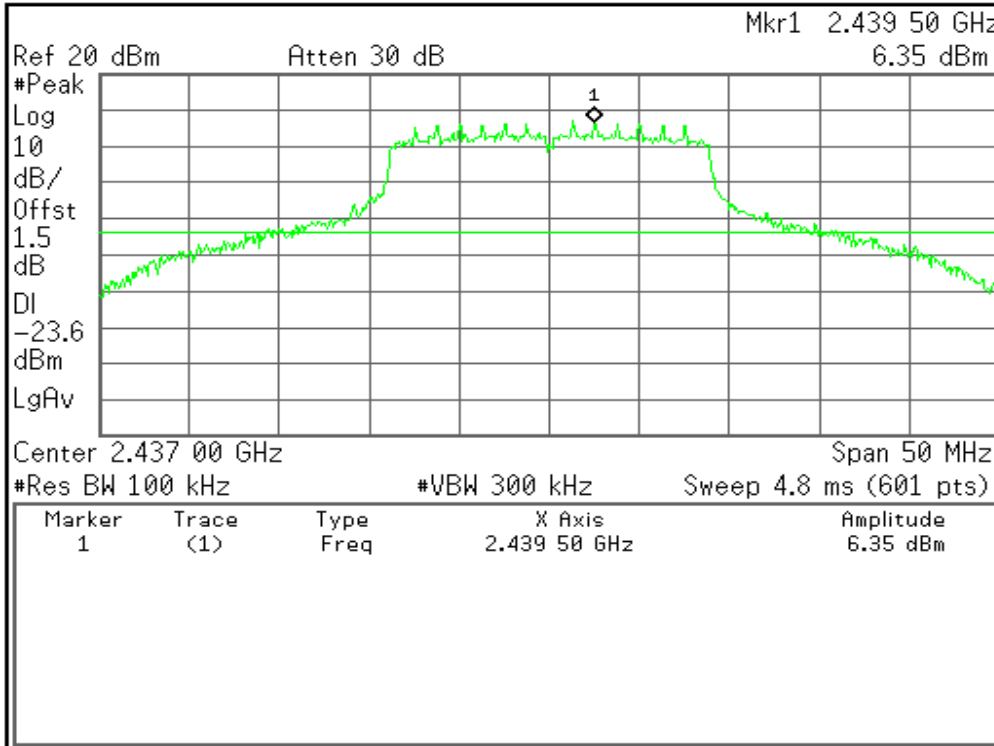
Freq/Channel
Center Freq 13.0150000 GHz
Start Freq 30.0000000 MHz
Stop Freq 26.0000000 GHz
CF Step Auto Man 2.59700000 GHz
Freq Offset 0.00000000 Hz
Signal Track On Off

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CH Mid

Agilent



Display

Full Screen

Display Line
-23.60 dBm
On Off

Limits

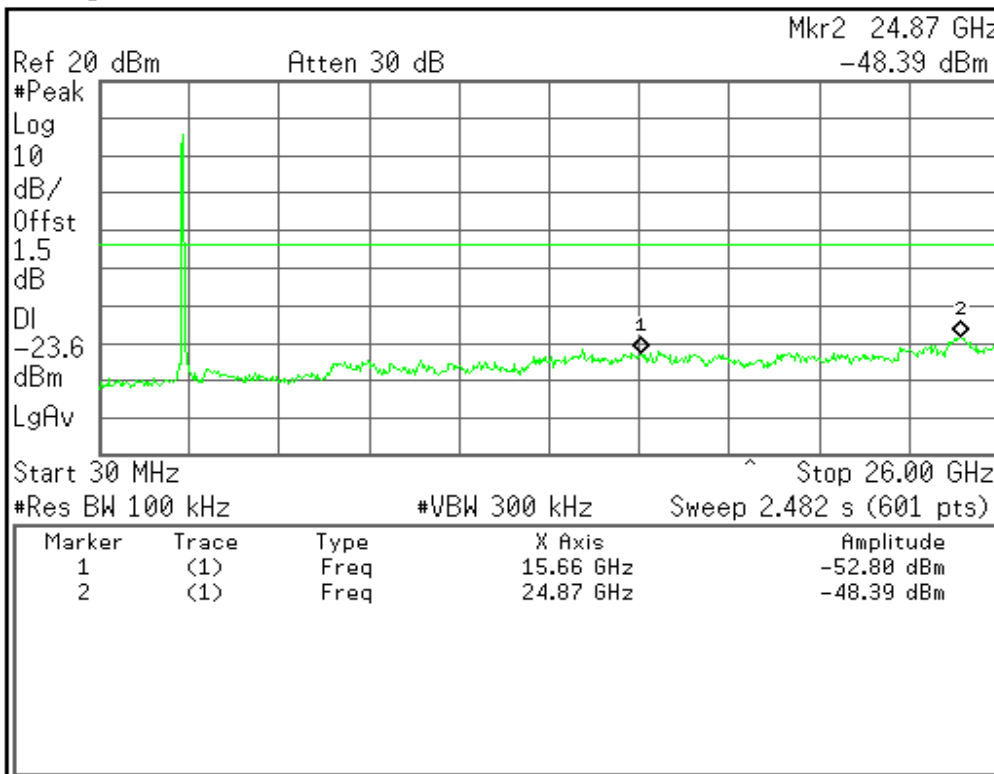
Active Fctn Position
Center

Title

Preferences

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Agilent



Freq/Channel

Center Freq
13.0150000 GHz

Start Freq
30.0000000 MHz

Stop Freq
26.0000000 GHz

CF Step
2.59700000 GHz
Auto Man

Freq Offset
0.00000000 Hz

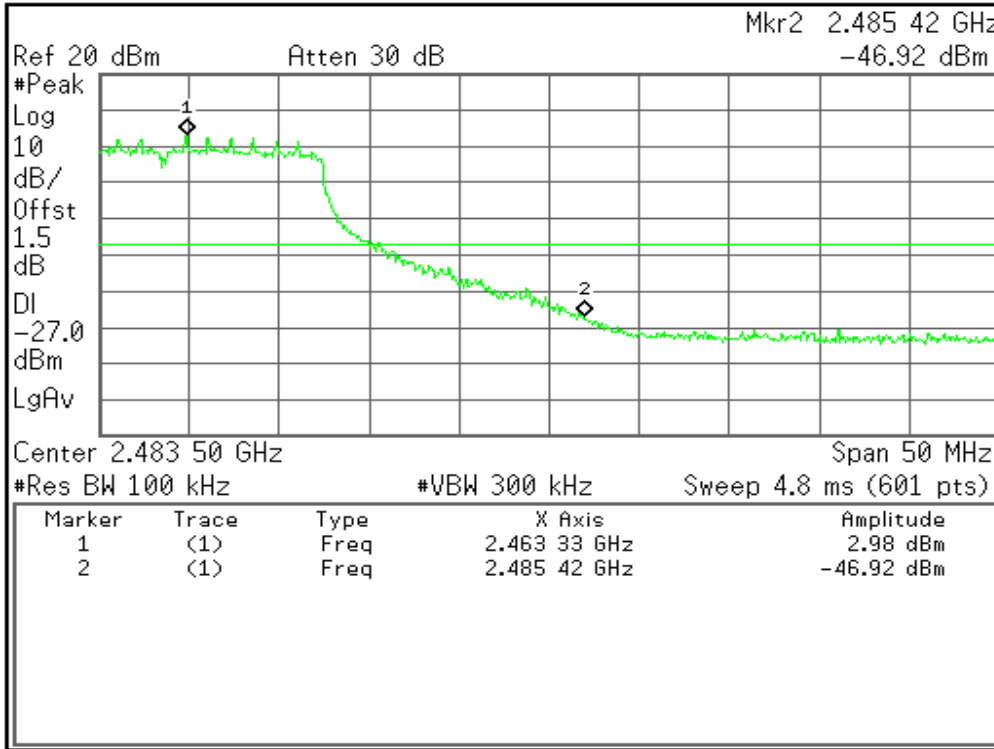
Signal Track
On Off

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CH High

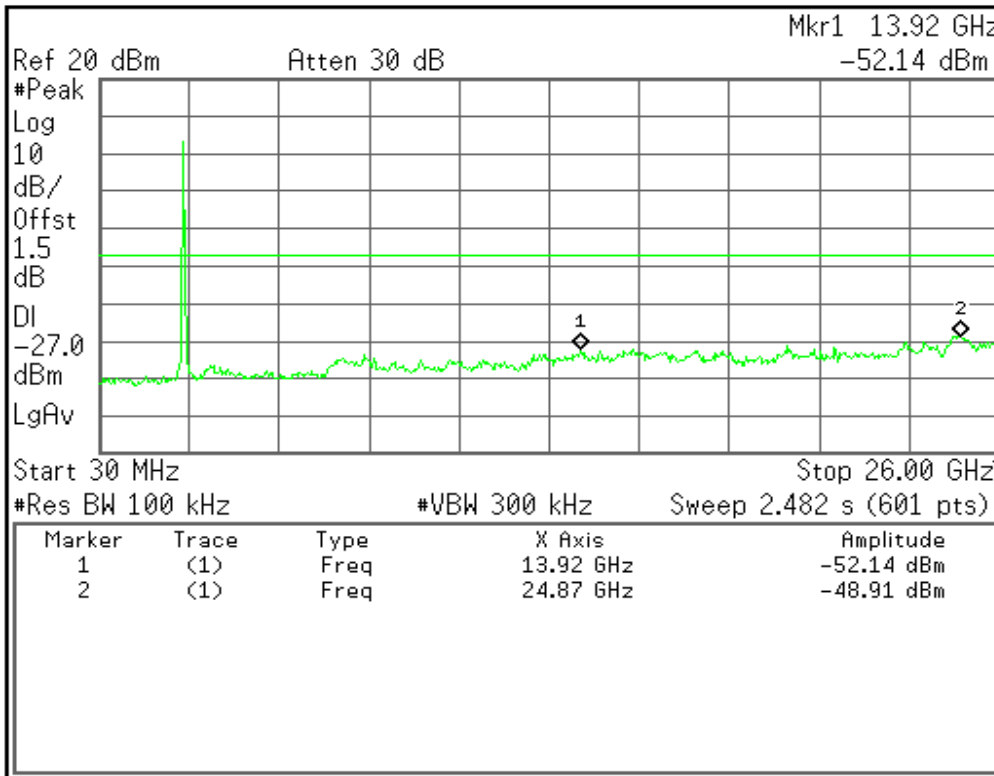
Agilent



Freq/Channel	
Center Freq	2.48350000 GHz
Start Freq	2.45850000 GHz
Stop Freq	2.50850000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

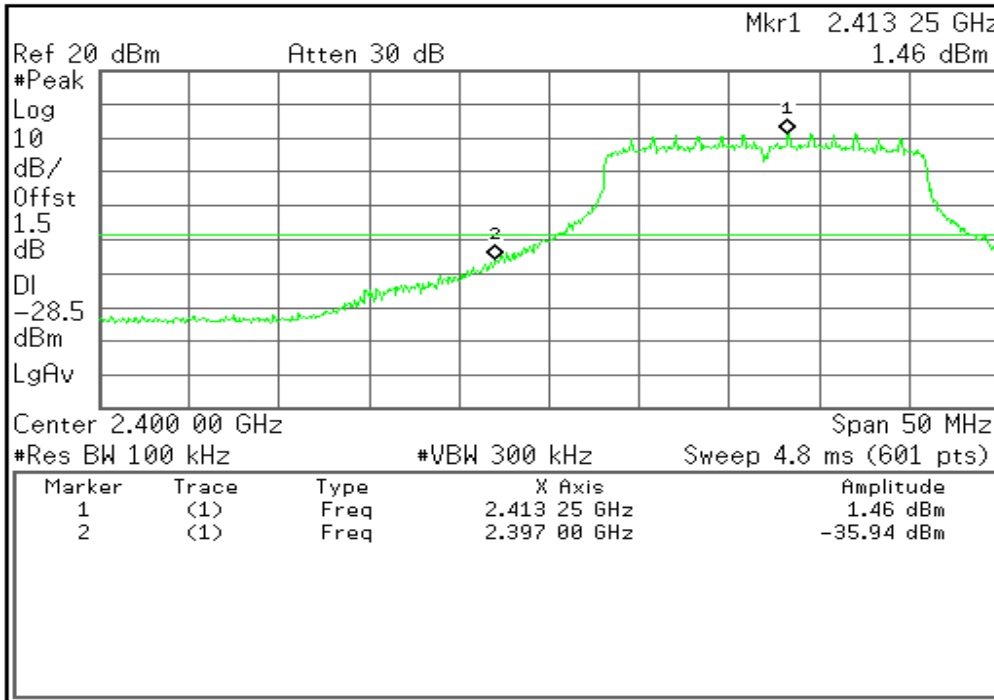
File Operation Status, A:\SCREN099.GIF file saved



draft 802.11n Standard-20 MHz Channel mode / Chain 1

CH Low

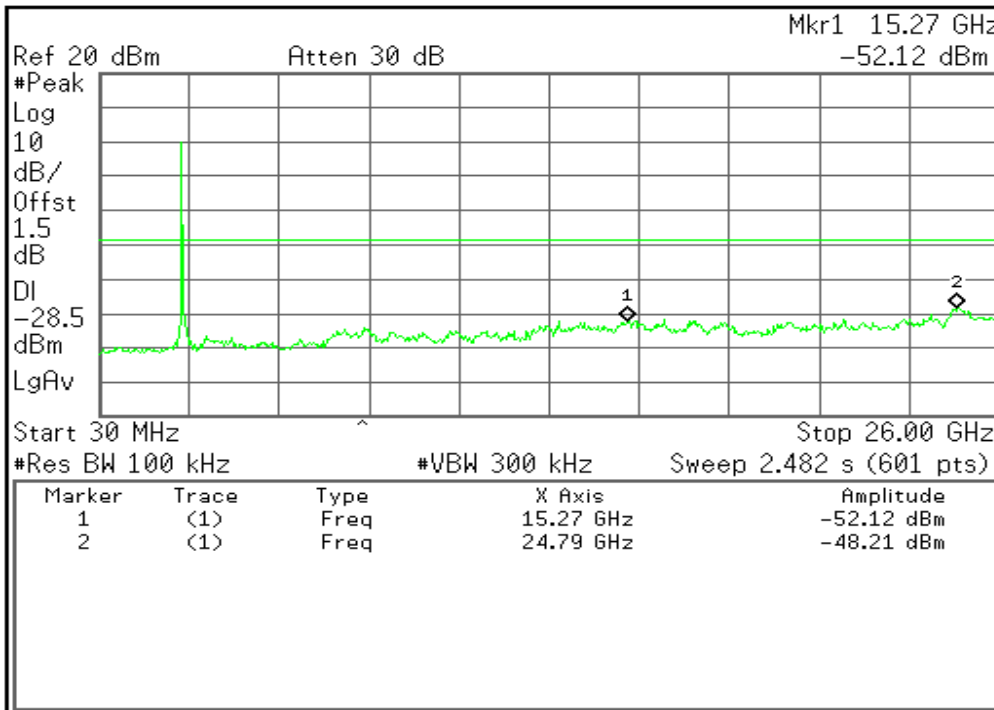
Agilent



Freq/Channel	
Center Freq	2.40000000 GHz
Start Freq	2.37500000 GHz
Stop Freq	2.42500000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



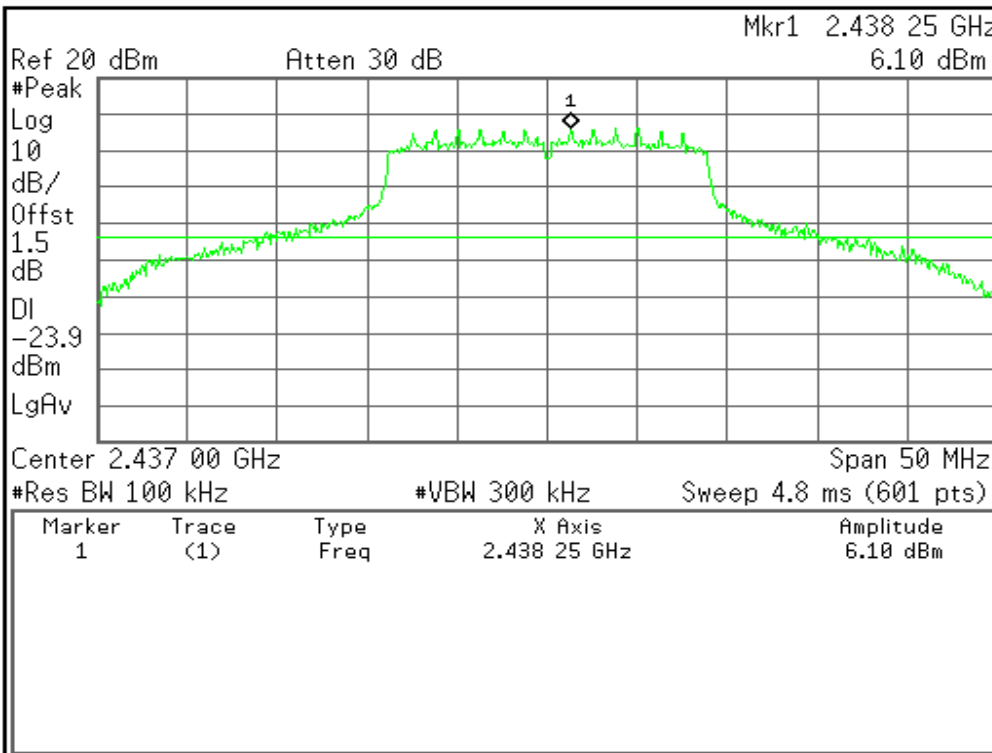
Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

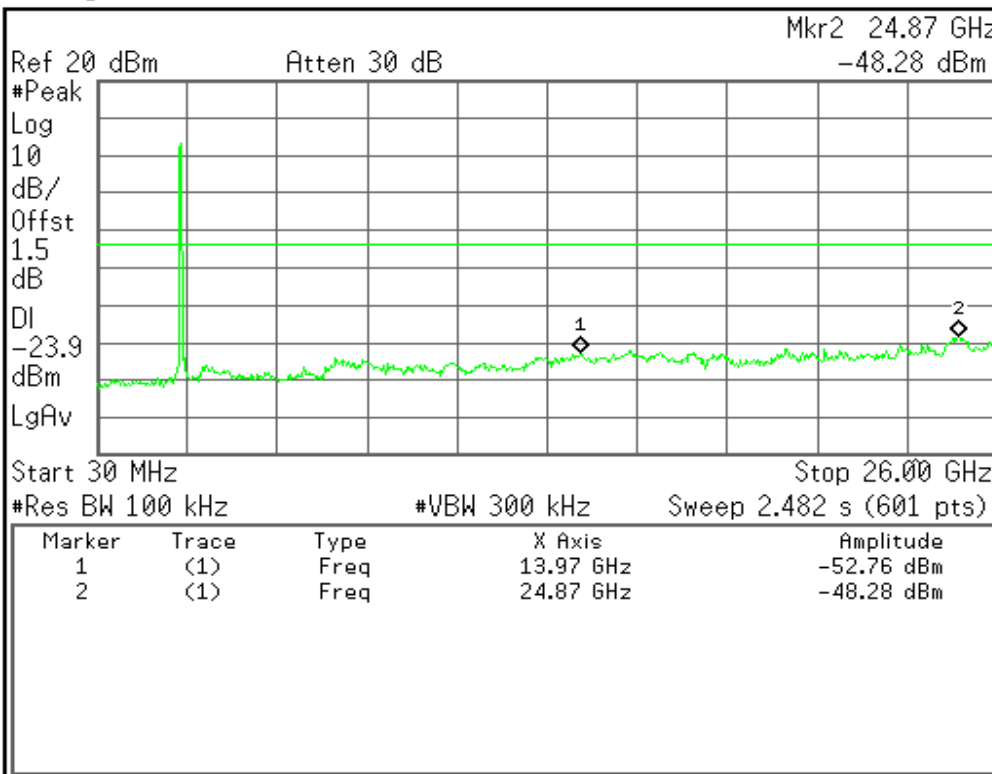
Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



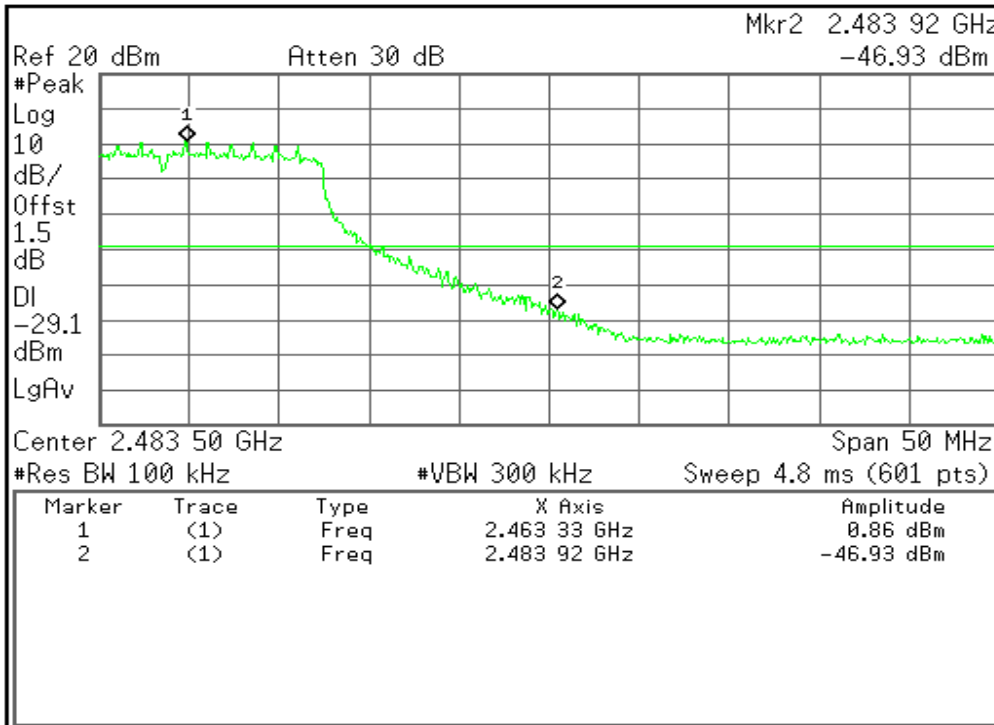
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH High

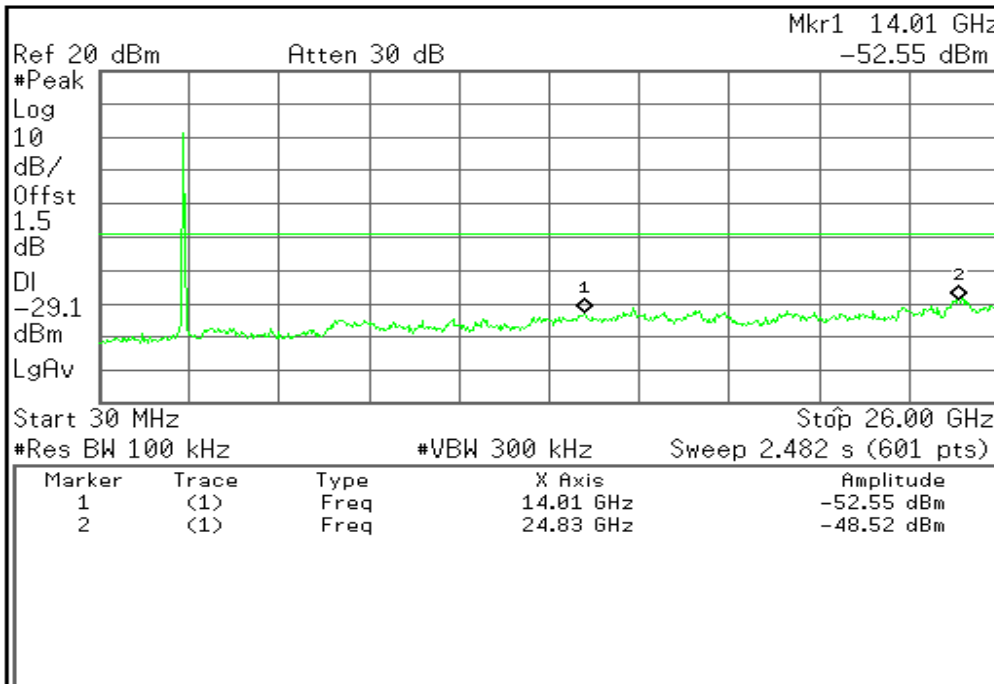
Agilent



Freq/Channel	
Center Freq	2.48350000 GHz
Start Freq	2.45850000 GHz
Stop Freq	2.50850000 GHz
CF Step	5.00000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	Off

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Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	Off

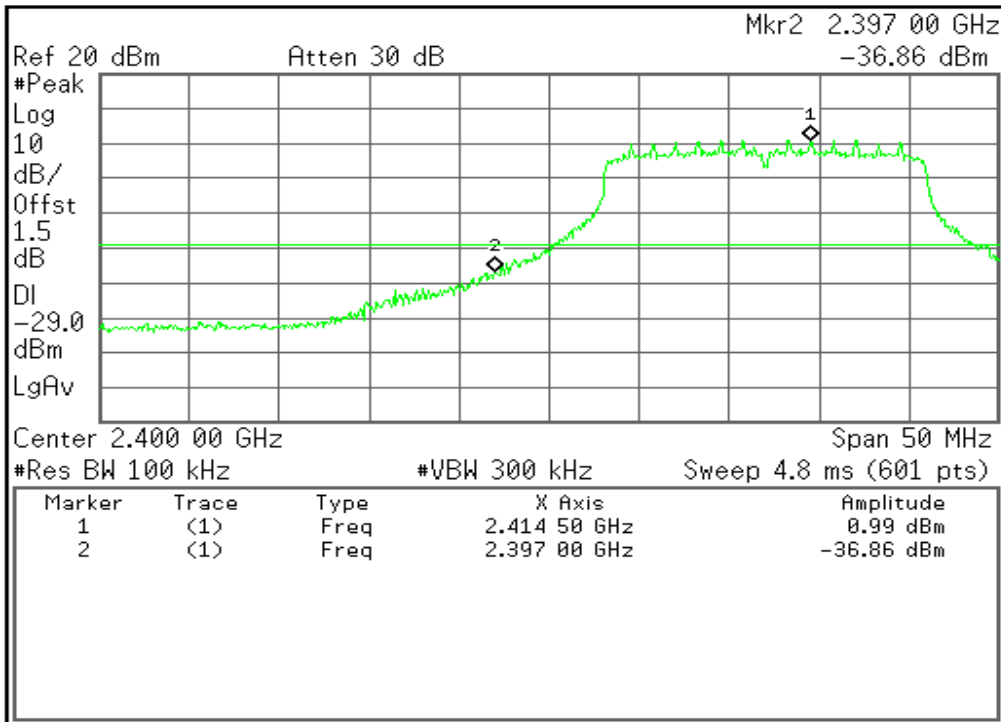
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draft 802.11n Standard-20 MHz Channel mode / Chain 2

CH Low

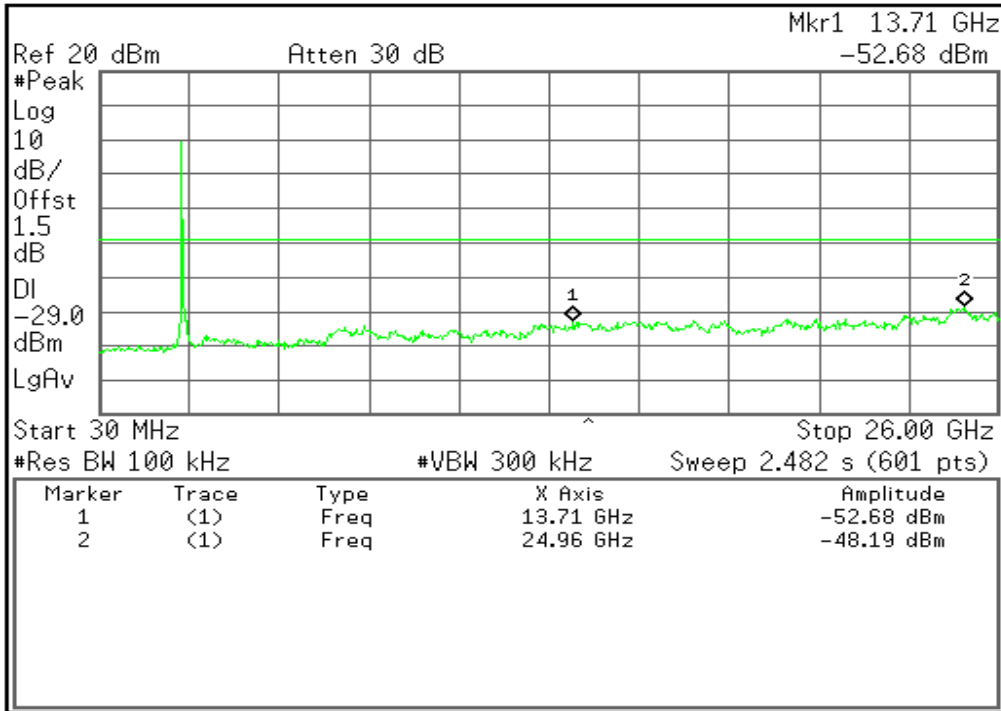
Agilent



Freq/Channel	
Center Freq	2.40000000 GHz
Start Freq	2.37500000 GHz
Stop Freq	2.42500000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



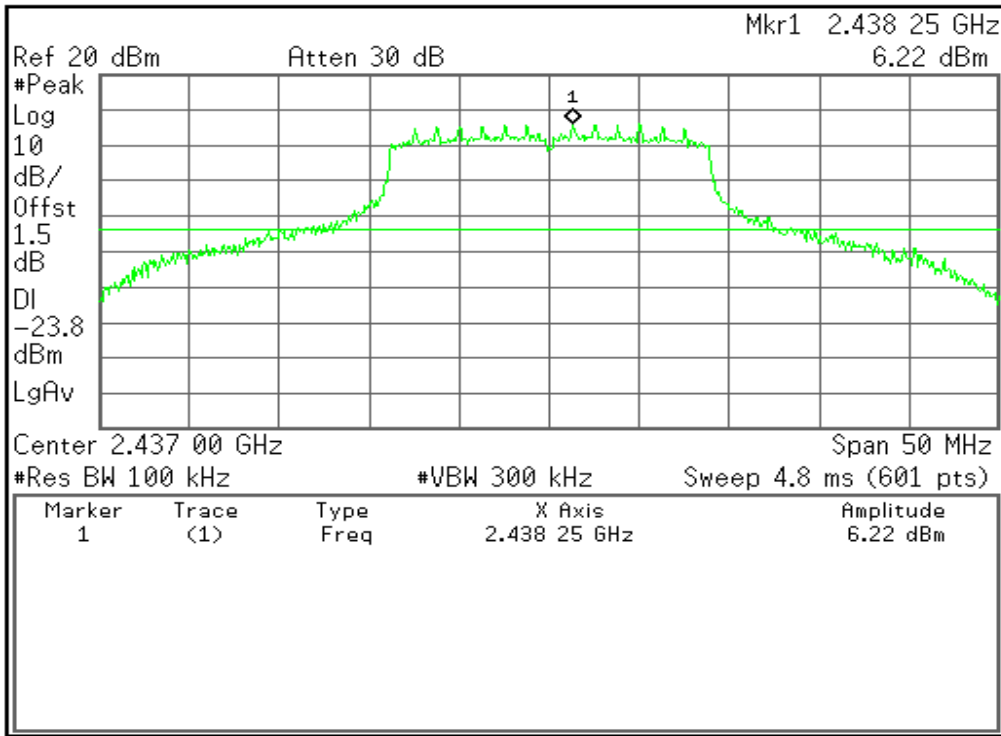
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

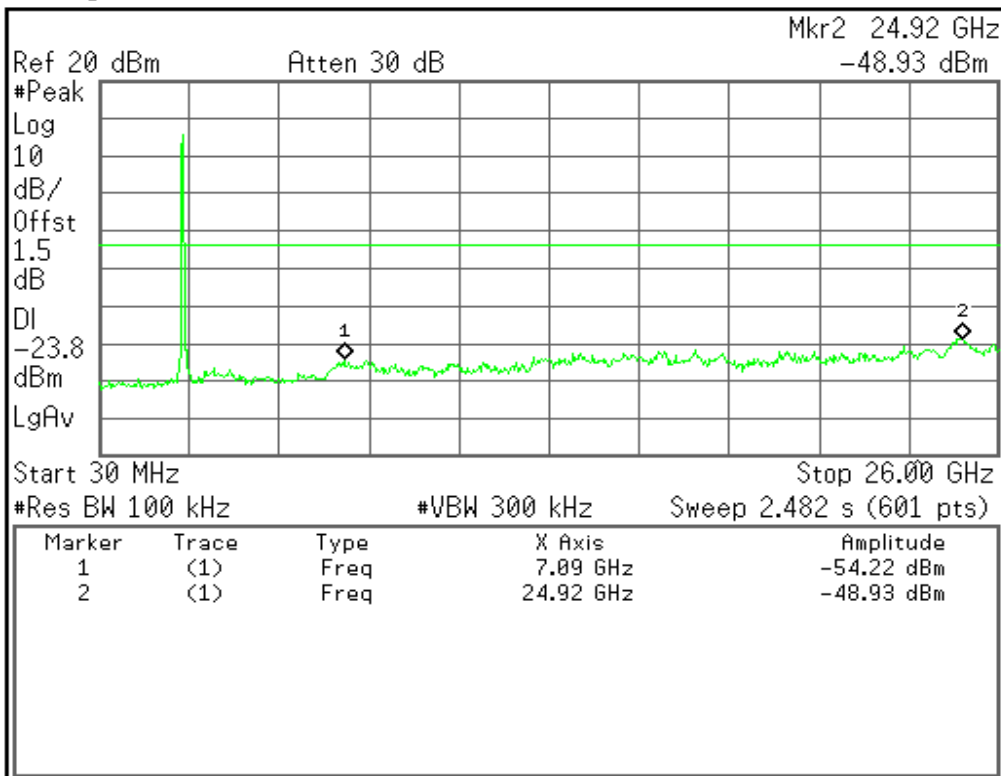
Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



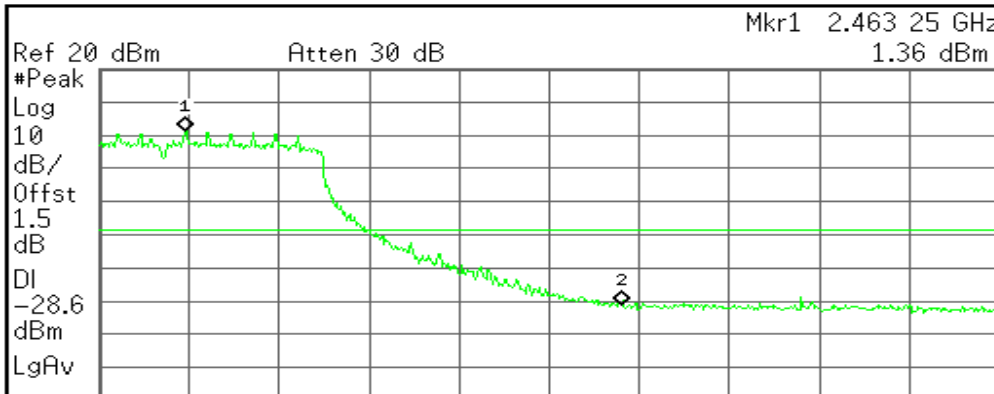
Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH High

Agilent



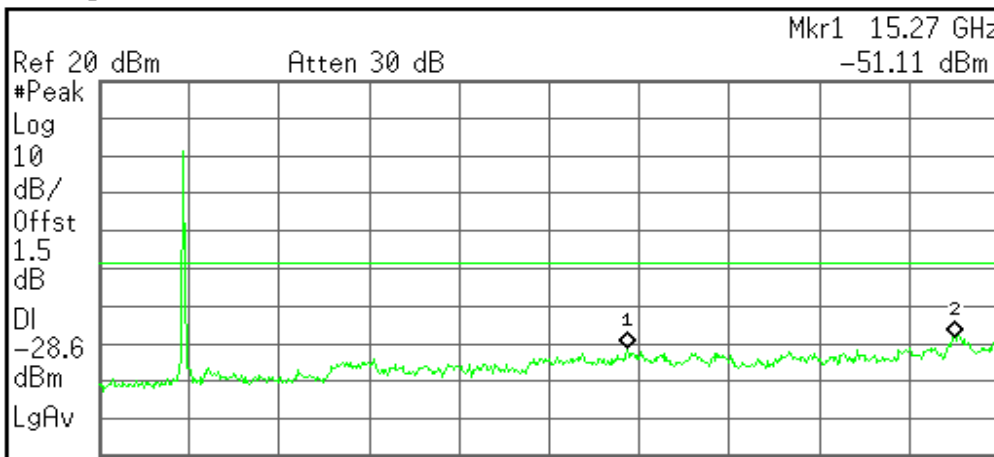
Center 2.483 50 GHz Span 50 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.463 25 GHz	1.36 dBm
2	(1)	Freq	2.487 50 GHz	-51.07 dBm

Freq/Channel	
Center Freq	2.48350000 GHz
Start Freq	2.45850000 GHz
Stop Freq	2.50850000 GHz
CF Step	5.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Start 30 MHz Stop 26.00 GHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 2.482 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	15.27 GHz	-51.11 dBm
2	(1)	Freq	24.70 GHz	-48.49 dBm

Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

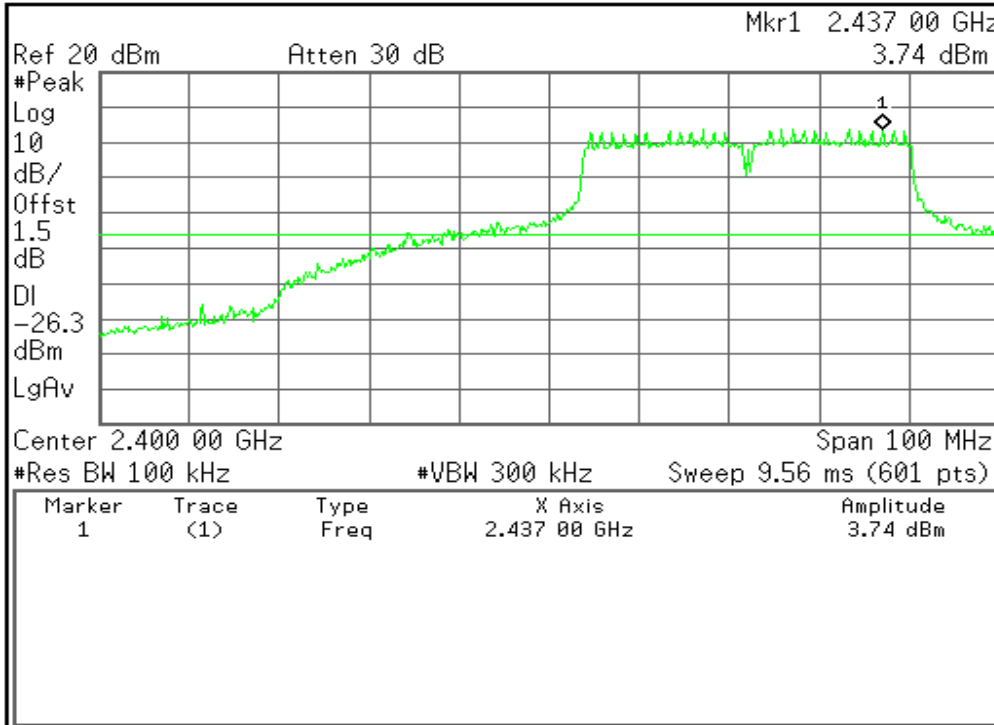
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draft 802.11n Wide-40 MHz Channel mode / Chain 0

CH Low

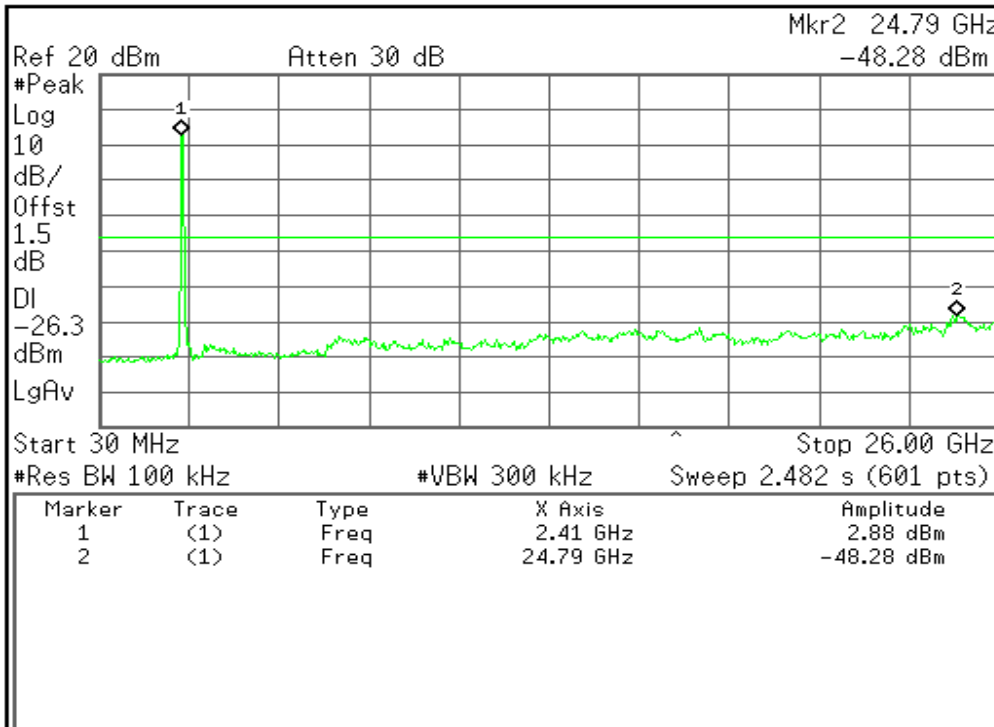
Agilent



Freq/Channel	
Center Freq	2.40000000 GHz
Start Freq	2.35000000 GHz
Stop Freq	2.45000000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



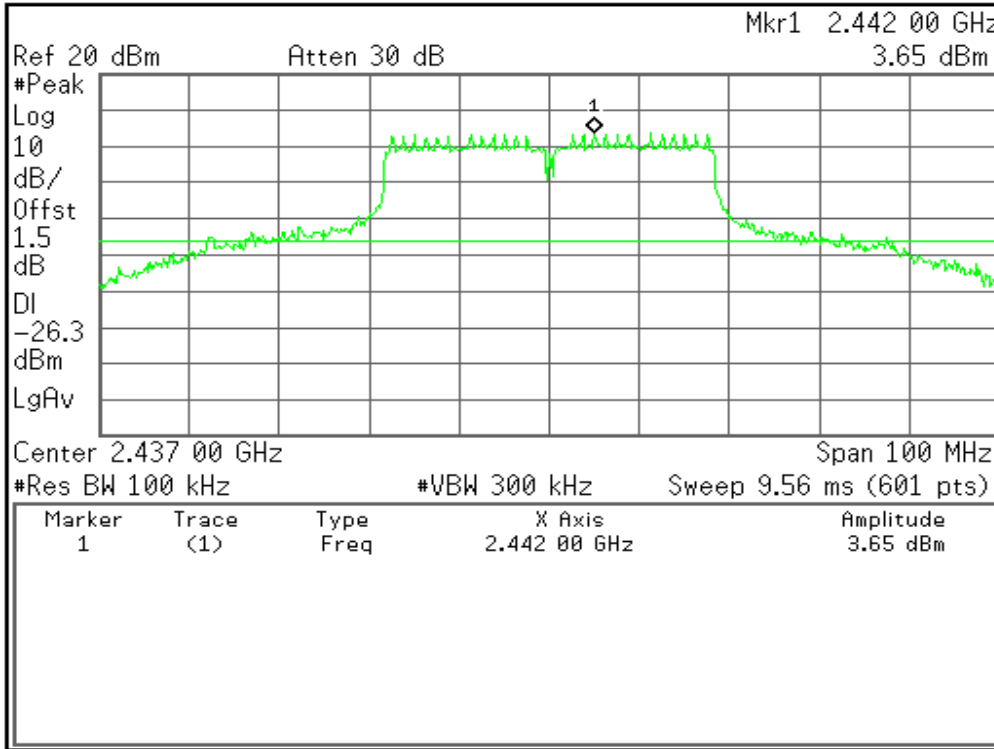
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

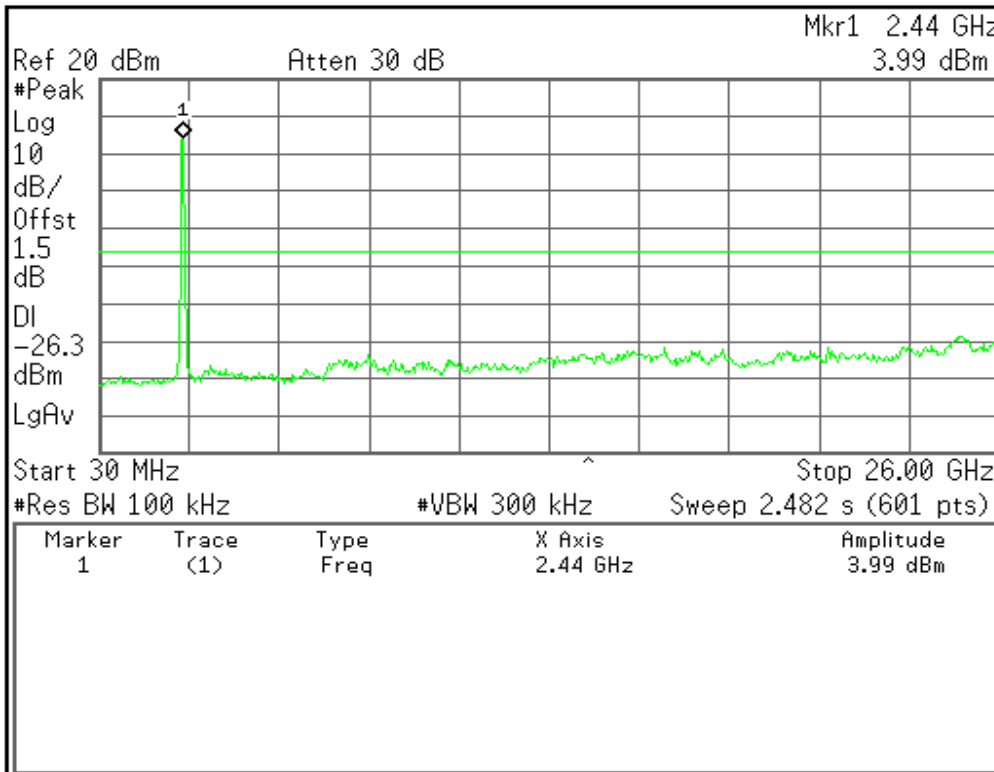
Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.48700000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



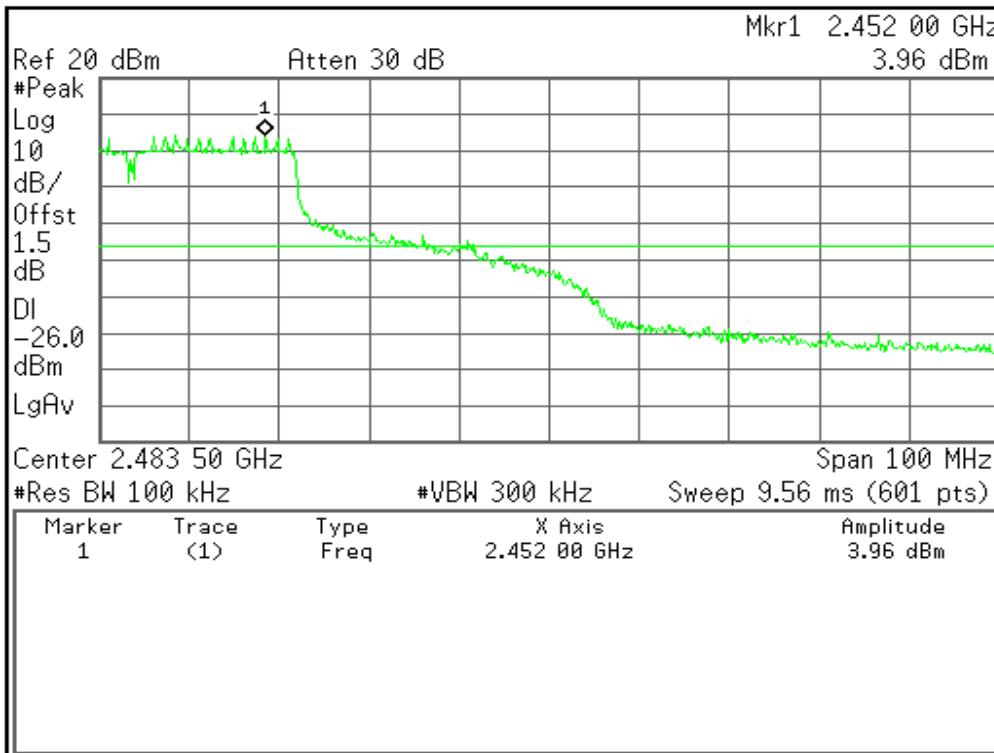
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH High

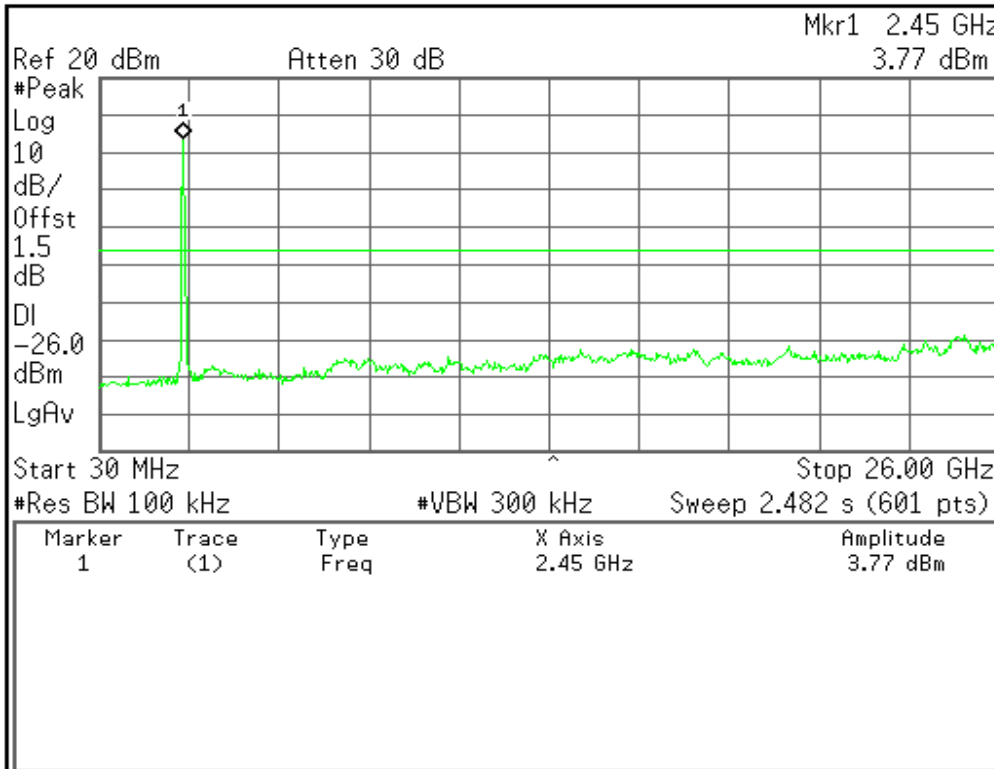
Agilent



Freq/Channel
Center Freq 2.48350000 GHz
Start Freq 2.43350000 GHz
Stop Freq 2.53350000 GHz
CF Step 10.0000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Unable to save file

Agilent



Freq/Channel
Center Freq 13.0150000 GHz
Start Freq 30.0000000 MHz
Stop Freq 26.0000000 GHz
CF Step 2.59700000 GHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

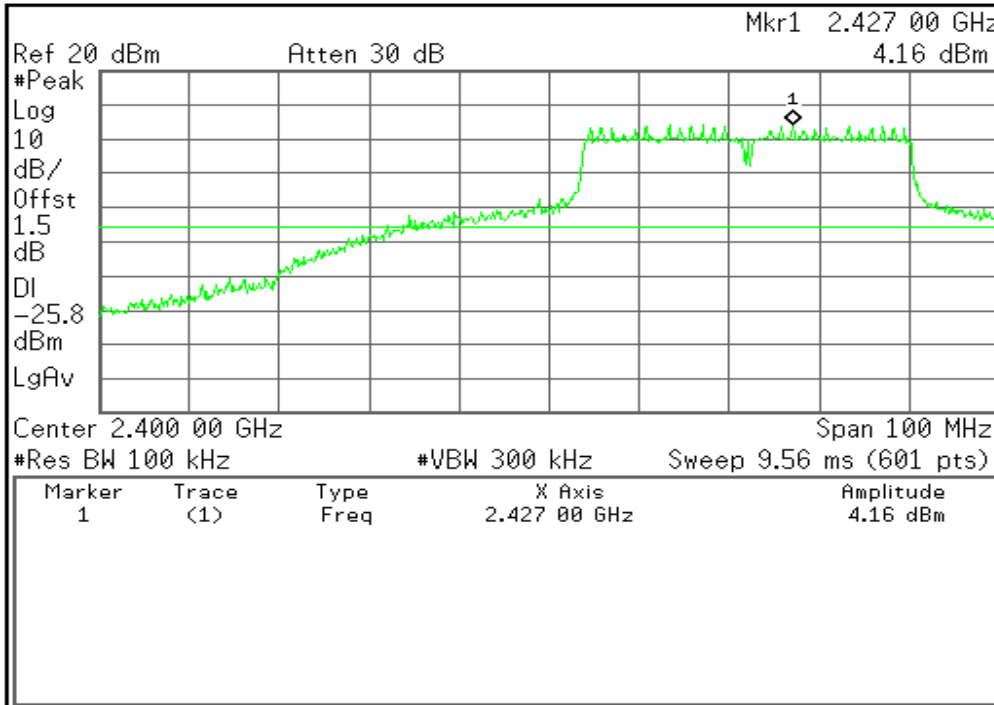
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draft 802.11n Wide-40 MHz Channel mode / Chain 1

CH Low

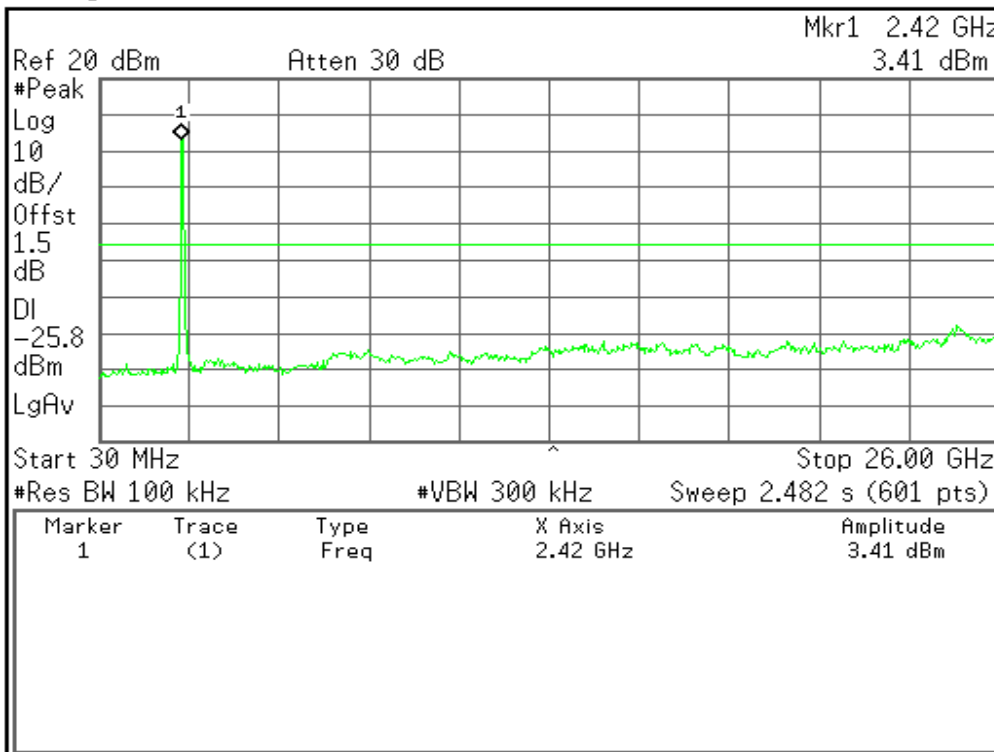
Agilent



Freq/Channel	
Center Freq	2.40000000 GHz
Start Freq	2.35000000 GHz
Stop Freq	2.45000000 GHz
CF Step	10.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



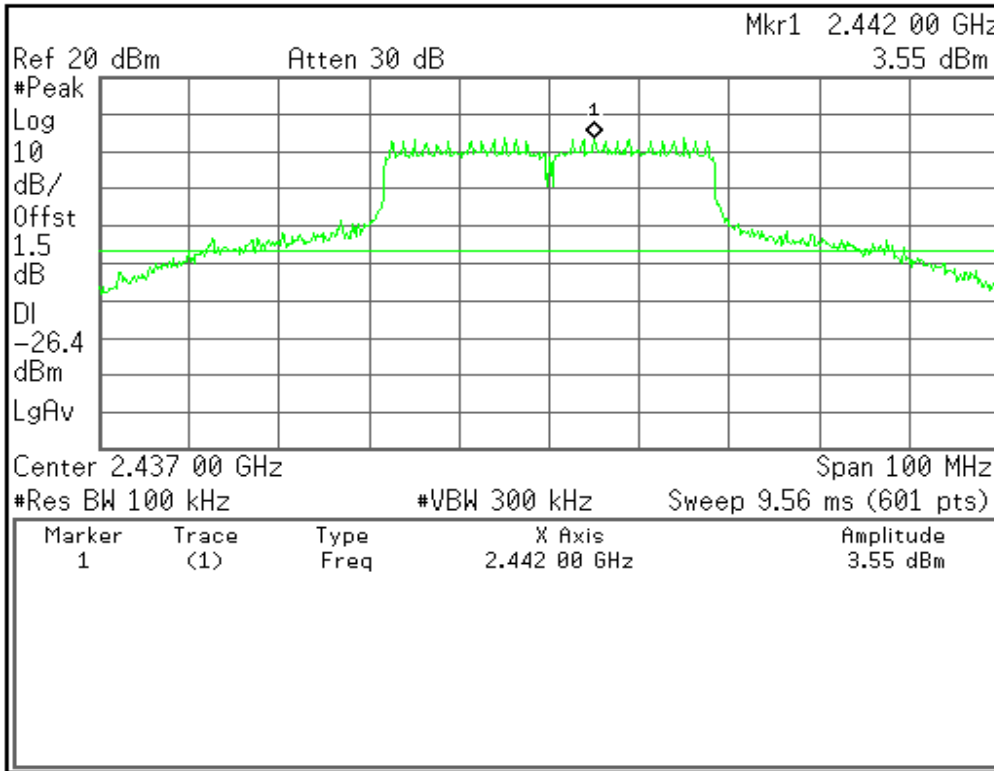
Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.597000000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

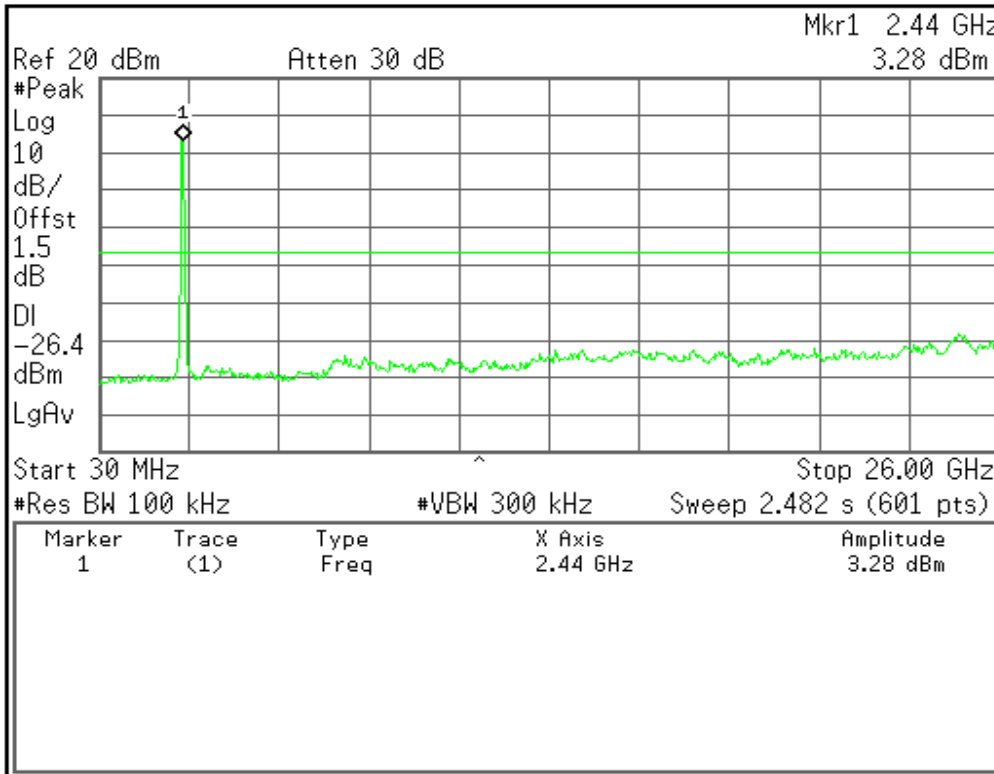
Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.48700000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



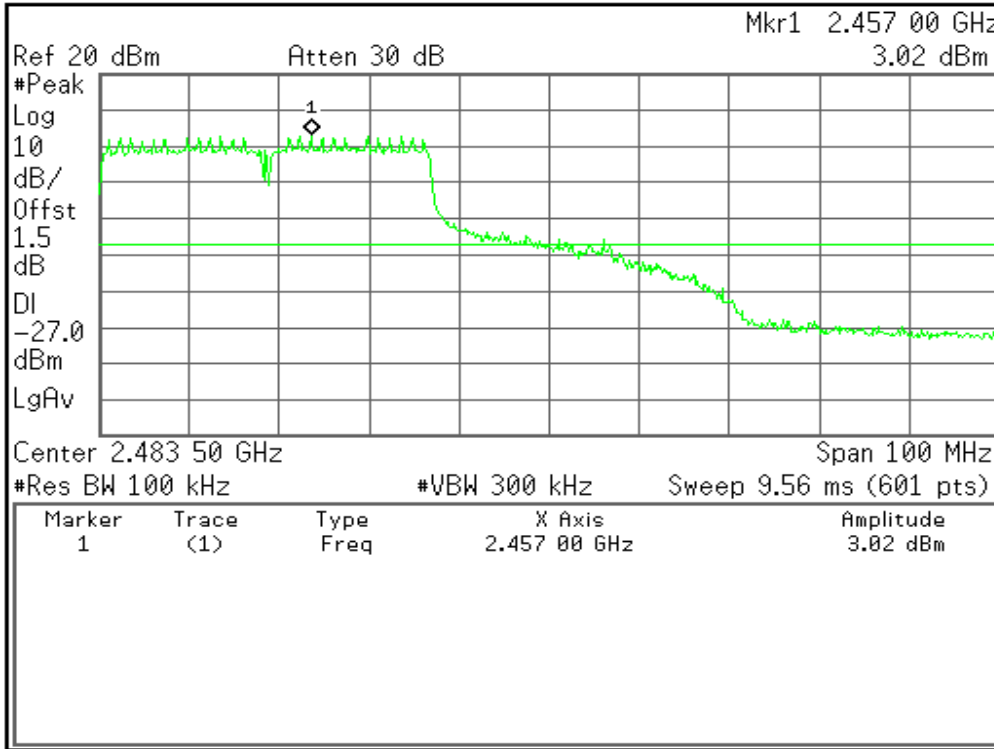
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH High

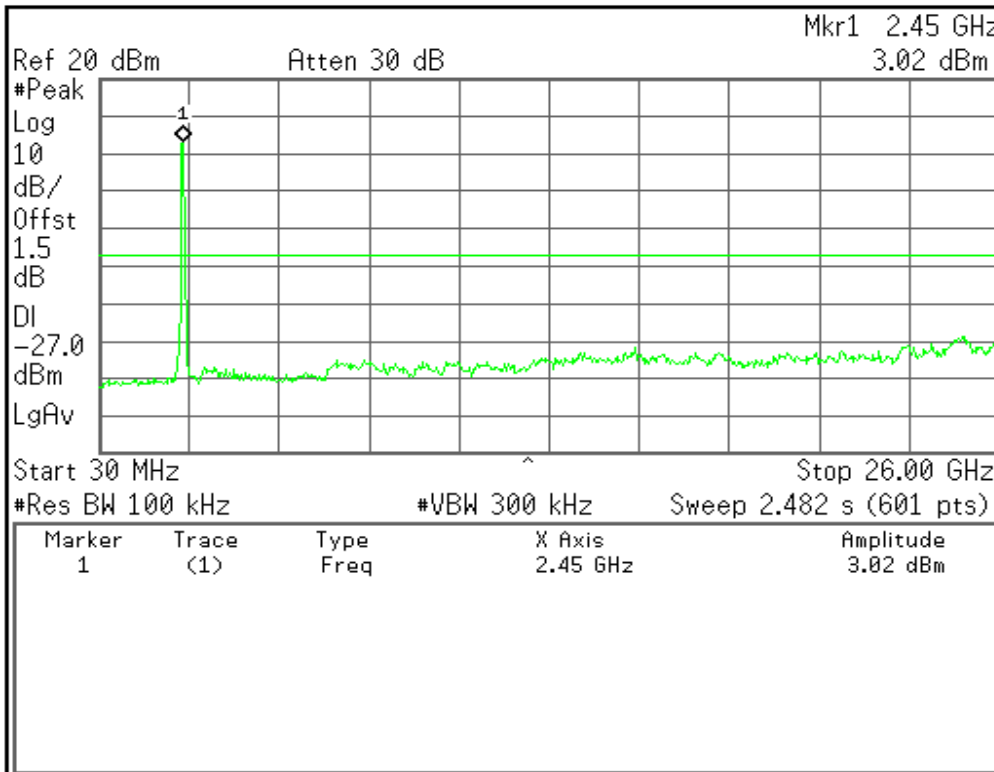
Agilent



Freq/Channel	
Center Freq	2.48350000 GHz
Start Freq	2.43350000 GHz
Stop Freq	2.53350000 GHz
CF Step	10.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



Freq/Channel	
Center Freq	13.01500000 GHz
Start Freq	30.00000000 MHz
Stop Freq	26.00000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

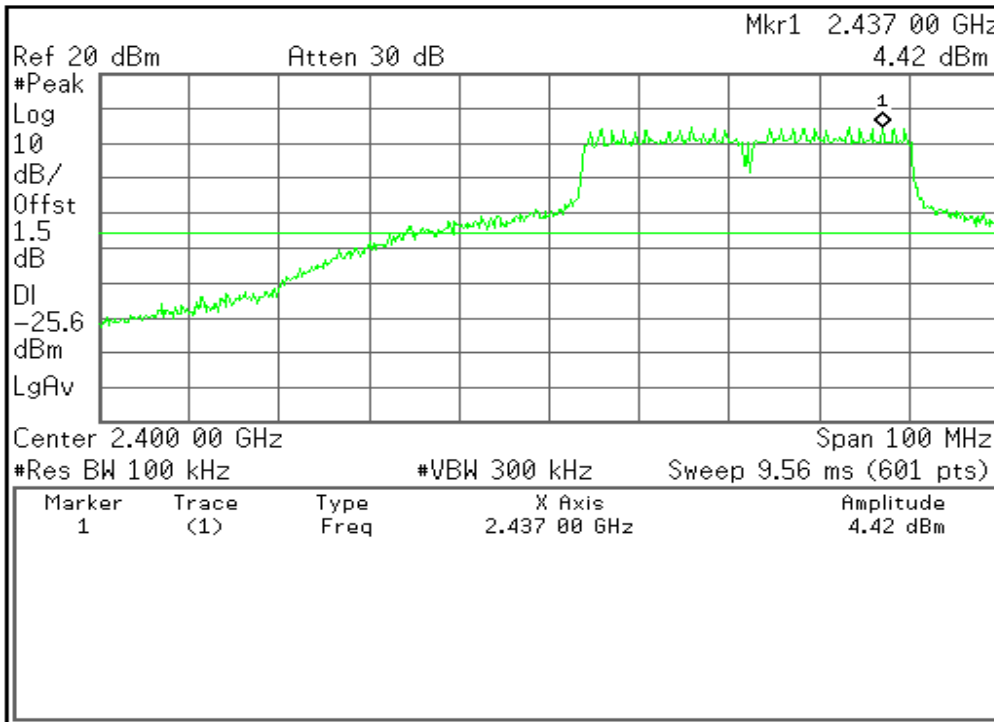
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draft 802.11n Wide-40 MHz Channel mode / Chain 2

CH Low

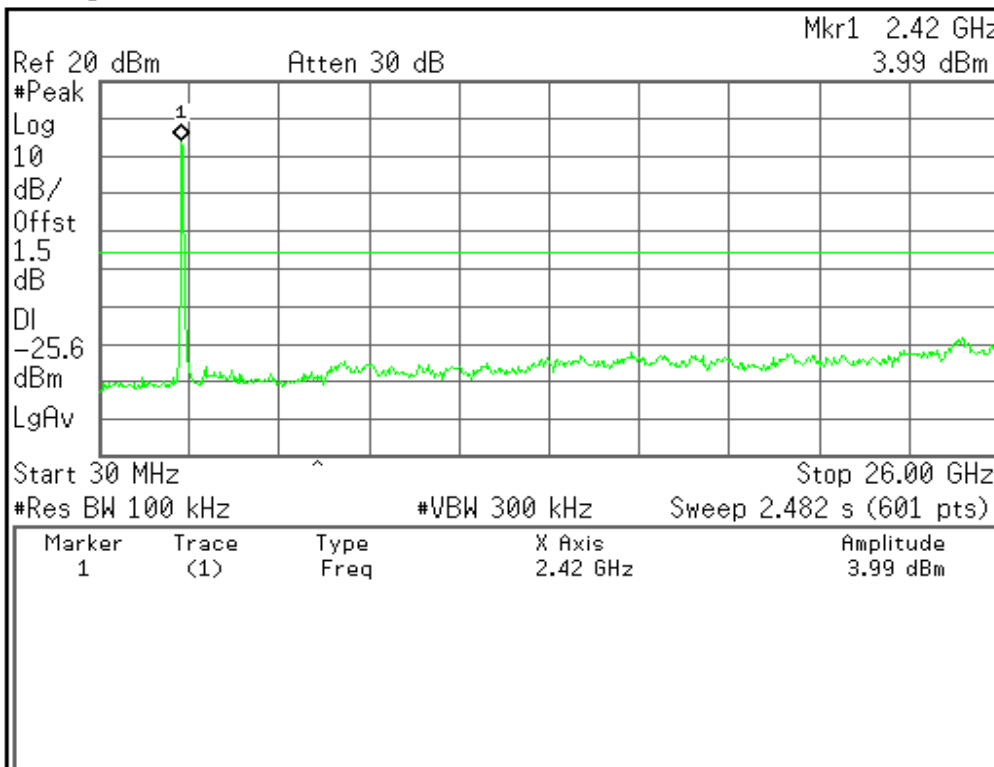
Agilent



Freq/Channel	
Center Freq	2.40000000 GHz
Start Freq	2.35000000 GHz
Stop Freq	2.45000000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



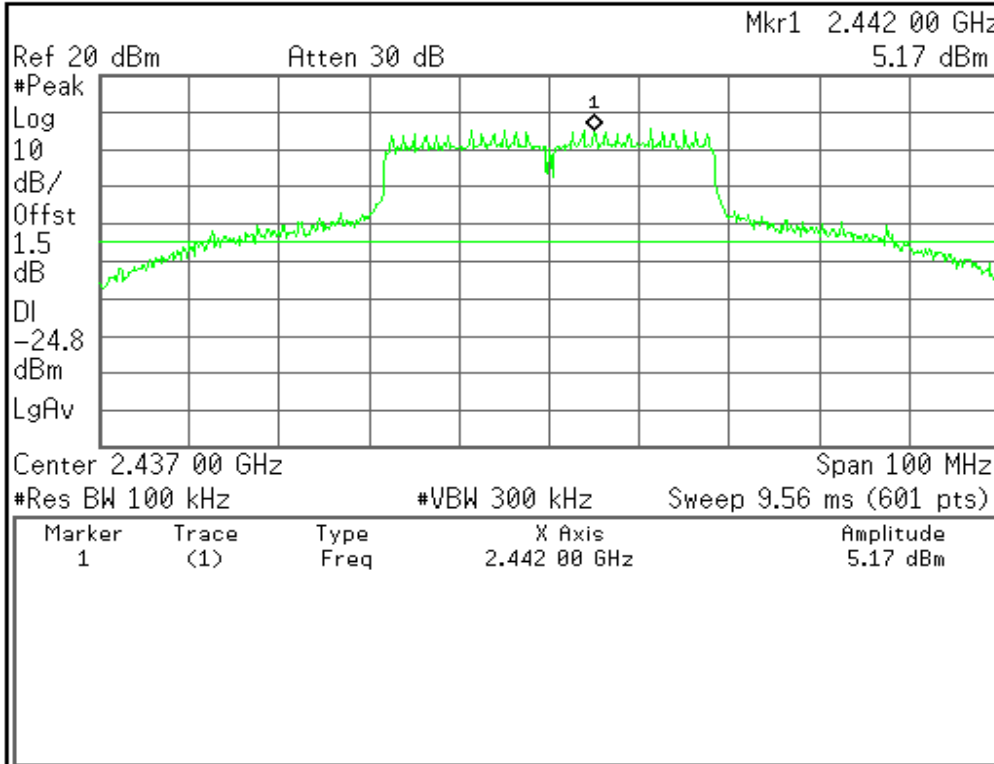
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

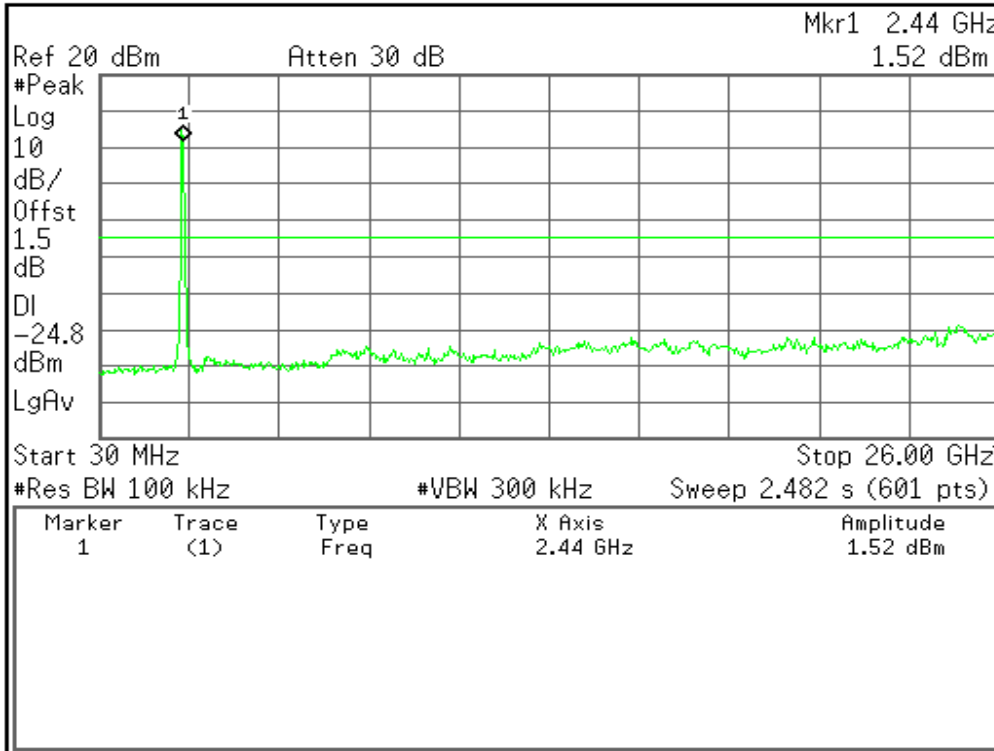
Agilent



Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.38700000 GHz
Stop Freq	2.48700000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



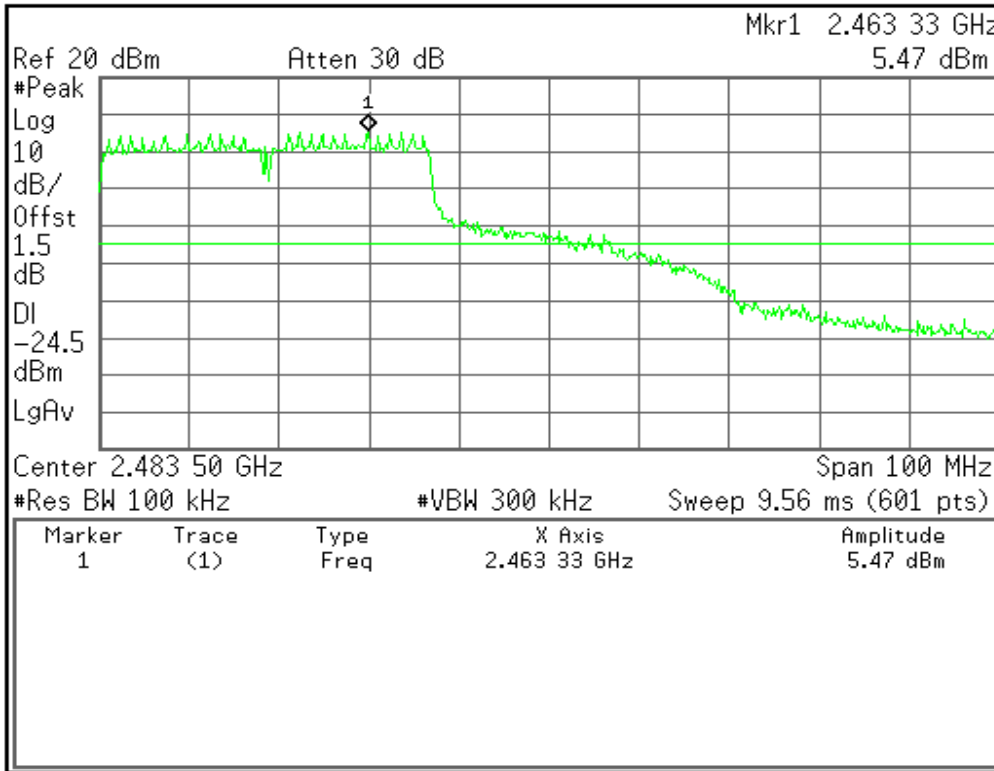
Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH High

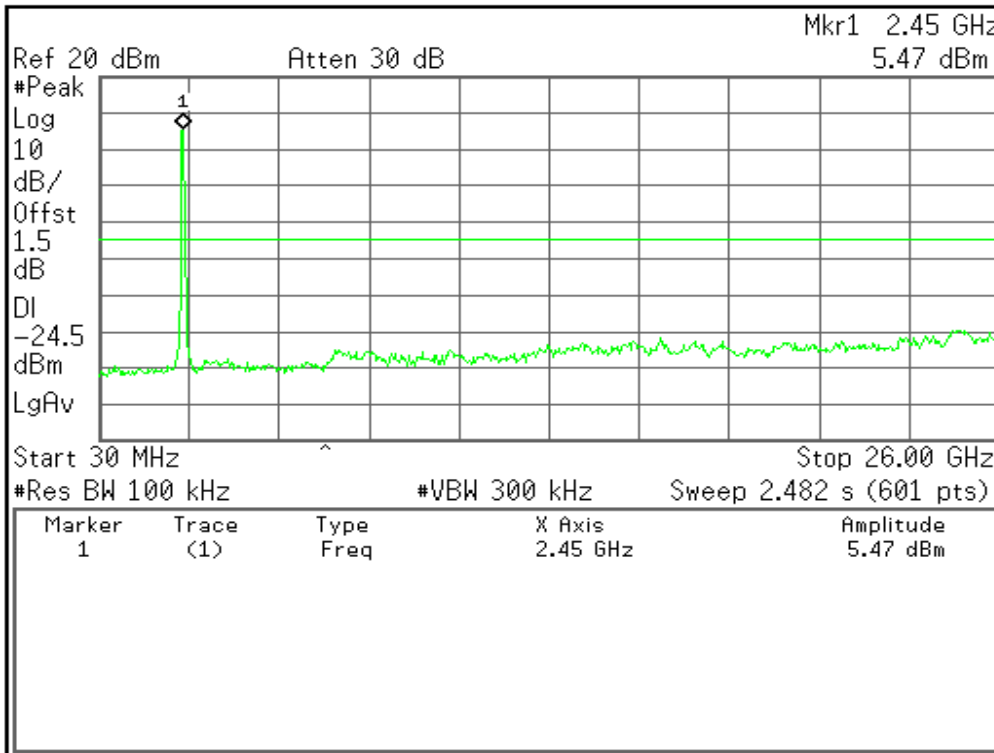
Agilent



Freq/Channel	
Center Freq	2.48350000 GHz
Start Freq	2.43350000 GHz
Stop Freq	2.53350000 GHz
CF Step	10.0000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



Freq/Channel	
Center Freq	13.0150000 GHz
Start Freq	30.0000000 MHz
Stop Freq	26.0000000 GHz
CF Step	2.59700000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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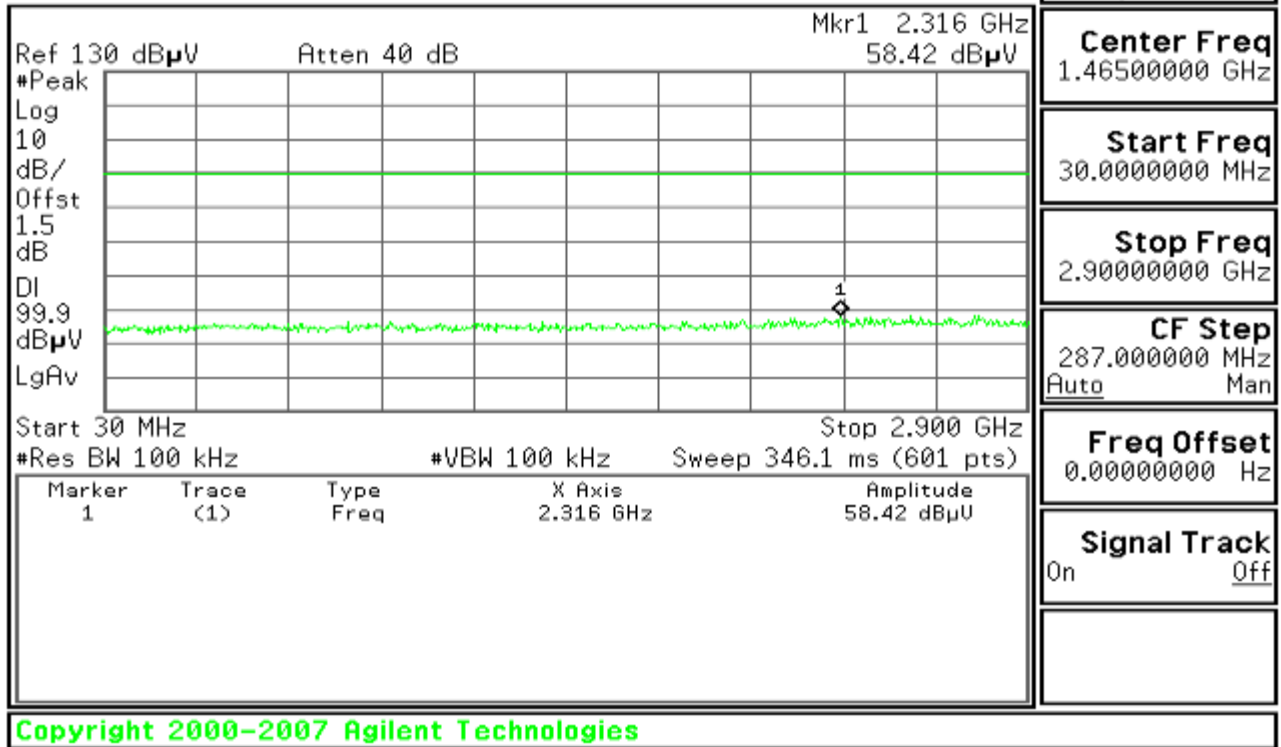


5725-5825

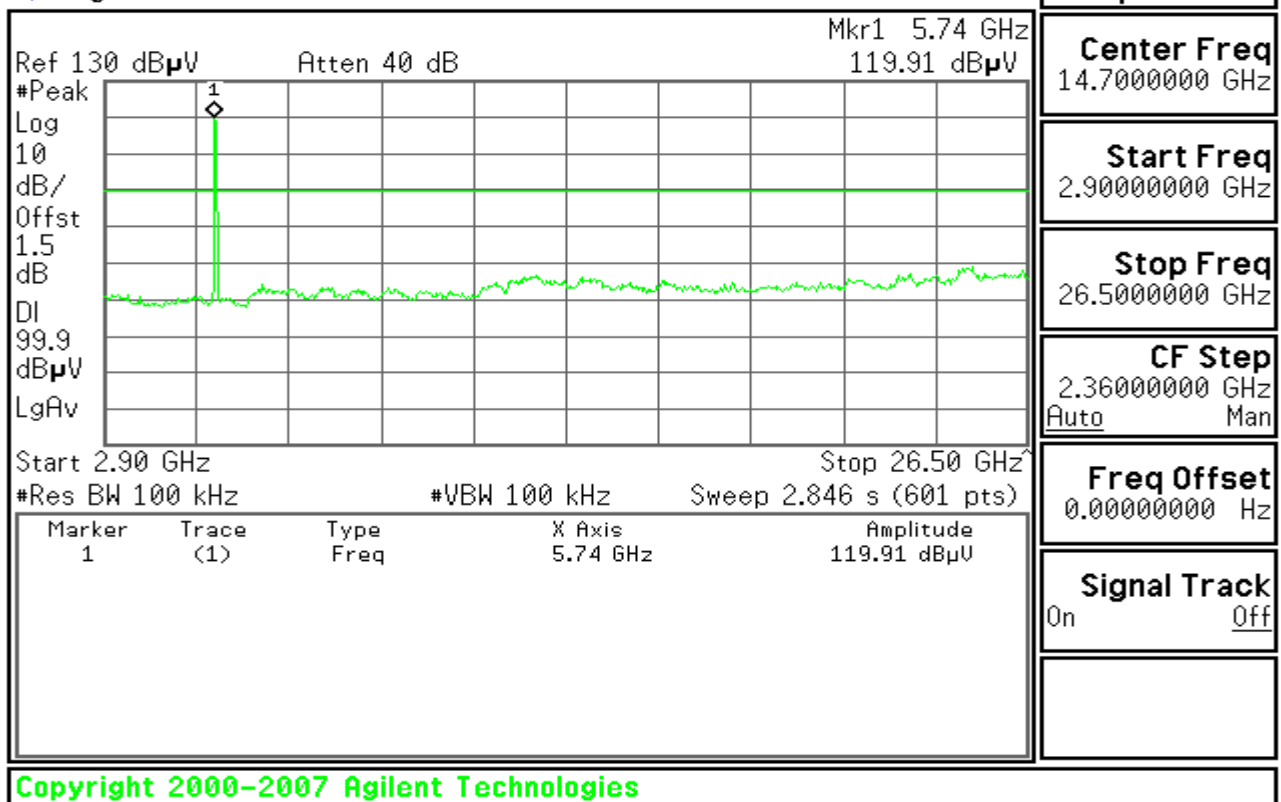
IEEE 802.11a mode

CH Low

Agilent



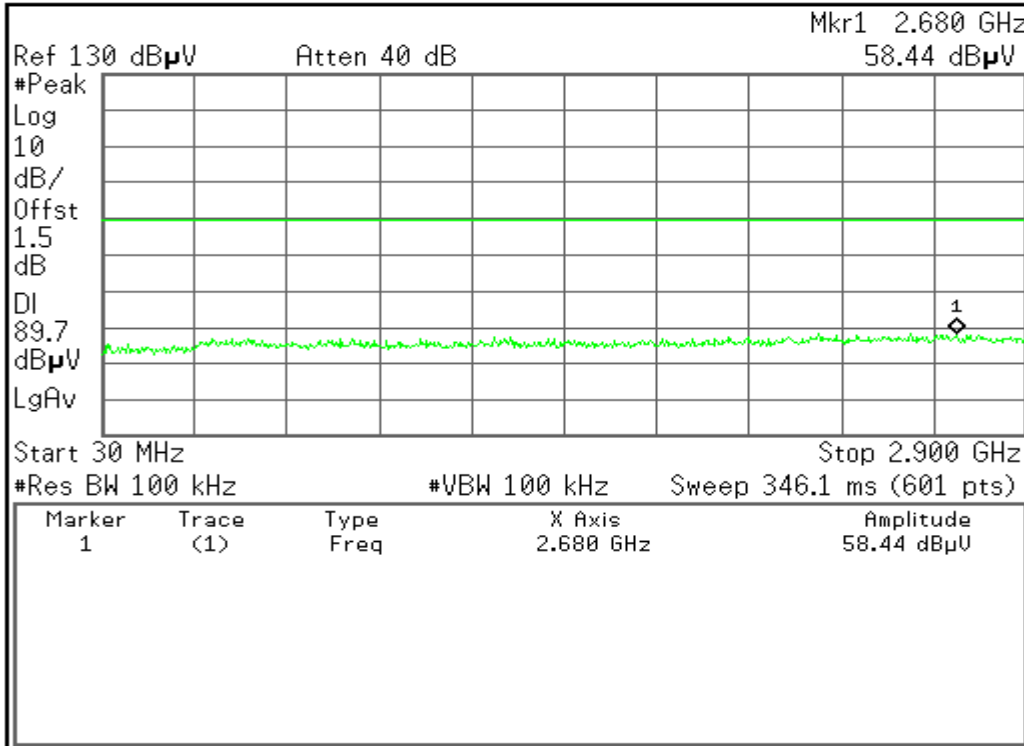
Agilent





CH Mid

Agilent

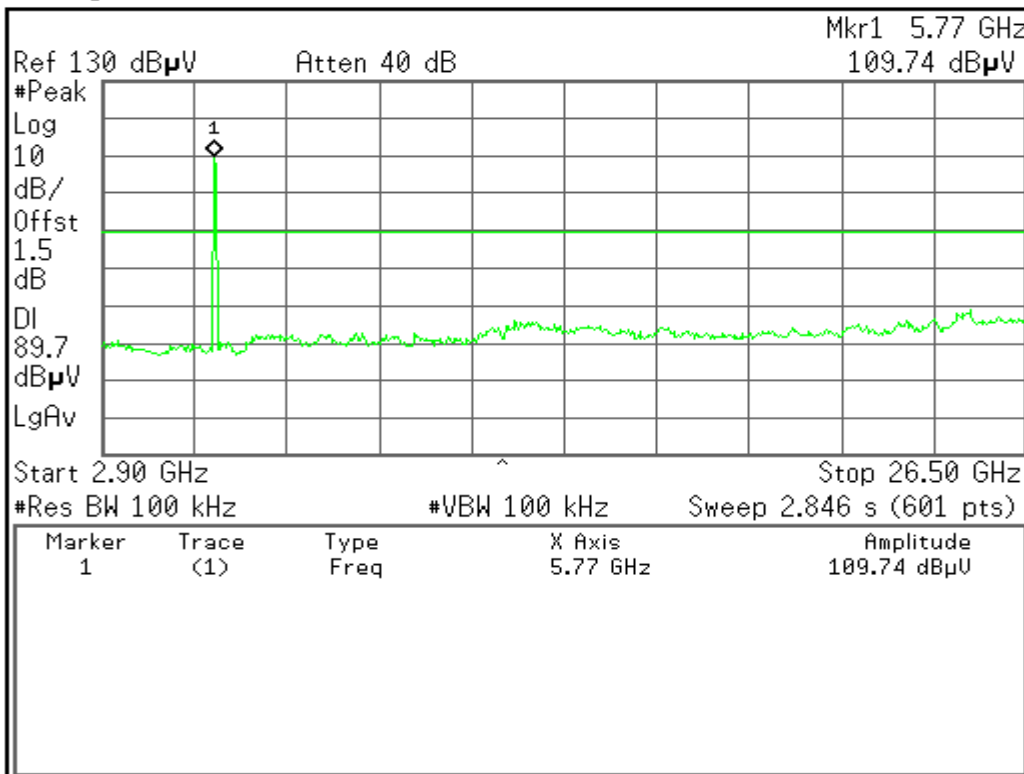


Freq/Channel

Center Freq 1.46500000 GHz
Start Freq 30.0000000 MHz
Stop Freq 2.90000000 GHz
CF Step 287.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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Agilent



Freq/Channel

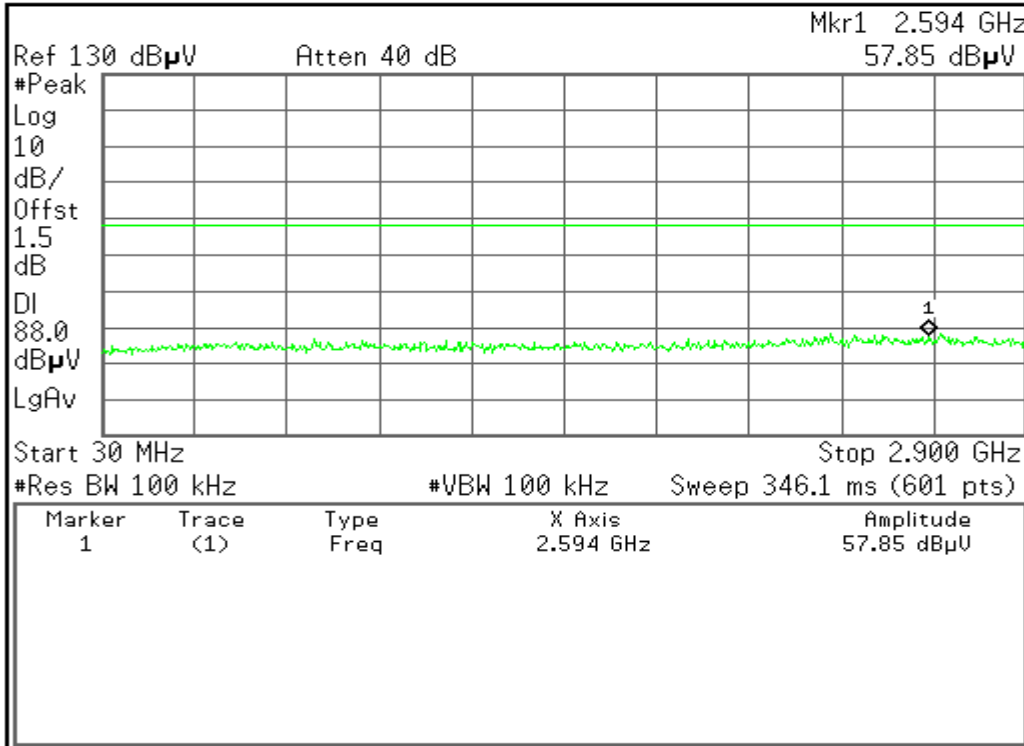
Center Freq 14.7000000 GHz
Start Freq 2.90000000 GHz
Stop Freq 26.5000000 GHz
CF Step 2.36000000 GHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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CH High

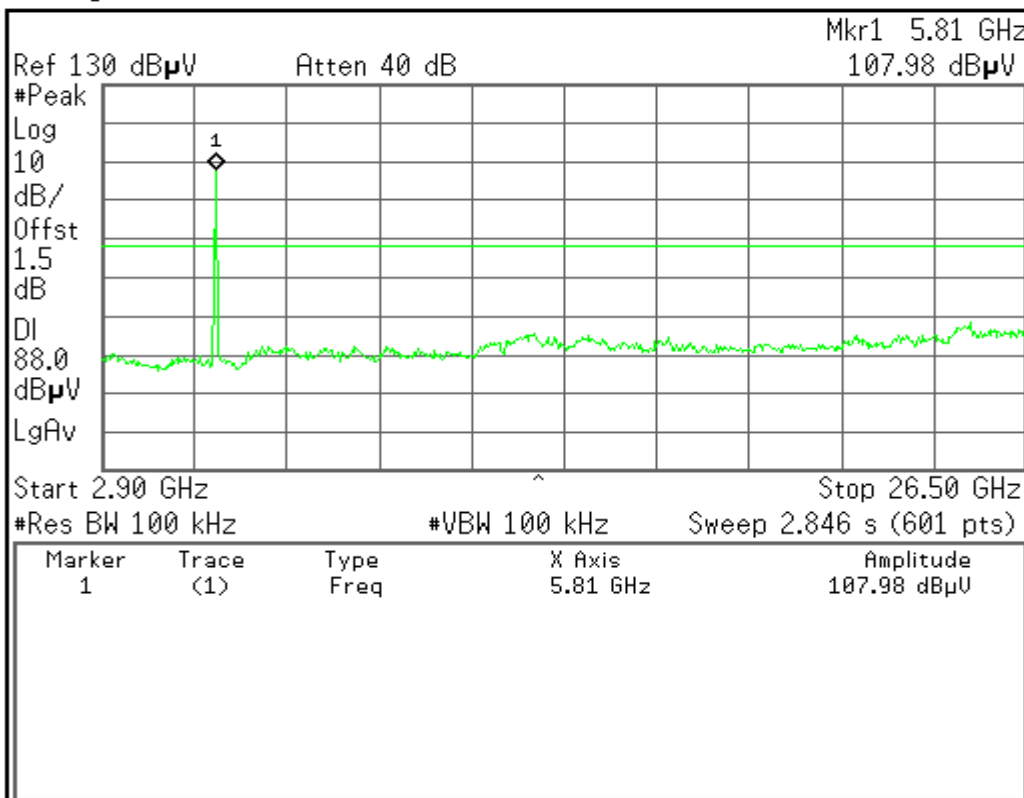
Agilent



Freq/Channel	
Center Freq	1.46500000 GHz
Start Freq	30.0000000 MHz
Stop Freq	2.90000000 GHz
CF Step	287.000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



Freq/Channel	
Center Freq	14.7000000 GHz
Start Freq	2.90000000 GHz
Stop Freq	26.5000000 GHz
CF Step	2.36000000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

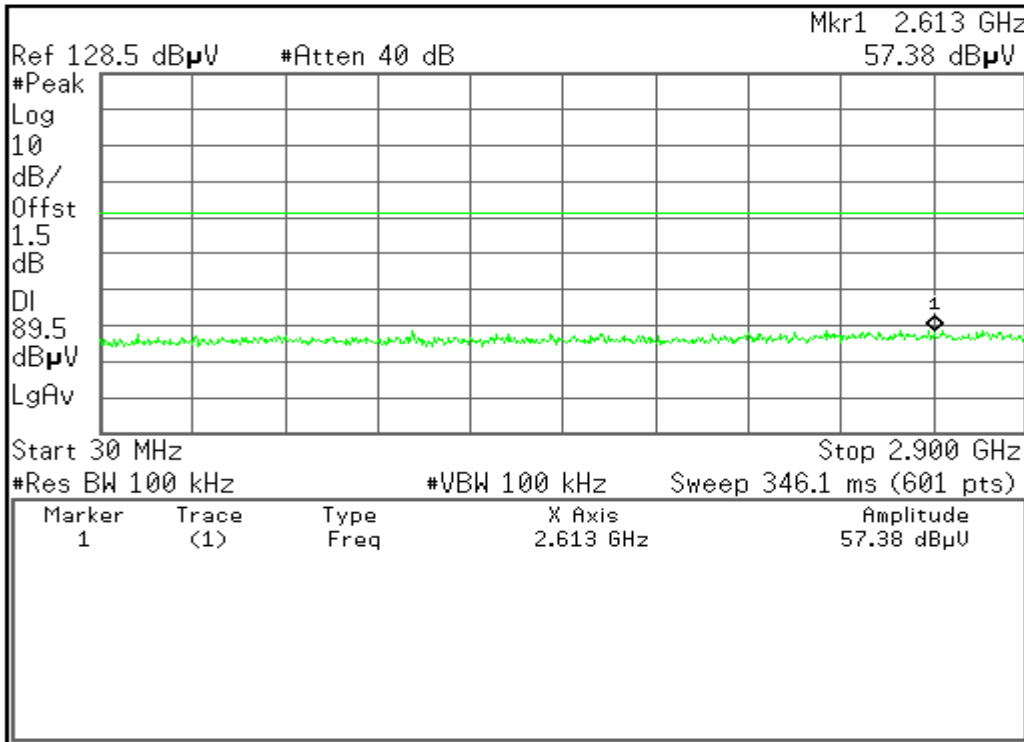
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draft 802.11n Standard-20 MHz Channel mode / Chain 0

CH Low

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Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

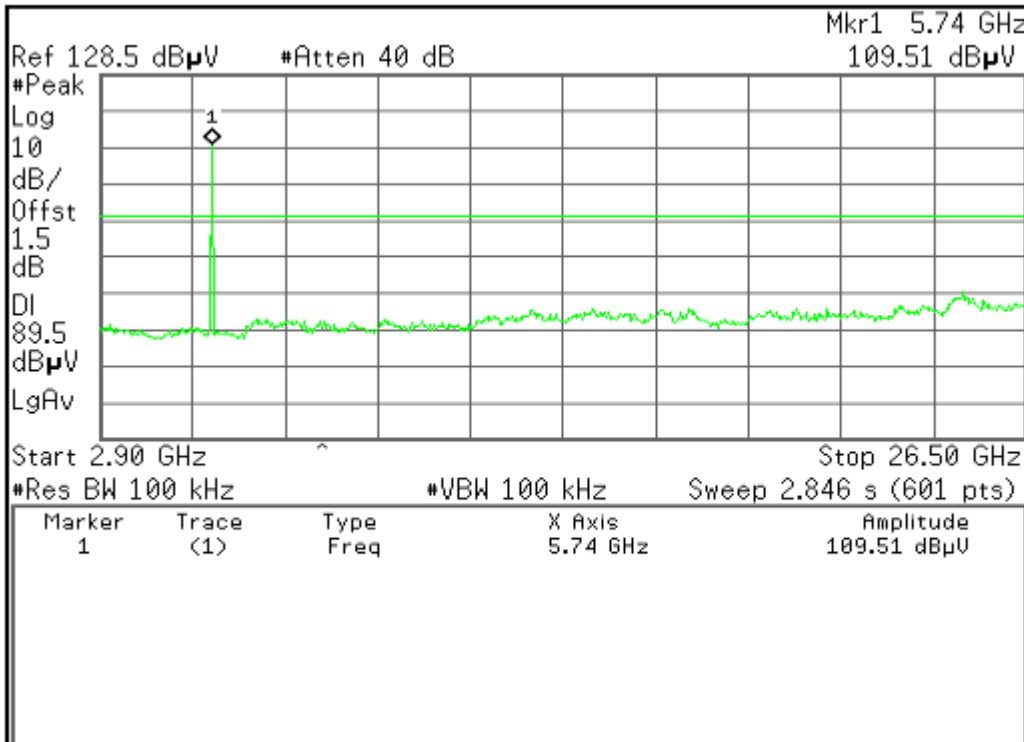
PK-Pk Search

Mkr → CF

More
1 of 2

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Agilent



Freq/Channel

Center Freq
14.7000000 GHz

Start Freq
2.90000000 GHz

Stop Freq
26.5000000 GHz

CF Step
2.36000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

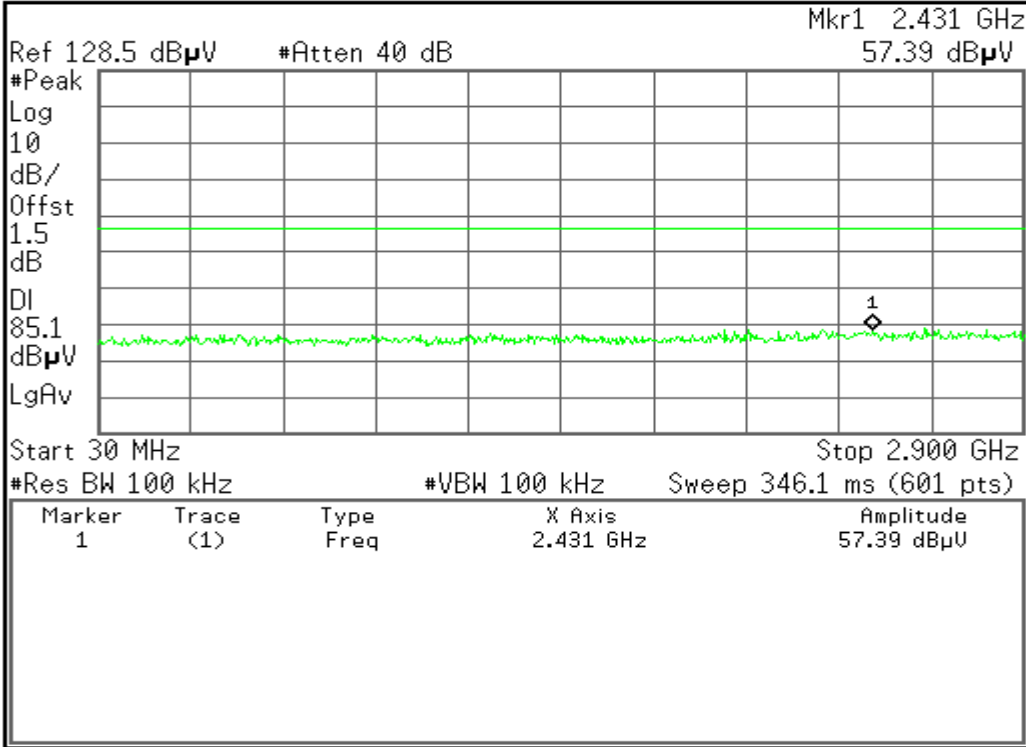
Signal Track
On Off

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CH Mid

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

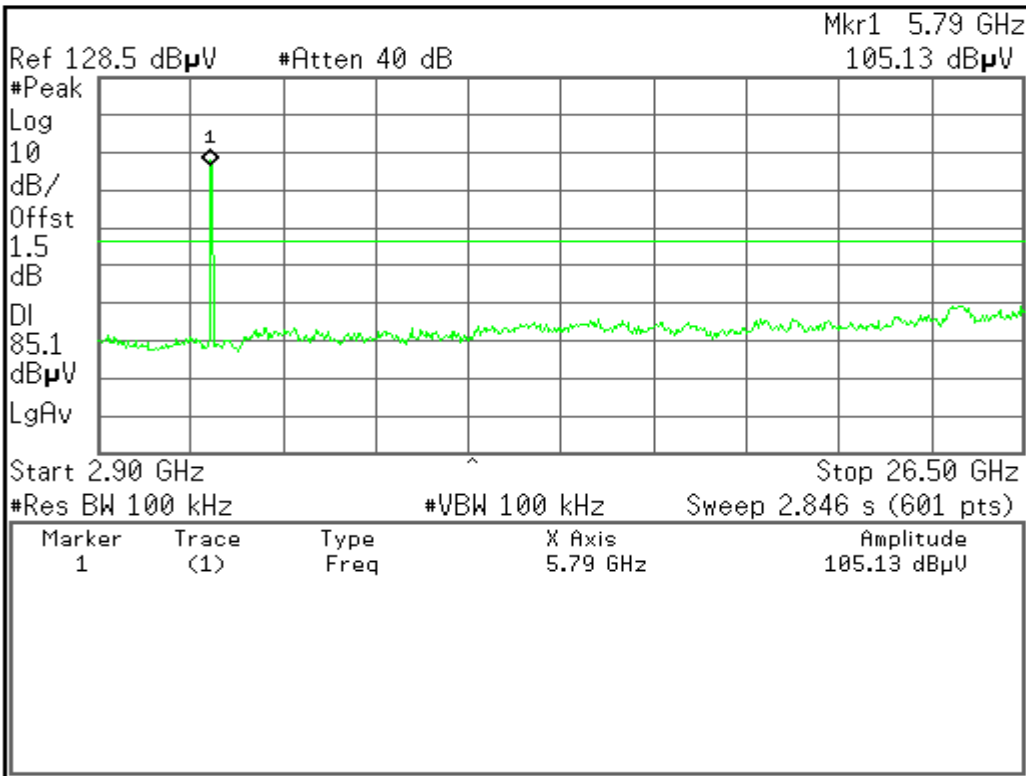
Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

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Display

Full Screen

Display Line
85.10 dB μ V
On Off

Limits

Active Fctn
Position
Center

Title

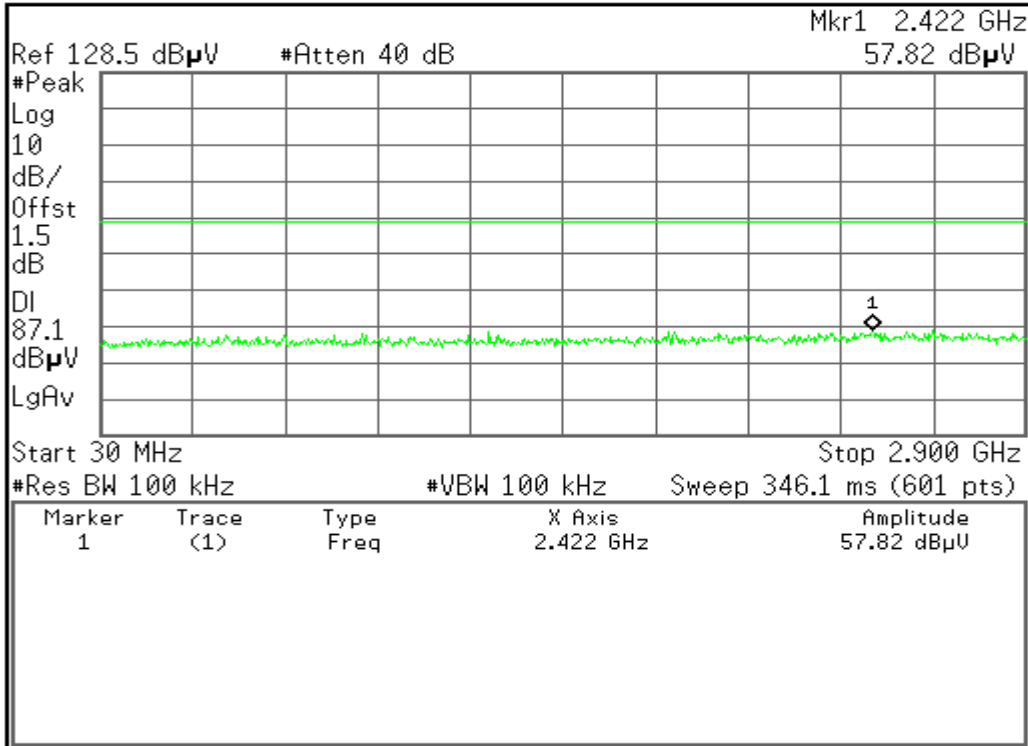
Preferences

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CH High

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Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

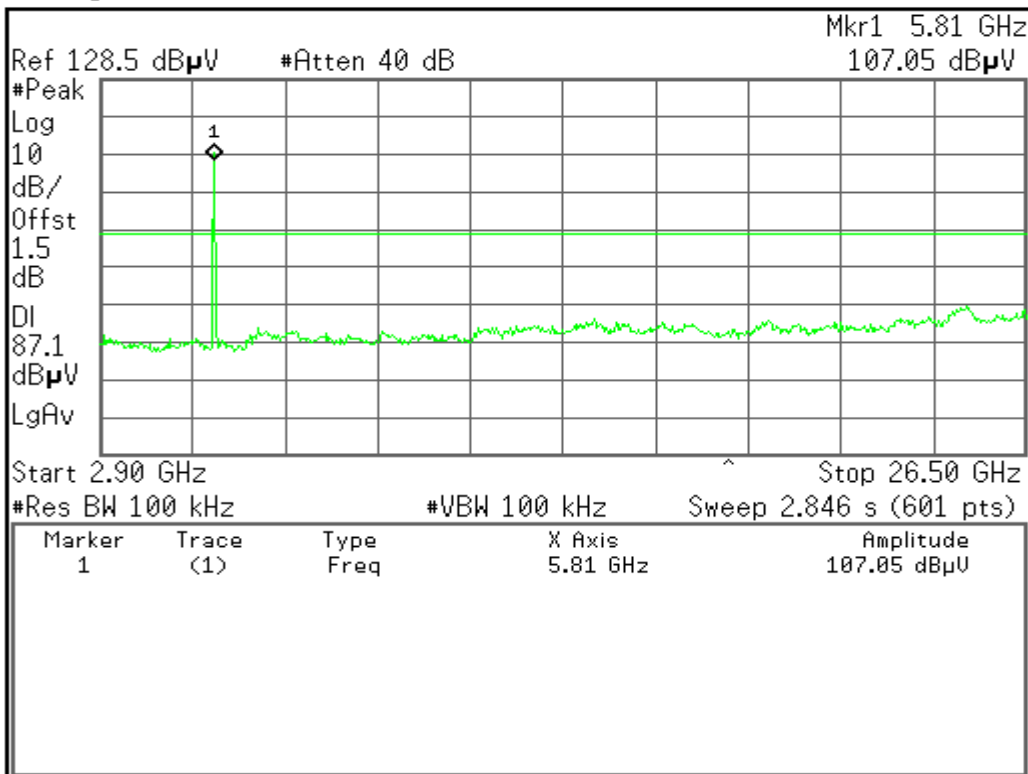
Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

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Freq/Channel

Center Freq
14.70000000 GHz

Start Freq
2.90000000 GHz

Stop Freq
26.50000000 GHz

CF Step
2.36000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

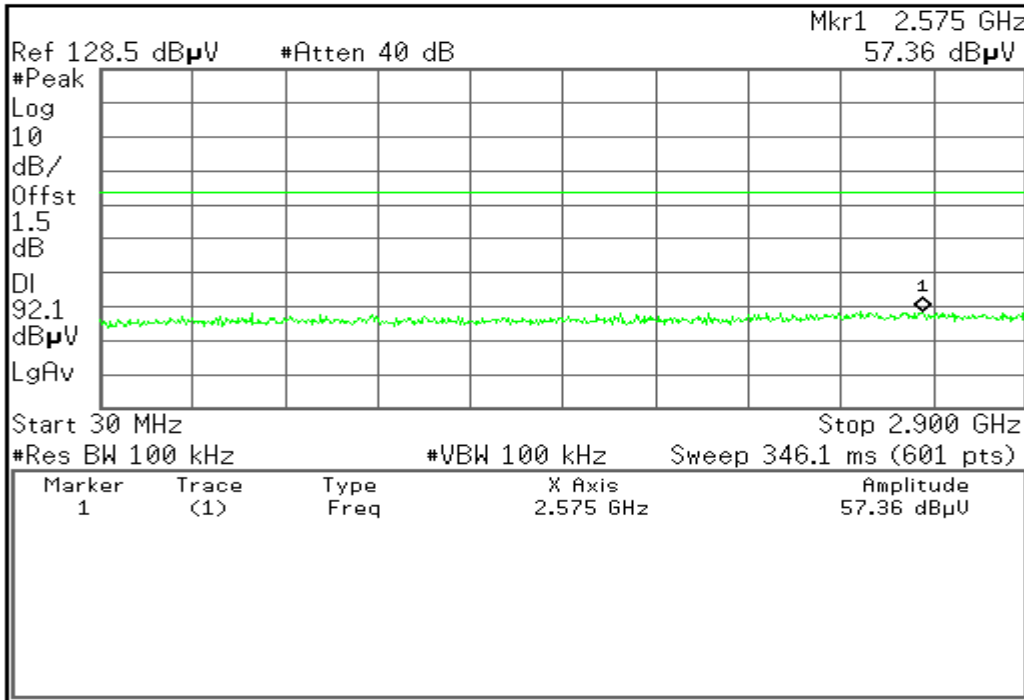
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draft 802.11n Standard-20 MHz Channel mode / Chain 1

CH Low

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

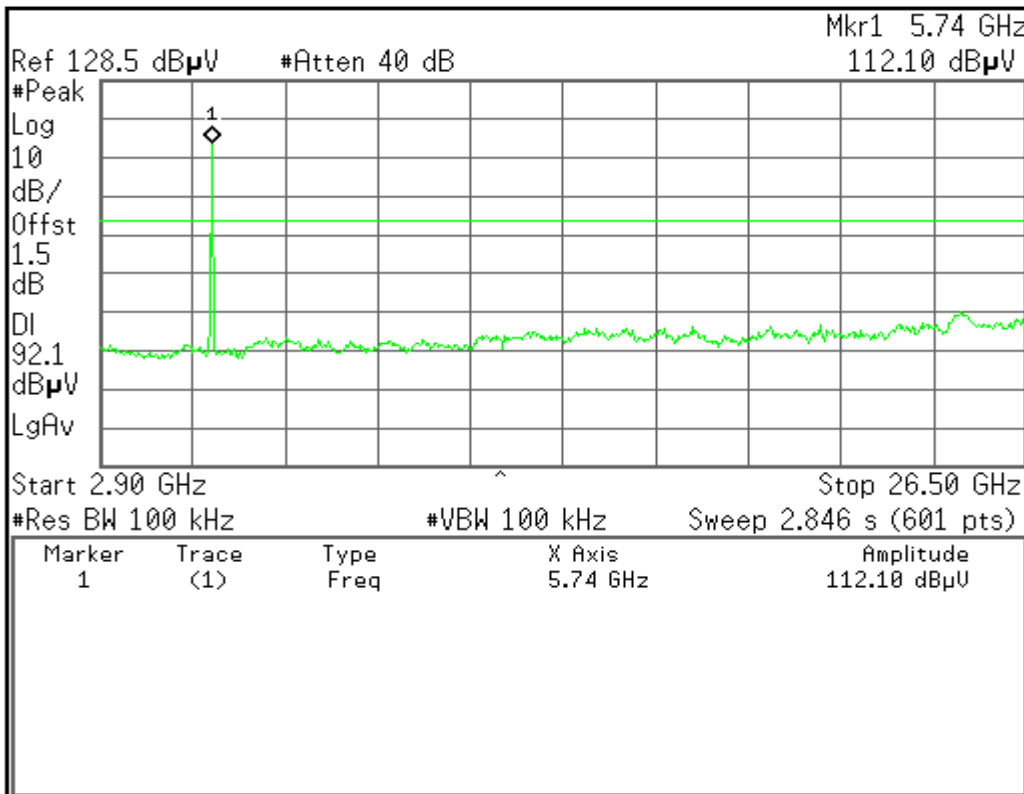
PK-Pk Search

Mkr \rightarrow CF

More
1 of 2

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Freq/Channel

Center Freq
14.70000000 GHz

Start Freq
2.90000000 GHz

Stop Freq
26.50000000 GHz

CF Step
2.36000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

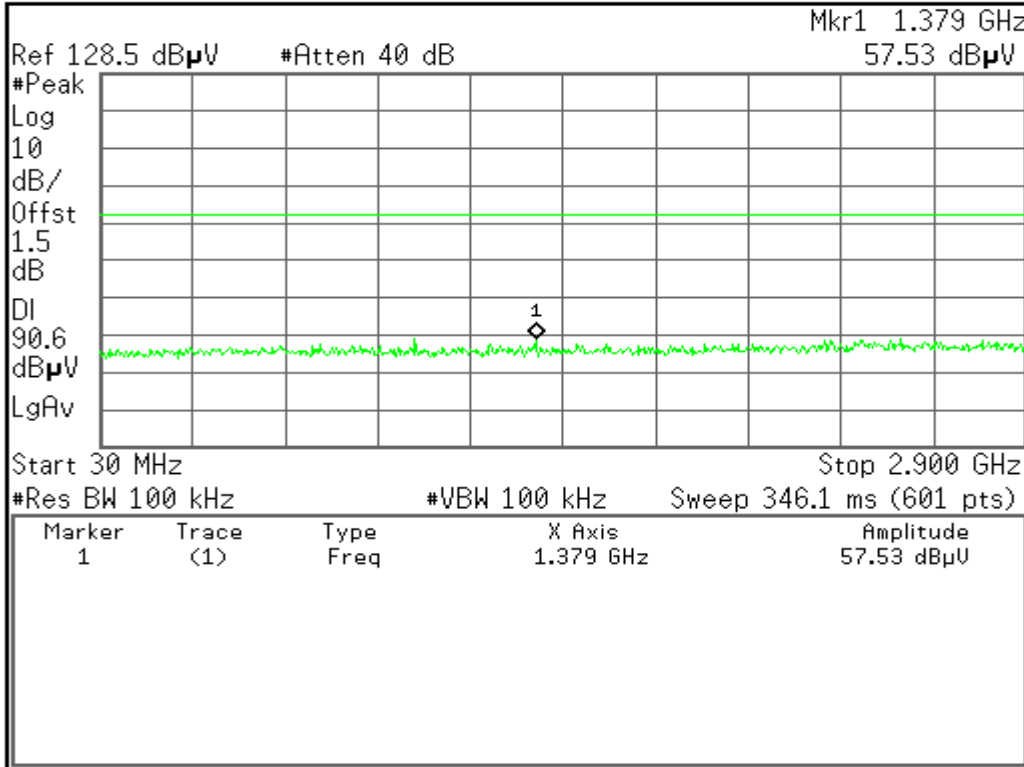
Signal Track
On Off

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CH Mid

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

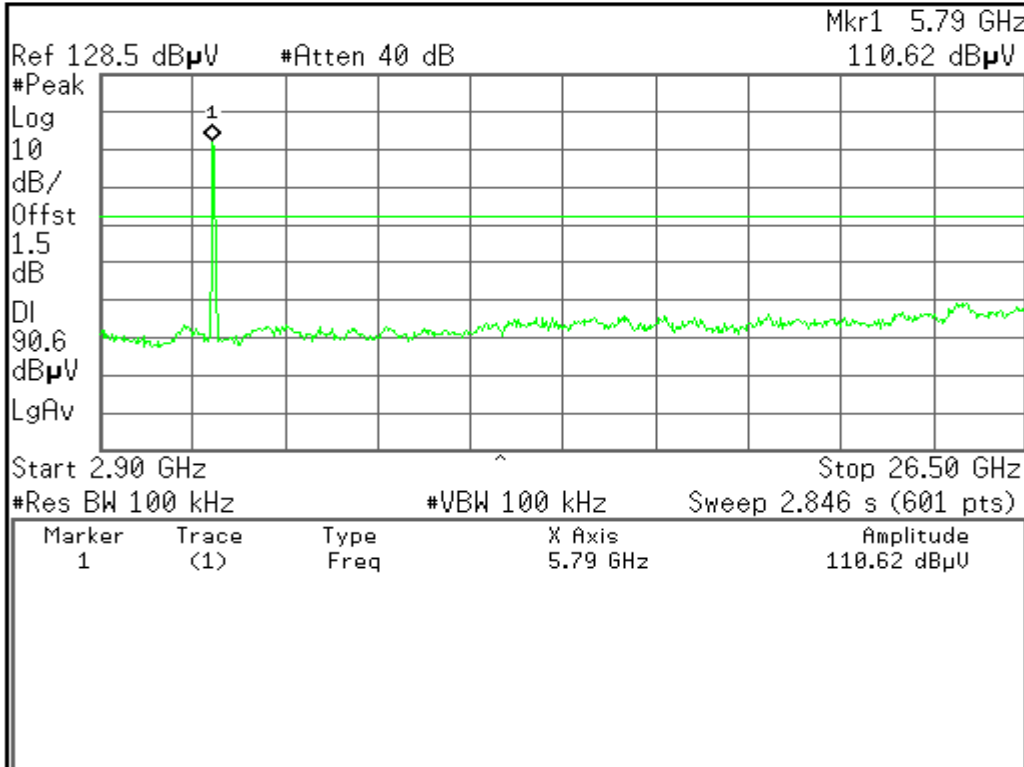
Pk-Pk Search

Mkr → CF

More
1 of 2

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Freq/Channel

Center Freq
14.70000000 GHz

Start Freq
2.90000000 GHz

Stop Freq
26.50000000 GHz

CF Step
2.36000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

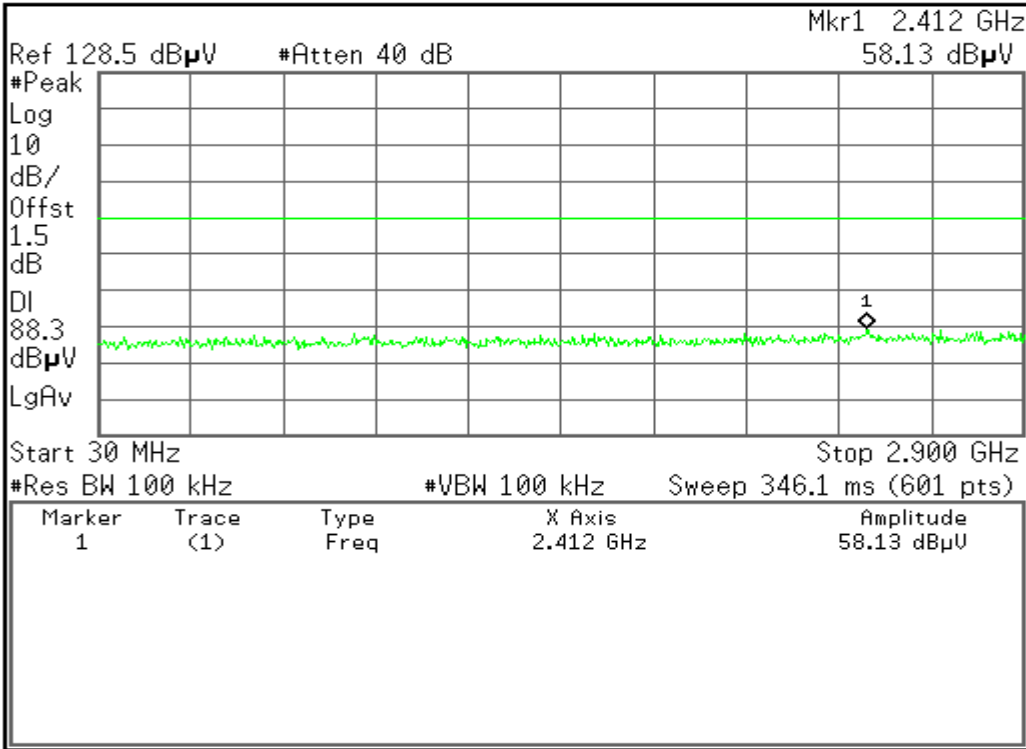
Signal Track
On Off

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CH High

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

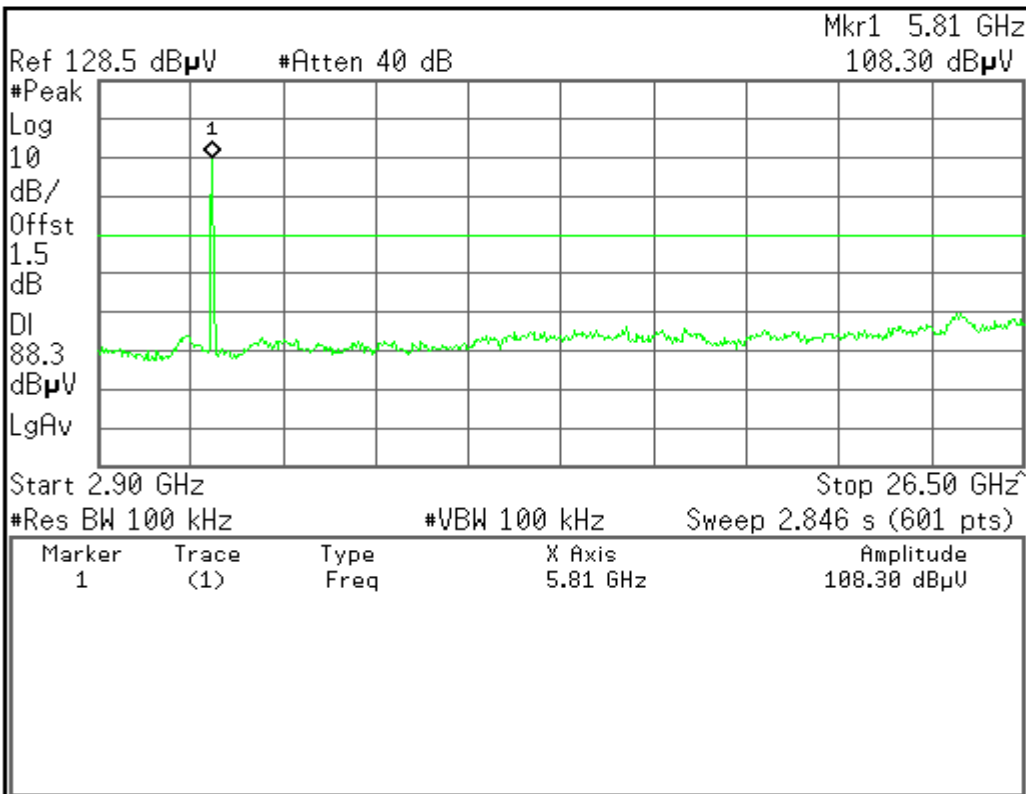
Pk-Pk Search

Mkr → CF

More
1 of 2

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Freq/Channel

Center Freq
14.7000000 GHz

Start Freq
2.9000000 GHz

Stop Freq
26.5000000 GHz

CF Step
2.3600000 GHz
Auto Man

Freq Offset
0.0000000 Hz

Signal Track
On Off

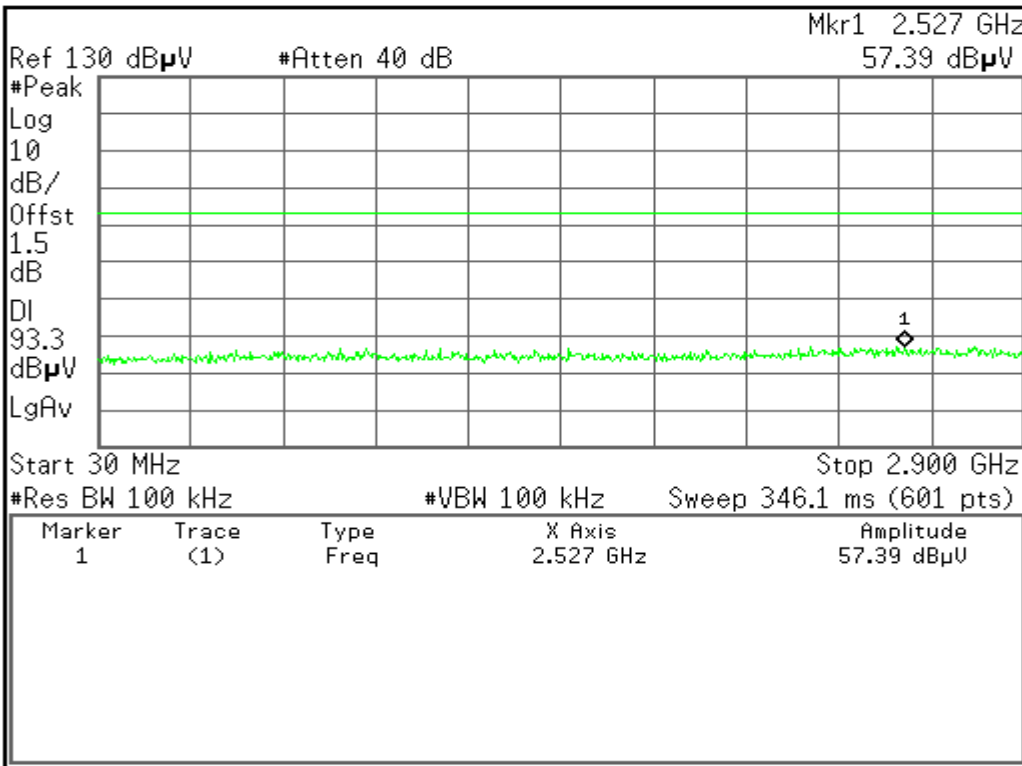
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draft 802.11n Standard-20 MHz Channel mode / Chain 2

CH Low

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

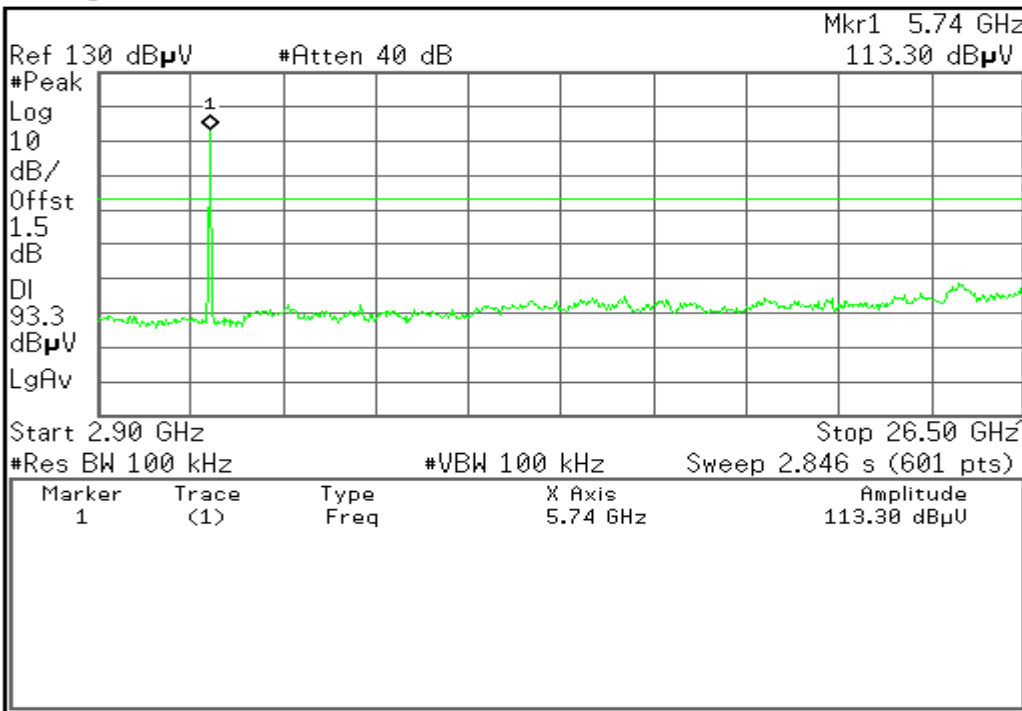
Pk-Pk Search

Mkr → CF

More
1 of 2

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Display

Full Screen

Display Line
93.30 dBμV
On Off

Limits▶

Active Fctn
Position▶
Center

Title▶

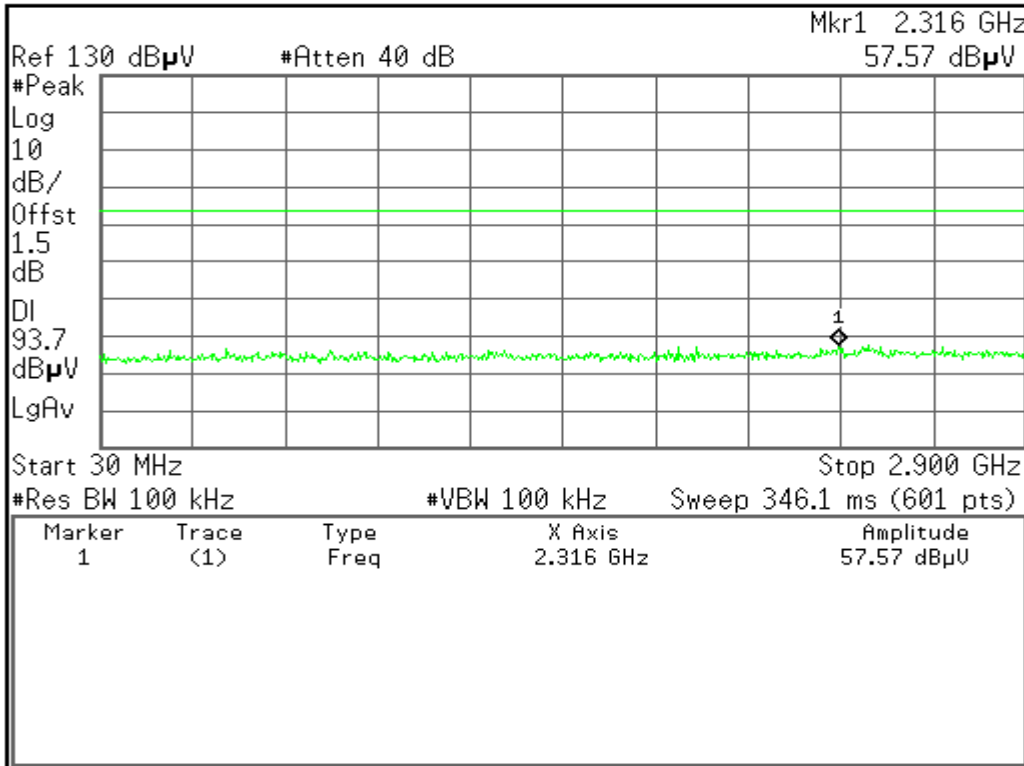
Preferences▶

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CH Mid

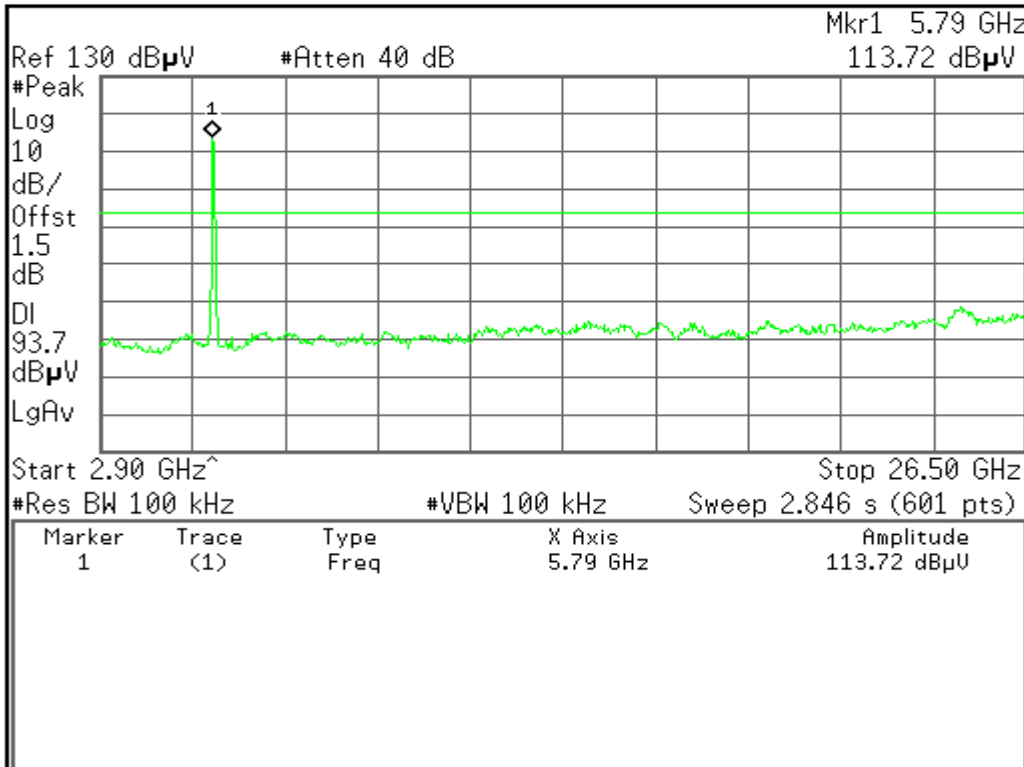
Agilent



- Peak Search
- Next Peak
- Next Pk Right
- Next Pk Left
- Min Search
- Pk-Pk Search
- Mkr \rightarrow CF
- More
1 of 2

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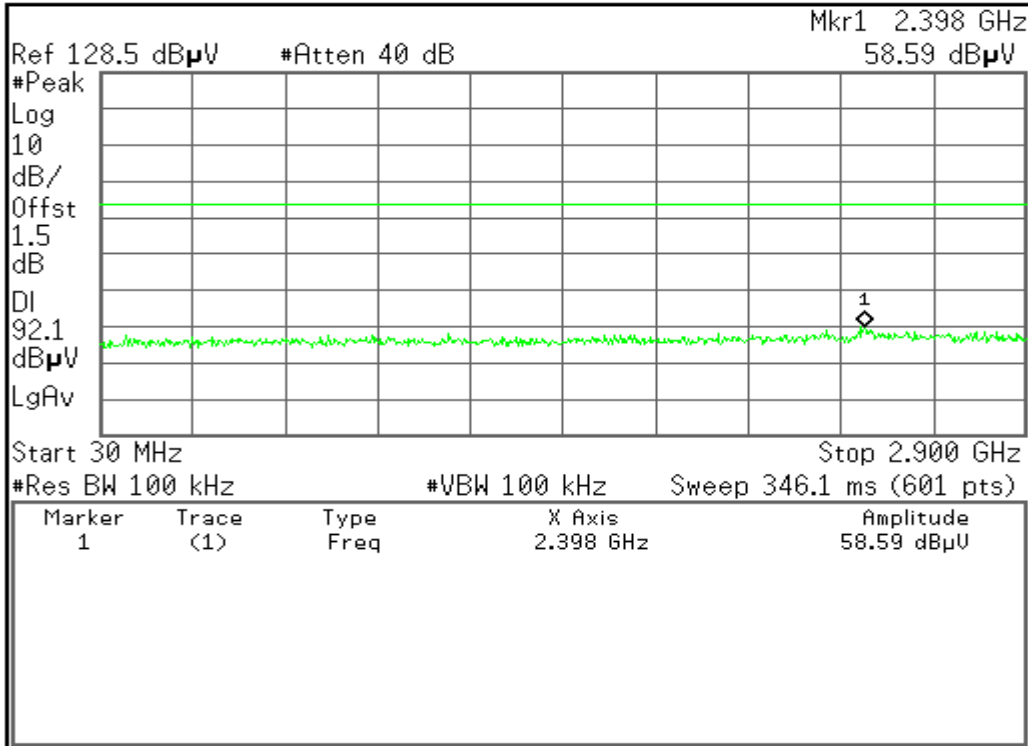
- Display
- Full Screen
- Display Line
93.70 dB μ V
On Off
- Limits
- Active Fctn
Position
Center
- Title
- Preferences

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CH High

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

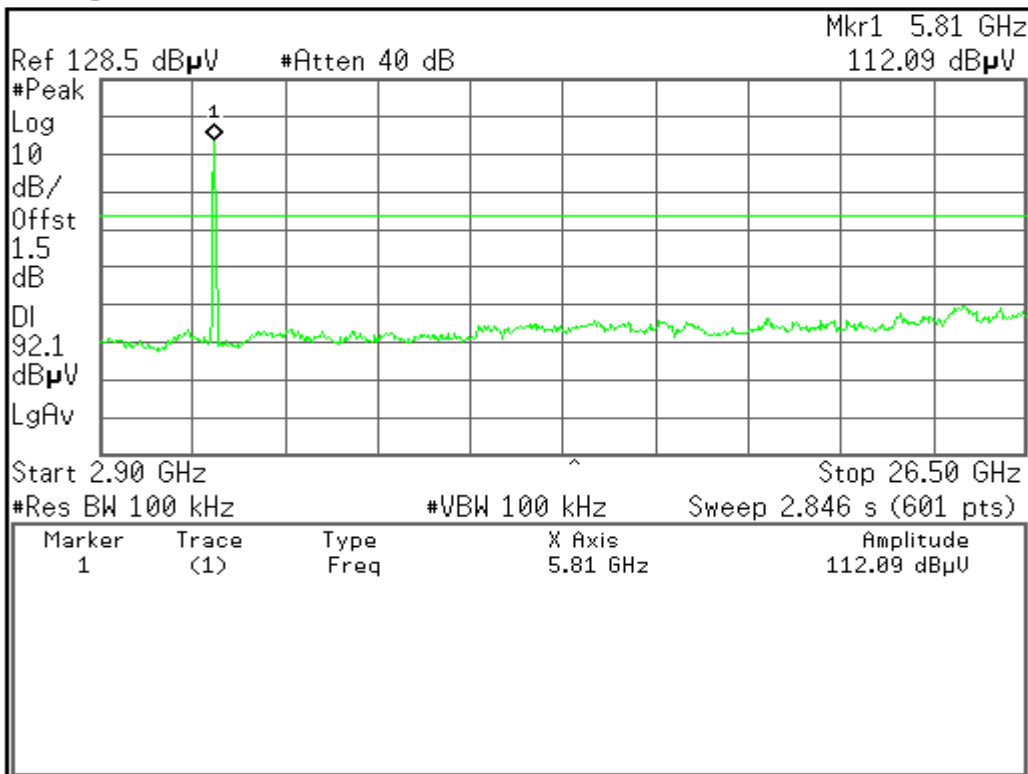
Pk-Pk Search

Mkr → CF

More
1 of 2

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Display

Full Screen

Display Line
92.10 dBμV
On Off

Limits▶

Active Fctn
Position▶
Center

Title▶

Preferences▶

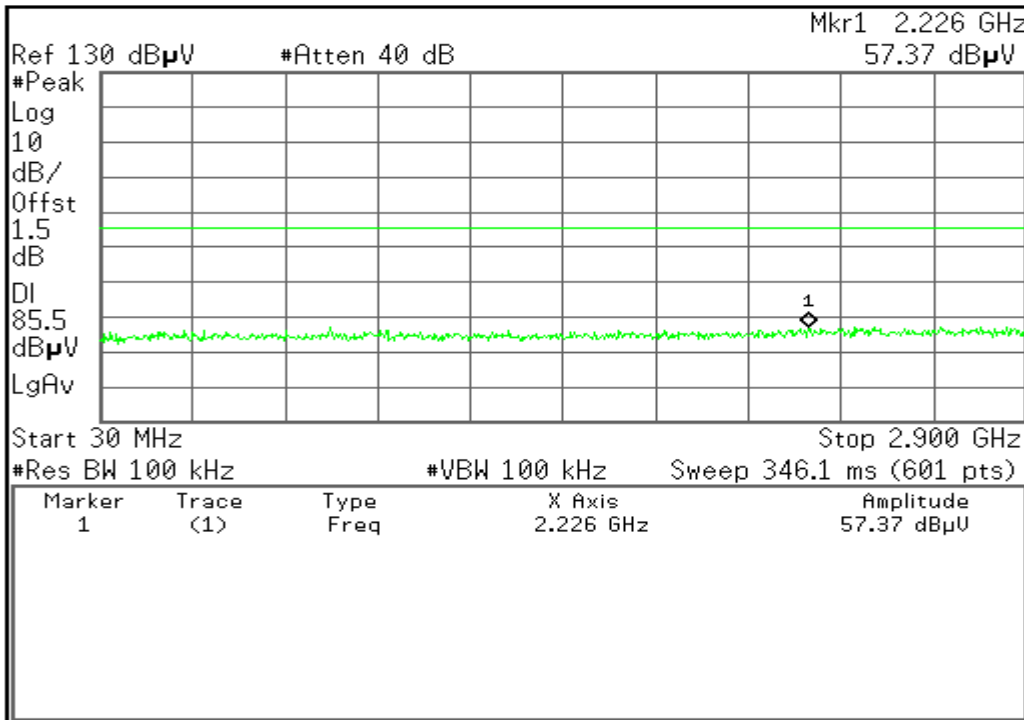
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draft 802.11n Standard-40 MHz Channel mode / Chain 0

CH Low

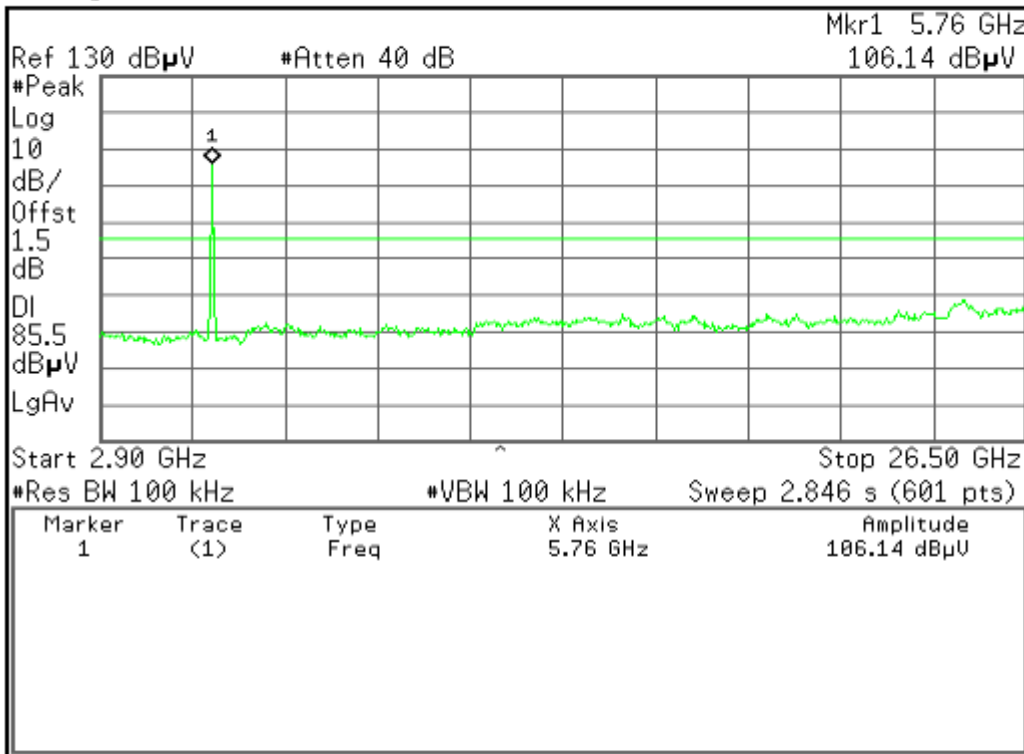
Agilent



Freq/Channel	
Center Freq	1.46500000 GHz
Start Freq	30.0000000 MHz
Stop Freq	2.90000000 GHz
CF Step	287.000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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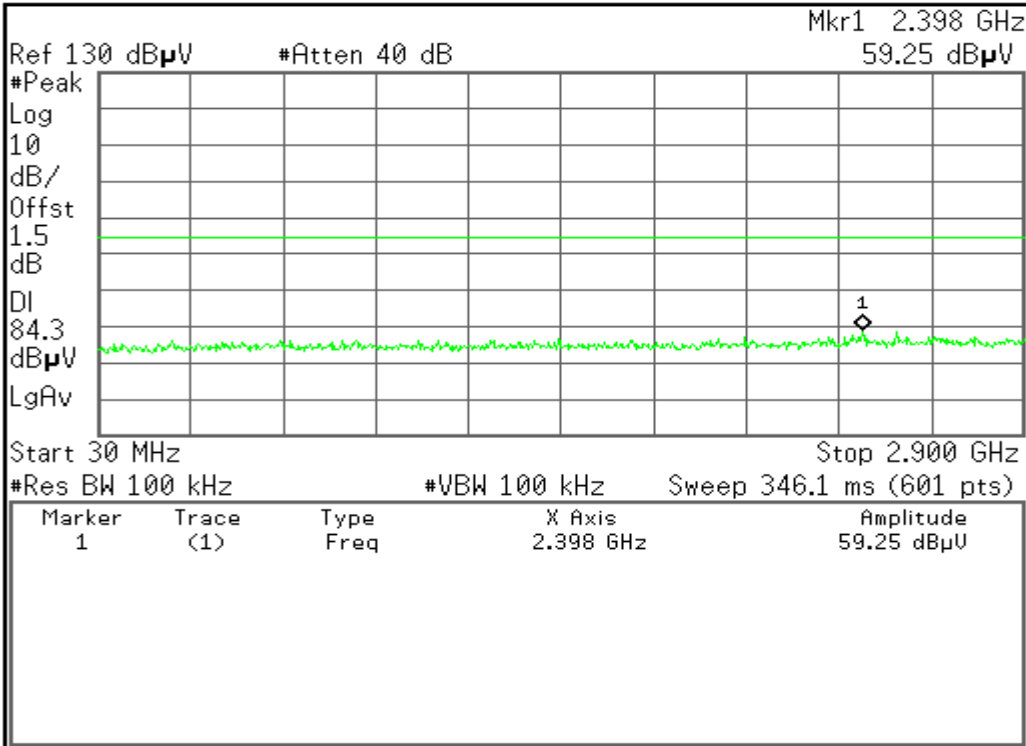
Freq/Channel	
Center Freq	14.7000000 GHz
Start Freq	2.90000000 GHz
Stop Freq	26.5000000 GHz
CF Step	2.36000000 GHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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CH Mid

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

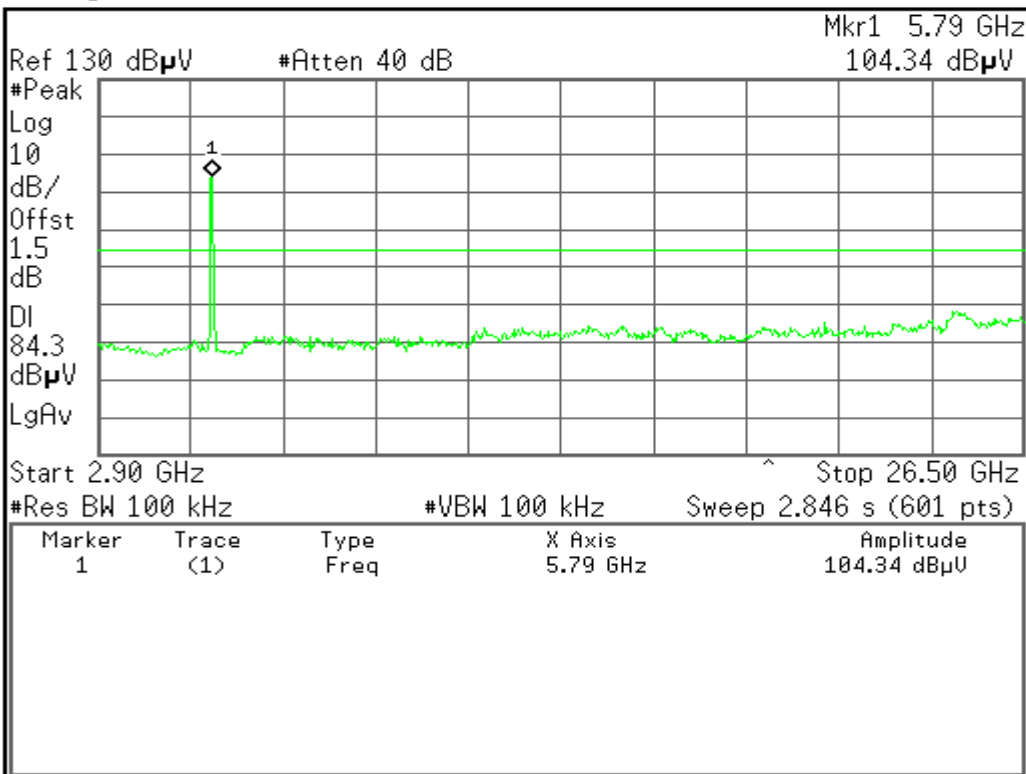
Pk-Pk Search

Mkr → CF

More
1 of 2

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Freq/Channel

Center Freq
14.70000000 GHz

Start Freq
2.90000000 GHz

Stop Freq
26.50000000 GHz

CF Step
2.36000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

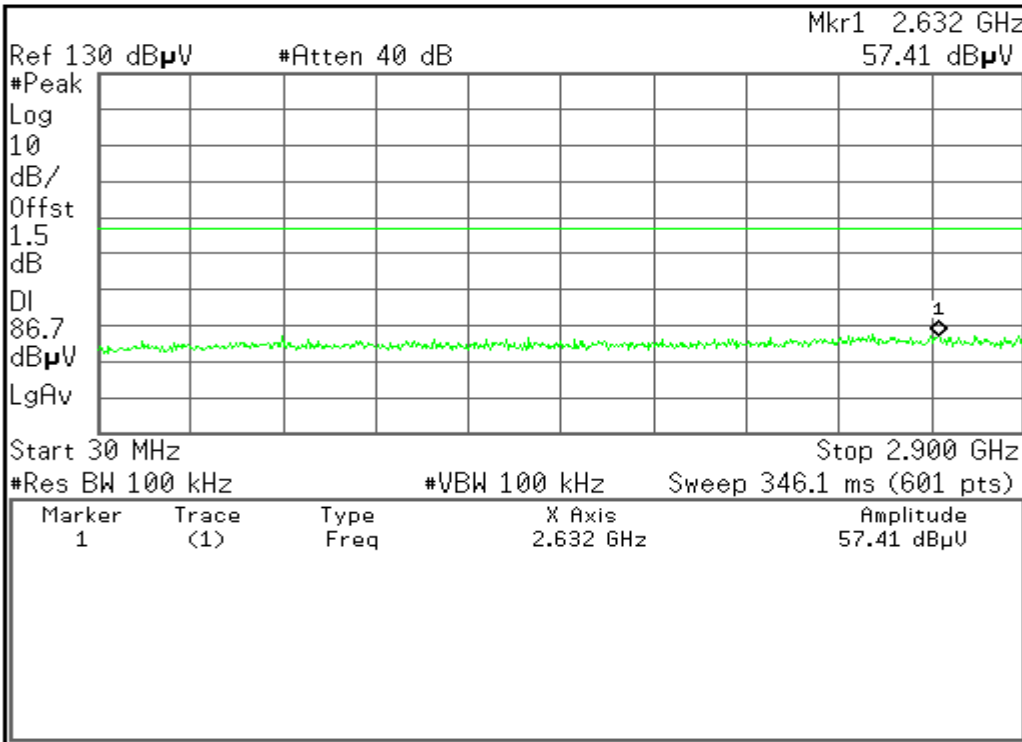
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draft 802.11n Standard-40 MHz Channel mode / Chain 1

CH Low

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

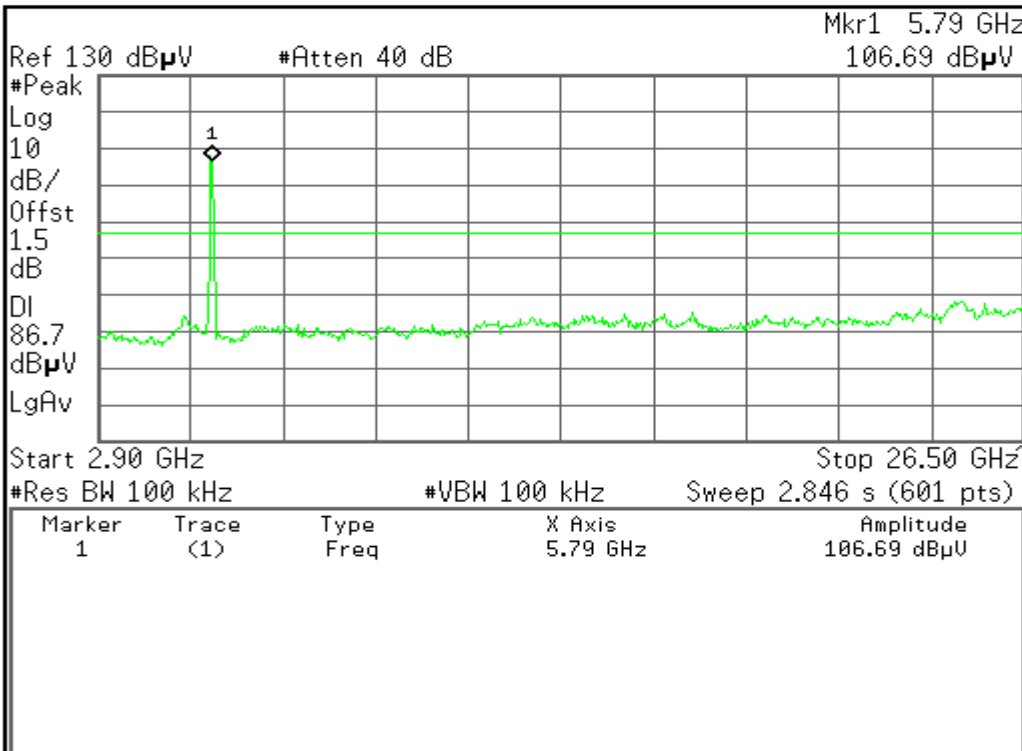
PK-Pk Search

Mkr → CF

More
1 of 2

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Freq/Channel

Center Freq
14.70000000 GHz

Start Freq
2.90000000 GHz

Stop Freq
26.50000000 GHz

CF Step
2.36000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

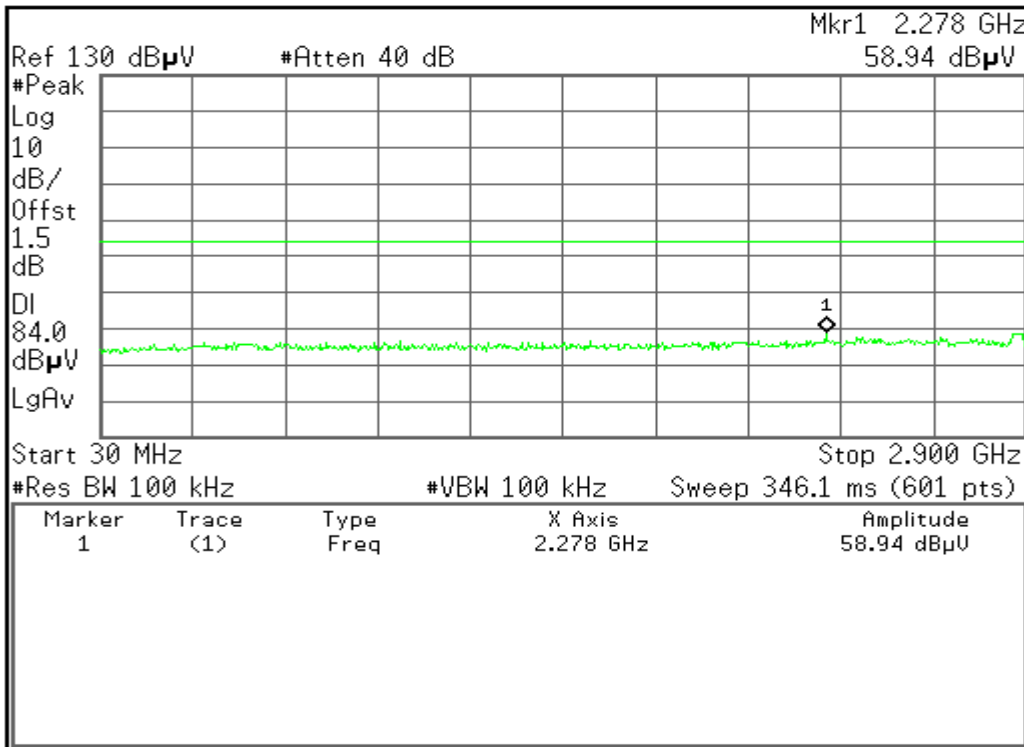
Signal Track
On Off

Unable to save file



CH Mid

Agilent

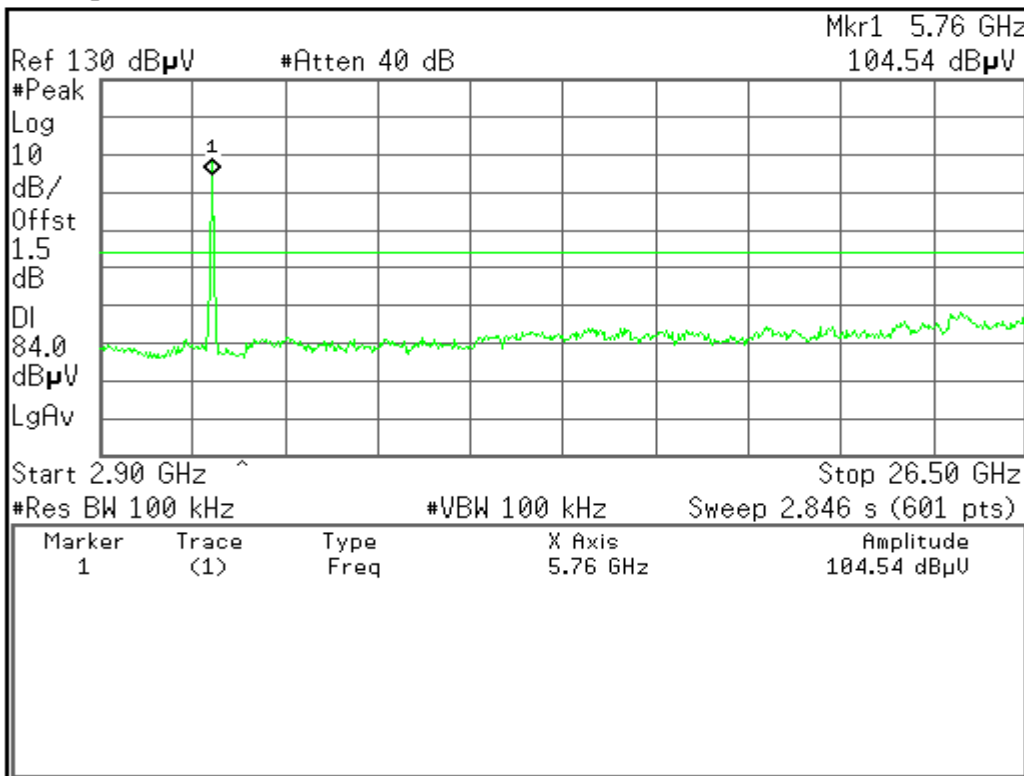


Freq/Channel

Center Freq 1.46500000 GHz
Start Freq 30.0000000 MHz
Stop Freq 2.90000000 GHz
CF Step 287.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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Agilent



Freq/Channel

Center Freq 14.7000000 GHz
Start Freq 2.90000000 GHz
Stop Freq 26.5000000 GHz
CF Step 2.36000000 GHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

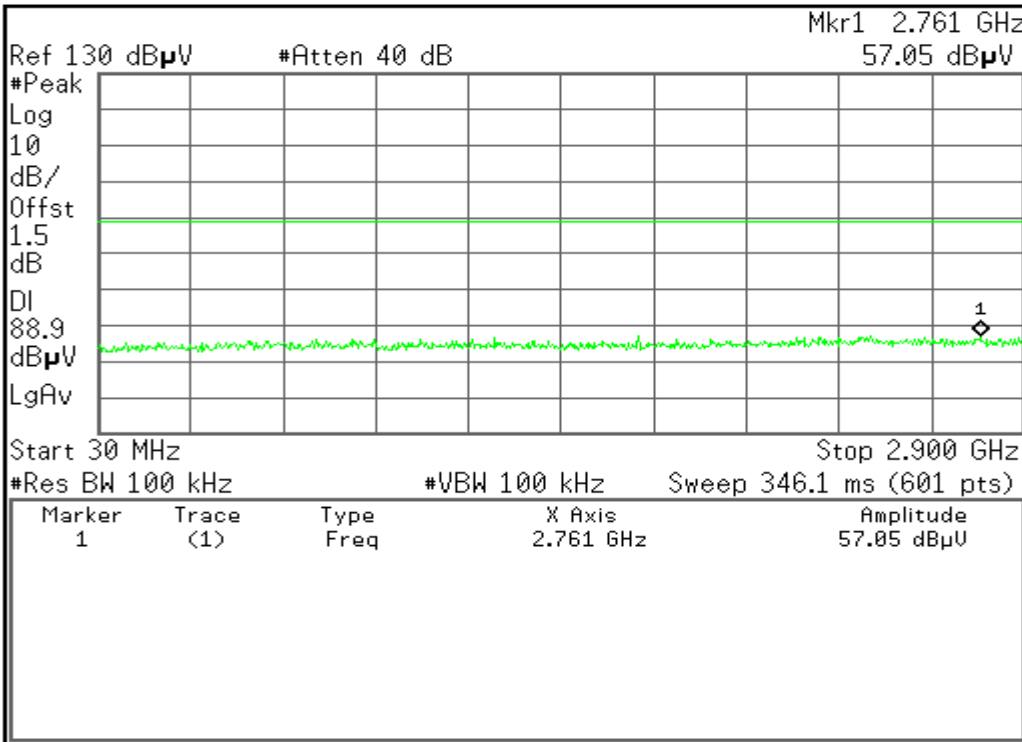
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draft 802.11n Standard-40 MHz Channel mode / Chain 2

CH Low

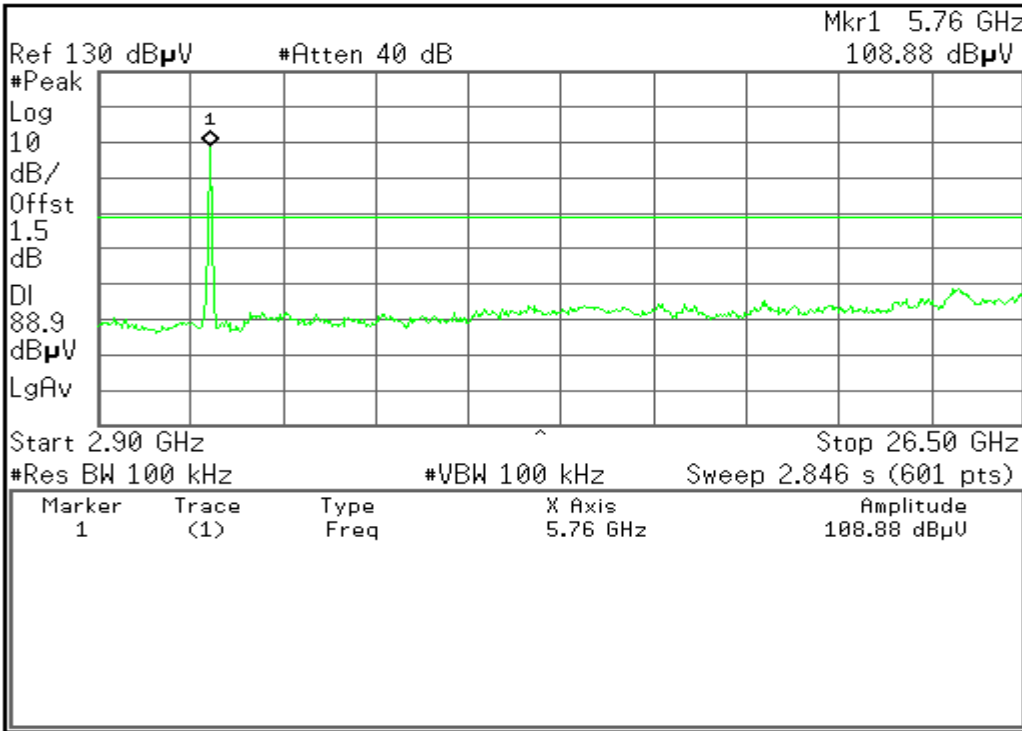
Agilent



- Peak Search
- Next Peak
- Next Pk Right
- Next Pk Left
- Min Search
- PK-Pk Search
- Mkr → CF
- More
1 of 2

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Agilent



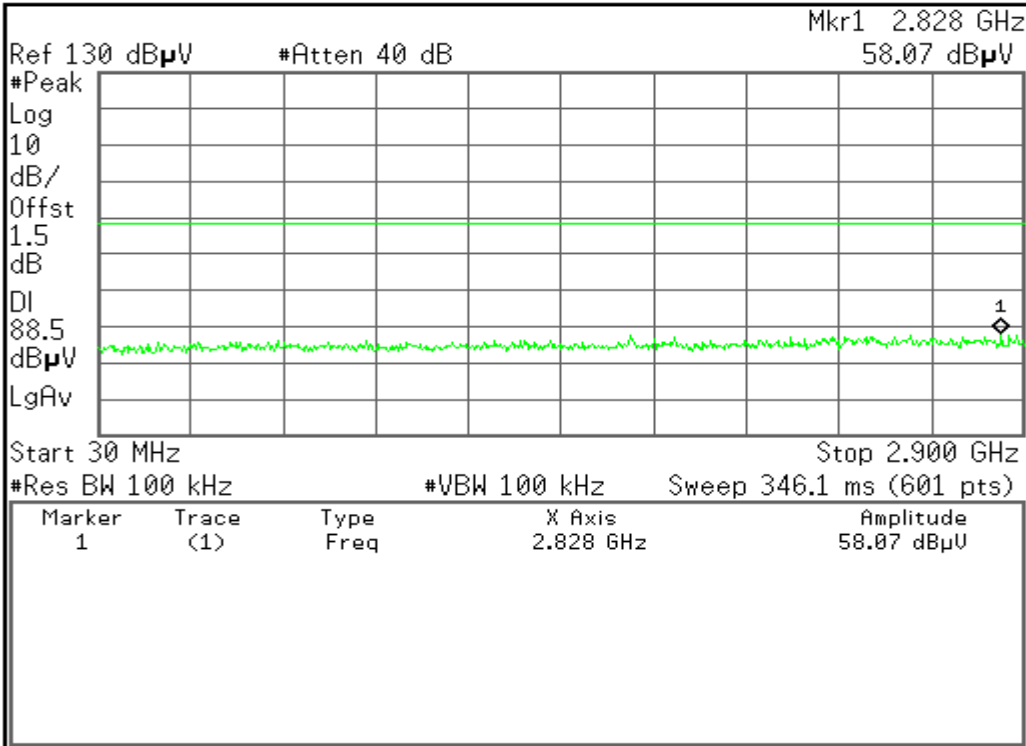
- Display
- Full Screen
- Display Line
88.90 dBμV
On Off
- Limits▶
- Active Fctn
Position▶
Center
- Title▶
- Preferences▶

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CH Mid

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

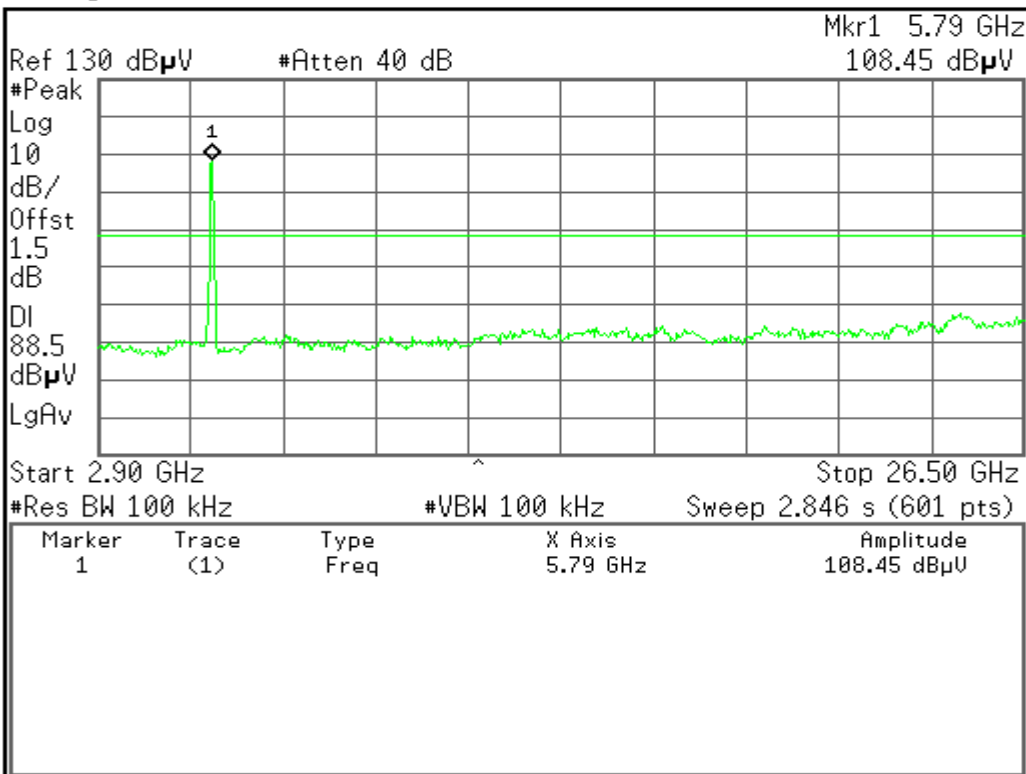
Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

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Display

Full Screen

Display Line
88.50 dB μ V
On Off

Limits

Active Fctn
Position
Center

Title

Preferences

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RADIATED EMISSIONS

LIMIT

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

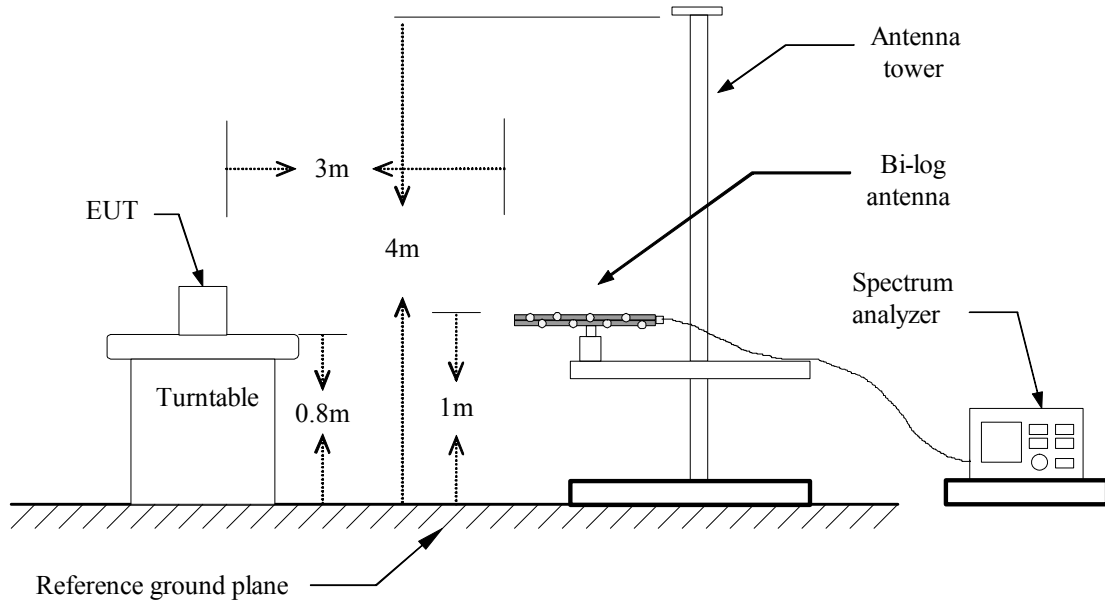
Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of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

2. In the emission table above, the tighter limit applies at the band edges.

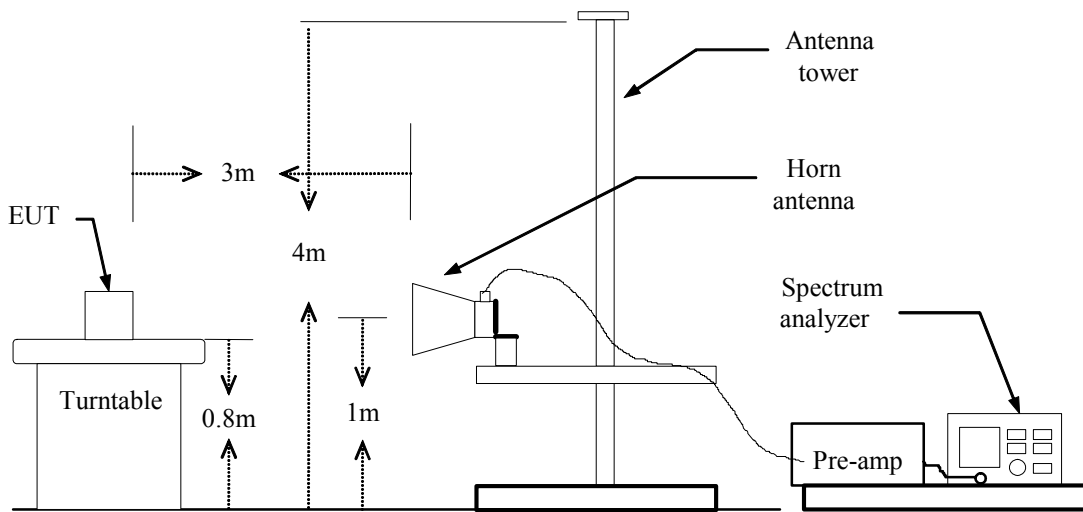
Frequency (MHz)	Field Strength (µV/m at 3-meter)	Field Strength (dBµV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

Below 1 GHz



Above 1 GHz





TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
Below 1GHz:
 RBW=100kHz / VBW=300kHz / Sweep=AUTO
Above 1GHz:
 (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

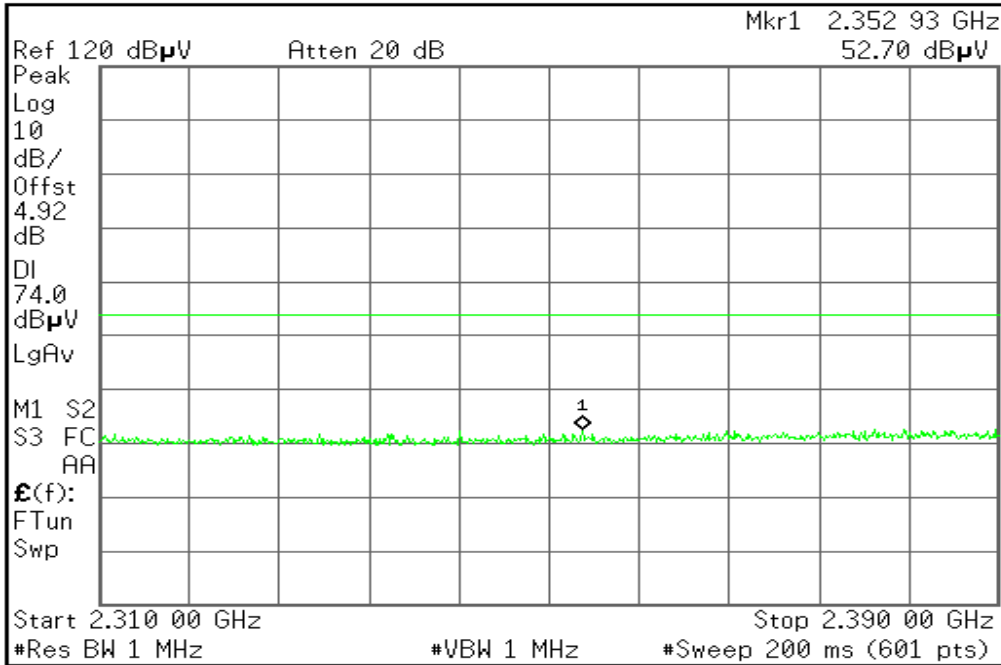


TEST RESULTS

RESTRICTED BANDEDGE (b Mode, Low Channel, Horizontal)

PEAK

Agilent

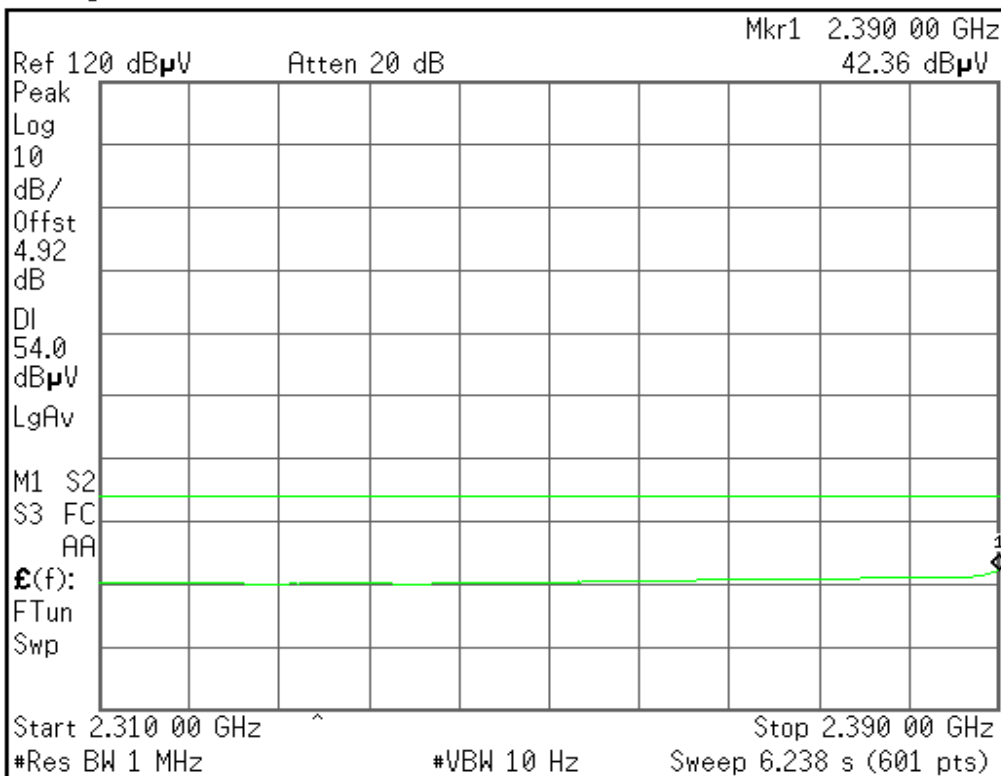


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More 1 of 2

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AVG

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Freq/Channel
Center Freq 2.35000000 GHz
Start Freq 2.31000000 GHz
Stop Freq 2.39000000 GHz
CF Step 8.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

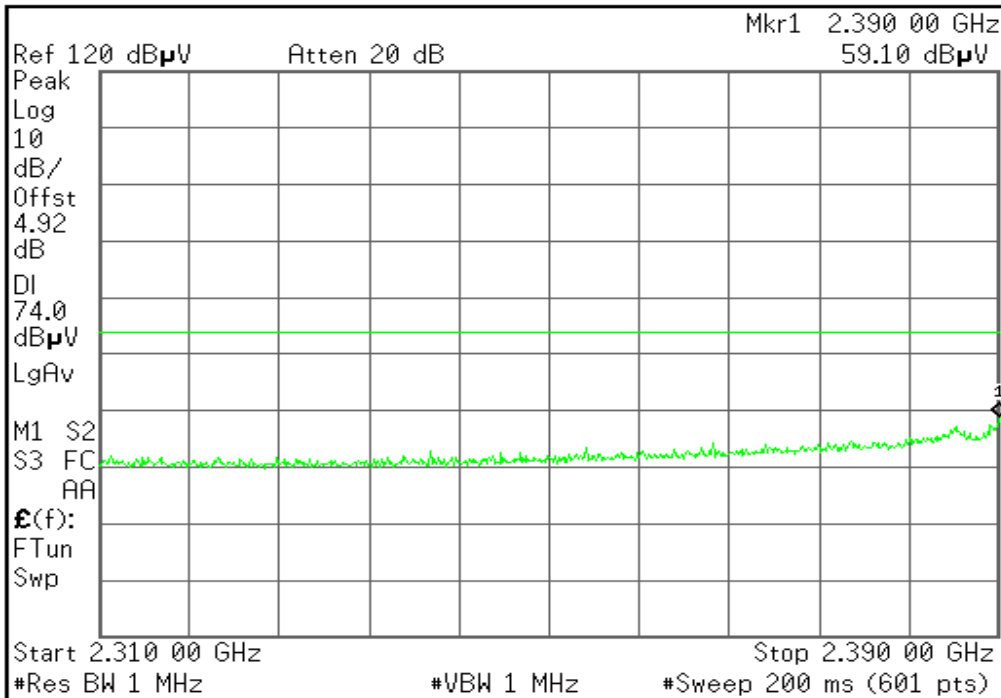
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RESTRICTED BANDEDGE (b Mode, Low Channel, Vertical)

PEAK

Agilent

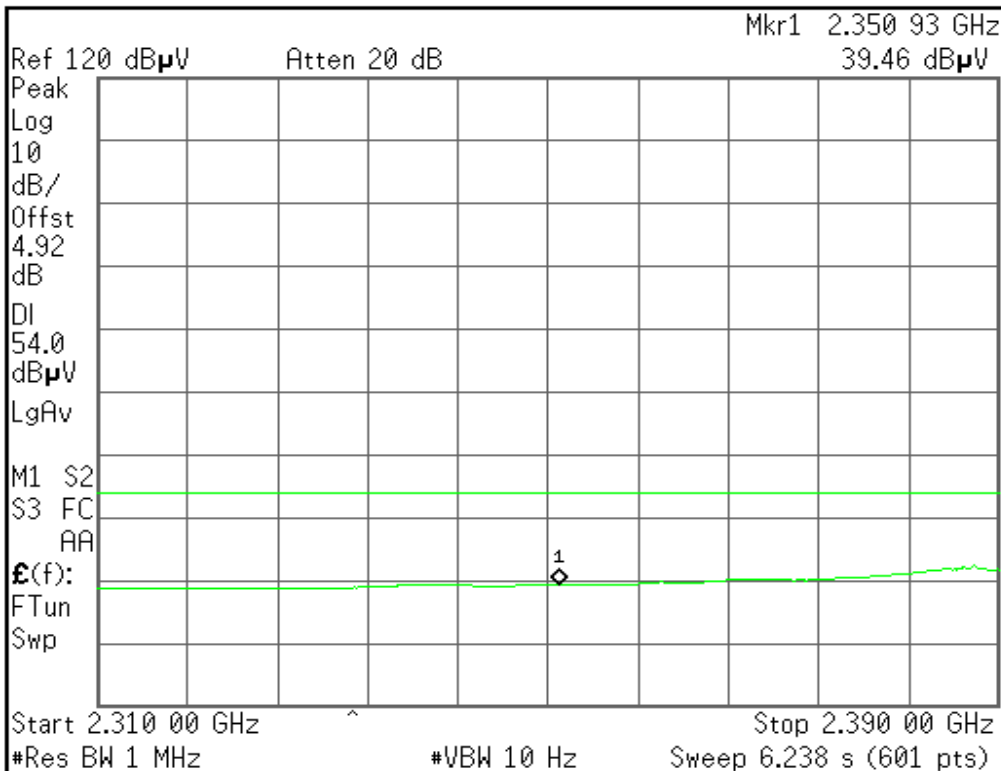


Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz
	Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Trace		
1	2	3
Trace		
Clear Write		
Max Hold		
Min Hold		
View		
Blank		
More		
1 of 2		

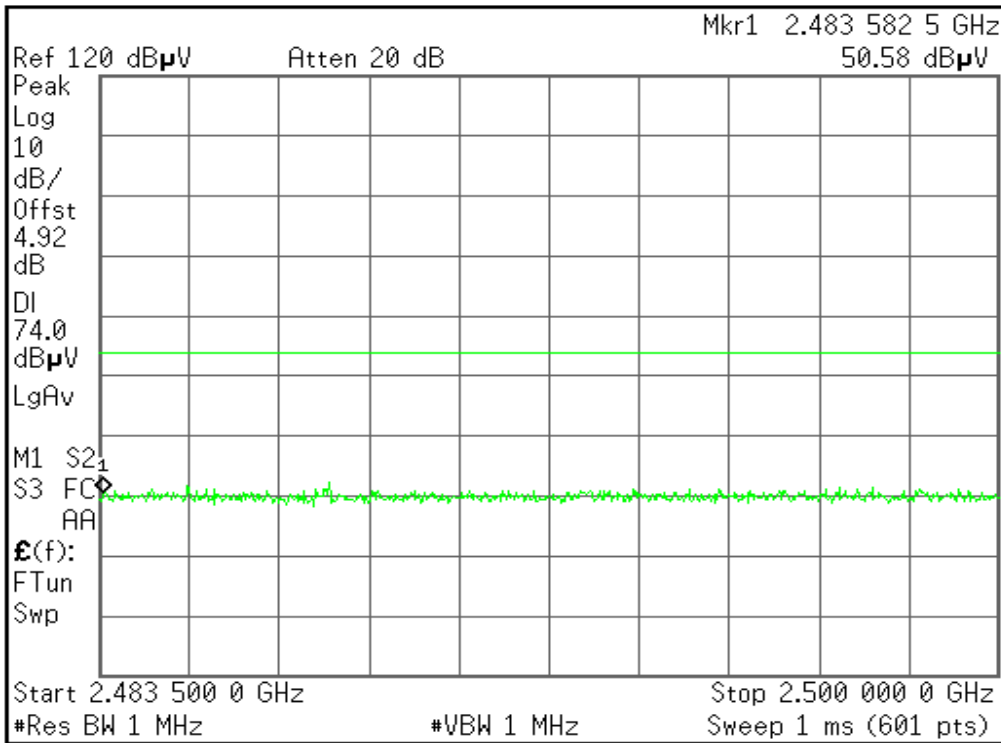
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RESTRICTED BANDEDGE (b Mode, High Channel, Horizontal)

PEAK

Agilent

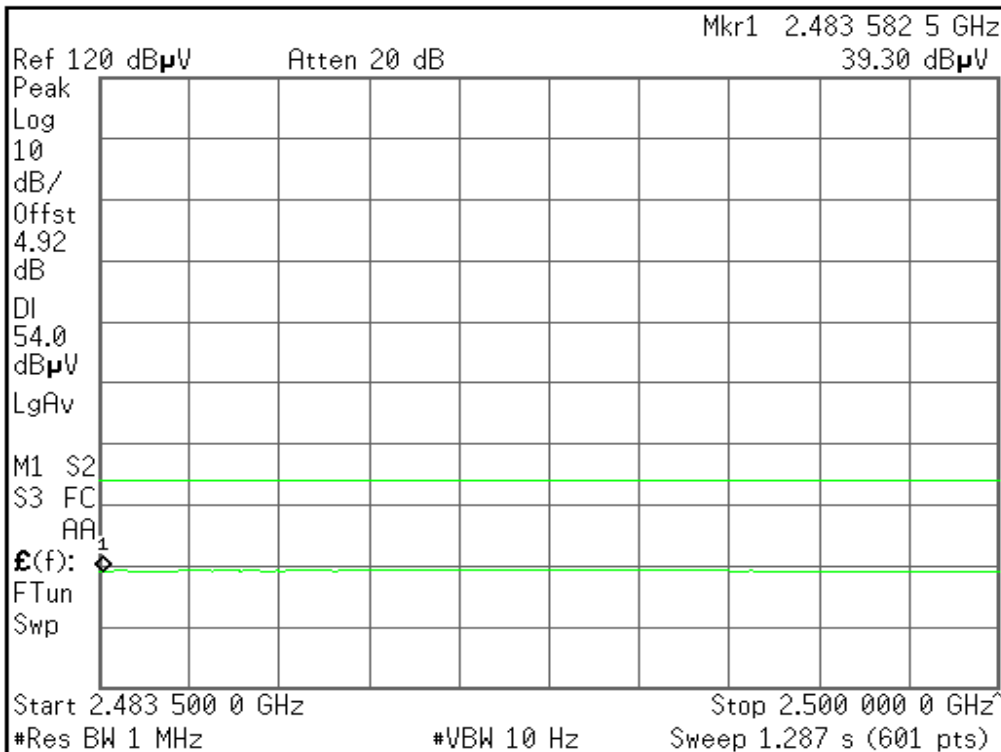


Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz
Auto	Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

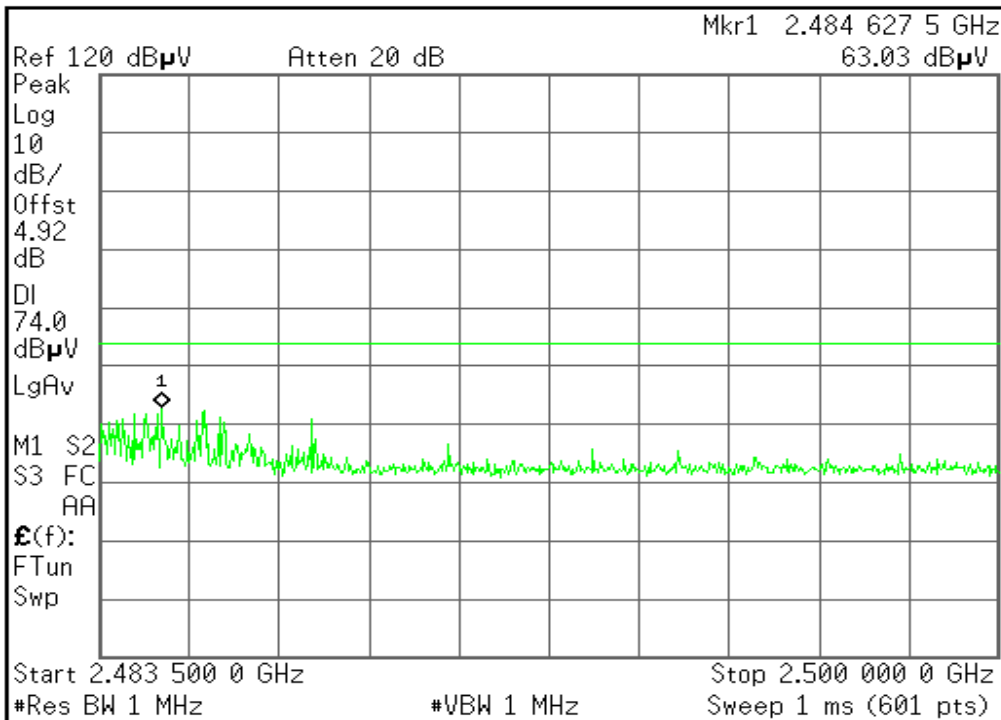
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RESTRICTED BANDEDGE (b Mode, High Channel, Vertical)

PEAK

Agilent

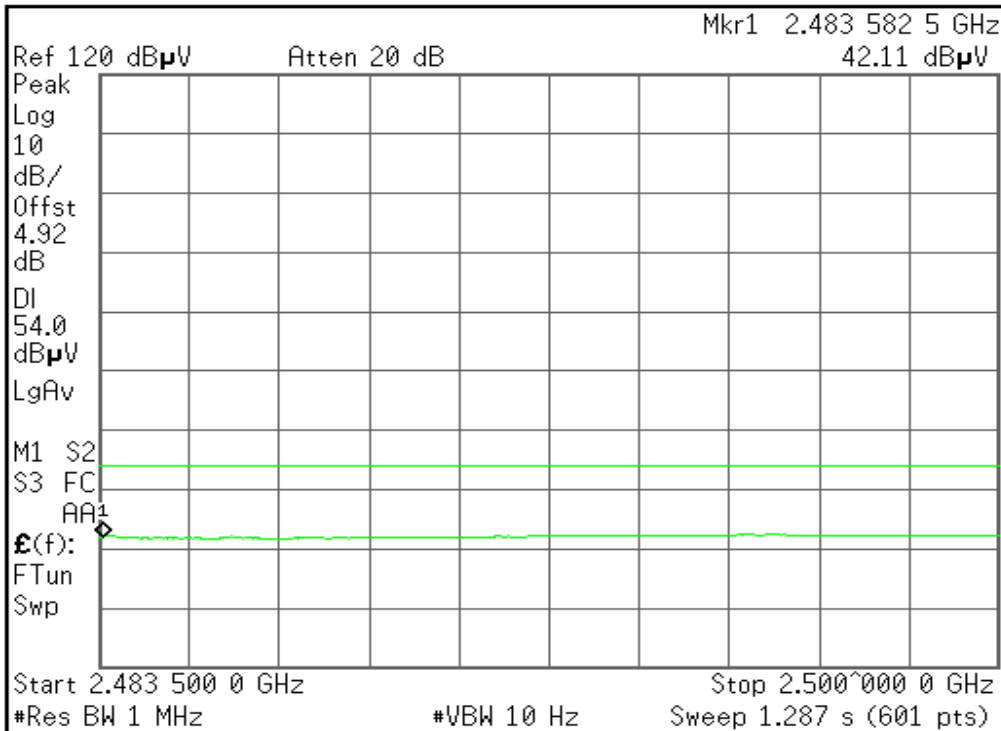


Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Peak Search	
Next Peak	
Next Pk Right	
Next Pk Left	
Min Search	
Pk-Pk Search	
Mkr \rightarrow CF	
More	1 of 2

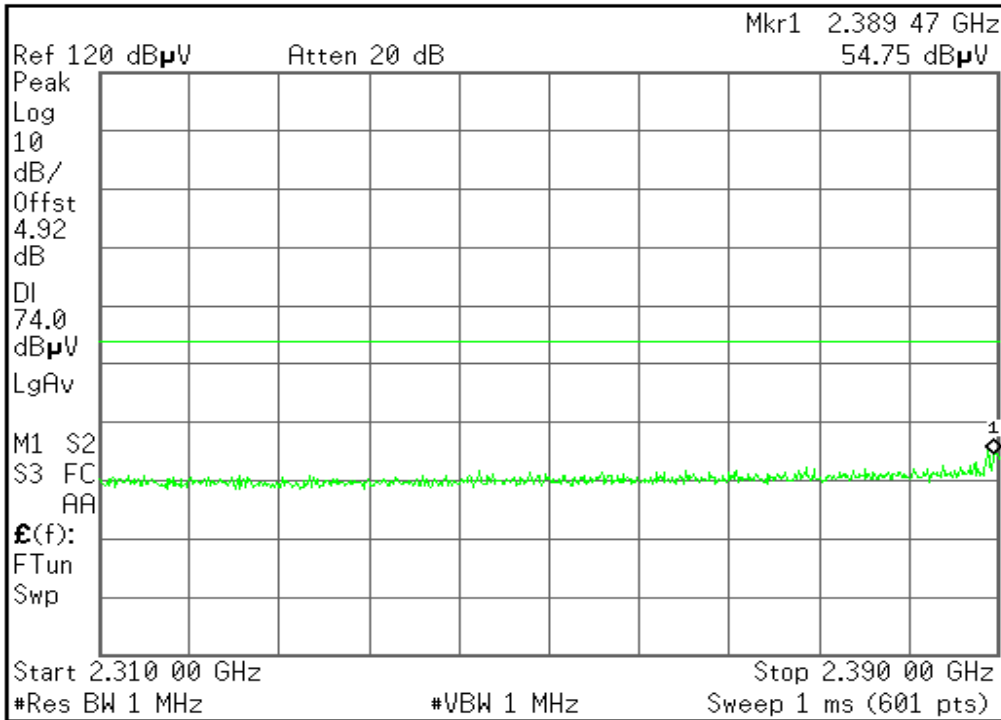
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RESTRICTED BANDEDGE (g Mode, Low Channel, Horizontal)

PEAK

Agilent

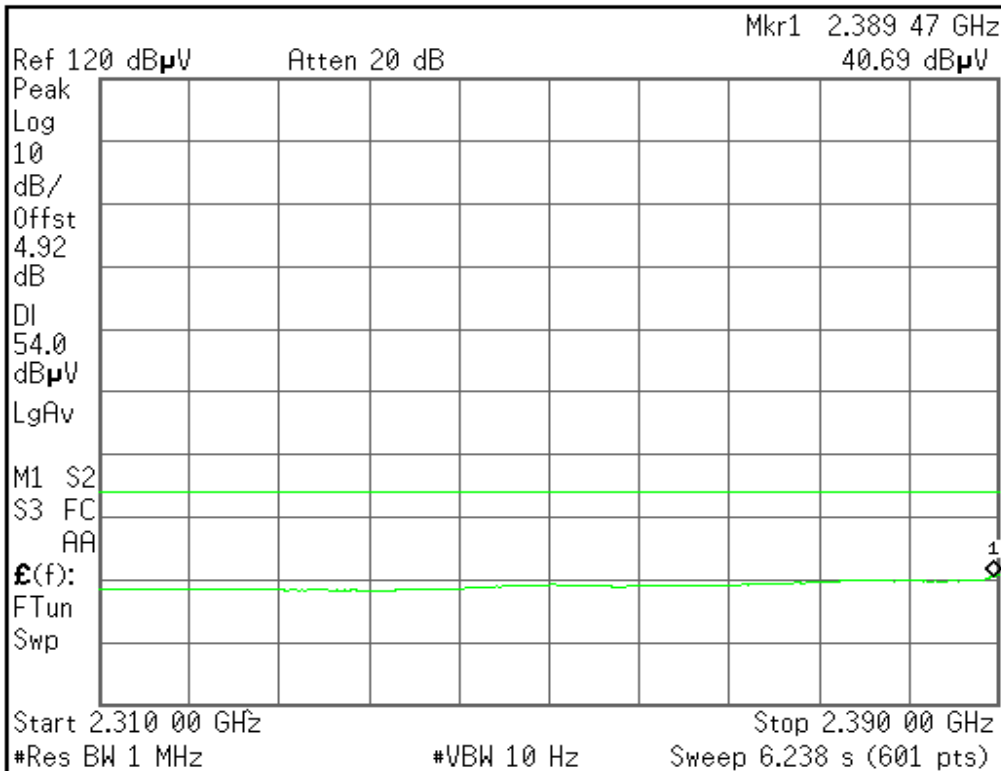


Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

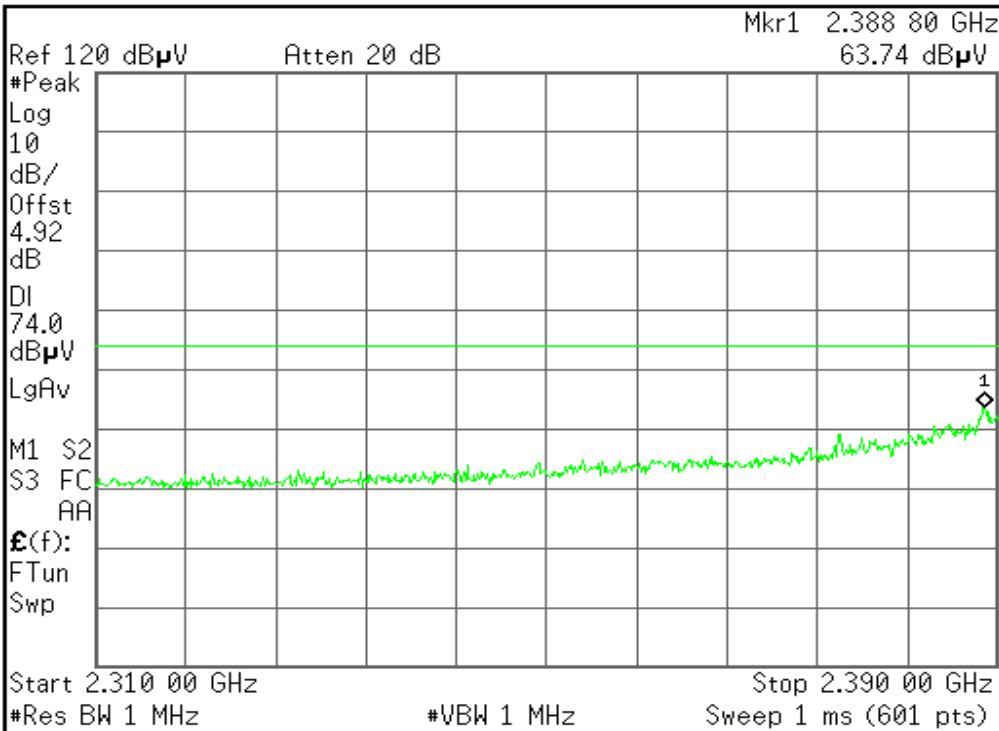
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RESTRICTED BANDEDGE (g Mode, Low Channel, Vertical)

PEAK

Agilent

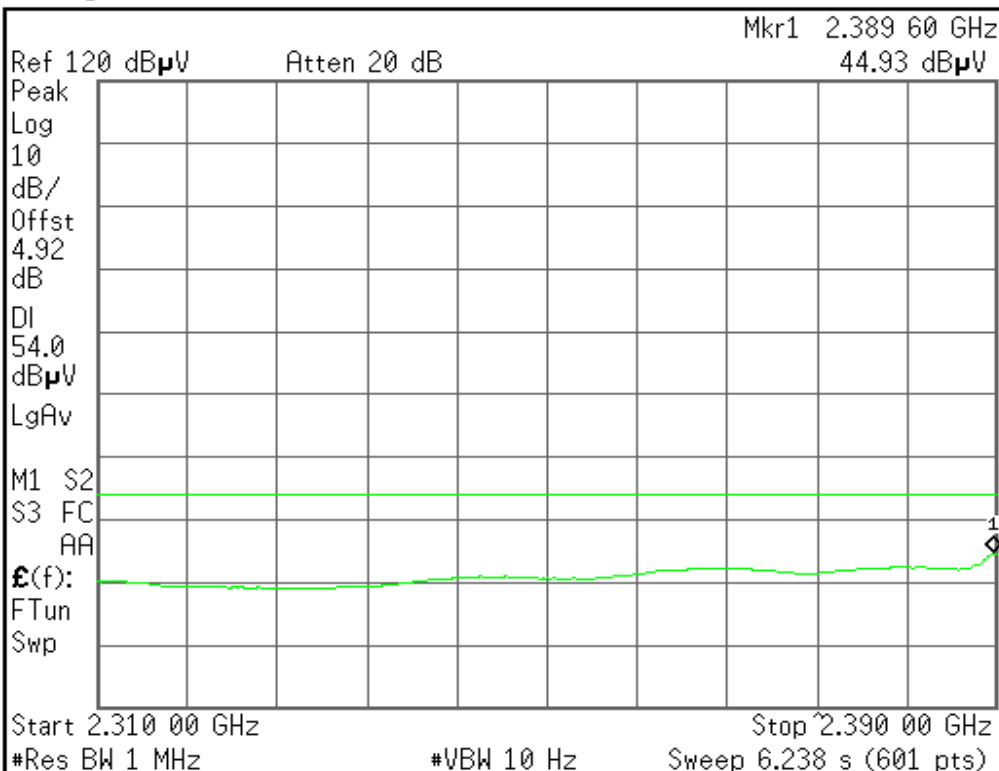


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr \rightarrow CF
More 1 of 2

Unable to save file

AVG

Agilent



Freq/Channel
Center Freq 2.35000000 GHz
Start Freq 2.31000000 GHz
Stop Freq 2.39000000 GHz
CF Step 8.00000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

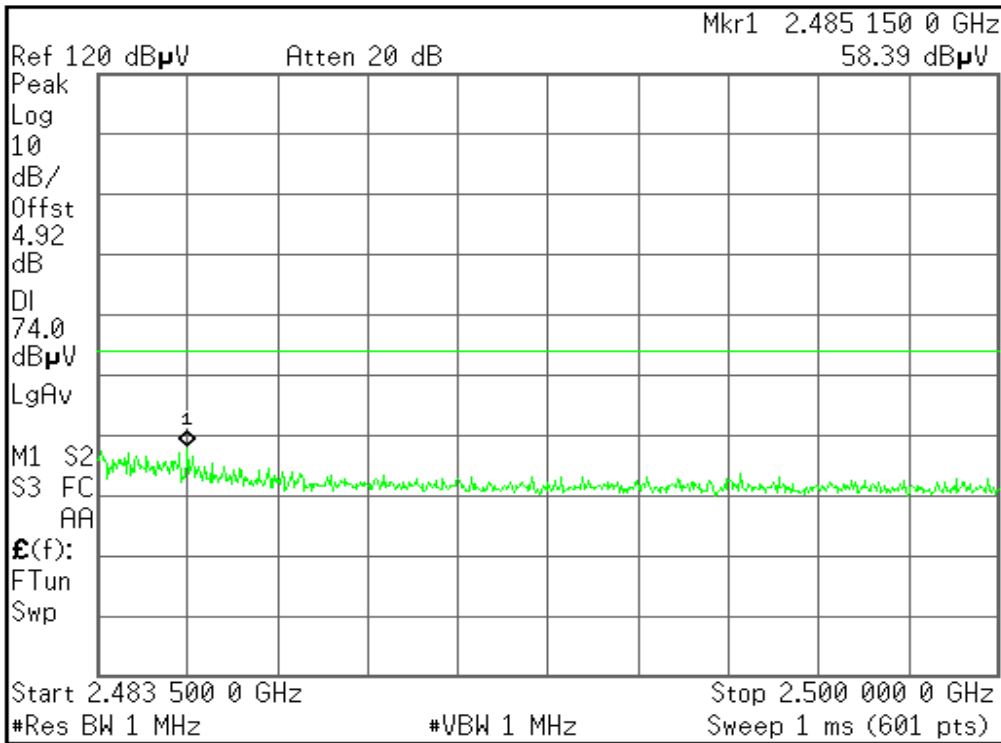
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RESTRICTED BANDEDGE (g Mode, High Channel, Horizontal)

PEAK

Agilent

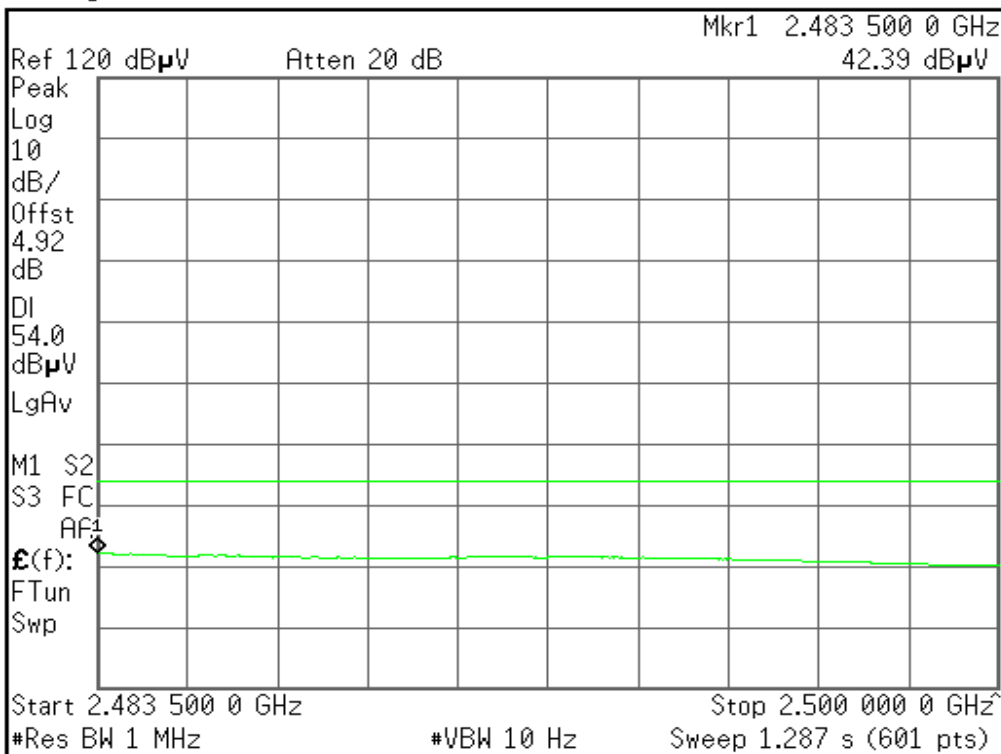


Freq/Channel
Center Freq 2.49175000 GHz
Start Freq 2.48350000 GHz
Stop Freq 2.50000000 GHz
CF Step 1.65000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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Freq/Channel
Center Freq 2.49175000 GHz
Start Freq 2.48350000 GHz
Stop Freq 2.50000000 GHz
CF Step 1.65000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

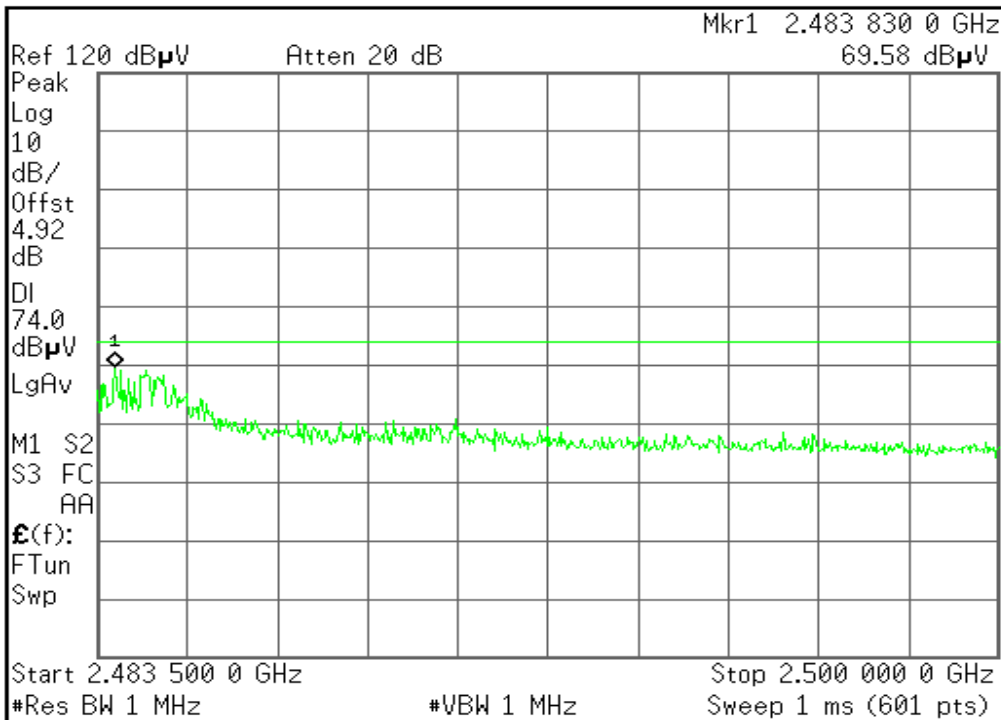
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RESTRICTED BANDEDGE (g Mode, High Channel, Vertical)

PEAK

Agilent

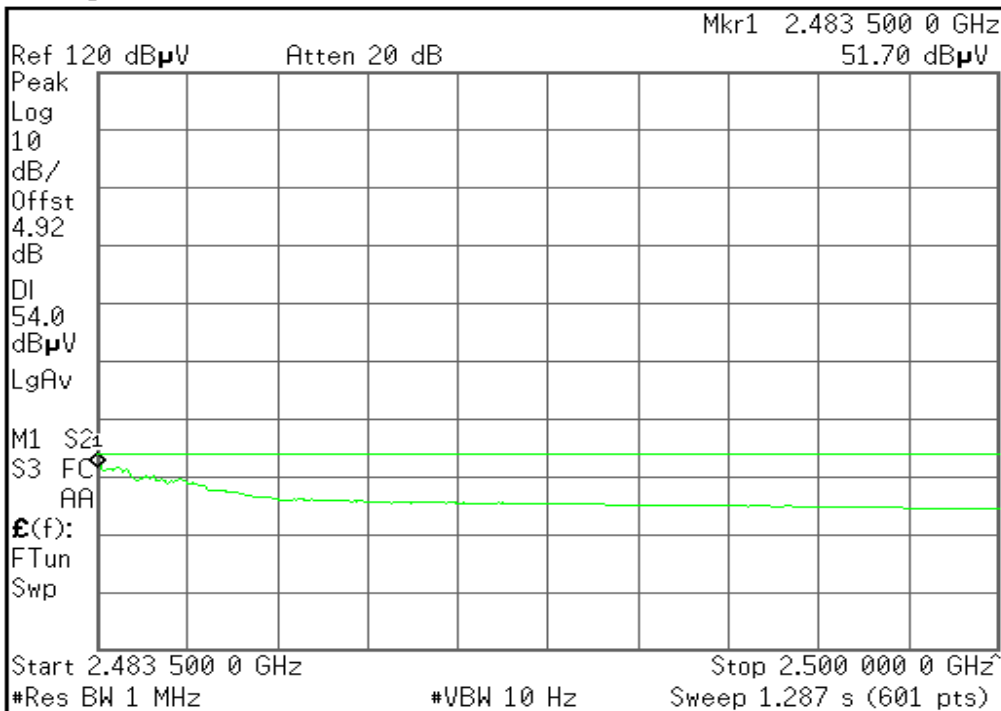


Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Freq/Channel	
Center Freq	2.49175000 GHz
Start Freq	2.48350000 GHz
Stop Freq	2.50000000 GHz
CF Step	1.65000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

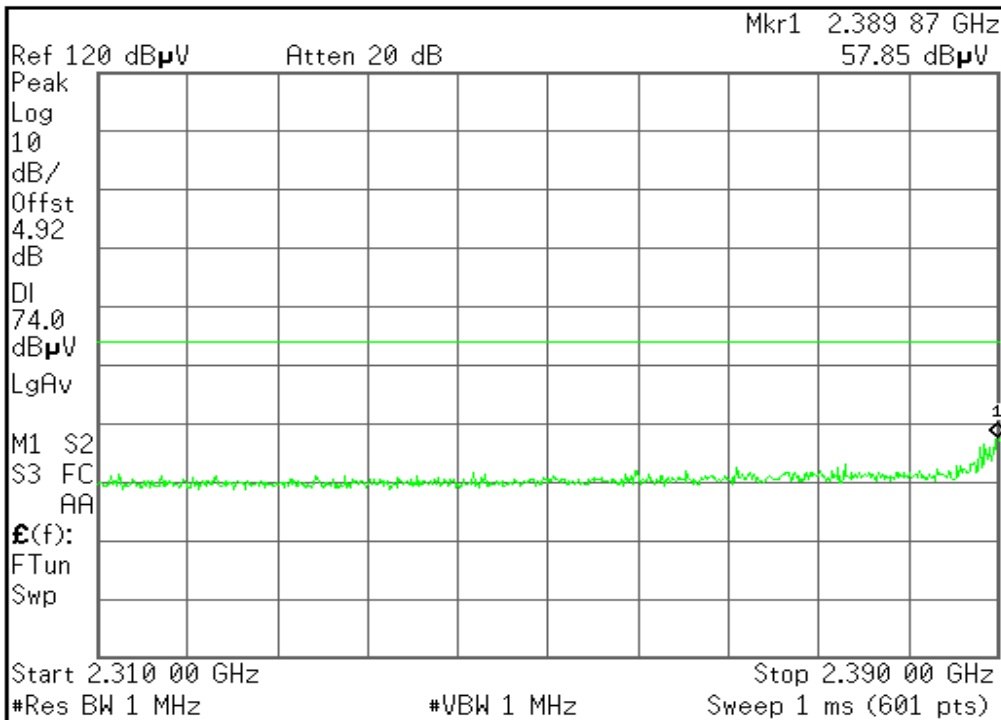
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RESTRICTED BANDEDGE (draft 802.11n Standard-20 MHz Channel mode, Low Channel, Horizontal)

PEAK

Agilent

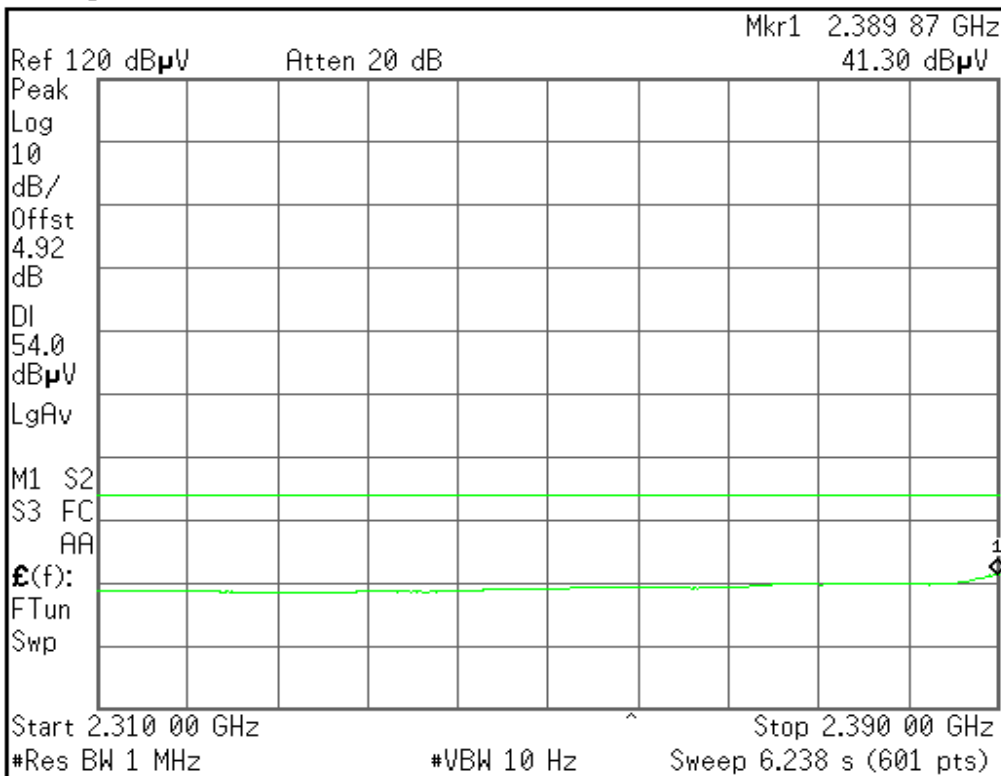


Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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Agilent



Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

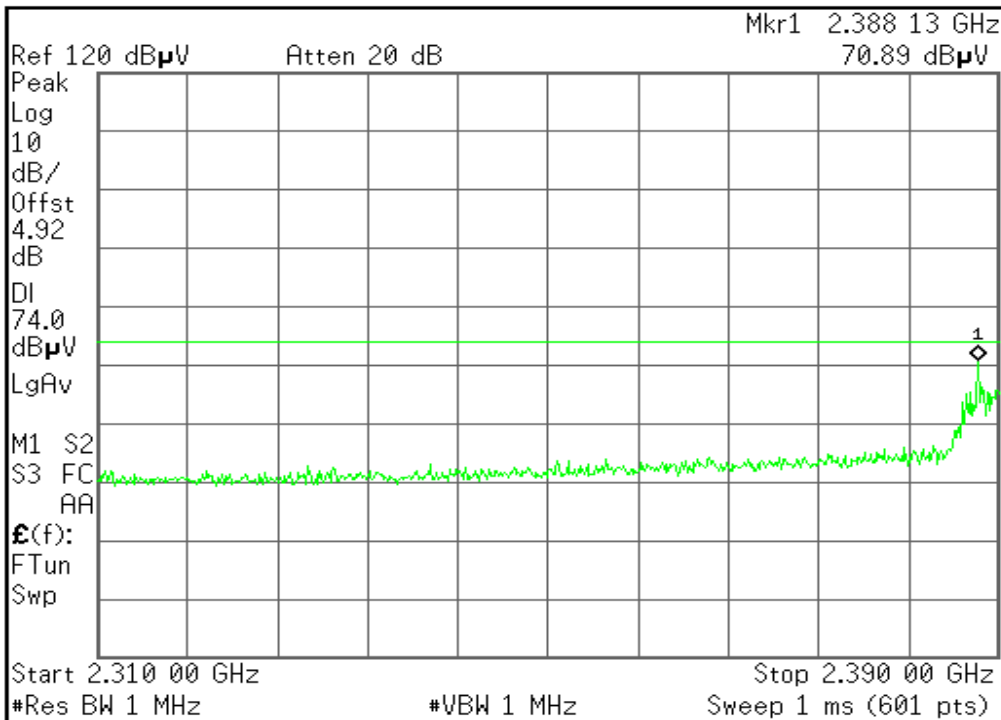
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RESTRICTED BANDEDGE (draft 802.11n Standard-20 MHz Channel mode, Low Channel, Vertical)

PEAK

Agilent

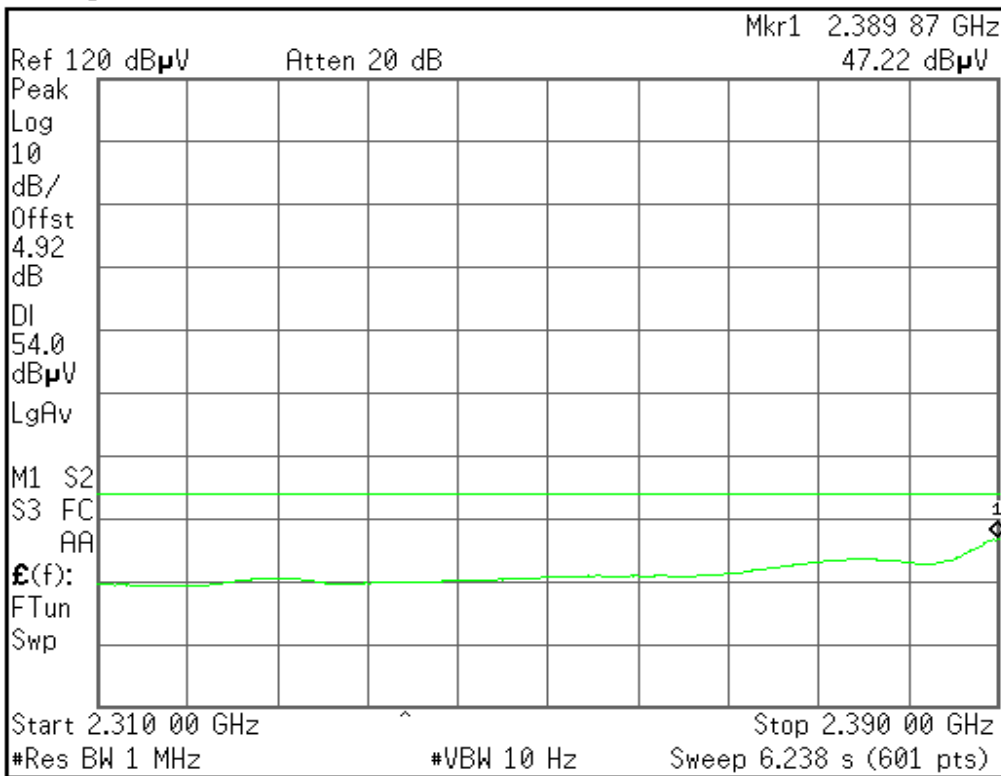


Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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AVG

Agilent



Freq/Channel	
Center Freq	2.35000000 GHz
Start Freq	2.31000000 GHz
Stop Freq	2.39000000 GHz
CF Step	8.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

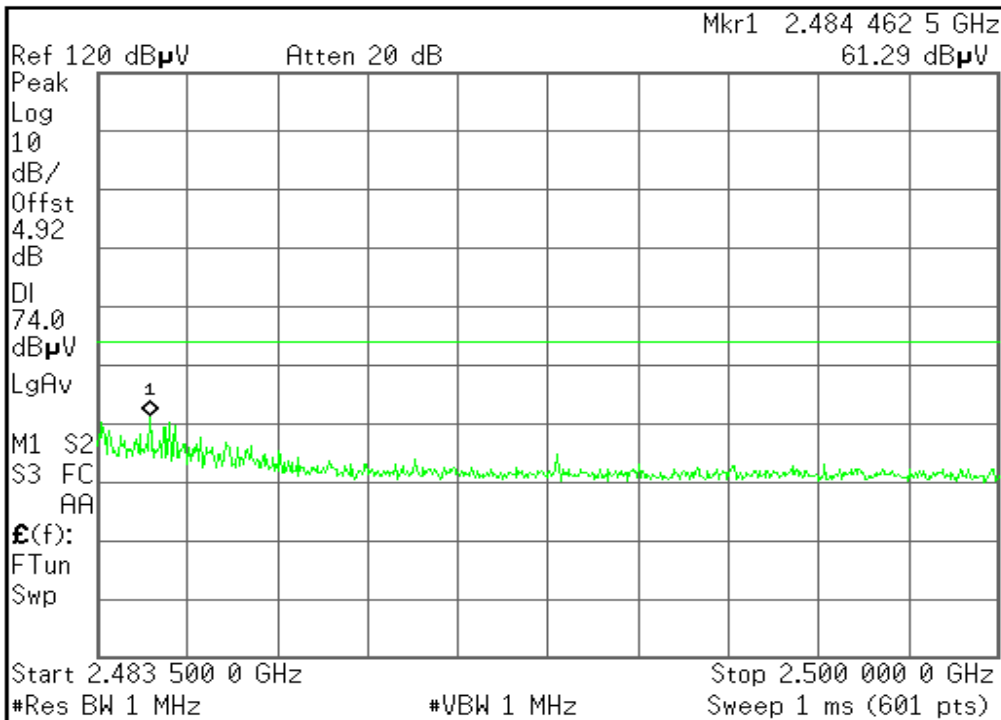
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RESTRICTED BANDEDGE (draft 802.11n Standard-20 MHz Channel mode, High Channel, Horizontal)

PEAK

Agilent

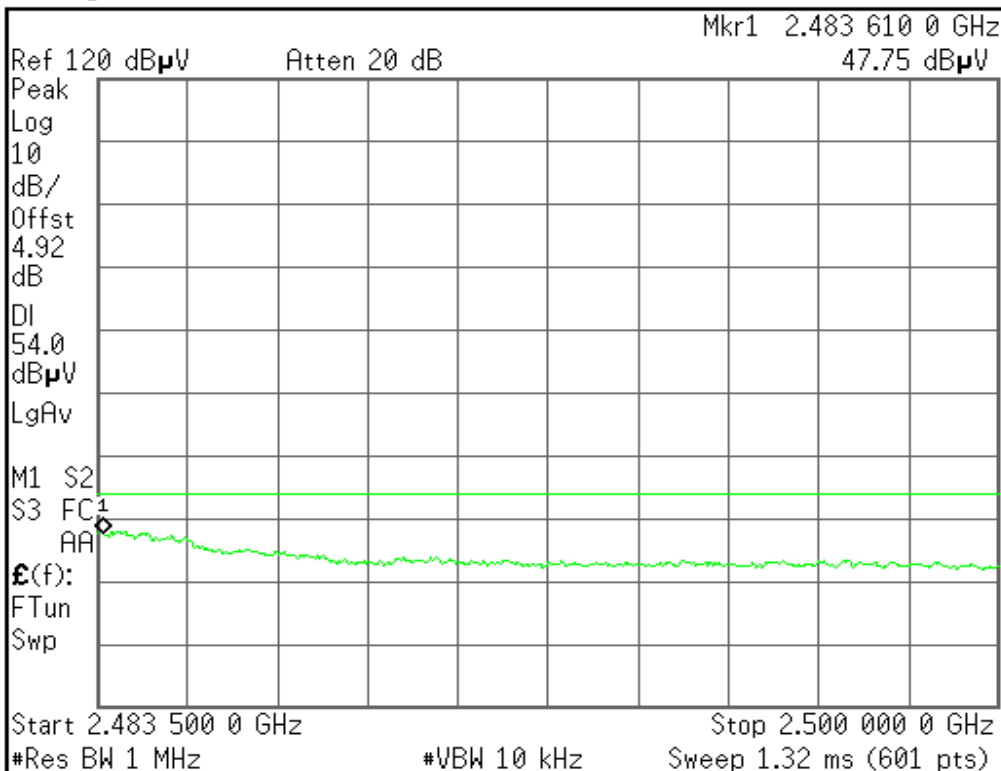


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
PK-Pk Search
Mkr → CF
More 1 of 2

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AVG

Agilent



Freq/Channel
Center Freq 2.49175000 GHz
Start Freq 2.48350000 GHz
Stop Freq 2.50000000 GHz
CF Step 1.65000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

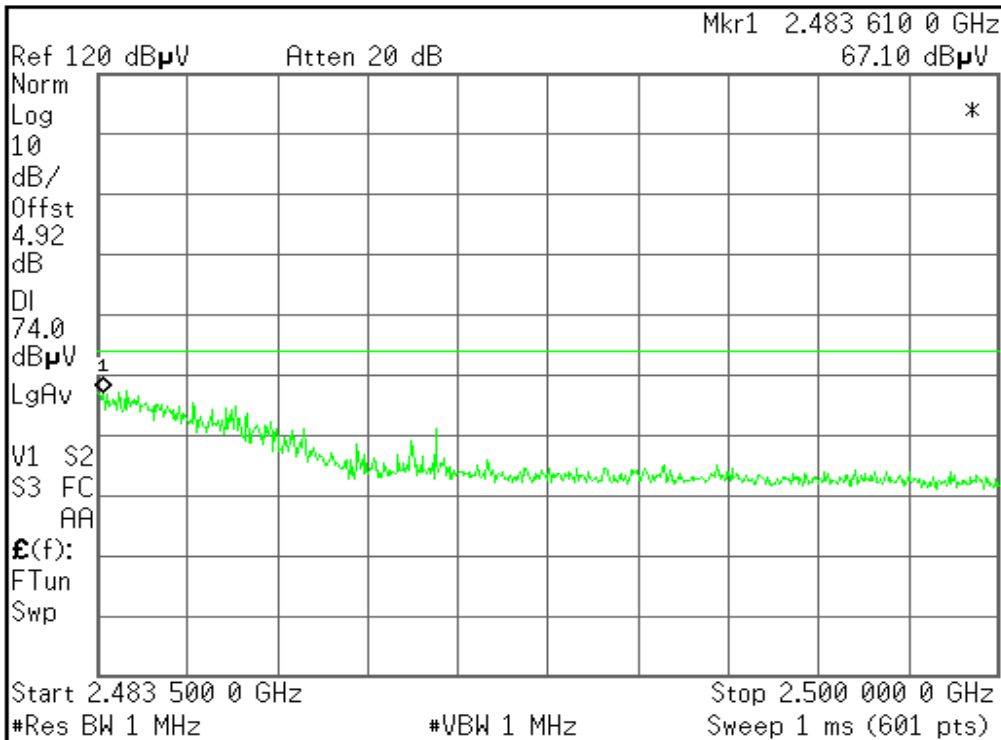
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RESTRICTED BANDEDGE (draft 802.11n Standard-20 MHz Channel mode, High Channel, Vertical)

PEAK

Agilent

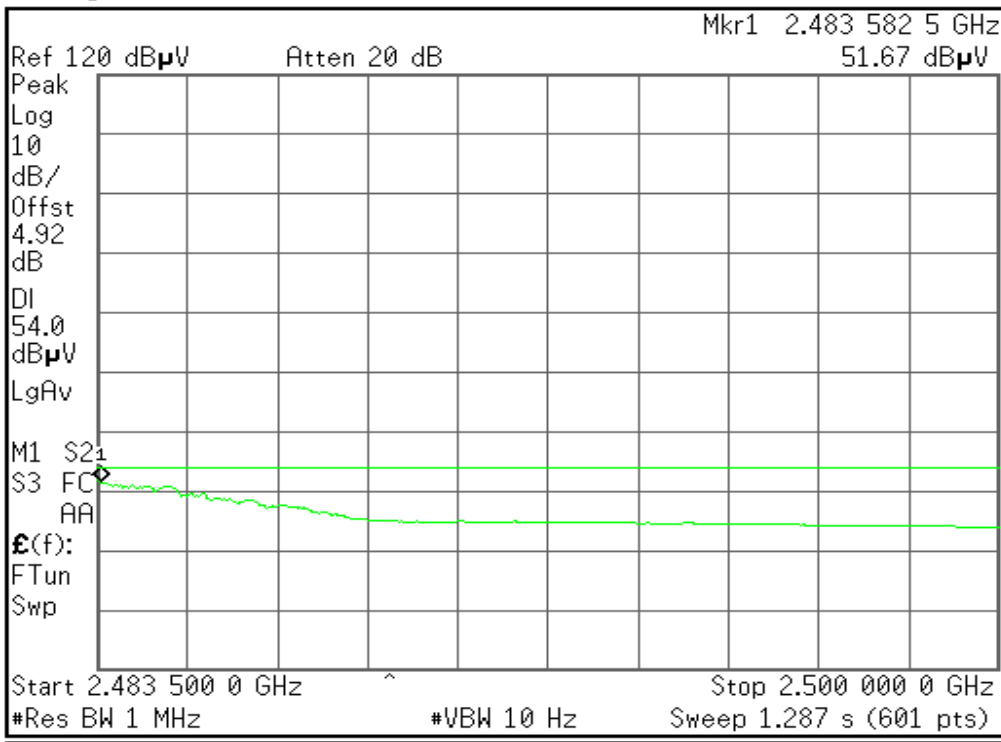


Trace		
1	2	3
Trace		
Clear Write		
Max Hold		
Min Hold		
View		
Blank		
More		
1 of 2		

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AVG

Agilent



Freq/Channel	
Center Freq	
2.49175000 GHz	
Start Freq	
2.48350000 GHz	
Stop Freq	
2.50000000 GHz	
CF Step	
1.65000000 MHz	
Auto	Man
Freq Offset	
0.00000000 Hz	
Signal Track	
On	Off

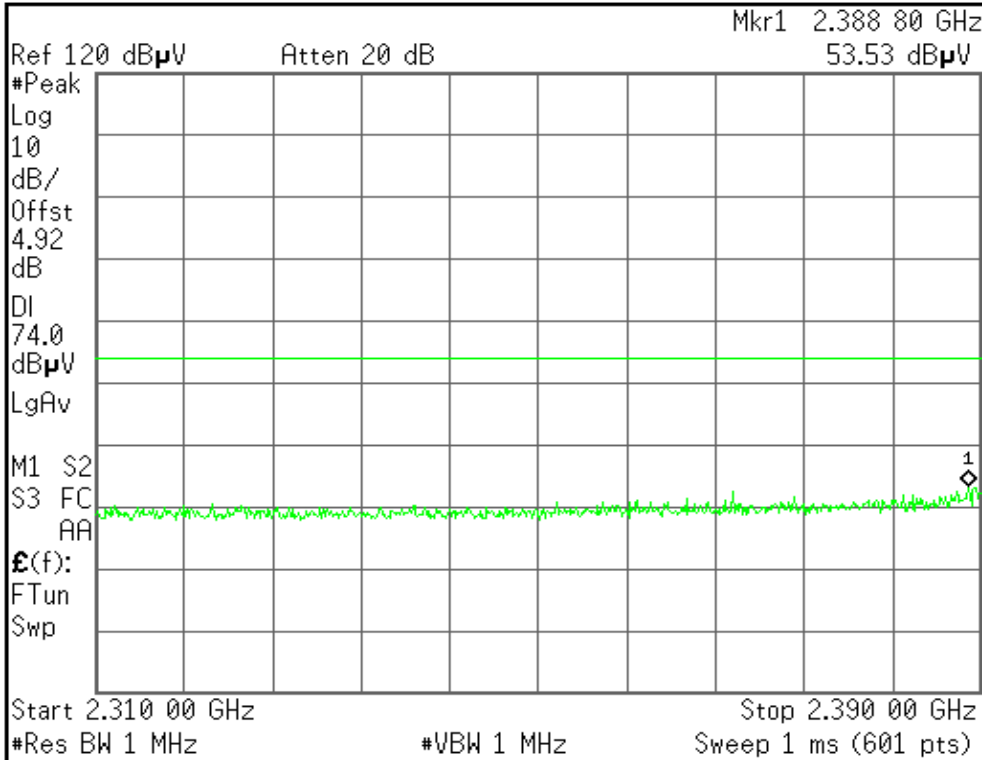
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RESTRICTED BANDEDGE (draft 802.11n Wide -40 MHz Channel mode, Low Channel, Horizontal)

PEAK

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

PK-PK Search

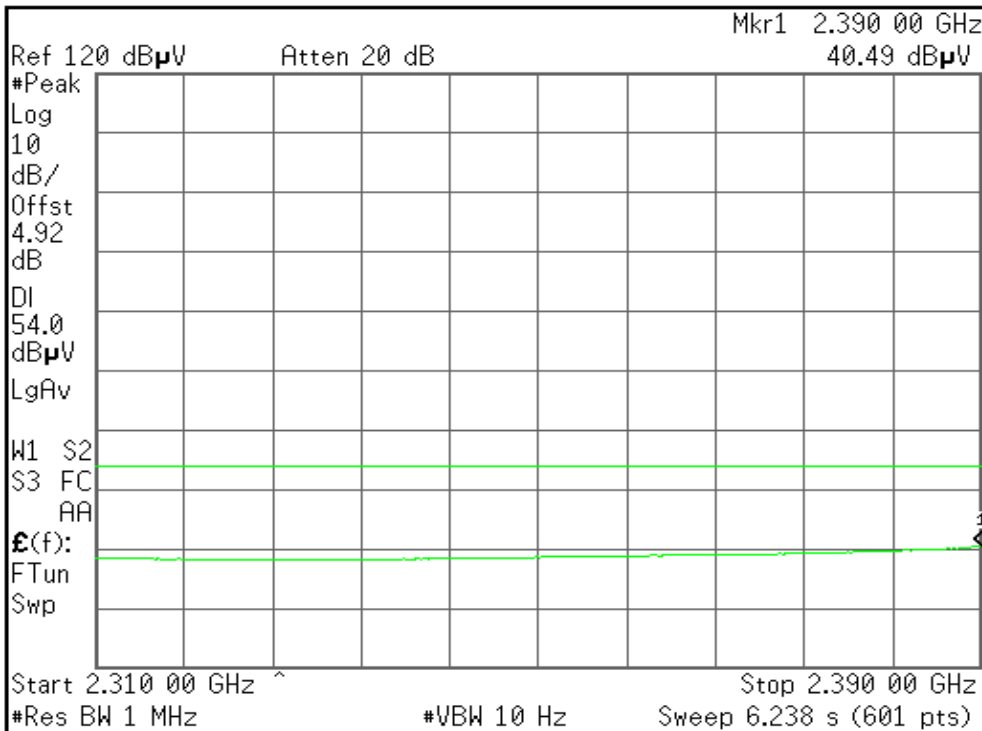
Mkr \rightarrow CF

More
1 of 2

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Display

Full Screen

Display Line
54.00 dB μ V
On Off

Limits \rightarrow

Active Fctn
Position \rightarrow
Center

Title \rightarrow

Preferences \rightarrow

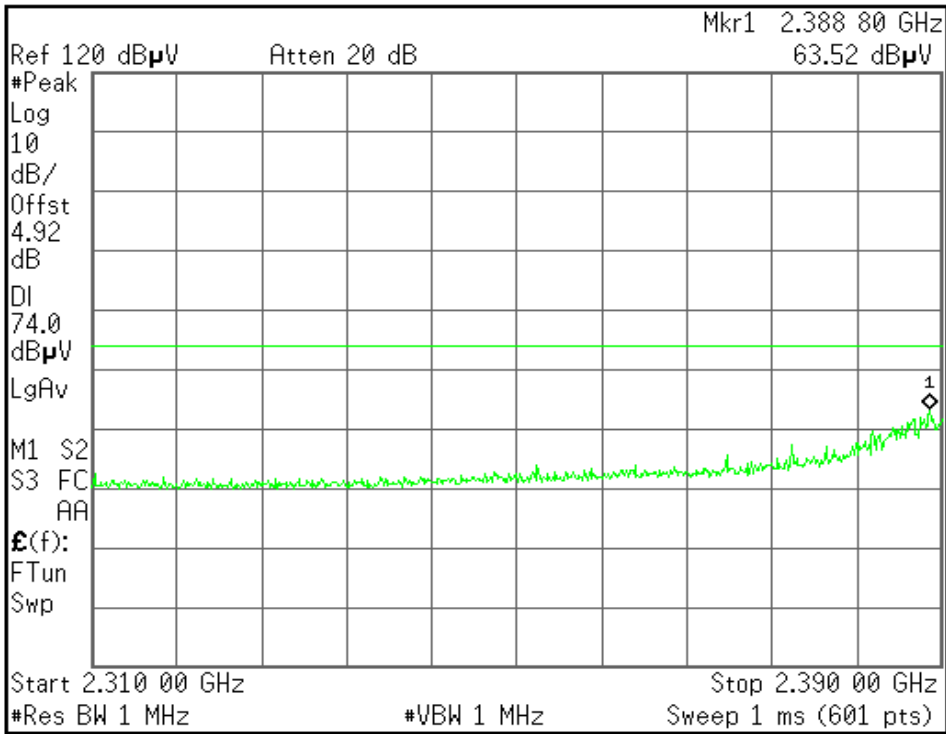
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RESTRICTED BANDEDGE (draft 802.11n Wide -40 MHz Channel mode, Low Channel, Vertical)

PEAK

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

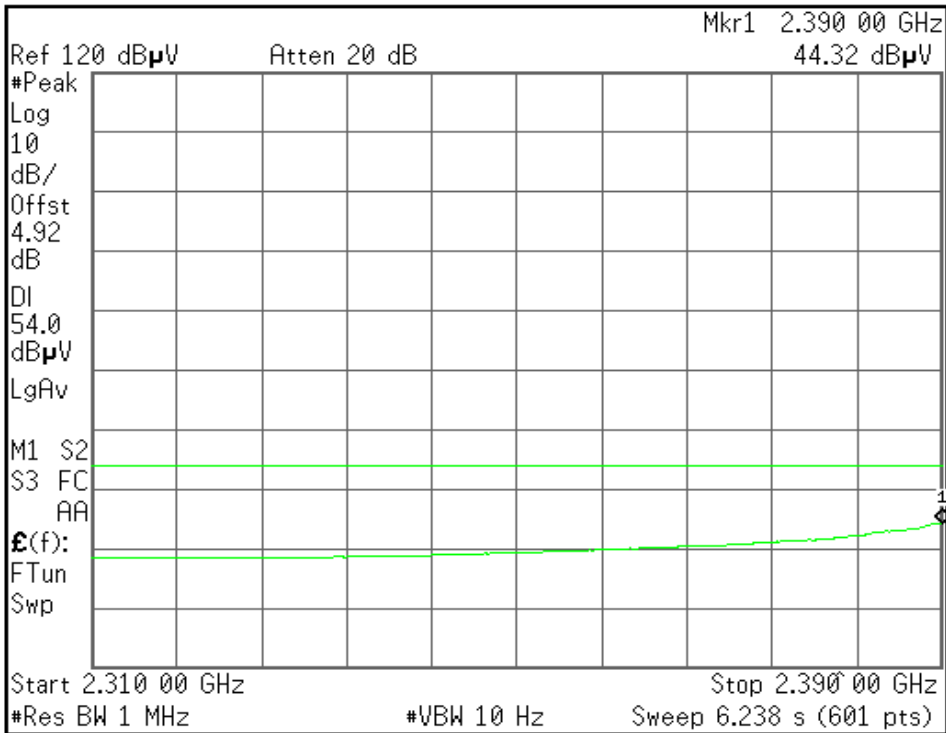
Mkr \rightarrow CF

More
1 of 2

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AVG

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Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

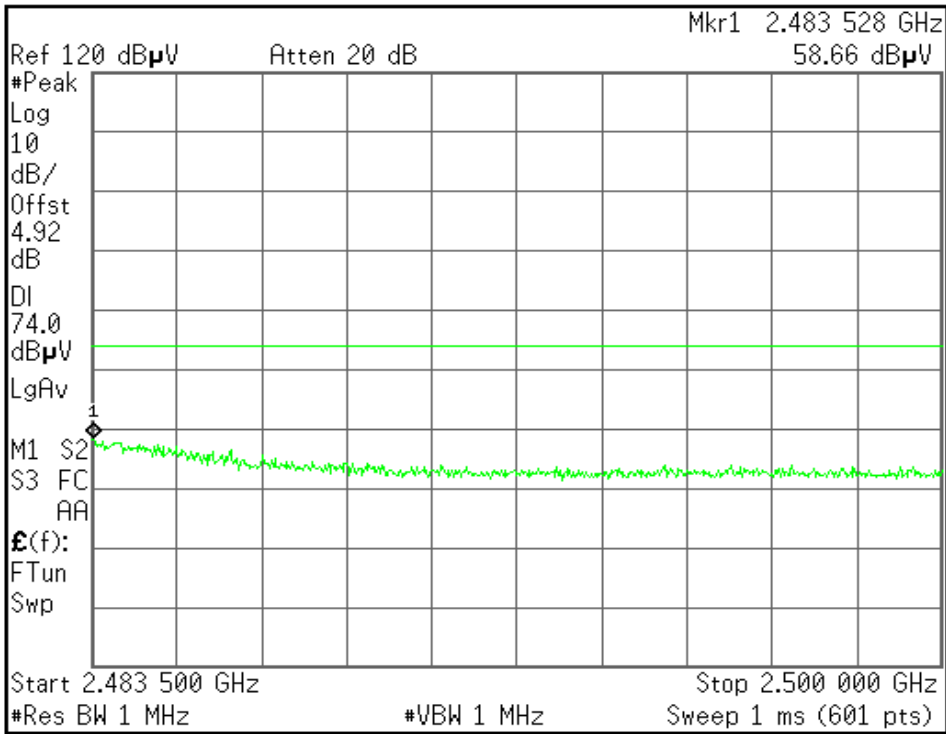
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RESTRICTED BANDEDGE (draft 802.11n Wide -40 MHz Channel mode, High Channel, Horizontal)

PEAK

Agilent

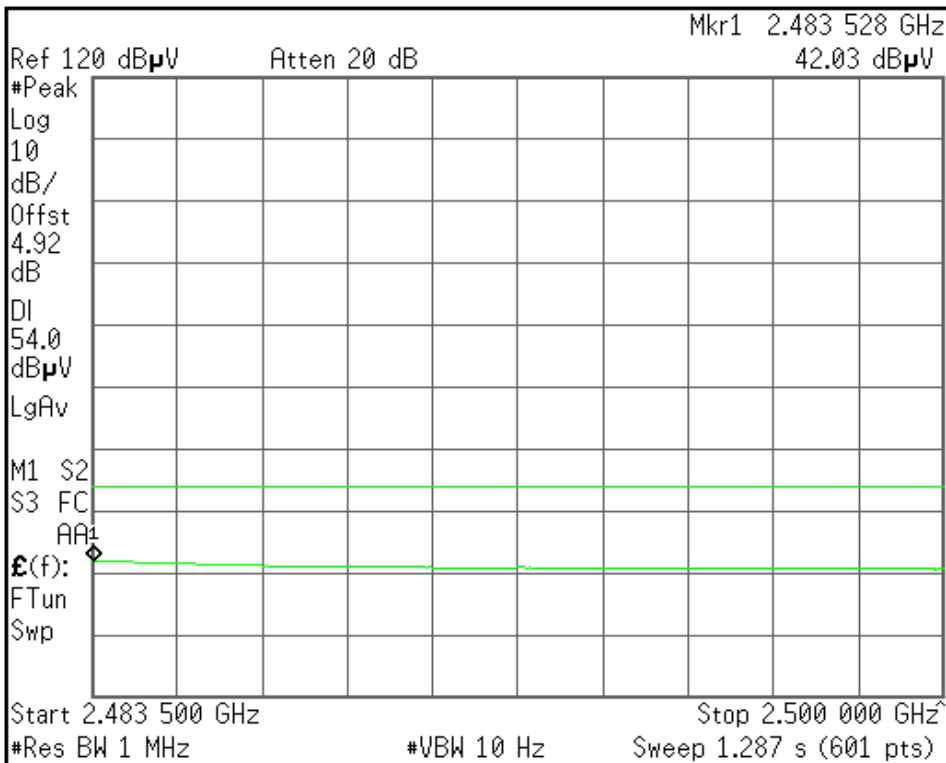


Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr \rightarrow CF
More 1 of 2

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Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr \rightarrow CF
More 1 of 2

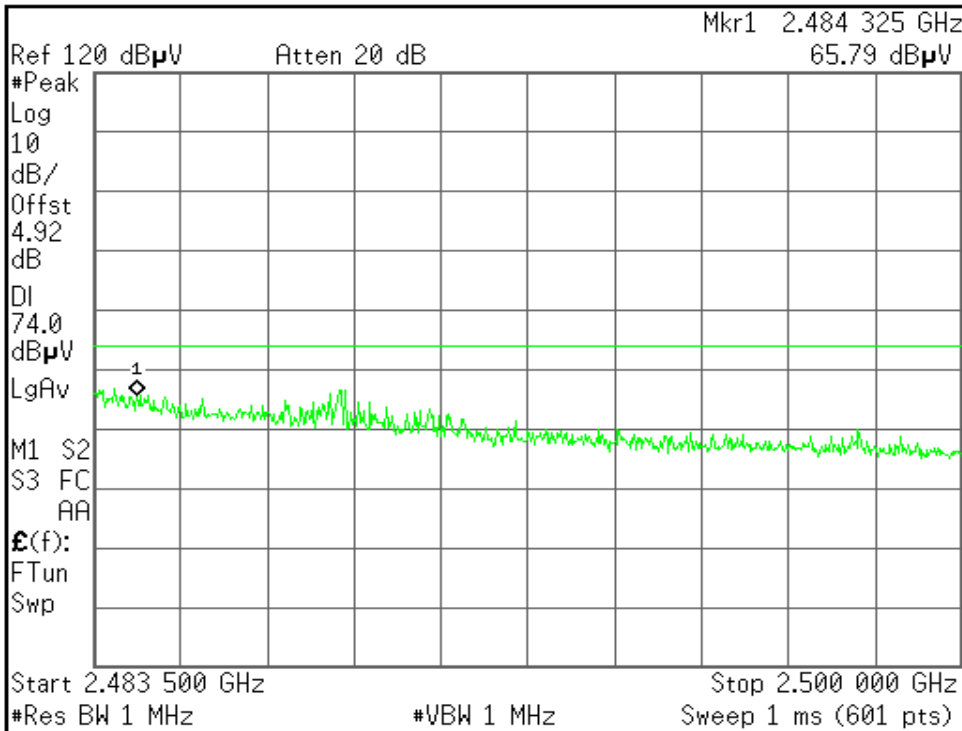
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RESTRICTED BANDEDGE (draft 802.11n Wide -40 MHz Channel mode, High Channel, Vertical)

PEAK

Agilent



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

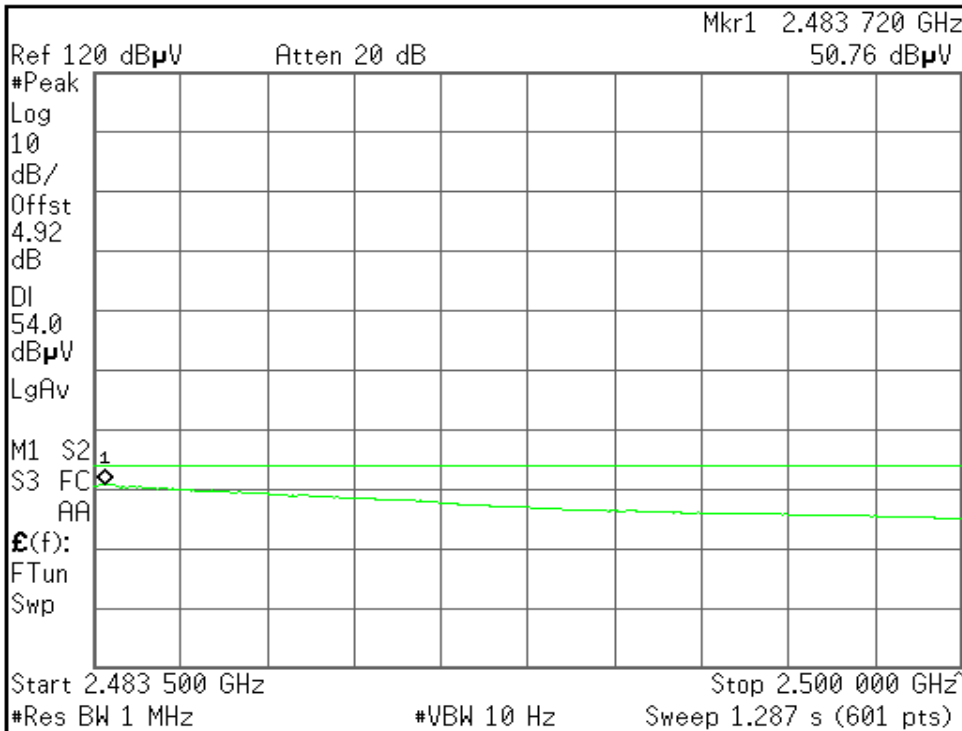
Mkr \rightarrow CF

More
1 of 2

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AVG

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Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More
1 of 2

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Below 1GHz

Operation Mode: Normal Link

Test Date: August 22,2008

Temperature: 22°C

Tested by: Jeff

Humidity: 48% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
45.6914	V	49.17	-12.22	36.95	40.00	-3.05	Peak
76.5331	V	42.79	-14.41	28.38	40.00	-11.62	Peak
155.5311	V	34.53	-9.49	25.04	43.50	-18.46	Peak
733.4669	V	31.90	1.44	33.34	46.00	-12.66	Peak
799.3988	V	30.50	2.38	32.88	46.00	-13.12	Peak
866.7335	V	35.90	3.27	39.17	46.00	-6.83	Peak
36.4930	H	33.96	-5.87	28.09	40.00	-11.91	Peak
77.0741	H	42.67	-14.45	28.22	46.00	-11.78	Peak
143.6273	H	38.03	-9.01	29.02	46.00	-14.48	Peak
733.4669	H	35.63	1.44	37.07	46.00	-8.93	Peak
799.3988	H	34.24	2.38	36.62	46.00	-9.38	Peak
864.4870	H	39.96	3.24	43.20	46.00	-2.80	QP

Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MHz).*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).*



Above 1 GHz

Operation Mode: TX / IEEE 802.11b / CH Low

Test Date: August 22, 2008

Temperature: 22°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4825.00	V	36.18	---	12.41	48.59	---	74.00	54.00	-5.74	Peak
7236.67	V	38.85	27.71	15.48	54.33	43.19	74.00	54.00	-10.81	Average
4824.33	H	34.36	---	12.41	46.77	---	74.00	54.00	-7.23	Peak
7233.33	H	38.35	27.48	15.47	53.82	42.95	74.00	54.00	-11.05	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11b / CH Mid

Test Date: August 22, 2008

Temperature: 22°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4875.00	V	36.43	---	12.68	49.11	---	74.00	54.00	-4.89	Peak
7316.67	V	37.74	26.17	15.72	53.46	41.89	74.00	54.00	-12.11	Average
N/A										
4876.67	H	35.15	---	12.68	47.83	---	74.00	54.00	-6.17	Peak
7320.67	H	36.82	25.57	15.76	52.58	41.33	74.00	54.00	-12.67	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11b / CH High

Test Date: August 22, 2008

Temperature: 22°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4924.00	V	35.63	---	12.93	48.56	---	74.00	54.00	-5.44	Peak
7386.33	V	39.64	27.89	15.82	55.46	43.71	74.00	54.00	-10.29	Average
N/A										
4925.33	H	34.28	---	12.93	47.21	---	74.00	54.00	-6.79	Peak
7385.67	H	38.94	26.06	15.82	54.76	41.88	74.00	54.00	-12.12	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH Low

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4825.00	V	35.14	---	12.41	47.55	---	74.00	54.00	-6.45	Peak
7235.82	V	36.85	27.28	15.48	52.33	42.76	74.00	54.00	-11.24	Average
N/A										
4824.67	H	34.02	---	12.41	46.43	---	74.00	54.00	-7.57	Peak
7236.45	H	35.30	25.54	15.48	50.78	41.02	74.00	54.00	-12.98	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH Mid

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4876.34	V	33.61	---	12.68	46.29	---	74.00	54.00	-7.71	Peak
7320.69	V	37.35	25.06	15.76	53.11	40.82	74.00	54.00	-13.18	Average
N/A										
4875.34	H	32.99	---	12.68	45.67	---	74.00	54.00	-8.33	Peak
7318.25	H	37.14	24.04	15.74	52.88	39.78	74.00	54.00	-14.22	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11g / CH High

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4926.67	V	33.60	---	12.94	46.54	---	74.00	54.00	-7.46	Peak
7386.66	V	37.38	26.35	15.82	53.20	42.17	74.00	54.00	-11.83	Average
N/A										
4924.58	H	34.38	---	12.93	47.31	---	74.00	54.00	-6.69	Peak
7385.33	H	37.16	25.92	15.82	52.98	41.74	74.00	54.00	-12.26	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11a / CH low

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10366.33	V	44.22	38.14	2.40	46.62	52.21	74.00	54.00	-13.60	AVG
N/A										
10366.67	H	44.36	37.26	2.40	46.76	39.66	74.00	54.00	-14.34	AVG
N/A										

Remark:

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11a / CH mid

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10401.67	V	43.36	36.58	2.40	45.76	38.98	74.00	54.00	-19.02	AVG
N/A										
10400.67	H	43.05	37.21	2.40	45.4	39.61	74.00	54.00	-14.39	AVG
N/A										

Remark:

- 13. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 14. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 15. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 16. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 17. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 18. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / IEEE 802.11a / CH high

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
10480.00	V	42.67	37.61	2.40	45.07	40.01	74.00	54.00	-13.99	AVG
N/A										
10482.67	H	42.34	37.32	2.40	44.74	39.60	74.00	54.00	-14.40	AVG
N/A										

Remark:

19. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
20. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
21. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
22. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
23. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
24. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11gn Standard-20 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Low

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4824.33	V	34.48	---	12.41	46.89	---	74.00	54.00	-7.11	Peak
7235.34	V	37.94	26.68	15.48	53.42	42.16	74.00	54.00	-11.84	Average
N/A										
4826.33	H	33.32	---	12.41	45.73	---	74.00	54.00	-8.27	Peak
7234.36	H	36.30	23.17	15.48	51.78	38.65	74.00	54.00	-15.35	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11gn Standard-20 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Mid

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4876.33	V	34.64	---	12.68	47.32	---	74.00	54.00	-6.68	Peak
7321.23	V	36.89	27.42	15.76	52.65	43.18	74.00	54.00	-10.82	Average
N/A										
4875.64	H	35.00	---	11.02	46.02	---	74.00	54.00	-7.98	Peak
7316.33	H	39.74	27.50	15.72	55.46	43.22	74.00	54.00	-10.78	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11gn Standard-20 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH High

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4923.86	V	37.60	---	12.93	46.52	---	74.00	54.00	-7.48	Peak
7385.67	V	38.30	26.99	15.82	54.12	42.81	74.00	54.00	-11.19	Average
N/A										
4924.67	H	32.74	---	12.93	45.67	---	74.00	54.00	-8.33	Peak
7384.78	H	39.64	28.09	15.82	55.46	43.91	74.00	54.00	-10.09	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11gn Wide-40 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Low **Test Date:** August 22, 2008
Temperature: 24°C **Tested by:** Jeff
Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4844.65	V	35.42	---	12.41	47.83	---	74.00	54.00	-6.17	Peak
7385.54	V	39.27	27.80	15.48	54.75	43.28	74.00	54.00	-10.72	Average
N/A										
4844.65	H	34.38	---	12.41	46.79	---	74.00	54.00	-5.29	Peak
7385.62	H	38.55	26.67	15.48	54.03	42.15	74.00	54.00	-11.85	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11gn Wide-40 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Mid **Test Date:** August 22, 2008
Temperature: 24°C **Tested by:** Jeff
Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4874.55	V	33.74	---	12.68	46.42	---	74.00	54.00	-7.58	Peak
7313.34	V	36.77	25.38	15.71	52.48	41.09	74.00	54.00	-12.91	Average
N/A										
4874.33	H	32.75	---	12.68	45.43	---	74.00	54.00	-8.57	Peak
7314.56	H	36.26	24.11	15.71	51.97	39.82	74.00	54.00	-14.18	Average
N/A										

Remark:

7. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
8. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
9. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
10. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
11. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
12. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*



Operation Mode: TX / draft 802.11gn Wide-40 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH High **Test Date:** August 22, 2008
Temperature: 24°C **Tested by:** Jeff
Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
4905.34	V	37.72	---	12.93	47.07	---	74.00	54.00	-6.93	Peak
7355.64	V	37.89	26.25	15.83	53.72	42.08	74.00	54.00	-11.92	Average
N/A										
4905.82	H	33.58	---	12.93	46.51	---	74.00	54.00	-7.49	Peak
7355.56	H	36.35	24.57	15.82	52.17	40.39	74.00	54.00	-13.61	Average
N/A										

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11an Standard-20 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Low

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
11490.33	V	42.61	38.14	5.47	48.08	43.61	74.00	54.00	-10.39	AVG
N/A										
11495.00	H	41.36	37.98	5.47	46.83	43.45	74.00	54.00	-10.55	AVG
N/A										

Remark:

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11an Standard-20 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Mid

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
11570.67	V	40.69	36.57	8.41	49.10	44.98	74.00	54.00	-9.02	AVG
N/A										
11571.33	H	40.47	35.98	8.41	48.88	44.39	74.00	54.00	-9.61	AVG
N/A										

Remark:

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11an Standard-20 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH High

Test Date: August 22, 2008

Temperature: 24°C

Tested by: Jeff

Humidity: 48 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
11610.00	V	41.69	35.84	8.41	50.10	44.25	74.00	54.00	-9.75	AVG
N/A										
11612.67	H	40.74	35.74	8.41	49.15	44.15	74.00	54.00	-9.85	AVG
N/A										

Remark:

7. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
8. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
9. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
10. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
11. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
12. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11an Wide-40 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH Low **Test Date:** August 22, 2008
Temperature: 24°C **Tested by:** Jeff
Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
11510.00	V	42.36	37.41	8.41	50.77	45.82	74.00	54.00	-8.18	AVG
N/A										
11510.67	H	41.77	37.01	8.41	50.18	45.42	74.00	54.00	-8.58	AVG
N/A										

Remark:

- 13. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 14. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 15. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 16. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 17. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 18. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



Operation Mode: TX / draft 802.11an Wide-40 MHz Channel mode (Chain 0 + Chain 1+ Chain 2) / CH High **Test Date:** August 22, 2008
Temperature: 24°C **Tested by:** Jeff
Humidity: 48 % RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
11590.00	V	41.36	37.25	8.41	49.77	45.66	74.00	54.00	-8.34	AVG
N/A										
11595.00	V	41.74	36.91	8.41	50.15	45.32	74.00	54.00	-8.68	AVG
N/A										

Remark:

7. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
8. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
9. *Average test would be performed if the peak result were greater than the average limit or as required by the applicant.*
10. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
11. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
12. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*



POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

* Decreases with the logarithm of the frequency.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.



TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode: Normal Link **Test Date:** August 22, 2008
Temperature: 23°C **Tested by:** Jeff
Humidity: 50% RH

Freq. (MHz)	PEAK. Raw (dBuV)	Q.P. Raw (dBuV)	AVG Raw (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Margin (dB)	Factor (dB)	Remark
0.204	53.21	48.61	41.01	64.47	54.47	-13.46	12.65	Line
0.348	54.46	47.28	35.78	60.33	50.33	-14.55	12.89	Line
0.414	56.48	51.41	44.58	58.46	48.46	-3.88	12.94	Line
0.482	54.37	50.83	43.42	56.51	46.51	-3.09	12.96	Line
1.565	53.87	49.83	37.72	56.00	46.00	-8.28	13.18	Line
2.158	51.31	47.48	33.68	56.00	46.00	-12.32	13.27	Line
0.205	51.99	46.77	39.16	64.43	54.43	-15.27	11.57	Neutral
0.345	51.76	45.26	33.05	60.43	50.43	-17.38	11.68	Neutral
0.411	54.66	50.08	43.93	58.55	48.55	-4.62	11.69	Neutral
0.482	52.70	49.13	41.79	56.51	46.51	-4.72	11.71	Neutral
1.046	52.34	45.46	34.08	56.00	46.00	-11.92	11.81	Neutral
2.164	51.96	47.34	33.54	56.00	46.00	-12.46	11.92	Neutral

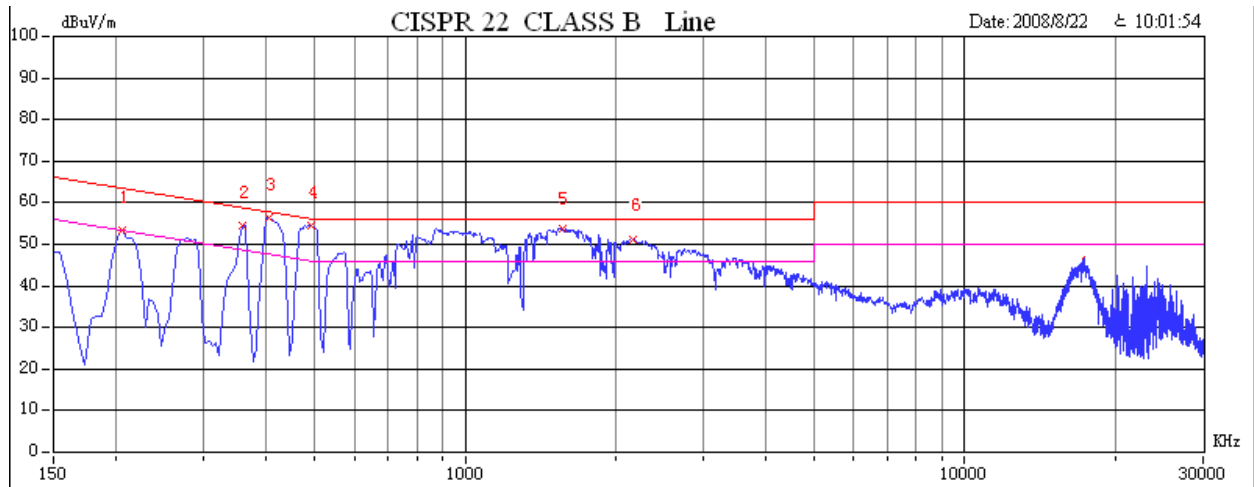
Remark:

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz and 30MHz was 10 kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9 kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

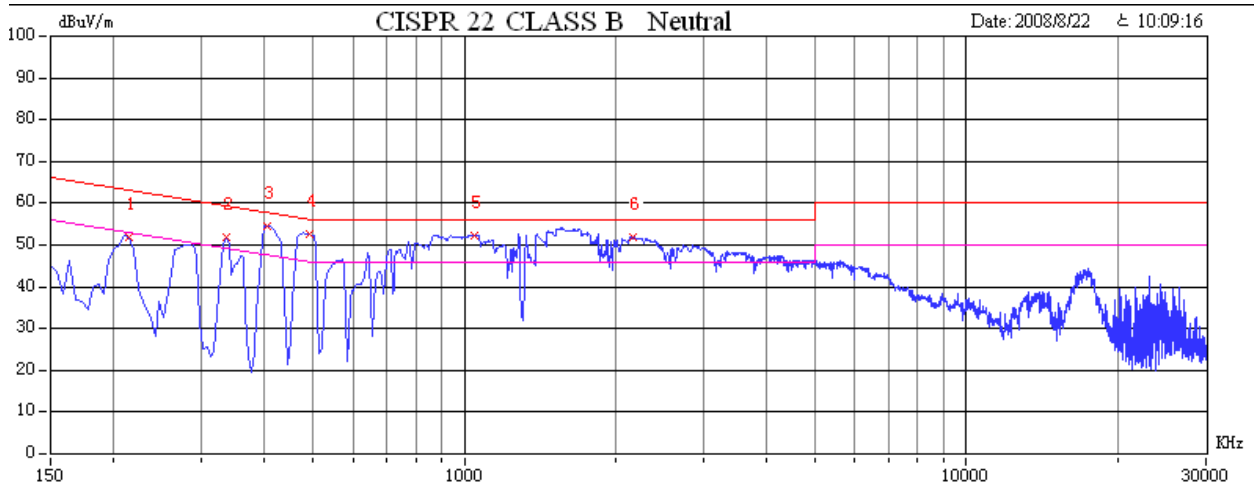


Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)





APPENDIX 1 RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	AP
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input checked="" type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity
Max. output power	IEEE 802.11b mode: 15. 78dBm(36.1mW) IEEE 802.11g mode: 16. 52dBm(44.9mW) draft 802.11gn Standard-20 MHz Channel mode: 20.64 dBm(115.9mW) draft 802.11gn Wide-40 MHz Channel mode: 21.87 dBm(153.8mw) IEEE 802.11a mode: 18. 21dBm(66.2mW) draft 802.11an Standard-20 MHz Channel mode: 24.70 dBm(295.1mw) draft 802.11an Wide-40 MHz Channel mode: 23.85 dBm(242.7mw)
Antenna gain (Max)	Gain 3. 2dBi(2.09)(2.4GHz) /2dBi(1.58)(5GHz)
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A

Remark:

- The maximum output power is 21. 87dBm (153. 8mW) at 2452MHz (with 2.09 numeric antenna gain.); 24. 70dBm (295. 1mW) at 5745MHz (with 1.58 numeric antenna gain.)*
- DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.*
- For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm2 even if the calculation indicates that the power density would be larger.*

TEST RESULTS

No non-compliance noted.



Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where $E =$ Field strength in Volts / meter

$P =$ Power in Watts

$G =$ Numeric antenna gain

$d =$ Distance in meters

$S =$ Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P (mW) = P (W) / 1000 \text{ and}$$

$$d (cm) = d(m) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \text{ Equation 1}$$

Where $d =$ Distance in cm

$P =$ Power in mW

$G =$ Numeric antenna gain

$S =$ Power density in mW / cm²

Maximum Permissible Exposure

Substituting the MPE safe distance using d = 20 cm into Equation 1:

Yields

$$S = 0.000199 \times P \times G$$

Where $P =$ Power in mW

$G =$ Numeric antenna gain

$S =$ Power density in mW / cm²



IEEE 802.11b:

EUT output power = 36. 1mW

Numeric Antenna gain = 2.09

→ Power density = 0.0150 mW / cm²

IEEE 802.11g:

EUT output power = 44. 9mW

Numeric Antenna gain = 2.09

→ Power density = 0.0187 mW / cm²

draft 802.11n Standard-20 MHz Channel mode

EUT output power = 115. 9mW

Numeric Antenna gain = 2.09

→ Power density = 0.0482 mW / cm² *3=0.1446 mW / cm²

draft 802.11gn Wide-40 MHz Channel mode

EUT output power = 153. 8mW

Numeric Antenna gain = 2.09

→ Power density = 0.0640 mW / cm² *3=0.1280mW / cm²

IEEE 802.11a:

EUT output power = 66. 2mW

Numeric Antenna gain = 1.58

→ Power density = 0.0208 mW / cm²

draft 802.11an Standard-20 MHz Channel mode

EUT output power = 295. 1mW

Numeric Antenna gain = 1.58

→ Power density = 0.0928 mW / cm² *3=0.2784 mW / cm²

draft 802.11an Wide-40 MHz Channel mode

EUT output power =242. 7mW

Numeric Antenna gain = 1.58

→ Power density = 0.0763 mW / cm² *3=0.2289 mW / cm²

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.)